APPENDIX O – Soil, Waste & Landfill Gas Study Report

REPORT - FINAL

Teston Road Area Transportation Improvements Individual Environmental Assessment

Soil, Waste and Landfill Gas Report

Presented to:

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EXECUTIVE SUMMARY

Morrison Hershfield Limited now Stantec (MHnS) was retained by The Regional Municipality of York (York Region) to conduct a Soil, Waste and Landfill Gas study for the proposed improvements to Teston Road between Keele Street and Bathurst Street. The proposed improvements include realignment of Teston Road between Keele Street and about 500 m east of Keele Street, constructing a new segment of Teston Road from 500m east of Keele Street to Dufferin Street, and widening and rehabilitation of Teston Road between Dufferin Street and Bathurst Street. The proposed right-of-way travels between three landfills namely the Disposal Services Landfill (DSL), Vaughan Landfill (VL), and the Keele Valley Landfill (KVL).

This report documents the existing conditions and discusses the potential impacts of the proposed road improvements on soil, generally, and on waste and landfill gas associated within the three closed landfills and provides recommendations and mitigation measures. The key findings of the Study are summarized below:

- Some landfill-gas-related infrastructure is in conflict with the proposed road design. Detailed assessment of the severity of the conflict and the appropriate mitigation measures is recommended in later design stages. Any changes to the landfill infrastructure will require amendments to the Environmental Compliance Approval (ECA) under which the affected landfill operates. Significant collaboration will be required between York Region, the engineering team working on the road design and the owners of the landfills (particularly with City of Vaughan who own the Vaughan Landfill and the City of Toronto who own the Keele Valley Landfill). Typical minimum turn-around time by Ministry of the Environment Conservation and Parks for ECA approval reviews is one year.
- Landfill gas can be assumed to be present in the subsurface from approximately chainage 1+300 to 2+800 during, and for decades following, construction. Passive systems for the protection of buried infrastructure from this gas are recommended to be incorporated into their design. Monitoring of combustible gases may be required in the storm sewer for some time following its construction, and administrative measures for the protection of road maintenance workers will be required on an ongoing basis.
- There is a possibility of the presence of buried waste associated with the DSL and VL along the northern edge of the project from chainage 1+600 to 2+200. Test pits and/or boreholes are recommended to further investigate this concern. Removal of this waste, if present, along with any other pockets of waste that may be encountered during subsequent investigations and/or construction, if any, is considered a viable option.

The results of the soil testing indicate that soil quality is typical and, with one exception, uncontaminated. Additional soil quality sampling and a Soil Management Plan developed by a Qualified Person (QP) are expected to mitigate soil-related impacts.

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1. INTRODUCTION

Morrison Hershfield Limited now Stantec (MHnS) was retained by The Regional Municipality of York (York Region) to conduct an Individual Environmental Assessment (IEA) for the proposed improvements to Teston Road between Keele Street and Bathurst Street (Project Area). This technical report supports the IEA by documenting existing conditions, quantifying the potential effects of the proposed improvements on an aspect of the environment and recommending mitigation measures.

1.1 Project Area Description

The proposed improvements include realignment of Teston Road between Keele Street and about 500 m east of Keele Street, constructing a new segment of Teston Road from 500m east of Keele Street to Dufferin Street, and widening and rehabilitation of Teston Road between Dufferin Street and Bathurst Street. The Project Area is located in City of Vaughan, within York Region, Ontario. The Project Area is shown in **Figures 1** and **2a-f** in **Appendix A**.

The surrounding land use is primarily commercial and industrial, with some residential use towards the east end of the Project Area.

It is useful for the reader to know that the chainage of the project starts at 1+000, just west of Keele Street. Key points along the road alignment are noted in **Table 1**:

Table 1: Key Points Along the Road Alignment

Location	Chainage (Approx.)
Keele Street	1+271
West side of Disposal Services Landfill (DSL)	1+600
Rodinea Road	1+765
West side of Vaughan Landfill (VL)	1+800
West side of Keele Valley Landfill (KVL)	1+950
High point of land	2+250
East side of VL and KVL (approx.)	2+650
East Don River Tributary	3+040
Dufferin Street	3+375
Watercourse, existing box culvert	4+607
Bathurst Street	5+405

1.2 Scope of Work

The purpose of this soil, waste and landfill gas (LFG) study is to assess these elements and determine and mitigate impacts associated with the proposed improvements to Teston Road between Keele Street and Bathurst Street. The scope of the soil, waste and LFG study

incorporates the following elements: 1) compilation and assessment of background information such as geological and topographic mapping, water well records, geological information, engineering, soil, waste, contamination and landfill gas studies (including the Contamination Overview Study completed by MH in October 2022); 2) field investigation as necessary to meet the objectives, conducted in conjunction with the geotechnical investigation; 3) assessment of the general quality of the soil within the Project Area; 4) engineering assessment and determination of significance; 5) assessment of impacts; and 6) proposed environmental protection/mitigation measures.

The current report has a specific focus on three closed landfills that are adjacent to the Teston Road right-of-way. These are the DSL, the VL, both north of the right-of-way and the KVL, south of the right-of-way. The current report should be read in conjunction with the Hydrogeology Study Report, and the breakdown of the various landfill components and how they are addressed in each of these two studies is summarized in **Table 2**.

Table 2: Landfill Components Addressed in This and a Companion Study

Landfill Component	Hydrogeology Study	Soil, Waste and Landfill Gas Study
Groundwater Monitoring Systems	X	
Groundwater and leachate collection systems	X	
Landfill liner and cap	X	X
Administrative systems including property considerations and ECA	X	
Waste		X
Landfill gas monitoring and collection systems		X

The scope of work for the study included the following field-specific elements:

- Performing a subsurface investigation consisting of borehole drilling and soil sampling.
- Conducting chemical analysis of soil samples for the identified contaminants of concern.
- Comparing soil analytical results with assessment standards of Ontario Regulation (O. Reg.) 153/04, under Part XV.1 of the Environmental Protection Act.

2. METHODS

This section describes the methods used in this study. Specifics to the project, including dates, specific data sources and specific details of the chosen methodology are included as part of the results.

2.1 Background Data Review

Background data review was conducted in accordance with industry standard practices using readily available information from federal, provincial, municipal, and other sources of information.

The background review included analysis as necessary to develop an overall understanding of the soil, waste and LFG setting. In this case, the analysis included the tabulation and use of various sources of borehole information to determine soil types and to evaluate the possible presence of waste. A significant effort was made to tabulate and synthesize the contents of historical reports on landfill waste and LFG.

2.2 Soil Investigation

2.2.1 Borehole Drilling

Borehole drilling for MH-BH2, MH-BH3 and MH-BH4 was performed by Landshark Group of Brantford, Ontario, using a Geo-probe drill rig on December 12th, 2022, under the supervision of MH staff. Drilling of MH-BH1 was performed using a hand auger by MH staff on January 19th, 2023.

In addition, soil samples were collected from the foundation and pavement boreholes drilled during a concurrent geotechnical investigation led by Golder Associates Ltd. (Golder) and WSP Canada Inc. (WSP) between October 2022 and January 2023. A list of geotechnical boreholes used by MH for simultaneous environmental sampling as well as boreholes drilled by MH is summarized in **Table 3** below.

Table 3: Summary of Borehole Drilling

Borehole ID	Type of Investigation	Borehole Depth (mbgs)
MH-BH1	Environmental only	0.76
MH-BH2	Environmental only	3.1
MH-BH3	Environmental only	4.56
MH-BH4	Environmental only	4.56
A22-2	Foundation and Environmental	10.36
A22-3	Foundation and Environmental	15.86
C1	Foundation and Environmental	7.11

Borehole ID	Type of Investigation	Borehole Depth (mbgs)
BHP4, BHP5, BHP7, BHP9, BHP10, BHP11, BHP17, BHP22, BHP25, BHP34 and BHP38	Pavement and Environmental	~1.5

Boreholes not completed as monitoring wells were backfilled with drill cuttings.

2.2.2 Soil Sampling

The procedure used to collect soil samples varied with location and is summarized below.

MH-BH1

Soil sample from MH-BH1 was collected using hand auguring equipment and immediately transferred to polyethylene bags for sampling and headspace vapour screening.

MH-BH2 to MH-BH4

Continuous soil samples were collected using a DT325 dual tube sampling system. This sampling system uses two (2) sets of probe rods. The outer probe rods have an outside diameter (OD) of 3.25-inch (83 mm). These rods remain in place throughout sampling and serve as casing. The inner probe rod acts as a sample sheath. Soil cores are collected in dedicated thin-walled PVC sample liners. These sample liners are placed inside the inner probe rod, which holds them in place during sampling. Following a sampling interval, the inner prob rod and PVC sample liner are retrieved using 1.25-inch (32 mm) OD center rods. Soil samples were collected in 5 ft (1.5 m) intervals and the resulting soil cores were approximately 1.85-inch in diameter.

The retrieved soil samples were immediately inspected in the plastic liners for field evidence of contamination and then transferred to polyethylene bags for sampling and headspace vapour screening.

A22-2, A22-3 and C1

Soil samples were generally obtained from the boreholes at 0.75 m and 1.5 m intervals of depth using a 50 millimeter (mm) outer diameter split-spoon sampler driven by an automatic hammer or a rope and cathead operated donut hammer. The retrieved soil samples were immediately inspected in the split spoons for field evidence of contamination and then transferred to polyethylene bags for sampling and headspace vapour screening.

Split spoons were cleaned in a pail of water and phosphate free detergent to prevent cross contamination between samples.

Pavement Boreholes (BHPs)

The pavement boreholes were drilled using either solid-stem augers or hand auguring equipment and soil samples were collected off the auger flights and were immediately transferred polyethylene bags for sampling and headspace vapour screening.

The auger flights were cleaned with a brush between borehole locations.

Nitrile gloves were worn by MH field staff at all times during collection and handling of soil samples and were changed for each sample in order to minimize the potential for cross contamination.

2.2.3 Field Screening Measurements

Field screening was performed using an RKI Eagle II gas monitor, equipped with photoionization detector (PID) and combustible gas indicator (CGI) sensors and methane elimination mode turned on (given that landfill gas was assumed present, and was not the focus of the soil investigation). Prior to use in the field, the PID was calibrated using an isobutylene standard of 100 ppm, while the CGI was calibrated using a hexane standard of 400 ppm.

The polyethylene bags used for vapour screening were filled halfway with soil and allowed to equilibrate for several minutes before conducting the headspace vapour readings. During reading events, the probe-tip of the gas monitor was used to puncture the sealed polyethylene bag and the peak PID and CGI readings were recorded after 15 seconds of measurement.

Based on field evidence of contamination and/or headspace vapour readings, the most contaminated samples and a representative set of samples from various depths were placed in laboratory supplied jars and vials. The filled jars and vials for each soil sample included one (1) 150 mL and one (1) 250 mL glass jars with Teflon-lined lids, and two (2) 40 mL glass vials with methanol preservative. The soil that was placed in the 40 mL glass vials was collected in 5 g samples using dedicated Terra Core ™ samplers. The samples were then placed in ice-filled coolers for storage, prior to delivery to the lab.

Following sample collection, a minimum of one (1) soil sample from each borehole was selected for laboratory analysis of the identified contaminants of concern (COC).

2.2.4 Laboratory Analysis of Soil

Under chain of custody documentation, the soil samples were submitted to Eurofins Environment Testing Canada Inc. (Eurofins) in Ottawa. Eurofins is a Canadian Association for Laboratory Accreditation (CALA) accredited laboratory for the analyses performed.

All samples were received and analyzed within the sample holding times outlined in the *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*.

2.3 Impact Assessment

Soil (and waste) impacts are generally assessed within the context of the quality of the soil relative to standards, and whether or not the project would impact contamination, for example by generated contaminated excess material. Waste and LFG impacts are assessed from a human health and safety perspective, as the presence of these may impact workers during construction as well as road users, the public, and road maintenance workers post construction.

3. RESULTS

3.1 Topography and Drainage

The Oak Ridges Moraine is a massive ridge of glacial drift extending between Caledon and Rice Lake, near Peterborough, containing significant amounts of sand and gravel. The moraine has a geographic area of 1,900 square kilometres with overburden that is up to 200 m thick. According to Chapman and Putnam (1984), a lobe of the moraine proper occupies the central part of the Study Area (see **Figure 1** in **Appendix A**), which is flanked on either side by the till plains of the area known as the South Slope of the Oak Ridges Moraine.

Along the alignment of the proposed Teston Road, the topography is highest (approximately 285 m elevation) just east of Rodinea Road. West of this is within the watershed of the Don River West Branch. East of this the topography drops into the valley of Don River East Branch which crosses the alignment at just less than 250 m elevation. This and two other tributaries of the East Don (mid-block between Dufferin Street and Bathurst Street, and at Bathurst Street) originate in the Study Area, and flow toward Lake Ontario, incised 10 to 20 m into the landscape.

Waste piles associated with the three closed landfills dominate the topography on either side of the alignment. On the north side, just north of Rodinea Road, the DSL rises to a peak of approximately 311 masl. East of this, the VL rises to a peak of approximately 304 masl. South of the alignment, between Rodinea Road and the East Branch of the Don River, the KVL rises to a peak of 300 masl.

3.2 Geology and Hydrogeology

According to “Quaternary Geology of Ontario, Southern Sheet” (Barnett et al., 1991), and “Surficial Geology of Southern Ontario” (OGS, 2010), the quaternary deposit at the edges of the Study Area consists of Halton Till. Where the Oak Ridges Moraine occupies the central part of the Study Area, the geology is mapped as glaciofluvial ice-contact deposits consisting of gravel and sand, minor till, including esker, kame, end moraine, ice-marginal delta and subaqueous fan deposits. Refer to the hydrogeology report for more information on geology.

Within the tills that flank the Oak Ridges Moraine (the water table is generally within a few (5-10) metres of surface, and groundwater would typically be flowing down to an underlying aquifer or, if one is present, laterally to a nearby drainage feature.

Where the Oak Ridges Moraine occupies the central part of the Study Area (i.e., within the area of the three closed landfills), the hydrogeology has been studied extensively. Within the upper 100 m of soil there exist sand and gravel aquifers interbedded with 10-20 m thick layers of finer-grained confining material (Dixon, 2000). In an unconfined upper aquifer, an intermediate aquifer and a confined lower aquifer, groundwater flows from recharge in the northwest towards discharge at the tributaries of the East Don River in the southeast. Southeast of the VL and the KVL, a series of purge wells capture the upper and intermediate aquifer flows, from where it is pumped to a sanitary sewer. Refer to the hydrogeology report for more information on hydrogeology.

3.3 Landfills

Based on a historical records review, it appears the Study Area was primarily agricultural land with a gravel pit in operation prior to 1956. The gravel pit was eventually transformed into three landfills: VL starting in the mid-1960s, DSL starting in the mid-1970s and the KVL starting in the mid-1980s.

The following subsections describe what is known of the waste and the landfill gas at the three closed landfills. Refer to the hydrogeology report for more information on the history, property considerations, and groundwater and leachate related infrastructure.

3.3.1 Background on Landfill Gas

Landfill gas is a product of solid waste decomposition within landfills. Landfill gas is typically comprised of about 50% methane (CH_4) and 50% carbon dioxide (CO_2) as well as smaller amounts of nitrogen, oxygen, and hydrogen sulphide. The proportion of the various components of the gas change with time after waste placement, but this process and the overall generation of landfill gas may persist for hundreds of years.

Landfill gas represents a hazard via explosions (the lower explosive limit (LEL) of methane is 5% by volume, while the upper explosive limit (UEL) of methane is 15% by volume) asphyxiation, off-site gas migration, and vegetation stress. Where landfill gas is present in the subsurface it can present a hazard during construction of subsurface infrastructure and ongoing maintenance of the same.

Landfill gas can move from the source (i.e. landfill) through the ground via migration influenced by pressure differentials. Pressures above atmospheric are typical at the source of the gas generation (i.e., in waste at landfills), which causes a general trend of landfill gas movement away from waste and towards the surface. Gas migrates along the path of least resistance, for example through permeable and unsaturated soils, through utility corridors, sewers, bedding material, and engineered preferential pathways for collection. Pressure gradients and gas migration can be complex and may change seasonally or otherwise based on changes in relevant factors such as barometric pressure and subsurface conditions. Frozen ground, for example, can create impermeable pathways at surface and cause wider spread of gas relative to summertime conditions. In another example, high water tables can flood what otherwise might be a pathway for gas migration.

Landfill gas can be controlled through passive systems such as barrier walls and venting systems, and through active systems that use a vacuum to recover and collect landfill gas for flaring or for energy generation. In Ontario, all such landfill gas collection and control systems require MECP approvals, ongoing monitoring and maintenance, continuous operation, and inclusion in asset management programs.

3.3.2 Disposal Services Landfill

3.3.2.1 Waste Area

The DSL waste area (approximate approved limit of waste) is shown on Figures 2 and 3, and was drawn based on a plan (Stantec, 2022) and cross-section (2019) showing extents of waste, as well as on the topographic contours and slopes apparent in satellite imagery.

On the cross section (Stantec, 2019), the waste is shown to extend to within 3 m of the southern DSL property line and the northern limit of the existing Teston Road right-of-way and to be approximately 1 m to 5 m below ground surface at its southern limit.

3.3.2.2 Landfill Gas Collection and Monitoring Systems

There is no known landfill gas collection system at the DSL. Gas probes and monitoring wells combined with gas probes are present around the perimeter of the waste, both on and off the property (Stantec, 2022). Those close to Teston Road are shown on Figure 7a. Gas probes are vertical wells, presumably in the unsaturated zone, with 2-4 m long well screens (Stantec, 2019). Gas from the subsurface can flow freely through the well screen and into the well, allowing for sampling and measurement of methane and combustible gases.

The March 31, 2003, amendment to the ECA approved the “construction and operation of a passive landfill gas venting barrier along the western and northern sides” of the closed landfill. The ECA document indicates that this involved a geosynthetic barrier as well as geosynthetic materials, and “recommended caisson foundations for gas vents”. The ECA specified a trigger value of 1 % combustible gas by volume (20 % of the lower explosive limit) at any landfill gas monitoring probe between the passive landfill gas venting barrier and the property boundary to address the need for further actions and contingency measures.

3.3.3 Vaughan Landfill

The Vaughan Landfill is a 28-hectare waste disposal site within a total area of 40 hectares, subject to Environmental Compliance Approval No. A230601 issued on September 19, 1977 and amended on November 14, 1994, December 1, 1994, March 19, 1996, July 5, 1996, July 31, 1996, September 2, 1997, September 26, 1997, September 29, 1998 and August 19, 2021. The landfill gas flaring system is subject to Amended Certificate of Approval (Air) No. 8-3487-96-977, dated September 4, 1997.

3.3.3.1 Waste Area

According to the ECA, the site has a 28-hectare waste disposal site area and 12 hectares of buffer lands, all of which are shown on **Figures 3**, and **3a-c**. The waste area (approximate approved limit of waste) was drawn based on a fairly consistent representation of the waste footprint in multiple background documents (e.g., Golder 2018a and 2018b, and Golder, 2020). The southern limit of the VL waste footprint lines up with the north side of Part 9 of Reference Plan 65R-5832 (in the west) which is the northern limit of the existing Teston Road allowance and the north edge of Parts 8 and 53 (in the east) which is the easement for the City of Toronto to access the purge wells.

To augment the map data, MHnS inspected the well logs in the Water Well Information System on the north side of Teston Road allowance for soil descriptions containing waste (or refuse, or garbage, etc.). Well records with waste are indicated with 16 red dots on **Figures 2b** and **2c** in **Appendix A**, while those without waste are indicated with 9 blue dots. Also shown on these figures are red dots indicating the location of purge wells whose borehole logs (as provided by the City of Toronto) indicated the presence of waste. Together, these colour-coded dots verify the presence of waste and indicate that the southern limit may be slightly north of the limit as shown on the figures (the two southernmost logs had no waste-related annotation).

The soil logs for the gas probes and gas collection wells in the southwest corner of the VL (see next section) were unavailable, and so there is a lack of information on waste in this corner. It is presumed that the 84 series of gas wells west of the blower building (see Figure 3a) were installed in waste, while the 84 series gas probes were installed outside the waste footprint (see next section for evidence of this).

3.3.3.2 Landfill Gas Collection and Monitoring Systems

A system of landfill gas extraction wells was installed in 1984. Eleven (11) gas wells were originally installed west of the blower building in 1984 in seven (7) concrete structures (the GW1-7/84 series in Figure 3a). The gas wells are connected via a line of PVC gas header pipe to a blower building and flare. The header pipe was set within granular material bedding a minimum of 1 m below ground, backfilled to surface with native material (Comcor, 2019b). Landfill gas was monitored monthly in an off-site series of gas probes (GP) west of the VL (the 86 series, north and south of the Teston Road allowance, west of Rodinea Road), in an off-site series of probes south of the Teston Road allowance (the 87A series and two from the 87B series, between Rodinea Road and KVL northwest gate), in an on-site series of probes west of the blower building (the 83 and 84 series), and in an on-site series of probes east of the blower building (the remainder of the 87B series).

In part to address concentrations of landfill gas in the 87B series east of the blower building (Marshall Macklin Monahan, 1996), two additional sets of gas extraction wells were added in 1997 (the 97 series). West of the blower building, six (6) above-ground wells were added on the west side of the waste, and four (4) wells (shallow and deep in two concrete structures) were added on the south side of the waste, and these were connected to the blower and flare by a new (second) gas header line with a maintenance hole at the southwest corner of the landfill. East of the blower building, eight (8) wells (shallow and deep in four concrete structures) were added on the south side of the waste and connected to the blower and flare by a third gas header. Also in 1997, four (4) gas probes (97 series) were added on the west side of the waste and on the east side of the blower building.

The locations and identifiers of all the above-noted gas extraction wells and gas probes are shown on Figures 3a and 3b.

Semi-annual landfill gas monitoring reports were available for 1996 (Marshall Macklin Monahan, 1996), 2015 (MMM, 2015 and 2016), 2016 (Comcor 2016 and 2017a), 2017 (Comcor, 2017b and 2018a), 2018 (Comcor, 2018b and 2019a), and 2019 (Comcor, 2019c and 2020). These reports indicate that elevated methane concentrations were measured sporadically in offsite gas probes (south of Teston Road, both east and west of Rodinea), and measured sporadically but more reliably (especially in probes drilled into waste, and during the winter) in onsite probes (north of Teston Road, both east and west of the blower building).

It is notable that between November 2014 and April 2016, the landfill gas control system was shut down due to a declining quantity of landfill gas recoverable at the Site (Comcor, 2020). By December 2015, several elevated methane concentrations were measured at offsite probes, and the system was brought back into operation as a result. Upgrades to the flare system were completed in 2020 (Comcor, 2019b) to address issues with compliance with the standards of the Technical Standards and Safety Authority (TSSA). In a study of the feasibility of potential recreational end uses on the VL lands, Golder (2018a, and as referenced in Comcor, 2019a) found that the clay cap was in good condition even in areas

where Comcor identified methane exceedances in a surface emissions survey. This led Golder to recommend that if the public were to have access to the site in the future, the existing perimeter landfill gas collection and flaring facility should be expanded to include landfill gas collection within the waste mound itself.

The most recent monitoring report available (Comcor, 2020) indicated the following:

- **Offsite 86 Series Probes (West of Rodinea Road):** elevated methane concentrations were measured at two of the eleven monitoring probes during the reporting period (July to December 2019). These exceedances were 0.7% by volume at GP5s/86 in September and 31.4% by volume at GP5d/86 in October (note that the "s" and "d" in the probe ID, here and below, indicate the shallow and the deep probe, respectively. The "s" and "d" notations are omitted from the Figures for ease of viewing).
- **Offsite 87A and 87B Series Probes (South of Teston Road, between Rodinea Road and the KVL Northwest Gate):** The only elevated methane concentration was recorded as 7.5% by volume at GP1s/87A in July. However, it should be noted that due to various issues, including damaged and frozen ports, there were occasions when technicians could not monitor methane levels at these probes.
- **Onsite 83 Series Probe (in Waste, Northwest of the Blower Building):** Elevated methane concentrations from 32.9% to 40.9% by volume were measured in GP7/83, which is the only gas probe known to be located within the waste.
- **Onsite 97 Series Probes (at the West Property Line):** During five of the six of the monitoring events, elevated methane levels were measured at both 97 series probes along the western property boundary. Throughout the reporting period, the highest methane concentration was 43.5% by volume, measured at GP1s/97 in October.
- **Onsite 84 Series Probes (West of the Blower Building, at the Southwest Property Line):** During the course of the reporting period, there was one elevated methane concentration at the twelve monitoring probes. However, it is to be noted that due to frozen ports, technicians were unable to record measurements at four of the probes during the December 18th, 2019, monitoring event. The only elevated methane concentration was recorded as 0.5% by volume at GP6s/84 in July.
- **Onsite 87B and 97 Series Probes (East of the Blower Building):** Elevated methane concentrations were measured during four of the six monitoring events. The elevated concentrations were isolated to two of the fifteen monitoring probes, those being GP2d/87B and GP7s/87B. Elevated methane concentration ranged from 1.2% methane by volume at GP7s/87B on December 18th, 2019, to 4.8% methane by volume at GP2d/87B on October 11th, 2019.

These results show that landfill gas and methane continue to be present in the subsurface in and around the Teston Road allowance in the vicinity of the VL and the other two closed landfills. The historical record indicates the importance of the landfill gas collection system for the control of landfill gas and methane in the subsurface, and the potential for new and expanded systems, depending on future land use.

The fact that both monitoring consultants whose reports were available (MMM and Comcor) noted that the only gas probe within the waste was GP7/83 combined with the low concentrations of methane in the 84 series of probes (pink triangles at the southwest corner

of the VL in Figure 3a) provides strong evidence that the waste does not extend as far south as these probes.

3.3.4 Keele Valley Landfill

3.3.4.1 Waste Area

The former Metropolitan Toronto purchased land from Superior Sand and Gravel Ltd. ("Superior") to operate the KVL Site by agreement dated May 11, 1983. The landfill is a 99.2-hectare waste disposal site within a total site area of 375.9 hectares, subject to Environmental Compliance Approval No. A230610 issued on May 26, 1983, and amended approximately 100 times since then. See the Hydrogeology Report for additional information on property, easements, etc.

According to Schedule B of an easement agreement between the Town of Vaughan and Metropolitan Toronto established in 1983 (Instrument 320409), the 99.2 hectares waste disposal site is made up of Parts 10 and 17 of Reference Plan 65R-5832. Generally, and according to most documents reviewed, the north limit of waste (approximate approved limit of waste) is the north limit of Part 17 of the Reference Plan, and this is the red dash-dot line at the north end of the KVL on **Figures 3a**, **3b**, and **3c**. Part 10 is the 8 m wide by 340 m long area, shown as primary buffer, north of the east side of the waste.

The KVL is an engineered landfill with a 1.2 m thick clayey silt till liner, waste and a 1 m thick soil cover or cap. At the edges of the landfill the waste pinches out, while the liner and the cap come together from below and above, respectively. Based on visuals and topography alone, an accurate determination of the actual edge of the waste is difficult to establish. The north end of the waste is, however, expected to be south of the line of concrete access chambers noted on **Figures 3a-c**. See Section 3.3.4.2 for more details.

To augment the above analysis on the presence of waste, MHnS inspected the well logs in the Water Well Information System on the south side of the Teston Road allowance for soil descriptions containing waste (or refuse, or garbage, etc.). Well records with waste are indicated with 2 red dots on **Figures 2b** and **2c** in **Appendix A**, while those without waste are indicated with 12 blue dots. The details of the logs with waste annotation are listed in **Table 4** below. It is noteworthy that these boreholes were drilled before the opening of the KVL, and any waste noted by the drillers would not have been associated with the KVL.

Table 4: Summary of MECP Well Logs South of Teston Road with Waste Annotation

ID	Date Drilled	Location Noted on Log	Annotation on Log
6917129	December, 1982	425 m east of Rodinea Ave., 45 m south of Teston Sideroad	"Garbage (Fill)" from 0 to 1.8 m
6917137	April, 1983	320 m east of Rodinea Ave., 10 m south of Teston Sideroad	"Fill & organics" from 0 to 5.2 m

On the other hand, the three boreholes drilled by MH (MH-BH2 through MH-BH4) and four boreholes drilled by WSP (BH-P9 through BH-P12) east of Rodinea Avenue and between VL and KVL, all within the Right-of-Way, did not exhibit any evidence of waste/garbage in the soil.

3.3.4.2 Landfill Gas Collection System

Information on the landfill gas collection system is provided by GHD (2023), supplemented by the Draft KVL Closure Plan (CRA, 2002). It is important to note that no design drawings or as-built drawings were available to assist in this research. It is also important to note that the landfill gas system was designed by CRA, now GHD (City of Toronto, 1998), who also prepared a "Landfill Gas Management Facilities Design Guidelines" for the British Colombia Ministry of the Environment (CRA, 2010). These design guidelines provide extensive descriptions, drawings and photos of the various components, of landfill gas collection systems, much of which is assumed to be quite representative of actual conditions at the KVL.

A system of horizontal gas collection trenches and supplementary vertical gas wells are installed in the waste area at regular intervals. The vertical gas wells are connected via laterals (including flexible piping as seen in photos in GHD, 2023) which are presumably buried in shallow trenches and connect to a "dual ring header installed outside the waste". A dual ring header is in essence a set of two pipes making a ring around the outside of the waste. According to CRA (2010), "dual header systems have been utilized at some large and deep landfill sites that have a long active site life to segregate the methane-rich gas from the deeper portions of the site from the gas collected from near the surface that may be diluted via air intrusion (see Figure 5.6); however, this is not common practice". The referenced figure shows two pipes, one labelled as "gas utilization header" and one labelled as "gas odour control header".

The layout of the header is known approximately from Golder (2018a and 2018b) which included a figure showing the overall lands and layout of the VL and KVL, and the gas header and the concrete access chambers associated with it. The north end of this system has been sketched onto **Figures 3a-c**, with the header shown as an orange line and the access chambers as yellow triangles. As shown on those figures, Golder's understanding of the header system is that it is not a true "ring" in the sense that it does not connect across the north end of the site. In contrast, a site plan in the semi-annual landfill gas monitoring report for 2015 (MMM, 2016) shows "ex. 200 diameter gas utilization header (location approximate)" and "ex. 200 diameter odour control header (location approximate)" (also sketched on to **Figures 3a-c** as a purple line) crossing the north side of the waste. The assumption that the header would cross on the north side of the waste is further supported by the existence of concrete chambers that appear similar to the access chambers on the east and west sides of the waste. On **Figures 3a-c**, these are marked with green triangles. Based on all of this, it is reasonable to assume that the concrete chambers that encircle the waste (including those on the north side of the waste) are a reasonable representation of the limits of the waste. The header pipe(s) are shown by Golder as being outside the ring of chambers by about 3.5 m) and this is consistent with the sketch of the system in design guidelines (CRA, 2010). As such, it is reasonable to assume that the header pipe encircles the waste, including on the north side of the waste) and is within a few metres (laterally, outwards from the waste) of the access chambers. The exact location of the header pipe is unknown but, in places may be just a few metres south of the north KVL fence line.

A vacuum is applied to the gas header by means of a multi-stage blower that draws the landfill gas out of the waste. The system collects approximately 7.0 m^3/s of landfill gas which contains approximately 47% methane. The landfill gas is destroyed at a flare on the south side of the landfill. The landfill gas flare system is subject to a separate ECA (originally .8-3097-86-876 Air).

The Draft KVL Closure Plan (CRA, 2002) notes the following about the maintenance of the gas header and access chambers:

- The LFG collection system is currently accessible from chambers located adjacent to the limit of refuse. When required, these existing chambers will be extended and or filling activities undertaken to ensure chambers are compatible with the surrounding grades.

3.3.4.3 Landfill Gas Monitoring System

According to a letter from MECP to City of Toronto (Ontario Ministry of the Environment, 2003), landfill gas is monitored in the subsurface at KVL in “fifty-two buffer zone gas monitoring probes”. These are numbered according to the installation sequence and year of installation (so GMP52/00 was the last probe installed at that time, in the year 2000). Each probe location is actually a set of four probes installed at different levels (depths). The approximate gas probe locations and IDs for the north end of the KVL are shown on **Figures 3** and **3a-c**. The locations of GMP2-83, GMP1-86, GMP13-86 and GMP14-86 were taken from a site plan (in Comcor 2016, for example), while the lateral locations of the remainder of the GMPs along the north fence line were taken from an overall site plan for the KVL also available in Comcor (2016). In that site plan, the GMPs are shown as being north of the perimeter road, presumably south of the fence line.

Gas (methane) concentrations are available for the year 2015 (MMM, 2015 and 2016). Elevated gas concentrations were measured at the GMP1 probe locations (0.9 to 10.6%), GMP13 probe locations (1.8 to 2.9%), GMP14 probe locations (1.6 to 4.7%), GMP15 probe locations (1.6% to 2.1%), GMP16 probe locations (3.5 to 10.1%), GMP17 probe locations (5.3 to 27.3%) and GMP18 probe locations (0.6 to 7.4%). Similar to the assessment of the VL results, these results show that landfill gas and methane continues to be present in the subsurface in and around the Teston Road allowance in the vicinity of the KVL and the other two closed landfills. Although a detailed history of landfill gas occurrence at the KVL is not available or inferable, it is noteworthy (from Ontario MOE, 2003) that elevated gas concentrations around the KVL were typically attributed to the VL or to an “imperfect connection between the liner and the cover” at the KVL.

The Draft Closure Plan (CRA, 2002) notes the following about the maintenance of the gas probes:

- Following the closure of the KVL site, the monitoring program for the LFG probes will be continued and modified as required based on results.
- The addition/replacement of gas migration monitoring probes is to be reviewed annually as an on-going activity for the LFG migration monitoring program. Any new or replacement probes that are deemed required will be installed based on recommendations made in each LFG migration monitoring assessment. Soil conditions and the depth of the screen installations should be recorded for each new or replacement probe installed.

3.4 Soil Investigation

The environmental field investigation, including soil, was performed on between October 2022 and January 2023. It consisted of the following tasks:

- Drilling a total of three (3) boreholes (MH-BH2, MH-BH3 and MH-BH4) on December 12, 2022. The boreholes were advanced to depths ranging from 3.1 m below ground surface (mbgs) to 4.56 mbgs, and two of the boreholes (MH-BH3 and MH-BH4) were instrumented with monitoring wells for a concurrent hydrogeology investigation conducted by MH.
- Drilling of MH-BH1 using hand auguring equipment on January 19, 2023, to a maximum depth of 0.76 mbgs.
- Collection of soil samples from boreholes drilled during concurrent geotechnical investigations conducted by WSP and Golder between October 2022 and January 2023.
- Collection of soil samples into laboratory supplied containers for the analysis of identified CPOCs, which included metals, inorganics, petroleum hydrocarbons (PHC) fraction F1 to F4, volatile organic compounds (VOC), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCP), polychlorinated biphenyls (PCB), phenols, dioxins and/or furans.
- Collection of two (2) soil samples from boreholes MH-BH2 and MH-BH3 for leachate analysis of metals, inorganics, VOC, benzo(a)pyrene, and PCB using the toxicity characteristic leaching procedure (TCLP) according to Ontario Regulation (O. Reg.) 558 to characterize the waste class (i.e., hazardous or non-hazardous) of the soil for off-site disposal purposes.

A site plan showing the borehole locations can be seen on **Figure 2a** through **Figure 2f** in **Appendix A0**.

3.4.1 Soil Conditions

Details of the subsurface conditions encountered during drilling are presented on the borehole logs in **Appendix C**.

Generally speaking, the soil stratigraphy encountered in the MH boreholes consisted of topsoil, underlain by a layer of granular fill, overlying native sand and/or silty sand.

No field evidence of contamination was observed in the soil of the drilled boreholes and only low-level headspace combustible vapours were detected in the soil samples. The maximum values of CGI and PID readings for all soil samples were 15 ppm and 1 ppm respectively. A summary of the headspace combustible vapours for the soil samples is provided in **Table C0** in **Appendix B**.

3.4.2 Applicable Standards

Ontario Regulation (O. Reg.) 153/04, as amended, under Part XV.1 of the *Environmental Protection Act* provides generic remediation standards based on land use (agricultural, residential/ parkland/institutional, or industrial/commercial/community), ground water use (potable or non-potable), soil type (coarse or medium and fine textured), and restoration depth (full or stratified).

The following characteristics were noted for the site and were used in selecting the applicable Site Condition Standards (SCS):

- Although much of the site and surrounding lands are serviced by a municipal drinking water supply, there remains the possibility of some use of groundwater for domestic supply (see Hydrogeology Report for the IEA).
- The site is not considered a shallow soil property.
- The most sensitive land use of the Project Area is industrial/commercial/community.
- Coarse soil texture was considered for the site (conservative approach) as no grain size analysis was performed as part of this Phase II ESA.
- A pond and a tributary of the Don River East Branch is located in the central to east-central portion of the Project Area near A22-2 and A22-3, and the surrounding area is classified as an area of natural and scientific interest (ANSI) and known as Maple Spur Channel.
- A tributary of the Don River East Branch passes through the eastern portion of the Project Area, near the culvert location C1.

Based on the above considerations, the following SCSs were selected to assess the soil quality at the site:

- **Boreholes A22-2, A22-3 and C1:** MECP Soil, Ground water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*, Table 1: Full Depth Background Site Condition Standards in a Non-Potable Ground Water Condition. Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use, coarse-textured soils, 2011 (Table 1 SCS). The use of Table 1 here relates to the site's proximity to environmentally sensitive features. Hence, it would be appropriate to consider Table 1 for the Project Area in the segment between the landfills and Dufferin Road crossing the Don River.
- **All Boreholes Except A22-2, A22-3 and C1:** MECP Soil, Ground water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*, Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition. Industrial/Commercial/Community Property Use, 2011 (Table 2 SCS).

3.4.3 Soil Analytical Results

The soil analytical results for all parameters tested in all soil samples are presented in **Tables C1** through **C8** in **Appendix C**. The soil analytical results are also shown on **Figure 2a** through **Figure 2f** in **Appendix A**.

A total of nineteen (19) soil samples, including a duplicate sample, were submitted for the bulk analysis of PHC F1 to F4 and benzene, toluene, ethylbenzene, xylene (collectively referred to as BTEX), and the results are provided in **Table C-1** in **Appendix C** along with the MECP Standards. The results of the chemical analyses indicated that all samples met the Table 1 SCS and Table 2 SCS for all the parameters tested.

A total of nineteen (19) soil samples, including a duplicate sample, were submitted for the bulk analysis of VOC, and the results are provided in **Table C-2** in **Appendix C** along with the MECP Standards. The results of the chemical analyses indicated that all samples met the Table 1 SCS and Table 2 SCS for all the parameters tested.

A total of nineteen (19) soil samples, including a duplicate sample, were submitted for the bulk analysis of metals and inorganics, and the results are provided in **Table C-3** in

Appendix C along with the MECP Standards. The results of the chemical analyses indicated that sample MH-BH1 SS1 exceeded the Table 1 SCS criteria for Copper (228 µg/g vs Table 1 SCS criteria of 92 µg/g) and Table 2 SCS for Cobalt (137 µg/g vs Table 2 SCS criteria of 80 µg/g) and Nickel (328 µg/g vs. Table 2 SCS criteria of 270 µg/g). All the other samples met the Table 1 SCS and Table 2 SCS for all the parameters tested.

A total of nineteen (19) soil samples, including a duplicate sample, were submitted for the bulk analysis of PAH and the results are provided in **Table C-4** in **Appendix C** along with the MECP Standards. The results of the chemical analyses indicated that all samples met the Table 1 SCS and Table 2 SCS for all the parameters tested.

A total of four (4) soil samples were submitted for the bulk analysis of phenols and the results are provided in **Table C-5** in **Appendix C** along with the MECP Standards. The results of the chemical analyses indicated that all samples met the Table 1 SCS and Table 2 SCS for all the parameters tested.

A total of eight (8) soil samples were submitted for the bulk analysis of OCP and PCB, and the results are provided in **Table C-6** in **Appendix C** along with the MECP Standards. The results of the chemical analyses indicated that all samples met the Table 1 SCS and Table 2 SCS for all the parameters tested.

A total of three (3) soil samples were submitted for the bulk analysis of dioxins and furans, and the results are provided in **Table C-7** in **Appendix C** along with the MECP Standards. The results of the chemical analyses indicated that all samples met the Table 1 SCS and Table 2 SCS for all the parameters tested.

The laboratory Certificates of Analysis for the soil analyses is provided in **Appendix E**.

3.5.1 Waste Soil Characterization

The results of the soil chemical analysis for selected TCLP parameters are provided in **Table C-8** in **Appendix C**, along with the applicable O. Reg. 347 Standards. All soil samples were within the Schedule 4 criteria for all parameters analyzed.

Based on the findings of the soil investigation, soil waste within the project area, if any, can be classified as non-hazardous solid waste for off-site disposal.

4. IMPACT ASSESSMENT

4.1 Description of the Project

The proposed improvements include realignment and widening of Teston Road between Keele Street and about 500 m east of Keele Street, constructing a new segment of Teston Road from 500m east of Keele Street to Dufferin Street, and widening and rehabilitation of Teston Road between Dufferin Street and Bathurst Street (Project Area).

Teston Road is proposed to cross the East Branch of the Don River at 3+036 (centreline) approximately 14 m above original grade, and significant grade raise is required for this from 2+700 to 3+300. The grade raise will be achieved by embankments, a mechanically stabilized earth wall with precast concrete facing (2+290 to 3+100, approximately, but not including the bridge span), and a 45 m long (40 m clear opening between abutments), single-span bridge. The footings for the MSE wall and the bridge are proposed to be not significantly below the original ground.

At the other crossing of the East Branch of the Don River (McNair Creek east of Dufferin Street), an existing box culvert will have minor modifications to accommodate grading impacts (headwall and wingwall installation).

Storm sewers will be constructed beneath the road effectively across the entire alignment, generally at depths ranging between 4 and 6 m. A stormwater management area is proposed just southwest of the intersection of Keele Street and Teston Road, which will accept runoff from west of the height of land at 2+250. Underground storage (in pipes/chambers of larger diameter) of stormwater is proposed east and west of the Tributary of the East Branch of the Don River. These will be built effectively within the proposed embankment, and will not require significant subsurface work.

Underground storage of stormwater is also proposed west of the box culvert in the east segment of the alignment. At 4+450, the invert of this storage chamber will be approximately 12 m below original ground, which represents the deepest excavation in the project.

Section 2 of the project (Rodinea Road to the West Edge of the Valley), is the section through the landfill area. Two cross-sections were considered for the extension of Teston Road within Section 2. The first cross-section is a full width (36.0 m right-of-way) four-lane road section with curbs, sidewalks and cycle tracks on both north and south sides. The second is a smaller cross-section with only a multi-use pathway on the north side of Teston Road that could allow the roadway to pass between the landfills to the north and south with minimal impacts (see the interim cross section in the IEA report). The full width cross-section was selected for longer term implementation with the narrower cross-section selected for initial implementation to minimize impacts to the landfills.

The narrower interim cross section has approximately 6.8 m width of pavement on the south side of centreline, followed by curb and 1.8 m boulevard. This leaves approximately 9 m of land between the south edge of the boulevard and the southern edge of the ultimate 36.0 m right-of-way, and typically approximately 1 m between the south edge of boulevard and the existing KVL fence line. It is understood that the preferred design for the initial implementation will not interfere with the majority of the current northern fenceline for the KVL (except along the northwest edge of the KVL where the proposed Teston Road widens

to accommodate a westbound left-turn lane approaching Rodinea Road). It is a basic assumption of this impact assessment that whereever the northern fence line remains where it is, there will be no change in the way the City of Toronto is able to access and use the landfill infrastructure.

4.2 Impacts on Landfills

This section describes the potential impacts of the project on the waste and landfill gas associated with the three closed landfills. The reader is reminded that an assessment of hydrogeological impacts related to groundwater, leachate, surface water etc., is made in an accompanying report (see Section 1.2).

Each of the closed landfills are regulated under an Environmental Compliance Approval (ECA) and are subject to the conditions of the ECA, as well as requirements under Section 46 of the Environmental Protection Act. Almost any change that could be contemplated for these lands as part of the Teston Road project, will eventually require MECP approval by way of an ECA amendment. To sum up this requirement, the design and construction of the project must ensure that it does not in any way restrict post-closure operating and maintenance activities for the landfill, including any contingency measures that may be contemplated, during its contaminating lifespan.

It is noted that landfill related issues including the presence of waste and landfill gas are not restricted to the immediate vicinity of the landfills. As such, it is important to note that assessment of the interactions between the project and the landfills considered the whole alignment, from as far west as Keele Street and into the valley crossing in the east.

4.2.1 Disposal Services Landfill

Potential impacts to the DSL waste and landfill gas and related infrastructure from the proposed road improvements are as follows:

- Landfill infrastructure including gas probe MW10/GP10-19 are not in direct conflict with the project however these shall be protected during construction, as appropriate.
- Landfill gas associated with the DSL and the other two closed landfills is likely to exist in the subsurface within the right-of-way, posing a hazard via explosions, asphyxiation, off-site gas migration, and vegetation stress. Where landfill gas is present in the subsurface it can present a hazard during construction of subsurface infrastructure and ongoing maintenance of the same, as noted in Section 3.3.1. The landfill gas is known to exist because of decades of monthly soil gas monitoring throughout the area.
- It is considered likely that landfill gas will continue to be present as noted above, for decades to come. While it is reasonable to assume that the overall responsibility for the management of this gas will fall to the owners/operators of the landfills as regulated by MECP under the auspices of their various ECAs, it will be the Region's responsibility to protect road users and road construction workers (both during initial construction and during road maintenance operations) from this hazard. Mitigation measures to be incorporated into the detailed design of the project are noted in Section 5.1.

- There is a small possibility of the existence of waste at the north side of the project (i.e., beneath the MUP) on the south side of the DSL. Based on all the available information, it is MHnS opinion that if waste is encountered in this location, it will be shallow and in small pockets. These impacts should be managed by engineering solutions, as described in Section 5.1.

4.2.2 Vaughan Landfill

Potential impacts to the VL waste and landfill gas and related infrastructure from the proposed road improvements are as follows:

- As shown on **Figures 3a** and **3b**, the edge of pavement on the north side of Teston Road just encroaches on the existing south property line of the VL (as represented, approximately, by the lines of approved limit of waste and landfill buffer), while the north edge of the MUP is aligned with or just north of the row of 84 Series gas probes. As discussed in Section 3.3.3.1, this means that the north side of the project is potentially at or within a few metres of the south edge of the buried waste of the VL. Based on all the available information, it is MHnS opinion that if waste is encountered in this location, it will be shallow and in a thin (at most a few metres thick) bed. These impacts should be managed by engineering solutions, as described in Section 5.1.
- As shown in **Figures 3a** and **3b**, and as discussed in Section 3.3.3.2, the north side of the MUP will be within 1 m of the existing gas manhole (MH1), within 1 m of two gas wells west of the blower building (GW4/97 and GW5/97) and within a few metres of four (4) gas wells east of the blower building (GW6/97 to GW9/97). Similarly, the construction will encroach within 1 m of the gas headers connecting these gas wells to the blower and flare and possibly within a few metres of the storm sewer system associated with the gas collection system. These impacts should be managed by engineering solutions, as described in Section 5.2.
- Vaughan Landfill on-site and off-site gas probes would be impacted as follows:
  - As shown in Figure 3a, and as discussed in Section 3.3.3.2, the north side of the MUP will cover six (6) VL on-site gas probes (GP1/84 through GP6/84). These would inevitably be disturbed during construction.
  - As shown in Figure 3a, and as discussed in Section 3.3.3.2, the south curb of the improved Teston Road will cover four (4) VL offsite gas probes (GP1/87A to GP4/87A), and will be within a few metres of another two (GP3/87B and GP4/87B). Most of these would inevitably be disturbed during construction.
  - As shown in Figure 3a, and as discussed in Section 3.3.3.2, the improved Teston Road will be within a few metres of six (6) VL offsite gas probes (the 86 Series west of Rodinea Road). With appropriate protection, these would not be impacted by the project.

As suggested by their IDs, these gas probes have been part of monthly landfill gas monitoring program since as early as 1984 (approximately 41 years). Over that time, the landfill gas collection system has been operated and allowed to be dormant, and gas concentrations have fluctuated as a result and seasonally. It is considered that the monitoring data would support a comprehensive re-evaluation of the monitoring program and a decision to remove, replace or protect these gas monitoring probes. The on-site and

off-site gas probe system should be designed considering the future existence of the improved Teston Road.

- Currently, access to the VL by the public is restricted by a fence with gate just west of where Rodinea Road intersects with Teston Road. The fence is a critical tool in the protection of the public, by restricting their access to the various hazards associated with the landfill, including the landfill gas collection system. Mitigation measures to maintain this level of protection of the pubic are provided in Section 5.2.

4.2.3 Keele Valley Landfill

Potential impacts to the KVL waste and landfill gas and related infrastructure as a result of the proposed road improvements are as follows:

- The preferred design for the initial implementation will cause construction to occur within metres of the landfill gas collection header with associated maintenance access chambers. The header itself is most likely two 200 mm diameter pipes connecting nearby to each of the concrete access chambers. The exact location of the header is unknown, but the possible approximate location is shown on **Figures 3a-c**. This pipe contains explosive gas and must be carefully protected during construction. Mitigation measures to achieve this are provided in Section 5.2.
- Keele Valley Landfill on-site gas probes (GMP1-86, GMP13-86, GMP14-86, GMP15-88, GMP16-88, GMP17-88, and GMP18-89) along the north fence line could be impacted by the proposed road improvements. Mitigation measures to protect or replace these probes are recommended in Section 5.2.
- The north fence line of the KVL, especially at the west end of the property may be impacted by the proposed road improvements. The fence is a critical tool in the protection of the public, by restricting their access to the various hazards associated with the landfill, including the landfill gas collection system. Mitigation measures to maintain this level of protection of the pubic are provided in Section 5.2.

4.3 Impacts on Soil

Earthworks will occur as part of the proposed road widening, and soil movement is to be expected. Soil movements in Ontario are subject to various regulations, principally O. Reg. 406/19 Excess Soils and O. Reg. 347 Waste.

The results of the soil testing indicate that soil quality is typical and, with one exception, uncontaminated. No soil-related impacts are expected that would not be addressed through typical mitigation measures for erosion and sediment control and for the movement of excess soil.

Impacts related to the possible uncovering of waste are addressed in Section 4.2.

5. ENVIRONMENTAL PROTECTION/MITIGATION

5.1 Mitigation Measures for Waste and Landfill Gas in the Right-of-Way

The following are recommendations for assessing and mitigating waste and landfill gas that may be present within the right-of-way:

- Any changes in the subsurface resulting from the proposed project that alter conditions, create preferential pathways or increase risk for gas migration must be controlled by the project proponent. These risks have been considered herein, but it is important that this requirement be flagged for later stages of project design and construction.
- The possibility of the presence of buried waste associated with the DSL and VL along the northern edge of the project should be further investigated with shallow geotechnical test pits or boreholes along the centerline of the planned MUP from chainage 1+600 to 2+200. Such investigations may be in proximity to existing landfill infrastructure, and due care should be exercised to avoid existing infrastructure when conducting any subsurface investigations. If waste is present, measures should be developed to address it. Removal of this waste to a distance recommended by a geotechnical engineer is likely a viable option to address structural issues. Given that this area is within land that is subject to the landfill ECA, amendment to such ECA may be required related to the movement of waste.
- Pockets of historic buried waste may be present anywhere within the right-of-way from approximately chainage 1+300 to 2+800 at locations sporadic enough that individual borehole exploration is not warranted. This possibility should be communicated through the detailed design phase and into construction, such that contingency plans are made to address the waste, if encountered. Removal of such pockets, if found, is likely a viable option.
- Landfill gas can be assumed to be present in the subsurface from approximately chainage 1+300 to 2+800 during, and for decades following, construction. Given the decades-long record of monthly monitoring that this finding is based on and the complexity of investigating landfill gas in short-duration field investigations, additional investigation of landfill gas within this segment is not required. Within this segment, however, the following mitigation measures are required:
    - Underground works such as utility conduits and storm sewers must be designed so that they do not become preferential pathways for the migration of landfill gas, and they must be protected from the ingress of landfill gas. For the storm sewer system including sewer maintenance holes, piping, sewer laterals and catch basins, this goal may be achieved through passive systems such as geomembrane barrier walls and venting systems, and through the selection of landfill gas resistant materials or piping systems without joints. Lining of all sewer-related trenches is considered a viable alternative to achieve this goal. Lined trenches may collect water from above, and drainage of this water should be incorporated into their design. For the storm sewer system, monitoring of combustible gases within the confined spaces will likely be required for a period of time to prove the effectiveness of the gas mitigation system. The design of systems for the protection of infrastructure from landfill gas, including monitoring,

should be carried out by a qualified person with ten years of experience in the design and operation of landfill gas protection systems.

- Future road maintenance workers must be protected from the possibility of landfill gas within and below the roadbed through administrative measures such as requirements for monitoring for combustible gases during maintenance operations. The Region should flag these requirements through internal policies and through the road occupancy permit process.

5.2 Mitigation Measures for Impacts to Landfill Infrastructure

All the actual or potential conflicts identified with the VL, KVL and DSL infrastructure should be communicated to the landfill owners. Although the current study finds these conflicts to be relatively minor (see Section 4.2), detailed assessment of the severity of the conflict and the appropriate mitigation measures is recommended in later design stages. It is important to note that the design and construction of the Teston Road project can not in any way restrict post-closure operating and maintenance activities for these landfills, including any contingency measures that may be contemplated, during their contaminating lifespan.

Any changes to the landfill infrastructure will require amendments to the ECA under which the affected landfill operates. ECAs for these landfills are complex and have been developed over several decades. Significant collaboration between York Region and the landfill owners will be required to undertake the design of any necessary changes to landfill infrastructure or operating procedures and to prepare the ECA applications for approval by MECP. ECA applications are typically prepared by the owner of the landfill, and this is recommended in this case. Typical minimum turn-around time for ECA application review is one year.

The following are recommendations for assessing and mitigating specific and identified impacts to landfill infrastructure:

- Improvements/modifications should be incorporated into the project design (or coordinated with the landfill owners) to allow for the continued operation, monitoring and maintenance of the gas collection system, including its storm sewer, at the southwest corner of the VL, while also protecting the public. These must be designed by a qualified person with expertise and ten years of experience in landfill gas and must consider the historical risks/receptors addressed over the past 40 years as well as new risks/receptors introduced by the road improvement projects. This may incorporate, but not be limited to, any of the following strategies:
  - Condition assessment and marking for protection during construction.
  - Improvements such as casing extensions and refreshed and secure surface treatments designed to allow ongoing monitoring and maintenance by landfill staff, consultants and contractors.
  - Fencing to restrict access by the public.
  - Total redesign to achieve broader and longer-term goals related to land development.
- The landfill gas monitoring program for the VL should be re-assessed in light of the long record of monthly monitoring available and in light of the fact that certain on-site and off-site gas probes will be impacted by the road improvements, as noted in

Section 4.2.2. Strategies for the protection, repair, relocation or replacement of gas probes should be developed and be incorporated into the design of the project (and coordinated with the landfill owners), as necessary.

- Field studies should be carried out to determine the actual location of the gas header on the north side of the KVL waste, and this should be protected during construction. If minor modifications are required, such as casing extension at the access chambers, these should be incorporated into the project design (and coordinated with the landfill owners) to ensure compatibility with surrounding grades.
- The landfill gas monitoring program for the north end of the KVL should be re-assessed in light of the long record of monthly monitoring available and in light of the fact that certain on-site gas probes may be impacted by the road improvements, as noted in Section 4.2.3. Strategies for the protection, repair, relocation or replacement of gas probes should be developed and incorporated into the design of the project (and coordinated with the landfill owners), as necessary.
- The final design of the project should include a fence restricting public access to the VL and the KVL. In the case of KVL, this may include protection, repair, relocation or replacement of the existing fence. In the case of VL, this will necessitate the design and construction of a new fence along the north side of the right-of-way. The fence shall be designed to allow the necessary access to landfill infrastructure for monitoring and maintenance.

5.3 Mitigation Measures for Soil

The following are recommendations for assessing and mitigating soil-related impacts:

- Additional soil quality sampling and analysis should be carried out in conjunction with geotechnical investigations, to continue to delineate areas of poor-quality soil identified in this study (area of MH-BH1) and to build a data set for the appropriate management of excess materials.
- A Soil Management Plan should be developed by a Qualified Person (QP), as defined under O. Reg. 153/04, outlining areas and volumes of potential cut and fill, environmental quality of soil, strategies for on- and off-site management of soil, strategies for soil importation and excess soil management in accordance with O.Reg. 406/19 and MECP's Rules for Soil Management And Excess Soil Quality Standards (the Soil Rules), and approaches for waste management. Such plan should adhere to the following:
  - The plan shall include all required assessments and studies to meet the requirements of O. Reg. 406/19.
  - The quality of the soil for importation at different sections of the Project Area shall be determined using the guidelines outlined in the Soil Rules. The quality of soil to be imported in the Keele Valley region shall meet MECP's Table 1 Full Depth Background Site Condition Standards (Table 1 SCS). The quality of soil to be imported in all other areas shall meet MECP's Table 2.1 Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition (Table 2.1 ESQS) or Table 3.1 Full Depth Excess Soil Quality Standards in a Non-Potable Ground Water Condition (Table 3.1 ESQS), depending on the presence or absence of potable groundwater wells within the Study Area. The property use within the Study Area shall be determined during the final design or pre-construction stage

to select the right MECP standards, corresponding to agricultural or other, residential/parkland/institutional, or industrial/commercial/community property use.

- In the event that property transfers are required, Record of Site Condition may be required. The process for this typically starts with completion of a Phase One Environmental Site Assessment, and it is noted that seven of these were prepared as part of the IEA for 8 specific parcels. Soil sampling carried out as part of the current assessment did not specifically address the APECs and PCAs identified in these reports. It will be the responsibility of the Qualified Person filing for RSC to ensure that soil is properly considered under that process.

6. LIMITATIONS & USE

This report has been prepared for the exclusive use of The Regional Municipality of York (York Region), by Morrison Hershfield now Stantec. Morrison Hershfield now Stantec hereby disclaims any liability or responsibility to any person or party, other than York Region and any other user approved in writing by Morrison Hershfield now Stantec, for any loss, damage, expense, fines, or penalties which may arise from the use of any information or recommendations contained in this report by a third party.

In preparing this report Morrison Hershfield has relied in good faith on information provided by individuals and companies noted in this report. Morrison Hershfield assumes that the information provided is factual and accurate, and accepts no responsibility for any deficiency, misstatements or inaccuracies contained in this report due to omissions, misinterpretations or fraudulent acts of the persons interviewed or contacted.

The report, which specifically includes all tables, figures and appendices is based on data and information collected during investigations conducted by Morrison Hershfield now Stantec and is based solely on the conditions of the site at the time of the investigation, supplemented by historical information and data obtained by Morrison Hershfield now Stantec as described in this report. Limitations of the data and information include the fact that conditions between and beyond the limited number of sampling locations may vary; that the assessment is dependent upon the accuracy of the analytical data generated through sample analysis; and that contaminants may exist for which no analyses have been conducted. Furthermore, no assurance is made regarding changes in conditions and/or the regulatory regime (standards, guidelines, etc.), subsequent to the time of investigation.

Morrison Hershfield now Stantec has exercised professional judgment in collecting and analyzing the information and formulating recommendations based on the results of the study. The services performed as described in this report were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to this study. No other warranty or representation, either expressed or implied, as to the accuracy of the information or recommendations included or intended in this report.

7. CLOSURE

We trust the above meets with your current requirements. Should you have any comments, questions, or require additional information, please do not hesitate to contact this office.

Respectfully submitted,
Morrison Hershfield now Stantec

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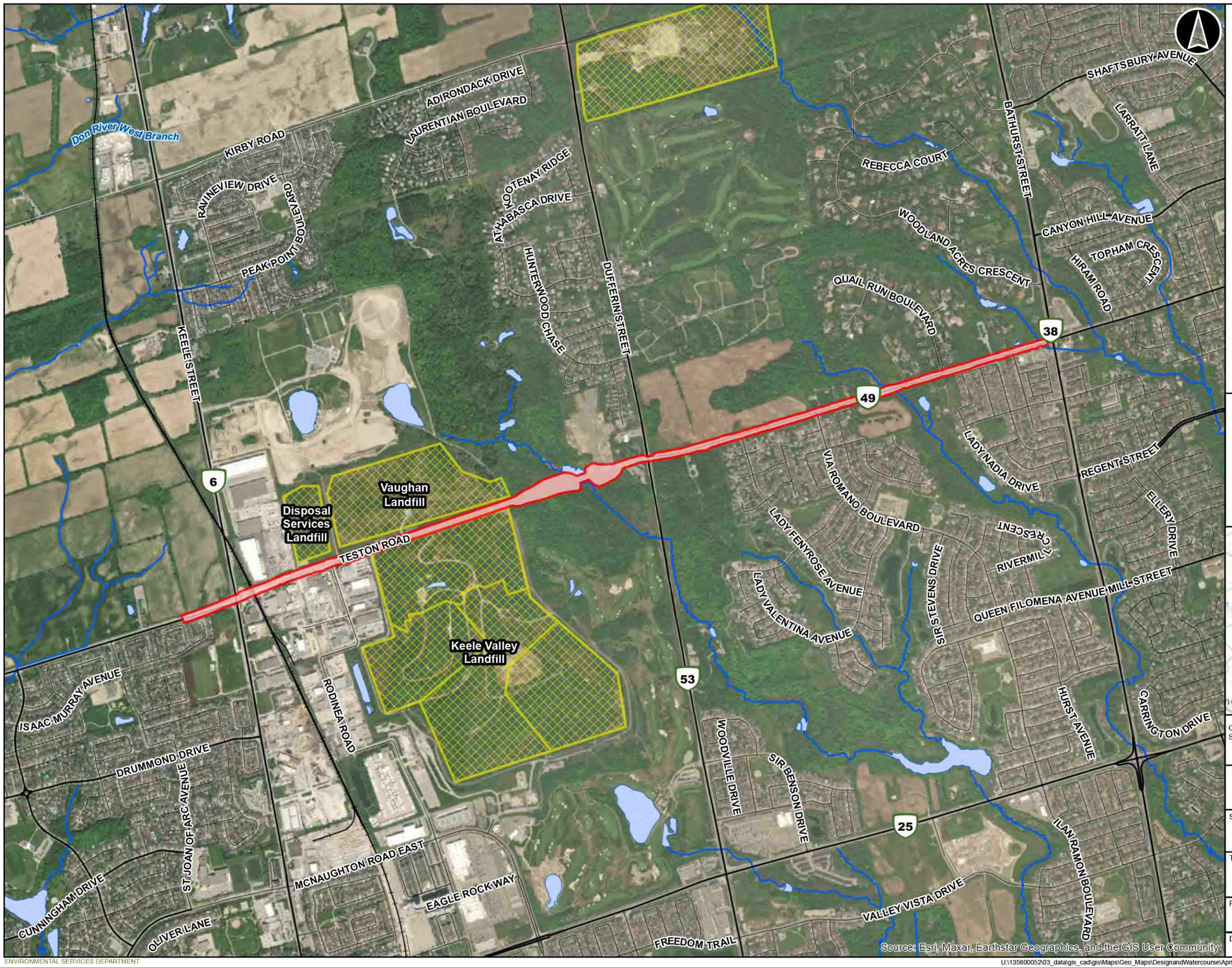
APPENDIX A - FIGURES



LEGEND

- Approximate Project Area
- Landfill

Geospatial Ontario (GEO)

- Watercourses
- Waterbodies

Transportation Network

- Arterial / Collector
- Local Roads
- Railway

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora Midhurst Owen Sound District and theToronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, ESRI Basemaps

MORRISON HERSHFIELD now Stantec

SCALE: 1:17,500

0 125 250 500 750 1,000

Metres

TITLE:

Project Area Locality Map

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **March 2025**

Figure 1

U:\135800052\03_data\gis_cad\gis\Maps\Geo_Maps\DesignandWatercourse\April_2023_Proposed_Phase_I_ESA\190261800_Teston_PhaseIESA_SiteLocality_Map_rev1.mxd

MH-BH2 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
SS1	0-0.76	Metals, Inorganics < SCS
SS2	0.76-1.52	PHC, VOC, PAH, phenols, dioxins, furans < SCS

BHP5 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP5	0-0.5	Metals, Inorganics, PHC, VOC, PAH < SCS

BHP4 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP4	0-0.5	Metals, Inorganics, PHC, VOC, PAH < SCS

BHP7 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP7	0-0.5	Metals, Inorganics, PHC, VOC, PAH, OCP, PCB < SCS

MH-BH1 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Concentrations Above and/or Parameter Suites Below SCS
SS1	0-0.76	Cobalt - 80 (Table 2 SCS criteria - 21) Nickel - 270 (Table 2 SCS criteria - 82) Other Metals, Inorganics, PHC, VOC, PAH < SCS

6921856
BH-P7
BH-P8
MH-BH2
BH-P5
BH-P1
BH-P4
MH-BH1
BH-P6
BH-P2
BH-P3
TESTON ROAD
RODINEA ROAD
MALMO COURT
D'AMATO CRESCENT
KEELE STREET
6
49

NOTES:

<SCS - Concentrations are less than applicable site condition standards

Table 2 SCS - MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

LEGEND

- MECP Well Records at Segment Of Project Area Between Landfills
- Golder Pavement Boreholes
- WSP Pavement Boreholes Also Sampled for Environmental Analyses
- MH Boreholes
- Property Parcels
- Approximate Project Area
- Approved Limit of Waste (Approximate)

Geospatial Ontario (GEO)

- Watercourse
- Unevaluated Wetlands

Transportation Network

- Arterial / Collector
- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora District and Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, ESRI Basemaps

MORRISON HERSHFIELD now Stantec

SCALE: 1:2,500

0 20 40 80 120 160

Meters

TITLE:

Borehole Location Map & Analytical Results Summary

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **April 2025**

Figure 2a

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

ENVIRONMENTAL SERVICES DEPARTMENT

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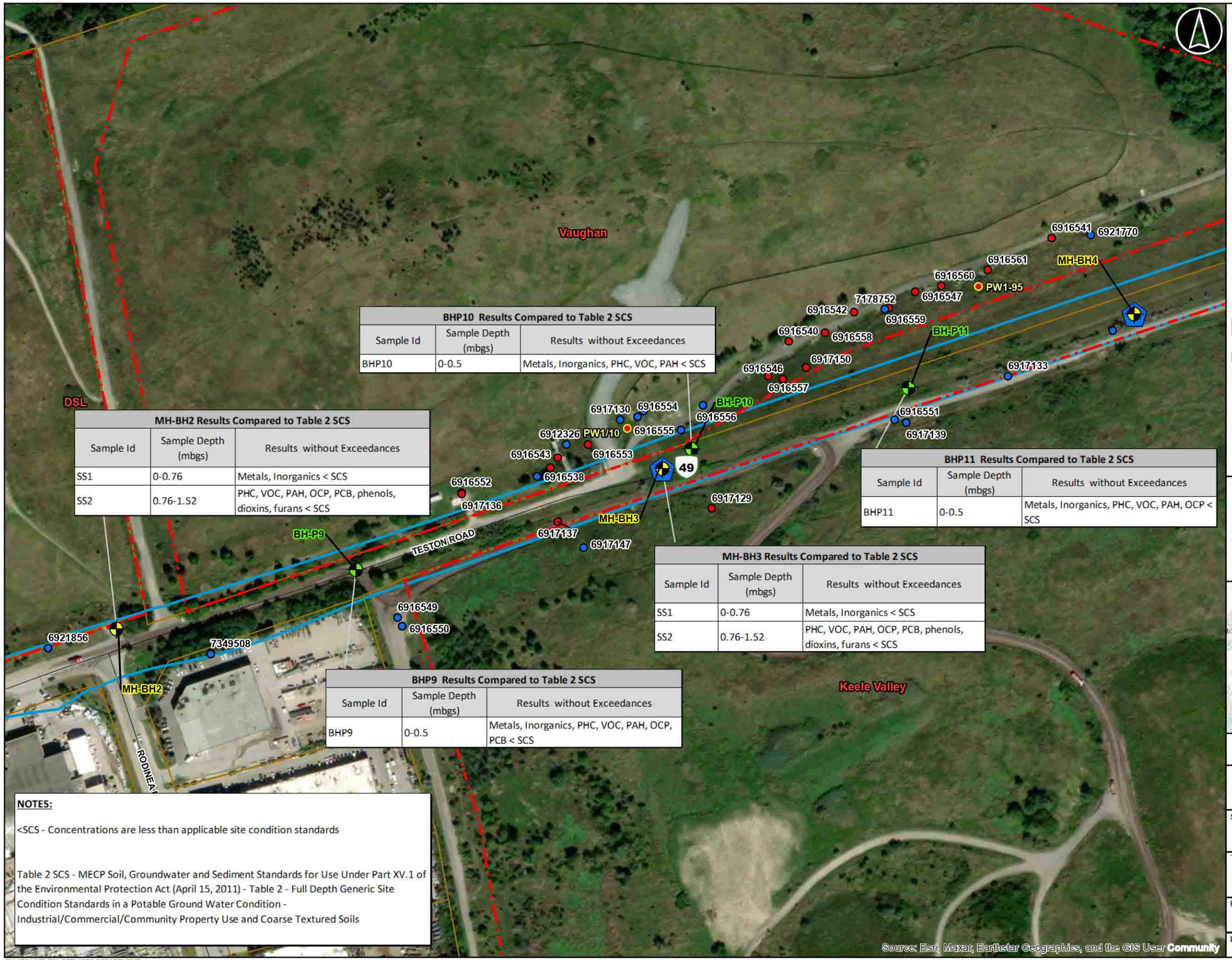

BHP10 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP10	0-0.5	Metals, Inorganics, PHC, VOC, PAH < SCS

MH-BH2 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
SS1	0-0.76	Metals, Inorganics < SCS
SS2	0.76-1.52	PHC, VOC, PAH, OCP, PCB, phenols, dioxins, furans < SCS

BHP11 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP11	0-0.5	Metals, Inorganics, PHC, VOC, PAH, OCP < SCS

MH-BH3 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
SS1	0-0.76	Metals, Inorganics < SCS
SS2	0.76-1.52	PHC, VOC, PAH, OCP, PCB, phenols, dioxins, furans < SCS

BHP9 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP9	0-0.5	Metals, Inorganics, PHC, VOC, PAH, OCP, PCB < SCS

NOTES:

<SCS - Concentrations are less than applicable site condition standards

Table 2 SCS - MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

LEGEND

- MECP Well Records at Segment Of Project Area Between Landfills
- MECP Well Records Showing Signs of Garbage within the Logs
- WSP Pavement Boreholes Also Sampled for Environmental Analyses
- MH Boreholes
- Groundwater Monitoring Wells
- Purge Well Borehole Log Showing Signs of Garbage (Approximate Location)
- Property Parcels
- Approximate Project Area
- Approved Limit of Waste (Approximate)

Geospatial Ontario (GEO)

Transportation Network

- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora District and Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, ESRI Basemaps

Morrison Hershfield now Stantec

SCALE: 1:2,500

0 20 40 80 120 160

Meters

TITLE:

Borehole Location Map & Analytical Results Summary

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **April 2025**

Figure 2b

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

A22-3 Results Compared to Table 1 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
SS1	0.11-0.71	Metals, Inorganics < SCS
SS4	2.28-2.88	PHC, VOC, PAH < SCS

A22-2 Results Compared to Table 1 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
SS3	0-0.76	Metals, Inorganics < SCS
SS5	3.1-3.7	PHC, VOC, PAH, phenols < SCS
SS6	3.8-4.4	OCP, PCB < SCS

NOTES:

<SCS - Concentrations are less than applicable site condition standards

Table 1 SCS - MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/ Commercial/Community Property Use

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND

- MECP Well Records at Segment Of Project Area Between Landfills
- MECP Well Records Showing Signs of Garbage within the Logs
- Golder Pavement Boreholes
- Golder Foundation Boreholes (At Abutment / Culvert)
- WSP Pavement Boreholes Also Sampled for Environmental Analyses
- MH Boreholes
- Groundwater Monitoring Wells
- Property Parcels
- Approximate Project Area
- Approved Limit of Waste (Approximate)

Geospatial Ontario (GEO)

- Watercourse
- Waterbodies

Transportation Network

- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora District and Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, ESRI Basemaps

MORRISON HERSHFIELD now Stantec

SCALE: 1:2,500
0 20 40 80 120 160
Meters

TITLE:
Borehole Location Map & Analytical Results Summary

PROJECT NO.: 190261800
Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **March 2025**

Figure 2c

ENVIRONMENTAL SERVICES DEPARTMENT

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BHP17 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP17	0-0.5	Metals, Inorganics, PHC, VOC, PAH, OCP, PCB < SCS

BHP22 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP22	0-0.5	Metals, Inorganics, PHC, VOC, PAH < SCS

NOTES:

<SCS - Concentrations are less than applicable site condition standards

Table 2 SCS - MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

LEGEND

- Golder Pavement Boreholes
- WSP Pavement Boreholes Also Sampled for Environmental Analyses
- Property Parcels
- Approximate Project Area

Geospatial Ontario (GEO)

- Watercourse

Transportation Network

- Arterial / Collector
- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora District and Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, ESRI Basemaps

MORRISON HERSHFIELD now Stantec

SCALE: 1:2,500

0 20 40 80 120 160

Meters

TITLE:

Borehole Location Map & Analytical Results Summary

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **April 2025**

Figure 2d

C1 Results Compared to Table 1 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
SS2	0.6-1.2	Metals, Inorganics < SCS
SS5	3.1-3.7	PHC, VOC, PAH < SCS

BHP25 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP25	0-0.5	Metals, Inorganics, PHC, VOC, PAH < SCS

NOTES:

<SCS - Concentrations are less than applicable site condition standards

Table 1 SCS - MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/ Commercial/Community Property Use

Table 2 SCS - MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

LEGEND

- Golder Pavement Boreholes
- WSP Pavement Boreholes Also Sampled for Environmental Analyses
- WSP Pavement Boreholes Also Sampled for Environmental Analyses
- Groundwater Monitoring Wells
- Property Parcels
- Approximate Project Area

Geospatial Ontario (GEO)

- Watercourse
- Waterbodies
- Unevaluated Wetlands

Transportation Network

- Arterial / Collector
- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora District and Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, ESRI Basemaps

MORRISON HERSHFIELD now Stantec

SCALE: 1:2,500
0 20 40 80 120 160
Meters

TITLE:
Borehole Location Map & Analytical Results Summary

PROJECT NO.: 190261800
Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **April 2025**

Figure 2e

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

ENVIRONMENTAL SERVICES DEPARTMENT

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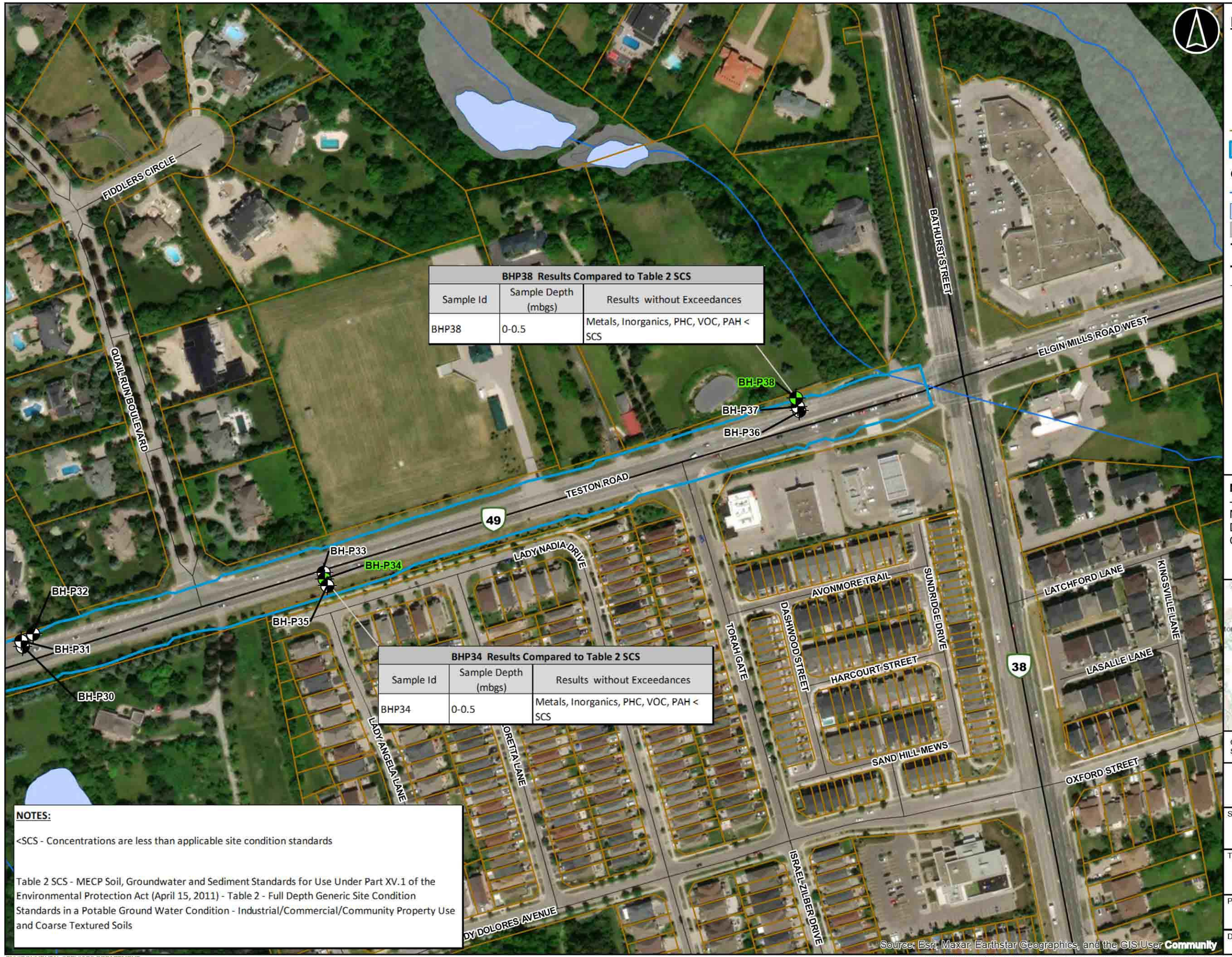

BHP38 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP38	0-0.5	Metals, Inorganics, PHC, VOC, PAH < SCS

BHP34 Results Compared to Table 2 SCS		
Sample Id	Sample Depth (mbgs)	Results without Exceedances
BHP34	0-0.5	Metals, Inorganics, PHC, VOC, PAH < SCS

NOTES:

<SCS - Concentrations are less than applicable site condition standards

Table 2 SCS - MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

LEGEND

- Golder Pavement Boreholes
- WSP Pavement Boreholes Also Sampled for Environmental Analyses
- Property Parcels
- Approximate Project Area

Geospatial Ontario (GEO)

- Watercourse
- Waterbodies
- Unevaluated Wetlands

Transportation Network

- Arterial / Collector
- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora District and Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, ESRI Basemaps

MORRISON HERSHFIELD now Stantec

SCALE: 1:2,500

0 20 40 80 120 160

Meters

TITLE:

Borehole Location Map & Analytical Results Summary

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **April 2025**

Figure 2f

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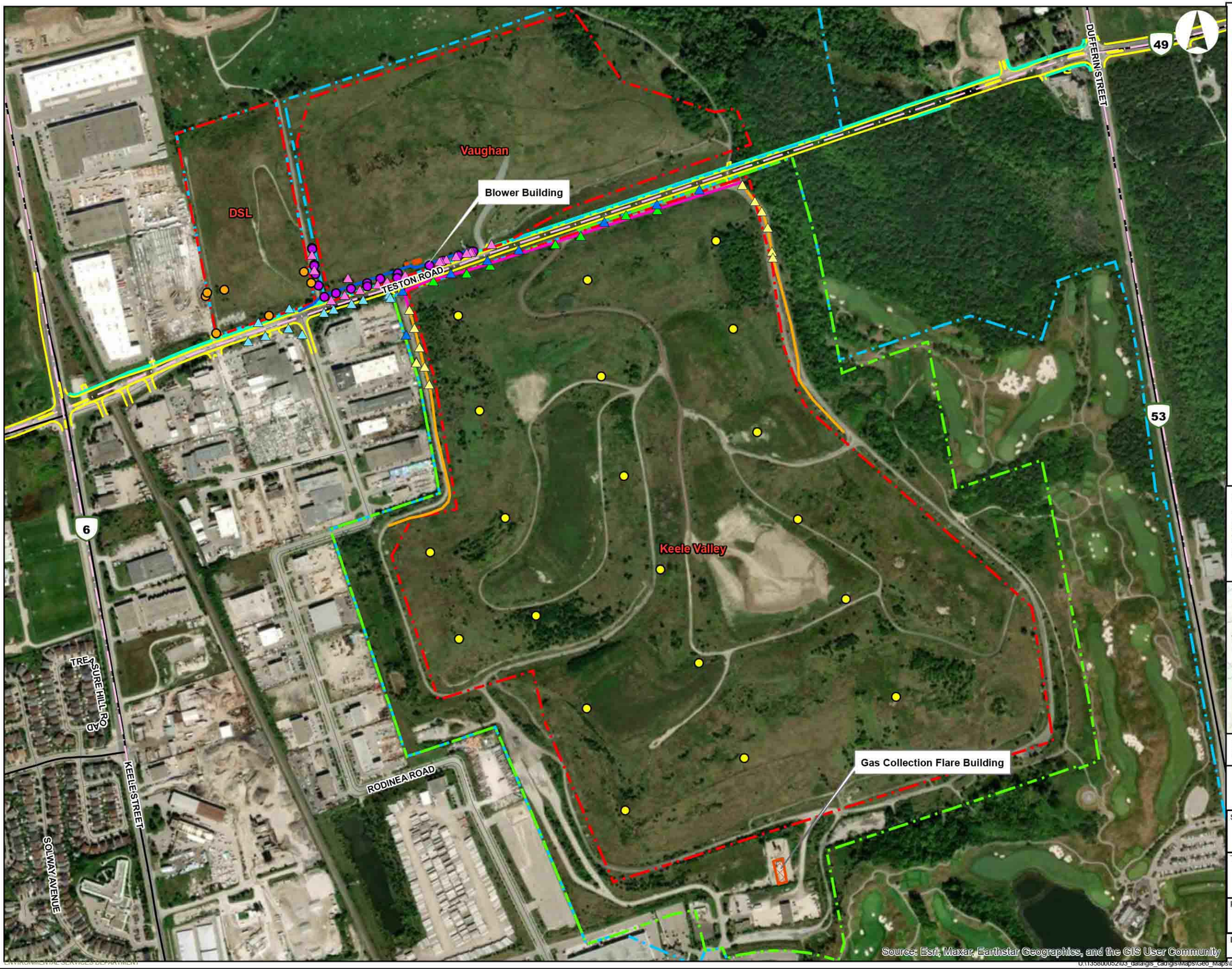


LEGEND

- Approved Limit of Waste (Approximate)
- KVLS Primary Buffer Lands (Approximate Location)
- Landfill (including KVLS Secondary) Buffer Lands (Approximate Location)
- Surrounding Building
- Storm Sewer (Approximate Location)

Gas Extraction Wells (Approximate Location)

- Keele Valley Landfill
- Vaughan Landfill

Gas Infrastructure (Approximate Location)

- VL Onsite Gas Probe (1984, 1987 B Series, 1997)
- VL Offsite Gas Probe (1986, 1987 A&B Series)
- Concrete Maintenance Chamber, Purpose Unknown
- KVL Gas Probe
- Gas Header/Maintenance Access (Golder, 2018)
- Gas Collection Header (MMM, 2016)
- Disposal Services Landfill Monitoring Well/ Gas Probe (Approximate Location)

Design Features

- Edge of Pavement
- Proposed Multi-Use Pathway
- Proposed C/L

Transportation Network

- Arterial / Collector
- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora Midhurst Owen Sound District and the Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, Golder, Dixon Hydrogeology

MORRISON HERSHFIELD now Stantec

SCALE: 1:7,000

0 50 100 200 300 400

Meters

TITLE:

Landfill Infrastructure, Gas Focus

PROJECT NO.: 190261800

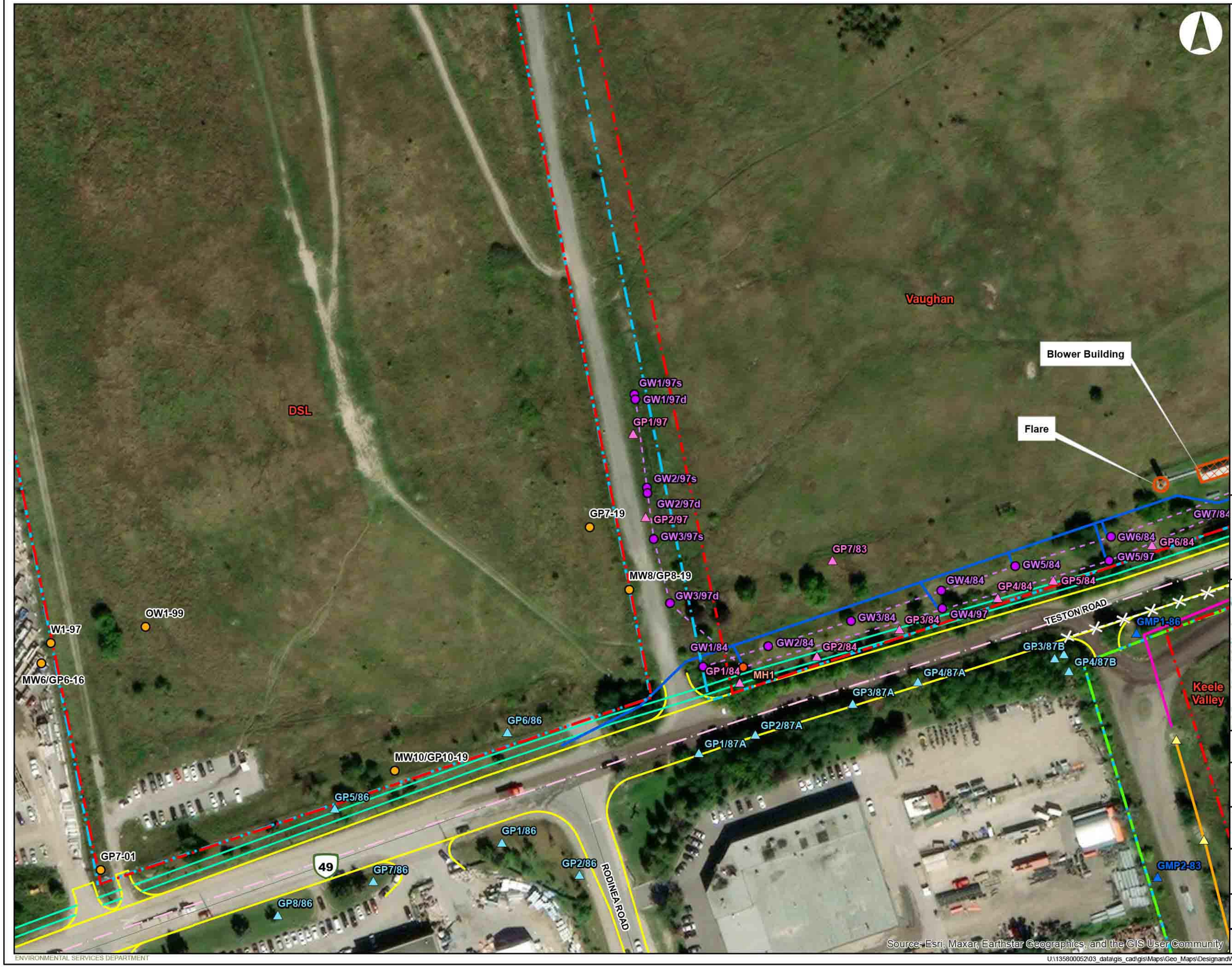
Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **March 2025**

Figure 3

ENVIRONMENTAL SERVICES DEPARTMENT

D:\135800052\03_data\gis_cad\gis\Maps\Geo_Maps\DesignandWatercourse\April_2023_Proposed_Phase_I_ESA\January_2025\Figure_3_Gas.mxd



LEGEND

- Approved Limit of Waste (Approximate)
- KVLS Primary Buffer Lands (Approximate Location)
- Landfill (including KVLS Secondary) Buffer Lands (Approximate Location)
- Surrounding Building
- North Fence of KVL (shown in white on map)
- Storm Sewer (Approximate Location)

Gas Extraction Wells (Approximate Location)

- Vaughan Landfill
- Gas Manhole

Gas Infrastructure (Approximate Location)

- VL Onsite Gas Probe (1984, 1987 B Series, 1997)
- VL Offsite Gas Probe (1986, 1987 A&B
- KVL Gas Probe
- Gas Header/Maintenance Access (Golder, 2018)
- Gas Collection Header (MMM, 2016)
- Disposal Services Landfill Monitoring Well/ Gas Probe (Approximate Location)

Design Features

- Edge of Pavement
- Proposed Multi-Use Pathway
- Proposed C/L
- Gas Header

Transportation Network

- Local Roads

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora Midhurst Owen Sound District and the Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, Golder, Dixon Hydrogeology

MORRISON HERSHFIELD now Stantec

SCALE: 1:1,250

0 25 50

Meters

TITLE:

Landfill Infrastructure, Gas Focus, DSL, KVL and VL

PROJECT NO.: 190261800

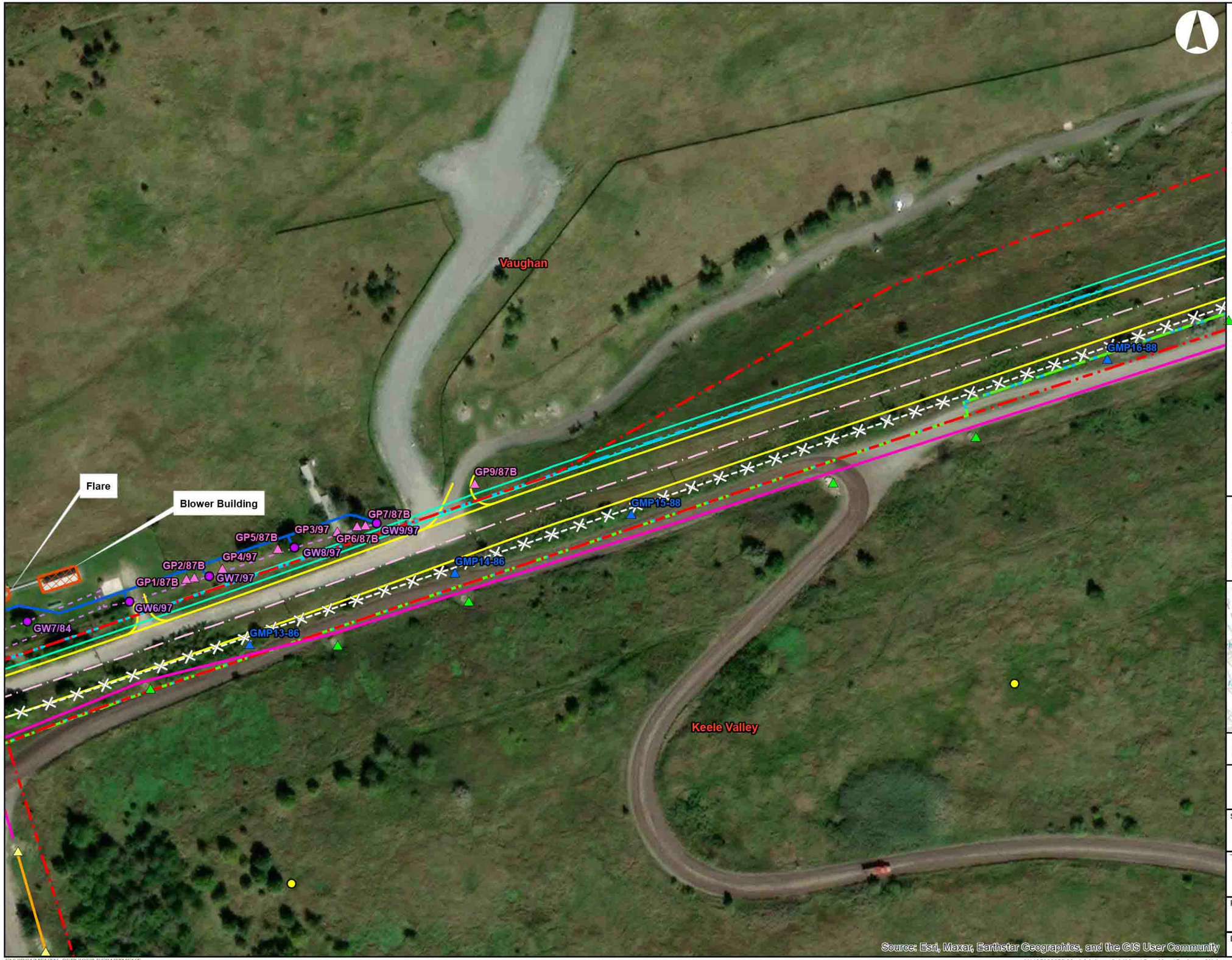
Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **March 2025**

Figure 3a

ENVIRONMENTAL SERVICES DEPARTMENT

U:\13580005203_data\gis_cad\gis\Maps\Geo_Maps\DesignandWatercourse\April_2023_Proposed_Phase_I_ESA\January_2025\Figure_3a_Gas_DSL_rev2.mxd



LEGEND

- Approved Limit of Waste (Approximate)
- KVLS Primary Buffer Lands (Approximate Location)
- Landfill (including KVLS Secondary) Buffer Lands (Approximate Location)
- Surrounding Building
- North Fence of KVL (shown in white on map)
- Storm Sewer (Approximate Location)

Gas Extraction Wells (Approximate Location)

- Keele Valley Landfill
- Vaughan Landfill

Gas Infrastructure (Approximate Location)

- VL Onsite Gas Probe (1984, 1987 B Series, 1997)
- Concrete Maintenance Chamber, Purpose Unknown
- KVL Gas Probe
- Gas Header/Maintenance Access (Golder, 2018)
- Gas Collection Header (MMM, 2016)

Design Features

- Edge of Pavement
- Proposed Multi-Use Pathway
- Proposed C/L
- Gas Header

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora Midhurst Owen Sound District and the Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, Golder, Dixon Hydrogeology

MORRISON HERSHFIELD now Stantec

SCALE: 1:1,250

0 25 50
Meters

TITLE:

Landfill Infrastructure, Gas Focus, KVL and VL

PROJECT NO.: 190261800

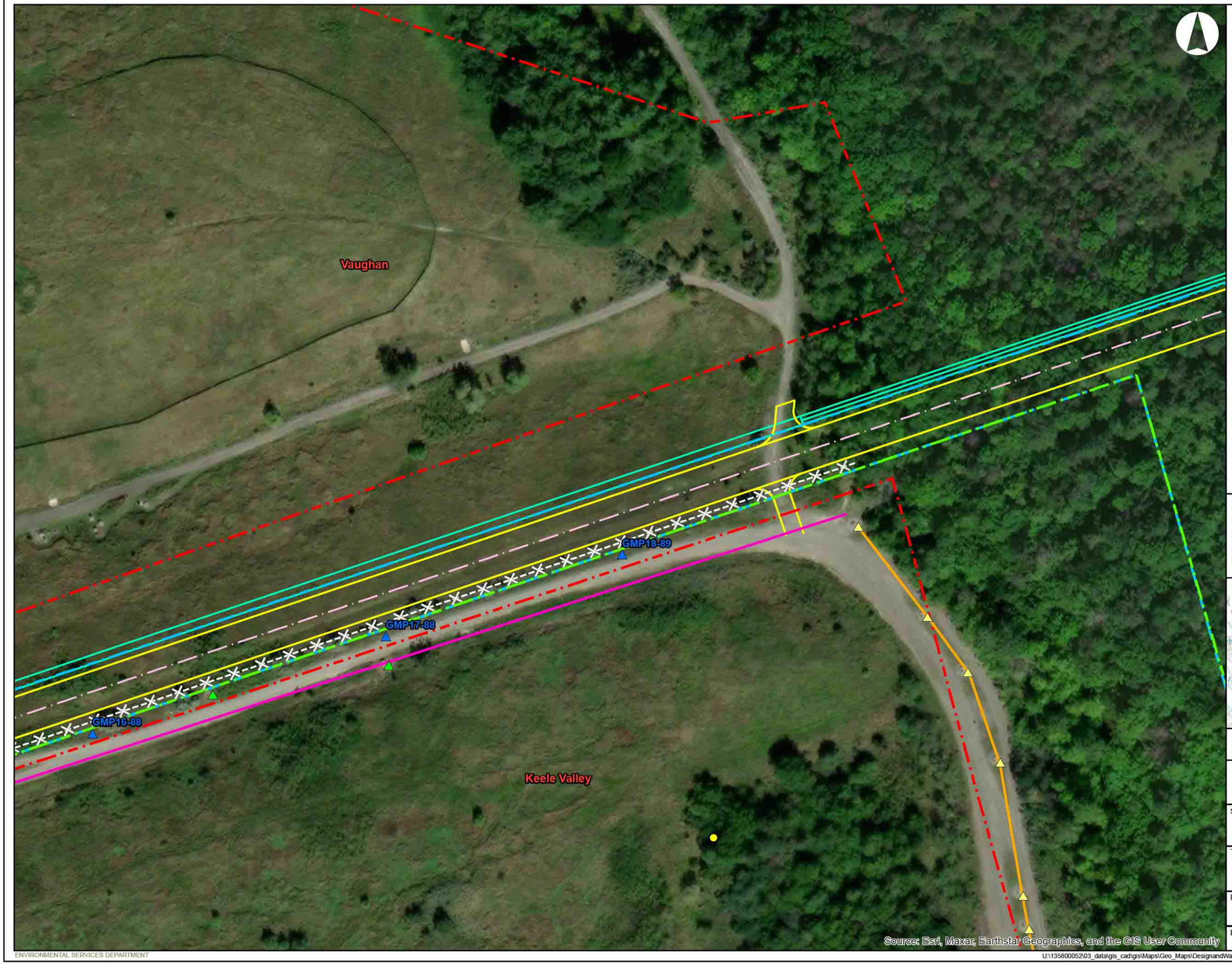
Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **March 2025**

Figure 3b

ENVIRONMENTAL SERVICES DEPARTMENT

U:\13580052\03_data\gis_cad\gis\Maps\Geo_Maps\DesignandWatercourse\April_2023_Proposed_Phase_I_ESA\January_2025\Figure_3b_Gas_KVLandVL_rev1.mxd



LEGEND

- Approved Limit of Waste (Approximate)
- KVLS Primary Buffer Lands (Approximate Location)
- Landfill (including KVLS Secondary) Buffer Lands (Approximate Location)
- North Fence of KVL (shown in white on map)

Gas Extraction Wells (Approximate Location)

- Keele Valley Landfill

Gas Infrastructure (Approximate Location)

- Gas Header/Maintenance Access (Golder, 2018)
- Gas Collection Header (MMM, 2016)
- Concrete Maintenance Chamber, Purpose Unknown
- KVL Gas Probe

Design Features

- Edge of Pavement
- Proposed Multi-Use Pathway
- Proposed C/L

NOTES:

- The area shown is within the jurisdiction of the Ministry of Natural Resources (MNR) Aurora Midhurst Owen Sound District and the Toronto and Region Conservation Authority Area

Coordinate System: NAD 1983 UTM Zone 17N
Sources: MNR, Golder, Dixon Hydrogeology

MORRISON HERSHFIELD now Stantec

SCALE: 1:1,250

0 25 50
Meters

TITLE:

Landfill Infrastructure, Gas Focus, KVL and VL

PROJECT NO.: 190261800

Teston Road, Vaughan Ontario (From Keele Street to Bathurst Street)

DATE: **March 2025**

Figure 3c

ENVIRONMENTAL SERVICES DEPARTMENT

U:\135800052\03_data\gis_cad\gis\Maps\Geo_Maps\DesignandWatercourse\April_2023_Proposed_Phase_I_ESA\January_2025\Figure_3c_Gas_KVLandVL.mxd

APPENDIX B - ANALYTICAL RESULTS

Table B-0: Summary of Soil Samples, Teston Road IEA, Ontario

190261800

Parameter	Sample Depth (mbgs)	Soil Type	CGI (ppm)	PID (ppm)
MH-BH1 SS1	0-0.76	Fill: silty sand	-	-
MH-BH2 SS1	0-0.76	Fill: sand & gravel	0	0
MH-BH2 SS2	0.76-1.52	sandy silt,trace gravel	0	1
MH-BH2 SS3	1.52-2.28	sandy silt,trace gravel	0	1
MH-BH3 SS1	0-0.76	Fill: sand & gravel	0	1
MH-BH3 SS2	0.76-1.52	Sand, trace gravel	0	1
MH-BH3 SS3	1.52-2.28	Sand, trace gravel	0	1
MH-BH4 SS1	0-0.76	Fill: sand & silt	0	0
MH-BH4 SS2	0.76-1.52	Sand	0	0
MH-BH4 SS3	1.52-2.28	Sand	10	1
A22-2 SS3	1.52-2.12	Silt, some sand	0	0
A22-2 SS5	3.1-3.7	Silt, some sand	0	0
A22-2 SS6	3.8-4.4	Silt, some sand	0	0
A22-3 SS1	0.11-0.71	Fill: silty sand, some gravel	0	0
A22-3 SS4	2.28-2.88	Silty sand to sandy silt	0	0
BHC1 SS2	0.6-1.2	Fill: silty sand	0	0
BHC1 SS5	3.1-3.7	Silty sand	0	0
BHP-25	0-0.5	Granular material typical of a pavement sub-base structure	-	-
BHP-17	0-0.5		-	-
BHP-38	0-0.5		-	-
BHP-34	0-0.5		-	-
BHP4	0-0.5		-	-
BHP5	0-0.5		-	-
BHP7	0-0.5		-	-
BHP9	0-0.5		-	-
BHP 10	0-0.5		-	-
BHP11	0-0.5		-	-
BHP 22	0-0.5		-	-

Prepared by: SS Reviewed by: AW Date: 4/11/2025

Table B-1: Summary of Soil Samples Analytical Results Petroleum Hydrocarbons and BTEX, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation									
Sample ID:	**Units**	**MECP Table 1 Standards[1]**	**MECP Table 2 Standards[2]**	**MH BH1 - SS1**	**MH BH2 - SS2**	**MH BH3 - SS2**	**MH BH4 - SS2**	**A22-2 SS5**	**A22-3 SS4**	**BHC1 - SS5**	**BHP-25**	**BHP-17**	**BHP-38**
Sample Date:				**2023-01-19**	**2022-12-12**	**2022-12-12**	**2022-12-12**	**2022-10-11**	**2022-10-24**	**2022-10-05**	**2023-01-20**	**2023-01-20**	**2023-01-20**
Sample Depth (mBGS)				**0-0.76**	**0.76-1.52**	**0.76-1.52**	**0.76-1.52**	**3.1-3.7**	**2.28-2.88**	**3.1-3.7**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1671865**	**1667981**	**1667983**	**1667985**	**1655946**	**1658424**	**1655944**	**1671848**	**1671849**	**1671850**
Parameter													
Benzene	µg/g	0.02	0.32	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Ethylbenzene	µg/g	0.05	1.1	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
Toluene	µg/g	0.2	6.4	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
o-Xylene	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
p+m-Xylene	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Xylenes	µg/g	0.05	26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PHC F1 (C6-C10)	µg/g	25	55	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F2 (>C10-C16)	µg/g	10	230	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
PHC F3 (>C16-C34)	µg/g	240	1700	110	<20	<20	<20	<20	20	170	20	<20	<20
PHC F4 (>C34-C50)	µg/g	120	3300	150	<20	<20	<20	<20	<20	20	50	<20	<20

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards[1]

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards[2]

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-1: Summary of Soil Samples Analytical Results Petroleum Hydrocarbons and BTEX, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation								
Sample ID:	**Units**	**MECP Table 1 Standards[1]**	**MECP Table 2 Standards[2]**	**BHP-34**	**BHP4**	**BHP5**	**BHP7**	**BHP9**	**BHP 10**	**BHP11**	**BHP 22**	**BHP Dup 22**
Sample Date:				**2023-01-20**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**
Sample Depth (mBGS)				**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1671851**	**1671394**	**1671395**	**1671396**	**1671397**	**1671398**	**1671400**	**1671401**	**1671402**
Parameter												
Benzene	µg/g	0.02	0.32	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Ethylbenzene	µg/g	0.05	1.1	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
Toluene	µg/g	0.2	6.4	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
o-Xylene	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
p+m-Xylene	µg/g	NV	NV	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Xylenes	µg/g	0.05	26	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PHC F1 (C6-C10)	µg/g	25	55	<10	<10	<10	<10	<10	<10	<10	<10	<10
PHC F2 (>C10-C16)	µg/g	10	230	<2	<2	<2	<2	<2	<2	<2	<2	<2
PHC F3 (>C16-C34)	µg/g	240	1700	<20	40	<20	<20	<20	<20	<20	<20	<20
PHC F4 (>C34-C50)	µg/g	120	3300	<20	30	<20	<20	100	<20	<20	<20	<20

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards[1]

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards[2]

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-2: Summary of Soil Samples Analytical Results Volatile Organic Compounds, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation				
Sample ID:	**Units**	**MECP Table 1[1] Standards**	**MECP Table 2 Standards[2]**	**MH BH1 - SS1**	**MH BH2 - SS2**	**MH BH3 - SS2**	**MH BH4 - SS2**	**A22-2 SS5**
Sample Date:				**2023-01-19**	**2022-12-12**	**2022-12-12**	**2022-12-12**	**2022-10-11**
Sample Depth (mBGS)				**0-0.76**	**0.76-1.52**	**0.76-1.52**	**0.76-1.52**	**3.1-3.7**
Certificate of Analysis				**1671865**	**1667981**	**1667983**	**1667985**	**1655946**
Parameter								
Acetone	µg/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	µg/g	0.02	0.32	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	µg/g	0.05	1.5	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	0.05	0.61	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	0.21	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.05	2.4	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	µg/g	0.05	2.3	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<1
Dichlorobenzene,1,3-	µg/g	0.05	9.6	<0.05	<0.05	<0.05	<0.05	<1
Dichlorobenzene,1,4-	µg/g	0.05	0.2	<0.05	<0.05	<0.05	<0.05	<1
Dichlorodifluoromethane	µg/g	0.05	16	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,1-	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, trans-1,2-	µg/g	0.05	1.3	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropane,1,2-	µg/g	0.05	0.16	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene 1,3- cis+trans	µg/g	0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	1.1	<0.018	<0.018	<0.018	<0.018	<0.018
Ethylene Dibromide	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane	µg/g	0.05	46	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	70	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	0.5	31	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-t-butyl Ether	µg/g	0.05	1.6	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	34	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,1,2-	µg/g	0.05	0.087	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,2,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	6.4	<0.08	<0.08	<0.08	<0.08	<0.08
Trichloroethane,1,1,1-	µg/g	0.05	6.1	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane,1,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	µg/g	0.05	0.55	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	µg/g	0.25	4	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.02	0.032	<0.02	<0.02	<0.02	<0.02	<0.02
Xylene, m,p-	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, o-	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, m,p,o-	µg/g	0.05	26	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethene	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	µg/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloromethane	µg/g	0.05	NV	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards[1]

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards[2]

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/ Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-2: Summary of Soil Samples Analytical Results Volatile Organic Compounds, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation				
Sample ID:	**Units**	**MECP Table 1 Standards(1)**	**MECP Table 2 Standards(2)**	**A22-3 SS4**	**BHC1 - SS5**	**BHP-25**	**BHP-17**	**BHP-38**
Sample Date:				**2022-10-24**	**2022-10-05**	**2023-01-20**	**2023-01-20**	**2023-01-20**
Sample Depth (mBGS)				**2.28-2.88**	**3.1-3.7**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1658424**	**1655944**	**1671848**	**1671849**	**1671850**
Parameter								
Acetone	µg/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	µg/g	0.02	0.32	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	µg/g	0.05	1.5	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	0.05	0.61	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	0.21	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.05	2.4	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	µg/g	0.05	2.3	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,2-	µg/g	0.05	0.05	<0.05	<1	<0.05	<0.05	<0.05
Dichlorobenzene,1,3-	µg/g	0.05	9.6	<0.05	<1	<0.05	<0.05	<0.05
Dichlorobenzene,1,4-	µg/g	0.05	0.2	<0.05	<1	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	0.05	16	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,1-	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, trans-1,2-	µg/g	0.05	1.3	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropane,1,2-	µg/g	0.05	0.16	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene 1,3- cis+trans	µg/g	0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	1.1	<0.018	<0.018	<0.018	<0.018	<0.018
Ethylene Dibromide	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane	µg/g	0.05	46	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	70	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	0.5	31	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-t-butyl Ether	µg/g	0.05	1.6	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	34	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,1,2-	µg/g	0.05	0.087	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,2,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	6.4	<0.08	<0.08	<0.08	<0.08	<0.08
Trichloroethane,1,1,1-	µg/g	0.05	6.1	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane,1,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	µg/g	0.05	0.55	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	µg/g	0.25	4	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.02	0.032	<0.02	<0.02	<0.02	<0.02	<0.02
Xylene, m,p-	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, o-	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, m,p,o-	µg/g	0.05	26	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethene	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	µg/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloromethane	µg/g	0.05	NV	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards(1)

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards(2)

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-2: Summary of Soil Samples Analytical Results Volatile Organic Compounds, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation				
Sample ID:	**Units**	**MECP Table 1 Standards(1)**	**MECP Table 2 Standards(2**	**BHP-34**	**BHP4**	**BHP5**	**BHP7**	**BHP9**
Sample Date:				**2023-01-20**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**
Sample Depth (mBGS)				**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1671851**	**1671394**	**1671395**	**1671396**	**1671397**
Parameter								
Acetone	µg/g	0.5	16	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	µg/g	0.02	0.32	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	µg/g	0.05	1.5	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	0.05	0.61	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	0.21	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.05	2.4	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	µg/g	0.05	2.3	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,3-	µg/g	0.05	9.6	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,4-	µg/g	0.05	0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	0.05	16	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,1-	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, trans-1,2-	µg/g	0.05	1.3	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropane,1,2-	µg/g	0.05	0.16	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene 1,3- cis+trans	µg/g	0.05	0.18	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	1.1	<0.018	<0.018	<0.018	<0.018	<0.018
Ethylene Dibromide	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane	µg/g	0.05	46	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	70	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	0.5	31	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl-t-butyl Ether	µg/g	0.05	1.6	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	34	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,1,2-	µg/g	0.05	0.087	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,2,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	6.4	<0.08	<0.08	<0.08	<0.08	<0.08
Trichloroethane,1,1,1-	µg/g	0.05	6.1	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane,1,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	µg/g	0.05	0.55	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	µg/g	0.25	4	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.02	0.032	<0.02	<0.02	<0.02	<0.02	<0.02
Xylene, m,p-	µg/g	NV	NV	<0.05	<0.05	0.06	<0.05	<0.05
Xylene, o-	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene, m,p,o-	µg/g	0.05	26	<0.05	<0.05	0.06	<0.05	<0.05
1,1-Dichloroethene	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	µg/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloromethane	µg/g	0.05	NV	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards(1)

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards(2)

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-2: Summary of Soil Samples Analytical Results Volatile Organic Compounds, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation			
Sample ID:	**Units**	**MECP Table 1 Standards(1)**	**MECP Table 2 Standards(2)**	**BHP 10**	**BHP11**	**BHP 22**	**BHP Dup 22**
Sample Date:				**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**
Sample Depth (mBGS)				**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1671398**	**1671400**	**1671401**	**1671402**
Parameter							
Acetone	µg/g	0.5	16	<0.50	<0.50	<0.50	<0.50
Benzene	µg/g	0.02	0.32	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	µg/g	0.05	1.5	<0.05	<0.05	<0.05	<0.05
Bromoform	µg/g	0.05	0.61	<0.05	<0.05	<0.05	<0.05
Bromomethane	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	µg/g	0.05	0.21	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	µg/g	0.05	2.4	<0.05	<0.05	<0.05	<0.05
Chloroform	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	µg/g	0.05	2.3	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,3-	µg/g	0.05	9.6	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene,1,4-	µg/g	0.05	0.2	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	0.05	16	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,1-	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05
Dichloroethane,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, trans-1,2-	µg/g	0.05	1.3	<0.05	<0.05	<0.05	<0.05
Dichloropropane,1,2-	µg/g	0.05	0.16	<0.05	<0.05	<0.05	<0.05
Dichloropropene 1,3- cis+trans	µg/g	0.05	0.18	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	1.1	<0.018	<0.018	<0.018	<0.018
Ethylene Dibromide	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Hexane	µg/g	0.05	46	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	µg/g	0.5	70	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	µg/g	0.5	31	<0.50	<0.50	<0.50	<0.50
Methyl-t-butyl Ether	µg/g	0.05	1.6	<0.05	<0.05	<0.05	<0.05
Styrene	µg/g	0.05	34	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,1,2-	µg/g	0.05	0.087	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane,1,1,2,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	µg/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05
Toluene	µg/g	0.2	6.4	<0.08	<0.08	<0.08	<0.08
Trichloroethane,1,1,1-	µg/g	0.05	6.1	<0.05	<0.05	<0.05	<0.05
Trichloroethane,1,1,2-	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	µg/g	0.05	0.55	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	µg/g	0.25	4	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	µg/g	0.02	0.032	<0.02	<0.02	<0.02	<0.02
Xylene, m,p-	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05
Xylene, o-	µg/g	NV	NV	<0.05	<0.05	<0.05	<0.05
Xylene, m,p,o-	µg/g	0.05	26	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethene	µg/g	0.05	0.47	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	µg/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05
Dichloromethane	µg/g	0.05	NV	<0.05	<0.05	<0.05	<0.05

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards(1)

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards(2)

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-3: Summary of Soil Samples Analytical Results Select Inorganic Parameters, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation				
Sample ID:	**Units**	**MECP Table 1 Standards(1)**	**MECP Table 2 Standards(2)**	**MH BH1 - SS1**	**MH BH2 - SS1**	**MH BH3 - SS1**	**MH BH4 - SS1**	**A22-2 SS3**
Sample Date:				**2023-01-19**	**2022-12-12**	**2022-12-12**	**2022-12-12**	**2022-10-11**
Sample Depth (mBGS)				**0-0.76**	**0-0.76**	**0-0.76**	**0-0.76**	**1.52-2.12**
Certificate of Analysis				**1671865**	**1667980**	**1667982**	**1667984**	**1655945**
Parameter								
pH	NA	NV	NV	7.62	8.17	8.12	8.01	7.74
Cyanide (Free)	ug/g	0.051	0.051	<0.005	<0.005	<0.005	<0.005	<0.005
Electrical Conductivity (EC)	mS/cm	0.57	1.4	0.2	0.64	0.17	0.15	0.11
Sodium Absorption Ratio (SAR)	NA	2.4	12	1.2	8.88	0.61	0.14	0.23
Antimony	µg/g	1.3	40	<1	<1	<1	<1	<1
Arsenic	µg/g	18	18	5	4	2	2	3
Barium	µg/g	220	670	31	12	40	72	18
Beryllium	µg/g	2.5	8	<1	<1	<1	<1	<1
Boron	µg/g	36	120	<5	9	<5	5	<5
Boron (Hot Water Soluble)	µg/g	NV	2	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	µg/g	1.2	1.9	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	µg/g	70	160	59	9	14	25	12
Chromium VI	µg/g	0.66	8	<0.20	<0.20	<0.20	<0.20	<0.20
Cobalt	µg/g	21	80	137	2	4	7	3
Copper	µg/g	92	230	228	8	14	15	10
Lead	µg/g	120	120	24	12	16	11	3
Mercury	µg/g	0.27	3.9	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/g	2	40	3	<1	<1	<1	<1
Nickel	µg/g	82	270	328	6	10	17	8
Selenium	µg/g	1.5	5.5	0.8	<0.5	<0.5	<0.5	<0.5
Silver	µg/g	0.5	40	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	3.3	<1	<1	<1	<1	<1
Uranium	µg/g	2.5	33	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	µg/g	86	86	23	9	21	31	20
Zinc	µg/g	290	340	117	52	34	42	20

Notes:
All values in µg/g
< - Not detected above the reporting detection limits
mbgs - metres below ground surface
NV - No Value
NA - Not Analyzed

Screening:
BOLD
Parameter exceeded MECP (April 15, 2011) Table 1 Standards(1)
BOLD
Parameter exceeded MECP (April 15, 2011) Table 2 Standards(2)

References:
1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/ Commercial/Community Property Use
2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-3: Summary of Soil Samples Analytical Results Select Inorganic Parameters, Teston Road IEA, Ontario

190261800

Teston Road				Soil Investigation						
Sample ID:	**Units**	**MECP Table 1 Standards(1)**	**MECP Table 2 Standards(2)**	**A22-3 SS1**	**BHCl - SS2**	**BHP-25**	**BHP-17**	**BHP-38**	**BHP-34**	**BHP4**
Sample Date:				**2022-10-24**	**2022-10-05**	**2023-01-20**	**2023-01-20**	**2023-01-20**	**2023-01-20**	**2023-01-16**
Sample Depth (mBGS)				**0.11-0.71**	**0.6-1.2**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1658425**	**1655943**	**1671848**	**1671849**	**1671850**	**1671851**	**1671394**
Parameter										
pH	NA	NV	NV	7.92	7.76	7.75	7.6	7.53	7.56	8.05
Cyanide (Free)	ug/g	0.051	0.051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Electrical Conductivity (EC)	mS/cm	0.57	1.4	0.28	0.21	2.84	0.46	0.3	1.56	0.4
Sodium Absorption Ratio (SAR)	NA	2.4	12	0.45	0.81	26.8	7.05	2.52	31.1	3.92
Antimony	µg/g	1.3	40	<1	<1	<1	<1	<1	<1	<1
Arsenic	µg/g	18	18	4	2	1	1	3	3	3
Barium	µg/g	220	670	26	26	17	16	72	64	56
Beryllium	µg/g	2.5	8	<1	<1	<1	<1	<1	<1	<1
Boron	µg/g	36	120	7	<5	<5	<5	6	5	6
Boron (Hot Water Soluble)	µg/g	NV	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	µg/g	1.2	1.9	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	µg/g	70	160	29	18	7	6	21	20	24
Chromium VI	µg/g	0.66	8	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cobalt	µg/g	21	80	3	2	2	2	7	7	7
Copper	µg/g	92	230	13	11	8	9	16	19	22
Lead	µg/g	120	120	51	4	2	3	7	8	16
Mercury	µg/g	0.27	3.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/g	2	40	<1	<1	<1	<1	<1	<1	<1
Nickel	µg/g	82	270	15	7	5	4	16	17	18
Selenium	µg/g	1.5	5.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	µg/g	0.5	40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	3.3	<1	<1	<1	<1	<1	<1	<1
Uranium	µg/g	2.5	33	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	µg/g	86	86	18	15	15	12	29	27	28
Zinc	µg/g	290	340	56	19	13	14	38	36	52

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards(1)

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards(2)

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/ Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-3: Summary of Soil Samples Analytical Results Select Inorganic Parameters, Teston Road IEA, Ontario

190261800

Teston Road				Soil Investigation						
Sample ID:	**Units**	**MECP Table 1 Standards[1]**	**MECP Table 2 Standards[2]**	**BHP5**	**BHP7**	**BHP9**	**BHP 10**	**BHP Dup 10**	**BHP11**	**BHP 22**
Sample Date:				**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**
Sample Depth (mBGS)				**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1671395**	**1671396**	**1671397**	**1671398**	**1671399**	**1671400**	**1671401**
Parameter										
pH	NA	NV	NV	8.14	8.1	8.25	8.2	8.2	8.22	8.23
Cyanide (Free)	ug/g	0.051	0.051	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Electrical Conductivity (EC)	mS/cm	0.57	1.4	2.96	4.18	1.1	0.12	0.09	0.1	0.68
Sodium Absorption Ratio (SAR)	NA	2.4	12	84.1	52.6	12.9	0.31	0.15	0.14	9.54
Antimony	µg/g	1.3	40	<1	<1	<1	<1	<1	<1	<1
Arsenic	µg/g	18	18	2	2	1	<1	<1	`	<1
Barium	µg/g	220	670	43	46	18	10	10	18	11
Beryllium	µg/g	2.5	8	<1	<1	<1	<1	<1	<1	<1
Boron	µg/g	36	120	5	<5	<5	<5	<5	<5	<5
Boron (Hot Water Soluble)	µg/g	NV	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	µg/g	1.2	1.9	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	µg/g	70	160	16	17	10	5	4	6	5
Chromium VI	µg/g	0.66	8	<0.20	<0.20	0.29	<0.20	<0.20	<0.20	<0.20
Cobalt	µg/g	21	80	6	5	3	2	1	3	2
Copper	µg/g	92	230	16	10	9	4	5	11	5
Lead	µg/g	120	120	6	8	10	2	2	4	2
Mercury	µg/g	0.27	3.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	µg/g	2	40	<1	<1	<1	<1	<1	<1	<1
Nickel	µg/g	82	270	14	11	6	3	3	7	3
Selenium	µg/g	1.5	5.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	µg/g	0.5	40	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	3.3	<1	<1	<1	<1	<1	<1	<1
Uranium	µg/g	2.5	33	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	µg/g	86	86	22	21	15	13	11	11	11
Zinc	µg/g	290	340	30	35	25	9	8	26	10

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards[1]

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards[2]

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/ Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-4: Summary of Soil Samples Analytical Results Polycyclic Aromatic Hydrocarbons, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation					
Sample ID:	**Units**	**MECP Table 1 Standards(1)**	**MECP Table 2 Standards(2)**	**MH BH1 - SS1**	**MH BH2 - SS2**	**MH BH3 - SS2**	**MH BH4 - SS2**	**A22-2 SS5**	**A22-3 SS4**
Sample Date:				**2023-01-19**	**2022-12-12**	**2022-12-12**	**2022-12-12**	**2022-10-11**	**2022-10-24**
Sample Depth (mBGS)				**0-0.76**	**0.76-1.52**	**0.76-1.52**	**0.76-1.52**	**3.1-3.7**	**2.28-2.88**
Certificate of Analysis				**1671865**	**1667981**	**1667983**	**1667985**	**1655946**	**1658424**
Parameter									
Acenaphthene	µg/g	0.072	21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.15	0.16	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.16	0.67	0.26	<0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.36	0.96	0.16	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.3	0.3	<0.05	<0.05	<0.05	<0.05	0.06
Benzo(b)fluoranthene	µg/g	0.47	0.96	0.34	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	9.6	0.9	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.96	0.18	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	9.6	0.2	<0.05	<0.05	<0.05	<0.05	0.07
Dibenz(a,h)anthracene	µg/g	0.1	0.1	0.06	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.56	9.6	0.29	<0.05	<0.05	<0.05	<0.05	0.12
Fluorene	µg/g	0.12	62	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3,-cd)pyrene	µg/g	0.23	0.76	0.38	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	µg/g	0.59	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	µg/g	0.59	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	µg/g	0.59	9.6	0.024	<0.013	<0.013	<0.013	<0.013	<0.013
Phenanthrene	µg/g	0.09	12	0.08	<0.05	<0.05	<0.05	<0.05	0.09
Pyrene	µg/g	0.69	96	0.29	<0.05	<0.05	<0.05	<0.05	0.09

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards(1)

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards(2)

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/ Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-4: Summary of Soil Samples Analytical Results Polycyclic Aromatic Hydrocarbons, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation						
Sample ID:	**Units**	**MECP Table 1 Standards[1]**	**MECP Table 2 Standards[2]**	**BHCl - SS5**	**BHP-25**	**BHP-17**	**BHP-38**	**BHP-34**	**BHP4**	**BHP5**
Sample Date:				**2022-10-05**	**2023-01-20**	**2023-01-20**	**2023-01-20**	**2023-01-20**	**2023-01-16**	**2023-01-16**
Sample Depth (mBGS)				**3.1-3.7**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1655944**	**1671848**	**1671849**	**1671850**	**1671851**	**1671394**	**1671395**
Parameter										
Acenaphthene	µg/g	0.072	21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.16	0.67	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05
Benz(a)anthracene	µg/g	0.36	0.96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	9.6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	9.6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.56	9.6	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05
Fluorene	µg/g	0.12	62	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3,-cd)pyrene	µg/g	0.23	0.76	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	µg/g	0.59	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	µg/g	0.59	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	µg/g	0.59	9.6	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Phenanthrene	µg/g	0.09	12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	0.69	96	<0.05	<0.05	<0.05	<0.05	<0.05	0.08	<0.05

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards[1]

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards[2]

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/ Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-4: Summary of Soil Samples Analytical Results Polycyclic Aromatic Hydrocarbons, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation					
Sample ID:	**Units**	**MECP Table 1 Standards[1]**	**MECP Table 2 Standards[2]**	**BHP7**	**BHP9**	**BHP 10**	**BHP11**	**BHP 22**	**BHP Dup 22**
Sample Date:				**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**	**2023-01-16**
Sample Depth (mBGS)				**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1671396**	**1671397**	**1671398**	**1671400**	**1671401**	**1671402**
Parameter									
Acenaphthene	µg/g	0.072	21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.093	0.15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.16	0.67	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.36	0.96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.47	0.96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.68	9.6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.48	0.96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	2.8	9.6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.56	9.6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.12	62	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3,-cd)pyrene	µg/g	0.23	0.76	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1-Methylnaphthalene	µg/g	0.59	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-Methylnaphthalene	µg/g	0.59	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	µg/g	0.59	9.6	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Phenanthrene	µg/g	0.09	12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	0.69	96	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards[1]

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards[2]

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-5: Summary of Soil Samples Analytical Results Polycyclic Aromatic Hydrocarbons, Teston Road IEA, Ontario **190261800**

Teston Road				Soil Investigation			
Sample ID:	**Units**	**MECP Table 1 Standards[1]**	**MECP Table 2 Standards[2]**	**MH BH2 - SS2**	**MH BH3 - SS2**	**MH BH4 - SS2**	**A22-2 SS5**
Sample Date:				**2022-12-12**	**2022-12-12**	**2022-12-12**	**2022-10-11**
Sample Depth (mBGS)				**0.76-1.52**	**0.76-1.52**	**0.76-1.52**	**3.1-3.7**
Certificate of Analysis				**1667981**	**1667983**	**1667985**	**1655946**
Parameter							
1,2,4-Trichlorobenzene	µg/g	0.05	3.2	<0.05	<0.05	<0.05	<0.04
2,4 + 2,6-Dinitrotoluene	µg/g	0.5	0.5	<0.5	<0.5	<0.5	<0.5
2,4,5-Trichlorophenol	µg/g	0.1	9.1	<0.1	<0.1	<0.1	<0.1
2,4,6-Trichlorophenol	µg/g	0.1	2.1	<0.1	<0.1	<0.1	<0.1
2,4-Dichlorophenol	µg/g	0.1	0.19	<0.1	<0.1	<0.1	<0.1
2,4-Dimethylphenol	µg/g	0.2	390	<0.2	<0.2	<0.2	<0.2
2,4-Dinitrophenol	µg/g	2	38	<0.2	<0.2	<0.2	<0.2
2-Chlorophenol	µg/g	0.1	3.1	<0.1	<0.1	<0.1	<0.1
3,3'-Dichlorobenzidine	µg/g	1	1	<0.6	<0.6	<0.6	<0.6
4-Chloroaniline	µg/g	0.5	0.5	<0.2	<0.2	<0.2	<0.2
Biphenyl	µg/g	0.05	52	<0.05	<0.05	<0.05	<0.05
Bis(2-chloroethyl)ether	µg/g	0.5	0.5	<0.3	<0.3	<0.3	<0.3
Bis(2-chloroisopropyl)ether	µg/g	0.5	11	<0.2	<0.2	<0.2	<0.2
Bis(2-ethylhexyl)phthalate	µg/g	5	28	<0.4	<0.4	<0.4	<0.4
Diethyl phthalate	µg/g	0.5	NV	<0.2	<0.2	<0.2	<0.2
Dimethyl phthalate	µg/g	0.5	0.5	<0.2	<0.2	<0.2	<0.2
Pentachlorophenol	µg/g	0.1	2.9	<0.1	<0.1	<0.1	<0.1
Phenol	µg/g	0.5	9	<0.1	<0.1	<0.1	<0.1

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards[1]

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards[2]

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/ Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-6: Summary of Soil Samples Analytical Results OC Pesticides and Polychlorinated Biphenyls, Teston Road IEA, Ontario 190261800

Teston Road				Soil Investigation							
Sample ID:	**Units**	**MECP Table 1 Standards(1)**	**MECP Table 2 Standards(2)**	**MH BH2 - SS2**	**MH BH3 - SS2**	**MH BH4 - SS2**	**A22-2 SS6**	**BHP-25**	**BHP-17**	**BHP7**	**BHP9**
Sample Date:				**2022-12-12**	**2022-12-12**	**2022-12-12**	**11-Oct-22**	**2023-01-20**	**2023-01-20**	**2023-01-16**	**2023-01-16**
Sample Depth (mBGS)				**0.76-1.52**	**0.76-1.52**	**0.76-1.52**	**3.8-4.4**	**0-0.5**	**0-0.5**	**0-0.5**	**0-0.5**
Certificate of Analysis				**1667981**	**1667983**	**1667985**	**1655947**	**1671848**	**1671849**	**1671396**	**1671397**
Parameter											
Aldrin	µg/g	0.05	0.088	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chlordane (Total)	µg/g	0.05	0.05	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
DDD (Total)	µg/g	0.05	4.6	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDE (Total)	µg/g	0.05	0.52	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
DDT (Total)	µg/g	0.05	1.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Dieldrin	µg/g	0.05	0.088	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Total Endosulfan	µg/g	0.04	0.3	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Endrin	µg/g	0.04	0.04	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
gamma-BHC (Lindane)	µg/g	0.01	0.056	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Heptachlor	µg/g	0.05	0.19	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Heptachlor epoxide	µg/g	0.05	0.05	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Hexachlorobenzene	µg/g	0.01	0.66	<0.01	<0.01	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002
Hexachlorobutadiene	µg/g	0.01	0.031	<0.01	<0.01	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002
Hexachloroethane	µg/g	0.01	0.21	<0.01	<0.01	<0.01	<0.002	<0.002	<0.002	<0.002	<0.002
Methoxychlor	µg/g	0.05	1.6	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Aroclor 1242	µg/g	NV	NV	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Aroclor 1248	µg/g	NV	NV	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Aroclor 1254	µg/g	NV	NV	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Aroclor 1260	µg/g	NV	NV	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Polychlorinated Biphenyls	µg/g	0.3	1.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02

Notes:

All values in µg/g

< - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards(1)

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards(2)

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse

Teston Road				Soil Investigation		
Sample ID:	**Units**	**MECP Table 1 Standards[1]**	**MECP Table 2 Standards[2]**	**MH BH2 - SS3**	**MH BH3 - SS3**	**MH BH4 - SS3**
Sample Date:				**2022-12-12**	**2022-12-12**	**2022-12-12**
Sample Depth (mBGS)				**1.52-2.28**	**1.52-2.28**	**1.52-2.28**
Certificate of Analysis				**1679347**	**1679348**	**1679349**
Parameter						
1,2,3,4,6,7,8-HpCDD	ng/kg	NV	NV	0.32	4.5	NA
1,2,3,4,6,7,8-HpCDF	ng/kg	NV	NV	0.057	0.66	NA
1,2,3,4,7,8-HxCDD	ng/kg	NV	NV	0.044	0.057	NA
1,2,3,4,7,8-HxCDF	ng/kg	NV	NV	0.11	NA	NA
1,2,3,4,7,8,9-HpCDF	ng/kg	NV	NV	0.053	0.068	0.043
1,2,3,6,7,8-HxCDD	ng/kg	NV	NV	0.054	0.13	NA
1,2,3,6,7,8-HxCDF	ng/kg	NV	NV	0.078	NA	NA
1,2,3,7,8-PeCDF	ng/kg	NV	NV	0.096	NA	NA
1,2,3,7,8,9-HxCDD	ng/kg	NV	NV	NA	0.12	NA
1,2,3,7,8,9-HxCDF	ng/kg	NV	NV	NA	NA	0.068
2,3,4,6,7,8-HxCDF	ng/kg	NV	NV	0.074	NA	NA
2,3,4,7,8-PeCDF	ng/kg	NV	NV	NA	0.081	NA
2,3,7,8-TCDF	ng/kg	NV	NV	NA	0.039	NA
OCDD	ng/kg	NV	NV	5.7	31	1.5
OCDF	ng/kg	NV	NV	0.18	3.4	0.15
Total HpCDD	ng/kg	NV	NV	0.32	7.0	NA
Total HpCDF	ng/kg	NV	NV	0.11	2.5	0.043
Total HxCDD	ng/kg	NV	NV	0.49	0.31	NA
Total HxCDF	ng/kg	NV	NV	0.26	0.19	0.068
Total PeCDD	ng/kg	NV	NV	NA	0.033	NA
Total PeCDF	ng/kg	NV	NV	0.096	0.081	NA
Total TCDD	ng/kg	NV	NV	NA	NA	0.049
Total TCDF	ng/kg	NV	NV	NA	0.18	NA
Total Toxic Dioxins & Furans (TEQ)	ng/kg	7	99	0.045	0.12	0.0077

Notes:

All values in µg/g

<0.02 - Not detected above the reporting detection limits

mbgs - metres below ground surface

NV - No Value

NA - Not Analyzed

Screening:

BOLD

Parameter exceeded MECP (April 15, 2011) Table 1 Standards[1]

BOLD

Parameter exceeded MECP (April 15, 2011) Table 2 Standards[2]

References:

1- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 1 - Full Depth Background Site Condition Standards - Residential/ Parkland/Institutional/Industrial/Commercial/Community Property Use

2- MECP Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) - Table 2 - Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Industrial/Commercial/Community Property Use and Coarse Textured Soils

Table B-8: Summary of the Toxicity Characteristic Leachate Procedure Testing Teston Road IEA, Ontario 190261800

Teston Road			Soil Investigation	
Soil Sample ID	**Units**	**O.Reg.347 Schedule 4 Leachate Quality Criteria[1]**	**MH BH2 - SS2**	**MH BH3 - SS2**
Sample Date			**2022-12-12**	**2022-12-12**
Certificate of Analysis			**1672375**	**1672376**
Parameter			**0.76-1.52**	**0.76-1.52**
Inorganics				
Leachable Fluoride (F-)	mg/L	150	0.21	0.24
Leachable Free Cyanide	mg/L	20	<0.05	<0.05
Leachable Nitrate + Nitrite	mg/L	1000	<1.0	<1.0
Metals				
Leachable Arsenic (As)	mg/L	2.5	<0.02	<0.02
Leachable Barium (Ba)	mg/L	100	0.42	0.32
Leachable Boron (B)	mg/L	500	<0.1	<0.1
Leachable Cadmium (Cd)	mg/L	0.5	<0.008	<0.008
Leachable Chromium (Cr)	mg/L	5	<0.05	<0.05
Leachable Lead (Pb)	mg/L	5	<0.01	<0.01
Leachable Mercury (Hg)	mg/L	0.1	<0.001	<0.001
Leachable Selenium (Se)	mg/L	1	<0.02	<0.02
Leachable Silver (Ag)	mg/L	5	<0.01	<0.01
Leachable Uranium (U)	mg/L	10	<0.01	<0.01
Ignitability				
Flashpoint	°C	NV	neg	neg
Volatile Organics				
Leachable Benzene	mg/L	0.5	<0.0005	<0.0005
Leachable Carbon Tetrachloride	mg/L	0.5	<0.0002	<0.0002
Leachable Chlorobenzene	mg/L	8	<0.0005	<0.0005
Leachable Chloroform	mg/L	10	<0.0005	<0.0005
Leachable 1,2-Dichlorobenzene	mg/L	20	<0.0004	<0.0004
Leachable 1,4-Dichlorobenzene	mg/L	0.5	<0.0004	<0.0004
Leachable 1,2-Dichloroethane	mg/L	0.5	<0.0005	<0.0005
Leachable 1,1-Dichloroethylene	mg/L	1.4	<0.0005	<0.0005
Leachable Methylene Chloride	mg/L	5	<0.004	<0.004
Leachable Methyl Ethyl Ketone	mg/L	200	<0.002	<0.002
Leachable Tetrachloroethylene	mg/L	3	<0.0003	<0.0003
Leachable Trichloroethylene	mg/L	5	<0.0003	<0.0003
Leachable Vinyl Chloride	mg/L	0.2	<0.0002	<0.0002
Polycyclic Aromatic Hydrocarbons				
Leachable Benzo(a)pyrene	mg/L	0.001	0.00001	0.00001
PCBs				
Leachable Total PCB	mg/L	0.3	<0.0001	<0.0001

Notes:

< - Not detected above the reporting detection limits

NV - No Value

NA - Not Analyzed

NI - Not Ignitable

References:

1 - Schedule 4 of Ontario Regulation 347 – General Waste Management: Leachate Quality Criteria. Soils producing leachate above these standards would be considered hazardous waste under the regulation

APPENDIX C - BOREHOLE LOGS

BOREHOLE MH-BH1

Morrison Hershfield Ltd

CLIENT The Regional Municipality of York
PROJECT NAME Teston Road IEA
PROJECT NUMBER 190261800
PROJECT LOCATION Teston Road between Keele Street and Bathurst Street
DATE STARTED 1/19/23 **COMPLETED** 1/19/23
DRILLING CONTRACTOR MH
GROUNDWATER LEVELS:
DRILLING METHOD Hand Augur
STATIC WATER LEVEL ---
LOGGED BY SS **CHECKED BY** AW
MEASUREMENT DATE

DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLE NUMBER	Headspace Organic Vapour Concentrations: ▲ IBL (ppm) 500 1000 1500 2000	Headspace Combustible Vapour Concentrations: ✕ HEX (ppm) 125 250 375; ◔ HEX (%LEL) 25 50 75	ANALYSES	WELL DIAGRAM
0		**Silty sand,** brown, moist.	SS1			Metals, Inorganics, PHC, VOC, PAH	
0.8		Borehole Terminated at 0.76 mbgs					

BOREHOLE MH-BH2

Morrison Hershfield Ltd

CLIENT The Regional Municipality of York
PROJECT NAME Teston Road IEA
PROJECT NUMBER 190261800
PROJECT LOCATION Teston Road between Keele Street and Bathurst Street
DATE STARTED 12/12/22 **COMPLETED** 12/12/22
DRILLING CONTRACTOR Landshark
GROUNDWATER LEVELS:
DRILLING METHOD Geoprobe-Direct Push
STATIC WATER LEVEL ---
LOGGED BY SS **CHECKED BY** AW
MEASUREMENT DATE

DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLE NUMBER	Headspace Organic Vapour Concentrations: ▲ IBL (ppm) 500 1000 1500 2000	Headspace Combustible Vapour Concentrations: ✠ HEX (ppm) 125 250 375; ◔ HEX (%LEL) 25 50 75	ANALYSES	WELL DIAGRAM
0		**Sand and Gravel,** greyish-brown, moist.	SS1	▲ 0	✠ 0	Metals, Inorganics, PHC, VOC, PAH	
0.8		**Sandy Silt,** brown, trace gravel, moist.					
1		Traces of asphalt present between 0.76 and 1.52 mbgs.	SS2	▲ 1	✠ 0		
2			SS3	▲ 1	✠ 0		
3			SS4	▲ 0	✠ 0		
3.0		Borehole Terminated at 3.1 mbgs					

Monitoring Well MH-BH3

Morrison Hershfield Ltd

CLIENT The Regional Municipality of York
PROJECT NAME Teston Road IEA
PROJECT NUMBER 190261800
PROJECT LOCATION Teston Road between Keele Street and Bathurst Street
DATE STARTED 12/12/22 **COMPLETED** 12/12/22
DRILLING CONTRACTOR Landshark
GROUNDWATER LEVELS:
DRILLING METHOD Geoprobe-Direct Push
STATIC WATER LEVEL 4.56 m
LOGGED BY SS **CHECKED BY** AW
MEASUREMENT DATE 4/4/2023

DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLE NUMBER	Headspace Organic Vapour Concentrations: IBL (ppm)	Headspace Combustible Vapour Concentrations: HEX (ppm)	HEX (%LEL)	ANALYSES	WELL DIAGRAM
0		**Fill: Sand and Gravel,** brown, trace organics, moist.	SS1	1	0		Metals, Inorganics	
0.8		**Sand,** brown, trace gravel, moist.	SS2	1	0		PHC, VOC, PAH	
1			SS3	1	0			
2			SS4	0	0			
3			SS5	0	0			
4			SS6	0	0			
4.6		bgsBorehole Terminated at 4.56 mbgs						

Headspace Organic Vapour Concentrations: ▲ IBL (ppm) 500 1000 1500 2000
Headspace Combustible Vapour Concentrations: ✠ HEX (ppm) 125 250 375; ◔ HEX (%LEL) 25 50 75

ENVIRONMENTAL BH PLOTS 200148008 BH.GPJ GINT STD CANADA LAB.GDT 4/11/23

Monitoring Well MH-BH4

Morrison Hershfield Ltd

CLIENT The Regional Municipality of York
PROJECT NAME Teston Road IEA
PROJECT NUMBER 190261800
PROJECT LOCATION Teston Road between Keele Street and Bathurst Street
DATE STARTED 12/12/22 **COMPLETED** 12/12/22
DRILLING CONTRACTOR Landshark
GROUNDWATER LEVELS:
DRILLING METHOD Geoprobe-Direct Push
STATIC WATER LEVEL 4.56 m
LOGGED BY SS **CHECKED BY** AW
MEASUREMENT DATE 4/4/2023

DEPTH (m)	GRAPHIC LOG	SOIL DESCRIPTION	SAMPLE NUMBER	Headspace Organic Vapour Concentrations: ▲ IBL (ppm) 500 1000 1500 2000	Headspace Combustible Vapour Concentrations: ✠ HEX (ppm) 125 250 375; ◔ HEX (%LEL) 25 50 75	ANALYSES	WELL DIAGRAM
0		**Fill: Sand and Silt,** brown, trace organics, moist.	SS1	0	0	Metals, Inorganics	
0.8		**Sand,** brown, moist.	SS2	0	0	PHC, VOC, PAH	
1			SS3	1	10		
2			SS4	1	0		
3			SS5	0	15		
4			SS6	0	0		
4.6		Borehole Terminated at 4.56 mbgs					

ENVIRONMENTAL BH PLOTS 200148008 BH.GPJ GINT STD CANADA LAB.GDT 4/11/23

APPENDIX D - QUALITY MANAGEMENT, CONTROL AND ASSURANCE

QUALITY MANAGEMENT, CONTROL AND ASSURANCE

Project Quality Management

The field work documented in this report and the preparation of this report were overseen by a Qualified Person, as defined in Ontario Regulation 153/04, as amended (O. Reg. 153/04).

Sampling analysis was performed using generally accepted principles and with appropriate sampling equipment. Written field and laboratory sampling procedures for soil and ground water developed by Morrison Hershfield Limited (MH) were used to ensure consistency in sample collection and preparation of samples for submission to the laboratory.

The staff involved in the field sampling have participated in regular, ongoing training programs and were qualified and experienced in collecting, describing, and preparing environmental samples for laboratory analysis.

Laboratory analysis was performed using generally accepted principles in accordance with the *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the* Environmental Protection Act, March 9, 2004 amended as of July 1, 2011 (Protocol).

Data quality objectives for the parameters of concern were set to meet acceptable RDLs to achieve the goal of defining areas where such parameters are present at levels in excess of applicable generic standards, as defined in O. Reg. 153/04. Sampling programs included providing written instruction to the analytical laboratory describing the required analyses on the Chain of Custody prepared and delivered with the samples.

Field Quality Assurance/ Quality Control

The soil sampling plan was prepared and executed based on previous assessment conducted for the site, and on professional judgment at the time of the investigation.

Field observations were made and documented in a field book in accordance with generally accepted practices and with the procedures developed and utilized by MH.

MH field sampling Quality Assurance and Quality Control (QA/QC) protocols are tailored to the investigation and include:

- The collection of discrete samples directly into vials containing methanol for soil samples analysed for volatile organic compounds including BTEX

- The collection of discrete samples directly into jars for soil samples analysed for all other parameters

- The immediate placement, upon collection, of soil samples into a cooler with free ice to lower the temperature to less than 10°C

- For soil sampling, the thorough cleaning of soil sampling equipment using soap and water, followed by a distilled water rinse and a methanol rinse between sample locations

- Ensuring that the bare hand does not come into contact with the soil as it is being placed into the sample container

- All samples were shipped to the laboratory in custody sealed coolers, filled with ice at less than 10°C

- All sample shipments are accompanied by standard chain of custody forms

- For each analysis and matrix, the table below describes the type of sample container and preservation technique used

Parameter Group	**Matrix**	**Container**	**Preservative**
BTEX/PHC F1 or VOC	Soil	2 x 40 mL C/G TL septum cap vial	Less than 10 °C, Methanol
PHC F2-F4, PAH, OCP, PCB, or phenols	Soil	1 x 120 mL A/G TL	Less than 10 °C
Metals, inorganics, dioxins, or furans	Soil	1 x 120 mL A/G TL 1 x 240 mL A/G TL	Less than 10 °C
A/G means “amber glass”; C/G means “clear glass”; HDPE means “High Density Polyethylene” TL means “Teflon-lined lid”			

The results of the field duplicate samples are presented along with the tabulated data in this appendix. Tabulated data are presented to a maximum of two significant digits.

Laboratory Quality Assurance/Quality Control

All soil and groundwater samples were delivered to the Vaughan facility of Eurofins Eurofins Environment Testing Canada Inc. (Eurofins). Analysis was carried out at Eurofins’ Ottawa Laboratory or at sister laboratory depending on the parameter analyzed. Eurofins has been accredited by the Standards Council of Canada (SCC) for all of the parameters that were analysed in accordance with the latest version of the International Standard ISO/IEC 17025 – “General Requirement for the Competence of Testing and Calibration Laboratories”. Eurofins performed the work following formal written methods and procedures. These methods include all the minimum requirements as specified in the Protocol.

MH has accepted the data provided by Eurofins based on the assurance from Eurofins that, as a minimum, the following requirements have been met and documentation to demonstrate compliance can be produced on request:

- The method performance criteria identified in the Protocol were met
- Sample storage requirements, pre-analysis processing techniques, and holding times for all sample types as identified in the Protocol were met following receipt and sign-off of the samples from MH staff
- The results of all laboratory QC samples were within statistically determined control limits and if not, reasons were provided
- Surrogate recoveries for organic analyses were monitored and recorded
- Details on the precision and accuracy of the data have been recorded and retained and are available from the laboratories should they be required as a result of a Ministry of the Environment, Conservation and Parks (MECP) audit
- The analytical data were reported without blank correction (unless the correction was clearly identified on the Certificate of Analysis)
- All soil sampling results were reported on a dry weight basis

All Certificates of Analysis were reviewed by the Qualified Person to ensure that data quality objectives have been met and that any anomalies have been identified. All Certificates of Analysis meet the requirements under Section 47(3) of O. Reg. 153/04.

Quality Assurance/Quality Control Program

No laboratory QA/QC issues were identified that would have a material effect on the interpretation of results presented in this report.

The field QA/QC program consisted of submitting one set of field duplicate sample for laboratory analyses of volatile organic compounds (VOC), petroleum hydrocarbon (PHC) fractions F1 to F4, polycyclic aromatic hydrocarbons (PAH), metals and select inorganic parameters.

For the field duplicate samples, evaluation of the QA/QC results were determined by calculating the relative percent difference (RPD) between the field duplicate and original sample results, and comparison of the RPD to designated alert limits. Consistent with laboratory practices and to permit reliable calculations, an RPD is only calculated when the original and duplicate sample concentrations are at least five times the reportable detection limits.

$$RPD = \left| \frac{(x_1 - x_2)}{\left(\frac{(x_1 + x_2)}{2}\right)} \right| \times 100\%$$

The RPD for the soil field duplicate samples are provided in Tables E-1 to E-4, along with the designated field duplicate alert limits

All of the RPD were either within the alert limits or not calculable.

No field or laboratory QA/QC issues were identified that would affect the overall conclusions presented in this report. Overall, the results reported are considered to be reliable.

APPENDIX E - LABORATORY CERTIFICATES OF ANALYSIS

Certificate of Analysis

eurofins | Environment Testing

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
Invoice to: Morrison Hershfield Limited
PO#:

Report Number:	1992836
Date Submitted:	2023-01-20
Date Reported:	2023-01-27
Project:	190261800 Teston Rd
COC #:	220704
Temperature (C):	10
Custody Seal:	

Dear Sarth Sheth:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Sample Comment Summary

Sample ID: 1671865 MHBH1-SS1 The result for F4 (C34-C50) gravimetric must be substituted if it is greater than the result for F4 (C34-C50). Sample was cleaned with silica gel.

Report Comments:

R Zafari

Raheleh Zafari 2023.01.27 16:53:30

Raheleh Zafari, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated
.
Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

-05'00'

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992836
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220704

O.Reg 153-T3-Ind/Com-Coarse

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria
Metals				
MHBH1-SS1	Cobalt	137	ug/g	STD 80
MHBH1-SS1	Nickel	328	ug/g	STD 270
PAH				
MHBH1-SS1	Acenaphthylene	0.16	ug/g	STD 0.15

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992836
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220704

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
PHC's F1	436689	10	ug/g	STD 55	<10
PHC's F1-BTEX	436689	10	ug/g		<10
PHC's F2	436721	2	ug/g	STD 230	<2
PHC's F2-Napth	436848	2	ug/g		<2
PHC's F3	436721	20	ug/g	STD 1700	110
PHC's F3-PAH	436849	20	ug/g		110
PHC's F4	436721	20	ug/g	STD 3300	150
PHC's F4g	436810	100	ug/g	STD 3300	300

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Antimony	436722	1	ug/g	STD 40	<1
Arsenic	436722	1	ug/g	STD 18	5
Barium	436722	1	ug/g	STD 670	31
Beryllium	436722	1	ug/g	STD 8	<1
Boron (Hot Water Soluble)	436874	0.5	ug/g	STD 2	<0.5
Boron (total)	436722	5	ug/g	STD 120	<5
Cadmium	436722	0.4	ug/g	STD 1.9	<0.4
Chromium Total	436722	1	ug/g	STD 160	59
Chromium VI	436872	0.20	ug/g	STD 8	<0.20
Cobalt	436722	1	ug/g	STD 80	137*
Copper	436722	1	ug/g	STD 230	228

Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992836
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220704

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Lead	436722	1	ug/g	STD 120	24
Mercury	436722	0.1	ug/g	STD 3.9	<0.1
Molybdenum	436722	1	ug/g	STD 40	3
Nickel	436722	1	ug/g	STD 270	328*
Selenium	436722	0.5	ug/g	STD 5.5	0.8
Silver	436722	0.2	ug/g	STD 40	<0.2
Thallium	436722	1	ug/g	STD 3.3	<1
Uranium	436722	0.5	ug/g	STD 33	<0.5
Vanadium	436722	2	ug/g	STD 86	23
Zinc	436722	2	ug/g	STD 340	117

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
1+2-methylnaphthalene	436736	0.05	ug/g		<0.05
Acenaphthene	436398	0.05	ug/g	STD 96	<0.05
Acenaphthylene	436398	0.05	ug/g	STD 0.15	0.16*
Anthracene	436398	0.05	ug/g	STD 0.67	0.26
Benz[a]anthracene	436398	0.05	ug/g	STD 0.96	0.16
Benzo[a]pyrene	436398	0.05	ug/g	STD 0.3	0.30
Benzo[b]fluoranthene	436398	0.05	ug/g	STD 0.96	0.34
Benzo[ghi]perylene	436398	0.05	ug/g	STD 9.6	0.90
Benzo[k]fluoranthene	436398	0.05	ug/g	STD 0.96	0.18

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2440 Don Reid Drive, Suite 200
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K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992836
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220704

Guideline = O.Reg 153-T3-Ind/Com-Coarse

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Chrysene	436398	0.05	ug/g	STD 9.6	0.20
Dibenz[a h]anthracene	436398	0.05	ug/g	STD 0.1	0.06
Fluoranthene	436398	0.05	ug/g	STD 9.6	0.29
Fluorene	436398	0.05	ug/g	STD 62	<0.05
Indeno[1 2 3-cd]pyrene	436398	0.05	ug/g	STD 0.76	0.38
Methlynaphthalene, 1-	436398	0.05	ug/g	STD 76	<0.05
Methlynaphthalene, 2-	436398	0.05	ug/g	STD 76	<0.05
Naphthalene	436398	0.013	ug/g	STD 9.6	0.024
Phenanthrene	436398	0.05	ug/g	STD 12	0.08
Pyrene	436398	0.05	ug/g	STD 96	0.29

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Acetone	436689	0.50	ug/g	STD 16	<0.50
Benzene	436689	0.0068	ug/g	STD 0.32	<0.0068
Bromodichloromethane	436689	0.05	ug/g	STD 18	<0.05
Bromoform	436689	0.05	ug/g	STD 0.61	<0.05
Bromomethane	436689	0.05	ug/g	STD 0.05	<0.05
Carbon Tetrachloride	436689	0.05	ug/g	STD 0.21	<0.05
Chlorobenzene	436689	0.05	ug/g	STD 2.4	<0.05
Chloroform	436689	0.05	ug/g	STD 0.47	<0.05
Dibromochloromethane	436689	0.05	ug/g	STD 13	<0.05

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Dichlorobenzene, 1,2-	436689	0.05	ug/g	STD 6.8	<0.05
Dichlorobenzene, 1,3-	436689	0.05	ug/g	STD 9.6	<0.05
Dichlorobenzene, 1,4-	436689	0.05	ug/g	STD 0.2	<0.05
Dichlorodifluoromethane	436689	0.05	ug/g	STD 16	<0.05
Dichloroethane, 1,1-	436689	0.05	ug/g	STD 17	<0.05
Dichloroethane, 1,2-	436689	0.05	ug/g	STD 0.05	<0.05
Dichloroethylene, 1,1-	436689	0.05	ug/g	STD 0.064	<0.05
Dichloroethylene, 1,2-cis-	436689	0.05	ug/g	STD 55	<0.05
Dichloroethylene, 1,2-trans-	436689	0.05	ug/g	STD 1.3	<0.05
Dichloropropane, 1,2-	436689	0.05	ug/g	STD 0.16	<0.05
Dichloropropene,1,3-	436689	0.05	ug/g	STD 0.18	<0.05
Dichloropropene,1,3-cis-	436689	0.05	ug/g		<0.05
Dichloropropene,1,3-trans-	436689	0.05	ug/g		<0.05
Ethylbenzene	436689	0.018	ug/g	STD 9.5	<0.018
Ethylene dibromide	436689	0.05	ug/g	STD 0.05	<0.05
Hexane (n)	436689	0.05	ug/g	STD 46	<0.05
Methyl Ethyl Ketone	436689	0.50	ug/g	STD 70	<0.50
Methyl Isobutyl Ketone	436689	0.50	ug/g	STD 31	<0.50
Methyl tert-Butyl Ether (MTBE)	436689	0.05	ug/g	STD 11	<0.05
Methylene Chloride	436689	0.05	ug/g	STD 1.6	<0.05
Styrene	436689	0.05	ug/g	STD 34	<0.05
Tetrachloroethane, 1,1,1,2-	436689	0.05	ug/g	STD 0.087	<0.05
Tetrachloroethane, 1,1,2,2-	436689	0.05	ug/g	STD 0.05	<0.05

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Tetrachloroethylene	436689	0.05	ug/g	STD 4.5	<0.05
Toluene	436689	0.08	ug/g	STD 68	<0.08
Trichloroethane, 1,1,1-	436689	0.05	ug/g	STD 6.1	<0.05
Trichloroethane, 1,1,2-	436689	0.05	ug/g	STD 0.05	<0.05
Trichloroethylene	436689	0.01	ug/g	STD 0.91	<0.01
Trichlorofluoromethane	436689	0.05	ug/g	STD 4	<0.05
Vinyl Chloride	436689	0.02	ug/g	STD 0.032	<0.02
Xylene Mixture	436689	0.05	ug/g	STD 26	<0.05
Xylene, m/p-	436689	0.05	ug/g		<0.05
Xylene, o-	436689	0.05	ug/g		<0.05

Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Cyanide (CN-)	436804	0.005	ug/g	STD 0.051	<0.005
Electrical Conductivity	436864	0.05	mS/cm	STD 1.4	0.20
pH - CaCl2	436777	2.00			7.62
Sodium Adsorption Ratio	436868	0.01		STD 12	1.20

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Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Moisture-Humidite	436721	0.1	%		1.4

PCBs

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
Aroclor 1242	436724	0.02	ug/g		<0.02
Aroclor 1248	436724	0.02	ug/g		<0.02
Aroclor 1254	436724	0.02	ug/g		<0.02
Aroclor 1260	436724	0.02	ug/g		<0.02
Polychlorinated Biphenyls	436724	0.02	ug/g	STD 1.1	<0.02

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PCB Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D. 1671865 Soil153 2023-01-19 MHBH1-S S1
Decachlorobiphenyl	436725	0	%		65

PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sample Date Sampling Time Sample I.D. 1671865 Soil153 2023-01-19 MHBH1-S S1
Alpha-androstrane	436721	0	%		80

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VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671865 Sample Matrix Soil153 Sample Type Sample Date 2023-01-19 Sampling Time Sample I.D. MHBH1-S S1
1,2-dichloroethane-d4	436689	0	%		103
4-bromofluorobenzene	436689	0	%		101
Toluene-d8	436689	0	%		96

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436398	Methlynaphthalene, 1-	<0.05 ug/g	81	50-140	56	50-140	0	0-40
436398	Methlynaphthalene, 2-	<0.05 ug/g	78	50-140	52	50-140	0	0-40
436398	Acenaphthene	<0.05 ug/g	90	50-140	69	50-140	0	0-40
436398	Acenaphthylene	0.05 ug/g	86	50-140	65	50-140	0	0-40
436398	Anthracene	<0.05 ug/g	90	50-140	72	50-140	0	0-40
436398	Benz[a]anthracene	<0.05 ug/g	83	50-140	77	50-140	0	0-40
436398	Benzo[a]pyrene	<0.05 ug/g	74	50-140	51	50-140	0	0-40
436398	Benzo[b]fluoranthene	<0.05 ug/g	82	50-140	68	50-140	0	0-40
436398	Benzo[ghi]perylene	<0.05 ug/g	92	50-140	52	50-140	0	0-40
436398	Benzo[k]fluoranthene	<0.05 ug/g	92	50-140	73		0	0-40
436398	Chrysene	<0.05 ug/g	89	50-140	79	50-140	0	0-40
436398	Dibenz[a h]anthracene	<0.05 ug/g	89	50-140	52	50-140	0	0-40
436398	Fluoranthene	<0.05 ug/g	84	50-140	76	50-140	0	0-40
436398	Fluorene	<0.05 ug/g	88	50-140	69	50-140	0	0-40
436398	Indeno[1 2 3-cd]pyrene	<0.05 ug/g	89	50-140	54	50-140	0	0-40
436398	Naphthalene	<0.013 ug/g	85	50-140	81	50-140	0	0-40
436398	Phenanthrene	<0.05 ug/g	86	50-140	80	50-140	0	0-40
436398	Pyrene	<0.05 ug/g	84	50-140	76	50-140	0	0-40
436689	Tetrachloroethane, 1,1,1,2-	<0.05 ug/g	98	60-130	94	50-140	0	0-50
436689	Trichloroethane, 1,1,1-	<0.05 ug/g	91	60-130	98	50-140	0	0-50
436689	Tetrachloroethane, 1,1,2,2-	<0.05 ug/g	99	60-130	97	50-140	0	0-30
436689	Trichloroethane, 1,1,2-	<0.05 ug/g	97	60-130	96	50-140	0	0-50
436689	Dichloroethane, 1,1-	<0.05 ug/g	92	60-130	95	50-140	0	0-50
436689	Dichloroethylene, 1,1-	<0.05 ug/g	81	60-130	109	50-140	0	0-50
436689	Dichlorobenzene, 1,2-	<0.05 ug/g	94	60-130	99	50-140	0	0-50
436689	Dichloroethane, 1,2-	<0.05 ug/g	92	60-130	105	50-140	0	0-50
436689	Dichloropropane, 1,2-	<0.05 ug/g	92	60-130	97	50-140	0	0-50
436689	Dichlorobenzene, 1,3-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
436689	Dichloropropene,1,3-							
436689	Dichlorobenzene, 1,4-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
436689	Acetone	<0.50 ug/g	94	60-130	105	50-140	0	0-50
436689	Benzene	<0.0068	94	60-130	81	50-140	0	0-50

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Quality Assurance Summary

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436689	Bromodichloromethane	<0.05 ug/g	92	60-130	84	50-140	0	0-50
436689	Bromoform	<0.05 ug/g	94	60-130	100	50-140	0	0-50
436689	Bromomethane	<0.05 ug/g	81	60-130	97	50-140	0	0-50
436689	Dichloroethylene, 1,2-cis-	<0.05 ug/g	90	60-130	103	50-140	0	0-50
436689	Dichloropropene,1,3-cis-	<0.05 ug/g	82	60-130	99	50-140	0	0-50
436689	Carbon Tetrachloride	<0.05 ug/g	93	60-130	84	50-140	0	0-50
436689	Chloroform	<0.05 ug/g	93	60-130	84	50-140	0	0-50
436689	Dibromochloromethane	<0.05 ug/g	93	60-130	93	50-140	0	0-50
436689	Dichlorodifluoromethane	<0.05 ug/g	92	60-130	95	50-140	0	0-50
436689	Methylene Chloride	<0.05 ug/g	97	60-130	100	50-140	0	0-50
436689	Ethylbenzene	<0.018 ug/g	90	60-130	100	50-140	0	0-50
436689	Ethylene dibromide	<0.05 ug/g	99	60-130	95	50-140	0	0-50
436689	PHC's F1	<10 ug/g	101	80-120	111	60-140	0	0-30
436689	PHC's F1-BTEX							
436689	Hexane (n)	<0.05 ug/g	104	60-130	97	50-140	0	0-50
436689	Xylene, m/p-	<0.05 ug/g	97	60-130	109	50-140	0	0-50
436689	Methyl Ethyl Ketone	<0.50 ug/g	106	60-130	110	50-140	0	0-50
436689	Methyl Isobutyl Ketone	<0.50 ug/g	86	60-130	91	50-140	0	0-50
436689	Methyl tert-Butyl Ether (MTBE)	<0.05 ug/g	94	60-130	96	50-140	0	0-50
436689	Chlorobenzene	<0.05 ug/g	93	60-130	94	50-140	0	0-50
436689	Xylene, o-	<0.05 ug/g	92	60-130	93	50-140	0	0-50
436689	Styrene	<0.05 ug/g	89	60-130	96	50-140	0	0-50
436689	Dichloroethylene, 1,2-trans-	<0.05 ug/g	93	60-130	100	50-140	0	0-50
436689	Dichloropropene,1,3-trans-	<0.05 ug/g	86	60-130	99	50-140	0	0-50
436689	Tetrachloroethylene	<0.05 ug/g	90	60-130	98	50-140	0	0-50
436689	Toluene	<0.08 ug/g	89	60-130	99	50-140	0	0-50
436689	Trichloroethylene	<0.01 ug/g	89	60-130	85	50-140	0	0-50
436689	Trichlorofluoromethane	<0.05 ug/g	90	60-130	100	50-140	0	0-50
436689	Vinyl Chloride	<0.02 ug/g	99	60-130	99	50-140	0	0-50
436689	Xylene Mixture							
436721	PHC's F2	<2 ug/g	96	80-120	87	60-140	0	0-30
436721	PHC's F3	<20 ug/g	96	80-120	87	60-140	0	0-30
436721	PHC's F4	<20 ug/g	96	80-120	87	60-140	0	0-30

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Certificate of Analysis

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Quality Assurance Summary

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436721	Moisture-Humidite	<0.1 %	100	80-120			22	
436722	Silver	<0.2 ug/g	124	70-130	109	70-130	0	0-20
436722	Arsenic	<1 ug/g	92	70-130	97	70-130	0	0-20
436722	Boron (total)	<5 ug/g	98	70-130	140	70-130	0	0-20
436722	Barium	<1 ug/g	97	70-130	272	70-130	10	0-20
436722	Beryllium	<1 ug/g	96	70-130	87	70-130	0	0-20
436722	Cadmium	<0.4 ug/g	98	70-130	103	70-130	0	0-20
436722	Cobalt	<1 ug/g	98	70-130	95	70-130	1	0-20
436722	Chromium Total	<1 ug/g	102	70-130	132	70-130	2	0-20
436722	Copper	<1 ug/g	102	70-130	98	70-130	6	0-20
436722	Mercury	<0.1 ug/g	90	70-130	92	70-130	0	0-20
436722	Molybdenum	<1 ug/g	96	70-130	92	70-130	0	0-20
436722	Nickel	<1 ug/g	101	70-130	93	70-130	3	0-20
436722	Lead	<1 ug/g	91	70-130	82	70-130	7	0-20
436722	Antimony	<1 ug/g	89	70-130	79	70-130	0	0-20
436722	Selenium	<0.5 ug/g	101	70-130	99	70-130	0	0-20
436722	Thallium	<1 ug/g	93	70-130	90	70-130	0	0-20
436722	Uranium	<0.5 ug/g	90	70-130	92	70-130	0	0-20
436722	Vanadium	<2 ug/g	101	70-130	164	70-130	1	0-20
436722	Zinc	<2 ug/g	100	70-130	106	70-130	1	0-20
436724	Aroclor 1242	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436724	Aroclor 1248	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436724	Aroclor 1254	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436724	Aroclor 1260	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436724	Polychlorinated Biphenyls	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436736	1+2-methylnaphthalene							
436777	pH - CaCl2	5.25	100	90-110			0	
436804	Cyanide (CN-)	<0.005 ug/g	87	75-125	93	70-130	0	0-20
436810	PHC's F4g	<100 ug/g	112	80-120		60-140		0-30
436848	PHC's F2-Napth							
436849	PHC's F3-PAH							
436864	Electrical Conductivity	<0.05	97	90-110			1	0-10
436868	Sodium Adsorption Ratio	<0.01					1	

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Certificate of Analysis

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992836
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220704

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436872	Chromium VI	<0.20 ug/g	106	70-130	83	70-130	0	0-35
436874	Boron (Hot Water Soluble)	<0.5 ug/g	103	70-130	104	75-125	0	0-30

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COC #: 220704

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436398	Methlynaphthalene, 1-	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Methlynaphthalene, 2-	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Acenaphthene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Acenaphthylene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Anthracene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benz[a]anthracene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benzo[a]pyrene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benzo[b]fluoranthene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benzo[ghi]perylene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benzo[k]fluoranthene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Chrysene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Dibenz[a h]anthracene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Fluoranthene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Fluorene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Indeno[1 2 3-cd]pyrene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Naphthalene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Phenanthrene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Pyrene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436689	Tetrachloroethane, 1,1,1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Trichloroethane, 1,1,1-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Tetrachloroethane, 1,1,2,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Trichloroethane, 1,1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethane, 1,1-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethylene, 1,1-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichlorobenzene, 1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethane, 1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloropropane, 1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichlorobenzene, 1,3-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloropropene,1,3-	GC-MS	2023-01-23	2023-01-23	PJ	V 8260B
436689	Dichlorobenzene, 1,4-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Acetone	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Benzene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B

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Date Submitted: 2023-01-20
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Project: 190261800 Teston Rd
COC #: 220704

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436689	Bromodichloromethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Bromoform	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Bromomethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethylene, 1,2-cis-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloropropene,1,3-cis-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Carbon Tetrachloride	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Chloroform	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dibromochloromethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichlorodifluoromethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Methylene Chloride	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Ethylbenzene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Ethylene dibromide	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	PHC's F1	GC/FID	2023-01-23	2023-01-23	PJ	CCME
436689	PHC's F1-BTEX	GC/FID	2023-01-23	2023-01-23	PJ	CCME
436689	Hexane (n)	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Xylene, m/p-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Methyl Ethyl Ketone	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Methyl Isobutyl Ketone	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Methyl tert-Butyl Ether (MTBE)	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Chlorobenzene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Xylene, o-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Styrene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethylene, 1,2-trans-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloropropene,1,3-trans-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Tetrachloroethylene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Toluene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Trichloroethylene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Trichlorofluoromethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Vinyl Chloride	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Xylene Mixture	GC-MS	2023-01-24	2023-01-24	PJ	V 8260B
436721	PHC's F2	GC/FID	2023-01-25	2023-01-25	SS	CCME
436721	PHC's F3	GC/FID	2023-01-25	2023-01-25	SS	CCME
436721	PHC's F4	GC/FID	2023-01-25	2023-01-25	SS	CCME

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K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992836
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220704

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436721	Moisture-Humidite	Oven	2023-01-25	2023-01-25	SS	ASTM 2216
436722	Silver	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Arsenic	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Boron (total)	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Barium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Beryllium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Cadmium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Cobalt	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Chromium Total	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Copper	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Mercury	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Molybdenum	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Nickel	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Lead	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Antimony	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Selenium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Thallium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Uranium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Vanadium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Zinc	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436724	Aroclor 1242	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436724	Aroclor 1248	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436724	Aroclor 1254	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436724	Aroclor 1260	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436724	Polychlorinated Biphenyls	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436736	1+2-methylnaphthalene	GC-MS	2023-01-25	2023-01-25	C_M	P 8270
436777	pH - CaCl2	pH Meter	2023-01-26	2023-01-26	IP	Ag Soil
436804	Cyanide (CN-)	Skalar CN Analyzer	2023-01-26	2023-01-26	Z_S	MOECC E3015
436810	PHC's F4g	Gravimetric	2023-01-26	2023-01-26	SS	CCME
436848	PHC's F2-Napth	GC/FID	2023-01-27	2023-01-27	SS	CCME
436849	PHC's F3-PAH	GC/FID	2023-01-27	2023-01-27	SS	CCME
436864	Electrical Conductivity	Electrical Conductivity Mete	2023-01-27	2023-01-27	Z_S	Cond-Soil
436868	Sodium Adsorption Ratio	iCAP OES	2023-01-27	2023-01-27	Z_S	Ag Soil

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Invoice to: Morrison Hershfield Limited

Report Number: 1992836
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220704

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436872	Chromium VI	FAA	2023-01-27	2023-01-27	Z_S	M US EPA 3060A
436874	Boron (Hot Water Soluble)	iCAP OES	2023-01-27	2023-01-27	Z_S	MOECC E3470

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CWS for Petroleum Hydrocarbons in Soil - Tier 1

Notes:

1. The laboratory method complies with CCME Tier 1 reference method for PHC in soil. It is validated for laboratory use.
2. Where the F1 fraction (C6 to C10) and BTEX are both measured, F1-BTEX is reported.
3. Where the F2 fraction (C10 to C16) and naphthalene are both measured, F2-naphthalene is reported.
4. Where the F3 fraction (C16 to C34) and PAHs* are both measured, F3-PAH is reported.
5. F4G is analyzed if the chromatogram does not descend to baseline before C50. Where F4 (C34 to C50) and F4G are both reported, the higher result is compared to the standard.
6. Unless otherwise stated in the sample comments, the following criteria have been met where applicable:

   - nC6 and nC10 response factors within 30% of response factor for toluene;
   - nC10, nC16, and nC34 response factors within 10% of each other;
   - C50 response factors within 70% of nC10 + nC16 + nC34 average; and,
   - Linearity is within 15%.

7. Unless otherwise stated in the sample comments, sampling requirements and analytical holding times have been met.
8. Gravimetric heavy hydrocarbons (F4G) cannot be added to the C6 and C50 hydrocarbons.
9. *PAHs = phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene.

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Certificate of Analysis

eurofins | Environment Testing

Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
Invoice to: Morrision Hershfield
PO#:

Report Number:	1991480
Date Submitted:	2022-12-13
Date Reported:	2022-12-21
Project:	190261800
COC #:	220499
Temperature (C):	1
Custody Seal:	

Dear Sarth Sheth:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

Emma-Dawn
Ferguson
2022.12.21 12:18:30
-05'00'

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated
.
Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

eurofins | Environment Testing

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Thornhill, Ontario
L3T 7W4
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Report Number: 1991480
Date Submitted: 2022-12-13
Date Reported: 2022-12-21
Project: 190261800
COC #: 220499

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria

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L3T 7W4
Attention: Mr. Sarth Sheth
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Report Number: 1991480
Date Submitted: 2022-12-13
Date Reported: 2022-12-21
Project: 190261800
COC #: 220499

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1667981 Soil153 2022-12-12 11:00 MH BH2 - SS2	1667983 Soil153 2022-12-12 14:30 MH BH3 - SS2
PHC's F1	435373	10	ug/g	STD 55	<10	<10
PHC's F1-BTEX	435376	10	ug/g		<10	<10
PHC's F2	435406	2	ug/g	STD 230	<2	<2
PHC's F2-Napth	435409	2	ug/g		<2	<2
PHC's F3	435406	20	ug/g	STD 1700	<20	<20
PHC's F3-PAH	435410	20	ug/g		<20	<20
PHC's F4	435406	20	ug/g	STD 3300	<20	<20

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.
					1667985 Soil153 2022-12-12 18:00 MH BH4 - SS2
PHC's F1	435373	10	ug/g	STD 55	<10
PHC's F1-BTEX	435376	10	ug/g		<10
PHC's F2	435406	2	ug/g	STD 230	<2
PHC's F2-Napth	435409	2	ug/g		<2
PHC's F3	435406	20	ug/g	STD 1700	<20
PHC's F3-PAH	435410	20	ug/g		<20
PHC's F4	435406	20	ug/g	STD 3300	<20

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Date Submitted: 2022-12-13
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COC #: 220499

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667980 Soil153 2022-12-12 11:00 MH BH2 - SS1	1667982 Soil153 2022-12-12 14:30 MH BH3 - SS1	1667984 Soil153 2022-12-12 18:00 MH BH4 - SS1
Antimony	435382	1	ug/g	STD 40	<1	<1	<1
Arsenic	435382	1	ug/g	STD 18	4	2	2
Barium	435382	1	ug/g	STD 670	12	40	72
Beryllium	435382	1	ug/g	STD 8	<1	<1	<1
Boron (Hot Water Soluble)	435364	0.5	ug/g	STD 2	<0.5	<0.5	<0.5
Boron (total)	435382	5	ug/g	STD 120	9	<5	5
Cadmium	435382	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4
Chromium Total	435382	1	ug/g	STD 160	9	14	25
Chromium VI	435358	0.20	ug/g	STD 8	<0.20	<0.20	<0.20
Cobalt	435382	1	ug/g	STD 80	2	4	7
Copper	435382	1	ug/g	STD 230	8	14	15
Lead	435382	1	ug/g	STD 120	12	16	11
Mercury	435382	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1
Molybdenum	435382	1	ug/g	STD 40	<1	<1	<1
Nickel	435382	1	ug/g	STD 270	6	10	17
Selenium	435382	0.5	ug/g	STD 5.5	<0.5	<0.5	<0.5
Silver	435382	0.2	ug/g	STD 40	<0.2	<0.2	<0.2
Thallium	435382	1	ug/g	STD 3.3	<1	<1	<1
Uranium	435382	0.5	ug/g	STD 33	<0.5	<0.5	<0.5
Vanadium	435382	2	ug/g	STD 86	9	21	31
Zinc	435382	2	ug/g	STD 340	52	34	42

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Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1991480
Date Submitted: 2022-12-13
Date Reported: 2022-12-21
Project: 190261800
COC #: 220499

Guideline = O.Reg 153-T3-Ind/Com-Coarse

OCP/PCB

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 11:00 Sample I.D. MH BH2 - SS2	Lab I.D. 1667983 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 14:30 Sample I.D. MH BH3 - SS2
Aldrin	435416	0.002	ug/g	STD 0.088	<0.002	<0.002
Chlordane	435416	0.006	ug/g	STD 0.05	<0.006	<0.006
Chlordane, alpha-	435416	0.002	ug/g		<0.002	<0.002
Chlordane, gamma-	435416	0.002	ug/g		<0.002	<0.002
DDD	435416	0.002	ug/g	STD 4.6	<0.002	<0.002
DDE	435416	0.002	ug/g	STD 0.52	<0.002	<0.002
DDT	435416	0.002	ug/g	STD 1.4	<0.002	<0.002
Dieldrin	435416	0.002	ug/g	STD 0.088	<0.002	<0.002
Endosulfan	435416	0.004	ug/g	STD 0.3	<0.004	<0.004
Endosulfan I	435416	0.002	ug/g		<0.002	<0.002
Endosulfan II	435416	0.002	ug/g		<0.002	<0.002
Endrin	435416	0.002	ug/g	STD 0.04	<0.002	<0.002
Heptachlor	435416	0.002	ug/g	STD 0.19	<0.002	<0.002
Heptachlor Epoxide	435416	0.002	ug/g	STD 0.05	<0.002	<0.002
Hexachlorocyclohexane Gamma-	435416	0.002	ug/g	STD 0.056	<0.002	<0.002
Methoxychlor	435416	0.002	ug/g	STD 1.6	<0.002	<0.002

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OCP/PCB

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS2
Aldrin	435416	0.002	ug/g	STD 0.088	<0.002
Chlordane	435416	0.006	ug/g	STD 0.05	<0.006
Chlordane, alpha-	435416	0.002	ug/g		<0.002
Chlordane, gamma-	435416	0.002	ug/g		<0.002
DDD	435416	0.002	ug/g	STD 4.6	<0.002
DDE	435416	0.002	ug/g	STD 0.52	<0.002
DDT	435416	0.002	ug/g	STD 1.4	<0.002
Dieldrin	435416	0.002	ug/g	STD 0.088	<0.002
Endosulfan	435416	0.004	ug/g	STD 0.3	<0.004
Endosulfan I	435416	0.002	ug/g		<0.002
Endosulfan II	435416	0.002	ug/g		<0.002
Endrin	435416	0.002	ug/g	STD 0.04	<0.002
Heptachlor	435416	0.002	ug/g	STD 0.19	<0.002
Heptachlor Epoxide	435416	0.002	ug/g	STD 0.05	<0.002
Hexachlorocyclohexane Gamma-	435416	0.002	ug/g	STD 0.056	<0.002
Methoxychlor	435416	0.002	ug/g	STD 1.6	<0.002

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PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 11:00 Sample I.D. MH BH2 - SS2	Lab I.D. 1667983 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 14:30 Sample I.D. MH BH3 - SS2
1+2-methylnaphthalene	435388	0.05	ug/g		<0.05	<0.05
Acenaphthene	435387	0.05	ug/g	STD 96	<0.05	<0.05
Acenaphthylene	435387	0.05	ug/g	STD 0.15	<0.05	<0.05
Anthracene	435387	0.05	ug/g	STD 0.67	<0.05	<0.05
Benz[a]anthracene	435387	0.05	ug/g	STD 0.96	<0.05	<0.05
Benzo[a]pyrene	435387	0.05	ug/g	STD 0.3	<0.05	<0.05
Benzo[b]fluoranthene	435387	0.05	ug/g	STD 0.96	<0.05	<0.05
Benzo[ghi]perylene	435387	0.05	ug/g	STD 9.6	<0.05	<0.05
Benzo[k]fluoranthene	435387	0.05	ug/g	STD 0.96	<0.05	<0.05
Biphenyl 1,1'-	435387	0.05	ug/g	STD 52	<0.05	<0.05
Chrysene	435387	0.05	ug/g	STD 9.6	<0.05	<0.05
Dibenz[a h]anthracene	435387	0.05	ug/g	STD 0.1	<0.05	<0.05
Fluoranthene	435387	0.05	ug/g	STD 9.6	<0.05	<0.05
Fluorene	435387	0.05	ug/g	STD 62	<0.05	<0.05
Indeno[1 2 3-cd]pyrene	435387	0.05	ug/g	STD 0.76	<0.05	<0.05
Methlynaphthalene, 1-	435387	0.05	ug/g	STD 76	<0.05	<0.05
Methlynaphthalene, 2-	435387	0.05	ug/g	STD 76	<0.05	<0.05
Naphthalene	435387	0.013	ug/g	STD 9.6	<0.013	<0.013
Phenanthrene	435387	0.05	ug/g	STD 12	<0.05	<0.05
Pyrene	435387	0.05	ug/g	STD 96	<0.05	<0.05

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Client: Morrison Hershfield
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L3T 7W4
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Invoice to: Morrision Hershfield

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Project: 190261800
COC #: 220499

Guideline = O.Reg 153-T3-Ind/Com-Coarse

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS2
1+2-methylnaphthalene	435388	0.05	ug/g		<0.05
Acenaphthene	435387	0.05	ug/g	STD 96	<0.05
Acenaphthylene	435387	0.05	ug/g	STD 0.15	<0.05
Anthracene	435387	0.05	ug/g	STD 0.67	<0.05
Benz[a]anthracene	435387	0.05	ug/g	STD 0.96	<0.05
Benzo[a]pyrene	435387	0.05	ug/g	STD 0.3	<0.05
Benzo[b]fluoranthene	435387	0.05	ug/g	STD 0.96	<0.05
Benzo[ghi]perylene	435387	0.05	ug/g	STD 9.6	<0.05
Benzo[k]fluoranthene	435387	0.05	ug/g	STD 0.96	<0.05
Biphenyl 1,1'-	435387	0.05	ug/g	STD 52	<0.05
Chrysene	435387	0.05	ug/g	STD 9.6	<0.05
Dibenz[a h]anthracene	435387	0.05	ug/g	STD 0.1	<0.05
Fluoranthene	435387	0.05	ug/g	STD 9.6	<0.05
Fluorene	435387	0.05	ug/g	STD 62	<0.05
Indeno[1 2 3-cd]pyrene	435387	0.05	ug/g	STD 0.76	<0.05
Methlynaphthalene, 1-	435387	0.05	ug/g	STD 76	<0.05
Methlynaphthalene, 2-	435387	0.05	ug/g	STD 76	<0.05
Naphthalene	435387	0.013	ug/g	STD 9.6	<0.013
Phenanthrene	435387	0.05	ug/g	STD 12	<0.05
Pyrene	435387	0.05	ug/g	STD 96	<0.05

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 11:00 Sample I.D. MH BH2 - SS2	Lab I.D. 1667983 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 14:30 Sample I.D. MH BH3 - SS2
Acetone	435373	0.50	ug/g	STD 16	<0.50	<0.50
Benzene	435373	0.0068	ug/g	STD 0.32	<0.0068	<0.0068
Bromodichloromethane	435373	0.05	ug/g	STD 18	<0.05	<0.05
Bromoform	435373	0.05	ug/g	STD 0.61	<0.05	<0.05
Bromomethane	435373	0.05	ug/g	STD 0.05	<0.05	<0.05
Carbon Tetrachloride	435373	0.05	ug/g	STD 0.21	<0.05	<0.05
Chlorobenzene	435373	0.05	ug/g	STD 2.4	<0.05	<0.05
Chloroform	435373	0.05	ug/g	STD 0.47	<0.05	<0.05
Dibromochloromethane	435373	0.05	ug/g	STD 13	<0.05	<0.05
Dichlorobenzene, 1,2-	435373	0.05	ug/g	STD 6.8	<0.05	<0.05
Dichlorobenzene, 1,3-	435373	0.05	ug/g	STD 9.6	<0.05	<0.05
Dichlorobenzene, 1,4-	435373	0.05	ug/g	STD 0.2	<0.05	<0.05
Dichlorodifluoromethane	435373	0.05	ug/g	STD 16	<0.05	<0.05
Dichloroethane, 1,1-	435373	0.05	ug/g	STD 17	<0.05	<0.05
Dichloroethane, 1,2-	435373	0.05	ug/g	STD 0.05	<0.05	<0.05
Dichloroethylene, 1,1-	435373	0.05	ug/g	STD 0.064	<0.05	<0.05
Dichloroethylene, 1,2-cis-	435373	0.05	ug/g	STD 55	<0.05	<0.05
Dichloroethylene, 1,2-trans-	435373	0.05	ug/g	STD 1.3	<0.05	<0.05
Dichloropropane, 1,2-	435373	0.05	ug/g	STD 0.16	<0.05	<0.05
Dichloropropene,1,3-	435373	0.05	ug/g	STD 0.18	<0.05	<0.05
Dichloropropene,1,3-cis-	435373	0.05	ug/g		<0.05	<0.05
Dichloropropene,1,3-trans-	435373	0.05	ug/g		<0.05	<0.05
Ethylbenzene	435373	0.018	ug/g	STD 9.5	<0.018	<0.018

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Soil153 2022-12-12 11:00 MH BH2 - SS2	Lab I.D. 1667983 Soil153 2022-12-12 14:30 MH BH3 - SS2
Ethylene dibromide	435373	0.05	ug/g	STD 0.05	<0.05	<0.05
Hexane (n)	435373	0.05	ug/g	STD 46	<0.05	<0.05
Methyl Ethyl Ketone	435373	0.50	ug/g	STD 70	<0.50	<0.50
Methyl Isobutyl Ketone	435373	0.50	ug/g	STD 31	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)	435373	0.05	ug/g	STD 11	<0.05	<0.05
Methylene Chloride	435373	0.05	ug/g	STD 1.6	<0.05	<0.05
Styrene	435373	0.05	ug/g	STD 34	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	435373	0.05	ug/g	STD 0.087	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	435373	0.05	ug/g	STD 0.05	<0.05	<0.05
Tetrachloroethylene	435373	0.05	ug/g	STD 4.5	<0.05	<0.05
Toluene	435373	0.08	ug/g	STD 68	<0.08	<0.08
Trichlorobenzene, 1,2,4-	435373	0.05	ug/g	STD 3.2	<0.05	<0.05
Trichloroethane, 1,1,1-	435373	0.05	ug/g	STD 6.1	<0.05	<0.05
Trichloroethane, 1,1,2-	435373	0.05	ug/g	STD 0.05	<0.05	<0.05
Trichloroethylene	435373	0.01	ug/g	STD 0.91	<0.01	<0.01
Trichlorofluoromethane	435373	0.05	ug/g	STD 4	<0.05	<0.05
Vinyl Chloride	435373	0.02	ug/g	STD 0.032	<0.02	<0.02
Xylene Mixture	435375	0.05	ug/g	STD 26	<0.05	<0.05
Xylene, m/p-	435373	0.05	ug/g		<0.05	<0.05
Xylene, o-	435373	0.05	ug/g		<0.05	<0.05

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS2
Acetone	435373	0.50	ug/g	STD 16	<0.50
Benzene	435373	0.0068	ug/g	STD 0.32	<0.0068
Bromodichloromethane	435373	0.05	ug/g	STD 18	<0.05
Bromoform	435373	0.05	ug/g	STD 0.61	<0.05
Bromomethane	435373	0.05	ug/g	STD 0.05	<0.05
Carbon Tetrachloride	435373	0.05	ug/g	STD 0.21	<0.05
Chlorobenzene	435373	0.05	ug/g	STD 2.4	<0.05
Chloroform	435373	0.05	ug/g	STD 0.47	<0.05
Dibromochloromethane	435373	0.05	ug/g	STD 13	<0.05
Dichlorobenzene, 1,2-	435373	0.05	ug/g	STD 6.8	<0.05
Dichlorobenzene, 1,3-	435373	0.05	ug/g	STD 9.6	<0.05
Dichlorobenzene, 1,4-	435373	0.05	ug/g	STD 0.2	<0.05
Dichlorodifluoromethane	435373	0.05	ug/g	STD 16	<0.05
Dichloroethane, 1,1-	435373	0.05	ug/g	STD 17	<0.05
Dichloroethane, 1,2-	435373	0.05	ug/g	STD 0.05	<0.05
Dichloroethylene, 1,1-	435373	0.05	ug/g	STD 0.064	<0.05
Dichloroethylene, 1,2-cis-	435373	0.05	ug/g	STD 55	<0.05
Dichloroethylene, 1,2-trans-	435373	0.05	ug/g	STD 1.3	<0.05
Dichloropropane, 1,2-	435373	0.05	ug/g	STD 0.16	<0.05
Dichloropropene,1,3-	435373	0.05	ug/g	STD 0.18	<0.05
Dichloropropene,1,3-cis-	435373	0.05	ug/g		<0.05
Dichloropropene,1,3-trans-	435373	0.05	ug/g		<0.05
Ethylbenzene	435373	0.018	ug/g	STD 9.5	<0.018

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS2
Ethylene dibromide	435373	0.05	ug/g	STD 0.05	<0.05
Hexane (n)	435373	0.05	ug/g	STD 46	<0.05
Methyl Ethyl Ketone	435373	0.50	ug/g	STD 70	<0.50
Methyl Isobutyl Ketone	435373	0.50	ug/g	STD 31	<0.50
Methyl tert-Butyl Ether (MTBE)	435373	0.05	ug/g	STD 11	<0.05
Methylene Chloride	435373	0.05	ug/g	STD 1.6	<0.05
Styrene	435373	0.05	ug/g	STD 34	<0.05
Tetrachloroethane, 1,1,1,2-	435373	0.05	ug/g	STD 0.087	<0.05
Tetrachloroethane, 1,1,2,2-	435373	0.05	ug/g	STD 0.05	<0.05
Tetrachloroethylene	435373	0.05	ug/g	STD 4.5	<0.05
Toluene	435373	0.08	ug/g	STD 68	<0.08
Trichlorobenzene, 1,2,4-	435373	0.05	ug/g	STD 3.2	<0.05
Trichloroethane, 1,1,1-	435373	0.05	ug/g	STD 6.1	<0.05
Trichloroethane, 1,1,2-	435373	0.05	ug/g	STD 0.05	<0.05
Trichloroethylene	435373	0.01	ug/g	STD 0.91	<0.01
Trichlorofluoromethane	435373	0.05	ug/g	STD 4	<0.05
Vinyl Chloride	435373	0.02	ug/g	STD 0.032	<0.02
Xylene Mixture	435375	0.05	ug/g	STD 26	<0.05
Xylene, m/p-	435373	0.05	ug/g		<0.05
Xylene, o-	435373	0.05	ug/g		<0.05

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Guideline = O.Reg 153-T3-Ind/Com-Coarse

Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667980 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 11:00 Sample I.D. MH BH2 - SS1	Lab I.D. 1667982 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 14:30 Sample I.D. MH BH3 - SS1	Lab I.D. 1667984 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS1
Cyanide (CN-)	435453	0.005	ug/g	STD 0.051	<0.005	<0.005	<0.005
Electrical Conductivity	435432	0.05	mS/cm	STD 1.4	0.64	0.17	0.15
pH - CaCl2	435343	2.00			8.17	8.12	8.01
Sodium Adsorption Ratio	435449	0.01		STD 12	8.88	0.61	0.14

Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 11:00 Sample I.D. MH BH2 - SS2	Lab I.D. 1667983 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 14:30 Sample I.D. MH BH3 - SS2
Moisture-Humidite	435406	0.1	%		11.9	2.0

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PO#:
Invoice to: Morrision Hershfield

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Project: 190261800
COC #: 220499

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS2
Moisture-Humidite	435406	0.1	%		2.6

PCBs

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 11:00 Sample I.D. MH BH2 - SS2	Lab I.D. 1667983 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 14:30 Sample I.D. MH BH3 - SS2
Aroclor 1242	435411	0.02	ug/g		<0.02	<0.02
Aroclor 1248	435411	0.02	ug/g		<0.02	<0.02
Aroclor 1254	435411	0.02	ug/g		<0.02	<0.02
Aroclor 1260	435411	0.02	ug/g		<0.02	<0.02
Polychlorinated Biphenyls	435411	0.02	ug/g	STD 1.1	<0.02	<0.02

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PCBs

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS2
Aroclor 1242	435411	0.02	ug/g		<0.02
Aroclor 1248	435411	0.02	ug/g		<0.02
Aroclor 1254	435411	0.02	ug/g		<0.02
Aroclor 1260	435411	0.02	ug/g		<0.02
Polychlorinated Biphenyls	435411	0.02	ug/g	STD 1.1	<0.02

Semi-Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 11:00 Sample I.D. MH BH2 - SS2	Lab I.D. 1667983 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 14:30 Sample I.D. MH BH3 - SS2
Bis(2-chloroethyl)ether	434199	0.3	ug/g	STD 0.5	<0.3	<0.3
Bis(2-chloroisopropyl)ether	434199	0.2	ug/g	STD 11	<0.2	<0.2
Bis(2-ethylhexyl)phthalate	434199	0.4	ug/g	STD 28	<0.4	<0.4
Chloroaniline p-	434199	0.2	ug/g	STD 0.5	<0.2	<0.2
Chlorophenol, 2-	434194	0.1	ug/g	STD 3.1	<0.1	<0.1
Dichlorobenzidine, 3,3'-	434199	0.6	ug/g	STD 1	<0.6	<0.6
Dichlorophenol, 2,4-	434194	0.1	ug/g	STD 3.4	<0.1	<0.1
Diethyl Phthalate	434199	0.2	ug/g	STD 0.5	<0.2	<0.2
Dimethylphenol, 2,4-	434194	0.2	ug/g	STD 390	<0.2	<0.2
Dimethylphthalate	434199	0.2	ug/g	STD 0.5	<0.2	<0.2
Dinitrophenol, 2,4-	434194	0.2	ug/g	STD 59	<0.2	<0.2
Dinitrotoluene, 2,4-	434199	0.2	ug/g		<0.2	<0.2
Dinitrotoluene, 2,4&2,6-	208523	0.5	ug/g	STD 1.2	<0.5	<0.5

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Semi-Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Soil153 2022-12-12 11:00 MH BH2 - SS2	Lab I.D. 1667983 Soil153 2022-12-12 14:30 MH BH3 - SS2
Dinitrotoluene, 2,6-	434199	0.02	ug/g		<0.02	<0.02
Hexachlorobenzene	434199	0.01	ug/g	STD 0.66	<0.01	<0.01
Hexachlorobutadiene	434199	0.01	ug/g	STD 0.031	<0.01	<0.01
Hexachloroethane	434199	0.01	ug/g	STD 0.21	<0.01	<0.01
Pentachlorophenol	434194	0.1	ug/g	STD 2.9	<0.1	<0.1
Phenol	434194	0.1	ug/g	STD 9.4	<0.1	<0.1
Trichlorophenol, 2,4,5-	434194	0.1	ug/g	STD 10	<0.1	<0.1
Trichlorophenol, 2,4,6-	434194	0.1	ug/g	STD 3.8	<0.1	<0.1

Semi-Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Soil153 2022-12-12 18:00 MH BH4 - SS2
Bis(2-chloroethyl)ether	434199	0.3	ug/g	STD 0.5	<0.3
Bis(2-chloroisopropyl)ether	434199	0.2	ug/g	STD 11	<0.2
Bis(2-ethylhexyl)phthalate	434199	0.4	ug/g	STD 28	<0.4
Chloroaniline p-	434199	0.2	ug/g	STD 0.5	<0.2
Chlorophenol, 2-	434194	0.1	ug/g	STD 3.1	<0.1
Dichlorobenzidine, 3,3'-	434199	0.6	ug/g	STD 1	<0.6
Dichlorophenol, 2,4-	434194	0.1	ug/g	STD 3.4	<0.1
Diethyl Phthalate	434199	0.2	ug/g	STD 0.5	<0.2
Dimethylphenol, 2,4-	434194	0.2	ug/g	STD 390	<0.2
Dimethylphthalate	434199	0.2	ug/g	STD 0.5	<0.2
Dinitrophenol, 2,4-	434194	0.2	ug/g	STD 59	<0.2

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Semi-Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS2
Dinitrotoluene, 2,4-	434199	0.2	ug/g		<0.2
Dinitrotoluene, 2,4&2,6-	208523	0.5	ug/g	STD 1.2	<0.5
Dinitrotoluene, 2,6-	434199	0.02	ug/g		<0.02
Hexachlorobenzene	434199	0.01	ug/g	STD 0.66	<0.01
Hexachlorobutadiene	434199	0.01	ug/g	STD 0.031	<0.01
Hexachloroethane	434199	0.01	ug/g	STD 0.21	<0.01
Pentachlorophenol	434194	0.1	ug/g	STD 2.9	<0.1
Phenol	434194	0.1	ug/g	STD 9.4	<0.1
Trichlorophenol, 2,4,5-	434194	0.1	ug/g	STD 10	<0.1
Trichlorophenol, 2,4,6-	434194	0.1	ug/g	STD 3.8	<0.1

PCB Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667981 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 11:00 Sample I.D. MH BH2 - SS2	1667983 Soil153 2022-12-12 14:30 MH BH3 - SS2
Decachlorobiphenyl	435417	0	%		79	85

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PCB Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.
					1667985 / Soil153 / 2022-12-12 18:00 / MH BH4 - SS2
Decachlorobiphenyl	435417	0	%		73

PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1667981 / Soil153 / 2022-12-12 11:00 / MH BH2 - SS2	1667983 / Soil153 / 2022-12-12 14:30 / MH BH3 - SS2
Alpha-androstrane	435406	0	%		96	107

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PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D. 1667985 / Soil153 / 2022-12-12 18:00 / MH BH4 - SS2
Alpha-androstrane	435406	0	%		95

VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D. 1667981 / Soil153 / 2022-12-12 11:00 / MH BH2 - SS2	1667983 / Soil153 / 2022-12-12 14:30 / MH BH3 - SS2
1,2-dichloroethane-d4	435373	0	%		100	105
4-bromofluorobenzene	435373	0	%		87	87
Toluene-d8	435373	0	%		95	95

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VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1667985 Sample Matrix Soil153 Sample Type Sample Date 2022-12-12 Sampling Time 18:00 Sample I.D. MH BH4 - SS2
1,2-dichloroethane-d4	435373	0	%		107
4-bromofluorobenzene	435373	0	%		84
Toluene-d8	435373	0	%		96

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
208523	Dinitrotoluene, 2,4&2,6-							
434194	Trichlorophenol, 2,4,5-	<0.1 ug/g	53	20-150	53	50-140	0	0-40
434194	Trichlorophenol, 2,4,6-	<0.1 ug/g	51	20-150	54	50-140	0	0-40
434194	Dichlorophenol, 2,4-	<0.1 ug/g	58	20-150	59	50-140	0	0-40
434194	Dimethylphenol, 2,4-	0.4 ug/g	35	20-150	53	30-130	0	0-40
434194	Dinitrophenol, 2,4-	<0.2 ug/g	35	10-150	54	30-130	0	0-40
434194	Chlorophenol, 2-	<0.1 ug/g	77	20-150	71	50-140	0	0-40
434194	Pentachlorophenol	<0.1 ug/g	26	20-150	55	50-140	0	0-40
434194	Phenol	<0.1 ug/g	86	10-150	73	30-130	0	0-40
434199	Dinitrotoluene, 2,4-	<0.2 ug/g	104	20-150		50-140	0	0-40
434199	Dinitrotoluene, 2,6-	<0.02 ug/g	113	20-150		50-140	0	0-40
434199	Dichlorobenzidine, 3,3'-	<0.6 ug/g	102	20-150		30-130	0	0-40
434199	Bis(2-chloroisopropyl)ether	<0.2 ug/g	106	20-150		50-140	0	0-40
434199	Bis(2-chloroethyl)ether	<0.3 ug/g	96	20-150		50-140	0	0-40
434199	Bis(2-ethylhexyl)phthalate	<0.4 ug/g	106	20-150		50-140	0	0-40
434199	Diethyl Phthalate	<0.2 ug/g	128	20-150		50-140	0	0-40
434199	Dimethylphthalate	<0.2 ug/g	118	20-150		50-140	0	0-40
434199	Hexachlorobenzene	<0.01 ug/g	108	20-150			0	
434199	Hexachlorobutadiene	<0.01 ug/g	134	20-150			0	
434199	Hexachloroethane	<0.01 ug/g	108	20-150			0	
434199	Chloroaniline p-	<0.2 ug/g	56	20-150		30-130	0	0-40
435343	pH - CaCl2	6.28	102	90-110			0	
435358	Chromium VI	<0.20 ug/g	99	70-130	94	70-130	0	0-35
435364	Boron (Hot Water Soluble)	<0.5 ug/g	99	70-130	92	75-125	0	0-30
435373	Tetrachloroethane, 1,1,1,2-	<0.05 ug/g	98	60-130	94	50-140	0	0-50
435373	Trichloroethane, 1,1,1-	<0.05 ug/g	91	60-130	98	50-140	0	0-50
435373	Tetrachloroethane, 1,1,2,2-	<0.05 ug/g	99	60-130	97	50-140	0	0-30
435373	Trichloroethane, 1,1,2-	<0.05 ug/g	97	60-130	96	50-140	0	0-50
435373	Dichloroethane, 1,1-	<0.05 ug/g	92	60-130	95	50-140	0	0-50
435373	Dichloroethylene, 1,1-	<0.05 ug/g	81	60-130	109	50-140	0	0-50
435373	Trichlorobenzene, 1,2,4-	<0.05 ug/g	97		93		0	
435373	Dichlorobenzene, 1,2-	<0.05 ug/g	94	60-130	99	50-140	0	0-50

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Quality Assurance Summary

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435373	Dichloroethane, 1,2-	<0.05 ug/g	92	60-130	105	50-140	0	0-50
435373	Dichloropropane, 1,2-	<0.05 ug/g	92	60-130	97	50-140	0	0-50
435373	Dichlorobenzene, 1,3-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
435373	Dichloropropene,1,3-	<0.05 ug/g						
435373	Dichlorobenzene, 1,4-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
435373	Acetone	<0.50 ug/g	94	60-130	105	50-140	0	0-50
435373	Benzene	<0.0068	94	60-130	81	50-140	0	0-50
435373	Bromodichloromethane	<0.05 ug/g	92	60-130	84	50-140	0	0-50
435373	Bromoform	<0.05 ug/g	94	60-130	100	50-140	0	0-50
435373	Bromomethane	<0.05 ug/g	81	60-130	97	50-140	0	0-50
435373	Dichloroethylene, 1,2-cis-	<0.05 ug/g	90	60-130	103	50-140	0	0-50
435373	Dichloropropene,1,3-cis-	<0.05 ug/g	82	60-130	99	50-140	0	0-50
435373	Carbon Tetrachloride	<0.05 ug/g	93	60-130	84	50-140	0	0-50
435373	Chloroform	<0.05 ug/g	93	60-130	84	50-140	0	0-50
435373	Dibromochloromethane	<0.05 ug/g	93	60-130	93	50-140	0	0-50
435373	Dichlorodifluoromethane	<0.05 ug/g	92	60-130	95	50-140	0	0-50
435373	Methylene Chloride	<0.05 ug/g	97	60-130	100	50-140	0	0-50
435373	Ethylbenzene	<0.018 ug/g	90	60-130	100	50-140	0	0-50
435373	Ethylene dibromide	<0.05 ug/g	99	60-130	95	50-140	0	0-50
435373	PHC's F1	<10 ug/g	106	80-120	101	60-140	0	0-30
435373	Hexane (n)	<0.05 ug/g	104	60-130	97	50-140	0	0-50
435373	Xylene, m/p-	<0.05 ug/g	97	60-130	109	50-140	0	0-50
435373	Methyl Ethyl Ketone	<0.50 ug/g	106	60-130	110	50-140	0	0-50
435373	Methyl Isobutyl Ketone	<0.50 ug/g	86	60-130	91	50-140	0	0-50
435373	Methyl tert-Butyl Ether (MTBE)	<0.05 ug/g	94	60-130	96	50-140	0	0-50
435373	Chlorobenzene	<0.05 ug/g	93	60-130	94	50-140	0	0-50
435373	Xylene, o-	<0.05 ug/g	92	60-130	93	50-140	0	0-50
435373	Styrene	<0.05 ug/g	89	60-130	96	50-140	0	0-50
435373	Dichloroethylene, 1,2-trans-	<0.05 ug/g	93	60-130	100	50-140	0	0-50
435373	Dichloropropene,1,3-trans-	<0.05 ug/g	86	60-130	99	50-140	0	0-50
435373	Tetrachloroethylene	<0.05 ug/g	90	60-130	98	50-140	0	0-50
435373	Toluene	<0.08 ug/g	89	60-130	99	50-140	0	0-50
435373	Trichloroethylene	<0.01 ug/g	89	60-130	85	50-140	0	0-50

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
435373	Trichlorofluoromethane	<0.05 ug/g	90	60-130	100	50-140	0	0-50
435373	Vinyl Chloride	<0.02 ug/g	99	60-130	99	50-140	0	0-50
435375	Xylene Mixture							
435376	PHC's F1-BTEX							
435382	Silver	<0.2 ug/g	103	70-130	101	70-130	0	0-20
435382	Arsenic	<1 ug/g	91	70-130	100	70-130	0	0-20
435382	Boron (total)	<5 ug/g	97	70-130	114	70-130	0	0-20
435382	Barium	<1 ug/g	94	70-130	117	70-130	5	0-20
435382	Beryllium	<1 ug/g	94	70-130	96	70-130	0	0-20
435382	Cadmium	<0.4 ug/g	92	70-130	97	70-130	0	0-20
435382	Cobalt	<1 ug/g	94	70-130	97	70-130	0	0-20
435382	Chromium Total	<1 ug/g	101	70-130	116	70-130	20	0-20
435382	Copper	<1 ug/g	99	70-130	95	70-130	1	0-20
435382	Mercury	<0.1 ug/g	100	70-130	101	70-130	0	0-20
435382	Molybdenum	<1 ug/g	91	70-130	99	70-130	0	0-20
435382	Nickel	<1 ug/g	96	70-130	94	70-130	13	0-20
435382	Lead	<1 ug/g	88	70-130	87	70-130	1	0-20
435382	Antimony	<1 ug/g	75	70-130	100	70-130	0	0-20
435382	Selenium	<0.5 ug/g	98	70-130	98	70-130	0	0-20
435382	Thallium	<1 ug/g	89	70-130	89	70-130	0	0-20
435382	Uranium	<0.5 ug/g	83	70-130	88	70-130	0	0-20
435382	Vanadium	<2 ug/g	97	70-130	119	70-130	0	0-20
435382	Zinc	<2 ug/g	100	70-130	90	70-130	1	0-20
435387	Methlynaphthalene, 1-	<0.05 ug/g	83	50-140	81	50-140	0	0-40
435387	Methlynaphthalene, 2-	<0.05 ug/g	67	50-140	69	50-140	0	0-40
435387	Acenaphthene	<0.05 ug/g	72	50-140	73	50-140	0	0-40
435387	Acenaphthylene	0.05 ug/g	69	50-140	70	50-140	0	0-40
435387	Anthracene	<0.05 ug/g	84	50-140	85	50-140	0	0-40
435387	Benz[a]anthracene	<0.05 ug/g	74	50-140	77	50-140	0	0-40
435387	Benzo[a]pyrene	<0.05 ug/g	69	50-140	78	50-140	0	0-40
435387	Benzo[b]fluoranthene	<0.05 ug/g	72	50-140	67	50-140	0	0-40
435387	Benzo[ghi]perylene	<0.05 ug/g	52	50-140	51	50-140	0	0-40
435387	Benzo[k]fluoranthene	<0.05 ug/g	93	50-140	74		0	0-40

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Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1991480
Date Submitted: 2022-12-13
Date Reported: 2022-12-21
Project: 190261800
COC #: 220499

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
435387	Biphenyl 1,1'-	<0.05 ug/g	68		68		0	
435387	Chrysene	<0.05 ug/g	92	50-140	89	50-140	0	0-40
435387	Dibenz[a h]anthracene	<0.05 ug/g	56	50-140	52	50-140	0	0-40
435387	Fluoranthene	<0.05 ug/g	77	50-140	75	50-140	0	0-40
435387	Fluorene	<0.05 ug/g	70	50-140	73	50-140	0	0-40
435387	Indeno[1 2 3-cd]pyrene	0.06 ug/g	55	50-140	56	50-140	0	0-40
435387	Naphthalene	<0.013 ug/g	61	50-140	66	50-140	0	0-40
435387	Phenanthrene	<0.05 ug/g	66	50-140	67	50-140	0	0-40
435387	Pyrene	<0.05 ug/g	76	50-140	75	50-140	0	0-40
435388	1+2-methylnaphthalene							
435406	PHC's F2	<2 ug/g	91	80-120	100	60-140		0-30
435406	PHC's F3	<20 ug/g	92	80-120	100	60-140		0-30
435406	PHC's F4	<20 ug/g	92	80-120	100	60-140		0-30
435406	Moisture-Humidite	<0.1 %	100	80-120				
435409	PHC's F2-Napth							
435410	PHC's F3-PAH							
435411	Aroclor 1242	<0.02 ug/g	75	60-140	85	60-140	0	0-40
435411	Aroclor 1248	<0.02 ug/g	75	60-140	85	60-140	0	0-40
435411	Aroclor 1254	<0.02 ug/g	75	60-140	85	60-140	0	0-40
435411	Aroclor 1260	<0.02 ug/g	75	60-140	85	60-140	0	0-40
435411	Polychlorinated Biphenyls	<0.02 ug/g	75	60-140	85	60-140	0	0-40
435416	Chlordane, alpha-	<0.002 ug/g	68	50-140	87	50-140	0	0-40
435416	Aldrin	<0.002 ug/g	69	50-140	85	50-140	0	0-40
435416	Chlordane	<0.006 ug/g					0	
435416	Dieldrin	<0.002 ug/g	73	50-140	87	50-140	0	0-40
435416	Endosulfan	<0.004 ug/g					0	
435416	Endosulfan I	<0.002 ug/g	67	50-140	90	50-140	0	0-40
435416	Endosulfan II	<0.002 ug/g	75	50-140	91	50-140	0	0-40
435416	Endrin	<0.002 ug/g	73	50-140	87	50-140	0	0-40
435416	Hexachlorocyclohexane Gamma-	<0.002 ug/g	72	50-140	91	50-140	0	0-40
435416	Chlordane, gamma-	<0.002 ug/g	65	50-140	89	50-140	0	0-40
435416	Heptachlor	<0.002 ug/g	73	50-140	88	50-140	0	0-40
435416	Heptachlor Epoxide	<0.002 ug/g	69	50-140	89	50-140	0	0-40

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COC #: 220499

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
435416	Methoxychlor	<0.002 ug/g	78	50-140	86	50-140	0	0-40
435416	DDD	<0.002 ug/g	75	50-140	84	50-140	0	0-40
435416	DDE	<0.002 ug/g	75	50-140	92	50-140	0	0-40
435416	DDT	<0.002 ug/g	85	50-140	83	50-140	0	0-40
435432	Electrical Conductivity	<0.05	101	90-110			5	0-10
435449	Sodium Adsorption Ratio	<0.01					2	
435453	Cyanide (CN-)	<0.005 ug/g	92	75-125	99	70-130	0	0-20

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
208523	Dinitrotoluene, 2,4&2,6-	GC/MS	2022-12-20	2022-12-20	C_M	B 625/P 8270
434194	Trichlorophenol, 2,4,5-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434194	Trichlorophenol, 2,4,6-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434194	Dichlorophenol, 2,4-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434194	Dimethylphenol, 2,4-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434194	Dinitrophenol, 2,4-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434194	Chlorophenol, 2-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434194	Pentachlorophenol	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434194	Phenol	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Dinitrotoluene, 2,4-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Dinitrotoluene, 2,6-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Dichlorobenzidine, 3,3'-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Bis(2-chloroisopropyl)ether	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Bis(2-chloroethyl)ether	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Bis(2-ethylhexyl)phthalate	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Diethyl Phthalate	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Dimethylphthalate	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Hexachlorobenzene	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Hexachlorobutadiene	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Hexachloroethane	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
434199	Chloroaniline p-	GC/MS	2022-12-19	2022-12-19	C_M	B 625/P 8270
435343	pH - CaCl2	pH Meter	2022-12-19	2022-12-19	IP	Ag Soil
435358	Chromium VI	FAA	2022-12-19	2022-12-19	MW	M US EPA 3060A
435364	Boron (Hot Water Soluble)	iCAP OES	2022-12-19	2022-12-19	Z_S	MOECC E3470
435373	Tetrachloroethane, 1,1,1,2-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Trichloroethane, 1,1,1-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Tetrachloroethane, 1,1,2,2-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Trichloroethane, 1,1,2-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichloroethane, 1,1-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichloroethylene, 1,1-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Trichlorobenzene, 1,2,4-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichlorobenzene, 1,2-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
435373	Dichloroethane, 1,2-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichloropropane, 1,2-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichlorobenzene, 1,3-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichloropropene,1,3-	GC-MS	2022-12-19	2022-12-19	PJ	V 8260B
435373	Dichlorobenzene, 1,4-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Acetone	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Benzene	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Bromodichloromethane	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Bromoform	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Bromomethane	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichloroethylene, 1,2-cis-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichloropropene,1,3-cis-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Carbon Tetrachloride	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Chloroform	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dibromochloromethane	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichlorodifluoromethane	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Methylene Chloride	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Ethylbenzene	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Ethylene dibromide	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	PHC's F1	GC/FID	2022-12-19	2022-12-19	PJ	CCME
435373	Hexane (n)	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Xylene, m/p-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Methyl Ethyl Ketone	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Methyl Isobutyl Ketone	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Methyl tert-Butyl Ether (MTBE)	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Chlorobenzene	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Xylene, o-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Styrene	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichloroethylene, 1,2-trans-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Dichloropropene,1,3-trans-	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Tetrachloroethylene	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Toluene	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Trichloroethylene	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
435373	Trichlorofluoromethane	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435373	Vinyl Chloride	GC-MS	2022-12-15	2022-12-16	PJ	V 8260B
435375	Xylene Mixture	GC-MS	2022-12-19	2022-12-19	PJ	V 8260B
435376	PHC's F1-BTEX	GC/FID	2022-12-19	2022-12-19	PJ	CCME
435382	Silver	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Arsenic	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Boron (total)	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Barium	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Beryllium	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Cadmium	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Cobalt	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Chromium Total	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Copper	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Mercury	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Molybdenum	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Nickel	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Lead	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Antimony	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Selenium	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Thallium	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Uranium	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Vanadium	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435382	Zinc	ICAPQ-MS	2022-12-19	2022-12-19	SKH	EPA 200.8/6020
435387	Methlynaphthalene, 1-	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Methlynaphthalene, 2-	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Acenaphthene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Acenaphthylene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Anthracene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Benz[a]anthracene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Benzo[a]pyrene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Benzo[b]fluoranthene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Benzo[ghi]perylene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Benzo[k]fluoranthene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270

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Test Summary

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435387	Biphenyl 1,1'-	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Chrysene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Dibenz[a h]anthracene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Fluoranthene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Fluorene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Indeno[1 2 3-cd]pyrene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Naphthalene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Phenanthrene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435387	Pyrene	GC-MS	2022-12-19	2022-12-19	C_M	P 8270
435388	1+2-methylnaphthalene	GC-MS	2022-12-20	2022-12-20	C_M	P 8270
435406	PHC's F2	GC/FID	2022-12-20	2022-12-20	SP	CCME
435406	PHC's F3	GC/FID	2022-12-20	2022-12-20	SP	CCME
435406	PHC's F4	GC/FID	2022-12-20	2022-12-20	SP	CCME
435406	Moisture-Humidite	Oven	2022-12-20	2022-12-20	SP	ASTM 2216
435409	PHC's F2-Napth	GC/FID	2022-12-20	2022-12-20	SP	CCME
435410	PHC's F3-PAH	GC/FID	2022-12-20	2022-12-20	SP	CCME
435411	Aroclor 1242	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435411	Aroclor 1248	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435411	Aroclor 1254	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435411	Aroclor 1260	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435411	Polychlorinated Biphenyls	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Chlordane, alpha-	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Aldrin	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Chlordane	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Dieldrin	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Endosulfan	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Endosulfan I	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Endosulfan II	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Endrin	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Hexachlorocyclohexane Gamma-	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Chlordane, gamma-	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Heptachlor	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	Heptachlor Epoxide	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A

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Certificate of Analysis

Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1991480
Date Submitted: 2022-12-13
Date Reported: 2022-12-21
Project: 190261800
COC #: 220499

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
435416	Methoxychlor	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	DDD	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	DDE	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435416	DDT	GC/ECD	2022-12-20	2022-12-20	R_G	EPA 8081B/8082A
435432	Electrical Conductivity	Electrical Conductivity Mete	2022-12-20	2022-12-20	Z_S	Cond-Soil
435449	Sodium Adsorption Ratio	iCAP OES	2022-12-20	2022-12-20	Z_S	Ag Soil
435453	Cyanide (CN-)	Skalar CN Analyzer	2022-12-20	2022-12-20	Z_S	MOECC E3015

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Report Number: 1991480
Date Submitted: 2022-12-13
Date Reported: 2022-12-21
Project: 190261800
COC #: 220499

CWS for Petroleum Hydrocarbons in Soil - Tier 1

Notes:

1. The laboratory method complies with CCME Tier 1 reference method for PHC in soil. It is validated for laboratory use.
2. Where the F1 fraction (C6 to C10) and BTEX are both measured, F1-BTEX is reported.
3. Where the F2 fraction (C10 to C16) and naphthalene are both measured, F2-naphthalene is reported.
4. Where the F3 fraction (C16 to C34) and PAHs* are both measured, F3-PAH is reported.
5. F4G is analyzed if the chromatogram does not descend to baseline before C50. Where F4 (C34 to C50) and F4G are both reported, the higher result is compared to the standard.
6. Unless otherwise stated in the sample comments, the following criteria have been met where applicable:

   - nC6 and nC10 response factors within 30% of response factor for toluene;
   - nC10, nC16, and nC34 response factors within 10% of each other;
   - C50 response factors within 70% of nC10 + nC16 + nC34 average; and,
   - Linearity is within 15%.

7. Unless otherwise stated in the sample comments, sampling requirements and analytical holding times have been met.
8. Gravimetric heavy hydrocarbons (F4G) cannot be added to the C6 and C50 hydrocarbons.
9. *PAHs = phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene.

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eurofins 220499

STANDARD CHAIN-OF-CUSTODY

146 Colonnade Road, Unit #8, Ottawa, ON, K2E 7Y1 - Phone: 613-727-5692, Fax: 613-727-5222

Eurofins Workorder #: 1991480

CLIENT INFORMATION

Company: Morrison Hershfield

Contact: ~~Sheth~~ Sarth Sheth

Address: 125 Commerce Valley Dr W Suite #300 Thornhill, ON.

Telephone: 416-499-3110 Ext 10111 Cell: 639-317-8111

Email: #1: SSheth@morrisonhershfield.com

Email: #2: NMoore@morrisonhershfield.com

Project: 190261800 Quote #:

INVOICE INFORMATION (SAME AS CLIENT INFORMATION: YES ☑ NO ☐)

Company: Fax:

Contact: Email: #1:

Address: Email: #2:

Telephone: PO #:

TURN-AROUND TIME (Business Days)

☐ 1 Day* (100%) ☐ 2 Day** (50%) ☐ 3-5 Days (25%) ☑ 5-7 Days (Standard)

Please contact Lab in advance to determine rush availability.

*For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%.

**For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

REGULATION/GUIDELINE REQUIRED

☐ Sanitary Sewer, City:

☐ Storm Sewer, City:

☐ ODWSOG (Use DW CoC if analyzing drinking water)

☐ PWQO

☐ O.Reg 347

☐ Other:

☑ O. Reg 153 ICC

The sample results from this submission will form part of a formal Record of Site Condition (RSC) under O.Reg. 153/04. Analysis of full paramter list only Yes ☐ No ☐

Table # 3 Coarse / Fine, Surface / subsurface

Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment

☑ O. Reg 406 Excess Soils

Table # 1,2,3 Full depth/Strat/Ceiling/mSPLP Leachate

Type: Com-Ind /Res-Park /Agri/All Other

Category: Surface /Subsurface

The optimal temperature conditions during transport should be less than 10°C. Sample(s) cannot be frozen, unless otherwise indicated or agreed upon with the Laboratory. Note that this COC is not to be used for drinking water samples. The COC must be complete upon submission of the samples, there will be a $25 surcharge if required information is missing (required fields are shaded in grey).

Sample Details

Sample ID	Date/Time Collected	Sample Matrix	# of Containers	O.Reg.153 parameters: PHC F1 - F4	BTEX	VOCs	PAHs	PCBs	Metals + Inorganics	Metals only	OCPs	ABN	CPs	Dioxins/Furans	RN# (Lab Use Only)
MHBH 2-SS1	12/12/2022 11:00am	S	1						✓						1667980
" -SS2	" " "	S	5	✓		✓	✓	✓			✓	✓	✓	✓	81
MHBH 3-SS1	12/12/2022 2:30pm	S	1						✓						82
" -SS2	" " "	S	5	✓		✓	✓	✓			✓	✓	✓	✓	83
MHBH4-SS1	12/12/2022 4:00pm	S	1						✓						84
" -SS2	" " "	S	5	✓		✓	✓	✓			✓	✓	✓	✓	85

	PRINT	SIGN	DATE/TIME	TEMP (°C)
Sampled By:	Nicholas Moore	N. Moore	13/12/2022 4:30pm	
Relinquished By:	Nicholas Moore	N. Moore	13/12/2022 4:30pm	
Received By:	Victor Gallant	V.G.	12/13/22 5:23p.m.	1.2°C

COMMENTS:

CUSTODY SEAL: ☐ YES ☐ NO Ice packs submit ☑ Yes ☐ No

Certificate of Analysis

eurofins | Environment Testing

Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
Invoice to: Morrision Hershfield
PO#:

Report Number:	1987936
Date Submitted:	2022-10-11
Date Reported:	2022-10-18
Project:	190261800
COC #:	218968
Temperature (C):	7.1
Custody Seal:	

Dear Sarth Sheth:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Sample Comment Summary

Sample ID: 1655946	A22-2 SS5	Semi Volatiles MRL elevated due to matrix interference (dilution was done).

Report Comments:

Emma-Dawn
Ferguson
2022.10.18
15:26:28 -04'00'

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated
.
Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

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Date Submitted: 2022-10-11
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Project: 190261800
COC #: 218968

O.Reg 153-T3-Ind/Com-Coarse

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria
Semi-Volatiles				
A22-2 SS5	Dichlorobenzene, 1,4-	<1	ug/g	STD 0.2

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Project: 190261800
COC #: 218968

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655944 Sample Matrix Soil153 Sample Type Sample Date 2022-10-05 Sampling Time Sample I.D. BHCl - SS5	Lab I.D. 1655946 Sample Matrix Soil153 Sample Type Sample Date 2022-10-11 Sampling Time Sample I.D. A22-2 SS5
PHC's F1	431507	10	ug/g	STD 55	<10	<10
PHC's F1-BTEX	431509	10	ug/g		<10	<10
PHC's F2	431446	2	ug/g	STD 230	<2	<2
PHC's F2-Napth	431468	2	ug/g		<2	<2
PHC's F3	431446	20	ug/g	STD 1700	170	20
PHC's F3-PAH	431469	20	ug/g		170	20
PHC's F4	431446	20	ug/g	STD 3300	20	<20

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655943 Sample Matrix Soil153 Sample Type Sample Date 2022-10-05 Sampling Time Sample I.D. BHCl - SS2	Lab I.D. 1655945 Sample Matrix Soil153 Sample Type Sample Date 2022-10-11 Sampling Time Sample I.D. A22-2 SS3
Antimony	431479	1	ug/g	STD 40	<1	<1
Arsenic	431479	1	ug/g	STD 18	2	3
Barium	431479	1	ug/g	STD 670	26	18
Beryllium	431479	1	ug/g	STD 8	<1	<1
Boron (Hot Water Soluble)	431478	0.5	ug/g	STD 2	<0.5	<0.5
Boron (total)	431479	5	ug/g	STD 120	<5	<5
Cadmium	431479	0.4	ug/g	STD 1.9	<0.4	<0.4
Chromium Total	431479	1	ug/g	STD 160	18	12
Chromium VI	431456	0.20	ug/g	STD 8	<0.20	<0.20
Cobalt	431479	1	ug/g	STD 80	2	3
Copper	431479	1	ug/g	STD 230	11	10
Lead	431479	1	ug/g	STD 120	4	3

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COC #: 218968

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655943	Sample Matrix Soil153	Sample Type	Sample Date 2022-10-05	Sampling Time	Sample I.D. BHCl - SS2	Lab I.D. 1655945	Sample Matrix Soil153	Sample Type	Sample Date 2022-10-11	Sampling Time	Sample I.D. A22-2 SS3
Mercury	431479	0.1	ug/g	STD 3.9	<0.1	<0.1
Molybdenum	431479	1	ug/g	STD 40	<1	<1
Nickel	431479	1	ug/g	STD 270	7	8
Selenium	431479	0.5	ug/g	STD 5.5	<0.5	<0.5
Silver	431479	0.2	ug/g	STD 40	<0.2	<0.2
Thallium	431479	1	ug/g	STD 3.3	<1	<1
Uranium	431479	0.5	ug/g	STD 33	<0.5	<0.5
Vanadium	431479	2	ug/g	STD 86	15	20
Zinc	431479	2	ug/g	STD 340	19	20

OCP/PCB

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655947	Sample Matrix Soil153	Sample Type	Sample Date 2022-10-11	Sampling Time	Sample I.D. A22-2 SS6
Aldrin	431435	0.002	ug/g	STD 0.088	<0.002
Chlordane	431435	0.006	ug/g	STD 0.05	<0.006
Chlordane, alpha-	431435	0.002	ug/g		<0.002
Chlordane, gamma-	431435	0.002	ug/g		<0.002
DDD	431435	0.002	ug/g	STD 4.6	<0.002
DDE	431435	0.002	ug/g	STD 0.52	<0.002
DDT	431435	0.002	ug/g	STD 1.4	<0.002
Dieldrin	431435	0.002	ug/g	STD 0.088	<0.002
Endosulfan	431435	0.004	ug/g	STD 0.3	<0.004
Endosulfan I	431435	0.002	ug/g		<0.002

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Guideline = O.Reg 153-T3-Ind/Com-Coarse

OCP/PCB

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655947
					Sample Matrix Soil153
					Sample Type
					Sample Date 2022-10-11
					Sampling Time
					Sample I.D. A22-2 SS6
Endosulfan II	431435	0.002	ug/g		<0.002
Endrin	431435	0.002	ug/g	STD 0.04	<0.002
Heptachlor	431435	0.002	ug/g	STD 0.19	<0.002
Heptachlor Epoxide	431435	0.002	ug/g	STD 0.05	<0.002
Hexachlorobenzene	431435	0.002	ug/g	STD 0.66	<0.002
Hexachlorobutadiene	431435	0.002	ug/g	STD 0.031	<0.002
Hexachlorocyclohexane Gamma-	431435	0.002	ug/g	STD 0.056	<0.002
Hexachloroethane	431435	0.002	ug/g	STD 0.21	<0.002
Methoxychlor	431435	0.002	ug/g	STD 1.6	<0.002

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655944	1655946
					Sample Matrix Soil153	Soil153
					Sample Type	
					Sample Date 2022-10-05	2022-10-11
					Sampling Time	
					Sample I.D. BHCl - SS5	A22-2 SS5
1+2-methylnaphthalene	431432	0.05	ug/g		<0.05	<0.05
Acenaphthene	431080	0.05	ug/g	STD 96	<0.05	<0.05
Acenaphthylene	431080	0.05	ug/g	STD 0.15	<0.05	<0.05
Anthracene	431080	0.05	ug/g	STD 0.67	<0.05	<0.05
Benz[a]anthracene	431080	0.05	ug/g	STD 0.96	<0.05	<0.05
Benzo[a]pyrene	431080	0.05	ug/g	STD 0.3	<0.05	<0.05
Benzo[b]fluoranthene	431080	0.05	ug/g	STD 0.96	<0.05	<0.05
Benzo[ghi]perylene	431080	0.05	ug/g	STD 9.6	<0.05	<0.05
Benzo[k]fluoranthene	431080	0.05	ug/g	STD 0.96	<0.05	<0.05
Biphenyl 1,1'-	431080	0.05	ug/g	STD 52		<0.05

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Date Submitted: 2022-10-11
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COC #: 218968

Guideline = O.Reg 153-T3-Ind/Com-Coarse

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655944 Sample Matrix Soil153 Sample Type 2022-10-05 Sample Date Sampling Time Sample I.D. BHCl - SS5	Lab I.D. 1655946 Sample Matrix Soil153 Sample Type 2022-10-11 Sample Date Sampling Time Sample I.D. A22-2 SS5
Chrysene	431080	0.05	ug/g	STD 9.6	<0.05	<0.05
Dibenz[a h]anthracene	431080	0.05	ug/g	STD 0.1	<0.05	<0.05
Fluoranthene	431080	0.05	ug/g	STD 9.6	<0.05	<0.05
Fluorene	431080	0.05	ug/g	STD 62	<0.05	<0.05
Indeno[1 2 3-cd]pyrene	431080	0.05	ug/g	STD 0.76	<0.05	<0.05
Methlynaphthalene, 1-	431080	0.05	ug/g	STD 76	<0.05	<0.05
Methlynaphthalene, 2-	431080	0.05	ug/g	STD 76	<0.05	<0.05
Naphthalene	431080	0.013	ug/g	STD 9.6	<0.013	<0.013
Phenanthrene	431080	0.05	ug/g	STD 12	<0.05	<0.05
Pyrene	431080	0.05	ug/g	STD 96	<0.05	<0.05

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655944 Sample Matrix Soil153 Sample Type 2022-10-05 Sample Date Sampling Time Sample I.D. BHCl - SS5	Lab I.D. 1655946 Sample Matrix Soil153 Sample Type 2022-10-11 Sample Date Sampling Time Sample I.D. A22-2 SS5
Acetone	431507	0.50	ug/g	STD 16	<0.50	<0.50
Benzene	431507	0.0068	ug/g	STD 0.32	<0.0068	<0.0068
Bromodichloromethane	431507	0.05	ug/g	STD 18	<0.05	<0.05
Bromoform	431507	0.05	ug/g	STD 0.61	<0.05	<0.05
Bromomethane	431507	0.05	ug/g	STD 0.05	<0.05	<0.05
Carbon Tetrachloride	431507	0.05	ug/g	STD 0.21	<0.05	<0.05
Chlorobenzene	431507	0.05	ug/g	STD 2.4	<0.05	<0.05
Chloroform	431507	0.05	ug/g	STD 0.47	<0.05	<0.05
Dibromochloromethane	431507	0.05	ug/g	STD 13	<0.05	<0.05

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COC #: 218968

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655944 Soil153 2022-10-05 BHCl - SS5	Lab I.D. 1655946 Soil153 2022-10-11 A22-2 SS5
Dichlorobenzene, 1,2-	431507	0.05	ug/g	STD 6.8	<0.05	
Dichlorobenzene, 1,3-	431507	0.05	ug/g	STD 9.6	<0.05	
Dichlorobenzene, 1,4-	431507	0.05	ug/g	STD 0.2	<0.05	
Dichlorodifluoromethane	431507	0.05	ug/g	STD 16	<0.05	<0.05
Dichloroethane, 1,1-	431507	0.05	ug/g	STD 17	<0.05	<0.05
Dichloroethane, 1,2-	431507	0.05	ug/g	STD 0.05	<0.05	<0.05
Dichloroethylene, 1,1-	431507	0.05	ug/g	STD 0.064	<0.05	<0.05
Dichloroethylene, 1,2-cis-	431507	0.05	ug/g	STD 55	<0.05	<0.05
Dichloroethylene, 1,2-trans-	431507	0.05	ug/g	STD 1.3	<0.05	<0.05
Dichloropropane, 1,2-	431507	0.05	ug/g	STD 0.16	<0.05	<0.05
Dichloropropene,1,3-	431507	0.05	ug/g	STD 0.18	<0.05	<0.05
Dichloropropene,1,3-cis-	431507	0.05	ug/g		<0.05	<0.05
Dichloropropene,1,3-trans-	431507	0.05	ug/g		<0.05	<0.05
Ethylbenzene	431507	0.018	ug/g	STD 9.5	<0.018	<0.018
Ethylene dibromide	431507	0.05	ug/g	STD 0.05	<0.05	<0.05
Hexane (n)	431507	0.05	ug/g	STD 46	<0.05	<0.05
Methyl Ethyl Ketone	431507	0.50	ug/g	STD 70	<0.50	<0.50
Methyl Isobutyl Ketone	431507	0.50	ug/g	STD 31	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)	431507	0.05	ug/g	STD 11	<0.05	<0.05
Methylene Chloride	431507	0.05	ug/g	STD 1.6	<0.05	<0.05
Styrene	431507	0.05	ug/g	STD 34	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	431507	0.05	ug/g	STD 0.087	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	431507	0.05	ug/g	STD 0.05	<0.05	<0.05

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Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1987936
Date Submitted: 2022-10-11
Date Reported: 2022-10-18
Project: 190261800
COC #: 218968

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1655944 Soil153 2022-10-05 BHCl - SS5	1655946 Soil153 2022-10-11 A22-2 SS5
Tetrachloroethylene	431507	0.05	ug/g	STD 4.5	<0.05	<0.05
Toluene	431507	0.08	ug/g	STD 68	<0.08	<0.08
Trichloroethane, 1,1,1-	431507	0.05	ug/g	STD 6.1	<0.05	<0.05
Trichloroethane, 1,1,2-	431507	0.05	ug/g	STD 0.05	<0.05	<0.05
Trichloroethylene	431507	0.01	ug/g	STD 0.91	<0.01	<0.01
Trichlorofluoromethane	431507	0.05	ug/g	STD 4	<0.05	<0.05
Vinyl Chloride	431507	0.02	ug/g	STD 0.032	<0.02	<0.02
Xylene Mixture	431508	0.05	ug/g	STD 26	<0.05	<0.05
Xylene, m/p-	431507	0.05	ug/g		<0.05	<0.05
Xylene, o-	431507	0.05	ug/g		<0.05	<0.05

Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1655943 Soil153 2022-10-05 BHCl - SS2	1655945 Soil153 2022-10-11 A22-2 SS3
Cyanide (CN-)	431390	0.005	ug/g	STD 0.051	<0.005	<0.005
Electrical Conductivity	431471	0.05	mS/cm	STD 1.4	0.21	0.11
pH - CaCl2	431448	2.00			7.76	7.74
Sodium Adsorption Ratio	431473	0.01		STD 12	0.81	0.23

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Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655944 Soil153 2022-10-05 BHCl - SS5	Lab I.D. 1655946 Soil153 2022-10-11 A22-2 SS5
Moisture-Humidite	431446	0.1	%		19.9	20.4

PCBs

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655947 Soil153 2022-10-11 A22-2 SS6
Aroclor 1242	431436	0.02	ug/g		<0.02
Aroclor 1248	431436	0.02	ug/g		<0.02
Aroclor 1254	431436	0.02	ug/g		<0.02
Aroclor 1260	431436	0.02	ug/g		<0.02
Polychlorinated Biphenyls	431436	0.02	ug/g	STD 1.1	<0.02

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Semi-Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655946 / Sample Matrix Soil153 / Sample Type / Sample Date 2022-10-11 / Sampling Time / Sample I.D. A22-2 SS5
Bis(2-chloroethyl)ether	431500	0.3	ug/g	STD 0.5	<0.3
Bis(2-chloroisopropyl)ether	431500	0.2	ug/g	STD 11	<0.2
Bis(2-ethylhexyl)phthalate	431500	0.4	ug/g	STD 28	<0.4
Chloroaniline p-	431500	0.2	ug/g	STD 0.5	<0.2
Chlorophenol, 2-	427676	0.1	ug/g	STD 3.1	<0.1
Dichlorobenzene, 1,2-	431500	1	ug/g	STD 6.8	<1
Dichlorobenzene, 1,3-	431500	1	ug/g	STD 9.6	<1
Dichlorobenzene, 1,4-	431500	1	ug/g	STD 0.2	<1*
Dichlorobenzidine, 3,3'-	431500	0.6	ug/g	STD 1	<0.6
Dichlorophenol, 2,4-	427676	0.1	ug/g	STD 3.4	<0.1
Diethyl Phthalate	431500	0.2	ug/g	STD 0.5	<0.2
Dimethylphenol, 2,4-	427676	0.2	ug/g	STD 390	<0.2
Dimethylphthalate	431500	0.2	ug/g	STD 0.5	<0.2
Dinitrophenol, 2,4-	427676	0.2	ug/g	STD 59	<0.2
Dinitrotoluene, 2,4-	431500	0.2	ug/g		<0.2
Dinitrotoluene, 2,4&2,6-	208523	0.5	ug/g	STD 1.2	<0.5
Dinitrotoluene, 2,6-	431500	0.02	ug/g		<0.02
Pentachlorophenol	427676	0.1	ug/g	STD 2.9	<0.1
Phenol	427676	0.1	ug/g	STD 9.4	<0.1
Trichlorobenzene, 1,2,4-	431500	0.04	ug/g	STD 3.2	<0.04
Trichlorophenol, 2,4,5-	427676	0.1	ug/g	STD 10	<0.1
Trichlorophenol, 2,4,6-	427676	0.1	ug/g	STD 3.8	<0.1

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PCB Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655947 Sample Matrix Soil153 Sample Type Sample Date 2022-10-11 Sampling Time Sample I.D. A22-2 SS6
Decachlorobiphenyl	431437	0	%		66

PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655944 Sample Matrix Soil153 Sample Type Sample Date 2022-10-05 Sampling Time Sample I.D. BHCl - SS5	Lab I.D. 1655946 Sample Matrix Soil153 Sample Type Sample Date 2022-10-11 Sampling Time Sample I.D. A22-2 SS5
Alpha-androstrane	431446	0	%		85	86

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VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1655944 Sample Matrix Soil153 Sample Type Sample Date 2022-10-05 Sampling Time Sample I.D. BHCl - SS5	Lab I.D. 1655946 Sample Matrix Soil153 Sample Type Sample Date 2022-10-11 Sampling Time Sample I.D. A22-2 SS5
1,2-dichloroethane-d4	431507	0	%		72	76
4-bromofluorobenzene	431507	0	%		74	73
Toluene-d8	431507	0	%		121	127

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
208523	Dinitrotoluene, 2,4&2,6-							
427676	Trichlorophenol, 2,4,5-	<0.1 ug/g	53	20-150	53	50-140	0	0-40
427676	Trichlorophenol, 2,4,6-	<0.1 ug/g	51	20-150	54	50-140	0	0-40
427676	Dichlorophenol, 2,4-	<0.1 ug/g	58	20-150	59	50-140	0	0-40
427676	Dimethylphenol, 2,4-	0.4 ug/g	35	20-150	53	30-130	0	0-40
427676	Dinitrophenol, 2,4-	<0.2 ug/g	35	10-150	54	30-130	0	0-40
427676	Chlorophenol, 2-	<0.1 ug/g	77	20-150	71	50-140	0	0-40
427676	Pentachlorophenol	<0.1 ug/g	26	20-150	55	50-140	0	0-40
427676	Phenol	<0.1 ug/g	86	10-150	73	30-130	0	0-40
431080	Methlynaphthalene, 1-	<0.05 ug/g	88	50-140	70	50-140	0	0-40
431080	Methlynaphthalene, 2-	<0.05 ug/g	75	50-140	59	50-140	0	0-40
431080	Acenaphthene	<0.05 ug/g	72	50-140	58	50-140	0	0-40
431080	Acenaphthylene	<0.05 ug/g	82	50-140	66	50-140	0	0-40
431080	Anthracene	<0.05 ug/g	101	50-140	81	50-140	0	0-40
431080	Benz[a]anthracene	0.38 ug/g	86	50-140	75	50-140	0	0-40
431080	Benzo[a]pyrene	<0.05 ug/g	97	50-140	86	50-140	0	0-40
431080	Benzo[b]fluoranthene	<0.05 ug/g	100	50-140	95	50-140	0	0-40
431080	Benzo[ghi]perylene	<0.05 ug/g	61	50-140	58	50-140	0	0-40
431080	Benzo[k]fluoranthene	<0.05 ug/g	117	50-140	92		0	0-40
431080	Biphenyl 1,1'-	<0.05 ug/g	77		63		0	
431080	Chrysene	<0.05 ug/g	92	50-140	81	50-140	0	0-40
431080	Dibenz[a h]anthracene	<0.05 ug/g	74	50-140	74	50-140	0	0-40
431080	Fluoranthene	<0.05 ug/g	83	50-140	66	50-140	0	0-40
431080	Fluorene	<0.05 ug/g	71	50-140	56	50-140	0	0-40
431080	Indeno[1 2 3-cd]pyrene	<0.05 ug/g	61	50-140	57	50-140	0	0-40
431080	Naphthalene	<0.013 ug/g	79	50-140	70	50-140	0	0-40
431080	Phenanthrene	<0.05 ug/g	86	50-140	72	50-140	0	0-40
431080	Pyrene	<0.05 ug/g	80	50-140	65	50-140	0	0-40
431390	Cyanide (CN-)	<0.005 ug/g	97	75-125	99	70-130	0	0-20
431432	1+2-methylnaphthalene							
431435	Chlordane, alpha-	<0.002 ug/g	68	50-140	87	50-140	0	0-40
431435	Aldrin	<0.002 ug/g	69	50-140	85	50-140	0	0-40

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Quality Assurance Summary

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431435	Chlordane	<0.006 ug/g					0	
431435	Dieldrin	<0.002 ug/g	73	50-140	87	50-140	0	0-40
431435	Endosulfan	<0.004 ug/g					0	
431435	Endosulfan I	<0.002 ug/g	67	50-140	90	50-140	0	0-40
431435	Endosulfan II	<0.002 ug/g	75	50-140	91	50-140	0	0-40
431435	Endrin	<0.002 ug/g	73	50-140	87	50-140	0	0-40
431435	Hexachlorocyclohexane Gamma-	<0.002 ug/g	72	50-140	91	50-140	0	0-40
431435	Chlordane, gamma-	<0.002 ug/g	65	50-140	89	50-140	0	0-40
431435	Heptachlor	<0.002 ug/g	73	50-140	88	50-140	0	0-40
431435	Heptachlor Epoxide	<0.002 ug/g	69	50-140	89	50-140	0	0-40
431435	Hexachlorobenzene	<0.002 ug/g	102	50-140		50-140	0	0-40
431435	Hexachlorobutadiene	<0.002 ug/g	95				0	
431435	Hexachloroethane	<0.002 ug/g	93				0	
431435	Methoxychlor	<0.002 ug/g	78	50-140	86	50-140	0	0-40
431435	DDD	<0.002 ug/g	75	50-140	84	50-140	0	0-40
431435	DDE	<0.002 ug/g	75	50-140	92	50-140	0	0-40
431435	DDT	<0.002 ug/g	85	50-140	83	50-140	0	0-40
431436	Aroclor 1242	<0.02 ug/g	88	60-140	107	60-140	0	0-40
431436	Aroclor 1248	<0.02 ug/g	88	60-140	107	60-140	0	0-40
431436	Aroclor 1254	<0.02 ug/g	88	60-140	107	60-140	0	0-40
431436	Aroclor 1260	<0.02 ug/g	88	60-140	107	60-140	0	0-40
431436	Polychlorinated Biphenyls	<0.02 ug/g	88	60-140	107	60-140	0	0-40
431446	PHC's F2	<2 ug/g	80	80-120	80	60-140	0	0-30
431446	PHC's F3	<20 ug/g	80	80-120	80	60-140	0	0-30
431446	PHC's F4	<20 ug/g	80	80-120	80	60-140	0	0-30
431446	Moisture-Humidite	<0.1 %	100	80-120			4	
431448	pH - CaCl2	6.39	98	90-110			0	
431456	Chromium VI	<0.20 ug/g	95	70-130	90	70-130	0	0-35
431468	PHC's F2-Napth							
431469	PHC's F3-PAH							
431471	Electrical Conductivity	<0.05	102	90-110			4	0-10
431473	Sodium Adsorption Ratio	<0.01					2	
431478	Boron (Hot Water Soluble)	<0.5 ug/g	95	70-130	109	75-125	0	0-30

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Quality Assurance Summary

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431479	Silver	<0.2 ug/g	105	70-130	116	70-130	0	0-20
431479	Arsenic	<1 ug/g	95	70-130	113	70-130	0	0-20
431479	Boron (total)	<5 ug/g	105	70-130	128	70-130	0	0-20
431479	Barium	<1 ug/g	98	70-130	159	70-130	13	0-20
431479	Beryllium	<1 ug/g	104	70-130	117	70-130	0	0-20
431479	Cadmium	<0.4 ug/g	102	70-130	117	70-130	0	0-20
431479	Cobalt	<1 ug/g	98	70-130	112	70-130	0	0-20
431479	Chromium Total	<1 ug/g	108	70-130	194	70-130	13	0-20
431479	Copper	<1 ug/g	104	70-130	121	70-130	12	0-20
431479	Mercury	<0.1 ug/g	90	70-130	103	70-130	0	0-20
431479	Molybdenum	<1 ug/g	96	70-130	112	70-130	0	0-20
431479	Nickel	<1 ug/g	104	70-130	141	70-130	17	0-20
431479	Lead	<1 ug/g	94	70-130	105	70-130	0	0-20
431479	Antimony	<1 ug/g	83	70-130	117	70-130	0	0-20
431479	Selenium	<0.5 ug/g	103	70-130	114	70-130	0	0-20
431479	Thallium	<1 ug/g	95	70-130	104	70-130	0	0-20
431479	Uranium	<0.5 ug/g	88	70-130	107	70-130	0	0-20
431479	Vanadium	<2 ug/g	103	70-130	157	70-130	12	0-20
431479	Zinc	<2 ug/g	106	70-130	130	70-130	13	0-20
431500	Trichlorobenzene, 1,2,4-	<0.04 ug/g	107	20-150		50-140	0	0-40
431500	Dichlorobenzene, 1,2-	<1 ug/g	100	20-150			0	
431500	Dichlorobenzene, 1,3-	<1 ug/g	120	20-150			0	
431500	Dichlorobenzene, 1,4-	<1 ug/g	100	20-150			0	
431500	Dinitrotoluene, 2,4-	<0.2 ug/g	104	20-150		50-140	0	0-40
431500	Dinitrotoluene, 2,6-	<0.02 ug/g	113	20-150		50-140	0	0-40
431500	Dichlorobenzidine, 3,3'-	<0.6 ug/g	102	20-150		30-130	0	0-40
431500	Bis(2-chloroisopropyl)ether	<0.2 ug/g	106	20-150		50-140	0	0-40
431500	Bis(2-chloroethyl)ether	<0.3 ug/g	96	20-150		50-140	0	0-40
431500	Bis(2-ethylhexyl)phthalate	<0.4 ug/g	106	20-150		50-140	0	0-40
431500	Diethyl Phthalate	<0.2 ug/g	128	20-150		50-140	0	0-40
431500	Dimethylphthalate	<0.2 ug/g	118	20-150		50-140	0	0-40
431500	Chloroaniline p-	<0.2 ug/g	56	20-150		30-130	0	0-40
431507	Tetrachloroethane, 1,1,1,2-	<0.05 ug/g	98	60-130		50-140	0	0-50

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Client: Morrison Hershfield
125 Commerce Valley Drive West
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L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1987936
Date Submitted: 2022-10-11
Date Reported: 2022-10-18
Project: 190261800
COC #: 218968

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
431507	Trichloroethane, 1,1,1-	<0.05 ug/g	91	60-130		50-140	0	0-50
431507	Tetrachloroethane, 1,1,2,2-	<0.05 ug/g	99	60-130		50-140	0	0-30
431507	Trichloroethane, 1,1,2-	<0.05 ug/g	97	60-130		50-140	0	0-50
431507	Dichloroethane, 1,1-	<0.05 ug/g	92	60-130		50-140	0	0-50
431507	Dichloroethylene, 1,1-	<0.05 ug/g	81	60-130		50-140	0	0-50
431507	Dichlorobenzene, 1,2-	<0.05 ug/g	94	60-130		50-140	0	0-50
431507	Dichloroethane, 1,2-	<0.05 ug/g	92	60-130		50-140	0	0-50
431507	Dichloropropane, 1,2-	<0.05 ug/g	92	60-130		50-140	0	0-50
431507	Dichlorobenzene, 1,3-	<0.05 ug/g	91	60-130		50-140	0	0-50
431507	Dichloropropene,1,3-	<0.05 ug/g						
431507	Dichlorobenzene, 1,4-	<0.05 ug/g	91	60-130		50-140	0	0-50
431507	Acetone	<0.50 ug/g	94	60-130		50-140	0	0-50
431507	Benzene	<0.0068	94	60-130		50-140	0	0-50
431507	Bromodichloromethane	<0.05 ug/g	92	60-130		50-140	0	0-50
431507	Bromoform	<0.05 ug/g	94	60-130		50-140	0	0-50
431507	Bromomethane	<0.05 ug/g	81	60-130		50-140	0	0-50
431507	Dichloroethylene, 1,2-cis-	<0.05 ug/g	90	60-130		50-140	0	0-50
431507	Dichloropropene,1,3-cis-	<0.05 ug/g	82	60-130		50-140	0	0-50
431507	Carbon Tetrachloride	<0.05 ug/g	93	60-130		50-140	0	0-50
431507	Chloroform	<0.05 ug/g	93	60-130		50-140	0	0-50
431507	Dibromochloromethane	<0.05 ug/g	93	60-130		50-140	0	0-50
431507	Dichlorodifluoromethane	<0.05 ug/g	92	60-130		50-140	0	0-50
431507	Methylene Chloride	<0.05 ug/g	97	60-130		50-140	0	0-50
431507	Ethylbenzene	<0.018 ug/g	90	60-130		50-140	0	0-50
431507	Ethylene dibromide	<0.05 ug/g	99	60-130		50-140	0	0-50
431507	PHC's F1	<10 ug/g	90	80-120	105	60-140	0	0-30
431507	Hexane (n)	<0.05 ug/g	104	60-130		50-140	0	0-50
431507	Xylene, m/p-	<0.05 ug/g	97	60-130		50-140	0	0-50
431507	Methyl Ethyl Ketone	<0.50 ug/g	106	60-130		50-140	0	0-50
431507	Methyl Isobutyl Ketone	<0.50 ug/g	86	60-130		50-140	0	0-50
431507	Methyl tert-Butyl Ether (MTBE)	<0.05 ug/g	94	60-130		50-140	0	0-50
431507	Chlorobenzene	<0.05 ug/g	93	60-130		50-140	0	0-50
431507	Xylene, o-	<0.05 ug/g	92	60-130		50-140	0	0-50

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Project: 190261800
COC #: 218968

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
431507	Styrene	<0.05 ug/g	89	60-130		50-140	0	0-50
431507	Dichloroethylene, 1,2-trans-	<0.05 ug/g	93	60-130		50-140	0	0-50
431507	Dichloropropene,1,3-trans-	<0.05 ug/g	86	60-130		50-140	0	0-50
431507	Tetrachloroethylene	<0.05 ug/g	90	60-130		50-140	0	0-50
431507	Toluene	<0.08 ug/g	89	60-130		50-140	0	0-50
431507	Trichloroethylene	<0.01 ug/g	89	60-130		50-140	0	0-50
431507	Trichlorofluoromethane	<0.05 ug/g	90	60-130		50-140	0	0-50
431507	Vinyl Chloride	<0.02 ug/g	99	60-130		50-140	0	0-50
431508	Xylene Mixture							
431509	PHC's F1-BTEX							

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
208523	Dinitrotoluene, 2,4&2,6-	GC/MS	2022-10-18	2022-10-18	C_M	B 625/P 8270
427676	Trichlorophenol, 2,4,5-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
427676	Trichlorophenol, 2,4,6-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
427676	Dichlorophenol, 2,4-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
427676	Dimethylphenol, 2,4-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
427676	Dinitrophenol, 2,4-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
427676	Chlorophenol, 2-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
427676	Pentachlorophenol	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
427676	Phenol	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431080	Methlynaphthalene, 1-	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Methlynaphthalene, 2-	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Acenaphthene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Acenaphthylene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Anthracene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Benz[a]anthracene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Benzo[a]pyrene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Benzo[b]fluoranthene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Benzo[ghi]perylene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Benzo[k]fluoranthene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Biphenyl 1,1'-	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Chrysene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Dibenz[a h]anthracene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Fluoranthene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Fluorene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Indeno[1 2 3-cd]pyrene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Naphthalene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Phenanthrene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431080	Pyrene	GC-MS	2022-10-13	2022-10-15	C_M	P 8270
431390	Cyanide (CN-)	Skalar CN Analyzer	2022-10-14	2022-10-14	Z_S	MOECC E3015
431432	1+2-methylnaphthalene	GC-MS	2022-10-17	2022-10-17	C_M	P 8270
431435	Chlordane, alpha-	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Aldrin	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A

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COC #: 218968

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
431435	Chlordane	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Dieldrin	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Endosulfan	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Endosulfan I	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Endosulfan II	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Endrin	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Hexachlorocyclohexane Gamma-	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Chlordane, gamma-	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Heptachlor	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Heptachlor Epoxide	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Hexachlorobenzene	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Hexachlorobutadiene	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Hexachloroethane	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	Methoxychlor	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	DDD	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	DDE	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431435	DDT	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431436	Aroclor 1242	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431436	Aroclor 1248	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431436	Aroclor 1254	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431436	Aroclor 1260	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431436	Polychlorinated Biphenyls	GC/ECD	2022-10-17	2022-10-17	R_G	EPA 8081B/8082A
431446	PHC's F2	GC/FID	2022-10-17	2022-10-17	SP	CCME
431446	PHC's F3	GC/FID	2022-10-17	2022-10-17	SP	CCME
431446	PHC's F4	GC/FID	2022-10-17	2022-10-17	SP	CCME
431446	Moisture-Humidite	Oven	2022-10-17	2022-10-17	SP	ASTM 2216
431448	pH - CaCl2	pH Meter	2022-10-17	2022-10-17	MW	Ag Soil
431456	Chromium VI	FAA	2022-10-17	2022-10-17	MW	M US EPA 3060A
431468	PHC's F2-Napth	GC/FID	2022-10-17	2022-10-17	SP	CCME
431469	PHC's F3-PAH	GC/FID	2022-10-17	2022-10-17	SP	CCME
431471	Electrical Conductivity	Electrical Conductivity Mete	2022-10-17	2022-10-17	Z_S	Cond-Soil
431473	Sodium Adsorption Ratio	iCAP OES	2022-10-17	2022-10-17	Z_S	Ag Soil
431478	Boron (Hot Water Soluble)	iCAP OES	2022-10-17	2022-10-17	Z_S	MOECC E3470

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Test Summary

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431479	Silver	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Arsenic	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Boron (total)	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Barium	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Beryllium	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Cadmium	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Cobalt	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Chromium Total	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Copper	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Mercury	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Molybdenum	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Nickel	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Lead	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Antimony	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Selenium	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Thallium	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Uranium	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Vanadium	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431479	Zinc	ICAPQ-MS	2022-10-17	2022-10-17	SD	EPA 200.8/6020
431500	Trichlorobenzene, 1,2,4-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Dichlorobenzene, 1,2-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Dichlorobenzene, 1,3-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Dichlorobenzene, 1,4-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Dinitrotoluene, 2,4-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Dinitrotoluene, 2,6-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Dichlorobenzidine, 3,3'-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Bis(2-chloroisopropyl)ether	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Bis(2-chloroethyl)ether	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Bis(2-ethylhexyl)phthalate	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Diethyl Phthalate	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Dimethylphthalate	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431500	Chloroaniline p-	GC/MS	2022-10-17	2022-10-18	C_M	B 625/P 8270
431507	Tetrachloroethane, 1,1,1,2-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
431507	Trichloroethane, 1,1,1-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Tetrachloroethane, 1,1,2,2-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Trichloroethane, 1,1,2-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloroethane, 1,1-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloroethylene, 1,1-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichlorobenzene, 1,2-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloroethane, 1,2-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloropropane, 1,2-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichlorobenzene, 1,3-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloropropene,1,3-	GC-MS	2022-10-18	2022-10-18	PJ	V 8260B
431507	Dichlorobenzene, 1,4-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Acetone	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Benzene	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Bromodichloromethane	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Bromoform	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Bromomethane	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloroethylene, 1,2-cis-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloropropene,1,3-cis-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Carbon Tetrachloride	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Chloroform	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dibromochloromethane	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichlorodifluoromethane	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Methylene Chloride	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Ethylbenzene	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Ethylene dibromide	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	PHC's F1	GC/FID	2022-10-18	2022-10-18	PJ	CCME
431507	Hexane (n)	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Xylene, m/p-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Methyl Ethyl Ketone	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Methyl Isobutyl Ketone	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Methyl tert-Butyl Ether (MTBE)	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Chlorobenzene	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Xylene, o-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B

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Certificate of Analysis

Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1987936
Date Submitted: 2022-10-11
Date Reported: 2022-10-18
Project: 190261800
COC #: 218968

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
431507	Styrene	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloroethylene, 1,2-trans-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Dichloropropene,1,3-trans-	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Tetrachloroethylene	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Toluene	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Trichloroethylene	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Trichlorofluoromethane	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431507	Vinyl Chloride	GC-MS	2022-10-14	2022-10-17	PJ	V 8260B
431508	Xylene Mixture	GC-MS	2022-10-18	2022-10-18	PJ	V 8260B
431509	PHC's F1-BTEX	GC/FID	2022-10-18	2022-10-18	PJ	CCME

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COC #: 218968

CWS for Petroleum Hydrocarbons in Soil - Tier 1

Notes:

1. The laboratory method complies with CCME Tier 1 reference method for PHC in soil. It is validated for laboratory use.
2. Where the F1 fraction (C6 to C10) and BTEX are both measured, F1-BTEX is reported.
3. Where the F2 fraction (C10 to C16) and naphthalene are both measured, F2-naphthalene is reported.
4. Where the F3 fraction (C16 to C34) and PAHs* are both measured, F3-PAH is reported.
5. F4G is analyzed if the chromatogram does not descend to baseline before C50. Where F4 (C34 to C50) and F4G are both reported, the higher result is compared to the standard.
6. Unless otherwise stated in the sample comments, the following criteria have been met where applicable:

   - nC6 and nC10 response factors within 30% of response factor for toluene;
   - nC10, nC16, and nC34 response factors within 10% of each other;
   - C50 response factors within 70% of nC10 + nC16 + nC34 average; and,
   - Linearity is within 15%.

7. Unless otherwise stated in the sample comments, sampling requirements and analytical holding times have been met.
8. Gravimetric heavy hydrocarbons (F4G) cannot be added to the C6 and C50 hydrocarbons.
9. *PAHs = phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene.

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eurofins 218968

STANDARD CHAIN-OF-CUSTODY

146 Colonnade Road, Unit #8, Ottawa, ON, K2E 7Y1 - Phone: 613-727-5692, Fax: 613-727-5222

Eurofins Workorder #: 1987936

CLIENT INFORMATION

Company: Morrison Hershfield (MH)
Contact: Sarth Sheth ; Nicholas Moore
Address:
Telephone: Cell: 6393178111
Email: #1: ssheth@morrisonhershfield.com
Email: #2: nmoore@morrisonhershfield.com
Project: 190261800 Quote #:

INVOICE INFORMATION (SAME AS CLIENT INFORMATION: YES ☐ NO ☒)

Company: MH.
Contact: Accounts Payable
Address:
Telephone:
Fax:
Email: #1:
Email: #2:
PO #:

TURN-AROUND TIME (Business Days)

☐ 1 Day* (100%) ☐ 2 Day** (50%) ☐ 3-5 Days (25%) ☒ 5-7 Days (Standard)

Please contact Lab in advance to determine rush availability.
*For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%.
**For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

REGULATION/GUIDELINE REQUIRED

☐ Sanitary Sewer, City:
☐ Storm Sewer, City:
☐ ODWSOG (Use DW CoC if analyzing drinking water)
☐ PWQO
☐ O.Reg 347
☐ Other:

☒ O. Reg 153 — Table # 3 and ICC (Coarse / Fine; Surface / subsurface) — Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment
The sample results from this submission will form part of a formal Record of Site Condition (RSC) under O.Reg. 153/04. Analysis of full paramter list only: Yes ☐ No ☒

☒ O. Reg 406 Excess Soils Tab 1-3
Table # 1-3 Full depth/Strat/Ceiling/mSPLP Leachate
Type: Com-Ind /Res-Park /Agri/All Other
Category: Surface /Subsurface

The optimal temperature conditions during transport should be less than 10°C. Sample(s) cannot be frozen, unless otherwise indicated or agreed upon with the Laboratory. Note that this COC is not to be used for drinking water samples. The COC must be complete upon submission of the samples, there will be a $25 surcharge if required information is missing (required fields are shaded in grey).

Sample Details

Sample ID	Date/Time Collected	Sample Matrix	# of Containers	O.Reg.153 parameters: PHC F1 - F4	BTEX	VOCs	PAHs	PCBs	Metals + Inorganics	Metals only	Phenols	Dioxins	Furans	OCPs	RN# (Lab Use Only)
BH C1 - SS2	Oct 5, 2022	Soil	1						X						1655943
BH C1 - SS5	Oct 5, 2022	Soil	3	X		X	X								44
A 22-2 SS3	Oct 11, 2022	Soil	1						X						45
A 22-2 SS5	Oct 11, 2022	Soil	3	X		X	X				X	X	X		46
A 22-2 SS-6	Oct 11, 2022	Soil	1					X						X	47
A 22-2 SS-7	Oct 12, 2022	Soil	1									X	X		On hold

	PRINT	SIGN	DATE/TIME	TEMP (°C)
Sampled By:	Sarth Sheth / Nicholas Moore	Sheth	Oct 11, 2022	
Relinquished By:	Nicholas Moore	N. Moore	Oct 11, 2022	7.1°C
Received By:	Victor Gallant	V.G.	10/11/22 5:07pm	

COMMENTS:

CUSTODY SEAL: ☐ YES ☐ NO — Ice packs submit: ☑ Yes ☐ No

401 Magnetic Drive, Unit #1, North York, ON, M3J 3H9 - Telephone: 416-661-5287 • 380 Vansickle Road, Unit #630, St. Catharines, ON, L2S 0B5 - Telephone: 905-680-8887 • 608 Norris Court, Kingston, ON, K7P 2R9 - Telephone: 613-634-9307

AFSTDCOC.9

Certificate of Analysis

eurofins | Environment Testing

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
Invoice to: Morrison Hershfield Limited
PO#:

Report Number:	1992714
Date Submitted:	2023-01-17
Date Reported:	2023-01-24
Project:	190261800
COC #:	904898
Temperature (C):	6
Custody Seal:	

Dear Sarth Sheth:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

R Zafari

Raheleh Zafari 2023.01.24 14:48:56 -05'00'

Raheleh Zafari, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated
.
Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

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Project: 190261800
COC #: 904898

O.Reg 153-T1-All Other Soils

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria
Inorganics				
BHP 22	Electrical Conductivity	0.68	mS/cm	STD 0.57
BHP 22	Sodium Adsorption Ratio	9.54		STD 2.4
BHP4	Sodium Adsorption Ratio	3.92		STD 2.4
BHP5	Electrical Conductivity	2.96	mS/cm	STD 0.57
BHP5	Sodium Adsorption Ratio	84.1		STD 2.4
BHP7	Electrical Conductivity	4.18	mS/cm	STD 0.57
BHP7	Sodium Adsorption Ratio	52.6		STD 2.4
BHP9	Electrical Conductivity	1.10	mS/cm	STD 0.57
BHP9	Sodium Adsorption Ratio	12.9		STD 2.4
Volatiles				
BHP5	Xylene Mixture	0.06	ug/g	STD 0.05

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COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671394	1671395	1671396	1671397	1671398
Sample Matrix					Soil153	Soil153	Soil153	Soil153	Soil153
Sample Type									
Sample Date					2023-01-16	2023-01-16	2023-01-16	2023-01-16	2023-01-16
Sampling Time									
Sample I.D.					BHP4	BHP5	BHP7	BHP9	BHP 10
PHC's F1	436571	10	ug/g	STD 25	<10	<10	<10	<10	<10
PHC's F1-BTEX	436576	10	ug/g		<10	<10	<10	<10	<10
PHC's F2	436614	2	ug/g	STD 10	<2	<2	<2	<2	<2
PHC's F2-Napth	436683	2	ug/g		<2	<2	<2	<2	<2
PHC's F3	436614	20	ug/g	STD 240	40	<20	<20	<20	<20
PHC's F3-PAH	436684	20	ug/g		40	<20	<20	<20	<20
PHC's F4	436614	20	ug/g	STD 120	30	<20	<20	100	<20

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671400	1671401	1671402
Sample Matrix					Soil153	Soil153	Soil153
Sample Type							
Sample Date					2023-01-16	2023-01-16	2023-01-16
Sampling Time							
Sample I.D.					BHP11	BHP 22	BHP Dup 22
PHC's F1	436571	10	ug/g	STD 25	<10	<10	<10
PHC's F1-BTEX	436576	10	ug/g		<10	<10	<10
PHC's F2	436614	2	ug/g	STD 10	<2	<2	<2
PHC's F2-Napth	436683	2	ug/g		<2	<2	<2
PHC's F3	436614	20	ug/g	STD 240	<20	<20	<20
PHC's F3-PAH	436684	20	ug/g		<20	<20	<20
PHC's F4	436614	20	ug/g	STD 120	<20	<20	<20

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Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
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Attention: Mr. Sarth Sheth
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Invoice to: Morrison Hershfield Limited

Report Number: 1992714
Date Submitted: 2023-01-17
Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671394 Soil153 2023-01-16 BHP4	1671395 Soil153 2023-01-16 BHP5	1671396 Soil153 2023-01-16 BHP7	1671397 Soil153 2023-01-16 BHP9	1671398 Soil153 2023-01-16 BHP 10
Antimony	436514	1	ug/g	STD 1.3	<1	<1	<1	<1	<1
Arsenic	436514	1	ug/g	STD 18	3	2	2	1	<1
Barium	436514	1	ug/g	STD 220	56	43	46	18	10
Beryllium	436514	1	ug/g	STD 2.5	<1	<1	<1	<1	<1
Boron (Hot Water Soluble)	436589	0.5	ug/g		<0.5	<0.5	<0.5	<0.5	<0.5
Boron (total)	436514	5	ug/g	STD 36	6	5	<5	<5	<5
Cadmium	436514	0.4	ug/g	STD 1.2	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium Total	436514	1	ug/g	STD 70	24	16	17	10	5
Chromium VI	436507	0.20	ug/g	STD 0.66	<0.20	<0.20	<0.20	0.29	<0.20
Cobalt	436514	1	ug/g	STD 21	7	6	5	3	2
Copper	436514	1	ug/g	STD 92	22	16	10	9	4
Lead	436514	1	ug/g	STD 120	16	6	8	10	2
Mercury	436514	0.1	ug/g	STD 0.27	<0.1	<0.1	<0.1	<0.1	<0.1
Molybdenum	436514	1	ug/g	STD 2	<1	<1	<1	<1	<1
Nickel	436514	1	ug/g	STD 82	18	14	11	6	3
Selenium	436514	0.5	ug/g	STD 1.5	<0.5	<0.5	<0.5	<0.5	<0.5
Silver	436514	0.2	ug/g	STD 0.5	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	436514	1	ug/g	STD 1	<1	<1	<1	<1	<1
Uranium	436514	0.5	ug/g	STD 2.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	436514	2	ug/g	STD 86	28	22	21	15	13
Zinc	436514	2	ug/g	STD 290	52	30	35	25	9

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COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671399 Sample Matrix Soil153 Sample Type Sample Date 2023-01-16 Sampling Time Sample I.D. BHP Dup 10	Lab I.D. 1671400 Sample Matrix Soil153 Sample Type Sample Date 2023-01-16 Sampling Time Sample I.D. BHP11	Lab I.D. 1671401 Sample Matrix Soil153 Sample Type Sample Date 2023-01-16 Sampling Time Sample I.D. BHP 22
Antimony	436514	1	ug/g	STD 1.3	<1	<1	<1
Arsenic	436514	1	ug/g	STD 18	<1	2	<1
Barium	436514	1	ug/g	STD 220	10	18	11
Beryllium	436514	1	ug/g	STD 2.5	<1	<1	<1
Boron (Hot Water Soluble)	436589	0.5	ug/g		<0.5	<0.5	<0.5
Boron (total)	436514	5	ug/g	STD 36	<5	<5	<5
Cadmium	436514	0.4	ug/g	STD 1.2	<0.4	<0.4	<0.4
Chromium Total	436514	1	ug/g	STD 70	4	6	5
Chromium VI	436507	0.20	ug/g	STD 0.66	<0.20	<0.20	<0.20
Cobalt	436514	1	ug/g	STD 21	1	3	2
Copper	436514	1	ug/g	STD 92	5	11	5
Lead	436514	1	ug/g	STD 120	2	4	2
Mercury	436514	0.1	ug/g	STD 0.27	<0.1	<0.1	<0.1
Molybdenum	436514	1	ug/g	STD 2	<1	<1	<1
Nickel	436514	1	ug/g	STD 82	3	7	3
Selenium	436514	0.5	ug/g	STD 1.5	<0.5	<0.5	<0.5
Silver	436514	0.2	ug/g	STD 0.5	<0.2	<0.2	<0.2
Thallium	436514	1	ug/g	STD 1	<1	<1	<1
Uranium	436514	0.5	ug/g	STD 2.5	<0.5	<0.5	<0.5
Vanadium	436514	2	ug/g	STD 86	11	11	11
Zinc	436514	2	ug/g	STD 290	8	26	10

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COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

OCP/PCB

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671396 Sample Matrix Soil153 Sample Type Sample Date 2023-01-16 Sampling Time Sample I.D. BHP7	Lab I.D. 1671397 Sample Matrix Soil153 Sample Type Sample Date 2023-01-16 Sampling Time Sample I.D. BHP9
Aldrin	436664	0.002	ug/g	STD 0.05	<0.002	<0.002
Chlordane	436664	0.006	ug/g	STD 0.05	<0.006	<0.006
Chlordane, alpha-	436664	0.002	ug/g		<0.002	<0.002
Chlordane, gamma-	436664	0.002	ug/g		<0.002	<0.002
DDD	436664	0.002	ug/g	STD 0.05	<0.002	<0.002
DDE	436664	0.002	ug/g	STD 0.05	<0.002	<0.002
DDT	436664	0.002	ug/g	STD 1.4	<0.002	<0.002
Dieldrin	436664	0.002	ug/g	STD 0.05	<0.002	<0.002
Endosulfan	436664	0.004	ug/g	STD 0.04	<0.004	<0.004
Endosulfan I	436664	0.002	ug/g		<0.002	<0.002
Endosulfan II	436664	0.002	ug/g		<0.002	<0.002
Endrin	436664	0.002	ug/g	STD 0.04	<0.002	<0.002
Heptachlor	436664	0.002	ug/g	STD 0.05	<0.002	<0.002
Heptachlor Epoxide	436664	0.002	ug/g	STD 0.05	<0.002	<0.002
Hexachlorobenzene	436664	0.002	ug/g	STD 0.01	<0.002	<0.002
Hexachlorobutadiene	436664	0.002	ug/g	STD 0.01	<0.002	<0.002
Hexachlorocyclohexane Gamma-	436664	0.002	ug/g	STD 0.01	<0.002	<0.002
Hexachloroethane	436664	0.002	ug/g	STD 0.01	<0.002	<0.002
Methoxychlor	436664	0.002	ug/g	STD 0.05	<0.002	<0.002

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Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671394 Soil153 2023-01-16 BHP4	1671395 Soil153 2023-01-16 BHP5	1671396 Soil153 2023-01-16 BHP7	1671397 Soil153 2023-01-16 BHP9	1671398 Soil153 2023-01-16 BHP 10
1+2-methylnaphthalene	436667	0.05	ug/g		<0.05	<0.05	<0.05	<0.05	
	436681	0.05	ug/g						<0.05
Acenaphthene	436398	0.05	ug/g	STD 0.072	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	436398	0.05	ug/g	STD 0.093	<0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	436398	0.05	ug/g	STD 0.16	0.06	<0.05	<0.05	<0.05	<0.05
Benz[a]anthracene	436398	0.05	ug/g	STD 0.36	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[a]pyrene	436398	0.05	ug/g	STD 0.3	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	436398	0.05	ug/g	STD 0.47	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[ghi]perylene	436398	0.05	ug/g	STD 0.68	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	436398	0.05	ug/g	STD 0.48	<0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	436398	0.05	ug/g	STD 2.8	<0.05	<0.05	<0.05	<0.05	<0.05
Dibenz[a h]anthracene	436398	0.05	ug/g	STD 0.1	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	436398	0.05	ug/g	STD 0.56	0.09	<0.05	<0.05	<0.05	<0.05
Fluorene	436398	0.05	ug/g	STD 0.12	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno[1 2 3-cd]pyrene	436398	0.05	ug/g	STD 0.23	<0.05	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 1-	436398	0.05	ug/g	STD 0.59	<0.05	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 2-	436398	0.05	ug/g	STD 0.59	<0.05	<0.05	<0.05	<0.05	<0.05
Naphthalene	436398	0.013	ug/g	STD 0.09	<0.013	<0.013	<0.013	<0.013	<0.013
Phenanthrene	436398	0.05	ug/g	STD 0.69	<0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	436398	0.05	ug/g	STD 1	0.08	<0.05	<0.05	<0.05	<0.05

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Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992714
Date Submitted: 2023-01-17
Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671400 Sample Matrix Soil153 Sample Type Sample Date 2023-01-16 Sampling Time Sample I.D. BHP11	Lab I.D. 1671401 Sample Matrix Soil153 Sample Type Sample Date 2023-01-16 Sampling Time Sample I.D. BHP 22	Lab I.D. 1671402 Sample Matrix Soil153 Sample Type Sample Date 2023-01-16 Sampling Time Sample I.D. BHP Dup 22
1+2-methylnaphthalene	436681	0.05	ug/g		<0.05	<0.05	<0.05
Acenaphthene	436398	0.05	ug/g	STD 0.072	<0.05	<0.05	<0.05
Acenaphthylene	436398	0.05	ug/g	STD 0.093	<0.05	<0.05	<0.05
Anthracene	436398	0.05	ug/g	STD 0.16	<0.05	<0.05	<0.05
Benz[a]anthracene	436398	0.05	ug/g	STD 0.36	<0.05	<0.05	<0.05
Benzo[a]pyrene	436398	0.05	ug/g	STD 0.3	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	436398	0.05	ug/g	STD 0.47	<0.05	<0.05	<0.05
Benzo[ghi]perylene	436398	0.05	ug/g	STD 0.68	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	436398	0.05	ug/g	STD 0.48	<0.05	<0.05	<0.05
Chrysene	436398	0.05	ug/g	STD 2.8	<0.05	<0.05	<0.05
Dibenz[a h]anthracene	436398	0.05	ug/g	STD 0.1	<0.05	<0.05	<0.05
Fluoranthene	436398	0.05	ug/g	STD 0.56	<0.05	<0.05	<0.05
Fluorene	436398	0.05	ug/g	STD 0.12	<0.05	<0.05	<0.05
Indeno[1 2 3-cd]pyrene	436398	0.05	ug/g	STD 0.23	<0.05	<0.05	<0.05
Methlynaphthalene, 1-	436398	0.05	ug/g	STD 0.59	<0.05	<0.05	<0.05
Methlynaphthalene, 2-	436398	0.05	ug/g	STD 0.59	<0.05	<0.05	<0.05
Naphthalene	436398	0.013	ug/g	STD 0.09	<0.013	<0.013	<0.013
Phenanthrene	436398	0.05	ug/g	STD 0.69	<0.05	<0.05	<0.05
Pyrene	436398	0.05	ug/g	STD 1	<0.05	<0.05	<0.05

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Certificate of Analysis

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COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671394	1671395	1671396	1671397	1671398
Sample Matrix					Soil153	Soil153	Soil153	Soil153	Soil153
Sample Type									
Sample Date					2023-01-16	2023-01-16	2023-01-16	2023-01-16	2023-01-16
Sampling Time									
Sample I.D.					BHP4	BHP5	BHP7	BHP9	BHP 10
Acetone	436571	0.50	ug/g	STD 0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	436571	0.0068	ug/g	STD 0.02	<0.0068	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,3-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,4-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,1-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,1-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-cis-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-trans-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropane, 1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene,1,3-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene,1,3-cis-	436571	0.05	ug/g		<0.05	<0.05	<0.05	<0.05	<0.05
Dichloropropene,1,3-trans-	436571	0.05	ug/g		<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	436571	0.018	ug/g	STD 0.05	<0.018	<0.018	<0.018	<0.018	<0.018

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Invoice to: Morrison Hershfield Limited

Report Number: 1992714
Date Submitted: 2023-01-17
Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671394	1671395	1671396	1671397	1671398
					Sample Matrix Soil153	Soil153	Soil153	Soil153	Soil153
					Sample Type				
					Sample Date 2023-01-16	2023-01-16	2023-01-16	2023-01-16	2023-01-16
					Sampling Time				
					Sample I.D. BHP4	BHP5	BHP7	BHP9	BHP 10
Ethylene dibromide	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Hexane (n)	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	436571	0.50	ug/g	STD 0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	436571	0.50	ug/g	STD 0.5	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	436571	0.08	ug/g	STD 0.2	<0.08	<0.08	<0.08	<0.08	<0.08
Trichloroethane, 1,1,1-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	436571	0.01	ug/g	STD 0.05	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	436571	0.05	ug/g	STD 0.25	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	436571	0.02	ug/g	STD 0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Xylene Mixture	436575	0.05	ug/g	STD 0.05	<0.05	0.06*	<0.05	<0.05	<0.05
Xylene, m/p-	436571	0.05	ug/g		<0.05	0.06	<0.05	<0.05	<0.05
Xylene, o-	436571	0.05	ug/g		<0.05	<0.05	<0.05	<0.05	<0.05

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PO#:
Invoice to: Morrison Hershfield Limited

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Date Submitted: 2023-01-17
Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671400 Soil153 2023-01-16 BHP11	Lab I.D. 1671401 Soil153 2023-01-16 BHP 22	Lab I.D. 1671402 Soil153 2023-01-16 BHP Dup 22
Acetone	436571	0.50	ug/g	STD 0.5	<0.50	<0.50	<0.50
Benzene	436571	0.0068	ug/g	STD 0.02	<0.0068	<0.0068	<0.0068
Bromodichloromethane	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Bromoform	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Bromomethane	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Chlorobenzene	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Chloroform	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dibromochloromethane	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,3-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,4-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,1-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,1-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-cis-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-trans-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichloropropane, 1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichloropropene,1,3-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Dichloropropene,1,3-cis-	436571	0.05	ug/g		<0.05	<0.05	<0.05
Dichloropropene,1,3-trans-	436571	0.05	ug/g		<0.05	<0.05	<0.05
Ethylbenzene	436571	0.018	ug/g	STD 0.05	<0.018	<0.018	<0.018

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671400	1671401	1671402
					Sample Matrix Soil153	Soil153	Soil153
					Sample Type		
					Sample Date 2023-01-16	2023-01-16	2023-01-16
					Sampling Time		
					Sample I.D. BHP11	BHP 22	BHP Dup 22
Ethylene dibromide	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Hexane (n)	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	436571	0.50	ug/g	STD 0.5	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	436571	0.50	ug/g	STD 0.5	<0.50	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Methylene Chloride	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Styrene	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Toluene	436571	0.08	ug/g	STD 0.2	<0.08	<0.08	<0.08
Trichloroethane, 1,1,1-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,2-	436571	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Trichloroethylene	436571	0.01	ug/g	STD 0.05	<0.01	<0.01	<0.01
Trichlorofluoromethane	436571	0.05	ug/g	STD 0.25	<0.05	<0.05	<0.05
Vinyl Chloride	436571	0.02	ug/g	STD 0.02	<0.02	<0.02	<0.02
Xylene Mixture	436575	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05
Xylene, m/p-	436571	0.05	ug/g		<0.05	<0.05	<0.05
Xylene, o-	436571	0.05	ug/g		<0.05	<0.05	<0.05

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Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671394	1671395	1671396	1671397	1671398
Sample Matrix					Soil153	Soil153	Soil153	Soil153	Soil153
Sample Type									
Sample Date					2023-01-16	2023-01-16	2023-01-16	2023-01-16	2023-01-16
Sampling Time									
Sample I.D.					BHP4	BHP5	BHP7	BHP9	BHP 10
Cyanide (CN-)	436515	0.005	ug/g	STD 0.051	<0.005	<0.005	<0.005	<0.005	<0.005
Electrical Conductivity	436508	0.05	mS/cm	STD 0.57	0.40	2.96*	4.18*	1.10*	0.12
pH - CaCl2	436499	2.00			8.05	8.14	8.10	8.25	8.20
Sodium Adsorption Ratio	436522	0.01		STD 2.4	3.92*	84.1*	52.6*	12.9*	0.31

Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671399	1671400	1671401
Sample Matrix					Soil153	Soil153	Soil153
Sample Type							
Sample Date					2023-01-16	2023-01-16	2023-01-16
Sampling Time							
Sample I.D.					BHP Dup 10	BHP11	BHP 22
Cyanide (CN-)	436515	0.005	ug/g	STD 0.051	<0.005	<0.005	<0.005
Electrical Conductivity	436508	0.05	mS/cm	STD 0.57	0.09	0.10	0.68*
pH - CaCl2	436499	2.00			8.20	8.22	8.23
Sodium Adsorption Ratio	436522	0.01		STD 2.4	0.15	0.14	9.54*

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MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
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K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992714
Date Submitted: 2023-01-17
Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Guideline = O.Reg 153-T1-All Other Soils - Res/Par/Ins/Ind/Com/Prop

Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	1671394	1671395	1671396	1671397	1671398
					Sample Matrix	Soil153	Soil153	Soil153	Soil153	Soil153
					Sample Type					
					Sample Date	2023-01-16	2023-01-16	2023-01-16	2023-01-16	2023-01-16
					Sampling Time					
					Sample I.D.	BHP4	BHP5	BHP7	BHP9	BHP 10
Moisture-Humidite	436614	0.1	%			11.2	11.0	18.1	2.9	10.6

Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D.	1671400	1671401	1671402
					Sample Matrix	Soil153	Soil153	Soil153
					Sample Type			
					Sample Date	2023-01-16	2023-01-16	2023-01-16
					Sampling Time			
					Sample I.D.	BHP11	BHP 22	BHP Dup 22
Moisture-Humidite	436614	0.1	%			8.2	9.1	14.1

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PCBs

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671396 / Sample Matrix Soil153 / Sample Type / Sample Date 2023-01-16 / Sampling Time / Sample I.D. BHP7	Lab I.D. 1671397 / Sample Matrix Soil153 / Sample Type / Sample Date 2023-01-16 / Sampling Time / Sample I.D. BHP9
Aroclor 1242	436662	0.02	ug/g		<0.02	<0.02
Aroclor 1248	436662	0.02	ug/g		<0.02	<0.02
Aroclor 1254	436662	0.02	ug/g		<0.02	<0.02
Aroclor 1260	436662	0.02	ug/g		<0.02	<0.02
Polychlorinated Biphenyls	436662	0.02	ug/g	STD 0.3	<0.02	<0.02

PCB Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671396 / Sample Matrix Soil153 / Sample Type / Sample Date 2023-01-16 / Sampling Time / Sample I.D. BHP7	Lab I.D. 1671397 / Sample Matrix Soil153 / Sample Type / Sample Date 2023-01-16 / Sampling Time / Sample I.D. BHP9
Decachlorobiphenyl	436663	0	%		87	75

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PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.				
					1671394 Soil153 2023-01-16 BHP4	1671395 Soil153 2023-01-16 BHP5	1671396 Soil153 2023-01-16 BHP7	1671397 Soil153 2023-01-16 BHP9	1671398 Soil153 2023-01-16 BHP 10
Alpha-androstrane	436614	0	%		65	69	61	66	71

PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.		
					1671400 Soil153 2023-01-16 BHP11	1671401 Soil153 2023-01-16 BHP 22	1671402 Soil153 2023-01-16 BHP Dup 22
Alpha-androstrane	436614	0	%		72	71	65

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VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671394	1671395	1671396	1671397	1671398
					Sample Matrix Soil153	Soil153	Soil153	Soil153	Soil153
					Sample Type				
					Sample Date 2023-01-16	2023-01-16	2023-01-16	2023-01-16	2023-01-16
					Sampling Time				
					Sample I.D. BHP4	BHP5	BHP7	BHP9	BHP 10
1,2-dichloroethane-d4	436571	0	%		94	97	100	106	108
4-bromofluorobenzene	436571	0	%		106	107	104	92	89
Toluene-d8	436571	0	%		94	94	94	99	99

VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671400	1671401	1671402
					Sample Matrix Soil153	Soil153	Soil153
					Sample Type		
					Sample Date 2023-01-16	2023-01-16	2023-01-16
					Sampling Time		
					Sample I.D. BHP11	BHP 22	BHP Dup 22
1,2-dichloroethane-d4	436571	0	%		109	110	106
4-bromofluorobenzene	436571	0	%		89	89	87
Toluene-d8	436571	0	%		99	100	98

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436398	Methlynaphthalene, 1-	<0.05 ug/g	81	50-140	56	50-140	0	0-40
436398	Methlynaphthalene, 2-	<0.05 ug/g	78	50-140	52	50-140	0	0-40
436398	Acenaphthene	<0.05 ug/g	90	50-140	69	50-140	0	0-40
436398	Acenaphthylene	0.05 ug/g	86	50-140	65	50-140	0	0-40
436398	Anthracene	<0.05 ug/g	90	50-140	72	50-140	0	0-40
436398	Benz[a]anthracene	<0.05 ug/g	83	50-140	77	50-140	0	0-40
436398	Benzo[a]pyrene	<0.05 ug/g	74	50-140	51	50-140	0	0-40
436398	Benzo[b]fluoranthene	<0.05 ug/g	82	50-140	68	50-140	0	0-40
436398	Benzo[ghi]perylene	<0.05 ug/g	92	50-140	52	50-140	0	0-40
436398	Benzo[k]fluoranthene	<0.05 ug/g	92	50-140	73		0	0-40
436398	Chrysene	<0.05 ug/g	89	50-140	79	50-140	0	0-40
436398	Dibenz[a h]anthracene	<0.05 ug/g	89	50-140	52	50-140	0	0-40
436398	Fluoranthene	<0.05 ug/g	84	50-140	76	50-140	0	0-40
436398	Fluorene	<0.05 ug/g	88	50-140	69	50-140	0	0-40
436398	Indeno[1 2 3-cd]pyrene	<0.05 ug/g	89	50-140	54	50-140	0	0-40
436398	Naphthalene	<0.013 ug/g	85	50-140	81	50-140	0	0-40
436398	Phenanthrene	<0.05 ug/g	86	50-140	80	50-140	0	0-40
436398	Pyrene	<0.05 ug/g	84	50-140	76	50-140	0	0-40
436499	pH - CaCl2	6.25	102	90-110			0	
436507	Chromium VI	<0.20 ug/g	105	70-130	87	70-130	0	0-35
436508	Electrical Conductivity	<0.05	102	90-110			1	0-10
436514	Silver	<0.2 ug/g	109	70-130	106	70-130	0	0-20
436514	Arsenic	<1 ug/g	90	70-130	100	70-130	0	0-20
436514	Boron (total)	<5 ug/g	100	70-130	118	70-130	0	0-20
436514	Barium	<1 ug/g	95	70-130	142	70-130	3	0-20
436514	Beryllium	<1 ug/g	97	70-130	97	70-130	0	0-20
436514	Cadmium	<0.4 ug/g	97	70-130	104	70-130	0	0-20
436514	Cobalt	<1 ug/g	97	70-130	98	70-130	1	0-20
436514	Chromium Total	<1 ug/g	101	70-130	148	70-130	8	0-20
436514	Copper	<1 ug/g	101	70-130	105	70-130	3	0-20
436514	Mercury	<0.1 ug/g	90	70-130	93	70-130	0	0-20
436514	Molybdenum	<1 ug/g	95	70-130	102	70-130	0	0-20

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Date Submitted: 2023-01-17
Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436514	Nickel	<1 ug/g	99	70-130	110	70-130	4	0-20
436514	Lead	<1 ug/g	92	70-130	93	70-130	4	0-20
436514	Antimony	<1 ug/g	82	70-130	93	70-130	0	0-20
436514	Selenium	<0.5 ug/g	98	70-130	101	70-130	0	0-20
436514	Thallium	<1 ug/g	93	70-130	93	70-130	0	0-20
436514	Uranium	<0.5 ug/g	97	70-130	102	70-130	0	0-20
436514	Vanadium	<2 ug/g	95	70-130	140	70-130	6	0-20
436514	Zinc	<2 ug/g	99	70-130	147	70-130	13	0-20
436515	Cyanide (CN-)	<0.005 ug/g	98	75-125	99	70-130	0	0-20
436522	Sodium Adsorption Ratio	<0.01					6	
436571	Tetrachloroethane, 1,1,1,2-	<0.05 ug/g	98	60-130	94	50-140	0	0-50
436571	Trichloroethane, 1,1,1-	<0.05 ug/g	91	60-130	98	50-140	0	0-50
436571	Tetrachloroethane, 1,1,2,2-	<0.05 ug/g	99	60-130	97	50-140	0	0-30
436571	Trichloroethane, 1,1,2-	<0.05 ug/g	97	60-130	96	50-140	0	0-50
436571	Dichloroethane, 1,1-	<0.05 ug/g	92	60-130	95	50-140	0	0-50
436571	Dichloroethylene, 1,1-	<0.05 ug/g	81	60-130	109	50-140	0	0-50
436571	Dichlorobenzene, 1,2-	<0.05 ug/g	94	60-130	99	50-140	0	0-50
436571	Dichloroethane, 1,2-	<0.05 ug/g	92	60-130	105	50-140	0	0-50
436571	Dichloropropane, 1,2-	<0.05 ug/g	92	60-130	97	50-140	0	0-50
436571	Dichlorobenzene, 1,3-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
436571	Dichloropropene,1,3-							
436571	Dichlorobenzene, 1,4-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
436571	Acetone	<0.50 ug/g	94	60-130	105	50-140	0	0-50
436571	Benzene	<0.0068	94	60-130	81	50-140	0	0-50
436571	Bromodichloromethane	<0.05 ug/g	92	60-130	84	50-140	0	0-50
436571	Bromoform	<0.05 ug/g	94	60-130	100	50-140	0	0-50
436571	Bromomethane	<0.05 ug/g	81	60-130	97	50-140	0	0-50
436571	Dichloroethylene, 1,2-cis-	<0.05 ug/g	90	60-130	103	50-140	0	0-50
436571	Dichloropropene,1,3-cis-	<0.05 ug/g	82	60-130	99	50-140	0	0-50
436571	Carbon Tetrachloride	<0.05 ug/g	93	60-130	84	50-140	0	0-50
436571	Chloroform	<0.05 ug/g	93	60-130	84	50-140	0	0-50
436571	Dibromochloromethane	<0.05 ug/g	93	60-130	93	50-140	0	0-50
436571	Dichlorodifluoromethane	<0.05 ug/g	92	60-130	95	50-140	0	0-50

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Project: 190261800
COC #: 904898

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436571	Methylene Chloride	<0.05 ug/g	97	60-130	100	50-140	0	0-50
436571	Ethylbenzene	<0.018 ug/g	90	60-130	100	50-140	0	0-50
436571	Ethylene dibromide	<0.05 ug/g	99	60-130	95	50-140	0	0-50
436571	PHC's F1	<10 ug/g	111	80-120	113	60-140	0	0-30
436571	Hexane (n)	<0.05 ug/g	104	60-130	97	50-140	0	0-50
436571	Xylene, m/p-	<0.05 ug/g	97	60-130	109	50-140	0	0-50
436571	Methyl Ethyl Ketone	<0.50 ug/g	106	60-130	110	50-140	0	0-50
436571	Methyl Isobutyl Ketone	<0.50 ug/g	86	60-130	91	50-140	0	0-50
436571	Methyl tert-Butyl Ether (MTBE)	<0.05 ug/g	94	60-130	96	50-140	0	0-50
436571	Chlorobenzene	<0.05 ug/g	93	60-130	94	50-140	0	0-50
436571	Xylene, o-	<0.05 ug/g	92	60-130	93	50-140	0	0-50
436571	Styrene	<0.05 ug/g	89	60-130	96	50-140	0	0-50
436571	Dichloroethylene, 1,2-trans-	<0.05 ug/g	93	60-130	100	50-140	0	0-50
436571	Dichloropropene,1,3-trans-	<0.05 ug/g	86	60-130	99	50-140	0	0-50
436571	Tetrachloroethylene	<0.05 ug/g	90	60-130	98	50-140	0	0-50
436571	Toluene	<0.08 ug/g	89	60-130	99	50-140	0	0-50
436571	Trichloroethylene	<0.01 ug/g	89	60-130	85	50-140	0	0-50
436571	Trichlorofluoromethane	<0.05 ug/g	90	60-130	100	50-140	0	0-50
436571	Vinyl Chloride	<0.02 ug/g	99	60-130	99	50-140	0	0-50
436575	Xylene Mixture							
436576	PHC's F1-BTEX							
436589	Boron (Hot Water Soluble)	<0.5 ug/g	110	70-130	112	75-125	0	0-30
436614	PHC's F2	<2 ug/g	91	80-120	105	60-140	0	0-30
436614	PHC's F3	<20 ug/g	92	80-120	105	60-140	0	0-30
436614	PHC's F4	<20 ug/g	92	80-120	105	60-140	0	0-30
436614	Moisture-Humidite	<0.1 %	100	80-120			6	
436662	Aroclor 1242	<0.02 ug/g	75	60-140	85	60-140	0	0-40
436662	Aroclor 1248	<0.02 ug/g	75	60-140	85	60-140	0	0-40
436662	Aroclor 1254	<0.02 ug/g	75	60-140	85	60-140	0	0-40
436662	Aroclor 1260	<0.02 ug/g	75	60-140	85	60-140	0	0-40
436662	Polychlorinated Biphenyls	<0.02 ug/g	75	60-140	85	60-140	0	0-40
436664	Chlordane, alpha-	<0.002 ug/g	68	50-140	87	50-140	0	0-40
436664	Aldrin	<0.002 ug/g	69	50-140	85	50-140	0	0-40

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Certificate of Analysis

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Quality Assurance Summary

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436664	Chlordane	<0.006 ug/g					0	
436664	Dieldrin	<0.002 ug/g	73	50-140	87	50-140	0	0-40
436664	Endosulfan	<0.004 ug/g					0	
436664	Endosulfan I	<0.002 ug/g	67	50-140	90	50-140	0	0-40
436664	Endosulfan II	<0.002 ug/g	75	50-140	91	50-140	0	0-40
436664	Endrin	<0.002 ug/g	73	50-140	87	50-140	0	0-40
436664	Hexachlorocyclohexane Gamma-	<0.002 ug/g	72	50-140	79	50-140	0	0-40
436664	Chlordane, gamma-	<0.002 ug/g	65	50-140	89	50-140	0	0-40
436664	Heptachlor	<0.002 ug/g	73	50-140	88	50-140	0	0-40
436664	Heptachlor Epoxide	<0.002 ug/g	69	50-140	89	50-140	0	0-40
436664	Hexachlorobenzene	<0.002 ug/g	102	50-140		50-140	0	0-40
436664	Hexachlorobutadiene	<0.002 ug/g	95				0	
436664	Hexachloroethane	<0.002 ug/g	93				0	
436664	Methoxychlor	<0.002 ug/g	78	50-140	86	50-140	0	0-40
436664	DDD	<0.002 ug/g	75	50-140	84	50-140	0	0-40
436664	DDE	<0.002 ug/g	75	50-140	92	50-140	0	0-40
436664	DDT	<0.002 ug/g	85	50-140	83	50-140	0	0-40
436667	1+2-methylnaphthalene							
436681	1+2-methylnaphthalene							
436683	PHC's F2-Napth							
436684	PHC's F3-PAH							

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436398	Methlynaphthalene, 1-	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Methlynaphthalene, 2-	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Acenaphthene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Acenaphthylene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Anthracene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Benz[a]anthracene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Benzo[a]pyrene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Benzo[b]fluoranthene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Benzo[ghi]perylene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Benzo[k]fluoranthene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Chrysene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Dibenz[a h]anthracene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Fluoranthene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Fluorene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Indeno[1 2 3-cd]pyrene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Naphthalene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Phenanthrene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436398	Pyrene	GC-MS	2023-01-23	2023-01-24	C_M	P 8270
436499	pH - CaCl2	pH Meter	2023-01-19	2023-01-19	IP	Ag Soil
436507	Chromium VI	FAA	2023-01-19	2023-01-19	MW	M US EPA 3060A
436508	Electrical Conductivity	Electrical Conductivity Mete	2023-01-19	2023-01-19	Z_S	Cond-Soil
436514	Silver	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Arsenic	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Boron (total)	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Barium	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Beryllium	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Cadmium	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Cobalt	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Chromium Total	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Copper	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Mercury	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Molybdenum	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020

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Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992714
Date Submitted: 2023-01-17
Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436514	Nickel	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Lead	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Antimony	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Selenium	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Thallium	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Uranium	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Vanadium	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436514	Zinc	ICAPQ-MS	2023-01-19	2023-01-19	SD	EPA 200.8/6020
436515	Cyanide (CN-)	Skalar CN Analyzer	2023-01-19	2023-01-19	Z_S	MOECC E3015
436522	Sodium Adsorption Ratio	iCAP OES	2023-01-19	2023-01-19	Z_S	Ag Soil
436571	Tetrachloroethane, 1,1,1,2-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Trichloroethane, 1,1,1-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Tetrachloroethane, 1,1,2,2-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Trichloroethane, 1,1,2-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloroethane, 1,1-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloroethylene, 1,1-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichlorobenzene, 1,2-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloroethane, 1,2-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloropropane, 1,2-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichlorobenzene, 1,3-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloropropene,1,3-	GC-MS	2023-01-20	2023-01-20	PJ	V 8260B
436571	Dichlorobenzene, 1,4-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Acetone	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Benzene	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Bromodichloromethane	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Bromoform	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Bromomethane	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloroethylene, 1,2-cis-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloropropene,1,3-cis-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Carbon Tetrachloride	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Chloroform	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dibromochloromethane	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichlorodifluoromethane	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B

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Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436571	Methylene Chloride	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Ethylbenzene	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Ethylene dibromide	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	PHC's F1	GC/FID	2023-01-20	2023-01-20	PJ	CCME
436571	Hexane (n)	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Xylene, m/p-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Methyl Ethyl Ketone	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Methyl Isobutyl Ketone	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Methyl tert-Butyl Ether (MTBE)	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Chlorobenzene	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Xylene, o-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Styrene	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloroethylene, 1,2-trans-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Dichloropropene,1,3-trans-	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Tetrachloroethylene	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Toluene	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Trichloroethylene	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Trichlorofluoromethane	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436571	Vinyl Chloride	GC-MS	2023-01-19	2023-01-20	PJ	V 8260B
436575	Xylene Mixture	GC-MS	2023-01-20	2023-01-20	PJ	V 8260B
436576	PHC's F1-BTEX	GC/FID	2023-01-20	2023-01-20	PJ	CCME
436589	Boron (Hot Water Soluble)	iCAP OES	2023-01-20	2023-01-20	Z_S	MOECC E3470
436614	PHC's F2	GC/FID	2023-01-23	2023-01-23	SS	CCME
436614	PHC's F3	GC/FID	2023-01-23	2023-01-23	SS	CCME
436614	PHC's F4	GC/FID	2023-01-23	2023-01-23	SS	CCME
436614	Moisture-Humidite	Oven	2023-01-23	2023-01-23	SS	ASTM 2216
436662	Aroclor 1242	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436662	Aroclor 1248	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436662	Aroclor 1254	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436662	Aroclor 1260	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436662	Polychlorinated Biphenyls	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Chlordane, alpha-	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Aldrin	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A

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Date Reported: 2023-01-24
Project: 190261800
COC #: 904898

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436664	Chlordane	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Dieldrin	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Endosulfan	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Endosulfan I	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Endosulfan II	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Endrin	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Hexachlorocyclohexane Gamma-	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Chlordane, gamma-	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Heptachlor	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Heptachlor Epoxide	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Hexachlorobenzene	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Hexachlorobutadiene	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Hexachloroethane	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	Methoxychlor	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	DDD	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	DDE	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436664	DDT	GC/ECD	2023-01-24	2023-01-24	R_G	EPA 8081B/8082A
436667	1+2-methylnaphthalene	GC-MS	2023-01-24	2023-01-24	C_M	P 8270
436681	1+2-methylnaphthalene	GC-MS	2023-01-24	2023-01-24	C_M	P 8270
436683	PHC's F2-Napth	GC/FID	2023-01-24	2023-01-24	SS	CCME
436684	PHC's F3-PAH	GC/FID	2023-01-24	2023-01-24	SS	CCME

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CWS for Petroleum Hydrocarbons in Soil - Tier 1

Notes:

1. The laboratory method complies with CCME Tier 1 reference method for PHC in soil. It is validated for laboratory use.
2. Where the F1 fraction (C6 to C10) and BTEX are both measured, F1-BTEX is reported.
3. Where the F2 fraction (C10 to C16) and naphthalene are both measured, F2-naphthalene is reported.
4. Where the F3 fraction (C16 to C34) and PAHs* are both measured, F3-PAH is reported.
5. F4G is analyzed if the chromatogram does not descend to baseline before C50. Where F4 (C34 to C50) and F4G are both reported, the higher result is compared to the standard.
6. Unless otherwise stated in the sample comments, the following criteria have been met where applicable:

   - nC6 and nC10 response factors within 30% of response factor for toluene;
   - nC10, nC16, and nC34 response factors within 10% of each other;
   - C50 response factors within 70% of nC10 + nC16 + nC34 average; and,
   - Linearity is within 15%.

7. Unless otherwise stated in the sample comments, sampling requirements and analytical holding times have been met.
8. Gravimetric heavy hydrocarbons (F4G) cannot be added to the C6 and C50 hydrocarbons.
9. *PAHs = phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene.

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Certificate of Analysis

eurofins | Environment Testing

Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
Invoice to: Morrision Hershfield
PO#:

Report Number:	1988705
Date Submitted:	2022-10-24
Date Reported:	2022-10-31
Project:	190261800
COC #:	218969
Temperature (C):	6
Custody Seal:	

Dear Sarth Sheth:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

Emma-Dawn Ferguson
2022.10.31
14:50:04 -04'00'

Emma-Dawn Ferguson, Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated
.
Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

eurofins | Environment Testing

Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
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Attention: Mr. Sarth Sheth
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Report Number: 1988705
Date Submitted: 2022-10-24
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Project: 190261800
COC #: 218969

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria

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Report Number: 1988705
Date Submitted: 2022-10-24
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Project: 190261800
COC #: 218969

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424
					Sample Matrix Soil153
					Sample Type
					Sample Date 2022-10-24
					Sampling Time
					Sample I.D. A22-3 SS4
PHC's F1	432228	10	ug/g	STD 55	<10
PHC's F1-BTEX	432231	10	ug/g		<10
PHC's F2	432021	2	ug/g	STD 230	<2
PHC's F2-Napth	432049	2	ug/g		<2
PHC's F3	432021	20	ug/g	STD 1700	<20
PHC's F3-PAH	432246	20	ug/g		<20
PHC's F4	432021	20	ug/g	STD 3300	<20

Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658425
					Sample Matrix Soil153
					Sample Type
					Sample Date 2022-10-24
					Sampling Time
					Sample I.D. A22-3 SS1
Antimony	432242	1	ug/g	STD 40	<1
Arsenic	432242	1	ug/g	STD 18	4
Barium	432242	1	ug/g	STD 670	26
Beryllium	432242	1	ug/g	STD 8	<1
Boron (Hot Water Soluble)	432166	0.5	ug/g	STD 2	<0.5
Boron (total)	432242	5	ug/g	STD 120	7
Cadmium	432242	0.4	ug/g	STD 1.9	<0.4
Chromium Total	432242	1	ug/g	STD 160	29
Chromium VI	432077	0.20	ug/g	STD 8	<0.20
Cobalt	432242	1	ug/g	STD 80	3
Copper	432242	1	ug/g	STD 230	13
Lead	432242	1	ug/g	STD 120	51

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Metals

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658425 / Sample Matrix Soil153 / Sample Type / Sample Date 2022-10-24 / Sampling Time / Sample I.D. A22-3 SS1
Mercury	432242	0.1	ug/g	STD 3.9	<0.1
Molybdenum	432242	1	ug/g	STD 40	<1
Nickel	432242	1	ug/g	STD 270	15
Selenium	432242	0.5	ug/g	STD 5.5	<0.5
Silver	432242	0.2	ug/g	STD 40	<0.2
Thallium	432242	1	ug/g	STD 3.3	<1
Uranium	432242	0.5	ug/g	STD 33	<0.5
Vanadium	432242	2	ug/g	STD 86	18
Zinc	432242	2	ug/g	STD 340	56

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424 / Sample Matrix Soil153 / Sample Type / Sample Date 2022-10-24 / Sampling Time / Sample I.D. A22-3 SS4
1+2-methylnaphthalene	432028	0.05	ug/g		<0.05
Acenaphthene	432026	0.05	ug/g	STD 96	<0.05
Acenaphthylene	432026	0.05	ug/g	STD 0.15	<0.05
Anthracene	432026	0.05	ug/g	STD 0.67	<0.05
Benz[a]anthracene	432026	0.05	ug/g	STD 0.96	<0.05
Benzo[a]pyrene	432026	0.05	ug/g	STD 0.3	0.06
Benzo[b]fluoranthene	432026	0.05	ug/g	STD 0.96	<0.05
Benzo[ghi]perylene	432026	0.05	ug/g	STD 9.6	<0.05
Benzo[k]fluoranthene	432026	0.05	ug/g	STD 0.96	<0.05
Chrysene	432026	0.05	ug/g	STD 9.6	0.07

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L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1988705
Date Submitted: 2022-10-24
Date Reported: 2022-10-31
Project: 190261800
COC #: 218969

Guideline = O.Reg 153-T3-Ind/Com-Coarse

PAH

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424 Sample Matrix Soil153 Sample Type Sample Date 2022-10-24 Sampling Time Sample I.D. A22-3 SS4
Dibenz[a h]anthracene	432026	0.05	ug/g	STD 0.1	<0.05
Fluoranthene	432026	0.05	ug/g	STD 9.6	0.12
Fluorene	432026	0.05	ug/g	STD 62	<0.05
Indeno[1 2 3-cd]pyrene	432026	0.05	ug/g	STD 0.76	<0.05
Methlynaphthalene, 1-	432026	0.05	ug/g	STD 76	<0.05
Methlynaphthalene, 2-	432026	0.05	ug/g	STD 76	<0.05
Naphthalene	432026	0.013	ug/g	STD 9.6	<0.013
Phenanthrene	432026	0.05	ug/g	STD 12	0.09
Pyrene	432026	0.05	ug/g	STD 96	0.09

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424 Sample Matrix Soil153 Sample Type Sample Date 2022-10-24 Sampling Time Sample I.D. A22-3 SS4
Acetone	432228	0.50	ug/g	STD 16	<0.50
Benzene	432228	0.0068	ug/g	STD 0.32	<0.0068
Bromodichloromethane	432228	0.05	ug/g	STD 18	<0.05
Bromoform	432228	0.05	ug/g	STD 0.61	<0.05
Bromomethane	432228	0.05	ug/g	STD 0.05	<0.05
Carbon Tetrachloride	432228	0.05	ug/g	STD 0.21	<0.05
Chlorobenzene	432228	0.05	ug/g	STD 2.4	<0.05
Chloroform	432228	0.05	ug/g	STD 0.47	<0.05
Dibromochloromethane	432228	0.05	ug/g	STD 13	<0.05
Dichlorobenzene, 1,2-	432228	0.05	ug/g	STD 6.8	<0.05

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424 / Sample Matrix Soil153 / Sample Type / Sample Date 2022-10-24 / Sampling Time / Sample I.D. A22-3 SS4
Dichlorobenzene, 1,3-	432228	0.05	ug/g	STD 9.6	<0.05
Dichlorobenzene, 1,4-	432228	0.05	ug/g	STD 0.2	<0.05
Dichlorodifluoromethane	432228	0.05	ug/g	STD 16	<0.05
Dichloroethane, 1,1-	432228	0.05	ug/g	STD 17	<0.05
Dichloroethane, 1,2-	432228	0.05	ug/g	STD 0.05	<0.05
Dichloroethylene, 1,1-	432228	0.05	ug/g	STD 0.064	<0.05
Dichloroethylene, 1,2-cis-	432228	0.05	ug/g	STD 55	<0.05
Dichloroethylene, 1,2-trans-	432228	0.05	ug/g	STD 1.3	<0.05
Dichloropropane, 1,2-	432228	0.05	ug/g	STD 0.16	<0.05
Dichloropropene,1,3-	432228	0.05	ug/g	STD 0.18	<0.05
Dichloropropene,1,3-cis-	432228	0.05	ug/g		<0.05
Dichloropropene,1,3-trans-	432228	0.05	ug/g		<0.05
Ethylbenzene	432228	0.018	ug/g	STD 9.5	<0.018
Ethylene dibromide	432228	0.05	ug/g	STD 0.05	<0.05
Hexane (n)	432228	0.05	ug/g	STD 46	<0.05
Methyl Ethyl Ketone	432228	0.50	ug/g	STD 70	<0.50
Methyl Isobutyl Ketone	432228	0.50	ug/g	STD 31	<0.50
Methyl tert-Butyl Ether (MTBE)	432228	0.05	ug/g	STD 11	<0.05
Methylene Chloride	432228	0.05	ug/g	STD 1.6	<0.05
Styrene	432228	0.05	ug/g	STD 34	<0.05
Tetrachloroethane, 1,1,1,2-	432228	0.05	ug/g	STD 0.087	<0.05
Tetrachloroethane, 1,1,2,2-	432228	0.05	ug/g	STD 0.05	<0.05
Tetrachloroethylene	432228	0.05	ug/g	STD 4.5	<0.05

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424
					Sample Matrix Soil153
					Sample Type
					Sample Date 2022-10-24
					Sampling Time
					Sample I.D. A22-3 SS4
Toluene	432228	0.08	ug/g	STD 68	<0.08
Trichloroethane, 1,1,1-	432228	0.05	ug/g	STD 6.1	<0.05
Trichloroethane, 1,1,2-	432228	0.05	ug/g	STD 0.05	<0.05
Trichloroethylene	432228	0.01	ug/g	STD 0.91	<0.01
Trichlorofluoromethane	432228	0.05	ug/g	STD 4	<0.05
Vinyl Chloride	432228	0.02	ug/g	STD 0.032	<0.02
Xylene Mixture	432229	0.05	ug/g	STD 26	<0.05
Xylene, m/p-	432228	0.05	ug/g		<0.05
Xylene, o-	432228	0.05	ug/g		<0.05

Inorganics

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658425
					Sample Matrix Soil153
					Sample Type
					Sample Date 2022-10-24
					Sampling Time
					Sample I.D. A22-3 SS1
Cyanide (CN-)	432163	0.005	ug/g	STD 0.051	<0.005
Electrical Conductivity	432080	0.05	mS/cm	STD 1.4	0.28
pH - CaCl2	432001	2.00			7.92
Sodium Adsorption Ratio	432088	0.01		STD 12	0.45

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Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424 Sample Matrix Soil153 Sample Type Sample Date 2022-10-24 Sampling Time Sample I.D. A22-3 SS4
Moisture-Humidite	432021	0.1	%		11.4

PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424 Sample Matrix Soil153 Sample Type Sample Date 2022-10-24 Sampling Time Sample I.D. A22-3 SS4
Alpha-androstrane	432021	0	%		83

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VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1658424 Sample Matrix Soil153 Sample Type Sample Date 2022-10-24 Sampling Time Sample I.D. A22-3 SS4
1,2-dichloroethane-d4	432228	0	%		82
4-bromofluorobenzene	432228	0	%		103
Toluene-d8	432228	0	%		88

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
432001	pH - CaCl2	5.15	98	90-110			0	
432021	PHC's F2	<2 ug/g	102	80-120	83	60-140		0-30
432021	PHC's F3	<20 ug/g	104	80-120	83	60-140		0-30
432021	PHC's F4	<20 ug/g	104	80-120	83	60-140		0-30
432021	Moisture-Humidite	<0.1 %	100	80-120				
432026	Methlynaphthalene, 1-	<0.05 ug/g	62	50-140	129	50-140	0	0-40
432026	Methlynaphthalene, 2-	<0.05 ug/g	57	50-140	120	50-140	0	0-40
432026	Acenaphthene	<0.05 ug/g	59	50-140	95	50-140	0	0-40
432026	Acenaphthylene	0.05 ug/g	56	50-140	88	50-140	0	0-40
432026	Anthracene	<0.05 ug/g	62	50-140	99	50-140	0	0-40
432026	Benz[a]anthracene	<0.05 ug/g	69	50-140	99	50-140	0	0-40
432026	Benzo[a]pyrene	<0.05 ug/g	63	50-140	91	50-140	0	0-40
432026	Benzo[b]fluoranthene	<0.05 ug/g	68	50-140	90	50-140	0	0-40
432026	Benzo[ghi]perylene	<0.05 ug/g	68	50-140	82	50-140	0	0-40
432026	Benzo[k]fluoranthene	<0.05 ug/g	73	50-140	93		0	0-40
432026	Chrysene	<0.05 ug/g	72	50-140	102	50-140	0	0-40
432026	Dibenz[a h]anthracene	<0.05 ug/g	74	50-140	83	50-140	0	0-40
432026	Fluoranthene	<0.05 ug/g	69	50-140	110	50-140	0	0-40
432026	Fluorene	<0.05 ug/g	58	50-140	88	50-140	0	0-40
432026	Indeno[1 2 3-cd]pyrene	<0.05 ug/g	68	50-140	81	50-140	0	0-40
432026	Naphthalene	<0.013 ug/g	60	50-140	97	50-140	0	0-40
432026	Phenanthrene	<0.05 ug/g	62	50-140	98	50-140	0	0-40
432026	Pyrene	<0.05 ug/g	69	50-140	113	50-140	0	0-40
432028	1+2-methylnaphthalene							
432049	PHC's F2-Napth							
432077	Chromium VI	<0.20 ug/g	103	70-130	81	70-130	0	0-35
432080	Electrical Conductivity	<0.05	103	90-110			0	0-10
432088	Sodium Adsorption Ratio	<0.01					9	
432163	Cyanide (CN-)	<0.005 ug/g	88	75-125	100	70-130	0	0-20
432166	Boron (Hot Water Soluble)	<0.5 ug/g	104	70-130	93	75-125	0	0-30
432228	Tetrachloroethane, 1,1,1,2-	<0.05 ug/g	98	60-130	94	50-140	0	0-50
432228	Trichloroethane, 1,1,1-	<0.05 ug/g	91	60-130	98	50-140	0	0-50

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
432228	Tetrachloroethane, 1,1,2,2-	<0.05 ug/g	99	60-130	97	50-140	0	0-30
432228	Trichloroethane, 1,1,2-	<0.05 ug/g	97	60-130	96	50-140	0	0-50
432228	Dichloroethane, 1,1-	<0.05 ug/g	92	60-130	95	50-140	0	0-50
432228	Dichloroethylene, 1,1-	<0.05 ug/g	81	60-130	109	50-140	0	0-50
432228	Dichlorobenzene, 1,2-	<0.05 ug/g	94	60-130	99	50-140	0	0-50
432228	Dichloroethane, 1,2-	<0.05 ug/g	92	60-130	105	50-140	0	0-50
432228	Dichloropropane, 1,2-	<0.05 ug/g	92	60-130	97	50-140	0	0-50
432228	Dichlorobenzene, 1,3-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
432228	Dichloropropene,1,3-	<0.05 ug/g						
432228	Dichlorobenzene, 1,4-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
432228	Acetone	<0.50 ug/g	94	60-130	105	50-140	0	0-50
432228	Benzene	<0.0068	94	60-130	81	50-140	0	0-50
432228	Bromodichloromethane	<0.05 ug/g	92	60-130	84	50-140	0	0-50
432228	Bromoform	<0.05 ug/g	94	60-130	100	50-140	0	0-50
432228	Bromomethane	<0.05 ug/g	81	60-130	97	50-140	0	0-50
432228	Dichloroethylene, 1,2-cis-	<0.05 ug/g	90	60-130	103	50-140	0	0-50
432228	Dichloropropene,1,3-cis-	<0.05 ug/g	82	60-130	99	50-140	0	0-50
432228	Carbon Tetrachloride	<0.05 ug/g	93	60-130	84	50-140	0	0-50
432228	Chloroform	<0.05 ug/g	93	60-130	84	50-140	0	0-50
432228	Dibromochloromethane	<0.05 ug/g	93	60-130	93	50-140	0	0-50
432228	Dichlorodifluoromethane	<0.05 ug/g	92	60-130	95	50-140	0	0-50
432228	Methylene Chloride	<0.05 ug/g	97	60-130	100	50-140	0	0-50
432228	Ethylbenzene	<0.018 ug/g	90	60-130	100	50-140	0	0-50
432228	Ethylene dibromide	<0.05 ug/g	99	60-130	95	50-140	0	0-50
432228	PHC's F1	<10 ug/g	100	80-120	121	60-140	0	0-30
432228	Hexane (n)	<0.05 ug/g	104	60-130	97	50-140	0	0-50
432228	Xylene, m/p-	<0.05 ug/g	97	60-130	109	50-140	0	0-50
432228	Methyl Ethyl Ketone	<0.50 ug/g	106	60-130	110	50-140	0	0-50
432228	Methyl Isobutyl Ketone	<0.50 ug/g	86	60-130	91	50-140	0	0-50
432228	Methyl tert-Butyl Ether (MTBE)	<0.05 ug/g	94	60-130	96	50-140	0	0-50
432228	Chlorobenzene	<0.05 ug/g	93	60-130	94	50-140	0	0-50
432228	Xylene, o-	<0.05 ug/g	92	60-130	93	50-140	0	0-50
432228	Styrene	<0.05 ug/g	89	60-130	96	50-140	0	0-50

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Quality Assurance Summary

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432228	Dichloroethylene, 1,2-trans-	<0.05 ug/g	93	60-130	100	50-140	0	0-50
432228	Dichloropropene,1,3-trans-	<0.05 ug/g	86	60-130	99	50-140	0	0-50
432228	Tetrachloroethylene	<0.05 ug/g	90	60-130	98	50-140	0	0-50
432228	Toluene	<0.08 ug/g	89	60-130	99	50-140	0	0-50
432228	Trichloroethylene	<0.01 ug/g	89	60-130	85	50-140	0	0-50
432228	Trichlorofluoromethane	<0.05 ug/g	90	60-130	100	50-140	0	0-50
432228	Vinyl Chloride	<0.02 ug/g	99	60-130	99	50-140	0	0-50
432229	Xylene Mixture							
432231	PHC's F1-BTEX							
432242	Silver	<0.2 ug/g	105	70-130	106	70-130	0	0-20
432242	Arsenic	<1 ug/g	100	70-130	107	70-130	0	0-20
432242	Boron (total)	<5 ug/g	109	70-130	123	70-130	0	0-20
432242	Barium	<1 ug/g	104	70-130	131	70-130	2	0-20
432242	Beryllium	<1 ug/g	110	70-130	112	70-130	0	0-20
432242	Cadmium	<0.4 ug/g	109	70-130	114	70-130	0	0-20
432242	Cobalt	<1 ug/g	110	70-130	108	70-130	0	0-20
432242	Chromium Total	<1 ug/g	112	70-130	135	70-130	4	0-20
432242	Copper	<1 ug/g	116	70-130	108	70-130	1	0-20
432242	Mercury	<0.1 ug/g	100	70-130	99	70-130	0	0-20
432242	Molybdenum	<1 ug/g	102	70-130	106	70-130	0	0-20
432242	Nickel	<1 ug/g	113	70-130	113	70-130	2	0-20
432242	Lead	<1 ug/g	105	70-130	109	70-130	4	0-20
432242	Antimony	<1 ug/g	91	70-130	110	70-130	0	0-20
432242	Selenium	<0.5 ug/g	106	70-130	108	70-130	0	0-20
432242	Thallium	<1 ug/g	105	70-130	105	70-130	0	0-20
432242	Uranium	<0.5 ug/g	94	70-130	102	70-130	0	0-20
432242	Vanadium	<2 ug/g	110	70-130	147	70-130	3	0-20
432242	Zinc	<2 ug/g	110	70-130	118	70-130	2	0-20
432246	PHC's F3-PAH							

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Certificate of Analysis

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
432001	pH - CaCl2	pH Meter	2022-10-26	2022-10-26	IP	Ag Soil
432021	PHC's F2	GC/FID	2022-10-27	2022-10-27	SP	CCME
432021	PHC's F3	GC/FID	2022-10-27	2022-10-27	SP	CCME
432021	PHC's F4	GC/FID	2022-10-27	2022-10-27	SP	CCME
432021	Moisture-Humidite	Oven	2022-10-27	2022-10-27	SP	ASTM 2216
432026	Methlynaphthalene, 1-	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Methlynaphthalene, 2-	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Acenaphthene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Acenaphthylene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Anthracene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Benz[a]anthracene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Benzo[a]pyrene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Benzo[b]fluoranthene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Benzo[ghi]perylene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Benzo[k]fluoranthene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Chrysene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Dibenz[a h]anthracene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Fluoranthene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Fluorene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Indeno[1 2 3-cd]pyrene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Naphthalene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Phenanthrene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432026	Pyrene	GC-MS	2022-10-26	2022-10-26	C_M	P 8270
432028	1+2-methylnaphthalene	GC-MS	2022-10-27	2022-10-27	C_M	P 8270
432049	PHC's F2-Napth	GC/FID	2022-10-27	2022-10-27	SP	CCME
432077	Chromium VI	FAA	2022-10-27	2022-10-27	MW	M US EPA 3060A
432080	Electrical Conductivity	Electrical Conductivity Mete	2022-10-27	2022-10-27	Z_S	Cond-Soil
432088	Sodium Adsorption Ratio	iCAP OES	2022-10-27	2022-10-27	Z_S	Ag Soil
432163	Cyanide (CN-)	Skalar CN Analyzer	2022-10-28	2022-10-28	Z_S	MOECC E3015
432166	Boron (Hot Water Soluble)	iCAP OES	2022-10-28	2022-10-28	Z_S	MOECC E3470
432228	Tetrachloroethane, 1,1,1,2-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Trichloroethane, 1,1,1-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B

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Certificate of Analysis

Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1988705
Date Submitted: 2022-10-24
Date Reported: 2022-10-31
Project: 190261800
COC #: 218969

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
432228	Tetrachloroethane, 1,1,2,2-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Trichloroethane, 1,1,2-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichloroethane, 1,1-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichloroethylene, 1,1-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichlorobenzene, 1,2-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichloroethane, 1,2-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichloropropane, 1,2-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichlorobenzene, 1,3-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichloropropene,1,3-	GC-MS	2022-10-31	2022-10-31	PJ	V 8260B
432228	Dichlorobenzene, 1,4-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Acetone	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Benzene	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Bromodichloromethane	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Bromoform	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Bromomethane	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichloroethylene, 1,2-cis-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichloropropene,1,3-cis-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Carbon Tetrachloride	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Chloroform	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dibromochloromethane	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichlorodifluoromethane	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Methylene Chloride	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Ethylbenzene	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Ethylene dibromide	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	PHC's F1	GC/FID	2022-10-31	2022-10-31	PJ	CCME
432228	Hexane (n)	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Xylene, m/p-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Methyl Ethyl Ketone	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Methyl Isobutyl Ketone	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Methyl tert-Butyl Ether (MTBE)	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Chlorobenzene	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Xylene, o-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Styrene	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B

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Certificate of Analysis

Client: Morrison Hershfield
125 Commerce Valley Drive West
Thornhill, Ontario
L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1988705
Date Submitted: 2022-10-24
Date Reported: 2022-10-31
Project: 190261800
COC #: 218969

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
432228	Dichloroethylene, 1,2-trans-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Dichloropropene,1,3-trans-	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Tetrachloroethylene	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Toluene	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Trichloroethylene	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Trichlorofluoromethane	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432228	Vinyl Chloride	GC-MS	2022-10-26	2022-10-26	PJ	V 8260B
432229	Xylene Mixture	GC-MS	2022-10-31	2022-10-31	PJ	V 8260B
432231	PHC's F1-BTEX	GC/FID	2022-10-31	2022-10-31	PJ	CCME
432242	Silver	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Arsenic	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Boron (total)	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Barium	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Beryllium	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Cadmium	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Cobalt	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Chromium Total	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Copper	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Mercury	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Molybdenum	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Nickel	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Lead	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Antimony	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Selenium	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Thallium	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Uranium	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Vanadium	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432242	Zinc	ICAPQ-MS	2022-10-31	2022-10-31	SD	EPA 200.8/6020
432246	PHC's F3-PAH	GC/FID	2022-10-31	2022-10-31	SP	CCME

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Client: Morrison Hershfield
125 Commerce Valley Drive West
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L3T 7W4
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrision Hershfield

Report Number: 1988705
Date Submitted: 2022-10-24
Date Reported: 2022-10-31
Project: 190261800
COC #: 218969

CWS for Petroleum Hydrocarbons in Soil - Tier 1

Notes:

1. The laboratory method complies with CCME Tier 1 reference method for PHC in soil. It is validated for laboratory use.
2. Where the F1 fraction (C6 to C10) and BTEX are both measured, F1-BTEX is reported.
3. Where the F2 fraction (C10 to C16) and naphthalene are both measured, F2-naphthalene is reported.
4. Where the F3 fraction (C16 to C34) and PAHs* are both measured, F3-PAH is reported.
5. F4G is analyzed if the chromatogram does not descend to baseline before C50. Where F4 (C34 to C50) and F4G are both reported, the higher result is compared to the standard.
6. Unless otherwise stated in the sample comments, the following criteria have been met where applicable:

   - nC6 and nC10 response factors within 30% of response factor for toluene;
   - nC10, nC16, and nC34 response factors within 10% of each other;
   - C50 response factors within 70% of nC10 + nC16 + nC34 average; and,
   - Linearity is within 15%.

7. Unless otherwise stated in the sample comments, sampling requirements and analytical holding times have been met.
8. Gravimetric heavy hydrocarbons (F4G) cannot be added to the C6 and C50 hydrocarbons.
9. *PAHs = phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene.

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

eurofins 218969

STANDARD CHAIN-OF-CUSTODY

146 Colonnade Road, Unit #8, Ottawa, ON, K2E 7Y1 - Phone: 613-727-5692, Fax: 613-727-5222

Eurofins Workorder #: 1988705

CLIENT INFORMATION

Company: Morrison Hershfield (MH)
Contact: Nicholas Moore, Sarth Sheth
Address:
Telephone: Cell: 647-606-9354
Email: #1: nmoore@morrisonhershfield.com
Email: #2: ssheth@morrisonhershfield.com
Project: 190261800 Quote #:

INVOICE INFORMATION (SAME AS CLIENT INFORMATION: YES ☐ NO ☐)

Company: MH
Contact: Accounts Payable
Address:
Telephone:
Fax:
Email: #1:
Email: #2:
PO #:

TURN-AROUND TIME (Business Days)

☐ 1 Day* (100%) ☐ 2 Day** (50%) ☐ 3-5 Days (25%) ☒ 5-7 Days (Standard)

Please contact Lab in advance to determine rush availability.
*For results reported after rush due date, surcharges will apply: before 12:00 - 100%, after 12:00 - 50%.
**For results reported after rush due date, surcharges will apply: before 12:00 - 50%, after 12:00 - 25%.

REGULATION/GUIDELINE REQUIRED

☐ Sanitary Sewer, City:
☐ Storm Sewer, City:
☐ ODWSOG (Use DW CoC if analyzing drinking water)
☐ PWQO
☐ O.Reg 347
☐ Other:

☒ O. Reg 153 ICC
The sample results from this submission will form part of a formal Record of Site Condition (RSC) under O.Reg. 153/04. Analysis of full paramter list only Yes ☐ No ☐
Table # 3, Coarse / Fine, Surface / subsurface
Type: Com-Ind / Res-Park / Agri / GW / All Other / Sediment

☒ O. Reg 406 Excess Soils
Table # 1-3 Full depth/Strat/Ceiling/mSPLP Leachate
Type: Com-Ind /Res-Park /Agri/All Other
Category: Surface /Subsurface

The optimal temperature conditions during transport should be less than 10°C. Sample(s) cannot be frozen, unless otherwise indicated or agreed upon with the Laboratory. Note that this COC is not to be used for drinking water samples. The COC must be complete upon submission of the samples, there will be a $25 surcharge if required information is missing (required fields are shaded in grey).

Sample Details

Sample ID	Date/Time Collected	Sample Matrix	# of Containers	O.Reg.153 parameters: PHC F1 - F4	BTEX	VOCs	PAHs	PCBs	Metals + Inorganics	Metals only	RN# (Lab Use Only)
A22-3 SS4	Oct 24, 2022	Soil	3	X		X	X				16584242
A22-3 SS1	Oct 24, 2022	Soil	1						X		25

	PRINT	SIGN	DATE/TIME	TEMP (°C)
Sampled By:	N. Moore			
Relinquished By:				
Received By:	Victor Gallant	V.G.	10/24/22 2:15pm	6.1°C

COMMENTS:

CUSTODY SEAL: ☐ YES ☐ NO Ice packs submit ☑ Yes ☐ No

Certificate of Analysis

eurofins | Environment Testing

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
Invoice to: Morrison Hershfield Limited
PO#:

Report Number:	1992826
Date Submitted:	2023-01-20
Date Reported:	2023-01-27
Project:	190261800 Teston Rd
COC #:	220707
Temperature (C):	18
Custody Seal:	

Dear Sarth Sheth:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

R Zafari

Raheleh Zafari 2023.01.27 16:50:16 -05'00'

Raheleh Zafari, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise stated

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Eurofins Environment Testing Canada Inc. is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at https://directory.cala.ca/

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline or regulatory limits listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official guideline or regulation as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
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Report Number: 1992826
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220707

O.Reg 153-T3-Ind/Com-Coarse

Exceedence Summary

Sample I.D.	Analyte	Result	Units	Criteria
Inorganics				
BHP-25	Electrical Conductivity	2.84	mS/cm	STD 1.4
BHP-25	Sodium Adsorption Ratio	26.8		STD 12
BHP-34	Electrical Conductivity	1.56	mS/cm	STD 1.4
BHP-34	Sodium Adsorption Ratio	31.1		STD 12

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Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220707

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Hydrocarbons

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.								
PHC's F1	436689	10	ug/g	STD 55	<10	<10	<10	<10
PHC's F1-BTEX	436695	10	ug/g		<10	<10	<10	<10
PHC's F2	436721	2	ug/g	STD 230	<2	<2	<2	<2
PHC's F2-Napth	436848	2	ug/g		<2	<2	<2	<2
PHC's F3	436721	20	ug/g	STD 1700	20	<20	<20	<20
PHC's F3-PAH	436849	20	ug/g		20	<20	<20	<20
PHC's F4	436721	20	ug/g	STD 3300	50	<20	<20	<20

Metals

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.								
Antimony	436722	1	ug/g	STD 40	<1	<1	<1	<1
Arsenic	436722	1	ug/g	STD 18	1	1	3	3
Barium	436722	1	ug/g	STD 670	17	16	72	64
Beryllium	436722	1	ug/g	STD 8	<1	<1	<1	<1
Boron (Hot Water Soluble)	436874	0.5	ug/g	STD 2	<0.5	<0.5	<0.5	<0.5
Boron (total)	436722	5	ug/g	STD 120	<5	<5	6	5
Cadmium	436722	0.4	ug/g	STD 1.9	<0.4	<0.4	<0.4	<0.4
Chromium Total	436722	1	ug/g	STD 160	7	6	21	20
Chromium VI	436872	0.20	ug/g	STD 8	<0.20	<0.20	<0.20	<0.20
Cobalt	436722	1	ug/g	STD 80	2	2	7	7
Copper	436722	1	ug/g	STD 230	8	9	16	19
Lead	436722	1	ug/g	STD 120	2	3	7	8

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Project: 190261800 Teston Rd
COC #: 220707

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Metals

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Lab I.D.					1671848	1671849	1671850	1671851
Sample Matrix					Soil153	Soil153	Soil153	Soil153
Sample Type								
Sample Date					2023-01-20 10:30	2023-01-20 11:00	2023-01-20 10:00	2023-01-20 12:30
Sampling Time								
Sample I.D.					BHP-25	BHP-17	BHP-38	BHP-34
Mercury	436722	0.1	ug/g	STD 3.9	<0.1	<0.1	<0.1	<0.1
Molybdenum	436722	1	ug/g	STD 40	<1	<1	<1	<1
Nickel	436722	1	ug/g	STD 270	5	4	16	17
Selenium	436722	0.5	ug/g	STD 5.5	<0.5	<0.5	<0.5	<0.5
Silver	436722	0.2	ug/g	STD 40	<0.2	<0.2	<0.2	<0.2
Thallium	436722	1	ug/g	STD 3.3	<1	<1	<1	<1
Uranium	436722	0.5	ug/g	STD 33	<0.5	<0.5	<0.5	<0.5
Vanadium	436722	2	ug/g	STD 86	15	12	29	27
Zinc	436722	2	ug/g	STD 340	13	14	38	36

OCP/PCB

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17
Lab I.D.					1671848	1671849
Sample Matrix					Soil153	Soil153
Sample Type						
Sample Date					2023-01-20 10:30	2023-01-20 11:00
Sampling Time						
Sample I.D.					BHP-25	BHP-17
Aldrin	436726	0.002	ug/g	STD 0.088	<0.002	<0.002
Chlordane	436726	0.006	ug/g	STD 0.05	<0.006	<0.006
Chlordane, alpha-	436726	0.002	ug/g		<0.002	<0.002
Chlordane, gamma-	436726	0.002	ug/g		<0.002	<0.002
DDD	436726	0.002	ug/g	STD 4.6	<0.002	<0.002
DDE	436726	0.002	ug/g	STD 0.52	<0.002	<0.002
DDT	436726	0.002	ug/g	STD 1.4	<0.002	<0.002
Dieldrin	436726	0.002	ug/g	STD 0.088	<0.002	<0.002
Endosulfan	436726	0.004	ug/g	STD 0.3	<0.004	<0.004
Endosulfan I	436726	0.002	ug/g		<0.002	<0.002

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Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992826
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220707

Guideline = O.Reg 153-T3-Ind/Com-Coarse

OCP/PCB

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17
Lab I.D.					1671848	1671849
Sample Matrix					Soil153	Soil153
Sample Type						
Sample Date					2023-01-20 10:30	2023-01-20 11:00
Sampling Time						
Sample I.D.					BHP-25	BHP-17
Endosulfan II	436726	0.002	ug/g		<0.002	<0.002
Endrin	436726	0.002	ug/g	STD 0.04	<0.002	<0.002
Heptachlor	436726	0.002	ug/g	STD 0.19	<0.002	<0.002
Heptachlor Epoxide	436726	0.002	ug/g	STD 0.05	<0.002	<0.002
Hexachlorobenzene	436726	0.002	ug/g	STD 0.66	<0.002	<0.002
Hexachlorobutadiene	436726	0.002	ug/g	STD 0.031	<0.002	<0.002
Hexachlorocyclohexane Gamma-	436726	0.002	ug/g	STD 0.056	<0.002	<0.002
Hexachloroethane	436726	0.002	ug/g	STD 0.21	<0.002	<0.002
Methoxychlor	436726	0.002	ug/g	STD 1.6	<0.002	<0.002

PAH

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Lab I.D.					1671848	1671849	1671850	1671851
Sample Matrix					Soil153	Soil153	Soil153	Soil153
Sample Type								
Sample Date					2023-01-20 10:30	2023-01-20 11:00	2023-01-20 10:00	2023-01-20 12:30
Sampling Time								
Sample I.D.					BHP-25	BHP-17	BHP-38	BHP-34
1+2-methylnaphthalene	436736	0.05	ug/g		<0.05	<0.05	<0.05	<0.05
Acenaphthene	436398	0.05	ug/g	STD 96	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	436398	0.05	ug/g	STD 0.15	<0.05	<0.05	<0.05	<0.05
Anthracene	436398	0.05	ug/g	STD 0.67	<0.05	<0.05	<0.05	<0.05
Benz[a]anthracene	436398	0.05	ug/g	STD 0.96	<0.05	<0.05	<0.05	<0.05
Benzo[a]pyrene	436398	0.05	ug/g	STD 0.3	<0.05	<0.05	<0.05	<0.05
Benzo[b]fluoranthene	436398	0.05	ug/g	STD 0.96	<0.05	<0.05	<0.05	<0.05
Benzo[ghi]perylene	436398	0.05	ug/g	STD 9.6	<0.05	<0.05	<0.05	<0.05
Benzo[k]fluoranthene	436398	0.05	ug/g	STD 0.96	<0.05	<0.05	<0.05	<0.05
Chrysene	436398	0.05	ug/g	STD 9.6	<0.05	<0.05	<0.05	<0.05

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PAH

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Lab I.D.					1671848	1671849	1671850	1671851
Sample Matrix					Soil153	Soil153	Soil153	Soil153
Sample Type								
Sample Date					2023-01-20 10:30	2023-01-20 11:00	2023-01-20 10:00	2023-01-20 12:30
Sampling Time								
Sample I.D.					BHP-25	BHP-17	BHP-38	BHP-34
Dibenz[a h]anthracene	436398	0.05	ug/g	STD 0.1	<0.05	<0.05	<0.05	<0.05
Fluoranthene	436398	0.05	ug/g	STD 9.6	<0.05	<0.05	<0.05	<0.05
Fluorene	436398	0.05	ug/g	STD 62	<0.05	<0.05	<0.05	<0.05
Indeno[1 2 3-cd]pyrene	436398	0.05	ug/g	STD 0.76	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 1-	436398	0.05	ug/g	STD 76	<0.05	<0.05	<0.05	<0.05
Methlynaphthalene, 2-	436398	0.05	ug/g	STD 76	<0.05	<0.05	<0.05	<0.05
Naphthalene	436398	0.013	ug/g	STD 9.6	<0.013	<0.013	<0.013	<0.013
Phenanthrene	436398	0.05	ug/g	STD 12	<0.05	<0.05	<0.05	<0.05
Pyrene	436398	0.05	ug/g	STD 96	<0.05	<0.05	<0.05	<0.05

Volatiles

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Lab I.D.					1671848	1671849	1671850	1671851
Sample Matrix					Soil153	Soil153	Soil153	Soil153
Sample Type								
Sample Date					2023-01-20 10:30	2023-01-20 11:00	2023-01-20 10:00	2023-01-20 12:30
Sampling Time								
Sample I.D.					BHP-25	BHP-17	BHP-38	BHP-34
Acetone	436689	0.50	ug/g	STD 16	<0.50	<0.50	<0.50	<0.50
Benzene	436689	0.0068	ug/g	STD 0.32	<0.0068	<0.0068	<0.0068	<0.0068
Bromodichloromethane	436689	0.05	ug/g	STD 18	<0.05	<0.05	<0.05	<0.05
Bromoform	436689	0.05	ug/g	STD 0.61	<0.05	<0.05	<0.05	<0.05
Bromomethane	436689	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	436689	0.05	ug/g	STD 0.21	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	436689	0.05	ug/g	STD 2.4	<0.05	<0.05	<0.05	<0.05
Chloroform	436689	0.05	ug/g	STD 0.47	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	436689	0.05	ug/g	STD 13	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,2-	436689	0.05	ug/g	STD 6.8	<0.05	<0.05	<0.05	<0.05

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COC #: 220707

Guideline = O.Reg 153-T3-Ind/Com-Coarse

Volatiles

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671848	1671849	1671850	1671851
Sample Matrix					Soil153	Soil153	Soil153	Soil153
Sample Type								
Sample Date					2023-01-20 10:30	2023-01-20 11:00	2023-01-20 10:00	2023-01-20 12:30
Sampling Time								
Sample I.D.					BHP-25	BHP-17	BHP-38	BHP-34
Dichlorobenzene, 1,3-	436689	0.05	ug/g	STD 9.6	<0.05	<0.05	<0.05	<0.05
Dichlorobenzene, 1,4-	436689	0.05	ug/g	STD 0.2	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	436689	0.05	ug/g	STD 16	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,1-	436689	0.05	ug/g	STD 17	<0.05	<0.05	<0.05	<0.05
Dichloroethane, 1,2-	436689	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,1-	436689	0.05	ug/g	STD 0.064	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-cis-	436689	0.05	ug/g	STD 55	<0.05	<0.05	<0.05	<0.05
Dichloroethylene, 1,2-trans-	436689	0.05	ug/g	STD 1.3	<0.05	<0.05	<0.05	<0.05
Dichloropropane, 1,2-	436689	0.05	ug/g	STD 0.16	<0.05	<0.05	<0.05	<0.05
Dichloropropene,1,3-	436689	0.05	ug/g	STD 0.18	<0.05	<0.05	<0.05	<0.05
Dichloropropene,1,3-cis-	436689	0.05	ug/g		<0.05	<0.05	<0.05	<0.05
Dichloropropene,1,3-trans-	436689	0.05	ug/g		<0.05	<0.05	<0.05	<0.05
Ethylbenzene	436689	0.018	ug/g	STD 9.5	<0.018	<0.018	<0.018	<0.018
Ethylene dibromide	436689	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05
Hexane (n)	436689	0.05	ug/g	STD 46	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	436689	0.50	ug/g	STD 70	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	436689	0.50	ug/g	STD 31	<0.50	<0.50	<0.50	<0.50
Methyl tert-Butyl Ether (MTBE)	436689	0.05	ug/g	STD 11	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	436689	0.05	ug/g	STD 1.6	<0.05	<0.05	<0.05	<0.05
Styrene	436689	0.05	ug/g	STD 34	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,1,2-	436689	0.05	ug/g	STD 0.087	<0.05	<0.05	<0.05	<0.05
Tetrachloroethane, 1,1,2,2-	436689	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	436689	0.05	ug/g	STD 4.5	<0.05	<0.05	<0.05	<0.05

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Volatiles

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.								
Toluene	436689	0.08	ug/g	STD 68	<0.08	<0.08	<0.08	<0.08
Trichloroethane, 1,1,1-	436689	0.05	ug/g	STD 6.1	<0.05	<0.05	<0.05	<0.05
Trichloroethane, 1,1,2-	436689	0.05	ug/g	STD 0.05	<0.05	<0.05	<0.05	<0.05
Trichloroethylene	436689	0.01	ug/g	STD 0.91	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	436689	0.05	ug/g	STD 4	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	436689	0.02	ug/g	STD 0.032	<0.02	<0.02	<0.02	<0.02
Xylene Mixture	436692	0.05	ug/g	STD 26	<0.05	<0.05	<0.05	<0.05
Xylene, m/p-	436689	0.05	ug/g		<0.05	<0.05	<0.05	<0.05
Xylene, o-	436689	0.05	ug/g		<0.05	<0.05	<0.05	<0.05

Inorganics

Analyte	Batch No	MRL	Units	Guideline	1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.								
Cyanide (CN-)	436804	0.005	ug/g	STD 0.051	<0.005	<0.005	<0.005	<0.005
Electrical Conductivity	436864	0.05	mS/cm	STD 1.4	2.84*	0.46	0.30	1.56*
pH - CaCl2	436777	2.00			7.75	7.60	7.53	7.56
Sodium Adsorption Ratio	436868	0.01		STD 12	26.8*	7.05	2.52	31.1*

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Moisture

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Moisture-Humidite	436721	0.1	%		9.0	10.1	13.1	11.2

PCBs

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. 1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17
Aroclor 1242	436724	0.02	ug/g		<0.02	<0.02
Aroclor 1248	436724	0.02	ug/g		<0.02	<0.02
Aroclor 1254	436724	0.02	ug/g		<0.02	<0.02
Aroclor 1260	436724	0.02	ug/g		<0.02	<0.02
Polychlorinated Biphenyls	436724	0.02	ug/g	STD 1.1	<0.02	<0.02

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PCB Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.	
					1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17
Decachlorobiphenyl	436725	0	%		76	69

PHC Surrogate

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.			
					1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
Alpha-androstrane	436721	0	%		62	65	61	64

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Certificate of Analysis

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VOCs Surrogates

Analyte	Batch No	MRL	Units	Guideline	Lab I.D. / Sample Matrix / Sample Type / Sample Date / Sampling Time / Sample I.D.			
					1671848 Soil153 2023-01-20 10:30 BHP-25	1671849 Soil153 2023-01-20 11:00 BHP-17	1671850 Soil153 2023-01-20 10:00 BHP-38	1671851 Soil153 2023-01-20 12:30 BHP-34
1,2-dichloroethane-d4	436689	0	%		104	103	103	105
4-bromofluorobenzene	436689	0	%		94	93	92	92
Toluene-d8	436689	0	%		98	98	98	98

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Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436398	Methlynaphthalene, 1-	<0.05 ug/g	81	50-140	56	50-140	0	0-40
436398	Methlynaphthalene, 2-	<0.05 ug/g	78	50-140	52	50-140	0	0-40
436398	Acenaphthene	<0.05 ug/g	90	50-140	69	50-140	0	0-40
436398	Acenaphthylene	0.05 ug/g	86	50-140	65	50-140	0	0-40
436398	Anthracene	<0.05 ug/g	90	50-140	72	50-140	0	0-40
436398	Benz[a]anthracene	<0.05 ug/g	83	50-140	77	50-140	0	0-40
436398	Benzo[a]pyrene	<0.05 ug/g	74	50-140	51	50-140	0	0-40
436398	Benzo[b]fluoranthene	<0.05 ug/g	82	50-140	68	50-140	0	0-40
436398	Benzo[ghi]perylene	<0.05 ug/g	92	50-140	52	50-140	0	0-40
436398	Benzo[k]fluoranthene	<0.05 ug/g	92	50-140	73		0	0-40
436398	Chrysene	<0.05 ug/g	89	50-140	79	50-140	0	0-40
436398	Dibenz[a h]anthracene	<0.05 ug/g	89	50-140	52	50-140	0	0-40
436398	Fluoranthene	<0.05 ug/g	84	50-140	76	50-140	0	0-40
436398	Fluorene	<0.05 ug/g	88	50-140	69	50-140	0	0-40
436398	Indeno[1 2 3-cd]pyrene	<0.05 ug/g	89	50-140	54	50-140	0	0-40
436398	Naphthalene	<0.013 ug/g	85	50-140	81	50-140	0	0-40
436398	Phenanthrene	<0.05 ug/g	86	50-140	80	50-140	0	0-40
436398	Pyrene	<0.05 ug/g	84	50-140	76	50-140	0	0-40
436689	Tetrachloroethane, 1,1,1,2-	<0.05 ug/g	98	60-130	94	50-140	0	0-50
436689	Trichloroethane, 1,1,1-	<0.05 ug/g	91	60-130	98	50-140	0	0-50
436689	Tetrachloroethane, 1,1,2,2-	<0.05 ug/g	99	60-130	97	50-140	0	0-30
436689	Trichloroethane, 1,1,2-	<0.05 ug/g	97	60-130	96	50-140	0	0-50
436689	Dichloroethane, 1,1-	<0.05 ug/g	92	60-130	95	50-140	0	0-50
436689	Dichloroethylene, 1,1-	<0.05 ug/g	81	60-130	109	50-140	0	0-50
436689	Dichlorobenzene, 1,2-	<0.05 ug/g	94	60-130	99	50-140	0	0-50
436689	Dichloroethane, 1,2-	<0.05 ug/g	92	60-130	105	50-140	0	0-50
436689	Dichloropropane, 1,2-	<0.05 ug/g	92	60-130	97	50-140	0	0-50
436689	Dichlorobenzene, 1,3-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
436689	Dichloropropene,1,3-	<0.05 ug/g						
436689	Dichlorobenzene, 1,4-	<0.05 ug/g	91	60-130	90	50-140	0	0-50
436689	Acetone	<0.50 ug/g	94	60-130	105	50-140	0	0-50
436689	Benzene	<0.0068	94	60-130	81	50-140	0	0-50

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PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992826
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220707

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436689	Bromodichloromethane	<0.05 ug/g	92	60-130	84	50-140	0	0-50
436689	Bromoform	<0.05 ug/g	94	60-130	100	50-140	0	0-50
436689	Bromomethane	<0.05 ug/g	81	60-130	97	50-140	0	0-50
436689	Dichloroethylene, 1,2-cis-	<0.05 ug/g	90	60-130	103	50-140	0	0-50
436689	Dichloropropene,1,3-cis-	<0.05 ug/g	82	60-130	99	50-140	0	0-50
436689	Carbon Tetrachloride	<0.05 ug/g	93	60-130	84	50-140	0	0-50
436689	Chloroform	<0.05 ug/g	93	60-130	84	50-140	0	0-50
436689	Dibromochloromethane	<0.05 ug/g	93	60-130	93	50-140	0	0-50
436689	Dichlorodifluoromethane	<0.05 ug/g	92	60-130	95	50-140	0	0-50
436689	Methylene Chloride	<0.05 ug/g	97	60-130	100	50-140	0	0-50
436689	Ethylbenzene	<0.018 ug/g	90	60-130	100	50-140	0	0-50
436689	Ethylene dibromide	<0.05 ug/g	99	60-130	95	50-140	0	0-50
436689	PHC's F1	<10 ug/g	106	80-120	111	60-140	0	0-30
436689	Hexane (n)	<0.05 ug/g	104	60-130	97	50-140	0	0-50
436689	Xylene, m/p-	<0.05 ug/g	97	60-130	109	50-140	0	0-50
436689	Methyl Ethyl Ketone	<0.50 ug/g	106	60-130	110	50-140	0	0-50
436689	Methyl Isobutyl Ketone	<0.50 ug/g	86	60-130	91	50-140	0	0-50
436689	Methyl tert-Butyl Ether (MTBE)	<0.05 ug/g	94	60-130	96	50-140	0	0-50
436689	Chlorobenzene	<0.05 ug/g	93	60-130	94	50-140	0	0-50
436689	Xylene, o-	<0.05 ug/g	92	60-130	93	50-140	0	0-50
436689	Styrene	<0.05 ug/g	89	60-130	96	50-140	0	0-50
436689	Dichloroethylene, 1,2-trans-	<0.05 ug/g	93	60-130	100	50-140	0	0-50
436689	Dichloropropene,1,3-trans-	<0.05 ug/g	86	60-130	99	50-140	0	0-50
436689	Tetrachloroethylene	<0.05 ug/g	90	60-130	98	50-140	0	0-50
436689	Toluene	<0.08 ug/g	89	60-130	99	50-140	0	0-50
436689	Trichloroethylene	<0.01 ug/g	89	60-130	85	50-140	0	0-50
436689	Trichlorofluoromethane	<0.05 ug/g	90	60-130	100	50-140	0	0-50
436689	Vinyl Chloride	<0.02 ug/g	99	60-130	99	50-140	0	0-50
436692	Xylene Mixture							
436695	PHC's F1-BTEX							
436721	PHC's F2	<2 ug/g	110	80-120	93	60-140	0	0-30
436721	PHC's F3	<20 ug/g	112	80-120	93	60-140	0	0-30
436721	PHC's F4	<20 ug/g	112	80-120	93	60-140	0	0-30

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Report Number: 1992826
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220707

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436721	Moisture-Humidite	<0.1 %	100	80-120			1	
436722	Silver	<0.2 ug/g	124	70-130	109	70-130	0	0-20
436722	Arsenic	<1 ug/g	92	70-130	97	70-130	0	0-20
436722	Boron (total)	<5 ug/g	98	70-130	140	70-130	0	0-20
436722	Barium	<1 ug/g	97	70-130	272	70-130	10	0-20
436722	Beryllium	<1 ug/g	96	70-130	87	70-130	0	0-20
436722	Cadmium	<0.4 ug/g	98	70-130	103	70-130	0	0-20
436722	Cobalt	<1 ug/g	98	70-130	95	70-130	1	0-20
436722	Chromium Total	<1 ug/g	102	70-130	132	70-130	2	0-20
436722	Copper	<1 ug/g	102	70-130	98	70-130	6	0-20
436722	Mercury	<0.1 ug/g	90	70-130	92	70-130	0	0-20
436722	Molybdenum	<1 ug/g	96	70-130	92	70-130	0	0-20
436722	Nickel	<1 ug/g	101	70-130	93	70-130	3	0-20
436722	Lead	<1 ug/g	91	70-130	82	70-130	7	0-20
436722	Antimony	<1 ug/g	89	70-130	79	70-130	0	0-20
436722	Selenium	<0.5 ug/g	101	70-130	99	70-130	0	0-20
436722	Thallium	<1 ug/g	93	70-130	90	70-130	0	0-20
436722	Uranium	<0.5 ug/g	90	70-130	92	70-130	0	0-20
436722	Vanadium	<2 ug/g	101	70-130	164	70-130	1	0-20
436722	Zinc	<2 ug/g	100	70-130	106	70-130	1	0-20
436724	Aroclor 1242	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436724	Aroclor 1248	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436724	Aroclor 1254	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436724	Aroclor 1260	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436724	Polychlorinated Biphenyls	<0.02 ug/g	81	60-140	77	60-140	0	0-40
436726	Chlordane, alpha-	<0.002 ug/g	68	50-140	87	50-140	0	0-40
436726	Aldrin	<0.002 ug/g	69	50-140	85	50-140	0	0-40
436726	Chlordane	<0.006 ug/g					0	
436726	Dieldrin	<0.002 ug/g	73	50-140	87	50-140	0	0-40
436726	Endosulfan	<0.004 ug/g					0	
436726	Endosulfan I	<0.002 ug/g	67	50-140	90	50-140	0	0-40
436726	Endosulfan II	<0.002 ug/g	75	50-140	91	50-140	0	0-40
436726	Endrin	<0.002 ug/g	73	50-140	87	50-140	0	0-40

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Project: 190261800 Teston Rd
COC #: 220707

Quality Assurance Summary

Batch No	Analyte	Blank	QC % Rec	QC Limits	Spike % Rec	Spike Limits	Dup % RPD	Duplicate Limits
436726	Hexachlorocyclohexane Gamma-	<0.002 ug/g	72	50-140	79	50-140	0	0-40
436726	Chlordane, gamma-	<0.002 ug/g	65	50-140	89	50-140	0	0-40
436726	Heptachlor	<0.002 ug/g	73	50-140	88	50-140	0	0-40
436726	Heptachlor Epoxide	<0.002 ug/g	69	50-140	89	50-140	0	0-40
436726	Hexachlorobenzene	<0.002 ug/g	102	50-140		50-140	0	0-40
436726	Hexachlorobutadiene	<0.002 ug/g	95				0	
436726	Hexachloroethane	<0.002 ug/g	93				0	
436726	Methoxychlor	<0.002 ug/g	78	50-140	86	50-140	0	0-40
436726	DDD	<0.002 ug/g	75	50-140	84	50-140	0	0-40
436726	DDE	<0.002 ug/g	75	50-140	92	50-140	0	0-40
436726	DDT	<0.002 ug/g	85	50-140	83	50-140	0	0-40
436736	1+2-methylnaphthalene							
436777	pH - CaCl2	5.25	100	90-110			0	
436804	Cyanide (CN-)	<0.005 ug/g	87	75-125	93	70-130	0	0-20
436848	PHC's F2-Napth							
436849	PHC's F3-PAH							
436864	Electrical Conductivity	<0.05	97	90-110			1	0-10
436868	Sodium Adsorption Ratio	<0.01					1	
436872	Chromium VI	<0.20 ug/g	106	70-130	83	70-130	0	0-35
436874	Boron (Hot Water Soluble)	<0.5 ug/g	103	70-130	104	75-125	0	0-30

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436398	Methlynaphthalene, 1-	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Methlynaphthalene, 2-	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Acenaphthene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Acenaphthylene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Anthracene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benz[a]anthracene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benzo[a]pyrene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benzo[b]fluoranthene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benzo[ghi]perylene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Benzo[k]fluoranthene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Chrysene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Dibenz[a h]anthracene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Fluoranthene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Fluorene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Indeno[1 2 3-cd]pyrene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Naphthalene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Phenanthrene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436398	Pyrene	GC-MS	2023-01-24	2023-01-25	C_M	P 8270
436689	Tetrachloroethane, 1,1,1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Trichloroethane, 1,1,1-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Tetrachloroethane, 1,1,2,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Trichloroethane, 1,1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethane, 1,1-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethylene, 1,1-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichlorobenzene, 1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethane, 1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloropropane, 1,2-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichlorobenzene, 1,3-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloropropene,1,3-	GC-MS	2023-01-23	2023-01-23	PJ	V 8260B
436689	Dichlorobenzene, 1,4-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Acetone	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Benzene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B

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COC #: 220707

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436689	Bromodichloromethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Bromoform	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Bromomethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethylene, 1,2-cis-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloropropene,1,3-cis-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Carbon Tetrachloride	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Chloroform	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dibromochloromethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichlorodifluoromethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Methylene Chloride	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Ethylbenzene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Ethylene dibromide	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	PHC's F1	GC/FID	2023-01-23	2023-01-23	PJ	CCME
436689	Hexane (n)	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Xylene, m/p-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Methyl Ethyl Ketone	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Methyl Isobutyl Ketone	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Methyl tert-Butyl Ether (MTBE)	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Chlorobenzene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Xylene, o-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Styrene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloroethylene, 1,2-trans-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Dichloropropene,1,3-trans-	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Tetrachloroethylene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Toluene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Trichloroethylene	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Trichlorofluoromethane	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436689	Vinyl Chloride	GC-MS	2023-01-23	2023-01-24	PJ	V 8260B
436692	Xylene Mixture	GC-MS	2023-01-24	2023-01-24	PJ	V 8260B
436695	PHC's F1-BTEX	GC/FID	2023-01-24	2023-01-24	PJ	CCME
436721	PHC's F2	GC/FID	2023-01-25	2023-01-25	SS	CCME
436721	PHC's F3	GC/FID	2023-01-25	2023-01-25	SS	CCME
436721	PHC's F4	GC/FID	2023-01-25	2023-01-25	SS	CCME

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Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436721	Moisture-Humidite	Oven	2023-01-25	2023-01-25	SS	ASTM 2216
436722	Silver	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Arsenic	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Boron (total)	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Barium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Beryllium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Cadmium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Cobalt	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Chromium Total	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Copper	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Mercury	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Molybdenum	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Nickel	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Lead	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Antimony	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Selenium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Thallium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Uranium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Vanadium	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436722	Zinc	ICAPQ-MS	2023-01-24	2023-01-24	SD	EPA 200.8/6020
436724	Aroclor 1242	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436724	Aroclor 1248	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436724	Aroclor 1254	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436724	Aroclor 1260	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436724	Polychlorinated Biphenyls	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Chlordane, alpha-	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Aldrin	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Chlordane	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Dieldrin	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Endosulfan	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Endosulfan I	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Endosulfan II	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Endrin	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A

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Certificate of Analysis

Client: Morrison Hershfield Limited
2440 Don Reid Drive, Suite 200
Ottawa, ON
K1H 1E1
Attention: Mr. Sarth Sheth
PO#:
Invoice to: Morrison Hershfield Limited

Report Number: 1992826
Date Submitted: 2023-01-20
Date Reported: 2023-01-27
Project: 190261800 Teston Rd
COC #: 220707

Test Summary

Batch No	Analyte	Instrument	Prep aration Date	Analysis Date	Analyst	Method
436726	Hexachlorocyclohexane Gamma-	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Chlordane, gamma-	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Heptachlor	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Heptachlor Epoxide	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Hexachlorobenzene	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Hexachlorobutadiene	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Hexachloroethane	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	Methoxychlor	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	DDD	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	DDE	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436726	DDT	GC/ECD	2023-01-25	2023-01-25	R_G	EPA 8081B/8082A
436736	1+2-methylnaphthalene	GC-MS	2023-01-25	2023-01-25	C_M	P 8270
436777	pH - CaCl2	pH Meter	2023-01-26	2023-01-26	IP	Ag Soil
436804	Cyanide (CN-)	Skalar CN Analyzer	2023-01-26	2023-01-26	Z_S	MOECC E3015
436848	PHC's F2-Napth	GC/FID	2023-01-27	2023-01-27	SS	CCME
436849	PHC's F3-PAH	GC/FID	2023-01-27	2023-01-27	SS	CCME
436864	Electrical Conductivity	Electrical Conductivity Mete	2023-01-27	2023-01-27	Z_S	Cond-Soil
436868	Sodium Adsorption Ratio	iCAP OES	2023-01-27	2023-01-27	Z_S	Ag Soil
436872	Chromium VI	FAA	2023-01-27	2023-01-27	Z_S	M US EPA 3060A
436874	Boron (Hot Water Soluble)	iCAP OES	2023-01-27	2023-01-27	Z_S	MOECC E3470

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Date Reported: 2023-01-27
Project: 190261800 Teston Rd
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CWS for Petroleum Hydrocarbons in Soil - Tier 1

Notes:

1. The laboratory method complies with CCME Tier 1 reference method for PHC in soil. It is validated for laboratory use.
2. Where the F1 fraction (C6 to C10) and BTEX are both measured, F1-BTEX is reported.
3. Where the F2 fraction (C10 to C16) and naphthalene are both measured, F2-naphthalene is reported.
4. Where the F3 fraction (C16 to C34) and PAHs* are both measured, F3-PAH is reported.
5. F4G is analyzed if the chromatogram does not descend to baseline before C50. Where F4 (C34 to C50) and F4G are both reported, the higher result is compared to the standard.
6. Unless otherwise stated in the sample comments, the following criteria have been met where applicable:

   - nC6 and nC10 response factors within 30% of response factor for toluene;
   - nC10, nC16, and nC34 response factors within 10% of each other;
   - C50 response factors within 70% of nC10 + nC16 + nC34 average; and,
   - Linearity is within 15%.

7. Unless otherwise stated in the sample comments, sampling requirements and analytical holding times have been met.
8. Gravimetric heavy hydrocarbons (F4G) cannot be added to the C6 and C50 hydrocarbons.
9. *PAHs = phenanthrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene and pyrene.

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Report Number: 1992940
Date Submitted: 2023-01-23
Date Reported: 2023-01-30
Project: 190261800
COC #: 905059

Dear Sarth Sheth:

Please find attached the analytical results for your samples. If you have any questions regarding this report, please do not hesitate to call (613-727-5692).

Report Comments:

R Zafari

Raheleh Zafari 2023.01.30 17:59:19 -05'00'

APPROVAL: _____

Raheleh Zafari, Environmental Chemist

All analysis is completed at Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) unless otherwise indicated.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by CALA, Canadian Association for Laboratory Accreditation to ISO/IEC 17025 for tests which appear on the scope of accreditation. The scope is available at: https://directory.cala.ca/.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is licensed by the Ontario Ministry of the Environment, Conservation, and Parks (MECP) for specific tests in drinking water (license #2318). A copy of the license is available upon request.

Eurofins Environment Testing Canada Inc. (Ottawa, Ontario) is accredited by the Ontario Ministry of Agriculture, Food, and Rural Affairs for specific tests in agricultural soils.

Please note: Field data, where presented on the report, has been provided by the client and is presented for informational purposes only. Guideline values listed on this report are provided for ease of use (informational purposes) only. Eurofins recommends consulting the official provincial or federal guideline as required. Unless otherwise stated, measurement uncertainty is not taken into account when determining guideline or regulatory exceedances.

Certificate of Analysis

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Client: Morrison Hershfield Limited
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Report Number: 1992940
Date Submitted: 2023-01-23
Date Reported: 2023-01-30
Project: 190261800
COC #: 905059

Group	Analyte	MRL	Units	Guideline	1672375 R347 2022-12-12 MH BH3 - SS2	1672376 R347 2022-12-12 MH BH4 - SS2
	Lab I.D.				1672375	1672376
	Sample Matrix				R347	R347
	Sample Type					
	Sampling Date				2022-12-12	2022-12-12
	Sample I.D.				MH BH3 - SS2	MH BH4 - SS2
Anions	F	0.10	mg/L	LQC 150.0	0.21	0.24
General Chemistry	Cyanide (free)	0.05	mg/L	LQC 20.0	<0.05	<0.05
Leachate	REG 558 Leach				y	y
	Zero Headspace Extraction				y	y
Mercury	Hg	0.001	mg/L	LQC 0.1	<0.001	<0.001
Metals	Ag	0.01	mg/L	LQC 5	<0.01	<0.01
	As	0.02	mg/L	LQC 2.5	<0.02	<0.02
	B	0.1	mg/L	LQC 500.0	<0.1	<0.1
	Ba	0.01	mg/L	LQC 100.0	0.42	0.32
	Cd	0.008	mg/L	LQC 0.5	<0.008	<0.008
	Cr	0.05	mg/L	LQC 5.0	<0.05	<0.05
	Pb	0.01	mg/L	LQC 5.0	<0.01	<0.01
	Se	0.02	mg/L	LQC 1.0	<0.02	<0.02
	U	0.01	mg/L	LQC 10.0	<0.01	<0.01
Moisture	Moisture-Humidite	0.1	%		0.5	3.2
Others	Ignitability				neg	neg
	NO2 + NO3 as N	1.0	mg/L	LQC 1000	<1.0	<1.0
PAH	Benzo(a)pyrene	0.01	ug/L	LQC 1.0	0.01	0.01
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L	LQC 300	<0.1	<0.1
VOCs Surrogates	1,2-dichloroethane-d4	0	%		108	110
	4-bromofluorobenzene	0	%		90	90
	Toluene-d8	0	%		99	100
Volatiles	1,1-dichloroethylene	0.5	ug/L	LQC 1400	<0.5	<0.5
	1,2-dichlorobenzene	0.4	ug/L	LQC 20000	<0.4	<0.4
	1,2-dichloroethane	0.5	ug/L	LQC 500	<0.5	<0.5

Guideline = REG 558 *** = Guideline Exceedence**

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Group	Analyte	MRL	Units	Guideline	1672375 R347 2022-12-12 MH BH3 - SS2	1672376 R347 2022-12-12 MH BH4 - SS2
	Lab I.D.				1672375	1672376
	Sample Matrix				R347	R347
	Sample Type					
	Sampling Date				2022-12-12	2022-12-12
	Sample I.D.				MH BH3 - SS2	MH BH4 - SS2
Volatiles	1,4-dichlorobenzene	0.4	ug/L	LQC 500	<0.4	<0.4
	Benzene	0.5	ug/L	LQC 500	<0.5	<0.5
	Carbon Tetrachloride	0.2	ug/L	LQC 500	<0.2	<0.2
	Chloroform	0.5	ug/L	LQC 10000	<0.5	<0.5
	Dichloromethane	4.0	ug/L	LQC 5000	<4.0	<4.0
	Methyl Ethyl Ketone (MEK)	2	ug/L	LQC 200000	<2	<2
	Monochlorobenzene	0.5	ug/L	LQC 8000	<0.5	<0.5
	Tetrachloroethylene	0.3	ug/L	LQC 3000	<0.3	<0.3
	Trichloroethylene	0.3	ug/L	LQC 5000	<0.3	<0.3
	Vinyl Chloride	0.2	ug/L	LQC 200	<0.2	<0.2

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Run No 436045 **Analysis/Extraction Date** 2023-01-27 **Analyst** C M **Method** P 8270			
Benzo[a]pyrene	<0.01 ug/L	83	50-140
Run No 436750 **Analysis/Extraction Date** 2023-01-25 **Analyst** AsA **Method** SW1030			
Ignitability			
Run No 436790 **Analysis/Extraction Date** 2023-01-26 **Analyst** AsA **Method** EPA 1311/O. Reg 347			
REG 558 Leach			
Zero Headspace Extraction			
Run No 436791 **Analysis/Extraction Date** 2023-01-25 **Analyst** AsA **Method** ASTM 2216			
Moisture-Humidite			80-120
Run No 436813 **Analysis/Extraction Date** 2023-01-26 **Analyst** AsA **Method** SM2320,2510,4500H/F			
F	<0.10 mg/L	105	90-110
Run No 436847 **Analysis/Extraction Date** 2023-01-27 **Analyst** SD **Method** EPA 200.8			
Silver	<0.01 mg/L	100	70-130

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Arsenic	<0.02 mg/L	95	70-130
Boron (total)	<0.1 mg/L	78	70-130
Barium	<0.01 mg/L	97	70-130
Cadmium	<0.008 mg/L	99	70-130
Chromium Total	<0.05 mg/L	101	70-130
Lead	<0.01 mg/L	92	70-130
Selenium	<0.02 mg/L	104	70-130
Uranium	<0.01 mg/L	86	70-130
Run No 436854 **Analysis/Extraction Date** 2023-01-26 **Analyst** PJ **Method** EPA 8260			
Dichloroethylene, 1,1-	<0.5 ug/L	81	60-130
Dichlorobenzene, 1,2-	<0.4 ug/L	94	60-130
Dichloroethane, 1,2-	<0.5 ug/L	92	60-130
Dichlorobenzene, 1,4-	<0.4 ug/L	90	60-130
Benzene	<0.5 ug/L	94	60-130
Carbon Tetrachloride	<0.2 ug/L	93	60-130
Chloroform	<0.5 ug/L	93	60-130
Methylene Chloride	<4.0 ug/L	97	60-130

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QC Summary

Analyte	Blank	QC % Rec	QC Limits
Methyl Ethyl Ketone	<2 ug/L	110	60-130
Chlorobenzene	<0.5 ug/L	93	60-130
Tetrachloroethylene	<0.3 ug/L	90	60-130
Trichloroethylene	<0.3 ug/L	89	60-130
Vinyl Chloride	<0.2 ug/L	79	60-130
Run No 436861 **Analysis/Extraction Date** 2023-01-27 **Analyst** AaN **Method** M SM3112B-3500B			
Mercury	<0.001 mg/L	112	76-123
Run No 436877 **Analysis/Extraction Date** 2023-01-27 **Analyst** Z S **Method** SM4500-CNC/MOE E3015			
Cyanide (CN-)	<0.05 mg/L	88	75-125
Run No 436886 **Analysis/Extraction Date** 2023-01-30 **Analyst** R G **Method** EPA 8081B			
Polychlorinated Biphenyls	<0.1 ug/L	91	60-140
Run No 436917 **Analysis/Extraction Date** 2023-01-30 **Analyst** SKH **Method** C SM4500-NO3-F			
NO2 + NO3 as N	<1.0 mg/L	99	80-120

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