



B.I.G.
CONSULTING
INC.

PHASE II
ENVIRONMENTAL SITE
ASSESSMENT

581-587 Argus Road, Oakville, Ontario

Client

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Project Number

BIGC-ENV-490E

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Executive Summary

B.I.G. Consulting Inc. (BIG) was retained by Ms. Sasha Lauzon on behalf of Oakville Argus Cross LP (Client), to complete a Phase II Environmental Site Assessment (ESA) at the property located at 581-587 Argus Road, Oakville, Ontario (Site). It is BIG's understanding that the Phase II ESA is required for due diligence purposes and that a Record of Site Condition (RSC) is not required at this time.

This Phase II ESA was conducted in accordance with CSA Standard Z769-00 (R2018) and with generally accepted professional practices. The objective of the Phase II ESA was to obtain soil and groundwater data to characterize the Site.

The results and findings of the Phase II ESA conducted at the Site are summarized as follows:

1. The general stratigraphy at the Site, as observed in the boreholes, consisted of asphalt at the ground surface followed by fill material, underlain by clayey silt till/silty clay till and then by shale bedrock.
2. Based on the textural descriptions of these materials as inferred from borehole observations, the applicable SCS selected to evaluate analytical data was determined to be medium/fine textured.
3. The depth to groundwater across the site ranged between 4.24 m bgs to 19.04 m bgs on October 18, 2021.
4. The soil analytical results from the samples collected and submitted for analysis of PAHs and metals indicated that all parameters were detected at concentrations below the applicable Ontario Ministry of Environment, Conservation and Parks (MECP) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Property Use and medium/fine textured soil (Table 2 SCS), with the exception of:

Soil Sample ID	Identified Impact	MECP Table 3 Standard (µg/g)	Maximum Impact Concentration (µg/g)	Impact Depth (m bgs)
BH4-SS1	Fluoranthene	0.69	0.93	0.0 – 0.61

5. The groundwater analytical results from the sample collected and submitted for PAHs indicated that all parameters were detected at concentrations below the applicable MECP Table 2 SCS.

Conclusions and Recommendations

As a result of this Phase II ESA, further delineation of the PAH impact identified in soil is required. The PAH soil impact identified on-Site is present within the surficial soil at the Site and is likely localized. The impacted soil will be excavated and disposed of off-Site at a registered landfill facility. As the Site is intended for residential development, an RSC will be required in the future.

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1 Introduction

B.I.G. Consulting Inc. (BIG) was retained by Ms. Sasha Lauzon on behalf of Oakville Argus Cross LP (Client), to complete a Phase II Environmental Site Assessment (ESA) at the property located at 581-587 Argus Road, Oakville, Ontario (Site). It is BIG's understanding that the Phase II ESA is required for due diligence purposes and that a Record of Site Condition (RSC) is not required at this time.

This Phase II ESA was conducted in general accordance with CSA Standard Z769-00 (R2018) and in accordance with generally accepted professional practices. Subject to this standard of care, BIG makes no express or implied warranties regarding its services, and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 7.

The objective of the Phase II ESA was to obtain soil and groundwater data to characterize the Site.

1.1 Site Description

The Site is located north of Cross Avenue and east of Argus Road in Oakville, Ontario. The Site location plan is provided as Figure 1. The Site measures approximately 3,800 m² and is currently occupied by two (2) commercial buildings (Site buildings). The Site buildings have a combined footprint of approximately 1,000 m², occupying approximately 26 % of the Site. The areas surrounding the Site buildings are covered with asphalt and landscaped areas. It is BIG's understanding that the Site is to be redeveloped with a high-rise residential condominium building with six (6) levels of underground parking.

The Site is bound to the north by Argus Road followed by commercial land use, to the east by commercial properties, to the south by vacant land followed by commercial land use, and to the west by Argus Road followed by commercial properties. A Site Plan is provided as Figure 2.

1.2 Current and Proposed Future Uses

At the time of the Phase II ESA investigation the Site was occupied by two (2) commercial buildings. The future proposed use is to develop the Site with a high-rise residential condominium building with six (6) levels of underground parking.

1.3 Applicable Site Condition Standards

Analytical results obtained for soil and groundwater samples were assessed against Site Condition Standards (SCS) as established under subsection 169.4(1) of the Environmental Protection Act and presented in the Ontario Ministry of the Environment, Conservation and Parks (MECP) document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*", (SGWS Standards). Tabulated background SCS applicable to environmentally sensitive sites and effects based generic SCS applicable to non-environmentally sensitive sites are provided in the SCS. The effects based SCS are protective of human health and the environment for different groundwater conditions (potable and non-potable), land use scenarios (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil texture (coarse or medium/fine) and restoration depth (full or stratified).

Application of the generic or background SCS to a specific site is based on consideration of site conditions related to soil pH, thickness and extent of overburden material and proximity to an area of environmental sensitivity or of natural significance for some chemical constituents, consideration is also given to soil textural classification with SCS having been derived for both coarse and medium-fine textured soil conditions.

For assessment purposes, BIG selected the MECP Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Property Use and medium/fine textured soil (Table 2 SCS). The selection of this category was based on the following factors:

- a) More than two-thirds of the Site has an overburden thickness greater than 2 m.
- b) The Site is not located within 30 metres (m) of a surface water body or an area of natural significance.
- c) The soil at the Site has pH value between 5 and 9 for surficial soils; and, between 5 and 11 for subsurface soils.
- d) The property is not within an area of natural significance; does not include, nor is it adjacent to an area of natural significance, nor is it part of such an area; and, it does not include land that is within 30 m of an area of natural significance, nor is it part of such an area.
- e) The Site is supplied by the municipal drinking water system; however, the Site is considered potable.
- f) The intended future use of the Site is residential.
- g) Based on review of the borehole logs, medium/fine textured standards were applied as part of this Phase II ESA.
- h) There was no intention to carry out a stratified restoration at the Site.

2 Background Information

2.1 Physical Setting

The following physiographic, geological and soil maps were reviewed as part of this Phase II ESA:

- a) Atlas of Canada – Toporama Topographic Map (Toporama)
- b) Ontario Base Map (OBM)
- c) Ontario Ministry of Energy, Northern Development and Mines website, Bedrock Geology of Ontario, 2011 – MRD 126; and Paleozoic Geology of Southern Ontario, 2007 – MRD 219 (KML format)
- d) Ontario Ministry of Energy, Northern Development and Mines website, Surficial Geology of Southern Ontario, 2010. (KML format)
- e) Ontario Ministry of Energy, Northern Development and Mines website, Physiography of Southern Ontario 2007 (KML format)

Based on the review of the above maps, the following information was obtained:

- a) The Site is at an elevation of approximately 105 m above sea level (asl), generally at the same elevation as the surrounding properties to the east and west of the Site. The surrounding properties located to the north are generally at higher elevations than the Site, and the surrounding properties to the south are generally at lower elevations than the Site.
- b) No water bodies are located on the Site. The nearest water body is Sixteen Mile Creek located approximately 510 m southwest of the Site and Lake Ontario is located approximately 2.2 km southeast of the Site.
- c) The bedrock in the general area of the Site consists of shale, limestone, dolostone and siltstone and is part of the Georgian Bay Formation, Blue Mountain Formation, Billings Formation, Collingwood Member and Eastview Member.
- d) The surficial geology of the Site is described as Paleozoic bedrock.
- e) The physiography of the Site is within the Iroquois Plains characterized as shale plains.

2.2 Past Environmental Investigations

The following reports were available for the Site at the time of this Phase II ESA for BIG review:

- a) Fisher (2021a) Phase I Environmental Site Assessment, 581 Argus Road, Oakville, Ontario. Fisher Environmental Ltd. June 1, 2021.
- b) Fisher (2021b) Phase I Environmental Site Assessment, 587 to 595 Argus Road, Oakville, Ontario. Fisher Environmental Ltd. June 1, 2021.
- c) BIG (2021a) Memo – Findings of Preliminary Geotechnical Investigation, 581 - 587 Argus Road, Oakville, Ontario. B.I.G. Consulting Inc. October 26, 2021.
- d) BIG (2021b) Memo –Preliminary Findings of Hydrogeological Investigation, 581 - 587 Argus Road, Oakville, Ontario. B.I.G. Consulting Inc. October 29, 2021.

Fisher (2021a) Phase I Environmental Site Assessment	
Objective	Identify existing or former potential sources of environmental concern.
Potential environmental impacts identified	No evidence of actual surface or sub-surface contamination associated with the Site and other properties within the Phase I Study Area.

Fisher (2021b) Phase I Environmental Site Assessment	
Objective	Identify existing or former potential sources of environmental concern.
Potential environmental impacts identified	No evidence of actual surface or sub-surface contamination associated with the Site and other properties within the Phase I Study Area.

BIG (2021a) Memo – Findings of Preliminary Geotechnical Investigation	
Objective	Establish geological setting at the Site
Program	<ul style="list-style-type: none"> Advance five (5) boreholes (BH1 to BH5) to depths ranging from 4.9 m to 27.6 m below existing grade (m bgs) and install with monitoring wells.
Soil	<ul style="list-style-type: none"> The soil profile generally consisted of asphalt pavement overlying existing fill material, which in turn was underlain by native clayey silt till and shale bedrock, respectively.

BIG (2021b) Memo – Preliminary Findings of Hydrogeological Investigation	
Objective	Establish local hydrogeological settings.
Program	<ul style="list-style-type: none"> Advance five (5) boreholes (BH1 to BH5) to depths ranging from 4.9 m to 27.6 m below existing grade (m bgs) and install with monitoring wells. Collect a round of water levels Conduct single well response tests at selected monitoring wells
Groundwater	<ul style="list-style-type: none"> Water levels at the Site ranged from 4.24 m to 19.04 m below existing grade on October 18, 2021. The estimate hydraulic conductivity ranges from 1.23×10^{-5} m/s to 6.12×10^{-9} m/s.

3 Scope of the Investigation

3.1 Overview of Site Investigation

The objective of the Phase II ESA was to obtain soil and groundwater data to characterize the Site.

3.1.1 Scope of Work

The scope of work for the Phase II ESA was as follows:

- a) Request public and private utility locating companies (e.g., cable, telephone, gas, hydro, water, sewer and storm water) to mark any underground utilities present at the Site;
- b) Advance a total of five (5) boreholes (BH1 to BH5) up to a maximum depth of 27.6 m below ground surface (bgs);
- c) Instrument five (5) of boreholes as a monitoring wells (BH/MW1 to BH/MW5);
- d) Collect representative soil samples for laboratory analysis of polycyclic aromatic hydrocarbons (PAHs) and metals.
- e) Develop the newly installed groundwater monitoring wells;
- f) Collect groundwater levels from the newly installed monitoring wells;
- g) Collect a groundwater sample from a newly installed monitoring wells for laboratory analysis of PAHs; and,
- h) Analyze the data and prepare a report of the findings.

3.2 Media Investigated

The focus of the Phase II ESA was on the environmental conditions of the overburden material and groundwater beneath the Site. As there was no surface water body on the Site, no sediment sampling was required.

A copy of the Site Sampling and Analysis Plan (SSAP) prepared for the Site is provided in Appendix A.

3.3 Impediments

The entire portion of the Site was accessible at the time of the investigation, and no physical impediments were encountered during the field investigation.

4 Investigation Method

4.1 General

The Site investigative activities consisted of the drilling of five (5) boreholes to facilitate the collection of soil samples for geologic characterization and laboratory analysis and, the installation of five (5) monitoring wells for the collection of groundwater samples for laboratory analysis.

Boreholes were advanced in the surficial fill and overburden soils by a licensed drilling company under the full-time supervision of BIG staff. The drilling equipment used to advance the boreholes is described below. No petroleum-based greases or solvents were used during drilling activities. Monitoring wells were installed in the boreholes by a MECP licensed well contractor in accordance with Ontario Regulation 903/90, as amended (O.Reg.903) using manufactured well components (i.e., riser pipes and screens) and materials (i.e., sand pack and grout) from documented sources.

4.2 Borehole Drilling

Prior to the commencement of drilling activities, the locations of underground utilities including fibre optic cable, telephone, natural gas, electrical lines, as well as water, sewer, storm water and sanitary lateral conduits were marked out by public locating companies and a private utility locator.

The fieldwork for the soil investigative portion of the Phase II ESA was carried out on October 6 to 8, 2021.

Boreholes were advanced by Davis Drilling Ltd. under full-time supervision of BIG staff. A truck-mounted drill rig was used for the boreholes advanced at the Site. The boreholes were advanced to maximum depth of 27.6 m bgs at various on-Site locations to sufficiently assess and characterize the Site. The approximate locations of the boreholes and monitoring wells are shown on Figure 2.

BIG continuously monitored the drilling activities to record the physical characteristics of the soil, depth of soil sample collection and total depth of boreholes. Field observations are summarized on the borehole logs provided in Appendix B. Representative soil samples were recovered at regular intervals using a stainless-steel split spoon sampler in all boreholes.

4.3 Deviations from Sampling and Analysis Plan

The field investigative and sampling program was carried out following the requirements of the SSAP.

4.4 Soil Sampling

Soil samples for geologic characterization and laboratory analysis were collected on a discrete basis in the overburden materials using 5-centimetre (cm) diameter, 60 cm long, split spoon samples advanced in to the subsurface using a truck mounted drill rig. The soil cores were extruded from the samplers upon retrieval by drilling personnel. Geologic details of the recovered cores were logged by BIG field staff and samples were collected from selected cores for chemical analysis. Field observations are summarized on the borehole logs prepared from the field logs and provided in Appendix B.

Measures were taken in the field and during transport to preserve sample integrity prior to laboratory analysis. Recommended volumes of soil samples selected for laboratory analysis were collected from the recovered cores into pre-cleaned, laboratory-supplied glass sample bottles identified for the specified analytical test group. All soil samples were placed in clean coolers containing ice prior to and during transportation to the subcontracted laboratory, AGAT Laboratories (AGAT Labs) of Mississauga, Ontario. The samples were transported/submitted within acceptable holding times to AGAT Labs following Chain of Custody protocols for laboratory analysis.

Decontamination and other protocols were followed during sample collection and handling to minimize

the potential for sample cross-contamination. New disposable nitrile gloves were used for the handling and sampling of each retrieved soil core. Five (5) of the boreholes advanced were completed as monitoring wells (BH/MW1 to BH/MW5).

Soil samples submitted for specific laboratory analysis were selected on the basis of visual inspection of the recovered cores, sample location and depth interval.

Geologic details of the soil cores recovered from the boreholes advanced at the Site are provided in the borehole logs presented in Appendix B.

4.5 Groundwater: Monitoring Well Installation

Five (5) of the boreholes advanced at the Site were instrumented as groundwater monitoring wells (BH/MW1 to BH/MW5). The monitoring wells were installed in general accordance with the Ontario Water Resources Act - R.R.O. 1990, Regulation 903/90 - amended to O. Reg. 128/03, and was installed by a licensed well contractor.

The monitoring wells consisted of a 3 m length, 50-millimetre (mm) diameter polyvinyl chloride (PVC) screen and an appropriate length of PVC riser pipe. All pipe connections were factory machined threaded flush couplings. The annular space around the well was backfilled with sand to an average height of 0.6 m above the top of the screen. A bentonite seal was added from the top of the sand pack to approximately 0.3 m bgs.

When the monitoring wells are no longer required, they must be decommissioned in accordance with the procedure outlined in the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - amended to O. Reg. 128/03.

Measures taken to minimize the potential for cross contamination or the introduction of contaminants during well construction included:

- a) The use of well pipe components (e.g. riser pipe and well screens) with factory machine threaded flush coupling joints;
- b) Construction of wells without the use of glues or adhesives;
- c) Removing the protective plastic wraps from well components at the time of borehole insertion to prevent contact with the ground and other surfaces; and,
- d) Cleaning of augers between sampling locations.

4.6 Monitoring Well Development

Upon completion of monitoring well installation, the new monitoring wells were developed to remove any fine sediment materials introduced during the drilling processes from within and around the sand pack to enhance hydraulic communication from the surrounding formation waters. The monitoring wells were developed on October 29 and November 1, 2021 by using a groundwater pump and bailers to disturb the water column and recover groundwater containing dislodged sediment particles.

4.7 Groundwater Monitoring

Groundwater monitoring activities, which consisted of measuring the depths to groundwater in each newly installed monitoring well, were conducted on the monitoring well network, so that groundwater flow and direction below the Site could be assessed and groundwater samples can be collected. These groundwater monitoring activities were conducted on October 18, 2021 and March 10, 2022. Water levels were measured with respect to the top of casing by means of an electronic water level meter and recorded on water level log sheets or in a bound field notebook.

4.8 Monitoring Well Purging

Monitoring wells were purged prior to groundwater sample collection. Approximately three (3) well volumes of water were purged from each well to remove standing water and draw in fresh formation water. Water levels and wetted well volumes were determined by means of an electronic water level meter.

Equipment used during groundwater monitoring were thoroughly cleaned and decontaminated between wells. Well purging details were documented on a log sheet or in a bound hard cover notebook.

4.9 Groundwater Sampling

Upon completion of purging, the monitoring well BH/MW4 was sampled on March 10, 2022 using dedicated polyethylene bailers. Recommended groundwater sample volumes were collected into laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. The samples were placed in an insulated cooler pre-chilled with ice immediately upon collection. The groundwater samples were transported to AGAT Labs under Chain of Custody protocols within 24 hours of sample collection or approved holding times.

A groundwater sample was collected from one (1) monitoring well (BH/MW4) installed by BIG.

4.10 Analytical Testing

All analytical testing was performed by AGAT Labs, an accredited laboratory under the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories (Accredited Laboratory No. A3200) in accordance with ISO/IEC 17025:2017 - "General Requirements for the Competence of Testing and Calibration Laboratories".

4.10.1 Soil Sampling

Representative soil samples from each borehole were selected for laboratory analysis based on field screening results, sample location and depth interval. The requested laboratory analysis was based on the identified contaminants of concern. The representative soil samples selected for laboratory analysis and the requested analyses are summarized below.

Table 1: Summary of Soil Samples Submitted for Laboratory Analyses

Soil Sample ID	Requested Analyses	Date Sampled	Consultant
BH1-SS2	PAHs, Metals and Inorganics	October 8, 2021	BIG
BH2-SS1	PAHs, Metals and Inorganics	October 7, 2021	BIG
BH3-SS1	PAHs, Metals and Inorganics	October 8, 2021	BIG
BH4-SS1	PAHs, Metals and Inorganics	October 8, 2021	BIG
BH5-SS1	PAHs, Metals and Inorganics	October 6, 2021	BIG

4.10.2 Groundwater Sampling

Representative groundwater samples were submitted for specific chemical analysis based on the identified contaminants of concern. The representative groundwater samples selected for lab analysis, the rationale for each sample, and the required analyses are summarized below.

Table 2: Summary of Groundwater Samples Submitted for Laboratory Analyses

Monitoring Well ID	Requested Analyses	Well Screen Depth (m bgs)	Date Sampled	Consultant
BH/MW4	PAHs	4.30 – 7.30	March 10, 2022	BIG

4.11 Groundwater Levels

A summary of groundwater levels is provided below.

Table 3: Summary of Groundwater Levels and Elevations

Well ID	Ground Elevation (m asl)	Well Depth (m bgs)	October 13, 2021		October 18, 2021	
			Water Level (m bgs)	Elevation (m asl)	Water Level (m bgs)	Elevation (m asl)
BH/MW1	104.53	7.00	4.39	100.14	4.38	100.15
BH/MW2	104.24	15.20	1.49	102.75	9.05	95.19
BH/MW3	104.37	4.70	4.21	100.16	4.24	100.13
BH/MW4	103.61	7.30	4.76	98.85	4.71	98.90
BH/MW5	103.75	22.90	15.23	88.52	19.04	84.71

4.12 Quality Assurance and Quality Control Measures

Quality Assurance/Quality Control (QA/QC) measures, as set out in the SSAP, were implemented during sample collection, storage and transport to provide accurate data representative of conditions in the surficial fill and upper overburden soils and the water table aquifer. The QA/QC measures included decontamination procedures to minimize the potential for sample cross contamination, the execution of standard operating procedures to collect representative and unbiased samples, the collection of quality control samples to evaluate sample precision and accuracy, and the implementation of measures to preserve sample integrity.

Decontamination protocols were followed during sample collection and handling to minimize the potential for cross-contamination. During the collection of soil samples, split-spoon samplers were scraped and decontaminated between sampling intervals by washing with a potable water/phosphate-free detergent solution followed by a rinse with potable water. New disposable nitrile gloves were used for the handling and collection of samples from each soil core and for sample collection from each borehole.

Soil samples selected for laboratory analyses were collected from the retrieved soil cores and placed into pre-cleaned, laboratory-supplied bottles. Sample volumes were consistent with analytical test group requirements as specified by the receiving laboratory.

Groundwater samples were collected into pre-cleaned laboratory-supplied bottles provided with analytical test group specific preservatives, as required. Recommended analytical test group specific sample volumes were collected as specified by the contractual laboratory. Sample vials for analysis of VOCs were inspected for the presence of gas bubbles and the presence of head space, where volatiles may partition into.

Measures were followed to preserve sample integrity between collection and receipt by the laboratory. All samples, immediately upon collection were placed in insulated coolers pre-chilled with ice for storage and transport to the laboratory. Samples were received by the laboratory within specific analytical test group holding time requirements.

Documentation procedures were followed to confirm sample identification and tracked sample movement. Each sample was assigned a unique identification ID number, which was recorded along with the date, time of sampling and requested analyses on labels affixed to the sampling containers, and in a bound field notebook. Chain of Custody protocols were followed to track sample handling and movement until receipt by the laboratory.

For deviations from the SSAP, please see section 4.3.

5 Review and Evaluation

5.1 Geology

The soil investigation conducted at the Site consisted of the advancement of five (5) boreholes into the surficial material and the underlying native materials to a maximum depth of 27.6 m bgs. Borehole logs describing geologic details of the soil cores recovered during the Site drilling activities are presented in Appendix B. Boundaries of soil indicated on the log sheets are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change.

The general stratigraphy at the Site, as observed in the boreholes, consisted of asphalt at the ground surface followed by fill material, underlain by clayey silt till/silty clay till and then by shale bedrock. A brief description of the soil stratigraphy at the Site, in order of depth, is summarized in the following sections.

5.1.1 Surficial Material

Asphalt was present at the ground surface of all five (5) boreholes advanced at the Site. The asphalt layer was approximately 50 – 70 mm over 100 – 200 mm thick granular base.

5.1.2 Fill

Beneath the ground surface covers at all borehole locations, existing fills consisting of silty clay/clayey silt was encountered. The fill material extended to depths generally varying from 0.90 m to 1.50 m bgs.

5.1.3 Native

Clayey Silt Till/ Silty Clay Till

Clayey silt till/silty clay till was observed in all boreholes advanced at the Site beneath the fill material and extended to depths ranging from 2.30 m to 2.60 m bgs.

5.1.4 Bedrock

Bedrock was observed below the till material at all boreholes advanced at the Site. Highly weathered shale was observed from approximately 2.30 m to 2.60 m bgs with competent shale bedrock observed at 7.32 m bgs in BH2 and BH5.

5.2 Soil Texture

The native materials encountered are comprised of clayey silt till/silty clay till. Based on the textural descriptions of these materials as inferred from borehole observations, the applicable SCS selected to evaluate analytical data was determined to be for medium/fine textured soil classification.

5.3 Soil Quality

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes. The selection of representative “worst case” soil samples was based on field screening, visual and/or olfactory evidence of impacts, and the presence of potential water bearing zones. Analytical results summary tables are provided in Appendix C and copies of the laboratory Certificates of Analysis for the analyzed soil samples are provided in Appendix D.

5.3.1 PAHs

The soil samples submitted for PAHs analysis indicated that all parameters were detected at concentrations below the applicable MECP Table 2 SCS and all laboratory RDLs were below the applicable SCS, with the exception of:

Soil Sample ID	Identified Impact	MECP Table 3 Standard (µg/g)	Impact Concentration (µg/g)	Impact Depth
BH4-SS1	Fluoranthene	0.69	0.93	0.0 – 0.61

5.3.2 Metals and Inorganics

The soil samples submitted for metals and inorganics analysis indicated that all parameters were either non-detect or were detected at concentrations below the applicable MECP Table 2 SCS and all laboratory RDLs were below the applicable SCS.

5.3.3 Evidence of Non-Aqueous Phase Liquid

Inspection of the soil cores retrieved from the boreholes did not indicate the presence of non-aqueous phase liquid (NAPL), staining or sheen.

5.4 Groundwater Quality

Representative groundwater samples were collected from the existing and newly installed monitoring wells to assess groundwater quality at the Site. Evidence of free product (i.e., visible film or sheen), and odour was not observed during well purging.

Analytical results summary tables are provided in Appendix C and copies of the laboratory Certificates of Analysis for the analyzed groundwater samples are provided in Appendix D.

5.4.1 PAHs

The groundwater sample submitted for PAHs analysis indicated that all parameters were detected at concentrations below the applicable MECP Table 2 SCS and all laboratory RDLs were below the applicable SCS.

5.4.2 Evidence of Non-Aqueous Phase Liquid

Inspection of the purged groundwater retrieved from the monitoring wells did not indicate the presence of non-aqueous phase liquid (NAPL), staining or sheen.

5.5 Quality Assurance and Quality Control (QA/QC) Measures

QA/QC measures were taken during the field activities to meet the objectives of the sampling and QA plan to collect unbiased and representative samples to characterize existing conditions in the fill/upper overburden materials and water table aquifer unit at the Site. QA/QC measures included:

- a) The collection of soil samples following standard operating procedures;
- b) The implementation of decontamination procedures to minimize the potential for sample cross contamination;
- c) The collection of recommended analytical test group specific volumes into pre-cleaned laboratory supplied containers provided with necessary preservatives as required;
- d) Sample preservation in insulated coolers pre-chilled with ice and meeting holding time requirements; and,
- e) Sample documentation including Chain of Custody protocols.

Review of field activity documentation indicated that recommended sample volumes were collected from soil and groundwater for each analytical test group into appropriate containers and preserved with proper chemical reagents in accordance with the protocols set out in the "Protocol for Analytical Methods used in the Assessment of Properties under Part XV.1 of the *Environmental Protection Act*", dated March 9,

2004, as amended July 1, 2011. Samples were preserved at the required temperatures in pre-chilled insulated coolers and met applicable holding time requirements, when relinquished to the receiving laboratory.

The subcontracted laboratory used during this investigation, AGAT Labs, is accredited by the Standards Council of Canada/Canadian Association for Laboratory Accreditation (Accredited Laboratory No. A3200), in accordance with ISO/IEC 17025:2017 - "General Requirements for the Competence of Testing and Calibration Laboratories" for the analysis of all parameters for all samples in the scope of work for which SCS have been established under O.Reg.153/04.

Certificates of Analysis were received from AGAT Labs reporting the results of all the chemical analyses performed on the submitted soil and groundwater samples. Copies of the AGAT Labs Certificates of Analysis are provided in Appendix D. A review of the Certificates of Analysis prepared by AGAT Labs indicates that they were in compliance with the requirements set out under subsection 47(3) of O.Reg.153/04.

The analytical program conducted by AGAT Labs included analytical test group specific QA/QC measures to evaluate the accuracy and precision of the analytical results and the efficiency of analyte recovery during solute extraction procedures. The laboratory QA/QC program consisted of the preparation and analysis of laboratory duplicate samples to assess precision and sample homogeneity, method blanks to assess analytical bias, spiked blanks and QC standards to evaluate analyte recovery, matrix spikes to evaluate matrix interferences and surrogate compound recoveries (VOCs only) to evaluate extraction efficiency. The laboratory QA/QC results are presented in the Quality Assurance Report provided in the Certificate of Analysis prepared by AGAT Labs. The QA/QC results are reported as percent recoveries for matrix spikes, spike blanks and QC standards, RPDs for laboratory duplicates and analyte concentrations for method blanks.

The AGAT Labs QA/QC results were assessed against test group control limits in the case of spiked blanks, matrix spikes and surrogate recoveries and alert criteria in the case of method blanks and laboratory duplicates. Review of the laboratory QA/QC results reported by AGAT Labs indicated that they were within acceptable control limits or below applicable alert criteria for the sampled media and analytical test groups. Based on the assessment of the QA/QC, the analytical results reported by AGAT Labs are of acceptable quality and data qualifications were not required.

6 Summary of Findings

The results and findings of the Phase II ESA conducted at the Site are summarized as follows:

1. The general stratigraphy at the Site, as observed in the boreholes, consisted of asphalt at the ground surface followed by fill material, underlain by clayey silt till/silty clay till and then by shale bedrock.
2. Based on the textural descriptions of these materials as inferred from borehole observations, the applicable SCS selected to evaluate analytical data was determined to be medium/fine textured.
3. The depth to groundwater across the site ranged between 4.24 m bgs to 19.04 m bgs on October 18, 2021.
4. The soil analytical results from the samples collected and submitted for analysis of PAHs and metals indicated that all parameters were detected at concentrations below the applicable Ontario Ministry of Environment, Conservation and Parks (MECP) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition for Residential/Parkland/Institutional Property Use and medium/fine textured soil (Table 2 SCS), with the exception of:

Soil Sample ID	Identified Impact	MECP Table 3 Standard ($\mu\text{g/g}$)	Maximum Impact Concentration ($\mu\text{g/g}$)	Impact Depth (m bgs)
BH4-SS1	Fluoranthene	0.69	0.93	0.0 – 0.61

5. The groundwater analytical results from the sample collected and submitted for PAHs indicated that all parameters were detected at concentrations below the applicable MECP Table 2 SCS.

Conclusions and Recommendations

As a result of this Phase II ESA, further delineation of the PAH impact identified in soil is required. The PAH soil impact identified on-Site is present within the surficial soil at the Site and is likely localized. The impacted soil will be excavated and disposed of off-Site at a registered landfill facility. As the Site is intended for residential development, an RSC will be required in the future.

7 General Limitations

The information presented in this report is based on field investigation activities completed by BIG and designed to provide information to support an assessment of the current environmental conditions at the Site. The conclusions and recommendations presented in this report reflect Site conditions existing at the time of the investigation.

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Yours truly,

B.I.G. Consulting Inc.



Rebecca Morrison, M.Env.Sc.
Project Manager



Darko Strajin, P.Eng.
Managing Partner

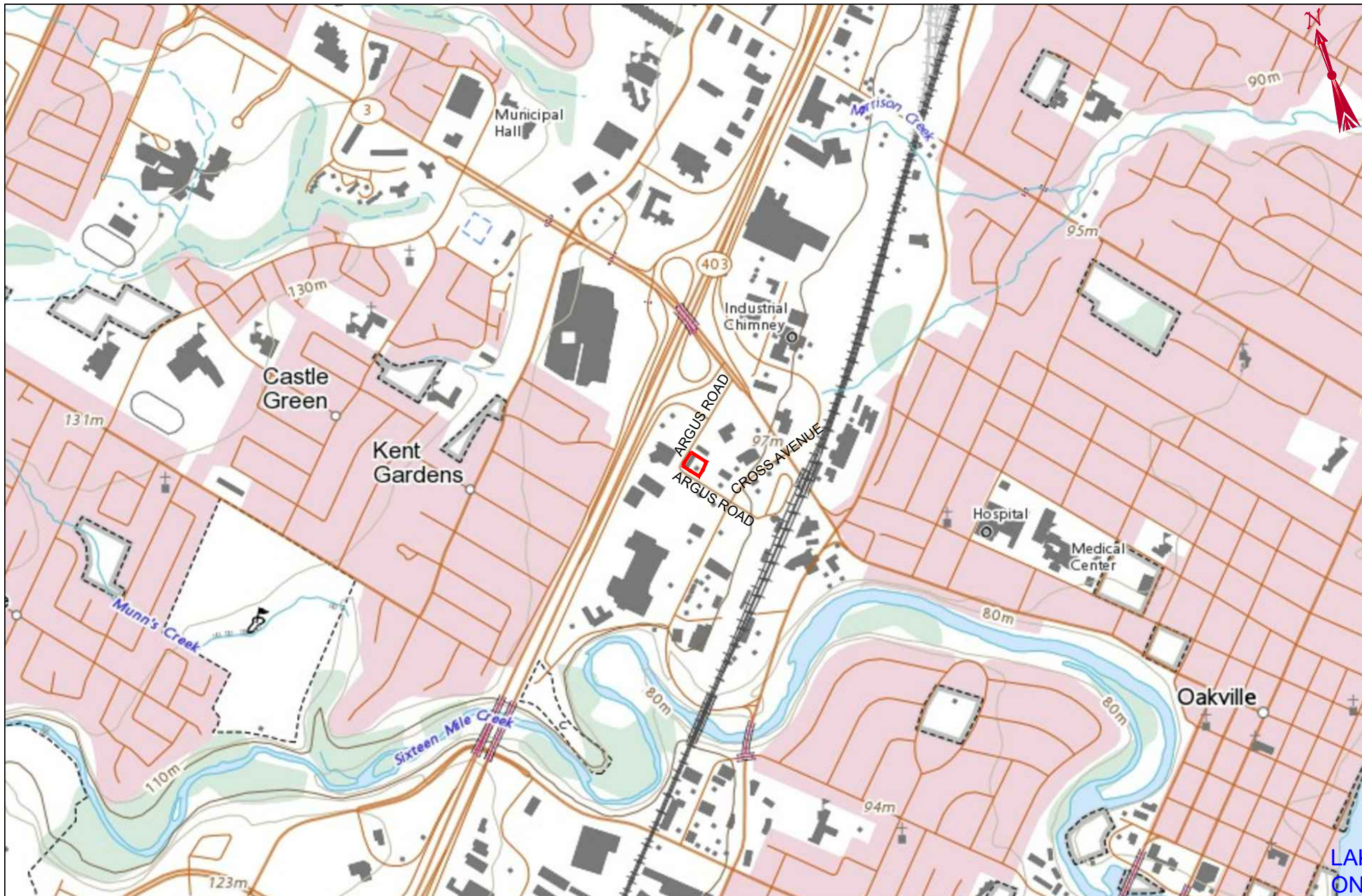
8 References

1. Canadian Standards Association. 2018. Z769-00 Phase II Environmental Site Assessment.
2. MECP (2011a) "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the *Environmental Protection Act*";
3. MECP (2011b) Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the *Environmental Protection Act*. PIBS 4696e01
4. NHIC (2017); Make a Natural Heritage Map. Retrieved from http://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US
5. Topographic Map available at the Natural Resources Canada (NRC) website. Accessed online at <http://atlas.nrcan.gc.ca/site/english/maps/topo/map>

Previous environmental reports reviewed as part of this Phase II ESA:

- a) Fisher (2021a) Phase I Environmental Site Assessment, 581 Argus Road, Oakville, Ontario. Fisher Environmental Ltd. June 1, 2021.
- b) Fisher (2021b) Phase I Environmental Site Assessment, 587 to 595 Argus Road, Oakville, Ontario. Fisher Environmental Ltd. June 1, 2021.
- c) BIG (2021a) Memo – Findings of Preliminary Geotechnical Investigation, 581 - 587 Argus Road, Oakville, Ontario. B.I.G. Consulting Inc. October 26, 2021.
- d) BIG (2021b) Memo –Preliminary Findings of Hydrogeological Investigation, 581 - 587 Argus Road, Oakville, Ontario. B.I.G. Consulting Inc. October 29, 2021.

Figures



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LEGEND

SITE BOUNDARY

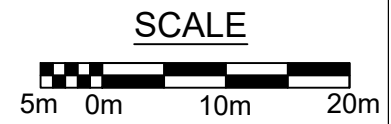
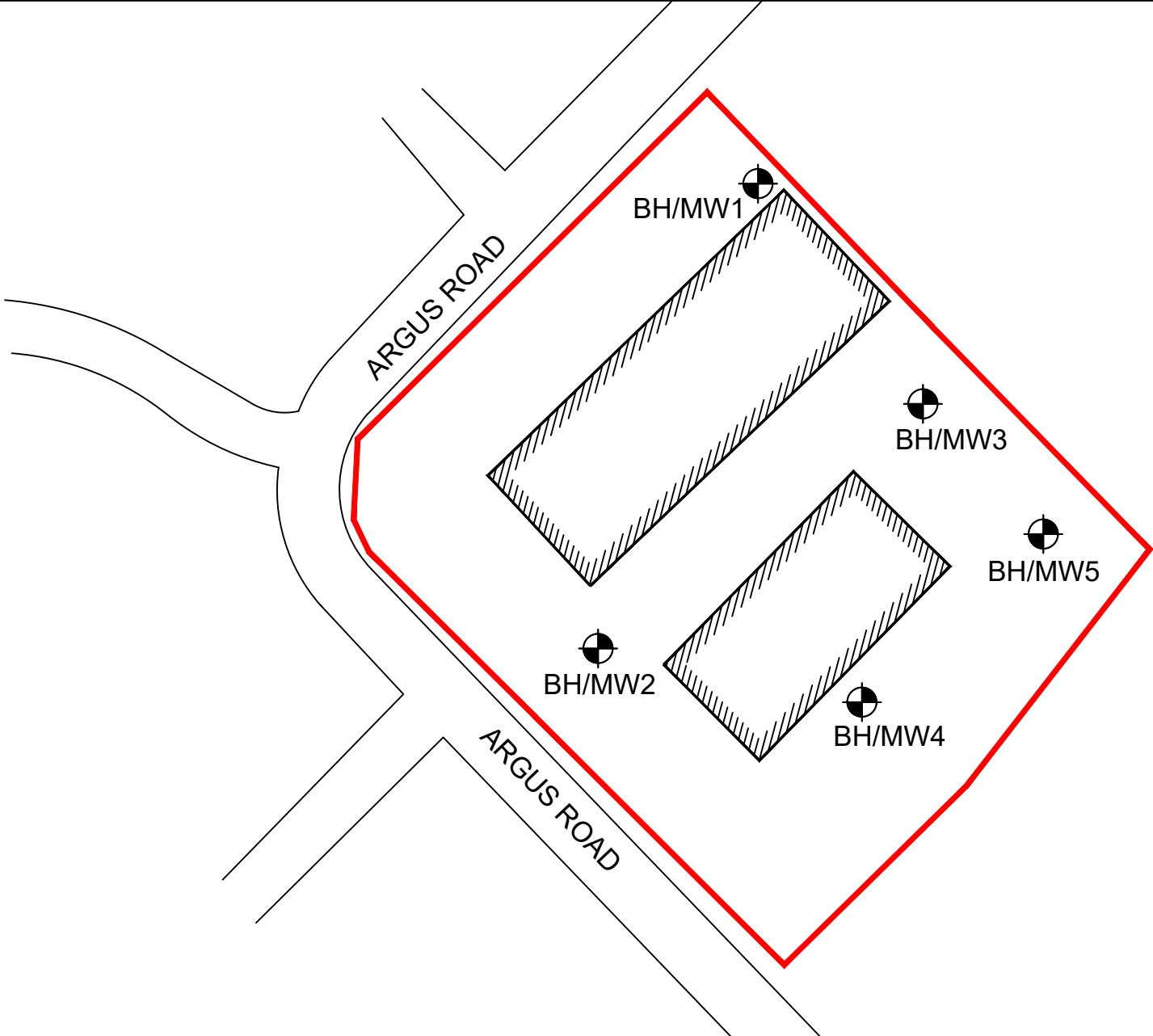
SCALE

100m 0m 100m 200m 300m 400m 500m

TITLE AND LOCATION

**SITE LOCATION PLAN
 PHASE II ESA
 581-587 ARGUS ROAD,
 OAKVILLE, ONTARIO**

PROJECT NO. BIGC-ENV-490E	DWN. T.S.
SCALE AS NOTED	CK. R.M.
DATE MARCH 2022	FIG NO. 1



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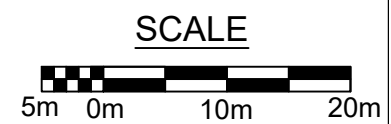
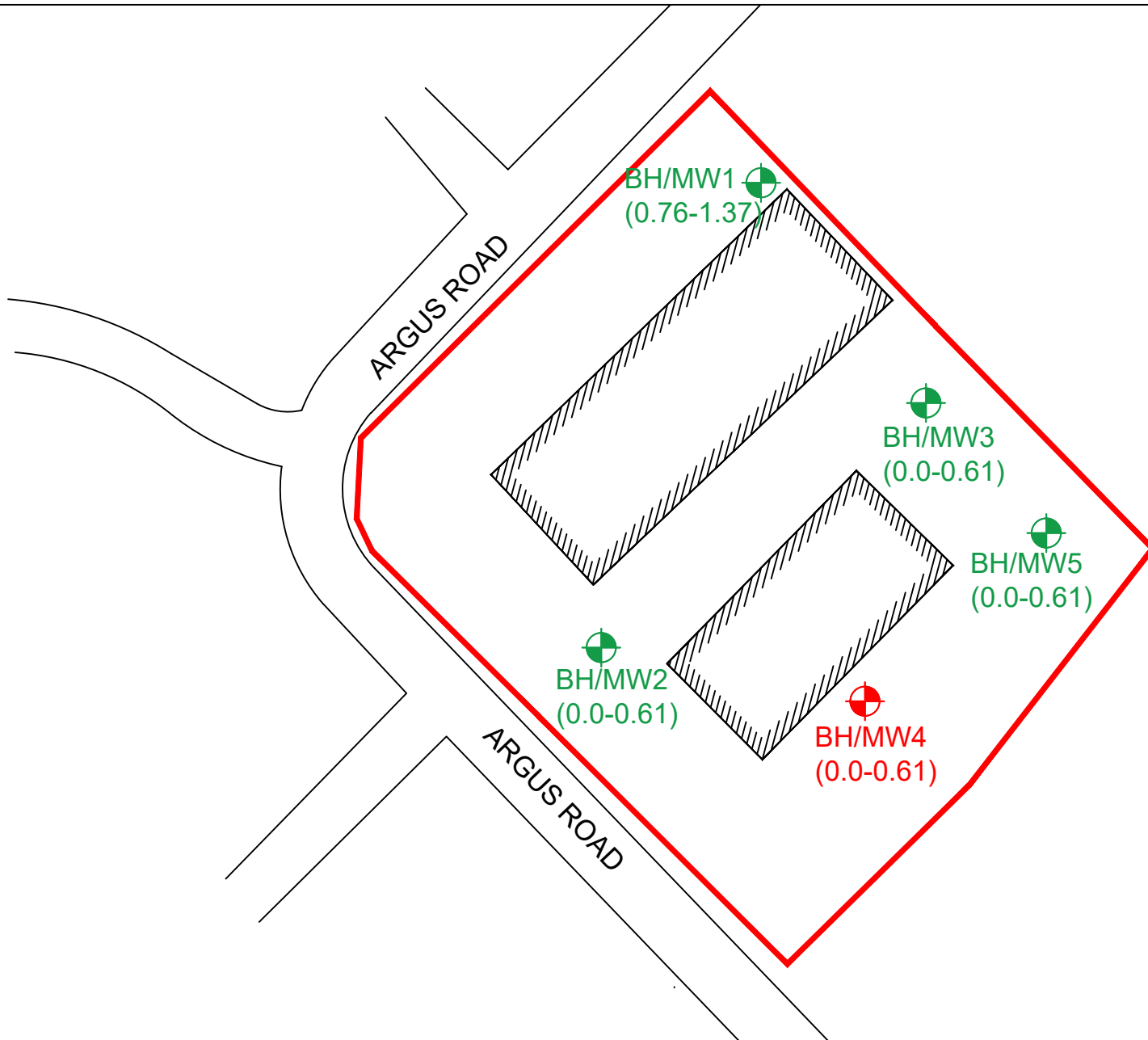
LEGEND

- SITE BOUNDARY
- BUILDING FOOTPRINT
- LOCATION OF BOREHOLE/MONITORING WELL

TITLE AND LOCATION

**BOREHOLE/MONITORING
 WELL LOCATION PLAN
 PHASE II ESA**
 581-587 ARGUS ROAD,
 OAKVILLE, ONTARIO






PROJECT NO. BIGC-ENV-490E	DWN. T.S.
SCALE AS NOTED	CK. R.M.
DATE MARCH 2022	FIG NO. 2



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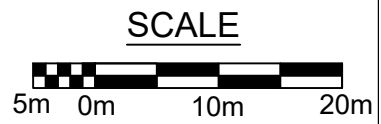
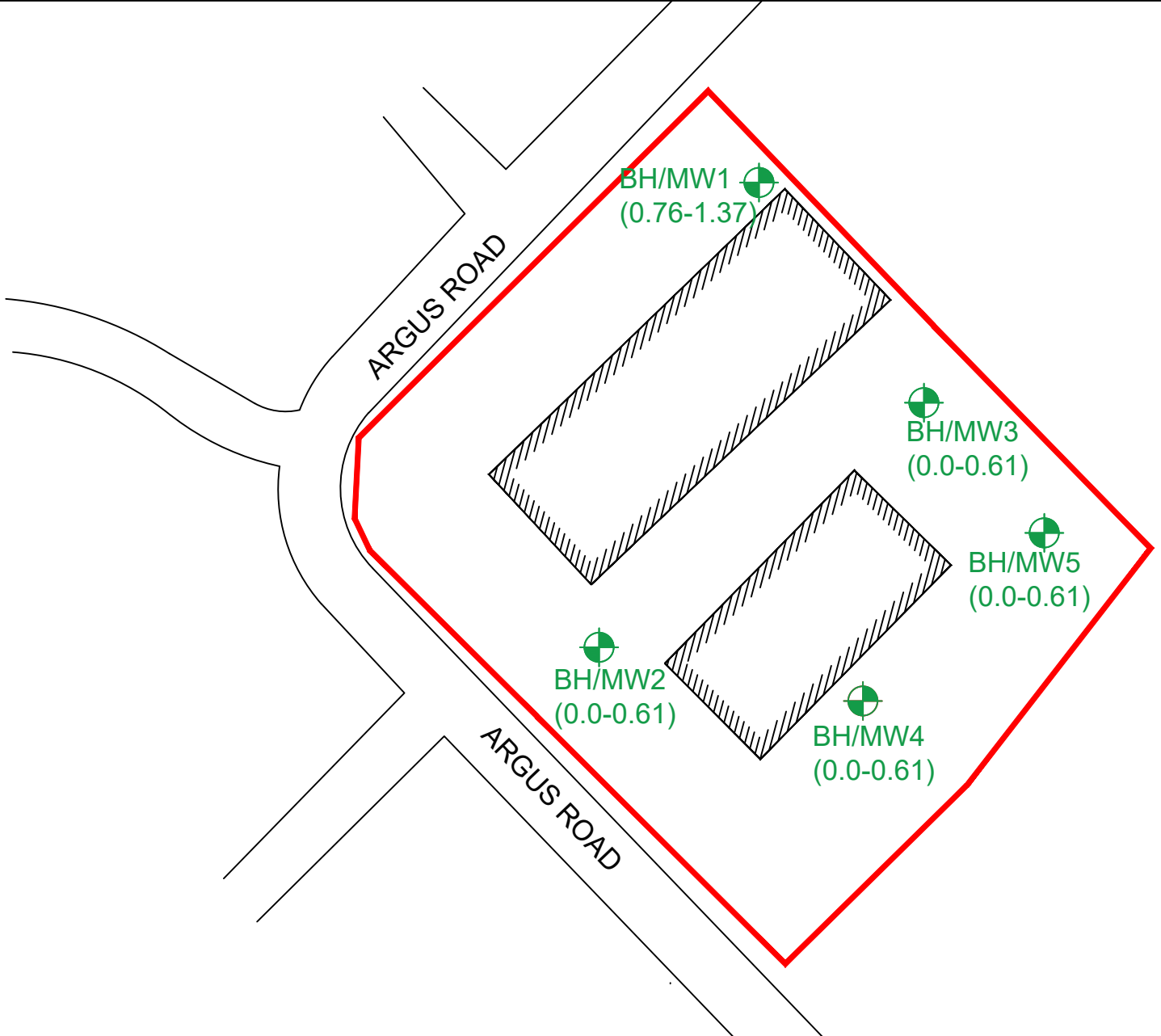
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LEGEND	
	SITE BOUNDARY
	BUILDING FOOTPRINT
	LOCATION OF BOREHOLE/MONITORING WELL
	EXCEEDS MECP TABLE 2 SCS
	MEETS MECP TABLE 2 SCS
[xx.xx]	SOIL SAMPLE DEPTH (m bgs)

TITLE AND LOCATION

**PAH IMPACTS IN SOIL
 PHASE II ESA**
 581-587 ARGUS ROAD,
 OAKVILLE, ONTARIO






PROJECT NO.	DWN.
BIGC-ENV-490E	T.S.
SCALE	CK.
AS NOTED	R.M.
DATE	FIG NO.
MARCH 2022	3



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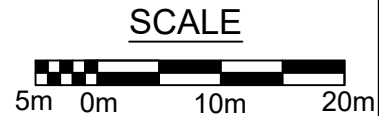
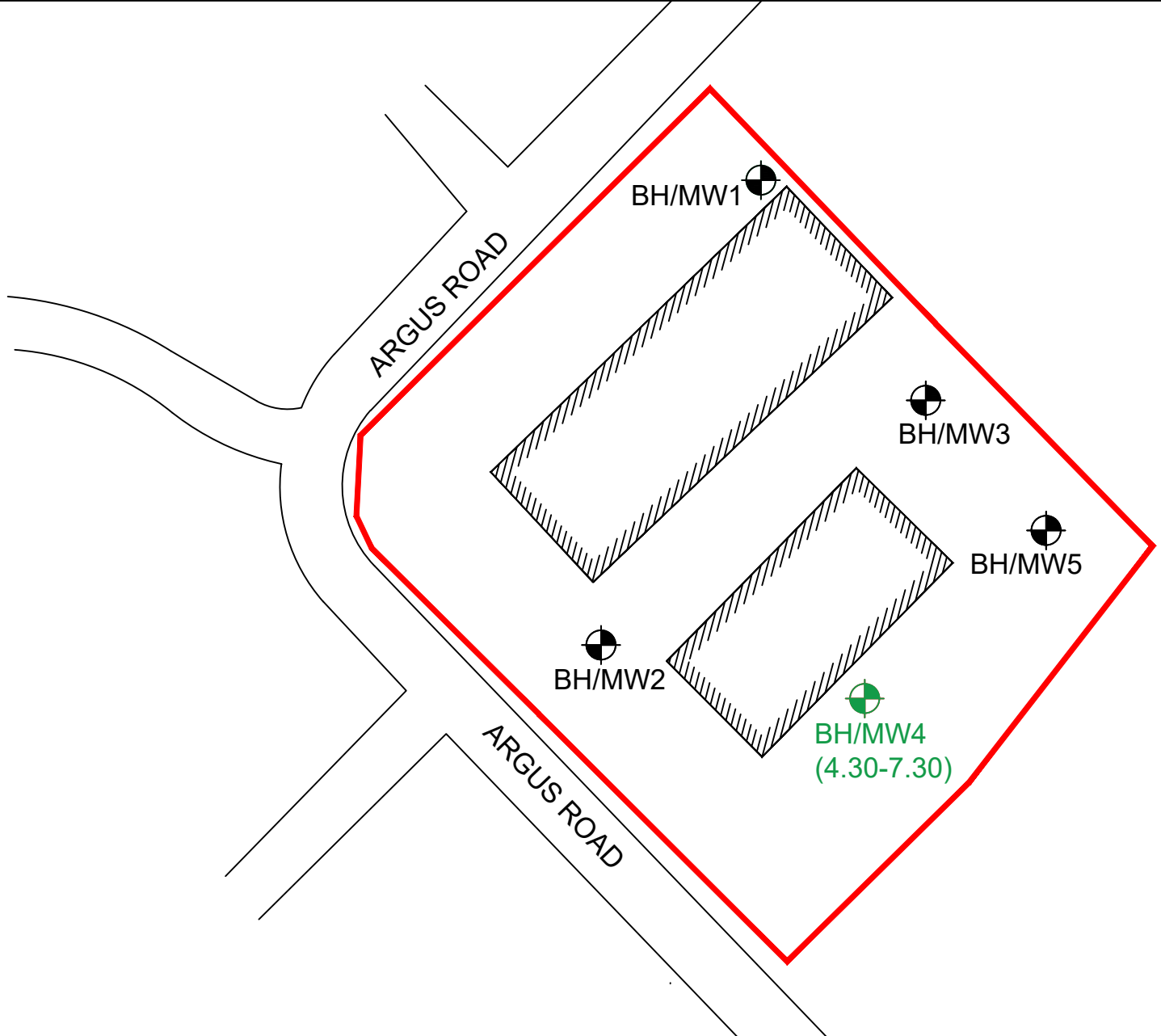
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LEGEND	
	SITE BOUNDARY
	BUILDING FOOTPRINT
	LOCATION OF BOREHOLE/MONITORING WELL
	EXCEEDS MECP TABLE 2 SCS
	MEETS MECP TABLE 2 SCS
[xx.xx]	SOIL SAMPLE DEPTH (m bgs)

TITLE AND LOCATION

**METALS IN SOIL
 PHASE II ESA**
 581-587 ARGUS ROAD,
 OAKVILLE, ONTARIO






PROJECT NO.	DWN.
BIGC-ENV-490E	T.S.
SCALE	CK.
AS NOTED	R.M.
DATE	FIG NO.
MARCH 2022	4



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LEGEND	
	SITE BOUNDARY
	BUILDING FOOTPRINT
	LOCATION OF BOREHOLE/MONITORING WELL
	EXCEEDS MECP TABLE 2 SCS
	MEETS MECP TABLE 2 SCS
[xx.xx]	WELL SCREEN DEPTH (m bgs)

TITLE AND LOCATION

**PAHS IN GROUNDWATER
 PHASE II ESA**
 581-587 ARGUS ROAD,
 OAKVILLE, ONTARIO

PROJECT NO. BIGC-ENV-490E	DWN. T.S.
SCALE AS NOTED	CK. R.M.
DATE MARCH 2022	FIG NO. 5

Appendix A: Site Sampling and Analysis Plan

1. Introduction

This appendix presents the Sampling and Analysis Plan (SAAP) that was developed in support of the Phase II Environmental Site Assessment (ESA), which will be conducted to provide further characterization of the Site subsurface conditions. The SAAP presents the procedures and measures that will be undertaken during field investigative activities to characterize the Site conditions and meet the data quality objectives of the Phase II ESA.

The SAAP presents the sampling program proposed for the Site, the recommended procedures and protocols for sampling and related field activities, the data quality objectives, and the quality assurance/quality control (QA/QC) measures that will be undertaken to provide for the collection of accurate, reproducible and representative data. These components are described in further detail below.

2. Field Sampling Program

The field sampling program was developed to provide for the collection of samples of the surficial and subsurface soil materials for chemical analysis of parameters identified as potential contaminants of concern identified in the Phase I ESA.

The soil samples will be collected from of the surficial fill and overburden material. The groundwater samples will be collected from each monitoring well.

The monitoring wells will be installed at selected boreholes to intercept the groundwater table aquifer. The monitoring wells will be installed with 3 m long screens extending to a maximum depth of approximately 22.90 m below grade.

Elevation of the boreholes and monitoring wells will be obtained through the completion of an elevation survey with reference to a Site temporary benchmark or a local geodetic benchmark. Groundwater flow will be determined through groundwater level measurements and the relative groundwater elevations established in the Site elevation survey.

3. Field Methods

To meet the requirements of the field sampling program, the following field investigative methods will be undertaken:

- a) Borehole Drilling;
- b) Soil Sampling;
- c) Monitoring Well Installation;
- d) Monitoring Well Development;
- e) Groundwater Level Measurements;
- f) Elevation Survey;
- g) Groundwater Sampling; and
- h) Residue Management Procedures.

The field investigative methods will be performed as described below:

a) Borehole Drilling

Boreholes will be advanced at the Site to facilitate the collection of soil samples for chemical analysis and geologic characterization and for the installation of groundwater monitoring wells. Boreholes will be advanced at the Site to a maximum depth of approximately 27.6 m below grade, within the overburden materials to provide for the collection of soil samples beneath the Site. The borehole locations will be selected to assess soil and groundwater quality at the Site.

Prior to borehole drilling, utility clearances will be obtained from public locators, as required. Boreholes will be advanced into the surficial fill and overburden soils by a drilling company under the full-time supervision of BIG staff. A truck mounted drilling machine equipped with solid stem augers, hollow stem augers and split spoons will be utilized to advance the boreholes through the overburden materials.

b) Soil Sampling

Soil samples for geologic characterization and chemical analysis will be collected from the overburden boreholes using 5 cm diameter, 60 cm long, stainless steel split-spoon sampling devices advanced ahead of the augers. The split-spoon samplers will be attached to drill rods and advanced into the soil by means of a machine-driven hammer. Split-spoon soil samples will be collected where possible, beginning at the ground surface and subsequently at continuous intervals. Geologic and sampling details of the recovered cores will be logged and the samples will be assessed for the potential presence of non-aqueous phase liquids. A portion of each soil sample will be placed in a sealed "zip-lock" plastic bag and allowed to reach ambient temperature prior to field screening with a photoionization detector (PID) that will be calibrated by the supplier with an appropriate reference gas and zeroed in ambient conditions prior to use. The vapour measurements will be made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These readings will provide a real-time indication of the relative concentration of volatile organic vapours encountered in the subsurface during drilling. Samples for chemical analysis will be selected on the basis of visual, combustible gas and olfactory evidence of impacts and at specific intervals to define the lateral and vertical extent of suspected impacts.

Recommended volumes of soil samples selected for chemical analysis will be collected into pre-cleaned, laboratory supplied, analytical test group specific containers. The samples will be placed into clean insulated coolers chilled with ice for storage and transport. Samples intended for VOC analysis will be collected using a laboratory-supplied soil core sampler, placed into the vials containing methanol for preservation purposes and sealed using Teflon lined septa lids. The samples will be assigned unique identification numbers, and the date, time, location, and requested analyses for each sample will be documented in a bound field notebook. The samples will be submitted to a CAEL certified laboratory within analytical test group holding times under Chain of Custody (COC) protocols. New disposable chemical resistant gloves will be used during the handling and sample collection for each soil core to prevent sample cross-contamination.

c) Monitoring Well Installation

Monitoring wells will be installed in general accordance with Ontario Regulation 903/90, as amended and will be installed by a licensed well contractor.

The monitoring wells will be constructed using 50 mm diameter, Schedule 40, PVC riser pipe and number 10 slot size (0.25 mm) well screens. The base of the well screens will be sealed with PVC end caps. All well pipe connections will be factory machined threaded flush couplings. The pipe components will be pre-wrapped in plastic, which will be removed prior to insertion in the borehole to minimize the potential for

contamination. No lubricants or adhesives will be used in the construction of the monitoring wells. The annular space around the well screens will be backfilled with silica sand to at least 0.3 m above the top of the screen. Granular bentonite will be placed in the borehole annulus from the top of the sand pack to approximately grade. The monitoring wells will be completed with protective casings.

d) Monitoring Well Development

Monitoring wells will be developed to remove fine sediment particles potentially lodged in the sand pack and well screen to enhance contact with the surrounding formation groundwater and will be developed using dedicated bailers. Monitoring well development will be monitored by multiparameter water quality meter visual observations of turbidity, and by taking field measurements of pH and conductivity for every well volume removed. Standing water volumes will be determined by means of a water level meter. Water quality parameter measurements will be recorded using a multiparameter water quality meter. A minimum of approximately three (3) well volumes will be removed; and, well development will continue until the purged water has chemically stabilized as indicated by field parameters measurements.

Well development details will be documented on a well development log sheet or in a bound hard cover notebook. All water accumulated during well development will be collected and stored in sealed containers.

e) Groundwater Level Measurements

Groundwater level measurements will be recorded from monitoring wells to determine groundwater flow and direction at the Site. Water levels will be measured with respect to the top of the casing by means of a groundwater level meter. The water levels will be recorded on water level log sheets or in a bound field notebook. The water level meter probe will be decontaminated between monitoring well locations.

f) Groundwater Sampling

Groundwater samples will be collected from monitoring wells for chemical analysis. The monitoring wells will be purged first of three to five wetted well volumes of water to remove standing water and draw in fresh formation water as previously described. Dedicated well materials will be used for well purging and sample collection.

Recommended groundwater sample volumes will be collected into pre-cleaned, laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. The samples will be placed in an insulated cooler chilled with ice for storage and transport. Where needed, bottles will be checked for head-space.

All groundwater samples will be assigned unique identification numbers, and the date, time, project number and company name will be specified on each bottle. The samples will be submitted to the contractual laboratory within analytical test group holding times under COC protocols. New disposable chemical resistant gloves will be used for each sampling location to prevent sample cross-contamination.

g) Residue Management Procedures

The residue materials produced during the borehole drilling, soil sampling programs and monitoring well sampling programs comprised of decontamination fluids from equipment cleaning, and waters from well development and purging will be placed in sealed drums for future off-Site disposal.

4. Field Quality Assurance/Quality Control Program

The objective of the field quality assurance/quality control (QA/QC) program is to obtain soil and groundwater samples and other field measurements that provide data of acceptable quality that meets the

objectives of the Phase II ESA. The objectives of the QA/QC program will be achieved through the implementation of procedures for the collection of unbiased (i.e., non-contaminated) samples, sample documentation and the collection of appropriate QC samples to provide a measure of sample reproducibility and accuracy. The field QA/QC measures will comprise:

- a) Decontamination Protocols;
- b) Equipment Calibration;
- c) Sample Preservation;
- d) Sample Documentation; and,
- e) Field Quality Control Samples.

Details on the field QA/QC measures are provided in the following sections.

a) Decontamination Protocols

Decontamination protocols will be followed during field sampling where non-dedicated sampling equipment is used to prevent sample cross contamination. For the borehole drilling and soil sampling, split soil sampling devices will be cleaned/decontaminated between sampling intervals and auger flights between borehole locations. For the monitoring well installation, well components are not to come into contact with the ground surface prior to insertion into boreholes. Electronic water level meters will be decontaminated between monitoring well locations during well development, purging activities and rising head tests. All decontamination fluids will be collected and stored in sealed containers.

b) Equipment Calibration

All equipment requiring calibration will be calibrated according to manufacturer's requirements using analytical grade reagents, or by the supplier prior to conducting field activities.

c) Sample Preservation

All samples will be preserved using appropriate analytical test group specific reagents, as required, and upon collection placed in ice-filled insulated coolers for storage and transport.

d) Sample Documentation

All samples will be assigned a unique identification number, which is to be recorded along with the date, time, project number and company name. All samples will be handled and transported following COC protocols.

Appendix B – Borehole Logs

RECORD OF BOREHOLE No. BH/MW1



Project Number: BIGC-GEO-490A Drilling Location: See Borehole Location Plan Logged by: MV
 Project Client: Oakville Argus Cross LP Drilling Method: 150 mm Mud Rotary/ HQ Core Compiled by: MV
 Project Name: Preliminary Geotechnical Investigation Drilling Machine: Truck Mounted Drill Reviewed by: SS
 Project Location: 581-587 Argus Road, Oakville Date Started: 8 Oct 21 Date Completed: 8 Oct 21 Revision No.: 0, 25/10/21

Lithology Profile	DESCRIPTION	SOIL SAMPLING				DEPTH (m)	ELEVATION (m)	FIELD TESTING		LAB TESTING		INSTRUMENTATION INSTALLATION	COMMENTS
		Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD%			Penetration Testing	Soil Vapour Reading parts per million (ppm)				
	Geodetic Ground Surface Elevation: 104.53 m												
	ASPHALT PAVEMENT: 50mm Asphalt over 100mm granular base	SS	1	62	5		104						
	FILL: silty clay to clayey silt, possibly reworked, mottled brown, moist, firm												

	silty sand with clay, trace gravel, compact, possibly reworked below 0.76 m	SS	2	59	22	1	103						
	SILTY CLAY TILL: trace sand, trace gravel, occasional Shale fragments, reddish brown, moist, very stiff to hard												

	pale grey, hard below 1.83 m	SS	3	100	43	2	102						

	BEDROCK: Shale, highly weathered, occasional limestone layers throughout, grey, moist to damp	SS	4	100	50/15		101						

		SS	5	100	50/8	3	100						
		SS	6	100	50/5	4	99						
		SS	7	100	50/5	5	98						
		SS	8	100	50/5	6	97						
	End of Borehole												
	Notes: 1. Borehole open and dry upon completion of drilling. 2. Groundwater level reading at 4.38 m bgs on October 18, 2021.												

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∇ Groundwater depth on completion of drilling: Dry m.
 ▼ Groundwater depth observed on 18/10/2021 at a depth of: 4.38 m.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Notes to Record of Boreholes'.

RECORD OF BOREHOLE No. **BM/MW2**



Project Number: **BIGC-GEO-490A**

Drilling Location: **See Borehole Location Plan**

Logged by: **MV**

Lithology Plot	LITHOLOGY PROFILE	SOIL SAMPLING				DEPTH (m)		ELEVATION (m)		FIELD TESTING		LAB TESTING		INSTRUMENTATION INSTALLATION	COMMENTS
	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/ROD%					Penetration Testing ○ SPT ● DCPT MTO Vane* Nilcon Vane* △ Intact ◇ Intact ▲ Remould ◆ Remould * Undrained Shear Strength (kPa) 20 40 60 80		★ Rinse pH Values 2 4 6 8 10 12 △ Soil Vapour Reading parts per million (ppm) 100 200 300 400 ▲ Lower Explosive Limit (LEL) W _p W W _L Plastic Liquid 20 40 60 80			
	BEDROCK: Shale, highly weathered to excellent quality, occasional limestone layers throughout, grey, moist to damp	RC	6	100	79	90									
	- Good Quality some oxidised laminae at 13.87 m soft zone from 14.38 to 14.54 m					15									
	- Excellent Quality	RC	7	100	90	89									
	- Excellent Quality some oxidised laminae at 16.92 m					16									
	- Good Quality	RC	8	97	95	17									
	- Good Quality					18									
	- Good Quality	RC	9	97	89	19									
	- Excellent Quality					20									
	- Excellent Quality	RC	10	100	100	21									
	- Excellent Quality					22									
	- Excellent Quality	RC	11	100	99	23									
	- Good Quality fracture zone with slickenside from 24.01 to 24.29 m					24									
	- Good Quality	RC	12	97	79	25									
	- Good Quality					26									
	- Good Quality	RC	13	97	88	27									
	- Good Quality soft zones at 26.25 m and 27.02 to 27.07 m					28									
	- Good Quality	RC	14	100	84	29									
	76.66					27									
	End of Borehole Notes: 1. Borehole open completion of drilling. 2. Groundwater level reading not measured upon completion of drilling due to introduced drilling water. 3. Groundwater level reading at 9.05 m bgs on October 18, 2021.					27.6									

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Notes to Record of Boreholes'.

Scale: 1 : 74

Page: 2 of 2

RECORD OF BOREHOLE No. BM/MW3



Project Number: BIGC-GEO-490A Drilling Location: See Borehole Location Plan Logged by: MV
 Project Client: Oakville Argus Cross LP Drilling Method: 150 mm Solid Stem Augering Compiled by: MV
 Project Name: Preliminary Geotechnical Investigation Drilling Machine: Truck Mounted Drill Reviewed by: SS
 Project Location: 581-587 Argus Road, Oakville Date Started: 8 Oct 21 Date Completed: 8 Oct 21 Revision No.: 0, 25/10/21

Lithology Profile	DESCRIPTION	SOIL SAMPLING				DEPTH (m)	ELEVATION (m)	FIELD TESTING	LAB TESTING	INSTRUMENTATION INSTALLATION	COMMENTS
		Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RCD%						
	Geodetic Ground Surface Elevation: 104.37 m										
	ASPHALT PAVEMENT: 50mm Asphalt over 150mm granular base	SS	1	38	9	104					
	FILL: silty clay to clayey silt, possibly reworked, trace sand, trace gravel, mottled brown, moist, stiff to very stiff										
	silty sand with clay, trace gravel, mottled pale grey, possibly reworked, compact below 0.76 m	SS	2	70	18	103					
	CLAYEY SILT TILL: trace sand, trace gravel, occasional Shale fragments, reddish brown to grey, moist, very stiff to hard										
	BEDROCK: Shale, highly weathered, occasional limestone layers throughout, grey, moist to damp	SS	3	100	39	102					
		SS	4	100	50/8	101					
		SS	5	100	50/5	100					
		SS	6	100	50/5	99.49					
	End of Borehole on Auger Refusal					4.9					
	Notes: 1. Borehole open upon completion of drilling. 2. Groundwater level at 4.72 m bgs upon completion of drilling. 3. Groundwater level reading at 4.24 m bgs on October 18, 2021.										

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∇ Groundwater depth on completion of drilling: 4.72 m.
 ▾ Groundwater depth observed on 18/10/2021 at a depth of: 4.24 m.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Notes to Record of Boreholes.

Scale: 1 : 74

Page: 1 of 1

RECORD OF BOREHOLE No. BM/MW4



Project Number: BIGC-GEO-490A Drilling Location: See Borehole Location Plan Logged by: MV
 Project Client: Oakville Argus Cross LP Drilling Method: 150 mm Solid Stem Augering Compiled by: MV
 Project Name: Preliminary Geotechnical Investigation Drilling Machine: Truck Mounted Drill Reviewed by: SS
 Project Location: 581-587 Argus Road, Oakville Date Started: 8 Oct 21 Date Completed: 8 Oct 21 Revision No.: 0, 25/10/21

Lithology Plot	LITHOLOGY PROFILE	SOIL SAMPLING				DEPTH (m)	ELEVATION (m)	FIELD TESTING	LAB TESTING	INSTRUMENTATION INSTALLATION	COMMENTS
		DESCRIPTION	Sample Type	Sample Number	Recovery (%)						
	<p>Geodetic Ground Surface Elevation: 103.61 m</p> <p>ASPHALT PAVEMENT: 50mm Asphalt over 150mm granular base</p> <p>FILL: silty clay to clayey silt, shale fragments, brown to grey, moist, stiff</p> <p>CLAYEY SILT TILL: trace sand, trace gravel, pale slightly mottled brown to grey, moist to damp, stiff to hard</p> <p>BEDROCK: Shale, highly weathered, occasional limestone layers throughout, grey, moist to damp</p>										
	103.41	SS	1	75	14						
	102.70	SS	2	51	31	1					
		SS	3	82	14	2					
	101.02	SS	4	47	75/23						
		SS	5	100	50/8	3					
						4					
		SS	6	100	50/8	5					
						6					
		SS	7	100	50/8	7					
	96.29										
	7.3										
	<p>End of Borehole on Auger Refusal</p> <p>Notes: 1. Borehole open upon completion of drilling. 2. Groundwater level at 7.01 m bgs upon completion of drilling. 3. Groundwater level reading at 4.71 m bgs on October 18, 2021.</p>										

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 Canada
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∇ Groundwater depth on completion of drilling: 7.01 m.
 ▽ Groundwater depth observed on 18/10/2021 at a depth of: 4.71 m.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Notes to Record of Boreholes'.

RECORD OF BOREHOLE No. **BM/MW5**



Project Number: **BIGC-GEO-490A** Drilling Location: **See Borehole Location Plan** Logged by: **MV**
 Project Client: **Oakville Argus Cross LP** Drilling Method: **96 mm Solid Stem Augers** Compiled by: **MV**
 Project Name: **Preliminary Geotechnical Investigation** Drilling Machine: **Truck Mounted Drill** Reviewed by: **SS**
 Project Location: **581-587 Argus Road, Oakville** Date Started: **6 Oct 21** Date Completed: **6 Oct 21** Revision No.: **0, 25/10/21**

Lithology Plot	LITHOLOGY PROFILE	SOIL SAMPLING				DEPTH (m)	ELEVATION (m)	FIELD TESTING		LAB TESTING		INSTRUMENTATION INSTALLATION	COMMENTS
		Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RCD%			Penetration Testing	Soil Vapour Reading parts per million (ppm)				
	Geodetic Ground Surface Elevation: 103.75 m												
	ASPHALT PAVEMENT: 70mm Asphalt over 130mm granular base	SS	1	70	9								
	FILL: silty clay to clayey silt, trace sand, trace gravel, mottled pale grey, damp, stiff to hard occasional cobble, mottled greenish brown, hard below 0.76 m	SS	2	48	50/15	1	103	○	50				
	SILTY CLAY TO CLAYEY SILT TILL: trace gravel and pebbles, pale grey, damp, hard	SS	3	62	32	2	102	○	50				
	BEDROCK: Shale, highly weathered to excellent quality, occasional limestone layers throughout, grey, moist to damp	SS	4	100	50/8	3	101	○	50				
		SS	5	100	50/8	3	101	○	50				
		SS	6	100	50/10	5	99	○	50				
		SS	7	100	50/8	6	98	○	50				
	- first water strike					7	97						
	ROCK CORE BEGINS at 7.32 m	RC	1	87	0	8	96	○					
	- Very Poor Quality					8	96						
	- Fair Quality fracture zone from 8.16 to 8.72 m some conglomeratic layers throughout run	RC	2	100	61	9	95	○					
	- Fair Quality	RC	3	95	70	10	94	○					
	- Good Quality	RC	4	100	87	12	92	○					
	- Fair Quality some oxidised laminae from 12.34 to 15.39 m	RC	5	98	72	13	91	○					

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∇ Groundwater depth on completion of drilling: Not measured m.
 ▼ Groundwater depth observed on 18/10/2021 at a depth of: 19.04 m.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Notes to Record of Boreholes'.

Scale: 1 : 74
 Page: 1 of 2

RECORD OF BOREHOLE No. **BM/MW5**



Project Number: **BIGC-GEO-490A**

Drilling Location: **See Borehole Location Plan**

Logged by: **MV**

Lithology Plot	LITHOLOGY PROFILE	SOIL SAMPLING				DEPTH (m)	ELEVATION (m)	FIELD TESTING	LAB TESTING	INSTRUMENTATION INSTALLATION	COMMENTS
		DESCRIPTION	Sample Type	Sample Number	Recovery (%)						
	<p>BEDROCK: Shale, highly weathered to excellent quality, occasional limestone layers throughout, grey, moist to damp</p> <p>- Excellent Quality</p>	RC	6	100	93	89					
	<p>- Fair Quality</p> <p>sub vertical fracture from from 15.84 to 15.92 m</p>	RC	7	100	74	16					
	<p>- Excellent Quality</p>	RC	8	95	93	18					
	<p>- Excellent Quality</p>	RC	9	100	92	19					
	<p>- Excellent Quality</p>	RC	10	98	90	21					
	<p>- Fair Quality</p>	RC	11	95	70	22					
	<p>- Excellent Quality</p> <p>fracture zone from 23.81 to 23.91 m</p>	RC	12	100	99	24					
	<p>- Good Quality</p>	RC	13	100	88	25					
	<p>End of Borehole</p> <p>78.45 25.3</p>										
	<p>Notes:</p> <ol style="list-style-type: none"> Borehole open upon completion of drilling. Groundwater level reading not measured upon completion of drilling due to introduced drilling water. Groundwater level reading at 19.04 m bgs on October 18, 2021. 										

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Notes to Record of Boreholes'.

Scale: 1 : 74

Page: 2 of 2

Appendix C – Analytical Results

AGAT Workorder				21T828695	21T828695	21T828695	21T828695	21T828695
Date Sampled				10/08/21	10/07/21	10/08/21	10/08/21	10/06/21
Sample Description				BH/MW1-SS2	BH/MW2-SS1	BH/MW3-SS1	BH/MW4-SS1	BH/MW5-SS1
Package Name	Parameter Name	Unit	RDL	3196779	3196864	3196865	3196866	3196867
Matrix Soil: Metals	Antimony	µg/g	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Matrix Soil: Metals	Arsenic	µg/g	1	7	8	7	5	12
Matrix Soil: Metals	Barium	µg/g	2	89	104	147	63.6	56.1
Matrix Soil: Metals	Beryllium	µg/g	0.4	0.7	0.8	0.9	0.4	0.6
Matrix Soil: Metals	Boron	µg/g	5	15	14	19	12	16
Matrix Soil: Metals	Cadmium	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	0.6
Matrix Soil: Metals	Chromium	µg/g	5	19	19	27	16	15
Matrix Soil: Metals	Cobalt	µg/g	0.5	9.2	10.4	13.7	5.3	8.2
Matrix Soil: Metals	Copper	µg/g	1	78.4	88.8	98.8	26.2	71.3
Matrix Soil: Metals	Lead	µg/g	1	16	17	14	28	34
Matrix Soil: Metals	Molybdenum	µg/g	0.5	1.4	1.4	1.7	1	1.2
Matrix Soil: Metals	Nickel	µg/g	1	20	21	31	13	16
Matrix Soil: Metals	Selenium	µg/g	0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Matrix Soil: Metals	Silver	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Matrix Soil: Metals	Thallium	µg/g	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Matrix Soil: Metals	Uranium	µg/g	0.5	0.98	0.89	0.96	0.68	0.71
Matrix Soil: Metals	Vanadium	µg/g	0.4	30.3	31.7	43.7	28.8	24.4
Matrix Soil: Metals	Zinc	µg/g	5	134	89	94	84	129

Guideline Legend:	Exceeds Guideline
	Within Guideline
	Below RDL

AGAT Workorder				21T828695	21T828695	21T828695	21T828695	21T828695
Date Sampled				10/08/21	10/07/21	10/08/21	10/08/21	10/06/21
Sample Description				BH/MW1-SS2	BH/MW2-SS1	BH/MW3-SS1	BH/MW4-SS1	BH/MW5-SS1
Package Name	Parameter Name	Unit	RDL	3196779	3196864	3196865	3196866	3196867
Matrix Soil: PAHs	1 and 2 Methlynaphthalen	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Matrix Soil: PAHs	Acenaphthene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Matrix Soil: PAHs	Acenaphthylene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Matrix Soil: PAHs	Acridine-d9	%	1	77	85	91	103	107
Matrix Soil: PAHs	Anthracene	µg/g	0.05	<0.05	<0.05	<0.05	0.08	<0.05
Matrix Soil: PAHs	Benz(a)anthracene	µg/g	0.05	<0.05	<0.05	<0.05	0.47	0.11
Matrix Soil: PAHs	Benzo(a)pyrene	µg/g	0.05	<0.05	<0.05	<0.05	0.26	0.07
Matrix Soil: PAHs	Benzo(b)fluoranthene	µg/g	0.05	<0.05	<0.05	<0.05	0.4	0.09
Matrix Soil: PAHs	Benzo(g,h,i)perylene	µg/g	0.05	<0.05	<0.05	<0.05	0.16	<0.05
Matrix Soil: PAHs	Benzo(k)fluoranthene	µg/g	0.05	<0.05	<0.05	<0.05	0.15	0.08
Matrix Soil: PAHs	Chrysene	µg/g	0.05	<0.05	<0.05	<0.05	0.37	0.08
Matrix Soil: PAHs	Dibenz(a,h)anthracene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Matrix Soil: PAHs	Fluoranthene	µg/g	0.05	<0.05	<0.05	0.08	0.93	0.3
Matrix Soil: PAHs	Fluorene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Matrix Soil: PAHs	Indeno(1,2,3-cd)pyrene	µg/g	0.05	<0.05	<0.05	<0.05	0.11	<0.05
Matrix Soil: PAHs	Moisture Content	%	0.1	17.1	14.2	10	15.1	15.2
Matrix Soil: PAHs	Naphthalene	µg/g	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Matrix Soil: PAHs	Naphthalene-d8	%	1	105	78	124	112	106
Matrix Soil: PAHs	Phenanthrene	µg/g	0.05	<0.05	<0.05	<0.05	0.25	0.1
Matrix Soil: PAHs	Pyrene	µg/g	0.05	<0.05	<0.05	0.08	0.85	0.26
Matrix Soil: PAHs	Terphenyl-d14	%	1	85	99	117	105	63

Guideline Legend:	Exceeds Guideline
	Within Guideline
	Below RDL

AGAT Workorder				21T828695	21T828695	21T828695	21T828695	21T828695
Date Sampled				10/08/21	10/07/21	10/08/21	10/08/21	10/06/21
Sample Description				BH/MW1-SS2	BH/MW2-SS1	BH/MW3-SS1	BH/MW4-SS1	BH/MW5-SS1
Package Name	Parameter Name	Unit	RDL	3196779	3196864	3196865	3196866	3196867
Matrix Soil: Physical parameters/Other	Boron (Hot Water Soluble)	µg/g	0.1	0.19	0.39	0.31	0.43	0.62

Guideline Legend:	Exceeds Guideline
	Within Guideline
	Below RDL

AGAT Workorder					22T872058	22T872058
Date Sampled					03/10/22	03/10/22
Sample Description					BH/MW4	Dup40
Package Name	Parameter Name	Unit	RDL	ON T2 PGW MFT	3607380	3607381
Matrix Water: PAHs	2-and 1-methyl Naphthalene	µg/L	0.2	3.2	<0.20	<0.20
Matrix Water: PAHs	Acenaphthene	µg/L	0.2	4.1	<0.20	<0.20
Matrix Water: PAHs	Acenaphthylene	µg/L	0.2	1	<0.20	<0.20
Matrix Water: PAHs	Acridine-d9	%	1		90	117
Matrix Water: PAHs	Anthracene	µg/L	0.1	2.4	<0.10	<0.10
Matrix Water: PAHs	Benzo(a)anthracene	µg/L	0.2	1	<0.20	<0.20
Matrix Water: PAHs	Benzo(a)pyrene	µg/L	0.01	0.01	<0.01	<0.01
Matrix Water: PAHs	Benzo(b)fluoranthene	µg/L	0.1	0.1	<0.10	<0.10
Matrix Water: PAHs	Benzo(g,h,i)perylene	µg/L	0.2	0.2	<0.20	<0.20
Matrix Water: PAHs	Benzo(k)fluoranthene	µg/L	0.1	0.1	<0.10	<0.10
Matrix Water: PAHs	Chrysene	µg/L	0.1	0.1	<0.10	<0.10
Matrix Water: PAHs	Dibenz(a,h)anthracene	µg/L	0.2	0.2	<0.20	<0.20
Matrix Water: PAHs	Fluoranthene	µg/L	0.2	0.41	<0.20	<0.20
Matrix Water: PAHs	Fluorene	µg/L	0.2	120	<0.20	<0.20
Matrix Water: PAHs	Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.2	<0.20	<0.20
Matrix Water: PAHs	Naphthalene	µg/L	0.2	11	<0.20	<0.20
Matrix Water: PAHs	Naphthalene-d8	%	1		66	69
Matrix Water: PAHs	Phenanthrene	µg/L	0.1	1	<0.10	<0.10
Matrix Water: PAHs	Pyrene	µg/L	0.2	4.1	<0.20	<0.20
Matrix Water: PAHs	Sediment				NO	NO
Matrix Water: PAHs	Terphenyl-d14	%	1		89	87

Guideline Legend:	Exceeds Guideline
	Within Guideline
	Below RDL

Appendix D - Laboratory Certificates of Analysis

**CLIENT NAME: B.I.G. CONSULTING INC.
12-5500 TOMKEN ROAD
MISSISSAUGA, ON L4W 2Z4
416-214-4880**

**ATTENTION TO: Rebecca Morrison
PROJECT: BIGC-ENV-490C**

AGAT WORK ORDER: 21T828695

**SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist**

DATE REPORTED: Nov 18, 2021

PAGES (INCLUDING COVER): 10

VERSION*: 1

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

***Notes**

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days 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.



Certificate of Analysis

AGAT WORK ORDER: 21T828695

PROJECT: BIGC-ENV-490C

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

CLIENT NAME: B.I.G. CONSULTING INC.

SAMPLING SITE: 581-587 Argus Road, Oakville

ATTENTION TO: Rebecca Morrison

SAMPLED BY: MV

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

DATE RECEIVED: 2021-11-10

DATE REPORTED: 2021-11-18

Parameter	Unit	SAMPLE DESCRIPTION:							
		SAMPLE TYPE:		BH/MW1-SS2	BH/MW2-SS1	BH/MW3-SS1	BH/MW4-SS1	BH/MW5-SS1	
		DATE SAMPLED:		2021-10-08	2021-10-07	2021-10-08	2021-10-08	2021-10-06	
		G / S	RDL	3196779	3196864	3196865	3196866	3196867	
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	
Arsenic	µg/g	18	1	7	8	7	5	12	
Barium	µg/g	390	2.0	89.0	104	147	63.6	56.1	
Beryllium	µg/g	4	0.4	0.7	0.8	0.9	0.4	0.6	
Boron	µg/g	120	5	15	14	19	12	16	
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	0.6	
Chromium	µg/g	160	5	19	19	27	16	15	
Cobalt	µg/g	22	0.5	9.2	10.4	13.7	5.3	8.2	
Copper	µg/g	140	1.0	78.4	88.8	98.8	26.2	71.3	
Lead	µg/g	120	1	16	17	14	28	34	
Molybdenum	µg/g	6.9	0.5	1.4	1.4	1.7	1.0	1.2	
Nickel	µg/g	100	1	20	21	31	13	16	
Selenium	µg/g	2.4	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	
Silver	µg/g	20	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Uranium	µg/g	23	0.50	0.98	0.89	0.96	0.68	0.71	
Vanadium	µg/g	86	0.4	30.3	31.7	43.7	28.8	24.4	
Zinc	µg/g	340	5	134	89	94	84	129	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils **pH range listed applies to surface soil only**
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Allyson B...

Certificate of Analysis

AGAT WORK ORDER: 21T828695

PROJECT: BIGC-ENV-490C

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CLIENT NAME: B.I.G. CONSULTING INC.

SAMPLING SITE: 581-587 Argus Road, Oakville

ATTENTION TO: Rebecca Morrison

SAMPLED BY: MV

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

DATE RECEIVED: 2021-11-10

DATE REPORTED: 2021-11-18

Parameter	Unit	SAMPLE DESCRIPTION:		BH/MW1-SS2	BH/MW2-SS1	BH/MW3-SS1	BH/MW4-SS1	BH/MW5-SS1
		G / S	RDL	Soil	Soil	Soil	Soil	Soil
				2021-10-08 09:00	2021-10-07 08:20	2021-10-08 11:30	2021-10-08 14:50	2021-10-06 08:30
				3196779	3196864	3196865	3196866	3196867
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.19	0.39	0.31	0.43	0.62

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils **pH range listed applies to surface soil only**
 Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Mylene Basch



Certificate of Analysis

AGAT WORK ORDER: 21T828695

PROJECT: BIGC-ENV-490C

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CLIENT NAME: B.I.G. CONSULTING INC.

SAMPLING SITE: 581-587 Argus Road, Oakville

ATTENTION TO: Rebecca Morrison

SAMPLED BY: MV

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

DATE RECEIVED: 2021-11-10

DATE REPORTED: 2021-11-18

Parameter	Unit	G / S	RDL	SAMPLE DESCRIPTION:				
				BH/MW1-SS2	BH/MW2-SS1	BH/MW3-SS1	BH/MW4-SS1	BH/MW5-SS1
SAMPLE TYPE:				Soil				
DATE SAMPLED:				2021-10-08 09:00	2021-10-07 08:20	2021-10-08 11:30	2021-10-08 14:50	2021-10-06 08:30
				3196779	3196864	3196865	3196866	3196867
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	<0.05	<0.05	0.25	0.10
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	<0.05	0.08	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	0.08	0.93	0.30
Pyrene	µg/g	78	0.05	<0.05	<0.05	0.08	0.85	0.26
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	<0.05	<0.05	0.47	0.11
Chrysene	µg/g	7	0.05	<0.05	<0.05	<0.05	0.37	0.08
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	0.40	0.09
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	0.15	0.08
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	0.26	0.07
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	<0.05	<0.05	0.11	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<0.05	<0.05	<0.05	0.16	<0.05
1 and 2 Methyl naphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	17.1	14.2	10.0	15.1	15.2
Surrogate	Unit	Acceptable Limits						
Naphthalene-d8	%	50-140		105	78	124	112	106
Acridine-d9	%	50-140		77	85	91	103	107
Terphenyl-d14	%	50-140		85	99	117	105	63

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils **pH range listed applies to surface soil only**
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.

3196779-3196867 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:





Exceedance Summary

AGAT WORK ORDER: 21T828695

PROJECT: BIGC-ENV-490C

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

CLIENT NAME: B.I.G. CONSULTING INC.

ATTENTION TO: Rebecca Morrison

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3196866	BH/MW4-SS1	ON T2 S RPI CT	O. Reg. 153(511) - PAHs (Soil)	Fluoranthene	µg/g	0.69	0.93

Quality Assurance

CLIENT NAME: B.I.G. CONSULTING INC.

AGAT WORK ORDER: 21T828695

PROJECT: BIGC-ENV-490C

ATTENTION TO: Rebecca Morrison

SAMPLING SITE: 581-587 Argus Road, Oakville

SAMPLED BY: MV

Soil Analysis

RPT Date: Nov 18, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Including Hydrides) (Soil)															
Antimony	3196874		<0.8	<0.8	NA	< 0.8	118%	70%	130%	108%	80%	120%	106%	70%	130%
Arsenic	3196874		5	5	0.0%	< 1	113%	70%	130%	108%	80%	120%	105%	70%	130%
Barium	3196874		119	111	7.0%	< 2.0	108%	70%	130%	105%	80%	120%	100%	70%	130%
Beryllium	3196874		1.2	1.2	NA	< 0.4	108%	70%	130%	110%	80%	120%	114%	70%	130%
Boron	3196874		8	6	NA	< 5	77%	70%	130%	110%	80%	120%	108%	70%	130%
Cadmium	3196874		<0.5	<0.5	NA	< 0.5	95%	70%	130%	103%	80%	120%	105%	70%	130%
Chromium	3196874		35	33	5.9%	< 5	103%	70%	130%	104%	80%	120%	102%	70%	130%
Cobalt	3196874		14.1	14.1	0.0%	< 0.5	97%	70%	130%	105%	80%	120%	101%	70%	130%
Copper	3196874		23.0	23.0	0.0%	< 1.0	92%	70%	130%	107%	80%	120%	99%	70%	130%
Lead	3196874		24	22	8.7%	< 1	104%	70%	130%	107%	80%	120%	100%	70%	130%
Molybdenum	3196874		0.7	0.6	NA	< 0.5	107%	70%	130%	117%	80%	120%	113%	70%	130%
Nickel	3196874		27	27	0.0%	< 1	98%	70%	130%	105%	80%	120%	99%	70%	130%
Selenium	3196874		<0.8	<0.8	NA	< 0.8	104%	70%	130%	106%	80%	120%	105%	70%	130%
Silver	3196874		<0.5	<0.5	NA	< 0.5	104%	70%	130%	104%	80%	120%	101%	70%	130%
Thallium	3196874		<0.5	<0.5	NA	< 0.5	117%	70%	130%	111%	80%	120%	104%	70%	130%
Uranium	3196874		1.35	1.22	NA	< 0.50	117%	70%	130%	111%	80%	120%	107%	70%	130%
Vanadium	3196874		48.2	45.9	4.9%	< 0.4	112%	70%	130%	104%	80%	120%	100%	70%	130%
Zinc	3196874		94	92	2.2%	< 5	100%	70%	130%	107%	80%	120%	97%	70%	130%

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

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

Boron (Hot Water Soluble)	3196874		0.41	0.40	NA	< 0.10	88%	60%	140%	103%	70%	130%	113%	60%	140%
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Comments: NA signifies Not Applicable.
 Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By: _____



Quality Assurance

CLIENT NAME: B.I.G. CONSULTING INC.
 PROJECT: BIGC-ENV-490C
 SAMPLING SITE: 581-587 Argus Road, Oakville

AGAT WORK ORDER: 21T828695
 ATTENTION TO: Rebecca Morrison
 SAMPLED BY: MV

Trace Organics Analysis

RPT Date: Nov 18, 2021			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	3188273		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	70%	50%	140%	114%	50%	140%
Acenaphthylene	3188273		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	75%	50%	140%	75%	50%	140%
Acenaphthene	3188273		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	94%	50%	140%	96%	50%	140%
Fluorene	3188273		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	85%	50%	140%	93%	50%	140%
Phenanthrene	3188273		< 0.05	< 0.05	NA	< 0.05	90%	50%	140%	78%	50%	140%	92%	50%	140%
Anthracene	3188273		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	74%	50%	140%	104%	50%	140%
Fluoranthene	3188273		< 0.05	< 0.05	NA	< 0.05	96%	50%	140%	109%	50%	140%	78%	50%	140%
Pyrene	3188273		< 0.05	< 0.05	NA	< 0.05	105%	50%	140%	86%	50%	140%	85%	50%	140%
Benz(a)anthracene	3188273		< 0.05	< 0.05	NA	< 0.05	78%	50%	140%	95%	50%	140%	93%	50%	140%
Chrysene	3188273		< 0.05	< 0.05	NA	< 0.05	88%	50%	140%	77%	50%	140%	92%	50%	140%
Benzo(b)fluoranthene	3188273		< 0.05	< 0.05	NA	< 0.05	74%	50%	140%	71%	50%	140%	91%	50%	140%
Benzo(k)fluoranthene	3188273		< 0.05	< 0.05	NA	< 0.05	85%	50%	140%	85%	50%	140%	114%	50%	140%
Benzo(a)pyrene	3188273		< 0.05	< 0.05	NA	< 0.05	93%	50%	140%	93%	50%	140%	78%	50%	140%
Indeno(1,2,3-cd)pyrene	3188273		< 0.05	< 0.05	NA	< 0.05	92%	50%	140%	92%	50%	140%	95%	50%	140%
Dibenz(a,h)anthracene	3188273		< 0.05	< 0.05	NA	< 0.05	91%	50%	140%	104%	50%	140%	93%	50%	140%
Benzo(g,h,i)perylene	3188273		< 0.05	< 0.05	NA	< 0.05	97%	50%	140%	77%	50%	140%	92%	50%	140%

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: B.I.G. CONSULTING INC.

AGAT WORK ORDER: 21T828695

PROJECT: BIGC-ENV-490C

ATTENTION TO: Rebecca Morrison

SAMPLING SITE:581-587 Argus Road, Oakville

SAMPLED BY:MV

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES

Method Summary

CLIENT NAME: B.I.G. CONSULTING INC.
AGAT WORK ORDER: 21T828695
PROJECT: BIGC-ENV-490C
ATTENTION TO: Rebecca Morrison
SAMPLING SITE:581-587 Argus Road, Oakville
SAMPLED BY: MV

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE



AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
web: earth.agatlabs.com

Laboratory Use Only

Work Order #: 21T828695
Cooler Quantity: 2 days
Arrival Temperatures: 48 | 52 | 55
37 | 42 | 46
Custody Seal Intact: Yes No N/A
Notes: on file

Chain of Custody Record

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

Report Information:

Company: BIG Consulting Inc
Contact: Rebecca Morrison
Address: 12-5500 Tonken Road, Mississauga, Ontario, L4W2Z4

Phone: 6476748087 Fax: _____
Reports to be sent to:
1. Email: rmorrison@brownfieldigi.com
2. Email: mvaughan@brownfieldigi.com

Regulatory Requirements:

(Please check all applicable boxes)
 Regulation 153/04
Table 2
Indicate One
 Ind/Com
 Res/Park
 Agriculture
 Excess Soils R406
Table _____
Indicate One
Region _____
 Sewer Use
 Sanitary Storm
 Regulation 558
 Prov. Water Quality Objectives (PWQO)
Soil Texture (Check One)
 Coarse
 Fine
 CCME
 Other
Indicate One _____

Project Information:

Project: BIGC-ENV-490A
Site Location: 581-587 Argus Road, Oakville
Sampled By: MV
AGAT Quote #: _____ PO: _____
Please note: If quotation number is not provided, client will be billed full price for analysis

Is this submission for a Record of Site Condition?

Yes No

Report Guideline on Certificate of Analysis

Yes No

Invoice Information:

Bill To Same: Yes No
Company: _____
Contact: _____
Address: _____
Email: _____

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y / N	Field Filtered - Metals, Hg, CrVI, DOC	0. Reg 153	0. Reg 406	Potentially Hazardous or High Concentration (Y/N)
								Metals & Inorganics Metals - <input type="checkbox"/> CrVI, <input type="checkbox"/> Hg, <input type="checkbox"/> HWSB BTEX, FL-F4 PHCs Analyze F4G if required <input type="checkbox"/> Yes <input type="checkbox"/> No PAHs PCBs VOC	Landfill Disposal Characterization TQ.P. TQ.P. <input type="checkbox"/> M&I <input type="checkbox"/> VOCs <input type="checkbox"/> A&Bs <input type="checkbox"/> B&P <input type="checkbox"/> PCBs Excess Soils SPLP Rainwater Leach SPLP: <input type="checkbox"/> Metals <input type="checkbox"/> VOCs <input type="checkbox"/> SVOCs Excess Soils Characterization Package pH, ICPMS Metals, BTEX, FL-F4 Salt - EC/SAR	
BH/MW1-SS2	21-10-8	9:00 AM	2	S				<input checked="" type="checkbox"/>		
BH/MW2-SS1	21-10-7	8:20 AM	2	S				<input checked="" type="checkbox"/>		
BH/MW3-SS1	21-10-8	11:30 AM	2	S				<input checked="" type="checkbox"/>		
BH/MW4-SS1	21-10-8	14:50 AM	2	S				<input checked="" type="checkbox"/>		
BH/MW5-SS1	21-10-6	8:30 AM	2	S				<input checked="" type="checkbox"/>		
		AM								
		PM								
		AM								
		PM								
		AM								
		PM								

Samples Relinquished By (Print Name and Sign): <u>Matt Vaughan</u>	Date: <u>21-11-10</u>	Time: <u>16:50</u>	Samples Received By (Print Name and Sign): <u>John V...</u>	Date: <u>21 Nov/10</u>	Time: <u>4:55</u>
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:
Samples Relinquished By (Print Name and Sign):	Date:	Time:	Samples Received By (Print Name and Sign):	Date:	Time:

Document ID: 027-70-1951-001

CLIENT NAME: B.I.G. CONSULTING INC.
12-5500 TOMKEN ROAD
MISSISSAUGA, ON L4W 2Z4
416-214-4880
ATTENTION TO: Rebecca Morrison
PROJECT: BIGC-ENV-490D
AGAT WORK ORDER: 22T872058
TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer
DATE REPORTED: Mar 15, 2022
PAGES (INCLUDING COVER): 5
VERSION*: 1

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

*Notes

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.

Certificate of Analysis

AGAT WORK ORDER: 22T872058

PROJECT: BIGC-ENV-490D

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

CLIENT NAME: B.I.G. CONSULTING INC.

SAMPLING SITE: 581 Argus Road, Oakville, ON

ATTENTION TO: Rebecca Morrison

SAMPLED BY: TD

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

DATE RECEIVED: 2022-03-10

DATE REPORTED: 2022-03-15

Parameter	Unit	SAMPLE DESCRIPTION:		BH/MW4	Dup40
		G / S	RDL	3607380	3607381
Naphthalene	µg/L	1400	0.20	<0.20	<0.20
Acenaphthylene	µg/L	1.8	0.20	<0.20	<0.20
Acenaphthene	µg/L	600	0.20	<0.20	<0.20
Fluorene	µg/L	400	0.20	<0.20	<0.20
Phenanthrene	µg/L	580	0.10	<0.10	<0.10
Anthracene	µg/L	2.4	0.10	<0.10	<0.10
Fluoranthene	µg/L	130	0.20	<0.20	<0.20
Pyrene	µg/L	68	0.20	<0.20	<0.20
Benzo(a)anthracene	µg/L	4.7	0.20	<0.20	<0.20
Chrysene	µg/L	1	0.10	<0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.75	0.10	<0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.4	0.10	<0.10	<0.10
Benzo(a)pyrene	µg/L	0.81	0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.52	0.20	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	1800	0.20	<0.20	<0.20
Sediment				NO	NO
Surrogate	Unit	Acceptable Limits			
Naphthalene-d8	%	50-140		66	69
Acridine-d9	%	50-140		90	117
Terphenyl-d14	%	50-140		89	87

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Non-Potable Ground Water - All Types of Property Uses - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

3607380-3607381 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.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:



Quality Assurance

CLIENT NAME: B.I.G. CONSULTING INC.

AGAT WORK ORDER: 22T872058

PROJECT: BIGC-ENV-490D

ATTENTION TO: Rebecca Morrison

SAMPLING SITE: 581 Argus Road, Oakville, ON

SAMPLED BY: TD

Trace Organics Analysis

RPT Date: Mar 15, 2022			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 (Water)																
Naphthalene	3607380	3607380	< 0.20	< 0.20	NA	< 0.20	112%	50%	140%	106%	50%	140%	71%	50%	140%	
Acenaphthylene	3607380	3607380	<0.20	<0.20	NA	< 0.20	110%	50%	140%	106%	50%	140%	102%	50%	140%	
Acenaphthene	3607380	3607380	<0.20	<0.20	NA	< 0.20	113%	50%	140%	105%	50%	140%	114%	50%	140%	
Fluorene	3607380	3607380	<0.20	<0.20	NA	< 0.20	110%	50%	140%	108%	50%	140%	112%	50%	140%	
Phenanthrene	3607380	3607380	<0.10	<0.10	NA	< 0.10	104%	50%	140%	107%	50%	140%	110%	50%	140%	
Anthracene	3607380	3607380	<0.10	<0.10	NA	< 0.10	114%	50%	140%	99%	50%	140%	110%	50%	140%	
Fluoranthene	3607380	3607380	<0.20	<0.20	NA	< 0.20	112%	50%	140%	105%	50%	140%	115%	50%	140%	
Pyrene	3607380	3607380	<0.20	<0.20	NA	< 0.20	107%	50%	140%	108%	50%	140%	113%	50%	140%	
Benzo(a)anthracene	3607380	3607380	<0.20	<0.20	NA	< 0.20	95%	50%	140%	107%	50%	140%	95%	50%	140%	
Chrysene	3607380	3607380	<0.10	<0.10	NA	< 0.10	116%	50%	140%	91%	50%	140%	105%	50%	140%	
Benzo(b)fluoranthene	3607380	3607380	<0.10	<0.10	NA	< 0.10	62%	50%	140%	96%	50%	140%	90%	50%	140%	
Benzo(k)fluoranthene	3607380	3607380	<0.10	<0.10	NA	< 0.10	68%	50%	140%	101%	50%	140%	107%	50%	140%	
Benzo(a)pyrene	3607380	3607380	<0.01	<0.01	NA	< 0.01	66%	50%	140%	100%	50%	140%	96%	50%	140%	
Indeno(1,2,3-cd)pyrene	3607380	3607380	<0.20	<0.20	NA	< 0.20	66%	50%	140%	94%	50%	140%	85%	50%	140%	
Dibenz(a,h)anthracene	3607380	3607380	<0.20	<0.20	NA	< 0.20	64%	50%	140%	92%	50%	140%	83%	50%	140%	
Benzo(g,h,i)perylene	3607380	3607380	<0.20	<0.20	NA	< 0.20	66%	50%	140%	94%	50%	140%	86%	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: B.I.G. CONSULTING INC.

AGAT WORK ORDER: 22T872058

PROJECT: BIGC-ENV-490D

ATTENTION TO: Rebecca Morrison

SAMPLING SITE:581 Argus Road, Oakville, ON

SAMPLED BY:TD

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			

