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Phase Two
Environmental Site Assessment
140 Sussex Drive
Ottawa, Ontario

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Submitted to:

Foreign and Commonwealth Office c/o Mace Group
155 Moorgate Hall
London, United Kingdom
EC2M 6XB

Phase Two Environmental Site Assessment 140 Sussex Drive Ottawa, Ontario

November 12, 2019
Project: 64996.01

experience • knowledge • integrity

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

November 12, 2019 File: 64996.01

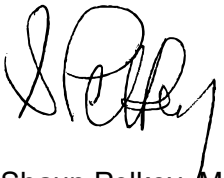
Foreign and Commonwealth Office c/o Mace Group
155 Moorgate Hall
London, United Kingdom
EC2M 6XB

Attention: Mr. Nicholas Farmer

Re: Phase Two Environmental Site Assessment
140 Sussex Drive
Ottawa, Ontario

Enclosed is the GEMTEC Environmental Phase Two Environmental Site Assessment for the above-noted project based on the scope of work presented in our proposal dated September 19, 2019. This report was prepared by Nicole Soucy, B.A.Sc., M.A.Sc., and reviewed by Shaun Pelkey, M.Sc.E., P.Eng.

Nicole Soucy, B.A.Sc., M.A.Sc.
Environmental Scientist



Shaun Pelkey, M.Sc.E., P.Eng.
Principal, Environmental Engineer

NS/DP/SP

Enclosures
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1.0 INTRODUCTION

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) was retained by Foreign and Commonwealth Office c/o Mace Group Construction Ltd., to complete a Phase Two Environmental Site Assessment (ESA) for the property located at 140 Sussex Drive, Ottawa, Ontario.

The Phase Two ESA was completed following a Phase One ESA completed and submitted to Foreign and Commonwealth Office c/o Mace Group Construction Ltd., under separate cover. GEMTECs understands that the Phase Two ESA is required in support of proposed construction of a new British High Commission Office, with no change in zoning. As the property will not be changing to a more sensitive land use, the filing of a Record of Site Condition (RSC), as regulated by Ontario Regulation 153/04 under the Environmental Protection Act, is not mandatory. This Phase Two ESA has been completed in accordance with the requirements for Phase Two ESAs as defined in Part VII and Schedule E of Ontario Regulation 153/04, as amended by O. Reg. 511/09 in support of Site Plan Approval.

1.1 Site Description

The subject property is currently a residential property occupied by the British High Commissioner in Canada, with the south portion of the subject property consisting of parkland, owned and maintained by the National Capital Commission.

The property, generally referred to as Earnscliffe consists of four separate municipal addresses (100, 140, 240 Sussex Drive and 8 Lady Grey Drive) located in Ottawa, Ontario. The subject property of this Phase Two ESA is the property parcel municipally addressed as 140 Sussex Drive and consists of the former Eanrscliffe Coach House and adjoining green space. The broader Earnscliffe property is a registered National Historic Site of Canada due to the historical ownership of the property by the right Honourable Sir John A. Macdonald, Chief Architect of Confederation (Parks Canada, 2019).

1.2 Property Ownership

The site is currently owned by The Secretary of State for Foreign and Commonwealth Affairs of the United Kingdom of Great Britain and Northern Ireland (140 Sussex Drive) the representative for the subject site is Nicholas Farmer at Nicholas.Farmer@macegroup.com.

1.3 Current and Proposed Future Uses

The site is currently comprised of a former carriage house and a garage. The majority of the subject property consists of landscaped areas with gardens and asphalt parking/pathways.

The proposed site development includes plans of a new British High Commission Office Current development plans include demolishing an existing structure, followed by construction of a new structure in place.

1.4 Applicable Site Condition Standards

The MECP Site Condition Standards (SCS) were selected based on site conditions and were selected for the site in accordance with the requirements of Ontario Regulation 153/04, Record of Site Condition – Part XV.1 of the Environmental Protection Act (O. Reg. 153/04, Ministry of the Environment, Conservation and Parks, October 31, 2011).

- The most sensitive use of the property will be residential;
- The boreholes are located within 30 metres of a water body;
- All neighbouring properties are supplied by municipal drinking water; and,
- Bedrock drilling in the area did indicate bedrock at depths less than 2.0 metres.

Based on the above information MECP Table 8 Generic Site Condition Standards for Use within 30 m of a Water Body in a Potable Groundwater Condition, Residential Property Use (coarse textured soils) were selected for the subject site.

Since both of the boreholes advanced on site were advanced on the portion of the site owned by The Secretary of State for Foreign and Commonwealth Affairs of the United Kingdom of Great Britain and Northern Ireland and not the NCC, soil and groundwater results were not compared to the CCME guidelines.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

A topographic map of the Natural Topographic Database, available through the Natural Resources Canada website (NRCan, 2019), was accessed to review topographic features in the general vicinity of the subject property. The subject property is situated approximately 280 m south of the Rideau Falls, (where the Rideau River discharges into the Ottawa River). The subject property is approximately 50 m above sea level (asl), with a sharp drop in elevation along the west boundary, along the shoreline of the Ottawa River. The Ottawa River flows towards the north/northwest.

According to the "Surficial Geology of Southern Ontario" (OGS, 2010), the majority of the middle portion of the study area and the west majority of the subject property consists of limestone dolomite, sandstone and shale mainly occurring as bare, tabular outcrops. The east portion of the study area consists of clay and silt underlying erosional terraces. The surficial deposits range from 6 to 27 m thick, with shallow areas on the south side and becoming thicker towards the north.

According to "Paleozoic Geology of Southern Ontario" (Armstrong et al., 2007), the subject property and the study area is situated within the Simcoe group of the Verulam formation within the Ordovician age, and consists of interbedded bioclastic limestone and shale.

2.2 Past Investigations

One historical assessment report was available for review at part of this Phase Two ESA.

2.2.1 Phase One Environmental Site Assessment - GEMTEC, 2019

An ESA was completed for the subject property in 2019 by GEMTEC. The report was entitled "Phase One Environmental Site Assessment 100, 140 and 240 Sussex Drive & 8 Lady Grey Drive Ottawa, Ontario".

A review of historical information pertaining to the subject site and adjacent properties identified, numerous potentially contaminating activities (PCAs) including but not limited to: fill material of unknown quality, historic coal or coke heating, the use of firefighting foam, waste generation, manufacturing, automobile garages/yards and storage tanks. On-site and off-site PCAs have resulted in the identification of six APECs on the subject property, the APECs identified at the subject property include:

- **APEC 1**: Importation of Fill Material of Unknown Quality;
- **APEC 2**: Historic Heating Fuel and/or Coal Use;
- **APEC 3** :Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products;

- **APEC 4**: Laboratory Research Facility;
- **APEC 5** :Gasoline and Associated Products Storage in Fixed Tanks; and,
- **APEC 6**: Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.

Based on the APECs identified on the site, a Phase Two Environmental Site Assessment was recommended to investigate potential soil and groundwater impacts on the subject property.

3.0 INVESTIGATION METHODS

3.1 Borehole Drilling

Field work completed for this investigation was carried out between October 15, 2019 and October 28, 2019. During that time, a total of two boreholes (BH 19-1, and BH 19-3) were advanced on the subject property, using a truck mounted drill rig with air hammer capabilities owned and operated by Strata Drilling Group of Whitchurch-Stouffville, Ontario. BH 19-2 was not advanced on site due to underground utilities that were present on the site.

The approximate locations of the boreholes are shown on the Borehole Location Plan, Figure A.2, Appendix A. The borehole locations were selected by GEMTEC personnel and positioned at the site relative to existing site features. The locations of the boreholes and ground surface elevations at the borehole locations were determined using a Trimble R10 GPS survey instrument. 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 (0.002 m).

3.2 Soil Sampling

Soil samples were recovered at regular intervals during drilling following the Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario (MOE, 1996). Clean gloves were worn and changed between each sample to prevent cross contamination. Soil samples were collected directly into laboratory-supplied sampling containers. All samples were stored and shipped in laboratory supplied coolers. Samples were submitted to AGAT Laboratories, of Mississauga, Ontario, a CALA-certified analytical laboratory, under standard chain-of-custody procedures and in accordance with GEMTEC QA/QC procedures.

Soil samples were inspected in the field for visual, tactile and olfactory evidence of impact, and following a period of equilibration to ambient temperature, soil sample vapours were screened using a combustible gas detector (RKI Eagle combustible gas detector calibrated to hexane standards, with methane elimination enabled). The results of the soil vapour readings are provided on the Record of Borehole Sheets in Appendix B.

The soil sampling program included the submission of a minimum of one soil sample per borehole for laboratory analysis of metals, polycyclic aromatic hydrocarbons (PAHs), petroleum

hydrocarbons (PHCs), and volatile organic compounds (VOCs) or benzene, toluene, ethylbenzene, and xylene (BTEX). Soil samples were selected based on soil vapour concentrations, visual, olfactory and tactile evidence of impact. A total of four soil samples, including one duplicate sample, were submitted to AGAT Laboratories, a CALA certified laboratory, for analysis of selected parameters. Soil samples submitted for analyses of selected parameters are summarized in Table 3.1.

For soil samples collected for the analysis of PHC F1 and for BTEX, a core of soil was placed in a pre-weighed laboratory prepared vial containing a measured amount of methanol.

Table 3.1: Summary of Soil Analyses

Borehole	Sample	Depth Interval (m bgs)	Soil Description	Analytical Analyses
BH19-1	SA2	0.10 – 1.07	Dark brown clayey silt, some organics	Metals, PHCs, BTEX, PAHS, and VOCs
BH19-1	SA102	0.10 – 1.07	Dark brown clayey silt, some organics	Metals, PHCs, BTEX, and PAHs
BH19-3	SA1	0.00 – 0.25	Black topsoil, some organic matter	Metals, PHCs, BTEX, and PAHs
BH19-3	SA2	0.25 – 0.46	Dark brown clayey sand	Metals, PHCs, BTEX, PAHS, and VOCs

1. bgs – Below ground surface.

3.3 Monitoring Wells

Well screens were installed in the overburden at boreholes BH19-1 (MW 19-1), and BH19-3 (MW 19-3) to measure the groundwater level and to permit groundwater sampling. Installation of both the monitoring wells were completed using a 50-mm diameter, 3.05 metre length, flush-threaded PVC screen and risers with a silica sand pack and bentonite seal. Each monitoring well was finished at surface with flush-mount protective casings. Silica sand was placed around the screened intervals and bentonite hole plug was used to seal the borehole to ground surface. Monitoring well instrumentation details are included on the borehole stratigraphic logs in Appendix B. Monitoring well instrumentation was completed by Strata Drilling Group, under the direct supervision of GEMTEC personnel.

3.4 Groundwater Monitoring and Sampling

Static groundwater levels in monitoring wells were measured October 22, 2019 and October 28, 2019 using an electronic water level tape (Heron Instruments water meter). Groundwater samples

were obtained from borehole BH19-1, and BH19-3. BH19-1 was only sampled for a subset of parameters as there was an insufficient volume of water to permit proposed sampling.

Groundwater samples were collected from monitoring wells in laboratory supplied bottles using a disposable bailer sampler and a waterra valve. A total of two groundwater samples were submitted to AGAT Laboratories for analysis of selected parameters. Groundwater samples submitted for analyses of selected parameters are summarized in Table 2.2, a more detailed description can be found in Table C2 in Appendix C.

Table 3.2: Summary of Groundwater Analyses

Monitoring Well ID	Groundwater Depth (mbgs)		Groundwater Elevation (m, elevation)		Analysis
	Oct 22, 2019	Oct 28, 2019	Oct 22, 2019	Oct 28, 2019	
MW19-1	Dry	15.04	-	41.36	PHC F1, and BTEX
MW19-3	10.97	13.47	45.37	42.87	Metals, PHCs F1 to F4, BTEX, and PAHs

4.0 RESULTS OF THE INVESTIGATION

4.1 General

Soil and groundwater conditions identified in boreholes advanced as part of this investigation are provided on the Record of Borehole sheets in Appendix B. The borehole logs indicate the subsurface conditions at the specific test locations only. Boundaries between zones on the logs are often not distinct, but rather are transitional and have been interpreted. Subsurface conditions at other than the test locations may vary from the conditions encountered in the boreholes. The following presents an overview of the subsurface conditions encountered in the boreholes advanced as part of this investigation.

4.1.1 Site Geology

The surficial geology of the subject site can be generally identified as dark brown clayey silt or sand with some organics over shallow bedrock.

4.2 Soil Sample Results

Analytical results for the soil samples submitted for analyses and the selected MECP SCS are presented in Table C1; laboratory certificates of analysis for soil samples are provided in Appendix D. A summary of the soil samples submitted and exceedances compared to the applicable standards is provided in Table 4.1.

Table 4.1: Summary of Soil Sample Results

Borehole	Sample	Depth Interval (m bgs)	Soil Description	Exceedances to MECP Table 8 SCS
BH19-1	SA2	0.10 – 1.07	Dark brown clayey silt, some organics	Fluoranthene, benzo[a]anthracene, benzo[b]fluoranthene, and benzo[a]pyrene
BH19-1	SA102	0.10 – 1.07	Dark brown clayey silt, some organics	Anthracene, fluoranthene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[a]pyrene, and ideno[1,2,3-cd]pyrene
BH19-3	SA1	0.00 – 0.25	Black topsoil, some organic matter	None
BH19-3	SA2	0.25 – 0.46	Dark brown clayey sand	Barium, and lead

4.3 Groundwater Sample Results

Analytical results for the groundwater samples and the associated MECP SCS are presented in Table C2. Laboratory certificates of analysis for groundwater analytical results are provided in Appendix D. The following subsection presents a summary of the groundwater analytical results for each borehole.

Table 4.2: Summary of Groundwater Sample Results

Monitoring Well ID	Groundwater Depth (mbgs)		Groundwater Elevation (m, elevation)		Exceedances to MECP Table 8 SCS
	Oct 22, 2019	Oct 28, 2019	Oct 22, 2019	Oct 28, 2019	
MW19-1	Dry	15.04	-	41.36	None
MW19-3	10.97	13.47	45.37	42.87	None

4.4 Quality Assurance and Quality Control Results

A quality assurance/quality control (QA/QC) program was implemented during the environmental sampling. The QA/QC program consisted of the use of standard field protocols. The QA/QC program also included internal laboratory QC performed by AGAT Laboratories of Ottawa, Ontario.

GEMTECs review of AGATs QA/QC certificates indicates that analytical results fell within acceptable QA/QC limits for constituent recovery as defined by the protocols for the analytical methods for almost all parameters analyzed.

Additionally, duplicate soil sample was submitted to AGAT Laboratories Ltd. for analysis of selected parameters. The soil sample BH19-1 SA102 is a duplicate of sample BH19-1 SA2. Relative Standards Deviations (RPDs) were calculated for all parameters where the original and duplicate sample concentrations exceeded five (5) times the reportable detection limits (RDL). The average RPD values for duplicate set was 19%. All of the QA/QC RPDs (with sample values greater than 5 times the RDL) for the duplicate samples were within the acceptable limit for soils (MOE, 2011), with the exception of zinc.

Based on the measures discussed above, sample collection and handling protocols are considered acceptable and associated analytical results reproducible. The quality of the data from the investigation was sufficient in that decision making was not affected, and the overall objectives of the investigation and assessment were met.

5.0 CONCLUSIONS

Based on a review of historical information and completion of the Phase Two ESA described herein, the following provides a summary of the investigation. The subject property, municipally addressed as 140 Sussex Drive, is officially known as Earnscliffe, and is a registered National Historic Site of Canada due to the historical ownership of the property by the right Honourable Sir John A. Macdonald, Chief Architect of Confederation (Parks Canada, 2019).

Proposed site development includes the construction of a new British High Commission Office. The subject property is currently a residential property occupied by the British High Commissioner in Canada, with the south adjoin land parcels consisting of parkland, owned and maintained by the National Capital Commission within the City of Ottawa, Ontario.

Six APECs were identified through the Phase I ESA and investigated during the Phase Two ESA, a summary of the APECs can be found below:

- **APEC 1**: Importation of Fill Material of Unknown Quality.
- **APEC 2**: Historic Heating Fuel and/or Coal Use.
- **APEC 3**: Wood Treating and Preservative Facility and Bulk Storage of Treated and Preserved Wood Products.
- **APEC 4**: Laboratory Research Facility.
- **APEC 5**: Gasoline and Associated Products Storage in Fixed Tanks.
- **APEC 6**: Storage, maintenance, fuelling and repair of equipment, vehicles, and material used to maintain transportation systems.

The surficial geology of the subject site can be generally identified as dark brown clayey silt or sand with some organics over shallow bedrock.

A total of four soil samples (including one duplicate) were selected for analytical analysis based on the combustible headspace gas readings, visual, olfactory and tactile evidence of impacts and submitted to AGAT Laboratories for analysis of metals, PHCs, BTEX, PAHS and a subset to VOCs. A summary of analytical results can be found below:

- MECP Table 8 SCS exceedances of Fluoranthene, benzo[a]anthracene, benzo[b]fluoranthene, and benzo[a]pyrene was identified at BH19-1 SA2 while the duplicate sample also indicated MECP Table 8 SCS exceedances of Anthracene, and ideno[1,2,3-cd]pyrene; and,
- Soil Sample BH19-3 SA1 met the MECP Table 8 SCS for all parameters analyzed;
- MECP Table 8 SCS exceedances of Barium, and lead was identified at BH19-3 SA2.

Due to MECP Table 8 SCS exceedances at BH19-1, and BH19-3, it is recommended that if excess soil is generated from the vicinity of the construction during the proposed work, the soil be disposed of at a MECP approved landfill pending a toxicity characteristic leaching procedure (TCLP) analysis.

Two groundwater samples were also selected for analytical analysis and submitted to AGAT Laboratories for analysis of metals, PHCs, PAHS and VOCs. The groundwater samples met the MECP Table 8 SCS for all parameters analyzed.

6.0 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.

Nicole Soucy, B.A.Sc., M.A.Sc.
Environmental Scientist

Shaun Pelkey, M.Sc.E., P.Eng.
Principal, Environmental Engineer

7.0 REFERENCES

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8.0 LIMITATION OF LIABILITY

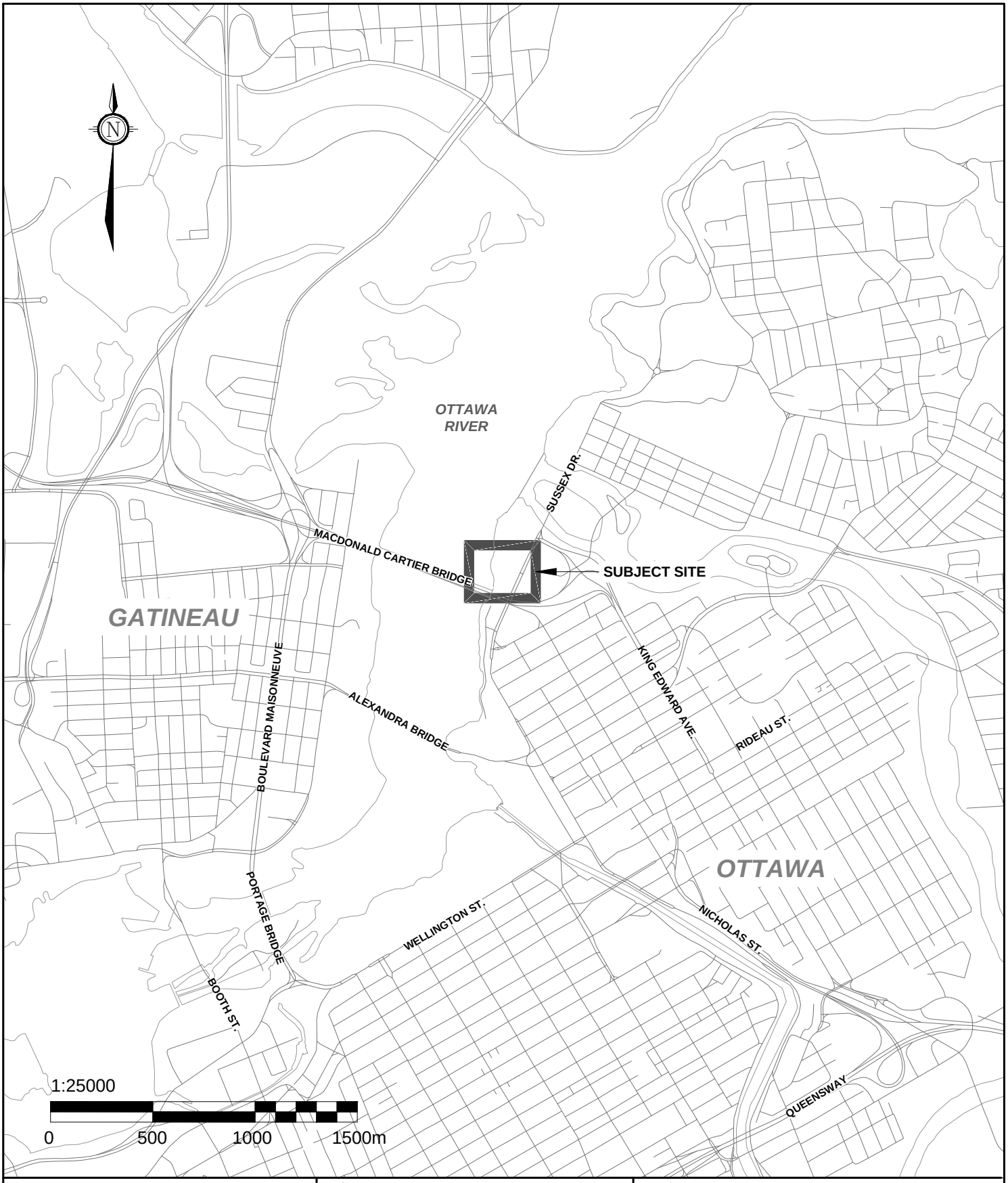
This report was prepared for and the work referred to within it has been undertaken by GEMTEC Consulting Engineers and Scientists Ltd for Foreign and Commonwealth Office c/o Mace Group It is intended for the exclusive use of Foreign and Commonwealth Office c/o Mace Group This report may not be relied upon by any other person or entity without the express written consent of GEMTEC, and Foreign and Commonwealth Office c/o Mace Group. Nothing in this report is intended to provide a legal opinion.

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.

APPENDIX A

Figures



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Project	Drawing
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT 140 SUSSEX DRIVE, OTTAWA, ON	KEY PLAN

Drwn By	Chkd By	Date	Project No.	Revision No.	
P.C.	N.S.	NOVEMBER 2019	64996.01	0	**FIGURE A.1**

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LEGEND

SUBJECT SITE

BOREHOLE LOCATION IN PLAN
(current investigation by GEMTEC)

BH # — BOREHOLE ID
XX.XX — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM

Scale 1:1000

0 20 40 60m

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Drawing: BOREHOLE LOCATION PLAN

Client: FOREIGN AND COMMONWEALTH OFFICE c/o MACE GROUP

Project: 64996.01

PHASE TWO ENVIRONMTEAL SITE ASSESSMENT
140 SUSSEX DRIVE
OTTAWA, ONTARIO

Drwn by: P.C.
Chkd by: N.S.

Date: NOVEMBER 2019
Rev.: 0

FIGURE A.2

BH19-1		
Sample	Description	MECP Table 8 SCS Exceedances
SA2 and SA102	0.10 – 1.07 Dark brown clayey silt, some organics	Anthracene, fluoranthene, benzo[a]anthracene,

BH19-3		
Sample	Description	MECP Table 8 SCS Exceedances
SA2	0.00 – 0.25 Black topsoil, some organic matter	None[2]
SA3	0.25 – 0.46 Dark brown clayey sand	Barium, and lead[1]

LEGEND

SUBJECT SITE

BOREHOLE LOCATION IN PLAN
(current investigation by GEMTEC)

BH # — BOREHOLE ID
XX.XX — GROUND SURFACE ELEVATION, IN METRES GEODETIC DATUM

1- Metals, PHCs, BTEX, PAHS, and VOCs
2- Metals, PHCs, BTEX, and PAHS

NOTES:

MECP Table 8 SCS: Generic SCS for Use within 30 m of a Water Body in a Potable Groundwater Condition (MOE, April 15, 2011)

Scale 1:1000

0 20 40 60m

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Drawing: SOIL EXCEEDANCES

Client: FOREIGN AND COMMONWEALTH OFFICE c/o MACE GROUP

Project: 64996.01

PHASE TWO ENVIRONMTEAL SITE ASSESSMENT
140 SUSSEX DRIVE
OTTAWA, ONTARIO

Drwn by: P.C.
Chkd by: N.S.

Date: NOVEMBER 2019
Rev.: 0

FIGURE A.3

APPENDIX B

Borehole Logs

RECORD OF BOREHOLE 19-1

CLIENT: Foreign and Commonwealth Office c/o Mace Group
PROJECT: Phase II ESA
JOB#: 64996.01
LOCATION: See Borehole Location Plan, Figure 2

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Oct 15 2019

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	SAMPLE DATA: TYPE	SAMPLE DATA: RECOVERY (mm)	SAMPLE DATA: BLOWS/0.3m	SAMPLE DATA: LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
0				56.40									
		Black topsoil, some organic matter		56.30 / 0.10	SA 1								
		Dark brown clayey silt, some organics											
1				55.33									
		Bedrock - Not logged		1.07	SA 2								
2													
3													
4													
5													
6													Bentonite
7													
8													
9													
10													
11													
12													
13													TOP OF SCREEN ELEV.: 44.21 m
14													Filter Sand Screen
15				41.16 / 15.24									BOTTOM OF SCREEN ELEV.: 41.16 m

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEVATION (m)
Oct. 28/19	15.04 ▽	41.36

GEMTEC
Consulting Engineers and Scientists

LOGGED: N.S.
CHECKED: D.P.

ENV - BOREHOLE LOG GINT.GPJ GEMTEC 2018.GDT 12/11/19

RECORD OF BOREHOLE 19-3

CLIENT: Foreign and Commonwealth Office c/o Mace Group
PROJECT: Phase II ESA
JOB#: 64996.01
LOCATION: See Borehole Location Plan, Figure 2

SHEET: 1 OF 1
DATUM: CGVD28
BORING DATE: Oct 15 2019

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLE DATA: NUMBER	TYPE	RECOVERY (mm)	BLOWS/0.3m	LABORATORY ANALYSES	COMBUSTIBLE VAPOUR CONCENTRATION (ppm)	ODOUR	TPH (mg/kg)	MONITORING WELL INSTALLATION AND NOTES
		Ground Surface		56.34									
0		Black topsoil, some organic matter		56.09	SA 1	51	254			5			
		Dark brown clayey sand		0.25	SA 2	51	203.2			20			
1		Gravel/cobbles - possible crushed bedrock		55.83 / 0.51	SA 3	51	508			10			
				54.82									
2		Bedrock - Not logged		1.52									
3													
4													
5													Bentonite
6													
7													
8													
9													
10													
11													TOP OF SCREEN ELEV.: 45.37 m
12													Filter sand
13													Screen
14				42.32 / 14.02									BOTTOM OF SCREEN ELEV.: 42.32 m

GROUNDWATER OBSERVATIONS

DATE	DEPTH (m)	ELEVATION (m)
Oct. 22/19	10.97 ▽	45.37
Oct. 28/19	13.47 ▼	42.87

GEMTEC
Consulting Engineers and Scientists

LOGGED: N.S.
CHECKED: D.P.

ENV - BOREHOLE LOG GINT.GPJ GEMTEC 2018.GDT 12/11/19

APPENDIX C

Analytical Summary Tables

TABLE C1
SOIL ANALYTICAL RESULTS

Parameter	Units	RDL	MECP Table 8*	Sample Location: / Sample ID: / Sample Interval: / Date Sampled:	140 Sussex Avenue BH19-1 SA2 0.10 – 1.07 15-Oct-19	BH19-1 SA102 0.10 – 1.07 15-Oct-19	BH19-3 SA1 0.00 – 0.25 15-Oct-2019	BH19-3 SA2 0.25 – 0.46 15-Oct-2019
Metals								
Antimony	µg/g	0.8	1.3		<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	1	18		4	5	3	7
Barium	µg/g	2	220		187	142	87	**224**
Beryllium	µg/g	0.5	2.5		<0.5	0.6	<0.5	0.5
Boron	µg/g	5	36		<5	6	<5	7
Cadmium	µg/g	0.5	1.2		<0.5	<0.5	<0.5	0.6
Chromium	µg/g	2	70		43	34	15	35
Cobalt	µg/g	0.5	22		9.3	8.7	4.4	8.5
Copper	µg/g	1	92		26	21	16	38
Lead	µg/g	1	120		108	80	38	**316**
Molybdenum	µg/g	0.5	2		0.7	1	1.4	1.2
Nickel	µg/g	1	82		21	19	10	22
Selenium	µg/g	0.4	1.5		0.5	0.5	0.5	0.9
Silver	µg/g	0.2	0.5		<0.2	<0.2	<0.2	0.3
Thallium	µg/g	0.4	1		<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	0.5	2.5		1	0.7	1.9	1.8
Vanadium	µg/g	1	86		45	37	23	43
Zinc	µg/g	5	290		111	81	67	171
Naphthalene	µg/g	0.05	0.09		0.06	<0.05	<0.05	<0.05
Polycyclic Aromatic Hydrocarbons								
Acenaphthylene	µg/g	0.05	0.093		0.06	<0.05	0.07	<0.05
Acenaphthene	µg/g	0.05	0.072		0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	0.05	0.19		<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	0.05	0.69		0.56	0.51	0.29	0.06
Anthracene	µg/g	0.05	0.22		0.2	**0.23**	0.08	<0.05
Fluoranthene	µg/g	0.05	0.69		**0.92**	**0.89**	0.59	0.18
Pyrene	µg/g	0.05	1		0.88	0.86	0.53	0.17
Benz(a)anthracene	µg/g	0.05	0.36		**0.61**	**0.84**	0.29	0.09
Chrysene	µg/g	0.05	2.8		0.49	0.63	0.29	0.14
Benzo(b)fluoranthene	µg/g	0.05	0.47		**0.7**	**0.71**	0.36	0.11
Benzo(k)fluoranthene	µg/g	0.05	0.48		0.29	0.36	0.19	0.05
Benzo(a)pyrene	µg/g	0.05	0.3		**0.45**	**0.6**	0.24	0.06
Indeno(1,2,3-cd)pyrene	µg/g	0.05	0.23		0.2	**0.25**	0.11	<0.05
Dibenz(a,h)anthracene	µg/g	0.05	0.1		0.05	0.07	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	0.05	0.68		0.2	0.25	0.11	<0.05
2-and 1-methyl Naphthalene	µg/g	0.05	0.59		0.06	<0.05	<0.05	<0.05
Moisture Content	%	0.1	NS		24.1	20.3	13.2	20.6
Chrysene-d12	%	-	NS		75	95	73	97
Volatile Organic Compounds								
Benzene	µg/g	0.02	0.02		<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.05	0.2		<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	0.05	0.05		<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	0.05	0.05		<0.05	<0.05	<0.05	<0.05
Petroleum Hydrocarbons								
F1 (C6 to C10)	µg/g	5	NS		<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	5	25		<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10		<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g	10	NS		<10	<10	<10	<10
F3 (C16 to C34)	µg/g	50	240		<50	<50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g	50	NS		<50	<50	<50	<50
F4 (C34 to C50)	µg/g	50	120		<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	50	120		NA	NA	NA	NA
Moisture Content	%	0.1	NS		24.1	20.3	13.2	20.6
Terphenyl	%	-	NS		86	112	119	90

Notes:

1 RDL - Reported Detection Limit
2 NS - No Standard
3 * - Table 8: Generic SCS for Use within 30 m of a Water Body in a Potable Groundwater Condition, Coarse Soils (MOE, April 15, 2011)
4 **Bolded** - Exceeds MECP Table 8 SCS

TABLE C2
GROUNDWATER ANALYTICAL RESULTS

Parameter	Units	RDL	Sample Location: / Sample ID: / Date Sampled: MECP Table 8*	140 Sussex Drive MW19-1 23/10/2019	140 Sussex Drive MW19-3 28/10/2019
Polycyclic Aromatic Hydrocarbons					
Naphthalene	µg/L	0.12	11	N/A	<0.12
Acenaphthylene	µg/L	0.11	1	N/A	<0.11
Acenaphthene	µg/L	0.1	4.1	N/A	<0.10
Fluorene	µg/L	0.09	120	N/A	<0.09
Phenanthrene	µg/L	0.1	1	N/A	<0.10
Anthracene	µg/L	0.012	1	N/A	<0.012
Fluoranthene	µg/L	0.04	0.41	N/A	<0.04
Pyrene	µg/L	0.02	4.1	N/A	<0.02
Benzo(a)anthracene	µg/L	0.018	1	N/A	<0.018
Chrysene	µg/L	0.05	0.1	N/A	<0.05
Benzo(b)fluoranthene	µg/L	0.05	0.1	N/A	<0.05
Benzo(k)fluoranthene	µg/L	0.05	0.1	N/A	<0.05
Benzo(a)pyrene	µg/L	0.01	0.01	N/A	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.06	0.2	N/A	<0.06
Dibenzo(a,h)anthracene	µg/L	0.09	0.2	N/A	<0.09
Benzo(g,h,i)perylene	µg/L	0.06	0.2	N/A	<0.06
2-and 1-methyl Napthalene	µg/L	0.2	3.2	N/A	<0.20
Chrysene-d12	%	NS	NS	N/A	69
Metals					
Antimony	µg/L	1	6	N/A	<1.0
Arsenic	µg/L	1	25	N/A	1.5
Barium	µg/L	2	1000	N/A	66.3
Beryllium	µg/L	0.5	4	N/A	<0.5
Boron	µg/L	10	5000	N/A	240
Cadmium	µg/L	0.2	2.1	N/A	<0.2
Chromium	µg/L	2	50	N/A	<2.0
Cobalt	µg/L	0.5	3.8	N/A	0.7
Copper	µg/L	1	69	N/A	1.3
Lead	µg/L	0.5	10	N/A	<0.5
Molybdenum	µg/L	0.5	70	N/A	22.8
Nickel	µg/L	1	100	N/A	5.1
Selenium	µg/L	1	10	N/A	2.6
Silver	µg/L	0.2	1.2	N/A	<0.2
Thallium	µg/L	0.3	2	N/A	<0.3
Uranium	µg/L	0.5	20	N/A	0.9
Vanadium	µg/L	0.4	6.2	N/A	0.6
Zinc	µg/L	5	890	N/A	7
Petroleum Hydrocarbons					
F1 (C6-C10)	µg/L	25	NS	<25	<25
F1 (C6 to C10) minus BTEX	µg/L	25	420	<25	<25
F2 (C10 to C16)	µg/L	100	150	N/A	<100
F2 (C10 to C16) minus Naphthalene	µg/L	100	NS	N/A	<100
F3 (C16 to C34)	µg/L	100	500	N/A	200
F3 (C16 to C34) minus PAHs	µg/L	100	NS	N/A	200
F4 (C34 to C50)	µg/L	100	500	N/A	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	N/A	NA
Terphenyl	%	NS	NS	N/A	115
Volatile Organic Compounds					
Dichlorodifluoromethane	µg/L	0.2	590	<0.20	<0.20
Vinyl Chloride	µg/L	0.17	0.5	<0.17	<0.17
Bromomethane	µg/L	0.2	0.89	<0.20	<0.20
Trichlorofluoromethane	µg/L	0.4	150	<0.40	<0.40
Acetone	µg/L	1	2700	<1.0	<1.0
1,1-Dichloroethylene	µg/L	0.3	1.6	<0.30	<0.30
Methylene Chloride	µg/L	0.3	50	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	0.2	1.6	<0.20	<0.20
Methyl tert-butyl ether	µg/L	0.2	15	<0.20	<0.20
1,1-Dichloroethane	µg/L	0.3	5	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	1	1800	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	0.2	1.6	<0.20	<0.20
Chloroform	µg/L	0.2	2.4	<0.20	<0.20
1,2-Dichloroethane	µg/L	0.2	1.6	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	0.3	200	<0.30	<0.30
Carbon Tetrachloride	µg/L	0.2	0.79	<0.20	<0.20
Benzene	µg/L	0.2	5	<0.20	<0.20
1,2-Dichloropropane	µg/L	0.2	5	<0.20	<0.20
Trichloroethylene	µg/L	0.2	1.6	<0.20	<0.20
Bromodichloromethane	µg/L	0.2	16	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L	1	640	<1.0	<1.0
1,1,2-Trichloroethane	µg/L	0.2	4.7	<0.20	<0.20
Toluene	µg/L	0.2	22	<0.20	<0.20
Dibromochloromethane	µg/L	0.1	25	<0.10	<0.10
Ethylene Dibromide	µg/L	0.1	0.2	<0.10	<0.10
Tetrachloroethylene	µg/L	0.2	1.6	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	0.1	1.1	<0.10	<0.10
Chlorobenzene	µg/L	0.1	30	<0.10	<0.10
Ethylbenzene	µg/L	0.1	2.4	<0.10	<0.10
m & p-Xylene	µg/L	0.2	NS	<0.20	<0.20
Bromoform	µg/L	0.1	25	<0.10	<0.10
Styrene	µg/L	0.1	5.4	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	0.1	1	<0.10	<0.10
o-Xylene	µg/L	0.1	NS	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	0.1	59	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	0.1	1	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	0.1	3	<0.10	<0.10
1,3-Dichloropropene	µg/L	0.3	0.5	<0.30	<0.30
Xylene Mixture	µg/L	0.2	300	<0.20	<0.20
n-Hexane	µg/L	0.2	51	<0.20	<0.20
Toluene-d8	% Recovery	-	NS	98	105
4-Bromofluorobenzene	% Recovery	-	NS	89	88

Notes:

1 RDL - Reported Detection Limit
2 N/A - Not Analyzed
3 NS - No Standard
4 * - Table 8: Generic SCS for Use within 30 m of a Water Body in a Potable Groundwater Condition (MOE, April 15, 2011)
5 **Bold** - Exceeds MECP Table 8 SCS

APPENDIX D

Laboratory Analytical Reports

AGAT Laboratories

5835 COOPERS AVENUE
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CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS
32 STEACIE DRIVE
OTTAWA, ON K2K 2A9
(613) 836-1422

ATTENTION TO: Nicole Soucy

PROJECT: 64996.01

AGAT WORK ORDER: 19Z531521

SOIL ANALYSIS REVIEWED BY: Amanjot Bhela, Inorganic Supervisor

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

DATE REPORTED: Oct 23, 2019

PAGES (INCLUDING COVER): 9

VERSION*: 1

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

NOTES

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

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z531521

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-16

DATE REPORTED: 2019-10-23

		SAMPLE DESCRIPTION:		BH19-1 SA2	BH19-1 SA102	BH19-3 SA1	BH19-3 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-10-15	2019-10-15	2019-10-15	2019-10-15
Parameter	Unit	G / S	RDL	623815	623816	623817	623818
Antimony	µg/g		0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g		1	4	5	3	7
Barium	µg/g		2	187	142	87	224
Beryllium	µg/g		0.5	<0.5	0.6	<0.5	0.5
Boron	µg/g		5	<5	6	<5	7
Cadmium	µg/g		0.5	<0.5	<0.5	<0.5	0.6
Chromium	µg/g		2	43	34	15	35
Cobalt	µg/g		0.5	9.3	8.7	4.4	8.5
Copper	µg/g		1	26	21	16	38
Lead	µg/g		1	108	80	38	316
Molybdenum	µg/g		0.5	0.7	1.0	1.4	1.2
Nickel	µg/g		1	21	19	10	22
Selenium	µg/g		0.4	0.5	0.5	0.5	0.9
Silver	µg/g		0.2	<0.2	<0.2	<0.2	0.3
Thallium	µg/g		0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g		0.5	1.0	0.7	1.9	1.8
Vanadium	µg/g		1	45	37	23	43
Zinc	µg/g		5	111	81	67	171

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

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z531521

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-16

DATE REPORTED: 2019-10-23

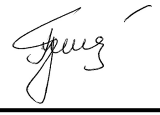
		SAMPLE DESCRIPTION:		BH19-1 SA2	BH19-1 SA102	BH19-3 SA1	BH19-3 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-10-15	2019-10-15	2019-10-15	2019-10-15
Parameter	**Unit**	**G / S**	**RDL**	**623815**	**623816**	**623817**	**623818**
Naphthalene	µg/g		0.05	0.06	<0.05	<0.05	<0.05
Acenaphthylene	µg/g		0.05	0.06	<0.05	0.07	<0.05
Acenaphthene	µg/g		0.05	0.05	<0.05	<0.05	<0.05
Fluorene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g		0.05	0.56	0.51	0.29	0.06
Anthracene	µg/g		0.05	0.20	0.23	0.08	<0.05
Fluoranthene	µg/g		0.05	0.92	0.89	0.59	0.18
Pyrene	µg/g		0.05	0.88	0.86	0.53	0.17
Benz(a)anthracene	µg/g		0.05	0.61	0.84	0.29	0.09
Chrysene	µg/g		0.05	0.49	0.63	0.29	0.14
Benzo(b)fluoranthene	µg/g		0.05	0.70	0.71	0.36	0.11
Benzo(k)fluoranthene	µg/g		0.05	0.29	0.36	0.19	0.05
Benzo(a)pyrene	µg/g		0.05	0.45	0.60	0.24	0.06
Indeno(1,2,3-cd)pyrene	µg/g		0.05	0.20	0.25	0.11	<0.05
Dibenz(a,h)anthracene	µg/g		0.05	0.05	0.07	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g		0.05	0.20	0.25	0.11	<0.05
2-and 1-methyl Naphthalene	µg/g		0.05	0.06	<0.05	<0.05	<0.05
Moisture Content	%		0.1	24.1	20.3	13.2	20.6
Surrogate	**Unit**	**Acceptable Limits**					
Chrysene-d12	%	50-140		75	95	73	97

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

623815-623818 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:



AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z531521

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-16

DATE REPORTED: 2019-10-23

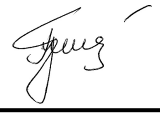
		SAMPLE DESCRIPTION:		BH19-1 SA2	BH19-1 SA102	BH19-3 SA1	BH19-3 SA2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2019-10-15	2019-10-15	2019-10-15	2019-10-15
Parameter	**Unit**	**G / S**	**RDL**	**623815**	**623816**	**623817**	**623818**
Benzene	µg/g		0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g		5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g		5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g		10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g		50	<50	<50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g		50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g		50	NA	NA	NA	NA
Moisture Content	%		0.1	24.1	20.3	13.2	20.6
Surrogate	**Unit**	**Acceptable Limits**					
Terphenyl	%	60-140		86	112	119	90

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

623815-623818 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



AGAT Laboratories

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

Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z531521

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Oct 23, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Including Hydrides) (Soil)															
Antimony	634776		<0.8	<0.8	NA	< 0.8	104%	70%	130%	93%	80%	120%	90%	70%	130%
Arsenic	634776		2	2	NA	< 1	104%	70%	130%	102%	80%	120%	107%	70%	130%
Barium	634776		19	19	0.0%	< 2	100%	70%	130%	99%	80%	120%	104%	70%	130%
Beryllium	634776		<0.5	<0.5	NA	< 0.5	90%	70%	130%	106%	80%	120%	105%	70%	130%
Boron	634776		<5	6	NA	< 5	73%	70%	130%	102%	80%	120%	104%	70%	130%
Cadmium	634776		<0.5	<0.5	NA	< 0.5	106%	70%	130%	101%	80%	120%	106%	70%	130%
Chromium	634776		6	6	NA	< 2	91%	70%	130%	103%	80%	120%	105%	70%	130%
Cobalt	634776		2.4	2.2	NA	< 0.5	95%	70%	130%	101%	80%	120%	100%	70%	130%
Copper	634776		7	8	13.3%	< 1	93%	70%	130%	105%	80%	120%	97%	70%	130%
Lead	634776		13	16	20.7%	< 1	104%	70%	130%	98%	80%	120%	105%	70%	130%
Molybdenum	634776		<0.5	<0.5	NA	< 0.5	90%	70%	130%	97%	80%	120%	100%	70%	130%
Nickel	634776		6	6	0.0%	< 1	97%	70%	130%	103%	80%	120%	98%	70%	130%
Selenium	634776		<0.4	<0.4	NA	< 0.4	100%	70%	130%	96%	80%	120%	104%	70%	130%
Silver	634776		<0.2	<0.2	NA	< 0.2	81%	70%	130%	93%	80%	120%	87%	70%	130%
Thallium	634776		<0.4	<0.4	NA	< 0.4	92%	70%	130%	100%	80%	120%	99%	70%	130%
Uranium	634776		<0.5	<0.5	NA	< 0.5	104%	70%	130%	98%	80%	120%	105%	70%	130%
Vanadium	634776		10	11	9.5%	< 1	95%	70%	130%	102%	80%	120%	107%	70%	130%
Zinc	634776		70	116	49.5%	< 5	99%	70%	130%	102%	80%	120%	111%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL
Zinc distribution in the sample analyzed as duplicate for the batch was heterogeneous.

Certified By:

Amanjot Bhela

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
AMANJOT BHELA
CHEMIST

AGAT Laboratories

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Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z531521

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Oct 23, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	627471		< 0.02	< 0.02	NA	< 0.02	81%	60%	130%	80%	60%	130%	98%	60%	130%
Toluene	627471		< 0.05	< 0.05	NA	< 0.05	85%	60%	130%	88%	60%	130%	93%	60%	130%
Ethylbenzene	627471		< 0.05	< 0.05	NA	< 0.05	98%	60%	130%	84%	60%	130%	93%	60%	130%
Xylene Mixture	627471		< 0.05	< 0.05	NA	< 0.05	92%	60%	130%	91%	60%	130%	95%	60%	130%
F1 (C6 to C10)	627471		< 5	< 5	NA	< 5	84%	60%	130%	89%	85%	115%	81%	70%	130%
F2 (C10 to C16)	625084		< 10	< 10	NA	< 10	96%	60%	130%	116%	80%	120%	88%	70%	130%
F3 (C16 to C34)	625084		< 50	< 50	NA	< 50	101%	60%	130%	118%	80%	120%	93%	70%	130%
F4 (C34 to C50)	625084		< 50	< 50	NA	< 50	85%	60%	130%	100%	80%	120%	90%	70%	130%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	619375		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	106%	50%	140%	109%	50%	140%
Acenaphthylene	619375		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	97%	50%	140%	108%	50%	140%
Acenaphthene	619375		< 0.05	< 0.05	NA	< 0.05	107%	50%	140%	94%	50%	140%	108%	50%	140%
Fluorene	619375		< 0.05	< 0.05	NA	< 0.05	99%	50%	140%	91%	50%	140%	101%	50%	140%
Phenanthrene	619375		< 0.05	< 0.05	NA	< 0.05	88%	50%	140%	76%	50%	140%	94%	50%	140%
Anthracene	619375		< 0.05	< 0.05	NA	< 0.05	112%	50%	140%	100%	50%	140%	105%	50%	140%
Fluoranthene	619375		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	85%	50%	140%	105%	50%	140%
Pyrene	619375		< 0.05	< 0.05	NA	< 0.05	103%	50%	140%	78%	50%	140%	106%	50%	140%
Benz(a)anthracene	619375		< 0.05	< 0.05	NA	< 0.05	102%	50%	140%	75%	50%	140%	82%	50%	140%
Chrysene	619375		< 0.05	< 0.05	NA	< 0.05	108%	50%	140%	77%	50%	140%	102%	50%	140%
Benzo(b)fluoranthene	619375		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	98%	50%	140%	77%	50%	140%
Benzo(k)fluoranthene	619375		< 0.05	< 0.05	NA	< 0.05	101%	50%	140%	105%	50%	140%	85%	50%	140%
Benzo(a)pyrene	619375		< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	99%	50%	140%	107%	50%	140%
Indeno(1,2,3-cd)pyrene	619375		< 0.05	< 0.05	NA	< 0.05	100%	50%	140%	73%	50%	140%	84%	50%	140%
Dibenz(a,h)anthracene	619375		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	77%	50%	140%	81%	50%	140%
Benzo(g,h,i)perylene	619375		< 0.05	< 0.05	NA	< 0.05	98%	50%	140%	77%	50%	140%	79%	50%	140%

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

Certified By:

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Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z531521

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS

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Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z531521

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Moisture Content	ORG-91-5106	EPA SW-846 3541 & 8270E	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270E	GC/MS
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P&T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P&T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

AGAT Laboratories

IL4

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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19253152-1

Cooler Quantity:

Arrival Temperatures: 7.5 | 7.3 | 7.3
9' | 8° | 8°

Custody Seal Intact: ☐ Yes ☐ No ☐ ~~N/A~~

Notes: on ice

Report Information:

Company: GEMTEC
Contact: NS
Address: 32 Steacie Dr

Phone: 613-836-1422 Fax:

Reports to be sent to:
1. Email: nicole.soucy@gemtec.ca
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table (Indicate One) ☐ Ind/Com ☐ Res/Park ☐ Agriculture
Soil Texture (Check One) ☐ Coarse ☐ Fine

☐ Sewer Use
☐ Sanitary ☐ Storm
Region (Indicate One) ☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☐ Yes ☒ No

Report Guideline on *Certificate of Analysis* ☐ Yes ☒ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 64996.01
Site Location:
Sampled By: NS
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N
BH 19-1 SA2	Oct 15/19		2	~~GW~~ S		
BH 19-1 SA102	↓		↓	↓		
BH 19-3 SA1						
BH 19-3 SA2						

Field Filtered - Metals, Hg, CrVI

O. Reg 153: Metals and Inorganics; ☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides); ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR

Full Metals Scan

Regulation/Custom Metals

Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2

Volatiles: ☐ VOC ☐ BTEX ☐ THM

PHCs F1 - F4

ABNs

PAHs

PCBs: ☐ Total ☐ Aroclors

Organochlorine Pesticides

TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs

Sewer Use

Sample Identification	Heavy Metals	PHC	BTEX	PAH	VOC	Potentially Hazardous or High Concentration (Y/N)
BH 19-1 SA2	X	X	X	X	X	
BH 19-1 SA102	X	X	X	X		
BH 19-3 SA1	X	X	X	X		
BH 19-3 SA2	X	X	X	X	X	

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Nicole Soucy	Oct 16/19	1100	Jeff Jaus	16/Oct/19	1300
			Simon	19/10/17	9:57

Page 1 of 1

Nº: T 093945

Document ID: DW-78-1511-010

Pink Copy - Client | Yellow Copy - AGAT | White Copy- AGAT

Page 9 of 9

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

ATTENTION TO: Nicole Soucy

PROJECT: 64996.01

AGAT WORK ORDER: 19Z536525

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician

DATE REPORTED: Nov 04, 2019

PAGES (INCLUDING COVER): 13

VERSION*: 1

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

NOTES

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

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

CCME - PAHs (Water)

DATE RECEIVED: 2019-10-29

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		MW19-3
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2019-10-28
Parameter	**Unit**	**G / S**	**RDL**	**659636**
Naphthalene	µg/L		0.12	<0.12
Acenaphthylene	µg/L		0.11	<0.11
Acenaphthene	µg/L		0.10	<0.10
Fluorene	µg/L		0.09	<0.09
Phenanthrene	µg/L		0.10	<0.10
Anthracene	µg/L		0.012	<0.012
Fluoranthene	µg/L		0.04	<0.04
Pyrene	µg/L		0.02	<0.02
Benzo(a)anthracene	µg/L		0.018	<0.018
Chrysene	µg/L		0.05	<0.05
Benzo(b)fluoranthene	µg/L		0.05	<0.05
Benzo(k)fluoranthene	µg/L		0.05	<0.05
Benzo(a)pyrene	µg/L		0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L		0.06	<0.06
Dibenzo(a,h)anthracene	µg/L		0.09	<0.09
Benzo(g,h,i)perylene	µg/L		0.06	<0.06
2-and 1-methyl Napthalene	µg/L		0.20	<0.20
Surrogate	**Unit**	**Acceptable Limits**		
Chrysene-d12	%	60-130		69

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

659636 Note: The result for Benzo(b)Flouranthene is the total of the Benzo(b)&(j)Flouranthene isomers because the isomers co-elute on the GC column.
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: N Popnikolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-29

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		MW19-1
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2019-10-28
Parameter	Unit	G / S	RDL	659638
F1 (C6-C10)	µg/L		25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25

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

659638 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.
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: N Popowkolof

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-29

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		MW19-3
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2019-10-28
Parameter	**Unit**	**G / S**	**RDL**	**659636**
F1 (C6-C10)	µg/L		25	<25
F1 (C6 to C10) minus BTEX	µg/L		25	<25
F2 (C10 to C16)	µg/L		100	<100
F2 (C10 to C16) minus Naphthalene	µg/L		100	<100
F3 (C16 to C34)	µg/L		100	200
F3 (C16 to C34) minus PAHs	µg/L		100	200
F4 (C34 to C50)	µg/L		100	<100
Gravimetric Heavy Hydrocarbons	µg/L		500	NA
Surrogate	**Unit**	**Acceptable Limits**		
Terphenyl	%	60-140		115

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

659636 The C6-C10 fraction is calculated using toluene response factor.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX 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%.
The sample has some sediment on the bottom of the bottle.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopowich

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Certificate of Analysis

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-29

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		MW19-3	MW19-1
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2019-10-28	2019-10-28
Parameter	Unit	G / S	RDL	659636	659638
Dichlorodifluoromethane	µg/L		0.20	<0.20	<0.20
Vinyl Chloride	µg/L		0.17	<0.17	<0.17
Bromomethane	µg/L		0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L		0.40	<0.40	<0.40
Acetone	µg/L		1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L		0.30	<0.30	<0.30
Methylene Chloride	µg/L		0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L		0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L		0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L		0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L		1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L		0.20	<0.20	<0.20
Chloroform	µg/L		0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L		0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L		0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L		0.20	<0.20	<0.20
Benzene	µg/L		0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L		0.20	<0.20	<0.20
Trichloroethylene	µg/L		0.20	<0.20	<0.20
Bromodichloromethane	µg/L		0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L		1.0	<1.0	<1.0
1,1,2-Trichloroethane	µg/L		0.20	<0.20	<0.20
Toluene	µg/L		0.20	<0.20	<0.20
Dibromochloromethane	µg/L		0.10	<0.10	<0.10
Ethylene Dibromide	µg/L		0.10	<0.10	<0.10
Tetrachloroethylene	µg/L		0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L		0.10	<0.10	<0.10
Chlorobenzene	µg/L		0.10	<0.10	<0.10
Ethylbenzene	µg/L		0.10	<0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20	<0.20

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-29

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		MW19-3	MW19-1
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2019-10-28	2019-10-28
Parameter	**Unit**	**G / S**	**RDL**	**659636**	**659638**
Bromoform	µg/L		0.10	<0.10	<0.10
Styrene	µg/L		0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L		0.10	<0.10	<0.10
o-Xylene	µg/L		0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L		0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L		0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L		0.10	<0.10	<0.10
1,3-Dichloropropene	µg/L		0.30	<0.30	<0.30
Xylene Mixture	µg/L		0.20	<0.20	<0.20
n-Hexane	µg/L		0.20	<0.20	<0.20
Surrogate	**Unit**	**Acceptable Limits**			
Toluene-d8	% Recovery	50-140		105	98
4-Bromofluorobenzene	% Recovery	50-140		88	89

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

659636-659638 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.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: NPopowich

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AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2019-10-29

DATE REPORTED: 2019-11-04

		SAMPLE DESCRIPTION:		MW19-3
		SAMPLE TYPE:		Water
		DATE SAMPLED:		2019-10-28
Parameter	Unit	G / S	RDL	659636
Antimony	µg/L		1.0	<1.0
Arsenic	µg/L		1.0	1.5
Barium	µg/L		2.0	66.3
Beryllium	µg/L		0.5	<0.5
Boron	µg/L		10.0	240
Cadmium	µg/L		0.2	<0.2
Chromium	µg/L		2.0	<2.0
Cobalt	µg/L		0.5	0.7
Copper	µg/L		1.0	1.3
Lead	µg/L		0.5	<0.5
Molybdenum	µg/L		0.5	22.8
Nickel	µg/L		1.0	5.1
Selenium	µg/L		1.0	2.6
Silver	µg/L		0.2	<0.2
Thallium	µg/L		0.3	<0.3
Uranium	µg/L		0.5	0.9
Vanadium	µg/L		0.4	0.6
Zinc	µg/L		5.0	7.0

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

Analysis performed at AGAT Toronto (unless marked by *)

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Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - VOCs (Water)															
Dichlorodifluoromethane	670078		< 0.20	< 0.20	NA	< 0.20	104%	50%	140%	92%	50%	140%	104%	50%	140%
Vinyl Chloride	670078		< 0.17	< 0.17	NA	< 0.17	114%	50%	140%	106%	50%	140%	94%	50%	140%
Bromomethane	670078		< 0.20	< 0.20	NA	< 0.20	87%	50%	140%	90%	50%	140%	79%	50%	140%
Trichlorofluoromethane	670078		< 0.40	< 0.40	NA	< 0.40	94%	50%	140%	82%	50%	140%	87%	50%	140%
Acetone	670078		< 1.0	< 1.0	NA	< 1.0	108%	50%	140%	92%	50%	140%	94%	50%	140%
1,1-Dichloroethylene	670078		< 0.30	< 0.30	NA	< 0.30	108%	50%	140%	102%	60%	130%	91%	50%	140%
Methylene Chloride	670078		< 0.30	< 0.30	NA	< 0.30	79%	50%	140%	93%	60%	130%	97%	50%	140%
trans- 1,2-Dichloroethylene	670078		< 0.20	< 0.20	NA	< 0.20	93%	50%	140%	90%	60%	130%	90%	50%	140%
Methyl tert-butyl ether	670078		< 0.20	< 0.20	NA	< 0.20	115%	50%	140%	98%	60%	130%	96%	50%	140%
1,1-Dichloroethane	670078		< 0.30	< 0.30	NA	< 0.30	102%	50%	140%	94%	60%	130%	114%	50%	140%
Methyl Ethyl Ketone	670078		< 1.0	< 1.0	NA	< 1.0	71%	50%	140%	92%	50%	140%	83%	50%	140%
cis- 1,2-Dichloroethylene	670078		< 0.20	< 0.20	NA	< 0.20	92%	50%	140%	114%	60%	130%	96%	50%	140%
Chloroform	670078		< 0.20	< 0.20	NA	< 0.20	95%	50%	140%	94%	60%	130%	70%	50%	140%
1,2-Dichloroethane	670078		< 0.20	< 0.20	NA	< 0.20	89%	50%	140%	99%	60%	130%	107%	50%	140%
1,1,1-Trichloroethane	670078		< 0.30	< 0.30	NA	< 0.30	82%	50%	140%	102%	60%	130%	94%	50%	140%
Carbon Tetrachloride	670078		< 0.20	< 0.20	NA	< 0.20	98%	50%	140%	99%	60%	130%	98%	50%	140%
Benzene	670078		< 0.20	< 0.20	NA	< 0.20	77%	50%	140%	97%	60%	130%	79%	50%	140%
1,2-Dichloropropane	670078		< 0.20	< 0.20	NA	< 0.20	92%	50%	140%	93%	60%	130%	86%	50%	140%
Trichloroethylene	670078		< 0.20	< 0.20	NA	< 0.20	71%	50%	140%	98%	60%	130%	91%	50%	140%
Bromodichloromethane	670078		< 0.20	< 0.20	NA	< 0.20	96%	50%	140%	92%	60%	130%	89%	50%	140%
Methyl Isobutyl Ketone	670078		< 1.0	< 1.0	NA	< 1.0	97%	50%	140%	104%	50%	140%	111%	50%	140%
1,1,2-Trichloroethane	670078		< 0.20	< 0.20	NA	< 0.20	109%	50%	140%	108%	60%	130%	116%	50%	140%
Toluene	670078		< 0.20	< 0.20	NA	< 0.20	82%	50%	140%	109%	60%	130%	86%	50%	140%
Dibromochloromethane	670078		< 0.10	< 0.10	NA	< 0.10	96%	50%	140%	103%	60%	130%	91%	50%	140%
Ethylene Dibromide	670078		< 0.10	< 0.10	NA	< 0.10	120%	50%	140%	117%	60%	130%	117%	50%	140%
Tetrachloroethylene	670078		< 0.20	< 0.20	NA	< 0.20	82%	50%	140%	114%	60%	130%	81%	50%	140%
1,1,1,2-Tetrachloroethane	670078		< 0.10	< 0.10	NA	< 0.10	90%	50%	140%	107%	60%	130%	88%	50%	140%
Chlorobenzene	670078		< 0.10	< 0.10	NA	< 0.10	92%	50%	140%	115%	60%	130%	95%	50%	140%
Ethylbenzene	670078		< 0.10	< 0.10	NA	< 0.10	73%	50%	140%	101%	60%	130%	74%	50%	140%
m & p-Xylene	670078		< 0.20	< 0.20	NA	< 0.20	79%	50%	140%	105%	60%	130%	80%	50%	140%
Bromoform	670078		< 0.10	< 0.10	NA	< 0.10	105%	50%	140%	108%	60%	130%	97%	50%	140%
Styrene	670078		< 0.10	< 0.10	NA	< 0.10	85%	50%	140%	102%	60%	130%	82%	50%	140%
1,1,2,2-Tetrachloroethane	670078		< 0.10	< 0.10	NA	< 0.10	114%	50%	140%	115%	60%	130%	114%	50%	140%
o-Xylene	670078		< 0.10	< 0.10	NA	< 0.10	87%	50%	140%	109%	60%	130%	89%	50%	140%
1,3-Dichlorobenzene	670078		< 0.10	< 0.10	NA	< 0.10	116%	50%	140%	114%	60%	130%	109%	50%	140%
1,4-Dichlorobenzene	670078		< 0.10	< 0.10	NA	< 0.10	112%	50%	140%	108%	60%	130%	110%	50%	140%
1,2-Dichlorobenzene	670078		< 0.10	< 0.10	NA	< 0.10	116%	50%	140%	115%	60%	130%	112%	50%	140%
1,3-Dichloropropene	670078		< 0.30	< 0.30	NA	< 0.30	89%	50%	140%	107%	60%	130%	93%	50%	140%
n-Hexane	670078		< 0.20	< 0.20	NA	< 0.20	99%	50%	140%	108%	60%	130%	96%	50%	140%

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Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
CCME - PAHs (Water)															
Naphthalene		TW	< 0.12	< 0.12	NA	< 0.12	107%	50%	140%	72%	50%	140%	72%	50%	140%
Acenaphthylene		TW	< 0.11	< 0.11	NA	< 0.11	113%	50%	140%	76%	50%	140%	74%	50%	140%
Acenaphthene		TW	< 0.10	< 0.10	NA	< 0.10	110%	50%	140%	72%	50%	140%	71%	50%	140%
Fluorene		TW	< 0.09	< 0.09	NA	< 0.09	105%	50%	140%	76%	50%	140%	78%	50%	140%
Phenanthrene		TW	< 0.10	< 0.10	NA	< 0.10	92%	50%	140%	70%	50%	140%	74%	50%	140%
Anthracene		TW	< 0.012	< 0.012	NA	< 0.012	119%	50%	140%	88%	50%	140%	86%	50%	140%
Fluoranthene		TW	< 0.04	< 0.04	NA	< 0.04	103%	50%	140%	72%	50%	140%	75%	50%	140%
Pyrene		TW	< 0.02	< 0.02	NA	< 0.02	107%	50%	140%	70%	50%	140%	73%	50%	140%
Benzo(a)anthracene		TW	< 0.018	< 0.018	NA	< 0.018	96%	50%	140%	76%	50%	140%	83%	50%	140%
Chrysene		TW	< 0.05	< 0.05	NA	< 0.05	114%	50%	140%	71%	50%	140%	95%	50%	140%
Benzo(b)fluoranthene		TW	< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	76%	50%	140%	92%	50%	140%
Benzo(k)fluoranthene		TW	< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	78%	50%	140%	91%	50%	140%
Benzo(a)pyrene		TW	< 0.01	< 0.01	NA	< 0.01	115%	50%	140%	86%	50%	140%	88%	50%	140%
Indeno(1,2,3-cd)pyrene		TW	< 0.06	< 0.06	NA	< 0.06	102%	50%	140%	70%	50%	140%	75%	50%	140%
Dibenzo(a,h)anthracene		TW	< 0.09	< 0.09	NA	< 0.09	97%	50%	140%	98%	50%	140%	98%	50%	140%
Benzo(g,h,i)perylene		TW	< 0.06	< 0.06	NA	< 0.06	98%	50%	140%	102%	50%	140%	91%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Water)															
F1 (C6-C10)	659466		< 25	< 25	NA	< 25	92%	60%	140%	109%	60%	140%	110%	60%	140%
F2 (C10 to C16)		TW	< 100	< 100	NA	< 100	111%	60%	140%	106%	60%	140%	99%	60%	140%
F3 (C16 to C34)		TW	< 100	< 100	NA	< 100	101%	60%	140%	81%	60%	140%	73%	60%	140%
F4 (C34 to C50)		TW	< 100	< 100	NA	< 100	88%	60%	140%	96%	60%	140%	110%	60%	140%

Comments: Tap water analysis has been performed as QC sample testing for duplicate and matrix spike due to insufficient sample volume.
When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popowkolof

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Quality Assurance

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date: Nov 04, 2019			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Including Hydrides) (Water)															
Antimony	668140		<1.0	<1.0	NA	< 1.0	107%	70%	130%	102%	80%	120%	101%	70%	130%
Arsenic	668140		<1.0	<1.0	NA	< 1.0	101%	70%	130%	101%	80%	120%	98%	70%	130%
Barium	668140		51.1	48.9	4.4%	< 2.0	98%	70%	130%	103%	80%	120%	104%	70%	130%
Beryllium	668140		<0.5	<0.5	NA	< 0.5	102%	70%	130%	105%	80%	120%	105%	70%	130%
Boron	668140		17.2	17.8	NA	< 10.0	99%	70%	130%	99%	80%	120%	84%	70%	130%
Cadmium	668140		<0.2	<0.2	NA	< 0.2	97%	70%	130%	104%	80%	120%	103%	70%	130%
Chromium	668140		<2.0	<2.0	NA	< 2.0	99%	70%	130%	100%	80%	120%	97%	70%	130%
Cobalt	668140		<0.5	<0.5	NA	< 0.5	102%	70%	130%	106%	80%	120%	101%	70%	130%
Copper	668140		1.1	<1.0	NA	< 1.0	103%	70%	130%	108%	80%	120%	104%	70%	130%
Lead	668140		<0.5	<0.5	NA	< 0.5	103%	70%	130%	110%	80%	120%	113%	70%	130%
Molybdenum	668140		<0.5	<0.5	NA	< 0.5	100%	70%	130%	104%	80%	120%	109%	70%	130%
Nickel	668140		<1.0	<1.0	NA	< 1.0	103%	70%	130%	105%	80%	120%	102%	70%	130%
Selenium	668140		<1.0	<1.0	NA	< 1.0	103%	70%	130%	98%	80%	120%	96%	70%	130%
Silver	668140		<0.2	<0.2	NA	< 0.2	96%	70%	130%	106%	80%	120%	105%	70%	130%
Thallium	668140		<0.3	<0.3	NA	< 0.3	102%	70%	130%	108%	80%	120%	108%	70%	130%
Uranium	668140		0.5	0.5	NA	< 0.5	91%	70%	130%	97%	80%	120%	101%	70%	130%
Vanadium	668140		<0.4	<0.4	NA	< 0.4	92%	70%	130%	95%	80%	120%	94%	70%	130%
Zinc	668140		<5.0	<5.0	NA	< 5.0	102%	70%	130%	108%	80%	120%	104%	70%	130%

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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http://www.agatlabs.com

Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Dibenzo(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
2-and 1-methyl Napthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
F1 (C6-C10)	VOL-91- 5010	MOE E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC-E3421	P&T GC/FID
F1 (C6-C10)	VOL-91- 5010	MOE PHC-E3421	P&T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	P&T GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Acetone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: GEMTEC CONSULTING ENGINEERS AND SCIENTISTS

AGAT WORK ORDER: 19Z536525

PROJECT: 64996.01

ATTENTION TO: Nicole Soucy

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030C & 8260D	(P&T)GC/MS
Water Analysis			
Antimony	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Selenium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS

AGAT Laboratories

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Mississauga, Ontario L4Z 1Y2
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Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 19Z536525

Cooler Quantity: one - ice packs

Arrival Temperatures: 4.1 | 4.4 | 4.3
LT-3.6 | 4.0 | 3.9

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: (on ice)

Report Information:

Company: GEMTEC
Contact: NS
Address: 32 Steacie
Phone: 613-836-1422 Fax:
Reports to be sent to:
1. Email: nicole.soucy@gemtec.ca
2. Email:

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table ____ Indicate One
☐ Ind/Com
☐ Res/Park
☐ Agriculture
Soil Texture (Check One)
☐ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region ____ Indicate One
☐ MISA

☐ Regulation 558
☒ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
____ Indicate One

Is this submission for a Record of Site Condition? ☐ Yes ☒ No

Report Guideline on Certificate of Analysis ☐ Yes ☒ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply): Nov 4 2019

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 61730.61
Site Location:
Sampled By:
AGAT Quote #: PO:

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

Sample Matrix Legend

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

Invoice Information:

Bill To Same: Yes ☐ No ☐

Company:
Contact:
Address:
Email:

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	Metals and Inorganics	O. Reg 153: ☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☒ 153 Metals (Incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr^{6+} ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☒ VOC ☒ BTEX ☐ THM	PHCs F1 - F4 /BTEX	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use						Potentially Hazardous or High Concentration (Y/N)
MW 19-3	Oct 28/19							X					X	X		X										
MW19-1	"												X	X												

Samples Relinquished By (Print Name and Sign): Nicole Soucy N/S [signature]	Date: Oct 28/19	Time:	Samples Received By (Print Name and Sign): Berthelet [signature]	Date: 2019-10-29	Time: 9h00
Samples Relinquished By (Print Name and Sign): LBHD to Fed Ex	Date: 19-10-29	Time: 16h00	Samples Received By (Print Name and Sign):	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign): Sharmin [signature]	Date: Oct 30/19	Time: 9:55am

Page 1 of 1

Nº: T 093946

Document ID: DIV-78-1511.016

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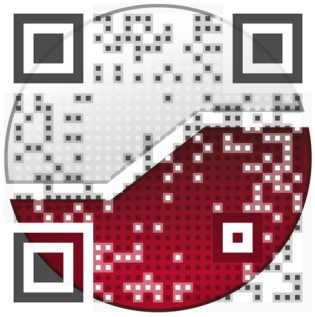
Date Issued: March 22, 2019

experience • knowledge • integrity



civil	civil
geotechnical	géotechnique
environmental	environnementale
field services	surveillance de chantier
materials testing	service de laboratoire des matériaux

expérience • connaissance • intégrité