Final Waste and Excess Materials Management Plan

Highway 400 – Highway 404 Link (Bradford Bypass)

Ontario Ministry of Transportation

60636190

June 14, 2023

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AECOM: 2015-04-13

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Revision History

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2	February 17, 2023	AECOM	Draft Waste and Excess Materials Management Plan
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4	April 13, 2023	AECOM	Draft Waste and Excess Materials Management Plan
5	June 14, 2023	AECOM	Final Waste and Excess Materials Management Plan

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1. Overview of Undertaking

The Ontario Ministry of Transportation (the Ministry) has retained AECOM Canada Ltd. (AECOM) to undertake a Preliminary Design and project-specific assessment of environmental impacts for the proposed Highway 400 to Highway 404 Link (Bradford Bypass). The Bradford Bypass (the project) is being assessed in accordance with Ontario Regulation 697/21. The Ministry previously completed a route planning study for the Bradford Bypass that received subsequent approval in 2002.

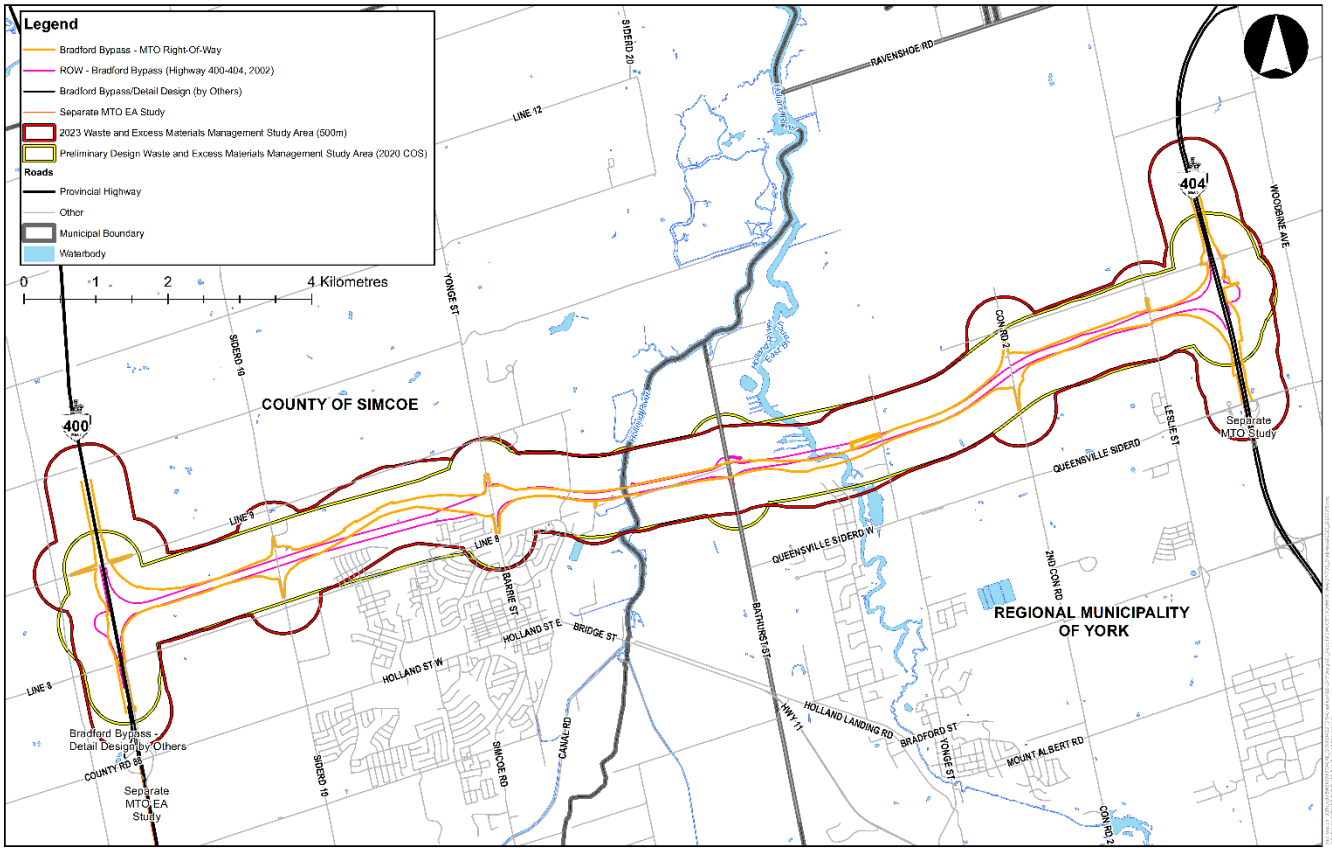
The Bradford Bypass is a proposed 16.3 kilometre, four lane controlled access freeway that will extend from Highway 400 between 8th Line and 9th Line in Bradford West Gwillimbury, will cross a small portion of King Township, and will connect to Highway 404 between Queensville Sideroad and Holborn Road in East Gwillimbury. There are proposed full and partial interchanges, as well as grade separated crossings at intersecting municipal roads and watercourses, including the Holland River and Holland River East Branch. This project also includes the design integration for the replacement of the 9th Line structure on Highway 400, which will accommodate the proposed future ramps north of the Bradford Bypass. The Ministry is considering an interim four-lane configuration and an ultimate eight-lane design for the Bradford Bypass. The interim condition will include two general purpose lanes in each direction and the ultimate condition will include four lanes in each direction (one high-occupancy vehicle lane and three general purpose travel lanes in each direction). The interim and ultimate designs are being reviewed as the project progresses. This report and its findings are based on the project footprint identified within this report. Should the footprint change or be modified in any way, a review of the changes shall be undertaken, and the report updated to reflect the changes, impacts, mitigation measures, and any commitments to future work.

As part of the preparatory work for the Bradford Bypass, a Contamination Overview Study (COS) was conducted by AECOM in 2020 to identify and review properties / areas within and on surrounding lands with actual or potential site contamination that may impact future highway design; and to identify appropriate future environmental work and mitigation measures to be proposed in Preliminary Design, further developed in Detail Design and implemented in construction phase. The 2020 COS included evaluating properties within the right-of-way limits, as well as lands within a 500 m buffer on either side of the Bradford Bypass right-of-way, which was referred to as the COS Study Area.

The results of the COS were compiled in AECOM's report Contamination Overview Study – FINAL, Highway 400 – Highway 404 Link (Bradford Bypass, W.O. #19-2001 dated February 2020). As the project has progressed since 2020 to Preliminary Design, the right-of-way has been revised since the 2020 COS was completed and therefore, the associated Study Area has changed. The 2020 COS Study Area is presented in **Figure 1-1** below. For the purposes of this WEMMP, the current MTO right-of-way including a 500 m buffer and is also presented as the Preliminary Design Study Area.

This Waste and Excess Materials Management Plan (WEMMP) was prepared for the ministry in support of this Preliminary Design project. This WEMMP has been developed in accordance with applicable legislation industry standards and practices for the management of impacted and/or excess materials.

Figure 1-1: Study Area



2. Waste and Excess Materials Management Plan

2.1 Purpose

Construction activities conducted during the project may require excavation at the facility. Although the project intends to reuse soil to the extent possible, excess soil may be generated as part of the project. To prevent any cross-contamination between soils of different quality and to prevent contaminants from being released into the environment, the Ministry of Environment, Conservation and Parks (MECP) has developed Ontario Regulation 406/19: On-Site and Excess Soil Management (O. Reg. 406/19 or the Regulation)

Under Ontario Regulation 406/19: On-Site and Excess Soil Management (O. Reg. 406/19) “excess soil” is defined as soil, or soil mixed with rock, that has been excavated as part of a project and removed from the construction limits for the project. This WEMMP has been prepared taking into consideration the contents of the O. Reg. 406/19 (last amendment: 555/22), MECP document titled “Rules for Soil Management and Excess Soil Quality Standards”, Published: August 31, 2020, last updated: December 30, 2022(Soil Rules) and Ontario Regulation 153/04 (last amendment: O. Reg. 214/21.). The Soil Rules is also divided into two parts; Part I: Rules for Soil Management and Part II: Excess Soil Quality Standards. Part I is subdivided into four sections; Section A: Interpretation; Section B: Excess Soil Reuse Planning; Section C: Soil Management Requirements; and Section D: Reuse Rules for Specific Circumstances. Terms in this document are as defined in Section 1 of O. Reg. 406/19 and in Section A of The Soil Rules. Based on these definitions, soil that is excavated within the project right-of-way and reused in the project right-of-way is not considered excess soil under O. Reg. 406/19. Under O. Reg. 406/19 “Project Area” means, in respect of a project, a single property or adjoining properties on which the project is carried out; which is considered equivalent to the right-of-way.)

In addition, every project that will generate excess soil must have an excavation procedure that outlines what is required when observations of impacted soil are made in the field. The requirements for these procedures are listed in Section 23 of O. Reg. 406/19.

The purpose of this WEMMP is to provide guidance for the subsequent Detail Design and Construction phases of the project. This WEMMP describes appropriate procedures for the management of soil and waste on-site including, if necessary, evaluating and managing potentially impacted and/or excess soils. This WEMMP will serve to support an Excess Soil Management Plan (ESMP) to be prepared before initiating any construction or development activities and will support verification that conditions of project approval documents, applicable relevant environmental legislation, policies, permitting requirements, protocols and procedures are implemented accordingly. The ESMP will be prepared during Detail Design, after additional information is compiled such as total amount of excess soil to be generated.

The intent of this WEMMP is to provide relevant and applicable guidance as it pertains to the following key elements:

- Applicable regulatory and permitting requirements
- Key construction personnel
- Protocols and procedures to be employed for excavation and management of on-site soils including those that are potentially impacted or in excess, including:
  - Retention and preservation of suitable soil for on-site use in project reclamation/rehabilitation, and
  - Identification and management of soil impacted by existing or historical anthropogenic activities that require removal to allow development of the project.
- Applicable environmental protection measures to be employed

- Applicable soil transportation and reuse or disposal requirements, and
- Prevention of admixing or co-mingling, compaction, rutting during hauling and soil loss.

This WEMMP applies to the project right-of-way that will undergo changes during construction to accommodate the advancement of the project.

This WEMMP applies to all individuals working for or on behalf of MTO, including employees and contractors, who have a role and/or accountability for the development, implementation, and maintenance of this WEMMP. Under O. Reg. 153/04, only a qualified person (QP) shall develop and apply site-specific excess soil quality standards for the reuse site or supervise the development and application by a supervisee.

Material identified as impacted or soil that cannot be reused on site may require off-site reuse or disposal. It is important to note that the regulatory regime for off-site soil transportation and reuse or disposal differs from the regulatory regime applicable to on-site soil management. These important differences are addressed further in **Section 2.1.1** below. Should the need for off-site reuse or disposal arise, this WEMMP provides procedures and protocols for the handling and off-site transportation and reuse or disposal of potentially impacted and excess soil. Per the current Preliminary Design, it is anticipated that there may be a large deficit in soil available on site; therefore, earth borrowing is likely required on the project. Project recommendations are for the Contactor to try to utilize as much existing soil on site as possible within the right-of-way.

This WEMMP also describes the objectives and targets to be established to drive continuous improvement in environmental performance. Objectives are measurable (where practical), monitored, communicated, and updated as appropriate. MTO (the owner of the project) will establish the following performance objectives for the WEMMP that considers key project interactions and compliance obligations:

- To utilize on-site material for the creation of berms or other usages
- To preserve adequate volumes of topsoil for rehabilitation; and
- Meet the applicable regulations and guidelines when handling, managing and disposing of impacted soil or sediment.

2.1.1 Applicable Regulations

The project right-of-way is located within Simcoe County (Town of Bradford West Gwillimbury) and the Regional Municipality of York (Township of King and Town of East Gwillimbury). The three tiers of government responsible for these jurisdictions (i.e., the Provincial Government of Ontario, the Upper municipal tiers County of Simcoe/Region of York, and the lower municipal tiers Town of Bradford West Gwillimbury, Township of King and Town of East Gwillimbury) develop, implement and enforce laws, ordinances and applicable regulations that govern activities and the standards applied thereto for construction projects in these municipalities

It is the responsibility of the Contractor to understand their obligations and relevant regulations with respect to soils movement within and outside the Study Area. However, as a guide, applicable regulations that may be relevant to construction-based activities undertaken as part of the project are outlined in the following sections. Provincial environmental legislature and associated regulations that apply to future site development and construction-based activities include but are not limited to, the following.

Table 2-1: Provincial Legislation Applicable Future On-Site Development Activities

Media	Regulatory Body	Legislation	Regulations/Standards/Guidelines
All (Groundwater, Soil and Waste)	Ministry of the Environment, Conservation and Parks	*Environmental Protection Act, R.S.O. 1990, c. E.19*	■ Management of Excess Soil – A Guide for Best Management Practices (Published: April 05, 2016) MECP, Updated: October 26, 2021 ■ On-Site and Excess Soil Management, R.R.O. 1990, O. Reg. 406/19 ■ Classification and Exemption of Spills and Reporting of Discharges, O. Reg. 675/98 ■ General - Waste Management, R.R.O. 1990, Reg. 347 ■ Records of Site Condition - Part XV.1 of the Act, O. Reg. 153/04 as amended ■ Spill Prevention and Contingency Plans, O. Reg. 224/07 ■ Spills, R.R.O. 1990, Reg. 360 ■ Waste Audits and Waste Reduction Work Plans, O. Reg. 102/94 ■ Ontario Regulation 103/94: Industrial, Commercial and Institutional Source Separation Programs ■ Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, (Published: July 28, 2016, Updated: July 20, 2021) Ambient Air Quality Criteria (point of impingement, 24-hour AAQC).
		N/A	■ Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, May 1996 (MOE 1996 Guidance Manual).
Soil and Waste	Ontario Provincial Standards for Roads and Public Works	N/A	■ Ontario Provincial Standard Specification (OPSS) 180: General Specification for the Management of Excess Materials (Nov. 2016) including Non-Standard Special Provision (NSSPs) ENVR0014.
Materials Handling	N/A	*Technical Standards and Safety Act* (TSSA)	■ Fuel Oil Regulation, O. Reg. 213/01 ■ Liquid Fuels Regulation, O. Reg. 217/01 ■ Gaseous Fuels Regulation, O. Reg. 212/01 ■ Compressed Gas Regulation, O. Reg. 214/01 ■ Propane Storage and Handling Regulation, O. Reg. 211/01.
Groundwater and Soil (Specific)	Ministry of the Environment, Conservation and Parks	*Ontario Water Resources Act R.S.O. 1990, c. O.40*	■ Wells, R.R.O. 1990, O. Reg. 903.

2.1.2 Regulatory Requirements for Off-Site Soil Management Activities

No off-site soil transportation, reuse or disposal is anticipated in relation to the project. The Contractor is expected to make all reasonable efforts to find suitable locations within the project right-of-way (to reuse or place existing excess soil. However, in the event that excess soils cannot be re-used or placed on site and/or if impacted soils are encountered that cannot be re-used or placed on site, off-site transportation and reuse or disposal may be considered.

Soil management activities that may occur outside of the Construction Limits, such as the off-site transportation and reuse or disposal of impacted or excess soils in the unplanned event such activity is required, would be subject to provincial and local municipal legislation. Compliance with applicable legislation and regulation, including obtaining all necessary permits, approvals, certificates, or other authorizations, including payment of any associated fees, will be the responsibility of the Contractor for any and all off-site soil management activity outside the ministry right-of-way.

Provincial and local legislation that may be applicable to off-site soil management activities are summarized in **Table 2-2**. Note this is not an exhaustive list. It will be the responsibility of the Contractor to confirm and comply with all applicable legislation and regulation.

Table 2-2: Provincial and Local Legislation Potentially Applicable to Future Off-Site Activities

Media	Regulatory Body	Legislation	Regulations/Standards/Guidelines
For Soils Transported outside Construction Limits	Ministry of the Environment, Conservation and Parks	*Environmental Protection Act, R.S.O. 1990, c. E.19*	■ Management of Excess Soil – A Guide for Best Management Practices (January 2014) MECP ■ Management of Excess Materials in Road Construction and Maintenance (1994), Ministry of the Environment and Energy (MOEE) ■ On-Site and Excess Soil Management, R.R.O. 1990, O. Reg. 406/19 ■ Rules for Soil Management and Excess Soil Quality Standards (The Soil Rules) ■ General – Waste Management, R.R.O. 1990, Reg. 347 ■ Valid operating licenses and permits for each proposed disposal/receiving facility prior to commencing transportation of materials from the site ■ Valid operating licenses, certifications and permits from each carrier for all proposed transport vehicles/containers prior to entry to the site ■ Supporting information, payment of associated fees, and implementing and managing document control procedures and protocols for the appropriate disposal of waste materials generated as part of construction-based activities.
	Receiving Landfill	*Varies*	■ Licensed landfill sites can implement their own requirements beyond those outlined in this WEMMP or O. Reg. 406/19 in order to accept excess soil that is designated as waste. These requirements are developed on a landfill-by-landfill basis. As such, supplemental sampling beyond what is outlined in the ESMP (e.g., additional leachate analysis), may be required to dispose of excess soil that is designated as waste.

In addition to compliance with any provincial or local legislation or regulation that may apply to off-site transportation and reuse or disposal of soils, the Contractor must comply with the practices and procedures outlined in **Section 4.3** regarding beneficial reuse and **Section 4.4** regarding off-site transportation and reuse or disposal.

3. Background Information

3.1 Identification / Inventory Resources

3.1.1 Historical Soil Quality Data

As part of the preparatory work for the re-initiation of the Bradford Bypass, AECOM conducted a Contamination Overview Studt to identify properties/areas within the Study Area with actual or potential site contamination that may impact future highway design; and, to identify appropriate future environmental work and mitigation measures to be implemented during the Preliminary Design, Detail Design and construction phases of the project. The results of the COS were compiled in AECOM's report Contamination Overview Study – FINAL, Highway 400 – Highway 404 Link (Bradford Bypass, W.O. #19-2001 dated February 2020 (the COS Report).

The COS Report was completed based on a desktop review of available historical records and documents. In addition to historical records, the MECP has also prepared a list of processes and operations that historically posed a higher risk of environmental impact, referred to as "potentially contaminating activities" (PCAs) as listed in Table 2 of Schedule D of O. Reg. 153/04. These PCAs must be identified and evaluated when preparing Phase One ESAs for filing Record of Site Conditions. In general, these PCAs are considered to represent "high" potential for contamination, unless other information supports assigning a lower risk. Properties where land uses consist of commercial use (with no evidence of "high" potential contaminating activities such as fuel / chemical storage tanks), light industrial businesses (such as shipping and receiving operations and light assembly); and vehicle and equipment storage are given a relatively moderate risk rating of "medium." Properties where land uses consist of open space, residential, or agricultural areas that are not suspected of using / generating chemical compounds harmful to the environment or human health were assigned low risk.

Based on the 2020 COS data and taking into account the changes to the Study Area since 2020, there are 37 properties identified as having a "high" potential for environmental contamination. The data is tabulated in Table 1 in **Appendix A** and includes the Parcel Identifier (PID), the municipal Property Identification Number (PIN), as well as a description of the risk rating rationale, and any associated PCAs. Of the 37 properties rated "high", 14 are located partially or fully within the right-of-way. There are also 15 properties rated as having a "medium" potential for environmental contamination, all of which are located within the right-of-way, as presented in Table 2 in **Appendix A**. There are a total of 1,731 properties rated "low" of which 120 are located within the right-of-way. Low ranking is assigned to properties where land uses consist of open space, residential, or agricultural area or lands s that are not suspected of using / generating chemical compounds harmful to the environment or human health have lower risk. The listing for properties rated low are listed in Table 3.

Some changes have been made to the MTO right-of-way since the 2020 COS was completed, with 159 new properties added within the Study Area, of which 11 are located within the current MTO right-of-way. These properties have not been assessed for potential environmental impact and are identified as "unassessed properties" in Table 4 in **Appendix A**. The 2020 COS Study Area and Contamination Potential Ratings are presented figuratively in Map 1 in **Appendix A.**

3.1.2 Characterization of Soils in Project Area

The following section summarizes the results of environmental investigations undertaken by AECOM from May 2021 to June 2022, which provides a description of soils quality within the right-of-way. The waste environmental program was undertaken in conjunction with the preliminary foundation investigation and design works being undertaken by Golder Associates Ltd. (Golder) summarized in several Golder reports completed in 2022 noted below. At the time of issuing this WEMMP a total of 47 boreholes were drilled by Golder for which the AECOM

Waste Team was able to sample 33 boreholes. The borehole locations and borehole logs for the 33 boreholes sampled can be found in **Appendix B** and **Appendix C** of this WEMMP, and also within the separate geotechnical reports and the reports references are included below:

- Golder Associates Ltd, December 2022:
  Draft Preliminary Foundation Investigation and Design Report 10th Sideroad Underpass Structure Highway 400 to Highway 404 Link (Bradford Bypass) Simcoe County and York Region Assignment No. 2019-E-0048
- Golder Associates Ltd, September 2022:
  Draft Preliminary Foundation Investigation and Design Report Bradford Bypass / Highway 404 Interchange Ramp Structures (S-W Ramp over Highway 404, W-N Ramp over S-W Ramp, W-N Ramp over Highway 404) Highway 400 to Highway 404 Link (Bradford Bypass) Simcoe County and York Region MTO Assignment No. 2019-E-0048
- Golder Associates Ltd, October 2022:
  Draft Preliminary Foundation Investigation and Design Report Holland River (West Branch) Structure Highway 400 to Highway 404 Link (Bradford Bypass) Simcoe County and York Region Assignment No. 2019-E-0048
- Golder Associates Ltd, October 2022:
  Draft Preliminary Foundation Investigation and Design Report Holland River (East Branch) Structure Highway 400 to Highway 404 Link (Bradford Bypass) Simcoe County and York Region Assignment No. 2019-E-0048

The soils sampling program was completed following O. Reg. 406/19 with the 33 sampling locations focussing on properties identified as high or medium risk of contamination based on the 2020 COS (conducted by AECOM).

3.1.2.1 Soil Sampling Program and Procedures

The borehole drilling program was supervised by Golder and environmental soil samples were collected by AECOM staff during the drilling program. AECOM collected 42 soil samples from selected 33 boreholes which were selected due to their proximity to the PCA locations. The samples were taken within the depth range from 0.7 to 2.0 m bgs and submitted for laboratory analyses as shown below in **Table 3-1**.

Table 3-1: Analytical Parameters Tested on Samples

Borehole Sample ID	Analytical Parameters
BH-Y-4-SS1, BHY-1-2.5-4.5, BHB-2-2.5-4.5, BH404-4, L-4-SS-2, HF-04-SS-2, CV1-03-SS2, CR4-04, HF-02, CR4-11, CR4-02, CR4-01, CR4-03, HRE-1, CR4-09-SS2, HRW-1B-SS1, CN-2-SS2, CN-1-SS1, AIP-04-SS1, AIP-02-SS1, AIP-03-SS1, HRE-2, 400-1, 400-3-SS1, 2-1-SS1, HRE3-SS1, FD-01-SS1, FD-02, DC-2-SS1, DC-1-SS2, DC-1-SS5	Selected Inorganic Parameters and Metals and Inorganic (M&I)
BH-Y-4-SS1, BH-10-2-2.5-4.5, BHB-2-2.5-4.5, BH404-4, HF-04-SS-2, CR4-04, CR4-07, CV-1-04, CR4-01, CR4-03, HRE-1, CR4-09-SS2, CR4-06-SS2, CN-2-SS2, CN-1-SS2, AIP-04-SS1, AIP-02-SS1, AIP-03-SS1, 400-1	Polycyclic Aromatic Hydrocarbons (PAHs)
BH-Y-4-SS1, BH-10-2-2.5-4.5, BHB-2-2.5-4.5, BH404-4, HF-04-SS-2, CR4-07, CR4-11, CR4-01, CR4-03, HRE-1, HRW-1B-SS3, CN-2-SS1, AIP-04-SS2, AIP-03-SS2, 400-1, 400-3-SS1, 2-1-SS1	Petroleum Hydrocarbons in Fractions F1 to F4 (PHCs)
BH404-4, HF-04-SS-2, CR4-07, CR4-01, CR4-03, HRE-1, HRW-1B-SS3, CN-2-SS1, AIP-04-SS2, AIP-03-SS2, 400-1, 400-3-SS1, 2-1-SS1	Volatile Organic Compounds (VOCs)
BH-Y-4-SS1, BHB-2-2.5-4.5, BH404-4, HF-04-SS-2, HF-02, CR4-06-SS2, HRW-1B-SS1, HRW-1B-SS1, CN-1-SS1, AIP-04-SS1, 400-1, FD-01-SS1	Polychlorinated Biphenyls (PCBs)
HRW-1B-SS1, CN-2-SS2, CN-1-SS1, AIP-02-SS1, 2-1-SS1, HRE3-SS1, FD-01-SS1, FD-01-SS2, FD-02, DC-1-SS2	Organochlorine Pesticides (OCs)

Borehole Sample ID	Analytical Parameters
HF-02, CR4-02, CR4-03, HRE-1, HRW-1B-SS1, CN-1-SS1, AIP-03-SS1, HRE-2, DC-2-SS1	Synthetic Precipitate Leaching Procedure (SPLP) Metals
CR4-07, CR4-01, HRW-1B-SS3, CN-2-SS1	SPLP VOCs
HF-02	SPLP PCBs
CR4-07-Com	TCLP PAHs

Soil samples were screened for combustible organic vapours using a RKI GX-6000 photoionization detector (PID), which was calibrated using isobutylene. Soil vapours readings ranged from 0 to less than 50 ppm in all soil samples across the site. In addition, field staff looked for potential visual indicators of soil contamination including staining or soil odours during the collection of samples; however, none were observed in the samples. Therefore, representative samples were submitted for laboratory analysis for PAHs, PHCs F1-F4, PCBs, VOCs, metals and inorganics, and mandatory testing of SPLP to support the requirements under O. Reg. 406/19.

3.1.2.2 Regulatory Framework for Evaluation of Soil Quality

The soil chemical analysis results were evaluated with respect to the MTO requirements for soil management as follows:

- O. Reg. 406/19, Appendix 1, TABLE 2.1: Full Depth Background Site Condition Standards Full Depth Excess Soil Quality Standards in a Potable Groundwater Condition for Residential/Parkland/ Institutional/ Industrial/ Commercial/ Community Property Use with coarse type of soil condition (Table 2.1 Standards)
- O. Reg. 406/19, Appendix 2, TABLE 2.1: Leachate Screening Levels for Full Depth Excess Soil in a Potable Groundwater Condition for Industrial/ Commercial/ Community Property Use uses with coarse type of soil condition.

These standards were chosen to evaluate the soil quality for waste management purpose only, based on the following criteria:

- The groundwater condition is potable. There are several records in the MECP Water Well Information System for groundwater wells within a 250 m radius of the Study Area;
- Most of the Study Area is not considered environmentally sensitive except for a few areas around water bodies identified within the Study Area;
- pH values for surface and subsurface soil samples determined during the geotechnical soil sampling are not less than 5, or greater than 9 or 11, respectively;
- The right-of-way does not include shallow soil properties based on available borehole logs;
- To be conservative, the soil texture within the Study Area is considered coarse; and,
- The land use within the right-of-way will be considered industrial/commercial/community based on the future development.

The soil analytical results were also compared to the following more stringent and less stringent standards, respectively, for future soil management:

- O. Reg. 406/19, Appendix 1, TABLE 1: Full Depth Background Site Condition Standards for Agricultural (or similar sensitive) Property Use (Table 1 Standards).
- O. Reg. 406/19, Appendix 1, TABLE 3.1: Full Depth Excess Soil Quality Standards in a Non-Potable Groundwater Condition for Industrial/ Commercial/ Community Property Use with coarse type of soil condition (Table 3.1 Standards)

3.1.2.3 Soil Analytical Results

Based on results of analysis, the concentration of several PAHs exceeded the applicable O. Reg. 406/19 Table 2.1 Standards in shallow soil samples mainly in fill material collected from HF-04-SS-2, CR4-04, and CR4-07 from the depth interval 0.7-2.0 m bgs. In addition, Sodium Adsorption Ratio (SAR) exceeded MECP Table 2.1 Standards in shallow soil samples collected from HF-02 and BH10-2 from depth interval 0.7-1.5 m bgs, and Electrical Conductivity (EC) also exceeded MECP Table 2.1 Standards in shallow soil samples collected from borehole L-4 from depth interval 0.7-1.5 m bgs. **Table 3-2** Shows soil samples exceedances in comparison to O. Reg. 406/19 Table 2.1 Standards.

Table 3-2: Summary of O. Reg. 406/19 Table 2.1 Soil Sample Exceedances

Borehole Sample ID	Exceedance	Criteria Limit	Analytical Result
HF-04	Anthracene	0.16	0.53
	Benzo(a)pyrene	0.31	0.38
CR4-04	Naphthalene	0.2	0.79
	Acenaphthylene	0.093	0.41
	Anthracene	0.16	3.00
	Fluoranthene	2.8	6.84
	Benz(a)anthracene	0.92	4.62
	Benzo(b)fluoranthene	3.2	5.22
	Benzo(a)pyrene	0.31	4.07
	Indeno(1,2,3-cd)pyrene	0.76	1.42
	Methylnaphthalene 2-(1-)	0.59	1.21
CR4-07	Naphthalene	0.2	0.62
	Acenaphthylene	0.093	0.13
	Anthracene	0.16	1.19
	Benz(a)anthracene	0.92	1.58
	Benzo(a)pyrene	0.31	1.36
	Dibenzo(a,h)anthracene	0.7	0.72
	Methylnaphthalene 2-(1-)	0.59	1.05
HF-02	SAR*	12.0	12.2
10-2	SAR*	12.0	14.2
L-4	EC*	1.4	1.74

*Notes: * Results with salt related exceedances*
Criteria = O. Reg. 406/19 Table 2.1 standards, referenced in O. Reg. 406/19
All units in micrograms per gram (ug/g), unless otherwise specified.

No other contaminants analyzed exceeded the O. Reg. 406/19 Table 2.1 standards from the soil samples collected from the 33 drilled boreholes at the project right-of-way. The concentrations of PHCs, VOCs, PCBs, and M&I (except SAR and EC) were non-detect and/or below applicable criteria in soil samples collected from all boreholes. Also, all SPLP soil samples' analytical results were below the Table 2.1 screening level criteria.

For off-site waste management considerations, one composite soil sample was prepared from CR4-07 and submitted to the laboratory for PAHs Toxicity Characteristic Leaching Procedure (TCLP) testing. Based on the results of laboratory analyses, the soil sample is classified as non-hazardous solid waste in accordance with O. Reg. 347, Schedule 4 Leachate Quality Criteria for non-hazardous material.

In comparison to O. Reg. 406/19 Table 1 Standards:

- Several PAHs exceeded MECP Table 1 Standards in shallow soil samples mainly in fill material collected from HF-04, CR4-04, and CR4-07 from the depth interval 0.7-2.0 m bgs.
- EC and/or SAR exceeded MECP Table 1 Standards in shallow soil samples collected from Y-1, 10-2, B-2, 404-4, L-4, HF-04, CV1-03, CR4-04, HF-02, CR4-11, CR4-02, CN-2, AIP-02, and 400-1 from depth interval 0.7-1.5 m bgs.
- Uranium exceeded MECP Table 1 Standards in shallow soil samples collected from borehole location 2-1 from depth interval 0.7-1.5 m bgs.

In comparison to O. Reg. 406/19 Table 3.1 Standards:

- PAHs including Acenaphthylene, Anthracene, Benz(a)anthracene, Benzo(a)pyrene, Dibenz(a,h)anthracene exceeded MECP Table 3.1 Standards in shallow soil samples mainly in fill material collected from HF-04, CR4-04, and CR4-07 from the depth interval 0.7-2.0 m bgs.
- EC and/or SAR exceeded MECP Table 1 Standards in shallow soil samples collected from 10-2, L-4, and HF-02 from depth interval 0.7-1.5 m bgs.

Table 3-3 and **Table 3-4** shows soil samples exceedances in comparison to MECP Table 1 and Table 3.1 Standards respectively.

Table 3-3: Summary of Soil Samples Exceedances in Comparison to O. Reg. 406/19 Table 1 Standards

Borehole	Exceedance	Criteria	Result
Y-1	SAR*	1.0	7.18
10-2	EC*	0.47	1.03
	SAR*	1.0	14.2
B-2	SAR*	1.0	5.62
404-4	EC	0.47	0.987
	SAR	1.0	10.6
L-4	EC*	0.47	1.74
	SAR*	1.0	11.6
HF-04	Acenaphthene	0.05	0.19
	Anthracene	0.05	0.53
	Benz(a)anthracene	0.095	0.46
	Benzo(a)pyrene	0.05	0.38
	Benzo(b)fluoranthene	0.3	0.62
	Benzo(k)fluoranthene	0.05	0.26
	Chrysene	0.18	0.59
	Fluoranthene	0.24	1.41
	Fluorene	0.05	0.33
	Indeno(1,2,3-cd)pyrene	0.11	0.15
	Phenanthrene	0.19	1.21
	Pyrene	0.19	1.16
	EC*	0.47	0.811
	SAR*	1.0	9.54
CV1-03	SAR*	1.0	4.48
CR4-04	Acenaphthene	0.05	1.83
	Acenaphthylene	0.093	0.41
	Anthracene	0.05	3.0
	Benz(a)anthracene	0.095	4.62
	Benzo(a)pyrene	0.05	4.07
	Benzo(b)fluoranthene	0.3	5.22
	Benzo(g,h,i)perylene	0.2	1.55
	Benzo(k)fluoranthene	0.05	1.57
	Chrysene	0.18	5.01
	Dibenz(a,h)anthracene	0.1	0.42
	Fluoranthene	0.24	6.84
	Fluorene	0.05	3.5
	Indeno(1,2,3-cd)pyrene	0.11	1.42
	Naphthalene	0.05	0.79
	Phenanthrene	0.19	11.4
	Pyrene	0.19	6.55
	EC*	0.47	1.0
	SAR*	1.0	9.34

Table 3-3: Summary of Soil Samples Exceedances in Comparison to O. Reg. 406/19 Table 1 Standards

Borehole	Exceedance	Criteria	Result
CR4-07	Acenaphthene	0.05	0.98
	Acenaphthylene	0.093	0.13
	Anthracene	0.05	1.19
	Benz(a)anthracene	0.095	1.58
	Benzo(a)pyrene	0.05	1.36
	Benzo(b)fluoranthene	0.3	1.76
	Benzo(g,h,i)perylene	0.2	0.72
	Benzo(k)fluoranthene	0.05	0.82
	Chrysene	0.18	1.83
	Dibenz(a,h)anthracene	0.1	0.72
	Fluoranthene	0.24	2.5
	Fluorene	0.05	1.3
	Indeno(1,2,3-cd)pyrene	0.11	0.19
	Naphthalene	0.05	0.62
	Phenanthrene	0.19	4.95
	Pyrene	0.19	2.34
HF-02	EC*	0.47	1.23
	SAR*	1.0	12.2
CR4-11	EC*	0.47	0.666
	SAR*	1.0	8.52
CR4-02	SAR*	1.0	6.96
CN-2	SAR*	1.0	1.32
AIP-02	SAR*	1.0	2.56
400-1	EC*	0.47	0.586
	SAR*	1.0	7.34
2-1	Uranium	1.9	3.02

*Notes: * Results with salt related exceedances*
Criteria = MECP Table 1 Standards, referenced in O. Reg. 406/19
All units in micrograms per gram (ug/g), unless otherwise specified.

Table 3-4: Summary of Soil Samples Exceedances in Comparison to O. Reg. 406/19 Table 3.1 Standards

Borehole	Exceedance	Criteria	Result
10-2	SAR*	12.0	14.2
L-4	EC*	1.4	1.74
HF-04	Anthracene	0.16	0.53
CR4-04	Acenaphthylene	0.093	0.41
	Anthracene	0.16	3.0
	Benz(a)anthracene	1.0	4.68
	Benzo(a)pyrene	0.7	4.07
	Indeno(1,2,3-cd)pyrene	0.76	1.42
CR4-07	Acenaphthylene	0.093	0.13
	Anthracene	0.16	1.19
	Benz(a)anthracene	1.0	1.58
	Benzo(a)pyrene	0.7	1.36
	Dibenz(a,h)anthracene	0.7	0.72
HF-02	SAR*	12.0	12.2

*Notes: * Results with salt related exceedances*
Criteria = O. Reg. 406/19 Table 3.1 standards, referenced in O. Reg. 406/19
All units in micrograms per gram (ug/g), unless otherwise specified.

No other contaminants analyzed exceeded the O. Reg. 406/19 Table 1 or Table 3.1 standards from the soil samples collected from the 33 drilled boreholes within the right-of-way. The concentrations of PHCs, VOCs, PCBs,

and M&I (except Uranium, SAR, and EC) were non-detect and/or below applicable O. Reg. 406/19 Table 1 Standards and O. Reg. 406/19 Table 3.1 Standards in soil samples collected from all boreholes.

Laboratory Analysis Results of the collected soil samples are presented in **Appendix E**.

3.1.3 Waste and Excess Materials Identification and Classification

Based on the date of construction and materials used for buildings, structures and culverts within project right-of-way, there is potential for designated substances to be present. Should buildings be identified for demolition by MTO, a Designated Substance Survey (DSS) should be completed to ensure proper handling and disposal of materials.

The proposed ROW will cross/intercept several roadways, such as Highway 400. The asphalt levelling course within the project right-of-way may contain asbestos and prior to construction, asphalt core samples should be collected and tested for asbestos. If asbestos containing materials are found, an Asbestos Abatement Plan should be implemented according to MTO Standard Special Provision 101 F21 ‘Occupational Health and Safety Compliance - List of Designated Substances’, that is included in the MTO construction tender documents in accordance with the *Occupational Health and Safety Act* for the presence of designated substances.

3.2 Qualification, Training and Awareness

During Detail Design, the Contractor and any sub-contractors shall attend an Environmental Orientation meeting to be aware of any potential waste concerns on the site. The Contractor will prepare the environmental orientation and will be responsible for ensuring all personnel on the site are informed on the contents of the plans and the Environmental Orientation Program. The Contractor must ensure that all new employees and/ or subcontractors receive the Environmental Orientation training prior to them conducting any activity on site.

Under O. Reg. 153/04, specific requirements can only be undertaken by a qualified person, including:

a) conducting or supervising a phase one environmental site assessment
b) conducting or supervising a phase two environmental site assessment; and
c) completing the certifications that must be completed by a qualified person in a record of site condition in respect of a property.

Being a “qualified person” means they hold a license, limited license or temporary license under the *Professional Engineers Act*, 1990 or the qualified person holds a certificate of registration under the *Professional Geoscientists Act*, 2000 or is a practicing member, temporary member or limited member of the Association of Professional Geoscientists of Ontario per Section 5 of Ontario Regulation 153/04.

3.3 Internal and External Communication

A communication protocol shall be developed by the project leader or a person designated by the project leader. and provided to the Contractor. The Contractor shall be required to follow the Communication Protocol, including any notification requirements. The Protocol will include but not be limited to the following:

1. Schedule of the construction activities, including construction activities that generate noise, light trespass or dust
2. Process for notification in the event of any accidents and malfunctions
3. Process for notifying the public of any night-time construction activities
4. Details for receiving complaints related to noise, light, dust, fumes or any other complaint, and
5. Process for how a member of the public can record a complaint.

4. Recommended Mitigation Measures

4.1 General Approach

The following provides the relevant protocols and procedures for soil management on the Project. Given the results of the Soils Chemical Analysis as described in **Section 3.1** above, additional soil sampling programs may be required to investigate the extent of the soil impact based on the proposed locations of the excavation. It is anticipated that most of the excavated soils can be re-used on the project. This will need to be confirmed during the subsequent Detail Design phase. Additionally, the suitability of re-using that soil must be determined before re-using it in accordance with O. Reg 406/19**.**

During Detail Design, any excavated soil deemed unsuitable for backfill, shall be stockpiled in an appropriate location assigned for unsuitable material on site. Refer to **Section 4.3** for more detail. Additionally, the following reports are required during the subsequent Detail Design phase: Assessment of Past Use (APU), Sampling and Analysis Plan (SAP), Soil Characterization Report (SCR) as per Soil Rules.

4.2 Soil Excavation and Salvage

4.2.1 Cut / Fill Locations

At the time of the issuing this WEMMP, based on Preliminary Design estimates, the quantity of soil to be excavated is approximately 5,206,000 m^3, with approximately 4,680,000 m^3 needed as fill material. It has not been calculated how much of the excavated material would be classified as excess soil, if any, as some or all of excavated material not used for fill may be used for grading and landscaping. The estimated quantities for excavation shall be re-evaluated and further defined during each phase of the Detail Design stage

4.2.2 Topsoil Stripping

The following shall be confirmed during subsequent Detail Design phases for the future Contractor to follow. For the purposes of this WEMMP, topsoil includes those horizons in a soil profile containing organic material typically comprised of deposits of partially decomposed organic matter. Subsoil consists of the soils which occur below the topsoil.

Topsoil stripping will be based on, but not limited to, the following considerations and constraints:

- Topsoil will be stripped and stockpiled in accordance with the Grading Plan (which shall be developed during subsequent Detail Design phases) for all permanent and temporary construction areas after areas have been determined to be cleared of vegetation
- Topsoil stripped during the site preparation program is not considered suitable for reuse in any application other than general landscaping on the site. The topsoil can be used for landscaping within diversion channel and swales, and the construction of landscaped berms
- Any topsoil to be salvaged will be stripped during dry periods to the greatest extent practical. Topsoil will be stored in accordance with the sediment and erosion control measures described in the Environmental Protection Plan (EPP) and contract specifications, until it is required for site reclamation
- Topsoil piles shall be marked with appropriate signage to prevent accidental admixing. \
- Topsoil from the natural areas will be separated from other topsoil stockpiles so that it may be used for restoration of the areas from which it was removed, to the extent possible, and
- Subsoil will be stored separately from topsoil with a minimum of 1 m separation of the piles.

4.3 Handling and Storage of On-Site Soil

The following outlines the requirements for handling, transporting, and storing on-site soil.

4.3.1 General Handling and Storage of Soil

4.3.1.1 Laydown Areas

During subsequent Detail Design, the best strategy for the movement of soil across the Study Area is to be determined. Double handling of soil, that is, moving it from one place to another more than once within the right-of way, is to be minimized to the extent possible.

Soil shall not be placed in locations where there is direct drainage to that location. During Detail Design, drainage at any laydown locations are to be managed appropriately to avoid potential localized flooding and/or erosion of any storage areas.

4.3.1.2 Site Access and Movement

Soil that has been identified for movement and/or reuse on the project lands must be stored within the project right-of-way during construction. However, excavated soil or crushed rock can also temporarily leave a Project Area to be transported directly to another part of the Project Area, if that is the most efficient means of relocating soil within a Project Area for reuse.

4.3.1.3 Stockpiles

Stockpiles within the project right-of-way will either be re-used for backfilling, landscaping or for other purposes (e.g., topsoil/slope flattening), with details to be confirmed in subsequent Detail Design. Some stockpiles may be required for a brief period of time, but in some instances, it may be necessary to stockpile earth material for an extended period.

Stockpile locations will be based on, but not limited to, the following considerations and constraints which are to be confirmed in subsequent Detail Design phases:

- Excavated earth that is not to be utilized immediately shall be temporarily stockpiled in a manner that does not cause an adverse environmental effect or impair water quality
- There shall be minimal stockpiles of earth and granular material on-site in order to limit/avoid double handling of material
- A stockpiling location shall be in proximity to where the material will be ultimately used where possible
- Earth will not be placed in locations where there is direct drainage to that location
- Soil must not be stored within 10 m of the edge of right-of-way unless any of the following apply:
  - 500 m^3 or less will be stored
  - Soil storage will be less than 1 week; and
  - There is a physical barrier between the excess soil and the edge of right-of-way.
- Soils shall be handled and stored during construction in a manner that protects soil quality for re-use
- Stockpiled materials shall be stored and stabilized at least 30 m away from any watercourse
- Stockpile management will be based on, but not limited to, the following considerations and constraints:
  - Implement measures to avoid the introduction or spread of invasive vegetation within the right-of-way, including from equipment brought on-site from other worksites and from imported fill.

The Ontario Invasive Plant Council's Clean Equipment Protocol for Industry shall be complied with during Detail Design

- To prevent the spread of invasive plant species, soils with a high proportion of invasive plant species shall be stockpiled separately. On-site stockpiles shall be tarped and managed to prevent any off-site migration of invasive materials
- Stockpiles shall be temporarily seeded to reduce erosion if left exposed or inactive for more than 30 days
- Measures to prevent the mobilization of stockpiles shall be employed using silt fences and other erosion control methods as determined in subsequent Detail Design phases
- Stockpiles left on-site for more than one month shall require erosion and sediment control measures to manage on-site runoff water. The Contractor shall maintain such measures to ensure their effectiveness. Silt fence installed around soil stockpiles must maintain a minimum 1 m distance from the toe of the stockpile
- Erosion and sediment control measures shall be inspected weekly and following any major precipitation event. The Contractor shall correct any identified deficiencies in a timely manner, and
- Stockpiles shall be monitored to ensure that they remain intact and there are no erosion issues, or other concerns.

4.3.1.4 On-site Reuse of Soil

The following shall be confirmed during subsequent Detail Design phases. Decisions on re-using stockpiled soil to backfill excavations or for grading within the project right-of-way will be determined in accordance with the project specifications including the suitability of soil for use in backfilling construction excavations or as structural fill. The Contractor shall re-use soil within the project right-of-way to the extent possible.

4.3.2 Environmental Protection Measures

The following provides the relevant environmental protection measures with respect to the management of soil within the project right-of-way. These recommendations should be read in conjunction with other applicable project reports generated in subsequent Detail Design phases such as Erosion and Sediment Control Plan.

4.3.2.1 Dust Suppression

The following shall be confirmed during subsequent Detail Design phases.. During all phases of the project, the following measures to mitigate fugitive dust emissions must be implemented:

- Use of dust suppressants with the least potential for adverse environmental effects when conducting any project activity that may generate dust
- Avoid handling non-enclosed granular materials during sustained high wind conditions
- Cover or enclose open containers containing granular materials
- Build and manage temporary and permanent roads and parking lots located within the project right-of-way to reduce fugitive dust emissions from dirt surfaces, including through paving and the removal of loose materials on road surfaces, and
- Establish speed limits of no more than 30 km/hour on temporary and permanent roads located within the project right-of-way and require all persons abide by these speed limits.

The Contractor shall implement air quality mitigation measures during construction to minimize and /or eliminate dust generated during construction.

4.3.2.2 Erosion and Sediment Control

The following shall be confirmed during subsequent Detail Design phases. During all phases of the project, the following measures to mitigate sedimentation and erosion must be implemented with respect to soil management:

- Follow the Erosion and Sediment Control Plan for Construction and corresponding Erosion and Sediment Control Plan for the stream realignment work
- No work will be permitted on site until all such erosion and sediment control devices are properly installed
- Maintain all erosion and sediment control devices in accordance with applicable legislation and standards, etc.
- Trapped sediments and controls are to be removed only after the soils of the construction area have been stabilized and adequately re-vegetated, unless sediments have accumulated to a depth of 1/3 the height of the sediment control device
- The Contractor shall remove accumulated sediment to the level of existing grade, in a manner that avoids sediment release to the downstream side of the sediment control device. All sediment control devices shall remain in place until after the surrounding ground has been permanently stabilized according to the Detail Design
- Any stockpiled material shall be deposited, stored, and contained in a manner to ensure sediment does not enter a waterbody. Areas containing exposed soil or stockpiled material will be isolated using appropriated sediment control devices to prevent the entry of sediment into the watercourse
- All activities, including maintenance procedures, will be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substance into the water. Vehicular refuelling and maintenance will be conducted a minimum of 30 m away from any aquatic areas to avoid potential impacts, in the event that an accidental spill occurs
- Periodically inspect all erosion and siltation control devices in accordance with requirements, and
- Remove temporary erosion control devices upon completion of work.

4.3.2.3 Restoration

The following shall be confirmed during subsequent Detail Design phases. The project will be restored in phases (i.e., progressive restoration), such that restoration of disturbed areas is completed as soon as possible following the completion of construction activities in the corresponding areas. To achieve this outcome, the following measures will be taken during restoration activities with respect to soil management:

- Regrade areas with vehicle ruts, erosion gullies or where there has been subsidence
- Smooth subsoils that are rutted prior to topsoil replacement
- Damaged Soil: Disc, till or cultivate ripped subsoils to break up lumps and to smooth the surface. To reduce further compaction, limit discing to what is necessary to break up clods. Till or cultivate back the soil and any severely compacted or rutted areas to loosen compacted soil
- Replace topsoil as evenly as possible over areas of the construction area to be reclaimed where topsoil salvage was conducted. Postpone replacing topsoil during wet weather or high winds to prevent damaging soil structure or erosion of topsoil
- To prepare restoration areas for seeding, spread loose and fine grade topsoil. Topsoil shall be prepared for planting at a depth of 0.3 m unless otherwise specified.

4.4 Handling and Storage of Excess Soils (Off-Site)

The following shall be confirmed during the subsequent Detail Design phase.

Re-use soil within the project right-of-way to the extent possible. Remaining excess soil shall be re-used or placed in the creation of berms at locations to be determined during the subsequent Detail Design phase. In some instances, on-site reuse of soil may not be possible. In these instances, the soil may potentially be reused or disposed of off-site.

Stockpiles of excess soil deemed unsuitable for use in any application after all construction excavations have been backfilled and grading completed within the project right-of-way must be transported to an off-site disposal facility or approved off-site reuse receiver in accordance with the applicable regulations, including O. Reg. 406/19. Transportation and reuse or disposal of excess soil should follow an Excess Soil Management Plan (ESMP) developed by the future Contractor and approved by the Ministry prior to transport of reuse or disposal of the soil. All documentation (bills of lading, waste manifests, waste characterization, etc.) are to be maintained on-site, and copies shall be provided to the Ministry. When required, off-site reuse or disposal details should be included in the ESMP by the Contractor outlining specific procedures and protocols for soil sampling. No soil removed from the site may be disposed of off-site or re-used at any location other than the project right-of-way and/or off-site location permitted to accept the soil. Preference will be given to reusing soil instead of disposing of soil at a landfill if the geotechnical quality of the soil is deemed appropriate for reuse. Large debris and solid waste material such as foundations, concrete, field stones, cobble stones, wood or metal shall be separated from the soil by mechanical means and salvaged for on-site/off-site reuse or disposed off-site separately as solid waste at a facility permitted to receive construction/demolition debris.

Any excess soil should be sampled according to a Sampling and Analysis Plan that is prepared based on O. Reg. 406/19 and at a minimum, soil samples must be analyzed for the following parameters: PHCs, and metals (including lead), salinity (if there are any intended agricultural receiving sites), inorganics, pH and grain size. Additional analysis may also be required for leachate if any substances with published Leachate Screening Levels in the Soil Rules are identified as contaminants of concern within the project ROW. Reuse of excess soil is also dependent on the reuse site standards/excess soil quality standards. Additional analytical parameters may also have to be taken into consideration based on Areas of Potential Environmental Concerns (APECs) identified within the right-of-way.

Assuming excess soil is stockpiled, appropriate bulk soil sample frequencies should comply with “Records of Site Condition - Part XV.1 of the Act, O. Reg. 153/04 as amended, Table 2 Minimum Stockpile Sampling Frequency”. This is a requirement of O. Reg. 406/19.

All sampling and decontamination procedures, laboratory analytical methods, and protocols and procedures will be consistent with those established by the MECP, as documented in “*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, May 1996*” (MOE 1996 Guidance Manual). Representative samples should be collected in containers supplied by a Canadian Association for Laboratory Accreditation (CALA) - accredited laboratory.

Based on the results of the analytical testing of soils, excess materials should not be re-used off-site at a residential, commercial, or industrial property without further verification sampling or acceptance of that material according to the ESMP for the receiver site that is completed by the Contractor and approved by the Ministry. It should be noted that the private receiver site may require additional testing to satisfy the Excess Soil Quality Standards published in the Soil Rules. When soil suspected of being potentially impacted are observed during construction, the Contactor shall inform the Ministry Contractor Administrator and qualified person. Additional

testing should be conducted to further characterize the contamination to determine suitability for reuse on-site or disposal.

4.4.1 Off-site Receiving Sites for Beneficial Reuse

Should on-site reuse not be possible, efforts shall be made to make all reasonable attempts to locate a suitable off-site beneficial reuse receiver. Only as a last resort shall disposal of excess soil at a landfill be undertaken. It should also be noted that a receiver is operating under appropriate by-laws, permits and regulations and that the quality of material being reused is suitable for their operation. Copies of all agreements, hauling record, bills of lading, weigh bills, analytical results shall be collected and forwarded to the Ministry and/or Contract Administrator. A copy of the hauling record must be retained on behalf of the Ministry and confirmation of receipt of the excess soil at the destination site must be obtained by the hauler a copy of the final record must be retained by all parties for two years.

Receiving sites identified for beneficial reuse of excess material are to be screened in advance. If excess soil is to be transported off Ministry property for beneficial reuse at a receiving site, each load should be accompanied by documentation that summarizes or provides (as a minimum):

- The sampling and segregating work done
- The excess soil data pertaining to the suitability for the excess soil for reuse, and
- The receiving site soil date pertaining to the suitability of the excess soil for reuse at the receiving site. A statement noting that the soil should be used for beneficial reuse and is not likely to cause a negative effect on human health or the environment; and a statement confirming the land use of the receiving site matches the intended use/ suitability of the excess soil.

If notice must be filed under Section 8, the project leader must develop a tracking system before any excess soil is removed from the project area in compliance with Section 16 of O.Reg. 406/19. The tracking system is required to track each load of excess soil during its transportation and deposit at a reuse site, Class 1 soil management site, local waste transfer facility, landfilling site or dump, and any transportation to and from a Class 2 soil management site. As per subsection 5 (1) in Section B of Part I of the Soil Rules, the tracking system must include:

1. The locations of the project area where the soil was excavated and stockpiled, if applicable, and the quality of the soil associated with those locations and stockpiles
2. The quality of the load of excess soil being removed from the project area, unless the excess soil is to be sampled at a Class 2 soil management site or a local waste transfer facility
3. The quantity of the load of excess soil being removed from the project area
4. The location of the site at which the excess soil is to be deposited as communicated to the driver of the vehicle
5. The date and time the excess soil left the project area
6. The person from the project area responsible for overseeing the loading of the excess soil for transportation
7. The name of the corporation, partnership or firm transporting the excess soil, the name of the driver of the vehicle and the number plates issued for the vehicle under the Highway Traffic Act
8. The date and time the excess soil was received at the site where the excess soil has been deposited
9. The contact information of the person who acknowledged receipt of the load of excess soil on behalf of the site where the excess soil was deposited, and

10. Confirmation that the vehicle that deposited the excess soil and the volume of soil received at the site where the excess soil was deposited is the same as that which left the project area.

4.4.2 Handling and Storage of Contaminated Soil

If potentially impacted soil is encountered based on organic vapour monitor, odours, soil discolouration, buried containers or other materials contributing to a potential release, etc., the Contractor must inform the Ministry. The following provides guidance with respect to impacted soil management within the project right-of-way.

The following shall be confirmed during subsequent Detail Design phases.

4.4.2.1 Soil Testing

A thorough understanding of the contaminants that may be encountered and appropriate means and measures for handling and managing excavated materials should be contemplated in advance of undertaking excavation activities of suspected impacted soils. Contaminated soil is soil that exceeds the applicable MECP Table 2 Site Condition Standard (MECP, 2011).

A procedure for soil testing, if soil that is observed to be potentially impacted is encountered during excavation shall be developed. If potentially impacted soil is encountered during excavation, the Contractor shall notify MTO and the above noted procedure shall be implemented by the Contractor.

4.4.2.2 Temporary Soil Storage Site

The Contractor shall stockpile all suspected impacted soil in a designated Temporary Soil Storage Site (TSSS) in such a manner as to protect existing surface, materials and structures from contamination, runoff surface water and, as result, erosion. Intermediate staging of impacted soils elsewhere within the project right-of-way is strictly prohibited. If the designated TSSS cannot be used for any reason, the Contractor must determine an alternative, if possible.

The TSSS should be designed during subsequent Detail Design phases and constructed by the Contractor. Once designated, the surface soils (up to 1.5 m depth) of the TSSS will be sampled to establish a baseline of environmental conditions. Depending on the size of the TSSS, between three and eight samples will be collected and submitted for chemical analysis of PHCs in F1-F4, VOCs, PAHs, metals and inorganic parameters, including pH. Samples will be collected using either hand auger or by excavation of shallow test pits.

The design of the TSSS will include: a minimum of 10-mil (10 thousandth of an inch) nylon reinforced polyethylene sheeting serving as an impermeable/low permeable barrier to contain stockpiled potentially impacted excess soils; a 0.5 to 1 m high berm of baled hay or clean fill with the 10-mil nylon reinforced polyethylene sheeting extended over the berm, reaching the exterior ground surface; and consider how the potentially impacted soils will be transported and stockpiled without compromising the berms (controlling runoff/run-on) or causing potential cross contamination (e.g., migration of contaminants outside the TSSS). If more than one sheet of polyethylene is needed to line the ground beneath the TSSS, each section of sheeting must overlap by at least 1 m. As necessary, the TSSS will be designed with a sump pump to remove any accumulated water from the TSSS and temporary store it for proper discharge. In addition, should impacted soil be encountered then these soils will either be:

- Placed in a separate cell in the TSSS, or
- Placed directly into a lined roll-off and properly disposed of at a licensed landfill facility.

Following the use of the TSSS, confirmatory surface soil samples (up to 1.5 m depth) will be collected and submitted for chemical analysis of PHCs, VOCs, PAHs, pH, metals and inorganic parameters to verify the quality of soil in this area. These sample results will be compared to the baseline samples to verify the area was not impacted

through the use of the TSSS. If needed, shallow remedial excavations can be completed to return the TSSS area back to original condition.

4.4.2.3 Excavation and Management

If necessary, the excavation of impacted soil, segregation and processing may be required, and any additional excavations/removal of impacted soil will require approvals from the Ministry, as well as a management plan and document for the additional work.

The Contractor shall ensure that a procedure is developed and applied with respect to what must occur if any person working in the project area makes an observation during soil excavation within the project area, including any visual or olfactory observation, that suggests that the soil being excavated may be affected by the discharge of a contaminant. At a minimum, the project leader or the operator of the project area shall ensure that the procedure includes the following:

1. All soil excavations in the project area must immediately cease upon the observation being made, until such time as the project leader directs that soil excavations must be resumed
2. The Contractor and Ministry must immediately be notified of the observation
3. The Contractor, upon being notified of the observation, must, before directing that soil excavations may be resumed, ensure that all necessary steps are taken to ensure that:
    i. All excavated soil or excavated crushed rock that is affected by the discharge is identified and is segregated from other excavated soil or excavated rushed rock in the project area
    ii. The portion of the project area that is affected by the discharge of a is determined, and
    iii. Any excess soil from that portion of the project area is disposed of in accordance with Ontario Regulation 406/19.

When excavation and/or trenching are required at a suspected impacted location, appropriate management of the impacted solid or semi-solid material (such as soil or sludge) is required. Concerns for excavation and management of impacted soil relate to the potential for transfer of contaminants during materials handling and transportation activities. Transfer of contaminants may occur due to:

- Excavation, storage, sizing etc. and the potential for dust and volatile emissions from the impacted media
- High potential for fugitive dust emissions due to movement of equipment at the site
- Leaching contaminants from impacted soil to surface and groundwater water can occur from unlined and uncovered stockpiles and excavated pits
- Migration of contaminants to unimpacted areas may occur during transportation, and
- Improper handling and reuse or disposal of impacted soil may allow contaminants to migrate into and pollute unimpacted areas.

Excavation and trenching primarily involves equipment that is widely used in the construction or non-hazardous solid waste disposal industries, such as excavators, earth movers or backhoes, dump trucks, and containers of various shapes, sizes, and materials.

General guidance and best practice measures to prevent potential transfer of contaminants during excavation, material handling and transport of impacted material include the following:

- Entry to the active work area should be limited to avoid unnecessary exposure and related transfer of contaminants
- Traffic should be minimized on impacted soil
- Surface drainage and subsurface utility systems should be identified

- Any runoff should be prevented from entering and mixing with on-site contaminated media by building earthen berms or adopting similar other measures on the TSSS and on the site, where needed
- Provisions should generally be made to capture surface water runoff by diverting it to a controlled depression-area or lined pit on the TSSS and on-site, where needed
- Fugitive dust emissions should be controlled during excavation both on the TSSS and on-site, where needed, by spraying water or other materials to keep the ground moist or covered. During wet weather or rainfall no water spraying would be needed
- Appropriate personnel and equipment and decontamination procedures should be employed as required to keep the site-related contaminants within the TSSS
- Covers and liners should be used at all times when contaminated materials are being stored at the TSSS. Covers should be used on trucks that are moving materials around and from the site, and
- Any equipment that is involved in earthwork activities or that may have come into contact with waste, or any potentially contaminated material must be decontaminated prior to being removed from the site or TSSS.

General guidance and best practice measures for the storage of contaminated soil include the following:

- For contaminated suspected soil, soil must be stored in a manner that prevents potential contaminants from leaching into the groundwater
- Potentially contaminated soil will be protected to prevent the infiltration of precipitation and/or generation of runoff, and
- If necessary, soil from the project right-of-way that require sampling need to be kept segregated from soil that has already been sampled.

4.4.2.4 Reuse of Impacted Soil

In the event that impacted soil is encountered during construction, the suitability of reusing the soil should be determined before it's re-use. In general, impacted soil may be re-used on-site for backfilling construction excavations/or as structural fill, as deemed appropriate.

Impacted soil must be stockpiled as close as possible to the location from where it was excavated or placed in a separate cell in the TSSS to ensure it is isolated from stockpiled clean material and is clearly identifiable. The Contractor shall maintain a log to document the final disposition of impacted soil re-used on-site, if any.

In the event impacted soil is found below the water table, the Contractor should contact the Ministry first for potential remedial actions. This soil should be either:

- Placed in a separate cell in the TSSS, and
- Placed directly into a lined roll-off container.

In the event that off-site disposal is required, the Contractor shall dispose of soil not suitable for reuse according to proper disposal requirements, taking into account Ontario's *Management of Excess Soil- A Guide for Best Management Practices* (MECP, 2014) and O. Reg. 406/19, including the *Soil Rules*.

4.4.3 Transportation of Soils

It is important that transportation of excess soil is carefully considered prior to the commencement of the Project. Transportation of Dangerous Goods, General Waste Management, and other environmental regulations apply to the off-site transportation and of materials.

Soil not suitable for reuse within the Project Area shall be managed and reuse or disposed of in accordance with all applicable laws, industry standards and best management practices, this may include but not limited to:

- The *Environmental Protection Act*
- O. Reg. 406/19, as amended
- OPSS.PROV 180 General Specification for the Management of Excess Materials, and
- Management of Excess Soil – A Guide for Best Management Practices (Ministry of Environment, Conservation and Parks [MECP], Updated: April 4, 2019, Published: April 5, 2016, as updated).

During all phases of the project, the following measures must be implemented with respect to transportation and reuse or disposal requirements for soil management:

- All shipments must comply with applicable regulatory requirements, including O. Reg. 406/19, and all necessary documentation is provided to the Ministry in a timely manner
- Only approved disposal facilities for contaminated soil (either non-hazardous or hazardous) will be permitted for use
- Acceptance criteria must be met, including but not limited to provision of adequate soil quality data for bulk chemical analysis and Schedule 4 leachate criteria. The origin and volume of contaminated material being transferred to a reuse or disposal site and its final destination shall be tracked
- The Contractor shall arrange for and pay for any additional testing required by the receiver site as a condition of acceptance of the material. The Contractor shall submit to the Ministry a copy of the forms provided under OPSS.PROV. 180, signed by the receiver site
- Mitigation measures will be developed to mitigate the mobilization and transport of potential residual agricultural contaminants within the project right-of-way towards waterbodies during all phases of the Project, including measures to allow time for increased die-off of pathogenic organisms and volatilization of agricultural contaminants prior to soil disturbance and removal of nutrient compounds through plant harvesting
- Prior to disposing of a subject waste (i.e., liquid industrial waste and hazardous waste, including hazardous soil), the Contractor shall ensure that the subject waste be properly classified as per O. Reg. 347 and registered in the MECP Productivity and Recovery Authority's Hazardous Waste Program Registry, and a valid waste subject waste generator registration number is obtained. The generator shall ensure that waste manifests are completed correctly for each subject waste transferred and all waste transfers are properly identified and tracked through the Resource Productivity and Recovery Authority's Hazardous Waste Program Registry
- A waste tracking system governing all hazardous waste transfers in accordance with the federal Transportation of Dangerous Goods Regulation and provincial regulations should be implemented by the Contractor
- Soil/fill materials imported to the project right-of-way, including quantity, quality and the source of the imported materials, should also be tracked and documented during the construction activities in accordance with O. Reg. 406/19, and
- For the purpose of any record-keeping mentioned in this document, it is recommended that records be retained for a minimum of 7 years after the completion of all excess soil management activities or the removal of all excess soil from a TSSS, as required by O. Reg. 406/19.

5. Monitoring, Evaluation and Reporting

The following sections describe the protocols and practices to monitor progress, quality and daily activities and shall be confirmed during subsequent Detail Design phases.

5.1 Monitoring, Measurement, Analysis and Evaluation

Field monitoring for excavated materials is required during and post-construction. Construction monitoring for excavated materials during construction will be focused on the mitigation measures and management strategies described in this WEMMP. Daily visual inspections of active construction work zones to monitor stockpiles, potential excess soil or work in potentially contaminated areas shall be completed.

The Contractor will be responsible for tracking and managing the quality and quantity of material excavated from or imported to the site using existing information and new information, as needed. Tracking will include quantifying and documenting locations for the beneficial on-site reuse of excavated materials. Management will include:

- Minimizing adverse effects to workers through Best Management Practices (BMPs), worker health and safety provisions and ensuring that remedial/risk management options are considered during the construction planning process and appropriately incorporated into final designs
- Minimizing soil disturbance and retaining vegetation, including trees, within and around the project right-of-way in accordance with the setbacks/buffers identified on applicable Detail Design drawings, and in other areas to the extent that it is technically feasible or unless required to meet engineering requirements for safe and facility operation. The construction vehicle traffic shall be minimized on contaminated soils
- Manage soil in such a way as to prevent any adverse effects associated with receiving, processing, storage and movement of soil with respect to noise, dust, mud, tracking, leaching, runoff, erosion, outdoor air quality and odour. Monitoring will be completed in accordance with the Contractor's Air Quality Best Management Practices Plan to reduce the potential generation of dust (specifically PM10) and other fugitive air emissions during construction, including daily visual observations and on-site dust monitoring to inform the implementation of mitigation measures
- Handle and store soil during construction in a manner that protects soil quality for re-use. In the event that contaminated soil are encountered during construction, the Contractor shall determine the suitability of reusing the soil before reusing it. The Contractor shall dispose of any soil not suitable for reuse according to proper screening and disposal requirements, taking into account *Ontario's Management of Excess Soil - a Guide for Best Management Practices* (MECP, 2014) and O. Reg. 406/19, including the *Soil Rules*
- Encouraging reuse of soil where appropriate, balancing cut and fill, minimizing grading, and minimizing the need to transport additional soil, where possible.

6. Summary of Environmental Commitments

6.1 2002 Approved Environmental Assessment Commitments

The 2002 Approved Environmental Assessment identified a number of proposed mitigation and commitments to future work for the project. **Table 6-1** below identifies the waste and excess materials commitments carried forward through to Preliminary Design and describes any applicable changes to the 2002 Approved Environmental Assessment commitment. Commitments identified in the 2002 Approved Environmental Assessment are to be carried forward to Detail Design phase unless otherwise stated in **Table 6-1** below.

Table 6-1: 2002 Approved Environmental Assessment Commitments and Description of Changes Carried Forward Through Preliminary Design

Factor / Criterion	Issue	Concerned Group / Agency	Potential Net Environmental Effect (as taken from 2002 Approved Environmental Report)	Proposed Mitigation / Commitments to Future Work (as taken from 2002 Approved Environmental Report)	Changes to Mitigation/ Protection/ Monitoring (Yes/No/NA)	Description of Commitment Carried Forward through Preliminary Design for Mitigation, Protection and Monitoring
Soil	■ Minimize the areas of high capability mineral soils (Class 1, 2, 3, 4) and agricultural organic (muck) soils removed	■ Ministry of Transportation, Ontario Ministry of Agriculture, Food and Rural Affairs, agricultural property owners, general public	■ In the segments of the study area to the west of the Holland River basin and east of the ridge formation the soils are consistently high capability loam and silty clay loam (Class 1, 2, 3, 4) and there are no distinct areas of lower capability soils where an alternative alignment would have a lesser impact. The proposed Link will remove 190.37 hectares of high capability mineral soils from potential agricultural use. ■ Between the river branches the soils include poorly drained shallow sandy soil (Class 4) and organic soils, both with excessive water limitations. The underlying clay is evident within the plough layer in some locations indicating that the depth of the organic deposits is being depleted. The proposed Link alignment utilizes an area of previous disturbance (Hochreiter Road) thereby minimizing although not eliminating impact; 9.3 hectares of organic (muck) soil are removed by the proposed Link.	■ There are no areas where lower capability soils provide a reasonable alternative route. The loss of higher capability soils is unavoidable. The area taken has thus been minimized.	■ No	■ Geotechnical investigations are being carried out to understand the sub-surface conditions and inform the structural foundation and pavement design for the project. ■ The project will consider soil and groundwater conditions to develop earth and soil management plans with respect to contaminated soils and apply a groundwater protection and well monitoring plan to the project. ■ To understand and consider soil conditions as they relate to agricultural soils, an Agriculture Impact Assessment is being completed.
Property Waste and Contamination	■ Avoidance of waste/ contaminated sites	■ Ministry of Transportation	■ The Link alignment avoids the only known landfill site in the Study Area (north side of 8th Line, west of the CN Rail line). However, it is possible that landfill waste or other contamination may be discovered during subsequent design or construction phases.	■ Any waste material or contaminated soils encountered will be managed in accordance with the requirements of applicable legislation, such as the Environmental Protection Act, and with applicable guidelines such as the Ministry of the Environment, Conservation and Parks Guidelines for Use at Contaminated Sites in Ontario. ■ Measures to ease the contaminant of accidental spills will be considered in the design of stormwater management facilities for the Link	■ Yes	■ Sub-surface conditions, including soil characteristics related contamination, and designated substances is being considered. A Waste and Excess Materials Management Plan will be prepared based on the geotechnical conditions and laboratory results of soil sampling. ■ Groundwater monitoring wells have been installed to understand the groundwater characteristics, including the presence of designated substances that may be present within the Study Area. These hydrogeological results will inform future water taking permits and the groundwater protection and well monitoring plan for the project. ■ The Stormwater Management Plan will consider spills management during construction and stormwater management for the project lifecycle. ■ Ensure a monitoring plan is in place during the excavation particularly where the contaminated soil identified.

6.2 Preliminary Design Commitments

Issues associated with waste and excess materials and proposed mitigation measures, monitoring activities and commitments identified during this WEMMP are summarized in **Table 6-2** below.

Table 6-2: Summary of Preliminary Design Environmental Concerns and Commitments

ID	Issues / Concerns / Potential Effects	Concerned Agencies	ID	Mitigation, Protection, Monitoring, and Commitments
CW-1.00	Potential to encounter contaminated soils during construction	MECP, MTO, Town of Bradford West Gwillimbury, County of Simcoe	CW-1.01	■ If impacted soils are encountered during construction, the Contractor must notify the QP and the Project Leader. The suitability of re-using that soil must be determined before re-using it in accordance with Ontario Regulation 406/19.
			CW-1.02	■ If excavated soil is deemed unsuitable for backfill operations due to environmental conditions, the Contractor shall proceed to stockpile the material in the appropriate location assigned for unsuitable material on site or removed from the site for off-site management. No soil may be transported off-site without authorization from a designated Qualified Person and the Project Leader.
			CW-1.03	■ The following reports are required during the subsequent Detail Design phase: Assessment of Past Use (APU), Sampling and Analysis Plan (SAP), Soil Characterization Report (SCR) as per Soil Rules.
			CW-1.04	■ The Contractor will prepare an environmental orientation and will be responsible for ensuring all personnel on the site are informed on the contents of the plans and the Environmental Orientation Program. The Contractor must ensure that all new employees and/ or subcontractors receive the Environmental Orientation training prior to them conducting any activity on site.
CW-2.00	Soil excavation and salvage	MECP, MTO, Town of Bradford West Gwillimbury, County of Simcoe	CW-2.01	■ Topsoil will be stripped and stockpiled in accordance with the Grading Plan for all permanent and temporary construction areas after areas have been cleared of vegetation.
			CW-2.02	■ Topsoil stripped during the site preparation program is not considered suitable for reuse in any application other than general landscaping on the site. The topsoil can be used for landscaping within diversion channel and swales and the construction of landscaped berms.
			CW-2.03	■ Any topsoil to be salvaged will be stripped during dry periods to the greatest extent practical. Topsoil will be stored in accordance with the sediment and erosion control measures described in the Environmental Protection Plan and contract specifications, until it is required for site reclamation.
			CW-2.04	■ Topsoil piles shall be marked with appropriate signage to prevent accidental admixing.
			CW-2.05	■ Topsoil from the natural areas will be separated from other topsoil stockpiles so that it may be used for restoration of the areas from which it was removed, to the extent possible.
			CW-2.06	■ Replace topsoil as evenly as possible over areas of the construction area to be reclaimed where topsoil salvage was conducted. Postpone replacing topsoil during wet weather or high winds to prevent damaging soil structure or erosion of topsoil.
			CW-2.07	■ Subsoil will be stored separately from topsoil with a minimum of 1 m separation of the piles
			CW-2.08	■ Smooth rutted topsoil flat prior to topsoil replacement.
			CW-2.09	■ To prepare restoration areas for seeding, spread, loosen and fine grade topsoil. Topsoil shall be prepared for planting at a depth of 0.3 m unless otherwise specified.
CW-3.00	Handling and storage of on-site soil	MECP, MTO, Town of Bradford West Gwillimbury, County of Simcoe	CW-3.01	■ Determine the best strategy for the movement of soil across the project. Double handling of soil is to be minimized to the extent possible.
			CW-3.02	■ Soil shall not be placed in locations where there is direct drainage to that location. The drainage at the laydown located need to be managed appropriately to avoid localized flooding and/ or erosion of these storage areas.
			CW-3.03	– Soil that has been identified for movement and/or reuse on the project lands must be stored within the project right-of-way during construction however, excavated soil or crushed rock can temporarily leave a project area to be transported directly to another part of the project area, if that is the most efficient means of relocating soil within a project area for reuse.
			CW-3.04	■ Stockpiles within the project will either be re-used for engineered or for other purposes (e.g., topsoil/slope flattening) some stockpiles may be required for a short period of time, but in some instances, it may be necessary to stockpile earth material for an extended period.
			CW-3.05	■ Stockpile locations will be based on, but not limited to, the following considerations and constraints which are to be confirmed in subsequent Detail Design phases: – Excavated earth that is not to be utilized immediately will be temporarily stockpiled in a manner that does not cause an adverse environmental effect or impair water quality. – There will be minimal stockpiles of earth and granular material on-site in order to limit/ avoid double handling of material. – A stockpiling location will generally be in proximity to where the material will be ultimately used. – Earth will not be placed in locations where there is direct drainage to that location. – Stockpiled materials near any watercourse will be stored and stabilized at least 30 m away from the watercourse. – Soil must not be stored within 10 m of the construction limits unless any of the following apply: o 500 m^3 or less will be stored, o Soil storage will be less than 1 week, and o There is a physical barrier between the excess soil and the Construction Limits.
			CW-3.06	■ Stockpile management will be based on, but not limited to, the following considerations and constraints. – Implement measures, during construction, to avoid the introduction or spread of invasive vegetation with the Project Area, including from equipment brought on-site from other worksites and from imported fill. In doing so, take into account Clean Equipment Protocol for Industry. – Stockpiles with invasive species may be tarped to facilitate the invasive species deterioration. Stockpiles shall be temporarily seeded to reduce erosion if left exposed or inactive for more than 30 days. – Measures to prevent the mobilization of stockpiles will be employed using silt fences and other erosion control methods in accordance with the ESMP. – For stockpiles left on-site long-term (more than one month) and where erosion and sediment control measures are required to manage on-site runoff water, the Contractor shall maintain such measures to ensure their effectiveness. Silt fencing installed around soil stockpiles must maintain a minimum 1 m distance from the toe of the stockpile. – Additional erosion and sediment control measures will be inspected on a weekly basis and after a major precipitation event. The Contractor is responsible to correct any identified deficiencies in a timely manner. – The stockpiles should be monitored to ensure that stockpiles remain intact and that there are no environmental adverse effects, erosion issues, or other concerns.

Table 6-2: Summary of Preliminary Design Environmental Concerns and Commitments

ID	Issues / Concerns / Potential Effects	Concerned Agencies	ID	Mitigation, Protection, Monitoring, and Commitments
				– Soil stockpiles of any type must be stored with slopes 70 degrees or less from April 15 until July 15 to prevent Bank Swallows (Riparia riparia), a bird Species at Risk, from nesting in the stockpiles. If not permittable, the contractor shall implement exclusion techniques such as tarping of slopes. – Soils shall be handled and stored during construction in a manner that protects soil quality for re-use.
			CW-3.07	■ Decisions on re-using stockpiled soil to backfill the excavations or for grading within the Project Area will be determined in accordance with the project specifications and will be based strictly on the suitability of soil for use in backfilling construction excavations or as structural fill. The Contractor is responsible for the re-use of soil within the Project Area to the extent possible.
CW-4.00	Handling and storage of excess soils (off- site)	MECP, MTO, Town of Bradford West Gwillimbury, County of Simcoe	CW-4.01	■ The Contractor shall re-use excess soil within the Project to the extent possible. Remaining excess soil shall be re-used or placed in the creation of berms at locations to be determined by the Qualified Person, Project Leader and the Ministry of Transportation's QP. In some instances, on-site re-use of soil may not be possible. In these instances, with the consultation and approval of the QP and Project Leader the soil may be reused off-site.
			CW-4.02	■ Stockpiles of excess soil deemed unsuitable for use in any application after all construction excavations have been backfilled and grading completed within the Project and as approved by the qualified person, Project Leader and the Ministry of Transportation site disposal facility or approved off- site reuse receiver in accordance with the applicable regulations, including Ontario Regulation 406/19. – Transportation and reuse or disposal of excess soil should follow an Excess Soil Management Plan (developed by the Contractor and approved by the Ministry prior to transport of reuse or disposal of the soil. – All documentation (bills of lading, waste manifests, waste characterization, etc.) are to be maintained on-site, and copies shall be provided to the Ministry and the qualified person. – When required, off-site reuse or disposal details should be included in the Excess Soil Management Plan by the contractor outlining specific procedures and protocols for soil sampling and disposal. – No soil removed from the site may be disposed of off-site or re-used at any location other than the Project Area and/or off-site location permitted to accept the soil. – Approval by the qualified person is required prior to the removal of any soil from the site. – Preference will be given to re-using soil instead of disposing of soil at a landfill, if the geotechnical quality of the soil is deemed appropriate for re-use. – Large debris and solid waste material such as foundations, concrete, field stones, cobble stones, wood or metal shall be separated from the soil by mechanical means and salvaged for on-site/off-site re-use or disposed off-site separately as solid waste at a facility permitted to receive construction/ demolition debris.
			CW-4.03	■ Any excess soil should be sampled according to a Sampling and Analysis Plan that is prepared by the qualified person based on Ontario Regulation 406/19 and at a minimum, soil samples must be analyzed for the following parameters: Petroleum Hydrocarbons in Fractions F1 to F4, and metals (including lead), salinity (if there are any intended agricultural receiving sites), inorganics, pH and grain size. Additional analysis may also be required for leachate if any substances with published Leachate Screening Levels in the Soil Rules are identified as contaminants of concern within the Project.
			CW-4.04	■ Assuming excess soil is stockpiled, appropriate bulk soil sample frequencies should com Condition - Part XV.1 of the Act, Ontario Regulation 153/04 as amended, Table 2 Minimum Stockpile Sampling
			CW-4.05	■ All sampling and decontamination procedures, laboratory analytical methods, and protocols and procedures will be consistent with those established by the Ministry of the Environment, Conservation and Parks, as documented in Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, May 1996 Guidance Manual). Representative samples should be collected in containers supplied by a Canadian Association for Laboratory Accreditation (CALA) - accredited laboratory.
			CW-4.06	■ Based on the results of the analytical testing of soils within the Project Area, excess materials should not be re-used off- site at a residential, commercial, or industrial property without further verification sampling or acceptance of that material according to the Excess Soil Management Plan for the receiver site that is completed by the Contractor and approved by the Ministry. – It should be noted that the private receiver site may require additional testing to satisfy the Excess Soil Quality Standards published in the Soil Rules. When soil suspected of being potentially contaminated are observed during construction, the contactor should inform the qualified person. Additional testing should be conducted to further characterize the contamination -use on-site or disposal off- site.
			CW-4.07	■ Should on-site re-use not be possible, the Contractor shall make all reasonable attempts to locate a suitable off-site beneficial re-use receiver. Only as a last resort shall disposal of excess soil at landfill will be undertaken. Re-use at off- site beneficial re-use receivers shall be communicated to the Ministry and the Contractor shall verify and document that the receiver is operating under appropriate by-laws, permits and regulations and that the quality of material being re-used is suitable for their operation. Copies of all agreements, hauling record, bills of lading, weigh bills, analytical results shall be forwarded to the Ministry and/or Contract Administrator. A copy of the hauling record must be retained on behalf of the Ministry and confirmation of receipt of the excess soil at the destination site must be obtained by the hauler with a copy of the final record to be retained by all parties for two years.
			CW-4.08	■ Receiving sites identified for beneficial re-use of excess material will be screened in advance and will require approval by the qualified person. As part of the screening process, the Qualified Person will ensure that receiving site criteria, and legislative and regulatory requirements are withheld. If excess soil is to be transported off the right-of-way for beneficial re-use at a receiving site, each load should be accompanied by documentation from the Qualified Person that summarized or provides (as a minimum): – The sampling and segregating work done, – The excess soil data pertaining to the suitability for the excess soil for re-use, – The receiving site soil date pertaining to the suitability of the excess soil for re-use at the receiving site, – A statement from the qualified person that the soil should be used for beneficial re-use and is not likely to cause a negative effect on human health or the environment; and a statement from the qualified person confirming the land use of the receiving site matches the intended use/ suitability of the excess soil.
			CW-4.09	■ Before the soil has been shipped and received at the receiving site, the Ministry requires written documentation from the owner of the receiving site confirming acceptance of the soil and the owner's understanding of the soil quality and quantity. The following must be kept on file for future reference as outlined in Ontario Provincial Standard Specification. MUNI 100: – A record of the exact location where the soil is deposited on the Receiving site; – Landowner/ facility names and civic addresses;

Table 6-2: Summary of Preliminary Design Environmental Concerns and Commitments

ID	Issues / Concerns / Potential Effects	Concerned Agencies	ID	Mitigation, Protection, Monitoring, and Commitments
				– Date of disposition; – Quantity (bill of lading); – Soil sampling results; and, – Qualified person's confirmation of appropriateness of excess soil for Receiving Site.
			CW-4.10	■ If potentially contaminated soil is encountered based on organic vapour monitor, odours, soil discolouration, buried containers or other materials contributing to a potential release, etc., the Contractor must inform the Ministry and the Qualified Person. The following provides guidance with respect to contaminated soil management within the Project Area.
			CW-4.11	■ A thorough understanding of the contaminants that may be encountered and appropriate means and measures for handling and managing excavated materials should be contemplated in advance of undertaking excavation activities of suspected contaminated soils. Contaminated soil is soil that exceeds the applicable Ministry of the Environment, Conservation and Parks Table 2 Site Condition Standard (MECP, 2011).
			CW-4.12	■ A procedure for soil testing, if soil that is observed to be potentially contaminated is encountered during excavation shall be developed by the qualified person, in accordance with the project specification. If potentially contaminated soil is encountered during excavation, the contractor shall notify the Ministry and the qualified person and the above noted procedure shall be implemented by the Contractor.
			CW-4.13	■ The Contractor shall stockpile all suspected contaminated soil in a designated Temporary Soil Storage Site in such a manner as to protect existing surface, materials and structures from contamination, runoff surface water and, as result, erosion. Intermediate staging of contaminated soils elsewhere within the Project Area is strictly prohibited. If the designated Temporary Soil Storage Site cannot be used for any reason, the Contractor must consult with the qualified person to determine an alternative, if possible. The qualified person should notify the Ministry of any changes. ■ The Temporary Soil Storage Site should be designed by the qualified person and constructed by the Contractor. Once designated, the surface soils (up to 1.5 m depth) of the Temporary Soil Storage Site will be sampled to establish a baseline of environmental conditions. Depending on the size of the Temporary Soil Storage Site, between three and eight samples will be collected and submitted for chemical analysis of PHCs in F1-F4, VOCs, PAHs, metals and inorganic parameters, including pH. Samples will be collected using either hand auger or by excavation of shallow test pits.
			CW-4.14	■ The design of the Temporary Soil Storage Site will include: a minimum of 10-mil (10 thousandth of an inch) nylon reinforced polyethylene sheeting serving as an impermeable/low permeable barrier to contain stockpiled potentially contaminated excess soils; a 0.5 to 1 m high berm of baled hay or clean fill with the 10-mil nylon reinforced polyethylene sheeting extended over the berm, reaching the exterior ground surface; and consider how the potentially contaminated soils will be transported and stockpiled without compromising the berms (controlling runoff/run-on) or causing potential cross contamination (e.g., migration of contaminants outside the Temporary Soil Storage Site). If more than one sheet of polyethylene is needed to line the ground beneath the Temporary Soil Storage Site, each section of sheeting must overlap by at least 1 m. ■ As necessary, the Temporary Soil Storage Site will be designed with a sump pump to remove any accumulated water from the Temporary Soil Storage Site and temporary store it for proper discharge. In addition, should contaminated soil be encountered that the qualified person or the Ministry consider a potential source of groundwater contamination, then these soils will either be: – Placed in a separate cell in the Temporary Soil Storage Site, or; – Placed directly into a lined roll-off and properly disposed of at a licensed landfill facility. ■ Following the use of the Temporary Soil Storage Site, confirmatory surface soil samples (up to 1.5 m depth) will be collected and submitted for chemical analysis of PHCs, VOCs, PAHs, pH, metals and inorganic parameters to verify the quality of soil in this area. These sample results will be compared to the baseline samples to verify the area was not contaminated through the use of the Temporary Soil Storage Site. If needed, shallow remedial excavations can be completed to return the Temporary Soil Storage Site area back to original condition.
			CW-4.15	■ The Contractor shall ensure that a procedure is developed and applied with respect to what must occur if any person working in the project area makes an observation during soil excavation within the project area, including any visual or olfactory observation, that suggests that the soil being excavated may be affected by the discharge of a contaminant. At a minimum, the project leader or the operator of the project area shall ensure that the procedure includes the following: – All soil excavations in the project area must immediately cease upon the observation being made, until such time as the project leader directs that soil excavations may be resumed – The Contractor and Ministry must immediately be notified of the observation – The Contractor, upon being notified of the observation, must, before directing that soil excavations may be resumed, ensure that all necessary steps are taken to ensure that: – all excavated soil or excavated crushed rock that is affected by the discharge of a contaminant is identified and is segregated from other excavated soil or excavated crushed rock in the project area – the portion of the project area that is affected by the discharge of a contaminant is determined, and – any excess soil from that portion of the project area is disposed of in accordance with Ontario Regulation 409/19. ■ When excavation and/or trenching are required at a suspected contaminated location, appropriate management of the contaminated solid or semi-solid material (such as soil or sludge) is required. Concerns for excavation and management of impacted soil relate to the potential for transfer of contaminants during materials handling and transportation activities. Transfer of contaminants may occur due to: – Excavation, storage, sizing etc. and the potential for dust and volatile emissions from the contaminated media; – High potential for fugitive dust emissions due to movement of equipment at the site; Leaching contaminants from contaminated soil to surface and groundwater water can occur from unlined and uncovered stockpiles and excavated pits; – Migration of contaminants to uncontaminated areas may occur during transportation; – Improper handling and disposal of contaminated soil may allow contaminants to migrate into and pollute uncontaminated areas.

Table 6-2: Summary of Preliminary Design Environmental Concerns and Commitments

ID	Issues / Concerns / Potential Effects	Concerned Agencies	ID	Mitigation, Protection, Monitoring, and Commitments
			CW-4.16	■ Excavation and trenching primarily involves equipment that is widely used in the construction or non-hazardous solid waste disposal industries, such as excavators, earth movers or backhoes, dump trucks, and containers of various shapes, sizes, and materials.
			CW-4.17	■ General guidance and best practice measures to prevent potential transfer of contaminants during excavation, material handling and transport of contaminated material include the following: – Entry to the active work area should be limited to avoid unnecessary exposure and related transfer of contaminants. – Traffic should be minimized on contaminated soil. – Surface drainage and subsurface utility systems should be identified. – Any runoff should be prevented from entering and mixing with on-site contaminated media by building earthen berms or adopting similar other measures on the TSSS and on the site, where needed. – Provisions should generally be made to capture surface water runoff by diverting it to a controlled depression-area or lined pit on the Temporary Soil Storage Site and on-site, where needed. – Fugitive dust emissions should be controlled during excavation both on the Temporary Soil Storage Site and on- site, where needed, by spraying water or other materials to keep the ground moist or covered. During wet weather or rainfall no water spraying would be needed. Materials for dust control must be approved by the qualified person prior to use on the site. – Appropriate personnel and equipment and decontamination procedures should be employed as required to keep the site-related contaminants within the Temporary Soil Storage Site and the Project. Covers and liners should be used at all times when contaminated materials are being stored at the Temporary Soil Storage Site. – Covers should be used on trucks that are moving materials around and from the site. – Any equipment that is involved in earthwork activities or that may have come into contact with waste or any potentially contaminated material must be decontaminated prior to being removed from the Site or Temporary Soil Storage Site.
			CW-4.18	■ General guidance and best practice measures for the storage of contaminated soil include the following: – For contaminated suspected soil, soil must be stored in a manner that prevents potential contaminants from leaching into the groundwater. – Potentially contaminated soil will be protected to prevent the infiltration of precipitation and/or generation of runoff. – If determined necessary by a qualified person, soil from the project that require sampling needs to be kept segregated from soil that has already been sampled.
			CW-4.19	■ In the event that impacted soil are encountered during construction, the suitability of reusing the soil should be determined before its re-use. The Contractor must consult with the Qualified Person prior to re-using impacted soil on-site. In general, impacted soil may be re-used on-site for backfilling construction excavations/or as structural fill, as deemed appropriate by the QP.
			CW-4.20	■ Impacted soil must be stockpiled as close as possible to the location from where it was excavated or placed in a separate cell in the Temporary Soil Storage Site to ensure it is isolated from stockpiled clean material and is clearly identifiable. Impacted soil may only be re-used in areas that will be advised by the Qualified Person with local authority standards. The Contractor shall maintain a log to document the final disposition of impacted soil re- used on-site, if any.
			CW-4.21	■ Impacted soil will not be replaced beneath the groundwater table under any circumstance. In addition, if impacted soil is encountered that the qualified person, notify the Ministry immediately and then - consider a potential long-term source to groundwater contamination, then these impacted soils may not be re-used in the Project Area in their current state. In the event impacted soil is found below the water table, the contractor should contact the Ministry of Transportation first for potential remedial actions. This soil should be either: – Placed in a separate cell in the Temporary Soil Storage Site; and – Placed directly into a lined roll-off container.
			CW-4.22	■ In the event that off-site disposal is required, with prior approval from the Qualified Person, Project Leader and the Ministry, the Contractor shall dispose of soil not suitable for re-use according to proper disposal requirements, taking into Management of Excess Soil- A Guide for Best Management Practices (MECP, 2014) and Ontario Regulation 406/19, including the Soil Rules.
			CW-4.23	■ It is important that transportation of impacted soil/excess soil is carefully considered prior to the commencement of the project. Transportation of Dangerous Goods, General Waste Management, and other environmental regulations apply to the off-Site transportation and disposal of waste materials.
			CW-4.24	■ Contaminated soil not suitable for re-use within the Project Area shall be managed and disposed of in accordance with all applicable laws, industry standards and best management practices, this may include but not limited to: – The Environmental Protection Act; – Ontario Regulation 406/19, as amended; – Ontario Provincial Standard Specification PROV 180 General Specification for the Management of Excess Materials; and – Management of Excess Soil A Guide for Best Management Practices (Ministry of Environment, Conservation and Parks [MECP], Updated: April 4, 2019, Published: April 5, 2016, as updated).
			CW-4.25	■ The Contractor will ensure that all shipments comply with applicable regulatory requirements, including Ontario Regulation 406/19, and all necessary documentation is provided to the Ministry in a timely manner.
			CW-4.26	■ Only approved disposal facilities for impacted soil (either non-hazardous or hazardous) will be permitted for use.
			CW-4.27	■ Acceptance criteria must be met, including but not limited to provision of adequate soil quality data for bulk chemical analysis and Schedule 4 leachate criteria. The origin and volume of impacted material being transferred to a disposal site and its final destination shall be tracked.
			CW-4.28	■ The Contractor shall arrange for and pay for any additional testing required by the receiver site as a condition of acceptance of the material. The Contractor shall submit to the Ministry of Transportation a copy of the forms provided under Ontario Provincial Standard Specification PROV. 180, signed by the receiver site

Table 6-2: Summary of Preliminary Design Environmental Concerns and Commitments

ID	Issues / Concerns / Potential Effects	Concerned Agencies	ID	Mitigation, Protection, Monitoring, and Commitments
			CW-4.29	■ Mitigation measures will be developed in consultation with the QP to mitigate the mobilization and transport of potential residual agricultural contaminants within the Project Area towards waterbodies during all phases of the Project, including measures to allow time for increased die-off of pathogenic organisms and volatilization of agricultural contaminants prior to soil disturbance and removal of nutrient compounds through plant harvesting.
			CW-4.30	■ Prior to disposing of a subject waste (i.e., liquid industrial waste and hazardous waste, including hazardous soil), the contractor shall ensure that the subject waste be properly classified as per Ontario Regulation 347 and registered in the Ministry of the Environment, Conservation and Parks Hazardous Waste Information Network, and a valid waste subject waste generator registration number is obtained. The generator shall ensure that waste manifests are completed correctly for each subject waste transferred and all waste transfers are properly identified and tracked through the Hazardous Waste Information Network system.
			CW-4.31	■ A waste tracking system governing all hazardous waste transfers in accordance with the federal Transportation of Dangerous Goods Regulation and provincial regulations should be implemented by the contractor.
			CW-4.32	■ Soil/fill materials imported to the Project Area, including quantity, quality and the source of the imported materials, should also be tracked and documented during the construction activities in accordance with Ontario Regulation 406/19.
			CW-4.33	■ For the purpose of any record-keeping mentioned in this document, it is recommended that records be retained for a minimum of 7 years after the completion of all excess soil management activities or the removal of all excess soil from a Temporary Soil Storage Site, as required by Ontario Regulation 406/19.
			CW-4.34	■ The Contractor will be responsible for tracking and managing the quality and quantity of material excavated from or imported to the site using existing information and new information, as needed. Tracking will include quantifying and documenting locations for the beneficial on-site re-use of excavated materials. Management will include: – Minimizing adverse effects to workers and sensitive receptors through Best Management Practices, worker health and safety provisions and ensuring that remedial/risk management options are considered during the construction planning process and appropriately incorporated into final designs. – Minimizing soil disturbance and retaining vegetation, including wildlife trees, within and around the Project Area in accordance with the setbacks / buffers identified on applicable design drawings, and in other areas to the extent that it is technically feasible or unless required to meet engineering requirements for safe and facility operation. The construction vehicle traffic will be minimized on impacted soils. – Manage soil in such a way as to prevent any adverse effects associated with receiving, processing, storage and movement of soil with respect to noise, dust, mud, tracking, leaching, runoff, erosion, outdoor air quality and odour. Monitoring will be completed in accordance with the Contractor's Air Quality Best Management Practices. Plan to reduce the potential generation of dust (specifically PM10) and other fugitive air emissions during construction, including daily visual observations and on-site dust monitoring to inform the implementation of mitigation measures. – Handle and store soil during construction in a manner that protects soil quality for re-use. In the event that impacted soil are encountered during construction, the Contractor, qualified person, with approval from the Ministry, shall determine the suitability of reusing the soil before reusing it. The Contractor shall (with Project Leader and the QP's permission) dispose of any soil not suitable for re-use according to proper screening and disposal requirements, taking into account Excess Soil- a Guide for Best Management Practices (MECP, 2014) and Ontario Regulation 406/19, including the Soil Rules. – Encouraging re-use of soil where appropriate, balancing cut and fill, minimizing grading, and minimizing the need to transport additional soil to the Project Area where possible.
CW-5.00	Based on the age and materials used for buildings on properties and two culverts within the Project Area, there is potential for designated substances to be present. Should buildings be identified for demolition by MTO, a Designated Substance Survey (DSS) should be completed to ensure proper handling and disposal of materials.	MECP, MTO, Town of Bradford West Gwillimbury, East Gwillimbury, King Township, County of Simcoe, York Region	CW-5.01	■ The asphalt levelling course on roadways that are crossed may contain asbestos and prior to construction, asphalt core samples should be collected and tested for asbestos. If asbestos containing materials are found, an asbestos abatement plan should be implemented according to MTO standard special provision 101 F21 Occupational Health and Safety Compliance – List of Designated Substances that is included in the MTO construction tender documents in accordance with the Occupational Health and Safety Act of the presence of designated substances.

7. References

AECOM February 2020:
Contamination Overview Study – FINAL Highway 400 – Highway 404 Link (Bradford Bypass W.O. #19-2001, Prepared for MTO.

AECOM, 2022:
Final Waste and Excess Materials Management Plan Highway 400 – Highway 404 Link (Bradford Bypass) County Road 4 Early Work (GWP 2008-21-00) Town of Bradford West Gwillimbury, Ontario; By AECOM January 2022.

Golder Associates Ltd, December 2022:
Preliminary Foundation Investigation and Design Report 10th Sideroad Underpass Structure Highway 400 to Highway 404 Link (Bradford Bypass) Simcoe County and York Region Assignment No. 2019-E-0048

Golder Associates Ltd, October 2022:
Preliminary Foundation Investigation and Design Report Holland River (West Branch) Structure Highway 400 to Highway 404 Link (Bradford Bypass) Simcoe County and York Region Assignment No. 2019-E-0048

Golder Associates Ltd, October 2022:
Preliminary Foundation Investigation and Design Report Holland River (East Branch) Structure Highway 400 to Highway 404 Link (Bradford Bypass) Simcoe County and York Region Assignment No. 2019-E-0048

Golder Associates Ltd, September 2022:
Preliminary Foundation Investigation and Design Report Bradford Bypass / Highway 404 Interchange Ramp Structures (S-W Ramp over Highway 404, W-N Ramp over S-W Ramp, W-N Ramp over Highway 404) Highway 400 to Highway 404 Link (Bradford Bypass) Simcoe County and York Region MTO Assignment No. 2019-E-0048

Ministry of the Environment and Energy (MOEE), 1994:
Management of Excess Materials In Road Construction and Maintenance

Ministry of the Environment, 1996:
Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, May 1996 (MOE 1996 Guidance Manual)

Ministry of the Environment, Conservation and Parks (MECP), 1990:
R.R.O. 1990, Reg. 697: Exemption(S) - For Certain Conveyances Of Family Farms Or Family Businesses

Ministry of the Environment, Conservation and Parks (MECP), 1994:
Waste Audits and Waste Reduction Work Plans, O. Reg. 102/94

Ministry of the Environment, Conservation and Parks (MECP), 2011:
Environmental Protection Act – Ontario Regulation 153/04 (as amended) – Record of Site Condition regulation - Part XV.1 of the Environmental Protection Act

Ministry of the Environment, Conservation and Parks (MECP), 2011:
Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011

Ministry of the Environment, Conservation and Parks (MECP), 2014:
Management of Excess Soil – A Guide for Best Management Practices (January 2014) MECP

Ministry of the Environment, Conservation and Parks (MECP), 2019:
Ontario Regulation 407/19 - Records of Site Condition – Part XV.1 of the Environmental Protection Act

Ministry of the Environment, Conservation and Parks (MECP), 2019;
On-Site and Excess Soil Management, R.S.O. 1990, O. Reg. 406/19

Ministry of the Environment, Conservation and Parks (MECP), 2020:
Rules for Soil Management and Excess Soil Quality Standards (The Soil Rules)

Ministry of the Environment, Conservation and Parks (MECP),1990:
General - Waste Management, R.R.O. 1990, Reg. 347

Appendix A

Study Area and Contamination Potential Ratings

Table 1: Properties with a High Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way	Occupant/Site Description	Risk Rating Rationale	Potentially Contaminating Activity Description
588	Railway line	580420001	Yes	■ Go Transit – Metrolinx	■ Railway corridor	■ Rail Yards, Tracks and Spurs
589	Lot 17-18, Concession 8, West Gwillimbury	580410112	Yes	■ Landfill	■ Closed Waste disposal site, 1960	■ Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
590	Lot 17-18, Concession 8, West Gwillimbury	580420011	Yes	■ Landfill	■ Closed Waste disposal site, 1960	■ Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
724	Lot 17-18, Concession 8, West Gwillimbury	n/a	Yes	■ Landfill	■ Closed Waste disposal site, 1960	■ Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
1538	100 Industrial Road	n/a	Yes	■ MiTek Canada Ltd	■ Fabricated Metal Product Manufacturing	■ Metal Treatment, Coating, Plating and Finishing
1542	120 Artesian Industrial Parkway	580410100	Yes	■ AGC Automotive Canada Inc.	■ Glass Product Manufacturing	■ Glass Manufacturing
1556	70 Artesian Industrial Parkway	580410031	Yes	■ Doc's Autobody	■ Autobody shop	■ Commercial Autobody Shops
1559	80 Artesian Industrial Parkway	580410032	Yes	■ Salt Storage, Snow Plowers	■ Bulk road salt storage	■ Salt Manufacturing, Processing and Bulk Storage
1699	21019 Bathurst Street North	034160038	Yes	■ Albert's Marina	■ UST, Boat repair and manufacturing	■ Boat Manufacturing ■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles
1702	20917 Bathurst Street	0341600	Yes	■ Boat Storage Yard	■ Boat Storage	■ Boat Storage
2017	21413 Leslie Street	034170165	Yes	■ Don Chapman Farms Ltd./Lakeview Vegetable Processing Inc.	■ USTs, vegetable processing	■ Gasoline and Associated Products Storage in Fixed Tanks
3168	3109 Sideroad 10	580330290	Yes	■ The Sarjeant Company Limited	■ Ready mix concrete manufacturing	■ Concrete, Cement and Lime Manufacturing
3180	3066 Line 8	580330289	Yes	■ Intier Automotive Closures Inc	■ Automotive parts manufacturing	■ Vehicles and Associated Parts Manufacturing
3302	3556 Line 9	580370062	Yes	■ Corneau & Sons Pallet & Box Ltd	■ Wood Container and Pallet Manufacturing	■ Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products
62	45 Morgan's Road	034160327	No	■ Skippy Marina	■ Boat repair, possible USTs	■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles.
172	3001 Yonge Street	580410022	No	■ GFL Environmental/ Charter Construction/ Hulst Town Contracting	■ Waste management services	■ Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners
1350	305 Barrie Street	580260255	No	■ Commercial Plaza	■ Based on 1994 City Directories, Panda Cleaners (possible dry cleaners) was listed as a shop in the commercial plaza.	■ Operation of Dry Cleaning Equipment (where chemicals are used)
1516	12 Industrial Court	580230082	No	■ Vins Plastics	■ Plastics film and Packaging paper Manufacturing	■ Plastics including Fibreglass Manufacturing and Processing
1518	10 Industrial Court	580230006	No	■ C.C.I Industrials Inc.	■ Historical wood product manufacturing and processing, historical presence of paint spray booth	■ Paints Manufacturing, Processing and Bulk Storage ■ Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products
1519	Railway line	580230064	No	■ Go Transit – Metrolinx	■ Railway corridor	■ Rail Yards, Tracks and Spurs
1524	6 Industrial Court, Unit #3	580230007	No	■ Perfect Furniture Refinishing	■ Plastic product Manufacturing, sign manufacturing, shelving and locker manufacturing	■ Plastics including Fibreglass Manufacturing and Processing ■ Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products
1530	401 Dissette Street Unit 4/389 Dissette Street	580230086	No	■ DuraKit Shelters Inc./VIP Recreation Centre	■ Prefabricated Wood Building Manufacturing ■ A commercial property based on 1984 City Directories. This parcel and 401 Dissette St. become one single parcel in later years	■ Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products
1535	Railway line	580230065	No	■ Go Transit – Metrolinx	■ Railway corridor	■ Rail Yards, Tracks and Spurs
1536	435 Dissette Street	580230084	No	■ Assured Automotive	■ Automotive repair facility	■ Commercial Autobody Shops ■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles.
1543	160 Artesian Industrial Parkway	580410040	No	■ Collison Shop	■ Automotive refinishing facility, presence or historical presence of a paint booth	■ Commercial Autobody Shops ■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles' ■ Paints Manufacturing, Processing and Bulk Storage
1545	150 Artesian Industrial Parkway	580410039	No	■ Blackbrook Chemical Ltd/ Switch European Auto Clinic	■ Chemical manufacturing/ storage/ machine shop/auto garage	■ Chemical Manufacturing, Processing and Bulk Storage ■ Metal Treatment, Coating, Plating and Finishing ■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles.
1552	120 Artesian Industrial Parkway	580410035	No	■ AGC Automotive Canada Inc.	■ Glass Product Manufacturing	■ Glass Manufacturing
1555	100 Artesian Industrial Parkway	580410034	No	■ Advance Warning Incorporated	■ Equipment and Sign Manufacturing, historical boat repair with a paint spray booth	■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles. ■ Paints Manufacturing, Processing and Bulk Storage
1558	90 Artesian Industrial Parkway	580410033	No	■ Salt Storage, Snow Plowers	■ Bulk road salt storage	■ Salt Manufacturing, Processing and Bulk Storage
1672	436 Dissette Street	580250484	No	■ Petro Canada Truck Shop	■ USTs	■ Gasoline and Associated Products Storage in Fixed Tanks
1687	180 Artesian Industrial Pkwy	580410042	No	■ Currie Truck Centre	■ Truck Garage	■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles.

Table 1: Properties with a High Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way	Occupant/Site Description	Risk Rating Rationale	Potentially Contaminating Activity Description
1688	170 Artesian Industrial Parkway	580410041	No	■ Gary's Auto service	■ Auto service station	■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles ■ Metal Treatment, Coating, Plating and Finishing
1693	21259 Bathurst Street	034160031	No	■ Holland River Marina	■ USTs/ Boat repair	■ Gasoline and Associated Products Storage in Fixed Tanks ■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles
1849	40-60 Industrial Rd	580230073	No	■ Royal Woodworking	■ Lumber, Plywood and Millwork Wholesaler	■ Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products
2059	45 Morgan's Road	034160328	No	■ Skippy Marina	■ Boat repair, possible USTs	■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles.
3182	3030 Line 8	580330099	No	■ S.M. Racing Components	■ Motor vehicle transmission and power train parts manufacturing	■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles.
3183	3030 Line 8	580330096	No	■ S.M. Racing Components	■ Motor vehicle transmission and power train parts manufacturing	■ Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles.

Table 2: Properties with a Medium Risk Rating

Parcel Identifier (PID)	Address	PIN	Risk Rating Rationale	Occupant/Site Description	Risk Rating Rationale
0076	21114 Yonge Street	034160034	Yes	■ Silver Lakes Golf & Country Club Ltd.	■ Commercial/recreational use
0101	21360 Bathurst Street	034150102	Yes	■ ATV Farms	■ Commercial Farming/Agricultural property. Storage and usage of farm equipment and pesticides.
0169	2465 Line 9	580410023	Yes	■ Bradford Community Church	■ Commercial/institutional use. Possibility of oil furnace and associated fuel storage tanks.
0670	3412 8th Line	580340015	Yes	■ Dennis Harrison / Agricultural	■ Commercial Farming/Agricultural property. Storage and usage of farm equipment and pesticides.
931	300 Barrie Street	580410122	Yes	■ Equipment's/Sheds (aerial photos year 2004 – 2010)	■ Based on the aerial/street view photos from year 2004-2010, site was likely a Commercial property with truck/equipment parking on site. ■ Possible spill of fuel from the storage equipment.
1531	20 Industrial Road	580230072	Yes	■ A non-residential type building is located at the southeast end of the parcel.	■ Possible unknown commercial/light industrial activities on site
1540	15 Artesian Industrial Parkway	580410019	Yes	■ Bradford Brew House	■ A commercial property, based on 1984 City Directories.
1546	60 Artesian Industrial Parkway	580410029	Yes	■ Fred's Paving	■ Commercial use/ Truck/Equipment parking. Possible spill of fuel from the storage of equipment.
1551	60 Artesian Industrial Parkway	580410030	Yes	■ Fred's Paving	■ Commercial use/ Truck/Equipment parking. Possible spill of fuel from the storage of equipment.
1563	185 Artesian Industrial Parkway	580410061	Yes	■ Service Star Inc.	■ Commercial/logistics company with truck/equipment parking. Possible spill of fuel from the storage equipment.
1566	165 Artesian Industrial Parkway	580410062	Yes	■ Battlefield Equipment Rentals	■ Commercial use/ Truck/Equipment parking. Possible spill of fuel from the storage equipment.
1576	75 Artesian Industrial Parkway	580410069	Yes	■ New Era Homes	■ Commercial use
2055	1193 Holborn Road	034180005	Yes	■ Shed	■ Activities unknown. Possible storage of equipment/trucks from google image (2018)
2058	1337 Holborn Road	034180006	Yes	■ Mushroom Farm	■ Commercial Farming/Agricultural property. Storage and usage of farm equipment and pesticides.
3207	3224 10th Sideroad	580340022	Yes	■ Bradford Brew House	■ A commercial property, based on 1984 City Directories.

n/a- information not available

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0002	21357 Leslie Street	034170169	Yes
0009	n/a	034180325	Yes
0011	20967 2nd Concession Road	034180023	Yes
0012	n/a	034180327	Yes
0017	20733 Leslie Street	034180300	Yes
0025	21087 Leslie Street	034180315	Yes
0026	20913 Leslie Street	034180302	Yes
0032	1763 Holborn Road	034180125	Yes
0033	21472 Woodbine Avenue	034170167	Yes
0034	21308 Woodbine Avenue	034170135	Yes
0037	21170 Woodbine Avenue	034180312	Yes
0040	20946 Woodbine Avenue	034180298	Yes
0041	n/a	034180299	Yes
0045	20724 Woodbine Avenue	034180306	Yes
0067	20866 Yonge Street	034160046	Yes
0074	21003 Bathurst Street	034160039	Yes
0096	20989 2nd Concession Road	034180022	Yes
0099	21000 Bathurst Street	034150092	Yes
0103	21210 Bathurst Street	034150097	Yes
0144	n/a	580330632	Yes
0161	n/a	580330050	Yes
0162	n/a	580330297	Yes
0171	n/a	580330065	Yes
0173	n/a	580410021	Yes
0174	n/a	580330381	Yes
0175	n/a	580410009	Yes
0176	2835-2879 Yonge Street	580410117	Yes
0178	n/a	580330261	Yes
0180	n/a	580330475	Yes
0266	n/a	580330482	Yes
0267	n/a	580331429	Yes
0372	n/a	034150110	Yes
0386	900 Hochreiter Road	034150094	Yes
0387	750 Hochreiter Road	034150095	Yes
0531	n/a	580330477	Yes
0577	n/a	580340033	Yes
0581	n/a	580340032	Yes
0582	n/a	580340087	Yes
0585	n/a	580340109	Yes
0595	n/a	580420009	Yes
0596	n/a	580420021	Yes
0608	3664 8th Line	580340008	Yes
0610	n/a	580340031	Yes
0611	n/a	580340013	Yes
0666	3287 9th Line	580340106	Yes
0672	n/a	580340107	Yes
0681	n/a	580340005	Yes
0682	n/a	580340011	Yes
0683	n/a	580340014	Yes
0685	n/a	580340096	Yes
0686	n/a	580340097	Yes
0930	n/a	580330277	Yes
1087	2673 9th Line	580330045	Yes
1088	n/a	580330753	Yes
1089	n/a	580330093	Yes
1090	n/a	580330751	Yes
1099	n/a	580330384	Yes
1113	n/a	580330068	Yes
1115	n/a	580330067	Yes
1460	n/a	034160043	Yes
1492	n/a	034160515	Yes
1494	n/a	034160042	Yes
1509	20901 Yonge Street	034160389	Yes
1511	20958 Yonge Street	034160037	Yes
1529	n/a	580230046	Yes
1561	n/a	580410070	Yes
1578	20981 Bathurst Street	034160040	Yes
1851	n/a	580420010	Yes
1856	50 Hochreiter Road	034150099	Yes
2007	21035 Leslie Street	034180131	Yes
2009	21145 Leslie Street	034180130	Yes
2010	21212 Leslie Street	034180008	Yes
2011	21192 Leslie Street	034180011	Yes
2012	1611 Holborn Road	034180123	Yes
2034	20832 2nd Concession Road	034160386	Yes
2036	20929 2nd Concession Road	034160390	Yes
2038	20989 Yonge Street	034160392	Yes
2039	21024 2nd Concession Road	034160394	Yes
2042	21286 2nd Concession Road	034160483	Yes
2043	20928 2nd Concession Road	034160391	Yes
2044	21045 2nd Concession Road	034180015	Yes
2045	21110 2nd Concession Road	034160395	Yes
2046	21186 2nd Concession Road	034160396	Yes
2047	21138 Leslie Street	034180012	Yes
2048	21153 2nd Concession Road	034180014	Yes
2050	21173 2nd Concession Road	034180013	Yes
2051	21221 2nd Concession Road	034180004	Yes
2080	20938 Yonge Street	034160044	Yes
2088	20918 Yonge Street	034160045	Yes
3160	n/a	580330030	Yes
3161	n/a	580330031	Yes
3164	n/a	580330032	Yes
3171	n/a	580330035	Yes
3176	2925 9th Line	580330040	Yes
3184	2779 9th Line	580330044	Yes
3193	n/a	580340108	Yes
3198	n/a	580370061	Yes
3199	n/a	580370064	Yes
3203	n/a	580340116	Yes
3218	n/a	580330291	Yes
3221	n/a	580330028	Yes
3223	n/a	580330029	Yes
3227	n/a	580340012	Yes
3230	n/a	580340098	Yes
3231	n/a	580340009	Yes
3232	3521 9th Line	580340010	Yes
3279	n/a	580370063	Yes
3283	n/a	580370052	Yes
3285	n/a	580370053	Yes
3286	n/a	580370054	Yes
3288	n/a	580370055	Yes
3416	n/a	580340184	Yes
3425	n/a	580340030	Yes
3426	n/a	580340040	Yes
3427	n/a	580340039	Yes
0019a	1845 Holborn Road	034180170	Yes
0019b	1845 Holborn Road	034180170	Yes
0021b	n/a	034180311	Yes
0021c	n/a	034180311	Yes
0022a	1865 Holborn Road	034180127	Yes
0001	1512 Holborn Road	034170050	No
0006	20842 Woodbine Avenue	034180141	No
0010	20841 2nd Concession Road	034180025	No
0014	20908 Leslie Street	034180328	No
0015	20854 Leslie Street	034180326	No
0030	21032 Leslie Street	034180017	No
0031	21014 Leslie Street	034180019	No
0061	20760 Yonge Street	034160315	No
0064	20792 Yonge Street	034160318	No
0065	20812 Yonge Street	034160338	No
0066	12 Morgan's Road	034160335	No
0068	21067 Yonge Street	034160393	No
0073	20799 Bathurst Street	034160048	No
0077	100 Oak Avenue	034160197	No
0078	98 Oak Avenue	034160196	No
0079	96 Oak Avenue	034160195	No
0080	103 Oak Avenue	034160205	No
0081	89 Oak Avenue	034160211	No
0086	87 River Drive	034160262	No
0098	21242 Leslie Street	034180009	No
0100	20820 Bathurst Street	034150091	No
0104	21136 Bathurst Street	034150098	No
0118	3172 8th Line	580340025	No
0126	n/a	580331338	No
0141	n/a	580331401	No
0143	n/a	580331408	No
0146	n/a	580331409	No
0147	n/a	580331400	No
0148	n/a	580331332	No
0149	n/a	580331329	No
0150	n/a	580331328	No
0151	n/a	580331324	No
0152	n/a	580331323	No
0155	n/a	580380112	No
0156	n/a	580330062	No
0157	n/a	580330063	No
0158	n/a	580330064	No
0177	n/a	580330468	No
0179	n/a	580330467	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0181	n/a	580331165	No
0182	n/a	580331130	No
0183	n/a	580331159	No
0184	n/a	580331163	No
0185	n/a	580331164	No
0186	n/a	580331153	No
0187	n/a	580331152	No
0188	n/a	580331166	No
0189	n/a	580331151	No
0190	n/a	580331167	No
0191	n/a	580330491	No
0192	n/a	580331168	No
0193	n/a	580330490	No
0194	n/a	580331169	No
0195	n/a	580330489	No
0196	n/a	580331170	No
0197	n/a	580330488	No
0198	n/a	580331171	No
0199	n/a	580330487	No
0200	n/a	580331172	No
0201	n/a	580330486	No
0202	n/a	580331173	No
0203	n/a	580330485	No
0204	n/a	580330635	No
0205	n/a	580331424	No
0206	n/a	580331331	No
0207	n/a	580331330	No
0208	n/a	580331327	No
0209	n/a	580331326	No
0210	n/a	580331325	No
0211	n/a	580331317	No
0212	n/a	580331322	No
0213	n/a	580331318	No
0214	n/a	580331321	No
0217	n/a	580250296	No
0218	n/a	580250297	No
0219	n/a	580250299	No
0220	n/a	580250134	No
0221	n/a	580250137	No
0223	n/a	580250018	No
0224	n/a	580250191	No
0225	n/a	580250200	No
0226	n/a	580250198	No
0227	n/a	580331089	No
0228	n/a	580331090	No
0230	n/a	580331103	No
0231	n/a	580331102	No
0232	n/a	580331124	No
0234	n/a	580330636	No
0236	n/a	580330634	No
0239	n/a	580331425	No
0240	n/a	580330492	No
0241	n/a	580330595	No
0242	n/a	580331162	No
0243	n/a	580330493	No
0244	n/a	580331161	No
0245	n/a	580330494	No
0246	n/a	580331160	No
0247	n/a	580330495	No
0248	n/a	580330506	No
0249	n/a	580330496	No
0250	n/a	580330505	No
0251	n/a	580330497	No
0252	n/a	580330572	No
0253	n/a	580330498	No
0254	n/a	580330573	No
0255	n/a	580330574	No
0256	n/a	580330571	No
0257	n/a	580330570	No
0258	n/a	580330569	No
0259	n/a	580330568	No
0260	n/a	580330567	No
0261	n/a	580330629	No
0263	n/a	580331507	No
0264	n/a	580331435	No
0265	n/a	580250032	No
0268	n/a	580331505	No
0269	n/a	580331506	No
0270	n/a	580331431	No
0271	n/a	580331432	No
0272	n/a	580331433	No
0273	n/a	580331434	No
0274	n/a	580331436	No
0275	n/a	580331468	No
0276	n/a	580331467	No
0277	n/a	580331466	No
0278	n/a	580331471	No
0279	n/a	580331472	No
0280	n/a	580331473	No
0281	n/a	580331174	No
0282	n/a	580331477	No
0283	n/a	580331175	No
0284	n/a	580331176	No
0285	n/a	580331177	No
0286	n/a	580331201	No
0287	n/a	580331202	No
0289	n/a	580331426	No
0290	n/a	580331073	No
0291	n/a	580331086	No
0292	n/a	580331087	No
0293	n/a	580331088	No
0294	n/a	580331107	No
0295	n/a	580331106	No
0296	n/a	580331105	No
0297	n/a	580331104	No
0298	n/a	580331120	No
0299	n/a	580331121	No
0300	n/a	580331122	No
0301	n/a	580331123	No
0302	n/a	580331138	No
0303	n/a	580331137	No
0304	n/a	580331136	No
0305	n/a	580331135	No
0306	n/a	580331096	No
0307	n/a	580330959	No
0308	n/a	580331097	No
0309	n/a	580330944	No
0310	n/a	580331129	No
0311	n/a	580331062	No
0312	n/a	580331470	No
0313	n/a	580331437	No
0314	n/a	580331469	No
0315	n/a	580331438	No
0316	n/a	580331439	No
0317	n/a	580331440	No
0318	n/a	580331465	No
0319	n/a	580331441	No
0320	n/a	580331464	No
0321	n/a	580331442	No
0322	n/a	580331463	No
0323	n/a	580331462	No
0324	n/a	580331443	No
0325	n/a	580331461	No
0326	n/a	580331444	No
0327	n/a	580331460	No
0328	n/a	580331445	No
0329	n/a	580331474	No
0330	n/a	580331459	No
0331	n/a	580331475	No
0332	n/a	580331446	No
0333	n/a	580331458	No
0334	n/a	580331476	No
0335	n/a	580331447	No
0336	n/a	580331457	No
0337	n/a	580331448	No
0340	n/a	580331191	No
0341	n/a	580331047	No
0342	n/a	580331061	No
0343	n/a	580331060	No
0344	n/a	580331059	No
0345	n/a	580331058	No
0346	n/a	580330929	No
0347	n/a	580330930	No
0348	n/a	580330931	No
0349	n/a	580330932	No
0350	n/a	580330933	No
0351	n/a	580330943	No
0352	n/a	580330942	No
0353	n/a	580330941	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0354	n/a	580330940	No
0355	n/a	580330939	No
0356	n/a	580330938	No
0357	n/a	580330948	No
0359	n/a	580330949	No
0361	n/a	580330950	No
0362	n/a	580330951	No
0369	n/a	580330601	No
0370	n/a	580330602	No
0379	n/a	580250075	No
0380	n/a	580250074	No
0381	n/a	580250072	No
0382	n/a	580250071	No
0383	n/a	580250212	No
0384	n/a	580250222	No
0385	n/a	580250220	No
0395	n/a	580331216	No
0396	n/a	580331215	No
0401	n/a	580331496	No
0402	n/a	580331495	No
0403	n/a	580331039	No
0404	n/a	580331494	No
0405	n/a	580331038	No
0406	n/a	580331493	No
0407	n/a	580331037	No
0408	n/a	580331492	No
0409	n/a	580331491	No
0410	n/a	580331036	No
0411	n/a	580331490	No
0412	n/a	580331035	No
0414	n/a	580331034	No
0415	n/a	580331199	No
0416	n/a	580331450	No
0417	n/a	580331200	No
0418	n/a	580331449	No
0419	n/a	580331451	No
0420	n/a	580331489	No
0421	n/a	580331488	No
0422	n/a	580331455	No
0423	n/a	580331487	No
0424	n/a	580331190	No
0425	n/a	580331486	No
0426	n/a	580331189	No
0427	n/a	580331485	No
0428	n/a	580331188	No
0429	n/a	580331484	No
0430	n/a	580331187	No
0431	n/a	580331483	No
0432	n/a	580331186	No
0433	n/a	580331482	No
0434	n/a	580331185	No
0435	n/a	580331481	No
0436	n/a	580331068	No
0437	n/a	580331184	No
0438	n/a	580331480	No
0439	n/a	580331069	No
0440	n/a	580331183	No
0441	n/a	580331479	No
0442	n/a	580331070	No
0443	n/a	580331182	No
0444	n/a	580331071	No
0445	n/a	580331181	No
0446	n/a	580331072	No
0447	n/a	580331180	No
0448	n/a	580331179	No
0449	n/a	580331178	No
0467	n/a	580330589	No
0491	n/a	580331454	No
0492	n/a	580331453	No
0493	n/a	580331452	No
0495	n/a	580331046	No
0496	n/a	580331040	No
0497	n/a	580331045	No
0499	n/a	580331044	No
0500	n/a	580331043	No
0501	n/a	580331042	No
0502	n/a	580331213	No
0503	n/a	580331048	No
0504	n/a	580331214	No
0505	n/a	580331049	No
0506	n/a	580331050	No
0507	n/a	580331051	No
0508	n/a	580331052	No
0509	n/a	580331223	No
0510	n/a	580331057	No
0511	n/a	580331056	No
0512	n/a	580331055	No
0515	n/a	580330934	No
0516	n/a	580330935	No
0533	n/a	580331504	No
0534	n/a	580331503	No
0536	n/a	580331478	No
0537	n/a	580331456	No
0540	n/a	580331067	No
0541	n/a	580331091	No
0543	n/a	580330945	No
0544	n/a	580330946	No
0545	n/a	580330947	No
0547	n/a	580330596	No
0548	n/a	580330597	No
0549	n/a	580330598	No
0550	n/a	580330599	No
0551	n/a	580330600	No
0552	n/a	580330594	No
0553	n/a	580330593	No
0555	n/a	580330592	No
0556	n/a	580330591	No
0557	n/a	580330590	No
0558	n/a	580330575	No
0559	n/a	580330576	No
0560	n/a	580330577	No
0561	n/a	580330578	No
0563	n/a	580330566	No
0564	n/a	580330565	No
0565	n/a	580330628	No
0570	n/a	580330484	No
0573	n/a	580331398	No
0574	n/a	580331339	No
0575	n/a	580331333	No
0576	n/a	580331316	No
0578	n/a	580340034	No
0583	n/a	580340117	No
0584	n/a	580340035	No
0586	3647 8th Line	580340028	No
0591	n/a	580420007	No
0609	n/a	580340084	No
0613	n/a	580340006	No
0667	n/a	580340111	No
0684	n/a	580340095	No
0688	n/a	580410092	No
0702	n/a	580380107	No
0706	n/a	580330054	No
0707	n/a	580330055	No
0708	n/a	580330056	No
0709	n/a	580330057	No
0710	n/a	580330059	No
0711	n/a	580330061	No
0713	n/a	580380111	No
0715	n/a	580330058	No
0716	n/a	580330060	No
0718	n/a	580410073	No
0719	n/a	580410078	No
0720	n/a	580410079	No
0722	n/a	580410074	No
0725	n/a	580410080	No
0726	n/a	580410075	No
0728	n/a	580410076	No
0729	n/a	580410077	No
0730	n/a	580410081	No
0748	n/a	580330445	No
0749	n/a	580330444	No
0750	n/a	580330417	No
0751	n/a	580330443	No
0752	n/a	580330345	No
0753	n/a	580330442	No
0754	n/a	580330419	No
0755	n/a	580330441	No
0756	n/a	580330420	No
0757	n/a	580330440	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0758	n/a	580330421	No
0759	n/a	580330348	No
0760	n/a	580330439	No
0761	n/a	580330422	No
0762	n/a	580330438	No
0763	n/a	580330349	No
0764	n/a	580330437	No
0765	n/a	580330350	No
0766	n/a	580330436	No
0767	n/a	580330311	No
0768	n/a	580330351	No
0773	n/a	580330416	No
0774	n/a	580330344	No
0775	n/a	580330418	No
0776	n/a	580330346	No
0777	n/a	580330424	No
0778	n/a	580330347	No
0779	n/a	580330423	No
0780	n/a	580330425	No
0781	n/a	580330435	No
0782	n/a	580330367	No
0783	n/a	580330365	No
0784	n/a	580330152	No
0785	n/a	580330299	No
0786	n/a	580330153	No
0787	n/a	580330155	No
0788	n/a	580330154	No
0791	n/a	580330375	No
0792	n/a	580330376	No
0793	n/a	580330374	No
0794	n/a	580330377	No
0795	n/a	580330378	No
0796	n/a	580330379	No
0797	n/a	580330373	No
0798	n/a	580330473	No
0799	n/a	580330694	No
0800	n/a	580330693	No
0801	n/a	580330202	No
0802	n/a	580330471	No
0803	n/a	580330472	No
0804	n/a	580330470	No
0805	n/a	580330207	No
0806	n/a	580330256	No
0807	n/a	580330469	No
0809	n/a	580330255	No
0810	n/a	580330259	No
0811	n/a	580330257	No
0812	n/a	580250012	No
0813	n/a	580330366	No
0814	n/a	580330298	No
0816	n/a	580250143	No
0817	n/a	580250021	No
0818	n/a	580250020	No
0819	n/a	580250017	No
0820	n/a	580250013	No
0821	n/a	580250142	No
0822	n/a	580260131	No
0823	n/a	580260132	No
0824	n/a	580260133	No
0825	n/a	580250022	No
0826	n/a	580260134	No
0827	n/a	580250019	No
0828	n/a	580250015	No
0829	n/a	580250014	No
0830	n/a	580250016	No
0831	n/a	580260154	No
0832	n/a	580260082	No
0833	n/a	580260257	No
0834	n/a	580260256	No
0835	n/a	580250011	No
0836	n/a	580260077	No
0837	n/a	580250010	No
0838	n/a	580260075	No
0839	n/a	580250008	No
0840	n/a	580250009	No
0842	n/a	580410116	No
0844	n/a	580250250	No
0846	n/a	580250007	No
0847	n/a	580250151	No
0848	n/a	580250141	No
0849	n/a	580250153	No
0850	n/a	580250140	No
0851	n/a	580250024	No
0852	n/a	580250156	No
0853	n/a	580250157	No
0854	n/a	580250158	No
0855	n/a	580250139	No
0856	n/a	580250025	No
0858	n/a	580250138	No
0859	n/a	580250026	No
0860	n/a	580250027	No
0861	n/a	580260076	No
0862	n/a	580250006	No
0863	n/a	580250005	No
0865	n/a	580250152	No
0866	n/a	580250154	No
0868	n/a	580250155	No
0869	n/a	580250023	No
0870	n/a	580250136	No
0871	n/a	580250028	No
0872	n/a	580250184	No
0873	n/a	580250135	No
0874	n/a	580250029	No
0875	n/a	580250159	No
0876	n/a	580250185	No
0877	n/a	580250186	No
0878	n/a	580250187	No
0879	n/a	580250030	No
0880	n/a	580330310	No
0881	n/a	580330139	No
0882	n/a	580330352	No
0883	n/a	580330434	No
0884	n/a	580330140	No
0885	n/a	580330309	No
0886	n/a	580330353	No
0887	n/a	580330433	No
0888	n/a	580330141	No
0889	n/a	580330308	No
0890	n/a	580330432	No
0891	n/a	580330354	No
0892	n/a	580330142	No
0893	n/a	580330307	No
0894	n/a	580330431	No
0895	n/a	580330143	No
0896	n/a	580330355	No
0897	n/a	580330306	No
0898	n/a	580330430	No
0899	n/a	580330144	No
0900	n/a	580330356	No
0901	n/a	580330145	No
0902	n/a	580330305	No
0903	n/a	580330146	No
0904	n/a	580330304	No
0905	n/a	580330147	No
0906	n/a	580330361	No
0907	n/a	580330303	No
0908	n/a	580330362	No
0909	n/a	580330148	No
0910	n/a	580330363	No
0911	n/a	580330364	No
0912	n/a	580330302	No
0913	n/a	580330160	No
0914	n/a	580330149	No
0915	n/a	580330159	No
0916	n/a	580330150	No
0917	n/a	580330301	No
0918	n/a	580330368	No
0919	n/a	580330151	No
0920	n/a	580330300	No
0921	n/a	580330212	No
0922	n/a	580330466	No
0923	n/a	580330211	No
0924	n/a	580330258	No
0925	n/a	580330260	No
0926	n/a	580330210	No
0927	n/a	580330275	No
0928	n/a	580330241	No
0932	n/a	580410004	No
0934	n/a	580410005	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0935	n/a	580410006	No
0936	n/a	580410114	No
0938	n/a	580260074	No
0939	n/a	580260003	No
0940	n/a	580260004	No
0941	n/a	580260005	No
0942	n/a	580260006	No
0943	n/a	580260007	No
0944	n/a	580260008	No
0945	n/a	580260009	No
0946	n/a	580260010	No
0947	n/a	580260073	No
0948	n/a	580260067	No
0949	n/a	580260066	No
0950	n/a	580260065	No
0951	n/a	580260063	No
0952	n/a	580260062	No
0953	n/a	580260060	No
0954	n/a	580260059	No
0955	n/a	580260057	No
0956	n/a	580260056	No
0957	n/a	580260091	No
0958	n/a	580260144	No
0959	n/a	580260064	No
0960	n/a	580260058	No
0961	n/a	580260093	No
0962	n/a	580260145	No
0963	n/a	580260061	No
0964	n/a	580260128	No
0965	n/a	580260098	No
0966	n/a	580260129	No
0967	n/a	580260143	No
0968	n/a	580260097	No
0969	n/a	580260142	No
0970	n/a	580260096	No
0971	n/a	580260095	No
0972	n/a	580260141	No
0973	n/a	580260094	No
0974	n/a	580260140	No
0975	n/a	580260139	No
0976	n/a	580260138	No
0977	n/a	580260137	No
0978	n/a	580260136	No
0979	n/a	580260135	No
0980	n/a	580260092	No
0981	n/a	580260090	No
0982	n/a	580260089	No
0983	n/a	580260088	No
0984	n/a	580260087	No
0985	n/a	580260086	No
0986	n/a	580260084	No
0987	n/a	580260085	No
0988	n/a	580260153	No
0989	n/a	580260083	No
0990	n/a	580330158	No
0991	n/a	580330197	No
0992	n/a	580330225	No
0993	n/a	580330157	No
0994	n/a	580330198	No
0995	n/a	580330156	No
0996	n/a	580330199	No
0997	n/a	580330223	No
0998	n/a	580330200	No
0999	n/a	580330222	No
1001	n/a	580330201	No
1002	n/a	580330220	No
1003	n/a	580330219	No
1005	n/a	580330203	No
1006	n/a	580330218	No
1007	n/a	580330204	No
1008	n/a	580330273	No
1009	n/a	580330217	No
1011	n/a	580330216	No
1012	n/a	580330396	No
1013	n/a	580330254	No
1014	n/a	580330215	No
1017	n/a	580330214	No
1018	n/a	580330253	No
1019	n/a	580330213	No
1020	n/a	580331364	No
1021	n/a	580331261	No
1022	n/a	580331262	No
1023	n/a	580331365	No
1024	n/a	580331263	No
1025	n/a	580331264	No
1026	n/a	580331265	No
1027	n/a	580331366	No
1029	n/a	580331266	No
1030	n/a	580331267	No
1031	n/a	580331367	No
1032	n/a	580331268	No
1033	n/a	580330882	No
1034	n/a	580331368	No
1035	n/a	580331369	No
1036	n/a	580330879	No
1037	n/a	580330878	No
1038	n/a	580330877	No
1039	n/a	580331370	No
1040	n/a	580330873	No
1041	n/a	580331371	No
1042	n/a	580331372	No
1043	n/a	580331373	No
1044	n/a	580330844	No
1045	n/a	580331374	No
1046	n/a	580330846	No
1047	n/a	580331375	No
1048	n/a	580330849	No
1049	n/a	580330852	No
1050	n/a	580330853	No
1051	n/a	580330843	No
1052	n/a	580330842	No
1053	n/a	580330841	No
1054	n/a	580330840	No
1055	n/a	580330839	No
1056	n/a	580330112	No
1057	n/a	580330110	No
1058	n/a	580330182	No
1059	n/a	580330183	No
1060	n/a	580330184	No
1061	n/a	580330181	No
1062	n/a	580330185	No
1063	n/a	580330180	No
1064	n/a	580330179	No
1065	n/a	580330177	No
1066	n/a	580330176	No
1067	n/a	580330175	No
1068	n/a	580330178	No
1069	n/a	580330172	No
1070	n/a	580330171	No
1071	n/a	580330128	No
1072	n/a	580330132	No
1073	n/a	580330133	No
1074	n/a	580330135	No
1075	n/a	580330136	No
1076	n/a	580330137	No
1077	n/a	580330138	No
1078	n/a	580330318	No
1079	n/a	580330317	No
1080	n/a	580330316	No
1081	n/a	580330315	No
1082	n/a	580330314	No
1083	n/a	580330313	No
1091	n/a	580330752	No
1092	n/a	580331363	No
1095	n/a	580331376	No
1096	n/a	580331377	No
1097	n/a	580331378	No
1098	n/a	580330053	No
1102	n/a	580330405	No
1103	n/a	580330312	No
1104	n/a	580330426	No
1105	n/a	580330427	No
1106	2948 Yonge Street	580330066	No
1107	n/a	580330428	No
1108	n/a	580330429	No
1109	n/a	580330357	No
1110	n/a	580330358	No
1111	n/a	580330359	No
1112	n/a	580330360	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
1114	n/a	580330370	No
1116	n/a	580330369	No
1118	n/a	580330371	No
1119	n/a	580330372	No
1120	n/a	580410138	No
1122	n/a	580250183	No
1123	n/a	580260038	No
1124	n/a	580260039	No
1125	n/a	580260040	No
1126	n/a	580260069	No
1127	n/a	580260045	No
1128	n/a	580260159	No
1129	n/a	580260048	No
1130	n/a	580260158	No
1131	n/a	580260049	No
1132	n/a	580260050	No
1133	n/a	580260053	No
1134	n/a	580260052	No
1135	n/a	580260107	No
1136	n/a	580260106	No
1137	n/a	580260105	No
1138	346 Orsi Avenue	580260104	No
1139	n/a	580260099	No
1140	n/a	580260116	No
1141	n/a	580260152	No
1142	n/a	580260117	No
1143	n/a	580260151	No
1144	n/a	580260149	No
1145	n/a	580260148	No
1146	n/a	580260119	No
1147	n/a	580260122	No
1148	n/a	580260123	No
1149	n/a	580260124	No
1150	n/a	580330240	No
1151	n/a	580330118	No
1152	n/a	580330119	No
1153	n/a	580330120	No
1154	n/a	580330121	No
1155	n/a	580330122	No
1156	n/a	580330125	No
1157	n/a	580330126	No
1158	n/a	580330127	No
1159	n/a	580330452	No
1160	n/a	580330382	No
1161	n/a	580330325	No
1162	n/a	580330323	No
1163	n/a	580330322	No
1164	n/a	580330321	No
1165	n/a	580330338	No
1166	n/a	580330339	No
1167	n/a	580330340	No
1168	n/a	580330337	No
1169	n/a	580330341	No
1170	n/a	580330342	No
1171	n/a	580330343	No
1172	n/a	580330336	No
1173	n/a	580330451	No
1174	n/a	580330335	No
1175	n/a	580330450	No
1176	n/a	580330449	No
1177	n/a	580330448	No
1178	n/a	580330447	No
1179	n/a	580330334	No
1180	n/a	580330446	No
1181	n/a	580330333	No
1182	n/a	580330406	No
1183	n/a	580330407	No
1184	n/a	580330408	No
1185	n/a	580330409	No
1186	n/a	580330410	No
1187	n/a	580330411	No
1188	n/a	580330412	No
1189	n/a	580330413	No
1190	n/a	580330414	No
1191	n/a	580330415	No
1192	n/a	580330897	No
1193	n/a	580330792	No
1194	n/a	580330791	No
1195	n/a	580330828	No
1196	n/a	580330896	No
1197	n/a	580330453	No
1198	n/a	580330895	No
1200	n/a	580330834	No
1202	n/a	580330835	No
1203	n/a	580330836	No
1204	n/a	580330326	No
1205	n/a	580330892	No
1206	n/a	580330837	No
1207	n/a	580330328	No
1208	n/a	580330889	No
1209	n/a	580330329	No
1210	n/a	580330888	No
1211	n/a	580330330	No
1212	n/a	580330887	No
1213	n/a	580330331	No
1214	n/a	580330886	No
1215	n/a	580330332	No
1216	n/a	580330885	No
1217	n/a	580330401	No
1218	n/a	580330884	No
1219	n/a	580330883	No
1220	n/a	580330402	No
1221	n/a	580331379	No
1222	n/a	580330403	No
1223	n/a	580330404	No
1225	n/a	580331013	No
1227	n/a	580330116	No
1228	n/a	580330115	No
1229	n/a	580330109	No
1230	n/a	580330170	No
1231	n/a	580330108	No
1232	n/a	580330107	No
1233	n/a	580330167	No
1234	n/a	580330190	No
1235	n/a	580330106	No
1236	n/a	580330105	No
1237	n/a	580330165	No
1238	n/a	580330164	No
1239	n/a	580330078	No
1240	n/a	580330163	No
1241	n/a	580330193	No
1243	n/a	580330162	No
1244	n/a	580330194	No
1245	n/a	580330231	No
1246	n/a	580330161	No
1247	n/a	580330195	No
1248	n/a	580330196	No
1249	n/a	580330226	No
1250	n/a	580330079	No
1252	n/a	580330279	No
1253	n/a	580300010	No
1254	n/a	580331286	No
1255	n/a	580331280	No
1256	n/a	580331284	No
1257	n/a	580331281	No
1259	n/a	580331283	No
1260	n/a	580331269	No
1261	n/a	580331270	No
1264	n/a	580331271	No
1265	n/a	580331272	No
1266	n/a	580331273	No
1267	n/a	580331276	No
1268	n/a	580330866	No
1270	n/a	580330872	No
1271	n/a	580330871	No
1272	n/a	580330868	No
1273	n/a	580330867	No
1274	n/a	580330816	No
1275	n/a	580330861	No
1276	n/a	580330860	No
1277	n/a	580330819	No
1278	n/a	580330857	No
1279	n/a	580330858	No
1280	n/a	580330820	No
1281	n/a	580330822	No
1282	n/a	580330826	No
1283	n/a	580330827	No
1284	n/a	580330829	No
1287	n/a	580250239	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
1289	n/a	580250293	No
1290	n/a	580250275	No
1292	n/a	580250294	No
1293	n/a	580250274	No
1294	n/a	580250273	No
1295	n/a	580250272	No
1296	n/a	580250295	No
1297	n/a	580250271	No
1298	n/a	580250270	No
1299	n/a	580250269	No
1300	n/a	580250298	No
1301	n/a	580250268	No
1302	n/a	580250267	No
1303	n/a	580250300	No
1304	n/a	580250266	No
1305	n/a	580250303	No
1306	n/a	580250301	No
1307	n/a	580250302	No
1308	n/a	580250265	No
1309	n/a	580250264	No
1310	n/a	580331320	No
1311	n/a	580331277	No
1312	n/a	580331278	No
1313	n/a	580331279	No
1314	n/a	580331315	No
1315	n/a	580331312	No
1316	n/a	580331288	No
1317	n/a	580331311	No
1318	n/a	580331289	No
1319	n/a	580331291	No
1320	n/a	580331292	No
1321	n/a	580331307	No
1322	n/a	580331306	No
1323	n/a	580331294	No
1324	n/a	580331305	No
1325	n/a	580331295	No
1326	n/a	580331296	No
1327	n/a	580331303	No
1328	n/a	580331297	No
1329	n/a	580331302	No
1330	n/a	580331301	No
1331	n/a	580331298	No
1332	n/a	580331299	No
1333	n/a	580331358	No
1334	n/a	580331359	No
1335	n/a	580331360	No
1336	n/a	580331361	No
1337	n/a	580331362	No
1338	9 Parkside Court	580300041	No
1339	n/a	580300049	No
1340	n/a	580300050	No
1341	n/a	580300052	No
1342	n/a	580330263	No
1344	n/a	580300028	No
1346	n/a	580300032	No
1347	n/a	580300030	No
1351	n/a	580260030	No
1352	n/a	580260029	No
1354	n/a	580260024	No
1355	n/a	580260020	No
1356	n/a	580260034	No
1357	n/a	580260012	No
1358	n/a	580260018	No
1359	n/a	580260013	No
1360	n/a	580260036	No
1361	n/a	580260015	No
1362	n/a	580260016	No
1363	n/a	580260037	No
1364	n/a	580331411	No
1365	n/a	580331344	No
1366	n/a	580331342	No
1367	n/a	580331341	No
1368	n/a	580331345	No
1369	n/a	580331346	No
1370	n/a	580331347	No
1371	n/a	580331337	No
1372	n/a	580331348	No
1373	n/a	580331349	No
1374	n/a	580331350	No
1375	n/a	580331351	No
1376	n/a	580331335	No
1377	n/a	580331352	No
1378	n/a	580331354	No
1379	n/a	580331356	No
1380	n/a	580331357	No
1384	n/a	580260157	No
1385	n/a	580300053	No
1386	n/a	580260021	No
1412	88 River Drive	034160240	No
1413	92 River Drive	034160242	No
1414	98 River Drive	034160244	No
1415	20671 Bathurst Street	034160050	No
1423	20767 Bathurst Street	034160049	No
1425	92 Oak Avenue	034160194	No
1426	90 Oak Avenue	034160193	No
1427	88 Oak Avenue	034160192	No
1430	87 Oak Avenue	034160212	No
1439	85 River Drive	034160263	No
1441	85 Oak Avenue	034160213	No
1461	n/a	034160180	No
1462	110 Oak Avenue	034160200	No
1463	n/a	034160202	No
1465	109 Oak Avenue	034160203	No
1466	105 Oak Avenue	034160204	No
1467	101 Oak Avenue	034160206	No
1468	110 River Drive	034160248	No
1469	97 Oak Avenue	034160208	No
1470	95 Oak Avenue	034160209	No
1471	91 Oak Avenue	034160210	No
1472	104 River Drive	034160246	No
1473	100 River Drive	034160245	No
1474	n/a	034160250	No
1475	101 River Drive	034160256	No
1476	86 River Drive	034160239	No
1477	97 River Drive	034160258	No
1479	93 River Drive	034160259	No
1480	91 River Drive	034160260	No
1482	89 River Drive	034160261	No
1484	20738 Yonge Street	034160314	No
1487	25 Morgan's Road	034160324	No
1495	n/a	034160251	No
1496	107 River Drive	034160253	No
1497	109 River Drive	034160252	No
1498	20772 Yonge Street	034160316	No
1499	n/a	034160322	No
1500	36 Morgan's Road	034160329	No
1502	32 Morgan's Road	034160330	No
1503	28 Morgan's Road	034160331	No
1504	24 Morgan's Road	034160332	No
1505	20797 Yonge Street	034160385	No
1506	20 Morgan's Road	034160333	No
1507	20822 Yonge Street	034160339	No
1508	20836 Yonge Street	034160340	No
1510	n/a	034160035	No
1513	21115 Yonge Street	034160397	No
1514	21137 Yonge Street	034160398	No
1517	n/a	580230054	No
1522	n/a	580230042	No
1525	n/a	580230071	No
1539	n/a	580410071	No
1544	n/a	580410028	No
1547	n/a	580410038	No
1549	n/a	580410037	No
1550	n/a	580410018	No
1569	n/a	580410063	No
1570	n/a	580410064	No
1571	n/a	580410065	No
1573	n/a	580410066	No
1574	n/a	580410067	No
1575	n/a	580410068	No
1577	n/a	580230070	No
1579	n/a	034160047	No
1597	n/a	580250062	No
1598	n/a	580250063	No
1599	n/a	580250064	No
1600	n/a	580250065	No
1601	n/a	580250066	No
1602	n/a	580250177	No
1603	n/a	580250067	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
1604	n/a	580250073	No
1605	n/a	580250178	No
1606	n/a	580250068	No
1607	n/a	580250069	No
1608	n/a	580250070	No
1609	n/a	580250179	No
1610	n/a	580250180	No
1611	n/a	580250226	No
1612	n/a	580250225	No
1613	n/a	580250224	No
1614	n/a	580250223	No
1615	n/a	580250486	No
1657	n/a	580250221	No
1658	n/a	580250215	No
1659	n/a	580410136	No
1660	n/a	580250181	No
1664	n/a	580410055	No
1675	n/a	580250482	No
1684	n/a	580410027	No
1696	21173 Bathurst Street Suite	034160032	No
1697	21095 Bathurst Street	034160033	No
1770	n/a	580250203	No
1772	n/a	580250211	No
1773	n/a	580250193	No
1774	n/a	580250213	No
1775	n/a	580250214	No
1776	n/a	580250197	No
1777	n/a	580250194	No
1778	n/a	580250204	No
1779	n/a	580250196	No
1780	n/a	580250195	No
1781	n/a	580250210	No
1782	n/a	580250205	No
1783	n/a	580250216	No
1784	n/a	580250209	No
1785	n/a	580250206	No
1786	n/a	580250217	No
1787	n/a	580250208	No
1788	n/a	580250207	No
1789	n/a	580250218	No
1790	n/a	580250219	No
1793	n/a	580410124	No
1795	n/a	580410126	No
1797	n/a	580410128	No
1800	n/a	580410130	No
1801	n/a	580410132	No
1802	n/a	580410134	No
1827	n/a	580250188	No
1828	n/a	580250189	No
1829	n/a	580250192	No
1831	n/a	580250190	No
1836	n/a	580250199	No
1839	n/a	580250201	No
1841	n/a	580250202	No
1853	n/a	034150101	No
1862	n/a	580250173	No
1865	n/a	580250174	No
1867	n/a	580250175	No
1870	n/a	580250176	No
1879	n/a	580250304	No
1886	n/a	580250132	No
1887	n/a	580250133	No
1891	n/a	580250031	No
1892	n/a	580250033	No
1893	n/a	580250034	No
1900	n/a	580250160	No
1901	n/a	580250161	No
2003	21044 Leslie Street	034180016	No
2004	21002 Leslie Street	034180169	No
2005	n/a	034180020	No
2006	21024 Leslie Street	034180018	No
2013	1367 Holborn Road	034180007	No
2014	21226 Leslie Street	034180010	No
2015	1737 Holborn Road	034180124	No
2016	1562 Holborn Road	034170052	No
2029	20717 Yonge Street	034160383	No
2035	20704 2nd Concession Road	034160380	No
2037	20986 Yonge Street	034160036	No
2049	682 Holborn Road	034160402	No
2053	21320 Leslie Street	034161002	No
2061	104 Oak Avenue	034160198	No
2063	108 Oak Avenue	034160199	No
2065	81 River Drive	034160264	No
2066	90 River Drive	034160241	No
2067	99 Oak Avenue	034160207	No
2069	96 River Drive	034160243	No
2071	108 River Drive	034160247	No
2072	99 River Drive	034160257	No
2073	103 River Drive	034160255	No
2074	105 River Drive	034160254	No
2075	61 Morgan's Road	034160474	No
2076	21 Morgan's Road	034160321	No
2077	20864 Yonge Street	034160341	No
2079	15 Morgan's Road	034160323	No
2081	11 Morgan's Road	034160320	No
2082	7 Morgan's Road	034160319	No
2083	20782 Yonge Street	034160317	No
2084	20773 Yonge Street	034160384	No
2085	16 Morgan's Road	034160334	No
2086	20843 Yonge Street	034160387	No
2087	20877 Yonge Street	034160388	No
2089	21193 Yonge Street	034160399	No
2094	33 Morgan's Road	034160326	No
2095	29 Morgan's Road	034160325	No
2126	n/a	580260114	No
2127	n/a	580260115	No
2128	n/a	580260109	No
2129	n/a	580260111	No
2130	n/a	580260112	No
2131	n/a	580260113	No
2132	n/a	580300315	No
2133	n/a	580300029	No
2134	n/a	580300058	No
2135	n/a	580260028	No
2136	n/a	580260027	No
2137	n/a	580260025	No
2138	n/a	580260023	No
2139	n/a	580260068	No
2140	n/a	580260022	No
2141	n/a	580260011	No
2142	n/a	580260041	No
2143	n/a	580260042	No
2144	n/a	580260043	No
2145	n/a	580260160	No
2146	n/a	580260044	No
2147	n/a	580260047	No
2148	n/a	580260055	No
2149	n/a	580260054	No
2150	n/a	580260051	No
2151	n/a	580260103	No
2152	n/a	580260101	No
2153	n/a	580260100	No
2154	n/a	580260108	No
2156	n/a	580260147	No
2157	n/a	580260118	No
2158	n/a	580260121	No
2159	n/a	580260125	No
2160	n/a	580260126	No
2161	n/a	580260127	No
2162	n/a	580260120	No
2163	n/a	580300314	No
2164	n/a	580300031	No
2165	n/a	580260035	No
2166	n/a	580330166	No
2167	n/a	580330191	No
2168	n/a	580330192	No
2169	n/a	580330104	No
2171	n/a	580330233	No
2172	n/a	580330227	No
2173	n/a	580330232	No
2174	n/a	580330230	No
2175	n/a	580300072	No
2176	n/a	580300056	No
2178	n/a	580330224	No
2180	n/a	580300005	No
2181	n/a	580300018	No
2182	n/a	580330287	No
2183	n/a	580300016	No
2184	n/a	580300006	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
2185	n/a	580300019	No
2186	n/a	580330221	No
2187	n/a	580300015	No
2188	n/a	580300020	No
2189	n/a	580330265	No
2190	n/a	580300014	No
2191	n/a	580300021	No
2192	n/a	580300013	No
2193	n/a	580300040	No
2194	n/a	580300022	No
2195	n/a	580300039	No
2196	n/a	580300012	No
2197	n/a	580300023	No
2198	n/a	580300038	No
2199	n/a	580300024	No
2200	n/a	580300037	No
2201	n/a	580300055	No
2202	n/a	580300025	No
2203	n/a	580300036	No
2204	n/a	580300054	No
2205	n/a	580300340	No
2206	n/a	580300051	No
2207	n/a	580300035	No
2208	n/a	580300027	No
2209	n/a	580300034	No
2210	n/a	580300033	No
2215	n/a	580300078	No
2219	n/a	580300077	No
2223	n/a	580320438	No
2224	n/a	580300076	No
2225	n/a	580300110	No
2226	n/a	580300075	No
2227	n/a	580300074	No
2228	n/a	580300043	No
2229	n/a	580300042	No
2230	n/a	580300109	No
2233	n/a	580320351	No
2234	n/a	580320444	No
2235	n/a	580320359	No
2236	n/a	580330269	No
2237	n/a	580320358	No
2238	n/a	580320439	No
2241	n/a	580320440	No
2242	n/a	580320442	No
2243	n/a	580320443	No
2244	n/a	580330271	No
2247	n/a	580300111	No
2248	n/a	580300062	No
2249	n/a	580300066	No
2250	n/a	580300063	No
2251	n/a	580300067	No
2252	n/a	580300064	No
2253	n/a	580300068	No
2254	n/a	580300065	No
2255	n/a	580300048	No
2256	n/a	580300069	No
2257	n/a	580300003	No
2258	n/a	580300073	No
2259	n/a	580300107	No
2260	n/a	580300004	No
2261	n/a	580300045	No
2262	n/a	580300108	No
2263	n/a	580300339	No
2264	n/a	580300017	No
2265	n/a	580300338	No
2270	n/a	580320361	No
2271	n/a	580320360	No
2277	n/a	580330283	No
2278	n/a	580330281	No
2279	n/a	580331008	No
2281	n/a	580330252	No
2282	n/a	580330075	No
2283	n/a	580330117	No
2284	n/a	580330114	No
2285	n/a	580330113	No
2286	n/a	580330111	No
2287	n/a	580330186	No
2288	n/a	580330187	No
2289	n/a	580330188	No
2290	n/a	580330174	No
2291	n/a	580330173	No
2292	n/a	580330129	No
2293	n/a	580330130	No
2294	n/a	580330169	No
2295	n/a	580330168	No
2301	1538 Holborn Road	034170051	No
2302	n/a	580260014	No
2303	n/a	580260046	No
2304	n/a	580260102	No
2305	n/a	580260146	No
2308	n/a	580320352	No
2310	n/a	580320441	No
2313	n/a	580300071	No
2314	n/a	580300061	No
2315	n/a	580300116	No
2336	n/a	580330049	No
2339	n/a	580330461	No
2340	n/a	580330786	No
2341	n/a	580330787	No
2342	n/a	580330788	No
2343	n/a	580331220	No
2344	n/a	580330789	No
2345	n/a	580331221	No
2346	n/a	580330790	No
2347	n/a	580331222	No
2348	n/a	580331026	No
2349	n/a	580331028	No
2401	n/a	580330783	No
2402	n/a	580330784	No
2403	n/a	580330785	No
2404	n/a	580330807	No
2405	n/a	580330804	No
2406	n/a	580330803	No
2407	n/a	580330802	No
2408	n/a	580330801	No
2409	n/a	580330800	No
2410	n/a	580330799	No
2411	n/a	580330798	No
2412	n/a	580330797	No
2413	n/a	580330796	No
2414	n/a	580330795	No
2415	n/a	580330794	No
2422	n/a	580331238	No
2423	n/a	580330810	No
2424	n/a	580330809	No
2425	n/a	580330808	No
2426	n/a	580330806	No
2427	n/a	580330805	No
2428	n/a	580331256	No
2429	n/a	580331257	No
2430	n/a	580331258	No
2431	n/a	580331259	No
2432	n/a	580331260	No
2433	n/a	580330811	No
2434	n/a	580330812	No
2435	n/a	580330813	No
2436	n/a	580330814	No
2437	n/a	580330815	No
2438	n/a	580331282	No
2441	n/a	580330865	No
2442	n/a	580330864	No
2443	n/a	580330863	No
2444	n/a	580331285	No
2445	n/a	580331287	No
2447	n/a	580331293	No
2448	n/a	580331290	No
2450	n/a	580331274	No
2451	n/a	580331275	No
2452	n/a	580330876	No
2453	n/a	580330875	No
2454	n/a	580330870	No
2455	n/a	580330869	No
2456	n/a	580330862	No
2457	n/a	580330817	No
2458	n/a	580330850	No
2459	n/a	580330818	No
2460	n/a	580330854	No
2461	n/a	580330855	No
2462	n/a	580330856	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
2464	n/a	580330859	No
2465	n/a	580330825	No
2466	n/a	580330838	No
2467	n/a	580330821	No
2468	n/a	580330833	No
2469	n/a	580330832	No
2470	n/a	580330831	No
2471	n/a	580330823	No
2472	n/a	580330830	No
2473	n/a	580330824	No
2474	n/a	580330890	No
2475	n/a	580330891	No
2476	n/a	580330793	No
2477	n/a	580330893	No
2478	n/a	580330894	No
2479	n/a	580320454	No
2480	n/a	580330327	No
2482	n/a	580330324	No
2483	n/a	580330967	No
2484	n/a	580330124	No
2485	n/a	580330123	No
2487	n/a	580331019	No
2488	n/a	580330463	No
2489	n/a	580331211	No
2490	n/a	580330320	No
2493	n/a	580331212	No
2494	n/a	580330319	No
2495	n/a	580331030	No
2496	n/a	580331033	No
2497	n/a	580330131	No
2498	n/a	580330134	No
2499	n/a	580330189	No
2510	n/a	580331392	No
2519	n/a	580331396	No
2524	n/a	580331397	No
2527	n/a	580331310	No
2528	n/a	580331309	No
2529	n/a	580331308	No
2530	n/a	580330874	No
2531	n/a	580331340	No
2532	n/a	580331304	No
2533	n/a	580330851	No
2534	n/a	580331334	No
2535	n/a	580331336	No
2536	n/a	580331343	No
2537	n/a	580330848	No
2538	n/a	580331300	No
2539	n/a	580330847	No
2540	n/a	580330880	No
2541	n/a	580330881	No
2542	n/a	580330845	No
2543	n/a	580331353	No
2544	n/a	580331355	No
2545	n/a	580330642	No
2546	n/a	580331399	No
2547	n/a	580331404	No
2548	n/a	580331403	No
2549	n/a	580331248	No
2550	n/a	580331249	No
2552	n/a	580331319	No
2553	n/a	580331250	No
2555	n/a	580331251	No
2556	n/a	580331252	No
2557	n/a	580331313	No
2559	n/a	580331314	No
2561	n/a	580331253	No
2565	n/a	580331254	No
2568	n/a	580331255	No
2625	n/a	580330630	No
2635	n/a	580330546	No
2636	n/a	580330547	No
2637	n/a	580330548	No
2638	n/a	580330639	No
2646	n/a	580330534	No
2647	n/a	580330520	No
2648	n/a	580330533	No
2649	n/a	580330532	No
2650	n/a	580330521	No
2651	n/a	580330531	No
2652	n/a	580330522	No
2653	n/a	580330530	No
2654	n/a	580330535	No
2655	n/a	580330529	No
2656	n/a	580330536	No
2657	n/a	580330537	No
2658	n/a	580330528	No
2659	n/a	580330538	No
2660	n/a	580330527	No
2661	n/a	580330539	No
2662	n/a	580330526	No
2663	n/a	580330540	No
2664	n/a	580330525	No
2665	n/a	580330541	No
2666	n/a	580330524	No
2667	n/a	580330542	No
2668	n/a	580330543	No
2669	n/a	580330553	No
2670	n/a	580330552	No
2671	n/a	580330544	No
2672	n/a	580330551	No
2673	n/a	580330545	No
2674	n/a	580330550	No
2675	n/a	580330549	No
2699	n/a	580330501	No
2700	n/a	580330502	No
2701	n/a	580330503	No
2702	n/a	580330504	No
2703	n/a	580330519	No
2704	n/a	580330518	No
2705	n/a	580330517	No
2706	n/a	580330507	No
2707	n/a	580330516	No
2708	n/a	580330508	No
2709	n/a	580330515	No
2710	n/a	580330509	No
2711	n/a	580330514	No
2712	n/a	580330510	No
2713	n/a	580330513	No
2714	n/a	580330511	No
2715	n/a	580330512	No
2730	n/a	580331157	No
2731	n/a	580331156	No
2732	n/a	580331149	No
2733	n/a	580331150	No
2734	n/a	580331133	No
2735	n/a	580331132	No
2736	n/a	580331154	No
2737	n/a	580331155	No
2738	n/a	580331158	No
2739	n/a	580330500	No
2740	n/a	580330499	No
2741	n/a	580330523	No
2742	n/a	580330555	No
2743	n/a	580330554	No
2745	n/a	580331128	No
2746	n/a	580331131	No
2748	n/a	580331224	No
2751	n/a	580331063	No
2752	n/a	580331064	No
2753	n/a	580331095	No
2754	n/a	580331065	No
2755	n/a	580331094	No
2756	n/a	580331066	No
2757	n/a	580331098	No
2758	n/a	580331099	No
2759	n/a	580331092	No
2760	n/a	580331100	No
2761	n/a	580331101	No
2762	n/a	580331126	No
2763	n/a	580331109	No
2764	n/a	580331082	No
2765	n/a	580331078	No
2766	n/a	580331077	No
2767	n/a	580331076	No
2768	n/a	580331075	No
2769	n/a	580331074	No
2770	n/a	580331080	No
2771	n/a	580331081	No
2772	n/a	580331083	No

Table 3: Properties with Low Risk Rating

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
2773	n/a	580331084	No
2774	n/a	580331085	No
2775	n/a	580331113	No
2776	n/a	580331112	No
2777	n/a	580331111	No
2778	n/a	580331110	No
2779	n/a	580331108	No
2780	n/a	580331114	No
2781	n/a	580331115	No
2782	n/a	580331116	No
2783	n/a	580331117	No
2784	n/a	580331118	No
2785	n/a	580331119	No
2786	n/a	580331144	No
2787	n/a	580331143	No
2788	n/a	580331142	No
2789	n/a	580331141	No
2790	n/a	580331140	No
2791	n/a	580331125	No
2792	n/a	580331139	No
2793	n/a	580331145	No
2794	n/a	580331146	No
2795	n/a	580331147	No
2796	n/a	580331127	No
2797	n/a	580331148	No
2798	n/a	580331134	No
3141	n/a	580260150	No
3142	n/a	580260070	No
3143	n/a	580300337	No
3144	n/a	580300070	No
3145	n/a	580260026	No
3146	n/a	580300026	No
3147	n/a	580300011	No
3148	n/a	580260019	No
3149	n/a	580300007	No
3150	30 Turner Court	580260017	No
3151	n/a	580300008	No
3152	n/a	580300009	No
3153	n/a	580300057	No
3154	n/a	580260130	No
3155	n/a	580331079	No
3162	n/a	580330017	No
3163	n/a	580330016	No
3165	n/a	580330292	No
3166	n/a	580330024	No
3167	n/a	580330015	No
3169	n/a	580330018	No
3170	n/a	580330023	No
3172	n/a	580330022	No
3173	n/a	580330019	No
3174	n/a	580330020	No
3175	n/a	580330021	No
3178	n/a	580331093	No
3190	n/a	580380108	No
3214	n/a	580330010	No
3215	n/a	580330011	No
3216	n/a	580330012	No
3217	n/a	580330013	No
3224	n/a	580330027	No
3291	3754 8th Line	580350026	No
3300	n/a	580370065	No
3303	21032 Woodbine Avenue	n/a	No
3304	n/a	580300203	No
3305	n/a	580300210	No
3306	n/a	580300208	No
3307	n/a	580300214	No
3308	n/a	580300209	No
3309	n/a	580300211	No
3310	n/a	580300213	No
3311	n/a	580300212	No
3312	n/a	580300215	No
3313	n/a	580300216	No
3314	n/a	580300206	No
3315	n/a	580300207	No
3316	n/a	580300202	No
3318	n/a	580300205	No
3319	n/a	580300204	No
3320	n/a	580300276	No
3321	n/a	580300291	No
3322	n/a	580300290	No
3323	n/a	580300292	No
3324	n/a	580300289	No
3325	n/a	580300283	No
3326	n/a	580300284	No
3327	n/a	580300280	No
3328	n/a	580300277	No
3329	n/a	580300278	No
3330	n/a	580300279	No
3331	n/a	580300287	No
3332	n/a	580300286	No
3333	n/a	580300285	No
3334	n/a	580300282	No
3335	n/a	580300281	No
3336	n/a	580300217	No
3337	n/a	580300220	No
3338	n/a	580300223	No
3339	n/a	580300221	No
3340	n/a	580300219	No
3341	n/a	580300222	No
3342	n/a	580300224	No
3343	n/a	580300218	No
3344	n/a	580260163	No
3345	n/a	580260208	No
3346	n/a	580260179	No
3347	n/a	580260180	No
3348	n/a	580260190	No
3349	n/a	580260110	No
3350	n/a	580260203	No
3351	n/a	580260202	No
3352	n/a	580260204	No
3353	n/a	580260205	No
3354	n/a	580260206	No
3355	n/a	580260207	No
3356	n/a	580260191	No
3357	n/a	580260192	No
3358	n/a	580260201	No
3359	n/a	580260186	No
3360	n/a	580260183	No
3361	n/a	580260187	No
3362	n/a	580260185	No
3363	n/a	580260184	No
3364	n/a	580260182	No
3365	n/a	580260181	No
3366	n/a	580260161	No
3367	n/a	580260031	No
3368	n/a	580260167	No
3369	n/a	580260166	No
3370	n/a	580260165	No
3371	n/a	580260164	No
3372	n/a	580260162	No
3373	n/a	580260033	No
3374	n/a	580260032	No
3375	n/a	580260169	No
3376	n/a	580260170	No
3377	n/a	580260171	No
3378	n/a	580260168	No
3379	n/a	580300275	No
3380	n/a	580300288	No
3424	n/a	580340183	No
3428	n/a	580340041	No
3429	n/a	580340042	No

Note: n/a- information not available

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0002	21357 Leslie Street	034170169	Yes
0009	n/a	034180325	Yes
0011	20967 2nd Concession Road	034180023	Yes
0012	n/a	034180327	Yes
0017	20733 Leslie Street	034180300	Yes
0025	21087 Leslie Street	034180315	Yes
0026	20913 Leslie Street	034180302	Yes
0032	1763 Holborn Road	034180125	Yes
0033	21472 Woodbine Avenue	034170167	Yes
0034	21308 Woodbine Avenue	034170135	Yes
0037	21170 Woodbine Avenue	034180312	Yes
0040	20946 Woodbine Avenue	034180298	Yes
0041	n/a	034180299	Yes
0045	20724 Woodbine Avenue	034180306	Yes
0067	20866 Yonge Street	034160046	Yes
0074	21003 Bathurst Street	034160039	Yes
0096	20989 2nd Concession Road	034180022	Yes
0099	21000 Bathurst Street	034150092	Yes
0103	21210 Bathurst Street	034150097	Yes
0144	n/a	580330632	Yes
0161	n/a	580330050	Yes
0162	n/a	580330297	Yes
0171	n/a	580330065	Yes
0173	n/a	580410021	Yes
0174	n/a	580330381	Yes
0175	n/a	580410009	Yes
0176	2835-2879 Yonge Street	580410117	Yes
0178	n/a	580330261	Yes
0180	n/a	580330475	Yes
0266	n/a	580330482	Yes
0267	n/a	580331429	Yes
0372	n/a	034150110	Yes
0386	900 Hochreiter Road	034150094	Yes
0387	750 Hochreiter Road	034150095	Yes
0531	n/a	580330477	Yes
0577	n/a	580340033	Yes
0581	n/a	580340032	Yes
0582	n/a	580340087	Yes
0585	n/a	580340109	Yes
0595	n/a	580420009	Yes
0596	n/a	580420021	Yes
0608	3664 8th Line	580340008	Yes
0610	n/a	580340031	Yes
0611	n/a	580340013	Yes
0666	3287 9th Line	580340106	Yes
0672	n/a	580340107	Yes
0681	n/a	580340005	Yes
0682	n/a	580340011	Yes
0683	n/a	580340014	Yes
0685	n/a	580340096	Yes
0686	n/a	580340097	Yes
0930	n/a	580330277	Yes
1087	2673 9th Line	580330045	Yes
1088	n/a	580330753	Yes
1089	n/a	580330093	Yes
1090	n/a	580330751	Yes
1099	n/a	580330384	Yes
1113	n/a	580330068	Yes
1115	n/a	580330067	Yes
1460	n/a	034160043	Yes
1492	n/a	034160515	Yes
1494	n/a	034160042	Yes
1509	20901 Yonge Street	034160389	Yes
1511	20958 Yonge Street	034160037	Yes
1529	n/a	580230046	Yes
1561	n/a	580410070	Yes
1578	20981 Bathurst Street	034160040	Yes
1702	20917 Bathurst Street	034160041	Yes
1851	n/a	580420010	Yes
1856	50 Hochreiter Road	034150099	Yes
2007	21035 Leslie Street	034180131	Yes
2009	21145 Leslie Street	034180130	Yes
2010	21212 Leslie Street	034180008	Yes
2011	21192 Leslie Street	034180011	Yes
2012	1611 Holborn Road	034180123	Yes
2034	20832 2nd Concession Road	034160386	Yes
2036	20929 2nd Concession Road	034160390	Yes
2038	20989 Yonge Street	034160392	Yes
2039	21024 2nd Concession Road	034160394	Yes
2042	21286 2nd Concession Road	034160483	Yes
2043	20928 2nd Concession Road	034160391	Yes
2044	21045 2nd Concession Road	034180015	Yes
2045	21110 2nd Concession Road	034160395	Yes
2046	21186 2nd Concession Road	034160396	Yes
2047	21138 Leslie Street	034180012	Yes
2048	21153 2nd Concession Road	034180014	Yes
2050	21173 2nd Concession Road	034180013	Yes
2051	21221 2nd Concession Road	034180004	Yes
2080	20938 Yonge Street	034160044	Yes
2088	20918 Yonge Street	034160045	Yes
3160	n/a	580330030	Yes
3161	n/a	580330031	Yes
3164	n/a	580330032	Yes
3171	n/a	580330035	Yes
3176	2925 9th Line	580330040	Yes
3184	2779 9th Line	580330044	Yes
3193	n/a	580340108	Yes
3198	n/a	580370061	Yes
3199	n/a	580370064	Yes
3203	n/a	580340116	Yes
3218	n/a	580330291	Yes
3221	n/a	580330028	Yes
3223	n/a	580330029	Yes
3227	n/a	580340012	Yes
3230	n/a	580340098	Yes
3231	n/a	580340009	Yes
3232	3521 9th Line	580340010	Yes
3279	n/a	580370063	Yes
3283	n/a	580370052	Yes
3285	n/a	580370053	Yes
3286	n/a	580370054	Yes
3288	n/a	580370055	Yes
3416	n/a	580340184	Yes
3425	n/a	580340030	Yes
3426	n/a	580340040	Yes
3427	n/a	580340039	Yes
0019a	1845 Holborn Road	034180170	Yes
0019b	1845 Holborn Road	034180170	Yes
0021b	n/a	034180311	Yes
0021c	n/a	034180311	Yes
0022a	1865 Holborn Road	034180127	Yes
0001	1512 Holborn Road	034170050	No
0006	20842 Woodbine Avenue	034180141	No
0010	20841 2nd Concession Road	034180025	No
0014	20908 Leslie Street	034180328	No
0015	20854 Leslie Street	034180326	No
0030	21032 Leslie Street	034180017	No
0031	21014 Leslie Street	034180019	No
0061	20760 Yonge Street	034160315	No
0064	20792 Yonge Street	034160318	No
0065	20812 Yonge Street	034160338	No
0066	12 Morgan's Road	034160335	No
0068	21067 Yonge Street	034160393	No
0073	20799 Bathurst Street	034160048	No
0077	100 Oak Avenue	034160197	No
0078	98 Oak Avenue	034160196	No
0079	96 Oak Avenue	034160195	No
0080	103 Oak Avenue	034160205	No
0081	89 Oak Avenue	034160211	No
0086	87 River Drive	034160262	No
0098	21242 Leslie Street	034180009	No
0100	20820 Bathurst Street	034150091	No
0104	21136 Bathurst Street	034150098	No
0118	3172 8th Line	580340025	No
0126	n/a	580331338	No
0141	n/a	580331401	No
0143	n/a	580331408	No
0146	n/a	580331409	No
0147	n/a	580331400	No
0148	n/a	580331332	No
0149	n/a	580331329	No
0150	n/a	580331328	No
0151	n/a	580331324	No
0152	n/a	580331323	No
0155	n/a	580380112	No
0156	n/a	580330062	No
0157	n/a	580330063	No
0158	n/a	580330064	No
0177	n/a	580330468	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0179	n/a	580330467	No
0181	n/a	580331165	No
0182	n/a	580331130	No
0183	n/a	580331159	No
0184	n/a	580331163	No
0185	n/a	580331164	No
0186	n/a	580331153	No
0187	n/a	580331152	No
0188	n/a	580331166	No
0189	n/a	580331151	No
0190	n/a	580331167	No
0191	n/a	580330491	No
0192	n/a	580331168	No
0193	n/a	580330490	No
0194	n/a	580331169	No
0195	n/a	580330489	No
0196	n/a	580331170	No
0197	n/a	580330488	No
0198	n/a	580331171	No
0199	n/a	580330487	No
0200	n/a	580331172	No
0201	n/a	580330486	No
0202	n/a	580331173	No
0203	n/a	580330485	No
0204	n/a	580330635	No
0205	n/a	580331424	No
0206	n/a	580331331	No
0207	n/a	580331330	No
0208	n/a	580331327	No
0209	n/a	580331326	No
0210	n/a	580331325	No
0211	n/a	580331317	No
0212	n/a	580331322	No
0213	n/a	580331318	No
0214	n/a	580331321	No
0217	n/a	580250296	No
0218	n/a	580250297	No
0219	n/a	580250299	No
0220	n/a	580250134	No
0221	n/a	580250137	No
0223	n/a	580250018	No
0224	n/a	580250191	No
0225	n/a	580250200	No
0226	n/a	580250198	No
0227	n/a	580331089	No
0228	n/a	580331090	No
0230	n/a	580331103	No
0231	n/a	580331102	No
0232	n/a	580331124	No
0234	n/a	580330636	No
0236	n/a	580330634	No
0239	n/a	580331425	No
0240	n/a	580330492	No
0241	n/a	580330595	No
0242	n/a	580331162	No
0243	n/a	580330493	No
0244	n/a	580331161	No
0245	n/a	580330494	No
0246	n/a	580331160	No
0247	n/a	580330495	No
0248	n/a	580330506	No
0249	n/a	580330496	No
0250	n/a	580330505	No
0251	n/a	580330497	No
0252	n/a	580330572	No
0253	n/a	580330498	No
0254	n/a	580330573	No
0255	n/a	580330574	No
0256	n/a	580330571	No
0257	n/a	580330570	No
0258	n/a	580330569	No
0259	n/a	580330568	No
0260	n/a	580330567	No
0261	n/a	580330629	No
0263	n/a	580331507	No
0264	n/a	580331435	No
0265	n/a	580250032	No
0268	n/a	580331505	No
0269	n/a	580331506	No
0270	n/a	580331431	No
0271	n/a	580331432	No
0272	n/a	580331433	No
0273	n/a	580331434	No
0274	n/a	580331436	No
0275	n/a	580331468	No
0276	n/a	580331467	No
0277	n/a	580331466	No
0278	n/a	580331471	No
0279	n/a	580331472	No
0280	n/a	580331473	No
0281	n/a	580331174	No
0282	n/a	580331477	No
0283	n/a	580331175	No
0284	n/a	580331176	No
0285	n/a	580331177	No
0286	n/a	580331201	No
0287	n/a	580331202	No
0289	n/a	580331426	No
0290	n/a	580331073	No
0291	n/a	580331086	No
0292	n/a	580331087	No
0293	n/a	580331088	No
0294	n/a	580331107	No
0295	n/a	580331106	No
0296	n/a	580331105	No
0297	n/a	580331104	No
0298	n/a	580331120	No
0299	n/a	580331121	No
0300	n/a	580331122	No
0301	n/a	580331123	No
0302	n/a	580331138	No
0303	n/a	580331137	No
0304	n/a	580331136	No
0305	n/a	580331135	No
0306	n/a	580331096	No
0307	n/a	580330959	No
0308	n/a	580331097	No
0309	n/a	580330944	No
0310	n/a	580331129	No
0311	n/a	580331062	No
0312	n/a	580331470	No
0313	n/a	580331437	No
0314	n/a	580331469	No
0315	n/a	580331438	No
0316	n/a	580331439	No
0317	n/a	580331440	No
0318	n/a	580331465	No
0319	n/a	580331441	No
0320	n/a	580331464	No
0321	n/a	580331442	No
0322	n/a	580331463	No
0323	n/a	580331462	No
0324	n/a	580331443	No
0325	n/a	580331461	No
0326	n/a	580331444	No
0327	n/a	580331460	No
0328	n/a	580331445	No
0329	n/a	580331474	No
0330	n/a	580331459	No
0331	n/a	580331475	No
0332	n/a	580331446	No
0333	n/a	580331458	No
0334	n/a	580331476	No
0335	n/a	580331447	No
0336	n/a	580331457	No
0337	n/a	580331448	No
0340	n/a	580331191	No
0341	n/a	580331047	No
0342	n/a	580331061	No
0343	n/a	580331060	No
0344	n/a	580331059	No
0345	n/a	580331058	No
0346	n/a	580330929	No
0347	n/a	580330930	No
0348	n/a	580330931	No
0349	n/a	580330932	No
0350	n/a	580330933	No
0351	n/a	580330943	No
0352	n/a	580330942	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0353	n/a	580330941	No
0354	n/a	580330940	No
0355	n/a	580330939	No
0356	n/a	580330938	No
0357	n/a	580330948	No
0359	n/a	580330949	No
0361	n/a	580330950	No
0362	n/a	580330951	No
0369	n/a	580330601	No
0370	n/a	580330602	No
0379	n/a	580250075	No
0380	n/a	580250074	No
0381	n/a	580250072	No
0382	n/a	580250071	No
0383	n/a	580250212	No
0384	n/a	580250222	No
0385	n/a	580250220	No
0395	n/a	580331216	No
0396	n/a	580331215	No
0401	n/a	580331496	No
0402	n/a	580331495	No
0403	n/a	580331039	No
0404	n/a	580331494	No
0405	n/a	580331038	No
0406	n/a	580331493	No
0407	n/a	580331037	No
0408	n/a	580331492	No
0409	n/a	580331491	No
0410	n/a	580331036	No
0411	n/a	580331490	No
0412	n/a	580331035	No
0414	n/a	580331034	No
0415	n/a	580331199	No
0416	n/a	580331450	No
0417	n/a	580331200	No
0418	n/a	580331449	No
0419	n/a	580331451	No
0420	n/a	580331489	No
0421	n/a	580331488	No
0422	n/a	580331455	No
0423	n/a	580331487	No
0424	n/a	580331190	No
0425	n/a	580331486	No
0426	n/a	580331189	No
0427	n/a	580331485	No
0428	n/a	580331188	No
0429	n/a	580331484	No
0430	n/a	580331187	No
0431	n/a	580331483	No
0432	n/a	580331186	No
0433	n/a	580331482	No
0434	n/a	580331185	No
0435	n/a	580331481	No
0436	n/a	580331068	No
0437	n/a	580331184	No
0438	n/a	580331480	No
0439	n/a	580331069	No
0440	n/a	580331183	No
0441	n/a	580331479	No
0442	n/a	580331070	No
0443	n/a	580331182	No
0444	n/a	580331071	No
0445	n/a	580331181	No
0446	n/a	580331072	No
0447	n/a	580331180	No
0448	n/a	580331179	No
0449	n/a	580331178	No
0467	n/a	580330589	No
0491	n/a	580331454	No
0492	n/a	580331453	No
0493	n/a	580331452	No
0495	n/a	580331046	No
0496	n/a	580331040	No
0497	n/a	580331045	No
0499	n/a	580331044	No
0500	n/a	580331043	No
0501	n/a	580331042	No
0502	n/a	580331213	No
0503	n/a	580331048	No
0504	n/a	580331214	No
0505	n/a	580331049	No
0506	n/a	580331050	No
0507	n/a	580331051	No
0508	n/a	580331052	No
0509	n/a	580331223	No
0510	n/a	580331057	No
0511	n/a	580331056	No
0512	n/a	580331055	No
0515	n/a	580330934	No
0516	n/a	580330935	No
0533	n/a	580331504	No
0534	n/a	580331503	No
0536	n/a	580331478	No
0537	n/a	580331456	No
0540	n/a	580331067	No
0541	n/a	580331091	No
0543	n/a	580330945	No
0544	n/a	580330946	No
0545	n/a	580330947	No
0547	n/a	580330596	No
0548	n/a	580330597	No
0549	n/a	580330598	No
0550	n/a	580330599	No
0551	n/a	580330600	No
0552	n/a	580330594	No
0553	n/a	580330593	No
0555	n/a	580330592	No
0556	n/a	580330591	No
0557	n/a	580330590	No
0558	n/a	580330575	No
0559	n/a	580330576	No
0560	n/a	580330577	No
0561	n/a	580330578	No
0563	n/a	580330566	No
0564	n/a	580330565	No
0565	n/a	580330628	No
0570	n/a	580330484	No
0573	n/a	580331398	No
0574	n/a	580331339	No
0575	n/a	580331333	No
0576	n/a	580331316	No
0578	n/a	580340034	No
0583	n/a	580340117	No
0584	n/a	580340035	No
0586	3647 8th Line	580340028	No
0591	n/a	580420007	No
0609	n/a	580340084	No
0613	n/a	580340006	No
0667	n/a	580340111	No
0684	n/a	580340095	No
0688	n/a	580410092	No
0702	n/a	580380107	No
0706	n/a	580330054	No
0707	n/a	580330055	No
0708	n/a	580330056	No
0709	n/a	580330057	No
0710	n/a	580330059	No
0711	n/a	580330061	No
0713	n/a	580380111	No
0715	n/a	580330058	No
0716	n/a	580330060	No
0718	n/a	580410073	No
0719	n/a	580410078	No
0720	n/a	580410079	No
0722	n/a	580410074	No
0725	n/a	580410080	No
0726	n/a	580410075	No
0728	n/a	580410076	No
0729	n/a	580410077	No
0730	n/a	580410081	No
0748	n/a	580330445	No
0749	n/a	580330444	No
0750	n/a	580330417	No
0751	n/a	580330443	No
0752	n/a	580330345	No
0753	n/a	580330442	No
0754	n/a	580330419	No
0755	n/a	580330441	No
0756	n/a	580330420	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0757	n/a	580330440	No
0758	n/a	580330421	No
0759	n/a	580330348	No
0760	n/a	580330439	No
0761	n/a	580330422	No
0762	n/a	580330438	No
0763	n/a	580330349	No
0764	n/a	580330437	No
0765	n/a	580330350	No
0766	n/a	580330436	No
0767	n/a	580330311	No
0768	n/a	580330351	No
0773	n/a	580330416	No
0774	n/a	580330344	No
0775	n/a	580330418	No
0776	n/a	580330346	No
0777	n/a	580330424	No
0778	n/a	580330347	No
0779	n/a	580330423	No
0780	n/a	580330425	No
0781	n/a	580330435	No
0782	n/a	580330367	No
0783	n/a	580330365	No
0784	n/a	580330152	No
0785	n/a	580330299	No
0786	n/a	580330153	No
0787	n/a	580330155	No
0788	n/a	580330154	No
0791	n/a	580330375	No
0792	n/a	580330376	No
0793	n/a	580330374	No
0794	n/a	580330377	No
0795	n/a	580330378	No
0796	n/a	580330379	No
0797	n/a	580330373	No
0798	n/a	580330473	No
0799	n/a	580330694	No
0800	n/a	580330693	No
0801	n/a	580330202	No
0802	n/a	580330471	No
0803	n/a	580330472	No
0804	n/a	580330470	No
0805	n/a	580330207	No
0806	n/a	580330256	No
0807	n/a	580330469	No
0809	n/a	580330255	No
0810	n/a	580330259	No
0811	n/a	580330257	No
0812	n/a	580250012	No
0813	n/a	580330366	No
0814	n/a	580330298	No
0816	n/a	580250143	No
0817	n/a	580250021	No
0818	n/a	580250020	No
0819	n/a	580250017	No
0820	n/a	580250013	No
0821	n/a	580250142	No
0822	n/a	580260131	No
0823	n/a	580260132	No
0824	n/a	580260133	No
0825	n/a	580250022	No
0826	n/a	580260134	No
0827	n/a	580250019	No
0828	n/a	580250015	No
0829	n/a	580250014	No
0830	n/a	580250016	No
0831	n/a	580260154	No
0832	n/a	580260082	No
0833	n/a	580260257	No
0834	n/a	580260256	No
0835	n/a	580250011	No
0836	n/a	580260077	No
0837	n/a	580250010	No
0838	n/a	580260075	No
0839	n/a	580250008	No
0840	n/a	580250009	No
0842	n/a	580410116	No
0844	n/a	580250250	No
0846	n/a	580250007	No
0847	n/a	580250151	No
0848	n/a	580250141	No
0849	n/a	580250153	No
0850	n/a	580250140	No
0851	n/a	580250024	No
0852	n/a	580250156	No
0853	n/a	580250157	No
0854	n/a	580250158	No
0855	n/a	580250139	No
0856	n/a	580250025	No
0858	n/a	580250138	No
0859	n/a	580250026	No
0860	n/a	580250027	No
0861	n/a	580260076	No
0862	n/a	580250006	No
0863	n/a	580250005	No
0865	n/a	580250152	No
0866	n/a	580250154	No
0868	n/a	580250155	No
0869	n/a	580250023	No
0870	n/a	580250136	No
0871	n/a	580250028	No
0872	n/a	580250184	No
0873	n/a	580250135	No
0874	n/a	580250029	No
0875	n/a	580250159	No
0876	n/a	580250185	No
0877	n/a	580250186	No
0878	n/a	580250187	No
0879	n/a	580250030	No
0880	n/a	580330310	No
0881	n/a	580330139	No
0882	n/a	580330352	No
0883	n/a	580330434	No
0884	n/a	580330140	No
0885	n/a	580330309	No
0886	n/a	580330353	No
0887	n/a	580330433	No
0888	n/a	580330141	No
0889	n/a	580330308	No
0890	n/a	580330432	No
0891	n/a	580330354	No
0892	n/a	580330142	No
0893	n/a	580330307	No
0894	n/a	580330431	No
0895	n/a	580330143	No
0896	n/a	580330355	No
0897	n/a	580330306	No
0898	n/a	580330430	No
0899	n/a	580330144	No
0900	n/a	580330356	No
0901	n/a	580330145	No
0902	n/a	580330305	No
0903	n/a	580330146	No
0904	n/a	580330304	No
0905	n/a	580330147	No
0906	n/a	580330361	No
0907	n/a	580330303	No
0908	n/a	580330362	No
0909	n/a	580330148	No
0910	n/a	580330363	No
0911	n/a	580330364	No
0912	n/a	580330302	No
0913	n/a	580330160	No
0914	n/a	580330149	No
0915	n/a	580330159	No
0916	n/a	580330150	No
0917	n/a	580330301	No
0918	n/a	580330368	No
0919	n/a	580330151	No
0920	n/a	580330300	No
0921	n/a	580330212	No
0922	n/a	580330466	No
0923	n/a	580330211	No
0924	n/a	580330258	No
0925	n/a	580330260	No
0926	n/a	580330210	No
0927	n/a	580330275	No
0928	n/a	580330241	No
0932	n/a	580410004	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
0934	n/a	580410005	No
0935	n/a	580410006	No
0936	n/a	580410114	No
0938	n/a	580260074	No
0939	n/a	580260003	No
0940	n/a	580260004	No
0941	n/a	580260005	No
0942	n/a	580260006	No
0943	n/a	580260007	No
0944	n/a	580260008	No
0945	n/a	580260009	No
0946	n/a	580260010	No
0947	n/a	580260073	No
0948	n/a	580260067	No
0949	n/a	580260066	No
0950	n/a	580260065	No
0951	n/a	580260063	No
0952	n/a	580260062	No
0953	n/a	580260060	No
0954	n/a	580260059	No
0955	n/a	580260057	No
0956	n/a	580260056	No
0957	n/a	580260091	No
0958	n/a	580260144	No
0959	n/a	580260064	No
0960	n/a	580260058	No
0961	n/a	580260093	No
0962	n/a	580260145	No
0963	n/a	580260061	No
0964	n/a	580260128	No
0965	n/a	580260098	No
0966	n/a	580260129	No
0967	n/a	580260143	No
0968	n/a	580260097	No
0969	n/a	580260142	No
0970	n/a	580260096	No
0971	n/a	580260095	No
0972	n/a	580260141	No
0973	n/a	580260094	No
0974	n/a	580260140	No
0975	n/a	580260139	No
0976	n/a	580260138	No
0977	n/a	580260137	No
0978	n/a	580260136	No
0979	n/a	580260135	No
0980	n/a	580260092	No
0981	n/a	580260090	No
0982	n/a	580260089	No
0983	n/a	580260088	No
0984	n/a	580260087	No
0985	n/a	580260086	No
0986	n/a	580260084	No
0987	n/a	580260085	No
0988	n/a	580260153	No
0989	n/a	580260083	No
0990	n/a	580330158	No
0991	n/a	580330197	No
0992	n/a	580330225	No
0993	n/a	580330157	No
0994	n/a	580330198	No
0995	n/a	580330156	No
0996	n/a	580330199	No
0997	n/a	580330223	No
0998	n/a	580330200	No
0999	n/a	580330222	No
1001	n/a	580330201	No
1002	n/a	580330220	No
1003	n/a	580330219	No
1005	n/a	580330203	No
1006	n/a	580330218	No
1007	n/a	580330204	No
1008	n/a	580330273	No
1009	n/a	580330217	No
1011	n/a	580330216	No
1012	n/a	580330396	No
1013	n/a	580330254	No
1014	n/a	580330215	No
1017	n/a	580330214	No
1018	n/a	580330253	No
1019	n/a	580330213	No
1020	n/a	580331364	No
1021	n/a	580331261	No
1022	n/a	580331262	No
1023	n/a	580331365	No
1024	n/a	580331263	No
1025	n/a	580331264	No
1026	n/a	580331265	No
1027	n/a	580331366	No
1029	n/a	580331266	No
1030	n/a	580331267	No
1031	n/a	580331367	No
1032	n/a	580331268	No
1033	n/a	580330882	No
1034	n/a	580331368	No
1035	n/a	580331369	No
1036	n/a	580330879	No
1037	n/a	580330878	No
1038	n/a	580330877	No
1039	n/a	580331370	No
1040	n/a	580330873	No
1041	n/a	580331371	No
1042	n/a	580331372	No
1043	n/a	580331373	No
1044	n/a	580330844	No
1045	n/a	580331374	No
1046	n/a	580330846	No
1047	n/a	580331375	No
1048	n/a	580330849	No
1049	n/a	580330852	No
1050	n/a	580330853	No
1051	n/a	580330843	No
1052	n/a	580330842	No
1053	n/a	580330841	No
1054	n/a	580330840	No
1055	n/a	580330839	No
1056	n/a	580330112	No
1057	n/a	580330110	No
1058	n/a	580330182	No
1059	n/a	580330183	No
1060	n/a	580330184	No
1061	n/a	580330181	No
1062	n/a	580330185	No
1063	n/a	580330180	No
1064	n/a	580330179	No
1065	n/a	580330177	No
1066	n/a	580330176	No
1067	n/a	580330175	No
1068	n/a	580330178	No
1069	n/a	580330172	No
1070	n/a	580330171	No
1071	n/a	580330128	No
1072	n/a	580330132	No
1073	n/a	580330133	No
1074	n/a	580330135	No
1075	n/a	580330136	No
1076	n/a	580330137	No
1077	n/a	580330138	No
1078	n/a	580330318	No
1079	n/a	580330317	No
1080	n/a	580330316	No
1081	n/a	580330315	No
1082	n/a	580330314	No
1083	n/a	580330313	No
1091	n/a	580330752	No
1092	n/a	580331363	No
1095	n/a	580331376	No
1096	n/a	580331377	No
1097	n/a	580331378	No
1098	n/a	580330053	No
1102	n/a	580330405	No
1103	n/a	580330312	No
1104	n/a	580330426	No
1105	n/a	580330427	No
1106	2948 Yonge Street	580330066	No
1107	n/a	580330428	No
1108	n/a	580330429	No
1109	n/a	580330357	No
1110	n/a	580330358	No
1111	n/a	580330359	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
1112	n/a	580330360	No
1114	n/a	580330370	No
1116	n/a	580330369	No
1118	n/a	580330371	No
1119	n/a	580330372	No
1120	n/a	580410138	No
1122	n/a	580250183	No
1123	n/a	580260038	No
1124	n/a	580260039	No
1125	n/a	580260040	No
1126	n/a	580260069	No
1127	n/a	580260045	No
1128	n/a	580260159	No
1129	n/a	580260048	No
1130	n/a	580260158	No
1131	n/a	580260049	No
1132	n/a	580260050	No
1133	n/a	580260053	No
1134	n/a	580260052	No
1135	n/a	580260107	No
1136	n/a	580260106	No
1137	n/a	580260105	No
1138	346 Orsi Avenue	580260104	No
1139	n/a	580260099	No
1140	n/a	580260116	No
1141	n/a	580260152	No
1142	n/a	580260117	No
1143	n/a	580260151	No
1144	n/a	580260149	No
1145	n/a	580260148	No
1146	n/a	580260119	No
1147	n/a	580260122	No
1148	n/a	580260123	No
1149	n/a	580260124	No
1150	n/a	580330240	No
1151	n/a	580330118	No
1152	n/a	580330119	No
1153	n/a	580330120	No
1154	n/a	580330121	No
1155	n/a	580330122	No
1156	n/a	580330125	No
1157	n/a	580330126	No
1158	n/a	580330127	No
1159	n/a	580330452	No
1160	n/a	580330382	No
1161	n/a	580330325	No
1162	n/a	580330323	No
1163	n/a	580330322	No
1164	n/a	580330321	No
1165	n/a	580330338	No
1166	n/a	580330339	No
1167	n/a	580330340	No
1168	n/a	580330337	No
1169	n/a	580330341	No
1170	n/a	580330342	No
1171	n/a	580330343	No
1172	n/a	580330336	No
1173	n/a	580330451	No
1174	n/a	580330335	No
1175	n/a	580330450	No
1176	n/a	580330449	No
1177	n/a	580330448	No
1178	n/a	580330447	No
1179	n/a	580330334	No
1180	n/a	580330446	No
1181	n/a	580330333	No
1182	n/a	580330406	No
1183	n/a	580330407	No
1184	n/a	580330408	No
1185	n/a	580330409	No
1186	n/a	580330410	No
1187	n/a	580330411	No
1188	n/a	580330412	No
1189	n/a	580330413	No
1190	n/a	580330414	No
1191	n/a	580330415	No
1192	n/a	580330897	No
1193	n/a	580330792	No
1194	n/a	580330791	No
1195	n/a	580330828	No
1196	n/a	580330896	No
1197	n/a	580330453	No
1198	n/a	580330895	No
1200	n/a	580330834	No
1202	n/a	580330835	No
1203	n/a	580330836	No
1204	n/a	580330326	No
1205	n/a	580330892	No
1206	n/a	580330837	No
1207	n/a	580330328	No
1208	n/a	580330889	No
1209	n/a	580330329	No
1210	n/a	580330888	No
1211	n/a	580330330	No
1212	n/a	580330887	No
1213	n/a	580330331	No
1214	n/a	580330886	No
1215	n/a	580330332	No
1216	n/a	580330885	No
1217	n/a	580330401	No
1218	n/a	580330884	No
1219	n/a	580330883	No
1220	n/a	580330402	No
1221	n/a	580331379	No
1222	n/a	580330403	No
1223	n/a	580330404	No
1225	n/a	580331013	No
1227	n/a	580330116	No
1228	n/a	580330115	No
1229	n/a	580330109	No
1230	n/a	580330170	No
1231	n/a	580330108	No
1232	n/a	580330107	No
1233	n/a	580330167	No
1234	n/a	580330190	No
1235	n/a	580330106	No
1236	n/a	580330105	No
1237	n/a	580330165	No
1238	n/a	580330164	No
1239	n/a	580330078	No
1240	n/a	580330163	No
1241	n/a	580330193	No
1243	n/a	580330162	No
1244	n/a	580330194	No
1245	n/a	580330231	No
1246	n/a	580330161	No
1247	n/a	580330195	No
1248	n/a	580330196	No
1249	n/a	580330226	No
1250	n/a	580330079	No
1252	n/a	580330279	No
1253	n/a	580300010	No
1254	n/a	580331286	No
1255	n/a	580331280	No
1256	n/a	580331284	No
1257	n/a	580331281	No
1259	n/a	580331283	No
1260	n/a	580331269	No
1261	n/a	580331270	No
1264	n/a	580331271	No
1265	n/a	580331272	No
1266	n/a	580331273	No
1267	n/a	580331276	No
1268	n/a	580330866	No
1270	n/a	580330872	No
1271	n/a	580330871	No
1272	n/a	580330868	No
1273	n/a	580330867	No
1274	n/a	580330816	No
1275	n/a	580330861	No
1276	n/a	580330860	No
1277	n/a	580330819	No
1278	n/a	580330857	No
1279	n/a	580330858	No
1280	n/a	580330820	No
1281	n/a	580330822	No
1282	n/a	580330826	No
1283	n/a	580330827	No
1284	n/a	580330829	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
1287	n/a	580250239	No
1289	n/a	580250293	No
1290	n/a	580250275	No
1292	n/a	580250294	No
1293	n/a	580250274	No
1294	n/a	580250273	No
1295	n/a	580250272	No
1296	n/a	580250295	No
1297	n/a	580250271	No
1298	n/a	580250270	No
1299	n/a	580250269	No
1300	n/a	580250298	No
1301	n/a	580250268	No
1302	n/a	580250267	No
1303	n/a	580250300	No
1304	n/a	580250266	No
1305	n/a	580250303	No
1306	n/a	580250301	No
1307	n/a	580250302	No
1308	n/a	580250265	No
1309	n/a	580250264	No
1310	n/a	580331320	No
1311	n/a	580331277	No
1312	n/a	580331278	No
1313	n/a	580331279	No
1314	n/a	580331315	No
1315	n/a	580331312	No
1316	n/a	580331288	No
1317	n/a	580331311	No
1318	n/a	580331289	No
1319	n/a	580331291	No
1320	n/a	580331292	No
1321	n/a	580331307	No
1322	n/a	580331306	No
1323	n/a	580331294	No
1324	n/a	580331305	No
1325	n/a	580331295	No
1326	n/a	580331296	No
1327	n/a	580331303	No
1328	n/a	580331297	No
1329	n/a	580331302	No
1330	n/a	580331301	No
1331	n/a	580331298	No
1332	n/a	580331299	No
1333	n/a	580331358	No
1334	n/a	580331359	No
1335	n/a	580331360	No
1336	n/a	580331361	No
1337	n/a	580331362	No
1338	9 Parkside Court	580300041	No
1339	n/a	580300049	No
1340	n/a	580300050	No
1341	n/a	580300052	No
1342	n/a	580330263	No
1344	n/a	580300028	No
1346	n/a	580300032	No
1347	n/a	580300030	No
1351	n/a	580260030	No
1352	n/a	580260029	No
1354	n/a	580260024	No
1355	n/a	580260020	No
1356	n/a	580260034	No
1357	n/a	580260012	No
1358	n/a	580260018	No
1359	n/a	580260013	No
1360	n/a	580260036	No
1361	n/a	580260015	No
1362	n/a	580260016	No
1363	n/a	580260037	No
1364	n/a	580331411	No
1365	n/a	580331344	No
1366	n/a	580331342	No
1367	n/a	580331341	No
1368	n/a	580331345	No
1369	n/a	580331346	No
1370	n/a	580331347	No
1371	n/a	580331337	No
1372	n/a	580331348	No
1373	n/a	580331349	No
1374	n/a	580331350	No
1375	n/a	580331351	No
1376	n/a	580331335	No
1377	n/a	580331352	No
1378	n/a	580331354	No
1379	n/a	580331356	No
1380	n/a	580331357	No
1384	n/a	580260157	No
1385	n/a	580300053	No
1386	n/a	580260021	No
1412	88 River Drive	034160240	No
1413	92 River Drive	034160242	No
1414	98 River Drive	034160244	No
1415	20671 Bathurst Street	034160050	No
1423	20767 Bathurst Street	034160049	No
1425	92 Oak Avenue	034160194	No
1426	90 Oak Avenue	034160193	No
1427	88 Oak Avenue	034160192	No
1430	87 Oak Avenue	034160212	No
1439	85 River Drive	034160263	No
1441	85 Oak Avenue	034160213	No
1461	n/a	034160180	No
1462	110 Oak Avenue	034160200	No
1463	n/a	034160202	No
1465	109 Oak Avenue	034160203	No
1466	105 Oak Avenue	034160204	No
1467	101 Oak Avenue	034160206	No
1468	110 River Drive	034160248	No
1469	97 Oak Avenue	034160208	No
1470	95 Oak Avenue	034160209	No
1471	91 Oak Avenue	034160210	No
1472	104 River Drive	034160246	No
1473	100 River Drive	034160245	No
1474	n/a	034160250	No
1475	101 River Drive	034160256	No
1476	86 River Drive	034160239	No
1477	97 River Drive	034160258	No
1479	93 River Drive	034160259	No
1480	91 River Drive	034160260	No
1482	89 River Drive	034160261	No
1484	20738 Yonge Street	034160314	No
1487	25 Morgan's Road	034160324	No
1495	n/a	034160251	No
1496	107 River Drive	034160253	No
1497	109 River Drive	034160252	No
1498	20772 Yonge Street	034160316	No
1499	n/a	034160322	No
1500	36 Morgan's Road	034160329	No
1502	32 Morgan's Road	034160330	No
1503	28 Morgan's Road	034160331	No
1504	24 Morgan's Road	034160332	No
1505	20797 Yonge Street	034160385	No
1506	20 Morgan's Road	034160333	No
1507	20822 Yonge Street	034160339	No
1508	20836 Yonge Street	034160340	No
1510	n/a	034160035	No
1513	21115 Yonge Street	034160397	No
1514	21137 Yonge Street	034160398	No
1517	n/a	580230054	No
1522	n/a	580230042	No
1525	n/a	580230071	No
1539	n/a	580410071	No
1544	n/a	580410028	No
1547	n/a	580410038	No
1549	n/a	580410037	No
1550	n/a	580410018	No
1569	n/a	580410063	No
1570	n/a	580410064	No
1571	n/a	580410065	No
1573	n/a	580410066	No
1574	n/a	580410067	No
1575	n/a	580410068	No
1577	n/a	580230070	No
1579	n/a	034160047	No
1597	n/a	580250062	No
1598	n/a	580250063	No
1599	n/a	580250064	No
1600	n/a	580250065	No
1601	n/a	580250066	No
1602	n/a	580250177	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
1603	n/a	580250067	No
1604	n/a	580250073	No
1605	n/a	580250178	No
1606	n/a	580250068	No
1607	n/a	580250069	No
1608	n/a	580250070	No
1609	n/a	580250179	No
1610	n/a	580250180	No
1611	n/a	580250226	No
1612	n/a	580250225	No
1613	n/a	580250224	No
1614	n/a	580250223	No
1615	n/a	580250486	No
1657	n/a	580250221	No
1658	n/a	580250215	No
1659	n/a	580410136	No
1660	n/a	580250181	No
1664	n/a	580410055	No
1675	n/a	580250482	No
1684	n/a	580410027	No
1696	21173 Bathurst Street Suite	034160032	No
1697	21095 Bathurst Street	034160033	No
1770	n/a	580250203	No
1772	n/a	580250211	No
1773	n/a	580250193	No
1774	n/a	580250213	No
1775	n/a	580250214	No
1776	n/a	580250197	No
1777	n/a	580250194	No
1778	n/a	580250204	No
1779	n/a	580250196	No
1780	n/a	580250195	No
1781	n/a	580250210	No
1782	n/a	580250205	No
1783	n/a	580250216	No
1784	n/a	580250209	No
1785	n/a	580250206	No
1786	n/a	580250217	No
1787	n/a	580250208	No
1788	n/a	580250207	No
1789	n/a	580250218	No
1790	n/a	580250219	No
1793	n/a	580410124	No
1795	n/a	580410126	No
1797	n/a	580410128	No
1800	n/a	580410130	No
1801	n/a	580410132	No
1802	n/a	580410134	No
1827	n/a	580250188	No
1828	n/a	580250189	No
1829	n/a	580250192	No
1831	n/a	580250190	No
1836	n/a	580250199	No
1839	n/a	580250201	No
1841	n/a	580250202	No
1853	n/a	034150101	No
1862	n/a	580250173	No
1865	n/a	580250174	No
1867	n/a	580250175	No
1870	n/a	580250176	No
1879	n/a	580250304	No
1886	n/a	580250132	No
1887	n/a	580250133	No
1891	n/a	580250031	No
1892	n/a	580250033	No
1893	n/a	580250034	No
1900	n/a	580250160	No
1901	n/a	580250161	No
2003	21044 Leslie Street	034180016	No
2004	21002 Leslie Street	034180169	No
2005	n/a	034180020	No
2006	21024 Leslie Street	034180018	No
2013	1367 Holborn Road	034180007	No
2014	21226 Leslie Street	034180010	No
2015	1737 Holborn Road	034180124	No
2016	1562 Holborn Road	034170052	No
2029	20717 Yonge Street	034160383	No
2035	20704 2nd Concession Road	034160380	No
2037	20986 Yonge Street	034160036	No
2049	682 Holborn Road	034160402	No
2053	21320 Leslie Street	034161002	No
2061	104 Oak Avenue	034160198	No
2063	108 Oak Avenue	034160199	No
2065	81 River Drive	034160264	No
2066	90 River Drive	034160241	No
2067	99 Oak Avenue	034160207	No
2069	96 River Drive	034160243	No
2071	108 River Drive	034160247	No
2072	99 River Drive	034160257	No
2073	103 River Drive	034160255	No
2074	105 River Drive	034160254	No
2075	61 Morgan's Road	034160474	No
2076	21 Morgan's Road	034160321	No
2077	20864 Yonge Street	034160341	No
2079	15 Morgan's Road	034160323	No
2081	11 Morgan's Road	034160320	No
2082	7 Morgan's Road	034160319	No
2083	20782 Yonge Street	034160317	No
2084	20773 Yonge Street	034160384	No
2085	16 Morgan's Road	034160334	No
2086	20843 Yonge Street	034160387	No
2087	20877 Yonge Street	034160388	No
2089	21193 Yonge Street	034160399	No
2094	33 Morgan's Road	034160326	No
2095	29 Morgan's Road	034160325	No
2126	n/a	580260114	No
2127	n/a	580260115	No
2128	n/a	580260109	No
2129	n/a	580260111	No
2130	n/a	580260112	No
2131	n/a	580260113	No
2132	n/a	580300315	No
2133	n/a	580300029	No
2134	n/a	580300058	No
2135	n/a	580260028	No
2136	n/a	580260027	No
2137	n/a	580260025	No
2138	n/a	580260023	No
2139	n/a	580260068	No
2140	n/a	580260022	No
2141	n/a	580260011	No
2142	n/a	580260041	No
2143	n/a	580260042	No
2144	n/a	580260043	No
2145	n/a	580260160	No
2146	n/a	580260044	No
2147	n/a	580260047	No
2148	n/a	580260055	No
2149	n/a	580260054	No
2150	n/a	580260051	No
2151	n/a	580260103	No
2152	n/a	580260101	No
2153	n/a	580260100	No
2154	n/a	580260108	No
2156	n/a	580260147	No
2157	n/a	580260118	No
2158	n/a	580260121	No
2159	n/a	580260125	No
2160	n/a	580260126	No
2161	n/a	580260127	No
2162	n/a	580260120	No
2163	n/a	580300314	No
2164	n/a	580300031	No
2165	n/a	580260035	No
2166	n/a	580330166	No
2167	n/a	580330191	No
2168	n/a	580330192	No
2169	n/a	580330104	No
2171	n/a	580330233	No
2172	n/a	580330227	No
2173	n/a	580330232	No
2174	n/a	580330230	No
2175	n/a	580300072	No
2176	n/a	580300056	No
2178	n/a	580330224	No
2180	n/a	580300005	No
2181	n/a	580300018	No
2182	n/a	580330287	No
2183	n/a	580300016	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
2184	n/a	580300006	No
2185	n/a	580300019	No
2186	n/a	580330221	No
2187	n/a	580300015	No
2188	n/a	580300020	No
2189	n/a	580330265	No
2190	n/a	580300014	No
2191	n/a	580300021	No
2192	n/a	580300013	No
2193	n/a	580300040	No
2194	n/a	580300022	No
2195	n/a	580300039	No
2196	n/a	580300012	No
2197	n/a	580300023	No
2198	n/a	580300038	No
2199	n/a	580300024	No
2200	n/a	580300037	No
2201	n/a	580300055	No
2202	n/a	580300025	No
2203	n/a	580300036	No
2204	n/a	580300054	No
2205	n/a	580300340	No
2206	n/a	580300051	No
2207	n/a	580300035	No
2208	n/a	580300027	No
2209	n/a	580300034	No
2210	n/a	580300033	No
2215	n/a	580300078	No
2219	n/a	580300077	No
2223	n/a	580320438	No
2224	n/a	580300076	No
2225	n/a	580300110	No
2226	n/a	580300075	No
2227	n/a	580300074	No
2228	n/a	580300043	No
2229	n/a	580300042	No
2230	n/a	580300109	No
2233	n/a	580320351	No
2234	n/a	580320444	No
2235	n/a	580320359	No
2236	n/a	580330269	No
2237	n/a	580320358	No
2238	n/a	580320439	No
2241	n/a	580320440	No
2242	n/a	580320442	No
2243	n/a	580320443	No
2244	n/a	580330271	No
2247	n/a	580300111	No
2248	n/a	580300062	No
2249	n/a	580300066	No
2250	n/a	580300063	No
2251	n/a	580300067	No
2252	n/a	580300064	No
2253	n/a	580300068	No
2254	n/a	580300065	No
2255	n/a	580300048	No
2256	n/a	580300069	No
2257	n/a	580300003	No
2258	n/a	580300073	No
2259	n/a	580300107	No
2260	n/a	580300004	No
2261	n/a	580300045	No
2262	n/a	580300108	No
2263	n/a	580300339	No
2264	n/a	580300017	No
2265	n/a	580300338	No
2270	n/a	580320361	No
2271	n/a	580320360	No
2277	n/a	580330283	No
2278	n/a	580330281	No
2279	n/a	580331008	No
2281	n/a	580330252	No
2282	n/a	580330075	No
2283	n/a	580330117	No
2284	n/a	580330114	No
2285	n/a	580330113	No
2286	n/a	580330111	No
2287	n/a	580330186	No
2288	n/a	580330187	No
2289	n/a	580330188	No
2290	n/a	580330174	No
2291	n/a	580330173	No
2292	n/a	580330129	No
2293	n/a	580330130	No
2294	n/a	580330169	No
2295	n/a	580330168	No
2301	1538 Holborn Road	034170051	No
2302	n/a	580260014	No
2303	n/a	580260046	No
2304	n/a	580260102	No
2305	n/a	580260146	No
2308	n/a	580320352	No
2310	n/a	580320441	No
2313	n/a	580300071	No
2314	n/a	580300061	No
2315	n/a	580300116	No
2336	n/a	580330049	No
2339	n/a	580330461	No
2340	n/a	580330786	No
2341	n/a	580330787	No
2342	n/a	580330788	No
2343	n/a	580331220	No
2344	n/a	580330789	No
2345	n/a	580331221	No
2346	n/a	580330790	No
2347	n/a	580331222	No
2348	n/a	580331026	No
2349	n/a	580331028	No
2401	n/a	580330783	No
2402	n/a	580330784	No
2403	n/a	580330785	No
2404	n/a	580330807	No
2405	n/a	580330804	No
2406	n/a	580330803	No
2407	n/a	580330802	No
2408	n/a	580330801	No
2409	n/a	580330800	No
2410	n/a	580330799	No
2411	n/a	580330798	No
2412	n/a	580330797	No
2413	n/a	580330796	No
2414	n/a	580330795	No
2415	n/a	580330794	No
2422	n/a	580331238	No
2423	n/a	580330810	No
2424	n/a	580330809	No
2425	n/a	580330808	No
2426	n/a	580330806	No
2427	n/a	580330805	No
2428	n/a	580331256	No
2429	n/a	580331257	No
2430	n/a	580331258	No
2431	n/a	580331259	No
2432	n/a	580331260	No
2433	n/a	580330811	No
2434	n/a	580330812	No
2435	n/a	580330813	No
2436	n/a	580330814	No
2437	n/a	580330815	No
2438	n/a	580331282	No
2441	n/a	580330865	No
2442	n/a	580330864	No
2443	n/a	580330863	No
2444	n/a	580331285	No
2445	n/a	580331287	No
2447	n/a	580331293	No
2448	n/a	580331290	No
2450	n/a	580331274	No
2451	n/a	580331275	No
2452	n/a	580330876	No
2453	n/a	580330875	No
2454	n/a	580330870	No
2455	n/a	580330869	No
2456	n/a	580330862	No
2457	n/a	580330817	No
2458	n/a	580330850	No
2459	n/a	580330818	No
2460	n/a	580330854	No
2461	n/a	580330855	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
2462	n/a	580330856	No
2464	n/a	580330859	No
2465	n/a	580330825	No
2466	n/a	580330838	No
2467	n/a	580330821	No
2468	n/a	580330833	No
2469	n/a	580330832	No
2470	n/a	580330831	No
2471	n/a	580330823	No
2472	n/a	580330830	No
2473	n/a	580330824	No
2474	n/a	580330890	No
2475	n/a	580330891	No
2476	n/a	580330793	No
2477	n/a	580330893	No
2478	n/a	580330894	No
2479	n/a	580320454	No
2480	n/a	580330327	No
2482	n/a	580330324	No
2483	n/a	580330967	No
2484	n/a	580330124	No
2485	n/a	580330123	No
2487	n/a	580331019	No
2488	n/a	580330463	No
2489	n/a	580331211	No
2490	n/a	580330320	No
2493	n/a	580331212	No
2494	n/a	580330319	No
2495	n/a	580331030	No
2496	n/a	580331033	No
2497	n/a	580330131	No
2498	n/a	580330134	No
2499	n/a	580330189	No
2510	n/a	580331392	No
2519	n/a	580331396	No
2524	n/a	580331397	No
2527	n/a	580331310	No
2528	n/a	580331309	No
2529	n/a	580331308	No
2530	n/a	580330874	No
2531	n/a	580331340	No
2532	n/a	580331304	No
2533	n/a	580330851	No
2534	n/a	580331334	No
2535	n/a	580331336	No
2536	n/a	580331343	No
2537	n/a	580330848	No
2538	n/a	580331300	No
2539	n/a	580330847	No
2540	n/a	580330880	No
2541	n/a	580330881	No
2542	n/a	580330845	No
2543	n/a	580331353	No
2544	n/a	580331355	No
2545	n/a	580330642	No
2546	n/a	580331399	No
2547	n/a	580331404	No
2548	n/a	580331403	No
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2553	n/a	580331250	No
2555	n/a	580331251	No
2556	n/a	580331252	No
2557	n/a	580331313	No
2559	n/a	580331314	No
2561	n/a	580331253	No
2565	n/a	580331254	No
2568	n/a	580331255	No
2625	n/a	580330630	No
2635	n/a	580330546	No
2636	n/a	580330547	No
2637	n/a	580330548	No
2638	n/a	580330639	No
2646	n/a	580330534	No
2647	n/a	580330520	No
2648	n/a	580330533	No
2649	n/a	580330532	No
2650	n/a	580330521	No
2651	n/a	580330531	No
2652	n/a	580330522	No
2653	n/a	580330530	No
2654	n/a	580330535	No
2655	n/a	580330529	No
2656	n/a	580330536	No
2657	n/a	580330537	No
2658	n/a	580330528	No
2659	n/a	580330538	No
2660	n/a	580330527	No
2661	n/a	580330539	No
2662	n/a	580330526	No
2663	n/a	580330540	No
2664	n/a	580330525	No
2665	n/a	580330541	No
2666	n/a	580330524	No
2667	n/a	580330542	No
2668	n/a	580330543	No
2669	n/a	580330553	No
2670	n/a	580330552	No
2671	n/a	580330544	No
2672	n/a	580330551	No
2673	n/a	580330545	No
2674	n/a	580330550	No
2675	n/a	580330549	No
2699	n/a	580330501	No
2700	n/a	580330502	No
2701	n/a	580330503	No
2702	n/a	580330504	No
2703	n/a	580330519	No
2704	n/a	580330518	No
2705	n/a	580330517	No
2706	n/a	580330507	No
2707	n/a	580330516	No
2708	n/a	580330508	No
2709	n/a	580330515	No
2710	n/a	580330509	No
2711	n/a	580330514	No
2712	n/a	580330510	No
2713	n/a	580330513	No
2714	n/a	580330511	No
2715	n/a	580330512	No
2730	n/a	580331157	No
2731	n/a	580331156	No
2732	n/a	580331149	No
2733	n/a	580331150	No
2734	n/a	580331133	No
2735	n/a	580331132	No
2736	n/a	580331154	No
2737	n/a	580331155	No
2738	n/a	580331158	No
2739	n/a	580330500	No
2740	n/a	580330499	No
2741	n/a	580330523	No
2742	n/a	580330555	No
2743	n/a	580330554	No
2745	n/a	580331128	No
2746	n/a	580331131	No
2748	n/a	580331224	No
2751	n/a	580331063	No
2752	n/a	580331064	No
2753	n/a	580331095	No
2754	n/a	580331065	No
2755	n/a	580331094	No
2756	n/a	580331066	No
2757	n/a	580331098	No
2758	n/a	580331099	No
2759	n/a	580331092	No
2760	n/a	580331100	No
2761	n/a	580331101	No
2762	n/a	580331126	No
2763	n/a	580331109	No
2764	n/a	580331082	No
2765	n/a	580331078	No
2766	n/a	580331077	No
2767	n/a	580331076	No
2768	n/a	580331075	No
2769	n/a	580331074	No
2770	n/a	580331080	No
2771	n/a	580331081	No

Table 4: Properties That Have Not Been Accessed

Parcel Identifier (PID)	Address	PIN	Within Project Right-of-Way
2772	n/a	580331083	No
2773	n/a	580331084	No
2774	n/a	580331085	No
2775	n/a	580331113	No
2776	n/a	580331112	No
2777	n/a	580331111	No
2778	n/a	580331110	No
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2780	n/a	580331114	No
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3313	n/a	580300216	No
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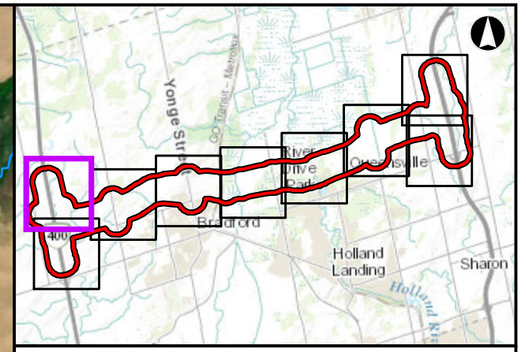

Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)

Contamination Rating Potential

- High
- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link (Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 1**

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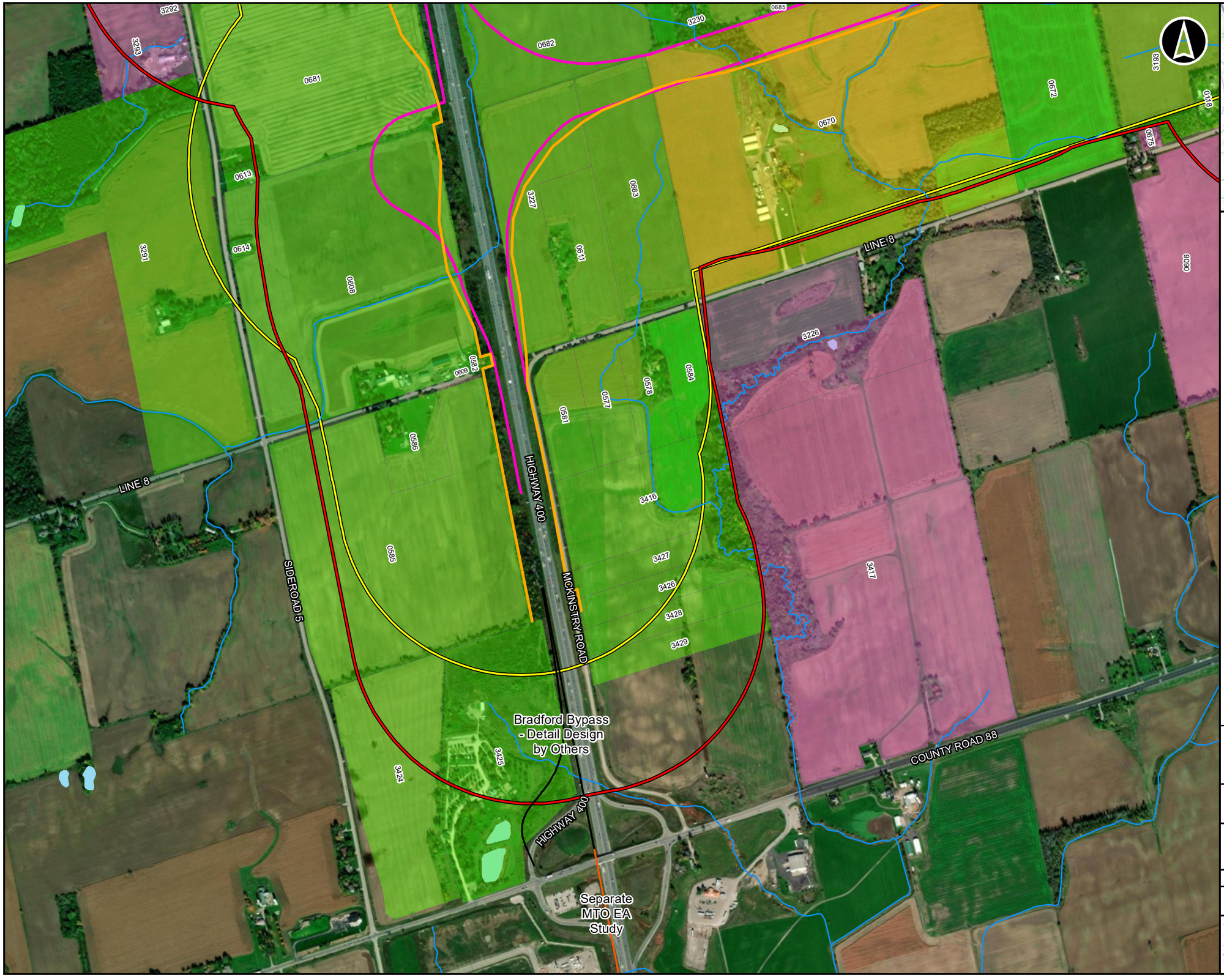

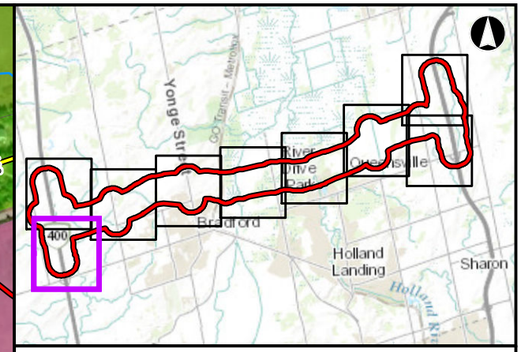

Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)

Contamination Rating Potential

- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link (Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 2**

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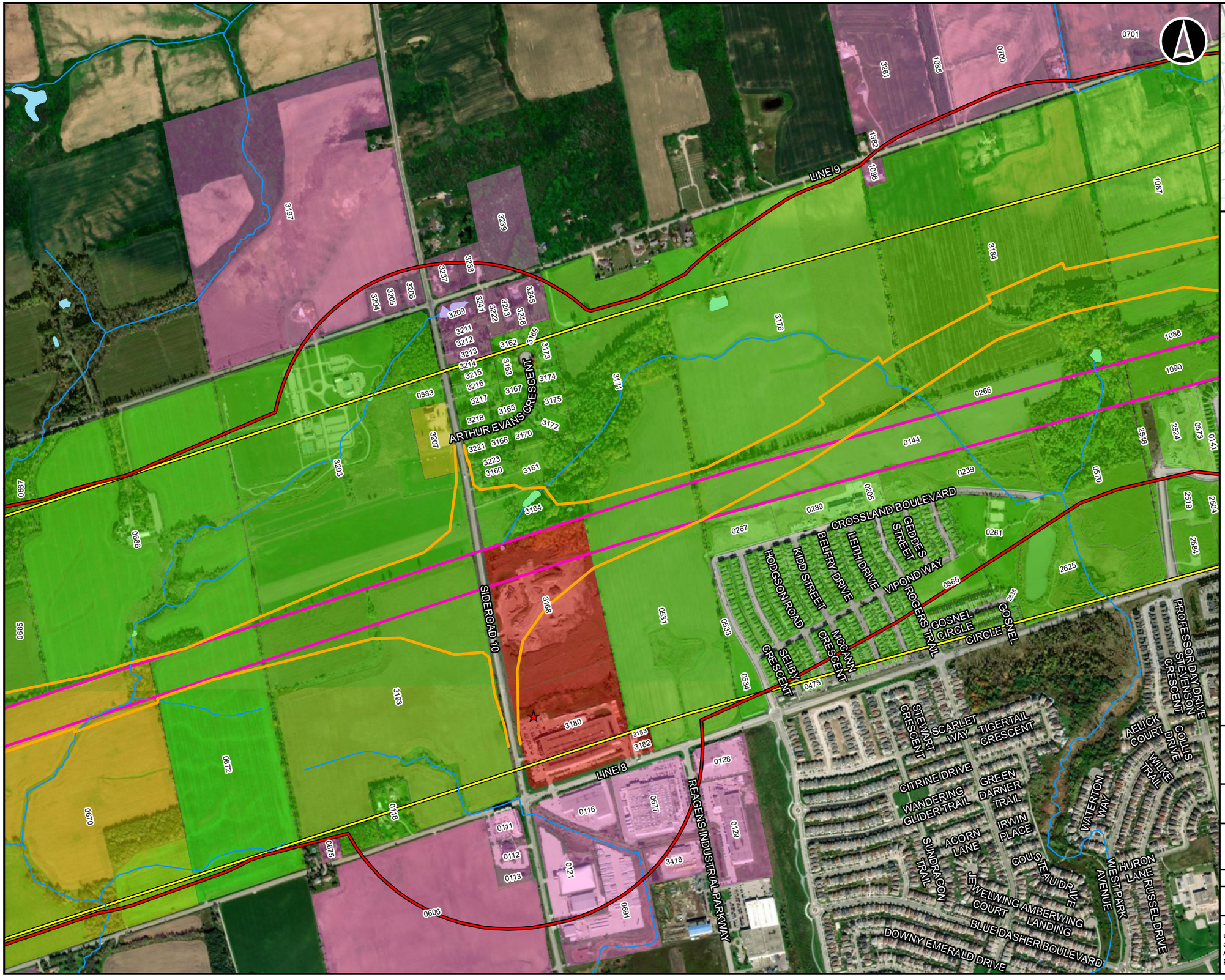

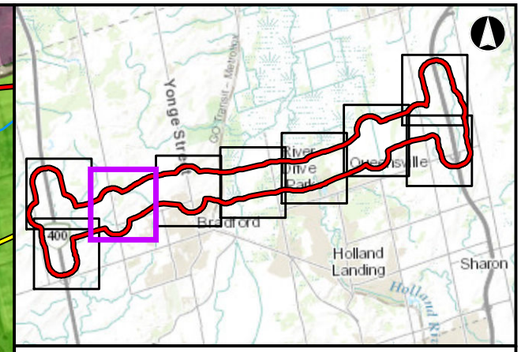

Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)
- Spill Location

Contamination Rating Potential

- High
- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link (Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 3**

AECOM

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Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)
- ★ Spill Location
- ★ Closed Landfill

Contamination Rating Potential

- High
- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link (Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 4**

AECOM

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Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)
- Spill Location
- Closed Landfill

Contamination Rating Potential

- High
- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link (Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 5**

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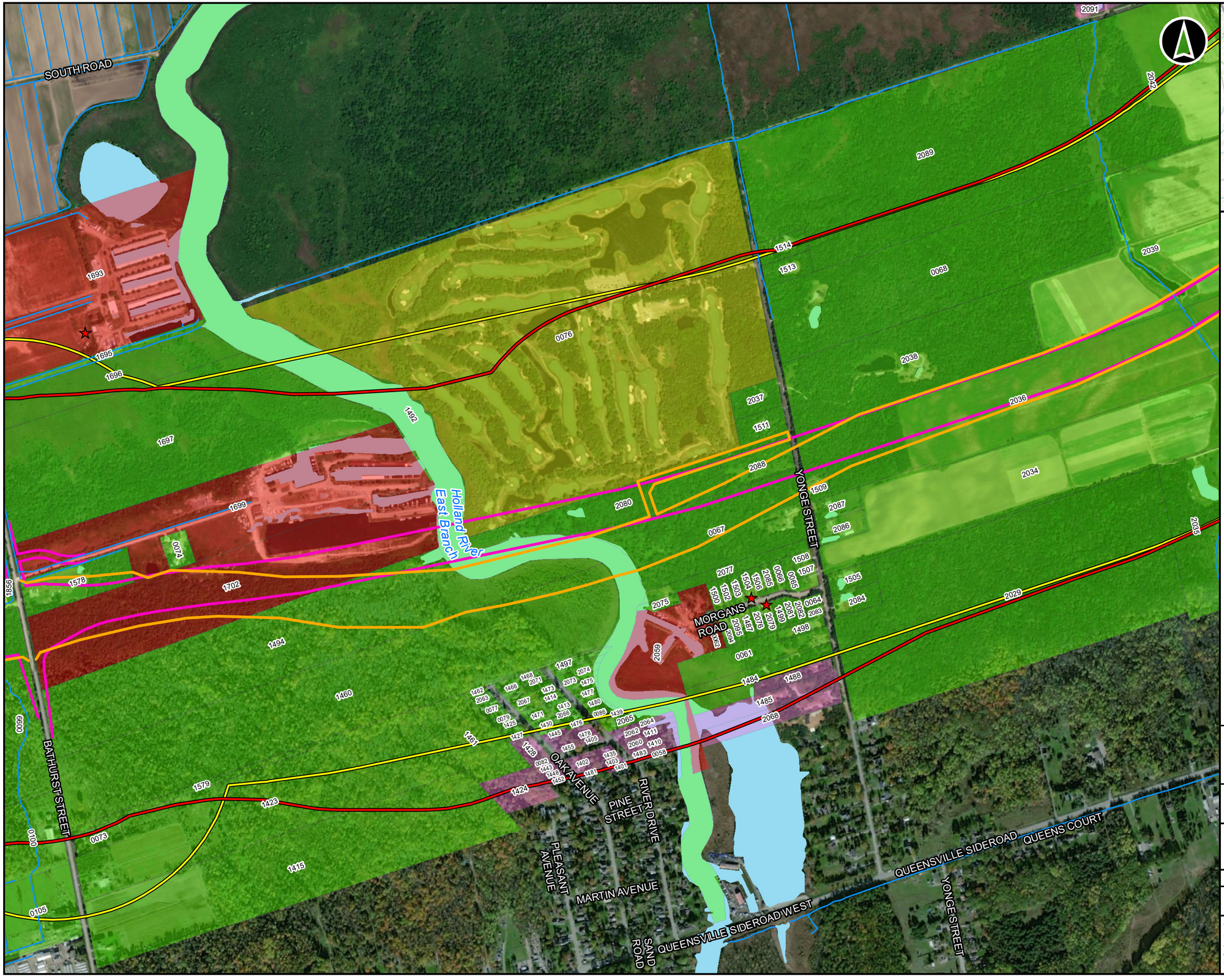

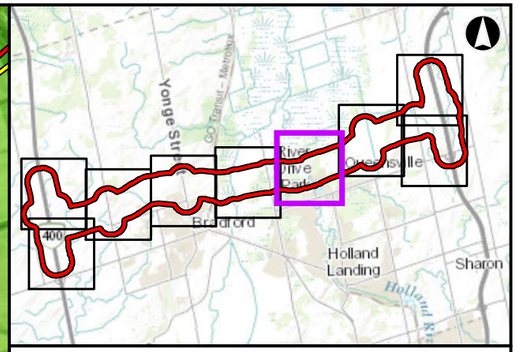

Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)
- ★ Spill Location

Contamination Rating Potential

- High
- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link (Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 6**

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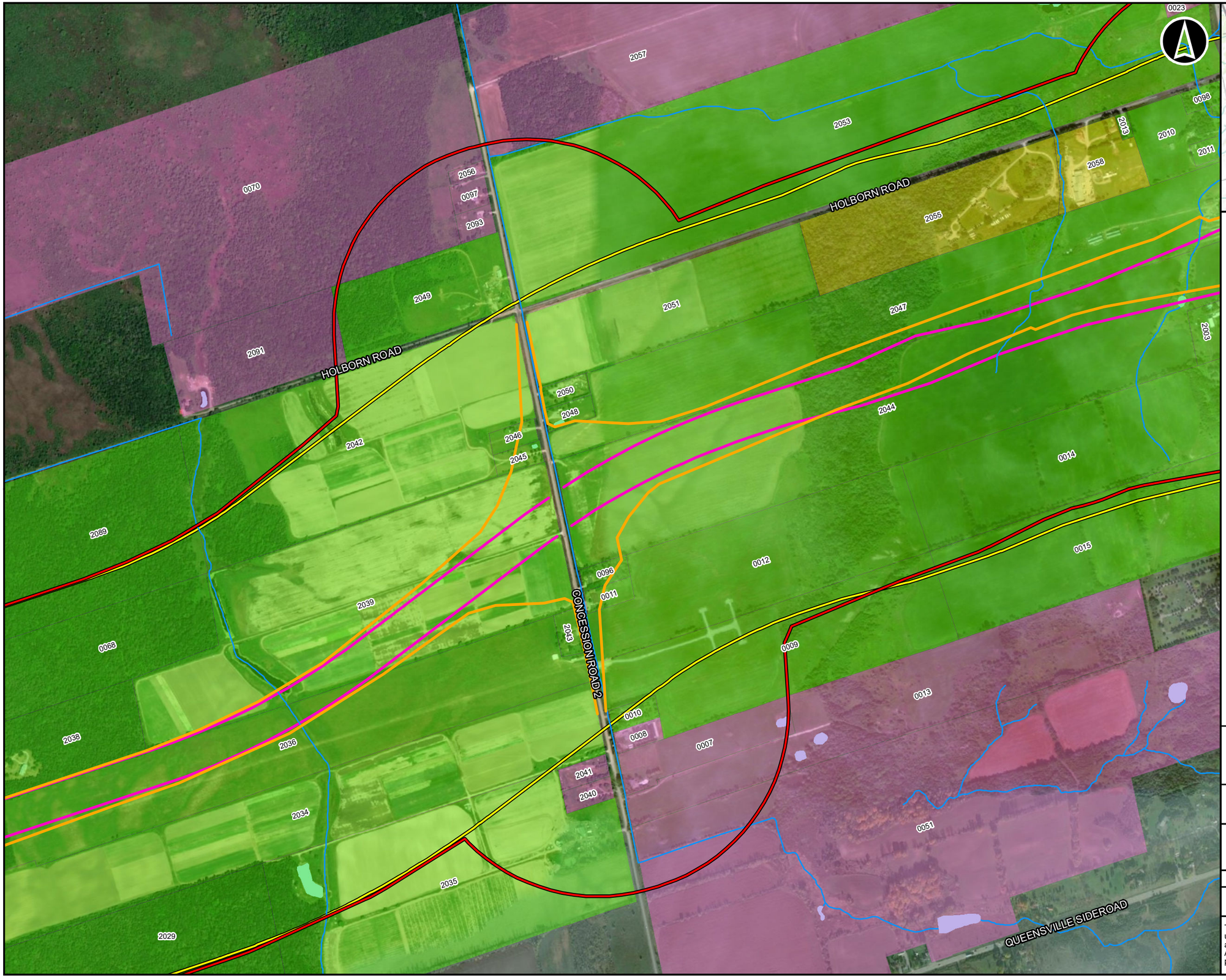

Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)

Contamination Rating Potential

- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link (Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 7**

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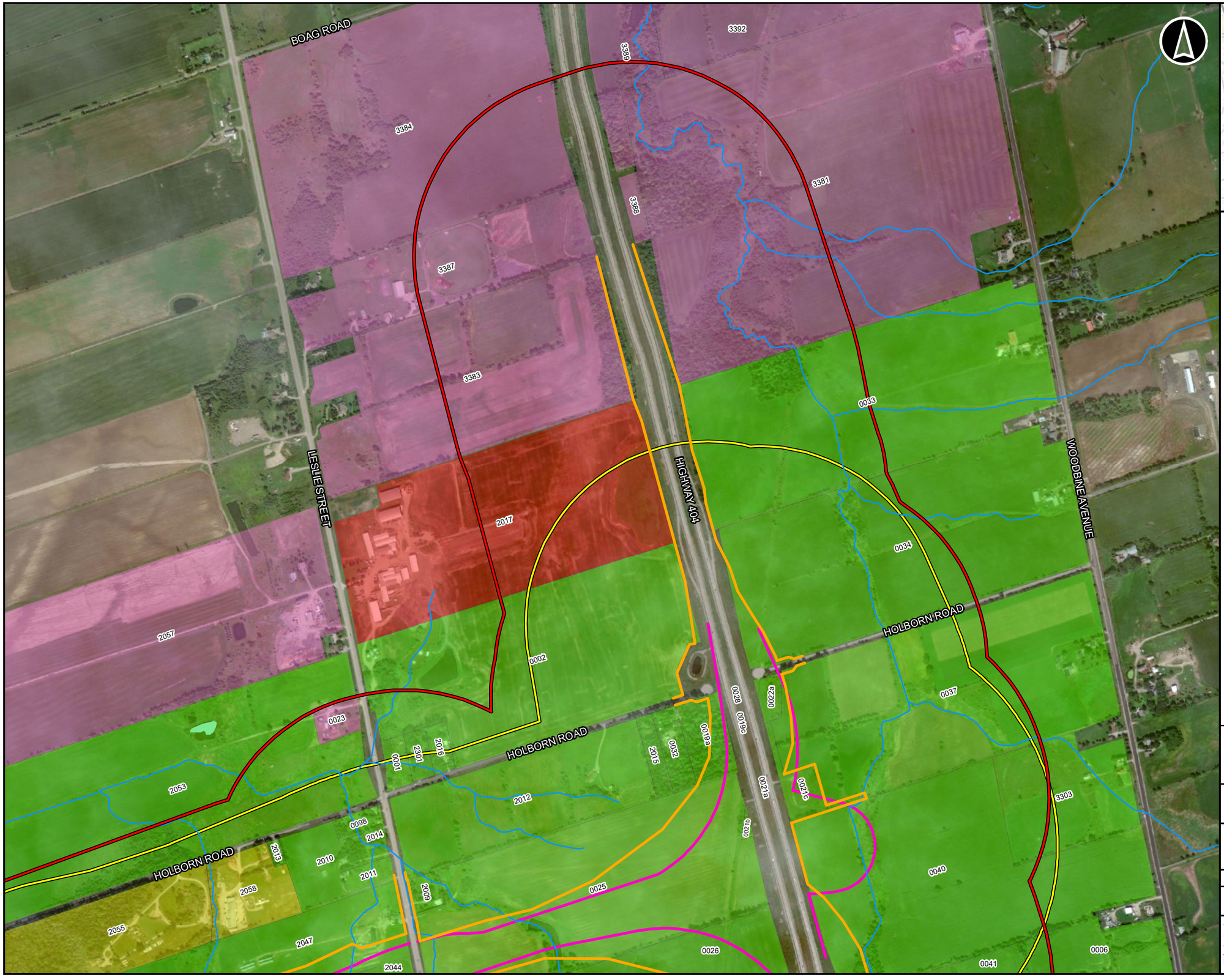

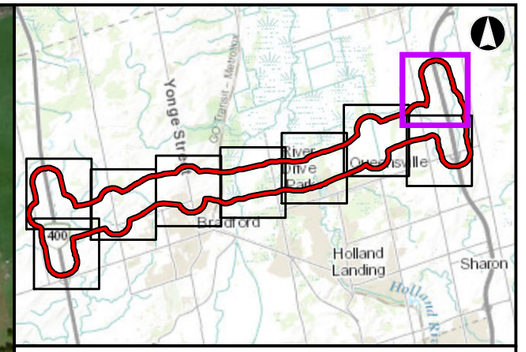

Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)

Contamination Rating Potential

- High
- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link (Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 8**

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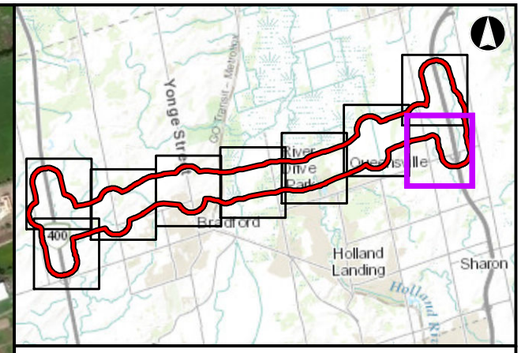

Legend

- Bradford Bypass - MTO Right-Of-Way
- ROW - Bradford Bypass Highway (400-404, 2002)
- Separate MTO EA Study
- Watercourse
- 2023 Waste and Excess Materials Management Study Area (500m)
- Preliminary Design Waste and Excess Materials Management Study Area (2020 COS)

Contamination Rating Potential

- Medium
- Low
- Unassessed

0 50 100 200 300 400 500 600 700
Metres

Highway 400 - Highway 404 Link
(Bradford Bypass)

Contamination Potential Ratings

Mar, 2023	1:10,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Appendix A Map 9**

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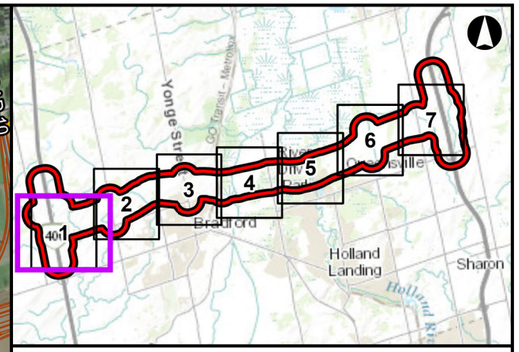
Appendix B

Borehole Locations and Soil Exceedances



Legend

- Environmental Borehole Location
- Soil at BH/MW exceeded PAHs in comparison to Table 2.1 Standards
- Soil at BH/MW exceeded EC and/or SAR in comparison to Table 2.1 Standards
- Soil at BH/MW did not exceed in comparison to Table 2.1 Standards
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Watercourse
- Waterbody

0 55 110 220 330 440 550 660 770
Metres

Highway 400 to Highway 404 Link (Bradford Bypass)

Environmental Borehole Exceedances

31 Jan, 2023	1:11,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Figure 1 Map 1**

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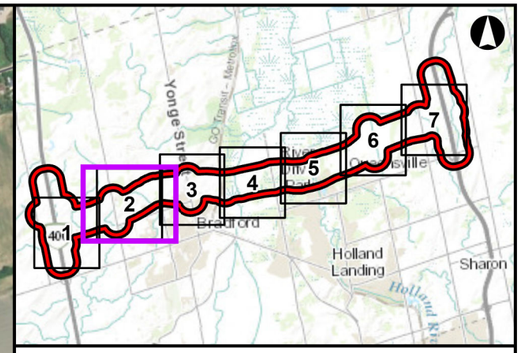

Legend

- Environmental Borehole Location
- Soil at BH/MW exceeded PAHs in comparison to Table 2.1 Standards
- Soil at BH/MW exceeded EC and/or SAR in comparison to Table 2.1 Standards
- Soil at BH/MW did not exceed in comparison to Table 2.1 Standards
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Watercourse
- Waterbody

0 55 110 220 330 440 550 660 770
Metres

Highway 400 to Highway 404 Link (Bradford Bypass)

Environmental Borehole Exceedances

31 Jan, 2023	1:11,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Figure 1 Map 2**

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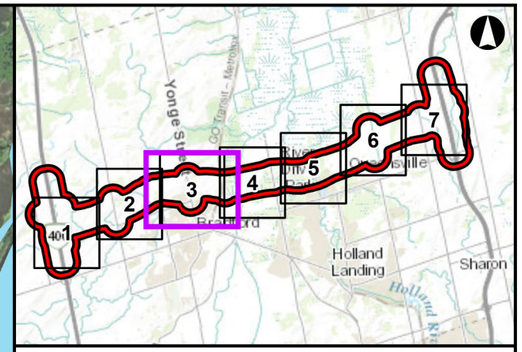

Legend

- Environmental Borehole Location
- Soil at BH/MW exceeded PAHs in comparison to Table 2.1 Standards
- Soil at BH/MW exceeded EC and/or SAR in comparison to Table 2.1 Standards
- Soil at BH/MW did not exceed in comparison to Table 2.1 Standards
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Watercourse
- Waterbody

0 55 110 220 330 440 550 660 770
Metres

Highway 400 to Highway 404 Link (Bradford Bypass)

Environmental Borehole Exceedances

31 Jan, 2023	1:11,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Figure 1 Map 3**

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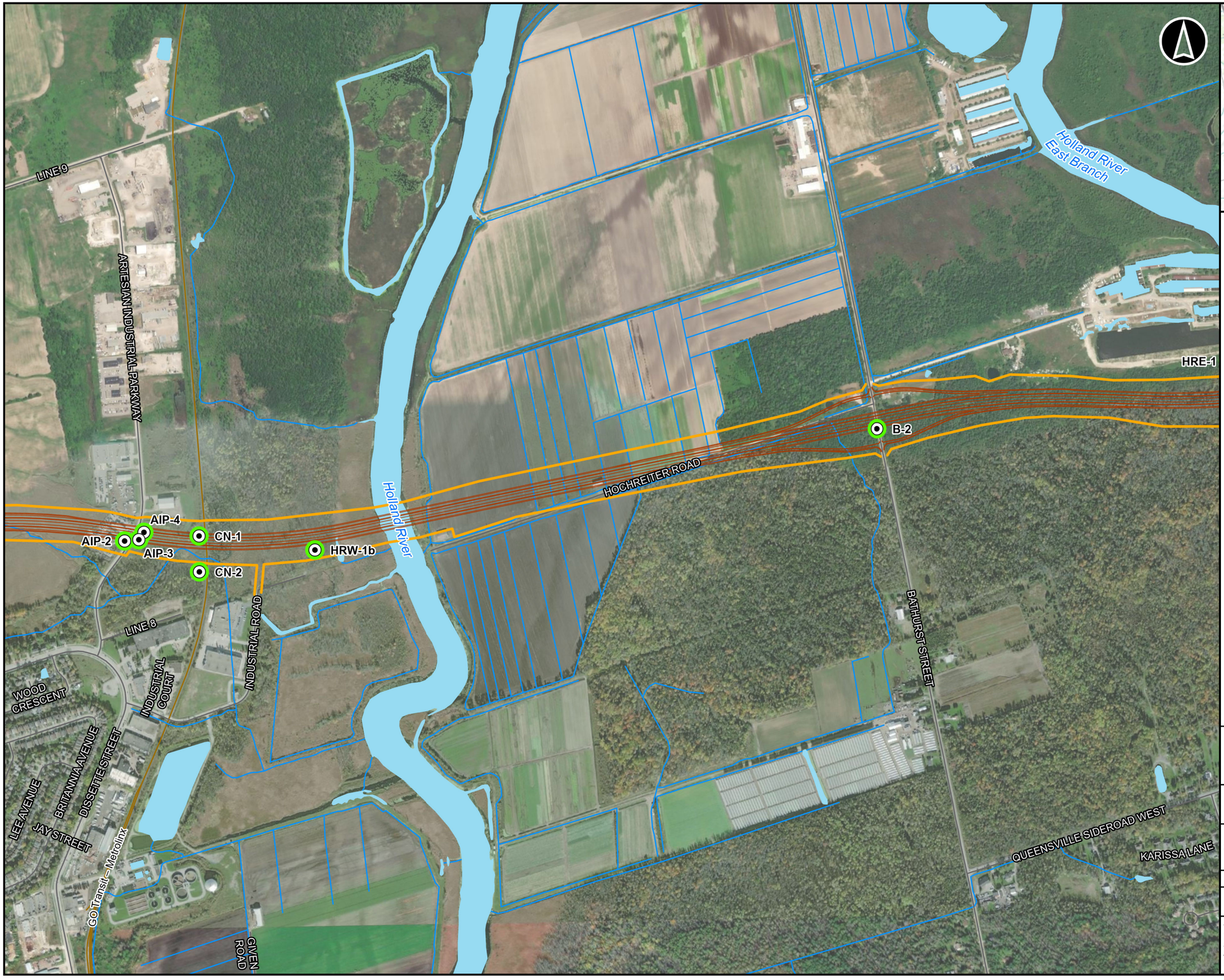

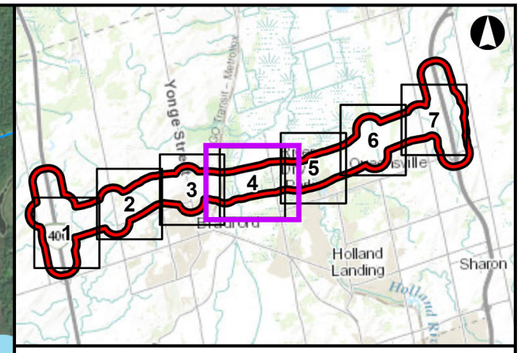

Legend

- Environmental Borehole Location
- Soil at BH/MW exceeded PAHs in comparison to Table 2.1 Standards
- Soil at BH/MW exceeded EC and/or SAR in comparison to Table 2.1 Standards
- Soil at BH/MW did not exceed in comparison to Table 2.1 Standards
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Watercourse
- Waterbody

0 55 110 220 330 440 550 660 770
Metres

Highway 400 to Highway 404 Link (Bradford Bypass)

Environmental Borehole Exceedances

31 Jan, 2023	1:11,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Figure 1 Map 4**

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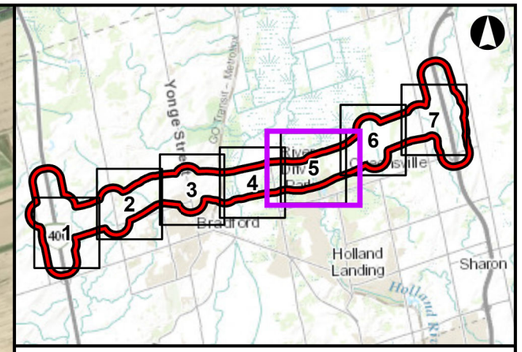


Legend

- Environmental Borehole Location
- Soil at BH/MW exceeded PAHs in comparison to Table 2.1 Standards
- Soil at BH/MW exceeded EC and/or SAR in comparison to Table 2.1 Standards
- Soil at BH/MW did not exceed in comparison to Table 2.1 Standards
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Watercourse
- Waterbody

0 55 110 220 330 440 550 660 770

Metres

Highway 400 to Highway 404 Link (Bradford Bypass)

Environmental Borehole Exceedances

31 Jan, 2023	1:11,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Figure 1 Map 5**

AECOM

HOLBORN ROAD

HOLBORN ROAD

HOLBORN ROAD

ISLE STREET

CONCESSION ROAD 2

YONGE STREET

QUEENSVILLE SIDEROAD

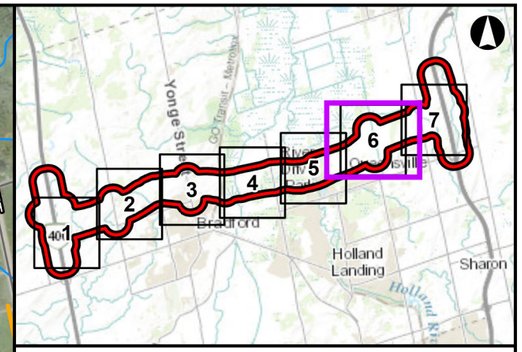
2-1

FD-01

FD-02

Y-1

Y-4



Legend

- Environmental Borehole Location
- Soil at BH/MW exceeded PAHs in comparison to Table 2.1 Standards
- Soil at BH/MW exceeded EC and/or SAR in comparison to Table 2.1 Standards
- Soil at BH/MW did not exceed in comparison to Table 2.1 Standards
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Watercourse
- Waterbody

0 55 110 220 330 440 550 660 770

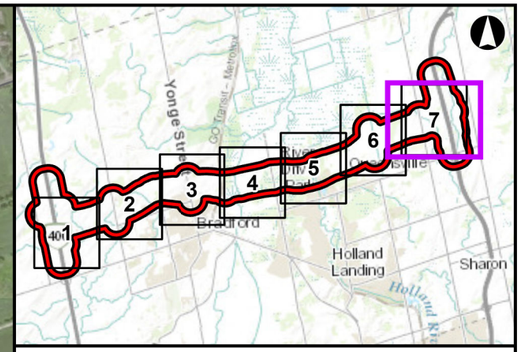
Metres

Highway 400 to Highway 404 Link
(Bradford Bypass)

Environmental Borehole Exceedances

31 Jan, 2023	1:11,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Figure 1 Map 6**

AECOM



Legend

- Environmental Borehole Location
- Soil at BH/MW exceeded PAHs in comparison to Table 2.1 Standards
- Soil at BH/MW exceeded EC and/or SAR in comparison to Table 2.1 Standards
- Soil at BH/MW did not exceed in comparison to Table 2.1 Standards
- Bradford Bypass - MTO Right-Of-Way
- Bradford Bypass Preliminary Design
- Bradford Bypass/Detail Design (by Others)
- Separate MTO EA Study
- Watercourse
- Waterbody

0 55 110 220 330 440 550 660 770

Metres

Highway 400 to Highway 404 Link (Bradford Bypass)

Environmental Borehole Exceedances

31 Jan, 2023	1:11,000 * when printed 11"x17"	Datum: NAD 1983 UTM Zone 17N Source: MNRF, NRC, MTO, Region of York
P#: 60636190		**Figure 1 Map 7**

AECOM

Appendix C

Borehole Logs

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-2

Sheet 1 of 4

METRIC

G.W.P. 2008-21-00 LOCATION N 4890800; E 309464.1 NAD83 / MTM Zone 10 (LAT. 44.157182; LONG. -79.441689) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.5 m DATE Jun 15, 2021 - Jun 16, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	NP Nonplastic 20 40 60						
0.0	Sandy Gravelly SILT (ML), some clay (FILL) Compact Brownish grey; Moist		1	SS	12		252		○		24	25	37	14	
251.8															
0.7	Sandy Gravelly CLAYEY SILT (CL) (FILL) Hard Brownish grey Moist		2	SS	31				◑⊢						
251.1															
1.4	CLAYEY SILT (CL), trace sand, trace gravel Hard Brownish grey to grey Moist		3	SS	52		251								
			4	SS	40		250								
			5	SS	60				○		0	4	56	40	
			6	SS	42		249								
			7	SS	46		248								
			8	SS	54		247		⊢⊖⊣						
245.4							246								
7.2	CLAYEY SILT (CL) to CLAYEY SILT -SILT (CL-ML), trace sand Very stiff to hard Grey Wet		9	SS	44		245		⊢⊖⊣						
			10	SS	36		244								
							243								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-2

Sheet 2 of 4

METRIC

G.W.P. 2008-21-00 LOCATION N 4890800; E 309464.1 NAD83 / MTM Zone 10 (LAT. 44.157182; LONG. -79.441689) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.5 m DATE Jun 15, 2021 - Jun 16, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ⊕ Field Vane ■ Remoulded ● Pocket Pen ○ Quick Triaxial × Unconfined	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	20 40 60						
	CLAYEY SILT (CL) to CLAYEY SILT -SILT (CL-ML), trace sand Very stiff to hard Grey Wet						242								
			11	SS	23										
							241								
			12	SS	39		240		○		0	0	62	38	
							239								
			13	SS	67										
							238								
			14	SS	19		237								
							236								
			15	SS	26										
							235								
			16	SS	43		234		⊣○						
							233								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-2

Sheet 3 of 4

METRIC

G.W.P. 2008-21-00 LOCATION N 4890800; E 309464.1 NAD83 / MTM Zone 10 (LAT. 44.157182; LONG. -79.441689) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.5 m DATE Jun 15, 2021 - Jun 16, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ Field Vane ⊕ Remoulded ■ Pocket Pen ● Quick Triaxial × Unconfined	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	20 40 60			
	CLAYEY SILT (CL) to CLAYEY SILT -SILT (CL-ML), trace sand Very stiff to hard Grey Wet						232					
			17	SS	42		231					
							230					
							229					
			18	SS	59		228					
							227					
							226					
			19 A	SS	46		225					
224.6												
27.9	CLAYEY SILT -SILT (CL-ML) to SILT (ML) with slight plasticity, trace to some sand Hard Grey Moist		19 B				224					

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-2

Sheet 4 of 4

METRIC

G.W.P. 2008-21-00 LOCATION N 4890800; E 309464.1 NAD83 / MTM Zone 10 (LAT. 44.157182; LONG. -79.441689) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.5 m DATE Jun 15, 2021 - Jun 16, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ Field Vane ⊕ Remoulded ■ Pocket Pen ● Quick Triaxial × Unconfined	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	20 40 60			
	CLAYEY SILT -SILT (CL-ML) to SILT (ML) with slight plasticity, trace to some sand Hard Grey Moist						223					
							222					
221.6			20	SS	81/0.28				HO			
30.9	End of Borehole Note: 1. Water level not measured due to introduction of water during drilling operations.						221					
							220					
							219					
							218					
							217					
							216					
							215					
							214					

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-3 Sheet 1 of 2 METRIC

G.W.P. Assignment No.: 2019-E-0048 LOCATION N 4890667.6; E 309421.5 NAD83 / MTM Zone 10 (LAT. 44.155991; LONG. -79.442223) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.6 m DATE Jun 17, 2021 - Jun 22, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
0.0	GRAVEL and SAND (GP-GM), trace fines (FILL) Dense Brown Dry		1	SS	34		252								
252.0															
0.7	Sandy SILT (ML), trace gravel, slight plasticity Very dense Brown Dry		2	SS	76				H		9	28	56	7	
			3	SS	100/0.23		251								
			4	SS	101/0.26		250								
			5	SS	82										
248.9							249								
3.7	CLAYEY SILT (CL), trace sand Hard Grey Moist		6	SS	75										
248.1															
4.5	CLAYEY SILT (CL), some sand, trace gravel (TILL) Hard Grey Moist		7	SS	99		248		H		2	15	54	29	
			8	SS	67/0.13		247								
			9	SS	82		246								
244.0							245								
8.7	CLAYEY SILT (CL) Hard Grey Moist		10	SS	67		244								
							243								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-3 Sheet 2 of 2 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4890667.6; E 309421.5 NAD83 / MTM Zone 10 (LAT. 44.155991; LONG. -79.442223) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.6 m DATE Jun 17, 2021 - Jun 22, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ⊕ Field Vane ■ Remoulded ● Pocket Pen ○ Quick Triaxial × Unconfined	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	20 40 60						
	CLAYEY SILT (CL) Hard Grey Moist														
			11	SS	160		242								
							241								
			12	SS	72		240		⊖		0	0	55	45	
							239								
			13	SS	54										
237.9							238								
14.8	SILT (ML), some sand to sandy, trace gravel Very dense Grey Moist														
			14	SS	100/0.26		237								
			15	SS			236		○	NP	6	23	68	3	
							235								
			16	SS	98		234								
233.8															
18.8	End of Borehole Note: 1. Water level not measured due to introduction of water during drilling operations.														

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-4 Sheet 1 of 4 METRIC

G.W.P. Assignment No.: 2019-E-0048 LOCATION N 4890426.9; E 309549.5 NAD83 / MTM Zone 10 (LAT. 44.153824; LONG. -79.440624) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.1 m DATE Jun 10, 2021 - Jun 15, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
0.0	Sandy SILTY GRAVEL (GM), some fines (FILL) Compact Moist to dry		1	SS	14		252								
251.4															
0.7	Sandy SILT (ML), trace gravel (FILL) Compact Moist to dry		2	SS	12		251				1	27	59	13	
250.6															
1.4	CLAYEY SILT (CL), trace sand Stiff to hard Brown to grey, iron oxide staining Moist.		3	SS	14		250								
			4	SS	20										
			5	SS	22		249								
			6	SS	33		248								
			7	SS	32		247				0	1	54	45	
246.5															
5.6	CLAYEY SILT-SILT (CL-ML), trace sand (TILL) Hard Grey Moist to wet		8	SS	31		246								
			9	SS	36		245								
							244								
			10	SS	40		243								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-4 Sheet 2 of 4 METRIC

G.W.P. Assignment No.: 2019-E-0048 LOCATION N 4890426.9; E 309549.5 NAD83 / MTM Zone 10 (LAT. 44.153824; LONG. -79.440624) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.1 m DATE Jun 10, 2021 - Jun 15, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES										
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ⊕ Field Vane, ■ Remoulded, ● Pocket Pen, ○ Quick Triaxial, × Unconfined; 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l; NP Nonplastic; 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
241.9 / 10.2	CLAYEY SILT-SILT (CL-ML), trace sand (TILL) Hard Grey Moist to wet						242								
	CLAYEY SILT (CL) Very stiff to hard Grey Moist		11	SS	26		241		H⊖I		0	0	55	45	
			12	SS	29		240								
			13	SS	40		239								
14.8 / 237.3	Sandy SILT (ML) to SILT (ML), some sand Very dense Grey Wet.		14	SS	55/0.10		238								
			15	SS	100/0.28		237		○		0	15	74	11	
			16	SS	40/0.08		236								
							235								
							234								
							233								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-4 Sheet 3 of 4 METRIC

G.W.P. Assignment No.: 2019-E-0048 LOCATION N 4890426.9; E 309549.5 NAD83 / MTM Zone 10 (LAT. 44.153824; LONG. -79.440624) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.1 m DATE Jun 10, 2021 - Jun 15, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
232.2	Sandy SILT (ML) to SILT (ML), some sand Very dense Grey Wet.														
19.9	CLAYEY SILT (CL), trace sand, trace gravel, silt layers Hard Grey Moist to wet						232								
							231								
			17	SS	69										
							230								
228.8							229								
23.3	CLAYEY SILT-SILT (CL-ML), trace sand Hard Grey Moist to wet						228								
			18	SS	53				H ⊖		0	0	85	15	
							227								
							226								
							225								
			19	SS	69				H ⊖						
							224								
222.7	CLAYEY SILT (CL), trace sand, trace gravel Hard Grey Moist to wet						223								
29.4	Continued on Next Page														

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. 404-4 Sheet 4 of 4 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4890426.9; E 309549.5 NAD83 / MTM Zone 10 (LAT. 44.153824; LONG. -79.440624) ORIGINATED BY MM

DIST Central HWY BBP - Hwy 404 BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA

DATUM CGVD28 Surface Elevation:252.1 m DATE Jun 10, 2021 - Jun 15, 2021 CHECKED BY

SOIL PROFILE			SAMPLES												
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ Field Vane ■ Remoulded ● Pocket Pen ⊕ Quick Triaxial × Unconfined; 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l; NP Nonplastic; 20 40 60	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
	CLAYEY SILT (CL), trace sand, trace gravel Hard Grey Moist to wet						222					
221.1			20	SS	38							
31.0	End of Borehole Note: 1. Water level measured at a depth of 3.0 m (Elev. 249 m) prior to introducing water for mud rotary . 2. Water level measured at a depth of 4.2 m (El. 247.9 m) on March 22, 2022.						221 220 219 218 217 216 215 214 213					

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-1 Sheet 1 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888459.3; E 303648.6 NAD83 / MTM Zone 10 (LAT. 44.136129; LONG. -79.514389) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.5 m DATE Sep 29, 2021 - Oct 01, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
0.0	CLAYEY SILT-SILT (CL-ML), some sand to sandy; trace rootlets (FILL) Stiff to firm Brown Moist		1	SS	13		219								
218.3			2A	SS	7				H O		0	34	56	10	
1.2	Sandy PEAT (PT), trace rootlets Firm Blackish brown Moist		2B												
217.9							218	⊕ ×							
1.6	Sandy SILT (ML), some clay Loose Brown Wet		3	TO											
			4	SS	5		217		H O		0	22	64	14	
216.4															
3.0	CLAYEY SILT -SILT (CL-ML) to CLAYEY SILT (CL), trace sand Firm to very stiff Brown Moist		5	SS	4		216		O						
	- 4.0 m: - contains silt pockets/ seams throughout		6	SS	5			⊕ ×							
	- 4.6 m: - Following borehole completion, an additional borehole adjacent to HRE-1 was advanced to a depth of 4.6 m and a shelby tube (designated as HRE-1 TO-4) was obtained.		7	SS	5		215		H O		0	1	78	21	
							214	⊕ ×							
								× >96 kPa							
			8	SS	26		213								
							212								
	- 7.9 to 8.0 m: - sand seam; becoming sandy at 9.73 m		9	SS	20				O						
	- 8.3 m: - colour changes from brown to greyish brown						211								
			10	SS	23		210		O						

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-1 Sheet 2 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888459.3; E 303648.6 NAD83 / MTM Zone 10 (LAT. 44.136129; LONG. -79.514389) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.5 m DATE Sep 29, 2021 - Oct 01, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
	CLAYEY SILT -SILT (CL-ML) to CLAYEY SILT (CL), trace sand Firm to very stiff Brown Moist						209								
			11	SS	14				⊖		0	4	70	26	
							208								
	- 12.2 m: -silt seam		12	SS	16		207								
							206								
205.6			13												
13.9	SILT (ML) and SAND (SM), trace clay Very dense Greyish brown Wet		13 A 13 B	SS	70		205		○		0	46	48	6	
203.9			14 A	SS	28		204								
15.5	CLAYEY SILT (CL), some sand Very stiff Greyish brown Wet		14 B						○						
203.2															
16.3	CLAYEY SILT-SILT (CL-ML), trace sand Stiff to very stiff Greyish brown Wet						203								
			15	SS	28										
							202								
	- 18.3 m: -silt pockets from 18.3 m to 18.9 m		16	SS	12		201		○						
							200								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-1

Sheet 3 of 6

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888459.3; E 303648.6 NAD83 / MTM Zone 10 (LAT. 44.136129; LONG. -79.514389) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.5 m DATE Sep 29, 2021 - Oct 01, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES										
	CLAYEY SILT-SILT (CL-ML), trace sand Stiff to very stiff Greyish brown Wet						199								
			17	SS	19		198								
196.6							197								
22.9	Sandy SILT to SILT (ML) Compact Greyish brown Wet						196								
194.9			18 A 18 B	SS	13		195								
24.5	CLAYEY SILT-SILT (CL-ML) to CLAYEY SILT (CL) Stiff to very stiff Greyish brown Wet						194								
							193								
	- 27.8 m: -75 mm thick silt layer		19	SS	27		192		H D		0	0	73	27	
							191								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-1 Sheet 4 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888459.3; E 303648.6 NAD83 / MTM Zone 10 (LAT. 44.136129; LONG. -79.514389) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.5 m DATE Sep 29, 2021 - Oct 01, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	NP Nonplastic 20 40 60			
	CLAYEY SILT-SILT (CL-ML) to CLAYEY SILT (CL) Stiff to very stiff Greyish brown Wet						189					
			20	SS	9							
188.2												
31.2	CLAYEY SILT (CL) trace sand Stiff to hard Grey Wet		21	TO			188					
								× >96 kPa				
							187					
							186					
			22	SS	37				○			
	- 34.0 m: - 300 mm thick silty sand layer						185					
							184					
	- 36.5 m: - contains silt pockets						183					
			23	SS	12							
							182					
								× >96 kPa				
	- 38.1 m: - attempted shelby tube extraction but no recovery						181					

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-1 Sheet 5 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888459.3; E 303648.6 NAD83 / MTM Zone 10 (LAT. 44.136129; LONG. -79.514389) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.5 m DATE Sep 29, 2021 - Oct 01, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES				ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL NMC LL	UNIT WEIGHT				REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS		Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined; 20 40 60 80 100	W_p W W_l; NP Nonplastic; 20 40 60	γ kN/m³	GR	SA SI CL		
	CLAYEY SILT (CL) trace sand Stiff to hard Grey Wet						180							
			24	SS	13						0	1	59 40	
							179							
							178							
							177							
			25	SS	18									
							176							
							175							
							174							
	- 45.7 m: - silt pocket at a depth of 45.7 m		26	SS	13						0	0	64 36	
							173							
							172							
							171							

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-1 Sheet 6 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888459.3; E 303648.6 NAD83 / MTM Zone 10 (LAT. 44.136129; LONG. -79.514389) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.5 m DATE Sep 29, 2021 - Oct 01, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ Field Vane ⊕ Remoulded ■ Pocket Pen ● Quick Triaxial × Unconfined	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	20 40 60			
	CLAYEY SILT (CL) trace sand Stiff to hard Grey Wet		27	SS	15		170					
	- 50.3 m: - trace gravel encountered in sample		28	SS	12		169					
168.6 50.9	End of Borehole Notes: 1. Water observed at a depth of 2.5 m below ground surface (El. 217.0 m) prior to mud-rotary. 2. After completion of borehole, another boreholes (HRE-1A) was advanced 2 m to the northeast and a shelby tube was collected from 4.6 m - 5.2 m depth. (refer to Borehole Record HRE-1A for details)						168 167 166 165 164 163 162 161					

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

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RECORD OF BOREHOLE No. HRE-2 Sheet 1 of 4 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888413.9; E 303260.8 NAD83 / MTM Zone 10 (LAT. 44.135719; LONG. -79.519236) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:218.9 m DATE Dec 03, 2021 - Dec 06, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
0.0	Sandy CLAYEY SILT-SILT (CL-ML), trace rootlets, trace gravel (possible FILL) soft to stiff Brown to greenish grey Moist - 0.4 m: - sand seam layer (130 mm thick) - 0.8 m: - silty sand layer (75 mm thick)		1	SS	11		218								
			2	SS	8										
			3	SS	2		217								
216.7															
2.2	Sandy SILT (ML), some clay, trace organics in upper zone Loose Greyish brown (light brown) Wet		4	SS	10	▽					0	32	55	13	
216.0							216								
3.0	CLAYEY SILT-SILT (CL-ML), trace organics Firm to very stiff Greyish brown (light brown) Wet		5	SS	4										
			6	TO			215								
214.0			7A	SS	23										
4.9	Sandy SILT (ML) Compact Brownish grey Wet		7B				214								
	- 6.1 m: - 75mm thick clayey layer						213								
212.5			8A	SS	13										
6.4	CLAYEY SILT-SILT (CL-ML), some sand Stiff Grey Moist		8B												
211.8							212								
7.2	Sandy SILT (ML) to SILT (ML), some clay Compact Grey Moist to Wet		9	SS	24		211				0	32	56	12	
							210								
209.3	SILT (ML), some clay, some sand to sandy Dense to compact Grey Moist to wet		10	SS	42										
9.6															

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-2 Sheet 2 of 4 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888413.9; E 303260.8 NAD83 / MTM Zone 10 (LAT. 44.135719; LONG. -79.519236) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:218.9 m DATE Dec 03, 2021 - Dec 06, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
	SILT (ML), some clay, some sand to sandy Dense to compact Grey Moist to wet						209								
			11	SS	20		208								
							207								
			12	SS	27				○	NP	0	18	70	12	
206.0							206								
13.0	CLAYEY SILT-SILT (CL-ML), trace to some sand Very stiff Grey Moist to wet														
			13	SS	42		205								
							204								
	- 15.2 to 15.4 m: -sand laye		14	SS	18										
202.6							203								
16.3	Sandy SILT (ML), trace clay Compact to dense Grey Moist to wet														
			15	SS	21		202		○	NP	0	20	72	8	
							201								
	- 18.3 m: - clayey silt layer (125 mm thick)		16	SS	45				○						
							200								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-2 Sheet 3 of 4 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888413.9; E 303260.8 NAD83 / MTM Zone 10 (LAT. 44.135719; LONG. -79.519236) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:218.9 m DATE Dec 03, 2021 - Dec 06, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ⊕ Field Vane, ■ Remoulded, ● Pocket Pen, ○ Quick Triaxial, × Unconfined (20 40 60 80 100)	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic (20 40 60)	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES										
198.8	Sandy SILT (ML), trace clay Compact to dense Grey Moist to wet						199								
20.1	CLAYEY SILT-SILT (CL-ML), interbedded with silt and sand pockets / layers Stiff to very stiff Grey Moist						198								
			17	SS	9				HO						
	- 21.9 to 22.0 m: -sand layer						197								
							196								
							195								
	- 24.3 m: -silt pockets encountered														
			18	SS	18		194								
192.7							193								
26.2	CLAYEY SILT (CL) Firm to stiff Grey Moist						192								
			19	SS	6				HO			0	0	56	44
							191								
							190								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-2 Sheet 4 of 4 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888413.9; E 303260.8 NAD83 / MTM Zone 10 (LAT. 44.135719; LONG. -79.519236) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:218.9 m DATE Dec 03, 2021 - Dec 06, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ Unconfined ● Quick Triaxial ■ Pocket Pen ⊕ Remoulded × Field Vane	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	20 40 60			
	CLAYEY SILT (CL) Firm to stiff Grey Moist						189					
			20	SS	10		188		○			
187.8												
31.1	End of Borehole Note: 1. Groundwater encountered at a depth of 2.3 m (El. 216.6 m) during advancement of hollow stem auger and prior to introducing water for mud rotary.						187 186 185 184 183 182 181 180					

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-3

Sheet 1 of 6

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888657.1; E 304531.7 NAD83 / MTM Zone 10 (LAT. 44.13791; LONG. -79.503353) ORIGINATED BY DP

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:220.0 m DATE Jan 13, 2022 - Jan 25, 2022 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined)	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
0.0	SILTY SAND (SM), trace organics including rootlets, (TOPSOIL)														
219.8															
0.2	Dark Brown Dry to moist		1	SS	6										
	SILTY SAND (SM), trace clay, trace gravel, trace organics (FILL) Loose Brown Dry to moist		2	SS	6		219				0	80	16	4	
1.8															
218.2	CLAYEY SILT-SILT (CL-ML), trace sand Firm Brown Moist		3	SS	5		218								
217.7															
2.3	SILTY SAND (SM) Compact to loose Brown to grey Moist to wet		4	SS	26						0	65	29	6	
			5	SS	7		217								
			6	SS	8		216				0	47	50	3	
	- 4.8 m: sample contains silt seams		7	SS	22		215				0	82	16	2	
							214								
213.5			8A	SS	14										
6.5	SANDY SILT (ML), trace clay Compact to very dense Grey Moist		8B				213								
			9	SS	21		212								
							211								
			10	SS	38										

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-3 Sheet 2 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888657.1; E 304531.7 NAD83 / MTM Zone 10 (LAT. 44.13791; LONG. -79.503353) ORIGINATED BY DP

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:220.0 m DATE Jan 13, 2022 - Jan 25, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	NP Nonplastic 20 40 60						
	SANDY SILT (ML), trace clay Compact to very dense Grey Moist						210								
			11	SS	61		209								
							208								
			12	SS	33				■ ○		0	21	71	8	
							207								
			13	SS	39		206		■ ○						
							205								
			14	SS	64				○		0	19	76	5	
							204								
			15	SS	33		203		○						
202.1															
17.8	CLAYEY SILT-SILT (CL-ML), some sand Hard Grey Wet - 18.3 to 18.9 m: lenses of clayey silt-silt						202								
			16	SS	32										
201.1															
18.9	SILTY SAND (SM), trace clay Dense to compact Grey Wet						201								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-3

Sheet 3 of 6

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888657.1; E 304531.7 NAD83 / MTM Zone 10 (LAT. 44.13791; LONG. -79.503353) ORIGINATED BY DP

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:220.0 m DATE Jan 13, 2022 - Jan 25, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ⊕ Field Vane, ■ Remoulded, ● Pocket Pen, ○ Quick Triaxial, × Unconfined	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	NP Nonplastic 20 40 60						
	SILTY SAND (SM), trace clay Dense to compact Grey Wet						200								
							199								
			17	SS	32				○		0	75	24	1	
							198								
							197								
							196								
195.4			18 A	SS	21										
24.6	CLAYEY SILT (CL), trace to some sand Stiff to very stiff Grey Moist to wet		18 B				195								
							194								
							193								
			19	SS	17										
							192								
							191								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-3 Sheet 4 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888657.1; E 304531.7 NAD83 / MTM Zone 10 (LAT. 44.13791; LONG. -79.503353) ORIGINATED BY DP

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:220.0 m DATE Jan 13, 2022 - Jan 25, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	NP Nonplastic 20 40 60						
	CLAYEY SILT (CL), trace to some sand Stiff to very stiff Grey Moist to wet						190								
			20	SS	26		189								
							188								
							187								
			21	SS	10		186								
	- 35.0 m: attempted to obtain shelby tube sample but no recovery						185								
							184								
			22	SS	11		183				0	0	67	33	
							182								
			23	TO			181								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-3

Sheet 5 of 6

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888657.1; E 304531.7 NAD83 / MTM Zone 10 (LAT. 44.13791; LONG. -79.503353) ORIGINATED BY DP

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:220.0 m DATE Jan 13, 2022 - Jan 25, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			⊕ Field Vane, ■ Remoulded, ● Pocket Pen, ○ Quick Triaxial, × Unconfined; 20 40 60 80 100	NP Nonplastic; 20 40 60			
	CLAYEY SILT (CL), trace to some sand Stiff to very stiff Grey Moist to wet						180					
			24	SS	3			⊕ ×				
							179					
							178					
			25	SS	14		177					
							176					
							175					
			26	SS	14		174					
							173					
							172					

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-3 Sheet 6 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888657.1; E 304531.7 NAD83 / MTM Zone 10 (LAT. 44.13791; LONG. -79.503353) ORIGINATED BY DP

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:220.0 m DATE Jan 13, 2022 - Jan 25, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ Field Vane ⊕ Remoulded ■ Pocket Pen ● Quick Triaxial × Unconfined	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	20 40 60			
	CLAYEY SILT (CL), trace to some sand Stiff to very stiff Grey Moist to wet		27	SS	18		170					
169.7												
50.3	CLAYEY SILT (CL), some sand to sandy, trace to some gravel Hard Grey Wet						169					
			28	SS	166/0.28		168					
52.2												
167.7	End of Borehole Notes: 1. Groundwater level was measured at 1.5 m (El. 218.5 m) inside hollow stem auger during drilling. 2. Groundwater level was measured at 1.0 m (El. 219.0 m) inside the monitoring well on May 13, 2022.						167					
							166					
							165					
							164					
							163					
							162					

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-4 Sheet 1 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888345.7; E 304339.4 NAD83 / MTM Zone 10 (LAT. 44.135107; LONG. -79.505756) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.9 m DATE Feb 22, 2022 - Mar 01, 2022 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
0.0	SILTY SAND (SM), trace gravel, trace organics, rootlets, (FILL) Compact Grey to brown Moist		1	SS	10										Artesian groundwater levels encountered - see notes.
219.2															
0.7	CLAYEY SILT (CL), trace sand, trace gravel Soft to firm Mottled brown / grey Moist		2	SS	4		219								
218.5															
1.4	SILTY SAND (SM), Compact Brown Wet		3	SS	18		218								
217.7															
2.2	SILT (ML), some clay, trace sand, silty sand seams Loose to compact Brown Moist to wet - contains clayey silt pockets		4	SS	15		217								
			5	SS	7						0	5	78	17	
216.2							216								
3.7	SILTY SAND (SM), trace gravel, slight plasticity Compact Brown Moist to wet - 3.8 to 4.9 m: - contains clayey silt pockets		6	SS	14										
			7	SS	26		215				0	36	(64)		
214.3															
5.6	CLAYEY SILT (CL), trace sand Hard Brown Moist - contains clayey silt pockets						214								
213.4			8A	SS	34						0	5	73	22	
6.4	Sandy SILT (ML) Dense Brown Moist		8B				213								
212.7															
7.2	CLAYEY SILT (CL), trace sand Very Stiff Brown Moist		9	SS	25		212								
211.2															
8.7	SILTY SAND (SM) to SAND (SP), Very dense Grey Moist to wet						211								
			10	SS	79										

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-4 Sheet 2 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888345.7; E 304339.4 NAD83 / MTM Zone 10 (LAT. 44.135107; LONG. -79.505756) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.9 m DATE Feb 22, 2022 - Mar 01, 2022 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
	SILTY SAND (SM) to SAND (SP), Very dense Grey Moist to wet						210								
209.0			11 A	SS	25		209		○		0	82	(18)		
10.9 208.7	CLAYEY SILT-SILT (CL-ML), trace sand Very Stiff Grey Moist		11 B						⊖		0	4	76	20	
11.2	Sandy SILT (ML) trace clay Dense to very dense Grey Moist to wet						208								
	- 12.2 m: - Artesian groundwater conditions encountered at depth of 12.2 m below ground surface. Groundwater observed to rise and flow out top of casing at 1.5 m above ground surface (El. 221.4 m).		12	SS	43										
							207								
			13	SS	57		206		○	NP	0	18	74	8	
							205								
			14	SS	66										
							204								
			15	SS	95		203		○	NP	0	20	73	7	
							202								
	- 18.3 m: - sand layer (50 mm thick)		16	SS	51										
							201								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-4 Sheet 3 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888345.7; E 304339.4 NAD83 / MTM Zone 10 (LAT. 44.135107; LONG. -79.505756) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.9 m DATE Feb 22, 2022 - Mar 01, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES											
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ⊕ Field Vane, ■ Remoulded, ● Pocket Pen, ○ Quick Triaxial, × Unconfined; 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l; NP Nonplastic; 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
199.8	Sandy SILT (ML) trace clay Dense to very dense Grey Moist to wet						200							
20.1	Sandy SILT (ML) Compact to dense Grey Moist to wet						199							
			17	SS	25		198		○	NP	0	25	(75)	
							197							
							196							
	- 24.3 m: Artesian groundwater flow out of top of casing increased from 12.4 m depth to 24.3 m depth below ground surface. The water level inside casing was measured to be 2.4 m above ground surface (El. 222.3 m) at 24.3 m depth.		18	SS	46		195							
193.7							194							
26.2	SILTY SAND (SM), trace clay Very dense Grey Moist						193							
			19	SS	55		192		○		0	70	(30)	
190.6	CLAYEY SILT -SILT (CL-ML) to CLAYEY SILT (CL), trace sand, contains sand seams Stiff to very stiff Grey						191							
29.3	Moist to wet													

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-4

Sheet 4 of 6

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888345.7; E 304339.4 NAD83 / MTM Zone 10 (LAT. 44.135107; LONG. -79.505756) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.9 m DATE Feb 22, 2022 - Mar 01, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	NP Nonplastic 20 40 60						
	CLAYEY SILT -SILT (CL-ML) to CLAYEY SILT (CL), trace sand, contains sand seams Stiff to very stiff Grey Moist to wet						190								
			20	SS	15		189								
							188								
							187								
			21	SS	17		186		D		0	1	68	31	
							185								
							184								
			22	SS	12		183								
							182								
181.5 38.4	CLAY (CH), some silt, trace sand Stiff Grey Moist						181								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-4

Sheet 5 of 6

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888345.7; E 304339.4 NAD83 / MTM Zone 10 (LAT. 44.135107; LONG. -79.505756) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.9 m DATE Feb 22, 2022 - Mar 01, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES									
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
	CLAY (CH), some silt, trace sand Stiff Grey Moist														
			23	SS	17		180				0	0	25	75	
178.5							179								
41.4	CLAYEY SILT-SILT (CL-ML) to CLAYEY SILT (CL), trace sand, contains sand seams / layers Stiff to very stiff Grey Moist to wet						178								
			24	SS	14		177								
							176								
							175								
	- 45.7 m: -sand layer (25 mm thick)														
			25	SS	21		174								
							173								
							172								
							171								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRE-4 Sheet 6 of 6 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888345.7; E 304339.4 NAD83 / MTM Zone 10 (LAT. 44.135107; LONG. -79.505756) ORIGINATED BY MTI

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/ MTI

DATUM CGVD28 Surface Elevation:219.9 m DATE Feb 22, 2022 - Mar 01, 2022 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (⊕ Field Vane, ■ Remoulded, ● Pocket Pen, ○ Quick Triaxial, × Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES							
	CLAYEY SILT-SILT (CL-ML) to CLAYEY SILT (CL), trace sand, contains sand seams / layers Stiff to very stiff Grey Moist to wet		26	SS	18		170 169					
	- 52.0 m: -sand layer (25 mm thick)		27	SS	22		168		H O			
167.5 52.4	End of Borehole Notes: 1. Groundwater first encountered at a depth of 0.7 m below ground surface (El. 219.2 m) inside hollow stem augers. 2. Artesian groundwater conditions (up to 2.4 m above ground surface, El. 222.3 m) encountered from 12.2 m (El. 207.7 m) to the borehole termination depth. 3. Borehole caved to a depth of 14.0 m (El. 205.9 m) upon completion of drilling on February 28. 4. Water level measured at a depth of 3.3 m (El. 216.6 m) and borehole caved to 3.9 m depth (El. 216 m) on March 1, 2022 prior to borehole backfilling.						167 166 165 164 163 162					

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-1

Sheet 1 of 5

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4887870.6; E 300852.7 NAD83 / MTM Zone 10 (LAT. 44.13082; LONG. -79.549328) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:219.0 m DATE Nov 11, 2021 - Nov 15, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
0.0	SANDY SILT (ML), trace clay, trace organic includes roots, (TOPSOIL)		1A						NP						
218.8 0.2	Loose Brown Moist		1B	SS	11										
	SILTY SAND (SM) to SAND (SP), trace gravel (FILL)														
218.2	Compact to loose		2A												
0.8	Brown		2B						NP						
218.1 0.9	Moist to wet		2C	SS	4		218								
	PEAT (PT), sandy Very loose Blackish brown Wet														
	SILTY SAND to SANDY SILT (SM-ML), contains clay seams Very loose to loose Brown		3	SS	1				NP						
216.8	Wet						217								
2.2	CLAYEY SILT-SILT (CL-ML), some sand Stiff to Very Stiff Brown Moist		4	SS	15						0	14	66	20	
216.0							216								
3.0	SILTY SAND (SM), trace clay, trace gravel Loose to dense Brown to grey Wet		5	SS	8										
	- 3.9 m: 75mm clay layer (Elev. 215.1 m)		6	SS	17		215								
			7	SS	23		214								
			8	SS	23		213				1	82	15	2	
							212								
	- 7.9 m: silt seams encountered (Elev. 211.1 m).		9	SS	27		211								
							210								
	- 9.1 m: tricone grinding noted		10	SS	43										
	- 9.8 m: gravel seam / layer at tip of spoon														

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-1

Sheet 2 of 5

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4887870.6; E 300852.7 NAD83 / MTM Zone 10 (LAT. 44.13082; LONG. -79.549328) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:219.0 m DATE Nov 11, 2021 - Nov 15, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
	SILTY SAND (SM), trace clay, trace gravel Loose to dense Brown to grey Wet - 10.0 to 12.0 m: gravelly silty sand encountered. Difficulties advancing tricone.						209								
			11	SS	31		208		○		32	56	11	1	
							207								
			12	SS	24				○						
							206								
	- 13.7 to 14.3 m: no sample recovered		13	SS	19		205		○						
203.8							204								
15.2	CLAYEY SILT (CL) to CLAYEY SILT-SILT (CL-ML), trace to some sand, trace to some gravel Soft to stiff Moist Grey		14	SS	3		203	⊕ ×							
	- 16.8 to 17.4 m: no sample recovered in shelby tube. Obtained disturbed sample with split spoon. Contains sand seams/ layers		15	TO			202		⊢⊖⊣						
							201								
	- 18.3 m: contains sand layers/seams		16	SS	9				○⊣		12	20	54	14	
							200								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-1

Sheet 3 of 5

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4887870.6; E 300852.7 NAD83 / MTM Zone 10 (LAT. 44.13082; LONG. -79.549328) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:219.0 m DATE Nov 11, 2021 - Nov 15, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	NP Nonplastic 20 40 60						
21.3	CLAYEY SILT (CL) to CLAYEY SILT-SILT (CL-ML), trace to some sand, trace to some gravel Soft to stiff Moist Grey						199								
197.7	SILTY SAND (SM), trace clay, trace gravel Very dense Grey Wet		17	SS	106		198		o		0	76	21	3	
			18	SS	121/0.26		197								
			19	SS	101/0.23		196								
							195								
							194								
							193								
							192								
							191								
							190								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

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WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-1

Sheet 4 of 5

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4887870.6; E 300852.7 NAD83 / MTM Zone 10 (LAT. 44.13082; LONG. -79.549328) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:219.0 m DATE Nov 11, 2021 - Nov 15, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
	SILTY SAND (SM), trace clay, trace gravel Very dense Grey Wet						189								
			20	SS	100		188		o		0	60	36	4	
							187								
							186								
185.4	- 33.5 m: gravelly silty sand layer encountered (Elev. 185.5 m).														
33.6	CLAYEY SILT-SILT (CL-ML), trace sand, trace gravel Hard Grey Moist		21	SS	100/0.26		185		o⊢		1	16	73	10	
							184								
							183								
			22	SS	100/0.05		182		o						
							181								
							180								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-1

Sheet 5 of 5

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4887870.6; E 300852.7 NAD83 / MTM Zone 10 (LAT. 44.13082; LONG. -79.549328) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:219.0 m DATE Nov 11, 2021 - Nov 15, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES										
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ⊕ Field Vane, ■ Remoulded, ● Pocket Pen, ○ Quick Triaxial, × Unconfined; 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l; NP Nonplastic; 20 40 60	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
39.9	CLAYEY SILT-SILT (CL-ML), trace sand, trace gravel Hard Grey Moist		23	SS	100/0.13							
179.1	End of Borehole						179					
	Notes: 1. Hollow stem augers to 2.4 m (Elev. 216.6) and then switched to mud rotary. 2. Water level measured at a depth of 1.98 m after completion of drilling. 3. Water level in piezometer measured as follows: Depth(m) El. (m) Date 0.44 218.6 02/07/22 0.67 218.3 05/013/22						178					
							177					
							176					
							175					
							174					
							173					
							172					
							171					

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-4 Sheet 1 of 5 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888043.9; E 301230.5 NAD83 / MTM Zone 10 (LAT. 44.132381; LONG. -79.544608) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:217.4 m DATE Oct 04, 2021 - Oct 08, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
0.0	TOPSOIL														
217.2 / 0.2	SILTY SAND (SM), trace clay (FILL) Compact Brown		1	SS	12		217								
216.7 / 0.7	Dry ORGANIC SILT (OL)														
216.4 / 0.9	Loose Brown Moist		2A 2B	SS	10				O		0	44	48	8	
215.9 / 1.4	SANDY SILT (ML), trace clay Compact Brown						216								
215.7 / 1.7	Wet Sandy PEAT (PT)		3A 3B	SS	2										
215.5 / 1.8	SILTY SAND (SM) to SANDY SILT (ML) Very loose Brown Wet		3C						H O		0	2	74	24	
	CLAYEY SILT (CL) to CLAYEY SILT-SILT (CL-ML), trace sand Stiff to very stiff Brown Moist to wet		4	TO			215	>95.8							
	- 3.3 m: 75 mm thick sandy layer encountered (Elev. 214.1 m).		5	SS	11		214								
			6	SS	7		213		H O		0	3	64	33	
			7	SS	12										
			8	TO			212			19.8					c
			9	SS	18		211	>95.8							
							210								
			10	SS	10				H O		0	2	77	21	
							209								
			11	SS	11		208								
							207								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-4 Sheet 2 of 5 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888043.9; E 301230.5 NAD83 / MTM Zone 10 (LAT. 44.132381; LONG. -79.544608) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:217.4 m DATE Oct 04, 2021 - Oct 08, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
	CLAYEY SILT (CL) to CLAYEY SILT-SILT (CL-ML), trace sand Firm to stiff Brown Moist to wet		12	SS	14		206		○						
205.6															
11.7	SANDY SILT (ML), trace clay Dense to very dense Brown Moist to wet		13	SS	34		205		○		0	21	70	9	
							204								
			14	SS	35				○						
							203								
			15	SS	74		202				0	23	69	8	
201.0															
16.3	Sandy CLAYEY SILT (CL) to CLAYEY SILT (CL) Very stiff Grey Moist to wet		16	SS	17		201		○						
199.5							200								
17.8	CLAYEY SILT (CL) to CLAYEY SILT-SILT (CL-ML), trace to some sand Stiff Grey Wet		17	SS	12		199		⊖		0	1	71	28	
							198	>95.8 ×							
							197								

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-4 Sheet 3 of 5 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888043.9; E 301230.5 NAD83 / MTM Zone 10 (LAT. 44.132381; LONG. -79.544608) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:217.4 m DATE Oct 04, 2021 - Oct 08, 2021 CHECKED BY KJB

ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUES	GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) (Field Vane, Remoulded, Pocket Pen, Quick Triaxial, Unconfined) 20 40 60 80 100	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic 20 40 60	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
	CLAYEY SILT (CL) to CLAYEY SILT-SILT (CL-ML), trace to some sand Stiff Grey Wet - 21.5 m: 75 mm thick wet silt layer encountered		18	SS	13		195								
							194								
							193								
			19	SS	8				H O		0	14	60	26	
			20	TO			192	⊕ ⨯							
							191								
							190								
	- 27.4 to 28.0 m: contains silty sand seams/ layers (up to 25 mm thick)		21	SS	13										
							189								
							188								
							187								
			22	SS	11										
							186	⊕ ⨯							

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+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-4

Sheet 4 of 5

METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888043.9; E 301230.5 NAD83 / MTM Zone 10 (LAT. 44.132381; LONG. -79.544608) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:217.4 m DATE Oct 04, 2021 - Oct 08, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa)	WATER CONTENT (%) PL W_p NMC W LL W_l	UNIT WEIGHT γ kN/m³	GR	SA	SI	CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	NP Nonplastic 20 40 60						
	CLAYEY SILT (CL) to CLAYEY SILT-SILT (CL-ML), trace to some sand Stiff Grey Wet						185								
							184								
	- 33.5 m: contains silt seams/ pockets		23	SS	13				○						
182.3							183								
35.0	CLAYEY SILT-SILT (CL-ML), some sand to sandy, trace to some gravel, (TILL) Very stiff to hard Grey Moist to wet														
			24	SS	31		182								
							181								
							180								
							179								
							178								
	- 40.0 to 42.0 m: tricone grinding noted		25	SS	17				~~○~~		2	25	53	20	
							177								
							176								
							175								

Continued on Next Page

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

Ontario

WSP GOLDER

PROJECT 19136074

RECORD OF BOREHOLE No. HRW-4 Sheet 5 of 5 METRIC

G.W.P. Assignment No 2019-E-0048 LOCATION N 4888043.9; E 301230.5 NAD83 / MTM Zone 10 (LAT. 44.132381; LONG. -79.544608) ORIGINATED BY AM

DIST Central HWY BBP BOREHOLE TYPE 210 mm Hollow Stem Auger; Mud Rotary COMPILED BY MA/MTI

DATUM CGVD28 Surface Elevation:217.4 m DATE Oct 04, 2021 - Oct 08, 2021 CHECKED BY KJB

SOIL PROFILE			SAMPLES			GROUNDWATER CONDITIONS	ELEVATION SCALE	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ Unconfined ● Quick Triaxial ■ Pocket Pen ⊕ Remoulded × Field Vane	WATER CONTENT (%) PL W_p NMC W LL W_l NP Nonplastic	UNIT WEIGHT γ kN/m³	GR SA SI CL	REMARKS
ELEV. / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" VALUES			20 40 60 80 100	20 40 60			
	CLAYEY SILT-SILT (CL-ML), some sand to sandy, trace to some gravel, (TILL) Very stiff to hard Grey Moist to wet		26	SS	100		174					
							173					
							172					
			27	SS	15		171					
170.1												
47.2	Sandy SILT (ML), some gravel to gravelly, trace to some clay Very dense Grey Wet - 48.0 to 48.8 m: tricone grinding noted						170					
							169					
168.1			28	SS	103				○ NP		20 20 50 10	
49.2	End of Borehole Notes: 1. Water level measured at a depth of 1.67 m (Elev. 215.7) prior to introducing water for mud rotary. 2. Water level measured at a depth of 0.55 m (Elev. 216.9) on May 13, 2022.						168					
							167					
							166					
							165					
							164					

+³, x³ : Numbers refer to Sensitivity o³% STRAIN AT FAILURE

RECORD OF BOREHOLE: BH CR4-01

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 30, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling

ELEVATION: 262.80 m (CGVD28)
COORDINATES: Lat: 44.131693° Long: -79.569600°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
0	D 90	210 mm O.D. Hollow Stem Auger	Gravelly CLAYEY SAND (SC), trace rootlets Firm Brown Moist	SC		0.00	1	SS	38	2-3-6-30	9			MIS_202 110280		
						262.11										
1			SILTY CLAY (Cl) trace sand to SILTY CLAY (Cl) and sand Stiff to very stiff Brown to grey Moist			0.69	2	SS	100	6-7-5-6	12					
2							3	SS	62	4-6-9-13	15			MIS_202 110282		
							4	SS	66	8-10-16-19	26					
3				Cl			5	SS	100	8-12-16-22	28			MIS_202 110283		
			- grey below a depth of 3.7 m													
4							6	SS	62	8-12-13-15	25					
5							7	SS	100	6-8-13-17	21			MIS_202 110284		
						256.86										
6			SILTY SAND (SM), trace gravel Compact to very dense Grey Moist - auger grinding between depths of 5.9 m and 6.1 m			5.94	8	SS	100	7-7-11-14	18			MIS_202 110285		▽
7				SM												
8							9	SS	100	11-25-50-73	75			MIS_202 110286		
						254.11										
9			SILT (ML) of slight plasticity, trace sand Very Dense Grey Moist			8.69										
				ML			10	SS	100	33-39-51-60	90					
10																

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 30, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-01

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 30, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling

ELEVATION: 262.80 m (CGVD28)
COORDINATES: Lat: 44.131693° Long: -79.569600°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
11	D 90	210 mm O.D. Hollow Stem Auger	SILT (ML) of slight plasticity, trace sand Very Dense Grey Moist	ML		251.52	11	SS	100	15-25-51-95	76			MIS_202 110281		
			End of hole at 11.28 m. End of Borehole													

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 30, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-02

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 21, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 259.72 m (CGVD28)
COORDINATES: Lat: 44.131759° Long: -79.569053°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
0	D 90	210 mm O.D. Hollow Stem Auger	SILT (ML) of slight plasticity, trace gravel, trace to some sand, trace rootlets (FILL) Loose to compact Brown to grey Moist	ML		0.00	1	SS	88	2-4-3-7	7					
1							2	SS	50	4-5-8-14	13					
						258.27										
			Sandy SILT (ML) of slight plasticity Compact Grey Moist			1.45	3	SS	75	4-9-10-4	19					▼
2						257.43										
			SILTY SAND (SM), trace gravel Compact Brown to grey Moist to wet	SM		2.29	4	SS	38	5-5-6-9	11					
3							5	SS	100	6-9-12-17	21					
4							6	SS	100	7-12-17-20	29					
5							7	SS	100	4-9-14-20	23					
6							8	SS	100	8-12-18-26	30					
7						252.10										
			CLAYEY SILT-SILT (CL-ML), trace to some sand Very stiff to hard Grey Moist	CL-ML		7.62	9	SS	100	9-9-12-15	21					
8																
9							10	SS	100	15-25-22-26	47					
						249.97										
			End of hole at 9.75 m.													
10			End of Borehole													

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 21, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-03

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 23, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 261.18 m (CGVD28)
COORDINATES: Lat: 44.131484° Long: -79.569594°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
			SILTY SAND (SM), trace gravel, trace rootlets (FILL) Loose Brown Moist	SM		0.00 260.50	1	SS	50	2-3-3-2	6			MIS_202 110287			
1			SILTY CLAY (CI) Firm to very stiff Brown Moist	CI		0.68	2	SS	100	2-2-3-4	5			MIS_202 1102814			
2							4	SS	100	5-6-9-11	15					24Sep21 00:00	
3							5	SS	100	5-8-8-13	16			MIS_202 1102818			0.00 - 7.01 m bgs: Bentonite
4	D 90	210 mm O.D. Hollow Stem Auger	SILTY SAND (SM) Very dense Grey Moist - clayey silt pockets between depths of 3.7 m and 4.4 m	SM		257.45 3.73	6	SS	88	9-26-38-48	64						
5							7	SS	88	13-24-33-45	57						
6							8	SS	100	18-29-40-51	69			MIS_202 1102819			
7																	
8							9	SS	89	28-43-60-81	103						
9			CLAYEY SILT-SILT (CL-ML) to SILT (ML) of slight plasticity Hard Grey Moist	CL-ML		252.51 8.67	10	SS	100	8-12-20-24	32			MIS_202 110288			7.01 - 10.67 m bgs: Sand
10																	

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 23, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-03

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 23, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 261.18 m (CGVD28)
COORDINATES: Lat: 44.131484° Long: -79.569594°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
11	D 90	210 mm O.D. Hollow Stem Auger	CLAYEY SILT-SILT (CL-ML) to SILT (ML) of slight plasticity Hard Grey Moist	CL-ML			11	SS		14-15-20-44	35			MIS_202 110289			
12							12	SS	100	8-16-29-65	45			MIS_202 1102810			
13																	
14							13	SS	100	23-17-25-32	42			MIS_202 1102811			
15																	
16							14	SS	100	15-23-37-47	60			MIS_202 1102812			
17							15	SS	100	17-18-24-31	42						
18						243.35 17.83											
19			CLAYEY SILT (CL) to SILTY CLAY (CI) Hard Grey Moist to wet	CI			16	SS		21-27-55-87	82						
20																	

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 23, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-03

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 23, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 261.18 m (CGVD28)
COORDINATES: Lat: 44.131484° Long: -79.569594°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
21	D 90	210 mm O.D. Hollow Stem Auger	CLAYEY SILT (CL) to SILTY CLAY (CI) Hard Grey Moist to wet	CI			17	SS	100	19-18-21-26	39	○		MIS_202 1102813			
22																	
23																	
24																	
25							18	SS	100	16-22-37-67	59						
26																	
27																	
28							19	SS	100	10-12-18-62	30						
29																	
30																	

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 23, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-03

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 23, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 261.18 m (CGVD28)
COORDINATES: Lat: 44.131484° Long: -79.569594°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
31	D 90	210 mm O.D. Hollow Stem Auger	CLAYEY SILT (CL) to SILTY CLAY (CI) Hard Grey Moist to wet	CI			20	SS	109	21-33-56-100/108mm	89			MIS_202 1102815			
32																	
33																	
34							21	SS	100	13-17-26-42	43						
35																	
36																	
37							22	SS	100	15-17-21-29	38						
38																	
39																	
40							23	SS	100	15-26-37-57	63			MIS_202 1102816			

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 23, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-03

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 23, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 261.18 m (CGVD28)
COORDINATES: Lat: 44.131484° Long: -79.569594°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
41	D 90	210 mm O.D. Hollow Stem Auger	CLAYEY SILT (CL) to SILTY CLAY (CI) Hard Grey Moist to wet	CI													
42																	
43							24	SS	100	12-17-20-34	37						
44																	
45																	
46							25	SS		20-49-100/133mm							
47																	
48																	
49						211.80	26	SS	104	15-20-68-100/135mm	88			MIS_202 1102817			
			End of hole at 49.38 m. End of Borehole														
50																	

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 23, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-04

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: July 14, 2021
INCLINATION: 90.0°
CONTRACTOR:

ELEVATION: 262.75 m (CGVD28)
COORDINATES: Lat: 44.131580° Long: -79.569143°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE
	ASPHALT (180mm)		0.00					
	SAND (SP), some gravel (FILL) Dense Brown Dry	SP	262.57 0.18 261.96	1	SS	58	15-17-16-14	33
1	CLAYEY SAND (SC), trace gravel (FILL) Very stiff Grey Moist	SC	0.79 261.30	2	SS	42	7-5-12-16	17
	SAND (SP), trace gravel, trace fines, containing silt pockets (FILL) Compact Brown Moist	SP	1.45 260.54	3	SS	50	7-12-7-9	19
2	CLAYEY SAND (SC) to Sandy CLAYEY SILT (CL), trace gravel (FILL) Very stiff Brown Moist	SC	2.21	4	SS	67	4-9-10-14	19
				5	SS	75	9-12-9-12	21
3				6A	SS	67	9-7-12-17	19
			258.48	6B				
	Sandy CLAYEY SILT (CL) to CLAYEY SILT (CL), trace organics Loose Brown Moist	CL	4.27	7	SS	67	2-2-1-2	3
4								
			256.96					
	SILTY SAND (SM), trace gravel Compact Grey Wet	SM	5.79	8	SS	0		
5								
				9	SS	83	25-8-7-8	15
6								
				10	SS	100	8-12-16	28
7								
8								
9								
10								

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500

ADDITIONAL LAB TESTING

ADDITIONAL OBSERVATIONS

GROUNDWATER OBSERVATIONS

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: DP
CHECKED: ACK

DATE: Jul 14, 2021
DATE: Jul 27, 2021

RECORD OF BOREHOLE: BH CR4-04

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: July 14, 2021
INCLINATION: 90.0°
CONTRACTOR:

ELEVATION: 262.75 m (CGVD28)
COORDINATES: Lat: 44.131580° Long: -79.569143°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
0			SILTY SAND (SM), trace gravel Compact Grey Wet	SM		252.54										
						10.21										
11			CLAYEY SILT (CL), trace sand Very stiff to hard Grey Wet	CL			11	SS	75	8-12-16	28					
12							12	SS	83	10-12-14-22	26					
13																
14							13	SS	88	10-18-21-23	39					
15							14	SS	79	10-12-18-23	30					
16																
17							15	SS	100	8-12-15-16	27					
18																
							16	SS	100	10-14-15-19	29					
						243.85										
19			End of hole at 18.90 m. End of Borehole													
20																

Hammer: ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: DP
CHECKED: ACK

DATE: Jul 14, 2021
DATE: Jul 27, 2021

RECORD OF BOREHOLE: BH CR4-05

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 15, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.01 m (CGVD28)
COORDINATES: Lat: 44.131601° Long: -79.568978°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
0	D 90	Mud Rotary	CLAYEY SILT (CL), some sand, trace gravel, trace organics (FILL) Soft Brown to black Moist	CL		0.00	1	SS	50	2-2-1-1	3					
						257.10	2A									
1			Sandy Silt (ML) of slight plasticity Loose to compact Grey Wet	ML		0.91	2B	SS	89	1-3-5-8	8					
							3	SS	75	9-9-5-3	14					
2						255.80										
			CLAYEY SILT (CL). some sand, trace gravel Stiff to very stiff Grey Moist	CL		2.21	4	SS	50	2-6-5-8	11					
3							5	SS	88	4-8-14-18	22					
4						253.67	6	SS	62	9-8-10-12	18					
			SILTY SAND (SM), trace gravel Compact Brown Wet	SM		4.34	7	SS	62	17-12-13-13	25					
5						252.37										
			CLAYEY SILT-SILT (CL-ML), trace sand Very stiff to hard Grey Wet	CL-ML		5.64	8	SS	88	6-6-9-12	15					
6																
7							9	SS	75	9-12-19-22	31					
8																
9							10	SS	100	18-27-32-46	59					
10																

Continued on Next Page

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500
Hammer: Automatic ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 15, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-05

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 15, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.01 m (CGVD28)
COORDINATES: Lat: 44.131601° Long: -79.568978°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
11	D 90	Mud Rotary	CLAYEY SILT-SILT (CL-ML), trace sand Very stiff to hard Grey Wet	CL-ML			11	SS		13-16-18-16	34					
12							12	SS	100	10-10-14-15	24					
13																
14							13	SS	100	14-14-17-23	31					
						243.23										
15			CLAYEY SILT (CL) Very stiff to hard Grey Moist			14.78	14	SS	100	19-21-26-27	47					
16				CL												
17							15	SS	100	11-12-15-22	27					
18																
19							16	SS	100	13-14-19-25	33					
20																

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 15, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-05

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 15, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.01 m (CGVD28)
COORDINATES: Lat: 44.131601° Long: -79.568978°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
21	D 90	Mud Rotary	CLAYEY SILT (CL) Very stiff to hard Grey Moist	CL			17	SS		10-11-17-31	28					
22																
23																
24																
25							18	SS	100	13-15-45-80	60					
26																
27																
28							19	SS	100	12-16-28-59	44					
29																
30																

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 15, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-05

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 15, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.01 m (CGVD28)
COORDINATES: Lat: 44.131601° Long: -79.568978°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
31	D 90	Mud Rotary	CLAYEY SILT (CL) Very stiff to hard Grey Moist	CL			20	SS	100	18-26-37-75	63					
32																
33																
34							21	SS	100	15-16-22-25	38					
35																
36																
37							22	SS	100	21-24-35-53	59					
38																
39																
40							23	SS	100	12-17-23-34	40					

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 15, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-05

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 15, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.01 m (CGVD28)
COORDINATES: Lat: 44.131601° Long: -79.568978°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
41	D 90	Mud Rotary	CLAYEY SILT (CL) Very stiff to hard Grey Moist	CL			24	SS	100	27-19-29-50	48					
42																
43																
44																
45																
46							25	SS	114	28-35-66-100/83mm	101					
47																
48																
49							26	SS	100	17-21-27-34	48					
						208.63										
50			End of hole at 49.38 m. End of Borehole													

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 15, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-06

CLIENT:	AECOM	START DATE:	October 01, 2021	ELEVATION:	258.20 m (CGVD28)
PROJECT:	Bradford Bypass	END DATE:	October 06, 2021	COORDINATES:	Lat: 44.131114° Long: -79.569432°
PROJECT NO:	19136074	INCLINATION:	90.0°	COORD SYS:	Geographical Coordinates
LOCATION:	Bradford, Ontario	CONTRACTOR:	Walker	HORZ DATUM:	NAD83 VERT DATUM: CGVD28
				HOLE LOC:	Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE
0	D 90	Mud Rotary	SILTY SAND (SM), trace sand, trace rootlets, trace gravel Loose to compact Dark brown to brown Moist to wet	SM		0.00	1	SS	88	1-2-3	5
1							2	SS	100	4-7-6-16	13
							3A	SS	100	8-7-5-6	12
2						256.22	3B				
			CLAYEY SILT (CL), trace sand to sandy, trace gravel, (TILL) Stiff to Very Stiff Brownish Grey Moist	CL		1.98	4	SS	62	5-7-10-14	17
3							5	SS	62	6-8-16-19	24
						254.47					
			SILTY SAND (SM), trace gravel Compact Grey Moist to Wet	SM		3.73	6	SS	75	6-9-11-15	20
4											
							7	SS	62	7-9-13-18	22
5						252.56					
			CLAYEY SILT (CL), trace sand, trace gravel Hard Grey Moist			5.64					
6							8	SS	88	9-11-13-19	24
7											
				CL			9	SS	100	23-24-25-27	49
8											
9							10	SS	88	17-20-22-18	42
10											

Continued on Next Page

SAMPLES: Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic

SHEAR STRENGTH (kPa): Nat Vane; Rem Vane; Pocket Pen; Q; U

ADDITIONAL LAB TESTING

ADDITIONAL OBSERVATIONS

GROUNDWATER OBSERVATIONS

DEPTH SCALE: 1:51

HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel DATE: Oct 01, 2021

CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH CR4-06

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: October 01, 2021
END DATE: October 06, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.20 m (CGVD28)
COORDINATES: Lat: 44.131114° Long: -79.569432°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
11	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand, trace gravel Hard Grey Moist	CL			11	SS	88	20-23-30-11	53					
12							12	SS	100	20-27-23-29	50					
13							13	SS		13-19-32-57	51					
14							14	SS	100	17-26-44-59	70					
15							15	SS	100	18-27-31-27	58					
16							16	SS	100	14-17-34-50	51					
17																
18																
19																
20																

SAMPLES: Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop
WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Oct 01, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-06

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: October 01, 2021
END DATE: October 06, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.20 m (CGVD28)
COORDINATES: Lat: 44.131114° Long: -79.569432°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
21	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand, trace gravel Hard Grey Moist	CL			17	SS	100	11-14-33-50	47					
22																
23																
24																
25							18	SS	100	16-24-50-40	74					
26																
27																
28							19	SS	100	29-28-30-36	58					
29																
30																

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Oct 01, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-06

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: October 01, 2021
END DATE: October 06, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.20 m (CGVD28)
COORDINATES: Lat: 44.131114° Long: -79.569432°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
31	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand, trace gravel Hard Grey Moist	CL			20	SS	100	17-19-37-100	56					
32																
33																
34							21	SS	100	10-16-18-22	34					
35																
36																
37							22	SS	100	12-15-20-31	35					
38																
39																
40							23	SS	100	12-14-18-27	32					

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Oct 01, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-06

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: October 01, 2021
END DATE: October 06, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 258.20 m (CGVD28)
COORDINATES: Lat: 44.131114° Long: -79.569432°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
41	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand, trace gravel Hard Grey Moist	CL												
42																
43							24	SS	100	21-25-27-58	52					
44																
45																
46							25	SS	100	14-28-39-58	67					
47																
48																
49						208.82	26	SS	100	12-14-17-22	31					
50			End of hole at 49.38 m. End of Borehole													

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Oct 01, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-07

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: July 13, 2021
END DATE: July 15, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 261.21 m (CGVD28)
COORDINATES: Lat: 44.131232° Long: -79.569039°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE
	ASPHALT (100 mm)		0.00					
	SAND (SP), trace fines, trace gravel (FILL) Compact Brown Moist	SP	261.11 0.10	1	SS	83	8-11-12-14	23
1	CLAYEY SILT (CL), some sand, trace gravel (FILL) Stiff Grey Moist	CL	260.21 1.00 259.74	2a 2b	SS	83	5-5-7-7	12
	SILTY SAND (SM) of slight plasticity, trace gravel (FILL) Compact to Dense Brown to grey Moist	SM	1.47	3	SS	100	9-11-12-14	23
2				4	SS	50	8-19-15-16	34
3				5	SS	100	10-10-8-10	18
4				6	SS	67	7-8-11-11	19
			256.31	7a	SS	62	9-15-10-8	25
5	Sandy SILT (ML) of slight plasticity, trace sand, trace gravel, trace organics Firm to very stiff Dark brown to grey Moist	ML	4.90	7b				
6				8a	SS	100	4-3-4-7	7
			254.81	8b				
	CLAYEY SILT (CL), trace to some sand, trace gravel (TILL) Firm to Very Stiff Grey Moist	CL	6.40					
7								
8				9	SS	100	5-9-10-12	19
			252.51					
9	CLAYEY SILT (CL), trace to some sand Very Stiff to Hard Grey Moist		8.70					
				10	SS	92	11-17-23-11	40
10								

Drill Rig: Diedrich D-50 Track
Drill Method: 210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.

Hammer: Automatic Historic & Automatic ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

ADDITIONAL LAB TESTING

ADDITIONAL OBSERVATIONS

GROUNDWATER OBSERVATIONS

CONSTRUCTION AND INSTALLATION DETAILS

0.00 - 0.10 m bgs: Concrete

0.10 - 7.32 m bgs: Bentonite

7.32 - 11.28 m bgs: Sand

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano
CHECKED: ACK

DATE: Jul 13, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-07

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: July 13, 2021
END DATE: July 15, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 261.21 m (CGVD28)
COORDINATES: Lat: 44.131232° Long: -79.569039°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic Historic & Automatic ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
11			CLAYEY SILT (CL), trace to some sand Very Stiff to Hard Grey Moist				11	SS	17	10-12-10-12	22						
12							12	SS	100	17-19-21-25	40						
13							13	SS	100	19-24-28-32	52						
14				CL			14	SS	100	17-24-34-36	58						
15							15	SS	100	18-30-41-58	71						11.28 - 18.90 m bgs: Bentonite
16							16	SS	100	18-23-34-47	57						
17						242.31											
18			End of hole at 18.90 m. End of Borehole														
19																	
20																	

Diedrich D-50 Track
210 mm O.D. Bottom Discharge Tricone
210 mm Dia. Hollow Stem Auger
114 mm Dia.

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic Historic, Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano
CHECKED: ACK

DATE: Jul 13, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-08

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 09, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.27 m (CGVD28)
COORDINATES: Lat: 44.131227° Long: -79.568623°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
0	D 90	Mud Rotary	CLAYEY SILT (CL), some sand, trace rootlets (FILL) Soft to firm Brown Moist	CL		0.00 / 252.58	1	SS	100	2-2-2-3	4					
1			CLAYEY SILT (CL), trace sand, trace gravel Soft to stiff Brown Moist			0.69 / 251.06	2	SS	75	1-1-2-3	3					
2							3	SS	50	4-4-7-9	11					
2			CLAYEY SILT (CL), trace sand, trace gravel (TILL) Stiff to Hard Grey Moist			2.21	4	SS	75	4-5-9-13	14					
3							5	SS	100	7-8-9-14	17					
4							6	SS	62	16-22-24-26	46					
5							7	SS	79	14-14-20-27	34					
6							8	SS	88	13-16-17-21	33					
7							9A									
8							9B	SS	88	10-23-50-75	73					
9																
10							10	SS	100	21-24-27-28	51					

SAMPLES: Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 09, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-08

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 09, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.27 m (CGVD28)
COORDINATES: Lat: 44.131227° Long: -79.568623°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE
	CLAYEY SILT (CL), trace sand, trace gravel (TILL) Stiff to Hard Grey Moist							
11				11	SS	100	22-28-34-41	62
12				12	SS	100	22-28-34-27	62
13			240.01 13.26					
	CLAYEY SILT (CL), trace sand Hard Grey Moist	CL		13	SS	100	16-19-22-22	41
14				14	SS	100	13-17-21-29	38
15				15	SS	100	11-19-20-32	39
16				16	SS	100	12-16-18-21	34
17								
18								
19								
20								

DRILL RIG: D 90
DRILL METHOD: Mud Rotary

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

ADDITIONAL LAB TESTING
ADDITIONAL OBSERVATIONS
GROUNDWATER OBSERVATIONS

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 09, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-08

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 09, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.27 m (CGVD28)
COORDINATES: Lat: 44.131227° Long: -79.568623°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
21	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand Hard Grey Moist	CL			17	SS	100	24-17-21-30	38					
22																
23																
24																
25							18	SS	100	16-16-26-34	42					
26																
27																
28							19	SS	100	14-16-20-23	36					
29																
30																

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 09, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-08

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario
DATE: September 09, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker
ELEVATION: 253.27 m (CGVD28)
COORDINATES: Lat: 44.131227° Long: -79.568623°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
31	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand Hard Grey Moist	CL			20	SS	100	14-15-25-37	40					
32																
33																
34							21	SS	100	14-19-30-38	49					
35																
36																
37							22	SS	100	15-17-21-29	38					
38																
39																
40							23	SS		25-45-100/83mm	70					

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 09, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-08

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: September 09, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.27 m (CGVD28)
COORDINATES: Lat: 44.131227° Long: -79.568623°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
41	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand Hard Grey Moist	CL			24	SS	100	13-46-22-24	68					
42																
43																
44																
45																
46							25	SS	100	16-17-27-34	44					
47						206.03 47.24										
48			CLAYEY SILT (CL), trace sand, trace gravel Hard Grey Moist													
49							26	SS		29-44-53-89	97					
50						203.91										
			End of hole at 49.38 m. End of Borehole													

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Sep 09, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-09

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: October 06, 2021
END DATE: October 12, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 256.46 m (CGVD28)
COORDINATES: Lat: 44.130758° Long: -79.569369°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
0	D 90	Mud Rotary - 102-mm Hole Dia.	CLAYEY SILT (CL), some sand, trace rootlets Soft Brown Moist	CL		0.00	1	SS	38	1-1-2	3					
						255.77										
1			SILTY SAND (SM) Loose Brown Moist	SM		0.69	2	SS	50	1-1-4-5	5					
						255.01										
			CLAYEY SILT (CL), some sand, trace gravel, Very Stiff Brown Moist	CL		1.45	3	SS	62	4-6-12-17	18					
2						254.25										
			SILTY SAND (SM) Compact Grey Moist to Wet	SM		2.21	4	SS	100	5-7-7-9	14					
3							5	SS	100	6-8-11-12	19					
						252.73										
			Sandy CLAYEY SILT (CL), trace gravel Firm to very stiff Grey Moist			3.73	6	SS	29	3-7-11-10	18					
4																
							7	SS	75	6-3-4-3	7					
5																
6							8	SS	88	8-11-14-15	25					
				CL												
7																
							9	SS	62	7-11-10-11	21					
8																
9							10	SS	75	11-17-20-21	37					
10																

Continued on Next Page

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel DATE: Oct 06, 2021
CHECKED: ACK DATE: Oct 21, 2021

RECORD OF BOREHOLE: BH CR4-09

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: October 06, 2021
END DATE: October 12, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 256.46 m (CGVD28)
COORDINATES: Lat: 44.130758° Long: -79.569369°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
			Sandy CLAYEY SILT (CL), trace gravel Firm to very stiff Grey Moist			246.25 10.21										
11			CLAYEY SILT (CL) Hard Grey Moist				11	SS	75	12-14-16-19	30					
12							12	SS	88	13-16-22-19	38					
13																
14	D 90	Mud Rotary - 102-mm Hole Dia.		CL			13	SS	100	24-29-31-44	60					
15							14	SS	88	24-41-36-71	77					
16																
17							15	SS	100	15-16-22-46	38					
18																
19							16	SS	100	14-15-22-35	37					
20																

Continued on Next Page

SAMPLES: Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop
WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel DATE: Oct 06, 2021
CHECKED: ACK DATE: Oct 21, 2021

RECORD OF BOREHOLE: BH CR4-09

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: October 06, 2021
END DATE: October 12, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 256.46 m (CGVD28)
COORDINATES: Lat: 44.130758° Long: -79.569369°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
21	D 90	Mud Rotary - 102-mm Hole Dia.	CLAYEY SILT (CL) Hard Grey Moist	CL			17	SS	100	14-19-34-65	53					
22																
23																
24																
25							18	SS	100	35-23-27-68	50					
26																
27																
28							19	SS	100	16-23-42-100	65					
29																
30																

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel DATE: Oct 06, 2021
CHECKED: ACK DATE: Oct 21, 2021

RECORD OF BOREHOLE: BH CR4-09

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: October 06, 2021
END DATE: October 12, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 256.46 m (CGVD28)
COORDINATES: Lat: 44.130758° Long: -79.569369°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
31	D 90	Mud Rotary - 102-mm Hole Dia.	CLAYEY SILT (CL) Hard Grey Moist	CL			20	SS	100	14-20-29-36	49					
32																
33																
34							21	SS	100	15-22-29-35	51					
35																
36																
37							22	SS	100	14-21-25-24	46					
38																
39																
40							23	SS	100	14-21-25-24	46					

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel DATE: Oct 06, 2021
CHECKED: ACK DATE: Oct 21, 2021

RECORD OF BOREHOLE: BH CR4-09

CLIENT:	AECOM	START DATE:	October 06, 2021	ELEVATION:	256.46 m (CGVD28)
PROJECT:	Bradford Bypass	END DATE:	October 12, 2021	COORDINATES:	Lat: 44.130758° Long: -79.569369°
PROJECT NO:	19136074	INCLINATION:	90.0°	COORD SYS:	Geographical Coordinates
LOCATION:	Bradford, Ontario	CONTRACTOR:	Walker	HORZ DATUM:	NAD83 VERT DATUM: CGVD28
				HOLE LOC:	Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
41	D 90	Mud Rotary - 102-mm Hole Dia.	CLAYEY SILT (CL) Hard Grey Moist	CL												
42																
43							24	SS	114	19-28-56-100/83mm	84					
44																
45																
46							25	SS	100	14-16-24-32	40					
47																
48																
49							26	SS	100	18-24-33-37	57					
						207.08										
50			End of hole at 49.38 m. End of Borehole													

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel DATE: Oct 06, 2021
CHECKED: ACK DATE: Oct 21, 2021

RECORD OF BOREHOLE: BH CR4-10

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario
DATE: July 13, 2021
CONTRACTOR:
ELEVATION: 259.94 m (CGVD28)
COORDINATES: Lat: 44.130808° Long: -79.568956°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
0			ASPHALT (200 mm)			259.74 / 0.00										
			SAND (SP), trace gravel, trace fines (FILL) Compact Brown Dry to moist	SP		0.20	1	SS	62	10-15-16-15	31					
1							2A	SS		12-10-5-5	15					
						258.64	2B									
			Sandy CLAYEY SILT (CL), trace gravel (FILL) Stiff to very stiff Brown to grey Moist	CL		1.30	3	SS	103	7-8-7-9	15					
2							4	SS		7-13-14-13	27					
3							5	SS		5-4-5-4	9					
4							6	SS		7-12-14-12	26					
5							7	SS		8-10-7-8	17					
						254.30										
			SILT (ML), trace sand Compact to dense Grey Wet	ML		5.64	8	SS		4-10-10-8	20					
6																
7			- 7.62 to 8.23 m: no sample recovered				9	SS		14-16-15-16	31					
8																
						251.25										
			CLAYEY SILT (CL), trace sand, trace gravel (TILL) Very stiff to hard Brown to brownish grey Moist	CL		8.69	10	SS		12-17-18-20	35					
9																
10																

Continued on Next Page

SAMPLES: Hammer: ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop
WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: DP
CHECKED: ACK

DATE: Jul 13, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-10

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario
DATE: July 13, 2021
CONTRACTOR:
ELEVATION: 259.94 m (CGVD28)
COORDINATES: Lat: 44.130808° Long: -79.568956°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE
	CLAYEY SILT (CL), trace sand, trace gravel (TILL) Very stiff to hard Brown to brownish grey Moist	CL		11	SS		6-9-11-17	20
			248.21					
	Sandy CLAYEY SILT (CL), trace gravel (TILL) Hard Grey Moist		11.73	12	SS		17-30-48-50	78
				13	SS		17-25-35-22	60
				14	SS		11-100	
			243.63					
	SILT (ML), trace sand Dense to very dense Grey Wet	ML	16.31	15	SS		25-28-42-47	70
				16	SS		12-23-26-26	49
			241.04					
	End of hole at 18.90 m. End of Borehole							

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U
Hammer: ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop

ADDITIONAL LAB TESTING
ADDITIONAL OBSERVATIONS
GROUNDWATER OBSERVATIONS

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: DP
CHECKED: ACK

DATE: Jul 13, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-11

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: August 30, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.34 m (CGVD28)
COORDINATES: Lat: 44.130896° Long: -79.568730°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE
0	SILTY SAND (SM), trace organics (FILL) Loose Brown Moist	SM	0.00	1	SS	58	3-3-5-6	8
			252.65					
1	CLAYEY SILT (CL), trace sand, trace gravel Firm to stiff Grey to Brown Moist	CL	0.69	2	SS	100	2-2-3-4	5
2	-Grey below a depth of 2.3m (Elev. 251.0 m)			3	SS	80	3-3-6-8	9
				4	SS	100	4-6-7-12	13
3				5A	SS	100	9-9-13-18	22
			249.91	5B				
	SAND (SP), trace gravel Compact Grey Wet	SP	3.43 249.61					
4	CLAYEY SILT (CL), trace sand, trace gravel to CLAYEY SAND (SC), some gravel (TILL) Dense Grey Moist to wet	CL	3.73	6	SS	49	100	
5	-Sandy SILT (ML) of slight plasticity interlayer			7	SS	88	12-21-22-28	43
6				8	SS	34	36-30-33-28	63
7				9A				
8				9B	SS	80	19-18-25-28	43
9				10	SS	100	32-31-35-66	66
10								

DRILL RIG: D 90
DRILL METHOD: Mud Rotary

SAMPLES: Hammer: ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

ADDITIONAL LAB TESTING

ADDITIONAL OBSERVATIONS

GROUNDWATER OBSERVATIONS

CONSTRUCTION AND INSTALLATION DETAILS
Pipe Stickup: 0.00 m
0.00 - 5.48 m bgs: Bentonite
5.48 - 9.14 m bgs: Sand

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Aug 30, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-11

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: August 30, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.34 m (CGVD28)
COORDINATES: Lat: 44.130896° Long: -79.568730°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
11	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand, trace gravel to CLAYEY SAND (SC), some gravel (TILL) Dense Grey Moist to wet	CL			11	SS	100	21-22-31-38	53						Pipe Stickup: 0.00 m
12			-Sandy SILT (ML) of slight plasticity interlayer				12	SS	88	14-16-27-29	43						
13																	
14							13	SS	100	9-8-19-23	27						
15							14	SS		10-17-17-19	34						
16						237.03											
17			SILT (ML) of slight plasticity, trace sand Hard Grey Moist	ML		16.31	15	SS	75	22-33-43-71	76						
18						235.51											
19			CLAYEY SILT-SILT (CL-ML) to CLAYEY SILT (CL) Hard Grey Moist	CL-ML		17.83	16	SS		9-15-18-21	33						
20																	

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Aug 30, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-11

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: August 30, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.34 m (CGVD28)
COORDINATES: Lat: 44.130896° Long: -79.568730°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
21	D 90	Mud Rotary	CLAYEY SILT-SILT (CL-ML) to CLAYEY SILT (CL) Hard Grey Moist	CL-ML			17	SS		11-17-18-23	35						Pipe Stickup: 0.00 m
22							18	SS	100	13-15-22-40	37						
23							19	SS	100	18-30-48-100	78						
24							20	SS	100	15-18-27-39	45						
25																	
26							21	SS	100	18-25-39-63	64						
27																	
28							22	SS	100	14-17-20-26	37						
29							23	SS	100	15-17-23-36	40						
30																	

Hammer: ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Aug 30, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-11

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: August 30, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.34 m (CGVD28)
COORDINATES: Lat: 44.130896° Long: -79.568730°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
31	D 90	Mud Rotary	CLAYEY SILT-SILT (CL-ML) to CLAYEY SILT (CL) Hard Grey Moist	CL-ML			24	SS	100	14-26-34-34	60						Pipe Stickup: 0.00 m
32							25	SS	100	17-22-29-40	51						
33																	
34							26	SS	100	18-36-50-68	86						
35																	
36							27	SS	100	15-21-27-48	48						
37																	
38							28	SS	100	20-23-25-50	48						
39																	
40							29	SS	100	19-23-30-99	53						
							30	SS	114	19-40-400/83mm	59						

Continued on Next Page

Hammer: ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Aug 30, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-11

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: August 30, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.34 m (CGVD28)
COORDINATES: Lat: 44.130896° Long: -79.568730°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
			CLAYEY SILT-SILT (CL-ML) to CLAYEY SILT (CL) Hard Grey Moist														
41							31	SS	100	16-22-28	50						
42																	
43				CL-ML			32	SS	100	16-18-25-32	43						
44																	
45	D 90	Mud Rotary					33	SS	100	15-24-28-39	52						
46						207.32											
			SILTY SAND (SM) Very dense Grey Moist			46.02											
47																	
48				SM			34	SS		28-51-92-100	143						
49						204.27											
			CLAYEY SILT (CL), trace sand, trace gravel (TILL) Hard Grey Moist			49.07											
50				CL													

Continued on Next Page

Hammer: ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

CONSTRUCTION AND INSTALLATION DETAILS: Pipe Stickup: 0.00 m

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Aug 30, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-11

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: August 30, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 253.34 m (CGVD28)
COORDINATES: Lat: 44.130896° Long: -79.568730°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
0	D 90	Mud Rotary	CLAYEY SILT (CL), trace sand, trace gravel (TILL) Hard Grey Moist	CL		202.44	35	SS	100	32-44-62-84	106						Pipe Stickup: 0.00 m
51			End of hole at 50.90 m. End of Borehole														

Hammer: ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE:

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Aug 30, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-12

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: October 13, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 255.23 m (CGVD28)
COORDINATES: Lat: 44.130596° Long: -79.569281°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
0	D 90	210 mm O.D. Hollow Stem Auger	SILTY SAND (SM), trace rootlets, trace gravel, Loose, Brown, Moist	SM		0.00	1	SS	62	1-1-2-3	3					
1							2	SS	62	2-2-5-7	7					
						253.78										
			CLAYEY SILT (CL), trace to some sand, trace gravel, (TILL), Stiff to Hard, Grey, Moist			1.45	3	SS	100	2-4-4-9	8					
2							4	SS	75	4-4-8-10	12					
3							5	SS	100	4-4-5-9	9					
4							6	SS	100	8-13-17-23	30					
5				CL			7	SS	100	20-35-34-45	69					
6							8	SS	75	25-45-51-40	96					
7																
8							9	SS	100	8-14-17-23	31					
						246.54										
9			CLAYEY SILT (CL), Hard, Grey, Moist to Wet			8.69	10	SS	75	17-30-38-33	68					
10																

Continued on Next Page

SAMPLES: Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic

SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Oct 13, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-12

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: October 13, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker

ELEVATION: 255.23 m (CGVD28)
COORDINATES: Lat: 44.130596° Long: -79.569281°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
11	D 90 210 mm O.D.	Hollow Stem Auger	CLAYEY SILT (CL) Hard Grey Moist to Wet	CL		243.95	11	SS	100	21-27-29-23	56					
			End of hole at 11.28 m. End of Borehole													

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Dipendra Paudel
CHECKED: ACK

DATE: Oct 13, 2021
DATE:

RECORD OF BOREHOLE: BH CR4-13

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario
DATE: August 27, 2021
CONTRACTOR:
ELEVATION: 252.46 m (CGVD28)
COORDINATES: Lat: 44.130667° Long: -79.568660°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE
0	SILTY SAND (SM), trace organics, trace rootlets (FILL) Compact Brown Moist	SM	0.00	1	SS		3-6-11-8	17
			251.77					
1	CLAYEY SILT (CL), trace sand, trace gravel Firm Brown Moist		0.69	2	SS		1-2-2-5	4
2				3	SS		2-3-5-8	8
			250.25					
	CLAYEY SILT (CL), trace to some sand, trace gravel Very stiff to hard Brown to grey Moist		2.21	4	SS		4-6-11-13	17
3	-Grey below a depth of 3.8m below ground surface (Elev. 248.7m)	CL		5	SS		11-17-23-28	40
4				6	SS		12-17-16-18	33
5				7	SS		6-13-14-18	27
6				8	SS		10-12-18-24	30
7								
8				9	SS		14-21-26-24	47
9								
			242.71	10	SS		14-16-17-24	33
10	End of hole at 9.75 m. End of Borehole							

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500

ADDITIONAL LAB TESTING
ADDITIONAL OBSERVATIONS
GROUNDWATER OBSERVATIONS

DEPTH SCALE: 1:51
HAMMER TYPE:

GOLDER
MEMBER OF WSP

REV: Pre-draft

LOGGED: DP
CHECKED: ACK
DATE: Aug 27, 2021
DATE:

RECORD OF BOREHOLE: BH HF-01

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: July 19, 2021
END DATE: July 20, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 264.43 m (CGVD28)
COORDINATES: Lat: 44.131934° Long: -79.569230°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DRILL RIG: Diedrich D-50 Track
DRILL METHOD: 210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE	ADDITIONAL LAB TESTING	CONSTRUCTION AND INSTALLATION DETAILS
	ASPHALT (100 mm)		0.00							0.00 - 0.10 m bgs:
	SAND (SP) some gravel to gravelly, trace fines (FILL) Compact Brown Moist	SP	264.33 0.10	1a 1b	SS	75	9-10-15-9	25	MIS_202 109103	
			263.70							
1	SILT (ML) of slight plasticity, some sand to SILTY SAND (ML), of slight plasticity, trace gravel (FILL) Loose to compact Brown to Grey Moist	CL	0.73	2	SS	54	6-17-12-5	29	MIS_202 109105	
2				3	SS	83	9-9-8-15	17		0.10 - 4.27 m bgs: Bentonite
				4	SS	100	4-2-3-2	5	MIS_202 109101	
3				5a 5b	SS	75	2-4-6-16	10		
			260.70							
4	SILTY CLAY (CI), trace sand Firm to very stiff Brown Moist	CI	3.73	6	SS	100	2-2-3-5	5	MIS_202 109131	
5	- 4.60 m: Wet sands noted at approximately 4.6 m, difficult advancement with augers. Borehole moved 1.0 m south, obstruction encountered at a depth of 0.3 m. Borehole moved approximately 2.7 m south of original location, sampling resumed at a depth of 10.7 m.			7	SS	67	5-9-15-19	24		
			258.79							
6	SILTY SAND (SM) Loose to very dense Brown to Grey Wet	SM	5.64	8	SS	100	13-18-24-29	42	MIS_202 109104	4.27 - 7.62 m bgs: Sand
7										
8				9	SS	100	19/48-52/81mm			
9										7.62 - 10.67 m bgs:
10				10	SS	100	2-4-4-7	8	MIS_202 109106	

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jul 19, 2021
CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH HF-01

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: July 19, 2021
END DATE: July 20, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 264.43 m (CGVD28)
COORDINATES: Lat: 44.131934° Long: -79.569230°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
11	Diedrich D-50 Track	210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.	SILTY SAND (SM) Loose to very dense Brown to Grey Wet - 10.21 m: - grey below a depth of 10.2 m	SM		252.70	11	SS	100	9-18-31-46	49						
12			SILT (ML) of slight plasticity, trace sand Hard Grey Wet			11.73	12	SS	100	17-23-30-62	53			MIS_202 109102			
13				ML													
14							13	SS	100	26-42-58/133mm							
15																	
16			End of hole at 15.85 m. End of Borehole Note: 1. Borehole moved 1 m south due to flowing sands in hollow stem augers at a depth of 4.6 m.			248.58	14	SS	100	20-23-26-53	49						
17																	
18																	
19																	
20																	

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jul 19, 2021
CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH HF-02

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: July 06, 2021
END DATE: July 09, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 258.07 m (CGVD28)
COORDINATES: Lat: 44.130378° Long: -79.568995°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DRILL RIG: Diedrich D-50 Track
DRILL METHOD: 210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS
0	ASPHALT (200 mm)		257.87 0.00							0.00 - 15.85 m: 25 bags of hole plug, 1 bag of silica sand
	Gravelly SAND (SP-SW), trace fines (FILL) Loose to compact Brown Moist	SP-SM	0.20	1	SS	75	11-12-11-9	23	MIS_2021072713 1	
1			257.03	2a	SS	83	4-3-2-3	5		
	SILTY SAND (SM) of slight plasticity, some gravel (FILL) Loose to dense Brown Moist - trace organics, trace rootlets between a depth of 1.0 m and 2.2 m	SP	1.04	2b						
2				3	SS	58	2-2-2-3	4		
				4	SS	33	3-2-2-3	4	MIS_2021072713 4	
3				5	SS	67	39-17-12-16	29		
				6a	SS	83	12-18-13-11	31	MIS_2021072713 5	
4			4.50	6b						
	SILT (ML) of slight plasticity and sand trace gravel, trace organics Compact Brown Moist	ML	253.57	6c						
				7	SS	83	2-12-11-8	23	MIS_2021072713 6	
5										
6			251.80	8a						
	SILTY CLAY (CI) to sandy CLAYEY SILT-SILT (CL-ML), trace gravel (TILL) Stiff to hard Brown to grey Moist	CL	6.27	8b	SS	100	3-4-11-15	15		
7										
				9	SS	96	9-10-13-12	23	MIS_2021072713 7	
8	- grey below a depth of 8.7 m									
9				10	SS	100	2-4-4-7	8		
10										

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jul 06, 2021
CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH HF-02

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: July 06, 2021
END DATE: July 09, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 258.07 m (CGVD28)
COORDINATES: Lat: 44.130378° Long: -79.568995°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
11	Diedrich D-50 Track	210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.	SILTY CLAY (CI) to sandy CLAYEY SILT-SILT (CL-ML), trace gravel (TILL) Stiff to hard Brown to grey Moist	CL			11	SS	92	7-6-9-17	15					
12							12	SS	75	22-20-38-50	58	OH		MIS_2021072132		
13																
14							13	SS	100	31-49-51/133mm						
15						242.22	14	SS	100	21-23-17-27	40	O		MIS_2021072133		
16			End of hole at 15.85 m. End of Borehole													
17																
18																
19																
20																

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic; 0 20 40 60 80 100
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U; 0 100 200 300 400 500

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jul 06, 2021
CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH HF-03

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: July 12, 2021
END DATE: July 13, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 258.04 m (CGVD28)
COORDINATES: Lat: 44.130388° Long: -79.568829°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DRILL RIG: Diedrich D-50 Track
DRILL METHOD: 210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS
0	ASPHALT (200 mm)		0.00 / 257.84							0.00 - 18.69 m: 11 bags of hole plug mixed with cuttings
	SAND (SP), some gravel, trace fines (FILL) Compact to dense Brown Moist	SP	0.20	1	SS	75	19-18-16-15	34		
1				2	SS	83	8-9-8-6	17	MIS_2021072714 1	
	Sandy CLAYEY SILT-SILT (CL-ML), trace to some gravel (FILL) Firm to stiff Grey Moist	CL-ML	256.57 1.47	3	SS	92	6-4-4-9	8		
2				4	SS	100	10-6-8-14	14	MIS_2021072714 2	
	SILT (ML) of slight plasticity, some sand, trace gravel Firm to very stiff Brown Moist	ML	255.07 2.97	5	SS	100	8-8-12-16	20		
3				6	SS	100	9-12-13-15	25	MIS_2021072714 3	
4				7	SS	62	9-15-10-8	25	MIS_2021072714 4	
5				8	SS	100	2-3-6-9	9	MIS_2021072714 5	
6	CLAYEY SILT-SILT (CL-ML) to SILTY CLAY (CI), trace sand Hard Moist Grey	CI	250.88 7.16	9	SS	92	9-10-14-16	24		
7				10	SS	100	8-9-14-11	23	MIS_2021071338	
8										
9										
10										

Continued on Next Page

SAMPLES: Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop
WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jul 12, 2021
CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH HF-03

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

START DATE: July 12, 2021
END DATE: July 13, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 258.04 m (CGVD28)
COORDINATES: Lat: 44.130388° Long: -79.568829°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
11	Diedrich D-50 Track	210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.	CLAYEY SILT-SILT (CL-ML) to SILTY CLAY (CI), trace sand Hard Moist Grey	CI			11	SS	100	6-7-9-9	16					
12							12	SS		30-38-43-47	81					
13																
14							13	SS	100	15-15-22-40	37	OH		MIS_2021072139		
15																
16							14	SS	100	19-31-38-38	69					
						241.69										
			CLAYEY SILT (CL) trace sand, trace gravel (TILL) Hard Grey Moist	CL		16.35										
17							15	SS	100	16-21-16-19	37	O		MIS_2021072140		
						240.24										
			CLAYEY SILT (CL) Hard Grey Moist			17.80										
18							16	SS	100	15-58-42/105mm						
						239.35										
			End of hole at 18.69 m. End of Borehole													
19																
20																

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

WATER CONTENT: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
SHEAR STRENGTH: Nat Vane; Rem Vane; Pocket Pen; Q; U

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jul 12, 2021
CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH HF-04

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: June 29, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 255.52 m (CGVD28)
COORDINATES: Lat: 44.129614° Long: -79.568812°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS	N-VALUE	WATER CONTENT	SHEAR STRENGTH	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
	ASPHALT (180 mm)			0.00										
	SILTY SAND (SM), some gravel (FILL) Compact Brown Moist	SM		255.34 0.18	1	SS	50	10-11-11-13	22					
1					2	SS	38	11-8-6-8	14	○		MIS_202 1091014		
				254.06										
	SILT (ML), some sand to SILTY SAND (SM) some gravel (FILL) Compact to Dense Brown Moist	ML		1.46	3	SS	21	7-6-6-6	12					
2					4	SS	100	2-11-18-25	29					
3					5a 5b	SS	67	18-29-13-10	42	○	NP	MIS_202 109132		
				251.78										
	CLAYEY SILT (CL), trace sand, trace gravel, trace organics Firm Dark brown Moist	CL		3.74	6	SS	100	4-4-4-3	8	○		MIS_202 1091011		
4														
5														
				249.72										
	Sandy CLAYEY SILT (CL), trace gravel to gravelly (TILL) Stiff to hard Brown to grey Moist			5.80	7	SS	100	9-8-12-12	20	⊢●		MIS_202 1091010		
6														
7														
8					8	SS	100	12-19-24-28	43					
9					9	SS	83	14-17-17-18	34	○		MIS_202 1091012		
10														

Continued on Next Page

Diedrich D-90 Track
210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.

SAMPLES: Hammer: Automatic ASTM D1586, Blows per 0.15 m 623-N hammer, 0.76-m drop
WATER CONTENT: ⊢ Plastic & Liquid Limits (%) ○ Water Content (%) NP Nonplastic
SHEAR STRENGTH: × Nat Vane ⊕ Rem Vane ■ Pocket Pen ● Q ○ U

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jun 29, 2021
CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH HF-04

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: June 29, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 255.52 m (CGVD28)
COORDINATES: Lat: 44.129614° Long: -79.568812°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS
11	Diedrich D-90 Track	210 mm O.D. Hollow Stem Auger - 210-mm Hole Dia.	Sandy CLAYEY SILT (CL), trace gravel to gravelly (TILL) Stiff to hard Brown to grey Moist	CL			10	SS	100	8-10-11-14	21					
12							11	SS	83	8-10-12-18	22					
13																
14							12	SS	46	9-15-20-25	35			MIS_202 1091013		
15						240.73 14.79										
			CLAYEY SILT-SILT (CL-ML) Hard grey Moist	CL-ML			13	SS	100	22-21-34-41	55			MIS_202 109109		
16						239.67										
			End of hole at 15.85 m. End of Borehole													
17																
18																
19																
20																

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jun 29, 2021
CHECKED: ACK DATE:

RECORD OF BOREHOLE: BH HF-05

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: June 24, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 254.70 m (CGVD28)
COORDINATES: Lat: 44.129434° Long: -79.568551°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DESCRIPTION	USCS	ELEV. DEPTH (m)	NUMBER	TYPE	REC %	BLOWS	N-VALUE	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
	ASPHALT (100 mm)		0.00								0.00 - 0.10 m bgs:
	SAND (SP) and Gravel, trace fines (FILL) Dense Brown Moist	SP	254.60 0.10	1	SS	50	19-17-15-16	32	MIS_2021072146		
1			253.70	2a	SS	58	6-13-26-27	39			
	SILTY SAND (SM) of slight plasticity, some gravel (FILL) Loose to dense Brown Moist	SM	1.00	2b							
2				3	SS	50	8-7-9-11	16	MIS_2021072149		0.10 - 3.96 m bgs: Bentonite
				4	SS	100	6-10-11-9	21			
3				5	SS	67	8-4-5-7	9	MIS_2021072150		
				6a	SS	100	8-4-6-6	10			
4	CLAYEY SILT (CL), trace sand, trace organics Firm Dark brown Moist		250.65 4.05	6b					MIS_2021072151		
				7	SS	83	3-5-5-4	10	MIS_2021072152		
5											
			249.00								
	CLAYEY SILT (CL), some sand, trace gravel to Sandy CLAYEY SILT-SILT (CL-ML), trace gravel (TILL) Very stiff to hard Brown to grey Moist	CL	5.70								3.96 - 7.62 m bgs: Sand
6				8	SS	100	5-7-13-18	20	MIS_2021072153		
	Grey below a depth of 9.1m										
7											
				9	SS	100	27-40-45-58/135mm	85			
8											
9				10	SS	100	20-27-38-42	65	MIS_2021072147	9.10 - 9.10 m: Grey below a depth of 9.1 m	
10											

Drill Rig: Diedrich D-50 Track
Drill Method: 210 mm O.D. Hollow Stem Auger - 203-mm Hole Dia.

Hammer: Automatic
ASTM D1586, Blows per 0.15 m
623-N hammer, 0.76-m drop

Water Content: Plastic & Liquid Limits (%); Water Content (%); NP Nonplastic
Shear Strength: Nat Vane; Rem Vane; Pocket Pen; Q; U

Continued on Next Page

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano
CHECKED: ACK

DATE: Jun 24, 2021
DATE:

RECORD OF BOREHOLE: BH HF-05

CLIENT: AECOM
PROJECT: Bradford Bypass
PROJECT NO: 19136074
LOCATION: Bradford, Ontario

DATE: June 24, 2021
INCLINATION: 90.0°
CONTRACTOR: Walker Drilling Ltd.

ELEVATION: 254.70 m (CGVD28)
COORDINATES: Lat: 44.129434° Long: -79.568551°
COORD SYS: Geographical Coordinates
HORZ DATUM: NAD83 VERT DATUM: CGVD28
HOLE LOC: Bradford Bypass - County Road 4

DEPTH (m)	DRILL RIG	DRILL METHOD	MATERIAL PROFILE: DESCRIPTION	USCS	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	REC %	BLOWS (Hammer: Automatic, ASTM D1586, Blows per 0.15 m, 623-N hammer, 0.76-m drop)	N-VALUE	WATER CONTENT (Plastic & Liquid Limits (%), Water Content (%), NP Nonplastic)	SHEAR STRENGTH (Nat Vane, Rem Vane, Pocket Pen, Q, U)	ADDITIONAL LAB TESTING	ADDITIONAL OBSERVATIONS	GROUNDWATER OBSERVATIONS	CONSTRUCTION AND INSTALLATION DETAILS
11	Diedrich D-50 Track	210 mm O.D. Hollow Stem Auger - 203-mm Hole Dia.	CLAYEY SILT (CL), some sand, trace gravel to Sandy CLAYEY SILT-SILT (CL-ML), trace gravel (TILL) Very stiff to hard Brown to grey Moist Grey below a depth of 9.1m				11	SS		21-25-33-41	58						
12							12a	SS	100	20-48-60	108						
						242.30											
			CLAYEY SILT (CL) Hard Grey Moist	CL		12.40	12b										
13																	
14							13	SS	100	34-43-57	100			MIS_2021072148			
15							14	SS	100	28-52-48/105mm							
						239.05											
			End of hole at 15.65 m. End of Borehole														
16																	
17																	
18																	
19																	
20																	

DEPTH SCALE: 1:51
HAMMER TYPE: Automatic

REV: Pre-draft

GOLDER
MEMBER OF WSP

LOGGED: Matthew Montesano DATE: Jun 24, 2021
CHECKED: ACK DATE:

Appendix D

Laboratory Analysis Results

AGAT Laboratories

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

CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: BBP-60636190

AGAT WORK ORDER: 21T747142

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer

DATE REPORTED: May 22, 2021

PAGES (INCLUDING COVER): 15

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *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.*

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: 21T747142

PROJECT: BBP-60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

O. Reg. 153(511) - Metals (Including Hydrides) (Soil)

DATE RECEIVED: 2021-05-14

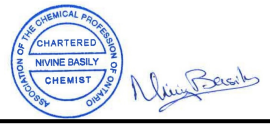
DATE REPORTED: 2021-05-22

		SAMPLE DESCRIPTION:		BH Y-4-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-05-07
Parameter	Unit	G / S	RDL	2469489
Antimony	µg/g	1.3	0.8	<0.8
Arsenic	µg/g	18	1	1
Barium	µg/g	220	2.0	21.4
Beryllium	µg/g	2.5	0.4	<0.4
Boron	µg/g	36	5	<5
Cadmium	µg/g	1.2	0.5	<0.5
Chromium	µg/g	70	5	6
Cobalt	µg/g	21	0.5	1.3
Copper	µg/g	92	1.0	2.1
Lead	µg/g	120	1	5
Molybdenum	µg/g	2	0.5	<0.5
Nickel	µg/g	82	1	2
Selenium	µg/g	1.5	0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5
Thallium	µg/g	1	0.5	<0.5
Uranium	µg/g	2.5	0.50	<0.50
Vanadium	µg/g	86	0.4	13.7
Zinc	µg/g	290	5	14

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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 perfomed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T747142

PROJECT: BBP-60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-05-14

DATE REPORTED: 2021-05-22

		SAMPLE DESCRIPTION:		BH Y-4-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-05-07
Parameter	Unit	G / S	RDL	2469489
Naphthalene	µg/g	0.09	0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05
Acenaphthene	µg/g	0.072	0.05	<0.05
Fluorene	µg/g	0.12	0.05	<0.05
Phenanthrene	µg/g	0.69	0.05	<0.05
Anthracene	µg/g	0.16	0.05	<0.05
Fluoranthene	µg/g	0.56	0.05	<0.05
Pyrene	µg/g	1	0.05	<0.05
Benz(a)anthracene	µg/g	0.36	0.05	<0.05
Chrysene	µg/g	2.8	0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.46	0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.59	0.05	<0.05
Moisture Content	%		0.1	13.1
Surrogate	Unit	Acceptable Limits		
Naphthalene-d8	%	50-140		79
Acenaphthene-d10	%	50-140		76
Chrysene-d12	%	50-140		69

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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.

2469489 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 perfomed at AGAT Toronto (unless marked by *)

Certified By: Pinkal Patel

AGAT Laboratories

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CANADA L4Z 1Y2
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http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 21T747142

PROJECT: BBP-60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)

DATE RECEIVED: 2021-05-14

DATE REPORTED: 2021-05-22

		SAMPLE DESCRIPTION:		BH Y-4-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-05-07
Parameter	Unit	G / S	RDL	2469489
F1 (C6 - C10)	µg/g	25	5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5
F2 (C10 to C16)	µg/g	10	10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10
F3 (C16 to C34)	µg/g	240	50	<50
F3 (C16 to C34) minus PAHs	µg/g		10	<10
F4 (C34 to C50)	µg/g	120	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA
Moisture Content	%		0.1	13.1
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		94
Terphenyl	%	60-140		87

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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.

2469489 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 calculated parameter is 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 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 perfomed at AGAT Toronto (unless marked by *)

Certified By: Jinkal Patel

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: 21T747142

PROJECT: BBP-60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-05-14

DATE REPORTED: 2021-05-22

		SAMPLE DESCRIPTION:		BH Y-4-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-05-07
Parameter	Unit	G / S	RDL	2469489
Dichlorodifluoromethane	µg/g	0.05	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

Certified By: Pinkal Patel

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T747142

PROJECT: BBP-60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-05-14

DATE REPORTED: 2021-05-22

		SAMPLE DESCRIPTION:		BH Y-4-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-05-07
Parameter	Unit	G / S	RDL	2469489
Bromoform	ug/g	0.05	0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05
Xylenes (Total)	ug/g	0.05	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	13.1
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		82
4-Bromofluorobenzene	% Recovery	50-140		96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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.

2469489 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By: Jinkal Patel

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Certificate of Analysis

AGAT WORK ORDER: 21T747142

PROJECT: BBP-60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

Total PCBs (soil)

DATE RECEIVED: 2021-05-14

DATE REPORTED: 2021-05-22

		SAMPLE DESCRIPTION:		BH Y-4-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-05-07
Parameter	Unit	G / S	RDL	2469489
Polychlorinated Biphenyls	µg/g	0.3	0.1	<0.1
Moisture Content	%		0.1	13.1
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		80

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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.

2469489 Results are based on the dry weight of soil extracted.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By: Jinkal Patel

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T747142
PROJECT: BBP-60636190
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:Yonge Street
SAMPLED BY:Kesh

Soil Analysis

RPT Date: May 22, 2021			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 (Including Hydrides) (Soil)															
Antimony	2474563		<0.8	<0.8	NA	< 0.8	119%	70%	130%	104%	80%	120%	101%	70%	130%
Arsenic	2474563		1	1	NA	< 1	112%	70%	130%	108%	80%	120%	106%	70%	130%
Barium	2474563		219	219	0.0%	< 2.0	109%	70%	130%	103%	80%	120%	109%	70%	130%
Beryllium	2474563		<0.4	<0.4	NA	< 0.4	80%	70%	130%	98%	80%	120%	85%	70%	130%
Boron	2474563		<5	<5	NA	< 5	101%	70%	130%	90%	80%	120%	82%	70%	130%
Cadmium	2474563		<0.5	<0.5	NA	< 0.5	111%	70%	130%	105%	80%	120%	106%	70%	130%
Chromium	2474563		45	46	2.2%	< 5	103%	70%	130%	113%	80%	120%	107%	70%	130%
Cobalt	2474563		12.6	12.7	0.8%	< 0.5	103%	70%	130%	109%	80%	120%	103%	70%	130%
Copper	2474563		25.2	25.2	0.0%	< 1.0	94%	70%	130%	114%	80%	120%	96%	70%	130%
Lead	2474563		5	5	0.0%	< 1	106%	70%	130%	100%	80%	120%	91%	70%	130%
Molybdenum	2474563		1.0	1.0	NA	< 0.5	113%	70%	130%	112%	80%	120%	114%	70%	130%
Nickel	2474563		24	24	0.0%	< 1	100%	70%	130%	106%	80%	120%	97%	70%	130%
Selenium	2474563		<0.8	<0.8	NA	< 0.8	129%	70%	130%	100%	80%	120%	100%	70%	130%
Silver	2474563		<0.5	<0.5	NA	< 0.5	98%	70%	130%	107%	80%	120%	100%	70%	130%
Thallium	2474563		<0.5	<0.5	NA	< 0.5	101%	70%	130%	108%	80%	120%	100%	70%	130%
Uranium	2474563		1.16	1.17	NA	< 0.50	107%	70%	130%	100%	80%	120%	100%	70%	130%
Vanadium	2474563		68.8	69.2	0.6%	< 0.4	109%	70%	130%	110%	80%	120%	102%	70%	130%
Zinc	2474563		77	77	0.0%	< 5	100%	70%	130%	109%	80%	120%	109%	70%	130%

Comments: NA Signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: BBP-60636190
SAMPLING SITE:Yonge Street

AGAT WORK ORDER: 21T747142
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh

Trace Organics Analysis

RPT Date: May 22, 2021			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 and VOC) (Soil)															
F1 (C6 - C10)	2463077		<5	<5	NA	< 5	106%	60%	140%	105%	60%	140%	109%	60%	140%
F2 (C10 to C16)	2481563		< 10	< 10	NA	< 10	102%	60%	140%	102%	60%	140%	85%	60%	140%
F3 (C16 to C34)	2481563		< 50	< 50	NA	< 50	96%	60%	140%	114%	60%	140%	88%	60%	140%
F4 (C34 to C50)	2481563		< 50	< 50	NA	< 50	93%	60%	140%	93%	60%	140%	92%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	2469489		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	108%	50%	140%	86%	50%	140%
Acenaphthylene	2469489		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	111%	50%	140%	105%	50%	140%
Acenaphthene	2469489		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	94%	50%	140%	98%	50%	140%
Fluorene	2469489		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	107%	50%	140%	99%	50%	140%
Phenanthrene	2469489		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	91%	50%	140%	105%	50%	140%
Anthracene	2469489		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	88%	50%	140%	88%	50%	140%
Fluoranthene	2469489		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	95%	50%	140%	98%	50%	140%
Pyrene	2469489		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	99%	50%	140%	93%	50%	140%
Benz(a)anthracene	2469489		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	102%	50%	140%	95%	50%	140%
Chrysene	2469489		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	96%	50%	140%	105%	50%	140%
Benzo(b)fluoranthene	2469489		< 0.05	< 0.05	NA	< 0.05	117%	50%	140%	85%	50%	140%	88%	50%	140%
Benzo(k)fluoranthene	2469489		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	96%	50%	140%	98%	50%	140%
Benzo(a)pyrene	2469489		< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	99%	50%	140%	99%	50%	140%
Indeno(1,2,3-cd)pyrene	2469489		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	92%	50%	140%	105%	50%	140%
Dibenz(a,h)anthracene	2469489		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	90%	50%	140%	88%	50%	140%
Benzo(g,h,i)perylene	2469489		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	87%	50%	140%	98%	50%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	2476543		<0.05	<0.05	NA	< 0.05	95%	50%	140%	103%	50%	140%	107%	50%	140%
Vinyl Chloride	2476543		<0.02	<0.02	NA	< 0.02	101%	50%	140%	100%	50%	140%	101%	50%	140%
Bromomethane	2476543		<0.05	<0.05	NA	< 0.05	108%	50%	140%	107%	50%	140%	103%	50%	140%
Trichlorofluoromethane	2476543		<0.05	<0.05	NA	< 0.05	107%	50%	140%	100%	50%	140%	116%	50%	140%
Acetone	2476543		<0.50	<0.50	NA	< 0.50	79%	50%	140%	89%	50%	140%	105%	50%	140%
1,1-Dichloroethylene	2476543		<0.05	<0.05	NA	< 0.05	87%	50%	140%	117%	60%	130%	101%	50%	140%
Methylene Chloride	2476543		<0.05	<0.05	NA	< 0.05	105%	50%	140%	110%	60%	130%	92%	50%	140%
Trans- 1,2-Dichloroethylene	2476543		<0.05	<0.05	NA	< 0.05	88%	50%	140%	89%	60%	130%	92%	50%	140%
Methyl tert-butyl Ether	2476543		<0.05	<0.05	NA	< 0.05	80%	50%	140%	81%	60%	130%	88%	50%	140%
1,1-Dichloroethane	2476543		<0.02	<0.02	NA	< 0.02	98%	50%	140%	91%	60%	130%	107%	50%	140%
Methyl Ethyl Ketone	2476543		<0.50	<0.50	NA	< 0.50	83%	50%	140%	90%	50%	140%	95%	50%	140%
Cis- 1,2-Dichloroethylene	2476543		<0.02	<0.02	NA	< 0.02	91%	50%	140%	93%	60%	130%	93%	50%	140%
Chloroform	2476543		<0.04	<0.04	NA	< 0.04	75%	50%	140%	101%	60%	130%	85%	50%	140%
1,2-Dichloroethane	2476543		<0.03	<0.03	NA	< 0.03	104%	50%	140%	104%	60%	130%	87%	50%	140%
1,1,1-Trichloroethane	2476543		<0.05	<0.05	NA	< 0.05	84%	50%	140%	74%	60%	130%	91%	50%	140%
Carbon Tetrachloride	2476543		<0.05	<0.05	NA	< 0.05	108%	50%	140%	99%	60%	130%	89%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: BBP-60636190
SAMPLING SITE:Yonge Street

AGAT WORK ORDER: 21T747142
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh

Trace Organics Analysis (Continued)

RPT Date: May 22, 2021			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
Benzene	2476543		<0.02	<0.02	NA	< 0.02	88%	50%	140%	82%	60%	130%	80%	50%	140%
1,2-Dichloropropane	2476543		<0.03	<0.03	NA	< 0.03	117%	50%	140%	92%	60%	130%	101%	50%	140%
Trichloroethylene	2476543		<0.03	<0.03	NA	< 0.03	105%	50%	140%	112%	60%	130%	92%	50%	140%
Bromodichloromethane	2476543		<0.05	<0.05	NA	< 0.05	88%	50%	140%	96%	60%	130%	82%	50%	140%
Methyl Isobutyl Ketone	2476543		<0.50	<0.50	NA	< 0.50	99%	50%	140%	93%	50%	140%	87%	50%	140%
1,1,2-Trichloroethane	2476543		<0.04	<0.04	NA	< 0.04	91%	50%	140%	103%	60%	130%	93%	50%	140%
Toluene	2476543		<0.05	<0.05	NA	< 0.05	89%	50%	140%	104%	60%	130%	90%	50%	140%
Dibromochloromethane	2476543		<0.05	<0.05	NA	< 0.05	116%	50%	140%	107%	60%	130%	86%	50%	140%
Ethylene Dibromide	2476543		<0.04	<0.04	NA	< 0.04	75%	50%	140%	93%	60%	130%	100%	50%	140%
Tetrachloroethylene	2476543		<0.05	<0.05	NA	< 0.05	111%	50%	140%	109%	60%	130%	98%	50%	140%
1,1,1,2-Tetrachloroethane	2476543		<0.04	<0.04	NA	< 0.04	116%	50%	140%	97%	60%	130%	86%	50%	140%
Chlorobenzene	2476543		<0.05	<0.05	NA	< 0.05	82%	50%	140%	102%	60%	130%	109%	50%	140%
Ethylbenzene	2476543		<0.05	<0.05	NA	< 0.05	91%	50%	140%	98%	60%	130%	102%	50%	140%
m & p-Xylene	2476543		<0.05	<0.05	NA	< 0.05	99%	50%	140%	102%	60%	130%	109%	50%	140%
Bromoform	2476543		<0.05	<0.05	NA	< 0.05	95%	50%	140%	98%	60%	130%	82%	50%	140%
Styrene	2476543		<0.05	<0.05	NA	< 0.05	78%	50%	140%	104%	60%	130%	86%	50%	140%
1,1,2,2-Tetrachloroethane	2476543		<0.05	<0.05	NA	< 0.05	108%	50%	140%	105%	60%	130%	94%	50%	140%
o-Xylene	2476543		<0.05	<0.05	NA	< 0.05	86%	50%	140%	87%	60%	130%	79%	50%	140%
1,3-Dichlorobenzene	2476543		<0.05	<0.05	NA	< 0.05	97%	50%	140%	109%	60%	130%	100%	50%	140%
1,4-Dichlorobenzene	2476543		<0.05	<0.05	NA	< 0.05	106%	50%	140%	104%	60%	130%	100%	50%	140%
1,2-Dichlorobenzene	2476543		<0.05	<0.05	NA	< 0.05	105%	50%	140%	95%	60%	130%	112%	50%	140%
n-Hexane	2476543		<0.05	<0.05	NA	< 0.05	84%	50%	140%	72%	60%	130%	95%	50%	140%
Total PCBs (soil)															
Polychlorinated Biphenyls	2464937		< 0.1	< 0.1	NA	< 0.1	109%	60%	140%	84%	60%	140%	90%	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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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T747142
PROJECT: BBP-60636190
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:Yonge Street
SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T747142

PROJECT: BBP-60636190

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Acenaphthene-d10	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Chrysene-d12	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Moisture Content	ORG-91-5009	CCME Tier 1 Method	BALANCE
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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
F3 (C16 to C34) minus PAHs	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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

AGAT Laboratories

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T747142

PROJECT: BBP-60636190

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T747142

PROJECT: BBP-60636190

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Yonge Street

SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
m & p-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD

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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 #: 21T747142
Cooler Quantity: Used
Arrival Temperatures: 4.5 | 4.2 | 4.4 / 3.5 | 3.3 | 3.7
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM
Contact: Kesh Alakesan/Ali
Address: Markham
Phone: Fax:
Reports to be sent to:
1. Email:
2. Email:

Regulatory Requirements:
(Please check all applicable boxes)

☐ Regulation 153/04 — Table 1 (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

Turnaround Time (TAT) Required:
Regular TAT (Most Analysis) ☐ 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: BBP - Yong Street
Site Location:
Sampled By: Kesh
AGAT ID #: PO: 60636190 WCW
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, DOC Y/N	O. Reg 153: Metals & Inorganics	Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	F1-F4 PHCs, Analyze F4G if required ☐ Yes ☐ No	PAHs	Total PCBs ☐ Aroclor	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	Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	Potentially Hazardous or High Concentration (Y/N)
BH Y-4-SS1	May 7	AM/PM	5	Soil				X	X	X	X	X					
		AM/PM															
		AM/PM															
		AM/PM															
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		AM/PM															
		AM/PM															

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
				5/14/21	12:27
Samples Relinquished By (Print Name and Sign):	Date 5/14/21	Time 2:22	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 ____ of ____
Nº: T 118561

AGAT Laboratories

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190 - BBP

AGAT WORK ORDER: 21T752262

SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jun 04, 2021

PAGES (INCLUDING COVER): 14

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

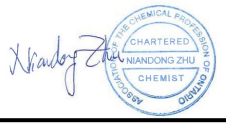
O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2021-05-27

DATE REPORTED: 2021-06-04

SAMPLE DESCRIPTION:				BHY-1-2.5-4.5	BH10-2-2.5-4.5	BHB-2-2.5-4.5
SAMPLE TYPE:				Soil	Soil	Soil
DATE SAMPLED:				2021-05-27 11:00	2021-05-27 11:15	2021-05-27 11:30
Parameter	Unit	G / S	RDL	2518456	2518459	2518461
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	1	4	2
Barium	µg/g	220	2.0	8.7	40.3	22.7
Beryllium	µg/g	2.5	0.4	<0.4	<0.4	<0.4
Boron	µg/g	36	5	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	NA	0.10	<0.10	0.14	0.17
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	5	5	13	9
Cobalt	µg/g	21	0.5	1.5	4.6	2.7
Copper	µg/g	92	1.0	1.6	15.8	4.6
Lead	µg/g	120	1	2	9	6
Molybdenum	µg/g	2	0.5	<0.5	<0.5	0.6
Nickel	µg/g	82	1	2	9	4
Selenium	µg/g	1.5	0.8	<0.8	<0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5
Uranium	µg/g	2.5	0.50	<0.50	<0.50	<0.50
Vanadium	µg/g	86	0.4	14.3	24.7	17.4
Zinc	µg/g	290	5	9	38	22
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2	<0.2	<0.2
Cyanide, Free	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 (2:1)	mS/cm	0.57	0.005	0.447	1.03	0.432
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	2.4	N/A	7.18	14.2	5.62
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.80	8.05	7.63

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-05-27

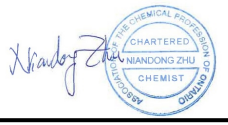
DATE REPORTED: 2021-06-04

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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.

2518456-2518461 EC was 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. SAR is a calculated parameter.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-05-27

DATE REPORTED: 2021-06-04

				SAMPLE DESCRIPTION:	BH10-2-2.5-4.5	BHB-2-2.5-4.5
				SAMPLE TYPE:	Soil	Soil
				DATE SAMPLED:	2021-05-27 11:15	2021-05-27 11:30
Parameter	Unit	G / S	RDL		2518459	2518461
Naphthalene	µg/g	0.09	0.05		<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05		<0.05	<0.05
Acenaphthene	µg/g	0.072	0.05		<0.05	<0.05
Fluorene	µg/g	0.12	0.05		<0.05	<0.05
Phenanthrene	µg/g	0.69	0.05		<0.05	<0.05
Anthracene	µg/g	0.16	0.05		<0.05	<0.05
Fluoranthene	µg/g	0.56	0.05		<0.05	<0.05
Pyrene	µg/g	1	0.05		<0.05	<0.05
Benz(a)anthracene	µg/g	0.36	0.05		<0.05	<0.05
Chrysene	µg/g	2.8	0.05		<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.05		<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.05		<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05		<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.46	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	0.68	0.05		<0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.59	0.05		<0.05	<0.05
Moisture Content	%		0.1		4.5	14.9
Surrogate	Unit	Acceptable Limits				
Naphthalene-d8	%	50-140			62	66
Acenaphthene-d10	%	50-140			63	68
Chrysene-d12	%	50-140			76	68

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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.

2518459-2518461 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 perfomed at AGAT Toronto (unless marked by *)

Certified By: NPopowkolof

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Certificate of Analysis

AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-05-27

DATE REPORTED: 2021-06-04

				SAMPLE DESCRIPTION:	BH10-2-2.5-4.5	BHB-2-2.5-4.5
				SAMPLE TYPE:	Soil	Soil
				DATE SAMPLED:	2021-05-27 11:15	2021-05-27 11:30
Parameter	Unit	G / S	RDL		2518459	2518461
Benzene	µg/g	0.02	0.02		<0.02	<0.02
Toluene	µg/g	0.2	0.05		<0.05	<0.05
Ethylbenzene	µg/g	0.05	0.05		<0.05	<0.05
m & p-Xylene	µg/g		0.05		<0.05	<0.05
o-Xylene	µg/g		0.05		<0.05	<0.05
Xylenes (Total)	µg/g	0.05	0.05		<0.05	<0.05
F1 (C6 - C10)	µg/g	25	5		<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5		<5	<5
F2 (C10 to C16)	µg/g	10	10		<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10		<10	<10
F3 (C16 to C34)	µg/g	240	50		130	59
F3 (C16 to C34) minus PAHs	µg/g		50		130	59
F4 (C34 to C50)	µg/g	120	50		95	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50		NA	NA
Moisture Content	%		0.1		4.5	14.9
Surrogate	Unit	Acceptable Limits				
Toluene-d8	% Recovery	60-140			76	84
Terphenyl	%	60-140			88	99

Certified By: NPopowich

AGAT Laboratories

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AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-05-27

DATE REPORTED: 2021-06-04

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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.

2518459-2518461 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 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 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 perfomed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

Total PCBs (soil)

DATE RECEIVED: 2021-05-27

DATE REPORTED: 2021-06-04

				SAMPLE DESCRIPTION:	BHB-2-2.5-4.5
				SAMPLE TYPE:	Soil
				DATE SAMPLED:	2021-05-27 11:30
Parameter	Unit	G / S	RDL	2518461	
Polychlorinated Biphenyls	µg/g	0.3	0.1	<0.1	
Moisture Content	%		0.1	14.9	
Surrogate	Unit	Acceptable Limits			
Decachlorobiphenyl	%	60-130		88	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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.

2518461 Results are based on the dry weight of soil extracted.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By: N Popowkolof

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Exceedance Summary

AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
2518456	BHY-1-2.5-4.5	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	2.4	7.18
2518459	BH10-2-2.5-4.5	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	0.57	1.03
2518459	BH10-2-2.5-4.5	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	2.4	14.2
2518461	BHB-2-2.5-4.5	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.	N/A	2.4	5.62

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP
SAMPLING SITE:

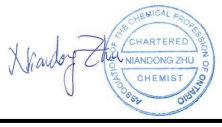
AGAT WORK ORDER: 21T752262
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Soil Analysis

RPT Date: Jun 04, 2021			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	2525068		<0.8	<0.8	NA	< 0.8	119%	70%	130%	89%	80%	120%	73%	70%	130%
Arsenic	2525068		3	3	NA	< 1	114%	70%	130%	100%	80%	120%	100%	70%	130%
Barium	2525068		56.3	56.2	0.2%	< 2.0	105%	70%	130%	90%	80%	120%	121%	70%	130%
Beryllium	2525068		0.4	<0.4	NA	< 0.4	87%	70%	130%	113%	80%	120%	106%	70%	130%
Boron	2525068		6	6	NA	< 5	93%	70%	130%	101%	80%	120%	100%	70%	130%
Boron (Hot Water Soluble)	2536087		<0.10	<0.10	NA	< 0.10	93%	60%	140%	101%	70%	130%	102%	60%	140%
Cadmium	2525068		<0.5	<0.5	NA	< 0.5	89%	70%	130%	103%	80%	120%	94%	70%	130%
Chromium	2525068		24	25	NA	< 5	100%	70%	130%	102%	80%	120%	99%	70%	130%
Cobalt	2525068		8.3	8.3	0.0%	< 0.5	104%	70%	130%	102%	80%	120%	110%	70%	130%
Copper	2525068		288	263	9.1%	< 1.0	95%	70%	130%	107%	80%	120%	NA	70%	130%
Lead	2525068		70	70	0.0%	< 1	107%	70%	130%	95%	80%	120%	91%	70%	130%
Molybdenum	2525068		2.2	2.5	NA	< 0.5	115%	70%	130%	106%	80%	120%	107%	70%	130%
Nickel	2525068		17	16	6.1%	< 1	100%	70%	130%	100%	80%	120%	118%	70%	130%
Selenium	2525068		<0.8	<0.8	NA	< 0.8	102%	70%	130%	102%	80%	120%	92%	70%	130%
Silver	2525068		<0.5	<0.5	NA	< 0.5	98%	70%	130%	109%	80%	120%	84%	70%	130%
Thallium	2525068		<0.5	<0.5	NA	< 0.5	105%	70%	130%	101%	80%	120%	94%	70%	130%
Uranium	2525068		<0.50	<0.50	NA	< 0.50	114%	70%	130%	102%	80%	120%	104%	70%	130%
Vanadium	2525068		28.6	29.5	3.1%	< 0.4	109%	70%	130%	101%	80%	120%	104%	70%	130%
Zinc	2525068		277	262	5.6%	< 5	104%	70%	130%	104%	80%	120%	125%	70%	130%
Chromium, Hexavalent	2519794		<0.2	<0.2	NA	< 0.2	92%	70%	130%	87%	80%	120%	83%	70%	130%
Cyanide, Free	2518459	2518459	<0.040	<0.040	NA	< 0.040	102%	70%	130%	96%	80%	120%	105%	70%	130%
Mercury	2525068		<0.10	<0.10	NA	< 0.10	108%	70%	130%	99%	80%	120%	95%	70%	130%
Electrical Conductivity (2:1)	2536087		0.319	0.314	1.6%	< 0.005	107%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	2536087		3.28	3.26	0.6%	NA									
pH, 2:1 CaCl2 Extraction	2524311		7.43	7.46	0.4%	NA	101%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP
SAMPLING SITE:

AGAT WORK ORDER: 21T752262
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Trace Organics Analysis

RPT Date: Jun 04, 2021			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) - PAHs (Soil)															
Naphthalene	2519108		<0.05	<0.05	NA	< 0.05	79%	50%	140%	74%	50%	140%	89%	50%	140%
Acenaphthylene	2519108		<0.05	<0.05	NA	< 0.05	94%	50%	140%	96%	50%	140%	85%	50%	140%
Acenaphthene	2519108		<0.05	<0.05	NA	< 0.05	90%	50%	140%	104%	50%	140%	68%	50%	140%
Fluorene	2519108		<0.05	<0.05	NA	< 0.05	99%	50%	140%	112%	50%	140%	75%	50%	140%
Phenanthrene	2519108		<0.05	<0.05	NA	< 0.05	116%	50%	140%	97%	50%	140%	105%	50%	140%
Anthracene	2519108		<0.05	<0.05	NA	< 0.05	119%	50%	140%	114%	50%	140%	95%	50%	140%
Fluoranthene	2519108		<0.05	<0.05	NA	< 0.05	103%	50%	140%	115%	50%	140%	89%	50%	140%
Pyrene	2519108		<0.05	<0.05	NA	< 0.05	115%	50%	140%	112%	50%	140%	77%	50%	140%
Benz(a)anthracene	2519108		<0.05	<0.05	NA	< 0.05	80%	50%	140%	78%	50%	140%	85%	50%	140%
Chrysene	2519108		<0.05	<0.05	NA	< 0.05	81%	50%	140%	77%	50%	140%	98%	50%	140%
Benzo(b)fluoranthene	2519108		<0.05	<0.05	NA	< 0.05	85%	50%	140%	90%	50%	140%	74%	50%	140%
Benzo(k)fluoranthene	2519108		<0.05	<0.05	NA	< 0.05	81%	50%	140%	83%	50%	140%	85%	50%	140%
Benzo(a)pyrene	2519108		<0.05	<0.05	NA	< 0.05	87%	50%	140%	77%	50%	140%	96%	50%	140%
Indeno(1,2,3-cd)pyrene	2519108		<0.05	<0.05	NA	< 0.05	72%	50%	140%	75%	50%	140%	84%	50%	140%
Dibenz(a,h)anthracene	2519108		<0.05	<0.05	NA	< 0.05	73%	50%	140%	84%	50%	140%	75%	50%	140%
Benzo(g,h,i)perylene	2519108		<0.05	<0.05	NA	< 0.05	69%	50%	140%	77%	50%	140%	89%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	2519996		<0.02	<0.02	NA	< 0.02	116%	60%	140%	106%	60%	140%	86%	60%	140%
Toluene	2519996		<0.05	<0.05	NA	< 0.05	113%	60%	140%	107%	60%	140%	103%	60%	140%
Ethylbenzene	2519996		<0.05	<0.05	NA	< 0.05	116%	60%	140%	97%	60%	140%	101%	60%	140%
m & p-Xylene	2519996		<0.05	<0.05	NA	< 0.05	105%	60%	140%	101%	60%	140%	104%	60%	140%
o-Xylene	2519996		<0.05	<0.05	NA	< 0.05	104%	60%	140%	95%	60%	140%	103%	60%	140%
F1 (C6 - C10)	2519996		<5	<5	NA	< 5	103%	60%	140%	100%	60%	140%	99%	60%	140%
F2 (C10 to C16)	2519888		< 10	< 10	NA	< 10	101%	60%	140%	91%	60%	140%	94%	60%	140%
F3 (C16 to C34)	2519888		< 10	< 10	NA	< 50	93%	60%	140%	98%	60%	140%	96%	60%	140%
F4 (C34 to C50)	2519888		< 50	< 50	NA	< 50	92%	60%	140%	88%	60%	140%	112%	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).

Total PCBs (soil)															
Polychlorinated Biphenyls	2493684		< 0.1	< 0.1	NA	< 0.1	112%	60%	140%	96%	60%	140%	103%	60%	140%

Certified By: N Popnikolof

AGAT Laboratories

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T752262
PROJECT: 60636190 - BBP
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Acenaphthene-d10	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Chrysene-d12	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Moisture Content	ORG-91-5009	CCME Tier 1 Method	BALANCE
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T752262

PROJECT: 60636190 - BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
F3 (C16 to C34) minus PAHs	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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD

AGAT Laboratories
5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
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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: AECOM CANADA LTD
Contact: KESH APPADURAI and ALI SULLAN
Address: AECOM, MARKHAM, ON
Phone: Fax:
Reports to be sent to:
1. Email: Kesh.appadurai@aecom.com
2. Email: ali.sullan@aecom.com

Project Information:

Project: BBP
Site Location:
Sampled By: A.S
AGAT ID #: PO: 60639160
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☐ No ☐
Company: AECOM CANADA LTD
Contact:
Address:
Email:

Regulatory Requirements:

(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 *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

Laboratory Use Only

Work Order #: 21T752262
Cooler Quantity: 1 med
Arrival Temperatures: 1.6 | 1.5 | 2.6
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: Free ICE

Turnaround Time (TAT) Required:

Regular TAT (Most Analysis) ☑ 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, DOC Y/N	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	O. Reg 153: Analyze F4G if required ☐ Yes ☐ No	O. Reg 153: PAHs	O. Reg 153: Total PCBs ☐ Aroclor	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 ☐ Metals ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	PHC (F1-F4)	PHC (F1-F4 +BTEX)	PCB						Potentially Hazardous or High Concentration (Y/N)
BHY-1-2.5-4.5	2021/05/27	11:00 AM PM	1	Soil			X																			
BH10-2-2.5-4.5	↓	11:15 AM PM	4	↓			X				X							X								
BHB-2-2.5-4.5	↓	11:30 AM PM	6	↓			X				X								X	X						
		AM PM																								
		AM PM																								
		AM PM																								
		AM PM																								
		AM PM																								
		AM PM																								
		AM PM																								
		AM PM																								

Samples Relinquished By (Print Name and Sign): Ali Sullan	Date 2021/05/27	Time 12:00	Samples Received By (Print Name and Sign): NEAL G	Date	Time
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

21 MAY 27 12:25PM

Page 1 of 1

N°: T118978

Document ID: DM-76-1511-020

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Document Revision 12.2020

AGAT Laboratories

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-Bradford ByPass PD

AGAT WORK ORDER: 21T760077

SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

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

DATE REPORTED: Jun 18, 2021

PAGES (INCLUDING COVER): 18

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-06-11

DATE REPORTED: 2021-06-18

		SAMPLE DESCRIPTION:		BH404-4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-10
Parameter	Unit	G / S	RDL	2597496
Antimony	µg/g	1	0.8	<0.8
Arsenic	µg/g	11	1	2
Barium	µg/g	210	2.0	73.8
Beryllium	µg/g	2.5	0.4	<0.4
Boron	µg/g	36	5	9
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.18
Cadmium	µg/g	1	0.5	<0.5
Chromium	µg/g	67	5	14
Cobalt	µg/g	19	0.5	4.3
Copper	µg/g	62	1.0	7.6
Lead	µg/g	45	1	5
Molybdenum	µg/g	2	0.5	<0.5
Nickel	µg/g	37	1	6
Selenium	µg/g	1.2	0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5
Thallium	µg/g	1	0.5	<0.5
Uranium	µg/g	1.9	0.50	<0.50
Vanadium	µg/g	86	0.4	23.5
Zinc	µg/g	290	5	22
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.987
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	10.6
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.99

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-06-11

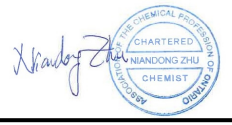
DATE REPORTED: 2021-06-18

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

2597496 EC was 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. SAR is a calculated parameter.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By:



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AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-06-11

DATE REPORTED: 2021-06-18

		SAMPLE DESCRIPTION:		BH404-4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-10
Parameter	Unit	G / S	RDL	2597496
Naphthalene	µg/g	0.05	0.05	<0.05
Acenaphthylene	µg/g	0.093	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	0.19	0.05	<0.05
Anthracene	µg/g	0.05	0.05	<0.05
Fluoranthene	µg/g	0.24	0.05	<0.05
Pyrene	µg/g	0.19	0.05	<0.05
Benz(a)anthracene	µg/g	0.095	0.05	<0.05
Chrysene	µg/g	0.18	0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.3	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	0.11	0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.2	0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	10.3
Surrogate	Unit	Acceptable Limits		
Naphthalene-d8	%	50-140		97
Acenaphthene-d10	%	50-140		89
Chrysene-d12	%	50-140		85

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

2597496 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 perfomed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)

DATE RECEIVED: 2021-06-11

DATE REPORTED: 2021-06-18

		SAMPLE DESCRIPTION:		BH404-4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-10
Parameter	Unit	G / S	RDL	2597496
F1 (C6 - C10)	µg/g	17	5	<5
F1 (C6 to C10) minus BTEX	µg/g	17	5	<5
F2 (C10 to C16)	µg/g	10	10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10
F3 (C16 to C34)	µg/g	240	50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50
F4 (C34 to C50)	µg/g	120	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA
Moisture Content	%		0.1	10.3
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		77
Terphenyl	%	60-140		104

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

2597496 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 calculated parameter is 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 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 perfomed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-06-11

DATE REPORTED: 2021-06-18

		SAMPLE DESCRIPTION:		BH404-4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-10
Parameter	Unit	G / S	RDL	2597496
Dichlorodifluoromethane	µg/g	0.05	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	0.05	0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-06-11

DATE REPORTED: 2021-06-18

		SAMPLE DESCRIPTION:		BH404-4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-10
Parameter	Unit	G / S	RDL	2597496
Bromoform	ug/g	0.05	0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05
Xylenes (Total)	ug/g	0.05	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	10.3
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		98
4-Bromofluorobenzene	% Recovery	50-140		87

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

2597496 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

Total PCBs (soil)

DATE RECEIVED: 2021-06-11

DATE REPORTED: 2021-06-18

		SAMPLE DESCRIPTION:		BH404-4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-10
Parameter	Unit	G / S	RDL	2597496
Polychlorinated Biphenyls	µg/g	0.3	0.1	<0.1
Moisture Content	%		0.1	10.3
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

2597496 Results are based on the dry weight of soil extracted.

Analysis perfomed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Exceedance Summary

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
2597496	BH404-4	ON T1 S AG	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	0.47	0.987
2597496	BH404-4	ON T1 S AG	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.	N/A	1	10.6

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-Bradford ByPass PD
SAMPLING SITE:Hwy 404 East

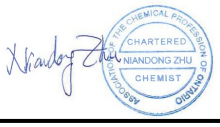
AGAT WORK ORDER: 21T760077
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh

Soil Analysis

RPT Date: Jun 18, 2021			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	2605571		<0.8	<0.8	NA	< 0.8	136%	70%	130%	98%	80%	120%	101%	70%	130%
Arsenic	2605571		5	5	0.0%	< 1	118%	70%	130%	101%	80%	120%	102%	70%	130%
Barium	2605571		37.8	37.2	1.6%	< 2.0	110%	70%	130%	92%	80%	120%	106%	70%	130%
Beryllium	2605571		0.4	0.4	NA	< 0.4	85%	70%	130%	108%	80%	120%	95%	70%	130%
Boron	2605571		8	9	NA	< 5	77%	70%	130%	100%	80%	120%	82%	70%	130%
Boron (Hot Water Soluble)	2598957		<0.10	0.10	NA	< 0.10	77%	60%	140%	85%	70%	130%	90%	60%	140%
Cadmium	2605571		<0.5	<0.5	NA	< 0.5	106%	70%	130%	102%	80%	120%	100%	70%	130%
Chromium	2605571		19	17	NA	< 5	102%	70%	130%	95%	80%	120%	99%	70%	130%
Cobalt	2605571		4.5	4.5	0.0%	< 0.5	96%	70%	130%	98%	80%	120%	95%	70%	130%
Copper	2605571		21.4	21.1	1.4%	< 1.0	90%	70%	130%	102%	80%	120%	91%	70%	130%
Lead	2605571		42	41	2.4%	< 1	101%	70%	130%	92%	80%	120%	91%	70%	130%
Molybdenum	2605571		0.6	0.6	NA	< 0.5	112%	70%	130%	100%	80%	120%	114%	70%	130%
Nickel	2605571		9	9	0.0%	< 1	94%	70%	130%	98%	80%	120%	93%	70%	130%
Selenium	2605571		<0.8	<0.8	NA	< 0.8	82%	70%	130%	99%	80%	120%	97%	70%	130%
Silver	2605571		<0.5	<0.5	NA	< 0.5	95%	70%	130%	107%	80%	120%	103%	70%	130%
Thallium	2605571		<0.5	<0.5	NA	< 0.5	120%	70%	130%	97%	80%	120%	98%	70%	130%
Uranium	2605571		<0.50	0.53	NA	< 0.50	114%	70%	130%	98%	80%	120%	105%	70%	130%
Vanadium	2605571		23.6	24.3	2.9%	< 0.4	106%	70%	130%	98%	80%	120%	100%	70%	130%
Zinc	2605571		118	204	53.4%	< 5	99%	70%	130%	105%	80%	120%	97%	70%	130%
Chromium, Hexavalent	2581808		<0.2	<0.2	NA	< 0.2	105%	70%	130%	94%	80%	120%	85%	70%	130%
Cyanide, Free	2586144		<0.040	<0.040	NA	< 0.040	100%	70%	130%	104%	80%	120%	100%	70%	130%
Mercury	2605571		<0.10	<0.10	NA	< 0.10	117%	70%	130%	96%	80%	120%	96%	70%	130%
Electrical Conductivity (2:1)	2595860		0.329	0.328	0.3%	< 0.005	103%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	2598957		0.143	0.153	6.8%	NA									
pH, 2:1 CaCl2 Extraction	2605571		7.57	7.53	0.5%	NA	101%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
For a multi-element scan for lab control standards and matrix spikes, up to 10% of analytes may exceed the quoted limits by up to 10% absolute and it is considered acceptable.

Certified By:



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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-Bradford ByPass PD
SAMPLING SITE:Hwy 404 East

AGAT WORK ORDER: 21T760077
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh

Trace Organics Analysis

RPT Date: Jun 18, 2021			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 and VOC) (Soil)															
F2 (C10 to C16)	2581930		< 10	< 10	NA	< 10	106%	60%	140%	105%	60%	140%	109%	60%	140%
F3 (C16 to C34)	2581930		< 50	< 50	NA	< 50	103%	60%	140%	124%	60%	140%	126%	60%	140%
F4 (C34 to C50)	2581930		< 50	< 50	NA	< 50	96%	60%	140%	104%	60%	140%	106%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	2598985		<0.05	<0.05	NA	< 0.05	101%	50%	140%	76%	50%	140%	84%	50%	140%
Acenaphthylene	2598985		<0.05	<0.05	NA	< 0.05	122%	50%	140%	85%	50%	140%	98%	50%	140%
Acenaphthene	2598985		<0.05	<0.05	NA	< 0.05	119%	50%	140%	87%	50%	140%	101%	50%	140%
Fluorene	2598985		<0.05	<0.05	NA	< 0.05	120%	50%	140%	88%	50%	140%	107%	50%	140%
Phenanthrene	2598985		<0.05	<0.05	NA	< 0.05	81%	50%	140%	64%	50%	140%	90%	50%	140%
Anthracene	2598985		<0.05	<0.05	NA	< 0.05	111%	50%	140%	110%	50%	140%	136%	50%	140%
Fluoranthene	2598985		<0.05	<0.05	NA	< 0.05	131%	50%	140%	98%	50%	140%	111%	50%	140%
Pyrene	2598985		<0.05	<0.05	NA	< 0.05	121%	50%	140%	91%	50%	140%	138%	50%	140%
Benz(a)anthracene	2598985		<0.05	<0.05	NA	< 0.05	98%	50%	140%	98%	50%	140%	87%	50%	140%
Chrysene	2598985		<0.05	<0.05	NA	< 0.05	96%	50%	140%	85%	50%	140%	131%	50%	140%
Benzo(b)fluoranthene	2598985		<0.05	<0.05	NA	< 0.05	85%	50%	140%	98%	50%	140%	83%	50%	140%
Benzo(k)fluoranthene	2598985		<0.05	<0.05	NA	< 0.05	99%	50%	140%	96%	50%	140%	61%	50%	140%
Benzo(a)pyrene	2598985		<0.05	<0.05	NA	< 0.05	85%	50%	140%	69%	50%	140%	88%	50%	140%
Indeno(1,2,3-cd)pyrene	2598985		<0.05	<0.05	NA	< 0.05	67%	50%	140%	57%	50%	140%	68%	50%	140%
Dibenz(a,h)anthracene	2598985		<0.05	<0.05	NA	< 0.05	61%	50%	140%	56%	50%	140%	70%	50%	140%
Benzo(g,h,i)perylene	2598985		<0.05	<0.05	NA	< 0.05	93%	50%	140%	71%	50%	140%	71%	50%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	2595934		<0.05	<0.05	NA	< 0.05	87%	50%	140%	80%	50%	140%	108%	50%	140%
Vinyl Chloride	2595934		<0.02	<0.02	NA	< 0.02	91%	50%	140%	95%	50%	140%	105%	50%	140%
Bromomethane	2595934		<0.05	<0.05	NA	< 0.05	101%	50%	140%	92%	50%	140%	91%	50%	140%
Trichlorofluoromethane	2595934		<0.05	<0.05	NA	< 0.05	86%	50%	140%	97%	50%	140%	103%	50%	140%
Acetone	2595934		<0.50	<0.50	NA	< 0.50	96%	50%	140%	115%	50%	140%	103%	50%	140%
1,1-Dichloroethylene	2595934		<0.05	<0.05	NA	< 0.05	79%	50%	140%	90%	60%	130%	94%	50%	140%
Methylene Chloride	2595934		<0.05	<0.05	NA	< 0.05	106%	50%	140%	110%	60%	130%	90%	50%	140%
Trans- 1,2-Dichloroethylene	2595934		<0.05	<0.05	NA	< 0.05	88%	50%	140%	95%	60%	130%	80%	50%	140%
Methyl tert-butyl Ether	2595934		<0.05	<0.05	NA	< 0.05	78%	50%	140%	106%	60%	130%	82%	50%	140%
1,1-Dichloroethane	2595934		<0.02	<0.02	NA	< 0.02	85%	50%	140%	101%	60%	130%	109%	50%	140%
Methyl Ethyl Ketone	2595934		<0.50	<0.50	NA	< 0.50	97%	50%	140%	85%	50%	140%	109%	50%	140%
Cis- 1,2-Dichloroethylene	2595934		<0.02	<0.02	NA	< 0.02	83%	50%	140%	118%	60%	130%	107%	50%	140%
Chloroform	2595934		<0.04	<0.04	NA	< 0.04	98%	50%	140%	102%	60%	130%	96%	50%	140%
1,2-Dichloroethane	2595934		<0.03	<0.03	NA	< 0.03	105%	50%	140%	95%	60%	130%	109%	50%	140%
1,1,1-Trichloroethane	2595934		<0.05	<0.05	NA	< 0.05	81%	50%	140%	96%	60%	130%	88%	50%	140%
Carbon Tetrachloride	2595934		<0.05	<0.05	NA	< 0.05	80%	50%	140%	98%	60%	130%	88%	50%	140%
Benzene	2595934		<0.02	<0.02	NA	< 0.02	96%	50%	140%	105%	60%	130%	95%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-Bradford ByPass PD
SAMPLING SITE:Hwy 404 East

AGAT WORK ORDER: 21T760077
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh

Trace Organics Analysis (Continued)

RPT Date: Jun 18, 2021			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
1,2-Dichloropropane	2595934		<0.03	<0.03	NA	< 0.03	114%	50%	140%	115%	60%	130%	84%	50%	140%
Trichloroethylene	2595934		<0.03	<0.03	NA	< 0.03	94%	50%	140%	112%	60%	130%	97%	50%	140%
Bromodichloromethane	2595934		<0.05	<0.05	NA	< 0.05	89%	50%	140%	100%	60%	130%	83%	50%	140%
Methyl Isobutyl Ketone	2595934		<0.50	<0.50	NA	< 0.50	106%	50%	140%	102%	50%	140%	98%	50%	140%
1,1,2-Trichloroethane	2595934		<0.04	<0.04	NA	< 0.04	113%	50%	140%	95%	60%	130%	102%	50%	140%
Toluene	2595934		<0.05	<0.05	NA	< 0.05	86%	50%	140%	104%	60%	130%	83%	50%	140%
Dibromochloromethane	2595934		<0.05	<0.05	NA	< 0.05	92%	50%	140%	103%	60%	130%	89%	50%	140%
Ethylene Dibromide	2595934		<0.04	<0.04	NA	< 0.04	105%	50%	140%	107%	60%	130%	96%	50%	140%
Tetrachloroethylene	2595934		<0.05	<0.05	NA	< 0.05	86%	50%	140%	93%	60%	130%	79%	50%	140%
1,1,1,2-Tetrachloroethane	2595934		<0.04	<0.04	NA	< 0.04	83%	50%	140%	88%	60%	130%	98%	50%	140%
Chlorobenzene	2595934		<0.05	<0.05	NA	< 0.05	101%	50%	140%	104%	60%	130%	97%	50%	140%
Ethylbenzene	2595934		<0.05	<0.05	NA	< 0.05	81%	50%	140%	86%	60%	130%	115%	50%	140%
m & p-Xylene	2595934		<0.05	<0.05	NA	< 0.05	90%	50%	140%	114%	60%	130%	96%	50%	140%
Bromoform	2595934		<0.05	<0.05	NA	< 0.05	78%	50%	140%	94%	60%	130%	80%	50%	140%
Styrene	2595934		<0.05	<0.05	NA	< 0.05	87%	50%	140%	104%	60%	130%	112%	50%	140%
1,1,2,2-Tetrachloroethane	2595934		<0.05	<0.05	NA	< 0.05	115%	50%	140%	99%	60%	130%	100%	50%	140%
o-Xylene	2595934		<0.05	<0.05	NA	< 0.05	99%	50%	140%	103%	60%	130%	100%	50%	140%
1,3-Dichlorobenzene	2595934		<0.05	<0.05	NA	< 0.05	106%	50%	140%	114%	60%	130%	101%	50%	140%
1,4-Dichlorobenzene	2595934		<0.05	<0.05	NA	< 0.05	118%	50%	140%	98%	60%	130%	100%	50%	140%
1,2-Dichlorobenzene	2595934		<0.05	<0.05	NA	< 0.05	117%	50%	140%	112%	60%	130%	91%	50%	140%
n-Hexane	2595934		<0.05	<0.05	NA	< 0.05	95%	50%	140%	86%	60%	130%	93%	50%	140%
Total PCBs (soil)															
Polychlorinated Biphenyls	2603062		< 0.1	< 0.1	NA	< 0.1	104%	60%	140%	94%	60%	140%	79%	60%	140%

Certified By:

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QA Violation

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

ATTENTION TO: Kesh Appadurai

RPT Date: Jun 18, 2021

PARAMETER	Sample Id	Sample Description	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
				Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)											
Antimony		BH404-4	136%	70%	130%	98%	80%	120%	101%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
For a multi-element scan for lab control standards and matrix spikes, up to 10% of analytes may exceed the quoted limits by up to 10% absolute and it is considered acceptable.

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Acenaphthene-d10	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Chrysene-d12	ORG-91-5106	modified from EPA 3541 and EPA 8270E	GC/MS
Moisture Content	ORG-91-5009	CCME Tier 1 Method	BALANCE
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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
F3 (C16 to C34) minus PAHs	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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T760077

PROJECT: 60636190-Bradford ByPass PD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Hwy 404 East

SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
m & p-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD

AGAT Laboratories

(MEL)

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 intended for human consumption)

Laboratory Use Only
Work Order #: 21T 760077

Cooler Quantity:
Arrival Temperatures: 2.0 | 4.7 | 6.8 / 7.8 | 7.6 | 9.4
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes: FREE ICE

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 (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: 60636190 - Bradford ByPass PD
Site Location: HWY 404 east
Sampled By: Kesh
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr6+ ☐EC ☐FOC ☐NO_3/NO_2 ☐Total N ☐Hg ☐pH ☐SAR (Check Applicable)	Nutrients: ☐TP ☐NH_3 ☐TKN ☐NO_3 ☐NO_2 ☐NO_3/NO_2 (Check Applicable)	Volatiles: ☑VOC ☐BTEX ☐THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use
BH404-4	Jan 10/21		4	Soil			X						X	X	X	X	Tetra	X			

Samples Relinquished By (Print Name and Sign): KESH Rad. Mcna — Date: Jan 10/21 — Time:
Samples Relinquished By (Print Name and Sign): D. — Date: 1/11/21 — Time: 3:15
Samples Received By (Print Name and Sign): D — Date: 1/11/21 — Time: 11:25
Page 1 of 1

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

AGAT Laboratories

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190 - Bradford ByPass PD

AGAT WORK ORDER: 21T768658

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

DATE REPORTED: Jul 06, 2021

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

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T768658

PROJECT: 60636190 - Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Leslie-BBP

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-06

		SAMPLE DESCRIPTION:		L-4-SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-04
Parameter	Unit	G / S	RDL	2682270
Antimony	µg/g	40	0.8	<0.8
Arsenic	µg/g	18	1	2
Barium	µg/g	670	2.0	57.1
Beryllium	µg/g	8	0.4	<0.4
Boron	µg/g	120	5	<5
Boron (Hot Water Soluble)	µg/g	2	0.10	0.26
Cadmium	µg/g	1.9	0.5	<0.5
Chromium	µg/g	160	5	15
Cobalt	µg/g	80	0.5	3.8
Copper	µg/g	230	1.0	7.5
Lead	µg/g	120	1	6
Molybdenum	µg/g	40	0.5	<0.5
Nickel	µg/g	270	1	6
Selenium	µg/g	5.5	0.8	<0.8
Silver	µg/g	40	0.5	<0.5
Thallium	µg/g	3.3	0.5	<0.5
Uranium	µg/g	33	0.50	0.54
Vanadium	µg/g	86	0.4	25.5
Zinc	µg/g	340	5	26
Chromium, Hexavalent	µg/g	8	0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	1.4	0.005	1.74
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	12	N/A	11.6
pH, 2:1 CaCl2 Extraction	pH Units		NA	8.08

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T768658

PROJECT: 60636190 - Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Leslie-BBP

SAMPLED BY:Kesh

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

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-06

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2682270 EC was 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. SAR is a calculated parameter.
Samples were received and analyzed beyond recommended hold time for Cyanide analysis.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Exceedance Summary

AGAT WORK ORDER: 21T768658

PROJECT: 60636190 - Bradford ByPass PD

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
2682270	L-4-SS-2	ON 406/19 T2.1 IC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	1.4	1.74

AGAT Laboratories

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - Bradford ByPass PD
SAMPLING SITE:Leslie-BBP

AGAT WORK ORDER: 21T768658
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh

Soil Analysis

RPT Date: Jul 06, 2021			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	2661770		<0.8	<0.8	NA	< 0.8	104%	70%	130%	115%	80%	120%	74%	70%	130%
Arsenic	2661770		6	6	0.4%	< 1	118%	70%	130%	109%	80%	120%	105%	70%	130%
Barium	2661770		75.9	75.6	0.3%	< 2.0	107%	70%	130%	100%	80%	120%	93%	70%	130%
Beryllium	2661770		0.8	0.7	NA	< 0.4	107%	70%	130%	109%	80%	120%	104%	70%	130%
Boron	2661770		8	7	NA	< 5	80%	70%	130%	108%	80%	120%	88%	70%	130%
Boron (Hot Water Soluble)	2682270	2682270	0.26	0.24	NA	< 0.10	98%	60%	140%	97%	70%	130%	97%	60%	140%
Cadmium	2661770		<0.5	<0.5	NA	< 0.5	116%	70%	130%	113%	80%	120%	107%	70%	130%
Chromium	2661770		23	22	NA	< 5	100%	70%	130%	108%	80%	120%	103%	70%	130%
Cobalt	2661770		11.1	10.9	1.9%	< 0.5	102%	70%	130%	109%	80%	120%	102%	70%	130%
Copper	2661770		24.6	23.5	4.8%	< 1.0	93%	70%	130%	109%	80%	120%	97%	70%	130%
Lead	2661770		19	19	1.0%	< 1	104%	70%	130%	94%	80%	120%	90%	70%	130%
Molybdenum	2661770		<0.5	<0.5	NA	< 0.5	114%	70%	130%	113%	80%	120%	107%	70%	130%
Nickel	2661770		23	22	2.6%	< 1	102%	70%	130%	111%	80%	120%	103%	70%	130%
Selenium	2661770		<0.8	<0.8	NA	< 0.8	128%	70%	130%	105%	80%	120%	103%	70%	130%
Silver	2661770		<0.5	<0.5	NA	< 0.5	111%	70%	130%	116%	80%	120%	106%	70%	130%
Thallium	2661770		<0.5	<0.5	NA	< 0.5	100%	70%	130%	108%	80%	120%	105%	70%	130%
Uranium	2661770		0.56	0.57	NA	< 0.50	110%	70%	130%	106%	80%	120%	108%	70%	130%
Vanadium	2661770		36.2	34.5	4.7%	< 0.4	112%	70%	130%	111%	80%	120%	105%	70%	130%
Zinc	2661770		85	84	0.4%	< 5	99%	70%	130%	111%	80%	120%	104%	70%	130%
Chromium, Hexavalent	2679664		<0.2	<0.2	NA	< 0.2	96%	70%	130%	95%	80%	120%	74%	70%	130%
Cyanide, Free	2653311		<0.040	<0.040	NA	< 0.040	104%	70%	130%	104%	80%	120%	95%	70%	130%
Mercury	2661770		<0.10	<0.10	NA	< 0.10	102%	70%	130%	101%	80%	120%	90%	70%	130%
Electrical Conductivity (2:1)	2674224		0.695	0.677	2.7%	< 0.005	107%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	2662506		2.59	2.55	1.6%	NA									
pH, 2:1 CaCl2 Extraction	2649412		7.70	7.64	0.8%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

AGAT Laboratories

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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: AECOM CANADA LTD

AGAT WORK ORDER: 21T768658

PROJECT: 60636190 - Bradford ByPass PD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:Leslie-BBP

SAMPLED BY:Kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER

AGAT Laboratories

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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 intended for human consumption)

Laboratory Use Only
Work Order #: 21T768658
Cooler Quantity: Med
Arrival Temperatures: 3.7 | 3.5 | 3.9 | 2.9 | 2.7 | 2.5
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 *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: 60636190 - Bradford ByPass PD
Site Location: Leslie - BBP
Sampled By: Kesh.
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐B-HWS ☐Cl⁻ ☐CN⁻ ☐Cr⁶⁺ ☐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
L-4-SS-2	June 04/21		1				X														

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
				6-30-21	1:19
	6-30-21	3:00pm			

Page 1 of 1
N°:

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AGAT Laboratories

5835 COOPERS AVENUE
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http://www.agatlabs.com

CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190 - CR-4

AGAT WORK ORDER: 21T768662

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jul 09, 2021

PAGES (INCLUDING COVER): 17

VERSION*: 1

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

*Notes

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.
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- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

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Certificate of Analysis

AGAT WORK ORDER: 21T768662

PROJECT: 60636190 - CR-4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A

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

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-09

		SAMPLE DESCRIPTION:		HF-04-SS-2	CV1-03-SS-2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-06-29	2021-06-25
Parameter	Unit	G / S	RDL	2682272	2682274
Antimony	µg/g	40	0.8	<0.8	<0.8
Arsenic	µg/g	18	1	1	2
Barium	µg/g	670	2.0	37.6	40.8
Beryllium	µg/g	8	0.4	<0.4	<0.4
Boron	µg/g	120	5	<5	<5
Boron (Hot Water Soluble)	µg/g	2	0.10	0.12	0.15
Cadmium	µg/g	1.9	0.5	<0.5	<0.5
Chromium	µg/g	160	5	29	23
Cobalt	µg/g	80	0.5	3.7	3.8
Copper	µg/g	230	1.0	7.1	8.0
Lead	µg/g	120	1	7	13
Molybdenum	µg/g	40	0.5	<0.5	<0.5
Nickel	µg/g	270	1	6	6
Selenium	µg/g	5.5	0.8	<0.8	<0.8
Silver	µg/g	40	0.5	<0.5	<0.5
Thallium	µg/g	3.3	0.5	<0.5	<0.5
Uranium	µg/g	33	0.50	<0.50	<0.50
Vanadium	µg/g	86	0.4	24.4	23.5
Zinc	µg/g	340	5	23	32
Chromium, Hexavalent	µg/g	8	0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	1.4	0.005	0.811	0.366
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	12	N/A	9.54	4.48
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.89	7.97

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ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A

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

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-09

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2682272-2682274 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

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PROJECT: 60636190 - CR-4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A

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

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-09

		SAMPLE DESCRIPTION:		HF-04-SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-29
Parameter	Unit	G / S	RDL	2682272
Naphthalene	µg/g	0.2	0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	0.06
Acenaphthene	µg/g	2.5	0.05	0.19
Fluorene	µg/g	6.8	0.05	0.33
Phenanthrene	µg/g	12	0.05	1.21
Anthracene	µg/g	0.16	0.05	0.53
Fluoranthene	µg/g	2.8	0.05	1.41
Pyrene	µg/g	28	0.05	1.16
Benz(a)anthracene	µg/g	0.92	0.05	0.46
Chrysene	µg/g	9.4	0.05	0.59
Benzo(b)fluoranthene	µg/g	3.2	0.05	0.62
Benzo(k)fluoranthene	µg/g	3.1	0.05	0.26
Benzo(a)pyrene	µg/g	0.31	0.05	0.38
Indeno(1,2,3-cd)pyrene	µg/g	0.76	0.05	0.15
Dibenz(a,h)anthracene	µg/g	0.7	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	13	0.05	0.17
1 and 2 Methlynaphthalene	µg/g	0.59	0.05	<0.05
Moisture Content	%		0.1	7.8
Surrogate	Unit	Acceptable Limits		
Naphthalene-d8	%	50-140		77
Acridine-d9	%	50-140		77
Terphenyl-d14	%	50-140		85

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2682272 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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PROJECT: 60636190 - CR-4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-09

		SAMPLE DESCRIPTION:		HF-04-SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-29
Parameter	Unit	G / S	RDL	2682272
F1 (C6 - C10)	µg/g		5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5
F2 (C10 to C16)	µg/g	26	10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10
F3 (C16 to C34)	µg/g	240	50	97
F3 (C16 to C34) minus PAHs	µg/g	240	50	91
F4 (C34 to C50)	µg/g	3300	50	87
Gravimetric Heavy Hydrocarbons	µg/g		50	NA
Moisture Content	%		0.1	7.8
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		98
Terphenyl	%	60-140		95

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2682272 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 calculated parameter is 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 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: NPopowich

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AGAT WORK ORDER: 21T768662

PROJECT: 60636190 - CR-4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A

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

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-09

		SAMPLE DESCRIPTION:		HF-04-SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-29
Parameter	Unit	G / S	RDL	2682272
Dichlorodifluoromethane	µg/g	1.5	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.12	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04
Chlorobenzene	ug/g	0.083	0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T768662

PROJECT: 60636190 - CR-4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A

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

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-09

		SAMPLE DESCRIPTION:		HF-04-SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-29
Parameter	Unit	G / S	RDL	2682272
Bromoform	ug/g	0.05	0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.26	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,2-Dichlorobenzene	ug/g	6.8	0.05	<0.05
Xylenes (Total)	ug/g	0.091	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04
n-Hexane	µg/g	2.5	0.05	<0.05
Moisture Content	%		0.1	7.8
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		81
4-Bromofluorobenzene	% Recovery	50-140		84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2682272 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

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PROJECT: 60636190 - CR-4

CLIENT NAME: AECOM CANADA LTD

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SAMPLING SITE:

SAMPLED BY:Kesh A

Total PCBs (soil)

DATE RECEIVED: 2021-06-30

DATE REPORTED: 2021-07-09

		SAMPLE DESCRIPTION:		HF-04-SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-06-29
Parameter	Unit	G / S	RDL	2682272
Polychlorinated Biphenyls	µg/g	0.78	0.1	<0.1
Moisture Content	%		0.1	7.8
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		88

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2682272 Results are based on the dry weight of soil extracted.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Exceedance Summary

AGAT WORK ORDER: 21T768662

PROJECT: 60636190 - CR-4

CLIENT NAME: AECOM CANADA LTD

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SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
2682272	HF-04-SS-2	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Anthracene	µg/g	0.16	0.53
2682272	HF-04-SS-2	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.31	0.38
2682272	HF-04-SS-2	ON 406/19 T2.1 IC	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)	Benzo(a)pyrene	µg/g	0.31	0.38

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - CR-4
SAMPLING SITE:

AGAT WORK ORDER: 21T768662
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A

Soil Analysis

RPT Date: Jul 09, 2021			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	2649400		<0.8	<0.8	NA	< 0.8	124%	70%	130%	98%	80%	120%	87%	70%	130%
Arsenic	2649400		2	2	NA	< 1	93%	70%	130%	106%	80%	120%	103%	70%	130%
Barium	2649400		27.4	27.8	1.4%	< 2.0	108%	70%	130%	99%	80%	120%	97%	70%	130%
Beryllium	2649400		0.7	0.7	NA	< 0.4	109%	70%	130%	102%	80%	120%	107%	70%	130%
Boron	2649400		<5	<5	NA	< 5	105%	70%	130%	101%	80%	120%	84%	70%	130%
Boron (Hot Water Soluble)	2686242		0.22	0.22	NA	< 0.10	93%	60%	140%	96%	70%	130%	106%	60%	140%
Cadmium	2649400		<0.5	<0.5	NA	< 0.5	110%	70%	130%	100%	80%	120%	104%	70%	130%
Chromium	2649400		21	20	NA	< 5	104%	70%	130%	98%	80%	120%	105%	70%	130%
Cobalt	2649400		8.9	8.9	0.0%	< 0.5	99%	70%	130%	110%	80%	120%	107%	70%	130%
Copper	2649400		7.0	6.7	4.8%	< 1.0	95%	70%	130%	104%	80%	120%	104%	70%	130%
Lead	2649400		6	6	0.1%	< 1	93%	70%	130%	98%	80%	120%	95%	70%	130%
Molybdenum	2649400		<0.5	<0.5	NA	< 0.5	98%	70%	130%	107%	80%	120%	110%	70%	130%
Nickel	2649400		18	17	1.4%	< 1	98%	70%	130%	109%	80%	120%	105%	70%	130%
Selenium	2649400		<0.8	<0.8	NA	< 0.8	98%	70%	130%	98%	80%	120%	105%	70%	130%
Silver	2649400		<0.5	<0.5	NA	< 0.5	95%	70%	130%	109%	80%	120%	105%	70%	130%
Thallium	2649400		<0.5	<0.5	NA	< 0.5	99%	70%	130%	108%	80%	120%	111%	70%	130%
Uranium	2649400		0.69	0.71	NA	< 0.50	98%	70%	130%	106%	80%	120%	106%	70%	130%
Vanadium	2649400		28.6	26.9	6.2%	< 0.4	99%	70%	130%	108%	80%	120%	104%	70%	130%
Zinc	2649400		37	37	0.8%	< 5	100%	70%	130%	104%	80%	120%	110%	70%	130%
Chromium, Hexavalent	2679664		<0.2	<0.2	NA	< 0.2	96%	70%	130%	95%	80%	120%	74%	70%	130%
Cyanide, Free	2703258		<0.040	<0.040	NA	< 0.040	103%	70%	130%	82%	80%	120%	94%	70%	130%
Mercury	2649400		<0.10	<0.10	NA	< 0.10	102%	70%	130%	97%	80%	120%	82%	70%	130%
Electrical Conductivity (2:1)	2682271		0.230	0.229	0.4%	< 0.005	109%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	2690406		0.085	0.079	7.6%	NA									
pH, 2:1 CaCl2 Extraction	2703258		7.76	7.78	0.3%	NA	101%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - CR-4
SAMPLING SITE:

AGAT WORK ORDER: 21T768662
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A

Trace Organics Analysis

RPT Date: Jul 09, 2021			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 and VOC) (Soil)															
F1 (C6 - C10)	2682282		<5	<5	NA	< 5	101%	60%	140%	94%	60%	140%	111%	60%	140%
F2 (C10 to C16)	2682272	2682272	< 10	< 10	NA	< 10	103%	60%	140%	110%	60%	140%	100%	60%	140%
F3 (C16 to C34)	2682272	2682272	97	110	NA	< 50	104%	60%	140%	117%	60%	140%	105%	60%	140%
F4 (C34 to C50)	2682272	2682272	87	83	NA	< 50	105%	60%	140%	105%	60%	140%	100%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	2662097		< 0.05	< 0.05	0.0%	< 0.05	89%	50%	140%	99%	50%	140%	96%	50%	140%
Acenaphthylene	2662097		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	95%	50%	140%	95%	50%	140%
Acenaphthene	2662097		< 0.05	< 0.05	0.0%	< 0.05	95%	50%	140%	96%	50%	140%	99%	50%	140%
Fluorene	2662097		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	86%	50%	140%	96%	50%	140%
Phenanthrene	2662097		< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	96%	50%	140%	96%	50%	140%
Anthracene	2662097		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	95%	50%	140%	101%	50%	140%
Fluoranthene	2662097		< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	96%	50%	140%	96%	50%	140%
Pyrene	2662097		< 0.05	< 0.05	0.0%	< 0.05	95%	50%	140%	95%	50%	140%	98%	50%	140%
Benz(a)anthracene	2662097		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	85%	50%	140%	99%	50%	140%
Chrysene	2662097		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	96%	50%	140%	96%	50%	140%
Benzo(b)fluoranthene	2662097		< 0.05	< 0.05	0.0%	< 0.05	101%	50%	140%	99%	50%	140%	98%	50%	140%
Benzo(k)fluoranthene	2662097		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	96%	50%	140%	101%	50%	140%
Benzo(a)pyrene	2662097		< 0.05	< 0.05	0.0%	< 0.05	98%	50%	140%	95%	50%	140%	96%	50%	140%
Indeno(1,2,3-cd)pyrene	2662097		< 0.05	< 0.05	0.0%	< 0.05	86%	50%	140%	99%	50%	140%	98%	50%	140%
Dibenz(a,h)anthracene	2662097		< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	86%	50%	140%	101%	50%	140%
Benzo(g,h,i)perylene	2662097		< 0.05	< 0.05	0.0%	< 0.05	95%	50%	140%	96%	50%	140%	96%	50%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	2686285		<0.05	<0.05	NA	< 0.05	105%	50%	140%	87%	50%	140%	73%	50%	140%
Vinyl Chloride	2686285		<0.02	<0.02	NA	< 0.02	104%	50%	140%	98%	50%	140%	114%	50%	140%
Bromomethane	2686285		<0.05	<0.05	NA	< 0.05	105%	50%	140%	100%	50%	140%	95%	50%	140%
Trichlorofluoromethane	2686285		<0.05	<0.05	NA	< 0.05	107%	50%	140%	109%	50%	140%	92%	50%	140%
Acetone	2686285		<0.50	<0.50	NA	< 0.50	82%	50%	140%	85%	50%	140%	95%	50%	140%
1,1-Dichloroethylene	2686285		<0.05	<0.05	NA	< 0.05	95%	50%	140%	79%	60%	130%	72%	50%	140%
Methylene Chloride	2686285		<0.05	<0.05	NA	< 0.05	96%	50%	140%	100%	60%	130%	107%	50%	140%
Trans- 1,2-Dichloroethylene	2686285		<0.05	<0.05	NA	< 0.05	82%	50%	140%	113%	60%	130%	110%	50%	140%
Methyl tert-butyl Ether	2686285		<0.05	<0.05	NA	< 0.05	95%	50%	140%	107%	60%	130%	102%	50%	140%
1,1-Dichloroethane	2686285		<0.02	<0.02	NA	< 0.02	81%	50%	140%	115%	60%	130%	89%	50%	140%
Methyl Ethyl Ketone	2686285		<0.50	<0.50	NA	< 0.50	89%	50%	140%	88%	50%	140%	99%	50%	140%
Cis- 1,2-Dichloroethylene	2686285		<0.02	<0.02	NA	< 0.02	102%	50%	140%	91%	60%	130%	100%	50%	140%
Chloroform	2686285		<0.04	<0.04	NA	< 0.04	104%	50%	140%	114%	60%	130%	111%	50%	140%
1,2-Dichloroethane	2686285		<0.03	<0.03	NA	< 0.03	99%	50%	140%	107%	60%	130%	110%	50%	140%
1,1,1-Trichloroethane	2686285		<0.05	<0.05	NA	< 0.05	87%	50%	140%	87%	60%	130%	83%	50%	140%
Carbon Tetrachloride	2686285		<0.05	<0.05	NA	< 0.05	103%	50%	140%	81%	60%	130%	99%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - CR-4
SAMPLING SITE:

AGAT WORK ORDER: 21T768662
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A

Trace Organics Analysis (Continued)

RPT Date: Jul 09, 2021			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
Benzene	2686285		<0.02	<0.02	NA	< 0.02	96%	50%	140%	82%	60%	130%	100%	50%	140%
1,2-Dichloropropane	2686285		<0.03	<0.03	NA	< 0.03	107%	50%	140%	86%	60%	130%	91%	50%	140%
Trichloroethylene	2686285		<0.03	<0.03	NA	< 0.03	104%	50%	140%	103%	60%	130%	91%	50%	140%
Bromodichloromethane	2686285		<0.05	<0.05	NA	< 0.05	83%	50%	140%	88%	60%	130%	94%	50%	140%
Methyl Isobutyl Ketone	2686285		<0.50	<0.50	NA	< 0.50	74%	50%	140%	94%	50%	140%	98%	50%	140%
1,1,2-Trichloroethane	2686285		<0.04	<0.04	NA	< 0.04	86%	50%	140%	98%	60%	130%	103%	50%	140%
Toluene	2686285		<0.05	<0.05	NA	< 0.05	106%	50%	140%	111%	60%	130%	117%	50%	140%
Dibromochloromethane	2686285		<0.05	<0.05	NA	< 0.05	94%	50%	140%	103%	60%	130%	106%	50%	140%
Ethylene Dibromide	2686285		<0.04	<0.04	NA	< 0.04	89%	50%	140%	84%	60%	130%	76%	50%	140%
Tetrachloroethylene	2686285		<0.05	<0.05	NA	< 0.05	98%	50%	140%	101%	60%	130%	108%	50%	140%
1,1,1,2-Tetrachloroethane	2686285		<0.04	<0.04	NA	< 0.04	90%	50%	140%	107%	60%	130%	100%	50%	140%
Chlorobenzene	2686285		<0.05	<0.05	NA	< 0.05	91%	50%	140%	97%	60%	130%	97%	50%	140%
Ethylbenzene	2686285		<0.05	<0.05	NA	< 0.05	106%	50%	140%	95%	60%	130%	95%	50%	140%
m & p-Xylene	2686285		<0.05	<0.05	NA	< 0.05	102%	50%	140%	106%	60%	130%	102%	50%	140%
Bromoform	2686285		<0.05	<0.05	NA	< 0.05	98%	50%	140%	116%	60%	130%	74%	50%	140%
Styrene	2686285		<0.05	<0.05	NA	< 0.05	92%	50%	140%	82%	60%	130%	97%	50%	140%
1,1,2,2-Tetrachloroethane	2686285		<0.05	<0.05	NA	< 0.05	86%	50%	140%	89%	60%	130%	95%	50%	140%
o-Xylene	2686285		<0.05	<0.05	NA	< 0.05	96%	50%	140%	84%	60%	130%	100%	50%	140%
1,3-Dichlorobenzene	2686285		<0.05	<0.05	NA	< 0.05	99%	50%	140%	94%	60%	130%	73%	50%	140%
1,4-Dichlorobenzene	2686285		<0.05	<0.05	NA	< 0.05	94%	50%	140%	103%	60%	130%	89%	50%	140%
1,2-Dichlorobenzene	2686285		<0.05	<0.05	NA	< 0.05	92%	50%	140%	103%	60%	130%	105%	50%	140%
n-Hexane	2686285		<0.05	<0.05	NA	< 0.05	101%	50%	140%	89%	60%	130%	107%	50%	140%
Total PCBs (soil)															
Polychlorinated Biphenyls	2679423		< 0.1	< 0.1	NA	< 0.1	102%	60%	140%	92%	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 Popnikolof

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T768662

PROJECT: 60636190 - CR-4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T768662
PROJECT: 60636190 - CR-4
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:Kesh A

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	ORG-91-5009	CCME Tier 1 Method	BALANCE
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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
F3 (C16 to C34) minus PAHs	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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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AGAT WORK ORDER: 21T768662

PROJECT: 60636190 - CR-4

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
m & p-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD

AGAT Laboratories

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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 intended for human consumption)

Laboratory Use Only

Work Order #: 21T768662

Cooler Quantity: Yes

Arrival Temperatures: 3.7 2.5 3.9 / 2.9 2.7 2.5

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes:

Report Information:

Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 (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: 60636190 - ~~Bradford ByPass PH~~ CR-4
Site Location:
Sampled By: Kesh.A
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN⁻ ☐ Cr^{6+} ☐ 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
HF-04-SS-2	Jun 29/21		4	Soil			X						X	X	X	X	X			
CVI-03-SS-2	Jun 25/21		1	Soil			X													

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):	6-30-21	3:04	Samples Received (Print Name and Sign):	6-30-2021	17:19
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page 1 of 1

N#:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-CR4

AGAT WORK ORDER: 21T775122

SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jul 26, 2021

PAGES (INCLUDING COVER): 25

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

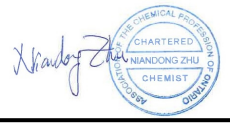
O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2021-07-15

DATE REPORTED: 2021-07-26

		SAMPLE DESCRIPTION:		CR4-04	HF-02
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-07-14	2021-07-15
Parameter	Unit	G / S	RDL	2744970	2744976
Antimony	µg/g	40	0.8	<0.8	<0.8
Arsenic	µg/g	18	1	1	1
Barium	µg/g	670	2.0	44.8	45.1
Beryllium	µg/g	8	0.4	<0.4	<0.4
Boron	µg/g	120	5	<5	<5
Boron (Hot Water Soluble)	µg/g	2	0.10	0.20	0.17
Cadmium	µg/g	1.9	0.5	<0.5	<0.5
Chromium	µg/g	160	5	17	28
Cobalt	µg/g	80	0.5	4.0	3.9
Copper	µg/g	230	1.0	10.6	8.7
Lead	µg/g	120	1	10	19
Molybdenum	µg/g	40	0.5	1.1	<0.5
Nickel	µg/g	270	1	6	6
Selenium	µg/g	5.5	0.8	<0.8	<0.8
Silver	µg/g	40	0.5	<0.5	<0.5
Thallium	µg/g	3.3	0.5	<0.5	<0.5
Uranium	µg/g	33	0.50	<0.50	<0.50
Vanadium	µg/g	86	0.4	26.0	24.6
Zinc	µg/g	340	5	37	30
Chromium, Hexavalent	µg/g	8	0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	1.4	0.005	1.00	1.23
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	12	N/A	9.34	12.2
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.93	7.82

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-07-15

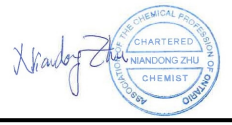
DATE REPORTED: 2021-07-26

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2744970-2744976 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 406/19 SPLP Metals

DATE RECEIVED: 2021-07-15

DATE REPORTED: 2021-07-26

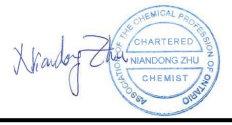
		SAMPLE DESCRIPTION:		HF-02
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-07-15
Parameter	Unit	G / S	RDL	2744976
Antimony Leachate	µg/L	6	0.6	<0.6
Arsenic Leachate	µg/L	-	5	<5
Barium Leachate	µg/L	1000	100	<100
Beryllium Leachate	µg/L	4	0.8	<0.8
Boron Leachate	µg/L	5000	500	<500
Cadmium Leachate	µg/L	0.5	0.20	<0.20
Chromium Leachate	µg/L	50	10	<10
Cobalt Leachate	µg/L	3.8	0.3	<0.3
Copper Leachate	µg/L	14	7.0	<7.0
Lead Leachate	µg/L	-	1.0	1.6
Molybdenum Leachate	µg/L	23	1.5	1.8
Nickel Leachate	µg/L	78	10	<10
Selenium Leachate	µg/L	10	5.0	<5.0
Silver Leachate	µg/L	0.3	0.10	<0.10
Thallium Leachate	µg/L	2	0.5	<0.5
Uranium Leachate	µg/L	20	2	<2
Vanadium Leachate	µg/L	-	0.6	15.7
Zinc Leachate	µg/L	180	20	<20

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2744976 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-07-15

DATE REPORTED: 2021-07-26

		SAMPLE DESCRIPTION:		CR4-04	CR4-07
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-07-14	2021-07-14
Parameter	Unit	G / S	RDL	2744970	2744974
Naphthalene	µg/g	0.2	0.05	0.79	0.62
Acenaphthylene	µg/g	0.093	0.05	0.41	0.13
Acenaphthene	µg/g	2.5	0.05	1.83	0.98
Fluorene	µg/g	6.8	0.05	3.50	1.30
Phenanthrene	µg/g	12	0.05	11.4	4.95
Anthracene	µg/g	0.16	0.05	3.00	1.19
Fluoranthene	µg/g	2.8	0.05	6.84	2.50
Pyrene	µg/g	28	0.05	6.55	2.34
Benz(a)anthracene	µg/g	0.92	0.05	4.62	1.58
Chrysene	µg/g	9.4	0.05	5.01	1.83
Benzo(b)fluoranthene	µg/g	3.2	0.05	5.22	1.76
Benzo(k)fluoranthene	µg/g	3.1	0.05	1.57	0.82
Benzo(a)pyrene	µg/g	0.31	0.05	4.07	1.36
Indeno(1,2,3-cd)pyrene	µg/g	0.76	0.05	1.42	0.19
Dibenz(a,h)anthracene	µg/g	0.7	0.05	0.42	0.72
Benzo(g,h,i)perylene	µg/g	13	0.05	1.55	0.72
1 and 2 Methlynaphthalene	µg/g	0.59	0.05	1.21	1.05
Moisture Content	%		0.1	8.3	14.2
Surrogate	Unit	Acceptable Limits			
Naphthalene-d8	%	50-140		82	89
Acridine-d9	%	50-140		86	91
Terphenyl-d14	%	50-140		92	99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2744970-2744974 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: 21T775122
PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD
SAMPLING SITE:

ATTENTION TO: Kesh Appadurai
SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)

DATE RECEIVED: 2021-07-15 DATE REPORTED: 2021-07-26

		SAMPLE DESCRIPTION:		CR4-07
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-07-14
Parameter	Unit	G / S	RDL	2744974
F1 (C6 - C10)	µg/g		5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5
F2 (C10 to C16)	µg/g	26	10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10
F3 (C16 to C34)	µg/g	240	50	99
F3 (C16 to C34) minus PAHs	µg/g	240	50	83
F4 (C34 to C50)	µg/g	3300	50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA
Moisture Content	%		0.1	14.2
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		74
Terphenyl	%	60-140		99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2744974 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 calculated parameter is 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 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: NPopowich

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Certificate of Analysis

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-07-15

DATE REPORTED: 2021-07-26

		SAMPLE DESCRIPTION:		CR4-07
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-07-14
Parameter	Unit	G / S	RDL	2744974
Dichlorodifluoromethane	µg/g	1.5	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	0.25	0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.12	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04
Chlorobenzene	ug/g	0.083	0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T775122
PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD
SAMPLING SITE:

ATTENTION TO: Kesh Appadurai
SAMPLED BY:

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

DATE RECEIVED: 2021-07-15

DATE REPORTED: 2021-07-26

		SAMPLE DESCRIPTION:		CR4-07
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-07-14
Parameter	Unit	G / S	RDL	2744974
Bromoform	ug/g	0.05	0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.26	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,2-Dichlorobenzene	ug/g	6.8	0.05	<0.05
Xylenes (Total)	ug/g	0.091	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04
n-Hexane	µg/g	2.5	0.05	<0.05
Moisture Content	%		0.1	14.2
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		94
4-Bromofluorobenzene	% Recovery	50-140		110

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2744974 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopowkolof

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Certificate of Analysis

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 406/19 - SPLP VOCs

DATE RECEIVED: 2021-07-15

DATE REPORTED: 2021-07-26

		SAMPLE DESCRIPTION:		CR4-07
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-07-14
Parameter	Unit	G / S	RDL	2744974
Bromomethane Leachate	µg/L	0.5	0.20	<0.20
1,1-Dichloroethylene Leachate	µg/L	0.5	0.30	<0.30
Trans 1,2-Dichloroethylene Leachate	µg/L	0.5	0.20	<0.20
1,1-Dichloroethane Leachate	µg/L	-	0.30	<0.30
Cis 1,2-Dichloroethylene Leachate	µg/L	0.5	0.20	<0.20
Chloroform Leachate	µg/L	-	0.20	<0.20
1,2-Dichloroethane Leachate	µg/L	0.5	0.20	<0.20
Carbon Tetrachloride Leachate	µg/L	0.2	0.20	<0.20
1,2-Dichloropropane Leachate	µg/L	0.55	0.20	<0.20
Trichloroethylene Leachate	µg/L	0.5	0.20	<0.20
1,1,2-Trichloroethane Leachate	µg/L	-	0.20	<0.20
Ethylene Dibromide Leachate	µg/L	0.2	0.10	<0.10
Tetrachloroethylene Leachate	µg/L	0.5	0.20	<0.20
1,1,1,2-Tetrachloroethane Leachate	µg/L	-	0.10	<0.10
1,1,2,2-Tetrachloroethane Leachate	µg/L	0.5	0.10	<0.10
1,4-Dichlorobenzene Leachate	µg/L	0.5	0.10	<0.10
1,2-Dichlorobenzene Leachate	µg/L	0.55	0.10	<0.10
1,3-Dichloropropene Total Leachate	µg/L	-	0.30	<0.30
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		94

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2744974 Leachate was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.
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: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

SPLP PCBs

DATE RECEIVED: 2021-07-15

DATE REPORTED: 2021-07-26

		SAMPLE DESCRIPTION:		HF-02
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-07-15
Parameter	Unit	G / S	RDL	2744976
PCBs	µg/L		0.1	<0.1
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	50-140		72

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

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

Total PCBs (soil)

DATE RECEIVED: 2021-07-15

DATE REPORTED: 2021-07-26

		SAMPLE DESCRIPTION:		HF-02
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-07-15
Parameter	Unit	G / S	RDL	2744976
Polychlorinated Biphenyls	µg/g	0.78	0.1	<0.1
Moisture Content	%		0.1	11.9
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		76

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2744976 Results are based on the dry weight of soil extracted.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Exceedance Summary

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	1 and 2 Methlynaphthalene	µg/g	0.59	1.21
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	1-Methylnaphthalene	µg/g	0.59	0.80
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Acenaphthylene	µg/g	0.093	0.41
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Anthracene	µg/g	0.16	3.00
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.92	4.62
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.31	4.07
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Benzo(b)fluoranthene	µg/g	3.2	5.22
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	2.8	6.84
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Indeno(1,2,3-cd)pyrene	µg/g	0.76	1.42
2744970	CR4-04	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	µg/g	0.2	0.79
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	1 and 2 Methlynaphthalene	µg/g	0.59	1.05
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	2-Methylnaphthalene	µg/g	0.59	0.70
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Acenaphthylene	µg/g	0.093	0.13
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Anthracene	µg/g	0.16	1.19
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Benz(a)anthracene	µg/g	0.92	1.58
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	µg/g	0.31	1.36
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Dibenz(a,h)anthracene	µg/g	0.7	0.72
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PAHs (Soil)	Naphthalene	µg/g	0.2	0.62
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)	Benzo(a)anthracene	µg/g	0.92	1.58
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)	Benzo(a)pyrene	µg/g	0.31	1.36
2744974	CR4-07	ON 406/19 T2.1 IC	O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)	Naphthalene	µg/g	0.2	0.62
2744976	HF-02	ON 406/19 T2.1 IC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.	N/A	12	12.2

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-CR4
SAMPLING SITE:

AGAT WORK ORDER: 21T775122
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Soil Analysis

RPT Date: Jul 26, 2021			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	2733119		<0.8	<0.8	NA	< 0.8	128%	70%	130%	101%	80%	120%	103%	70%	130%
Arsenic	2733119		5	5	0.0%	< 1	120%	70%	130%	110%	80%	120%	111%	70%	130%
Barium	2733119		144	143	0.7%	< 2.0	110%	70%	130%	99%	80%	120%	113%	70%	130%
Beryllium	2733119		1.1	1.2	NA	< 0.4	109%	70%	130%	96%	80%	120%	104%	70%	130%
Boron	2733119		13	12	NA	< 5	92%	70%	130%	97%	80%	120%	87%	70%	130%
Boron (Hot Water Soluble)	2739776		<0.10	<0.10	NA	< 0.10	93%	60%	140%	101%	70%	130%	101%	60%	140%
Cadmium	2733119		<0.5	<0.5	NA	< 0.5	95%	70%	130%	99%	80%	120%	110%	70%	130%
Chromium	2733119		38	37	2.7%	< 5	106%	70%	130%	106%	80%	120%	99%	70%	130%
Cobalt	2733119		14.5	14.4	0.7%	< 0.5	103%	70%	130%	103%	80%	120%	104%	70%	130%
Copper	2733119		27.6	27.3	1.1%	< 1.0	94%	70%	130%	111%	80%	120%	102%	70%	130%
Lead	2733119		28	26	7.4%	< 1	102%	70%	130%	112%	80%	120%	104%	70%	130%
Molybdenum	2733119		<0.5	<0.5	NA	< 0.5	118%	70%	130%	112%	80%	120%	117%	70%	130%
Nickel	2733119		35	34	2.9%	< 1	105%	70%	130%	107%	80%	120%	109%	70%	130%
Selenium	2733119		<0.8	<0.8	NA	< 0.8	131%	70%	130%	104%	80%	120%	106%	70%	130%
Silver	2733119		<0.5	<0.5	NA	< 0.5	104%	70%	130%	111%	80%	120%	106%	70%	130%
Thallium	2733119		<0.5	<0.5	NA	< 0.5	114%	70%	130%	106%	80%	120%	104%	70%	130%
Uranium	2733119		0.64	0.62	NA	< 0.50	115%	70%	130%	100%	80%	120%	102%	70%	130%
Vanadium	2733119		48.7	48.2	1.0%	< 0.4	112%	70%	130%	102%	80%	120%	106%	70%	130%
Zinc	2733119		91	94	3.2%	< 5	100%	70%	130%	107%	80%	120%	108%	70%	130%
Chromium, Hexavalent	2746463		<0.2	<0.2	NA	< 0.2	101%	70%	130%	87%	80%	120%	87%	70%	130%
Cyanide, Free	2739776		<0.040	<0.040	NA	< 0.040	94%	70%	130%	96%	80%	120%	109%	70%	130%
Mercury	2733119		0.12	0.11	NA	< 0.10	106%	70%	130%	99%	80%	120%	100%	70%	130%
Electrical Conductivity (2:1)	2739776		0.145	0.147	1.4%	< 0.005	109%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	2740616		10.4	10.2	1.9%	NA									
pH, 2:1 CaCl2 Extraction	2736682		7.78	7.76	0.3%	NA	101%	80%	120%						

Comments: For a multi-element scan for lab control standards and matrix spikes, up to 10% of analytes may exceed the quoted limits by up to 10% absolute and it is considered acceptable.

O. Reg. 406/19 SPLP Metals															
Antimony Leachate	2734598		<0.6	<0.6	NA	< 0.6	106%	70%	130%	102%	80%	120%	111%	70%	130%
Arsenic Leachate	2734598		<5	<5	NA	< 5	100%	70%	130%	99%	80%	120%	107%	70%	130%
Barium Leachate	2734598		<100	<100	NA	< 100	100%	70%	130%	101%	80%	120%	105%	70%	130%
Beryllium Leachate	2734598		<0.8	<0.8	NA	< 0.8	92%	70%	130%	89%	80%	120%	102%	70%	130%
Boron Leachate	2734598		<500	<500	NA	< 500	97%	70%	130%	95%	80%	120%	105%	70%	130%
Cadmium Leachate	2734598		<0.20	<0.20	NA	< 0.20	101%	70%	130%	101%	80%	120%	110%	70%	130%
Chromium Leachate	2734598		<10	<10	NA	< 10	104%	70%	130%	109%	80%	120%	115%	70%	130%
Cobalt Leachate	2734598		<0.3	<0.3	NA	< 0.3	96%	70%	130%	99%	80%	120%	104%	70%	130%
Copper Leachate	2734598		<7.0	<7.0	NA	< 7.0	100%	70%	130%	104%	80%	120%	109%	70%	130%
Lead Leachate	2734598		3.2	<1.0	NA	< 1.0	99%	70%	130%	102%	80%	120%	107%	70%	130%

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Quality Assurance

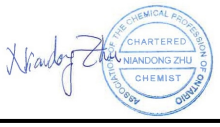
CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T775122
PROJECT: 60636190-CR4
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Jul 26, 2021			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
Molybdenum Leachate	2734598		2.5	2.4	NA	< 1.5	108%	70%	130%	108%	80%	120%	117%	70%	130%
Nickel Leachate	2734598		<10	<10	NA	< 10	101%	70%	130%	103%	80%	120%	108%	70%	130%
Selenium Leachate	2734598		<5.0	<5.0	NA	< 5.0	95%	70%	130%	94%	80%	120%	101%	70%	130%
Silver Leachate	2734598		<0.10	<0.10	NA	< 0.10	104%	70%	130%	105%	80%	120%	110%	70%	130%
Thallium Leachate	2734598		<0.5	<0.5	NA	< 0.5	99%	70%	130%	98%	80%	120%	103%	70%	130%
Uranium Leachate	2734598		<2	<2	NA	< 2	96%	70%	130%	93%	80%	120%	98%	70%	130%
Vanadium Leachate	2734598		2.3	2.2	NA	< 0.6	101%	70%	130%	106%	80%	120%	112%	70%	130%
Zinc Leachate	2734598		<20	<20	NA	< 20	100%	70%	130%	101%	80%	120%	108%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:



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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T775122
PROJECT: 60636190-CR4
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis

RPT Date: Jul 26, 2021

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) - PAHs (Soil)															
Naphthalene	2687085		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	99%	50%	140%	96%	50%	140%
Acenaphthylene	2687085		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	95%	50%	140%	95%	50%	140%
Acenaphthene	2687085		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	96%	50%	140%	99%	50%	140%
Fluorene	2687085		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	86%	50%	140%	96%	50%	140%
Phenanthrene	2687085		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	96%	50%	140%	96%	50%	140%
Anthracene	2687085		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	95%	50%	140%	101%	50%	140%
Fluoranthene	2687085		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	96%	50%	140%	96%	50%	140%
Pyrene	2687085		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	95%	50%	140%	98%	50%	140%
Benz(a)anthracene	2687085		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	85%	50%	140%	99%	50%	140%
Chrysene	2687085		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	96%	50%	140%	96%	50%	140%
Benzo(b)fluoranthene	2687085		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	99%	50%	140%	98%	50%	140%
Benzo(k)fluoranthene	2687085		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	96%	50%	140%	101%	50%	140%
Benzo(a)pyrene	2687085		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	95%	50%	140%	96%	50%	140%
Indeno(1,2,3-cd)pyrene	2687085		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	99%	50%	140%	98%	50%	140%
Dibenz(a,h)anthracene	2687085		< 0.05	< 0.05	NA	< 0.05	94%	50%	140%	86%	50%	140%	101%	50%	140%
Benzo(g,h,i)perylene	2687085		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	96%	50%	140%	96%	50%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	2742794	2744974	<0.05	<0.05	NA	< 0.05	111%	50%	140%	78%	50%	140%	71%	50%	140%
Vinyl Chloride	2742794	2744974	<0.02	<0.02	NA	< 0.02	92%	50%	140%	108%	50%	140%	83%	50%	140%
Bromomethane	2742794	2744974	<0.05	<0.05	NA	< 0.05	86%	50%	140%	89%	50%	140%	84%	50%	140%
Trichlorofluoromethane	2742794	2744974	<0.05	<0.05	NA	< 0.05	91%	50%	140%	104%	50%	140%	79%	50%	140%
Acetone	2742794	2744974	<0.50	<0.50	NA	< 0.50	99%	50%	140%	88%	50%	140%	92%	50%	140%
1,1-Dichloroethylene	2744974	2744974	<0.05	<0.05	NA	< 0.05	117%	50%	140%	82%	60%	130%	85%	50%	140%
Methylene Chloride	2742794	2744974	<0.05	<0.05	NA	< 0.05	73%	50%	140%	111%	60%	130%	79%	50%	140%
Trans- 1,2-Dichloroethylene	2742794	2744974	<0.05	<0.05	NA	< 0.05	79%	50%	140%	86%	60%	130%	88%	50%	140%
Methyl tert-butyl Ether	2742794	2744974	<0.05	<0.05	NA	< 0.05	77%	50%	140%	75%	60%	130%	70%	50%	140%
1,1-Dichloroethane	2742794	2744974	<0.02	<0.02	NA	< 0.02	102%	50%	140%	93%	60%	130%	93%	50%	140%
Methyl Ethyl Ketone	2742794	2744974	<0.50	<0.50	NA	< 0.50	87%	50%	140%	84%	50%	140%	83%	50%	140%
Cis- 1,2-Dichloroethylene	2742794	2744974	<0.02	<0.02	NA	< 0.02	117%	50%	140%	80%	60%	130%	86%	50%	140%
Chloroform	2742794	2744974	<0.04	<0.04	NA	< 0.04	110%	50%	140%	94%	60%	130%	74%	50%	140%
1,2-Dichloroethane	2742794	2744974	<0.03	<0.03	NA	< 0.03	93%	50%	140%	113%	60%	130%	112%	50%	140%
1,1,1-Trichloroethane	2742794	2744974	<0.05	<0.05	NA	< 0.05	91%	50%	140%	103%	60%	130%	98%	50%	140%
Carbon Tetrachloride	2742794	2744974	<0.05	<0.05	NA	< 0.05	80%	50%	140%	88%	60%	130%	84%	50%	140%
Benzene	2742794	2744974	<0.02	<0.02	NA	< 0.02	91%	50%	140%	95%	60%	130%	85%	50%	140%
1,2-Dichloropropane	2742794	2744974	<0.03	<0.03	NA	< 0.03	89%	50%	140%	110%	60%	130%	103%	50%	140%
Trichloroethylene	2742794	2744974	<0.03	<0.03	NA	< 0.03	82%	50%	140%	99%	60%	130%	97%	50%	140%
Bromodichloromethane	2742794	2744974	<0.05	<0.05	NA	< 0.05	74%	50%	140%	95%	60%	130%	76%	50%	140%
Methyl Isobutyl Ketone	2742794	2744974	<0.50	<0.50	NA	< 0.50	102%	50%	140%	81%	50%	140%	81%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T775122
PROJECT: 60636190-CR4
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Jul 26, 2021			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
1,1,2-Trichloroethane	2742794	2744974	<0.04	<0.04	NA	< 0.04	85%	50%	140%	100%	60%	130%	93%	50%	140%
Toluene	2742794	2744974	<0.05	<0.05	NA	< 0.05	97%	50%	140%	80%	60%	130%	98%	50%	140%
Dibromochloromethane	2742794	2744974	<0.05	<0.05	NA	< 0.05	92%	50%	140%	78%	60%	130%	81%	50%	140%
Ethylene Dibromide	2742794	2744974	<0.04	<0.04	NA	< 0.04	76%	50%	140%	101%	60%	130%	115%	50%	140%
Tetrachloroethylene	2742794		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	108%	60%	130%	91%	50%	140%
1,1,1,2-Tetrachloroethane	2742794	2744974	<0.04	<0.04	NA	< 0.04	105%	50%	140%	83%	60%	130%	95%	50%	140%
Chlorobenzene	2742794	2744974	<0.05	<0.05	NA	< 0.05	79%	50%	140%	117%	60%	130%	96%	50%	140%
Ethylbenzene	2742794	2744974	<0.05	<0.05	NA	< 0.05	106%	50%	140%	112%	60%	130%	111%	50%	140%
m & p-Xylene	2742794	2744974	<0.05	<0.05	NA	< 0.05	106%	50%	140%	109%	60%	130%	97%	50%	140%
Bromoform	2742794	2744974	<0.05	<0.05	NA	< 0.05	76%	50%	140%	118%	60%	130%	71%	50%	140%
Styrene	2742794	2744974	<0.05	<0.05	NA	< 0.05	85%	50%	140%	95%	60%	130%	79%	50%	140%
1,1,2,2-Tetrachloroethane	2742794	2744974	<0.05	<0.05	NA	< 0.05	93%	50%	140%	113%	60%	130%	88%	50%	140%
o-Xylene	2742794	2744974	<0.05	<0.05	NA	< 0.05	117%	50%	140%	114%	60%	130%	98%	50%	140%
1,3-Dichlorobenzene	2742794	2744974	<0.05	<0.05	NA	< 0.05	87%	50%	140%	112%	60%	130%	88%	50%	140%
1,4-Dichlorobenzene	2742794	2744974	<0.05	<0.05	NA	< 0.05	93%	50%	140%	108%	60%	130%	76%	50%	140%
1,2-Dichlorobenzene	2742794	2744974	<0.05	<0.05	NA	< 0.05	99%	50%	140%	99%	60%	130%	73%	50%	140%
n-Hexane	2742794	2744974	<0.05	<0.05	NA	< 0.05	86%	50%	140%	72%	60%	130%	111%	50%	140%
4-Bromofluorobenzene	2742794		98	94	3.7%	< 1	NA			NA			79%		
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)															
F1 (C6 - C10)	2747856		<5	<5	NA	< 5	98%	60%	140%	102%	60%	140%	105%	60%	140%
F2 (C10 to C16)	2736706		< 10	< 10	NA	< 10	103%	60%	140%	110%	60%	140%	82%	60%	140%
F3 (C16 to C34)	2736706		< 50	< 50	NA	< 50	97%	60%	140%	101%	60%	140%	79%	60%	140%
F4 (C34 to C50)	2736706		< 50	< 50	NA	< 50	96%	60%	140%	76%	60%	140%	91%	60%	140%
O. Reg. 406/19 - SPLP VOCs															
Bromomethane Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	97%	50%	140%	95%	50%	140%	97%	50%	140%
1,1-Dichloroethylene Leachate	2744974	2744974	<0.30	<0.30	NA	< 0.30	117%	50%	140%	82%	60%	130%	85%	50%	140%
Trans 1,2-Dichloroethylene Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	83%	50%	140%	88%	60%	130%	86%	50%	140%
1,1-Dichloroethane Leachate	2744974	2744974	<0.30	<0.30	NA	< 0.30	91%	50%	140%	100%	60%	130%	97%	50%	140%
Cis 1,2-Dichloroethylene Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	101%	50%	140%	92%	60%	130%	106%	50%	140%
Chloroform Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	88%	50%	140%	98%	60%	130%	96%	50%	130%
1,2-Dichloroethane Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	106%	50%	140%	108%	60%	130%	85%	50%	140%
Carbon Tetrachloride Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	102%	50%	140%	100%	60%	130%	84%	50%	140%
1,2-Dichloropropane Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	86%	50%	140%	96%	60%	130%	98%	50%	140%
Trichloroethylene Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	91%	50%	140%	112%	60%	130%	113%	50%	140%
1,1,2-Trichloroethane Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	89%	50%	140%	110%	60%	130%	99%	50%	140%
Ethylene Dibromide Leachate	2744974	2744974	<0.10	<0.10	NA	< 0.10	90%	50%	140%	87%	60%	130%	90%	50%	140%
Tetrachloroethylene Leachate	2744974	2744974	<0.20	<0.20	NA	< 0.20	107%	50%	140%	108%	60%	130%	87%	50%	140%
1,1,1,2-Tetrachloroethane Leachate	2744974	2744974	<0.10	<0.10	NA	< 0.10	111%	50%	140%	91%	60%	130%	85%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T775122
PROJECT: 60636190-CR4
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Jul 26, 2021			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
1,1,2,2-Tetrachloroethane Leachate	2744974	2744974	<0.10	<0.10	NA	< 0.10	112%	50%	140%	101%	60%	130%	100%	50%	140%
1,4-Dichlorobenzene Leachate	2744974	2744974	<0.10	<0.10	NA	< 0.10	98%	50%	140%	94%	60%	130%	81%	50%	140%
1,2-Dichlorobenzene Leachate	2744974	2744974	<0.10	<0.10	NA	< 0.10	116%	50%	140%	99%	60%	130%	101%	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).

SPLP PCBs															
PCBs	2744976	2744976	< 0.1	< 0.1	NA	< 0.1	103%	50%	140%	105%	50%	140%	91%	50%	140%
Total PCBs (soil)															
Polychlorinated Biphenyls	2748412		< 0.1	< 0.1	NA	< 0.1	99%	60%	140%	102%	60%	140%	88%	60%	140%

Certified By: N Popnikolof

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QA Violation

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

RPT Date: Jul 26, 2021

PARAMETER	Sample Id	Sample Description	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
				Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)											
Selenium		CR4-04	131%	70%	130%	104%	80%	120%	106%	70%	130%

Comments: For a multi-element scan for lab control standards and matrix spikes, up to 10% of analytes may exceed the quoted limits by up to 10% absolute and it is considered acceptable.

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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
F3 (C16 to C34) minus PAHs	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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
m & p-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Bromomethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trans 1,2-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Cis 1,2-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chloroform Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Carbon Tetrachloride Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloropropane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2-Trichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylene Dibromide Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Tetrachloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T775122

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,2,2-Tetrachloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichloropropene Total Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
PCBs	ORG-91-5112	EPA SW-846 3510 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5112	EPA SW-846 3510 & 8082	GC/ECD
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Moisture Content	ORG-91-5009	CCME Tier 1 Method	BALANCE

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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 #: 21T775122
Cooler Quantity: Med
Arrival Temperatures: 3.5 | 3.3 | 3
2.7 | 2.4 | 2.4
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 (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: 60636190 - ~~Bradford ByPass PD~~ CR4
Site Location:
Sampled By: Kesh
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr6+ ☐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	SPLP (VOC, PAHs)	(Comb)	LSPLP (Metals)	PCB
CR4-04	July 14		1	Soil			X									X								
CR4-07	July 14		6	Soil									X	X		X					X			
HF-02	July 12		1	Soil			X										X						X	

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
[signature]			[signature]	7/15/21	11:15
[signature]	7/15/21	3:30			

Page 1 of 1
No:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-CR 4 (Waste)

AGAT WORK ORDER: 21T796739

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Sep 13, 2021

PAGES (INCLUDING COVER): 16

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T796739

PROJECT: 60636190-CR 4 (Waste)

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:CR4

SAMPLED BY:Kesh with Golder

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

DATE RECEIVED: 2021-09-02

DATE REPORTED: 2021-09-13

		SAMPLE DESCRIPTION:		CR4-11	CR4-02
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-08-30	2021-08-26
Parameter	Unit	G / S	RDL	2923111	2923113
Antimony	µg/g	40	0.8	<0.8	<0.8
Arsenic	µg/g	18	1	3	4
Barium	µg/g	670	2.0	154	26.2
Beryllium	µg/g	8	0.4	0.6	<0.4
Boron	µg/g	120	5	15	<5
Boron (Hot Water Soluble)	µg/g	2	0.10	<0.10	<0.10
Cadmium	µg/g	1.9	0.5	<0.5	<0.5
Chromium	µg/g	160	5	25	10
Cobalt	µg/g	80	0.5	8.6	2.9
Copper	µg/g	230	1.0	15.4	4.9
Lead	µg/g	120	1	7	2
Molybdenum	µg/g	40	0.5	<0.5	<0.5
Nickel	µg/g	270	1	16	4
Selenium	µg/g	5.5	0.8	<0.8	<0.8
Silver	µg/g	40	0.5	<0.5	<0.5
Thallium	µg/g	3.3	0.5	<0.5	<0.5
Uranium	µg/g	33	0.50	<0.50	<0.50
Vanadium	µg/g	86	0.4	36.4	26.9
Zinc	µg/g	340	5	45	16
Chromium, Hexavalent	µg/g	8	0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	1.4	0.005	0.666	0.434
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	12	N/A	8.52	6.96
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.63	7.66

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T796739

PROJECT: 60636190-CR 4 (Waste)

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:CR4

SAMPLED BY:Kesh with Golder

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

DATE RECEIVED: 2021-09-02

DATE REPORTED: 2021-09-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2923111-2923113 EC was 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. 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: 21T796739

PROJECT: 60636190-CR 4 (Waste)

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:CR4

SAMPLED BY:Kesh with Golder

O. Reg. 406/19 SPLP Metals

DATE RECEIVED: 2021-09-02

DATE REPORTED: 2021-09-13

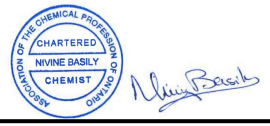
		SAMPLE DESCRIPTION:		CR4-02
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-08-26
Parameter	Unit	G / S	RDL	2923113
Antimony Leachate	µg/L	6	0.6	<0.6
Arsenic Leachate	µg/L	-	5	<5
Barium Leachate	µg/L	1000	100	<100
Beryllium Leachate	µg/L	4	0.8	<0.8
Boron Leachate	µg/L	5000	500	<500
Cadmium Leachate	µg/L	0.5	0.20	<0.20
Chromium Leachate	µg/L	50	10	<10
Cobalt Leachate	µg/L	3.8	0.3	<0.3
Copper Leachate	µg/L	14	7.0	<7.0
Lead Leachate	µg/L	-	1.0	<1.0
Molybdenum Leachate	µg/L	23	1.5	<1.5
Nickel Leachate	µg/L	78	10	<10
Selenium Leachate	µg/L	10	5.0	<5.0
Silver Leachate	µg/L	0.3	0.10	<0.10
Thallium Leachate	µg/L	2	0.5	<0.5
Uranium Leachate	µg/L	20	2	<2
Vanadium Leachate	µg/L	-	0.6	2.6
Zinc Leachate	µg/L	180	20	<20

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2923113 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T796739

PROJECT: 60636190-CR 4 (Waste)

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:CR4

SAMPLED BY:Kesh with Golder

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

DATE RECEIVED: 2021-09-02

DATE REPORTED: 2021-09-13

		SAMPLE DESCRIPTION:		CU-1-04
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-08-26
Parameter	Unit	G / S	RDL	2923109
Naphthalene	µg/g	0.2	0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05
Acenaphthene	µg/g	2.5	0.05	<0.05
Fluorene	µg/g	6.8	0.05	<0.05
Phenanthrene	µg/g	12	0.05	<0.05
Anthracene	µg/g	0.16	0.05	<0.05
Fluoranthene	µg/g	2.8	0.05	<0.05
Pyrene	µg/g	28	0.05	<0.05
Benz(a)anthracene	µg/g	0.92	0.05	<0.05
Chrysene	µg/g	9.4	0.05	<0.05
Benzo(b)fluoranthene	µg/g	3.2	0.05	<0.05
Benzo(k)fluoranthene	µg/g	3.1	0.05	<0.05
Benzo(a)pyrene	µg/g	0.31	0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.76	0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.7	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	13	0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.59	0.05	<0.05
Moisture Content	%		0.1	17.3
Surrogate	Unit	Acceptable Limits		
Naphthalene-d8	%	50-140		89
Acridine-d9	%	50-140		85
Terphenyl-d14	%	50-140		96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2923109 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: 21T796739

PROJECT: 60636190-CR 4 (Waste)

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:CR4

SAMPLED BY:Kesh with Golder

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

DATE RECEIVED: 2021-09-02

DATE REPORTED: 2021-09-13

		SAMPLE DESCRIPTION:		CR4-11
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-08-30
Parameter	Unit	G / S	RDL	2923111
Benzene	µg/g	0.02	0.02	<0.02
Toluene	µg/g	0.2	0.05	<0.05
Ethylbenzene	µg/g		0.05	<0.05
m & p-Xylene	µg/g		0.05	<0.05
o-Xylene	µg/g		0.05	<0.05
Xylenes (Total)	µg/g	0.091	0.05	<0.05
F1 (C6 - C10)	µg/g		5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5
F2 (C10 to C16)	µg/g	26	10	<10
F3 (C16 to C34)	µg/g	240	50	<50
F4 (C34 to C50)	µg/g	3300	50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA
Moisture Content	%		0.1	20.2
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	60-140		82
Terphenyl	%	60-140		81

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T796739

PROJECT: 60636190-CR 4 (Waste)

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:CR4

SAMPLED BY:Kesh with Golder

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

DATE RECEIVED: 2021-09-02

DATE REPORTED: 2021-09-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind
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.

2923111 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: 

AGAT Laboratories

5835 COOPERS AVENUE
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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-CR 4 (Waste)
SAMPLING SITE:CR4

AGAT WORK ORDER: 21T796739
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh with Golder

Soil Analysis

RPT Date: Sep 13, 2021			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	2927188		<0.8	<0.8	NA	< 0.8	123%	70%	130%	100%	80%	120%	106%	70%	130%
Arsenic	2927188		<1	<1	NA	< 1	119%	70%	130%	100%	80%	120%	105%	70%	130%
Barium	2927188		12.3	13.0	5.5%	< 2.0	107%	70%	130%	99%	80%	120%	98%	70%	130%
Beryllium	2927188		<0.4	<0.4	NA	< 0.4	106%	70%	130%	95%	80%	120%	113%	70%	130%
Boron	2927188		<5	<5	NA	< 5	89%	70%	130%	100%	80%	120%	114%	70%	130%
Boron (Hot Water Soluble)	2946202		0.11	0.11	NA	< 0.10	85%	60%	140%	98%	70%	130%	101%	60%	140%
Cadmium	2927188		<0.5	<0.5	NA	< 0.5	116%	70%	130%	100%	80%	120%	107%	70%	130%
Chromium	2927188		<5	<5	NA	< 5	97%	70%	130%	100%	80%	120%	91%	70%	130%
Cobalt	2927188		1.6	1.6	NA	< 0.5	98%	70%	130%	93%	80%	120%	93%	70%	130%
Copper	2927188		2.9	3.1	NA	< 1.0	97%	70%	130%	98%	80%	120%	96%	70%	130%
Lead	2927188		2	2	NA	< 1	103%	70%	130%	94%	80%	120%	94%	70%	130%
Molybdenum	2927188		<0.5	<0.5	NA	< 0.5	99%	70%	130%	96%	80%	120%	95%	70%	130%
Nickel	2927188		2	2	NA	< 1	100%	70%	130%	96%	80%	120%	96%	70%	130%
Selenium	2927188		<0.8	<0.8	NA	< 0.8	135%	70%	130%	93%	80%	120%	98%	70%	130%
Silver	2927188		<0.5	<0.5	NA	< 0.5	114%	70%	130%	107%	80%	120%	113%	70%	130%
Thallium	2927188		<0.5	<0.5	NA	< 0.5	100%	70%	130%	96%	80%	120%	97%	70%	130%
Uranium	2927188		<0.50	<0.50	NA	< 0.50	102%	70%	130%	99%	80%	120%	98%	70%	130%
Vanadium	2927188		8.0	8.2	2.5%	< 0.4	100%	70%	130%	89%	80%	120%	90%	70%	130%
Zinc	2927188		11	11	NA	< 5	102%	70%	130%	98%	80%	120%	112%	70%	130%
Chromium, Hexavalent	2930980		<0.2	<0.2	NA	< 0.2	97%	70%	130%	95%	80%	120%	101%	70%	130%
Cyanide, Free	2920645		<0.040	<0.040	NA	< 0.040	101%	70%	130%	98%	80%	120%	83%	70%	130%
Mercury	2927188		<0.10	<0.10	NA	< 0.10	115%	70%	130%	107%	80%	120%	108%	70%	130%
Electrical Conductivity (2:1)	2946202		0.099	0.102	3.0%	< 0.005	109%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	2946202		0.073	0.080	9.2%	NA									
pH, 2:1 CaCl2 Extraction	2930980		7.50	7.45	0.7%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

O. Reg. 406/19 SPLP Metals															
Antimony Leachate	2916559		<0.6	<0.6	NA	< 0.6	103%	70%	130%	100%	80%	120%	101%	70%	130%
Arsenic Leachate	2916559		<5	<5	NA	< 5	99%	70%	130%	97%	80%	120%	102%	70%	130%
Barium Leachate	2916559		<100	<100	NA	< 100	101%	70%	130%	100%	80%	120%	104%	70%	130%
Beryllium Leachate	2916559		<0.8	<0.8	NA	< 0.8	92%	70%	130%	92%	80%	120%	90%	70%	130%
Boron Leachate	2916559		<500	<500	NA	< 500	98%	70%	130%	99%	80%	120%	102%	70%	130%
Cadmium Leachate	2916559		<0.20	<0.20	NA	< 0.20	101%	70%	130%	99%	80%	120%	101%	70%	130%
Chromium Leachate	2916559		<10	<10	NA	< 10	101%	70%	130%	102%	80%	120%	104%	70%	130%
Cobalt Leachate	2916559		<0.3	<0.3	NA	< 0.3	100%	70%	130%	100%	80%	120%	101%	70%	130%

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SAMPLING SITE:CR4

AGAT WORK ORDER: 21T796739
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh with Golder

Soil Analysis (Continued)

RPT Date: Sep 13, 2021			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
Copper Leachate	2916559		<7.0	<7.0	NA	< 7.0	97%	70%	130%	105%	80%	120%	106%	70%	130%
Lead Leachate	2916559		<1.0	<1.0	NA	< 1.0	100%	70%	130%	99%	80%	120%	102%	70%	130%
Molybdenum Leachate	2916559		2.2	2.2	NA	< 1.5	104%	70%	130%	108%	80%	120%	109%	70%	130%
Nickel Leachate	2916559		<10	<10	NA	< 10	102%	70%	130%	101%	80%	120%	103%	70%	130%
Selenium Leachate	2916559		<5.0	<5.0	NA	< 5.0	102%	70%	130%	94%	80%	120%	98%	70%	130%
Silver Leachate	2916559		<0.10	<0.10	NA	< 0.10	103%	70%	130%	101%	80%	120%	101%	70%	130%
Thallium Leachate	2916559		<0.5	<0.5	NA	< 0.5	100%	70%	130%	98%	80%	120%	101%	70%	130%
Uranium Leachate	2916559		<2	<2	NA	< 2	100%	70%	130%	100%	80%	120%	105%	70%	130%
Vanadium Leachate	2916559		1.3	1.4	NA	< 0.6	103%	70%	130%	101%	80%	120%	103%	70%	130%
Zinc Leachate	2916559		<20	<20	NA	< 20	97%	70%	130%	115%	80%	120%	119%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

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SAMPLED BY:Kesh with Golder

Trace Organics Analysis

RPT Date: Sep 13, 2021			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) - PAHs (Soil)															
Naphthalene	2930870		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	102%	50%	140%	84%	50%	140%
Acenaphthylene	2930870		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	96%	50%	140%	109%	50%	140%
Acenaphthene	2930870		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	84%	50%	140%	109%	50%	140%
Fluorene	2930870		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	85%	50%	140%	96%	50%	140%
Phenanthrene	2930870		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	96%	50%	140%	96%	50%	140%
Anthracene	2930870		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	85%	50%	140%	91%	50%	140%
Fluoranthene	2930870		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	85%	50%	140%	94%	50%	140%
Pyrene	2930870		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	85%	50%	140%	93%	50%	140%
Benz(a)anthracene	2930870		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	96%	50%	140%	92%	50%	140%
Chrysene	2930870		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	85%	50%	140%	83%	50%	140%
Benzo(b)fluoranthene	2930870		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	81%	50%	140%	100%	50%	140%
Benzo(k)fluoranthene	2930870		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	85%	50%	140%	92%	50%	140%
Benzo(a)pyrene	2930870		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	84%	50%	140%	93%	50%	140%
Indeno(1,2,3-cd)pyrene	2930870		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	85%	50%	140%	94%	50%	140%
Dibenz(a,h)anthracene	2930870		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	96%	50%	140%	104%	50%	140%
Benzo(g,h,i)perylene	2930870		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	85%	50%	140%	99%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	2920651		<0.02	<0.02	NA	< 0.02	81%	60%	140%	111%	60%	140%	92%	60%	140%
Toluene	2920651		<0.05	<0.05	NA	< 0.05	107%	60%	140%	113%	60%	140%	110%	60%	140%
Ethylbenzene	2920651		<0.05	<0.05	NA	< 0.05	85%	60%	140%	116%	60%	140%	89%	60%	140%
m & p-Xylene	2920651		<0.05	<0.05	NA	< 0.05	109%	60%	140%	90%	60%	140%	107%	60%	140%
o-Xylene	2920651		<0.05	<0.05	NA	< 0.05	87%	60%	140%	109%	60%	140%	85%	60%	140%
F1 (C6 - C10)	2920651		<5	<5	NA	< 5	97%	60%	140%	99%	60%	140%	116%	60%	140%
F2 (C10 to C16)	2939919		< 10	< 10	NA	< 10	115%	60%	140%	90%	60%	140%	76%	60%	140%
F3 (C16 to C34)	2939919		< 50	< 50	NA	< 50	110%	60%	140%	88%	60%	140%	62%	60%	140%
F4 (C34 to C50)	2939919		< 50	< 50	NA	< 50	92%	60%	140%	87%	60%	140%	94%	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

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QA Violation

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T796739

PROJECT: 60636190-CR 4 (Waste)

ATTENTION TO: Kesh Appadurai

RPT Date: Sep 13, 2021

PARAMETER	Sample Id	Sample Description	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
				Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)											
Selenium		CR4-11	135%	70%	130%	93%	80%	120%	98%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

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PROJECT: 60636190-CR 4 (Waste)

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:CR4

SAMPLED BY:Kesh with Golder

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
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

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T796739

PROJECT: 60636190-CR 4 (Waste)

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:CR4

SAMPLED BY:Kesh with Golder

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

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 #: 21T796739

Cooler Quantity: Med

Arrival Temperatures: 3.9 | 3.7 | 3.8 / 3.4 | 3.2 | 3

Custody Seal Intact: ☐Yes ☐No ☐N/A

Notes:

Report Information:

Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 *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: 60636190 - CR 4 (waste)
Site Location: CR 4
Sampled By: Kesh with Golder
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐B-HWS ☐Cl⁻ ☐CN⁻ ☐Cr^{6+} ☐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	Organic Fractions 2 to 4 - F1 - F4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	SPLP Metals.
CV-1-04	Aug 26		1	Soil												X						
CR4-11	Aug 30		3	11			X							X								
CR4-02	Aug 26		1	11			X														X	

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
[illegible]	Sept 1, 21		[illegible]	9/2/21	12:46
[illegible]	9/2/21	2:11			

Page 1 of 1

N°:

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-CR4

AGAT WORK ORDER: 21T810201

SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

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

DATE REPORTED: Oct 08, 2021

PAGES (INCLUDING COVER): 20

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

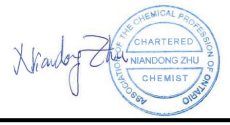
O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		CR4-01	CR4-03
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-09-30	2021-09-30
Parameter	Unit	G / S	RDL	3045065	3045067
Antimony	µg/g	1	0.8	<0.8	<0.8
Arsenic	µg/g	11	1	4	4
Barium	µg/g	210	2.0	103	113
Beryllium	µg/g	2.5	0.4	0.6	0.6
Boron	µg/g	36	5	11	10
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.10	<0.10
Cadmium	µg/g	1	0.5	<0.5	<0.5
Chromium	µg/g	67	5	27	27
Cobalt	µg/g	19	0.5	9.4	10.0
Copper	µg/g	62	1.0	19.0	19.5
Lead	µg/g	45	1	7	8
Molybdenum	µg/g	2	0.5	<0.5	<0.5
Nickel	µg/g	37	1	20	21
Selenium	µg/g	1.2	0.8	<0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5
Uranium	µg/g	1.9	0.50	0.52	0.53
Vanadium	µg/g	86	0.4	38.8	38.6
Zinc	µg/g	290	5	48	50
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.122	0.118
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.137	0.138
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.66	7.57

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-01

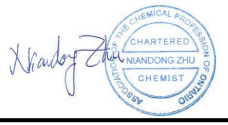
DATE REPORTED: 2021-10-08

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3045065-3045067 EC was 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. 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: 21T810201

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

SPLP Metals

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

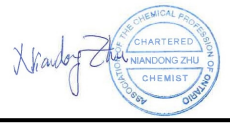
		SAMPLE DESCRIPTION:		CR4-03
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-09-30
Parameter	Unit	G / S	RDL	3045067
Antimony Leachate	µg/L		0.6	<0.6
Arsenic Leachate	µg/L		5	<5
Barium Leachate	µg/L		100	<100
Beryllium Leachate	µg/L		0.8	<0.8
Boron Leachate	µg/L		500	<500
Cadmium Leachate	µg/L		0.20	<0.20
Chromium Leachate	µg/L		10	<10
Cobalt Leachate	µg/L		0.3	<0.3
Copper Leachate	µg/L		7.0	<7.0
Lead Leachate	µg/L		1.0	<1.0
Molybdenum Leachate	µg/L		1.5	<1.5
Nickel Leachate	µg/L		10	<10
Selenium Leachate	µg/L		5.0	<5.0
Silver Leachate	µg/L		0.10	<0.10
Thallium Leachate	µg/L		0.5	<0.5
Uranium Leachate	µg/L		2	<2
Vanadium Leachate	µg/L		0.6	1.2
Zinc Leachate	µg/L		20	<20

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

3045067 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		CR4-01	CR4-03
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-09-30	2021-09-30
Parameter	Unit	G / S	RDL	3045065	3045067
Naphthalene	µg/g	0.05	0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05
Acenaphthene	µg/g	0.05	0.05	<0.05	<0.05
Fluorene	µg/g	0.05	0.05	<0.05	<0.05
Phenanthrene	µg/g	0.19	0.05	<0.05	<0.05
Anthracene	µg/g	0.05	0.05	<0.05	<0.05
Fluoranthene	µg/g	0.24	0.05	<0.05	<0.05
Pyrene	µg/g	0.19	0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.095	0.05	<0.05	<0.05
Chrysene	µg/g	0.18	0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.3	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	0.11	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	0.2	0.05	<0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.05	0.05	<0.05	<0.05
Moisture Content	%		0.1	22.4	21.7
Surrogate	Unit	Acceptable Limits			
Naphthalene-d8	%	50-140		78	80
Acridine-d9	%	50-140		96	76
Terphenyl-d14	%	50-140		99	77

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3045065-3045067 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:

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Certificate of Analysis

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		CR4-01	CR4-03
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-09-30	2021-09-30
Parameter	Unit	G / S	RDL	3045065	3045067
F1 (C6 - C10)	µg/g	17	5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	17	5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA
Moisture Content	%		0.1	22.4	21.7
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		77	78
Terphenyl	%	60-140		93	87

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3045065-3045067 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 calculated parameter is 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 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:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		CR4-01	CR4-03
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-09-30	2021-09-30
Parameter	Unit	G / S	RDL	3045065	3045067
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	0.5	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	0.05	0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	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	0.05	0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	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	<0.05

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

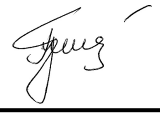
		SAMPLE DESCRIPTION:		CR4-01	CR4-03
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-09-30	2021-09-30
Parameter	Unit	G / S	RDL	3045065	3045067
Bromoform	ug/g	0.05	0.05	<0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05
1,3-Dichlorobenzene	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
Xylenes (Total)	ug/g	0.05	0.05	<0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05	<0.05
Moisture Content	%		0.1	22.4	21.7
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		89	98
4-Bromofluorobenzene	% Recovery	50-140		80	84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3045065-3045067 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

SPLP VOCs

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		CR4-01
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-09-30
Parameter	Unit	G / S	RDL	3045065
Benzene SPLP	µg/L		0.20	<0.20
Toluene SPLP	µg/L		0.20	<0.20
Ethylbenzene SPLP	µg/L		0.10	<0.10
m-p-Xylenes SPLP (Total)	µg/L		0.20	<0.20
o - Xylene SPLP	µg/L		0.10	<0.10
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		101
4-Bromofluorobenzene	% Recovery	50-140		94

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

3045065 Sample was prepared using Method 1312 protocol and a zero headspace extractor.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-CR4
SAMPLING SITE:

AGAT WORK ORDER: 21T810201
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Soil Analysis

RPT Date: Oct 08, 2021			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	3051151		0.9	0.8	NA	< 0.8	138%	70%	130%	115%	80%	120%	108%	70%	130%
Arsenic	3051151		11	11	0.0%	< 1	115%	70%	130%	114%	80%	120%	108%	70%	130%
Barium	3051151		137	128	6.8%	< 2.0	107%	70%	130%	105%	80%	120%	88%	70%	130%
Beryllium	3051151		0.9	0.8	NA	< 0.4	97%	70%	130%	114%	80%	120%	106%	70%	130%
Boron	3051151		24	22	NA	< 5	99%	70%	130%	111%	80%	120%	95%	70%	130%
Boron (Hot Water Soluble)	3060639		0.35	0.36	NA	< 0.10	86%	60%	140%	98%	70%	130%	107%	60%	140%
Cadmium	3051151		0.5	0.5	NA	< 0.5	116%	70%	130%	114%	80%	120%	109%	70%	130%
Chromium	3051151		26	25	3.9%	< 5	104%	70%	130%	101%	80%	120%	94%	70%	130%
Cobalt	3051151		11.8	11.8	0.0%	< 0.5	94%	70%	130%	105%	80%	120%	93%	70%	130%
Copper	3051151		46.3	62.0	29.0%	< 1.0	93%	70%	130%	108%	80%	120%	98%	70%	130%
Lead	3051151		198	188	5.2%	< 1	102%	70%	130%	104%	80%	120%	84%	70%	130%
Molybdenum	3051151		5.1	5.1	0.0%	< 0.5	106%	70%	130%	116%	80%	120%	107%	70%	130%
Nickel	3051151		36	35	2.8%	< 1	99%	70%	130%	109%	80%	120%	91%	70%	130%
Selenium	3051151		0.8	<0.8	NA	< 0.8	112%	70%	130%	115%	80%	120%	107%	70%	130%
Silver	3051151		<0.5	<0.5	NA	< 0.5	110%	70%	130%	110%	80%	120%	98%	70%	130%
Thallium	3051151		<0.5	<0.5	NA	< 0.5	102%	70%	130%	111%	80%	120%	99%	70%	130%
Uranium	3051151		1.60	1.51	NA	< 0.50	104%	70%	130%	113%	80%	120%	103%	70%	130%
Vanadium	3051151		34.6	32.0	7.8%	< 0.4	102%	70%	130%	98%	80%	120%	93%	70%	130%
Zinc	3051151		248	240	3.3%	< 5	99%	70%	130%	115%	80%	120%	86%	70%	130%
Chromium, Hexavalent	3045229		<0.2	<0.2	NA	< 0.2	93%	70%	130%	91%	80%	120%	72%	70%	130%
Cyanide, Free	3045065	3045065	<0.040	<0.040	NA	< 0.040	94%	70%	130%	118%	80%	120%	103%	70%	130%
Mercury	3051151		0.16	0.15	NA	< 0.10	106%	70%	130%	113%	80%	120%	100%	70%	130%
Electrical Conductivity (2:1)	3045065	3045065	0.122	0.124	1.6%	< 0.005	102%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3045065	3045065	0.137	0.125	9.2%	NA									
pH, 2:1 CaCl2 Extraction	3045065	3045065	7.66	7.62	0.5%	NA	101%	80%	120%						
SPLP Metals															
Antimony Leachate	3056210		<0.6	<0.6	NA	< 0.6	101%	70%	130%	96%	80%	120%	94%	70%	130%
Arsenic Leachate	3056210		<5	<5	NA	< 5	102%	70%	130%	101%	80%	120%	99%	70%	130%
Barium Leachate	3056210		<100	<100	NA	< 100	99%	70%	130%	102%	80%	120%	97%	70%	130%
Beryllium Leachate	3056210		<0.8	<0.8	NA	< 0.8	104%	70%	130%	109%	80%	120%	103%	70%	130%
Boron Leachate	3056210		<500	<500	NA	< 500	103%	70%	130%	107%	80%	120%	101%	70%	130%
Cadmium Leachate	3056210		<0.20	<0.20	NA	< 0.20	100%	70%	130%	102%	80%	120%	99%	70%	130%
Chromium Leachate	3056210		<10	<10	NA	< 10	99%	70%	130%	99%	80%	120%	101%	70%	130%
Cobalt Leachate	3056210		<0.3	<0.3	NA	< 0.3	96%	70%	130%	102%	80%	120%	100%	70%	130%
Copper Leachate	3056210		<7.0	<7.0	NA	< 7.0	99%	70%	130%	108%	80%	120%	106%	70%	130%
Lead Leachate	3056210		<1.0	<1.0	NA	< 1.0	97%	70%	130%	101%	80%	120%	97%	70%	130%

Comments: For a multi-element scan for lab control standards and matrix spikes, up to 10% of analytes may exceed the quoted limits by up to 10% absolute and it is considered acceptable.

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Quality Assurance

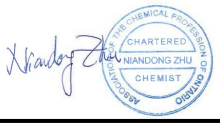
CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T810201
PROJECT: 60636190-CR4
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Oct 08, 2021			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
Molybdenum Leachate	3056210		<1.5	<1.5	NA	< 1.5	102%	70%	130%	108%	80%	120%	105%	70%	130%
Nickel Leachate	3056210		<10	<10	NA	< 10	102%	70%	130%	106%	80%	120%	105%	70%	130%
Selenium Leachate	3056210		<5.0	<5.0	NA	< 5.0	106%	70%	130%	105%	80%	120%	103%	70%	130%
Silver Leachate	3056210		<0.10	<0.10	NA	< 0.10	97%	70%	130%	101%	80%	120%	96%	70%	130%
Thallium Leachate	3056210		<0.5	<0.5	NA	< 0.5	98%	70%	130%	104%	80%	120%	98%	70%	130%
Uranium Leachate	3056210		<2	<2	NA	< 2	100%	70%	130%	104%	80%	120%	99%	70%	130%
Vanadium Leachate	3056210		0.7	0.7	NA	< 0.6	94%	70%	130%	98%	80%	120%	98%	70%	130%
Zinc Leachate	3056210		<20	<20	NA	< 20	101%	70%	130%	111%	80%	120%	110%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:



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SAMPLED BY:

Trace Organics Analysis

RPT Date: Oct 08, 2021			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 and VOC) (Soil)															
F1 (C6 - C10)	3039578		<5	<5	NA	< 5	105%	60%	140%	104%	60%	140%	99%	60%	140%
F2 (C10 to C16)	3031567		< 10	< 10	NA	< 10	103%	60%	140%	104%	60%	140%	75%	60%	140%
F3 (C16 to C34)	3031567		< 50	< 50	NA	< 50	101%	60%	140%	107%	60%	140%	67%	60%	140%
F4 (C34 to C50)	3031567		< 50	< 50	NA	< 50	100%	60%	140%	101%	60%	140%	74%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	2970884		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	99%	50%	140%	111%	50%	140%
Acenaphthylene	2970884		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	98%	50%	140%	98%	50%	140%
Acenaphthene	2970884		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	96%	50%	140%	96%	50%	140%
Fluorene	2970884		0.07	< 0.05	NA	< 0.05	85%	50%	140%	95%	50%	140%	85%	50%	140%
Phenanthrene	2970884		0.24	0.16	NA	< 0.05	96%	50%	140%	85%	50%	140%	96%	50%	140%
Anthracene	2970884		0.05	< 0.05	NA	< 0.05	85%	50%	140%	96%	50%	140%	85%	50%	140%
Fluoranthene	2970884		0.14	0.14	NA	< 0.05	81%	50%	140%	85%	50%	140%	96%	50%	140%
Pyrene	2970884		0.31	0.23	NA	< 0.05	86%	50%	140%	96%	50%	140%	98%	50%	140%
Benz(a)anthracene	2970884		0.10	0.07	NA	< 0.05	92%	50%	140%	82%	50%	140%	98%	50%	140%
Chrysene	2970884		0.12	0.08	NA	< 0.05	81%	50%	140%	92%	50%	140%	85%	50%	140%
Benzo(b)fluoranthene	2970884		0.05	< 0.05	NA	< 0.05	98%	50%	140%	81%	50%	140%	96%	50%	140%
Benzo(k)fluoranthene	2970884		0.05	0.07	NA	< 0.05	96%	50%	140%	82%	50%	140%	85%	50%	140%
Benzo(a)pyrene	2970884		0.05	< 0.05	NA	< 0.05	105%	50%	140%	93%	50%	140%	96%	50%	140%
Indeno(1,2,3-cd)pyrene	2970884		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	105%	50%	140%	85%	50%	140%
Dibenz(a,h)anthracene	2970884		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	118%	50%	140%	96%	50%	140%
Benzo(g,h,i)perylene	2970884		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	98%	50%	140%	85%	50%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	3043377		<0.05	<0.05	NA	< 0.05	74%	50%	140%	85%	50%	140%	101%	50%	140%
Vinyl Chloride	3043377		<0.02	<0.02	NA	< 0.02	104%	50%	140%	86%	50%	140%	108%	50%	140%
Bromomethane	3043377		<0.05	<0.05	NA	< 0.05	81%	50%	140%	81%	50%	140%	96%	50%	140%
Trichlorofluoromethane	3043377		<0.05	<0.05	NA	< 0.05	87%	50%	140%	74%	50%	140%	106%	50%	140%
Acetone	3043377		<0.50	<0.50	NA	< 0.50	103%	50%	140%	80%	50%	140%	85%	50%	140%
1,1-Dichloroethylene	3043377		<0.05	<0.05	NA	< 0.05	106%	50%	140%	90%	60%	130%	87%	50%	140%
Methylene Chloride	3043377		<0.05	<0.05	NA	< 0.05	104%	50%	140%	101%	60%	130%	93%	50%	140%
Trans- 1,2-Dichloroethylene	3043377		<0.05	<0.05	NA	< 0.05	91%	50%	140%	82%	60%	130%	82%	50%	140%
Methyl tert-butyl Ether	3043377		<0.05	<0.05	NA	< 0.05	95%	50%	140%	74%	60%	130%	79%	50%	140%
1,1-Dichloroethane	3043377		<0.02	<0.02	NA	< 0.02	90%	50%	140%	73%	60%	130%	83%	50%	140%
Methyl Ethyl Ketone	3043377		<0.50	<0.50	NA	< 0.50	85%	50%	140%	90%	50%	140%	80%	50%	140%
Cis- 1,2-Dichloroethylene	3043377		<0.02	<0.02	NA	< 0.02	83%	50%	140%	85%	60%	130%	97%	50%	140%
Chloroform	3043377		<0.04	<0.04	NA	< 0.04	95%	50%	140%	93%	60%	130%	79%	50%	140%
1,2-Dichloroethane	3043377		<0.03	<0.03	NA	< 0.03	80%	50%	140%	73%	60%	130%	79%	50%	140%
1,1,1-Trichloroethane	3043377		<0.05	<0.05	NA	< 0.05	100%	50%	140%	104%	60%	130%	86%	50%	140%
Carbon Tetrachloride	3043377		<0.05	<0.05	NA	< 0.05	100%	50%	140%	104%	60%	130%	80%	50%	140%

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Quality Assurance

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PROJECT: 60636190-CR4
SAMPLING SITE:

AGAT WORK ORDER: 21T810201
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Oct 08, 2021			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
Benzene	3043377		<0.02	<0.02	NA	< 0.02	94%	50%	140%	80%	60%	130%	72%	50%	140%
1,2-Dichloropropane	3043377		<0.03	<0.03	NA	< 0.03	86%	50%	140%	104%	60%	130%	81%	50%	140%
Trichloroethylene	3043377		<0.03	<0.03	NA	< 0.03	112%	50%	140%	95%	60%	130%	81%	50%	140%
Bromodichloromethane	3043377		<0.05	<0.05	NA	< 0.05	87%	50%	140%	98%	60%	130%	74%	50%	140%
Methyl Isobutyl Ketone	3043377		<0.50	<0.50	NA	< 0.50	79%	50%	140%	87%	50%	140%	90%	50%	140%
1,1,2-Trichloroethane	3043377		<0.04	<0.04	NA	< 0.04	91%	50%	140%	90%	60%	130%	79%	50%	140%
Toluene	3043377		<0.05	<0.05	NA	< 0.05	83%	50%	140%	91%	60%	130%	82%	50%	140%
Dibromochloromethane	3043377		<0.05	<0.05	NA	< 0.05	104%	50%	140%	99%	60%	130%	81%	50%	140%
Ethylene Dibromide	3043377		<0.04	<0.04	NA	< 0.04	90%	50%	140%	98%	60%	130%	81%	50%	140%
Tetrachloroethylene	3043377		<0.05	<0.05	NA	< 0.05	101%	50%	140%	107%	60%	130%	109%	50%	140%
1,1,1,2-Tetrachloroethane	3043377		<0.04	<0.04	NA	< 0.04	100%	50%	140%	87%	60%	130%	99%	50%	140%
Chlorobenzene	3043377		<0.05	<0.05	NA	< 0.05	91%	50%	140%	93%	60%	130%	82%	50%	140%
Ethylbenzene	3043377		<0.05	<0.05	NA	< 0.05	85%	50%	140%	90%	60%	130%	80%	50%	140%
m & p-Xylene	3043377		<0.05	<0.05	NA	< 0.05	89%	50%	140%	94%	60%	130%	84%	50%	140%
Bromoform	3043377		<0.05	<0.05	NA	< 0.05	109%	50%	140%	101%	60%	130%	78%	50%	140%
Styrene	3043377		<0.05	<0.05	NA	< 0.05	91%	50%	140%	88%	60%	130%	75%	50%	140%
1,1,2,2-Tetrachloroethane	3043377		<0.05	<0.05	NA	< 0.05	118%	50%	140%	108%	60%	130%	91%	50%	140%
o-Xylene	3043377		<0.05	<0.05	NA	< 0.05	95%	50%	140%	97%	60%	130%	87%	50%	140%
1,3-Dichlorobenzene	3043377		<0.05	<0.05	NA	< 0.05	104%	50%	140%	99%	60%	130%	88%	50%	140%
1,4-Dichlorobenzene	3043377		<0.05	<0.05	NA	< 0.05	106%	50%	140%	100%	60%	130%	90%	50%	140%
1,2-Dichlorobenzene	3043377		<0.05	<0.05	NA	< 0.05	101%	50%	140%	94%	60%	130%	83%	50%	140%
n-Hexane	3043377		<0.05	<0.05	NA	< 0.05	108%	50%	140%	95%	60%	130%	90%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)															
F1 (C6 - C10)	3043377		<5	<5	NA	< 5	90%	60%	140%	96%	60%	140%	95%	60%	140%
SPLP VOCs															
Benzene SPLP	3045065	3045065	< 0.20	< 0.20	NA	< 0.20	72%	50%	140%	85%	60%	130%	99%	50%	140%
Toluene SPLP	3045065	3045065	< 0.20	< 0.20	NA	< 0.20	83%	50%	140%	93%	60%	130%	105%	50%	140%
Ethylbenzene SPLP	3045065	3045065	< 0.10	< 0.10	NA	< 0.10	83%	50%	140%	89%	60%	130%	101%	50%	140%
m-p-Xylenes SPLP (Total)	3045065	3045065	< 0.20	< 0.20	NA	< 0.20	94%	50%	140%	93%	60%	130%	105%	50%	140%
o - Xylene SPLP	3045065	3045065	< 0.10	< 0.10	NA	< 0.10	90%	50%	140%	97%	60%	130%	108%	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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QA Violation

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

RPT Date: Oct 08, 2021

PARAMETER	Sample Id	Sample Description	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
				Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)											
Antimony		CR4-01	138%	70%	130%	115%	80%	120%	108%	70%	130%

Comments: For a multi-element scan for lab control standards and matrix spikes, up to 10% of analytes may exceed the quoted limits by up to 10% absolute and it is considered acceptable.

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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
F3 (C16 to C34) minus PAHs	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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T810201

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
m & p-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Benzene SPLP	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene SPLP	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylbenzene SPLP	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
m-p-Xylenes SPLP (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
o - Xylene SPLP	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

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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 #: 21T810201
Cooler Quantity: Med
Arrival Temperatures: 3.9 | 3.6 | 3.3 / 3.2 | 2.8 | 2.6
1 ice
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☑ Regulation 153/04 — Table 1 (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: 60636190 - CR4
Site Location:
Sampled By: Kesh. A.
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr^{6+} ☐EC ☐FOC ☐NO_3/NO_2 ☐Total N ☐Hg ☐pH ☐SAR	Nutrients: ☐TP ☐NH_4 ☐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	XSPLP VOC	SPLP Metals					
CR4-01	Sep 30		4				X						X	X		X												
CR4-03	Sep 30		4				X						X	X		X								X				

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
				10/1/21	12:34
	10/1/21	2:30			

Page 1 of 1
N°:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-BBP

AGAT WORK ORDER: 21T810205

SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

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

DATE REPORTED: Oct 08, 2021

PAGES (INCLUDING COVER): 19

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

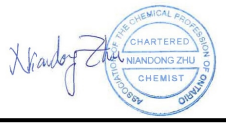
O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		HRE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-09-29
Parameter	Unit	G / S	RDL	3045064
Antimony	µg/g	1	0.8	<0.8
Arsenic	µg/g	11	1	3
Barium	µg/g	210	2.0	22.1
Beryllium	µg/g	2.5	0.4	<0.4
Boron	µg/g	36	5	<5
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.14
Cadmium	µg/g	1	0.5	<0.5
Chromium	µg/g	67	5	10
Cobalt	µg/g	19	0.5	3.2
Copper	µg/g	62	1.0	4.9
Lead	µg/g	45	1	3
Molybdenum	µg/g	2	0.5	<0.5
Nickel	µg/g	37	1	6
Selenium	µg/g	1.2	0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5
Thallium	µg/g	1	0.5	<0.5
Uranium	µg/g	1.9	0.50	0.51
Vanadium	µg/g	86	0.4	18.2
Zinc	µg/g	290	5	21
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.123
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.092
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.62

Certified By:



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AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-01

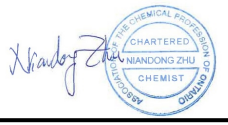
DATE REPORTED: 2021-10-08

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3045064 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 406/19 SPLP Metals

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		HRE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-09-29
Parameter	Unit	G / S	RDL	3045064
Antimony Leachate	µg/L		0.6	<0.6
Arsenic Leachate	µg/L		5	<5
Barium Leachate	µg/L		100	<100
Beryllium Leachate	µg/L		0.8	<0.8
Boron Leachate	µg/L		500	<500
Cadmium Leachate	µg/L		0.20	<0.20
Chromium Leachate	µg/L		10	<10
Cobalt Leachate	µg/L		0.3	<0.3
Copper Leachate	µg/L		7.0	<7.0
Lead Leachate	µg/L		1.0	<1.0
Molybdenum Leachate	µg/L		1.5	<1.5
Nickel Leachate	µg/L		10	<10
Selenium Leachate	µg/L		5.0	<5.0
Silver Leachate	µg/L		0.10	<0.10
Thallium Leachate	µg/L		0.5	<0.5
Uranium Leachate	µg/L		2	<2
Vanadium Leachate	µg/L		0.6	4.0
Zinc Leachate	µg/L		20	<20

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

3045064 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.

Analysis performed at AGAT Toronto (unless marked by *)

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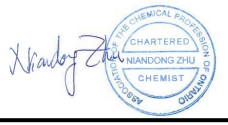

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AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		HRE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-09-29
Parameter	Unit	G / S	RDL	3045064
Naphthalene	µg/g	0.05	0.05	<0.05
Acenaphthylene	µg/g	0.093	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	0.19	0.05	<0.05
Anthracene	µg/g	0.05	0.05	<0.05
Fluoranthene	µg/g	0.24	0.05	<0.05
Pyrene	µg/g	0.19	0.05	<0.05
Benz(a)anthracene	µg/g	0.095	0.05	<0.05
Chrysene	µg/g	0.18	0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.3	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	0.11	0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.2	0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	21.7
Surrogate	Unit	Acceptable Limits		
Naphthalene-d8	%	50-140		78
Acridine-d9	%	50-140		85
Terphenyl-d14	%	50-140		99

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3045064 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 *)

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AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		HRE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-09-29
Parameter	Unit	G / S	RDL	3045064
F1 (C6 - C10)	µg/g	17	5	<5
F1 (C6 to C10) minus BTEX	µg/g	17	5	<5
F2 (C10 to C16)	µg/g	10	10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10
F3 (C16 to C34)	µg/g	240	50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50
F4 (C34 to C50)	µg/g	120	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA
Moisture Content	%		0.1	21.7
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		87
Terphenyl	%	60-140		103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3045064 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 calculated parameter is 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 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 *)

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AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		HRE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-09-29
Parameter	Unit	G / S	RDL	3045064
Dichlorodifluoromethane	µg/g	0.05	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	0.05	0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

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AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-01

DATE REPORTED: 2021-10-08

		SAMPLE DESCRIPTION:		HRE-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-09-29
Parameter	Unit	G / S	RDL	3045064
Bromoform	ug/g	0.05	0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05
Xylenes (Total)	ug/g	0.05	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	21.7
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		94
4-Bromofluorobenzene	% Recovery	50-140		83

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3045064 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP
SAMPLING SITE:

AGAT WORK ORDER: 21T810205
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Soil Analysis

RPT Date: Oct 08, 2021			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	3052297		<0.8	<0.8	NA	< 0.8	137%	70%	130%	112%	80%	120%	100%	70%	130%
Arsenic	3052297		3	3	NA	< 1	122%	70%	130%	107%	80%	120%	112%	70%	130%
Barium	3052297		39.3	41.7	5.9%	< 2.0	108%	70%	130%	106%	80%	120%	105%	70%	130%
Beryllium	3052297		<0.4	<0.4	NA	< 0.4	91%	70%	130%	99%	80%	120%	108%	70%	130%
Boron	3052297		5	<5	NA	< 5	90%	70%	130%	102%	80%	120%	100%	70%	130%
Boron (Hot Water Soluble)	3060639		0.35	0.36	NA	< 0.10	86%	60%	140%	98%	70%	130%	107%	60%	140%
Cadmium	3052297		<0.5	<0.5	NA	< 0.5	112%	70%	130%	107%	80%	120%	116%	70%	130%
Chromium	3052297		12	13	NA	< 5	94%	70%	130%	97%	80%	120%	89%	70%	130%
Cobalt	3052297		4.8	5.1	6.1%	< 0.5	100%	70%	130%	101%	80%	120%	96%	70%	130%
Copper	3052297		47.9	50.0	4.3%	< 1.0	97%	70%	130%	108%	80%	120%	89%	70%	130%
Lead	3052297		16	16	0.0%	< 1	105%	70%	130%	101%	80%	120%	95%	70%	130%
Molybdenum	3052297		<0.5	<0.5	NA	< 0.5	109%	70%	130%	110%	80%	120%	113%	70%	130%
Nickel	3052297		10	10	0.0%	< 1	104%	70%	130%	107%	80%	120%	100%	70%	130%
Selenium	3052297		<0.8	<0.8	NA	< 0.8	115%	70%	130%	105%	80%	120%	111%	70%	130%
Silver	3052297		<0.5	<0.5	NA	< 0.5	108%	70%	130%	109%	80%	120%	108%	70%	130%
Thallium	3052297		<0.5	<0.5	NA	< 0.5	107%	70%	130%	107%	80%	120%	103%	70%	130%
Uranium	3052297		<0.50	<0.50	NA	< 0.50	104%	70%	130%	108%	80%	120%	105%	70%	130%
Vanadium	3052297		23.0	22.8	0.9%	< 0.4	101%	70%	130%	94%	80%	120%	93%	70%	130%
Zinc	3052297		43	45	4.5%	< 5	102%	70%	130%	110%	80%	120%	110%	70%	130%
Chromium, Hexavalent	3050942		<0.2	<0.2	NA	< 0.2	99%	70%	130%	106%	80%	120%	87%	70%	130%
Cyanide, Free	3045065		<0.040	<0.040	NA	< 0.040	94%	70%	130%	118%	80%	120%	103%	70%	130%
Mercury	3052297		0.18	0.18	NA	< 0.10	112%	70%	130%	114%	80%	120%	109%	70%	130%
Electrical Conductivity (2:1)	3060639		0.367	0.357	2.8%	< 0.005	102%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3060639		0.609	0.605	0.7%	NA									
pH, 2:1 CaCl2 Extraction	3045065		7.66	7.62	0.5%	NA	101%	80%	120%						

Comments: For a multi-element scan for lab control standards and matrix spikes, up to 10% of analytes may exceed the quoted limits by up to 10% absolute and it is considered acceptable.

O. Reg. 406/19 SPLP Metals															
Antimony Leachate	3044391		<0.6	<0.6	NA	< 0.6	103%	70%	130%	101%	80%	120%	98%	70%	130%
Arsenic Leachate	3044391		<5	<5	NA	< 5	100%	70%	130%	104%	80%	120%	99%	70%	130%
Barium Leachate	3044391		<100	<100	NA	< 100	100%	70%	130%	99%	80%	120%	99%	70%	130%
Beryllium Leachate	3044391		<0.8	<0.8	NA	1.1	85%	70%	130%	93%	80%	120%	93%	70%	130%
Boron Leachate	3044391		<500	<500	NA	< 500	98%	70%	130%	91%	80%	120%	90%	70%	130%
Cadmium Leachate	3044391		<0.20	<0.20	NA	< 0.20	100%	70%	130%	103%	80%	120%	105%	70%	130%
Chromium Leachate	3044391		<10	<10	NA	< 10	97%	70%	130%	103%	80%	120%	98%	70%	130%
Cobalt Leachate	3044391		<0.3	<0.3	NA	< 0.3	91%	70%	130%	94%	80%	120%	90%	70%	130%
Copper Leachate	3044391		<7.0	<7.0	NA	< 7.0	91%	70%	130%	99%	80%	120%	96%	70%	130%
Lead Leachate	3044391		<1.0	<1.0	NA	< 1.0	96%	70%	130%	105%	80%	120%	101%	70%	130%

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Quality Assurance

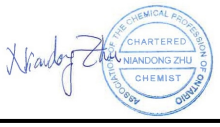
CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T810205
PROJECT: 60636190-BBP
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Oct 08, 2021			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
Molybdenum Leachate	3044391		1.6	1.6	NA	< 1.5	104%	70%	130%	102%	80%	120%	109%	70%	130%
Nickel Leachate	3044391		<10	<10	NA	< 10	97%	70%	130%	102%	80%	120%	96%	70%	130%
Selenium Leachate	3044391		<5.0	<5.0	NA	< 5.0	99%	70%	130%	106%	80%	120%	102%	70%	130%
Silver Leachate	3044391		<0.10	<0.10	NA	< 0.10	106%	70%	130%	116%	80%	120%	105%	70%	130%
Thallium Leachate	3044391		<0.5	<0.5	NA	< 0.5	99%	70%	130%	109%	80%	120%	102%	70%	130%
Uranium Leachate	3044391		<2	<2	NA	< 2	101%	70%	130%	102%	80%	120%	100%	70%	130%
Vanadium Leachate	3044391		0.6	0.7	NA	< 0.6	93%	70%	130%	97%	80%	120%	96%	70%	130%
Zinc Leachate	3044391		<20	<20	NA	< 20	98%	70%	130%	103%	80%	120%	117%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:



AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP
SAMPLING SITE:

AGAT WORK ORDER: 21T810205
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Trace Organics Analysis

RPT Date: Oct 08, 2021			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 and VOC) (Soil)															
F1 (C6 - C10)	3043377		<5	<5	NA	< 5	90%	60%	140%	96%	60%	140%	95%	60%	140%
F2 (C10 to C16)	2863264		44	55	NA	< 10	112%	60%	140%	109%	60%	140%	86%	60%	140%
F3 (C16 to C34)	2863264		130	170	NA	< 50	113%	60%	140%	109%	60%	140%	86%	60%	140%
F4 (C34 to C50)	2863264		52	65	NA	< 50	99%	60%	140%	94%	60%	140%	87%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	2970884		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	99%	50%	140%	111%	50%	140%
Acenaphthylene	2970884		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	98%	50%	140%	98%	50%	140%
Acenaphthene	2970884		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	96%	50%	140%	96%	50%	140%
Fluorene	2970884		0.07	< 0.05	NA	< 0.05	85%	50%	140%	95%	50%	140%	85%	50%	140%
Phenanthrene	2970884		0.24	0.16	NA	< 0.05	96%	50%	140%	85%	50%	140%	96%	50%	140%
Anthracene	2970884		0.05	< 0.05	NA	< 0.05	85%	50%	140%	96%	50%	140%	85%	50%	140%
Fluoranthene	2970884		0.14	0.14	NA	< 0.05	81%	50%	140%	85%	50%	140%	96%	50%	140%
Pyrene	2970884		0.31	0.23	NA	< 0.05	86%	50%	140%	96%	50%	140%	98%	50%	140%
Benz(a)anthracene	2970884		0.10	0.07	NA	< 0.05	92%	50%	140%	82%	50%	140%	98%	50%	140%
Chrysene	2970884		0.12	0.08	NA	< 0.05	81%	50%	140%	92%	50%	140%	85%	50%	140%
Benzo(b)fluoranthene	2970884		0.05	< 0.05	NA	< 0.05	98%	50%	140%	81%	50%	140%	96%	50%	140%
Benzo(k)fluoranthene	2970884		0.05	0.07	NA	< 0.05	96%	50%	140%	82%	50%	140%	85%	50%	140%
Benzo(a)pyrene	2970884		0.05	< 0.05	NA	< 0.05	105%	50%	140%	93%	50%	140%	96%	50%	140%
Indeno(1,2,3-cd)pyrene	2970884		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	105%	50%	140%	85%	50%	140%
Dibenz(a,h)anthracene	2970884		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	118%	50%	140%	96%	50%	140%
Benzo(g,h,i)perylene	2970884		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	98%	50%	140%	85%	50%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	3043377		<0.05	<0.05	NA	< 0.05	74%	50%	140%	85%	50%	140%	101%	50%	140%
Vinyl Chloride	3043377		<0.02	<0.02	NA	< 0.02	104%	50%	140%	86%	50%	140%	108%	50%	140%
Bromomethane	3043377		<0.05	<0.05	NA	< 0.05	81%	50%	140%	81%	50%	140%	96%	50%	140%
Trichlorofluoromethane	3043377		<0.05	<0.05	NA	< 0.05	87%	50%	140%	74%	50%	140%	106%	50%	140%
Acetone	3043377		<0.50	<0.50	NA	< 0.50	103%	50%	140%	80%	50%	140%	85%	50%	140%
1,1-Dichloroethylene	3043377		<0.05	<0.05	NA	< 0.05	106%	50%	140%	90%	60%	130%	87%	50%	140%
Methylene Chloride	3043377		<0.05	<0.05	NA	< 0.05	104%	50%	140%	101%	60%	130%	93%	50%	140%
Trans- 1,2-Dichloroethylene	3043377		<0.05	<0.05	NA	< 0.05	91%	50%	140%	82%	60%	130%	82%	50%	140%
Methyl tert-butyl Ether	3043377		<0.05	<0.05	NA	< 0.05	95%	50%	140%	74%	60%	130%	79%	50%	140%
1,1-Dichloroethane	3043377		<0.02	<0.02	NA	< 0.02	90%	50%	140%	73%	60%	130%	83%	50%	140%
Methyl Ethyl Ketone	3043377		<0.50	<0.50	NA	< 0.50	85%	50%	140%	90%	50%	140%	80%	50%	140%
Cis- 1,2-Dichloroethylene	3043377		<0.02	<0.02	NA	< 0.02	83%	50%	140%	85%	60%	130%	97%	50%	140%
Chloroform	3043377		<0.04	<0.04	NA	< 0.04	95%	50%	140%	93%	60%	130%	79%	50%	140%
1,2-Dichloroethane	3043377		<0.03	<0.03	NA	< 0.03	80%	50%	140%	73%	60%	130%	79%	50%	140%
1,1,1-Trichloroethane	3043377		<0.05	<0.05	NA	< 0.05	100%	50%	140%	104%	60%	130%	86%	50%	140%
Carbon Tetrachloride	3043377		<0.05	<0.05	NA	< 0.05	100%	50%	140%	104%	60%	130%	80%	50%	140%

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AGAT WORK ORDER: 21T810205
PROJECT: 60636190-BBP
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Oct 08, 2021			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
Benzene	3043377		<0.02	<0.02	NA	< 0.02	94%	50%	140%	80%	60%	130%	72%	50%	140%
1,2-Dichloropropane	3043377		<0.03	<0.03	NA	< 0.03	86%	50%	140%	104%	60%	130%	81%	50%	140%
Trichloroethylene	3043377		<0.03	<0.03	NA	< 0.03	112%	50%	140%	95%	60%	130%	81%	50%	140%
Bromodichloromethane	3043377		<0.05	<0.05	NA	< 0.05	87%	50%	140%	98%	60%	130%	74%	50%	140%
Methyl Isobutyl Ketone	3043377		<0.50	<0.50	NA	< 0.50	79%	50%	140%	87%	50%	140%	90%	50%	140%
1,1,2-Trichloroethane	3043377		<0.04	<0.04	NA	< 0.04	91%	50%	140%	90%	60%	130%	79%	50%	140%
Toluene	3043377		<0.05	<0.05	NA	< 0.05	83%	50%	140%	91%	60%	130%	82%	50%	140%
Dibromochloromethane	3043377		<0.05	<0.05	NA	< 0.05	104%	50%	140%	99%	60%	130%	81%	50%	140%
Ethylene Dibromide	3043377		<0.04	<0.04	NA	< 0.04	90%	50%	140%	98%	60%	130%	81%	50%	140%
Tetrachloroethylene	3043377		<0.05	<0.05	NA	< 0.05	101%	50%	140%	107%	60%	130%	109%	50%	140%
1,1,1,2-Tetrachloroethane	3043377		<0.04	<0.04	NA	< 0.04	100%	50%	140%	87%	60%	130%	99%	50%	140%
Chlorobenzene	3043377		<0.05	<0.05	NA	< 0.05	91%	50%	140%	93%	60%	130%	82%	50%	140%
Ethylbenzene	3043377		<0.05	<0.05	NA	< 0.05	85%	50%	140%	90%	60%	130%	80%	50%	140%
m & p-Xylene	3043377		<0.05	<0.05	NA	< 0.05	89%	50%	140%	94%	60%	130%	84%	50%	140%
Bromoform	3043377		<0.05	<0.05	NA	< 0.05	109%	50%	140%	101%	60%	130%	78%	50%	140%
Styrene	3043377		<0.05	<0.05	NA	< 0.05	91%	50%	140%	88%	60%	130%	75%	50%	140%
1,1,2,2-Tetrachloroethane	3043377		<0.05	<0.05	NA	< 0.05	118%	50%	140%	108%	60%	130%	91%	50%	140%
o-Xylene	3043377		<0.05	<0.05	NA	< 0.05	95%	50%	140%	97%	60%	130%	87%	50%	140%
1,3-Dichlorobenzene	3043377		<0.05	<0.05	NA	< 0.05	104%	50%	140%	99%	60%	130%	88%	50%	140%
1,4-Dichlorobenzene	3043377		<0.05	<0.05	NA	< 0.05	106%	50%	140%	100%	60%	130%	90%	50%	140%
1,2-Dichlorobenzene	3043377		<0.05	<0.05	NA	< 0.05	101%	50%	140%	94%	60%	130%	83%	50%	140%
n-Hexane	3043377		<0.05	<0.05	NA	< 0.05	108%	50%	140%	95%	60%	130%	90%	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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QA Violation

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

RPT Date: Oct 08, 2021

PARAMETER	Sample Id	Sample Description	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
			Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
				Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)											
Antimony		HRE-1	137%	70%	130%	112%	80%	120%	100%	70%	130%

Comments: For a multi-element scan for lab control standards and matrix spikes, up to 10% of analytes may exceed the quoted limits by up to 10% absolute and it is considered acceptable.

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Method Summary

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SAMPLING SITE:

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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
F3 (C16 to C34) minus PAHs	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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T810205

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
m & p-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035C and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE

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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 #: 21T810205
Cooler Quantity: Nil
Arrival Temperatures: 3.9 | 3.6 | 3.3 | 3.2 | 2.8 | 2.6
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 (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: 60636190 - BBP
Site Location:
Sampled By: Kesh
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 (Please Circle) Y / N	Metals and inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr⁶⁺ ☐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	SPLP Metals
HRE-1	Sep 29		4	Soil			X						X	X	X						

Samples Relinquished By (Print Name and Sign): [signature] Date: 10/1/21 Time: 2:30
Samples Received By (Print Name and Sign): [signature] Date: 10/1/21 Time: 12:34
Samples Relinquished By (Print Name and Sign): Date: Time:
Samples Received By (Print Name and Sign): Date: Time:

Page 1 of 1
N°:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-CR4

AGAT WORK ORDER: 21T813708

SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Oct 19, 2021

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

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T813708

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

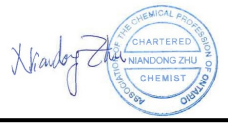
O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2021-10-08

DATE REPORTED: 2021-10-19

		SAMPLE DESCRIPTION:		CR4-09-SS2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-10-06
Parameter	Unit	G / S	RDL	3073358
Antimony	µg/g	7.5	0.8	<0.8
Arsenic	µg/g	11	1	4
Barium	µg/g	390	2.0	53.3
Beryllium	µg/g	4	0.4	<0.4
Boron	µg/g	120	5	5
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.13
Cadmium	µg/g	1	0.5	<0.5
Chromium	µg/g	160	5	16
Cobalt	µg/g	22	0.5	4.0
Copper	µg/g	140	1.0	11.9
Lead	µg/g	45	1	6
Molybdenum	µg/g	6.9	0.5	<0.5
Nickel	µg/g	100	1	7
Selenium	µg/g	2.4	0.8	<0.8
Silver	µg/g	20	0.5	<0.5
Thallium	µg/g	1	0.5	<0.5
Uranium	µg/g	23	0.50	0.54
Vanadium	µg/g	86	0.4	24.5
Zinc	µg/g	340	5	33
Chromium, Hexavalent	µg/g	8	0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040
Mercury	µg/g	0.24	0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.7	0.005	0.144
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	4	N/A	0.192
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.49

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T813708

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-08

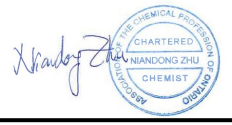
DATE REPORTED: 2021-10-19

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Ag
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.

3073358 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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AGAT WORK ORDER: 21T813708

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-10-08

DATE REPORTED: 2021-10-19

		SAMPLE DESCRIPTION:		CR4-09-SS2	CR4-06-SS2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-10-06	2021-10-04
Parameter	Unit	G / S	RDL	3073358	3073364
Naphthalene	µg/g	0.2	0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05
Acenaphthene	µg/g	2.5	0.05	<0.05	<0.05
Fluorene	µg/g	6.8	0.05	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	<0.05
Anthracene	µg/g	0.058	0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05
Pyrene	µg/g	28	0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	<0.05
Chrysene	µg/g	7	0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	3.2	0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	3.1	0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.31	0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.57	0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.096	0.05	<0.05	<0.05
Moisture Content	%		0.1	26.0	15.0
Surrogate	Unit	Acceptable Limits			
Naphthalene-d8	%	50-140		61	71
Acridine-d9	%	50-140		114	96
Terphenyl-d14	%	50-140		103	90

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Ag
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.

3073358-3073364 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: 21T813708

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 558 - Benzo(a) pyrene

DATE RECEIVED: 2021-10-08

DATE REPORTED: 2021-10-19

		SAMPLE DESCRIPTION:		CR-07-COM
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-10-08
Parameter	Unit	G / S	RDL	3073365
Benzo(a)pyrene Leachate	mg/L	0.001	0.001	<0.001
Surrogate	Unit	Acceptable Limits		
Acridine-d9	%	50-140		78
Naphthalene-d8	%	50-140		84
Terphenyl-d14	%	50-140		88

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.

3073365 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: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T813708

PROJECT: 60636190-CR4

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

Total PCBs (soil)

DATE RECEIVED: 2021-10-08

DATE REPORTED: 2021-10-19

		SAMPLE DESCRIPTION:		CR4-06-SS2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-10-04
Parameter	Unit	G / S	RDL	3073364
Polychlorinated Biphenyls	µg/g	0.35	0.1	<0.1
Moisture Content	%		0.1	15.0
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Ag
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.

3073364 Results are based on the dry weight of soil extracted.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Quality Assurance

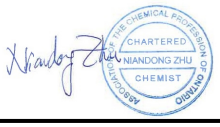
CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T813708
PROJECT: 60636190-CR4
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Soil Analysis

RPT Date: Oct 19, 2021			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	3100848		<0.8	<0.8	NA	< 0.8	96%	70%	130%	109%	80%	120%	99%	70%	130%
Arsenic	3100848		3	3	NA	< 1	128%	70%	130%	114%	80%	120%	117%	70%	130%
Barium	3100848		42.2	45.2	6.9%	< 2.0	105%	70%	130%	104%	80%	120%	104%	70%	130%
Beryllium	3100848		<0.4	<0.4	NA	< 0.4	99%	70%	130%	106%	80%	120%	105%	70%	130%
Boron	3100848		5	6	NA	< 5	98%	70%	130%	114%	80%	120%	108%	70%	130%
Boron (Hot Water Soluble)	3095704		0.28	0.29	NA	< 0.10	84%	60%	140%	96%	70%	130%	106%	60%	140%
Cadmium	3100848		<0.5	<0.5	NA	< 0.5	110%	70%	130%	107%	80%	120%	109%	70%	130%
Chromium	3100848		14	15	NA	< 5	109%	70%	130%	112%	80%	120%	110%	70%	130%
Cobalt	3100848		3.5	3.6	2.8%	< 0.5	108%	70%	130%	108%	80%	120%	107%	70%	130%
Copper	3100848		10.0	10.2	2.0%	< 1.0	100%	70%	130%	112%	80%	120%	106%	70%	130%
Lead	3100848		19	20	5.1%	< 1	109%	70%	130%	106%	80%	120%	103%	70%	130%
Molybdenum	3100848		<0.5	<0.5	NA	< 0.5	116%	70%	130%	115%	80%	120%	121%	70%	130%
Nickel	3100848		7	7	0.0%	< 1	114%	70%	130%	114%	80%	120%	111%	70%	130%
Selenium	3100848		<0.8	<0.8	NA	< 0.8	73%	70%	130%	109%	80%	120%	114%	70%	130%
Silver	3100848		<0.5	<0.5	NA	< 0.5	104%	70%	130%	111%	80%	120%	104%	70%	130%
Thallium	3100848		<0.5	<0.5	NA	< 0.5	115%	70%	130%	109%	80%	120%	109%	70%	130%
Uranium	3100848		<0.50	<0.50	NA	< 0.50	120%	70%	130%	110%	80%	120%	112%	70%	130%
Vanadium	3100848		23.2	23.4	0.9%	< 0.4	116%	70%	130%	106%	80%	120%	109%	70%	130%
Zinc	3100848		52	53	1.9%	< 5	109%	70%	130%	111%	80%	120%	111%	70%	130%
Chromium, Hexavalent	3086422		<0.2	<0.2	NA	< 0.2	94%	70%	130%	96%	80%	120%	80%	70%	130%
Cyanide, Free	3096487		<0.040	<0.040	NA	< 0.040	99%	70%	130%	107%	80%	120%	96%	70%	130%
Mercury	3100848		<0.10	<0.10	NA	< 0.10	109%	70%	130%	105%	80%	120%	106%	70%	130%
Electrical Conductivity (2:1)	3095704		0.590	0.641	8.3%	< 0.005	108%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3096484		39.0	38.7	0.8%	NA									
pH, 2:1 CaCl2 Extraction	3096487		7.39	7.40	0.1%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:



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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-CR4
SAMPLING SITE:

AGAT WORK ORDER: 21T813708
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Trace Organics Analysis

RPT Date: Oct 19, 2021			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) - PAHs (Soil)															
Naphthalene	2970884		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	99%	50%	140%	111%	50%	140%
Acenaphthylene	2970884		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	98%	50%	140%	98%	50%	140%
Acenaphthene	2970884		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	96%	50%	140%	96%	50%	140%
Fluorene	2970884		0.07	< 0.05	NA	< 0.05	85%	50%	140%	95%	50%	140%	85%	50%	140%
Phenanthrene	2970884		0.24	0.16	NA	< 0.05	96%	50%	140%	85%	50%	140%	96%	50%	140%
Anthracene	2970884		0.05	< 0.05	NA	< 0.05	85%	50%	140%	96%	50%	140%	85%	50%	140%
Fluoranthene	2970884		0.14	0.14	NA	< 0.05	81%	50%	140%	85%	50%	140%	96%	50%	140%
Pyrene	2970884		0.31	0.23	NA	< 0.05	86%	50%	140%	96%	50%	140%	98%	50%	140%
Benz(a)anthracene	2970884		0.10	0.07	NA	< 0.05	92%	50%	140%	82%	50%	140%	98%	50%	140%
Chrysene	2970884		0.12	0.08	NA	< 0.05	81%	50%	140%	92%	50%	140%	85%	50%	140%
Benzo(b)fluoranthene	2970884		0.05	< 0.05	NA	< 0.05	98%	50%	140%	81%	50%	140%	96%	50%	140%
Benzo(k)fluoranthene	2970884		0.05	0.07	NA	< 0.05	96%	50%	140%	82%	50%	140%	85%	50%	140%
Benzo(a)pyrene	2970884		0.05	< 0.05	NA	< 0.05	105%	50%	140%	93%	50%	140%	96%	50%	140%
Indeno(1,2,3-cd)pyrene	2970884		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	105%	50%	140%	85%	50%	140%
Dibenz(a,h)anthracene	2970884		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	118%	50%	140%	96%	50%	140%
Benzo(g,h,i)perylene	2970884		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	98%	50%	140%	85%	50%	140%
Total PCBs (soil)															
Polychlorinated Biphenyls	3072766		< 0.1	< 0.1	NA	< 0.1	97%	60%	140%	94%	60%	140%	84%	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).

O. Reg. 558 - Benzo(a) pyrene															
Benzo(a)pyrene Leachate	3073365	3073365	< 0.001	< 0.001	NA	< 0.001	72%	50%	140%	91%	50%	140%	75%	50%	140%

Certified By: N Popnikolof

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T813708

PROJECT: 60636190-CR4

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T813708
PROJECT: 60636190-CR4
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Benzo(a)pyrene Leachate	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Moisture Content	ORG-91-5009	CCME Tier 1 Method	BALANCE

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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 #: 21T813708
Cooler Quantity:
Arrival Temperatures: 8.7 | 9.9 | 9.4
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes: ice.

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 *Indicate One*
☐ Ind/Com
☐ Res/Park
☑ Agriculture
Soil Texture: 11/06/19
☑ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region 2.1 *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: 60636190 - CR04
Site Location: CR-04
Sampled By: Kesh.
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr^{6+} ☐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 PAH	Sewer Use
CR4-09-552	Oct6		1				X									X				X	
CR4-06-552	Oct4		1													X		X			
CR4-07-Com	Oct8		1																	X	

21 OCT 8 3:57 PM

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
[signature]	3.55		Simon		3:57
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
N°:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-BBP

AGAT WORK ORDER: 21T829674

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Nov 24, 2021

PAGES (INCLUDING COVER): 25

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: 21T829674

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

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

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203820
Antimony	µg/g	1	0.8	<0.8
Arsenic	µg/g	11	1	2
Barium	µg/g	210	2.0	39.6
Beryllium	µg/g	2.5	0.4	<0.4
Boron	µg/g	36	5	<5
Boron (Hot Water Soluble)	µg/g	NA	0.10	<0.10
Cadmium	µg/g	1	0.5	<0.5
Chromium	µg/g	67	5	13
Cobalt	µg/g	19	0.5	4.6
Copper	µg/g	62	1.0	8.5
Lead	µg/g	45	1	4
Molybdenum	µg/g	2	0.5	<0.5
Nickel	µg/g	37	1	8
Selenium	µg/g	1.2	0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5
Thallium	µg/g	1	0.5	<0.5
Uranium	µg/g	1.9	0.50	<0.50
Vanadium	µg/g	86	0.4	26.5
Zinc	µg/g	290	5	27
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.130
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.398
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.74

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

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

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3203820 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T829674
PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD
SAMPLING SITE:

ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

O. Reg. 406/19 SPLP Metals

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203820
Antimony Leachate	µg/L	6	0.6	<0.6
Arsenic Leachate	µg/L	-	5	<5
Barium Leachate	µg/L	-	100	<100
Beryllium Leachate	µg/L	-	0.8	<0.8
Boron Leachate	µg/L	-	500	<500
Cadmium Leachate	µg/L	-	0.20	<0.20
Chromium Leachate	µg/L	-	10	<10
Cobalt Leachate	µg/L	-	0.3	<0.3
Copper Leachate	µg/L	-	7.0	<7.0
Lead Leachate	µg/L	-	1.0	<1.0
Molybdenum Leachate	µg/L	23	1.5	<1.5
Nickel Leachate	µg/L	-	10	<10
Selenium Leachate	µg/L	-	5.0	<5.0
Silver Leachate	µg/L	0.3	0.10	<0.10
Thallium Leachate	µg/L	-	0.5	<0.5
Uranium Leachate	µg/L	-	2	<2
Vanadium Leachate	µg/L	-	0.6	2.0
Zinc Leachate	µg/L	-	20	<20

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 1: Full Depth Background Site Condition - Agriculture
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.

3203820 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

O. Reg. 153(511) - OC Pesticides + PCBs (Soil)

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203820
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Hexachloroethane	µg/g	0.01	0.01	<0.01
Aroclor 1242	µg/g		0.10	<0.10
Aroclor 1248	µg/g		0.10	<0.10
Aroclor 1254	µg/g		0.10	<0.10
Aroclor 1260	µg/g		0.10	<0.10
Polychlorinated Biphenyls	µg/g	0.3	0.10	<0.10

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

O. Reg. 153(511) - OC Pesticides + PCBs (Soil)

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203820
Moisture Content	%		0.1	17.7
wet weight OC/PCB	g		NA	10.67
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		70
Decachlorobiphenyl	%	50-140		79

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3203820 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
PCB total is a calculated parameter. The calculated value is the sum of Aroclor 1242, Aroclor 1248, Aroclor 1254 and Aroclor 1260.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T829674
PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD
SAMPLING SITE:

ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

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

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203825
Naphthalene	µg/g	0.05	0.05	<0.05
Acenaphthylene	µg/g	0.093	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	0.19	0.05	<0.05
Anthracene	µg/g	0.05	0.05	<0.05
Fluoranthene	µg/g	0.24	0.05	<0.05
Pyrene	µg/g	0.19	0.05	<0.05
Benz(a)anthracene	µg/g	0.095	0.05	<0.05
Chrysene	µg/g	0.18	0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.3	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	0.11	0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.2	0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	17.7
Surrogate	Unit	Acceptable Limits		
Naphthalene-d8	%	50-140		104
Acridine-d9	%	50-140		85
Terphenyl-d14	%	50-140		96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3203825 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: 21T829674
PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD
SAMPLING SITE:

ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

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

DATE RECEIVED: 2021-11-12 DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-3
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203826
F1 (C6 - C10)	µg/g	17	5	<5
F1 (C6 to C10) minus BTEX	µg/g	17	5	<5
F2 (C10 to C16)	µg/g	10	10	<10
F3 (C16 to C34)	µg/g	240	50	<50
F4 (C34 to C50)	µg/g	120	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA
Moisture Content	%		0.1	18.5
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		74.0
Terphenyl	%	60-140		103

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3203826 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 calculated parameter is 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 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 *)

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AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

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

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-3
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203826
Dichlorodifluoromethane	µg/g	0.05	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	0.05	0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T829674
PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD
SAMPLING SITE:

ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

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

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-3
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203826
Bromoform	ug/g	0.05	0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05
Xylenes (Total)	ug/g	0.05	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	18.5
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		101
4-Bromofluorobenzene	% Recovery	50-140		96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3203826 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T829674
PROJECT: 60636190-BBP

CLIENT NAME: AECOM CANADA LTD
SAMPLING SITE:

ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

O. Reg. 406/19 - SPLP VOCs

DATE RECEIVED: 2021-11-12

DATE REPORTED: 2021-11-24

		SAMPLE DESCRIPTION:		HRW-1B-SS-3
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-11
Parameter	Unit	G / S	RDL	3203826
Bromomethane Leachate	µg/L	0.5	0.20	<0.20
1,1-Dichloroethylene Leachate	µg/L	0.5	0.30	<0.30
Trans 1,2-Dichloroethylene Leachate	µg/L	0.5	0.20	<0.20
1,1-Dichloroethane Leachate	µg/L	0.5	0.30	<0.30
Cis 1,2-Dichloroethylene Leachate	µg/L	0.5	0.20	<0.20
Chloroform Leachate	µg/L	1	0.20	<0.20
1,2-Dichloroethane Leachate	µg/L	0.5	0.20	<0.20
Carbon Tetrachloride Leachate	µg/L	0.2	0.20	<0.20
1,2-Dichloropropane Leachate	µg/L	0.5	0.20	<0.20
Trichloroethylene Leachate	µg/L	0.5	0.20	<0.20
1,1,2-Trichloroethane Leachate	µg/L	0.5	0.20	<0.20
Ethylene Dibromide Leachate	µg/L	0.2	0.10	<0.10
Tetrachloroethylene Leachate	µg/L	0.5	0.20	<0.20
1,1,1,2-Tetrachloroethane Leachate	µg/L	0.5	0.10	<0.10
1,1,2,2-Tetrachloroethane Leachate	µg/L	0.5	0.10	<0.10
1,4-Dichlorobenzene Leachate	µg/L	0.5	0.10	<0.10
1,2-Dichlorobenzene Leachate	µg/L	0.55	0.10	<0.10
1,3-Dichloropropene Total Leachate	µg/L	0.5	0.30	<0.30
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		101

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 1: Full Depth Background Site Condition - Agriculture
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.

3203826 Leachate was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.
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: N Popnikolof

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP
SAMPLING SITE:

AGAT WORK ORDER: 21T829674
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

Soil Analysis

RPT Date: Nov 24, 2021			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	3220698		<0.8	<0.8	NA	< 0.8	125%	70%	130%	103%	80%	120%	80%	70%	130%
Arsenic	3220698		2	2	NA	< 1	119%	70%	130%	109%	80%	120%	104%	70%	130%
Barium	3220698		174	174	0.0%	< 2.0	115%	70%	130%	106%	80%	120%	107%	70%	130%
Beryllium	3220698		0.6	0.6	NA	< 0.4	112%	70%	130%	103%	80%	120%	115%	70%	130%
Boron	3220698		<5	<5	NA	< 5	72%	70%	130%	101%	80%	120%	71%	70%	130%
Boron (Hot Water Soluble)	3200089		0.12	0.12	NA	< 0.10	97%	60%	140%	107%	70%	130%	106%	60%	140%
Cadmium	3220698		<0.5	<0.5	NA	< 0.5	113%	70%	130%	109%	80%	120%	110%	70%	130%
Chromium	3220698		29	30	3.4%	< 5	105%	70%	130%	106%	80%	120%	95%	70%	130%
Cobalt	3220698		10.3	10.4	1.0%	< 0.5	103%	70%	130%	108%	80%	120%	101%	70%	130%
Copper	3220698		15.9	15.9	0.0%	< 1.0	94%	70%	130%	110%	80%	120%	96%	70%	130%
Lead	3220698		21	21	0.0%	< 1	106%	70%	130%	105%	80%	120%	109%	70%	130%
Molybdenum	3220698		1.0	1.0	NA	< 0.5	111%	70%	130%	115%	80%	120%	107%	70%	130%
Nickel	3220698		15	16	6.5%	< 1	100%	70%	130%	107%	80%	120%	97%	70%	130%
Selenium	3220698		<0.8	<0.8	NA	< 0.8	133%	70%	130%	111%	80%	120%	108%	70%	130%
Silver	3220698		<0.5	<0.5	NA	< 0.5	111%	70%	130%	109%	80%	120%	102%	70%	130%
Thallium	3220698		<0.5	<0.5	NA	< 0.5	118%	70%	130%	104%	80%	120%	106%	70%	130%
Uranium	3220698		1.58	1.62	NA	< 0.50	116%	70%	130%	110%	80%	120%	113%	70%	130%
Vanadium	3220698		49.9	47.8	4.3%	< 0.4	116%	70%	130%	109%	80%	120%	95%	70%	130%
Zinc	3220698		85	86	1.2%	< 5	104%	70%	130%	113%	80%	120%	99%	70%	130%
Chromium, Hexavalent	3205960		<0.2	<0.2	NA	< 0.2	107%	70%	130%	90%	80%	120%	110%	70%	130%
Cyanide, Free	3196927		<0.040	<0.040	NA	< 0.040	104%	70%	130%	97%	80%	120%	76%	70%	130%
Mercury	3220698		<0.10	<0.10	NA	< 0.10	107%	70%	130%	106%	80%	120%	108%	70%	130%
Electrical Conductivity (2:1)	3220559		0.134	0.134	0.0%	< 0.005	110%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3220559		0.166	0.161	3.1%	NA									
pH, 2:1 CaCl2 Extraction	3211753		7.61	7.66	0.7%	NA	101%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

O. Reg. 406/19 SPLP Metals															
Antimony Leachate	3203820	3203820	<0.6	<0.6	NA	< 0.6	101%	70%	130%	107%	80%	120%	101%	70%	130%
Arsenic Leachate	3203820	3203820	<5	<5	NA	< 5	93%	70%	130%	106%	80%	120%	100%	70%	130%
Barium Leachate	3203820	3203820	<100	<100	NA	< 100	98%	70%	130%	102%	80%	120%	96%	70%	130%
Beryllium Leachate	3203820	3203820	<0.8	<0.8	NA	< 0.8	100%	70%	130%	109%	80%	120%	98%	70%	130%
Boron Leachate	3203820	3203820	<500	<500	NA	< 500	99%	70%	130%	111%	80%	120%	109%	70%	130%
Cadmium Leachate	3203820	3203820	<0.20	<0.20	NA	< 0.20	102%	70%	130%	105%	80%	120%	98%	70%	130%
Chromium Leachate	3203820	3203820	<10	<10	NA	< 10	99%	70%	130%	104%	80%	120%	97%	70%	130%
Cobalt Leachate	3203820	3203820	<0.3	<0.3	NA	< 0.3	98%	70%	130%	110%	80%	120%	101%	70%	130%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP
SAMPLING SITE:

AGAT WORK ORDER: 21T829674
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

Soil Analysis (Continued)

RPT Date: Nov 24, 2021			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
Copper Leachate	3203820	3203820	<7.0	<7.0	NA	< 7.0	99%	70%	130%	112%	80%	120%	104%	70%	130%
Lead Leachate	3203820	3203820	<1.0	<1.0	NA	< 1.0	101%	70%	130%	110%	80%	120%	102%	70%	130%
Molybdenum Leachate	3203820	3203820	<1.5	<1.5	NA	< 1.5	100%	70%	130%	114%	80%	120%	107%	70%	130%
Nickel Leachate	3203820	3203820	<10	<10	NA	< 10	95%	70%	130%	103%	80%	120%	98%	70%	130%
Selenium Leachate	3203820	3203820	<5.0	<5.0	NA	< 5.0	97%	70%	130%	108%	80%	120%	100%	70%	130%
Silver Leachate	3203820	3203820	<0.10	<0.10	NA	< 0.10	99%	70%	130%	104%	80%	120%	100%	70%	130%
Thallium Leachate	3203820	3203820	<0.5	<0.5	NA	< 0.5	98%	70%	130%	110%	80%	120%	100%	70%	130%
Uranium Leachate	3203820	3203820	<2	<2	NA	< 2	101%	70%	130%	115%	80%	120%	107%	70%	130%
Vanadium Leachate	3203820	3203820	2.0	2.1	NA	1.2	93%	70%	130%	100%	80%	120%	91%	70%	130%
Zinc Leachate	3203820	3203820	<20	<20	NA	< 20	100%	70%	130%	110%	80%	120%	105%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP
SAMPLING SITE:

AGAT WORK ORDER: 21T829674
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

Trace Organics Analysis

RPT Date: Nov 24, 2021			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) - OC Pesticides + PCBs (Soil)															
Gamma-Hexachlorocyclohexane	3205168		< 0.005	< 0.005	NA	< 0.005	81%	50%	140%	107%	50%	140%	91%	50%	140%
Heptachlor	3205168		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	106%	50%	140%	106%	50%	140%
Aldrin	3205168		< 0.005	< 0.005	NA	< 0.005	83%	50%	140%	88%	50%	140%	85%	50%	140%
Heptachlor Epoxide	3205168		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%	93%	50%	140%	90%	50%	140%
Endosulfan I	3205168		< 0.005	< 0.005	NA	< 0.005	85%	50%	140%	90%	50%	140%	88%	50%	140%
Endosulfan II	3205168		< 0.005	< 0.005	NA	< 0.005	93%	50%	140%	93%	50%	140%	89%	50%	140%
Alpha-Chlordane	3205168		< 0.005	< 0.005	NA	< 0.005	83%	50%	140%	87%	50%	140%	92%	50%	140%
gamma-Chlordane	3205168		< 0.005	< 0.005	NA	< 0.005	82%	50%	140%	86%	50%	140%	91%	50%	140%
op'-DDD	3205168		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	107%	50%	140%	103%	50%	140%
pp'-DDD	3205168		< 0.005	< 0.005	NA	< 0.005	101%	50%	140%	102%	50%	140%	103%	50%	140%
op'-DDE	3205168		< 0.005	< 0.005	NA	< 0.005	87%	50%	140%	96%	50%	140%	95%	50%	140%
pp'-DDE	3205168		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	98%	50%	140%	94%	50%	140%
op'-DDT	3205168		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	103%	50%	140%	104%	50%	140%
pp'-DDT	3205168		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	101%	50%	140%	106%	50%	140%
Dieldrin	3205168		< 0.005	< 0.005	NA	< 0.005	87%	50%	140%	94%	50%	140%	90%	50%	140%
Endrin	3205168		< 0.005	< 0.005	NA	< 0.005	107%	50%	140%	103%	50%	140%	109%	50%	140%
Methoxychlor	3205168		< 0.005	< 0.005	NA	< 0.005	102%	50%	140%	106%	50%	140%	104%	50%	140%
Hexachlorobenzene	3205168		< 0.005	< 0.005	NA	< 0.005	91%	50%	140%	95%	50%	140%	87%	50%	140%
Hexachlorobutadiene	3205168		< 0.01	< 0.01	NA	< 0.01	86%	50%	140%	102%	50%	140%	102%	50%	140%
Hexachloroethane	3205168		< 0.01	< 0.01	NA	< 0.01	85%	50%	140%	101%	50%	140%	90%	50%	140%
Aroclor 1242	3205168		< 0.10	< 0.10	NA	< 0.10	102%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1248	3205168		< 0.10	< 0.10	NA	< 0.10	104%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1254	3205168		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1260	3205168		< 0.10	< 0.10	NA	< 0.10	90%	50%	140%	NA	50%	140%	NA	50%	140%
Polychlorinated Biphenyls	3205168		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	94%	50%	140%	92%	50%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	3188273		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	70%	50%	140%	114%	50%	140%
Acenaphthylene	3188273		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	75%	50%	140%	75%	50%	140%
Acenaphthene	3188273		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	94%	50%	140%	96%	50%	140%
Fluorene	3188273		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	85%	50%	140%	93%	50%	140%
Phenanthrene	3188273		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	78%	50%	140%	92%	50%	140%
Anthracene	3188273		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	74%	50%	140%	104%	50%	140%
Fluoranthene	3188273		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	109%	50%	140%	78%	50%	140%
Pyrene	3188273		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	86%	50%	140%	85%	50%	140%
Benz(a)anthracene	3188273		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	95%	50%	140%	93%	50%	140%
Chrysene	3188273		< 0.05	< 0.05	NA	< 0.05	88%	50%	140%	77%	50%	140%	92%	50%	140%
Benzo(b)fluoranthene	3188273		< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	71%	50%	140%	91%	50%	140%
Benzo(k)fluoranthene	3188273		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	85%	50%	140%	114%	50%	140%
Benzo(a)pyrene	3188273		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	93%	50%	140%	78%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP
SAMPLING SITE:

AGAT WORK ORDER: 21T829674
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

Trace Organics Analysis (Continued)

RPT Date: Nov 24, 2021

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
Indeno(1,2,3-cd)pyrene	3188273		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	92%	50%	140%	95%	50%	140%
Dibenz(a,h)anthracene	3188273		< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	104%	50%	140%	93%	50%	140%
Benzo(g,h,i)perylene	3188273		< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	77%	50%	140%	92%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)															
F1 (C6 - C10)	3198764		<5	<5	NA	< 5	84%	60%	140%	90%	60%	140%	96%	60%	140%
F2 (C10 to C16)	3209562		< 10	< 10	NA	< 10	113%	60%	140%	64%	60%	140%	70%	60%	140%
F3 (C16 to C34)	3209562		< 50	< 50	NA	< 50	116%	60%	140%	81%	60%	140%	71%	60%	140%
F4 (C34 to C50)	3209562		< 50	< 50	NA	< 50	84%	60%	140%	90%	60%	140%	64%	60%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	3203826	3203826	<0.05	<0.05	NA	< 0.05	93%	50%	140%	95%	50%	140%	90%	50%	140%
Vinyl Chloride	3203826	3203826	<0.02	<0.02	NA	< 0.02	107%	50%	140%	102%	50%	140%	100%	50%	140%
Bromomethane	3203826	3203826	<0.05	<0.05	NA	< 0.05	80%	50%	140%	102%	50%	140%	98%	50%	140%
Trichlorofluoromethane	3203826	3203826	<0.05	<0.05	NA	< 0.05	103%	50%	140%	85%	50%	140%	101%	50%	140%
Acetone	3203826	3203826	<0.50	<0.50	NA	< 0.50	105%	50%	140%	101%	50%	140%	98%	50%	140%
1,1-Dichloroethylene	3203826	3203826	<0.05	<0.05	NA	< 0.05	104%	50%	140%	96%	60%	130%	110%	50%	140%
Methylene Chloride	3203826	3203826	<0.05	<0.05	NA	< 0.05	115%	50%	140%	108%	60%	130%	114%	50%	140%
Trans- 1,2-Dichloroethylene	3203826	3203826	<0.05	<0.05	NA	< 0.05	85%	50%	140%	102%	60%	130%	107%	50%	140%
Methyl tert-butyl Ether	3203826	3203826	<0.05	<0.05	NA	< 0.05	115%	50%	140%	115%	60%	130%	99%	50%	140%
1,1-Dichloroethane	3203826	3203826	<0.02	<0.02	NA	< 0.02	116%	50%	140%	98%	60%	130%	112%	50%	140%
Methyl Ethyl Ketone	3203826	3203826	<0.50	<0.50	NA	< 0.50	104%	50%	140%	99%	50%	140%	102%	50%	140%
Cis- 1,2-Dichloroethylene	3203826	3203826	<0.02	<0.02	NA	< 0.02	108%	50%	140%	101%	60%	130%	86%	50%	140%
Chloroform	3203826	3203826	<0.04	<0.04	NA	< 0.04	118%	50%	140%	86%	60%	130%	75%	50%	140%
1,2-Dichloroethane	3203826	3203826	<0.03	<0.03	NA	< 0.03	119%	50%	140%	90%	60%	130%	82%	50%	140%
1,1,1-Trichloroethane	3203826	3203826	<0.05	<0.05	NA	< 0.05	115%	50%	140%	78%	60%	130%	81%	50%	140%
Carbon Tetrachloride	3203826	3203826	<0.05	<0.05	NA	< 0.05	85%	50%	140%	95%	60%	130%	82%	50%	140%
Benzene	3203826	3203826	<0.02	<0.02	NA	< 0.02	72%	50%	140%	90%	60%	130%	80%	50%	140%
1,2-Dichloropropane	3203826	3203826	<0.03	<0.03	NA	< 0.03	104%	50%	140%	115%	60%	130%	82%	50%	140%
Trichloroethylene	3203826	3203826	<0.03	<0.03	NA	< 0.03	110%	50%	140%	113%	60%	130%	95%	50%	140%
Bromodichloromethane	3203826	3203826	<0.05	<0.05	NA	< 0.05	115%	50%	140%	104%	60%	130%	97%	50%	140%
Methyl Isobutyl Ketone	3203826	3203826	<0.50	<0.50	NA	< 0.50	101%	50%	140%	103%	50%	140%	98%	50%	140%
1,1,2-Trichloroethane	3203826	3203826	<0.04	<0.04	NA	< 0.04	107%	50%	140%	87%	60%	130%	102%	50%	140%
Toluene	3203826	3203826	<0.05	<0.05	NA	< 0.05	86%	50%	140%	85%	60%	130%	91%	50%	140%
Dibromochloromethane	3203826	3203826	<0.05	<0.05	NA	< 0.05	85%	50%	140%	80%	60%	130%	94%	50%	140%
Ethylene Dibromide	3203826	3203826	<0.04	<0.04	NA	< 0.04	105%	50%	140%	88%	60%	130%	100%	50%	140%
Tetrachloroethylene	3203826	3203826	<0.05	<0.05	NA	< 0.05	83%	50%	140%	71%	60%	130%	96%	50%	140%
1,1,1,2-Tetrachloroethane	3203826	3203826	<0.04	<0.04	NA	< 0.04	79%	50%	140%	71%	60%	130%	87%	50%	140%
Chlorobenzene	3203826	3203826	<0.05	<0.05	NA	< 0.05	94%	50%	140%	76%	60%	130%	100%	50%	140%
Ethylbenzene	3203826	3203826	<0.05	<0.05	NA	< 0.05	82%	50%	140%	86%	60%	130%	91%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP
SAMPLING SITE:

AGAT WORK ORDER: 21T829674
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh A.

Trace Organics Analysis (Continued)

RPT Date: Nov 24, 2021			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
m & p-Xylene	3203826	3203826	<0.05	<0.05	NA	< 0.05	102%	50%	140%	97%	60%	130%	103%	50%	140%
Bromoform	3203826	3203826	<0.05	<0.05	NA	< 0.05	114%	50%	140%	82%	60%	130%	112%	50%	140%
Styrene	3203826	3203826	<0.05	<0.05	NA	< 0.05	86%	50%	140%	77%	60%	130%	89%	50%	140%
1,1,2,2-Tetrachloroethane	3203826	3203826	<0.05	<0.05	NA	< 0.05	102%	50%	140%	96%	60%	130%	107%	50%	140%
o-Xylene	3203826	3203826	<0.05	<0.05	NA	< 0.05	93%	50%	140%	75%	60%	130%	100%	50%	140%
1,3-Dichlorobenzene	3203826	3203826	<0.05	<0.05	NA	< 0.05	101%	50%	140%	84%	60%	130%	105%	50%	140%
1,4-Dichlorobenzene	3203826	3203826	<0.05	<0.05	NA	< 0.05	102%	50%	140%	89%	60%	130%	105%	50%	140%
1,2-Dichlorobenzene	3203826	3203826	<0.05	<0.05	NA	< 0.05	109%	50%	140%	90%	60%	130%	107%	50%	140%
n-Hexane	3203826	3203826	<0.05	<0.05	NA	< 0.05	89%	50%	140%	104%	60%	130%	90%	50%	140%
O. Reg. 406/19 - SPLP VOCs															
Bromomethane Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	80%	50%	140%	102%	50%	140%	98%	50%	140%
1,1-Dichloroethylene Leachate	3203826	3203826	<0.30	<0.30	NA	< 0.30	104%	50%	140%	96%	60%	130%	110%	50%	140%
Trans 1,2-Dichloroethylene Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	85%	50%	140%	102%	60%	130%	107%	50%	140%
1,1-Dichloroethane Leachate	3203826	3203826	<0.30	<0.30	NA	< 0.30	116%	50%	140%	98%	60%	130%	112%	50%	140%
Cis 1,2-Dichloroethylene Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	108%	50%	140%	101%	60%	130%	86%	50%	140%
Chloroform Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	118%	50%	140%	86%	60%	130%	75%	50%	130%
1,2-Dichloroethane Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	119%	50%	140%	90%	60%	130%	82%	50%	140%
Carbon Tetrachloride Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	85%	50%	140%	95%	60%	130%	82%	50%	140%
1,2-Dichloropropane Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	104%	50%	140%	115%	60%	130%	82%	50%	140%
Trichloroethylene Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	110%	50%	140%	113%	60%	130%	95%	50%	140%
1,1,2-Trichloroethane Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	107%	50%	140%	87%	60%	130%	102%	50%	140%
Ethylene Dibromide Leachate	3203826	3203826	<0.10	<0.10	NA	< 0.10	105%	50%	140%	88%	60%	130%	100%	50%	140%
Tetrachloroethylene Leachate	3203826	3203826	<0.20	<0.20	NA	< 0.20	83%	50%	140%	71%	60%	130%	96%	50%	140%
1,1,1,2-Tetrachloroethane Leachate	3203826	3203826	<0.10	<0.10	NA	< 0.10	79%	50%	140%	71%	60%	130%	87%	50%	140%
1,1,2,2-Tetrachloroethane Leachate	3203826	3203826	<0.10	<0.10	NA	< 0.10	102%	50%	140%	96%	60%	130%	107%	50%	140%
1,4-Dichlorobenzene Leachate	3203826	3203826	<0.10	<0.10	NA	< 0.10	102%	50%	140%	89%	60%	130%	105%	50%	140%
1,2-Dichlorobenzene Leachate	3203826	3203826	<0.10	<0.10	NA	< 0.10	109%	50%	140%	90%	60%	130%	107%	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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QC Exceedance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

RPT Date: Nov 24, 2021

PARAMETER	Sample Id	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)										
Selenium		133%	70%	130%	111%	80%	120%	108%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Alpha-Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
op'-DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
op'-DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachloroethane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Aroclor 1242	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Aroclor 1248	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Aroclor 1254	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Aroclor 1260	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
TCMX	ORG-91-5113	modified from EPA SW-846 3541, 3620,8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541, 3620,8081	GC/ECD
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
wet weight OC/PCB	ORG-91-5113		BALANCE
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T829674
PROJECT: 60636190-BBP
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:Kesh A.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Bromomethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trans 1,2-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Cis 1,2-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chloroform Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Carbon Tetrachloride Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloropropane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T829674

PROJECT: 60636190-BBP

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh A.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,2-Trichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylene Dibromide Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Tetrachloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichloropropene Total Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

AGAT Laboratories
5835 Coopers Avenue
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 #: 21T829674
Cooler Quantity:
Arrival Temperatures: 7.9 8.0 8.0 / 8.1 8.7 8.2
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: Ice

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☑ Regulation 153/04 — Table 1 (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: 60636190 - BBP
Site Location:
Sampled By: Kesh. A
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: Kesh. S AP.
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl ☐ CN⁻ ☐ Cr^{6+} ☐ 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	PCB	OC	Metals - SPLP	PAH	VOC SPLP
HRW-1B-SS1	Nov-11		3	Soil			X																X	X	X		
HRW-1B-SS2	11		1	11																					X		
HRW-1B-SS3	11		3	11									X	X												X	

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Kesh.	Nov 12-2021				
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
			2021/11/12		12:40
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
2021/11/12		2:55			

Page 1 of 1
N°:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190

AGAT WORK ORDER: 21T832588

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

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

DATE REPORTED: Nov 26, 2021

PAGES (INCLUDING COVER): 28

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-2 SS-2	CN-1 SS-1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-11-18	2021-11-17
Parameter	Unit	G / S	RDL	3231337	3231338
Antimony	µg/g	1	0.8	<0.8	<0.8
Arsenic	µg/g	11	1	2	2
Barium	µg/g	210	2.0	51.6	23.0
Beryllium	µg/g	2.5	0.4	<0.4	<0.4
Boron	µg/g	36	5	<5	<5
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.13	0.16
Cadmium	µg/g	1	0.5	<0.5	<0.5
Chromium	µg/g	67	5	14	9
Cobalt	µg/g	19	0.5	4.5	2.9
Copper	µg/g	62	1.0	7.0	3.2
Lead	µg/g	45	1	5	5
Molybdenum	µg/g	2	0.5	<0.5	<0.5
Nickel	µg/g	37	1	8	5
Selenium	µg/g	1.2	0.8	<0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5
Uranium	µg/g	1.9	0.50	0.53	<0.50
Vanadium	µg/g	86	0.4	25.8	20.1
Zinc	µg/g	290	5	19	19
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.200	0.126
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	1.32	0.210
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.15	7.36

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Certificate of Analysis

AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3231337-3231338 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 406/19 SPLP Metals

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-1 SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-17
Parameter	Unit	G / S	RDL	3231338
Antimony Leachate	µg/L		0.6	<0.6
Arsenic Leachate	µg/L		5	<5
Barium Leachate	µg/L		100	<100
Beryllium Leachate	µg/L		0.8	<0.8
Boron Leachate	µg/L		500	<500
Cadmium Leachate	µg/L		0.20	<0.20
Chromium Leachate	µg/L		10	<10
Cobalt Leachate	µg/L		0.3	<0.3
Copper Leachate	µg/L		7.0	<7.0
Lead Leachate	µg/L		1.0	<1.0
Molybdenum Leachate	µg/L		1.5	<1.5
Nickel Leachate	µg/L		10	<10
Selenium Leachate	µg/L		5.0	<5.0
Silver Leachate	µg/L		0.10	<0.10
Thallium Leachate	µg/L		0.5	<0.5
Uranium Leachate	µg/L		2	<2
Vanadium Leachate	µg/L		0.6	1.3
Zinc Leachate	µg/L		20	<20

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

3231338 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.

Analysis performed at AGAT Toronto (unless marked by *)

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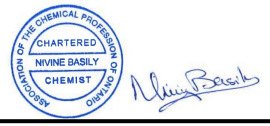

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-2 SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-18
Parameter	Unit	G / S	RDL	3231337
Hexachloroethane	µg/g	0.01	0.01	<0.01
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT (Total)	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Moisture Content	%		0.1	19.6
wet weight OC	g		0.01	10.42
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		92
Decachlorobiphenyl	%	50-140		104

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3231337 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides + PCBs (Soil)

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-1 SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-17
Parameter	Unit	G / S	RDL	3231338
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Hexachloroethane	µg/g	0.01	0.01	<0.01
Aroclor 1242	µg/g		0.10	<0.10
Aroclor 1248	µg/g		0.10	<0.10
Aroclor 1254	µg/g		0.10	<0.10
Aroclor 1260	µg/g		0.10	<0.10
Polychlorinated Biphenyls	µg/g	0.3	0.10	<0.10

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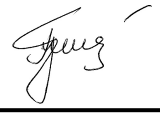

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides + PCBs (Soil)

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-1 SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-17
Parameter	Unit	G / S	RDL	3231338
Moisture Content	%		0.1	19.9
wet weight OC/PCB	g		NA	10.20
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		96
Decachlorobiphenyl	%	50-140		105

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3231338 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
PCB total is a calculated parameter. The calculated value is the sum of Aroclor 1242, Aroclor 1248, Aroclor 1254 and Aroclor 1260.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-2 SS-2	CN-1 SS-2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-11-18	2021-11-17
Parameter	Unit	G / S	RDL	3231337	3231339
Naphthalene	µg/g	0.05	0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05
Acenaphthene	µg/g	0.05	0.05	<0.05	<0.05
Fluorene	µg/g	0.05	0.05	<0.05	<0.05
Phenanthrene	µg/g	0.19	0.05	<0.05	<0.05
Anthracene	µg/g	0.05	0.05	<0.05	<0.05
Fluoranthene	µg/g	0.24	0.05	<0.05	<0.05
Pyrene	µg/g	0.19	0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.095	0.05	<0.05	<0.05
Chrysene	µg/g	0.18	0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.3	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	0.11	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	0.2	0.05	<0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.05	0.05	<0.05	<0.05
Moisture Content	%		0.1	19.6	16.2
Surrogate	Unit	Acceptable Limits			
Naphthalene-d8	%	50-140		78	109
Acridine-d9	%	50-140		84	98
Terphenyl-d14	%	50-140		88	88

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3231337-3231339 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.

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-2 SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-18
Parameter	Unit	G / S	RDL	3231327
F1 (C6 - C10)	µg/g	17	5	<5
F1 (C6 to C10) minus BTEX	µg/g	17	5	<5
F2 (C10 to C16)	µg/g	10	10	<10
F3 (C16 to C34)	µg/g	240	50	<50
F4 (C34 to C50)	µg/g	120	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA
Moisture Content	%		0.1	22.5
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		86
Terphenyl	%	60-140		92

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3231327 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 calculated parameter is 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 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 *)

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-2 SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-18
Parameter	Unit	G / S	RDL	3231327
Dichlorodifluoromethane	µg/g	0.05	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	0.05	0.05	<0.05
Acetone	ug/g	0.5	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.05	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.05	0.05	<0.05
1,1-Dichloroethane	ug/g	0.05	0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.05	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.02	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.04	<0.04
Chlorobenzene	ug/g	0.05	0.05	<0.05
Ethylbenzene	ug/g	0.05	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

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AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-2 SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-18
Parameter	Unit	G / S	RDL	3231327
Bromoform	ug/g	0.05	0.05	<0.05
Styrene	ug/g	0.05	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	0.05	<0.05
Xylenes (Total)	ug/g	0.05	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	22.5
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		95
4-Bromofluorobenzene	% Recovery	50-140		72

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3231327 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 406/19 - SPLP VOCs

DATE RECEIVED: 2021-11-19

DATE REPORTED: 2021-11-26

		SAMPLE DESCRIPTION:		CN-2 SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-18
Parameter	Unit	G / S	RDL	3231327
Bromomethane Leachate	µg/L		0.20	<0.20
1,1-Dichloroethylene Leachate	µg/L		0.30	<0.30
Trans 1,2-Dichloroethylene Leachate	µg/L		0.20	<0.20
1,1-Dichloroethane Leachate	µg/L		0.30	<0.30
Cis 1,2-Dichloroethylene Leachate	µg/L		0.20	<0.20
Chloroform Leachate	µg/L		0.20	<0.20
1,2-Dichloroethane Leachate	µg/L		0.20	<0.20
Carbon Tetrachloride Leachate	µg/L		0.20	<0.20
1,2-Dichloropropane Leachate	µg/L		0.20	<0.20
Trichloroethylene Leachate	µg/L		0.20	<0.20
1,1,2-Trichloroethane Leachate	µg/L		0.20	<0.20
Ethylene Dibromide Leachate	µg/L		0.10	<0.10
Tetrachloroethylene Leachate	µg/L		0.20	<0.20
1,1,1,2-Tetrachloroethane Leachate	µg/L		0.10	<0.10
1,1,2,2-Tetrachloroethane Leachate	µg/L		0.10	<0.10
1,4-Dichlorobenzene Leachate	µg/L		0.10	<0.10
1,2-Dichlorobenzene Leachate	µg/L		0.10	<0.10
1,3-Dichloropropene Total Leachate	µg/L		0.30	<0.30
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	50-140		95

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

3231327 Leachate was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.
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 *)

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Exceedance Summary

AGAT WORK ORDER: 21T832588

PROJECT: 60636190

CLIENT NAME: AECOM CANADA LTD

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SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3231337	CN-2 SS-2	ON T1 S AG	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.	N/A	1	1.32

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190
SAMPLING SITE:

AGAT WORK ORDER: 21T832588
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Soil Analysis

RPT Date: Nov 26, 2021			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	3237203		1.1	1.0	NA	< 0.8	118%	70%	130%	104%	80%	120%	94%	70%	130%
Arsenic	3237203		9	9	0.0%	< 1	118%	70%	130%	111%	80%	120%	106%	70%	130%
Barium	3237203		446	496	10.6%	< 2.0	110%	70%	130%	103%	80%	120%	94%	70%	130%
Beryllium	3237203		<0.4	<0.4	NA	< 0.4	80%	70%	130%	104%	80%	120%	96%	70%	130%
Boron	3237203		22	25	NA	< 5	79%	70%	130%	105%	80%	120%	102%	70%	130%
Boron (Hot Water Soluble)	3231337	3231337	0.13	0.12	NA	< 0.10	97%	60%	140%	99%	70%	130%	105%	60%	140%
Cadmium	3237203		1.5	1.7	NA	< 0.5	111%	70%	130%	101%	80%	120%	103%	70%	130%
Chromium	3237203		63	65	3.1%	< 5	111%	70%	130%	108%	80%	120%	91%	70%	130%
Cobalt	3237203		4.8	5.1	6.1%	< 0.5	102%	70%	130%	107%	80%	120%	97%	70%	130%
Copper	3237203		75.7	91.1	18.5%	< 1.0	96%	70%	130%	114%	80%	120%	106%	70%	130%
Lead	3237203		868	925	6.4%	< 1	112%	70%	130%	112%	80%	120%	112%	70%	130%
Molybdenum	3237203		2.6	2.7	3.8%	< 0.5	109%	70%	130%	116%	80%	120%	113%	70%	130%
Nickel	3237203		16	16	0.0%	< 1	105%	70%	130%	112%	80%	120%	100%	70%	130%
Selenium	3237203		1.2	1.3	NA	< 0.8	109%	70%	130%	105%	80%	120%	104%	70%	130%
Silver	3237203		<0.5	<0.5	NA	< 0.5	100%	70%	130%	96%	80%	120%	86%	70%	130%
Thallium	3237203		<0.5	<0.5	NA	< 0.5	118%	70%	130%	106%	80%	120%	98%	70%	130%
Uranium	3237203		<0.50	<0.50	NA	< 0.50	123%	70%	130%	110%	80%	120%	109%	70%	130%
Vanadium	3237203		16.1	16.1	0.0%	< 0.4	113%	70%	130%	110%	80%	120%	105%	70%	130%
Zinc	3237203		1140	1130	0.9%	< 5	103%	70%	130%	109%	80%	120%	125%	70%	130%
Chromium, Hexavalent	3232058		<0.2	<0.2	NA	< 0.2	98%	70%	130%	106%	80%	120%	84%	70%	130%
Cyanide, Free	3240133		<0.040	<0.040	NA	< 0.040	109%	70%	130%	91%	80%	120%	102%	70%	130%
Mercury	3237203		0.27	0.31	NA	< 0.10	110%	70%	130%	100%	80%	120%	99%	70%	130%
Electrical Conductivity (2:1)	3231337	3231337	0.200	0.211	5.4%	< 0.005	102%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3231337	3231337	1.32	1.35	2.2%	NA									
pH, 2:1 CaCl2 Extraction	3240133		7.71	7.69	0.3%	NA	101%	80%	120%						
O. Reg. 406/19 SPLP Metals															
Antimony Leachate	3220914		<0.6	<0.6	NA	< 0.6	102%	70%	130%	102%	80%	120%	106%	70%	130%
Arsenic Leachate	3220914		<5	<5	NA	< 5	96%	70%	130%	104%	80%	120%	108%	70%	130%
Barium Leachate	3220914		<100	<100	NA	< 100	100%	70%	130%	104%	80%	120%	109%	70%	130%
Beryllium Leachate	3220914		<0.8	<0.8	NA	< 0.8	109%	70%	130%	113%	80%	120%	116%	70%	130%
Boron Leachate	3220914		<500	<500	NA	< 500	110%	70%	130%	109%	80%	120%	120%	70%	130%
Cadmium Leachate	3220914		<0.20	<0.20	NA	< 0.20	102%	70%	130%	104%	80%	120%	109%	70%	130%
Chromium Leachate	3220914		<10	<10	NA	< 10	101%	70%	130%	107%	80%	120%	115%	70%	130%
Cobalt Leachate	3220914		<0.3	<0.3	NA	< 0.3	100%	70%	130%	104%	80%	120%	114%	70%	130%
Copper Leachate	3220914		<7.0	<7.0	NA	< 7.0	99%	70%	130%	105%	80%	120%	113%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T832588
PROJECT: 60636190
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Nov 26, 2021			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
Lead Leachate	3220914		<1.0	<1.0	NA	< 1.0	95%	70%	130%	101%	80%	120%	103%	70%	130%
Molybdenum Leachate	3220914		<1.5	<1.5	NA	< 1.5	100%	70%	130%	108%	80%	120%	116%	70%	130%
Nickel Leachate	3220914		<10	<10	NA	< 10	98%	70%	130%	102%	80%	120%	108%	70%	130%
Selenium Leachate	3220914		<5.0	<5.0	NA	< 5.0	99%	70%	130%	104%	80%	120%	110%	70%	130%
Silver Leachate	3220914		<0.10	<0.10	NA	< 0.10	103%	70%	130%	104%	80%	120%	106%	70%	130%
Thallium Leachate	3220914		<0.5	<0.5	NA	< 0.5	96%	70%	130%	98%	80%	120%	101%	70%	130%
Uranium Leachate	3220914		<2	<2	NA	< 2	93%	70%	130%	100%	80%	120%	104%	70%	130%
Vanadium Leachate	3220914		0.9	0.9	NA	< 0.6	98%	70%	130%	102%	80%	120%	112%	70%	130%
Zinc Leachate	3220914		<20	<20	NA	< 20	101%	70%	130%	107%	80%	120%	111%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

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Trace Organics Analysis

RPT Date: Nov 26, 2021			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 - C10)	3231327	3231327	<5	<5	NA	< 5	96%	60%	140%	113%	60%	140%	98%	60%	140%
F2 (C10 to C16)	3229211		< 10	< 10	NA	< 10	115%	60%	140%	109%	60%	140%	82%	60%	140%
F3 (C16 to C34)	3229211		< 50	< 50	NA	< 50	111%	60%	140%	111%	60%	140%	76%	60%	140%
F4 (C34 to C50)	3229211		< 50	< 50	NA	< 50	82%	60%	140%	120%	60%	140%	75%	60%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	3235648		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	83%	50%	140%	105%	50%	140%
Vinyl Chloride	3235648		< 0.02	< 0.02	NA	< 0.02	94%	50%	140%	97%	50%	140%	86%	50%	140%
Bromomethane	3235648		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	88%	50%	140%	103%	50%	140%
Trichlorofluoromethane	3235648		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	94%	50%	140%	102%	50%	140%
Acetone	3235648		< 0.50	< 0.50	NA	< 0.50	100%	50%	140%	100%	50%	140%	101%	50%	140%
1,1-Dichloroethylene	3235648		< 0.05	< 0.05	NA	< 0.05	75%	50%	140%	96%	60%	130%	79%	50%	140%
Methylene Chloride	3235648		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	111%	60%	130%	85%	50%	140%
Trans- 1,2-Dichloroethylene	3235648		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	97%	60%	130%	83%	50%	140%
Methyl tert-butyl Ether	3235648		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	101%	60%	130%	97%	50%	140%
1,1-Dichloroethane	3235648		< 0.02	< 0.02	NA	< 0.02	84%	50%	140%	98%	60%	130%	86%	50%	140%
Methyl Ethyl Ketone	3235648		< 0.50	< 0.50	NA	< 0.50	99%	50%	140%	102%	50%	140%	98%	50%	140%
Cis- 1,2-Dichloroethylene	3235648		< 0.02	< 0.02	NA	< 0.02	91%	50%	140%	104%	60%	130%	94%	50%	140%
Chloroform	3235648		< 0.04	< 0.04	NA	< 0.04	104%	50%	140%	120%	60%	130%	102%	50%	140%
1,2-Dichloroethane	3235648		< 0.03	< 0.03	NA	< 0.03	104%	50%	140%	119%	60%	130%	110%	50%	140%
1,1,1-Trichloroethane	3235648		< 0.05	< 0.05	NA	< 0.05	104%	50%	140%	120%	60%	130%	102%	50%	140%
Carbon Tetrachloride	3235648		< 0.05	< 0.05	NA	< 0.05	71%	50%	140%	77%	60%	130%	82%	50%	140%
Benzene	3235648		< 0.02	< 0.02	NA	< 0.02	83%	50%	140%	102%	60%	130%	87%	50%	140%
1,2-Dichloropropane	3235648		< 0.03	< 0.03	NA	< 0.03	73%	50%	140%	81%	60%	130%	73%	50%	140%
Trichloroethylene	3235648		< 0.03	< 0.03	NA	< 0.03	89%	50%	140%	87%	60%	130%	72%	50%	140%
Bromodichloromethane	3235648		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	89%	60%	130%	75%	50%	140%
Methyl Isobutyl Ketone	3235648		< 0.50	< 0.50	NA	< 0.50	101%	50%	140%	101%	50%	140%	101%	50%	140%
1,1,2-Trichloroethane	3235648		< 0.04	< 0.04	NA	< 0.04	117%	50%	140%	104%	60%	130%	115%	50%	140%
Toluene	3231327	3231327	<0.05	<0.05	NA	< 0.05	78%	50%	140%	78%	60%	130%	102%	50%	140%
Dibromochloromethane	3235648		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	83%	60%	130%	113%	50%	140%
Ethylene Dibromide	3235648		< 0.04	< 0.04	NA	< 0.04	108%	50%	140%	90%	60%	130%	100%	50%	140%
Tetrachloroethylene	3235648		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	89%	60%	130%	101%	50%	140%
1,1,1,2-Tetrachloroethane	3235648		< 0.04	< 0.04	NA	< 0.04	118%	50%	140%	81%	60%	130%	74%	50%	140%
Chlorobenzene	3235648		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	91%	60%	130%	86%	50%	140%
Ethylbenzene	3235648		< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	74%	60%	130%	81%	50%	140%
m & p-Xylene	3235648		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	103%	60%	130%	93%	50%	140%
Bromoform	3235648		< 0.05	< 0.05	NA	< 0.05	111%	50%	140%	84%	60%	130%	110%	50%	140%
Styrene	3235648		< 0.05	< 0.05	NA	< 0.05	72%	50%	140%	71%	60%	130%	77%	50%	140%
1,1,2,2-Tetrachloroethane	3235648		< 0.05	< 0.05	NA	< 0.05	109%	50%	140%	98%	60%	130%	81%	50%	140%
o-Xylene	3235648		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	75%	60%	130%	82%	50%	140%

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Quality Assurance

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SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Nov 26, 2021			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	3235648		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	105%	60%	130%	108%	50%	140%
1,4-Dichlorobenzene	3235648		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	101%	60%	130%	106%	50%	140%
1,2-Dichlorobenzene	3235648		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	92%	60%	130%	107%	50%	140%
n-Hexane	3235648		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	77%	60%	130%	84%	50%	140%
O. Reg. 406/19 - SPLP VOCs															
Bromomethane Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	101%	50%	140%	83%	50%	140%	96%	50%	140%
1,1-Dichloroethylene Leachate	3231327	3231327	<0.30	<0.30	NA	< 0.30	115%	50%	140%	119%	60%	130%	118%	50%	140%
Trans 1,2-Dichloroethylene Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	117%	50%	140%	94%	60%	130%	116%	50%	140%
1,1-Dichloroethane Leachate	3231327	3231327	<0.30	<0.30	NA	< 0.30	99%	50%	140%	108%	60%	130%	116%	50%	140%
Cis 1,2-Dichloroethylene Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	107%	50%	140%	119%	60%	130%	110%	50%	140%
Chloroform Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	88%	50%	140%	112%	60%	130%	106%	50%	130%
1,2-Dichloroethane Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	87%	50%	140%	105%	60%	130%	92%	50%	140%
Carbon Tetrachloride Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	84%	50%	140%	84%	60%	130%	85%	50%	140%
1,2-Dichloropropane Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	77%	50%	140%	104%	60%	130%	77%	50%	140%
Trichloroethylene Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	73%	50%	140%	96%	60%	130%	82%	50%	140%
1,1,2-Trichloroethane Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	98%	50%	140%	105%	60%	130%	101%	50%	140%
Ethylene Dibromide Leachate	3231327	3231327	<0.10	<0.10	NA	< 0.10	104%	50%	140%	112%	60%	130%	109%	50%	140%
Tetrachloroethylene Leachate	3231327	3231327	<0.20	<0.20	NA	< 0.20	75%	50%	140%	80%	60%	130%	83%	50%	140%
1,1,1,2-Tetrachloroethane Leachate	3231327	3231327	<0.10	<0.10	NA	< 0.10	84%	50%	140%	87%	60%	130%	88%	50%	140%
1,1,2,2-Tetrachloroethane Leachate	3231327	3231327	<0.10	<0.10	NA	< 0.10	108%	50%	140%	117%	60%	130%	116%	50%	140%
1,4-Dichlorobenzene Leachate	3231327	3231327	<0.10	<0.10	NA	< 0.10	93%	50%	140%	97%	60%	130%	101%	50%	140%
1,2-Dichlorobenzene Leachate	3231327	3231327	<0.10	<0.10	NA	< 0.10	94%	50%	140%	101%	60%	130%	100%	50%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	3230140		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	115%	50%	140%	101%	50%	140%
Acenaphthylene	3230140		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	74%	50%	140%	82%	50%	140%
Acenaphthene	3230140		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	93%	50%	140%	83%	50%	140%
Fluorene	3230140		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	93%	50%	140%	94%	50%	140%
Phenanthrene	3230140		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	92%	50%	140%	98%	50%	140%
Anthracene	3230140		< 0.05	< 0.05	NA	< 0.05	67%	50%	140%	64%	50%	140%	85%	50%	140%
Fluoranthene	3230140		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	97%	50%	140%	105%	50%	140%
Pyrene	3230140		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	85%	50%	140%	78%	50%	140%
Benz(a)anthracene	3230140		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	96%	50%	140%	85%	50%	140%
Chrysene	3230140		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	105%	50%	140%	93%	50%	140%
Benzo(b)fluoranthene	3230140		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	78%	50%	140%	92%	50%	140%
Benzo(k)fluoranthene	3230140		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	88%	50%	140%	105%	50%	140%
Benzo(a)pyrene	3230140		< 0.05	< 0.05	NA	< 0.05	88%	50%	140%	96%	50%	140%	78%	50%	140%
Indeno(1,2,3-cd)pyrene	3230140		< 0.05	< 0.05	NA	< 0.05	75%	50%	140%	92%	50%	140%	88%	50%	140%
Dibenz(a,h)anthracene	3230140		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	105%	50%	140%	96%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T832588
PROJECT: 60636190
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Nov 26, 2021			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(g,h,i)perylene	3230140		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	80%	50%	140%	93%	50%	140%
O. Reg. 153(511) - OC Pesticides (Soil)															
Hexachloroethane	3223870		< 0.01	< 0.01	NA	< 0.01	85%	50%	140%	86%	50%	140%	84%	50%	140%
Gamma-Hexachlorocyclohexane	3223870		< 0.005	< 0.005	NA	< 0.005	90%	50%	140%	96%	50%	140%	92%	50%	140%
Heptachlor	3223870		< 0.005	< 0.005	NA	< 0.005	85%	50%	140%	85%	50%	140%	87%	50%	140%
Aldrin	3223870		< 0.005	< 0.005	NA	< 0.005	99%	50%	140%	109%	50%	140%	103%	50%	140%
Heptachlor Epoxide	3223870		< 0.005	< 0.005	NA	< 0.005	99%	50%	140%	108%	50%	140%	106%	50%	140%
Endosulfan I	3223870		< 0.005	< 0.005	NA	< 0.005	100%	50%	140%	106%	50%	140%	102%	50%	140%
Endosulfan II	3223870		< 0.005	< 0.005	NA	< 0.005	107%	50%	140%		50%	140%		50%	140%
Alpha-Chlordane	3223870		< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	107%	50%	140%	104%	50%	140%
gamma-Chlordane	3223870		< 0.005	< 0.005	NA	< 0.005	95%	50%	140%	106%	50%	140%	105%	50%	140%
op'-DDE	3223870		< 0.005	< 0.005	NA	< 0.005	91%	50%	140%	101%	50%	140%	102%	50%	140%
pp'-DDE	3223870		< 0.005	< 0.005	NA	< 0.005	97%	50%	140%	102%	50%	140%	104%	50%	140%
op'-DDD	3223870		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	107%	50%	140%	106%	50%	140%
pp'-DDD	3223870		< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	109%	50%	140%	105%	50%	140%
op'-DDT	3223870		< 0.005	< 0.005	NA	< 0.005	101%	50%	140%	109%	50%	140%	108%	50%	140%
pp'-DDT	3223870		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	90%	50%	140%	92%	50%	140%
Dieldrin	3223870		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	112%	50%	140%	102%	50%	140%
Endrin	3223870		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	105%	50%	140%	102%	50%	140%
Methoxychlor	3223870		< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	88%	50%	140%	89%	50%	140%
Hexachlorobenzene	3223870		< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	97%	50%	140%	92%	50%	140%
Hexachlorobutadiene	3223870		< 0.01	< 0.01	NA	< 0.01	88%	50%	140%	87%	50%	140%	84%	50%	140%
O. Reg. 153(511) - OC Pesticides + PCBs (Soil)															
Aroclor 1242	3223870		< 0.10	< 0.10	NA	< 0.10	104%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1248	3223870		< 0.10	< 0.10	NA	< 0.10	106%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1254	3223870		< 0.10	< 0.10	NA	< 0.10	102%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1260	3223870		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	NA	50%	140%	NA	50%	140%
Polychlorinated Biphenyls	3223870		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	94%	50%	140%	92%	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: AECOM CANADA LTD

AGAT WORK ORDER: 21T832588

PROJECT: 60636190

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

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PROJECT: 60636190

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T832588

PROJECT: 60636190

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Alpha-Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
op'-DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
op'-DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachloroethane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Aroclor 1242	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Aroclor 1248	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD

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Method Summary

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SAMPLING SITE:

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Aroclor 1254	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Aroclor 1260	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
TCMX	ORG-91-5113	modified from EPA SW-846 3541, 3620,8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541, 3620,8081	GC/ECD
wet weight OC/PCB	ORG-91-5113		BALANCE
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T832588
PROJECT: 60636190
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T832588
PROJECT: 60636190
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Bromomethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trans 1,2-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Cis 1,2-Dichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chloroform Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Carbon Tetrachloride Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloropropane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2-Trichloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T832588

PROJECT: 60636190

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Ethylene Dibromide Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Tetrachloroethylene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichloropropene Total Leachate	VOL-91-5001	modified from EPA 1312, EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

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 intended for human consumption)

Laboratory Use Only
Work Order #: 21T832588
Cooler Quantity: Small
Arrival Temperatures: 4.8 | 4.5 | 4.3 / 3.7 | 3.4 | 3.3
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☑ Regulation 153/04 — Table I (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: 60636190 - BBP
Site Location:
Sampled By: Kesh. A.
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: CC: Kesh
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 (Please Circle) Y/N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr⁶⁺ ☐EC ☐FOC ☐NO₃/NO₂ ☐Total N ☐Hg ☐pH ☐SAR	Nutrients: ☐TP ☐NH₃ ☐TKN ☐NO₃ ☐NO₂ ☐NO₃/NO₂	Volatiles: ☐VOC ☐BTEX ☐THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	PHC/VOC	SPLP VOC	DC	SPLP Metals
CN-2 SS-1	Nov 18		3				X									X						X	X	X
CN-2 SS-2	11		1																					
CN-1 SS-1	Nov 17		2				X									X		X				X	X	X
CN-1 SS-2	11		1																					

Samples Relinquished By (Print Name and Sign): Kesh A.	Date: Nov 19/2021	Time:	Samples Received By (Print Name and Sign):	Date: 11/19/21 Time: 6:20 PM
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: 11/19/21	Time: 1:26	Samples Received By (Print Name and Sign):	Date: Time:

Page 1 of 1
N°:

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-BBP Task WCM

AGAT WORK ORDER: 21T836210

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

TRACE ORGANICS REVIEWED BY: Inga Kuzmina, Trace Organics Lab Manager

DATE REPORTED: Dec 05, 2021

PAGES (INCLUDING COVER): 25

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

		SAMPLE DESCRIPTION:		AIP-04-SS1	AIP-02-SS1	AIP-03-SS1
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2021-11-23	2021-11-23	2021-11-23
Parameter	Unit	G / S	RDL	3262107	3262113	3262114
Antimony	µg/g	1	0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	11	1	1	2	3
Barium	µg/g	210	2.0	47.2	51.5	69.0
Beryllium	µg/g	2.5	0.4	<0.4	<0.4	0.5
Boron	µg/g	36	5	7	7	8
Boron (Hot Water Soluble)	µg/g	NA	0.10	<0.10	<0.10	0.30
Cadmium	µg/g	1	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	67	5	12	14	19
Cobalt	µg/g	19	0.5	3.5	4.5	5.5
Copper	µg/g	62	1.0	6.4	8.9	9.2
Lead	µg/g	45	1	3	4	11
Molybdenum	µg/g	2	0.5	<0.5	<0.5	<0.5
Nickel	µg/g	37	1	6	8	9
Selenium	µg/g	1.2	0.8	<0.8	<0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5
Uranium	µg/g	1.9	0.50	<0.50	<0.50	0.53
Vanadium	µg/g	86	0.4	21.6	24.9	29.9
Zinc	µg/g	290	5	23	24	46
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.097	0.275	0.142
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.421	2.56	0.485
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.10	7.11	7.20

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3262107-3262114 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 406/19 SPLP Metals

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

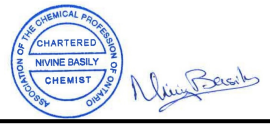
		SAMPLE DESCRIPTION:		AIP-03-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-23
Parameter	Unit	G / S	RDL	3262114
Antimony Leachate	µg/L	6	0.6	<0.6
Arsenic Leachate	µg/L	-	5	<5
Barium Leachate	µg/L	-	100	<100
Beryllium Leachate	µg/L	-	0.8	<0.8
Boron Leachate	µg/L	-	500	<500
Cadmium Leachate	µg/L	-	0.20	<0.20
Chromium Leachate	µg/L	-	10	<10
Cobalt Leachate	µg/L	-	0.3	<0.3
Copper Leachate	µg/L	-	7.0	<7.0
Lead Leachate	µg/L	-	1.0	<1.0
Molybdenum Leachate	µg/L	23	1.5	<1.5
Nickel Leachate	µg/L	-	10	<10
Selenium Leachate	µg/L	-	5.0	<5.0
Silver Leachate	µg/L	0.3	0.10	<0.10
Thallium Leachate	µg/L	-	0.5	<0.5
Uranium Leachate	µg/L	-	2	<2
Vanadium Leachate	µg/L	-	0.6	1.0
Zinc Leachate	µg/L	-	20	<20

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 1: Full Depth Background Site Condition - Agriculture
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.

3262114 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

		SAMPLE DESCRIPTION:		AIP-02-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-23
Parameter	Unit	G / S	RDL	3262113
Hexachloroethane	µg/g	0.01	0.01	<0.01
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT (Total)	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Moisture Content	%		0.1	7.7
wet weight OC	g		0.01	10.66
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		80
Decachlorobiphenyl	%	50-140		86

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3262113 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

		SAMPLE DESCRIPTION:		AIP-04-SS1	AIP-02-SS1	AIP-03-SS1
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2021-11-23	2021-11-23	2021-11-23
Parameter	Unit	G / S	RDL	3262107	3262113	3262114
Naphthalene	µg/g	0.05	0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	0.05	0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.05	0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.19	0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.05	0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.24	0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	0.19	0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.095	0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	0.18	0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.3	0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.05	0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.05	0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.11	0.05	<0.05	<0.05	<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	0.2	0.05	<0.05	<0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.05	0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	9.1	7.7	18.8
Surrogate	Unit	Acceptable Limits				
Naphthalene-d8	%	50-140		89	89	89
Acridine-d9	%	50-140		90	90	90
Terphenyl-d14	%	50-140		74	78	95

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3262107-3262114 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.

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PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

		SAMPLE DESCRIPTION:		AIP-04-SS2	AIP-03-SS2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-11-23	2021-11-23
Parameter	Unit	G / S	RDL	3262110	3262115
F1 (C6 - 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
F3 (C16 to C34)	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	8.3	6.23
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		72	84
Terphenyl	%	60-140		94	95

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

3262110-3262115 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 calculated parameter is 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 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 *)

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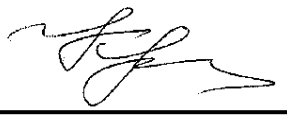

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AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

		SAMPLE DESCRIPTION:		AIP-04-SS2	AIP-03-SS2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-11-23	2021-11-23
Parameter	Unit	G / S	RDL	3262110	3262115
Dichlorodifluoromethane	µg/g		0.05	<0.05	<0.05
Vinyl Chloride	ug/g		0.02	<0.02	<0.02
Bromomethane	ug/g		0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g		0.05	<0.05	<0.05
Acetone	ug/g		0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g		0.05	<0.05	<0.05
Methylene Chloride	ug/g		0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g		0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g		0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g		0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g		0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g		0.02	<0.02	<0.02
Chloroform	ug/g		0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g		0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g		0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g		0.05	<0.05	<0.05
Benzene	ug/g		0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g		0.03	<0.03	<0.03
Trichloroethylene	ug/g		0.03	<0.03	<0.03
Bromodichloromethane	ug/g		0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g		0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g		0.04	<0.04	<0.04
Toluene	ug/g		0.05	<0.05	<0.05
Dibromochloromethane	ug/g		0.05	<0.05	<0.05
Ethylene Dibromide	ug/g		0.04	<0.04	<0.04
Tetrachloroethylene	ug/g		0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g		0.04	<0.04	<0.04
Chlorobenzene	ug/g		0.05	<0.05	<0.05
Ethylbenzene	ug/g		0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05

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AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

		SAMPLE DESCRIPTION:		AIP-04-SS2	AIP-03-SS2
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-11-23	2021-11-23
Parameter	Unit	G / S	RDL	3262110	3262115
Bromoform	ug/g		0.05	<0.05	<0.05
Styrene	ug/g		0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g		0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g		0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g		0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g		0.05	<0.05	<0.05
Xylenes (Total)	ug/g		0.05	<0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g		0.04	<0.04	<0.04
n-Hexane	µg/g		0.05	<0.05	<0.05
Moisture Content	%		0.1	8.3	6.23
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		96	103
4-Bromofluorobenzene	% Recovery	50-140		76	80

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

3262110-3262115 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

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CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

Total PCBs (soil)

DATE RECEIVED: 2021-11-26

DATE REPORTED: 2021-12-05

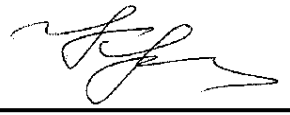
		SAMPLE DESCRIPTION:		AIP-04-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-11-23
Parameter	Unit	G / S	RDL	3262107
Polychlorinated Biphenyls	µg/g	0.3	0.1	<0.1
Moisture Content	%		0.1	9.1
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3262107 Results are based on the dry weight of soil extracted.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



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Exceedance Summary

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3262113	AIP-02-SS1	ON T1 S AG	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	2.56

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP Task WCM
SAMPLING SITE:

AGAT WORK ORDER: 21T836210
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Soil Analysis

RPT Date: Dec 05, 2021			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	3262107	3262107	<0.8	<0.8	NA	< 0.8	125%	70%	130%	97%	80%	120%	90%	70%	130%
Arsenic	3262107	3262107	1	1	NA	< 1	114%	70%	130%	105%	80%	120%	106%	70%	130%
Barium	3262107	3262107	47.2	48.3	2.3%	< 2.0	107%	70%	130%	103%	80%	120%	104%	70%	130%
Beryllium	3262107	3262107	<0.4	<0.4	NA	< 0.4	124%	70%	130%	98%	80%	120%	114%	70%	130%
Boron	3262107	3262107	7	7	NA	< 5	100%	70%	130%	106%	80%	120%	120%	70%	130%
Boron (Hot Water Soluble)	3262107	3262107	<0.10	<0.10	NA	< 0.10	99%	60%	140%	104%	70%	130%	104%	60%	140%
Cadmium	3262107	3262107	<0.5	<0.5	NA	< 0.5	108%	70%	130%	101%	80%	120%	101%	70%	130%
Chromium	3262107	3262107	12	12	NA	< 5	106%	70%	130%	106%	80%	120%	101%	70%	130%
Cobalt	3262107	3262107	3.5	3.6	2.8%	< 0.5	102%	70%	130%	107%	80%	120%	97%	70%	130%
Copper	3262107	3262107	6.4	6.4	0.0%	< 1.0	94%	70%	130%	111%	80%	120%	92%	70%	130%
Lead	3262107	3262107	3	3	NA	< 1	106%	70%	130%	106%	80%	120%	101%	70%	130%
Molybdenum	3262107	3262107	<0.5	<0.5	NA	< 0.5	104%	70%	130%	112%	80%	120%	108%	70%	130%
Nickel	3262107	3262107	6	6	0.0%	< 1	96%	70%	130%	105%	80%	120%	94%	70%	130%
Selenium	3262107	3262107	<0.8	<0.8	NA	< 0.8	132%	70%	130%	104%	80%	120%	101%	70%	130%
Silver	3262107	3262107	<0.5	<0.5	NA	< 0.5	102%	70%	130%	101%	80%	120%	96%	70%	130%
Thallium	3262107	3262107	<0.5	<0.5	NA	< 0.5	106%	70%	130%	97%	80%	120%	99%	70%	130%
Uranium	3262107	3262107	<0.50	<0.50	NA	< 0.50	113%	70%	130%	103%	80%	120%	106%	70%	130%
Vanadium	3262107	3262107	21.6	21.4	0.9%	< 0.4	108%	70%	130%	102%	80%	120%	100%	70%	130%
Zinc	3262107	3262107	23	18	NA	< 5	102%	70%	130%	107%	80%	120%	91%	70%	130%
Chromium, Hexavalent	3249915		<0.2	<0.2	NA	< 0.2	100%	70%	130%	98%	80%	120%	90%	70%	130%
Cyanide, Free	3261784		<0.040	<0.040	NA	< 0.040	105%	70%	130%	92%	80%	120%	106%	70%	130%
Mercury	3262107	3262107	<0.10	<0.10	NA	< 0.10	103%	70%	130%	98%	80%	120%	99%	70%	130%
Electrical Conductivity (2:1)	3262107	3262107	0.097	0.097	0.0%	< 0.005	108%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3262107	3262107	0.421	0.419	0.5%	NA									
pH, 2:1 CaCl2 Extraction	3270066		6.87	6.87	0.0%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

O. Reg. 406/19 SPLP Metals															
Antimony Leachate	3260086		<0.6	<0.6	NA	< 0.6	101%	70%	130%	102%	80%	120%	103%	70%	130%
Arsenic Leachate	3260086		<5	<5	NA	< 5	95%	70%	130%	104%	80%	120%	101%	70%	130%
Barium Leachate	3260086		<100	<100	NA	< 100	100%	70%	130%	106%	80%	120%	101%	70%	130%
Beryllium Leachate	3260086		<0.8	<0.8	NA	< 0.8	108%	70%	130%	107%	80%	120%	119%	70%	130%
Boron Leachate	3260086		<500	<500	NA	< 500	100%	70%	130%	98%	80%	120%	104%	70%	130%
Cadmium Leachate	3260086		<0.20	<0.20	NA	< 0.20	98%	70%	130%	100%	80%	120%	100%	70%	130%
Chromium Leachate	3260086		<10	<10	NA	< 10	100%	70%	130%	109%	80%	120%	101%	70%	130%
Cobalt Leachate	3260086		<0.3	<0.3	NA	< 0.3	98%	70%	130%	105%	80%	120%	101%	70%	130%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T836210
PROJECT: 60636190-BBP Task WCM
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Dec 05, 2021			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
Copper Leachate	3260086		<7.0	<7.0	NA	< 7.0	99%	70%	130%	105%	80%	120%	102%	70%	130%
Lead Leachate	3260086		<1.0	<1.0	NA	< 1.0	101%	70%	130%	106%	80%	120%	103%	70%	130%
Molybdenum Leachate	3260086		<1.5	<1.5	NA	< 1.5	98%	70%	130%	107%	80%	120%	105%	70%	130%
Nickel Leachate	3260086		<10	<10	NA	< 10	95%	70%	130%	105%	80%	120%	98%	70%	130%
Selenium Leachate	3260086		<5.0	<5.0	NA	< 5.0	91%	70%	130%	101%	80%	120%	97%	70%	130%
Silver Leachate	3260086		<0.10	<0.10	NA	< 0.10	99%	70%	130%	103%	80%	120%	101%	70%	130%
Thallium Leachate	3260086		<0.5	<0.5	NA	< 0.5	96%	70%	130%	100%	80%	120%	95%	70%	130%
Uranium Leachate	3260086		<2	<2	NA	< 2	92%	70%	130%	98%	80%	120%	97%	70%	130%
Vanadium Leachate	3260086		1.2	1.0	NA	0.7	102%	70%	130%	108%	80%	120%	106%	70%	130%
Zinc Leachate	3260086		<20	<20	NA	< 20	99%	70%	130%	106%	80%	120%	114%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

AGAT Laboratories

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP Task WCM
SAMPLING SITE:

AGAT WORK ORDER: 21T836210
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Trace Organics Analysis

RPT Date: Dec 05, 2021			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) - PAHs (Soil)															
Naphthalene	3230140		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	115%	50%	140%	101%	50%	140%
Acenaphthylene	3230140		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	74%	50%	140%	82%	50%	140%
Acenaphthene	3230140		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	93%	50%	140%	83%	50%	140%
Fluorene	3230140		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	93%	50%	140%	94%	50%	140%
Phenanthrene	3230140		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	92%	50%	140%	98%	50%	140%
Anthracene	3230140		< 0.05	< 0.05	NA	< 0.05	67%	50%	140%	64%	50%	140%	85%	50%	140%
Fluoranthene	3230140		< 0.05	< 0.05	NA	< 0.05	87%	50%	140%	97%	50%	140%	105%	50%	140%
Pyrene	3230140		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	85%	50%	140%	78%	50%	140%
Benz(a)anthracene	3230140		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	96%	50%	140%	85%	50%	140%
Chrysene	3230140		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	105%	50%	140%	93%	50%	140%
Benzo(b)fluoranthene	3230140		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	78%	50%	140%	92%	50%	140%
Benzo(k)fluoranthene	3230140		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	88%	50%	140%	105%	50%	140%
Benzo(a)pyrene	3230140		< 0.05	< 0.05	NA	< 0.05	88%	50%	140%	96%	50%	140%	78%	50%	140%
Indeno(1,2,3-cd)pyrene	3230140		< 0.05	< 0.05	NA	< 0.05	75%	50%	140%	92%	50%	140%	88%	50%	140%
Dibenz(a,h)anthracene	3230140		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	105%	50%	140%	96%	50%	140%
Benzo(g,h,i)perylene	3230140		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	80%	50%	140%	93%	50%	140%
Total PCBs (soil)															
Polychlorinated Biphenyls	3262109		< 0.1	< 0.1	NA	< 0.1	102%	60%	140%	80%	60%	140%	90%	60%	140%
O. Reg. 153(511) - OC Pesticides (Soil)															
Hexachloroethane	3254478		< 0.01	< 0.01	NA	< 0.01	104%	50%	140%	80%	50%	140%	102%	50%	140%
Gamma-Hexachlorocyclohexane	3254478		< 0.005	< 0.005	NA	< 0.005	102%	50%	140%	86%	50%	140%	89%	50%	140%
Heptachlor	3254478		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	89%	50%	140%	80%	50%	140%
Aldrin	3254478		< 0.005	< 0.005	NA	< 0.005	108%	50%	140%	88%	50%	140%	104%	50%	140%
Heptachlor Epoxide	3254478		< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	87%	50%	140%	106%	50%	140%
Endosulfan I	3254478		< 0.005	< 0.005	NA	< 0.005	112%	50%	140%	85%	50%	140%	102%	50%	140%
Endosulfan II	3254478		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	93%	50%	140%	87%	50%	140%
Alpha-Chlordane	3254478		< 0.005	< 0.005	NA	< 0.005	108%	50%	140%	86%	50%	140%	102%	50%	140%
gamma-Chlordane	3254478		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	85%	50%	140%	106%	50%	140%
op'-DDE	3254478		< 0.005	< 0.005	NA	< 0.005	101%	50%	140%	95%	50%	140%	96%	50%	140%
pp'-DDE	3254478		< 0.005	< 0.005	NA	< 0.005	102%	50%	140%	89%	50%	140%	102%	50%	140%
op'-DDD	3254478		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	105%	50%	140%	102%	50%	140%
pp'-DDD	3254478		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	96%	50%	140%	103%	50%	140%
op'-DDT	3254478		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	86%	50%	140%	103%	50%	140%
pp'-DDT	3254478		< 0.005	< 0.005	NA	< 0.005	95%	50%	140%	106%	50%	140%	98%	50%	140%
Dieldrin	3254478		< 0.005	< 0.005	NA	< 0.005	107%	50%	140%	86%	50%	140%	102%	50%	140%
Endrin	3254478		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	105%	50%	140%	106%	50%	140%
Methoxychlor	3254478		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	86%	50%	140%	102%	50%	140%
Hexachlorobenzene	3254478		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	86%	50%	140%	105%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP Task WCM
SAMPLING SITE:

AGAT WORK ORDER: 21T836210
ATTENTION TO: Kesh Appadurai
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Dec 05, 2021			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
Hexachlorobutadiene	3254478		< 0.01	< 0.01	NA	< 0.01	84%	50%	140%	82%	50%	140%	106%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)															
F1 (C6 - C10)	3262115	3262115	<5	<5	NA	< 5	96%	60%	140%	90%	60%	140%	90%	60%	140%
F2 (C10 to C16)	3286611		< 10	< 10	NA	< 10	120%	60%	140%	120%	60%	140%	79%	60%	140%
F3 (C16 to C34)	3286611		< 50	< 50	NA	< 50	94%	60%	140%	121%	60%	140%	77%	60%	140%
F4 (C34 to C50)	3286611		< 50	< 50	NA	< 50	90%	60%	140%	94%	60%	140%	63%	60%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	3262120		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	94%	50%	140%	110%	50%	140%
Vinyl Chloride	3262120		< 0.02	< 0.02	NA	< 0.02	106%	50%	140%	93%	50%	140%	96%	50%	140%
Bromomethane	3262120		< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	90%	50%	140%	83%	50%	140%
Trichlorofluoromethane	3262120		< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	81%	50%	140%	93%	50%	140%
Acetone	3262120		< 0.50	< 0.50	NA	< 0.50	103%	50%	140%	100%	50%	140%	98%	50%	140%
1,1-Dichloroethylene	3262120		< 0.05	< 0.05	NA	< 0.05	72%	50%	140%	97%	60%	130%	76%	50%	140%
Methylene Chloride	3262120		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	113%	60%	130%	102%	50%	140%
Trans- 1,2-Dichloroethylene	3262120		< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	99%	60%	130%	79%	50%	140%
Methyl tert-butyl Ether	3262120		< 0.05	< 0.05	NA	< 0.05	75%	50%	140%	108%	60%	130%	90%	50%	140%
1,1-Dichloroethane	3262120		< 0.02	< 0.02	NA	< 0.02	99%	50%	140%	105%	60%	130%	83%	50%	140%
Methyl Ethyl Ketone	3262120		< 0.50	< 0.50	NA	< 0.50	104%	50%	140%	97%	50%	140%	99%	50%	140%
Cis- 1,2-Dichloroethylene	3262120		< 0.02	< 0.02	NA	< 0.02	87%	50%	140%	108%	60%	130%	89%	50%	140%
Chloroform	3262120		< 0.04	< 0.04	NA	< 0.04	75%	50%	140%	101%	60%	130%	102%	50%	140%
1,2-Dichloroethane	3262120		< 0.03	< 0.03	NA	< 0.03	93%	50%	140%	115%	60%	130%	115%	50%	140%
1,1,1-Trichloroethane	3262120		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	73%	60%	130%	75%	50%	140%
Carbon Tetrachloride	3262120		< 0.05	< 0.05	NA	< 0.05	73%	50%	140%	79%	60%	130%	76%	50%	140%
Benzene	3262120		< 0.02	< 0.02	NA	< 0.02	73%	50%	140%	101%	60%	130%	83%	50%	140%
1,2-Dichloropropane	3262120		< 0.03	< 0.03	NA	< 0.03	84%	50%	140%	84%	60%	130%	101%	50%	140%
Trichloroethylene	3262120		< 0.03	< 0.03	NA	< 0.03	95%	50%	140%	94%	60%	130%	76%	50%	140%
Bromodichloromethane	3262120		< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	95%	60%	130%	75%	50%	140%
Methyl Isobutyl Ketone	3262120		< 0.50	< 0.50	NA	< 0.50	111%	50%	140%	100%	50%	140%	99%	50%	140%
1,1,2-Trichloroethane	3262120		< 0.04	< 0.04	NA	< 0.04	116%	50%	140%	107%	60%	130%	109%	50%	140%
Toluene	3262120		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	98%	60%	130%	111%	50%	140%
Dibromochloromethane	3262120		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	111%	60%	130%	110%	50%	140%
Ethylene Dibromide	3262120		< 0.04	< 0.04	NA	< 0.04	108%	50%	140%	111%	60%	130%	107%	50%	140%
Tetrachloroethylene	3262120		< 0.05	< 0.05	NA	< 0.05	113%	50%	140%	109%	60%	130%	79%	50%	140%
1,1,1,2-Tetrachloroethane	3262120		< 0.04	< 0.04	NA	< 0.04	89%	50%	140%	102%	60%	130%	82%	50%	140%
Chlorobenzene	3262120		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	110%	60%	130%	93%	50%	140%
Ethylbenzene	3262120		< 0.05	< 0.05	NA	< 0.05	81%	50%	140%	79%	60%	130%	80%	50%	140%
m & p-Xylene	3262120		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	107%	60%	130%	104%	50%	140%
Bromoform	3262120		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	114%	60%	130%	112%	50%	140%
Styrene	3262120		< 0.05	< 0.05	NA	< 0.05	76%	50%	140%	72%	60%	130%	72%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

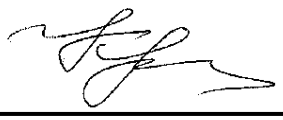
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Dec 05, 2021			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
1,1,2,2-Tetrachloroethane	3262120		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	76%	60%	130%	103%	50%	140%
o-Xylene	3262120		< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	116%	60%	130%	101%	50%	140%
1,3-Dichlorobenzene	3262120		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	82%	60%	130%	89%	50%	140%
1,4-Dichlorobenzene	3262120		< 0.05	< 0.05	NA	< 0.05	89%	50%	140%	89%	60%	130%	90%	50%	140%
1,2-Dichlorobenzene	3262120		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	90%	60%	130%	105%	50%	140%
n-Hexane	3262120		< 0.05	< 0.05	NA	< 0.05	116%	50%	140%	82%	60%	130%	74%	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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QC Exceedance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

ATTENTION TO: Kesh Appadurai

RPT Date: Dec 05, 2021

PARAMETER	Sample Id	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)										
Selenium	3262107	132%	70%	130%	104%	80%	120%	101%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T836210
PROJECT: 60636190-BBP Task WCM
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Bromomethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T836210

PROJECT: 60636190-BBP Task WCM

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Bromoform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Moisture Content	ORG-91-5009	CCME Tier 1 Method	BALANCE

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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 #: 21T836210.
Cooler Quantity: Foam Cooler
Arrival Temperatures: 4.1 | 4.4 | 4.3 | 3.4 | 3.2 | 3.3
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☑ Regulation 153/04 — Table 1 (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*

Is this submission for a **Record of Site Condition?** ☐ Yes ☐ No
Report Guideline on *Certificate of Analysis* ☐ Yes ☐ No

Project Information:
Project: 60636190 - BBP Task WCM-WasteContamination
Site Location:
Sampled By: Kesh
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 (Please Circle) Y/N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr^{6+} ☐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/ norganics	Sewer Use	SPLP metals	SPLP	VOC/PHC	OC
AIP-04-SS1	NOV 23		1				X									X		X							
AIP-04-SS2	"		2																				X		
AIP-02-SS1	NOV 25		1				X									X								X	
AIP-03-SS1	NOV 21		1				X									X						X			
AIP-03-SS2	NOV 21		2																				X		

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Kesh	NOV 26/2021				
	11:30 AM			11/26/21	12:46
	11/26/21	3:47			

Page 1 of 1

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

AGAT Laboratories

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

AGAT WORK ORDER: 21T843216

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

TRACE ORGANICS REVIEWED BY: Inga Kuzmina, Trace Organics Lab Manager

DATE REPORTED: Dec 21, 2021

PAGES (INCLUDING COVER): 18

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-12-10

DATE REPORTED: 2021-12-21

		SAMPLE DESCRIPTION:		HRE-2	400-1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-12-03	2021-12-03
Parameter	Unit	G / S	RDL	3329518	3329519
Antimony	µg/g	1	0.8	<0.8	<0.8
Arsenic	µg/g	11	1	2	3
Barium	µg/g	210	2.0	38.7	82.3
Beryllium	µg/g	2.5	0.4	<0.4	0.5
Boron	µg/g	36	5	5	8
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.15	0.26
Cadmium	µg/g	1	0.5	<0.5	<0.5
Chromium	µg/g	67	5	13	21
Cobalt	µg/g	19	0.5	3.8	6.1
Copper	µg/g	62	1.0	6.5	11.2
Lead	µg/g	45	1	5	8
Molybdenum	µg/g	2	0.5	<0.5	<0.5
Nickel	µg/g	37	1	6	11
Selenium	µg/g	1.2	0.8	<0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5
Uranium	µg/g	1.9	0.50	0.51	0.60
Vanadium	µg/g	86	0.4	22.6	32.5
Zinc	µg/g	290	5	22	51
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.137	0.586
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.138	7.34
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.46	7.41

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-12-10

DATE REPORTED: 2021-12-21

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3329518-3329519 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

O. Reg. 406/19 SPLP Metals

DATE RECEIVED: 2021-12-10

DATE REPORTED: 2021-12-21

		SAMPLE DESCRIPTION:		HRE-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-12-03
Parameter	Unit	G / S	RDL	3329518
Antimony Leachate	µg/L	6	0.6	<0.6
Arsenic Leachate	µg/L	-	5	<5
Barium Leachate	µg/L	-	100	<100
Beryllium Leachate	µg/L	-	0.8	<0.8
Boron Leachate	µg/L	-	500	<500
Cadmium Leachate	µg/L	-	0.20	<0.20
Chromium Leachate	µg/L	-	10	<10
Cobalt Leachate	µg/L	-	0.3	<0.3
Copper Leachate	µg/L	-	7.0	<7.0
Lead Leachate	µg/L	-	1.0	<1.0
Molybdenum Leachate	µg/L	23	1.5	<1.5
Nickel Leachate	µg/L	-	10	<10
Selenium Leachate	µg/L	-	5.0	<5.0
Silver Leachate	µg/L	0.3	0.10	<0.10
Thallium Leachate	µg/L	-	0.5	<0.5
Uranium Leachate	µg/L	-	2	<2
Vanadium Leachate	µg/L	-	0.6	1.7
Zinc Leachate	µg/L	-	20	<20

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 1: Full Depth Background Site Condition - Agriculture
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.

3329518 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP. This is a validated, unaccredited procedure.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-12-10

DATE REPORTED: 2021-12-21

		SAMPLE DESCRIPTION:		400-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-12-03
Parameter	Unit	G / S	RDL	3329519
Naphthalene	µg/g	0.05	0.05	<0.05
Acenaphthylene	µg/g	0.093	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	0.19	0.05	<0.05
Anthracene	µg/g	0.05	0.05	<0.05
Fluoranthene	µg/g	0.24	0.05	<0.05
Pyrene	µg/g	0.19	0.05	<0.05
Benz(a)anthracene	µg/g	0.095	0.05	<0.05
Chrysene	µg/g	0.18	0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.3	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	0.11	0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.2	0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.05	0.05	<0.05
Moisture Content	%		0.1	21.8
Surrogate	Unit	Acceptable Limits		
Naphthalene-d8	%	50-140		78
Acridine-d9	%	50-140		84
Terphenyl-d14	%	50-140		88

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3329519 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 *)

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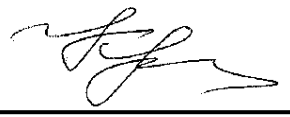

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Certificate of Analysis

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-12-10

DATE REPORTED: 2021-12-21

		SAMPLE DESCRIPTION:		400-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-12-03
Parameter	Unit	G / S	RDL	3329519
Benzene	µg/g	0.02	0.02	<0.02
Toluene	µg/g	0.2	0.05	<0.05
Ethylbenzene	µg/g	0.05	0.05	<0.05
m & p-Xylene	µg/g		0.05	<0.05
o-Xylene	µg/g		0.05	<0.05
Xylenes (Total)	µg/g	0.05	0.05	<0.05
F1 (C6 - C10)	µg/g	17	5	<5
F1 (C6 to C10) minus BTEX	µg/g	17	5	<5
F2 (C10 to C16)	µg/g	10	10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10
F3 (C16 to C34)	µg/g	240	50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50
F4 (C34 to C50)	µg/g	120	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA
Moisture Content	%		0.1	21.8
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	60-140		83
Terphenyl	%	60-140		99

Certified By:

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AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2021-12-10

DATE REPORTED: 2021-12-21

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3329519 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 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 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 *)

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Certificate of Analysis

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

Total PCBs (soil)

DATE RECEIVED: 2021-12-10

DATE REPORTED: 2021-12-21

		SAMPLE DESCRIPTION:		400-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-12-03
Parameter	Unit	G / S	RDL	3329519
Polychlorinated Biphenyls	µg/g	0.3	0.1	<0.1
Moisture Content	%		0.1	21.8
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	60-130		120

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3329519 Results are based on the dry weight of soil extracted.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Exceedance Summary

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3329519	400-1	ON T1 S AG	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	0.47	0.586
3329519	400-1	ON T1 S AG	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.	N/A	1	7.34

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T843216
PROJECT: 60636190 - BBP Task WCM - Waste Contamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Soil Analysis

RPT Date: Dec 21, 2021			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	3350922		<0.8	<0.8	NA	< 0.8	133%	70%	130%	103%	80%	120%	94%	70%	130%
Arsenic	3350922		6	7	0.4%	< 1	119%	70%	130%	105%	80%	120%	106%	70%	130%
Barium	3350922		37.2	35.5	4.7%	< 2.0	106%	70%	130%	101%	80%	120%	93%	70%	130%
Beryllium	3350922		0.4	<0.4	NA	< 0.4	114%	70%	130%	102%	80%	120%	109%	70%	130%
Boron	3350922		10	10	NA	< 5	102%	70%	130%	114%	80%	120%	120%	70%	130%
Boron (Hot Water Soluble)	3350922		0.18	0.18	NA	< 0.10	97%	60%	140%	100%	70%	130%	100%	60%	140%
Cadmium	3350922		<0.5	<0.5	NA	< 0.5	104%	70%	130%	101%	80%	120%	103%	70%	130%
Chromium	3350922		13	12	NA	< 5	105%	70%	130%	101%	80%	120%	102%	70%	130%
Cobalt	3350922		6.3	5.7	9.9%	< 0.5	104%	70%	130%	102%	80%	120%	102%	70%	130%
Copper	3350922		13.3	12.8	3.9%	< 1.0	95%	70%	130%	108%	80%	120%	96%	70%	130%
Lead	3350922		7	6	6.2%	< 1	104%	70%	130%	103%	80%	120%	94%	70%	130%
Molybdenum	3350922		1.4	1.3	NA	< 0.5	105%	70%	130%	104%	80%	120%	109%	70%	130%
Nickel	3350922		13	12	13.5%	< 1	102%	70%	130%	101%	80%	120%	94%	70%	130%
Selenium	3350922		<0.8	<0.8	NA	< 0.8	118%	70%	130%	103%	80%	120%	101%	70%	130%
Silver	3350922		<0.5	<0.5	NA	< 0.5	99%	70%	130%	100%	80%	120%	95%	70%	130%
Thallium	3350922		<0.5	<0.5	NA	< 0.5	108%	70%	130%	100%	80%	120%	92%	70%	130%
Uranium	3350922		0.89	0.84	NA	< 0.50	117%	70%	130%	107%	80%	120%	101%	70%	130%
Vanadium	3350922		23.1	21.7	6.3%	< 0.4	114%	70%	130%	102%	80%	120%	107%	70%	130%
Zinc	3350922		89	75	16.1%	< 5	105%	70%	130%	106%	80%	120%	75%	70%	130%
Chromium, Hexavalent	3320120		<0.2	<0.2	NA	< 0.2	97%	70%	130%	101%	80%	120%	83%	70%	130%
Cyanide, Free	3340096		<0.040	<0.040	NA	< 0.040	107%	70%	130%	100%	80%	120%	93%	70%	130%
Mercury	3350922		<0.10	<0.10	NA	< 0.10	105%	70%	130%	101%	80%	120%	102%	70%	130%
Electrical Conductivity (2:1)	3315307		0.251	0.254	1.3%	< 0.005	110%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3346445		0.442	0.439	0.6%	NA									
pH, 2:1 CaCl2 Extraction	3326834		6.68	6.96	4.1%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

O. Reg. 406/19 SPLP Metals															
Antimony Leachate	3341173		<0.6	<0.6	NA	< 0.6	98%	70%	130%	98%	80%	120%	101%	70%	130%
Arsenic Leachate	3341173		<5	<5	NA	< 5	96%	70%	130%	105%	80%	120%	108%	70%	130%
Barium Leachate	3341173		<100	<100	NA	< 100	96%	70%	130%	99%	80%	120%	102%	70%	130%
Beryllium Leachate	3341173		<0.8	<0.8	NA	< 0.8	96%	70%	130%	102%	80%	120%	108%	70%	130%
Boron Leachate	3341173		<500	<500	NA	< 500	98%	70%	130%	105%	80%	120%	99%	70%	130%
Cadmium Leachate	3341173		<0.20	<0.20	NA	< 0.20	101%	70%	130%	104%	80%	120%	104%	70%	130%
Chromium Leachate	3341173		<10	<10	NA	< 10	100%	70%	130%	103%	80%	120%	104%	70%	130%
Cobalt Leachate	3341173		<0.3	<0.3	NA	< 0.3	102%	70%	130%	104%	80%	120%	105%	70%	130%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T843216
PROJECT: 60636190 - BBP Task WCM - Waste Contamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Dec 21, 2021			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
Copper Leachate	3341173		<7.0	<7.0	NA	< 7.0	100%	70%	130%	109%	80%	120%	108%	70%	130%
Lead Leachate	3341173		<1.0	<1.0	NA	< 1.0	100%	70%	130%	105%	80%	120%	105%	70%	130%
Molybdenum Leachate	3341173		<1.5	<1.5	NA	< 1.5	101%	70%	130%	107%	80%	120%	108%	70%	130%
Nickel Leachate	3341173		<10	<10	NA	< 10	101%	70%	130%	103%	80%	120%	103%	70%	130%
Selenium Leachate	3341173		<5.0	<5.0	NA	< 5.0	100%	70%	130%	108%	80%	120%	107%	70%	130%
Silver Leachate	3341173		<0.10	<0.10	NA	< 0.10	100%	70%	130%	100%	80%	120%	99%	70%	130%
Thallium Leachate	3341173		<0.5	<0.5	NA	< 0.5	98%	70%	130%	101%	80%	120%	102%	70%	130%
Uranium Leachate	3341173		<2	<2	NA	< 2	100%	70%	130%	108%	80%	120%	108%	70%	130%
Vanadium Leachate	3341173		<0.6	<0.6	NA	< 0.6	97%	70%	130%	102%	80%	120%	101%	70%	130%
Zinc Leachate	3341173		<20	<20	NA	< 20	100%	70%	130%	111%	80%	120%	119%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

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PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Dec 21, 2021			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	3321662		<0.02	<0.02	NA	< 0.02	101%	60%	140%	95%	60%	140%	102%	60%	140%
Toluene	3321662		<0.05	<0.05	NA	< 0.05	99%	60%	140%	102%	60%	140%	93%	60%	140%
Ethylbenzene	3321662		<0.05	<0.05	NA	< 0.05	95%	60%	140%	90%	60%	140%	103%	60%	140%
m & p-Xylene	3321662		<0.05	<0.05	NA	< 0.05	97%	60%	140%	106%	60%	140%	100%	60%	140%
o-Xylene	3321662		<0.05	<0.05	NA	< 0.05	108%	60%	140%	93%	60%	140%	102%	60%	140%
F1 (C6 - C10)	3321662		<5	<5	NA	< 5	92%	60%	140%	108%	60%	140%	81%	60%	140%
F2 (C10 to C16)	3309986		< 10	< 10	NA	< 10	102%	60%	140%	85%	60%	140%	95%	60%	140%
F3 (C16 to C34)	3309986		< 50	< 50	NA	< 50	115%	60%	140%	75%	60%	140%	78%	60%	140%
F4 (C34 to C50)	3309986		< 50	< 50	NA	< 50	115%	60%	140%	77%	60%	140%	85%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	3257319		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	105%	50%	140%	105%	50%	140%
Acenaphthylene	3257319		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	83%	50%	140%	98%	50%	140%
Acenaphthene	3257319		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	92%	50%	140%	83%	50%	140%
Fluorene	3257319		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	94%	50%	140%	88%	50%	140%
Phenanthrene	3257319		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	98%	50%	140%	74%	50%	140%
Anthracene	3257319		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	86%	50%	140%	82%	50%	140%
Fluoranthene	3257319		< 0.05	< 0.05	NA	< 0.05	68%	50%	140%	88%	50%	140%	91%	50%	140%
Pyrene	3257319		< 0.05	< 0.05	NA	< 0.05	84%	50%	140%	74%	50%	140%	107%	50%	140%
Benz(a)anthracene	3257319		< 0.05	< 0.05	NA	< 0.05	80%	50%	140%	85%	50%	140%	87%	50%	140%
Chrysene	3257319		< 0.05	< 0.05	NA	< 0.05	95%	50%	140%	90%	50%	140%	85%	50%	140%
Benzo(b)fluoranthene	3257319		< 0.05	< 0.05	NA	< 0.05	88%	50%	140%	105%	50%	140%	96%	50%	140%
Benzo(k)fluoranthene	3257319		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	98%	50%	140%	105%	50%	140%
Benzo(a)pyrene	3257319		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	86%	50%	140%	98%	50%	140%
Indeno(1,2,3-cd)pyrene	3257319		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	88%	50%	140%	86%	50%	140%
Dibenz(a,h)anthracene	3257319		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	74%	50%	140%	88%	50%	140%
Benzo(g,h,i)perylene	3257319		< 0.05	< 0.05	NA	< 0.05	86%	50%	140%	82%	50%	140%	80%	50%	140%
Total PCBs (soil)															
Polychlorinated Biphenyls	3319930		< 0.1	< 0.1	NA	< 0.1	106%	60%	140%	107%	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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QC Exceedance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

RPT Date: Dec 21, 2021

PARAMETER	Sample Id	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)										
Antimony		133%	70%	130%	103%	80%	120%	94%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T843216
PROJECT: 60636190 - BBP Task WCM - Waste Contamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	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

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T843216

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
F3 (C16 to C34) minus PAHs	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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082	GC/ECD
Moisture Content	ORG-91-5009	CCME Tier 1 Method	BALANCE

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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 #: 21T843216

Cooler Quantity: 1 cm
Arrival Temperatures: 3.4 | 3.2 | 2.9 | 2.5 | 2.3 | 1.8
Ice
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table I (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: 60636190 - BBP Task WCM-WasteContamination
Site Location:
Sampled By: Kesh
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: AECOM
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 (Please Circle) Y / N	Metals and Inorganics	Metals Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr^{6+} ☐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	SPLP metals	SPLP	00
HRE-2	Dec 03		2	Soil			X															X	
400-1	Dec 07		~~4~~ 4	Soil			X						X	X	X	X							

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
	Dec 09			12/10/21	7:49
KESH. A.					
	12/10/21	3:30			

Page 1 of 1

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

AGAT WORK ORDER: 21T848992

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jan 11, 2022

PAGES (INCLUDING COVER): 18

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

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

DATE RECEIVED: 2021-12-23

DATE REPORTED: 2022-01-11

		SAMPLE DESCRIPTION:		400-3-SS1	2-1-SS-1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-12-17	2021-12-22
Parameter	Unit	G / S	RDL	3391186	3391189
Antimony	µg/g	1	0.8	<0.8	<0.8
Arsenic	µg/g	11	1	2	2
Barium	µg/g	210	2.0	97.4	34.1
Beryllium	µg/g	2.5	0.4	0.5	<0.4
Boron	µg/g	36	5	7	<5
Boron (Hot Water Soluble)	µg/g	NA	0.10	<0.10	<0.10
Cadmium	µg/g	1	0.5	<0.5	<0.5
Chromium	µg/g	67	5	21	13
Cobalt	µg/g	19	0.5	7.5	5.0
Copper	µg/g	62	1.0	12.8	8.6
Lead	µg/g	45	1	6	4
Molybdenum	µg/g	2	0.5	<0.5	<0.5
Nickel	µg/g	37	1	16	10
Selenium	µg/g	1.2	0.8	<0.8	1.1
Silver	µg/g	0.5	0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5
Uranium	µg/g	1.9	0.50	<0.50	3.02
Vanadium	µg/g	86	0.4	30.8	23.1
Zinc	µg/g	290	5	42	25
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.161	0.287
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.240	0.899
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.13	7.28

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

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

DATE RECEIVED: 2021-12-23

DATE REPORTED: 2022-01-11

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3391186-3391189 EC was 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. 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: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2021-12-23

DATE REPORTED: 2022-01-11

		SAMPLE DESCRIPTION:		2-1-SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2021-12-22
Parameter	Unit	G / S	RDL	3391189
Hexachloroethane	µg/g	0.01	0.01	<0.01
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT (Total)	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Moisture Content	%		0.1	18.1
wet weight OC	g		0.01	10.14
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		71
Decachlorobiphenyl	%	50-140		89

Certified By: NPopnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2021-12-23

DATE REPORTED: 2022-01-11

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3391189 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

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

DATE RECEIVED: 2021-12-23

DATE REPORTED: 2022-01-11

		SAMPLE DESCRIPTION:		400-3-SS1	2-1-SS-1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-12-17	2021-12-22
Parameter	Unit	G / S	RDL	3391186	3391189
F1 (C6 - C10)	µg/g	17	5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	17	5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA
Moisture Content	%		0.1	14.0	18.1
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		103	117
Terphenyl	%	60-140		74	79

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3391186-3391189 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 calculated parameter is 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 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: NPopowkolof

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Certificate of Analysis

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

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

DATE RECEIVED: 2021-12-23

DATE REPORTED: 2022-01-11

		SAMPLE DESCRIPTION:		400-3-SS1	2-1-SS-1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-12-17	2021-12-22
Parameter	Unit	G / S	RDL	3391186	3391189
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	0.5	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	0.05	0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	0.5	0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	0.05	0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	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	0.05	0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.05	0.03	<0.03	<0.03
Bromodichloromethane	ug/g	0.05	0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	0.5	0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04
Toluene	ug/g	0.2	0.05	<0.05	<0.05
Dibromochloromethane	ug/g	0.05	0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.05	0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.05	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	<0.05

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Certificate of Analysis

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

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

DATE RECEIVED: 2021-12-23

DATE REPORTED: 2022-01-11

		SAMPLE DESCRIPTION:		400-3-SS1	2-1-SS-1
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2021-12-17	2021-12-22
Parameter	Unit	G / S	RDL	3391186	3391189
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
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
Xylenes (Total)	ug/g	0.05	0.05	<0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	0.05	<0.05	<0.05
Moisture Content	%		0.1	14.0	18.1
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		110	108
4-Bromofluorobenzene	% Recovery	50-140		95	96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3391186-3391189 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.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

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Exceedance Summary

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3391189	2-1-SS-1	ON T1 S AG	O. Reg. 153(511) - Metals & Inorganics (Soil)	Uranium	µg/g	1.9	3.02

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP Task WCM - Waste Contamination
SAMPLING SITE:

AGAT WORK ORDER: 21T848992
ATTENTION TO: Kesh Appadurai
SAMPLED BY:KESH

Soil Analysis

RPT Date: Jan 11, 2022			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	3394447		<0.8	<0.8	NA	< 0.8	109%	70%	130%	106%	80%	120%	80%	70%	130%
Arsenic	3394447		3	4	NA	< 1	115%	70%	130%	103%	80%	120%	88%	70%	130%
Barium	3394447		155	161	3.8%	< 2.0	108%	70%	130%	112%	80%	120%	119%	70%	130%
Beryllium	3394447		0.9	0.9	NA	< 0.4	104%	70%	130%	100%	80%	120%	96%	70%	130%
Boron	3394447		19	20	NA	< 5	87%	70%	130%	100%	80%	120%	129%	70%	130%
Boron (Hot Water Soluble)	3398977		<0.10	<0.10	NA	< 0.10	98%	60%	140%	97%	70%	130%	95%	60%	140%
Cadmium	3394447		<0.5	<0.5	NA	< 0.5	102%	70%	130%	104%	80%	120%	108%	70%	130%
Chromium	3394447		36	38	5.4%	< 5	105%	70%	130%	97%	80%	120%	122%	70%	130%
Cobalt	3394447		12.4	12.9	4.0%	< 0.5	101%	70%	130%	93%	80%	120%	114%	70%	130%
Copper	3394447		22.9	23.5	2.6%	< 1.0	96%	70%	130%	100%	80%	120%	103%	70%	130%
Lead	3394447		17	17	0.0%	< 1	107%	70%	130%	107%	80%	120%	105%	70%	130%
Molybdenum	3394447		<0.5	<0.5	NA	< 0.5	112%	70%	130%	111%	80%	120%	109%	70%	130%
Nickel	3394447		28	30	6.9%	< 1	99%	70%	130%	95%	80%	120%	115%	70%	130%
Selenium	3394447		0.9	1.0	NA	< 0.8	135%	70%	130%	105%	80%	120%	108%	70%	130%
Silver	3394447		<0.5	<0.5	NA	< 0.5	111%	70%	130%	104%	80%	120%	103%	70%	130%
Thallium	3394447		<0.5	<0.5	NA	< 0.5	107%	70%	130%	103%	80%	120%	105%	70%	130%
Uranium	3394447		0.92	0.96	NA	< 0.50	111%	70%	130%	103%	80%	120%	110%	70%	130%
Vanadium	3394447		47.5	50.1	5.3%	< 0.4	110%	70%	130%	89%	80%	120%	112%	70%	130%
Zinc	3394447		80	83	3.7%	< 5	101%	70%	130%	104%	80%	120%	113%	70%	130%
Chromium, Hexavalent	3391186	3391186	<0.2	<0.2	NA	< 0.2	97%	70%	130%	95%	80%	120%	100%	70%	130%
Cyanide, Free	3411970		<0.040	<0.040	NA	< 0.040	93%	70%	130%	97%	80%	120%	97%	70%	130%
Mercury	3394447		<0.10	<0.10	NA	< 0.10	116%	70%	130%	106%	80%	120%	83%	70%	130%
Electrical Conductivity (2:1)	3411794		0.184	0.190	3.2%	< 0.005	109%	80%	120%	NA			NA		
Sodium Adsorption Ratio (2:1) (Calc.)	3411970		4.83	5.12	5.8%	N/A	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	3394713		6.54	6.63	1.4%	NA	98%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP Task WCM - Waste Contamination
SAMPLING SITE:

AGAT WORK ORDER: 21T848992
ATTENTION TO: Kesh Appadurai
SAMPLED BY:KESH

Trace Organics Analysis

RPT Date: Jan 11, 2022			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 - C10)	3393280		<5	<5	NA	< 5	86%	60%	140%	101%	60%	140%	93%	60%	140%
F2 (C10 to C16)	3394163		< 10	< 10	NA	< 10	122%	60%	140%	82%	60%	140%	84%	60%	140%
F3 (C16 to C34)	3394163		< 50	< 50	NA	< 50	120%	60%	140%	82%	60%	140%	79%	60%	140%
F4 (C34 to C50)	3394163		< 50	< 50	NA	< 50	97%	60%	140%	107%	60%	140%	83%	60%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	3391699		<0.05	<0.05	NA	< 0.05	70%	50%	140%	69%	50%	140%	97%	50%	140%
Vinyl Chloride	3391699		<0.02	<0.02	NA	< 0.02	90%	50%	140%	59%	50%	140%	83%	50%	140%
Bromomethane	3391699		<0.05	<0.05	NA	< 0.05	106%	50%	140%	94%	50%	140%	98%	50%	140%
Trichlorofluoromethane	3391699		<0.05	<0.05	NA	< 0.05	95%	50%	140%	88%	50%	140%	87%	50%	140%
Acetone	3391699		<0.50	<0.50	NA	< 0.50	100%	50%	140%	106%	50%	140%	104%	50%	140%
1,1-Dichloroethylene	3391699		< 0.05	< 0.05	NA	< 0.05	70%	50%	140%	105%	60%	130%	94%	50%	140%
Methylene Chloride	3391699		<0.05	<0.05	NA	< 0.05	92%	50%	140%	82%	60%	130%	102%	50%	140%
Trans- 1,2-Dichloroethylene	3391699		<0.05	<0.05	NA	< 0.05	87%	50%	140%	91%	60%	130%	84%	50%	140%
Methyl tert-butyl Ether	3391699		<0.05	<0.05	NA	< 0.05	101%	50%	140%	107%	60%	130%	108%	50%	140%
1,1-Dichloroethane	3391699		<0.02	<0.02	NA	< 0.02	95%	50%	140%	111%	60%	130%	105%	50%	140%
Methyl Ethyl Ketone	3391699		<0.50	<0.50	NA	< 0.50	106%	50%	140%	99%	50%	140%	99%	50%	140%
Cis- 1,2-Dichloroethylene	3391699		<0.02	<0.02	NA	< 0.02	84%	50%	140%	103%	60%	130%	106%	50%	140%
Chloroform	3391699		<0.04	<0.04	NA	< 0.04	95%	50%	140%	109%	60%	130%	109%	50%	140%
1,2-Dichloroethane	3391699		<0.03	<0.03	NA	< 0.03	91%	50%	140%	108%	60%	130%	111%	50%	140%
1,1,1-Trichloroethane	3391699		<0.05	<0.05	NA	< 0.05	95%	50%	140%	91%	60%	130%	100%	50%	140%
Carbon Tetrachloride	3391699		<0.05	<0.05	NA	< 0.05	70%	50%	140%	79%	60%	130%	102%	50%	140%
Benzene	3391699		<0.02	<0.02	NA	< 0.02	109%	50%	140%	114%	60%	130%	102%	50%	140%
1,2-Dichloropropane	3391699		<0.03	<0.03	NA	< 0.03	84%	50%	140%	106%	60%	130%	101%	50%	140%
Trichloroethylene	3391699		<0.03	<0.03	NA	< 0.03	88%	50%	140%	75%	60%	130%	98%	50%	140%
Bromodichloromethane	3391699		<0.05	<0.05	NA	< 0.05	74%	50%	140%	111%	60%	130%	91%	50%	140%
Methyl Isobutyl Ketone	3391699		<0.50	<0.50	NA	< 0.50	96%	50%	140%	99%	50%	140%	102%	50%	140%
1,1,2-Trichloroethane	3391699		<0.04	<0.04	NA	< 0.04	83%	50%	140%	95%	60%	130%	88%	50%	140%
Toluene	3391699		<0.05	<0.05	NA	< 0.05	105%	50%	140%	86%	60%	130%	102%	50%	140%
Dibromochloromethane	3391699		<0.05	<0.05	NA	< 0.05	74%	50%	140%	111%	60%	130%	81%	50%	140%
Ethylene Dibromide	3391699		<0.04	<0.04	NA	< 0.04	74%	50%	140%	107%	60%	130%	93%	50%	140%
Tetrachloroethylene	3391699		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	98%	60%	130%	103%	50%	140%
1,1,1,2-Tetrachloroethane	3391699		<0.04	<0.04	NA	< 0.04	72%	50%	140%	100%	60%	130%	82%	50%	140%
Chlorobenzene	3391699		<0.05	<0.05	NA	< 0.05	105%	50%	140%	114%	60%	130%	117%	50%	140%
Ethylbenzene	3391699		<0.05	<0.05	NA	< 0.05	84%	50%	140%	108%	60%	130%	108%	50%	140%
m & p-Xylene	3391699		<0.05	<0.05	NA	< 0.05	103%	50%	140%	108%	60%	130%	110%	50%	140%
Bromoform	3391699		<0.05	<0.05	NA	< 0.05	72%	50%	140%	103%	60%	130%	76%	50%	140%
Styrene	3391699		<0.05	<0.05	NA	< 0.05	103%	50%	140%	91%	60%	130%	115%	50%	140%
1,1,2,2-Tetrachloroethane	3391699		<0.05	<0.05	NA	< 0.05	87%	50%	140%	113%	60%	130%	92%	50%	140%
o-Xylene	3391699		<0.05	<0.05	NA	< 0.05	102%	50%	140%	105%	60%	130%	111%	50%	140%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP Task WCM - Waste Contamination
SAMPLING SITE:

AGAT WORK ORDER: 21T848992
ATTENTION TO: Kesh Appadurai
SAMPLED BY:KESH

Trace Organics Analysis (Continued)

RPT Date: Jan 11, 2022			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	3391699		<0.05	<0.05	NA	< 0.05	108%	50%	140%	81%	60%	130%	119%	50%	140%
1,4-Dichlorobenzene	3391699		<0.05	<0.05	NA	< 0.05	104%	50%	140%	90%	60%	130%	116%	50%	140%
1,2-Dichlorobenzene	3391699		<0.05	<0.05	NA	< 0.05	94%	50%	140%	93%	60%	130%	104%	50%	140%
n-Hexane	3391699		<0.05	<0.05	NA	< 0.05	107%	50%	140%	109%	60%	130%	82%	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) - OC Pesticides (Soil)															
Hexachloroethane	3376123	< 0.01	< 0.01	NA	< 0.01	89%	50%	140%	79%	50%	140%	89%	50%	140%
Gamma-Hexachlorocyclohexane	3376123	< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	89%	50%	140%	90%	50%	140%
Heptachlor	3376123	< 0.005	< 0.005	NA	< 0.005	97%	50%	140%	92%	50%	140%	90%	50%	140%
Aldrin	3376123	< 0.005	< 0.005	NA	< 0.005	99%	50%	140%	87%	50%	140%	85%	50%	140%
Heptachlor Epoxide	3376123	< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	92%	50%	140%	80%	50%	140%
Endosulfan I	3376123	< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	102%	50%	140%	80%	50%	140%
Endosulfan II	3376123	< 0.005	< 0.005	NA	< 0.005	99%	50%	140%	104%	50%	140%	82%	50%	140%
Alpha-Chlordane	3376123	< 0.005	< 0.005	NA	< 0.005	97%	50%	140%	84%	50%	140%	86%	50%	140%
gamma-Chlordane	3376123	< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	87%	50%	140%	89%	50%	140%
op'-DDE	3376123	< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	88%	50%	140%	83%	50%	140%
pp'-DDE	3376123	< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	96%	50%	140%	82%	50%	140%
op'-DDD	3376123	< 0.005	< 0.005	NA	< 0.005	108%	50%	140%	99%	50%	140%	102%	50%	140%
pp'-DDD	3376123	< 0.005	< 0.005	NA	< 0.005	99%	50%	140%	104%	50%	140%	104%	50%	140%
op'-DDT	3376123	< 0.005	< 0.005	NA	< 0.005	98%	50%	140%	98%	50%	140%	96%	50%	140%
pp'-DDT	3376123	< 0.005	< 0.005	NA	< 0.005	82%	50%	140%	82%	50%	140%	97%	50%	140%
Dieldrin	3376123	< 0.005	< 0.005	NA	< 0.005	93%	50%	140%	92%	50%	140%	106%	50%	140%
Endrin	3376123	< 0.005	< 0.005	NA	< 0.005	87%	50%	140%	88%	50%	140%	102%	50%	140%
Methoxychlor	3376123	< 0.005	< 0.005	NA	< 0.005	80%	50%	140%	80%	50%	140%	98%	50%	140%
Hexachlorobenzene	3376123	< 0.005	< 0.005	NA	< 0.005	95%	50%	140%	95%	50%	140%	102%	50%	140%
Hexachlorobutadiene	3376123	< 0.01	< 0.01	NA	< 0.01	97%	50%	140%	96%	50%	140%	96%	50%	140%

Certified By: N Popnikolof

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QC Exceedance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

RPT Date: Jan 11, 2022

PARAMETER	Sample Id	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)										
Selenium		135%	70%	130%	105%	80%	120%	108%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER

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Method Summary

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 21T848992
PROJECT: 60636190 - BBP Task WCM - Waste Contamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:KESH

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE
F1 (C6 - 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
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
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
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 21T848992

PROJECT: 60636190 - BBP Task WCM - Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:KESH

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Toluene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE

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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 #: 21T848992
Cooler Quantity:
Arrival Temperatures: 7.3 7.4 7.4 7.1 7.3 7.3
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements: ☐ No Regulatory Requirement
(Please check all applicable boxes)
☑ Regulation 153/04 — Table 1 (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: 60636190 - BBP Task WCM-WasteContamination
Site Location:
Sampled By: Kesh
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 (Please Circle) Y/N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr^{6+} ☐EC ☐FOC ☐NO_3/NO_2 ☐Total N ☐Hg ☐pH ☐SAR (Check Applicable)	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	SPLP metals	SPLP
400-3-SS-1	Dec 17		3				X						X	X									
2-1-SS-1	Dec 22		3				X						X	X					X				

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Kesh A	Dec 22/2021			2021/12/23	11:30
	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
2021/12/23 1:00					

Page 1 of 1
N#:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190 - BBP Task WCM-Waste Contamination

AGAT WORK ORDER: 22T857566

SOIL ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Feb 07, 2022

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

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 22T857566

PROJECT: 60636190 - BBP Task WCM-Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:kesh

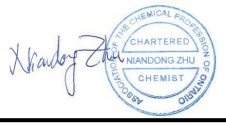
O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2022-01-26

DATE REPORTED: 2022-02-07

		SAMPLE DESCRIPTION:		HRE 3-SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-01-13
Parameter	Unit	G / S	RDL	3457204
Antimony	µg/g	1	0.8	<0.8
Arsenic	µg/g	11	1	2
Barium	µg/g	210	2.0	36.9
Beryllium	µg/g	2.5	0.4	<0.4
Boron	µg/g	36	5	6
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.10
Cadmium	µg/g	1	0.5	<0.5
Chromium	µg/g	67	5	14
Cobalt	µg/g	19	0.5	4.5
Copper	µg/g	62	1.0	8.3
Lead	µg/g	45	1	4
Molybdenum	µg/g	2	0.5	<0.5
Nickel	µg/g	37	1	7
Selenium	µg/g	1.2	0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5
Thallium	µg/g	1	0.5	<0.5
Uranium	µg/g	1.9	0.50	<0.50
Vanadium	µg/g	86	0.4	24.7
Zinc	µg/g	290	5	23
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.121
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.115
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.02

Certified By:



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Certificate of Analysis

AGAT WORK ORDER: 22T857566

PROJECT: 60636190 - BBP Task WCM-Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:kesh

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

DATE RECEIVED: 2022-01-26

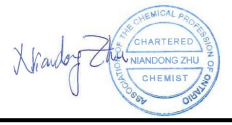
DATE REPORTED: 2022-02-07

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3457204 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 22T857566

PROJECT: 60636190 - BBP Task WCM-Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:kesh

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2022-01-26

DATE REPORTED: 2022-02-07

		SAMPLE DESCRIPTION:		HRE 3-SS-1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-01-13
Parameter	Unit	G / S	RDL	3457204
Hexachloroethane	µg/g	0.01	0.01	<0.01
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT (Total)	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Moisture Content	%		0.1	11.2
wet weight OC	g		0.01	10.15
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		75
Decachlorobiphenyl	%	50-140		88

Certified By: NPopnikolof

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Certificate of Analysis

AGAT WORK ORDER: 22T857566

PROJECT: 60636190 - BBP Task WCM-Waste Contamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:kesh

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2022-01-26

DATE REPORTED: 2022-02-07

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3457204 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

AGAT Laboratories

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Quality Assurance

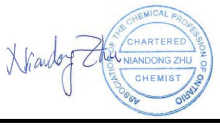
CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T857566
PROJECT: 60636190 - BBP Task WCM-Waste Contamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:kesh

Soil Analysis

RPT Date: Feb 07, 2022			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	3475208		<0.8	<0.8	NA	< 0.8	123%	70%	130%	103%	80%	120%	81%	70%	130%
Arsenic	3475208		3	3	NA	< 1	119%	70%	130%	102%	80%	120%	100%	70%	130%
Barium	3475208		57.1	55.9	2.1%	< 2.0	111%	70%	130%	112%	80%	120%	109%	70%	130%
Beryllium	3475208		0.4	0.5	NA	< 0.4	111%	70%	130%	118%	80%	120%	119%	70%	130%
Boron	3475208		7	6	NA	< 5	86%	70%	130%	99%	80%	120%	103%	70%	130%
Boron (Hot Water Soluble)	3457204	3457204	0.10	0.11	NA	< 0.10	107%	60%	140%	103%	70%	130%	110%	60%	140%
Cadmium	3475208		<0.5	<0.5	NA	< 0.5	113%	70%	130%	114%	80%	120%	109%	70%	130%
Chromium	3475208		16	16	NA	< 5	109%	70%	130%	114%	80%	120%	110%	70%	130%
Cobalt	3475208		5.9	6.3	6.6%	< 0.5	110%	70%	130%	113%	80%	120%	107%	70%	130%
Copper	3475208		12.6	12.5	0.8%	< 1.0	103%	70%	130%	120%	80%	120%	107%	70%	130%
Lead	3475208		24	23	4.3%	< 1	109%	70%	130%	118%	80%	120%	102%	70%	130%
Molybdenum	3475208		<0.5	<0.5	NA	< 0.5	121%	70%	130%	112%	80%	120%	115%	70%	130%
Nickel	3475208		11	11	0.0%	< 1	106%	70%	130%	112%	80%	120%	100%	70%	130%
Selenium	3475208		<0.8	<0.8	NA	< 0.8	126%	70%	130%	108%	80%	120%	104%	70%	130%
Silver	3475208		<0.5	<0.5	NA	< 0.5	103%	70%	130%	111%	80%	120%	102%	70%	130%
Thallium	3475208		<0.5	<0.5	NA	< 0.5	119%	70%	130%	110%	80%	120%	99%	70%	130%
Uranium	3475208		0.50	<0.50	NA	< 0.50	116%	70%	130%	115%	80%	120%	105%	70%	130%
Vanadium	3475208		25.3	25.4	0.4%	< 0.4	117%	70%	130%	104%	80%	120%	105%	70%	130%
Zinc	3475208		42	43	2.4%	< 5	108%	70%	130%	116%	80%	120%	118%	70%	130%
Chromium, Hexavalent	3459624		<0.2	<0.2	NA	< 0.2	92%	70%	130%	99%	80%	120%	77%	70%	130%
Cyanide, Free	3471930		<0.040	<0.040	NA	< 0.040	100%	70%	130%	94%	80%	120%	89%	70%	130%
Mercury	3475208		<0.10	<0.10	NA	< 0.10	111%	70%	130%	106%	80%	120%	102%	70%	130%
Electrical Conductivity (2:1)	3457204	3457204	0.121	0.124	2.4%	< 0.005	105%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3457204	3457204	0.115	0.116	0.9%	NA									
pH, 2:1 CaCl2 Extraction	3458175		6.52	6.68	2.4%	NA	99%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:



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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T857566
PROJECT: 60636190 - BBP Task WCM-Waste Contamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:kesh

Trace Organics Analysis

RPT Date: Feb 07, 2022			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) - OC Pesticides (Soil)															
Hexachloroethane	3451885		< 0.01	< 0.01	NA	< 0.01	88%	50%	140%	81%	50%	140%	79%	50%	140%
Gamma-Hexachlorocyclohexane	3451885		< 0.005	< 0.005	NA	< 0.005	92%	50%	140%	80%	50%	140%	86%	50%	140%
Heptachlor	3451885		< 0.005	< 0.005	NA	< 0.005	80%	50%	140%	81%	50%	140%	74%	50%	140%
Aldrin	3451885		< 0.005	< 0.005	NA	< 0.005	97%	50%	140%	83%	50%	140%	79%	50%	140%
Heptachlor Epoxide	3451885		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	86%	50%	140%	74%	50%	140%
Endosulfan I	3451885		< 0.005	< 0.005	NA	< 0.005	94%	50%	140%	74%	50%	140%	72%	50%	140%
Endosulfan II	3451885		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	78%	50%	140%	76%	50%	140%
Alpha-Chlordane	3451885		< 0.005	< 0.005	NA	< 0.005	95%	50%	140%	88%	50%	140%	76%	50%	140%
gamma-Chlordane	3451885		< 0.005	< 0.005	NA	< 0.005	95%	50%	140%	80%	50%	140%	74%	50%	140%
op'-DDE	3451885		< 0.005	< 0.005	NA	< 0.005	85%	50%	140%	90%	50%	140%	75%	50%	140%
pp'-DDE	3451885		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%	81%	50%	140%	70%	50%	140%
op'-DDD	3451885		< 0.005	< 0.005	NA	< 0.005	84%	50%	140%	91%	50%	140%	86%	50%	140%
pp'-DDD	3451885		< 0.005	< 0.005	NA	< 0.005	80%	50%	140%	82%	50%	140%	82%	50%	140%
op'-DDT	3451885		< 0.005	< 0.005	NA	< 0.005	91%	50%	140%	83%	50%	140%	75%	50%	140%
pp'-DDT	3451885		< 0.005	< 0.005	NA	< 0.005	90%	50%	140%	79%	50%	140%	70%	50%	140%
Dieldrin	3451885		< 0.005	< 0.005	NA	< 0.005	93%	50%	140%	84%	50%	140%	72%	50%	140%
Endrin	3451885		< 0.005	< 0.005	NA	< 0.005	85%	50%	140%	80%	50%	140%	78%	50%	140%
Methoxychlor	3451885		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	73%	50%	140%	82%	50%	140%
Hexachlorobenzene	3451885		< 0.005	< 0.005	NA	< 0.005	94%	50%	140%	83%	50%	140%	87%	50%	140%
Hexachlorobutadiene	3451885		< 0.01	< 0.01	NA	< 0.01	100%	50%	140%	80%	50%	140%	79%	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

AGAT Laboratories

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T857566

PROJECT: 60636190 - BBP Task WCM-Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	modified from MSA PART 3, CH 14 and SM 2510 B	EC METER
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	modified from EPA 9045D and MCKEAGUE 3.11	PH METER

AGAT Laboratories

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T857566

PROJECT: 60636190 - BBP Task WCM-Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE

AGAT Laboratories

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T857566

PROJECT: 60636190 - BBP Task WCM-Waste Contamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:kesh

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE

AGAT Laboratories
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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 #: 22T857566
Cooler Quantity: Small
Arrival Temperatures: 4.8 | 4.7 | 3.9 | 3.7
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes:

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 (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: 60636190 - BBP Task WCM-WasteContamination
Site Location:
Sampled By: Kesh
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr^{6+} ☐EC ☐FOC ☐NO_3/NO_2 ☐Total N ☐Hg ☐pH ☐SAR	(Check Applicable) Nutrients: ☐TP ☐NH_3 ☐TKN ☐NO_3 ☐NO_2 ☐NO_3/NO_2	(Check Applicable) Volatiles: ☐VOC ☐BTEX ☐THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	SPLP metals	SPLP
HRE3-SS-1	Jan 13		1				X												X			

Samples Relinquished By (Print Name and Sign): Kesh
Date: 1/26/22 Time: 1:29
Samples Received By (Print Name and Sign):
Date: 1/26/22 Time: 12:15

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
N°:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

AGAT Laboratories

5835 COOPERS AVENUE
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CANADA L4Z 1Y2
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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190 - BBP Task WCM-WasteContamination

AGAT WORK ORDER: 22T897775

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

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

DATE REPORTED: May 27, 2022

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

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 22T897775

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

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

DATE RECEIVED: 2022-05-19

DATE REPORTED: 2022-05-27

		SAMPLE DESCRIPTION:		FD-01-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-05-16
Parameter	Unit	G / S	RDL	3884023
Antimony	µg/g	1	0.8	<0.8
Arsenic	µg/g	11	1	2
Barium	µg/g	210	2.0	40.1
Beryllium	µg/g	2.5	0.4	<0.4
Boron	µg/g	36	5	6
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.12
Cadmium	µg/g	1	0.5	<0.5
Chromium	µg/g	67	5	17
Cobalt	µg/g	19	0.5	4.4
Copper	µg/g	62	1.0	9.4
Lead	µg/g	45	1	4
Molybdenum	µg/g	2	0.5	<0.5
Nickel	µg/g	37	1	9
Selenium	µg/g	1.2	0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5
Thallium	µg/g	1	0.5	<0.5
Uranium	µg/g	1.9	0.50	0.54
Vanadium	µg/g	86	0.4	29.7
Zinc	µg/g	290	5	24
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.157
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.379
pH, 2:1 CaCl2 Extraction	pH Units		NA	6.85

Certified By:

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AGAT WORK ORDER: 22T897775

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

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

DATE RECEIVED: 2022-05-19

DATE REPORTED: 2022-05-27

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3884023 EC was 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. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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AGAT WORK ORDER: 22T897775

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

O. Reg. 153(511) - OC Pesticides + PCBs (Soil)

DATE RECEIVED: 2022-05-19

DATE REPORTED: 2022-05-27

		SAMPLE DESCRIPTION:		FD-01-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-05-16
Parameter	Unit	G / S	RDL	3884023
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Hexachloroethane	µg/g	0.01	0.005	<0.005
Aroclor 1242	µg/g		0.10	<0.10
Aroclor 1248	µg/g		0.10	<0.10
Aroclor 1254	µg/g		0.10	<0.10
Aroclor 1260	µg/g		0.10	<0.10
Polychlorinated Biphenyls	µg/g	0.3	0.10	<0.10

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Certificate of Analysis

AGAT WORK ORDER: 22T897775

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

O. Reg. 153(511) - OC Pesticides + PCBs (Soil)

DATE RECEIVED: 2022-05-19

DATE REPORTED: 2022-05-27

		SAMPLE DESCRIPTION:		FD-01-SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-05-16
Parameter	Unit	G / S	RDL	3884023
Moisture Content	%		0.1	18.6
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		69
Decachlorobiphenyl	%	50-140		76

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3884023 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
PCB total is a calculated parameter. The calculated value is the sum of Aroclor 1242, Aroclor 1248, Aroclor 1254 and Aroclor 1260.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

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Certificate of Analysis

AGAT WORK ORDER: 22T897775

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

O. Reg. 153(511) - PCBs (Soil)

DATE RECEIVED: 2022-05-19

DATE REPORTED: 2022-05-27

		SAMPLE DESCRIPTION:		FD-01-SS2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-05-16
Parameter	Unit	G / S	RDL	3884024
Polychlorinated Biphenyls	µg/g	0.3	0.1	<0.1
Moisture Content	%		0.1	16.6
Surrogate	Unit	Acceptable Limits		
Decachlorobiphenyl	%	50-140		112

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3884024 Results are based on the dry weight of soil extracted.
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 *)

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T897775
PROJECT: 60636190 - BBP Task WCM-WasteContamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:Kesh Appadurai

Soil Analysis

RPT Date: May 27, 2022			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	3879175		<0.8	<0.8	NA	< 0.8	100%	70%	130%	104%	80%	120%	81%	70%	130%
Arsenic	3879175		2	2	NA	< 1	119%	70%	130%	118%	80%	120%	121%	70%	130%
Barium	3879175		126	124	1.9%	< 2.0	99%	70%	130%	97%	80%	120%	95%	70%	130%
Beryllium	3879175		0.4	0.5	NA	< 0.4	79%	70%	130%	97%	80%	120%	88%	70%	130%
Boron	3879175		6	6	NA	< 5	74%	70%	130%	102%	80%	120%	79%	70%	130%
Boron (Hot Water Soluble)	3884569		0.37	0.39	NA	< 0.10	101%	60%	140%	103%	70%	130%	101%	60%	140%
Cadmium	3879175		<0.5	<0.5	NA	< 0.5	82%	70%	130%	104%	80%	120%	103%	70%	130%
Chromium	3879175		29	29	1.2%	< 5	115%	70%	130%	116%	80%	120%	110%	70%	130%
Cobalt	3879175		8.6	8.7	0.7%	< 0.5	111%	70%	130%	105%	80%	120%	104%	70%	130%
Copper	3879175		16.0	16.2	0.9%	< 1.0	97%	70%	130%	110%	80%	120%	103%	70%	130%
Lead	3879175		10	9	1.7%	< 1	112%	70%	130%	110%	80%	120%	104%	70%	130%
Molybdenum	3879175		<0.5	<0.5	NA	< 0.5	123%	70%	130%	118%	80%	120%	118%	70%	130%
Nickel	3879175		16	16	0.4%	< 1	110%	70%	130%	108%	80%	120%	104%	70%	130%
Selenium	3879175		<0.8	<0.8	NA	< 0.8	121%	70%	130%	115%	80%	120%	114%	70%	130%
Silver	3879175		<0.5	<0.5	NA	< 0.5	109%	70%	130%	108%	80%	120%	102%	70%	130%
Thallium	3879175		<0.5	<0.5	NA	< 0.5	104%	70%	130%	102%	80%	120%	99%	70%	130%
Uranium	3879175		0.65	0.63	NA	< 0.50	116%	70%	130%	102%	80%	120%	106%	70%	130%
Vanadium	3879175		44.8	44.0	1.8%	< 0.4	121%	70%	130%	110%	80%	120%	108%	70%	130%
Zinc	3879175		63	62	1.1%	< 5	106%	70%	130%	107%	80%	120%	105%	70%	130%
Chromium, Hexavalent	3882608		<0.2	<0.2	NA	< 0.2	100%	70%	130%	97%	80%	120%	114%	70%	130%
Cyanide, Free	3877656		<0.040	<0.040	NA	< 0.040	96%	70%	130%	107%	80%	120%	103%	70%	130%
Mercury	3879175		<0.10	<0.10	NA	< 0.10	113%	70%	130%	104%	80%	120%	106%	70%	130%
Electrical Conductivity (2:1)	3884569		0.352	0.353	0.3%	< 0.005	96%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	3884569		0.222	0.229	3.4%	NA									
pH, 2:1 CaCl2 Extraction	3864179		6.12	6.38	4.3%	NA	95%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP Task WCM-WasteContamination
SAMPLING SITE:

AGAT WORK ORDER: 22T897775
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh Appadurai

Trace Organics Analysis

RPT Date: May 27, 2022			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) - OC Pesticides + PCBs (Soil)															
Gamma-Hexachlorocyclohexane	3877862		< 0.005	< 0.005	NA	< 0.005	110%	50%	140%	113%	50%	140%	109%	50%	140%
Heptachlor	3877862		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	104%	50%	140%	107%	50%	140%
Aldrin	3877862		< 0.005	< 0.005	NA	< 0.005	94%	50%	140%	95%	50%	140%	95%	50%	140%
Heptachlor Epoxide	3877862		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	100%	50%	140%	104%	50%	140%
Endosulfan I	3877862		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	94%	50%	140%	97%	50%	140%
Endosulfan II	3877862		< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	100%	50%	140%	96%	50%	140%
Alpha-Chlordane	3877862		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	94%	50%	140%	114%	50%	140%
gamma-Chlordane	3877862		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	94%	50%	140%	108%	50%	140%
op'-DDD	3877862		< 0.005	< 0.005	NA	< 0.005	114%	50%	140%	92%	50%	140%	102%	50%	140%
pp'-DDD	3877862		< 0.005	< 0.005	NA	< 0.005	112%	50%	140%	107%	50%	140%	106%	50%	140%
op'-DDE	3877862		< 0.005	< 0.005	NA	< 0.005	111%	50%	140%	112%	50%	140%	103%	50%	140%
pp'-DDE	3877862		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	99%	50%	140%	117%	50%	140%
op'-DDT	3877862		< 0.005	< 0.005	NA	< 0.005	112%	50%	140%	103%	50%	140%	104%	50%	140%
pp'-DDT	3877862		< 0.005	< 0.005	NA	< 0.005	101%	50%	140%	79%	50%	140%	84%	50%	140%
Dieldrin	3877862		< 0.005	< 0.005	NA	< 0.005	101%	50%	140%	95%	50%	140%	97%	50%	140%
Endrin	3877862		< 0.005	< 0.005	NA	< 0.005	82%	50%	140%	98%	50%	140%	91%	50%	140%
Methoxychlor	3877862		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	103%	50%	140%	96%	50%	140%
Hexachlorobenzene	3877862		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	103%	50%	140%	112%	50%	140%
Hexachlorobutadiene	3877862		< 0.01	< 0.01	NA	< 0.01	86%	50%	140%	90%	50%	140%	98%	50%	140%
Hexachloroethane	3877862		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	101%	50%	140%	107%	50%	140%
Aroclor 1242	3877862		< 0.10	< 0.10	NA	< 0.10	102%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1248	3877862		< 0.10	< 0.10	NA	< 0.10	106%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1254	3877862		< 0.10	< 0.10	NA	< 0.10	98%	50%	140%	NA	50%	140%	NA	50%	140%
Aroclor 1260	3877862		< 0.10	< 0.10	NA	< 0.10	104%	50%	140%	NA	50%	140%	NA	50%	140%
Polychlorinated Biphenyls	3877862		< 0.10	< 0.10	NA	< 0.10	91%	50%	140%	85%	50%	140%	87%	50%	140%
O. Reg. 153(511) - PCBs (Soil)															
Polychlorinated Biphenyls	3884024	3884024	< 0.1	< 0.1	NA	< 0.1	91%	50%	140%	85%	50%	140%	87%	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: AECOM CANADA LTD

AGAT WORK ORDER: 22T897775

PROJECT: 60636190 - BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T897775

PROJECT: 60636190 - BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Alpha-Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
op'-DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
op'-DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
DDT	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Hexachloroethane	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8081B	GC/ECD
Aroclor 1242	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Aroclor 1248	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T897775

PROJECT: 60636190 - BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Aroclor 1254	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Aroclor 1260	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3570, 3620C & 8082A	GC/ECD
TCMX	ORG-91-5113	modified from EPA SW-846 3541, 3620,8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541, 3620,8081	GC/ECD
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Polychlorinated Biphenyls	ORG-91-5113	modified from EPA SW-846 3570 & 8082A	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA SW-846 3541 & 8082A	GC/ECD

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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 #: 22T897775
Cooler Quantity: pan
Arrival Temperatures: 4.6 | 4.3 | 4.0
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: LOOSE ICE

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 (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: 60636190 - BBP Task WCM-WasteContamination
Site Location:
Sampled By: Kesh Appadurai
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FCC ☐ 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	SPLP metals	SPLP
FD-01-SS1	May 16		2	Soil			X												X	X			
FD-01-SS2	May 16		1	Soil																X			

Samples Relinquished By (Print Name and Sign): R.A. Clarson
Date: May 18/2022 Time:
Samples Received By (Print Name and Sign): Neil Ramnarain
Date: May Time: 1412
Samples Relinquished By (Print Name and Sign): KESH. A.
Date: Time:
Samples Received By (Print Name and Sign):
Date: Time: 1:54pm
Samples Relinquished By (Print Name and Sign):
Date: Time:
Samples Received By (Print Name and Sign):
Date: Time:

Page 1 of 1
No:

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190-BBP Task WCM-WasteContamination

AGAT WORK ORDER: 22T900690

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jun 06, 2022

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

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

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

DATE RECEIVED: 2022-05-27

DATE REPORTED: 2022-06-06

		SAMPLE DESCRIPTION:		FD-02
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-05-24
Parameter	Unit	G / S	RDL	3907342
Antimony	µg/g	1	0.8	<0.8
Arsenic	µg/g	11	1	2
Barium	µg/g	210	2.0	14.5
Beryllium	µg/g	2.5	0.4	<0.4
Boron	µg/g	36	5	<5
Boron (Hot Water Soluble)	µg/g	NA	0.10	<0.10
Cadmium	µg/g	1	0.5	<0.5
Chromium	µg/g	67	5	7
Cobalt	µg/g	19	0.5	2.0
Copper	µg/g	62	1.0	3.2
Lead	µg/g	45	1	2
Molybdenum	µg/g	2	0.5	<0.5
Nickel	µg/g	37	1	3
Selenium	µg/g	1.2	0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5
Thallium	µg/g	1	0.5	<0.5
Uranium	µg/g	1.9	0.50	1.00
Vanadium	µg/g	86	0.4	15.8
Zinc	µg/g	290	5	9
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.159
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.378
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.88

Certified By:

Amanjot Bhela

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
AMANJOT BHELA
CHEMIST

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

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

DATE RECEIVED: 2022-05-27

DATE REPORTED: 2022-06-06

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3907342 EC was 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. 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: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2022-05-27

DATE REPORTED: 2022-06-06

		SAMPLE DESCRIPTION:		FD-02
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-05-24
Parameter	Unit	G / S	RDL	3907342
Hexachloroethane	µg/g	0.01	0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT (Total)	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Moisture Content	%		0.1	14.5
wet weight OC	g		0.005	10.9
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		84
Decachlorobiphenyl	%	50-140		98

Certified By: NPopnikolof

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Certificate of Analysis

AGAT WORK ORDER: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2022-05-27

DATE REPORTED: 2022-06-06

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3907342 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

AGAT Laboratories

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

Soil Analysis

RPT Date: Jun 06, 2022			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	3907324		<0.8	<0.8	NA	< 0.8	137%	70%	130%	98%	80%	120%	74%	70%	130%
Arsenic	3907324		2	2	NA	< 1	127%	70%	130%	104%	80%	120%	112%	70%	130%
Barium	3907324		39.2	38.5	1.8%	< 2.0	106%	70%	130%	104%	80%	120%	108%	70%	130%
Beryllium	3907324		<0.4	<0.4	NA	< 0.4	86%	70%	130%	86%	80%	120%	100%	70%	130%
Boron	3907324		22	22	NA	< 5	75%	70%	130%	96%	80%	120%	107%	70%	130%
Boron (Hot Water Soluble)	3907291		0.60	0.60	0.0%	< 0.10	97%	60%	140%	97%	70%	130%	98%	60%	140%
Cadmium	3907324		<0.5	<0.5	NA	< 0.5	117%	70%	130%	97%	80%	120%	101%	70%	130%
Chromium	3907324		15	15	NA	< 5	109%	70%	130%	102%	80%	120%	125%	70%	130%
Cobalt	3907324		3.7	3.7	0.0%	< 0.5	113%	70%	130%	107%	80%	120%	109%	70%	130%
Copper	3907324		5.8	5.7	1.7%	< 1.0	100%	70%	130%	102%	80%	120%	97%	70%	130%
Lead	3907324		14	14	0.0%	< 1	110%	70%	130%	105%	80%	120%	98%	70%	130%
Molybdenum	3907324		0.6	0.6	NA	< 0.5	129%	70%	130%	114%	80%	120%	124%	70%	130%
Nickel	3907324		7	7	0.0%	< 1	117%	70%	130%	112%	80%	120%	109%	70%	130%
Selenium	3907324		<0.8	<0.8	NA	< 0.8	104%	70%	130%	115%	80%	120%	114%	70%	130%
Silver	3907324		<0.5	<0.5	NA	< 0.5	108%	70%	130%	105%	80%	120%	94%	70%	130%
Thallium	3907324		<0.5	<0.5	NA	< 0.5	101%	70%	130%	110%	80%	120%	107%	70%	130%
Uranium	3907324		<0.50	<0.50	NA	< 0.50	122%	70%	130%	108%	80%	120%	114%	70%	130%
Vanadium	3907324		12.6	12.3	2.6%	< 0.4	117%	70%	130%	108%	80%	120%	119%	70%	130%
Zinc	3907324		23	22	NA	< 5	109%	70%	130%	99%	80%	120%	98%	70%	130%
Chromium, Hexavalent	3907316		<0.2	<0.2	NA	< 0.2	100%	70%	130%	97%	80%	120%	116%	70%	130%
Cyanide, Free	3907316		<0.040	<0.040	NA	< 0.040	102%	70%	130%	102%	80%	120%	89%	70%	130%
Mercury	3907324		<0.10	<0.10	NA	< 0.10	116%	70%	130%	99%	80%	120%	101%	70%	130%
Electrical Conductivity (2:1)	3909693		0.512	0.525	2.6%	< 0.005	98%	80%	120%	NA			NA		
Sodium Adsorption Ratio (2:1) (Calc.)	3906014		5.65	6.01	6.1%	N/A	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	3907354		7.77	7.77	0.0%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

Certified By:

AGAT Laboratories
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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190-BBP Task WCM-WasteContamination
SAMPLING SITE:

AGAT WORK ORDER: 22T900690
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh Appadurai

Trace Organics Analysis

RPT Date: Jun 06, 2022			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) - OC Pesticides (Soil)															
Hexachloroethane	3907921		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	84%	50%	140%	86%	50%	140%
Gamma-Hexachlorocyclohexane	3907921		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	102%	50%	140%	95%	50%	140%
Heptachlor	3907921		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	106%	50%	140%	103%	50%	140%
Aldrin	3907921		< 0.005	< 0.005	NA	< 0.005	87%	50%	140%	101%	50%	140%	90%	50%	140%
Heptachlor Epoxide	3907921		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%	109%	50%	140%	94%	50%	140%
Endosulfan I	3907921		< 0.005	< 0.005	NA	< 0.005	85%	50%	140%	106%	50%	140%	90%	50%	140%
Endosulfan II	3907921		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%	103%	50%	140%	85%	50%	140%
Alpha-Chlordane	3907921		< 0.005	< 0.005	NA	< 0.005	84%	50%	140%	107%	50%	140%	90%	50%	140%
gamma-Chlordane	3907921		< 0.005	< 0.005	NA	< 0.005	85%	50%	140%	105%	50%	140%	89%	50%	140%
op'-DDE	3907921		< 0.005	< 0.005	NA	< 0.005	90%	50%	140%	106%	50%	140%	108%	50%	140%
pp'-DDE	3907921		< 0.005	< 0.005	NA	< 0.005	82%	50%	140%	110%	50%	140%	94%	50%	140%
op'-DDD	3907921		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	105%	50%	140%	114%	50%	140%
pp'-DDD	3907921		< 0.005	< 0.005	NA	< 0.005	110%	50%	140%	112%	50%	140%	113%	50%	140%
op'-DDT	3907921		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	117%	50%	140%	110%	50%	140%
pp'-DDT	3907921		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	107%	50%	140%	80%	50%	140%
Dieldrin	3907921		< 0.005	< 0.005	NA	< 0.005	82%	50%	140%	103%	50%	140%	86%	50%	140%
Endrin	3907921		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	95%	50%	140%	82%	50%	140%
Methoxychlor	3907921		< 0.005	< 0.005	NA	< 0.005	87%	50%	140%	112%	50%	140%	91%	50%	140%
Hexachlorobenzene	3907921		< 0.005	< 0.005	NA	< 0.005	101%	50%	140%	109%	50%	140%	95%	50%	140%
Hexachlorobutadiene	3907921		< 0.01	< 0.01	NA	< 0.01	82%	50%	140%	102%	50%	140%	85%	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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QC Exceedance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

RPT Date: Jun 06, 2022

PARAMETER	Sample Id	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)										
Antimony		137%	70%	130%	98%	80%	120%	74%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T900690

PROJECT: 60636190-BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE

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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 #: 22T90090

Cooler Quantity: Sm
Arrival Temperatures: 5.7 | 4.5
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes: Loose FD

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 (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: 60636190 - BBP Task WCM-WasteContamination
Site Location:
Sampled By: Kesh Appadurai
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	(Check Applicable) ORPs: ☐B-HWS ☐Cl ☐CN ☐Cr⁶⁺ ☐EC ☐FOC ☐NO_3/NO_2 ☐Total N ☐Hg ☐pH ☐SAR	(Check Applicable) Nutrients: ☐TP ☐NH_3 ☐TKN ☐NO_3 ☐NO_2 ☐NO_3/NO_2	(Check Applicable) Volatiles: ☐VOC ☐BTEX ☐THM	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use	SPLP metals	SPLP	&				
FD-02	May 24		2	Soil			X																						

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
[signature]			Acmuntha Ricey	22/5/22	16:45
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
May 28/2022.					
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time

Page 1 of 1

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

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CLIENT NAME: AECOM CANADA LTD
105 COMMERCE VALLEY DR.W 7TH FLOOR
MARKHAM, ON L3T7W3
(905) 886-7022

ATTENTION TO: Kesh Appadurai

PROJECT: 60636190 - BBP Task WCM-WasteContamination

AGAT WORK ORDER: 22T903546

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer

DATE REPORTED: Jun 13, 2022

PAGES (INCLUDING COVER): 15

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 after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- 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.

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Certificate of Analysis

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

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

DATE RECEIVED: 2022-06-03

DATE REPORTED: 2022-06-13

		SAMPLE DESCRIPTION:		DC-2 SS1	DC-1 SS-2	DC-1 SS-5
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2022-06-02	2022-05-28	2022-05-28
Parameter	Unit	G / S	RDL	3935077	3935088	3935089
Antimony	µg/g	1	0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	11	1	1	<1	1
Barium	µg/g	210	2.0	46.5	47.5	70.7
Beryllium	µg/g	2.5	0.4	<0.4	<0.4	<0.4
Boron	µg/g	36	5	6	5	8
Boron (Hot Water Soluble)	µg/g	NA	0.10	<0.10	<0.10	<0.10
Cadmium	µg/g	1	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	67	5	10	10	14
Cobalt	µg/g	19	0.5	3.3	3.4	4.5
Copper	µg/g	62	1.0	7.1	6.3	8.9
Lead	µg/g	45	1	3	2	3
Molybdenum	µg/g	2	0.5	<0.5	<0.5	<0.5
Nickel	µg/g	37	1	5	5	7
Selenium	µg/g	1.2	0.8	<0.8	<0.8	<0.8
Silver	µg/g	0.5	0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5
Uranium	µg/g	1.9	0.50	<0.50	<0.50	<0.50
Vanadium	µg/g	86	0.4	21.6	23.0	26.7
Zinc	µg/g	290	5	21	17	24
Chromium, Hexavalent	µg/g	0.66	0.2	<0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.051	0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.16	0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.47	0.005	0.130	0.134	0.151
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	1	N/A	0.083	0.151	0.165
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.76	7.75	7.79

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

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

DATE RECEIVED: 2022-06-03

DATE REPORTED: 2022-06-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3935077-3935089 EC was 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. 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: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

O. Reg. 406/19 SPLP Metals

DATE RECEIVED: 2022-06-03

DATE REPORTED: 2022-06-13

		SAMPLE DESCRIPTION:		DC-2 SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-06-02
Parameter	Unit	G / S	RDL	3935077
Antimony Leachate	µg/L	6	0.6	<0.6
Arsenic Leachate	µg/L	-	5	<5
Barium Leachate	µg/L	-	100	<100
Beryllium Leachate	µg/L	-	0.8	<0.8
Boron Leachate	µg/L	-	500	<500
Cadmium Leachate	µg/L	-	0.20	<0.20
Chromium Leachate	µg/L	-	10	<10
Cobalt Leachate	µg/L	-	0.3	<0.3
Copper Leachate	µg/L	-	6.9	<6.9
Lead Leachate	µg/L	-	1.0	<1.0
Molybdenum Leachate	µg/L	23	1.5	<1.5
Nickel Leachate	µg/L	-	10	<10
Selenium Leachate	µg/L	-	5.0	<5.0
Silver Leachate	µg/L	0.3	0.10	<0.10
Thallium Leachate	µg/L	-	0.5	<0.5
Uranium Leachate	µg/L	-	2	<2
Vanadium Leachate	µg/L	-	0.6	1.7
Zinc Leachate	µg/L	-	20	<20

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to O. Reg. 406/19 TABLE 1: Full Depth Background Site Condition - Agriculture
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.

3935077 Leachate for metal testing was prepared in accordance with Ontario MECP Method E9003, which has been modified from SW846-1312 by Ontario MECP. MECP has recommended that Method E9003 be used for leachate testing of soil samples under O'Reg 406/19 by MECP.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2022-06-03

DATE REPORTED: 2022-06-13

		SAMPLE DESCRIPTION:		DC-1 SS-2
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2022-05-28
Parameter	Unit	G / S	RDL	3935088
Hexachloroethane	µg/g	0.01	0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007
op'-DDE	ug/g		0.005	<0.005
pp'-DDE	µg/g		0.005	<0.005
DDE	µg/g	0.05	0.007	<0.007
op'-DDD	µg/g		0.005	<0.005
pp'-DDD	µg/g		0.005	<0.005
DDD	µg/g	0.05	0.007	<0.007
op'-DDT	µg/g		0.005	<0.005
pp'-DDT	µg/g		0.005	<0.005
DDT (Total)	µg/g	0.078	0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01
Moisture Content	%		0.1	4.9
wet weight OC	g		0.01	10.43
Surrogate	Unit	Acceptable Limits		
TCMX	%	50-140		76
Decachlorobiphenyl	%	50-140		79

Certified By: Jinkal Patel

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Certificate of Analysis

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

CLIENT NAME: AECOM CANADA LTD

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2022-06-03

DATE REPORTED: 2022-06-13

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Agricultural or Other Property Use
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.

3935088 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: Pinkal Patel

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T903546
PROJECT: 60636190 - BBP Task WCM-WasteContamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:Kesh Appadurai

Soil Analysis

RPT Date: Jun 13, 2022			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	3935037		<0.8	<0.8	NA	< 0.8	99%	70%	130%	92%	80%	120%	79%	70%	130%
Arsenic	3935037		2	2	NA	< 1	123%	70%	130%	99%	80%	120%	98%	70%	130%
Barium	3935037		36.2	34.7	4.2%	< 2.0	112%	70%	130%	101%	80%	120%	95%	70%	130%
Beryllium	3935037		<0.4	<0.4	NA	< 0.4	111%	70%	130%	105%	80%	120%	95%	70%	130%
Boron	3935037		<5	<5	NA	< 5	87%	70%	130%	104%	80%	120%	89%	70%	130%
Boron (Hot Water Soluble)	3951763		0.19	0.19	NA	< 0.10	100%	60%	140%	107%	70%	130%	111%	60%	140%
Cadmium	3935037		<0.5	<0.5	NA	< 0.5	113%	70%	130%	107%	80%	120%	105%	70%	130%
Chromium	3935037		12	12	NA	< 5	105%	70%	130%	101%	80%	120%	95%	70%	130%
Cobalt	3935037		4.2	4.1	2.4%	< 0.5	102%	70%	130%	97%	80%	120%	92%	70%	130%
Copper	3935037		13.7	13.8	0.7%	< 1.0	101%	70%	130%	104%	80%	120%	92%	70%	130%
Lead	3935037		3	3	NA	< 1	110%	70%	130%	103%	80%	120%	95%	70%	130%
Molybdenum	3935037		<0.5	<0.5	NA	< 0.5	110%	70%	130%	108%	80%	120%	110%	70%	130%
Nickel	3935037		12	12	0.0%	< 1	108%	70%	130%	104%	80%	120%	95%	70%	130%
Selenium	3935037		<0.8	<0.8	NA	< 0.8	131%	70%	130%	107%	80%	120%	105%	70%	130%
Silver	3935037		<0.5	<0.5	NA	< 0.5	104%	70%	130%	104%	80%	120%	98%	70%	130%
Thallium	3935037		<0.5	<0.5	NA	< 0.5	120%	70%	130%	102%	80%	120%	97%	70%	130%
Uranium	3935037		<0.50	0.54	NA	< 0.50	128%	70%	130%	103%	80%	120%	102%	70%	130%
Vanadium	3935037		21.0	20.4	2.9%	< 0.4	121%	70%	130%	104%	80%	120%	99%	70%	130%
Zinc	3935037		21	23	NA	< 5	108%	70%	130%	106%	80%	120%	99%	70%	130%
Chromium, Hexavalent	3935089	3935089	<0.2	<0.2	NA	< 0.2	100%	70%	130%	97%	80%	120%	116%	70%	130%
Cyanide, Free	3932022		<0.040	<0.040	NA	< 0.040	103%	70%	130%	94%	80%	120%	102%	70%	130%
Mercury	3935037		<0.10	<0.10	NA	< 0.10	109%	70%	130%	103%	80%	120%	100%	70%	130%
Electrical Conductivity (2:1)	3935037		0.911	0.924	1.4%	< 0.005	104%	80%	120%	NA			NA		
Sodium Adsorption Ratio (2:1) (Calc.)	3944661		0.772	0.762	1.3%	N/A	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	3935330		7.15	6.95	2.8%	NA	102%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

O. Reg. 406/19 SPLP Metals															
Antimony Leachate	3943585		<0.6	<0.6	NA	< 0.6	101%	70%	130%	89%	80%	120%	87%	70%	130%
Arsenic Leachate	3943585		<5	<5	NA	< 5	96%	70%	130%	94%	80%	120%	93%	70%	130%
Barium Leachate	3943585		<100	<100	NA	< 100	98%	70%	130%	98%	80%	120%	95%	70%	130%
Beryllium Leachate	3943585		<0.8	<0.8	NA	< 0.8	107%	70%	130%	107%	80%	120%	107%	70%	130%
Boron Leachate	3943585		<500	<500	NA	< 500	102%	70%	130%	100%	80%	120%	94%	70%	130%
Cadmium Leachate	3943585		<0.20	<0.20	NA	< 0.20	101%	70%	130%	101%	80%	120%	101%	70%	130%
Chromium Leachate	3943585		<10	<10	NA	< 10	101%	70%	130%	101%	80%	120%	100%	70%	130%
Cobalt Leachate	3943585		<0.3	<0.3	NA	< 0.3	94%	70%	130%	93%	80%	120%	90%	70%	130%

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
PROJECT: 60636190 - BBP Task WCM-WasteContamination
SAMPLING SITE:

AGAT WORK ORDER: 22T903546
ATTENTION TO: Kesh Appadurai
SAMPLED BY:Kesh Appadurai

Soil Analysis (Continued)

RPT Date: Jun 13, 2022			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
Copper Leachate	3943585		<6.9	<6.9	NA	< 6.9	99%	70%	130%	104%	80%	120%	99%	70%	130%
Lead Leachate	3943585		<1.0	<1.0	NA	< 1.0	98%	70%	130%	101%	80%	120%	98%	70%	130%
Molybdenum Leachate	3943585		8.3	3.8	NA	< 1.5	101%	70%	130%	97%	80%	120%	97%	70%	130%
Nickel Leachate	3943585		<10	<10	NA	< 10	97%	70%	130%	100%	80%	120%	97%	70%	130%
Selenium Leachate	3943585		<5.0	<5.0	NA	< 5.0	94%	70%	130%	94%	80%	120%	94%	70%	130%
Silver Leachate	3943585		<0.10	<0.10	NA	<0.10	99%	70%	130%	102%	80%	120%	98%	70%	130%
Thallium Leachate	3943585		<0.5	<0.5	NA	< 0.5	100%	70%	130%	102%	80%	120%	102%	70%	130%
Uranium Leachate	3943585		<2	<2	NA	< 2	105%	70%	130%	108%	80%	120%	104%	70%	130%
Vanadium Leachate	3943585		0.8	0.8	NA	< 0.6	92%	70%	130%	96%	80%	120%	95%	70%	130%
Zinc Leachate	3943585		<20	<20	NA	< 20	100%	70%	130%	109%	80%	120%	105%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

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Quality Assurance

CLIENT NAME: AECOM CANADA LTD
AGAT WORK ORDER: 22T903546
PROJECT: 60636190 - BBP Task WCM-WasteContamination
ATTENTION TO: Kesh Appadurai
SAMPLING SITE:
SAMPLED BY:Kesh Appadurai

Trace Organics Analysis

RPT Date: Jun 13, 2022			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) - OC Pesticides (Soil)															
Hexachloroethane	3935079		< 0.005	< 0.005	NA	< 0.005	83%	50%	140%	104%	50%	140%	76%	50%	140%
Gamma-Hexachlorocyclohexane	3935079		< 0.005	< 0.005	NA	< 0.005	95%	50%	140%	99%	50%	140%	86%	50%	140%
Heptachlor	3935079		< 0.005	< 0.005	NA	< 0.005	87%	50%	140%	93%	50%	140%	72%	50%	140%
Aldrin	3935079		< 0.005	< 0.005	NA	< 0.005	95%	50%	140%	105%	50%	140%	80%	50%	140%
Heptachlor Epoxide	3935079		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	94%	50%	140%	73%	50%	140%
Endosulfan I	3935079		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	92%	50%	140%	72%	50%	140%
Endosulfan II	3935079		< 0.005	< 0.005	NA	< 0.005	91%	50%	140%	91%	50%	140%	79%	50%	140%
Alpha-Chlordane	3935079		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	94%	50%	140%	73%	50%	140%
gamma-Chlordane	3935079		< 0.005	< 0.005	NA	< 0.005	88%	50%	140%	92%	50%	140%	82%	50%	140%
op'-DDE	3935079		< 0.005	< 0.005	NA	< 0.005	93%	50%	140%	106%	50%	140%	75%	50%	140%
pp'-DDE	3935079		< 0.005	< 0.005	NA	< 0.005	87%	50%	140%	109%	50%	140%	73%	50%	140%
op'-DDD	3935079		< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	104%	50%	140%	79%	50%	140%
pp'-DDD	3935079		< 0.005	< 0.005	NA	< 0.005	113%	50%	140%	109%	50%	140%	80%	50%	140%
op'-DDT	3935079		< 0.005	< 0.005	NA	< 0.005	82%	50%	140%	92%	50%	140%	73%	50%	140%
pp'-DDT	3935079		< 0.005	< 0.005	NA	< 0.005	79%	50%	140%	72%	50%	140%	76%	50%	140%
Dieldrin	3935079		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%	91%	50%	140%	79%	50%	140%
Endrin	3935079		< 0.005	< 0.005	NA	< 0.005	81%	50%	140%	74%	50%	140%	73%	50%	140%
Methoxychlor	3935079		< 0.005	< 0.005	NA	< 0.005	85%	50%	140%	96%	50%	140%	79%	50%	140%
Hexachlorobenzene	3935079		< 0.005	< 0.005	NA	< 0.005	101%	50%	140%	113%	50%	140%	79%	50%	140%
Hexachlorobutadiene	3935079		< 0.01	< 0.01	NA	< 0.01	82%	50%	140%	86%	50%	140%	73%	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: Jinkal Patel

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QC Exceedance

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

RPT Date: Jun 13, 2022

PARAMETER	Sample Id	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)										
Selenium		131%	70%	130%	107%	80%	120%	105%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.
More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, Free	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE
Antimony Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Arsenic Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP/MS
Barium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Beryllium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Boron Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cadmium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Chromium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Cobalt Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Copper Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Lead Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Molybdenum Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Nickel Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Selenium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Silver Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Thallium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Uranium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Vanadium Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS
Zinc Leachate	MET-93-6103	modified from EPA 1312 & EPA 6020B	ICP-MS

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Method Summary

CLIENT NAME: AECOM CANADA LTD

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE

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: AECOM CANADA LTD

AGAT WORK ORDER: 22T903546

PROJECT: 60636190 - BBP Task WCM-WasteContamination

ATTENTION TO: Kesh Appadurai

SAMPLING SITE:

SAMPLED BY:Kesh Appadurai

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE

1 small red

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 #: 22T903546
Cooler Quantity: Smear
Arrival Temperatures: LT: 3.0 | 3.4 | 3.6
Custody Seal Intact: ☐ Yes ☐ No ☑ N/A
Notes: Loose ice

Report Information:
Company: AECOM Canada - Markham
Contact: kesh.appadurai@AECOM.com
Address:
Phone: Fax:
Reports to be sent to:
1. Email: kesh.appadurai@AECOM.com
2. Email:

Regulatory Requirements:
☐ No Regulatory Requirement
(Please check all applicable boxes)

☑ Regulation 153/04
Table 1 (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: 60636190 - BBP Task WCM-WasteContamination
Site Location:
Sampled By: Kesh Appadurai
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 (Please Circle) Y / N	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr(VI) ☐ EC ☐ FOC ☐ NO_3/NO_2 ☐ Tcta 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	SPLP metals	SPLP	PAHs	OC				
DC-2 SS-1	Jun 2		2	Soil			X																X							
DC-1 SS-2	May 28		2	Soil			X																			X				
DC-1 SS-5	May 28		1	Soil			X																							

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
RA Akita	June 02/2022		~~Jas~~ Arneet Minhas AM	June 3/22	2:07pm
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

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

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