

June 13, 2025

File: 102669.001

The Properties Group Management Ltd.
236 Metcalfe Street
Ottawa, Ontario
K2P 1R3

Attention: Andrew Glass BES, Director, Development & Acquisitions

**Re: Phase Two ESA Validation
4497 O'Keefe Court
Ottawa, Ontario**

To Whom it May Concern,

GEMTEC completed an Ontario Regulation (O.Reg.) 153/04 compliant Phase One Environmental Site Assessment (ESA) and Phase Two ESA on July 28, 2023 and February 29, 2024, respectively, for The Properties Group Management Ltd. for the property noted above. Subsequently, GEMTEC completed an O.Reg. 153/04 compliance Phase One ESA update for the same property on May 30, 2025. GEMTEC's Phase One ESA update did not identify any new potential environmental concerns of areas of potential environmental concerns for the property.

As such, GEMTEC certifies that the results and recommendations of the Phase Two ESA are valid as of the date of this letter, June 13, 2025.

We trust that this proposal is sufficient for your purposes. If you have any questions or require additional information, please contact the undersigned.

GEMTEC Consulting Engineers and Scientists Limited

Regards,



Daniel Elliot, P.Geo., QP_{ESA}
Senior Environmental Geoscientist

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Enclosure
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GEMTEC

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Phase Two Environmental Site Assessment
4497 O'Keefe Court
Ottawa, Ontario

GEMTEC Project: 102669.001



GEMTEC

www.gemtec.ca

Submitted to:

The Properties Group Management Ltd.
236 Metcalfe Street
Ottawa, Ontario
K2P 1R3

Phase Two Environmental Site Assessment

4497 O'Keefe Court
Ottawa, Ontario

February 29, 2024

GEMTEC Project: 102669.001

GEMTEC Consulting Engineers and Scientists Limited
32 Steacie Drive
Ottawa, ON, Canada
K2K 2A9
File: 102669.001

February 29, 2024

The Properties Group Management Ltd.
236 Metcalfe Street
Ottawa, Ontario
K2P 1R3

Attention: Mr. Andrew Glass, BES, Director, Development and Acquisitions

**Re: Phase Two Environmental Site Assessment
4497 O'Keefe Court
Ottawa, Ontario**

Please find enclosed GEMTEC's Phase Two Environmental Site Assessment (ESA) per our proposal dated November 8, 2023 and additional change order dated, December 4, 2023. The Phase Two ESA was completed in general accordance with Ontario Regulation (O.Reg.) 153/04 and describes the interpreted environmental conditions at the above-noted property at the time the investigation was completed.

We trust this information is sufficient for your current needs. If you have any questions or require further information, please contact the undersigned.



Adrian Williams, B.Sc., GIT
Junior Environmental Scientist



February 29, 2024

Daniel Elliot, P.Geo., QP_{ESA}
Senior Environmental Geoscientist

AW/DE

EXECUTIVE SUMMARY

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by The Properties Group Management Ltd. to carry out a Phase Two Environmental Site Assessment (ESA) in accordance with Ontario Regulation (O.Reg.) 153/04, as amended, for the property located at 4497 O’Keefe Court in Ottawa, Ontario (hereafter referred to as the “Site”). The Site location is provided in Figure A.1, Appendix A.

GEMTEC completed a Phase One ESA for the Site in July 2023. The findings of the Phase One ESA are provided under a separate cover entitled:

- *“Phase One Environmental Site Assessment, 4497 O’Keefe Court, Ottawa, Ontario”*. Project Number 102669.001.

Based on the review of the Phase One ESA findings, a Phase Two ESA was recommended to address the area of potential of environmental concern (APEC) identified on the Site. A summary of the APEC identified during the Phase One ESA investigation is provided below:

- **APEC 1:** Fill of unknown origin or quality was observed throughout the Site. The fill material appeared to include soil, construction debris, and/or other deleterious material. This APEC encompasses the entire Site. Geotechnical investigations on the Site show the fill extends into the water table, as such, the media of concern are soil and groundwater. Contaminants of potential concern (COPCs) associated with this APEC are Petroleum Hydrocarbon fractions 1 to 4 (PHC F1 – F4), Benzene, Toluene, Ethylbenzene, and Xylene (BTEX), Polyaromatic Hydrocarbons (PAH), and Metals and Inorganics (M&I).

During the Phase Two ESA investigation, a total of four boreholes, BH23-01 to BH23-03B, were advanced with using a track mounted drill rig supplied and operated by Strata Drilling Group. Soil samples were recovered into clean, single-use plastic liners using a 114.3-millimetre diameter ID dual tube casing. Three boreholes were advanced into the overburden, and one was advanced into the underlying bedrock as part of an associate hydrogeological investigation. All boreholes were instrumented with monitoring wells upon intersecting the groundwater table or practical refusal. A test trench along the western property boundary was also advanced as part of the Phase Two ESA investigation. The trench was backfilled upon collection of soil samples and logging of soil strata encountered.

A total of 12 soil samples and three groundwater samples were collected and analyzed for one or more of the COPCs identified in APEC 1. GEMTEC notes that groundwater samples were analyzed for the full suite of volatile organic compounds (VOCs), which includes BTEX.

Based on the evaluation of analytical results of the Phase Two ESA, GEMTEC draws the following conclusions:

- The overburden observed at the Site during the subsurface investigation was generally described as fill material consisting of sand and silt, with trace pebbles and cobbles. Native materials, where encountered, was described as grey silty clay.
- The inferred groundwater flow direction is to the south-southwest.
- Soil samples collected from the test trench returned concentrations of PAHs exceeding the applicable Table 3 SCS. This is likely due to the high asphalt content present in the overburden.
- Soil samples MW23-01 SA5 and SA6 returned concentrations of PHC F2 and EC exceeding the applicable Table 3 SCS.
- Soil samples MW23-01 SA3, MW23-02 SA2, MW23-03A SA1, and MW23-03A SA4 returned concentrations of EC exceeding the applicable Table 3 SCS.
- The reported concentrations of all parameters within groundwater samples met the Table 3 SCS.

In consideration of the conclusions, GEMTEC offers the following recommendations:

- Create a remedial action plan to be implemented during site preparation and earth works to address the areas impacted by PAHs and PHC F2.
 - The remedial action plan will include, but not be limited to, soil handling and remedial measures, impact delineation measures, and confirmatory sampling protocols and requirements.
- A screening level risk assessment (SLRA) is recommended to provide risk mitigation measures for any contaminants remaining on site after remedial works.

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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by The Properties Group Management Ltd. (Client) to conduct a Phase Two Environmental Site Assessment (ESA) in general accordance with Ontario Regulation (O.Reg) 153/04, as amended, for the property located at 4497 O’Keefe Court in the City of Ottawa, Ontario (hereafter referred to as the “Site”). The Site location is provided on Figure A.1, Appendix A.

GEMTEC understands that the Phase Two ESA was requested to support a site plan control application for future development of the Site as a light industrial or logistics warehousing park.

This Phase Two ESA report summarizes the investigation completed, analytical results from environmental samples collected, interpretation of the results, provides a conceptual site model (CSM) based on the information collected, and provides any recommendations for further investigation.

1.1 Site Description

The Site is approximately 6.88 hectares (17.0 acres), rectangular in shape, and is located east of Highway 416 on the north side of O’Keefe Court. The Site consists of undeveloped land and a constructed berm that runs along the northern and eastern perimeter of the Site. Pertinent details of the Site are provided in the table below:

Table 1.1: Summary of Phase Two Property

Detail	Source / Reference	Information
Legal Description	Service Ontario Parcel Register	PT LOT 21 Concession 4, Rideau Front, Being Part 14 on 5R-13897
Municipal Address	Client	4497 O’Keefe Court Nepean, Ontario K2R 0A2
Parcel Identification Number (PIN)	Service Ontario Parcel Register	04631-0383 (LT). Part Lot 21, Con 4 Rideau Front, as Pt 14, 5R-13897
Current Owner	Service Ontario Parcel Register	O’Keefe Court Properties Ltd.
Site Area	GeoOttawa Mapping	17.0 acres (6.88 ha)
Current Zoning	GeoOttawa Mapping	RG- Rural General Industrial Zone
Centroid Lat/Long Co-ordinate	Google Earth Pro	45.28049, -75.79882

The location of the Site is shown on A.1, Appendix A.

1.2 Current and Proposed Future Uses

The Site is currently vacant and undeveloped; however, was formerly used as part of an aggregate extraction pit and quarry with limestone as the main commodity. Information collected during the Phase One ESA indicates that pit operations began in the early to mid 1950's. The proposed future land use of the Site is light industrial.

1.3 Applicable Site Condition Standards

Site Condition Standards (SCS) were selected for the site in general accordance with the requirements of O.Reg. 153/04 – Records of Site Condition under Part XV.1 of the Environmental Protection Act, as amended.

The relevant Site characteristics were considered in the selection of the applicable regulatory standards are as follows:

- Land Use: The current and future land use for the site is considered industrial/ commercial/ community.
- Environmentally Sensitive Site: Environmental sensitivity is considered in the selection of appropriate provincial standards for comparison. Section 41 of O.Reg.153/04 states that a property is to be considered environmentally sensitive if any of the following are applicable:
 - (1) the property is,
 - (i) within an area of natural significance;
 - (ii) includes or is adjacent to an area of natural significance or part of such an area; or
 - (iii) includes land that is within 30 metres of an area of natural significance or part of such an area;
 - (2) the soil at the property has a pH value as follows:
 - (i) for surface soil, less than 5 or greater than 9;
 - (ii) for sub surface soil, less than 5 or greater than 11; or
 - (3) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property.

The Site is not considered to be an environmentally sensitive site.

- Potable Water Supply: The Site is not currently serviced with municipal water supply; however, municipal water supply is planned for the future development. All properties surrounding the Site are serviced by municipal water supply. Groundwater is not considered potable in this scenario.
- Shallow Bedrock: Bedrock was encountered between 3 and 4.3 meters below ground surface (mbgs). Groundwater within the overburden was also more than 1 mbgs. Considering these characteristics, the Site is not considered a shallow bedrock Site.

- Water bodies within 30 m: A stormwater management pond and associated drainage channels are present adjacent to the Site. However, these features are not considered water bodies under the definition provided in O.Reg. 153/04. Therefore, there are no water bodies within 30 m of the Site.
- Soil Texture: Soil on site was determined to be predominantly fill material consisting of sand with gravel and varying amounts of silt. As such, the soil texture applied to the site is coarse.
- Land Use: Historical land use for the site was industrial as a quarry. Currently the Site is vacant; however, the proposed land use is industrial. As such, industrial land use standards will be applied.

Based on the review of site characteristics, the following provincial standards were considered to be applicable to the environmental results obtained during the investigation:

- Soil: MECP, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. Industrial, Commercial, Community (ICC) land use.
- Groundwater: MECP, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. Industrial, Commercial, Community (ICC) land use

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

The Site has an elevation of approximately 109 to 102 metres above sea level (masl) with a regional topography sloping to the southeast (Google Earth Pro, 2019). Surrounding local topography generally slopes gradually downwards towards the Jock River which is located approximately 2.6 kilometres (km) south of the Site.

Surficial and bedrock geology maps of Canada, and historical well records indicate that the overburden in Phase Two Study Area generally consists of a mixture of fill material, native deposits of glacial till and marine clay soils. The bedrock is mapped as shale, limestone, dolostone, siltstone of the Oxford Formation and Bobcaygeon Formation.

Groundwater flow often reflects topographic features and typically flows towards nearby lakes, rivers, and wetland areas. Based on the topography and hydrogeological features, it is anticipated that local shallow groundwater would flow southward towards the Jock River.

2.2 Past Investigations

The following reports were reviewed prior to conducting the Phase Two ESA:

- Paterson Group Inc., April 2006. *Phase I and Limited Phase II Environmental Site Assessment, Proposed Commercial/Industrial Development O’Keefe Court at Highway No. 416, Ottawa, Ontario*. File: PE0775-1.
- Paterson Group Inc., October 2006. *Terrain Analysis and Hydrogeological Study, Proposed Commercial Development, Part 14, Lot 21, Concession 4 (R.F), Ottawa (Nepean), Ontario*. File: PH0521-REP.01.
- Paterson Group Inc., April 2008. *Geotechnical Investigation, Proposed Office/Warehouse Development, 4497 O’Keefe Court, Ottawa, Ontario*. File: PG0783-2.
- Paterson Group Inc., September 2008. *Terrain Analysis & Hydrogeological Study Addendum No. 1, Proposed Gateway Industrial Centre, 4497 O’Keefe Court, Ottawa, Ontario*. File: PH0521-REP.03.
- Paterson Group Inc., October 2015. *Hydrogeological Overview, 4497 O’Keefe Court, Ottawa, Ontario*. File: PH0521-LET.07.
- Paterson Group Inc., November 2015. *Geotechnical Investigation, Proposed Office/Warehouse Development, 4497 O’Keefe Court, Ottawa, Ontario*. File: PG0783-2 Revision 2.
- Paterson Group Inc., November 2017. *Geotechnical Review – Assessment of Existing Fill, Proposed Commercial Building, O’Keefe Court, Ottawa*. File: PH0783-MEMO.01.
- GEMTEC Consulting Engineers and Scientists Limited, September 2023. *Supplemental Geotechnical Investigation, Proposed Light Industrial Warehouse Development, 4497 O’Keefe Court, Ottawa, Ontario*. File: 102669.001

The following summarizes the results of intrusive investigations carried out at the Site:

- Groundwater was measured between 0.43 and 3.56 m below the ground surface (bgs);
- Fill material was encountered in all boreholes advanced. Asphalt was noted in fill layers along the west central portion of the Site;
- Native soil, where present beneath the fill, at the Site were identified as topsoil (brown silty sand with rootlets) underlain by brown silty sand, followed by grey silty clay;
- No signs of staining or odor were reported during Paterson’s geotechnical investigations;
- Non-detect values were reported for volatile organic compounds (VOCs) and petroleum hydrocarbons F1 – F4 (PHC F1 – F4) during Paterson’s Phase I and Limited Phase II ESA; and,
- Hydrocarbon odours were identified in the central portion of the site during the GEMTEC geotechnical investigation.

GEMTEC completed a Phase One ESA at the Site in July 2023. The findings of the Phase One ESA are provided under separate covers entitled:

- “Phase One Environmental Site Assessment, 4497 O’Keefe Court, Ottawa, Ontario”. File Number 102669.001.

Based on the findings of the Phase One ESA, an area of potential of environmental concern (APEC) was identified on the Site. The APEC identified is summarized below.

- **APEC 1:** Fill of unknown origin or quality was observed throughout the Site. The fill material appeared to include soil, construction debris, and/or other deleterious material. This APEC encompasses the entire Site. Geotechnical investigations on the Site show the fill extends into the water table, as such, the media of concern are soil and groundwater. Contaminants of potential concern (COPCs) associated with this APEC are Petroleum Hydrocarbon fractions 1 to 4 (PHC F1 – F4), Benzene, Toluene, Ethylbenzene, and Xylene (BTEX), Polyaromatic Hydrocarbons (PAH), and Metals and Inorganics (M&I).

A Phase Two ESA was recommended to address the APEC identified on the site.

3.0 OBJECTIVE AND SCOPE

3.1 Overview of Site Investigation

The Phase Two ESA was completed to assess the soil and groundwater quality on Site within the APECs identified during the Phase One ESA (GEMTEC, 2023). The investigation was completed in general accordance with O.Reg. 153/04, to support a site plan application with the City of Ottawa.

The objective of the Phase Two ESA was to provide subsurface information relative to the potential environmental impacts related to the APECs identified in the Phase One ESA.

To date, Environmental sampling has been carried out to characterize the soil and groundwater quality within APEC 1 on the Site. The scope of work, as outlined in GEMTEC’s proposal, included the following:

- Advanced of three boreholes through the overburden and terminate within the water table or auger refusal on bedrock;
- Advanced one 15 foot borehole into the bedrock for hydrogeological studies.
- Installed monitoring wells into all four boreholes;
- Submit 13 soil samples for laboratory analysis of one or more of the COPCs identified in the Phase One ESA;
- Submitted four groundwater samples for laboratory analysis of one or more of the COPCs identified in the Phase One ESA;

- Submitted one duplicate soil sample and one duplicate groundwater sample for the same COPCs as the original sample as part of the field program Quality Assurance / Quality Control (QA/QC) requirements;
- Submitted one groundwater trip blank for PHC F1 – F2 and BTEX as part of the field program QA/QC requirements;
- Evaluated soil and groundwater analytical results to applicable provincial standards; and,
- Prepared this Phase Two ESA report summarizing the purpose, methodology and results of the investigation.

3.2 Phase One Conceptual Site Model

Based on the historical review, interview, and Site reconnaissance, GEMTEC concludes that one APEC is present at the Site. Information presented in this report that contributes to the development of the Phase One conceptual site model (CSM) is presented as applicable in Figures A.1, in Appendix A, and is summarized as follows:

- The Site is approximately 6.88 hectares (17.0 acres), rectangular in shape and is located east of Highway 416 on the north side of O’Keefe Court in Ottawa, Ontario.
- The Site currently zoned as industrial. Adjacent properties land use includes vacant to the north and south, Parkland west, and commercial east.
- Two monitoring wells were identified on Site, advanced in 2005 to monitor water quality and aquifer response for potential domestic use.
- Ground cover on the Site consists of grass, trees, and gravel.
- The Site is not connected to municipal utilities, water, wastewater, gas, and electricity.
- No areas of natural significance were identified within the Phase One study area.
- There are no significant surface water bodies within 1 km of the Site.
- Based on the topography and hydrogeological features, it is anticipated that local shallow groundwater flow direction is to the south towards the Jock River.
- Fill material of unknown quality is widespread throughout the Site and consists of fill piles and berms.
- Based on the review of records, as well as the Site reconnaissance completed as part of this Phase One ESA, GEMTEC identified one PCA that resulted in an APEC within the Phase One study area.

Information considered for the development of this Phase One ESA CSM was gathered from numerous sources (i.e., aerial photographs, environmental database searches, physical setting sources, an interview, and Site reconnaissance)

There were no deviations from the Phase One ESA requirements specified in O. Reg. 153/04 nor absence of information that may have resulted in uncertainty that would affect the validity of the ESA Phase One CSM.

3.3 Deviations and Impediments

GEMTEC did not encounter any impediments to the investigation. As such, there were no deviations from the sampling and analysis plan.

4.0 FIELD PROGRAM METHODOLOGY

4.1 General

Prior to initiating the intrusive investigation, underground utilities were cleared by USL-1 Underground Service Locators of Ottawa, Ontario to identify the location of buried utilities on-site. The trench was completed using an excavator to practical refusal of the bucket. Boreholes were advanced with a GeoProbe 7822DT operated by a local well contractor. Monitoring wells were installed immediately following borehole advancement.

Groundwater monitoring wells were developed prior to groundwater sample collection. Soil and groundwater samples collected during the investigation were done so following the *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (MOE, 1996). All borehole locations were surveyed with a high precision digital GPS to obtain horizontal and vertical coordinates.

4.2 Drilling and Excavating

As part of the investigation, a trench was advanced on the western boundary of the site near Highway 416. The test trench was advanced on December 14, 2023 to a depth of approximately 4.5 mbgs in a north-south direction using a John Deere 135G excavator operated by Glenn Wright Excavating. Five soil samples were submitted for analysis of the identified COPC's. Samples were collected over 0.6 m intervals directly into laboratory supplied sample containers. A fresh pair of nitrile gloves were donned between each sample. The test trench location is presented in Figure A.2 of Appendix A.

The borehole investigation was carried out on December 14th and 15th, 2023. A total of four boreholes (BH23-01 through BH23-03A and BH23-03B) were advanced by a track mounted GeoProbe 7822DT drilling rig supplied and operated by Strata Environmental Drilling (Strata). Soil cores were retrieved in single-use plastic liners to prevent cross contamination between sample runs. Core runs were split in half, or where changes in stratigraphy, colour, or evidence of contamination were observed, with sample intervals no longer than 0.76 m. Samples were split between laboratory supplied sample containers and a sealable bag for the collection of organic vapour measurements. A fresh pair of nitrile gloves were donned between each sample.

The drilling and excavating programs were supervised by a member of GEMTEC's engineering staff.

4.3 Soil Sampling

Soil samples were recovered at regular intervals during drilling as well as when changes in soil texture, colour or evidence of contamination were observed. The soil samples were examined for texture and screened for visual and olfactory evidence of contamination in the field. Clean gloves were worn and changed between each sample to prevent cross contamination.

Borehole locations were identified as BHX -Y SAZ where X indicates the year the hole was advanced, Y is the hole identifier, and Z is the sample identifier. For example, BH23-02 SA1 indicates the borehole was constructed in 2023 and is identified as sample number 1 of borehole 2.

Soil samples were screened using an RKI Eagle 2, which operates as a photoionization detector (PID) and combustible gas indicator (CGI), to measure total organic vapours and combustible vapours. The PID/CGI detects combustible vapours such as those associated with fuels. This instrument measures a concentration of total combustible gas, calibrated to known concentrations of isobutylene and hexane. The instrument operates in the methane elimination mode. The detection limit of the instrument ranges from 0 to 11,000 ppm (i.e., 100 % LEL of hexane). The CGI has an accuracy of 25 ppm below 1,000 ppm and 5% of the lower explosive limit (LEL) between 1,000 ppm and 100% LEL.

There are no regulatory criteria for soil vapours; however, elevated vapour concentrations are generally indicative of the presence of volatile parameters. Concentrations vary with parameter type, concentration, and age. Readings are only intended to be used as a field screening tool to provide a qualitative measure of volatile chemical concentrations within the subsurface. The readings do not provide a quantitative measure of analytical results. The RKI Eagle 2 was obtained by GEMTEC from Maxim Environmental & Safety Inc. (Maxim) for this project. Maxim calibrates instruments on a regular basis to maintain consistent results.

A summary of the soil samples and screening results which were collected from each location for laboratory analyses is provided in Table 4.1.

Table 4.1: Summary of Soil Samples Submitted for Laboratory Analysis

Location	Sample	Depth of Sample (mbgs)	Soil Description	Vapour Readings	Laboratory Analyses
TP23	SA1	0.5-1.11	Brown sand, pebbles, cobbles with asphalt and debris	HEX: 10 IBL: 0	M&I, BTEX, PAHs, PHCs F1-F4
TP23	SA101	0.5-1.11	Brown sand, pebbles, cobbles with	HEX: 10 IBL: 0	M&I, BTEX, PAHs, PHCs F1-F4

Location	Sample	Depth of Sample (mbgs)	Soil Description	Vapour Readings	Laboratory Analyses
			asphalt and debris		
TP23	SA2	0.5-1.11	Brown sand, pebbles, cobbles with asphalt and debris	HEX: 30 IBL: 0	M&I, BTEX, PAHs, PHCs F1-F4
TP23	SA4	0.5-1.11	Brown sand, pebbles, cobbles with asphalt and debris	HEX: 40 IBL: 0	M&I, BTEX, PAH, PHCs F1-F4
TP23	SA5	0.5-1.11	Brown sand, pebbles, cobbles with asphalt and debris	HEX: 15 IBL: 0	M&I, BTEX, PAHs, PHCs F1-F4
MW23-01	SA3	1.52-2.29	Brown sandy silt	HEX: 30 IBL: 0	M&I, PAHs, BTEX, PHCs F1-F4
MW23-01	SA5	2.90-3.05	Dark blue-green sandy silt	HEX: 35 IBL: 29	M&I, PAHs, BTEX, PHCs F1-F4
MW23-01	SA6	3.05-3.81	Dark blue-green sandy silt	HEX: 86 IBL: 15	M&I, PAHs, BTEX, PHCs F1-F4
MW23-02	SA2	0.76-1.52	Brown silty sand	HEX: 65 IBL: 0	M&I, PAHs, BTEX, PHCs F1-F4
MW23-02	SA5	2.90-3.05	Grey silty sand	HEX: 230 IBL: 0	M&I, PAHs, BTEX, PHCs F1-F4
MW23-02	SA6	3.05-3.81	Grey silty sand	HEX: 210 IBL: 0	M&I, PAHs, BTEX, PHCs F1-F4
MW23-03A	SA1	0.00-0.76	Silty sand trace cobbles and pebbles	HEX: 0 IBL: 0	M&I, PAHs, BTEX, PHCs F1-F4
MW23-03A	SA4	2.28-2.90	Brown silty sand	HEX: 0 IBL: 0	M&I, PAHs, BTEX, PHCs F1-F4

Notes: mbgs – metres below ground surface
PAH – Polycyclic aromatic Hydrocarbons
PHC F1-F4 – Petroleum Hydrocarbons Four Fractions
VOCs – Volatile Organic Compounds
M&I – Metals and Inorganics

4.4 Monitoring Well Installation

Four groundwater monitoring wells, BH23-01 through BH23-03A and BH23-03B, were installed by Strata. Monitoring wells were installed by Downing using threaded 50 mm diameter, schedule 40, polyvinyl chloride (PVC) well screens and riser pipe, which were brought to the Site in sealed plastic bags. The annular space was filled with silica filter sand to at least 0.3 m above the well screen. The monitoring well was sealed with bentonite from the top of the sand pack to ground surface and completed with a monument-style protective well casing. The riser pipes were sealed with a J-plug.

4.5 Groundwater Field Measurements

Groundwater indicator parameters including temperature, pH and conductivity were measured prior to sampling to ensure adequate well development and purging. A Horiba Multi parameter meter was used to measure groundwater quality during groundwater sampling. This instrument was calibrated by Maxim using factory supplied standard solutions for electrical conductivity (1413 micro-Siemens per centimetre ($\mu\text{S}/\text{cm}$)) and pH (4.01 pH and 7.01 pH) parameters. Specifications for the water quality metre are summarized in the following table:

Table 4.2: Multiparameter Probe Specifications

Parameter	Measurement Range	Precision	Accuracy
pH	0.00 to 14.00 pH	0.01 pH	± 0.2 pH
Conductivity	0.00 to 200 mS/cm	0.01 mS/cm	$\pm 0.5\%$
Temperature	-5 to 45 °C	0.1 °C	± 0.15 °C

4.6 Groundwater Sampling

Following drilling, the monitoring wells were developed on December 19 2023, by removing up to ten well volumes, using dedicated Waterra® tubing and inertial pumps. During monitoring well development, qualitative observations were made of water colour, clarity, and the presence or absence of any hydrocarbon sheen or odours.

The depth to water was measured using an electronic water level tape prior to sampling. The monitoring well was sampled using low flow techniques using a GeoPump peristaltic pump. Physical parameters pH, temperature, conductivity (EC), dissolved oxygen (DO), and redox potential (ORP) are monitored with samples collected upon stabilization. During purging and sampling, qualitative observations were made of water colour, clarity, and the presence of hydrocarbon sheen or odour.

Groundwater samples were placed in laboratory-prepared containers and stored on ice in a cooler until delivery to the analytical laboratory under chain-of-custody procedures. A summary of the groundwater samples submitted for analysis is presented below.

Table 4.3: Summary of Groundwater Samples Submitted for Laboratory Analysis

Monitoring Well/ Sample ID	Well Depth (m bgs)	Soil Description of Screened Interval	Evidence of Petroleum Hydrocarbon Product	Laboratory Analyses
MW23-01	4.27	Overburden	None	M&I, PHCs F1-F4, VOC
MW23-101	4.27	Overburden	None	M&I, PHCs F1-F4, VOC
MW23-02	4.57	Overburden	None	M&I, PHCs F1-F4, VOC
MW23-03	3.05	Overburden	None	M&I, PHCs F1-F4, VOC
Trip Blank	-	-	-	PHCs F1-F2, BTEX

4.7 Laboratory Analytical Program

All samples were stored and transported in laboratory supplied coolers with ice. Soil and groundwater samples were submitted to AGAT Laboratories Ltd. (AGAT) of Ottawa, Ontario, for analysis of the COPCs. AGAT is accredited by the Standards Council of Canada (SCC) in cooperation with the Canadian Association of Laboratory Accreditation (CALA) for specific environmental tests listed in the scope of accreditation. The laboratory meets the ISO/IEC 17025 (2017) standards and employs in-house quality assurance and quality control programs to govern sample analysis including the analysis of method blanks, spiked blanks, and the analysis of duplicates (10%) for each sample batch.

4.8 Surveying

Elevations of monitoring well locations were surveyed using a Trimble R10 global positioning system. The coordinates of the boreholes are referenced to NAD83 (CSRS) Epoch 2010, vertical network CGVD28 and are considered to be accurate within the tolerance of the instrument.

The locations of the hand auger holes could not be surveyed due to poor reception caused by thick vegetation and overhead canopy. Approximate locations of the hand auger holes are shown on figures.

4.9 Quality Assurance / Quality Control Program

GEMTEC's quality assurance program for environmental investigations was implemented to ensure that analytical data obtained by the investigation were valid and representative. The quality assurance program included the following measures:

- The use of standard operating procedures for all field investigation activities.
- All monitoring wells were developed following installation to remove fine particles from the filter pack and any fluids introduced during drilling.
- Monitoring wells were appropriately purged prior to groundwater sample collection to remove stagnant water from the well bore and improve sample representativeness, minimizing sample agitation and aeration to the extent practicable.
- The collection of field duplicate samples at a minimum frequency of one duplicate for every ten samples.
- Initial calibration of field equipment was performed at the start of each field day, with a daily check of calibration, as needed, using a standard of known concentration.
- Soil and groundwater samples were handled and stored in accordance with the sample collection and preservation requirement of the MECP "Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.I of the Environmental Protection Act", July 1, 2011. Samples were collected directly into pre-cleaned, laboratory-supplied sample containers with the appropriate preservative for the analyte group. Upon collection, samples were placed in insulated coolers with ice for storage and transport to the analytical laboratory under chain-of-custody.
- Dedicated sampling equipment (tubing and foot valves) and clean disposable Nitrile™ gloves were used at each sampling location to prevent cross-contamination. All non-dedicated sampling equipment (e.g., water level meters, split spoons) was decontaminated between sampling locations. Sampling equipment in contact with soil, groundwater, or sediment was cleaned by mechanical means; washed with a phosphate-free, laboratory-grade detergent (e.g., Alconox powder) and, if necessary, an appropriate desorbing wash solution; and thoroughly rinsed with analyte-free water.
- Detailed field records documenting the methods and circumstances of collection for each field sample were prepared at the time of sample collection. Each sample was assigned a unique sample identification number recorded in the field notes, along with the date and time of sample collection, the sample matrix, and the requested analyses.
- The submission of samples to the analytical laboratory in accordance with standard chain of custody procedures.

Below is a summary of the primary and duplicate samples.

Table 4.4: QA/QC Duplicate Sample Summary

Date	Media	Sample ID	Duplicate ID
Dec 14, 2023	Soil	TP23 SA1	TP23 SA101
Dec 21, 2023	Groundwater	MW23-01	MW23-101

One groundwater trip blank was also analyzed for PHC F1 – F2 and BTEX to ensure groundwater samples were not adversely affected during transportation to the analytical laboratory.

5.0 REVIEW AND EVALUATION

5.1 Site Stratigraphy

The surficial geology of the Phase Two Property was visually observed and logged during the borehole program. The soil conditions identified in the boreholes advanced as part of this investigation are provided on the borehole logs in Appendix B. The borehole logs indicate the subsurface conditions encountered at the specific test locations only, conditions at other than the test locations may vary. Boundaries between zones on the logs are often not distinct, but rather are transitional and have been interpreted based on observations by GEMTEC field personnel.

Soil encountered in the boreholes generally consisted of fill material described as brown sand, gravel and silt, or silt and sand with trace pebbles and cobbles. The fill was underlain by brown sandy silt to silty sand with trace gravel. Grey silty clay was observed at greater depths before refusal in Paterson and GEMTEC geotechnical investigations.

Soil in the test trench was observed to be brown silt and sand with cobbles to practical refusal of the excavator bucket. Asphalt was observed at various depths in the trench. Larger blocks of asphalt were brought up from the bottom of the trench at refusal depth.

5.2 Groundwater Elevations and Flow Direction

Groundwater elevations presented below were calculated based on depth to groundwater measurements collected on December 19, 2023.

Groundwater depths were measured directly from the top of each monitoring well riser using an electronic contact water level tape. Depth measurements were converted to groundwater elevations by subtracting the measured depth from the elevation of the top of each monitoring well riser.

Table 5.1: Groundwater Levels December 19, 2023

Monitoring Well	Material	Groundwater elevation (m asl) December 19, 2023	Groundwater depth (m bgs) December 19, 2023
MW23-1	Overburden	105.76	3.65
MW23-2	Overburden	104.21	1.25
MW23-3A	Overburden	104.24	0.93
MW23-2B	Bedrock	104.82	0.43

Based on the 2023 groundwater elevations presented in Table 5.1 above and on Figure A.4 in Appendix A, groundwater flow direction within the overburden beneath the site is primarily directed in a south-southwest direction. The average horizontal gradient for the site was estimated to be 0.0108 m/m.

5.3 Soil Screening

Soil screening results are shown on boreholes logs in Appendix B. Screening results for samples submitted to AGAT are also shown in Table 4.1 in Section 4.3. Generally, PID and CGI measurements ranged from 0.0 to 29 and 0 to 230, respectively. Worst case samples were selected based on these screening measurements.

5.4 Soil Quality

A total of 13 soil samples were submitted to AGAT for analysis of one or more of the COPCs including M&I, BTEX, PAHs, and PHCs F1-F4. A summary of the results evaluated against MECP Table 3 SCS is presented below and are visualized in Figure A.3 of Appendix A.

Table 5.1: Summary of Soil Exceedances

Location	Sample ID	Parameter Exceeding Table 3 SCS
	SA1	Benzo[a]pyrene
	SA2	Acenaphthylene, Benz[a]anthracene, Benzo[b]fluoranthene, Benzo[a]pyrene
TP23	SA4	Benzo[a]pyrene
	SA5	Acenaphthylene, Anthracene, Fluoranthene, Benz[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-cd]pyrene, Debenz[a,h]anthracene

Location	Sample ID	Parameter Exceeding Table 3 SCS
MW23-01	SA3	Electrical Conductivity
	SA5	Electrical Conductivity, PHC F2
	SA6	Electrical Conductivity, PHC F2
MW23-02	SA2	Electrical Conductivity
MW23-03	SA1	Electrical Conductivity
	SA4	Electrical Conductivity

Soil analytical results are presented in Table C1, Appendix C. Laboratory certificate of analysis are provided in Appendix D.

PAH exceedances from the test trench samples are attributed to the presence of asphalt throughout the fill material in the area. The observed parameters and concentrations presented are consistent with asphalt impacted soil. Historical investigations have shown the horizontal limits to the presence of asphalt in the soil. As well, the fill material is observed to be present to practical refusal. Based on these observations, the PAH impacted soil is delineated horizontally and vertically and will be removed from Site during site preparation and earth works.

The samples which returned PHC exceedances at MW23-01 show a decreasing concentration trend with depth. This trend indicates that the vertical extents of impacts were nearly achieved. MW23-01 and the area surrounding it are proposed to have extensive material excavation during site preparation and earthworks. The concentrations of PHC F2 in MW23-01 SA5 and SA6 were reported as 1,410 µg/g and 262 µg/g, respectively. Examination of the proposed development shows that MW23-01 and immediate vicinity is in an exterior area of the site under a paved surface. The generic Table 3 SCS is protective of PHC F2 leaching from soil to groundwater. Although this is a complete pathway for the Site in the current condition, groundwater results at MW23-01 returned no concentrations of PHCs above the laboratory detection limits. When considering receptor pathways for the proposed development the following were examined:

- The soil was and will continue to be below 1.5 metres and will be considered sub-surface soil. Therefore, plants, soil organisms, mammals, birds, and site occupants will not come into contact with it.
- The soil will be in an exterior area and not under any buildings. Therefore, no indoor air receptor pathways are valid.
- Soil may be contacted by construction workers during site preparation or earth works. Therefore, the S3 soil contact and outdoor air quality receptor pathways are valid.

Based on the valid receptor pathways, the component values for S3 soil contact and outdoor air quality are 48,000 µg/g and 25,000 µg/g, respectively. The reported concentrations are well below these values and the PHC F2 present in the sub-surface is not an immediate risk to human or ecological health. However, leaching to groundwater may still occur. As such, removal of impacted material is planned for during site preparation and earth works.

Electrical conductivity exceedances from borehole soil samples are not considered a concern for the Site or proposed uses of the Site as the site is not going to have potable groundwater and the areas where EC exceedances were noted will be covered by building footprints or paved surfaces.

5.5 Groundwater Quality

Three groundwater samples were submitted to AGAT for analysis one or more of all of the following COPCs: VOCs, M&I, and PHCs F1-F4. All groundwater samples met the applicable MECP Table 3 SCS for all parameters analyzed. The results are visualized in Figure A.4, Appendix A.

Groundwater analytical results are presented in Table C2, Appendix C. Laboratory certificate of analysis are provided in Appendix D.

5.6 Quality Assurance / Quality Control

The quality assurance assessment of the field duplicate sample results was conducted according to the MECP document “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”, March 9, 2004 (amended in July 2009 and effective as of July 1, 2011) (“Analytical Protocol”).

To determine the precision of the analytical methods and field sampling procedures, blind duplicate samples were collected during soil and groundwater sampling. Precision is determined by the relative percent difference (“RPD”) between the duplicate and original samples and was calculated as follows:

$$RPD = \frac{|x_1 - x_2|}{x_m}$$

Where

- x_1 initial sample results
- x_2 duplicate sample results
- x_m mean of x_1, x_2

RPDs were calculated for all parameters with concentrations of at least five times the reporting level. All parameters duplicated reported RPD values below the MECP Alert Criteria in soil or groundwater duplicate pairs.

The groundwater trip blank was also found to have no detectable concentrations of BTEX or PHC F1 – F2 during the groundwater sampling event. The quality of the analytical results is

further supported by analytical laboratory’s internal quality assurance program that includes laboratory blanks, spikes, surrogates, and duplicate samples.

All certificates of analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47(3). Certificates of analysis or analytical reports were received for each sample submitted for analysis and are provided in Appendix D.

Accordingly, the analytical data generated during the investigation are valid and representative and may be used in this Phase Two ESA without further qualification.

6.0 PHASE TWO CONCEPTUAL SITE MODEL

The Phase Two ESA conceptual site model (CSM) is presented in the following sections.

The Phase Two CSM was prepared in accordance with Schedule E, Part V, Table 1, Section 6, of Ontario Regulation 153/04 and is described in the text below and in the following figures:

- Figure A.1 Phase Two Property and Phase One Study Area
- Figure A.2 Site Layout
- Figure A.3 Soil Quality Results
- Figure A.4 Groundwater Quality Results and Flow Direction

6.1 Property Description and History

The Site is approximately 6.88 hectares (17.0 acres), rectangular in shape and is located east of Highway 416 on the north side of O’Keefe Court. The Site consists of undeveloped land and a constructed berm that runs along most of the northern and eastern perimeter of the Site. The Site was previously used as a mineral extraction pit with limestone as the main commodity. Operations began in the early to mid-1950’s. The Phase Two Property is currently owned by The Properties Group Management Ltd. The contact person for the Site is Andrew Glass.

Table 6.1: Phase Two Property Details

Detail	Source / Reference	Information
Legal Description	Service Ontario Parcel Register	PT LOT 21 Concession 4, Rideau Front, Being Part 14 on 5R-13897
Municipal Address	Client	4497 O’Keefe Court Nepean, Ontario K2R 0A2
Parcel Identification Number (PIN)	Service Ontario Parcel Register	04631-0383 (LT). Part Lot 21, Con 4 Rideau Front, as Pt 14, 5R-13897
Current Owner	Service Ontario Parcel Register	O’Keefe Court Properties Ltd.
Site Area	GeoOttawa Mapping	17.0 acres (6.88 ha)

Detail	Source / Reference	Information
Current Zoning	GeoOttawa Mapping	RG- Rural General Industrial Zone
Centroid Lat/Long Co-ordinate	Google Earth Pro	45.28049, -75.79882

The location of the Site is shown on Figure A.1, Appendix A.

6.2 Current and Proposed Future Uses

The Site is currently vacant and undeveloped; however, was formerly used as part of an aggregate extraction pit and quarry with limestone as the main commodity. Information collected during the Phase One ESA indicates that pit operations began in the early to mid 1950's. The proposed future land use of the Site is light industrial.

6.3 Potentially Contaminating Activities and Areas of Potential Environmental Concern

Based on the findings of the Phase One ESA, an area of potential of environmental concern (APEC) was identified on the Site. The APEC identified is summarized below.

- APEC 1:** Fill of unknown origin or quality was observed throughout the Site. The fill material appeared to include soil, construction debris, and/or other deleterious material. This APEC encompasses the entire Site. Geotechnical investigations on the Site show the fill extends into the water table, as such, the media of concern are soil and groundwater. Contaminants of potential concern (COPCs) associated with this APEC are Petroleum Hydrocarbon fractions 1 to 4 (PHC F1 – F4), Benzene, Toluene, Ethylbenzene, and Xylene (BTEX), Polyaromatic Hydrocarbons (PAH), and Metals and Inorganics (M&I).

6.4 Subsurface Structures and Utilities

Buried utility service locates were completed prior to the drilling program and indicated there were no buried utilities on Site.

Given the conditions encountered during drilling and analytical results, buried services are not considered to have facilitated the migration of contaminants at the Site.

6.5 Physical Setting

6.5.1 Stratigraphy and Depth to Bedrock

The surficial geology of the Phase Two Property was visually observed and logged during the borehole program. The soil conditions identified in the boreholes advanced as part of this

investigation are provided on the borehole logs in Appendix B. The borehole logs indicate the subsurface conditions encountered at the specific test locations only, conditions at other than the test locations may vary. Boundaries between zones on the logs are often not distinct, but rather are transitional and have been interpreted based on observations by GEMTEC field personnel.

Soil encountered in the boreholes generally consisted of fill material described as brown sand, gravel and silt, or silt and sand with trace pebbles and cobbles. The fill was underlain by brown sandy silt to silty sand with trace gravel. Grey silty clay was observed at greater depths before refusal in Paterson and GEMTEC geotechnical investigations.

Soil in the test trench was observed to be brown silt and sand with cobbles to practical refusal of the excavator bucket. Asphalt was observed at various depths in the trench. Larger blocks of asphalt were brought up from the bottom of the trench at refusal depth.

Bedrock depth varies significantly across the site with no observable trends. Historical and current subsurface investigations have encountered bedrock between 0.4 mbgs and 5.7 mbgs.

6.5.2 Water Table

Groundwater depth varies significantly across the site with no observable trends. During this Phase Two ESA investigation, groundwater elevations were observed to be between 104.21 masl and 105.76 masl. The average horizontal gradient for the site was estimated to be 0.0108 m/m.

6.6 Environmentally Sensitive Areas

No areas of natural significance were identified on the Site or within the Phase Two Study Area. The Site is not considered environmentally sensitive.

6.7 Site Condition Standards

Site Condition Standards (SCS) were selected for the site in general accordance with the requirements of O.Reg. 153/04 – Records of Site Condition under Part XV.1 of the Environmental Protection Act, as amended.

The relevant Site characteristics were considered in the selection of the applicable regulatory standards are as follows:

- Land Use: The current and future land use for the site is considered industrial/ commercial/ community.
- Environmentally Sensitive Site: Environmental sensitivity is considered in the selection of appropriate provincial standards for comparison. Section 41 of O.Reg.153/04 states that a property is to be considered environmentally sensitive if any of the following are applicable:

- (1) the property is,
 - (i) within an area of natural significance;
 - (ii) includes or is adjacent to an area of natural significance or part of such an area; or
 - (iii) includes land that is within 30 metres of an area of natural significance or part of such an area;
- (2) the soil at the property has a pH value as follows:
 - (i) for surface soil, less than 5 or greater than 9;
 - (ii) for sub surface soil, less than 5 or greater than 11; or
- (3) a qualified person is of the opinion that, given the characteristics of the property and the certifications the qualified person would be required to make in a record of site condition in relation to the property as specified in Schedule A, it is appropriate to apply this section to the property.

The Site is not considered to be an environmentally sensitive site.

- Potable Water Supply: The Site is not currently serviced with municipal water supply; however, municipal water supply is planned for the future development. All properties surrounding the Site are serviced by municipal water supply. Groundwater is not considered potable in this scenario.
- Shallow Bedrock: Bedrock was encountered between 3 and 4.3 meters below ground surface (mbgs). Groundwater within the overburden was also more than 1 mbgs. Considering these characteristics, the Site is not considered a shallow bedrock Site.
- Water bodies within 30 m: A stormwater management pond and associated drainage channels are present adjacent to the Site. However, these features are not considered water bodies under the definition provided in O.Reg. 153/04. Therefore, there are no water bodies within 30 m of the Site.
- Soil Texture: Soil on site was determined to be predominantly fill material consisting of sand with gravel and varying amounts of silt. As such, the soil texture applied to the site is coarse.
- Land Use: Historical land use for the site was industrial as a quarry. Currently the Site is vacant; however, the proposed land use is industrial. As such, industrial land use standards will be applied.

Based on the review of site characteristics, the following provincial standards were considered to be applicable to the environmental results obtained during the investigation:

- Soil: MECP, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. Industrial, Commercial, Community (ICC) land use.

- Groundwater: MECP, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition. Industrial, Commercial, Community (ICC) land use

6.8 Contaminated Media

The Phase Two ESA identified multiple PAH, PHC F2, and EC exceedances of the applicable standards in soil. PAH exceedances from the test trench samples are attributed to the presence of asphalt throughout the fill material in the area. The observed parameters and concentrations presented are consistent with asphalt impacted soil. Historical investigations have shown the horizontal limits to the presence of asphalt in the soil. As well, the fill material is observed to be present to practical refusal. Based on these observations, the PAH impacted soil is delineated horizontally and vertically and will be removed from Site during site preparation and earth works.

The samples which returned PHC exceedances at MW23-01 show a decreasing concentration trend with depth. This trend indicates that the vertical extents of impacts were nearly achieved. MW23-01 and the area surrounding it are proposed to have extensive material excavation during site preparation and earthworks. The concentrations of PHC F2 in MW23-01 SA5 and SA6 were reported as 1,410 µg/g and 262 µg/g, respectively. Examination of the proposed development shows that MW23-01 and immediate vicinity is in an exterior area of the site under a paved surface. The generic Table 3 SCS is protective of PHC F2 leaching from soil to groundwater. Although this is a complete pathway for the Site in the current condition, groundwater results at MW23-01 returned no concentrations of PHCs above the laboratory detection limits. When considering receptor pathways for the proposed development the following were examined:

- The soil was and will continue to be below 1.5 metres and will be considered sub-surface soil. Therefore, plants, soil organisms, mammals, birds, and site occupants will not come into contact with it.
- The soil will be in an exterior area and not under any buildings. Therefore, no indoor air receptor pathways are valid.
- Soil may be contacted by construction workers during site preparation or earth works. Therefore, the S3 soil contact and outdoor air quality receptor pathways are valid.

Based on the valid receptor pathways, the component values for S3 soil contact and outdoor air quality are 48,000 µg/g and 25,000 µg/g, respectively. The reported concentrations are well below these values and the PHC F2 present in the sub-surface is not an immediate risk to human or ecological health. However, leaching to groundwater may still occur. As such, removal of impacted material is planned for during site preparation and earth works.

Electrical conductivity exceedances from borehole soil samples are not considered a concern for the Site or proposed uses of the Site as the site is not going to have potable groundwater and the areas where EC exceedances were noted will be covered by building footprints or paved surfaces.

6.9 Contaminant Migration

Though exceedances were present in soil on site, no groundwater exceedances were observed at any of the installed monitoring wells. It is of GEMTEC's opinion that the risk of contaminant migration is minimal and should not be considered a concern.

6.10 Meteorological and Climatic Considerations

Seasonal fluctuation in water levels on the Site should be expected. Considering one groundwater monitoring event, seasonal trends could not be identified. Shallow groundwater water levels are typically highest following the spring recharge and decline throughout the summer and fall months into the winter. Given no exceedances of the applicable standards were identified in the laboratory results for groundwater, the results are not considered to have been influenced by metrological or climate conditions.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the evaluation of analytical results of the Phase Two ESA, GEMTEC draws the following conclusions:

- The overburden observed at the Site during the subsurface investigation was generally described as fill material consisting of sand and silt, with trace pebbles and cobbles. Native materials, where encountered, was described as grey silty clay.
- The inferred groundwater flow direction is to the south-southwest.
- Soil samples collected from the test trench returned concentrations of PAHs exceeding the applicable Table 3 SCS. This is likely due to the high asphalt content present in the overburden.
- Soil samples MW23-01 SA5 and SA6 returned concentrations of PHC F2 and EC exceeding the applicable Table 3 SCS.
- Soil samples MW23-01 SA3, MW23-02 SA2, MW23-03A SA1, and MW23-03A SA4 returned concentrations of EC exceeding the applicable Table 3 SCS.
- The reported concentrations of all parameters within groundwater samples met the Table 3 SCS.

In consideration of the conclusions, GEMTEC offers the following recommendations:

- Create a remedial action plan to be implemented during site preparation and earth works to address the areas impacted by PAHs and PHC F2.

- The remedial action plan will include, but not be limited to, soil handling and remedial measures, impact delineation measures, and confirmatory sampling protocols and requirements.
- A screening level risk assessment (SLRA) is recommended to provide risk mitigation measures for any contaminants remaining on site after remedial works.

8.0 LIMITATION OF LIABILITY

The Phase Two Environmental Site Assessment has been supervised and reviewed by a qualified person. This Phase Two ESA was carried out in general with Ontario Regulation 153/04 made under the Environmental Protection Act and meets the requirements of Part VII (Sections 23 to 31) and Schedule D of the regulation.

The results of this Phase Two ESA should in no way be construed as a warranty that the Phase Two Property is free from any and all contaminants other than those noted in this report, nor that all compliance issues have been addressed.

This report was prepared for the exclusive use of The Properties Group Management Ltd. and is based on data and information collected during the Phase Two ESA of the property conducted by GEMTEC. This report may not be relied upon by any other person or entity without the express written consent of GEMTEC and The Properties Group Management Ltd. In evaluating this Phase Two Property, GEMTEC has relied in good faith on information provided by others. We accept no responsibility for any deficiencies or inaccuracies in this report as a result of omissions, misinterpretations, or fraudulent acts of others.

The investigation undertaken by GEMTEC with respect to this report and any conclusions or recommendations made in this report reflect the best judgements of GEMTEC based on the Site conditions observed during the investigations undertaken at the date(s) identified in the report and on the information available at the time the report was prepared. This report has been prepared for the application noted and it is based, in part, on visual observations made at the Site, subsurface investigations at discrete locations and depths and laboratory analyses of specific chemical parameters and material during a specific time interval, all as described in the report. Unless otherwise stated, the findings contained in this report cannot be extrapolated or extended to previous or future Site conditions, portions of the Site that were unavailable for direct investigation, subsurface locations on the Site that were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Chemical parameters other than those addressed by the investigation described in this report may exist in soil and groundwater elsewhere on the Site, the chemical parameters addressed in the report may exist in soil and groundwater at other locations at the Site that were not investigated, and concentrations of the chemical parameters addressed which are different than those reported may exist at other locations on the Site than those from where the samples were taken.

Should new information become available during future work, including excavations, borings or other studies, GEMTEC should be requested to review the information and, if necessary, re-assess the conclusions presented herein.

9.0 REFERENCES

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10.0 CLOSURE

We trust this report provides sufficient information for your present purposes. If you have any questions concerning this report, please do not hesitate to contact our office.

Sincerely,

GEMTEC Consulting Engineers and Scientists Limited



Adrian Williams, B.Sc., GIT
Junior Environmental Scientist



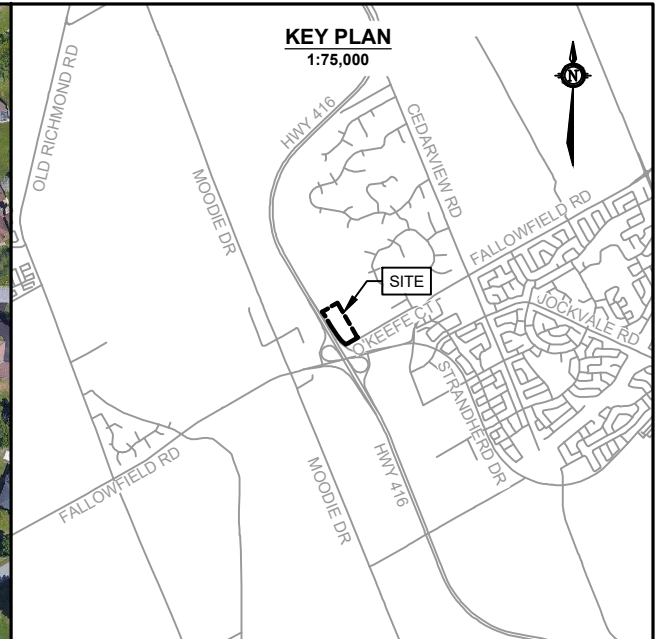
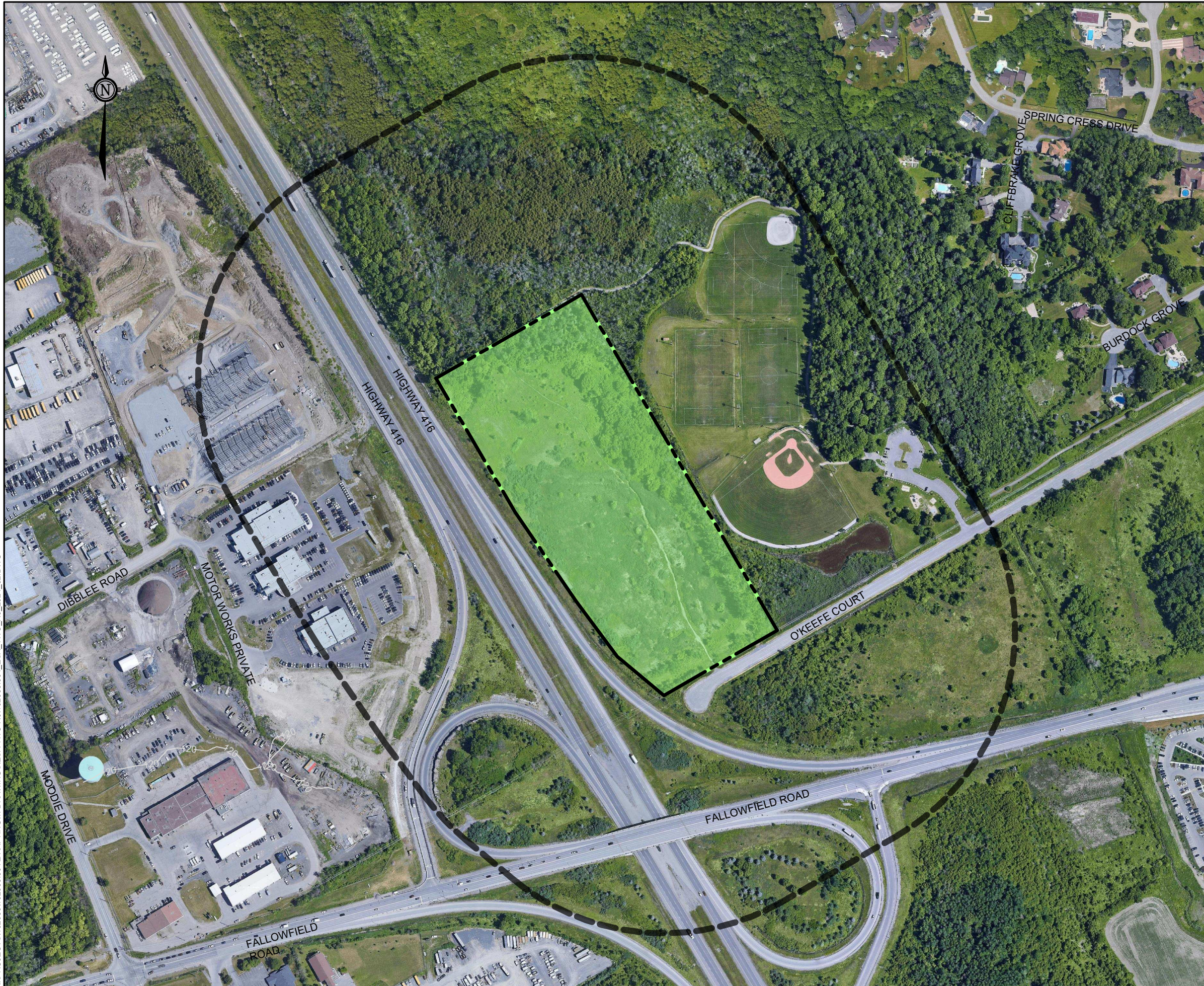
February 29, 2024

Daniel Elliot, P.Geo. QP_{ESA}
Senior Environmental Geoscientist

APPENDIX A

Figures

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KEY PLAN
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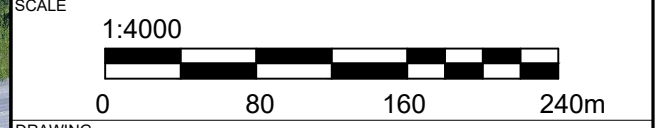
LEGEND

	APPROXIMATE SITE BOUNDARY
	STUDY AREA (250 m RADIUS AROUND THE SITE BOUNDARY)

LABEL	AREA OF POTENTIAL ENVIRONMENTAL CONCERN
1	IMPORTATION OF FILL MATERIAL OF UNKNOWN QUALITY

GENERAL NOTE(S)

- Coordinate system: NAD83 (CSRS), UTM ZONE 18, CGVD28
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- Maps Data: Google, @2023 CNES / Airbus, First Base Solutions, Maxar Technologies
- Geographic dataset source: Ontario GeoHub.



DRAWING
SITE LOCATION, PHASE TWO PROPERTY AND PHASE TWO STUDY AREA

CLIENT
THE PROPERTIES GROUP MANAGEMENT LTD.

PROJECT
PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
4497 O'KEEFE COURT
OTTAWA, ONTARIO

DRAWN BY S.L.	CHECKED BY A.W.
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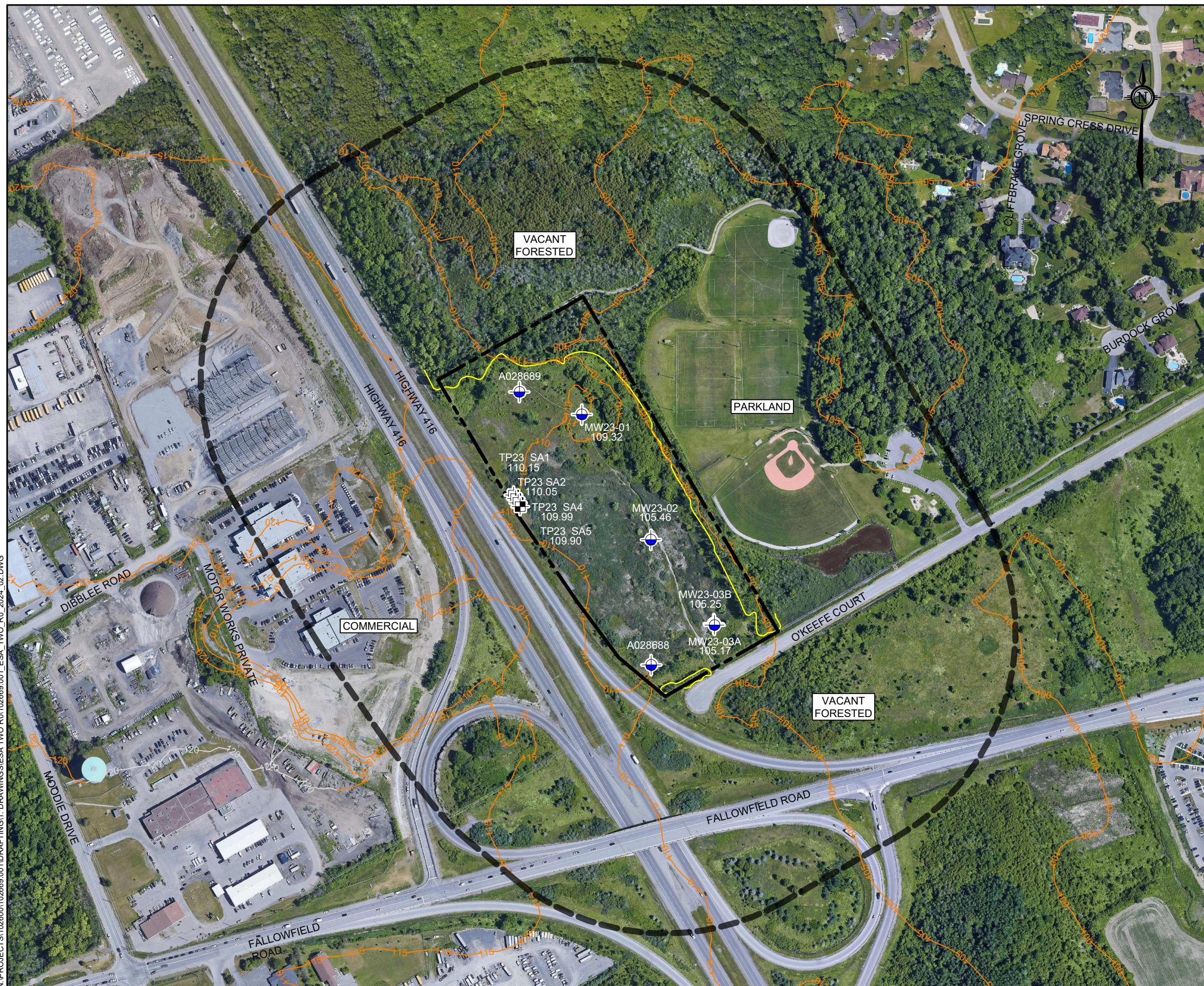
PROJECT NO. 102669.001	REVISION NO. 0
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DATE FEBRUARY 2024	FIGURE NO. FIGURE A.1
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GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

32 Steacie Drive
Ottawa, ON K2K 2A9
Tel: (613) 836-1422
www.gemtec.ca
ottawa@gemtec.ca

N:\PROJECTS\102669\102669.001\DRAWINGS\ESA TWO\01\102669.001_ESA_TWO_R0_2024_02.DWG



LEGEND

- TP ### ← TEST PIT ID
- MW/A ### ← MONITORING WELL ID
- XX.XX ← GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM
- ⊕ TEST PIT LOCATION
- ⊙ BOREHOLE LOCATION
- ⊕ MONITORING WELL LOCATION
- APPROXIMATE SITE BOUNDARY
- ▬▬▬ STUDY AREA (250 m RADIUS AROUND THE SITE BOUNDARY)
- BERM LOCATION
- 100 — GROUND SURFACE ELEVATION, METRES

GENERAL NOTE(S)

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- Geographic dataset source: Ontario GeoHub.

SCALE

1:4000

DRAWING

SITE LAYOUT

CLIENT

THE PROPERTIES GROUP MANAGEMENT LTD.

PROJECT

PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
4497 O'KEEFE COURT
OTTAWA, ONTARIO

DRAWN BY	S.L.	CHECKED BY	A.W.
PROJECT NO.	102669.001	REVISION NO.	0
DATE	FEBRUARY 2024	FIGURE NO.	FIGURE A.2

GEMTEC
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Location:		MW23-01		
Sample ID:	SA3	SA5	SA6	
Sample Depth (mbgs):	1.52 - 2.29	2.90 - 3.05	3.05 - 3.81	
Parameters				
General Inorganics				
Electrical Conductivity	1	0.545	0.627	
PHC F1 - F4				
F2 (C10 to C16)	<10	1410	262	

Location:		MW23-02
Sample ID:	SA2	
Sample Depth (mbgs):	0.76 - 1.52	
Parameters		
General Inorganics		
Electrical Conductivity	0.498	

Location:		MW23-03	
Sample ID:	SA1	SA4	
Sample Depth (mbgs):	0.00 - 0.76	2.29 - 2.90	
Parameters			
General Inorganics			
Electrical Conductivity	0.794	0.668	

Location:		TP23				
Sample ID:	SA1	SA101	SA2	SA4	SA5	
Sample Depth (mbgs):	0.5 - 1.1	0.5 - 1.1	0.5 - 1.1	0.5 - 1.1	0.5 - 1.1	
Parameters						
PAH						
Acenaphthylene	0.13	0.18	0.28	0.09	1.38	
Anthracene	0.16	0.16	0.29	0.23	2.46	
Fluoranthene	1.54	1.2	1.99	1.63	11	
Benz(a)anthracene	0.73	0.68	1.23	0.76	7.85	
Benzo(b)fluoranthene	0.79	0.71	1.54	0.81	6.86	
Benzo(k)fluoranthene	0.58	0.51	0.78	0.48	2.71	
Benzo(a)pyrene	0.43	0.42	0.75	0.41	3.56	
Indeno(1,2,3-cd)pyrene	0.31	0.27	0.6	0.28	2.35	
Dibenz(a,h)anthracene	<0.05	<0.05	0.06	<0.05	0.33	

Parameters		Table 3 SCS
General Inorganics		
Electrical Conductivity	0.47	
PAH		
Acenaphthylene	0.15	
Anthracene	0.67	
Fluoranthene	9.6	
Benz(a)anthracene	0.96	
Benzo(b)fluoranthene	0.96	
Benzo(k)fluoranthene	0.96	
Benzo(a)pyrene	0.3	
Indeno(1,2,3-cd)pyrene	0.76	
Dibenz(a,h)anthracene	0.1	
PHC F1 - F4		
F2 (C10 to C16)	230	

LEGEND

- TP ### ← TEST PIT ID
- MW/A ### ← MONITORING WELL ID
- XX.XX ← GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM
- ⊕ ← TEST PIT LOCATION
- ⊙ ← BOREHOLE LOCATION
- ⊙ ← MONITORING WELL LOCATION
- APPROXIMATE SITE BOUNDARY

Notes:

Table 3 SCS: MECP, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, ICC Property Use.

-	No Exceedance
RED	Exceeds MECP Table 3 SCS

GENERAL NOTE(S)

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- Geographic dataset source: Ontario GeoHub.

SCALE

1:4000

DRAWING

SOIL QUALITY RESULTS

CLIENT

THE PROPERTIES GROUP MANAGEMENT LTD.

PROJECT

PHASE TWO
ENVIRONMENTAL SITE ASSESSMENT
4497 O'KEEFE COURT
OTTAWA, ONTARIO

DRAWN BY

S.L.

CHECKED BY

A.W.

PROJECT NO.

102669.001

REVISION NO.

0

DATE

FEBRUARY 2024

FIGURE NO.

FIGURE A.3

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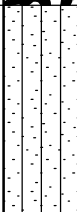
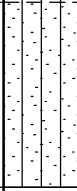
APPENDIX B

Borehole Logs

RECORD OF BOREHOLE MW23-01

CLIENT: The Properties Group Management Ltd.
 PROJECT: Phase Two Environmental Site Assessment
 JOB#: 102669.001
 LOCATION: 4497 O'Keefe Court

SHEET: 1 OF 1
 DATUM: CGVD2013
 BORING DATE: Dec 16 2023

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE DATA				COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m				
0		Ground Surface		109.32								
		Topsoil		0.05								
		Gravel and Sand mix			1	CA			HEX: 30 IBL: 0	None		Bentonite Seal
1					2	CA			HEX: 70 IBL: 0	None		Sand Filter Pack
	Direct Push Casing (89mm (OD))	Brown silty sand		107.64 1.68	3	CA		M&I, PAHs, BTEX, PHCs F1-F4	HEX: 95 IBL: 0	Slight		
2					4	CA			HEX: 70 IBL: 0	Slight		
		dark blue-green sandy silt		106.27 3.05	5	CA		M&I, PAHs, BTEX, PHCs F1-F4	HEX: 35 IBL: 29	Moderate		10' Screen
3					6	CA		M&I, PAHs, BTEX, PHCs F1-F4	HEX: 85 IBL: 15	Moderate		
4		Auger Refusal. End of Borehole		105.05 4.27								

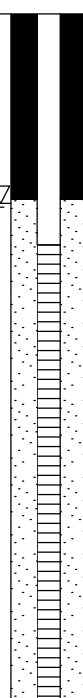





GROUNDWATER OBSERVATIONS		
DATE	DEPTH (m)	ELEVATION (m)
Dec. 19/23	3.56	▽ 105.76

ENV - BOREHOLE LOG 102669.001_02-02-2024.AW.GPJ_GEMTEC.2018_GDT 2/14/24

RECORD OF BOREHOLE MW23-02

CLIENT: The Properties Group Management Ltd.
 PROJECT: Phase Two Environmental Site Assessment
 JOB#: 102669.001
 LOCATION: 4497 O'Keefe Court

SHEET: 1 OF 1
 DATUM: CGVD2013
 BORING DATE: Dec 16 2023

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE DATA				COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m				
0	Direct Push Casing (89mm (OD))	Ground Surface		105.46								 <p style="text-align: center;">Bentonite Seal Sand Filter Pack 10' Screen</p>
		Topsoil		105.41								
		Brown sand, trace pebbles (Fill)		0.05	1	CA			HEX: 55 IBL: 0	None		
				104.74								
		Grey Gravel		0.72								
1		Brown Silty Sand		104.70	2	CA		M&I, PAHs, BTEX, PHCs F1-F4	HEX: 65 IBL: 0	None		
				0.76								
				102.54	3	CA			HEX: 35 IBL: 0	None		
2				2.92	4	CA			HEX: 70 IBL: 0	None		
		Grey sandy silt		102.54	5	CA		M&I, PAHs, BTEX, PHCs F1-F4	HEX: 230 IBL: 0	None		
			2.92	6	CA		M&I, PAHs, BTEX, PHCs F1-F4	HEX: 210 IBL: 0	None			
3			100.89									
4			4.57									
		Auger Refusal at 15 feet. End of Borehole.										

GROUNDWATER OBSERVATIONS		
DATE	DEPTH (m)	ELEVATION (m)
Dec. 19/23	1.25	▽ 104.21

ENV - BOREHOLE LOG 102669.001_02-02-2024.AW.GPJ_GEMTEC.2018_GDT 2/14/24

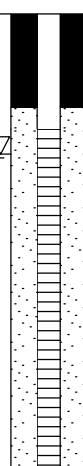


LOGGED: AW
 CHECKED:

RECORD OF BOREHOLE MW23-03A

CLIENT: The Properties Group Management Ltd.
 PROJECT: Phase Two Environmental Site Assessment
 JOB#: 102669.001
 LOCATION: 4497 O'Keefe Court

SHEET: 1 OF 1
 DATUM: CGVD2013
 BORING DATE: Dec 15 2023

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE DATA				COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m					LABORATORY ANALYSES
0		Ground Surface		105.17									
	Direct Push Casing (89mm (OD))	brown silt and sand, trace cobbles and pebbles		104.41	1	CA		M&I, PAHs, BTEX, PHCs F1-F4	HEX: 0 IBL: 0	None			
1		Brown silty sand.		104.41 0.76					HEX: 0 IBL: 0	None			
2						3	CA			HEX: 0 IBL: 0	None		
3						4	CA			HEX: 0 IBL: 0	None		
		Auger Refusal at 10'. Assumed bedrock. End of Borehole.		102.12 3.05									

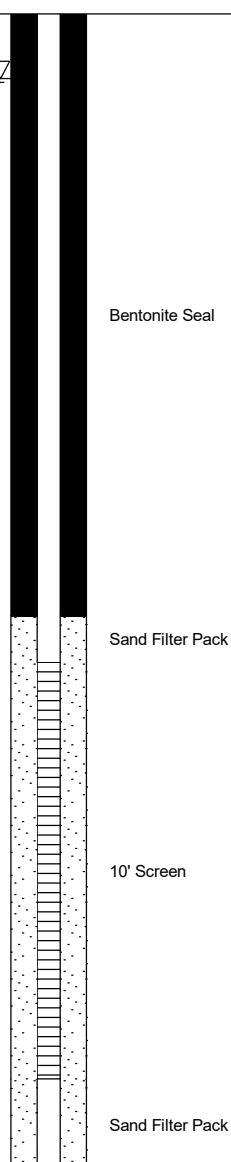
GROUNDWATER OBSERVATIONS		
DATE	DEPTH (m)	ELEVATION (m)
Dec. 19/23	0.93	▽ 104.24

ENV - BOREHOLE LOG 102669.001_02-02-2024.AW.GPJ_GEMTEC.2018_GDT 2/14/24

RECORD OF BOREHOLE MW23-03B

CLIENT: The Properties Group Management Ltd.
 PROJECT: Phase Two Environmental Site Assessment
 JOB#: 102669.001
 LOCATION: 4497 O'Keefe Court

SHEET: 1 OF 1
 DATUM: CGVD2013
 BORING DATE: Dec 15 2023

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLE DATA				COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m				
0		Ground Surface		105.25								
1	Direct Push Casing (89mm (OD))	brown silt and sand, trace cobbles and pebbles		104.49								
1		Brown silty sand.		104.49 0.76								
3	Air Rotary Casing (89mm (OD))	Auger Refusal at assumed bedrock. Air Hammer drilling to continue.		102.20								
4					102.20 3.05							
7		End of Borehole		97.63 7.62								

GROUNDWATER OBSERVATIONS		
DATE	DEPTH (m)	ELEVATION (m)
Dec. 19/23	0.43	▽ 104.82

ENV - BOREHOLE LOG 102669.001_02-02-2024 AW.GPJ GEMTEC 2018.GDT 2/14/24



APPENDIX C

Summary of Analytical Results

Table C1 - Soil Analytical Results
Phase Two Environmental Site Assessment
4497 O'Keefe Court
Ottawa, Ontario

Parameter	Units	RDL	Table 3 SCS	Sample ID:	TP23 SA1	TP23 SA101	TP23 SA2	TP23 SA4	TP23SA5	MW23-01 SA3	MW23-01 SA5	MW23-01 SA6	MW23-02 SA2	MW23-02 SA5	MW23-02 SA6	MW23-03A SA1	MW23-03A SA4
				Laboratory Sample ID:	5558017	5558021	5558022	5558023	5558024	5558074	5558079	5558080	5558081	5558082	5558083	5558085	5558084
				Date Sampled (yyyy-mm-dd):	2023-12-14	2023-12-14	2023-12-14	2023-12-14	2023-12-14	2023-12-15	2023-12-15	2023-12-15	2023-12-15	2023-12-15	2023-12-15	2023-12-14	2023-12-14
				Sample Depth (mbgs):	0.5-1.1	0.5-1.1	1.1-1.7	0.5-1.1	2.0-2.7	1.52-2.29	2.90-3.05	3.05-3.81	0.76-1.52	2.90-3.05	3.05-3.81	0.00-0.76	2.29-2.90
Metals and Inorganics																	
Antimony	µg/g	0.8	40	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	1	18	2	2	4	2	2	2	2	2	1	1	<1	2	3	2
Barium	µg/g	2	670	92.9	79	482	60	80.7	308	130	61.1	811	98.8	149	266	366	
Beryllium	µg/g	0.4	8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	0.6	0.5	
Boron	µg/g	5	120	<5	<5	7	<5	<5	10	<5	<5	<5	<5	5	13	<5	
Boron (Hot Water Soluble)	µg/g	0.1	2	<0.10	<0.10	0.12	<0.10	<0.10	0.4	0.34	<0.10	0.15	<0.10	<0.10	0.68	<0.10	
Cadmium	µg/g	0.5	1.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Chromium	µg/g	5	160	11	10	13	12	13	19	22	9	73	10	11	36	40	
Cobalt	µg/g	0.5	80	5.7	4.9	6.8	4.8	5.4	7.5	6.7	3.5	18.2	3.1	3.8	9.9	11.6	
Copper	µg/g	1	230	14.2	12.7	16.6	8.2	12.5	13.2	12.8	11.8	28.9	10.5	8.6	19.8	22	
Lead	µg/g	1	120	10	8	73	19	32	13	7	3	8	2	6	16	6	
Molybdenum	µg/g	0.5	40	<0.5	<0.5	0.8	0.9	0.6	0.6	0.9	<0.5	<0.5	0.9	0.5	1	<0.5	
Nickel	µg/g	1	270	10	10	16	10	12	16	11	6	42	5	8	23	24	
Selenium	µg/g	0.8	5.5	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	
Silver	µg/g	0.5	40	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Thallium	µg/g	0.5	3.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Uranium	µg/g	0.5	33	0.53	0.51	0.51	0.59	0.86	0.63	0.72	<0.50	0.76	0.53	0.65	0.73	0.66	
Vanadium	µg/g	0.4	86	22.3	20.9	30.2	25.7	29.3	23.6	35.8	19.7	82.5	17.3	17.8	38.2	57.2	
Zinc	µg/g	5	340	23	17	81	31	36	39	33	14	110	9	10	45	62	
Chromium VI	µg/g	0.2	8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Cyanide, WAD	µg/g	0.04	NV	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	
Mercury	µg/g	0.1	3.9	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Electrical Conductivity	mS/cm	0.005	0.47	0.433	0.443	0.312	0.307	0.2	1	0.545	0.627	0.498	0.19	0.379	0.794	0.668	
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	N/A	12	7.5	3.8	4.05	2.27	1.66	0.195	1.48	5.38	5.31	2.54	2.43	3.84	6.2	
pH, 2:1 CaCl2 Extraction	pH units	N/A	Surface Soil: 5-9 Subsurface Soil: 5-11	7.12	7.11	7.16	7.06	7.14	7.2	7.35	7.16	7.3	7.22	7.33	7.3	7.13	
Polyaromatic Hydrocarbons (PAHs)																	
Naphthalene	µg/g	0.05	0.6	<0.05	<0.05	<0.05	<0.05	0.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthylene	µg/g	0.05	0.15	0.13	0.18	0.28	0.09	1.38	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Acenaphthene	µg/g	0.05	96	<0.05	<0.05	<0.05	<0.05	0.26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Fluorene	µg/g	0.05	62	<0.05	<0.05	<0.05	<0.05	0.59	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Phenanthrene	µg/g	0.05	12	0.22	0.26	0.46	0.4	5.19	<0.05	1.82	<0.05	<0.05	<0.05	<0.05	0.19	<0.05	
Anthracene	µg/g	0.05	0.67	0.16	0.16	0.29	0.23	2.46	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	
Fluoranthene	µg/g	0.05	9.6	1.54	1.2	1.99	1.63	11	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.52	<0.05	
Pyrene	µg/g	0.05	96	1.37	1.05	1.82	1.35	9.64	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.64	<0.05	
Benz(a)anthracene	µg/g	0.05	0.96	0.73	0.68	1.23	0.76	7.85	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	<0.05	
Chrysene	µg/g	0.05	9.6	0.56	0.64	0.63	0.46	4.26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	<0.05	
Benzo(b)fluoranthene	µg/g	0.05	0.96	0.79	0.71	1.54	0.81	6.86	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	<0.05	
Benzo(k)fluoranthene	µg/g	0.05	0.96	0.58	0.51	0.78	0.48	2.71	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.2	<0.05	
Benzo(a)pyrene	µg/g	0.05	0.3	0.43	0.42	0.75	0.41	3.56	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05	
Indeno(1,2,3-cd)pyrene	µg/g	0.05	0.76	0.31	0.27	0.6	0.28	2.35	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.05	
Dibenz(a,h)anthracene	µg/g	0.05	0.1	<0.05	<0.05	0.06	<0.05	0.33	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzo(g,h,i)perylene	µg/g	0.05	9.6	0.41	0.34	0.77	0.36	2.68	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	
1 and 2 Methylnaphthalene	µg/g	0.05	0.59	<0.05	<0.05	<0.05	<0.05	0.23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)																	
Benzene	µg/g	0.02	0.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	
Toluene	µg/g	0.05	68	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Ethylbenzene	µg/g	0.05	9.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
m & p-Xylene	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
o-Xylene	µg/g	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Xylenes (Total)	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	<0.05	<0.05	<0.05	
Petroleum Hydrocarbons (PHCs)																	
F1 (C6 - C10)	µg/g	5	55	<5	<5	<5	<5	<5	<5	24	<5	<5	<5	<5	<5	<5	
F1 (C6 to C10) minus BTEX	µg/g	5	55	<5	<5	<5	<5	<5	<5	24	<5	<5	<5	<5	<5	<5	
F2 (C10 to C16)	µg/g	10	230	<10	<10	<10	<10	<10	<10	1410	262	<10	<10	<10	<10	<10	
F2 (C10 to C16) minus Naphthalene	µg/g	10	230	<10	<10	<10	<10	<10	<10	1410	262	<10	<10	<10	<10	<10	
F3 (C16 to C34)	µg/g	50	1700	<50	<50	421	80	381	284	1330	238	<50	<50	<50	<50	<50	
F3 (C16 to C34) minus PAHs	µg/g	50	1700	<50	<50	412	74	332	284	1330	238	<50	<50	<50	<50	<50	
F4 (C34 to C50)	µg/g	50	3300	<50	<50	240	<50	432	107	<50	<50	<50	<50	<50	<50	<50	

Notes:
RDL - Reportable Detection Limit
'mbgs' - Metres Below Ground Surface
'NV' - No Standard/ Guideline Value
'<' - Below RDL
'-' - Not Analyzed
Table 3 SCS: MECP, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, ICC Property Use.
Red Exceeds MECP Table 3 SCS

Table C2 - Groundwater Analytical Results
Phase Two Environmental Site Assessment
4497 O'Keefe Court
Ottawa, Ontario

Parameter	Units	RDL	Sample ID:					Trip Blank
			MW23-01	MW23-101	MW23-02	MW23-03		
			Laboratory Sample ID: 5569687	5569689	5569690	5569691	5569693	
Date Sampled (yyyy-mm-dd):		2023-12-21	2023-12-21	2023-12-21	2023-12-21	2023-12-19		
			MECP Table 3 SCS					
Metals and Inorganics								
Dissolved Antimony	µg/L	1	20000	<1.0	<1.0	<1.0	<1.0	-
Dissolved Arsenic	µg/L	1	1900	<1.0	<1.0	<1.0	<1.0	-
Dissolved Barium	µg/L	2	29000	116	118	227	572	-
Dissolved Beryllium	µg/L	0.5	67	<0.50	<0.50	<0.50	<0.50	-
Dissolved Boron	µg/L	10	45000	26.5	26.1	37.4	32.8	-
Dissolved Cadmium	µg/L	0.2	2.7	<0.20	<0.20	<0.20	<0.20	-
Dissolved Chromium	µg/L	2	810	<2.0	<2.0	<2.0	<2.0	-
Dissolved Cobalt	µg/L	0.5	66	<0.50	<0.50	2.04	1.05	-
Dissolved Copper	µg/L	1	87	2	1.5	1.8	<1.0	-
Dissolved Lead	µg/L	0.5	25	<0.50	<0.50	<0.50	<0.50	-
Dissolved Molybdenum	µg/L	0.5	9200	<0.50	<0.50	50.5	10.2	-
Dissolved Nickel	µg/L	1	490	1.5	<1.0	8.4	2.2	-
Dissolved Selenium	µg/L	1	63	<1.0	<1.0	<1.0	<1.0	-
Dissolved Silver	µg/L	0.2	1.5	<0.20	<0.20	<0.20	<0.20	-
Dissolved Thallium	µg/L	0.3	510	<0.30	<0.30	<0.30	<0.30	-
Dissolved Uranium	µg/L	0.5	420	0.75	0.73	1.7	0.83	-
Dissolved Vanadium	µg/L	0.4	250	<0.40	<0.40	0.48	0.53	-
Dissolved Zinc	µg/L	5	1100	<5.0	<5.0	<5.0	<5.0	-
Mercury	µg/L	0.02	0.29	<0.02	<0.02	<0.02	<0.02	-
Chromium VI	µg/L	2	140	<2.000	<2.000	<2.000	<2.000	-
Cyanide, WAD	µg/L	2	66	<2	<2	<2	<2	-
Dissolved Sodium	µg/L	50	2300000	106000	107000	483000	462000	-
Chloride	µg/L	100	2300000	194000	197000	772000	706000	-
Electrical Conductivity	µS/cm	2	NV	1220	1150	2910	2880	-
pH	pH Units	N/A	-	7.25	7.32	7.52	7.47	-
Volatile Organic Compounds								
Dichlorodifluoromethane	µg/L	0.4	4400	<0.40	<0.40	<0.40	<0.40	-
Vinyl Chloride	µg/L	0.17	0.5	<0.17	<0.17	<0.17	<0.17	-
Bromomethane	µg/L	0.2	5.6	<0.20	<0.20	<0.20	<0.20	-
Trichlorofluoromethane	µg/L	0.4	2500	<0.40	<0.40	<0.40	<0.40	-
Acetone	µg/L	1	130000	<1.0	<1.0	<1.0	<1.0	-
1,1-Dichloroethylene	µg/L	0.3	1.6	<0.30	<0.30	<0.30	<0.30	-
Methylene Chloride	µg/L	0.3	610	<0.30	<0.30	<0.30	<0.30	-
trans- 1,2-Dichloroethylene	µg/L	0.2	1.6	<0.20	<0.20	<0.20	<0.20	-
Methyl tert-butyl ether	µg/L	0.2	190	<0.20	<0.20	<0.20	<0.20	-
1,1-Dichloroethane	µg/L	0.3	320	<0.30	<0.30	<0.30	<0.30	-
Methyl Ethyl Ketone	µg/L	1	470000	<1.0	<1.0	<1.0	<1.0	-
cis- 1,2-Dichloroethylene	µg/L	0.2	1.6	<0.20	<0.20	<0.20	<0.20	-
Chloroform	µg/L	0.2	2.4	<0.20	<0.20	<0.20	<0.20	-
1,2-Dichloroethane	µg/L	0.2	1.6	<0.20	<0.20	<0.20	<0.20	-
1,1,1-Trichloroethane	µg/L	0.3	640	<0.30	<0.30	<0.30	<0.30	-
Carbon Tetrachloride	µg/L	0.2	0.79	<0.20	<0.20	<0.20	<0.20	-
Benzene	µg/L	0.2	44	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	0.2	16	<0.20	<0.20	<0.20	<0.20	-
Trichloroethylene	µg/L	0.2	1.6	<0.20	<0.20	<0.20	<0.20	-
Bromodichloromethane	µg/L	0.2	85000	<0.20	<0.20	<0.20	<0.20	-
Methyl Isobutyl Ketone	µg/L	1	140000	<1.0	<1.0	<1.0	<1.0	-
1,1,2-Trichloroethane	µg/L	0.2	4.7	<0.20	<0.20	<0.20	<0.20	-
Toluene	µg/L	0.2	18000	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	0.1	82000	<0.10	<0.10	<0.10	<0.10	-
Ethylene Dibromide	µg/L	0.1	0.25	<0.10	<0.10	<0.10	<0.10	-
Tetrachloroethylene	µg/L	0.2	1.6	<0.20	<0.20	<0.20	<0.20	-
1,1,1,2-Tetrachloroethane	µg/L	0.1	3.3	<0.10	<0.10	<0.10	<0.10	-
Chlorobenzene	µg/L	0.1	630	<0.10	<0.10	<0.10	<0.10	-
Ethylbenzene	µg/L	0.1	2300	<0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L	0.2	NV	-	-	-	-	-
Bromoform	µg/L	0.1	380	<0.10	<0.10	<0.10	<0.10	-
Styrene	µg/L	0.1	1300	<0.10	<0.10	<0.10	<0.10	-
1,1,2,2-Tetrachloroethane	µg/L	0.1	3.2	<0.10	<0.10	<0.10	<0.10	-
o-Xylene	µg/L	0.1	NV	-	-	-	-	-
1,3-Dichlorobenzene	µg/L	0.1	9600	<0.10	<0.10	<0.10	<0.10	-
1,4-Dichlorobenzene	µg/L	0.1	8	<0.10	<0.10	<0.10	<0.10	-
1,2-Dichlorobenzene	µg/L	0.1	4600	<0.10	<0.10	<0.10	<0.10	-
1,3-Dichloropropene	µg/L	0.3	5.2	<0.30	<0.30	<0.30	<0.30	-
Xylenes (Total)	µg/L	0.2	NV	<0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	0.2	51	<0.20	<0.20	<0.20	<0.20	-
Petroleum Hydrocarbons (PHCs)								
F1 (C6 to C10)	µg/L	25	750	<25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	25	750	<25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L	100	150	<100	<100	<100	<100	-
F3 (C16 to C34)	µg/L	100	500	<100	<100	<100	<100	-
F4 (C34 to C50)	µg/L	100	500	<100	<100	<100	<100	-

Notes:
RDL - Reportable Detection Limit
'NV' - No Standard/ Guideline Value
'<' - Below RDL
'-' - Not Analyzed
Table 3 SCS: MECP, 2011. Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act. Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition, ICC Property Use.
Red Exceeds MECP Table 3 SCS

APPENDIX D

Laboratory Certificates of Analysis



CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
32 STEACIE DRIVE
OTTAWA, ON K2K 2A9
(613) 836-1422

ATTENTION TO: Adrian Williams

PROJECT: 102669.001

AGAT WORK ORDER: 23Z105589

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead

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

DATE REPORTED: Dec 27, 2023

PAGES (INCLUDING COVER): 11

VERSION*: 1

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

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.



Certificate of Analysis

AGAT WORK ORDER: 23Z105589

PROJECT: 102669.001

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

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
SAMPLING SITE: Ottawa

ATTENTION TO: Adrian Williams
SAMPLED BY: AW

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

DATE RECEIVED: 2023-12-15

DATE REPORTED: 2023-12-27

Parameter	Unit	SAMPLE DESCRIPTION:		TP23 SA1	TP23 SA101	TP23 SA2	TP23 SA4	TP23 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-12-14	2023-12-14	2023-12-14	2023-12-14	2023-12-14
		G / S	RDL	5558017	5558021	5558022	5558023	5558024
Antimony	µg/g		0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	2	2	4	2	2
Barium	µg/g		2.0	92.9	79.0	482	60.0	80.7
Beryllium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g		5	<5	<5	7	<5	<5
Boron (Hot Water Soluble)	µg/g		0.10	<0.10	<0.10	0.12	<0.10	<0.10
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g		5	11	10	13	12	13
Cobalt	µg/g		0.8	5.7	4.9	6.8	4.8	5.4
Copper	µg/g		1.0	14.2	12.7	16.6	8.2	12.5
Lead	µg/g		1	10	8	73	19	32
Molybdenum	µg/g		0.5	<0.5	<0.5	0.8	0.9	0.6
Nickel	µg/g		1	10	10	16	10	12
Selenium	µg/g		0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g		0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	µg/g		0.50	0.53	0.51	0.51	0.59	0.86
Vanadium	µg/g		2.0	22.3	20.9	30.2	25.7	29.3
Zinc	µg/g		5	23	17	81	31	36
Chromium, Hexavalent	µg/g		0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide, WAD	µg/g		0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g		0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm		0.005	0.433	0.443	0.312	0.307	0.200
Sodium Adsorption Ratio (2:1) (Calc.)	N/A		N/A	7.50	3.80	4.05	2.27	1.66
pH, 2:1 CaCl ₂ Extraction	pH Units		NA	7.12	7.11	7.16	7.06	7.14

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

5558017-5558024 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl₂ extract prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Adrian Williams



Certificate of Analysis

AGAT WORK ORDER: 23Z105589

PROJECT: 102669.001

5835 COOPERS AVENUE
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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Adrian Williams

SAMPLING SITE: Ottawa

SAMPLED BY: AW

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

DATE RECEIVED: 2023-12-15

DATE REPORTED: 2023-12-27

Parameter	Unit	SAMPLE DESCRIPTION:		TP23 SA1	TP23 SA101	TP23 SA2	TP23 SA4	TP23 SA5
		G / S	RDL	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-12-14	2023-12-14	2023-12-14	2023-12-14	2023-12-14
				5558017	5558021	5558022	5558023	5558024
Naphthalene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.30
Acenaphthylene	µg/g	0.05	0.13	0.18	0.28	0.09	1.38	
Acenaphthene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.26
Fluorene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.59
Phenanthrene	µg/g	0.05	0.22	0.26	0.46	0.40	5.19	
Anthracene	µg/g	0.05	0.16	0.16	0.29	0.23	2.46	
Fluoranthene	µg/g	0.05	1.54	1.20	1.99	1.63	11.0	
Pyrene	µg/g	0.05	1.37	1.05	1.82	1.35	9.64	
Benz(a)anthracene	µg/g	0.05	0.73	0.68	1.23	0.76	7.85	
Chrysene	µg/g	0.05	0.56	0.64	0.63	0.46	4.26	
Benzo(b)fluoranthene	µg/g	0.05	0.79	0.71	1.54	0.81	6.86	
Benzo(k)fluoranthene	µg/g	0.05	0.58	0.51	0.78	0.48	2.71	
Benzo(a)pyrene	µg/g	0.05	0.43	0.42	0.75	0.41	3.56	
Indeno(1,2,3-cd)pyrene	µg/g	0.05	0.31	0.27	0.60	0.28	2.35	
Dibenz(a,h)anthracene	µg/g	0.05	<0.05	<0.05	0.06	<0.05	0.33	
Benzo(g,h,i)perylene	µg/g	0.05	0.41	0.34	0.77	0.36	2.68	
1 and 2 Methyl naphthalene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	0.23	
Moisture Content	%		0.1	11.8	10.0	11.1	11.8	10.7
Surrogate	Unit	Acceptable Limits						
Naphthalene-d8	%	50-140	80	100	80	80	70	
Acridine-d9	%	50-140	95	105	95	100	90	
Terphenyl-d14	%	50-140	90	75	75	80	75	

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

5558017-5558024 Results are based on the dry weight of the soil.

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

2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 23Z105589

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
SAMPLING SITE: Ottawa

ATTENTION TO: Adrian Williams
SAMPLED BY: AW

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

DATE RECEIVED: 2023-12-15

DATE REPORTED: 2023-12-27

Parameter	Unit	SAMPLE DESCRIPTION:		TP23 SA1	TP23 SA101	TP23 SA2	TP23 SA4	TP23 SA5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-12-14	2023-12-14	2023-12-14	2023-12-14	2023-12-14
	G / S	RDL	5558017	5558021	5558022	5558023	5558024	
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	<10	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g	10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	50	<50	<50	421	80	381	
F3 (C16 to C34) minus PAHs	µg/g	50	<50	<50	412	74	332	
F4 (C34 to C50)	µg/g	50	<50	<50	240	<50	432	
Gravimetric Heavy Hydrocarbons	µg/g	50	NA	NA	NA	NA	NA	NA
Moisture Content	%	0.1	11.8	10.0	11.1	11.8	10.7	
Surrogate	Unit	Acceptable Limits						
Toluene-d8	% Recovery	60-140	82	86	85	80	116	
Terphenyl	%	60-140	85	75	85	103	94	

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 23Z105589

PROJECT: 102669.001

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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TEL (905)712-5100
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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Adrian Williams

SAMPLING SITE: Ottawa

SAMPLED BY: AW

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

DATE RECEIVED: 2023-12-15

DATE REPORTED: 2023-12-27

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

5558017-5558024

Results are based on sample dry weight.
 The C6-C10 fraction is calculated using toluene response factor.
 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
 C6-C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
 The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
 The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
 Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
 The chromatogram has returned to baseline by the retention time of nC50.
 Total C6 - C50 results are corrected for BTEX and PAH contributions.
 C>10 - C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
 C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
 This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
 nC10, nC16 and nC34 response factors are within 10% of their average.
 C50 response factor is within 70% of nC10 + nC16 + nC34 average.
 Linearity is within 15%.
 Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
 PROJECT: 102669.001
 SAMPLING SITE: Ottawa

AGAT WORK ORDER: 23Z105589
 ATTENTION TO: Adrian Williams
 SAMPLED BY: AW

Soil Analysis															
RPT Date: Dec 27, 2023			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

Antimony	5548935		<0.8	<0.8	NA	< 0.8	123%	70%	130%	100%	80%	120%	97%	70%	130%
Arsenic	5548935		9	9	0.0%	< 1	116%	70%	130%	106%	80%	120%	104%	70%	130%
Barium	5548935		90.7	88.2	2.8%	< 2.0	99%	70%	130%	99%	80%	120%	101%	70%	130%
Beryllium	5548935		<0.5	<0.5	NA	< 0.5	85%	70%	130%	104%	80%	120%	87%	70%	130%
Boron	5548935		<5	<5	NA	< 5	94%	70%	130%	99%	80%	120%	84%	70%	130%
Boron (Hot Water Soluble)	5553408		<0.10	<0.10	NA	< 0.10	90%	60%	140%	99%	70%	130%	106%	60%	140%
Cadmium	5548935		<0.5	<0.5	NA	< 0.5	112%	70%	130%	102%	80%	120%	106%	70%	130%
Chromium	5548935		20	20	NA	< 5	99%	70%	130%	101%	80%	120%	89%	70%	130%
Cobalt	5548935		11.0	10.2	7.9%	< 0.8	98%	70%	130%	97%	80%	120%	96%	70%	130%
Copper	5548935		16.9	16.0	5.6%	< 1.0	95%	70%	130%	103%	80%	120%	85%	70%	130%
Lead	5548935		28	27	3.4%	< 1	101%	70%	130%	99%	80%	120%	85%	70%	130%
Molybdenum	5548935		0.6	0.7	NA	< 0.5	111%	70%	130%	113%	80%	120%	119%	70%	130%
Nickel	5548935		18	16	9.0%	< 1	102%	70%	130%	104%	80%	120%	92%	70%	130%
Selenium	5548935		<0.8	<0.8	NA	< 0.8	101%	70%	130%	106%	80%	120%	111%	70%	130%
Silver	5548935		<0.5	<0.5	NA	< 0.5	112%	70%	130%	105%	80%	120%	95%	70%	130%
Thallium	5548935		<0.5	<0.5	NA	< 0.5	95%	70%	130%	103%	80%	120%	96%	70%	130%
Uranium	5548935		<0.50	<0.50	NA	< 0.50	113%	70%	130%	107%	80%	120%	105%	70%	130%
Vanadium	5548935		31.6	31.1	1.3%	< 2.0	115%	70%	130%	103%	80%	120%	101%	70%	130%
Zinc	5548935		66	64	3.0%	< 5	100%	70%	130%	102%	80%	120%	98%	70%	130%
Chromium, Hexavalent	5558017	5558017	<0.2	<0.2	NA	< 0.2	91%	70%	130%	90%	80%	120%	77%	70%	130%
Cyanide, WAD	5549609		<0.040	<0.040	NA	< 0.040	112%	70%	130%	107%	80%	120%	99%	70%	130%
Mercury	5548935		<0.10	<0.10	NA	< 0.10	111%	70%	130%	100%	80%	120%	101%	70%	130%
Electrical Conductivity (2:1)	5559398		0.091	0.080	13.1%	< 0.005	92%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	5558074		0.195	0.185	5.3%	NA									
pH, 2:1 CaCl2 Extraction	5548906		6.95	7.11	2.2%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.

pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

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

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
 PROJECT: 102669.001
 SAMPLING SITE: Ottawa

AGAT WORK ORDER: 23Z105589
 ATTENTION TO: Adrian Williams
 SAMPLED BY: AW

Trace Organics Analysis

RPT Date: Dec 27, 2023			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	5559290		<0.02	<0.02	NA	< 0.02	91%	60%	140%	98%	60%	140%	72%	60%	140%
Toluene	5559290		<0.05	<0.05	NA	< 0.05	86%	60%	140%	88%	60%	140%	102%	60%	140%
Ethylbenzene	5559290		<0.05	<0.05	NA	< 0.05	98%	60%	140%	91%	60%	140%	103%	60%	140%
m & p-Xylene	5559290		<0.05	<0.05	NA	< 0.05	111%	60%	140%	107%	60%	140%	107%	60%	140%
o-Xylene	5559290		<0.05	<0.05	NA	< 0.05	104%	60%	140%	117%	60%	140%	105%	60%	140%
F1 (C6 to C10)	5559290		<5	<5	NA	< 5	101%	60%	140%	109%	60%	140%	114%	60%	140%
F2 (C10 to C16)	5549372		<10	<10	NA	< 10	94%	60%	140%	119%	60%	140%	117%	60%	140%
F3 (C16 to C34)	5549372		<50	<50	NA	< 50	100%	60%	140%	123%	60%	140%	124%	60%	140%
F4 (C34 to C50)	5549372		<50	<50	NA	< 50	78%	60%	140%	111%	60%	140%	112%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	5548891		<0.05	<0.05	NA	< 0.05	107%	50%	140%	103%	50%	140%	80%	50%	140%
Acenaphthylene	5548891		<0.05	<0.05	NA	< 0.05	88%	50%	140%	78%	50%	140%	85%	50%	140%
Acenaphthene	5548891		<0.05	<0.05	NA	< 0.05	84%	50%	140%	73%	50%	140%	85%	50%	140%
Fluorene	5548891		<0.05	<0.05	NA	< 0.05	73%	50%	140%	75%	50%	140%	88%	50%	140%
Phenanthrene	5548891		<0.05	<0.05	NA	< 0.05	86%	50%	140%	98%	50%	140%	110%	50%	140%
Anthracene	5548891		<0.05	<0.05	NA	< 0.05	101%	50%	140%	103%	50%	140%	93%	50%	140%
Fluoranthene	5548891		<0.05	<0.05	NA	< 0.05	76%	50%	140%	83%	50%	140%	88%	50%	140%
Pyrene	5548891		<0.05	<0.05	NA	< 0.05	69%	50%	140%	73%	50%	140%	73%	50%	140%
Benz(a)anthracene	5548891		<0.05	<0.05	NA	< 0.05	92%	50%	140%	98%	50%	140%	88%	50%	140%
Chrysene	5548891		<0.05	<0.05	NA	< 0.05	109%	50%	140%	90%	50%	140%	73%	50%	140%
Benzo(b)fluoranthene	5548891		<0.05	<0.05	NA	< 0.05	114%	50%	140%	85%	50%	140%	105%	50%	140%
Benzo(k)fluoranthene	5548891		<0.05	<0.05	NA	< 0.05	97%	50%	140%	93%	50%	140%	103%	50%	140%
Benzo(a)pyrene	5548891		<0.05	<0.05	NA	< 0.05	83%	50%	140%	78%	50%	140%	90%	50%	140%
Indeno(1,2,3-cd)pyrene	5548891		<0.05	<0.05	NA	< 0.05	73%	50%	140%	90%	50%	140%	95%	50%	140%
Dibenz(a,h)anthracene	5548891		<0.05	<0.05	NA	< 0.05	65%	50%	140%	98%	50%	140%	88%	50%	140%
Benzo(g,h,i)perylene	5548891		<0.05	<0.05	NA	< 0.05	94%	50%	140%	85%	50%	140%	85%	50%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: _____



Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 23Z105589

PROJECT: 102669.001

ATTENTION TO: Adrian Williams

SAMPLING SITE:Ottawa

SAMPLED BY:AW

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	SEGMENTED FLOW ANALYSIS
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl ₂ Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE



Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
 PROJECT: 102669.001
 SAMPLING SITE: Ottawa

AGAT WORK ORDER: 23Z105589
 ATTENTION TO: Adrian Williams
 SAMPLED BY: AW

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 to C10)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 23Z105589

PROJECT: 102669.001

ATTENTION TO: Adrian Williams

SAMPLING SITE:Ottawa

SAMPLED BY:AW

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
F3 (C16 to C34) minus PAHs	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID



CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
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OTTAWA, ON K2K 2A9
(613) 836-1422

ATTENTION TO: Adrian Williams

PROJECT: 102669.001

AGAT WORK ORDER: 23Z105593

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead

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

DATE REPORTED: Dec 27, 2023

PAGES (INCLUDING COVER): 11

VERSION*: 1

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

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.



Certificate of Analysis

AGAT WORK ORDER: 23Z105593

PROJECT: 102669.001

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
SAMPLING SITE: Ottawa

ATTENTION TO: Adrian Williams
SAMPLED BY: AW/SM

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

DATE RECEIVED: 2023-12-15

DATE REPORTED: 2023-12-27

Parameter	Unit	SAMPLE DESCRIPTION:															
		MW23-01 SA3		MW23-01 SA5		MW23-01 SA6		MW23-02 SA2		MW23-02 SA5		MW23-02 SA6		MW23-03B SA4		MW23-03B SA1	
		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
G / S	RDL	5558074	5558079	5558080	5558081	5558082	5558083	5558084	5558085	5558086	5558087	5558088	5558089	5558090	5558091	5558092	
Antimony	µg/g	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	
Arsenic	µg/g	1	2	2	1	1	<1	2	3								
Barium	µg/g	2.0	308	130	61.1	811	98.8	149	366	266							
Beryllium	µg/g	0.5	<0.5	<0.5	<0.5	0.8	<0.5	<0.5	0.5	0.6							
Boron	µg/g	5	10	<5	<5	<5	<5	5	<5	13							
Boron (Hot Water Soluble)	µg/g	0.10	0.40	0.34	<0.10	0.15	<0.10	<0.10	<0.10	0.68							
Cadmium	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5							
Chromium	µg/g	5	19	22	9	73	10	11	40	36							
Cobalt	µg/g	0.8	7.5	6.7	3.5	18.2	3.1	3.8	11.6	9.9							
Copper	µg/g	1.0	13.2	12.8	11.8	28.9	10.5	8.6	22.0	19.8							
Lead	µg/g	1	13	7	3	8	2	6	6	16							
Molybdenum	µg/g	0.5	0.6	0.9	<0.5	<0.5	0.9	0.5	<0.5	1.0							
Nickel	µg/g	1	16	11	6	42	5	8	24	23							
Selenium	µg/g	0.8	<0.8	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8							
Silver	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5							
Thallium	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5							
Uranium	µg/g	0.50	0.63	0.72	<0.50	0.76	0.53	0.65	0.66	0.73							
Vanadium	µg/g	2.0	23.6	35.8	19.7	82.5	17.3	17.8	57.2	38.2							
Zinc	µg/g	5	39	33	14	110	9	10	62	45							
Chromium, Hexavalent	µg/g	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2							
Cyanide, WAD	µg/g	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040							
Mercury	µg/g	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10							
Electrical Conductivity (2:1)	mS/cm	0.005	1.00	0.545	0.627	0.498	0.190	0.379	0.668	0.794							
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	N/A	0.195	1.48	5.38	5.31	2.54	2.43	6.20	3.84							
pH, 2:1 CaCl2 Extraction	pH Units	NA	7.20	7.35	7.16	7.30	7.22	7.33	7.13	7.30							

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

5558074-5558085 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Adrian Williams



Certificate of Analysis

AGAT WORK ORDER: 23Z105593

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
SAMPLING SITE: Ottawa

ATTENTION TO: Adrian Williams
SAMPLED BY: AW/SM

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

DATE RECEIVED: 2023-12-15

DATE REPORTED: 2023-12-27

Parameter	Unit	SAMPLE DESCRIPTION:																	
		MW23-01 SA3		MW23-01 SA5		MW23-01 SA6		MW23-02 SA2		MW23-02 SA5		MW23-02 SA6		MW23-03B SA4		MW23-03B SA1			
		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil			
DATE SAMPLED:		2023-12-15		2023-12-15		2023-12-15		2023-12-15		2023-12-15		2023-12-15		2023-12-14		2023-12-14			
G / S		RDL		5558074		5558079		5558080		5558081		5558082		5558083		5558084		5558085	
Naphthalene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.05	<0.05	1.82	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.19	<0.05
Anthracene	µg/g	0.05	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.09	<0.05
Fluoranthene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.52	<0.05
Pyrene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.64	<0.05
Benz(a)anthracene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.17	<0.05
Chrysene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.20	<0.05
Benzo(b)fluoranthene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	<0.05
Benzo(k)fluoranthene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.20	<0.05
Benzo(a)pyrene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.11	<0.05
Dibenz(a,h)anthracene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.12	<0.05
1 and 2 Methylnaphthalene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	7.4	19.1	11.4	24.7	17.8	17.8	17.8	17.8	17.8	17.8	1.1	20.7	20.7	20.7	20.8	20.8
Surrogate	Unit	Acceptable Limits																	
Naphthalene-d8	%	50-140		100	85	100	100	100	100	100	100	100	100	90	95	95	95	100	100
Acridine-d9	%	50-140		70	95	75	80	85	85	85	85	85	85	75	115	115	115	75	75
Terphenyl-d14	%	50-140		75	85	100	80	80	80	80	80	80	80	85	95	95	95	90	90

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

5558074-5558085 Results are based on the dry weight of the soil.

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

2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 23Z105593

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Adrian Williams

SAMPLING SITE: Ottawa

SAMPLED BY: AW/SM

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

DATE RECEIVED: 2023-12-15

DATE REPORTED: 2023-12-27

Parameter	Unit	SAMPLE DESCRIPTION:															
		MW23-01 SA3		MW23-01 SA5		MW23-01 SA6		MW23-02 SA2		MW23-02 SA5		MW23-02 SA6		MW23-03B SA4		MW23-03B SA1	
		G / S	RDL	G / S	RDL	G / S	RDL	G / S	RDL	G / S	RDL	G / S	RDL	G / S	RDL	G / S	RDL
Benzene	µg/g	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	5	<5	24	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	5	<5	24	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	<10	1410	262	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g	10	<10	1410	262	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	50	284	1330	238	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g	50	284	1330	238	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	50	107	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%	0.1	7.4	19.1	11.4	24.7	17.8	1.1	20.7	20.8							
Surrogate	Unit	Acceptable Limits															
Toluene-d8	% Recovery	60-140	102	76	108	108	118	82	123	138							
Terphenyl	%	60-140	85	84	95	89	99	98	95	92							

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 23Z105593

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Adrian Williams

SAMPLING SITE: Ottawa

SAMPLED BY: AW/SM

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

DATE RECEIVED: 2023-12-15

DATE REPORTED: 2023-12-27

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

5558074-5558085 Results are based on sample dry weight.
 The C6-C10 fraction is calculated using toluene response factor.
 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
 C6-C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
 The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
 The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
 Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
 The chromatogram has returned to baseline by the retention time of nC50.
 Total C6 - C50 results are corrected for BTEX and PAH contributions.
 C>10 - C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
 C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
 This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
 nC10, nC16 and nC34 response factors are within 10% of their average.
 C50 response factor is within 70% of nC10 + nC16 + nC34 average.
 Linearity is within 15%.
 Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
 PROJECT: 102669.001
 SAMPLING SITE: Ottawa

AGAT WORK ORDER: 23Z105593
 ATTENTION TO: Adrian Williams
 SAMPLED BY: AW/SM

Soil Analysis															
RPT Date: Dec 27, 2023			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

Antimony	5558074	5558074	<0.8	<0.8	NA	< 0.8	114%	70%	130%	98%	80%	120%	72%	70%	130%
Arsenic	5558074	5558074	2	2	NA	< 1	111%	70%	130%	109%	80%	120%	107%	70%	130%
Barium	5558074	5558074	308	307	0.5%	< 2.0	102%	70%	130%	98%	80%	120%	118%	70%	130%
Beryllium	5558074	5558074	<0.5	<0.5	NA	< 0.5	113%	70%	130%	120%	80%	120%	118%	70%	130%
Boron	5558074	5558074	10	10	NA	< 5	84%	70%	130%	100%	80%	120%	121%	70%	130%
Boron (Hot Water Soluble)	5558074	5558074	0.40	0.38	NA	< 0.10	78%	60%	140%	98%	70%	130%	99%	60%	140%
Cadmium	5558074	5558074	<0.5	<0.5	NA	< 0.5	108%	70%	130%	103%	80%	120%	106%	70%	130%
Chromium	5558074	5558074	19	18	NA	< 5	101%	70%	130%	102%	80%	120%	125%	70%	130%
Cobalt	5558074	5558074	7.5	7.5	0.7%	< 0.8	98%	70%	130%	101%	80%	120%	119%	70%	130%
Copper	5558074	5558074	13.2	12.5	5.6%	< 1.0	95%	70%	130%	106%	80%	120%	111%	70%	130%
Lead	5558074	5558074	13	13	0.3%	< 1	108%	70%	130%	101%	80%	120%	113%	70%	130%
Molybdenum	5558074	5558074	0.6	0.7	NA	< 0.5	107%	70%	130%	111%	80%	120%	111%	70%	130%
Nickel	5558074	5558074	16	16	1.9%	< 1	105%	70%	130%	106%	80%	120%	121%	70%	130%
Selenium	5558074	5558074	<0.8	<0.8	NA	< 0.8	107%	70%	130%	113%	80%	120%	113%	70%	130%
Silver	5558074	5558074	<0.5	<0.5	NA	< 0.5	118%	70%	130%	104%	80%	120%	121%	70%	130%
Thallium	5558074	5558074	<0.5	<0.5	NA	< 0.5	103%	70%	130%	103%	80%	120%	96%	70%	130%
Uranium	5558074	5558074	0.63	0.66	NA	< 0.50	120%	70%	130%	112%	80%	120%	105%	70%	130%
Vanadium	5558074	5558074	23.6	22.9	2.9%	< 2.0	109%	70%	130%	110%	80%	120%	122%	70%	130%
Zinc	5558074	5558074	39	39	1.7%	< 5	99%	70%	130%	108%	80%	120%	103%	70%	130%
Chromium, Hexavalent	5558017		<0.2	<0.2	NA	< 0.2	91%	70%	130%	90%	80%	120%	77%	70%	130%
Cyanide, WAD	5549609		<0.040	<0.040	NA	< 0.040	112%	70%	130%	107%	80%	120%	99%	70%	130%
Mercury	5558074	5558074	<0.10	<0.10	NA	< 0.10	105%	70%	130%	101%	80%	120%	108%	70%	130%
Electrical Conductivity (2:1)	5558074	5558074	1.00	1.05	4.8%	< 0.005	92%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	5558074	5558074	0.195	0.185	5.3%	NA									
pH, 2:1 CaCl2 Extraction	5548906		6.95	7.11	2.2%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.

pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

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

Certified By:



Nivine Basily

Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
 PROJECT: 102669.001
 SAMPLING SITE: Ottawa

AGAT WORK ORDER: 23Z105593
 ATTENTION TO: Adrian Williams
 SAMPLED BY: AW/SM

Trace Organics Analysis

RPT Date: Dec 27, 2023			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	5548599		<0.05	<0.05	NA	< 0.05	100%	50%	140%	103%	50%	140%	110%	50%	140%
Acenaphthylene	5548599		<0.05	<0.05	NA	< 0.05	102%	50%	140%	73%	50%	140%	75%	50%	140%
Acenaphthene	5548599		<0.05	<0.05	NA	< 0.05	96%	50%	140%	78%	50%	140%	85%	50%	140%
Fluorene	5548599		<0.05	<0.05	NA	< 0.05	75%	50%	140%	73%	50%	140%	103%	50%	140%
Phenanthrene	5548599		<0.05	<0.05	NA	< 0.05	95%	50%	140%	108%	50%	140%	115%	50%	140%
Anthracene	5548599		<0.05	<0.05	NA	< 0.05	77%	50%	140%	100%	50%	140%	115%	50%	140%
Fluoranthene	5548599		<0.05	<0.05	NA	< 0.05	89%	50%	140%	75%	50%	140%	108%	50%	140%
Pyrene	5548599		<0.05	<0.05	NA	< 0.05	66%	50%	140%	95%	50%	140%	98%	50%	140%
Benz(a)anthracene	5548599		<0.05	<0.05	NA	< 0.05	80%	50%	140%	105%	50%	140%	95%	50%	140%
Chrysene	5548599		<0.05	<0.05	NA	< 0.05	86%	50%	140%	90%	50%	140%	95%	50%	140%
Benzo(b)fluoranthene	5548599		<0.05	<0.05	NA	< 0.05	108%	50%	140%	80%	50%	140%	95%	50%	140%
Benzo(k)fluoranthene	5548599		<0.05	<0.05	NA	< 0.05	67%	50%	140%	103%	50%	140%	113%	50%	140%
Benzo(a)pyrene	5548599		<0.05	<0.05	NA	< 0.05	75%	50%	140%	100%	50%	140%	85%	50%	140%
Indeno(1,2,3-cd)pyrene	5548599		<0.05	<0.05	NA	< 0.05	75%	50%	140%	83%	50%	140%	90%	50%	140%
Dibenz(a,h)anthracene	5548599		<0.05	<0.05	NA	< 0.05	96%	50%	140%	90%	50%	140%	88%	50%	140%
Benzo(g,h,i)perylene	5548599		<0.05	<0.05	NA	< 0.05	96%	50%	140%	110%	50%	140%	100%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	5559290		<0.02	<0.02	NA	< 0.02	91%	60%	140%	98%	60%	140%	72%	60%	140%
Toluene	5559290		<0.05	<0.05	NA	< 0.05	86%	60%	140%	88%	60%	140%	102%	60%	140%
Ethylbenzene	5559290		<0.05	<0.05	NA	< 0.05	98%	60%	140%	91%	60%	140%	103%	60%	140%
m & p-Xylene	5559290		<0.05	<0.05	NA	< 0.05	111%	60%	140%	107%	60%	140%	107%	60%	140%
o-Xylene	5559290		<0.05	<0.05	NA	< 0.05	104%	60%	140%	117%	60%	140%	105%	60%	140%
F1 (C6 to C10)	5559290		<5	<5	NA	< 5	101%	60%	140%	109%	60%	140%	114%	60%	140%
F2 (C10 to C16)	5547831		< 10	< 10	NA	< 10	96%	60%	140%	113%	60%	140%	115%	60%	140%
F3 (C16 to C34)	5547831		< 50	< 50	NA	< 50	108%	60%	140%	123%	60%	140%	128%	60%	140%
F4 (C34 to C50)	5547831		< 50	< 50	NA	< 50	62%	60%	140%	108%	60%	140%	122%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: _____



Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 23Z105593

PROJECT: 102669.001

ATTENTION TO: Adrian Williams

SAMPLING SITE:Ottawa

SAMPLED BY:AW/SM

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	SEGMENTED FLOW ANALYSIS
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl ₂ Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE

Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 23Z105593

PROJECT: 102669.001

ATTENTION TO: Adrian Williams

SAMPLING SITE:Ottawa

SAMPLED BY:AW/SM

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methylnaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 to C10)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID



Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 23Z105593

PROJECT: 102669.001

ATTENTION TO: Adrian Williams

SAMPLING SITE:Ottawa

SAMPLED BY:AW/SM

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
F3 (C16 to C34) minus PAHs	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
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ATTENTION TO: Mohit Bhargav

PROJECT: 102669.001

AGAT WORK ORDER: 23Z107710

TRACE ORGANICS REVIEWED BY: Radhika Chakraberty, Trace Organics Lab Manager

WATER ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead

DATE REPORTED: Jan 03, 2024

PAGES (INCLUDING COVER): 17

VERSION*: 1

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

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
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- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.



Certificate of Analysis

AGAT WORK ORDER: 23Z107710

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Mohit Bhargav

SAMPLING SITE: O'Keefe Court

SAMPLED BY: MB

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

DATE RECEIVED: 2023-12-22

DATE REPORTED: 2024-01-03

Parameter	Unit	SAMPLE DESCRIPTION:		MW23-01	MW23-101	MW23-02	MW23-03
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2023-12-21	2023-12-21	2023-12-21	2023-12-21
		G / S	RDL	5569687	5569689	5569690	5569691
Naphthalene	µg/L	7	0.20	<0.20	<0.20	<0.20	<0.20
Acenaphthylene	µg/L	1	0.20	<0.20	<0.20	<0.20	<0.20
Acenaphthene	µg/L	4.1	0.20	<0.20	<0.20	<0.20	<0.20
Fluorene	µg/L	120	0.20	<0.20	<0.20	<0.20	<0.20
Phenanthrene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	µg/L	0.4	0.20	<0.20	<0.20	<0.20	<0.20
Pyrene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)anthracene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Chrysene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.1	0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)pyrene	µg/L	0.01	0.01	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	2	0.20	<0.20	<0.20	<0.20	<0.20
Sediment				1	1	1	1
Surrogate	Unit	Acceptable Limits					
Naphthalene-d8	%	50-140		91	86	90	103
Acridine-d9	%	50-140		94	81	77	90
Terphenyl-d14	%	50-140		76	106	89	85

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

5569687-5569691 Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Legend: 1 = no sediment present; 2 = sediment present; 3 = sediment present in trace amount

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

2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

R. Chakraborty



Certificate of Analysis

AGAT WORK ORDER: 23Z107710

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Mohit Bhargav

SAMPLING SITE: O'Keefe Court

SAMPLED BY: MB

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

DATE RECEIVED: 2023-12-22

DATE REPORTED: 2024-01-03

Parameter	Unit	SAMPLE DESCRIPTION:		MW23-01	MW23-101	MW23-02	MW23-03
		G / S	RDL	Water	Water	Water	Water
		DATE SAMPLED:		2023-12-21	2023-12-21	2023-12-21	2023-12-21
				5569687	5569689	5569690	5569691
F1 (C6 to C10)	µg/L	420	25	<25	<25	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	420	25	<25	<25	<25	<25
F2 (C10 to C16)	µg/L	150	100	<100	<100	<100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100	<100	<100	<100
F3 (C16 to C34)	µg/L	500	100	<100	<100	<100	<100
F3 (C16 to C34) minus PAHs	µg/L		100	<100	<100	<100	<100
F4 (C34 to C50)	µg/L	500	100	<100	<100	<100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA	NA	NA	NA
Sediment				1	1	1	1
Surrogate	Unit	Acceptable Limits					
Toluene-d8	%	50-140		98	96	104	101
Terphenyl	% Recovery	60-140		91	75	83	97

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

5569687-5569691 The C6-C10 fraction is calculated using toluene response factor.
C6-C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present. The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 - C16 (F2 - Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Legend: 1 = no sediment present; 2 = sediment present; 3 = sediment present in trace amounts

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

R. Chakraborty



Certificate of Analysis

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PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
SAMPLING SITE: O'Keefe Court

ATTENTION TO: Mohit Bhargav
SAMPLED BY: MB

O. Reg. 153(511) - PHCs F1/BTEX (Water)

DATE RECEIVED: 2023-12-22

DATE REPORTED: 2024-01-03

Parameter	Unit	SAMPLE DESCRIPTION:		
		G / S	RDL	5569693
		SAMPLE TYPE: Trip Blank		
		DATE SAMPLED: 2023-12-19		
		Water		
Benzene	µg/L	0.5	0.20	<0.20
Toluene	µg/L	0.8	0.20	<0.20
Ethylbenzene	µg/L	0.5	0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20
o-Xylene	µg/L		0.10	<0.10
Xylenes (Total)	µg/L	72	0.20	<0.20
F1 (C6 to C10)	µg/L	420	25	<25
F1 (C6 to C10) minus BTEX	µg/L	420	25	<25
Surrogate	Unit	Acceptable Limits		
Toluene-d8	% Recovery	60-140		84.5

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

5569693 The C6-C10 fraction is calculated using Toluene response factor.
Total C6-C10 results are corrected for BTEX contributions.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6-C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
Extraction and holding times were met for this sample.
NA = Not Applicable

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

R. Chakraborty



Certificate of Analysis

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Mohit Bhargav

SAMPLING SITE: O'Keefe Court

SAMPLED BY: MB

O. Reg. 153(511) - VOCs (with PHC) (Water)

DATE RECEIVED: 2023-12-22

DATE REPORTED: 2024-01-03

Parameter	Unit	SAMPLE DESCRIPTION:		MW23-01	MW23-101	MW23-02	MW23-03
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2023-12-21	2023-12-21	2023-12-21	2023-12-21
	G / S	RDL	5569687	5569689	5569690	5569691	
Dichlorodifluoromethane	µg/L	590	0.40	<0.40	<0.40	<0.40	<0.40
Vinyl Chloride	µg/L	0.5	0.17	<0.17	<0.17	<0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40	<0.40	<0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30
Methylene Chloride	µg/L	5	0.30	<0.30	<0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.20	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	400	1.0	<1.0	<1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20	<0.20	<0.20
Chloroform	µg/L	2	0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L	0.2	0.20	<0.20	<0.20	<0.20	<0.20
Benzene	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	2	0.20	<0.20	<0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.8	0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	2	0.10	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	0.5	0.20	<0.20	<0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10	<0.10	<0.10	<0.10
Chlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10
Ethylbenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20	<0.20	<0.20	<0.20

Certified By:

R. Chakraborty



Certificate of Analysis

AGAT WORK ORDER: 23Z107710

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
SAMPLING SITE: O'Keefe Court

ATTENTION TO: Mohit Bhargav
SAMPLED BY: MB

O. Reg. 153(511) - VOCs (with PHC) (Water)

DATE RECEIVED: 2023-12-22

DATE REPORTED: 2024-01-03

Parameter	Unit	SAMPLE DESCRIPTION:		MW23-01	MW23-101	MW23-02	MW23-03
		G / S	RDL	Water	Water	Water	Water
		DATE SAMPLED:		2023-12-21	2023-12-21	2023-12-21	2023-12-21
		5569687	5569689	5569690	5569691		
Bromoform	µg/L	5	0.10	<0.10	<0.10	<0.10	<0.10
Styrene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10
o-Xylene	µg/L		0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	0.5	0.10	<0.10	<0.10	<0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	<0.30	<0.30	<0.30
Xylenes (Total)	µg/L	72	0.20	<0.20	<0.20	<0.20	<0.20
n-Hexane	µg/L	5	0.20	<0.20	<0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits					
Toluene-d8	% Recovery	50-140		98	96	104	101
4-Bromofluorobenzene	% Recovery	50-140		83	82	87	84

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

5569687-5569691 Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.
The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

R. Chakraborty



Certificate of Analysis

AGAT WORK ORDER: 23Z107710

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
SAMPLING SITE: O'Keefe Court

ATTENTION TO: Mohit Bhargav
SAMPLED BY: MB

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

DATE RECEIVED: 2023-12-22

DATE REPORTED: 2024-01-03

Parameter	Unit	SAMPLE DESCRIPTION:		MW23-01	MW23-101	MW23-02	MW23-03	
		SAMPLE TYPE:		Water	Water	Water	Water	
		DATE SAMPLED:		2023-12-21	2023-12-21	2023-12-21	2023-12-21	
		G / S	RDL	5569687	5569689	RDL	5569690	5569691
Dissolved Antimony	µg/L	1.5	1.0	<1.0	<1.0	1.0	<1.0	<1.0
Dissolved Arsenic	µg/L	13	1.0	<1.0	<1.0	1.0	<1.0	<1.0
Dissolved Barium	µg/L	610	2.0	116	118	2.0	227	572
Dissolved Beryllium	µg/L	0.5	0.50	<0.50	<0.50	0.50	<0.50	<0.50
Dissolved Boron	µg/L	1700	10.0	26.5	26.1	10.0	37.4	32.8
Dissolved Cadmium	µg/L	0.5	0.20	<0.20	<0.20	0.20	<0.20	<0.20
Dissolved Chromium	µg/L	11	2.0	<2.0	<2.0	2.0	<2.0	<2.0
Dissolved Cobalt	µg/L	3.8	0.50	<0.50	<0.50	0.50	2.04	1.05
Dissolved Copper	µg/L	5	1.0	2.0	1.5	1.0	1.8	<1.0
Dissolved Lead	µg/L	1.9	0.50	<0.50	<0.50	0.50	<0.50	<0.50
Dissolved Molybdenum	µg/L	23	0.50	<0.50	<0.50	0.50	50.5	10.2
Dissolved Nickel	µg/L	14	1.0	1.5	<1.0	1.0	8.4	2.2
Dissolved Selenium	µg/L	5	1.0	<1.0	<1.0	1.0	<1.0	<1.0
Dissolved Silver	µg/L	0.3	0.20	<0.20	<0.20	0.20	<0.20	<0.20
Dissolved Thallium	µg/L	0.5	0.30	<0.30	<0.30	0.30	<0.30	<0.30
Dissolved Uranium	µg/L	8.9	0.50	0.75	0.73	0.50	1.70	0.83
Dissolved Vanadium	µg/L	3.9	0.40	<0.40	<0.40	0.40	0.48	0.53
Dissolved Zinc	µg/L	160	5.0	<5.0	<5.0	5.0	<5.0	<5.0
Mercury	µg/L	0.1	0.02	<0.02	<0.02	0.02	<0.02	<0.02
Chromium VI	µg/L	25	2.000	<2.000	<2.000	2.000	<2.000	<2.000
Cyanide, WAD	µg/L	5	2	<2	<2	2	<2	<2
Dissolved Sodium	µg/L	490000	50	106000	107000	100	483000	462000
Chloride	µg/L	790000	100	194000	197000	100	772000	706000
Electrical Conductivity	µS/cm	NA	2	1220	1150	2	2910	2880
pH	pH Units		NA	7.25	7.32	NA	7.52	7.47

Certified By:



Mohit Bhargav



Certificate of Analysis

AGAT WORK ORDER: 23Z107710

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Mohit Bhargav

SAMPLING SITE: O'Keefe Court

SAMPLED BY: MB

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

DATE RECEIVED: 2023-12-22

DATE REPORTED: 2024-01-03

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Ground Water - All Types of Property Uses
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

5569687-5569689 Metals analysis completed on a filtered sample.
pH is a recommended field analysis taken within 15 minutes of sample collection. Due to the potential for rapid change in sample equilibrium chemistry laboratory results may differ from field measured results

5569690-5569691 Metals analysis completed on a filtered sample.
pH is a recommended field analysis taken within 15 minutes of sample collection. Due to the potential for rapid change in sample equilibrium chemistry laboratory results may differ from field measured results

Dilution required, RDL has been increased accordingly.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:





Exceedance Summary

AGAT WORK ORDER: 23Z107710

PROJECT: 102669.001

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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Mohit Bhargav

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
5569690	MW23-02	ON T1 GW	O. Reg. 153(511) - Metals & Inorganics (Water)	Dissolved Molybdenum	µg/L	23	50.5

Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
PROJECT: 102669.001
SAMPLING SITE: O'Keefe Court

AGAT WORK ORDER: 23Z107710
ATTENTION TO: Mohit Bhargav
SAMPLED BY: MB

Trace Organics Analysis

RPT Date: Jan 03, 2024			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

F1 (C6 to C10)	5566715	<25	<25	NA	< 25	101%	60%	140%	89%	60%	140%	89%	60%	140%
F2 (C10 to C16)	5566528	< 100	< 100	NA	< 100	119%	60%	140%	74%	60%	140%	75%	60%	140%
F3 (C16 to C34)	5566528	< 100	< 100	NA	< 100	119%	60%	140%	72%	60%	140%	74%	60%	140%
F4 (C34 to C50)	5566528	< 100	< 100	NA	< 100	69%	60%	140%	72%	60%	140%	88%	60%	140%

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

Naphthalene	5570423	<0.20	<0.20	NA	< 0.20	115%	50%	140%	105%	50%	140%	105%	50%	140%
Acenaphthylene	5570423	<0.20	<0.20	NA	< 0.20	79%	50%	140%	72%	50%	140%	97%	50%	140%
Acenaphthene	5570423	<0.20	<0.20	NA	< 0.20	110%	50%	140%	105%	50%	140%	105%	50%	140%
Fluorene	5570423	<0.20	<0.20	NA	< 0.20	94%	50%	140%	110%	50%	140%	80%	50%	140%
Phenanthrene	5570423	<0.10	<0.10	NA	< 0.10	111%	50%	140%	111%	50%	140%	88%	50%	140%
Anthracene	5570423	<0.10	<0.10	NA	< 0.10	90%	50%	140%	117%	50%	140%	88%	50%	140%
Fluoranthene	5570423	<0.20	<0.20	NA	< 0.20	89%	50%	140%	105%	50%	140%	80%	50%	140%
Pyrene	5570423	<0.20	<0.20	NA	< 0.20	96%	50%	140%	105%	50%	140%	85%	50%	140%
Benzo(a)anthracene	5570423	<0.20	<0.20	NA	< 0.20	74%	50%	140%	101%	50%	140%	101%	50%	140%
Chrysene	5570423	<0.10	<0.10	NA	< 0.10	102%	50%	140%	114%	50%	140%	89%	50%	140%
Benzo(b)fluoranthene	5570423	<0.10	<0.10	NA	< 0.10	89%	50%	140%	115%	50%	140%	82%	50%	140%
Benzo(k)fluoranthene	5570423	<0.10	<0.10	NA	< 0.10	107%	50%	140%	117%	50%	140%	101%	50%	140%
Benzo(a)pyrene	5570423	<0.01	<0.01	NA	< 0.01	71%	50%	140%	112%	50%	140%	75%	50%	140%
Indeno(1,2,3-cd)pyrene	5570423	<0.20	<0.20	NA	< 0.20	73%	50%	140%	103%	50%	140%	79%	50%	140%
Dibenz(a,h)anthracene	5570423	<0.20	<0.20	NA	< 0.20	109%	50%	140%	112%	50%	140%	84%	50%	140%
Benzo(g,h,i)perylene	5570423	<0.20	<0.20	NA	< 0.20	68%	50%	140%	114%	50%	140%	83%	50%	140%

O. Reg. 153(511) - VOCs (with PHC) (Water)

Dichlorodifluoromethane	5566715	<0.40	<0.40	NA	< 0.40	94%	50%	140%	66%	50%	140%	77%	50%	140%
Vinyl Chloride	5566715	<0.17	<0.17	NA	< 0.17	112%	50%	140%	118%	50%	140%	97%	50%	140%
Bromomethane	5566715	<0.20	<0.20	NA	< 0.20	89%	50%	140%	87%	50%	140%	110%	50%	140%
Trichlorofluoromethane	5566715	<0.40	<0.40	NA	< 0.40	108%	50%	140%	113%	50%	140%	67%	50%	140%
Acetone	5566715	<1.0	<1.0	NA	< 1.0	110%	50%	140%	116%	50%	140%	88%	50%	140%
1,1-Dichloroethylene	5566715	<0.30	<0.30	NA	< 0.30	109%	50%	140%	92%	60%	130%	106%	50%	140%
Methylene Chloride	5566715	<0.30	<0.30	NA	< 0.30	98%	50%	140%	89%	60%	130%	105%	50%	140%
trans- 1,2-Dichloroethylene	5566715	<0.20	<0.20	NA	< 0.20	100%	50%	140%	73%	60%	130%	84%	50%	140%
Methyl tert-butyl ether	5566715	<0.20	<0.20	NA	< 0.20	87%	50%	140%	114%	60%	130%	100%	50%	140%
1,1-Dichloroethane	5566715	<0.30	<0.30	NA	< 0.30	105%	50%	140%	105%	60%	130%	81%	50%	140%
Methyl Ethyl Ketone	5566715	<1.0	<1.0	NA	< 1.0	84%	50%	140%	86%	50%	140%	97%	50%	140%
cis- 1,2-Dichloroethylene	5566715	<0.20	<0.20	NA	< 0.20	98%	50%	140%	90%	60%	130%	97%	50%	140%
Chloroform	5566715	<0.20	<0.20	NA	< 0.20	117%	50%	140%	95%	60%	130%	101%	50%	140%
1,2-Dichloroethane	5566715	<0.20	<0.20	NA	< 0.20	76%	50%	140%	111%	60%	130%	102%	50%	140%
1,1,1-Trichloroethane	5566715	<0.30	<0.30	NA	< 0.30	94%	50%	140%	116%	60%	130%	82%	50%	140%
Carbon Tetrachloride	5566715	<0.20	<0.20	NA	< 0.20	81%	50%	140%	66%	60%	130%	58%	50%	140%

Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
PROJECT: 102669.001
SAMPLING SITE: O'Keefe Court

AGAT WORK ORDER: 23Z107710
ATTENTION TO: Mohit Bhargav
SAMPLED BY: MB

Trace Organics Analysis (Continued)

RPT Date: Jan 03, 2024			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Benzene	5566715		<0.20	<0.20	NA	< 0.20	115%	50%	140%	109%	60%	130%	87%	50%	140%
1,2-Dichloropropane	5566715		<0.20	<0.20	NA	< 0.20	107%	50%	140%	118%	60%	130%	112%	50%	140%
Trichloroethylene	5566715		<0.20	<0.20	NA	< 0.20	94%	50%	140%	74%	60%	130%	74%	50%	140%
Bromodichloromethane	5566715		<0.20	<0.20	NA	< 0.20	97%	50%	140%	83%	60%	130%	80%	50%	140%
Methyl Isobutyl Ketone	5566715		<1.0	<1.0	NA	< 1.0	105%	50%	140%	94%	50%	140%	89%	50%	140%
1,1,2-Trichloroethane	5566715		<0.20	<0.20	NA	< 0.20	114%	50%	140%	108%	60%	130%	105%	50%	140%
Toluene	5566715		<0.20	<0.20	NA	< 0.20	115%	50%	140%	98%	60%	130%	82%	50%	140%
Dibromochloromethane	5566715		<0.10	<0.10	NA	< 0.10	73%	50%	140%	83%	60%	130%	75%	50%	140%
Ethylene Dibromide	5566715		<0.10	<0.10	NA	< 0.10	96%	50%	140%	84%	60%	130%	86%	50%	140%
Tetrachloroethylene	5566715		<0.20	<0.20	NA	< 0.20	88%	50%	140%	70%	60%	130%	60%	50%	140%
1,1,1,2-Tetrachloroethane	5566715		<0.10	<0.10	NA	< 0.10	74%	50%	140%	74%	60%	130%	70%	50%	140%
Chlorobenzene	5566715		<0.10	<0.10	NA	< 0.10	102%	50%	140%	90%	60%	130%	89%	50%	140%
Ethylbenzene	5566715		<0.10	<0.10	NA	< 0.10	110%	50%	140%	84%	60%	130%	77%	50%	140%
m & p-Xylene	5566715		<0.20	<0.20	NA	< 0.20	112%	50%	140%	87%	60%	130%	77%	50%	140%
Bromoform	5566715		<0.10	<0.10	NA	< 0.10	72%	50%	140%	60%	60%	130%	54%	50%	140%
Styrene	5566715		<0.10	<0.10	NA	< 0.10	90%	50%	140%	72%	60%	130%	82%	50%	140%
1,1,2,2-Tetrachloroethane	5566715		<0.10	<0.10	NA	< 0.10	114%	50%	140%	106%	60%	130%	95%	50%	140%
o-Xylene	5566715		<0.10	<0.10	NA	< 0.10	113%	50%	140%	92%	60%	130%	84%	50%	140%
1,3-Dichlorobenzene	5566715		<0.10	<0.10	NA	< 0.10	103%	50%	140%	85%	60%	130%	84%	50%	140%
1,4-Dichlorobenzene	5566715		<0.10	<0.10	NA	< 0.10	101%	50%	140%	83%	60%	130%	82%	50%	140%
1,2-Dichlorobenzene	5566715		<0.10	<0.10	NA	< 0.10	99%	50%	140%	84%	60%	130%	84%	50%	140%
n-Hexane	5566715		<0.20	<0.20	NA	< 0.20	93%	50%	140%	72%	60%	130%	78%	50%	140%

O. Reg. 153(511) - PHCs F1/BTEX (Water)

Benzene	5570424		<0.20	<0.20	NA	< 0.20	85%	60%	140%	72%	60%	140%	110%	60%	140%
Toluene	5570424		<0.20	<0.20	NA	< 0.20	85%	60%	140%	73%	60%	140%	74%	60%	140%
Ethylbenzene	5570424		<0.10	<0.10	NA	< 0.10	85%	60%	140%	72%	60%	140%	95%	60%	140%
m & p-Xylene	5570424		<0.20	<0.20	NA	< 0.20	88%	60%	140%	74%	60%	140%	74%	60%	140%
o-Xylene	5570424		<0.10	<0.10	NA	< 0.10	87%	60%	140%	74%	60%	140%	89%	60%	140%
F1 (C6 to C10)	5570424		<25	<25	NA	< 25	103%	60%	140%	93%	60%	140%	91%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: _____

R. Chakraborty

Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
PROJECT: 102669.001
SAMPLING SITE: O'Keefe Court

AGAT WORK ORDER: 23Z107710
ATTENTION TO: Mohit Bhargav
SAMPLED BY: MB

Water Analysis															
RPT Date: Jan 03, 2024			DUPLICATE				Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE		MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Measured Value		Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - Metals & Inorganics (Water)															
Dissolved Antimony	5566528		<1.0	<1.0	NA	< 1.0	98%	70%	130%	102%	80%	120%	102%	70%	130%
Dissolved Arsenic	5566528		<1.0	<1.0	NA	< 1.0	99%	70%	130%	106%	80%	120%	110%	70%	130%
Dissolved Barium	5566528		276	278	0.7%	< 2.0	93%	70%	130%	98%	80%	120%	104%	70%	130%
Dissolved Beryllium	5566528		<0.50	<0.50	NA	< 0.50	97%	70%	130%	103%	80%	120%	113%	70%	130%
Dissolved Boron	5566528		53.3	51.8	2.9%	< 10.0	99%	70%	130%	100%	80%	120%	108%	70%	130%
Dissolved Cadmium	5566528		<0.20	<0.20	NA	< 0.20	98%	70%	130%	101%	80%	120%	94%	70%	130%
Dissolved Chromium	5566528		<2.0	<2.0	NA	< 2.0	99%	70%	130%	99%	80%	120%	116%	70%	130%
Dissolved Cobalt	5566528		0.89	0.72	NA	< 0.50	97%	70%	130%	106%	80%	120%	115%	70%	130%
Dissolved Copper	5566528		3.6	1.2	NA	< 1.0	100%	70%	130%	100%	80%	120%	105%	70%	130%
Dissolved Lead	5566528		<0.50	<0.50	NA	< 0.50	104%	70%	130%	98%	80%	120%	90%	70%	130%
Dissolved Molybdenum	5566528		2.41	2.17	NA	< 0.50	108%	70%	130%	111%	80%	120%	130%	70%	130%
Dissolved Nickel	5566528		7.8	7.5	3.9%	< 1.0	99%	70%	130%	107%	80%	120%	110%	70%	130%
Dissolved Selenium	5566528		1.1	1.4	NA	< 1.0	102%	70%	130%	111%	80%	120%	111%	70%	130%
Dissolved Silver	5566528		<0.20	<0.20	NA	< 0.20	105%	70%	130%	109%	80%	120%	102%	70%	130%
Dissolved Thallium	5566528		<0.30	<0.30	NA	< 0.30	101%	70%	130%	99%	80%	120%	94%	70%	130%
Dissolved Uranium	5566528		0.78	0.78	NA	< 0.50	99%	70%	130%	105%	80%	120%	107%	70%	130%
Dissolved Vanadium	5566528		<0.40	0.40	NA	< 0.40	94%	70%	130%	110%	80%	120%	121%	70%	130%
Dissolved Zinc	5566528		<5.0	<5.0	NA	< 5.0	96%	70%	130%	114%	80%	120%	96%	70%	130%
Mercury	5570859		<0.02	<0.02	NA	< 0.02	102%	70%	130%	101%	80%	120%	93%	70%	130%
Chromium VI	5561620		<2.000	<2.000	NA	< 2	99%	70%	130%	97%	80%	120%	95%	70%	130%
Cyanide, WAD	5570859		<2	<2	NA	< 2	105%	70%	130%	98%	80%	120%	90%	70%	130%
Dissolved Sodium	5566528		1330000	1330000	0.0%	< 50	106%	70%	130%	102%	80%	120%	NA	70%	130%
Chloride	5569687	5569687	194000	192000	1.0%	< 100	94%	70%	130%	101%	80%	120%	NA	70%	130%
Electrical Conductivity	5569969		281	280	0.4%	< 2	103%	90%	110%						
pH	5569969		7.19	7.43	3.3%	NA	98%	90%	110%						

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

Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.

Certified By:



Nivine Basily

Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
AGAT WORK ORDER: 23Z107710
PROJECT: 102669.001
ATTENTION TO: Mohit Bhargav
SAMPLING SITE: O'Keefe Court
SAMPLED BY: MB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Fluorene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Anthracene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Pyrene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(a)anthracene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Chrysene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5105	modified from EPA 3510C and EPA 8270E	GC/MS
Sediment			N/A
F1 (C6 to C10)	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	modified from MOE PHC-E3421	P&T GC/FID
Toluene-d8	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	modified from MOE PHC-E3421	BALANCE
Terphenyl	VOL-91-5010	modified from MOE PHC-E3421	GC/FID
Benzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Toluene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5010	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F1 (C6 to C10)	VOL-91-5010	modified from MOE E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	modified from MOE E3421	(P&T)GC/FID
Toluene-d8	VOL-91-5010	modified from MOE PHC-E3421	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,2-Trichloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,1,1,2,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS



Method Summary

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AGAT WORK ORDER: 23Z107710

PROJECT: 102669.001

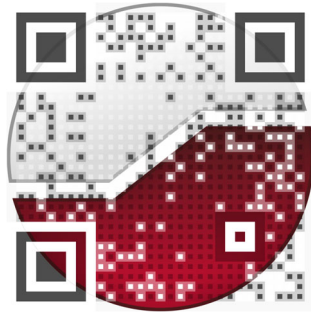
ATTENTION TO: Mohit Bhargava

SAMPLING SITE: O'Keefe Court

SAMPLED BY: MB

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Dissolved Antimony	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Arsenic	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Barium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Beryllium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Boron	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cadmium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Chromium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Cobalt	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Copper	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Lead	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Molybdenum	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Nickel	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Selenium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Silver	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Thallium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Uranium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Vanadium	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Dissolved Zinc	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP-MS
Mercury	MET-93-6100	modified from EPA 245.2 and SM 3112 B	CVAAS
Chromium VI	INOR-93-6073	modified from SM 3500-CR B	LACHAT FIA
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	SEGMENTED FLOW ANALYSIS
Dissolved Sodium Chloride	MET-93-6103	modified from EPA 200.8 and EPA 3005A	ICP/MS
Electrical Conductivity	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
pH	INOR-93-6000	SM 2510 B	PC TITRATE
	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE

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