

HYDROGEOLOGICAL INVESTIGATION

26-38 Hounslow Avenue, Toronto, Ontario, M2N 2A8

Client

Hounslow Holdings Inc. 3300 Bloor Street West, Suite 1800 Toronto, Ontario, M8X 2X2

Project Number

BIGC-GEO-154H

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Date Submitted

September 21, 2023 (Revision 4)

Table of Contents

1	Introduction 1					
	1.1	Project Description	1			
	1.2	Project Objectives	1			
	1.3	Scope of Work	1			
	1.4	Previous Reports	2			
	1.4.1	Shad Preliminary Geotechnical Investigation Report	2			
	1.4.2	BIG Preliminary Geotechnical Investigation	2			
2	Regio	nal Setting	3			
	2.1	Regional Physiography	3			
	2.2	Regional Geology	3			
	2.3	Regional Hydrogeology	3			
3	Site S	etting	4			
	3.1	Site Topography and Drainage	4			
	3.2	Local Surface Water Features	4			
	3.3	MECP Water Well Review	4			
	3.4	Existing Permit to Take Water and Environmental Activity and Sector Registry Search	4			
4	Field	Program	5			
	4.1	Borehole and Monitoring Well Details	5			
	4.2	Site Specific Overburden Geology	5			
	4.3	Water Level Monitoring	6			
	4.4	Hydraulic Conductivity Testing	8			
	4.5	Groundwater Sampling	8			
5	Temp	porary Construction Dewatering	10			
	5.1	Construction Dewatering Requirements	.10			
	5.2	Construction Dewatering Flow Rate Assumptions	.10			
	5.3	Dewatering Flow Rate Equation	. 10			
	5.4	Radius of Influence	.11			
	5.5	Rainfall	.11			
	5.6	Results of Construction Dewatering Flow Rate Estimates	.12			
6	Long	Term Discharge Estimate	13			
	6.1	Long-Term Dewatering Assumptions	.13			
	6.2	Radius of Influence	.13			
	6.3	Long-Term Perimeter Drain Flow Rate Estimate	.13			
7	Poter	ntial Groundwater Impacts	15			
	7.1	Impacts to Nearby Groundwater Users	.15			
	7.2	Impacts to Nearby Structures	. 15			
8	Wate	r Taking and Discharge Permits	16			
-	8.1	EASR	.16			
	8.2	City of Toronto Sewer Discharge Agreement	16			
9	Conc	/ Jusions	17			
10	Limit	ations	18			
11	Rofor	ances	19			
**	Neiel					

List of Figures

- Figure 1 Site Location Map
- Figure 2 Physiographic Regions of Southern Ontario
- Figure 3Surficial Geology of Southern Ontario
- Figure 4 MECP Water Well Record Location Plan
- Figure 5EASR Record Location
- Figure 6Borehole/Monitoring Well Location Plan
- Figure 7 Geological Cross Section A-A'
- Figure 8 Interpreted Shallow Groundwater Contour Map

List of Appendices

Appendix A	Borehole Logs
Appendix B	MECP Water Well Summary and Construction Dewatering Record
Appendix C	SWRT Procedures and Results
Appendix D	Water Quality Laboratory Certificate of Analysis and Chain of Custody
Appendix E	Construction Dewatering Estimate Rate Calculation
Appendix F	Long Term Drainage Flow Rate Estimate Calculation

Revision History

Revision Date
May 30, 2017
November 13, 2019
November 10, 2020
April 16, 2021



1 Introduction

1.1 **Project Description**

B.I.G. Consulting Inc. (BIG) was retained by Hounslow Holdings Inc. to update the previous Hydrogeological Investigation, conducted by BIG to support the proposed development of the site located at 26-38 Hounslow Avenue, Toronto, Ontario, M2N 2A8 (Site). A previous report titled, "Hydrogeological Investigation Update, 26-36 Hounslow Avenue, North York, Ontario", was prepared by BIG on April 16, 2021. It is BIG's understanding that the proposed building design has been revised and consists of a twenty four (24)-storey residential building with two (2) levels of underground parking according to drawing A6.00 Section A, prepared by Studio JCI (JCI), dated August 31, 2023. This report was prepared to address the revised building design.

The Site is located north of Hounslow Avenue and east of Beecroft Road, in Toronto, Ontario, as shown on Figure 1. The Site measures approximately 2,380 m² in size. The Site is currently occupied by four (4) residential buildings. The areas surrounding the residential buildings are covered with asphalt and landscaping. A Site Location Plan is provided in Figure 1.

The following investigations completed for the Site were reviewed by BIG:

- Preliminary Geotechnical Investigation Report, Proposed Residential Development, 26, 28 and 36 Hounslow Avenue, Toronto, Ontario, dated July 25, 2016, prepared by Shad & Associates Inc. (Shad); and,
- Preliminary Geotechnical Investigation, 26-38 Hounslow Avenue, Toronto, Ontario, dated October 22, 2019, prepared by BIG.

This report addresses the hydrogeological aspects of the proposed project. Reports for the Geotechnical Investigation will be issued under separate cover. The field investigation for the geotechnical, and hydrogeological investigations was carried out concurrently.

1.2 Project Objectives

The main objectives of the Hydrogeological Investigation were to:

- a) Establish the subsurface geological and hydrogeological conditions at the expected foundation elevation;
- b) Re-assess any potential construction dewatering flow rates;
- c) Re-assess foundation sub-drain discharge volumes, if applicable; and,
- d) Prepare an Updated Hydrogeological Investigation Report.

1.3 Scope of Work

To achieve the investigation objectives, BIG proposed and initiated the following scope of work:

- a) Background desktop review of pertinent geological and hydrogeological resources;
- b) Review of the Ministry of Environment, Conservation and Parks (MECP) Water Well Records;
- c) Drill two (2) boreholes (BH401 and BH402) to maximum depth of 25.0 m below ground surface (bgs) and instrument with one (1) monitoring well (BH/MW402);
- d) Utilizing the monitoring wells (BH/MW101 to BH/MW107, BHMW201 to BH/MW203) drilled at the Site by BIG to investigate the subsurface groundwater conditions;
- e) Perform slug tests at the newly installed monitoring well to assess the hydraulic characteristics of the saturated soils at the Site;
- f) Conduct one (1) round of groundwater level measurement at all available monitoring wells;



- g) Evaluate the information collected during the field investigation program, including borehole geological information, groundwater level measurements and groundwater water quality;
- h) Collection of one (1) groundwater sample for laboratory testing and compare it against the City of Toronto Storm and Combined/Sanitary Sewer Use By-Law parameters;
- i) Preparation of site plan, cross section, geological mapping, and groundwater contour mapping for the Site;
- j) Re-assessment of construction dewatering flow rates;
- k) Re-assessment of long-term foundation sub-drain flow rates; and,
- I) The preparation of an Updated Hydrogeological Investigation Report.

1.4 Previous Reports

1.4.1 Shad Preliminary Geotechnical Investigation Report

Shad completed a Preliminary Geotechnical Investigation report, dated July 25, 2016 that consisted of advancement of three (3) boreholes (BH1 to BH3).

1.4.2 BIG Preliminary Geotechnical Investigation

BIG completed a Preliminary Geotechnical Investigation, dated October 22, 2019. The investigation consisted of the advancement of three (3) boreholes (BH201 to BH203), installation of three (3) monitoring wells (MW201 to MW203) and submitted soil samples for grain size analysis.



2 Regional Setting

2.1 Regional Physiography

The Site is located in the Peel Plain physiographic region of Southern Ontario known as the bevelled till plain (Chapman & Putnam, 2007). Figure 2 shows the physiographic regions of southern Ontario around the Site.

The topography of the area is generally described as gradual downward slope towards Lake Ontario. Surficial overburden deposits in this physiographic region is primarily composed of a clay silt till.

2.2 Regional Geology

The surficial geology of the immediate area around the Site described as till consisting of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain. The surficial geology for the Site and surrounding areas is shown on Figure 3.

Bedrock of the region corresponds to the Georgian Bay Formation, Blue Mountain Formation, Billings Formation, Collingwood Member and Eastview Member consisting of shale, limestone, dolostone, and siltstone. The bedrock is expected at depths of approximately 70 m bgs at the Site.

2.3 Regional Hydrogeology

Groundwater movement through the subsurface is controlled by hydraulic gradients, the physical characteristics of the sediments, and the interconnectedness of lithological formations. Fine grained sediments restrict lateral movement of groundwater and induce vertical infiltration, while coarse grained sediments allow vertical flow with increased transmissivity.

The regional shallow groundwater flow is expected to follow the local topography and discharge to local area creeks and streams. Local deviation from the regional groundwater flow directions may occur in response to changes in topography and/or soil stratigraphy, as well as the presence of surface water features and/or existing subsurface infrastructure.

No local aquifers were identified that could negatively impact the subject Site.



3 Site Setting

3.1 Site Topography and Drainage

The Site is rectangular in shape and has an area of approximately 2,380 m². The Site is currently occupied by four (4) residential buildings. The Site gently slopes from north to southwest, with an elevation range between 184.77 m and 183.3 m above sea level (asl) based on the geodetic survey conducted by BIG. Precipitation falling within the Site is inferred to be directed to the nearby City of Toronto catch basins.

3.2 Local Surface Water Features

There are no surface water bodies on or immediately adjacent to the Site. The closest surface water body to the Site is the Newtonbrook Creek, which is situated approximately 1.7 km northeast of the Site, Don River West Branch is situated approximately 2.6 km west of the Site and Lake Ontario is situated approximately 16 km south of the Site. The Site is situated within the Lake Ontario watershed and is not within a Toronto and Region Conservation Authority (TRCA) regulated area.

3.3 MECP Water Well Review

Well Records from the MECP Water Well Record Database (WWR) were reviewed to determine the number of water wells and those locations present within a 500 m radius of the Site boundaries.

The MECP WWR database indicated that there were 74 well records within a 500 m radius of the Site. All identified well records are marked on Figure 4. A summary of the Water Well Records is included in Appendix B. A review of the records indicate that the majority of the wells were classified as observation wells, monitoring and test holes for 500 m radius of the Site. No supply water well was identified within 500 m of the Site.

3.4 Existing Permit to Take Water and Environmental Activity and Sector Registry Search

The MECP maintains a database of all active and expired Permit to Take Water (PTTW) and Sector Registry (EASR) items related to Construction Dewatering. There are six (6) active EASR registrations within 1 km of the Site and they are summarized in Table B-2, Appendix B. The location for the registrations is shown on Figure 5.



4 Field Program

4.1 Borehole and Monitoring Well Details

BIG advanced two (2) boreholes (BH401, and BH402) to a maximum depth of 25.0 m bgs on August 14 and 15, 2023, and instrumented with one (1) monitoring well (BH/MW402). The boreholes were advanced by using truck mounted hollow stem continuous flight auger equipment under the direction and supervision of BIG field personnel. Soil samples were retrieved at regular intervals with a 50 mm outside diameter split barrel sampler drive and accordance with the Standard Penetration Test Procedure (ASTM D1586). The samples were logged in the field and returned to the BIG laboratory for detailed visual examination. The borehole records and monitoring well construction details are included in Appendix A.

The following monitoring wells were previously installed by BIG at the Site:

- a) Seven (7) monitoring wells (BH/MW101 to BH/MW107) installed by BIG to maximum depth of 9.8 m bgs in 2017.
- b) Three (3) monitoring wells (BH/MW201 to BH/MW203) installed by BIG to maximum depth of 13.1 m bgs in 2019.

The borehole records and monitoring well construction details are included in Appendix A. Figure 6 is a detailed Borehole/Monitoring Well Location Map of the Site.

4.2 Site Specific Overburden Geology

The borehole locations are shown on Figure 6 and detailed subsurface conditions are presented on the borehole logs in Appendix A. The following table is provided in addition to the borehole descriptions to provide a general summary of the soil conditions. The soil descriptions are predominately based on BIG's investigation, however, where applicable soil conditions encountered during previous investigation by others are included. The soil boundaries indicated on the borehole logs and discussed herein are inferred from the visual observations and auger resistance and should not be regarded as exact planes of geological change.

Layer	Description
Topsoil	Approximately 230 mm thick topsoil was encountered at borehole location. Topsoil, in general, consisted of high contents of organics and rootlets. It should be noted that topsoil thickness may vary significantly due to some on-site activities.
Fill	Below topsoil, earth fill predominantly containing clayey silt was encountered that extended to the depth of 0.9 m bgs. The fill also consisted of trace, trace gravel, and trace gravel.
Clayey Silt/Silty Clay Till	Below fill, native glacial clayey silt/silty clay till deposit was encountered that extended to the depth of 16.5 m bgs. Till deposit also contained trace to some sand and trace gravel.
Sand/Silty Sand/Sandy Silt Till	Below clayey silt/silty clay till glacial deposit, deposit of sand was encountered that extended to the borehole termination depths of about 17.4 to 25.0 m bgs.

The soil conditions encountered at the borehole locations are summarized below. A stratigraphic crosssection across the property as aligned on Figure 6 is included as Figure 7.



4.3 Water Level Monitoring

Water levels at each of the borehole and monitoring well locations were recorded both during the initial drilling and after installation. A summary of all water level observations is included below in Table 4-1. Groundwater was observed in all monitoring wells except BH/MW105, BH/MW106, and BH/MW107 on August 17, 2023. The shallow wells, BH/MW101 to BH/MW104 had recorded water elevations between 180.80 m to 179.34 m asl. The intermediate well, BH/MW203 had recorded water elevation of 171.72 m asl. The deep well, BH/MW402 had recorded water elevation of 163.17 m asl. BH/MW201 and BH/MW202 were dry during the monitoring event.

The three (3)-month water level monitoring was completed and included below in Table 4.1. The monitoring data indicated that there was marginal groundwater fluctuation.

An interpreted shallow groundwater contour map for the monitoring well water level measurements recorded on August 17, 2023 are included as Figure 8. Based on the water level measurements obtained, the inferred direction of shallow groundwater flow across the Site is interpreted to be in the southeast direction.

Seasonal variability can produce significant changes to the static water level. It has been observed that groundwater can rise and lower in response to changing weather and climate. It is also likely that some wells may take prolonged periods of time to equilibrate and provide true representative groundwater levels.



Bercholo /	Ground	Coord (NAD27-76	linates Adj. MTM10)	Well	Octobe	er 9, 2019	Octobe	r 24, 2019	Novemb	oer 8, 2019	Novemb	er 22, 2019	Decemb	er 6, 2019	Decemb	er 19, 2019	Octobe	r 23, 2020	Augus	st 17, 2023
Well ID	Elevation (m asl)	Easting	Northing	Depth (m)	Water Level (m bgs)	Elevation (m asl)														
BH/MW101	183.31	627449.7	4848138.0	6.1	4.21	179.1	4.81	178.50	4.34	178.97	4.35	178.96	4.24	179.07	4.0	179.31	4.89	178.42	3.53	179.78
BH/MW102	184.60	627458.8	4848140.2	9.1	4.76	179.84	5.50	179.10	5.18	179.42	4.91	179.69	4.69	179.91	4.59	180.01	4.9	179.70	4.25	180.35
BH/MW103	183.59	627478.0	4848149.4	6.7	5.55	178.04	5.26	178.33	5.03	178.56	4.88	178.71	4.97	178.62	4.72	178.87	4.48	179.11	4.25	179.34
BH/MW104	183.41	627470.5	4848146.9	6.7	3.02	180.39	3.22	180.19	2.65	180.76	2.47	180.94	2.76	180.65	2.37	181.04	2.63	180.78	2.61	180.80
BH/MW105	184.34	627470.4	4848179.5	7.6	5.96	178.38	6.59	177.75	6.83	177.51	7.02	177.32	7.18	177.16	7.31	177.03	N/A	N/A	N/A	N/A
BH/MW106	184.50	627461.5	4848180.4	7.6	5.06	179.44	5.28	179.22	5.41	179.09	5.60	178.90	5.76	178.74	5.92	178.58	5.32	179.18	N/A	N/A
BH/MW107	184.77	627448.0	4848165.8	7.6	N/A	N/A	4.83	179.94	5.08	179.69	5.11	179.66	5.23	179.54	5.28	179.49	N/A	N/A	N/A	N/A
BH/MW201	183.31	627448.3	4848137.5	13.1	Dry	Dry	N/A	N/A	Dry	Dry										
BH/MW202	183.30	627443.7	4848138.0	10.7	Dry	Dry	Dry	Dry	10.38	172.92	9.11	174.19	10.01	173.29	10.18	173.12	10.72	172.58	Dry	Dry
BH/MW203	183.59	627478.7	4848147.9	12.8	11.62	171.97	11.55	172.04	11.39	172.20	11.12	172.47	11.23	172.36	11.26	172.33	11.97	171.62	11.87	171.72
BH/MW402	183.30	627445.2	4848138.1	21.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.13	163.17

Table 4-1: Monitoring Well Details and Water Level Elevations

Notes: N/A: Inaccessible



Hounslow Holdings Inc. Hydrogeological Investigation 26-38 Hounslow Avenue, Toronto, Ontario BIGC-GEO-154H September 2023

4.4 Hydraulic Conductivity Testing

The hydraulic conductivity test was completed to estimate the saturated hydraulic conductivity (K) of the soil at the well screen depth. Single Well Response Test (SWRT) analyses were conducted at newly installed monitoring wells.

Given that slug tests provided adequate aquifer properties, a pump test was not required.

During the SWRT, a slug of water was instantaneously removed from the well and the response to the water level was recorded. The hydraulic conductivity values for each of the tested wells were calculated from the SWRT data using Aqtesolv Software and the Bouwer-Rice solution for unconfined conditions. The semi-log plots for normalized drawdown versus time are included in Appendix C.

The summary of the hydraulic conductivity (K) values estimated from the SWRTs are provided below in Table 4-2:

Monitoring Well	Well Depth (m bgs)	Formation Screened	Estimated Hydraulic conductivity (m/s)
BH/MW101	6.1	Clay silt till	1.01 x 10 ⁻⁷
BH/MW102	9.1	Clay silt till	1.25 x 10 ⁻⁷
BH/MW103	6.7	Clay silt till	4.13 x 10 ⁻⁸
BH/MW104	7.6	Clay silt till	1.88 x 10 ⁻⁸
BH/MW107	7.6	Clay silt till	2.23 x 10 ⁻⁸
BH/MW201	13.1	Sandy silt till	5.57 x 10 ⁻⁷
BH/MW203	12.8	Sandy silt till	2.33 x 10 ⁻⁸
BH/MW402	21.3	Silty Sand	4.01 x 10 ⁻⁷

Table 4-2: Summary of Hydraulic Conductivity (K) Testing Results

Given the foundation excavation will be conducted within the clayey silt till, hydraulic conductivity values applicable for this water table are utilized in this project.

The SWRT provides estimate of K for the geological formation in the immediate media zone surrounding the well screen and may not be representative of bulk formation hydraulic conductivities. The hydraulic conductivity results for BH/MW201, BH/MW203 and BH/MW402 are characteristic of the sandy silt till and silty sand formation at that location and is not representative of the material encountered at basement level which at 7.5 m.

4.5 Groundwater Sampling

To assess the suitability for discharge of pumped groundwater to the City of Toronto Sanitary or Storm Sewer during dewatering activities, a groundwater sample was collected from BH/MW103 on October 10, 2019, October 23, 2020 and August 18, 2023. Prior to collection of the samples, approximately three (3) standing well volumes of groundwater were purged from the well.

The sample was collected and placed into pre-cleaned laboratory-supplied vials and/or bottles provided with analytical test group specific preservatives, as required. The sample was not field filtered. Dedicated nitrile gloves were used during sample handling. The groundwater sample was submitted to an independent laboratory, Bureau Veritas Laboratories, of Mississauga, Ontario, for analysis.

For the assessment purposes, the analytical results were compared to Table 1 – Limits for Sanitary and Combined Sewer Discharge (amended 2002-10-31 by By-Law No. 855-2002; 2010-07-08 by By-Law No.868-2010; 2016-02-4 by By-Law No.100-2016); and Table 2 – Limits for Storm Sewer Discharge



(amended 2010-07-08 by By-Law No 868-2010; 2016-02-4 by By-Law No.100-2016) of Toronto Municipal Code (Toronto Municipal Code Chapter 681, 2016).

The laboratory Certificate of Analysis (COA) and chain of custody are enclosed in Appendix D.

The laboratory analyses of groundwater collected from BH/MW103 identified no exceedances of Table 1 - Limits for Sanitary and Combined Sewer Discharge.

When compared against the Table 2 – Limits for Storm Sewer Discharge, the sample collected on October 10, 2019 indicated exceedances for total suspended solids (TSS) and total manganese; the sample collected on October 23, 2020 indicated exceedances for total manganese and Phenols; the sample collected on August 18, 2023 indicated no exceedances. A summary of the exceedances is provided in Table 4-3.

Table 4-3: Summary	of Analytical Results
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Parameter	Limits for Sanitary and Combined Sewer Discharge (Table 1) (mg/L)	Limits for Storm Sewer Discharge (Table 2) (mg/L)	Concentration for BH/MW103 (October 10, 2019) (mg/L)	Concentration for BH/MW103 (October 23, 2020) (mg/L)	Concentration for BH/MW103 (August 18, 2023) (mg/L)
Total Suspended Solids	350	15	120	11	<10
Total Manganese	5	0.05	0.330	1.16	0.025
Phenols	1.0	0.008	<0.0010	0.013	<0.0010

Notes:

Bold indicates concentration exceeds the Storm Sewer Discharge Limit.

If the groundwater encountered during excavation activities is discharged to the City of Toronto storm sewer or sanitary and combined sewer, pre-treatment prior to discharge will not be required based on the groundwater results of sample collected on August 18, 2023.

It is noted that an agreement to discharge to the City of Toronto will be required prior to discharging dewatering effluent, which includes both storm and groundwater.



5 Temporary Construction Dewatering

5.1 **Construction Dewatering Requirements**

The proposed development involves the construction of a twenty-four (24)-storey residential building with two (2) levels of underground parking according to proposed design drawings, prepared by JCI, dated August 31, 2023. Based on the drawing A6.00 Section A, prepared by JCI, dated August 31, 2023, the lowest basement finished floor elevation (FFE) is 175.30 m asl. The footing elevation is assumed approximately 2 m below FFE. For conservative purposes, the construction dewatering calculation is based on an open cut excavation at the present time. To excavate under dry conditions, the water level is anticipated to be lowered approximately 1.0 m below the excavation depth.

Once the design is finalized, BIG needs to review and re-evaluate the dewatering estimates. If the footing or foundation elevation is deeper than the assumptions in this report, additional investigation will be required.

The biweekly groundwater level monitoring program was completed, based on the available monitoring data, the highest water level for the Site is 181.04 m asl measured on December 19, 2019. The highest water level including fluctuation allowance was utilized for dewatering calculations.

Additional dewatering capacity may be required to maintain dry conditions within the excavation during and following significant precipitation events. It should be noted that the dewatering estimates provided in this report are based on the conceptual building information available at this time. If design details are changed (including any changes to excavation depth), the dewatering estimates must be revised to include the final layout of the development.

5.2 Construction Dewatering Flow Rate Assumptions

The assumptions used to the calculation of the dewatering rate for the proposed excavation for the residential building is presented in Table 5-1.

Input Parameter	Site	Notes	
Drepend surface Flourties	104.25 m col	Based on drawing A6.00 Section A, prepared by JCI,	
Proposed surface Elevation	184.35 m asi	dated August 31, 2023	
	175 20 m col	P2 FFE is 175.3 m asl based on drawing A6.00,	
LOWEST P2 FFE	175.30 m asi	Section A, prepared by JCI, dated August 31, 2023	
P2 Footing Elevation	173.30 m asl	Assumed 2 m below FFE	
	192.44 m col	Highest water level (December 19, 2019) plus	
Groundwater Elevation	183.44 m asi	fluctuation	
Dewatered Elevation Target	172.30 m asl	Assumed 1.0 m below the basement floor level	
Estimated Everyation Area	E4 m x 20 m	Based on drawing A3.00 Parking Level P2, prepared	
Estimated Excavation Area	54 m x 39 m	by JCI, dated August 31, 2023	
Hydraulic Conductivity (K) of	$1.25 \times 10^{-7} m/c$	Llighest Kuglug in glovou silt till	
Overburden	1.25 X 10 ° m/S	Highest K value in clayey slit till	

Table 5-1: Dewatering Rate Assumptions

5.3 Dewatering Flow Rate Equation

The Dupuit equation for steady flow from a radial source of an excavation through an unconfined aquifer resting on a horizontal impervious surface was used to obtain a flow rate estimate, and is expressed as follows:



$$\mathbf{Q}_{\mathbf{w}} = \frac{\pi \mathbf{K} \left(\mathbf{H}^2 - \mathbf{h}^2\right)}{\ln \left(\frac{\mathbf{R}_0}{r_e}\right)}$$

Where:

Q_w = Rate of pumping (m³/sec)

K = Hydraulic conductivity (m/s)

- H = Head beyond the influence of pumping (static groundwater elevation) (m)
- h = Head above base of aquifer at the excavation (m)

R_o = Radius of influence (m)

r_e = Effective radius (m)

It is expected that the initial dewatering rate will be higher in order to remove groundwater from within the overburden formation. The dewatering rates are expected to decrease once the target water level is achieved in the excavation footprint as groundwater will have been removed locally from storage resulting in lower seepage rates into the excavation. Additionally, the use of a continuous caisson shoring system will further reduce groundwater migration into the excavation reducing the ongoing seepage rate.

5.4 Radius of Influence

The Radius of Influence (ROI) for the construction dewatering is based on the empirical Sichardt equation. This equation is used to predict the distance at which the drawdown resulting from pumping is negligible. This equation is empirical and was developed to provide representative flow rates using the steady state flow dewatering equations, as discussed below.

It is noted that in steady state conditions, the radius of influence of pumping will extend until boundary flow conditions are reached and provide sufficient water inputs to the aquifer, such as recharge and surface water bodies.

The ROI of pumping (dewatering) for radial flow is calculated based on the Sichardt equation, which is described as follows:

 $R_0 = 3000 (H - h)\sqrt{K}$

Where:

K = Hydraulic conductivity (m/s)

- H = Static Saturated Head (m)
- h = Dynamic Saturated Head (m)

Based on the Sichardt equation, the ROI while dewatering may extend up to approximately 37.7 m from the centre of the excavation for Radial Flow (Lo=Ro/2). The ROI calculation is provided in Appendix E.

5.5 Rainfall

The dewatering rates at the Site should also include removing direct input of rainwater into excavation.

A 20 mm rain event was utilized for the estimate. Given that the total area of the excavation is approximately 54 m x 39 m, the estimated volume of direct rainwater to be collected in the excavation is 42,000 L for 20 mm rainfall event. The calculation for the rainfall input estimate is included in Table E-1, in Appendix E. This rate should be considered contingency volume subject to the timing and season of the construction.



5.6 Results of Construction Dewatering Flow Rate Estimates

Based on the assumptions provided in this report, the results of the dewatering rate estimate are as follows:

Location	Construction Dewatering	Construction Dewatering	Total Construction
	Flow Rate Without	Flow Rate Including	Dewatering Flow Rate
	Safety Factor (L/day)	Safety Factor of 3 (L/day)	including Rainfall (L/day)
Approximate excavation area	15,000	45,000	87,000

Table 5-2 Summary of Construction Dewatering Flow Rate Estimate

Construction dewatering flow rate estimates are provided in Table E-2, in Appendix E.

The total construction dewatering flow rate includes rainfall and a factor of safety of three (3) to account for seasonal fluctuations in the groundwater table, flow from beddings of existing sewers, and variation in hydrogeological properties beyond those encountered during the course of this study. This total dewatering flow rate also provides additional capacity for the dewatering contractors. Given that the predicted dewatering volumes does exceed the 50,000 L/day limit, an EASR for construction dewatering is required.

Given the low hydraulic conductivity value, a simplified sump pump dewatering method may be sufficient for groundwater control at the Site, the actual method of dewatering should be discussed with a qualified dewatering contractor.

At the detailed design stage of the project and subject to the geotechnical consideration and the shoring system configuration, the dewatering quantities suggested above can be re-evaluated to verify if reduction in discharge volume can be achieved.

Please note that it is the responsibility of the contractor to ensure dry conditions are maintained within the excavation at all times. The dewatering contractor should ensure that silt removal or replacement from subsoil be eliminated and monitored during construction dewatering at all times.

Additional pumping capacity may be required to maintain dry conditions within the excavation during and following significant precipitation events.

The maximum flow calculation is intended to provide a conservative estimate to account for unforeseeable conditions that may arise during construction. It should be noted that the dewatering estimate provided in this report are based on the proposed development information available at this time. If changes to the design are implemented (increase to planned excavation depths, widening of excavations, etc.), the dewatering estimates must be revised to include and reflect future changes.



6 Long Term Discharge Estimate

6.1 Long-Term Dewatering Assumptions

Given that the groundwater level is above foundation depths for the development, a permanent foundation sub-drain is recommended. At this time, final design details for below grade structures are not available. For the purposes of this assessment of the temporary construction dewatering, it is assumed that the underground parking level will feature a perimeter drain and sub-drain system installed at approximately 0.5 m below the lowest basement floor elevation. Table 6-1 presents the assumptions used to calculate the long-term drainage rate estimates.

Input Parameter	Site	Notes		
Proposed surface Elevation	194.25 m acl	Based on drawing A6.00 Section A, prepared JCI,		
Proposed surface Elevation	104.55 111 851	dated August 31, 2023		
Lowest D2 EEE	175 20 m acl	P2 FFE is 175.3 m asl based on drawing A6.00		
LOWEST PZ FFE	175.50 11 851	Section A, prepared by JCI, dated August 31, 2023		
Groundwater Elevation	192 <i>11</i> m acl	Highest water level (December 19, 2019) plus		
Groundwater Elevation	105.44 111 dSI	fluctuation		
Foundation Elevation /	174.80 m asl	Assumed 0.5 m below the becoment floor level		
Sub-drain Elevation Target	174.00 111 d31	Assumed 0.5 In below the basement noor level		
Estimated Drainage Area	E4 m x 20 m	Based on drawing A3.00 Parking Level P2, prepared		
Estimated Drainage Area	54 III X 59 III	by JCI, dated August 31, 2023		
Hydraulic Conductivity (K)	$1.25 \times 10^{-7} m/s$	Highest K value in clavey silt till		
of Overburden	1.23 × 10 11/3	nighest k value ill clayey sitt till		

Table 6-1 Dewatering Estimate Assumptions

6.2 Radius of Influence

The ROI calculation is a conservative methodology and is calculated based on the assumption of active pumping during long-term dewatering. It should be noted that there will be no active pumping during long-term dewatering. The foundation drains will be constructed below the floor slab and/or near the foundation and the groundwater would passively drain into these sub drains and discharged directly to sumps. The water collected in the sump will be discharged to the sanitary sewer. Due to the nature of overburden material, the groundwater will flow through the natural gradient that exists on the Site and passively flow into the foundation sub-drains and will not be actively pumped. Although, the ROI which was conservatively predicted was at 35.0 m from the centre of the sub-drain, over a period of time, the drawdown curve will be very close to the foundation walls and thus resulting in negligible ROI.

6.3 Long-Term Perimeter Drain Flow Rate Estimate

Based on the assumptions provided in this report (outlined in Section 6.1), the results of the long-term discharge volume estimate are summarized below:

Table 6-2 Summary of Long-Term Discharge Flow Rate

Flow Rate (Flow into Sub-drain after initial dewatering stages)	Long-Term Peak Flow Rate (L/day)	Notes
Flow into sub-drain after initial dewatering stages	39,000	Long term sub-drain flow value rounded based on Dupuit's equation including flow from centre of the Site. Safety factor of 3 was used.



The results for the estimate are available in Appendix F, Table F-1. The maximum flow rate estimates represent short term events and are not indicative of long-term continuous contributions to the drainage system. Intermittent cycling of sump pumps and seasonal fluctuation in groundwater regimes should be considered for pump specifications. Given the estimated peak long-term flow rate does not exceed 50,000 L/day, a PTTW is not required.

It should be noted that the dewatering estimates provided in this report are based on the proposed building information available at this time.

If the groundwater encountered during excavation activities is discharged to the City of Toronto storm sewer or sanitary and combined sewer, pre-treatment prior to discharge will not be required based on the groundwater results of sample collected on August 18, 2023.

It should be noted that the City of Toronto has implemented a policy for preserving sewer capacity for conveyance of sanitary sewage and sustain future growth by managing foundation drainage on-site rather than discharge to the City's sewers. The policy states that the long-term discharge of foundation drainage to the City's sanitary sewer system will not be permitted for any new Official Plan Amendment, Zoning By-Law Amendment, Plan of Subdivision or Site Plan application submitted after January 1, 2022. If there are technical infeasibilities for on-Site long-term groundwater management, an exemption application and approval from City of Toronto will be required.



7 Potential Groundwater Impacts

7.1 Impacts to Nearby Groundwater Users

The Site lies within a heavily urbanized area of Toronto, which features 100 % municipal water supply. There are no expected impacts to nearby groundwater users due to active dewatering.

7.2 Impacts to Nearby Structures

The ROI calculation is a conservative methodology and is calculated based on the assumption of active pumping during long-term dewatering. It should be noted that there will be no active pumping during long-term dewatering. The foundation drains will be constructed below the floor slab and/or near the foundation and the groundwater would passively drain into these sub drains and discharged directly to sumps. The water collected in the sump will be discharged to the sanitary sewer. Due to the nature of overburden material, the groundwater will flow through the natural gradient that exists on the Site and passively flow into the foundation sub-drains and will not be actively pumped. Although, the ROI which was conservatively predicted was at 35.0 m from the centre of the sub-drain, over a period of time, the drawdown curve will be very close to the foundation walls and thus resulting in negligible ROI.



8 Water Taking and Discharge Permits

8.1 EASR

During the active construction dewatering phase, the volume of water expected to be pumped exceeds the daily limit on groundwater taking under the Ontario Water Resources Act (50,000 L/day). Therefore, it is necessary to register the construction dewatering under the EASR guidelines, the total construction discharge rate for the Site is 87,000 L/day. The limit for water taking under an EASR is 400,000 L/day.

8.2 City of Toronto Sewer Discharge Agreement

The City of Toronto describes any water source not supplied by the City as private water. This includes groundwater and storm water that accumulates on a property. If private water is to be discharged into a City of Toronto sanitary or storm sewer, a permit under the City of Toronto Municipal Code, Chapter 681 must be granted. The discharge agreement features two types of approvals:

- Short Term Private Water Discharge Approval which covers temporary arrangements for activities such as construction dewatering, road work, etc.; and,
- Long Term Private Water Discharge Approval which is intended to cover long term discharges from building foundation drains and other applications.

Given the current consideration for short-term and long-term discharges, a Private Water Discharge Approval (PWDS) with the City of Toronto will be required.



9 Conclusions

Based on the findings of the Hydrogeological Investigation, the following summary of conclusions are provided:

- a) It is BIG's understanding that the proposed development will consist of a twenty-four (24) storey residential building with two (2) levels of underground parking according to the drawing A6.00 Section A, prepared by JCI, dated August 31, 2023;
- b) The Site is located within a physiographic region of Peel Plain known as the bevelled till plain;
- c) The surficial geology around the Site is described as till consisting of stone-poor, sandy silt to silty sand-textured till on Paleozoic terrain;
- d) The MECP Water Well Records indicate that there are 74 well records registered with the database within 500 m of the Site, and majority of the wells are for observation, monitoring and test purposes;
- e) Groundwater was observed in all monitoring wells except BH/MW105, BH/MW106, and BH/MW107 on August 17, 2023. The shallow wells, BH/MW101 to BH/MW104 had recorded water elevations between 180.80 m to 179.34 m asl. The intermediate well, BH/MW203 had recorded water elevation of 171.72 m asl. The deep well, BH/MW402 had recorded water elevation of 163.17 m asl. BH/MW201 and BH/MW202 were dry during the monitoring event;
- f) Based on the water level measurements obtained, the inferred direction of groundwater flow within the shallow overburden formation across the Site is towards the southeast;
- g) The estimated hydraulic conductivity for the overburden formation within the proposed excavation ranges between 5.57×10^{-7} m/s and 1.88×10^{-8} m/s;
- h) Based on the assumptions outlined in this report, the estimated total construction dewatering flow rate including rainfall for the proposed construction activities is approximately 87,000 L/day. Given the low hydraulic conductivity value, a simplified sump pump dewatering method may be sufficient for groundwater control at the Site, the actual method of dewatering should be discussed with a qualified dewatering contractor;
- i) Given that the predicted dewatering volumes does exceed the 50,000 L/day limit, an EASR for construction dewatering is required;
- j) The long-term peak flow rate of the foundation sub-drain is estimated to be approximately 39,000 L/day;
- k) The laboratory COA shows that no exceedance under Table 1 Limits for Sanitary and Combined Sewer Discharge;
- I) When compared against the most stringent Table 2 Limits for Storm Sewer Discharge, the sample collected on October 10, 2019 indicated exceedances for total suspended solids (TSS) and total manganese; the sample collected on October 23, 2020 indicated exceedances for total manganese and Phenols; the sample collected on August 18, 2023 indicated no exceedances; and,
- m) If the groundwater encountered during excavation activities is discharged to the City of Toronto storm sewer or sanitary and combined sewer, pre-treatment prior to discharge will not be required based on the groundwater results of sample collected on August 18, 2023.

It should be noted that the comments and recommendations in this report are based on the assumption that the present design concept described throughout the report will proceed to construction. Any changes to the design concept may result in a modification to the recommendations provided in this report. It is noted that these conclusions and recommendations should be read in conjunction with the entirety of the report.



10 Limitations

This report is based on a limited investigation designed to provide information to support an assessment of the current hydrogeological conditions within the study area. The conclusion and recommendations presented within this report reflect Site conditions existing at the time of the assessment. BIG must be contacted immediately if any unforeseen Site conditions are experienced during the dewatering activities. This will allow BIG to review the new findings and provide appropriate recommendations to allow the construction to proceed in a timely and cost-effective manner.

Our undertaking at BIG, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the geoscience profession. No other warranty or presentation, either expressed or implied, is included or intended in this report.

We trust that this information is satisfactory for your purposes. Should you have any questions or comments, please do not hesitate to contact this office.

Yours truly,

B.I.G. Consulting Inc.

Eileen Liu, M.Env.Sc., P.Geo. Manager, Hydrogeology Services



Prem Manicks, P.Geo.

Partner



11 References

Brownfield Investment Group Inc. (2017). Hydrogeological Investigation, 26 to 36 Hounslow Avenue, North York, Ontario, dated May 30, 2017.

Cashman, P. M. (2013). Groundwater Lowering in Construction: A Practical Guide to Dewatering (Second Ed.).

Chapman, L., & Putnam, D. (2007). Physiography of Southern Ontario. Miscellaneous Release, Data 228 ISBN 978-1-4249-5158-1. Ontario Geological Survey.

City of Toronto. (2016). Chapter 681 – Sewer Use Bylaw.

Ministry of the Environment, Conservation and Parks. (2017). Ontario Water Resources Act.

Ontario Water Resources Act, Ontario Regulation 387/04, as amended. (2016). Water Taking and Transfer.



FIGURES



















APPENDIX A: BOREHOLE LOGS





BH/MW 101

Sheet No. 1 of 1

250 Vaughan Valley Boulevard, Unit 2 Vaughan, Ontario L4H 3C3 Telephone: 416-214-4880 Email: info@brownfieldigi.com Web: www.brownfieldigi.com

Client:

Datum:

Geodetic BIG-ENV-154

Project #:

Mattamy Homes

Project Name: Hydrogeological Investigation

Drilling Date: 29/03/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m) 183.31	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITO WE DETA	ORING LL AILS
	~183.3		Paving Stones: 60 mm FILL: silty sand to clayey silt, some to trace gravel, brown, moist	SS1		5	83			33
1—			CLAYEY SILT TILL: trace gravel, brown, moist, stiff to very stiff	SS2		14	100		-	
2—		10/10/1		SS3		12	100			
3—		10/0/	Grey with increasing plasticity below 2.9 m	SS4		24	100	^	180.7	
			Wet seam	SS5		25	100		-	
4—										
5—		10/10/1		SS6		14	100		-	
6—									-	
3_ENVIRONMENTAL BIG-ENV-154.GPJ 30/5/17	~176.6		BH Terminated 6.7 m. Open to 6.1 m Dry upon completion Water level at 2.62 m on 09/05/17 Water level at 2.63 m on 17/05/17	SS7		19	5			



BH/MW 102

Sheet No. 1 of 1

250 Vaughan Valley Boulevard, Unit 2 Vaughan, Ontario L4H 3C3 Telephone: 416-214-4880 Email: info@brownfieldigi.com Web: www.brownfieldigi.com

Client:

Datum:

Geodetic

BIG-ENV-154 Project #:

Mattamy Homes

Project Name: Hydrogeological Investigation

Drilling Date: 29/03/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m) 184.60	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITO WE DET/	ORING LL AILS
	~184.3		Topsoil: 250 mm FILL: clayey silt, trace gravel, organics, organic staining, brown, moist, stiff to very stiff	SS1		2	70			88
1—	~183.2			SS2		5	92			
2—		8 8 8	organics/organic staining in upper levels, oxidized fissures, brown, moist, stiff to very stiff.	SS3		8	100			
3—		10/10/1		SS4		25	100			
		01010		SS5		21	100			
4—		14/4/4/	Grey, increasing plasticity below 3.7 m							
5—		9/1		SS6		16	100			
6—		0 10 10								
		10/0/0/0/0/		SS7		16	100	~	178.1	
7—			haaamina stiff halaw 7.0 m							
8—			Wet seam at 7.9 m	SS8		13	100			
ر ارد م		10/10/1	hard helpy 0.1 m							
1.00	~174.8	0111		SS9		28	100			
			BH Terminated 9.8 m. Open to 9.1 m Dry upon completion Water level at 6.74 m on 09/05/17 Water level at 6.48 m on 17/05/17							



BH/MW 103

Sheet No. 1 of 1

250 Vaughan Valley Boulevard, Unit 2 Vaughan, Ontario L4H 3C3 Telephone: 416-214-4880 Email: info@brownfieldigi.com Web: www.brownfieldigi.com

Mattamy Homes Client:

Datum: Geodetic

Project #:

BIG-ENV-154

Drilling Date: 29/03/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

Project Name: Hydrogeological Investigation

O DEPTH BELOW	ELEVATION (m) 183.59 ~183.5 ~183.4	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONIT Wi DET
1-	-	8 8 9	Granular FILL: 100 mm CLAYEY SILT TILL: trace gravel, brown, moist, stiff to very stiff Oxidized Fissures.	SS1 		11	100		-
2-		10/0/0/		SS3		16	100		-
		111111		SS4		21	100		
3-		11111	Grey, very stiff to stiff below 3.0 m	SS5		18	100		
4-		14/4/4						~	179.:
5-		111111		SS6		11	100		-
6-	_	11111		557		13	100		-
3_ENVIRONMENTAL BIG-ENV-154.GPJ 30/5/17	~176.9	8 X.	BH Terminated 6.7 m. Open to 6.7 m Dry upon completion Water level at 4.22 m on 09/05/17 Water level at 4.34 m on 17/05/17						



BH/MW 104

Sheet No. 1 of 1

250 Vaughan Valley Boulevard, Unit 2 Vaughan, Ontario L4H 3C3 Telephone: 416-214-4880 Email: info@brownfieldigi.com Web: www.brownfieldigi.com

Geodetic

Client: Mattamy Homes

Project #: BIG-ENV-154

Datum:

Project Name: Hydrogeological Investigation

Drilling Date: 01/05/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

BELOW E (m)		BRAPHY			TO!/(ann)		ERY (%)	LAB	MONITO	ORING
DEPTH GRAD	183.41	STRATIC	SIKAIIGKAPHT DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVE	ANALYSIS	DET	AILS
0	~183.3 ~183.2		Paving Stone: 60 mm / Granular: 170 mm / POSSIBLE FILL: clayey silt, trace gravel, brown, /	SS1		7	50			212
1—	~182.6		CLAYEY SILT TILL: trace gravel, brown, damp, stiff to very stiff	SS2		15	50			
2—		10101	oxidized fissures below 1.5 m to 4.6 m	SS3		17	100			
		0/0/0/0		SS4		29	100	~	180.8	V
3—		11111		SS5		18	100		-	
4—		1111	grey below 3.7 m							
5—		11111	moist, stiff below 4.6 m	SS6		10	100		-	
		10/10/	wet seam at 5.2 m						-	
6—		11111		SS7		13	83		-	
7—		11111								<u>- 1-1</u> -
8—		1 1 1 1 1	very stiff below 7.6 m	SS8		20	100		-	
	~175.2		BH Terminated 8.2 m Open to 7.6 m Dry upon completion Water level at 2.92 m on 09/05/17 Water level at 2.60 m on 17/05/17							


BOREHOLE LOG

BH/MW 105

Sheet No. 1 of 1

250 Vaughan Valley Boulevard, Unit 2 Vaughan, Ontario L4H 3C3 Telephone: 416-214-4880 Email: info@brownfieldigi.com Web: www.brownfieldigi.com

Mattamy Homes Client:

Datum:

Geodetic

Project #:

BIG-ENV-154

Project Name: Hydrogeological Investigation

Drilling Date: 01/05/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

_										_	-
DEPTH BELOW GRADE (m)	ELEVATION (m)	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITO WE DET/	ORIN ELL AILS	G
	~184.2		Topsoil: 150 mm POSSIBLE FILL: clayey silt, trace gravel, organics, trace of asphalt, oxidized, brown, moist, soft to stiff	SS1		3	50			21	
1—				SS2		7	100		-		
2—	~182.0			SS3		10	100				
2		X X X X X X	CLAYEY SILT TILL: trace gravel, oxidized fissures, brown, moist, very stiff	SS4		22	100		-		
J		1111		SS5		26	100				
4—		10/0/									
5—		11111	grey, stiff below 4.6 m	SS6		13	100		-		
6		11111									
		10/10/		SS7		14	100				
7—		11111						-	177.1		
8—	~176.1	1111	very stiff below 7.6 m	SS8		16	100			H	-
	~176.1		BH Terminated 8.2 m Open to 7.6 m Dry upon completion Water level at 7.34 m on 09/05/17 Water level at 7.25 m on 17/05/17								



BOREHOLE LOG

BH/MW 106

Sheet No. 1 of 1

250 Vaughan Valley Boulevard, Unit 2 Vaughan, Ontario L4H 3C3 Telephone: 416-214-4880 Email: info@brownfieldigi.com Web: www.brownfieldigi.com

Client:

Datum:

Geodetic

BIG-ENV-154 Project #:

Mattamy Homes

Project Name: Hydrogeological Investigation

Drilling Date: 01/05/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m) 184.50	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITO WE DETA	ORING LL AILS
	~184.4		Topsoil: 100 mm POSSIBLE FILL: clayey silt, trace gravel, organics, rootlets, brown, moist, firm to stiff	SS1		5	40			5 5
1—				SS2		13	100			
2—	~183.0		CLAYEY SILT TILL: trace gravel, oxidized, mottled brown, moist, very stiff	SS3		19	100			
3-				SS4		17	100			
		10/10/		SS5		18	100			
4—		61414								
5—		8 8 8	grey below 4.6 m	SS6		16	100			
6—										
		11/1/	Sun Delow 6.1 m	SS7		11	100	~	178.1	
7—		8/1/8	vorustiff bolow 7.6 m							
8—	~176.3		BH Terminated 8.2 m	SS8		16	100			
81G-ENV-154.GPJ 30/5/17			Open to 7.6 m Dry upon completion Water level at 6.93 m on 09/05/17 Water level at 6.43 m on 17/05/17							
BIG_ENVIRONMENTAL E										



BOREHOLE LOG

BH/MW 107

Sheet No. 1 of 1

250 Vaughan Valley Boulevard, Unit 2 Vaughan, Ontario L4H 3C3 Telephone: 416-214-4880 Email: info@brownfieldigi.com Web: www.brownfieldigi.com

Mattamy Homes Client:

Datum:

Geodetic

BIG-ENV-154 Project #:

Project Name: Hydrogeological Investigation

Drilling Date: 01/05/17

Site Address: 26-36 Hounslow Avenue, North York, Ontario

DEPTH BELOW GRADE (m)	ELEVATION (m) 184.77	STRATIGRAPHY	STRATIGRAPHY DESCRIPTION	SAMPLE ID	TOV (ppm)	N VALUES	RECOVERY (%)	LAB ANALYSIS	MONITO WE DETA	DRING LL AILS
	~184.6		Topsoil: 150 mm POSSIBLE FILL: clayey silt, trace gravel, organics, brown, moist, soft	SS1		3	90			2 È
1—	~184.0		CLAYEY SILT TILL: trace gravel, mottled brown, damp, stiff	SS2		13	90			
2—			oxidized below 1.5 m to 4.6 m, hard	SS3		36	100			
		10/10/	very stiff to hard below 2.3 m	SS4		30	100	~	182.1	.
3—		1111	very stiff below 3.1 m	SS5		23	100			
4—		11/1/								
5—		1 1 1 1 1	grey below 4.6 m	SS6		16	100			
6		10/0/0/0/								
0		11111	stiff below 6.1 m	SS7		13	100			
7—										
8—	~176.5	10/0/		SS8		14	100			<u>- 1-1-</u>
	~176.5		BH terminated 8.2 m Open to 7.6 m Dry upon completion Water level at 4.80 m on 09/05/17 Water level at 2.70 m on 17/05/17							



ſ

			F	RECO	ORD	OF E	BORE	HOLE	E No	o. B⊦	l/MV	V201					ME	TRIC	1 OF 1
PROJ	. NO. BIGC-ENV-154E	LOC	ATIC	DN _	26-38 H	Hounslov	/ Avenue	, Toronto									ORIG	INATED	BY <u>s.m.</u>
DATU	M <u>GEODETIC</u>	BOF	REHO	DLE T	PE _	Contin	ous flight	8 inches	, Hollo	w Stem	Auger						COM	PILED BY	′
PROJ	. NAME Preliminary Geotechnical Investigation	nDAT	Е <u></u>	2019.10	.02 - 20	19.10.02											CHE	CKED BY	
	SOIL PROFILE		5	SAMPL	ES	E .	ALE	DYNAM RESIST/	IC CON ANCE	NE PEN PLOT		TION		PLAST		JRAL	LIQUID	Ļ	REMARKS
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	ТҮРЕ	"N" VALUES	GROUND WAT CONDITIONS	ELEVATION SC	20 SHEAF O UNO	40 R STF CONFI CK TR	0 6 RENG ⁻ NED RIAXIAL	0 8 TH kP + ×	a FIELD LAB V					LIMIT W _L	γ Meigh	& GRAIN SIZE DISTRIBUTION (%)
183.31 0.0	DIRECT DRILL TO 6.1m							20	40	0 6	0 8	0 1	00	2	0 4	0 6	0	kN/m³	GR SA SI CL
<u>177.2</u> 6.1	CLAYEY SILT TILL: grey, moist, stiff - trace gravel between 6.1m to 6.71m	(1) (0) (0) (0) (0) (0) (0) (0) (0) (0) (0	. 1	SS1 SS2	10									0					
			3	SS3	10									0					
172.6] =													
10.7	SANDY SILT TILL: trace clay. grey, moist, dense		4	SS4	40									0					
	- silt layers from 12.2m to 12.8m -very dense below 12.2m	0 0	5	SS5	100									o					
		p	6	SS6	36									0					
	- trace gravel between 15.2m to 16.8m	0	7	SS7	27									o					
	-clayey silt layers	0	8	SS8	56									0					
165.0		4	-																
18.3	SAND: brown, damp to moist, very dense		9	SS9	63									o					
														0					
162.9	Borehole terminated at 20.42 m		. 10	SS10	35									С С					
20.7	Notes: 1. Well dry upon completion of drilling 2. Open to 13.3 upon completion of drilling																		

0^{3%} STRAIN AT FAILURE

	RECORD OF BOREHOLE No. BH/MW202 METRIC 1 OF 1 ROJ. NO. <u>BIGC-ENV-154E</u> LOCATION <u>26-38 Hounslow Avenue, Toronto</u> ORIGINATED BY <u>S.M.</u> ATUM <u>GEODETIC</u> BOREHOLE TYPE <u>Continuous flight, 8 inches, Hollow Stem Auger</u> COMPILED BY																ME	TRIC	1 OF 1
PROJ.	NO. BIGC-ENV-154E	LOC	ATIC	DN _	26-38 H	lounslow	Avenue	, Toront	0								ORIG	INATED	BY <u>s.m.</u>
DATU	M <u>GEODETIC</u>	BOF	REHC	DLE TY	PE	Contine	ous flight,	, 8 inche	es, Hollo	w Sterr	n Auger						COM	PILED BY	·
PROJ.	NAME_Preliminary Geotechnical Investigatio	DAT	Έ <u></u>	2019.10	.02 - 20	19.10.02											CHEC	CKED BY	
	SOIL PROFILE		s	SAMPL	ES	ц	щ	DYNAI RESIS	MIC CO TANCE	NE PEN PLOT		TION			NATI				REMADUS
		ь			S	WATEF ONS	SCAL	2	0 4	0 6	0 8	0 10	00	PLASTI LIMIT	C MOIS CON	JRAL TURE TENT	LIQUID LIMIT	NIT IGHT	REWARKS
ELEV	DESCRIPTION	T PLO	MBER	ΥΡΕ	ALUE	V DNL	TION	SHEA		RENG	TH kP	a		W _P	۷ (v >	WL	J M	GRAIN SIZE
DEPTH		STRA	Ŋ	ŕ	> "N"	GROL	LEVA	0 Ur • Qi	JICK TF	NED RIAXIAL	+ . ×	LAB VA	VANE NE	WAT	FER CC	NTENT	- (%)	γ	(%)
183.30	ASPHALT: 25mm						ш	2	0 4	0 6	8 0	0 10	00	2 	0 4	0 6	0	kN/m ³	GR SA SI CL
180.2	GRANULAR: 150mm	\bigotimes		551	8									o					
181.8	brick, brown, moist	X	2	882	18									o					
	oxidized fissures, brown, moist, very stiff		3	553	17									0					
		9	4	SS4	22									0					
			5	SS5	27														
														0					
	- grey between 4.9m to 5.0m		6	SS6	41														
														0					
	- grey, stiff below 6.1m		7	SS7	10									-					
														0					
	 very moist between 7.6m to 9.1m some stones between 7.6m to 10.7 	11	8	SS8	11														
														0					
		9	9	SS9	11									0					
172.6																			
10.7	SANDY SILT TILL: grey, moist, very dense	0	10	SS10	100									0					
170.5		a	11	SS11	100														
12.8	Borehole terminated at 12.8 m Notes:																		
	 Well dry upon completion of drilling Open to 10.7m upon completion of drilling 																		
	Grining																		

B.I.G. CCRSUTNG NC 12-5500 Tomken Road Mississauga, ON L4W 2Z4 www.bigconsultinginc.com



 ${\rm O}^{\,3\%}\,$ STRAIN AT FAILURE

roje	ct Client:	Mattamy Homes						Drilling	Method:	200 mm H	ollow Ste	m Auge	ering		Compiled by:	SS
roje	ct Name:	Geotechnical Investigation						Drilling	Machine:	CME 75 Tra	ck Moun	ted			Reviewed by:	
roje	ct Location:	26-38 Hounslow Avenue, Toror	nto					Date S	started:	20 Oct 20	Date	Comple	ted: 20 Oc	t 20	Revision No.:	0, 22/10
	LITH	OLOGY PROFILE	SO	IL SA	MPLI	NG			FIELD	TESTING	LA	B TES	TING			
		DESCRIPTION	ample Type	ample Number	ecovery (%)	PT 'N' Value	EPTH (m)	LEVATION (m)	Penetrai O SPT MTO Vane* △ Intact ▲ Remould * Undrained Sh	tionTesting DCPT Nilcon Vane ⁴ > Intact > Remould ear Strength (kPa;	 ★ Rinse 2 4 Soil ' Δ parts 100 ▲ Lower W_P ■ Plastic 	pH Values 6 8 Vapour F per million 200 30 Explosive W	10 12 Reading (ppm) 0 400 Limit (LEL) WL Liquid	USTRUMENTATION USTALLATION	COMMEN	ITS
G	TOPSOIL: 230	d Surface Elevation: 184.50 m 0 mm 184.27	s	S 1	10	s o	-	<u> </u>	20 40	60 80	20	40 6	0 80	<u> </u>		
	FILL: clayey s gravel, trace o	ilt, trace sand, trace 0.2 organics, dark brown, very moist,	55	1	46	9		184 -	0	• • • • • • • • • • • • • • • • • • •		•				
	CLAYEY SILT to some sand, hard	183.60 /SILTY CLAY TILL: trace 0.9 trace gravel, brown, moist, stiff to	SS	2	41	17	1	100	0		o ⁹					
			SS	3	67	36	2	183	0		o ¹⁰					
			SS	4	84	24		182 —	0		0 ¹²					
			SS	5	100	27		181 —	0		o ¹²					
		grey					4	180 —								
			SS	6	100	12	5		0	· · · · · · · · · · · · · · · · · · ·	o ¹¹					
							6	179 —								
, , ,		medium plasticity	SS	7	100	21		178 —	0		o ¹²					
							7	177 —								
		high plasticity	SS	8	100	14	8	-	0		o ¹³					
							9	176 —								
~ ; ;			SS	9	100	10		175 —	0		o ¹³					
							10 	174 —								
			SS	10	92	43	11	173 -	o)						
							12									
			SS	11	67	100	13	172 -			φ o ¹¹					
			SS	12	50	100		171 -			0 0 ⁸					
								170 -								
. G .	Consulting In 0 Tomken Rd	c. Groundwa	ater dep	th on co) ompletic	n of drill	E ₁₅ ling:	<u>Dry m</u> .		: :	:					

R	ECORD OF BOREHOLE N	o.]	BH3	<u>801</u>						B.I.G. GCNALTWG
Proj	ect Number: BIGC-ENV-154F					Drilli	ng Location: See Borehole	e Location Plan		Logged by: SKS
	LITHOLOGY PROFILE	SC	DIL SA	MPLI	NG		FIELD TESTING		-	
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value	DEPTH (m) ELEVATION (m)	PenetrationTesting O SPT ● DCPT MTO Vane* Nilcon Vane* △ Intact ◇ Intact Remould ◆ Remould * Undrained Shear Strength (kPa) 20 40 60 80		INSTRUMENTATION INSTALLATION	COMMENTS
	CLYEY SILT/SILTY CLAY TILL: trac: to some sand, trace gravel, brown, moist, stiff to and SAND: fine grained, trace silt, brown, 165 damp, very dense 167 df Borehole 174 Notes: 1. Borehole open and dry upon completion of drilling.	SS Sample Type	Lading Rumber	(%) Keconery (%)	82		O SPT DCPT MTO Vane* Nilcon Vane* A Remould Remould *Undrained Shear Strength (kPa) 20 40 60 80 O O O O O O O O O O O O O	A parts per million (ppm) ↓ ports per million (ppm) ↓ Lower Explosive Limit (LEL) Wp 0 0 0 Plastic Liquid 20 40 60 80 0 0 0 8 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0		COMMENTS
	Borehole details from a qualified d	as prese Seotechn	ented, do nical Engi	not const ineer. Als	itute a th o, boreho	norough unders	tanding of all potential conditions pres	sent and requires interpretative as e geotechnical report for which it	sistance was	Scale: 1 : 79

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R	ECORD OF BOREHOLE	No.	BH4	<u> 101</u>									10	B.L.G. GONEALTING
Pro	ject Number: BIGC-GEO-154H						Drilling	Location:	See boreh	ole loca	tion plan		_ Logged by:	CE
Pro	ject Client: <u>26 28 36 & 38 Hounslow A</u>	venue, Tor	onto, C				Drilling	Method:	<u>115 mm N</u>	/lud Rot	ary Drilling		Compiled by:	VB
Pro	ject Location: 26 28 36 & 38 Hounslow A	venue, Tor	onto, C	DN			Date S	started:	Aug 14, 23	Dat	te Completed: Aug	14, 23	Revision No.:	0, 8/31/23
		SC	DIL SA	MPLI	NG			FIELD	TESTING	— L	AB TESTING			
Lithology Plot	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD%	DEPTH (m)	ELEVATION (m)	Penetra O SPT MTO Vane* △ Intact ▲ Remould * Undrained St 20 40	tionTesting ● DCPT Nilcon Vane ◇ Intact ◆ Remould hear Strength (kPa 60 80		nse pH Values 4 6 8 10 12 oil Vapour Reading ths per million (pm) 0 200 300 400 wer Explosive Limit (LEL) 	INSTRUMENTATION INSTALLATION	COMMEN	TS
	bgs						183 -							
						- - - - - - - - - - - - - - - - - - -	182 -							
						2	181 -							
							180 -							
							179							
	17	77.21					178 -							
1 1 1 1 1 1	SILTY CLAY TILL: trace sand, trace gravel, grey, moist, very stiff to hard	6.1 SS	1	100	22		177	o		o ¹¹				
11111		SS	2	100	20		176 —	Ō		o ¹²	2			
A 1 8 1 8							175 -							
		SS	3	92	19		174 -	Ō		o ¹³	3	Gr: LL:	0%, Sa: 29%, Si: 51 20%, Pl: 8%	I%, CI: 20%
		SS	4	95	59	- - - - - - - - - - - - - - - - - - -	173 -		0	0,10				
		<u>71.61</u> 11.7					172 -							
		SS	5	100	97/28 cm		171 -		9 28 ci	0 0 ⁸				
B.I.C	5. Consulting Inc. 500 Tomken Rd. ⊆ No	freestanding	groundv	vater me	easured	in oper	n boreho	le on complet	ion of drilling.					
Can T: 4 F: 4	ada 16-214-4880 Borehole o from a qua commission	details as prese alified Geotechr ned and the acc	nted, do nical Eng companyi	not cons ineer. Als ing'Notes	titute a th so, boreho s to Recor	orough ole infori rd of Bor	understar mation sh reholes'.	iding of all pote ould be read in	ntial conditions conjunction with	present an the geote	d requires interpretative chnical report for which i	assistance t was	S Pa	Scale: 1 : 68

	sc	DIL SA		NG			FIELD TESTING	LAB TESTING		
DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD%	DEPTH (m)	ELEVATION (m)	PenetrationTesting O 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 ▲ cover Explosive Limit (LEL) Wp W W Plastic Liquid 20 40 60 80 80 80	INSTRUMENTATION INSTALLATION	COMMENTS
SILTY SAND TILL: trace clay, trace gravel, grey, moist, very dense	SS	6	100	50/10 cm	- - - - - - - - - - - - - - - - - - -	170 -	50 10 cm	o ¹³		
SILTY CLAY TILL: trace sand, trace gravel, 168.81 grey, moist, hard	ss	7	100	89	- - - - - - - - - - - - - - - - - - -	168 —	o	o ¹¹		
SILTY SAND: grey, moist, very dense167.11 16.2						167 —		24		
	SS	8	100	59		166 -	O.	o ⁻		
	SS	9	100	96/28 cm	- - - - - - - - - - - - - - - - - - -	165 — 164 —	96 28 cm	o o ¹⁰		Gr: 0%, Sa: 67%, Si: 30%, Cl: 34
	SS	10	100	89/25 cm	20 	163 -	89 25 cm	o ¹⁰		
	SS	11	100	84/28 cm	21 1 1 1 1 1 22	162 -	84 28 cm	o ^{†4}		
SILTY SAND TILL: trace gravel, trace clay, gre%2.2 moist, very dense	SS	12	66	96/28 cm	23	161 - 160 -				
grey	ss	13	87	57	24	159 -	Q	80 ¹⁸		
158.32 End of Borehole 25.0 Notes: 1. Borehole open upon completion of drilling. 1. Ground water level could not be measured due to mud rotary drilling.					-					

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RI	ECORD OF	BOREHOLE N	o.	BH/	MW	<u>402</u>							10	BLG. CONSULTION
Pro	ject Number: BIGC	-GEO-154H						Drilling	Location:	See boreho	le location plan		Logged by:	CE
Pro	ject Client: 26 28	36 & 38 Hounslow Aven	ue, Tor	onto, C	ON			Drilling	Method:	<u>115 mm M</u>	ud Rotary Drilling		_ Compiled by:	VB
Pro	ject Name: <u>Geote</u>	echnical and Hydrogeolo	gical Ir	ivestig	ations			Drilling	Machine:	Track Moun	ted Drill		_ Reviewed by:	RM
Pro	ject Location: 26 28	36 & 38 Hounslow Aven	ue, Tor	onto, C	ON			Date S	started:	Aug 15, 23	_ Date Complete	d: <u>Aug 15, 23</u>	Revision No.:	0, 8/31/23
	LITHOLOG	BY PROFILE	SC	DIL SA	MPLI	NG %			FIELD	TESTING	LAB TESTI ★ Rinse pH Values	NG		
ithology Plot	DESC	CRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD	DEPTH (m)	ELEVATION (m)	O SPT MTO Vane* △ Intact ▲ Remould * Undrained Sh 20 40	DCPT Nilcon Vane* Intact Remould ear Strength (kPa) 60 80		12 - 22 adding mm) 400 mit (LEL) W Liquid 80 NRZHCHATION NRZALLATION NRZALLATION NRZALLATION	COMMEN	TS
	CONTINUOUS AUGE	R DRILLING TO 6.10 m					Ē	183 -		· · ·		문왕 문왕 신왕 신왕 전왕		
								182 —						
								181 -						
								179 -						
							5	178 —						
1 8 1 8 1 Y Y Y Y Y	CLAYEY SILT TILL: tr grey, moist, stiff to har	177.20 race sand, trace gravel, 6.1 d	SS	1	95	13		177 -	0		o ¹²			
111111	high	n plasticity	SS	2	100	18		176 —	o		o ¹²			
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							- - - - - - - - - - - - - - - - - - -	175 -						
* * * * * * *			SS	3	100	19	- - - - - - - - - - - - - - - - - - -	174	Q		o ¹³			
1111111		171.80	SS	4	95	55		172 -				Gr: LL:	1%, Sa: 28%, Si: 5/ 19%, Pi: 6%	2%, CI: 19%
	SILTY SAND TILL: tra grey, mo	ace clay, trace gravel, 11.5 ist, very dense	SS	5	100	50/13 cm	12	171 -	5 13 cr	io O m	o ¹⁴			
1 B.I.C 12 5	G. Consulting Inc.	∑ No frees	tanding	groundw	vater me	easured	13 in oper	n boreho	le on completi	on of drilling.	1			
Miss Can	issauga, ON L4W 2Z4 ada	_												
T: 41 F: 41	16-214-4880 16-551-2633	Borehole details from a qualified commisioned ar	as prese Geotechr id the acc	nted, do nical Engi companyi	not cons ineer. Als ng'Notes	titute a th o, boreho to Recor	norough ole infor rd of Bor	understar mation sl reholes'.	iding of all poter ould be read in	ntial conditions pr conjunction with t	resent and requires inter the geotechnical report for	pretative assistance or which it was	Pa	Scale: 1 : 68 age: 1 of <u>2</u>

Continued on Next Page

	LITHOLOGY PROFILE	SC	DIL SA	MPLI	NG			FIELD TE	STING	LAB TESTING	
	DESCRIPTION	Sample Type	Sample Number	Recovery (%)	SPT 'N' Value/RQD%	DEPTH (m)	ELEVATION (m)	Penetration O SPT ● MTO Vane* N △ Intact ◇ ▲ Remould ◆ * Undrained Shear S 20 40	Testing DCPT ilcon Vane* Intact Remould Strength (kPa) 60 80	★ Rinse pH Values         2         4         6         8         10           Soil Vapour Reading         parts per million (ppm)         100         200         300         40           Lower Explosive Limit (LI         Wp         W         W         W         N           Plastic         Liquit         20         40         60         80         80	COMMENTS
	SILTY SAND TILL: trace clay, trace gravel, grey, moist, very dense						170 -		• • • • • • • • • • • • • • • • • • •		
		SS	6	88	88/28 cm	- 14			88 0	o ⁷	
							169 -				GI. 179, Sa. 4279, SI. 4079, GI. 1179
						- 15	-	50			
•		SS	7	100	50/10 cm		168 -	10 cm	• • • • • • • • • • • • • •	o ⁷	
						- 16 	407				
							167 -				
	clayey silt/silty clay layer, 300 mm thick, grey, moist, hard	SS	8	95	70	- 17	166 -		0	o ¹¹ o ¹³	
	SILTY SAND: brown, moist, very dense 17.9	SS	9	57	93/23	18 	165 -		93	o ¹⁷	
						E E E E 19			23 cm		
							164 -				
•		SS	10	95	97/28 cm	20			97 28 cm		
•							163 -		20 cm		
•						- - 21					
		SS	11	81	91		162 -		0	o ¹⁴	Gr: 0%, Sa: 83%, Si: 14%, Cl: 3%
•						- - 22 -	161 -				
•									100		
:	silt layer, 300 mm thick, brown, moist	SS	12	66	100/23 cm	23	160 -		23 cm	00 ¹⁶ 10 ³	
						- 24					
	158.64	SS	13	100	98/28		159 -		98	o ¹⁴	
	End of Borehole 24.7 Notes:				GII				<u>- 28 cm</u>		
	<ol> <li>Borehole open upon completion of drilling.</li> <li>Ground water level could not be measured due to mud rotary drilling.</li> </ol>										
									· · · · · · · · · · · · · · · · · · ·		

# APPENDIX B: MECP WATER WELL SUMMARY AND CONSTRUCTION DEWATERING RECORD



Count		Date	Total Depth	Reported Water	Chatwa of Mall
Count	weil ID	Constructed	(m bgs)	Depth (m bgs)	Status of well
1.	6928218	07/20/2004	15.5	12	Test Hole
2.	6928309	10/07/2004	22.5	19	Test Hole
3.	6929766	11/30/2005	4.6	N/A	Abandoned-Other
4.	6930062	03/02/2006	12.1	7.6	Test Hole
5.	7044673	05/22/2007	N/A	N/A	Abandoned-Other
6.	7100720	11/13/2007	N/A	N/A	Observation Well
7.	7100720	11/13/2007	N/A	N/A	Observation Well
8.	7100720	11/13/2007	9.1	N/A	Observation Well
9.	7103425	02/05/2008	9.1	N/A	Test Hole
10.	7103425	02/05/2008	N/A	N/A	Test Hole
11.	7103425	02/05/2008	N/A	N/A	Test Hole
12.	7111503	01/28/2008	11.0	8.8	Test Hole
13.	7111503	01/28/2008	N/A	8.6	Test Hole
14.	7111503	01/28/2008	N/A	8.6	Test Hole
15.	7111503	01/29/2008	N/A	8.6	Test Hole
16.	7111503	01/29/2008	N/A	8.6	Test Hole
17.	7111503	01/29/2008	N/A	8.6	Test Hole
18.	7148344	05/18/2010	3.3	N/A	Observation Well
19.	7150736	10/12/2010	N/A	N/A	Abandoned-Other
20.	7162514	02/25/2011	6.1	N/A	Observation Well
21.	7166634	07/14/2011	9.1	N/A	Test Hole
22.	7166635	07/14/2011	6.1	N/A	Test Hole
23.	7166636	07/14/2011	10.2	N/A	Test Hole
24.	7185196	01/24/2012	N/A	N/A	Abandoned-Other
25.	7226902	07/09/2014	10.1	N/A	Observation Well
26.	7226903	07/10/2014	7.6	N/A	Observation Well
27.	7226904	07/11/2014	9.1	N/A	Observation Well
28.	7236208	07/16/2014	N/A	N/A	Not Used
29.	7259449	06/26/2015	19.8	N/A	Observation Well
30.	7260569	02/04/2016	25.9	N/A	Test hole
31.	7260570	01/30/2016	21.6	N/A	Not Used
32.	7273700	06/24/2016	N/A	N/A	N/A
33.	7275502	09/29/2016	16.5	N/A	Test hole
34.	7275505	09/30/2016	15.5	N/A	Observation well
35.	7277184	10/31/2016	7.6	N/A	Observation well
36.	7277185	10/31/2016	7.6	N/A	Observation well
37.	7277186	10/31/2016	9.1	N/A	Observation well
38.	7277187	10/31/2016	7.6	N/A	Observation well
39.	7279503	N/A	N/A	N/A	N/A
40.	7284027	10/17/2016	N/A	N/A	N/A
41.	7293941	07/11/2017	29.6	N/A	Monitoring and test hole
42.	7293942	07/13/2017	29.6	N/A	Monitoring and test hole
43.	7293943	07/17/2017	29.6	N/A	N/A
44.	7294366	05/19/2017	5.1	4.97	Test hole
45.	7296570	06/08/2017	6.7	N/A	Monitoring and test hole

## Table B-1: MECP WWR Summary Table



Count		Date	Total Depth	Reported Water	Status of Mall
Count	weirib	Constructed	(m bgs)	Depth (m bgs)	Status of Well
46.	7301751	N/A	21.3	18.3	Monitoring and test hole
47.	7305155	11/22/2017	19.8	N/A	Observation well
48.	7305156	11/22/2017	19.8	N/A	Observation well
49.	7305157	11/22/2017	10.1	N/A	Observation well
50.	7309142	11/20/2017	12.0	11.6	Monitoring and test hole
51.	7309143	04/16/2017	42.7	N/A	Observation well
52.	7321373	09/30/2018	9.1	N/A	Observation well
53.	7321374	9/30/2018	10.7	N/A	Observation well
54.	7329088	N/A	N/A	N/A	N/A
55.	7337569	05/22/2019	6.1	N/A	Monitoring and test hole
56.	7337570	05/22/2019	6.1	N/A	Monitoring and test hole
57.	7337571	05/23/2019	6.1	N/A	Monitoring and test hole
58.	7337573	05/22/2019	6.1	N/A	Monitoring and test hole
59.	7337574	05/23/2019	6.1	N/A	Monitoring and test hole
60.	7338832	07/02/2019	6.1	N/A	Monitoring and test hole
61.	7341909	08/29/2019	12.2	9.1	Observation well
62.	7341910	08/29/2019	11.3	9.1	Observation well
63.	7341911	08/29/2019	12.2	9.1	Observation well
64.	7356116	N/A	N/A	N/A	N/A
65.	7373042	10/13/2020	6.1	N/A	Observation well
66.	7375677	10/17/2020	12.2	N/A	Observation well
67.	7375678	10/17/2020	12.2	N/A	Observation well
68.	7382293	02/10/2021	6.1	N/A	Observation well
69.	7382307	02/10/2021	9.1	N/A	Observation well
70.	7388562	04/26/2021	9.1	N/A	Observation well
71.	7388563	04/26/2021	7.6	N/A	Observation well
72.	7394427	N/A	N/A	N/A	N/A
73.	7408717	01/14/2022	7.3	3.1	Observation well
74.	7413178	N/A	N/A	N/A	N/A

## Table B-2: MECP EASR Registration

Permit Number	Purpose	Address	Water Source	Maximum L/Day	Active	
P 000 2110450670	Construction	75 Cantorbury Place	Groundwater	50,000 to	Voc	
R-009-2110450070	Dewatering	75 Canterbury Flace	Groundwater	400,000	163	
D 000 1111725250	Construction	1E Holmos Avonuo	Croundwater	50,000 to	Voc	
K-009-1111/55550	Dewatering	15 HOILINES AVEILUE	Groundwater	400,000	res	
P 000 4110604460	Construction	5220-5254 Yonge	Croundwater	50,000 to	Voc	
R-009-4110004400	Dewatering	Street	Groundwater	400,000	162	
P 000 4107207240	Construction	26 Olivo Avonuo East	Croundwater	50,000 to	Vac	
R-009-4197207249	Dewatering	SO Olive Avenue East	Groundwater	400,000	res	
	Construction	12 Altament Dood	Croundwater	66.200	Vac	
R-009-8233074270	Dewatering	13 Altamont Road	Groundwater	66,200	res	
D 000 7112265909	Construction	15 & 19 Altamont	Croundwater	50,000 to	Yes	
K-009-7112303898	Dewatering	Road	Groundwater	400,000		

**APPENDIX C: SWRT PROCUDURES AND RESULTS** 











WEL	L TEST ANALYSIS			
WELL TEST ANALYSIS         Data Set: <u>D:\MW101.aqt</u> Date: <u>05/17/17</u> Time: <u>PROJECT INFORMATION</u> Company: <u>Brownfield Investment Group Inc.</u> Client: <u>Mattamy Homes</u> Project: <u>BIG-ENV-154</u> Location: <u>26-36 Hounslow Ave., North York, Toronto</u> Test Date: <u>April 4, 2017</u> <u>AQUIFER DATA</u> Saturated Thickness: <u>0.28</u> m       Anisotropy Ratio (Kz/Kr):         Static Water Column Height: <u>0.28</u> m       Screen Length:         Total Well Penetration Depth: <u>0.28</u> m       Screen Length:         Casing Radius: <u>Ol25</u> m <u>SOLUTION</u>				
PROJ	ECT INFORMATION			
Company: Brownfield Investment Group Inc. C <u>Mattamy Homes</u> Project: <u>BIG-ENV-154</u> Location: <u>26-36 Hounslow Ave., North York, T</u> Test Date: <u>April 4, 2017</u>	Client: Toronto			
A	QUIFER DATA			
Saturated Thickness: 0.28 m	Anisotropy Ratio (Kz/Kr): 1.			
WE	LL DATA (MW101)			
Initial Displacement: 0.28 m Total Well Penetration Depth: 0.28 m Casing Radius: 0.025 m	Static Water Column Height: 0.28 m Screen Length: 0.28 m Well Radius: 0.025 m Gravel Pack Porosity: 0.3			
	SOLUTION			
Aquifer Model: Unconfined	Solution Method: Bouwer-Rice			
K = 1.01E-7 m/sec	y0 = <u>0.2759</u> m			











WEL	L TEST ANALYSIS
WELL TEST ANALYSIS         Data Set: D:MW107.aqt       Time: 11:25:26         PROJECT INFORMATION       Company: Brownfield Investment Group Inc.         Client: Mattamy Homes       Project: INFORMATION         Company: Brownfield Investment Group Inc.       Client: Mattamy Homes         Project: BIG-ENV-154       Location: 26-36 Hounslow Ave., North York, Toronto         Test Date: April 4, 2017       AQUIFER DATA         Saturated Thickness: 2.82 m       Anisotropy Ratio (Kz/Kr): 1.         WELL DATA (MW107)       Initial Displacement: 1.6 m         Total Well Penetration Depth: 4.62 m       Screen Length: 2.82 m         Casing Radius: 0.025 m       Well Radius: 0.025 m         Gravel Pack Porosity: 0.3       Solution Method: Bouwer-Rice         K = 2.325 0 m/ms       Solution Method: Bouwer-Rice	
PROJ	ECT INFORMATION
Company: <u>Brownfield Investment Group Inc.</u> Client: <u>Mattamy Homes</u> Project: <u>BIG-ENV-154</u> Location: <u>26-36 Hounslow Ave., North York, T</u> Test Date: <u>April 4, 2017</u>	oronto
A	QUIFER DATA
Saturated Thickness: 2.82 m	Anisotropy Ratio (Kz/Kr): 1.
WE	LL DATA (MW107)
Initial Displacement: <u>1.6</u> m Total Well Penetration Depth: <u>4.62</u> m Casing Radius: <u>0.025</u> m	Static Water Column Height: <u>2.82</u> m Screen Length: 2.82 m Well Radius: <u>0.025</u> m Gravel Pack Porosity: <u>0.3</u>
	SOLUTION
Aquifer Model: Unconfined	Solution Method: Bouwer-Rice
K = <u>2.23E-8</u> m/sec	y0 = <u>1.561</u> m

# APPENDIX D: WATER QUALITY LABORATORY CERTIFICATE OF ANALYSIS AND CHAIN OF CUSTODY





### CLIENT NAME: B.I.G. CONSULTING 804-505 CONSUMERS ROAD TORONTO, ON M2J 4V8 **ATTENTION TO: Eileen Liu** PROJECT: BIGC-ENV-154F AGAT WORK ORDER: 20T668358 MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer **TRACE ORGANICS REVIEWED BY: Pinkal Patel, Report Reviewer** ULTRA TRACE REVIEWED BY: Philippe Morneau, chimiste WATER ANALYSIS REVIEWED BY: Jacky Zhu, Spectroscopy Technician DATE REPORTED: Nov 10, 2020 PAGES (INCLUDING COVER): 14 VERSION*: 1

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

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days following analysis, unless expressly agreed otherwise in writing. Please contact your Client Project Manager if you require additional sample storage time.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

**AGAT** Laboratories (V1)

Nember of: Association of Professional Engineers and Geoscientists of Alberta	
(APEGA)	
Mostorn Enviro Agricultural Laboratory Association (MEALA)	

Environmental Services Association of Alberta (ESAA)

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Page 1 of 14



AGAT WORK ORDER: 20T668358 PROJECT: BIGC-ENV-154F 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

### SAMPLING SITE:2630 Hounslow Ave

ATTENTION TO: Eileen Liu

SAMPLED BY:SL

				E. (	Coli (Using MI Agar)
DATE RECEIVED: 2020-10-2	:3				DATE REPORTED: 2020-11-10
	SAMPLE DESCRIPTION:			MW103	
	SAMPLE TYPE:				
	DATE SAMPLED:		2020-10-23 16:00		
Parameter	Unit	G/S	RDL	1595472	
Escherichia coli	CFU/100mL	200	1	ND	

. .. .. .

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Clty of Toronto Storm Sewer Discharge

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. 1595472 ND - Not Detected.

Analysis performed at AGAT Toronto (unless marked by *)

WINE BASLY CHEMIT

Certified By:



AGAT WORK ORDER: 20T668358 PROJECT: BIGC-ENV-154F 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

### SAMPLING SITE:2630 Hounslow Ave

ATTENTION TO: Eileen Liu SAMPLED BY:SL

## Toronto Sanitary and Combined Sewer Use By-law - Organic

DATE RECEIVED: 2020-10-23						DATE REPORTED: 2020-11-10
			SAMPLE DE SA DATI	SCRIPTION: MPLE TYPE: E SAMPLED:	MW103 Water 2020-10-23 16:00	
Parameter	Unit	G / S: A	G / S: B	RDL	1595472	
Oil and Grease (animal/vegetable) in water	mg/L	150		0.5	<0.5[ <a]< td=""><td></td></a]<>	
Oil and Grease (mineral) in water	mg/L	15		0.5	<0.5[ <a]< td=""><td></td></a]<>	
Methylene Chloride	mg/L	2	0.0052	0.0003	<0.0003[ <b]< td=""><td></td></b]<>	
trans-1,3-Dichloropropylene	mg/L	0.14	0.0056	0.0003	<0.0003[ <b]< td=""><td></td></b]<>	
cis- 1,2-Dichloroethylene	mg/L	4	0.0056	0.0002	<0.0002[ <b]< td=""><td></td></b]<>	
Chloroform	mg/L	0.04	0.002	0.0002	<0.0002[ <b]< td=""><td></td></b]<>	
Benzene	mg/L	0.01	0.002	0.0002	<0.0002[ <b]< td=""><td></td></b]<>	
Tetrachloroethylene	mg/L	1	0.0044	0.0001	<0.0001[ <b]< td=""><td></td></b]<>	
Toluene	mg/L	0.016	0.002	0.0002	<0.0002[ <b]< td=""><td></td></b]<>	
Trichloroethlyene	mg/L	0.4	0.0076	0.0002	<0.0002[ <b]< td=""><td></td></b]<>	
Ethylbenzene	mg/L	0.16	0.002	0.0001	<0.0001[ <b]< td=""><td></td></b]<>	
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017	0.0001	<0.0001[ <b]< td=""><td></td></b]<>	
1,2-Dichlorobenzene	mg/L	0.05	0.0056	0.0001	<0.0001[ <b]< td=""><td></td></b]<>	
1,4-Dichlorobenzene	mg/L	0.08	0.0068	0.0001	<0.0001[ <b]< td=""><td></td></b]<>	
Xylenes (Total)	mg/L	1.4	0.0044	0.0002	<0.0002[ <b]< td=""><td></td></b]<>	
PCBs	mg/L	0.001	0.0004	0.0002	<0.0002[ <b]< td=""><td></td></b]<>	
Pentachlorophenol	mg/L	0.005	0.002	0.0001	<0.0001[ <b]< td=""><td></td></b]<>	
Di-n-butyl phthalate	mg/L	0.08	0.015	0.0005	<0.0005[ <b]< td=""><td></td></b]<>	
3,3'-Dichlorobenzidine	mg/L	0.002	0.0008	0.0005	<0.0005[ <b]< td=""><td></td></b]<>	
Bis(2-Ethylhexyl)phthalate	mg/L	0.012	0.0088	0.0005	<0.0005[ <b]< td=""><td></td></b]<>	
Total PAHs	mg/L	0.005	0.002	0.0003	<0.0003[ <b]< td=""><td></td></b]<>	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to City of Toronto Sanitary and Combined Sewers Discharge, B Refers to City of Toronto Storm Sewer Discharge 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.

1595472 Oil and Grease animal/vegetable is a calculated parameter. The calculated value is the difference between Total O&G and Mineral O&G.

Analysis performed at AGAT Toronto (unless marked by *)



AGAT WORK ORDER: 20T668358 PROJECT: BIGC-ENV-154F 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

#### SAMPLING SITE:2630 Hounslow Ave

ATTENTION TO: Eileen Liu

## SAMPLED BY:SL

## Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)

DATE RECEIVED: 2020-10-23 **DATE REPORTED: 2020-11-10** SAMPLE DESCRIPTION: MW103 SAMPLE TYPE: Water DATE SAMPLED: 2020-10-23 16:00 Parameter Unit G / S: A G / S: B RDL 1595472 mg/L Total Nonylphenol 0.02 0.001 0.001 <0.001[<B] NP1EO 0.001 mg/L < 0.001 NP2EO 0.0003 < 0.0003 mg/L Total Nonylphenol Ethoxylates 0.2 0.001 mg/L 0.01 <0.001[<B]

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to City of Toronto Sanitary and Combined Sewers Discharge, B Refers to City of Toronto Storm Sewer Discharge 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 Montreal (unless marked by *)



AGAT WORK ORDER: 20T668358 PROJECT: BIGC-ENV-154F 5835 COOPERS AVENUE MISSISSAUGA, ONTARIO CANADA L4Z 1Y2 TEL (905)712-5100 FAX (905)712-5122 http://www.aqatlabs.com

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

### SAMPLING SITE:2630 Hounslow Ave

ATTENTION TO: Eileen Liu

SAMPLED BY:SL

BOD5											
DATE RECEIVED: 2020-10-23						DATE REPORTED: 2020-11-10					
			SAMPLE DE	SCRIPTION:	MW103						
			SA	MPLE TYPE:	Water						
DATE SAMPLED:			E SAMPLED:	2020-10-23 16:00							
Parameter	Unit	G / S: A	G / S: B	RDL	1595472						
Biochemical Oxygen Demand, Total	mg/L	300	15	2	<2[ <b]< td=""><td></td></b]<>						

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to City of Toronto Sanitary and Combined Sewers Discharge, B Refers to City of Toronto Storm Sewer Discharge 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 Halifax (unless marked by *)



Certified By:



AGAT WORK ORDER: 20T668358 PROJECT: BIGC-ENV-154F 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

#### SAMPLING SITE:2630 Hounslow Ave

ATTENTION TO: Eileen Liu SAMPLED BY:SL

Toronto Sanitary and Combined Sewer Use By-law - Inorganics

DATE RECEIVED: 2020-10-23						DATE REPORTED: 2020-11-10
			SAMPLE DE	SCRIPTION:	MW103	
			DATE	SAMPLED:	2020-10-23	
Parameter	Unit	G / S: A	G / S: B	RDL	1595472	
рН	pH Units	6.0-11.5	6.0-9.5	NA	7.82	
Fluoride	mg/L	10		0.05	0.25[ <a]< td=""><td></td></a]<>	
Total Kjeldahl Nitrogen	mg/L	100		0.10	0.16[ <a]< td=""><td></td></a]<>	
Total Phosphorus	mg/L	10	0.4	0.04	0.07[ <b]< td=""><td></td></b]<>	
Total Cyanide	mg/L	2	0.02	0.002	<0.002[ <b]< td=""><td></td></b]<>	
Phenols	mg/L	1.0	0.008	0.001	0.013[B-A]	
Total Suspended Solids	mg/L	350	15	10	11[ <b]< td=""><td></td></b]<>	
Total Aluminum	mg/L	50		0.10	7.80[ <a]< td=""><td></td></a]<>	
Total Antimony	mg/L	5		0.020	<0.020[ <a]< td=""><td></td></a]<>	
Total Arsenic	mg/L	1	0.02	0.015	<0.015[ <b]< td=""><td></td></b]<>	
Total Cadmium	mg/L	0.7	0.008	0.005	<0.005[ <b]< td=""><td></td></b]<>	
Total Chromium	mg/L	4	0.08	0.020	<0.020[ <b]< td=""><td></td></b]<>	
Chromium VI	mg/L	2	0.04	0.005	<0.005[ <b]< td=""><td></td></b]<>	
Total Cobalt	mg/L	5		0.010	<0.010[ <a]< td=""><td></td></a]<>	
Total Copper	mg/L	2	0.04	0.020	<0.020[ <b]< td=""><td></td></b]<>	
Total Lead	mg/L	1	0.12	0.020	<0.020[ <b]< td=""><td></td></b]<>	
Total Manganese	mg/L	5	0.05	0.020	1.16[B-A]	
Total Mercury	mg/L	0.01	0.0004	0.0002	<0.0002[ <b]< td=""><td></td></b]<>	
Total Molybdenum	mg/L	5		0.020	<0.020[ <a]< td=""><td></td></a]<>	
Total Nickel	mg/L	2	0.08	0.030	<0.030[ <b]< td=""><td></td></b]<>	
Total Selenium	mg/L	1	0.02	0.020	<0.020[ <b]< td=""><td></td></b]<>	
Total Silver	mg/L	5	0.12	0.020	<0.020[ <b]< td=""><td></td></b]<>	
Total Tin	mg/L	5		0.020	<0.020[ <a]< td=""><td></td></a]<>	
Total Titanium	mg/L	5		0.020	0.147[ <a]< td=""><td></td></a]<>	
Total Zinc	mg/L	2	0.04	0.020	<0.020[ <b]< td=""><td></td></b]<>	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to City of Toronto Sanitary and Combined Sewers Discharge, B Refers to City of Toronto Storm Sewer Discharge 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:





## **Exceedance Summary**

AGAT WORK ORDER: 20T668358 PROJECT: BIGC-ENV-154F 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

### ATTENTION TO: Eileen Liu

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
1595472	MW103	ON Toronto SM	Toronto Sanitary and Combined Sewer Use By-law - Inorganics	Phenols	mg/L	0.008	0.013
1595472	MW103	ON Toronto SM	Toronto Sanitary and Combined Sewer Use By-law - Inorganics	Total Manganese	mg/L	0.05	1.16



## **Quality Assurance**

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

### PROJECT: BIGC-ENV-154F

SAMPLING SITE:2630 Hounslow Ave

AGAT WORK ORDER: 20T668358

**ATTENTION TO: Eileen Liu** 

SAMPLED BY:SL

Microbiology Analysis															
RPT Date: Nov 10, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		IKE
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recoverv	Acceptable Limits	
		ld						Lower	Upper	<b>,</b>	Lower	Upper		Lower	Upper
E. Coli (Using MI Agar)															
Escherichia coli	1594189		5	4	NA	< 1									

Comments: NA - % RPD Not Reportable based on the number of colonies count acceptable for RPD calculation





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Page 8 of 14

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## **Quality Assurance**

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

### PROJECT: BIGC-ENV-154F

#### SAMPLING SITE:2630 Hounslow Ave

### AGAT WORK ORDER: 20T668358 ATTENTION TO: Eileen Liu

#### SAMPLED BY:SL

## **Trace Organics Analysis**

RPT Date: Nov 10, 2020			DUPLICATE				REFERENCE MATERIA			METHOD	BLANK	SPIKE	MATRIX SPIKE				
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recoverv	Acce Lir	ptable nits		
		Ia						Lower	Upper		Lower	Upper	r	Lower	Upper		
Toronto Sanitary and Combined	Sewer Use	By-law - C	Organic														
Oil and Grease (animal/vegetable) in water	1623943		< 0.5	< 0.5	NA	< 0.5	108%	70%	130%	101%	70%	130%	106%	70%	130%		
Oil and Grease (mineral) in water	1623943		< 0.5	< 0.5	NA	< 0.5	72%	70%	130%	81%	70%	130%	75%	70%	130%		
Methylene Chloride	1610435		<0.0003	< 0.0003	NA	< 0.0003	103%	50%	140%	108%	60%	130%	102%	50%	140%		
trans-1,3-Dichloropropylene	1610435		<0.0003	<0.0003	NA	< 0.0003	94%	50%	140%	77%	60%	130%	95%	50%	140%		
cis- 1,2-Dichloroethylene	1610435		0.0004	0.0004	NA	< 0.0002	98%	60%	130%	85%	60%	130%	94%	60%	130%		
Chloroform	1610435		0.0098	0.011	12.0%	< 0.0002	103%	50%	140%	88%	60%	130%	105%	50%	140%		
Benzene	1610435		<0.0002	< 0.0002	NA	< 0.0002	105%	50%	140%	84%	60%	130%	93%	50%	140%		
Tetrachloroethylene	1610435		0.0003	0.0003	NA	< 0.0001	97%	50%	140%	79%	60%	130%	96%	50%	140%		
Toluene	1610435		<0.0002	<0.0002	NA	< 0.0002	89%	50%	140%	93%	60%	130%	91%	50%	140%		
Trichloroethlyene	1610435		0.0013	0.0014	8.2%	< 0.0002	84%	50%	140%	94%	60%	130%	75%	50%	140%		
Ethylbenzene	1610435		<0.0001	<0.0001	NA	< 0.0001	82%	50%	140%	109%	60%	130%	100%	50%	140%		
1,1,2,2-Tetrachloroethane	1610435		<0.0001	<0.0001	NA	< 0.0001	108%	50%	140%	95%	60%	130%	92%	50%	140%		
1,2-Dichlorobenzene	1610435		<0.0001	<0.0001	NA	< 0.0001	113%	50%	140%	91%	60%	130%	99%	50%	140%		
1,4-Dichlorobenzene	1610435		<0.0001	<0.0001	NA	< 0.0001	99%	50%	140%	84%	60%	130%	104%	50%	140%		
PCBs	1603694		< 0.0002	< 0.0002	NA	< 0.0002	106%	60%	130%	105%	60%	130%	90%	60%	130%		
Pentachlorophenol	1594412		< 0.0001	< 0.0001	NA	< 0.0001	115%	50%	140%	102%	50%	140%	102%	50%	140%		
Di-n-butyl phthalate	1594412		< 0.0005	< 0.0005	NA	< 0.0005	112%	50%	140%	105%	50%	140%	115%	50%	140%		
3,3'-Dichlorobenzidine	1594412		< 0.0005	< 0.0005	NA	< 0.0005	118%	30%	130%	85%	30%	130%	74%	30%	130%		
Bis(2-Ethylhexyl)phthalate	1594412		< 0.0005	< 0.0005	NA	< 0.0005	100%	50%	140%	74%	50%	140%	96%	50%	140%		
Total PAHs	1594412		< 0.0003	< 0.0003	NA	< 0.0003	100%	60%	130%	96%	60%	130%	85%	60%	130%		

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:

Inkal Jata

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## **Quality Assurance**

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

### PROJECT: BIGC-ENV-154F

### SAMPLING SITE:2630 Hounslow Ave

### AGAT WORK ORDER: 20T668358

ATTENTION TO: Eileen Liu

SAMPLED BY:SL

			U	ltra Ti	race	Anal	ysis								
RPT Date: Nov 10, 2020				DUPLICATE			REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recoverv	Acceptable Limits		Recoverv	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)															
Total Nonylphenol	1	1603524	0.001	< 0.001	NA	< 0.001	92%	60%	140%	NA	60%	140%	NA	60%	140%
NP1EO	1	1603524	< 0.001	< 0.001	0.0%	< 0.001	96%	60%	140%	NA	60%	140%	NA	60%	140%
NP2EO	1	1603524	< 0.0003	< 0.0003	0.0%	< 0.0003	104%	60%	140%	NA	60%	140%	NA	60%	140%

Certified By:



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Page 10 of 14



## **Quality Assurance**

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

### PROJECT: BIGC-ENV-154F

#### SAMPLING SITE:2630 Hounslow Ave

## AGAT WORK ORDER: 20T668358

## ATTENTION TO: Eileen Liu

SAMPLED BY:SL

Water Analysis															
RPT Date: Nov 10, 2020			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recoverv	Acceptable Limits		Recovery	Acceptable Limits	
		ia						Lower	Upper		Lower	Upper		Lower	Upper
Toronto Sanitary and Combi	ned Sewer Use	By-law - I	norganic	s											
pH	1596765		5.58	5.62	0.7%	NA	100%	90%	110%						
Fluoride	1593404		<0.05	<0.05	NA	< 0.05	101%	90%	110%	105%	90%	110%	104%	85%	115%
Total Kjeldahl Nitrogen	1595472	1595472	0.16	0.18	NA	< 0.10	101%	70%	130%	99%	80%	120%	100%	70%	130%
Total Phosphorus	1595472	1595472	0.07	0.07	NA	< 0.02	100%	70%	130%	100%	80%	120%	100%	70%	130%
Total Cyanide	1620604		0.043	0.041	4.8%	< 0.002	106%	70%	130%	89%	80%	120%	NA	70%	130%
Phenols	1615097		<0.001	<0.001	NA	< 0.001	98%	90%	110%	102%	90%	110%	96%	80%	120%
Total Suspended Solids	1619629		<10	<10	NA	< 10	106%	80%	120%						
Total Aluminum	1613485		0.032	0.032	NA	< 0.010	101%	70%	130%	111%	80%	120%	109%	70%	130%
Total Antimony	1613485		<0.020	<0.020	NA	< 0.020	99%	70%	130%	111%	80%	120%	105%	70%	130%
Total Arsenic	1613485		<0.015	<0.015	NA	< 0.015	100%	70%	130%	110%	80%	120%	108%	70%	130%
Total Cadmium	1613485		<0.005	<0.005	NA	< 0.005	101%	70%	130%	111%	80%	120%	110%	70%	130%
Total Chromium	1613485		<0.020	<0.020	NA	< 0.020	100%	70%	130%	106%	80%	120%	106%	70%	130%
Chromium VI	1605115		<0.005	< 0.005	NA	< 0.005	101%	70%	130%	101%	80%	120%	104%	70%	130%
Total Cobalt	1613485		<0.010	<0.010	NA	< 0.010	100%	70%	130%	109%	80%	120%	105%	70%	130%
Total Copper	1613485		<0.020	<0.020	NA	< 0.020	100%	70%	130%	108%	80%	120%	102%	70%	130%
Total Lead	1613485		<0.020	<0.020	NA	< 0.020	102%	70%	130%	112%	80%	120%	109%	70%	130%
Total Manganese	1613485		0.283	0.275	2.9%	< 0.020	99%	70%	130%	106%	80%	120%	110%	70%	130%
Total Mercury	1594859		<0.0002	< 0.0002	NA	< 0.0002	2 102%	70%	130%	99%	80%	120%	99%	70%	130%
Total Molybdenum	1613485		<0.020	<0.020	NA	< 0.020	100%	70%	130%	111%	80%	120%	109%	70%	130%
Total Nickel	1613485		<0.030	<0.030	NA	< 0.030	98%	70%	130%	108%	80%	120%	102%	70%	130%
Total Selenium	1613485		<0.020	<0.020	NA	< 0.020	95%	70%	130%	115%	80%	120%	102%	70%	130%
Total Silver	1613485		<0.020	<0.020	NA	< 0.020	102%	70%	130%	108%	80%	120%	94%	70%	130%
Total Tin	1613485		<0.020	<0.020	NA	< 0.020	102%	70%	130%	111%	80%	120%	105%	70%	130%
Total Titanium	1613485		<0.020	<0.020	NA	< 0.020	96%	70%	130%	114%	80%	120%	114%	70%	130%
Total Zinc	1613485		<0.020	<0.020	NA	< 0.020	101%	70%	130%	113%	80%	120%	100%	70%	130%
BOD5															
Biochemical Oxygen Demand,	Total 1606592		43	49	13.0%	< 2	108%	70%	130%						

Comments: NA Signifies Not Applicable.

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

Matrix spike: Spike level < native concentration. Matrix spike acceptance limits do not apply.

Certified By:



### AGAT QUALITY ASSURANCE REPORT (V1)

Page 11 of 14

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific tests tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation. RPDs calculated using raw data. The RPD may not be reflective of duplicate values shown, due to rounding of final results.


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

# Method Summary

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

## PROJECT: BIGC-ENV-154F

#### AGAT WORK ORDER: 20T668358

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave	SITE:2630 Hounslow Ave SAMPLED BY:SL					
PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE			
Microbiology Analysis						
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration			
Trace Organics Analysis						
Oil and Grease (animal/vegetable) in water	VOL-91-5011	EPA SW-846 1664A & SM 5520	BALANCE			
Oil and Grease (mineral) in water	VOL-91-5011	EPA SW-846 1664A & SM 5520	BALANCE			
Methylene Chloride	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
trans-1,3-Dichloropropylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030B & 8260B	(P&T)GC/MS			
Chloroform	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
Benzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
Tetrachloroethylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
Toluene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
Trichloroethlyene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
Ethylbenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
1,1,2,2-Tetrachloroethane	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
1,2-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
1,4-Dichlorobenzene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS			
PCBs	ORG-91-5112	EPA SW-846 3510C & 8082A	GC/ECD			
Pentachlorophenol	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS			
Di-n-butyl phthalate	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS			
3,3'-Dichlorobenzidine	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS			
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS			
Total PAHs	ORG-91-5114	EPA SW-846 3510C & 8270E	GC/MS			
Ultra Trace Analysis						
Total Nonylphenol	NA	ASTM D7065-6	LC/MS/MS			
NP1EO	NA	ASTM D7065-6	LC/MS/MS			
NP2EO	NA	ASTM D7065-6	LC/MS/MS			
Total Nonylphenol Ethoxylates	NA	ASTM D7065-6	LC/MS/MS			



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

# **Method Summary**

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

# PROJECT: BIGC-ENV-154F

AGAT WORK ORDER: 20T668358

ATTENTION TO: Eileen Liu

SAMPLING SITE:2630 Hounslow Ave	)	SAMPLED BY:SL							
PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE						
Water Analysis		1							
Biochemical Oxygen Demand, Total	INOR-121-6023	SM 5210 B	INCUBATOR						
рН	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE						
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPHY						
Total Kjeldahl Nitrogen	INOR-93-6048	modified from EPA 351.2 and SM 4500-NORG D	LACHAT FIA						
Total Phosphorus	INOR-93-6022	modified from SM 4500-P B and SM 4500-P E	SPECTROPHOTOMETER						
Total Cyanide	INOR-93-6051	modified from MOECC E3015; SM 4500-CN- A, B, & C	TECHNICON AUTO ANALYZER						
Phenols	INOR-93-6072	modified from SM 5530 D	LACHAT FIA						
Total Suspended Solids	INOR-93-6028	modified from EPA 1684,ON MOECC E3139,SM 2540C,D	BALANCE						
Total Aluminum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Antimony	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Arsenic	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Cadmium	MET -93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Chromium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Chromium VI	INOR-93-6034	modified from SM 3500-CR B	SPECTROPHOTOMETER						
Total Cobalt	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Copper	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Lead	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Manganese	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Mercury	MET-93-6100	modified from EPA 245.2 and SM 311. B	² CVAAS						
Total Molybdenum	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Nickel	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Selenium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Silver	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Tin	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Titanium	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						
Total Zinc	MET-93-6103	modified from EPA 200.8, 3005A, 3010A & 6020B	ICP-MS						

Chain of Custody Record If this is a Drinking Water sample, please	use Drinking Water Chain of Custody Form (potable	water consumed by humans)	Cooler Quantity: Arrival lemperatures: 12-6 112 -71 13:			
Report Information: $iff Consultant in C         Company:       iff Consultant in C         Contact:       iff Consultant in C         Address:       iff Consultant in C         Address:       iff Consultant in C         Phone:       iff Consultant in C         Reports to be sent to:       iff Consultant in C         1. Email:       iff Consultant in C         2. Email:       iff Consultant in C         Project Information:       iff Consultant in C         Project:       iff Consultant in C         Sampled By:       iff Consultant in C   $	Regulatory Requirements:         (Please check all applicable baxes)         Regulation 153/04         Table         Indicate One         Indicate One         Indicate One         Agriculture         Soil Texture (check One)         Coarse         Frine         Is this submission for a         Record of Site Condition?         Yes	6 Sewer-USe Goanitary Storm Neglon Prov. Water Quality Objectives (PWQO) Other Indicate One Report Suideline on Certificate of Analysis Yes No	Custody Seal Intact: Yes No N/A Notes: Contract Contract Notes: No N/A Turnaround Time (TAT) Required: Regular TAT Stor 7 Business Days Rush TAT (Rush Surcharges Apply) 3 Business 2 Business Days Days Days Day OR Date Required (Rush Surcharges May Apply): Please provide prior notification for rush TAT * TAT is exclusive of weekends and statutory holidays For 'Same Day' analysis, please contact your AGAT CPM			
AGAT Quote #:PO: Please note: If quotation number is not privided, client will be billed full price for analysis.  Invoice Information: Bill To Same: Yes D No D Company:	Sample Matrix Legend         B       Biota         GW       Ground Water         O       Oil         P       Paint         S       Soil         SD       Sediment         SW       Surface Water	Field Fitterad - Metals, Hg. CrVI, DOC s & Inorganics s - D crVI, D Hg, D HWSB s - D crVI, D Hg, D HWSB F1-F4 PHCs ref-46 if required D Yes D No	III Disposal Characterization TCLP:			
Sample Identification     Date Sampled     Time Sampled     # of Containers       AV/03     b//013     /600 PM PM     24       AW     AM     AM       AW     AM       AW     AM       AM     AM       AM     AM       AM     AM       AM     AM       AM     AM	Sample Comments/ Matrix Special Instructions	Metal Metal Metal Maly Analy PAHS	VOC Landi Excele SPLP SPLP SPLP SPLP SPLP SPLP SPLP SPL			
PM       AM       PM       AM       PM       AM       PM       AM       PM			2000T23 6:5			
Samples Relinquished By (Print Name and Sign):  Samples Relinquished By (Print Name and Sign):  Date  Time  Date  Time  Date  Time  Date  Time  Date  Date Date	Samples Received By (Print Name and Sign): Samples Received By (Print Name and Sign):	Date Date Date	Time Page of Time Page 10625			



Your Project #: BIGC-ENV-154E Site Location: 26-38 Hounslow Avenue Your C.O.C. #: 741264-01-01

#### **Attention: Eileen Liu**

B.I.G Consulting Inc. 12-5500 Tomken Road Mississauga, ON CANADA L4W 2Z4

> Report Date: 2019/10/18 Report #: R5926959 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

#### BV LABS JOB #: B9S5804 Received: 2019/10/10, 14:39

Sample Matrix: Water # Samples Received: 1

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Reference
Sewer Use By-Law Semivolatile Organics	1	2019/10/11	2019/10/15	CAM SOP 00301	EPA 8270 m
Biochemical Oxygen Demand (BOD)	1	2019/10/12	2019/10/17	CAM SOP-00427	SM 23 5210B m
Chromium (VI) in Water	1	N/A	2019/10/15	CAM SOP-00436	EPA 7199 m
Total Cyanide	1	2019/10/11	2019/10/11	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2019/10/11	2019/10/16	CAM SOP-00449	SM 23 4500-F C m
Mercury in Water by CVAA	1	2019/10/15	2019/10/15	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	N/A	2019/10/16	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2019/10/10	CAM SOP-00552	MOE LSB E3371
Total Nonylphenol in Liquids by HPLC	1	2019/10/15	2019/10/16	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2019/10/15	2019/10/16	CAM SOP-00313	In-house Method
Animal and Vegetable Oil and Grease	1	N/A	2019/10/17	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2019/10/17	2019/10/17	CAM SOP-00326	EPA1664B m,SM5520A m
Polychlorinated Biphenyl in Water	1	2019/10/11	2019/10/15	CAM SOP-00309	EPA 8082A m
рН	1	2019/10/11	2019/10/16	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2019/10/15	CAM SOP-00444	OMOE E3179 m
Total Kjeldahl Nitrogen in Water	1	2019/10/15	2019/10/17	CAM SOP-00938	OMOE E3516 m
Total PAHs (1)	1	N/A	2019/10/16	CAM SOP - 00301	
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2019/10/17	2019/10/17	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2019/10/11	2019/10/15	CAM SOP-00428	SM 23 2540D m
Volatile Organic Compounds in Water	1	N/A	2019/10/15	CAM SOP-00226	EPA 8260C m

#### Remarks:

Bureau Veritas Laboratories are accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by BV Labs are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in BV Labs profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and BV Labs in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

BV Labs liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied.

Page 1 of 13



Your Project #: BIGC-ENV-154E Site Location: 26-38 Hounslow Avenue Your C.O.C. #: 741264-01-01

#### **Attention: Eileen Liu**

B.I.G Consulting Inc. 12-5500 Tomken Road Mississauga, ON CANADA L4W 2Z4

> Report Date: 2019/10/18 Report #: R5926959 Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

#### BV LABS JOB #: B9S5804 Received: 2019/10/10, 14:39

BV Labs has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by BV Labs, unless otherwise agreed in writing. BV Labs is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by BV Labs, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Total PAHs include only those PAHs specified in the sewer use by-by-law.

(2) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager. Christine Gripton, Senior Project Manager Email: Christine.Gripton@bvlabs.com Phone# (519)652-9444

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This report has been generated and distributed using a secure automated process.

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



## **TORONTO SANITARY & STORM SEWER PACKAGE (WATER)**

BV Labs ID					KZZ844						
Sampling Data					2019/10/10						
Sampling Date					10:05						
COC Number					741264-01-01						
		UNITS	Criteria	Criteria-2	BH/MW103	RDL	QC Batch				
Calculated Parame	eters										
Total Animal/Vege	table Oil and Grease	mg/L	-	150	ND	0.50	6381877				
Inorganics			-								
Total BOD		mg/L	15	300	ND	2	6384926				
Fluoride (F-)	mg/L	-	10	0.11	0.10	6382996					
Total Kjeldahl Nitro	ogen (TKN)	mg/L	-	100	0.14	0.10	6387441				
рН		рН	6.0:9.5	6.0:11.5	7.70		6382997				
Phenols-4AAP		mg/L	0.008	1.0	ND	0.0010	6386210				
Total Suspended S	olids	mg/L	15	350	120	10	6383395				
Total Cyanide (CN)		mg/L	0.02	2	ND	0.0050	6383368				
Petroleum Hydroc	arbons										
Total Oil & Grease		mg/L	-	-	ND	0.50	6391469				
Total Oil & Grease	Mineral/Synthetic	mg/L	-	15	ND	0.50	6391471				
Miscellaneous Par	ameters										
Nonylphenol Etho	kylate (Total)	mg/L	0.01	0.2	ND	0.005	6387086				
Nonylphenol (Tota	l)	mg/L	0.001	0.02	ND	0.001	6386840				
Metals											
Chromium (VI)		ug/L	40	2000	ND	0.50	6379367				
Mercury (Hg)		mg/L	0.0004	0.01	ND	0.0001	6386104				
Total Aluminum (A	d)	ug/L	-	50000	1800	5.0	6386092				
Total Antimony (St	o)	ug/L	-	5000	ND	0.50	6386092				
Total Arsenic (As)		ug/L	20	1000	4.4	1.0	6386092				
Total Cadmium (Co	()	ug/L	8	700	ND	0.10	6386092				
Total Chromium (C	Cr)	ug/L	80	4000	ND	5.0	6386092				
Total Cobalt (Co)		ug/L	-	5000	1.4	0.50	6386092				
Total Copper (Cu)		ug/L	40	2000	2.6	1.0	6386092				
Total Lead (Pb)		ug/L	120	1000	2.0	0.50	6386092				
Total Manganese (	Mn)	ug/L	50	5000	330	2.0	6386092				
No Fill	No Exceedance										
Grey	v Exceeds 1 criteria policy/level										
Black	Exceeds both criteria	/levels									
RDI = Reportable Detection Limit											
QC Batch = Quality	Control Batch										
Criteria: Toronto S	torm Sewer Discharge	Use By-Law									
Criteria-2: Toronto	Sanitary and Combine	d Sewers Di	scharge G	uidelines. F	Referenced to th	ne Chapt	er 681.				

ND = Not detected

Page 3 of 13



### **TORONTO SANITARY & STORM SEWER PACKAGE (WATER)**

BV Labs ID					KZZ844					
Sampling Date					2019/10/10					
					10:05					
COC Number					741264-01-01					
		UNITS	Criteria	Criteria-2	BH/MW103	RDL	QC Batch			
Total Molybdenum	n (Mo)	ug/L	-	5000	2.0	0.50	6386092			
Total Nickel (Ni)		ug/L	80	2000	2.7	1.0	6386092			
Total Phosphorus	(P)	ug/L	400	10000	140	100	6386092			
Total Selenium (Se	2)	ug/L	20	1000	ND	2.0	6386092			
Total Silver (Ag)		ug/L	120	5000	ND	0.10	6386092			
Total Tin (Sn)		ug/L	-	5000	ND	1.0	6386092			
Total Titanium (Ti)		ug/L	-	5000	47	5.0	6386092			
Total Zinc (Zn)		ug/L	40	2000	8.8	5.0	6386092			
Semivolatile Orga	nics									
Di-N-butyl phthala	te	ug/L	15	80	ND	2	6382240			
Bis(2-ethylhexyl)pl	hthalate	ug/L	8.8	12	ND	2	6382240			
3,3'-Dichlorobenzi	dine	ug/L	0.8	2	ND	0.8	6382240			
Pentachlorophenol		ug/L	2	5	ND	1	6382240			
Phenanthrene		ug/L	-	-	ND	0.2	6382240			
Anthracene		ug/L	-	-	ND	0.2	6382240			
Fluoranthene		ug/L	-	-	- ND		6382240			
Pyrene		ug/L	-	-	ND	0.2	6382240			
Benzo(a)anthracer	าย	ug/L	-	-	ND	0.2	6382240			
Chrysene		ug/L	-	-	ND	0.2	6382240			
Benzo(b/j)fluorant	hene	ug/L	-	-	ND	0.2	6382240			
Benzo(k)fluoranth	ene	ug/L	-	-	ND	0.2	6382240			
Benzo(a)pyrene		ug/L	-	-	ND	0.2	6382240			
Indeno(1,2,3-cd)py	yrene	ug/L	-	-	ND	0.2	6382240			
Dibenz(a,h)anthra	cene	ug/L	-	-	ND	0.2	6382240			
Benzo(g,h,i)peryle	ne	ug/L	-	-	ND	0.2	6382240			
Dibenzo(a,i)pyrene	5	ug/L	-	-	ND	0.2	6382240			
Benzo(e)pyrene		ug/L	-	-	ND	0.2	6382240			
Perylene		ug/L	-	-	ND	0.2	6382240			
No Fill	No Exceedance									
Grey	Exceeds 1 criteria policy/level									
Black	Exceeds both criteria	a/levels								
RDL = Reportable I	Detection Limit									
QC Batch = Quality	Control Batch									

Criteria: Toronto Storm Sewer Discharge Use By-Law

Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

ND = Not detected

Page 4 of 13



## **TORONTO SANITARY & STORM SEWER PACKAGE (WATER)**

BV Labs ID					KZZ844					
Sampling Date					2019/10/10 10:05					
COC Number					741264-01-01					
		UNITS	Criteria	Criteria-2	BH/MW103	RDL	QC Batch			
Dibenzo(a,j) acridi	ne	ug/L	-	-	ND	0.4	6382240			
7H-Dibenzo(c,g) C	arbazole	ug/L	-	-	ND	0.4	6382240			
1,6-Dinitropyrene		ug/L	-	-	ND	0.4	6382240			
1,3-Dinitropyrene		ug/L	-	-	ND	0.4	6382240			
1,8-Dinitropyrene		ug/L	-	-	ND	0.4	6382240			
Calculated Param	eters									
Total PAHs (18 PA	Hs)	ug/L	2	5	ND	1	6381109			
Volatile Organics		•								
Benzene		ug/L	2	10	ND	1.0	6383407			
Chloroform		ug/L	2	40	ND	1.0	6383407			
1,2-Dichlorobenze	ene	ug/L	5.6	50	ND	2.0	6383407			
1,4-Dichlorobenze	ene	ug/L	6.8	80	ND	2.0	6383407			
cis-1,2-Dichloroet	hylene	ug/L	5.6	4000	4000 ND		6383407			
trans-1,3-Dichloro	propene	ug/L	5.6	140	ND	2.0	6383407			
Ethylbenzene		ug/L	2	160	ND	1.0	6383407			
Methylene Chloric	de(Dichloromethane)	ug/L	5.2	2000	ND	5.0	6383407			
1,1,2,2-Tetrachlor	oethane	ug/L	17	1400	00 ND		6383407			
Tetrachloroethyle	ne	ug/L	4.4	1000	1000 ND		6383407			
Toluene		ug/L	2	16	ND	2.0	6383407			
Trichloroethylene		ug/L	7.6	400	ND	1.0	6383407			
p+m-Xylene		ug/L	-	-	ND	1.0	6383407			
o-Xylene		ug/L	-	-	ND	1.0	6383407			
Total Xylenes		ug/L	4.4	1400	ND	1.0	6383407			
PCBs										
Total PCB		ug/L	0.4	1	ND	0.05	6384182			
Microbiological										
Escherichia coli		CFU/100mL	200	-	<10	10	6382048			
No Fill	No Exceedance									
Grey Exceeds 1 criteria policy/level										
Black Exceeds both criteria/levels										
RDL = Reportable Detection Limit										
QC Batch = Quality	y Control Batch									
Criteria: Toronto S	Storm Sewer Discharge	Use By-Law								
Criteria-2: Toronto	o Sanitary and Combine	ed Sewers Dis	charge G	uidelines. F	Referenced to th	ne Chapt	ter 681.			
ND = Not detected	ł									



BV Labs ID				K77844		
				2010/10/10		
Sampling Date				10:05		
COC Number				741264-01-01		
	UNITS	Criteria	Criteria-2	BH/MW103	RDL	QC Batch
Surrogate Recovery (%)		•				•
2,4,6-Tribromophenol	%	-	-	74		6382240
2-Fluorobiphenyl	%	-	-	63		6382240
D14-Terphenyl (FS)	%	-	-	82		6382240
D5-Nitrobenzene	%	-	-	71		6382240
D8-Acenaphthylene	%	-	-	75		6382240
Decachlorobiphenyl	%	-	-	76		6384182
4-Bromofluorobenzene	%	-	-	102		6383407
D4-1,2-Dichloroethane	%	-	-	100		6383407
D8-Toluene	%	-	-	99		6383407
No Fill No Exceedance						
Grey Exceeds 1 criteria po	licy/level					
Black Exceeds both criteria	/levels					
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						
Criteria: Toronto Storm Sewer Discharge	Use By-Law					
Criteria-2: Toronto Sanitary and Combine	ed Sewers Dis	charge G	uidelines. F	Referenced to th	ne Chapt	er 681.

## **TORONTO SANITARY & STORM SEWER PACKAGE (WATER)**



## **GENERAL COMMENTS**

Each te	emperature is the ave	rage of up to th	ree cooler temperatures taken at receipt								
	Package 1	11.3°C									
Sample KZZ844 [BH/MW103] : VOC Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.											
Results	relate only to the ite	ems tested.									



## **QUALITY ASSURANCE REPORT**

B.I.G Consulting Inc.Client Project #: BIGC-ENV-154ESite Location: 26-38 Hounslow AvenueSampler Initials: EL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6382240	2,4,6-Tribromophenol	2019/10/15	26	10 - 130	63	10 - 130	63	%				
6382240	2-Fluorobiphenyl	2019/10/15	79	30 - 130	76	30 - 130	62	%				
6382240	D14-Terphenyl (FS)	2019/10/15	77	30 - 130	75	30 - 130	75	%				
6382240	D5-Nitrobenzene	2019/10/15	84	30 - 130	77	30 - 130	69	%				
6382240	D8-Acenaphthylene	2019/10/15	82	30 - 130	79	30 - 130	69	%				
6383407	4-Bromofluorobenzene	2019/10/15	102	70 - 130	104	70 - 130	100	%				
6383407	D4-1,2-Dichloroethane	2019/10/15	97	70 - 130	102	70 - 130	98	%				
6383407	D8-Toluene	2019/10/15	101	70 - 130	99	70 - 130	99	%				
6384182	Decachlorobiphenyl	2019/10/15	79	60 - 130	88	60 - 130	87	%				
6379367	Chromium (VI)	2019/10/15	106	80 - 120	105	80 - 120	ND, RDL=0.50	ug/L	NC	20		
6382240	1,3-Dinitropyrene	2019/10/15	58	30 - 130	53	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	1,6-Dinitropyrene	2019/10/15	56	30 - 130	53	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	1,8-Dinitropyrene	2019/10/15	67	30 - 130	65	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	3,3'-Dichlorobenzidine	2019/10/15	0.070 (1)	30 - 130	27 (1)	30 - 130	ND, RDL=0.8	ug/L	NC	40		
6382240	7H-Dibenzo(c,g) Carbazole	2019/10/15	53	30 - 130	88	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	Anthracene	2019/10/15	79	30 - 130	80	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(a)anthracene	2019/10/15	86	30 - 130	86	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(a)pyrene	2019/10/15	88	30 - 130	94	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(b/j)fluoranthene	2019/10/15	96	30 - 130	101	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(e)pyrene	2019/10/15	101	30 - 130	102	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(g,h,i)perylene	2019/10/15	100	30 - 130	105	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Benzo(k)fluoranthene	2019/10/15	92	30 - 130	103	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Bis(2-ethylhexyl)phthalate	2019/10/15	94	30 - 130	91	30 - 130	ND,RDL=2	ug/L	NC	40		
6382240	Chrysene	2019/10/15	98	30 - 130	97	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Dibenz(a,h)anthracene	2019/10/15	105	30 - 130	108	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Dibenzo(a,i)pyrene	2019/10/15	78	30 - 130	91	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Dibenzo(a,j) acridine	2019/10/15	109	30 - 130	100	30 - 130	ND, RDL=0.4	ug/L	NC	40		
6382240	Di-N-butyl phthalate	2019/10/15	103	30 - 130	106	30 - 130	ND,RDL=2	ug/L	NC	40		
6382240	Fluoranthene	2019/10/15	94	30 - 130	95	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Indeno(1,2,3-cd)pyrene	2019/10/15	108	30 - 130	111	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Pentachlorophenol	2019/10/15	58	30 - 130	58	30 - 130	ND,RDL=1	ug/L	NC	40		

Page 8 of 13



B.I.G Consulting Inc.Client Project #: BIGC-ENV-154ESite Location: 26-38 Hounslow AvenueSampler Initials: EL

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6382240	Perylene	2019/10/15	100	30 - 130	102	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Phenanthrene	2019/10/15	91	30 - 130	92	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382240	Pyrene	2019/10/15	91	30 - 130	90	30 - 130	ND, RDL=0.2	ug/L	NC	40		
6382996	Fluoride (F-)	2019/10/16	100	80 - 120	103	80 - 120	ND, RDL=0.10	mg/L	NC	20		
6382997	рН	2019/10/16			102	98 - 103			0.59	N/A		
6383368	Total Cyanide (CN)	2019/10/11	107	80 - 120	105	80 - 120	ND, RDL=0.0050	mg/L	NC	20		
6383395	Total Suspended Solids	2019/10/15					ND, RDL=10	mg/L	NC	25	97	85 - 115
6383407	1,1,2,2-Tetrachloroethane	2019/10/15	91	70 - 130	102	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	1,2-Dichlorobenzene	2019/10/15	94	70 - 130	98	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	1,4-Dichlorobenzene	2019/10/15	95	70 - 130	97	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	Benzene	2019/10/15	95	70 - 130	95	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Chloroform	2019/10/15	96	70 - 130	98	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	cis-1,2-Dichloroethylene	2019/10/15	96	70 - 130	97	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Ethylbenzene	2019/10/15	96	70 - 130	93	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Methylene Chloride(Dichloromethane)	2019/10/15	90	70 - 130	95	70 - 130	ND, RDL=0.50	ug/L	NC	30		
6383407	o-Xylene	2019/10/15	94	70 - 130	94	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	p+m-Xylene	2019/10/15	98	70 - 130	95	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Tetrachloroethylene	2019/10/15	102	70 - 130	98	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6383407	Toluene	2019/10/15	97	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	Total Xylenes	2019/10/15					ND, RDL=0.10	ug/L	NC	30		
6383407	trans-1,3-Dichloropropene	2019/10/15	94	70 - 130	97	70 - 130	ND, RDL=0.20	ug/L	NC	30		
6383407	Trichloroethylene	2019/10/15	99	70 - 130	98	70 - 130	ND, RDL=0.10	ug/L	NC	30		
6384182	Total PCB	2019/10/15	80	60 - 130	94	60 - 130	ND, RDL=0.05	ug/L	NC	40		
6384926	Total BOD	2019/10/17					ND,RDL=2	mg/L	0	30	94	80 - 120
6386092	Total Aluminum (Al)	2019/10/16	NC (2)	80 - 120	103	80 - 120	ND, RDL=5.0	ug/L	NC	20		
6386092	Total Antimony (Sb)	2019/10/16	NC (2)	80 - 120	101	80 - 120	ND, RDL=0.50	ug/L	2.0	20		
6386092	Total Arsenic (As)	2019/10/16	NC (2)	80 - 120	103	80 - 120	ND, RDL=1.0	ug/L	1.5	20		
6386092	Total Cadmium (Cd)	2019/10/16	NC (2)	80 - 120	100	80 - 120	ND, RDL=0.10	ug/L	NC	20		
6386092	Total Chromium (Cr)	2019/10/16	NC (2)	80 - 120	97	80 - 120	ND, RDL=5.0	ug/L	NC	20		
6386092	Total Cobalt (Co)	2019/10/16	NC (2)	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	1.7	20		

Page 9 of 13



B.I.G Consulting Inc.Client Project #: BIGC-ENV-154ESite Location: 26-38 Hounslow AvenueSampler Initials: EL

			Matrix	Matrix Spike		SPIKED BLANK		Method Blank		RPD		ndard
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6386092	Total Copper (Cu)	2019/10/16	NC (2)	80 - 120	103	80 - 120	ND, RDL=1.0	ug/L	3.2	20		
6386092	Total Lead (Pb)	2019/10/16	NC (2)	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	1.7	20		
6386092	Total Manganese (Mn)	2019/10/16	NC (2)	80 - 120	100	80 - 120	ND, RDL=2.0	ug/L	3.2	20		
6386092	Total Molybdenum (Mo)	2019/10/16	NC (2)	80 - 120	96	80 - 120	ND, RDL=0.50	ug/L	1.9	20		
6386092	Total Nickel (Ni)	2019/10/16	NC (2)	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L	3.4	20		
6386092	Total Phosphorus (P)	2019/10/16	NC (2)	80 - 120	111	80 - 120	ND, RDL=100	ug/L	3.6	20		
6386092	Total Selenium (Se)	2019/10/16	NC (2)	80 - 120	102	80 - 120	ND, RDL=2.0	ug/L	0.38	20		
6386092	Total Silver (Ag)	2019/10/16	NC (2)	80 - 120	97	80 - 120	ND, RDL=0.10	ug/L	NC	20		
6386092	Total Tin (Sn)	2019/10/16	NC (2)	80 - 120	99	80 - 120	ND, RDL=1.0	ug/L	NC	20		
6386092	Total Titanium (Ti)	2019/10/16	NC (2)	80 - 120	97	80 - 120	ND, RDL=5.0	ug/L	NC	20		
6386092	Total Zinc (Zn)	2019/10/16	NC (2)	80 - 120	104	80 - 120	ND, RDL=5.0	ug/L	0.15	20		
6386104	Mercury (Hg)	2019/10/15	94	75 - 125	95	80 - 120	ND, RDL=0.0001	mg/L	NC	20		
6386210	Phenols-4AAP	2019/10/15	99	80 - 120	97	80 - 120	ND, RDL=0.0010	mg/L	6.3	20		
6386840	Nonylphenol (Total)	2019/10/16	105	50 - 130	103	50 - 130	ND, RDL=0.001	mg/L	NC	40		
6387086	Nonylphenol Ethoxylate (Total)	2019/10/16	98	50 - 130	96	50 - 130	ND, RDL=0.005	mg/L	NC	40		
6387441	Total Kjeldahl Nitrogen (TKN)	2019/10/18	97	80 - 120	97	80 - 120	ND, RDL=0.10	mg/L	NC	20	93	80 - 120
6391469	Total Oil & Grease	2019/10/17			97	85 - 115	ND, RDL=0.50	mg/L	1.3	25		

Page 10 of 13



B.I.G Consulting Inc. Client Project #: BIGC-ENV-154E Site Location: 26-38 Hounslow Avenue Sampler Initials: EL

			Matrix	Spike	SPIKED	BLANK	Method B	lank	RP	D	QC Sta	ndard
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
6391471	Total Oil & Grease Mineral/Synthetic	2019/10/17			94	85 - 115	ND, RDL=0.50	mg/L	2.1	25		
N/A = Not A	pplicable											
Duplicate: P	Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.											
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.												
QC Standard	I: A sample of known concentration prepared by	an external ager	ncy under stri	ngent condi	tions. Used as	an indepen	dent check of r	nethod ac	curacy.			
Spiked Blank	: A blank matrix sample to which a known amou	nt of the analyte	e, usually from	n a second so	ource, has bee	en added. Us	ed to evaluate	method a	ccuracy.			
Method Blar	nk: A blank matrix containing all reagents used in	the analytical p	procedure. Us	ed to identif	y laboratory c	ontaminatio	on.					
Surrogate: A	Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.											
NC (Matrix S recovery cal	pike): The recovery in the matrix spike was not ca culation (matrix spike concentration was less thar	alculated. The ron the native same	elative differe ple concentra	nce betwee ation)	n the concentr	ration in the	parent sample	and the s	pike amount w	vas too small	to permit a	reliable

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

(2) Matrix Spike not calculated. Original sample and matrix spike sample were analyzed at a dilution, due to high target analytes, or sample matrix interference.



#### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Anastassia Hamanov, Scientific Specialist

Sirimathie Aluthwala, Campobello Micro

BV Labs has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



## Exceedence Summary Table – Toronto Storm Sewer

## **Result Exceedences**

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
BH/MW103	KZZ844-08	Total Manganese (Mn)	50	330	2.0	ug/L
BH/MW103	KZZ844-05	Total Suspended Solids	15	120	10	mg/L
The exceedence summan	ry table is for information p idelines.	urposes only and should not be c	onsidered a compreh	ensive listing or	statement of	conformance to

## Exceedence Summary Table – Toronto Sanitary Sewer

**Result Exceedences** 

Sample ID	BV Labs ID	Parameter	Criteria	Result	DL	Units
No Exceedences						
The exceedence summa	ary table is for information p	ourposes only and should not	be considered a compret	nensive listing or	statement of	conformance to
applicable regulatory gu	idelines.					

		NVOICE TO:		116		REPO	RT TO:					PROJECT	INFORMAT	TION:				Laboratory Use C	inly:
ompany Nan	me #31796 B.I.G (	Consulting Inc.	S	Company	Name B.L.	G-Longe	altinsThe			Quotation	#:	B6447	6					BV Labs Job #:	Bottle Order #:
ttention:	Accounts Payat	ble		Attention	Eileen I	Liu	0.	_		P.O.#									
ddress:	12-5500 Tomke	n Road		Address	San	e				Project		BIGC-	ENV-154	E		-		000 #	741264
	(416) 214-4880	L4VV 224		-			-	_		Project Na	Inte:	26-38	Hounslow	Aven	10	-			Project Manager:
mail:	Idougherty@bro	wnfieldigi.com; admin(	abrownfieldigi.	CO Email	eliu@br	ownfieldigi.c	om			_ Site #: Sampled E	By	F	1			-		C#741264-01-01	Christine Gripton
MOE RE	EGULATED DRINKIN	IG WATER OR WATER	INTENDED FO	R HUMAN C	ONSUMPTION	MUST BE			4	NALYSIS RE	QUESTER	D (PLEASE B	E SPECIFIC	1			-	Turnaround Time (TAT) Re	quired
	SUBMITTED	ON THE BV LABS DRI	NKING WATER	CHAIN OF C	USTODY					-			100			Dee	ulas (Ct	Please provide advance notice for	rush projects
Regu	lation 153 (2011)	01	ther Regulations		Special Ins	structions	- circle	AGE .								(will b	e applied	if Rush TAT is not specified):	5
Table 1	Res/Park Media	m/Fine CCME	Sanitary Sewer By	law			ase (	n Sev								Stand	lard TAT	= 5-7 Working days for most lests	
Table 3	Agri/Other For F	ISC MISA M	Storm Sewer Byla	ronto			(plea	Storn								Pleas days	e note: Si contact y	tandard TAT for certain tests such as Bi your Project Manager for details.	OD and Dioxins/Furans are a
Table	_	PWQO					ared Is / H	ary &		1						Job	Specific	Rush TAT (if applies to entire subm	ission)
		Other	N				Aeta	Sanit								Date	Required.	Tim	e Required:
1	Include Criter	ia on Certificate of Analy	/sis (Y/N)?				Field	onto								Rush	Commi	(ce	di lab for #)
Sar	nple Barcode Label	Sample (Location) Ider	ntification	Date Sampled	Time Sampled	Matrix	-	Pac	-	1	-		-	-		# at	Bonnes	Comme	ints
4		BHIMWIC	03 Q	+10,2019	10:05	GW	N	X			-					1	9		
				0.00															
										-	-		-	-	-	-	-		
-						1			-	-	-		-	-		-			
P																			
1																			
5				-		1										-			
-		-				-	-			-	-		-	-			- 10	14:30	
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6		1													Christ	ine Gr	1ptor	11 11	
				-	1		-					1 = 1	-		B	9558	04	0 -	
										-	-	-	-		JCC	EN	V-11	24 -	
ñ	I BET LUB LI TOTAL															1			
5100	RELINQUISHED BY:	Signature/Print)	Date: (YY/MM	(DD) Tir	me tru	RECEIVED	BY: (Signature)	Print)	Date: ()	Y/MM/DD)	100	Time	# jars us not sub	sed and mitted	Time Sensit	ina I	Laborat	ory Use Only Custody Se	al Yes. M
(1)22	ch lin pad	weeks	091 [0] 1	0 11=0	e gu	H- COICI	in cum		004711	1/10	Ч	м	-		Time Sensit	Te	mperatu	12 10 Present	4
	EDWICE ACDEED TO NU	BITING WORK SUBMITTED					DHE AND CONT						1	-		1	1/11/	12 Intact	

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Your Project #: BIGC-GEO-154H Site Location: 26-38 HOUNSLOW AVE Your C.O.C. #: 941232-01-01

#### **Attention: Eileen Liu**

B.I.G Consulting Inc. 12-5500 Tomken Road Mississauga, ON CANADA L4W 2Z4

> Report Date: 2023/08/30 Report #: R7788659 Version: 1 - Final

## **CERTIFICATE OF ANALYSIS**

#### BUREAU VERITAS JOB #: C3P1201 Received: 2023/08/18, 12:49

Sample Matrix: Water # Samples Received: 1

		Date	Date		
Analyses	Quantity	Extracted	Analyzed	Laboratory Method	Analytical Method
Sewer Use By-Law Semivolatile Organics	1	2023/08/22	2023/08/23	CAM SOP 00301	EPA 8270 m
Biochemical Oxygen Demand (BOD)	1	2023/08/19	2023/08/24	CAM SOP-00427	SM 23 5210B m
Chromium (VI) in Water	1	N/A	2023/08/21	CAM SOP-00436	EPA 7199 m
Total Cyanide	1	2023/08/21	2023/08/21	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2023/08/19	2023/08/21	CAM SOP-00449	SM 23 4500-F C m
Mercury in Water by CVAA	1	2023/08/21	2023/08/21	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	2023/08/23	2023/08/24	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2023/08/18	CAM SOP-00552	MECP E3371
Total Nonylphenol in Liquids by HPLC	1	2023/08/21	2023/08/22	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2023/08/21	2023/08/22	CAM SOP-00313	In-house Method
Animal and Vegetable Oil and Grease	1	N/A	2023/08/29	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2023/08/29	2023/08/29	CAM SOP-00326	EPA1664B m,SM5520B m
Polychlorinated Biphenyl in Water	1	2023/08/22	2023/08/23	CAM SOP-00309	EPA 8082A m
рН	1	2023/08/19	2023/08/21	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2023/08/21	CAM SOP-00444	OMOE E3179 m
Total Kjeldahl Nitrogen in Water	1	2023/08/23	2023/08/23	CAM SOP-00938	OMOE E3516 m
Total PAHs (1)	1	N/A	2023/08/23	CAM SOP - 00301	
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2023/08/29	2023/08/29	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2023/08/22	2023/08/23	CAM SOP-00428	SM 23 2540D m
Volatile Organic Compounds in Water	1	N/A	2023/08/21	CAM SOP-00228	EPA 8260D

#### Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCCFP, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or

Page 1 of 13



Your Project #: BIGC-GEO-154H Site Location: 26-38 HOUNSLOW AVE Your C.O.C. #: 941232-01-01

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> Report Date: 2023/08/30 Report #: R7788659 Version: 1 - Final

### **CERTIFICATE OF ANALYSIS**

## BUREAU VERITAS JOB #: C3P1201

#### Received: 2023/08/18, 12:49

implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Total PAHs include only those PAHs specified in the sewer use by-by-law.

(2) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to: Deepthi Shaji, Project Manager Email: Deepthi.Shaji@bureauveritas.com Phone# (905)817-5700 Ext:7065843

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

> Total Cover Pages : 2 Page 2 of 13



### **TORONTO SANITARY&STORM SEWER (100-2016)**

Bureau Veritas ID				WSQ631			WSQ631		
Sampling Date				2023/08/18 10:45			2023/08/18 10:45		
COC Number		1		941232-01-01			941232-01-01		
	UNITS	Criteria	Criteria-2	MW103	RDL	QC Batch	MW103 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Total Animal/Vegetable Oil and Grease	mg/L		150	ND	0.50	8861864			
Inorganics									
Total BOD	mg/L	15	300	ND	2	8863898			
Fluoride (F-)	mg/L	-	10	0.15	0.10	8864606			
Total Kjeldahl Nitrogen (TKN)	mg/L	-	100	0.33	0.10	8871276			
рН	рН	6.0:9.5	6.0:11.5	7.83		8864617			
Phenols-4AAP	mg/L	0.008	1.0	ND	0.0010	8866732			
Total Suspended Solids	mg/L	15	350	ND	10	8868009	ND	10	8868009
Total Cyanide (CN)	mg/L	0.02	2	ND	0.0050	8865729			
Petroleum Hydrocarbons		<u> </u>	·	·	<u> </u>				
Total Oil & Grease	mg/L	_	-	ND	0.50	8883903			
Total Oil & Grease Mineral/Synthetic	mg/L		15	ND	0.50	8883909			
Miscellaneous Parameters		·	·	·	·				
Nonylphenol Ethoxylate (Total)	mg/L	0.01	0.2	ND	0.005	8866852			
Nonylphenol (Total)	mg/L	0.001	0.02	ND	0.001	8866796			
Metals	-	·	·	·					
Chromium (VI)	ug/L	40	2000	ND	0.50	8865394			
Mercury (Hg)	mg/L	0.0004	0.01	ND	0.00010	8865906			
Total Aluminum (Al)	ug/L	-	50000	80	4.9	8870636			
Total Antimony (Sb)	ug/L	<u> </u>	5000	ND	0.50	8870636			
Total Arsenic (As)	ug/L	20	1000	ND	1.0	8870636			
Total Cadmium (Cd)	ug/L	8	700	ND	0.090	8870636			
Total Chromium (Cr)	ug/L	80	4000	ND	5.0	8870636			
Total Cobalt (Co)	ug/L	-	5000	ND	0.50	8870636			
Total Copper (Cu)	ug/L	40	2000	ND	0.90	8870636			
Total Lead (Pb)	ug/L	120	1000	ND	0.50	8870636			
Total Manganese (Mn)	ug/L	50	5000	25	2.0	8870636			
No Fill No Exceedance	ce								
Grey Exceeds 1 crit	eria policy/lev	el							
Black Exceeds both	criteria/levels								
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Lab-Dup = Laboratory Initiated Duplicat	te								
Criteria: Toronto Storm Sewer Discharg	e Use By-Law								
Criterie 2. Terente Coniter, and Conshi				D = f =		- CO1			

Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

Page 3 of 13



### **TORONTO SANITARY&STORM SEWER (100-2016)**

Bureau Veritas ID					WSQ631			WSQ631		
Sampling Data					2023/08/18			2023/08/18		
		ļ			10:45			10:45		
COC Number					941232-01-01			941232-01-01		
		UNITS	Criteria	Criteria-2	MW103	RDL	QC Batch	MW103 Lab-Dup	RDL	QC Batch
Total Molybdenum (Mo	)	ug/L	-	5000	1.6	0.50	8870636			
Total Nickel (Ni)		ug/L	80	2000	ND	1.0	8870636			
Total Phosphorus (P)		ug/L	400	10000	ND	100	8870636			
Total Selenium (Se)		ug/L	20	1000	ND	2.0	8870636			
Total Silver (Ag)		ug/L	120	5000	ND	0.090	8870636			
Total Tin (Sn)		ug/L	-	5000	ND	1.0	8870636			
Total Titanium (Ti)		ug/L	-	5000	ND	5.0	8870636			
Total Zinc (Zn)		ug/L	40	2000	ND	5.0	8870636			
Semivolatile Organics			<u>.</u>		•		<u>.</u>			<u></u>
Di-N-butyl phthalate		ug/L	15	80	ND	2	8869636			
Bis(2-ethylhexyl)phthala	ate	ug/L	8.8	12	ND	2	8869636			
3,3'-Dichlorobenzidine		ug/L	0.8	2	ND	0.8	8869636			
Pentachlorophenol		ug/L	2	5	ND	1	8869636			
Phenanthrene		ug/L	-	-	ND	0.2	8869636			
Anthracene		ug/L	-	-	ND	0.2	8869636			
Fluoranthene		ug/L	-		ND	0.2	8869636			
Pyrene		ug/L	-	-	ND	0.2	8869636			
Benzo(a)anthracene		ug/L	-	-	ND	0.2	8869636			
Chrysene		ug/L	-	-	ND	0.2	8869636			
Benzo(b/j)fluoranthene		ug/L	-	-	ND	0.2	8869636			
Benzo(k)fluoranthene		ug/L	-	-	ND	0.2	8869636			
Benzo(a)pyrene		ug/L	-	-	ND	0.2	8869636			
Indeno(1,2,3-cd)pyrene		ug/L	-	-	ND	0.2	8869636			
Dibenzo(a,h)anthracene	è	ug/L	-	-	ND	0.2	8869636			
Benzo(g,h,i)perylene		ug/L	-	-	ND	0.2	8869636			
Dibenzo(a,i)pyrene		ug/L	-	-	ND	0.2	8869636			
Benzo(e)pyrene		ug/L	-	-	ND	0.2	8869636			
Perylene		ug/L	-	-	ND	0.2	8869636			
No Fill	No Exceedance	!								
Grey	Exceeds 1 crite	ria policy/leve	el							
Black	Exceeds both c	riteria/levels								
RDL = Reportable Detec	tion Limit									

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

Criteria: Toronto Storm Sewer Discharge Use By-Law

Criteria-2: Toronto Sanitary and Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

ND = Not Detected at a concentration equal or greater than the indicated Detection Limit.

Page 4 of 13



## **TORONTO SANITARY&STORM SEWER (100-2016)**

Bureau Veritas ID					WSQ631			WSQ631		
Sampling Date					2023/08/18			2023/08/18		
					10:45			10:45		
COC Number					941232-01-01			941232-01-01		
		UNITS	Criteria	Criteria-2	MW103	RDL	QC Batch	MW103 Lab-Dup	RDL	QC Batch
Dibenzo(a,j) acridine		ug/L	-	-	ND	0.4	8869636			
7H-Dibenzo(c,g) Carbaz	ole	ug/L	-	-	ND	0.4	8869636			
1,6-Dinitropyrene		ug/L	-	-	ND	0.4	8869636			
1,3-Dinitropyrene		ug/L	-	-	ND	0.4	8869636			
1,8-Dinitropyrene		ug/L	-	-	ND	0.4	8869636			
<b>Calculated Parameters</b>				•			•	•		
Total PAHs (18 PAHs)		ug/L	2	5	ND	1	8862957			
Volatile Organics			<u> </u>		<u>.</u>			•	44	L
Benzene		ug/L	2	10	ND	0.20	8864513			
Chloroform		ug/L	2	40	ND	0.20	8864513			
1,2-Dichlorobenzene		ug/L	5.6	50	ND	0.40	8864513			
1,4-Dichlorobenzene		ug/L	6.8	80	ND	0.40	8864513			
cis-1,2-Dichloroethylen	e	ug/L	5.6	4000	ND	0.50	8864513			
trans-1,3-Dichloroprope	ene	ug/L	5.6	140	ND	0.40	8864513			
Ethylbenzene		ug/L	2	160	ND	0.20	8864513			
Methylene Chloride(Dic	hloromethane)	ug/L	5.2	2000	ND	2.0	8864513			
1,1,2,2-Tetrachloroetha	ine	ug/L	17	1400	ND	0.40	8864513			
Tetrachloroethylene		ug/L	4.4	1000	ND	0.20	8864513			
Toluene		ug/L	2	16	ND	0.20	8864513			
Trichloroethylene		ug/L	7.6	400	ND	0.20	8864513			
p+m-Xylene		ug/L	-	-	ND	0.20	8864513			
o-Xylene		ug/L	-	-	ND	0.20	8864513			
Total Xylenes		ug/L	4.4	1400	ND	0.20	8864513			
PCBs		:		•					•	J
Total PCB		ug/L	0.4	1	ND	0.05	8867699			
Microbiological		•		•	•		•	•		
Escherichia coli		CFU/100mL	200	-	<10	10	8863739			
No Fill	No Exceedance	5		•			•	•	•	P
Grey	Exceeds 1 crite	ria policy/leve	el							
Black	Exceeds both c	riteria/levels								
RDL = Reportable Detec	tion Limit	·								
QC Batch = Quality Con	trol Batch									
Lab-Dup = Laboratory Ir	nitiated Duplicate	2								
Criteria: Toronto Storm	Use By-Law									
Criteria-2: Toronto Sani	tary and Combine	ed Sewers Dis	charge G	uidelines. F	Referenced to th	ne Chapte	er 681.			
ND = Not Detected at a	concentration ec	qual or greate	r than the	e indicated	Detection Limit.					

Page 5 of 13



## **TORONTO SANITARY&STORM SEWER (100-2016)**

Bureau Veritas ID					WSQ631			WSQ631		
Sampling Date					2023/08/18			2023/08/18		
					10:45			10:45		
COC Number					941232-01-01			941232-01-01		
		UNITS	Criteria	Criteria-2	MW103	RDL	QC Batch	MW103 Lab-Dup	RDL	QC Batch
Surrogate Recovery (%)										
2,4,6-Tribromophenol		%	-	-	83		8869636			
2-Fluorobiphenyl		%	-	-	64		8869636			
D14-Terphenyl (FS)		%	-	-	105		8869636			
D5-Nitrobenzene		%	-	-	71		8869636			
D8-Acenaphthylene		%	-	-	72		8869636			
Decachlorobiphenyl		%	-	-	81		8867699			
4-Bromofluorobenzene		%	-	-	99		8864513			
D4-1,2-Dichloroethane		%	-	-	105		8864513			
D8-Toluene		%	-	-	95		8864513			
No Fill	No Exceedance									
Grey	Exceeds 1 crite	ria policy/lev	el							
Black										
RDL = Reportable Detection Limit										
QC Batch = Quality Con	trol Batch									
Lab-Dup = Laboratory Ir	nitiated Duplicate	1								
Criteria: Toronto Storm	Use By-Law									
Criteria-2: Toronto Sani	tary and Combine	ed Sewers Dis	charge G	uidelines. I	Referenced to th	ne Chapte	er 681.			



## **GENERAL COMMENTS**

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1 14.3°C

Results relate only to the items tested.



## **QUALITY ASSURANCE REPORT**

B.I.G Consulting Inc.Client Project #: BIGC-GEO-154HSite Location: 26-38 HOUNSLOW AVESampler Initials: CW

			Matrix	Spike	SPIKED	BLANK	Method B	lank	RP	D	QC Sta	ndard
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8864513	4-Bromofluorobenzene	2023/08/21	99	70 - 130	99	70 - 130	101	%				
8864513	D4-1,2-Dichloroethane	2023/08/21	103	70 - 130	102	70 - 130	106	%				
8864513	D8-Toluene	2023/08/21	103	70 - 130	103	70 - 130	94	%				
8867699	Decachlorobiphenyl	2023/08/23	88	60 - 130	98	60 - 130	101	%				
8869636	2,4,6-Tribromophenol	2023/08/23	106	10 - 130	95	10 - 130	89	%				
8869636	2-Fluorobiphenyl	2023/08/23	74	30 - 130	70	30 - 130	78	%				
8869636	D14-Terphenyl (FS)	2023/08/23	106	30 - 130	105	30 - 130	104	%				
8869636	D5-Nitrobenzene	2023/08/23	84	30 - 130	74	30 - 130	74	%				
8869636	D8-Acenaphthylene	2023/08/23	79	30 - 130	70	30 - 130	73	%				
8863898	Total BOD	2023/08/24					ND,RDL=2	mg/L	NC	30	95	80 - 120
8864513	1,1,2,2-Tetrachloroethane	2023/08/21	104	70 - 130	101	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8864513	1,2-Dichlorobenzene	2023/08/21	100	70 - 130	98	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8864513	1,4-Dichlorobenzene	2023/08/21	98	70 - 130	97	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8864513	Benzene	2023/08/21	98	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Chloroform	2023/08/21	98	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	cis-1,2-Dichloroethylene	2023/08/21	102	70 - 130	98	70 - 130	ND, RDL=0.50	ug/L	NC	30		
8864513	Ethylbenzene	2023/08/21	98	70 - 130	95	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Methylene Chloride(Dichloromethane)	2023/08/21	99	70 - 130	95	70 - 130	ND, RDL=2.0	ug/L	NC	30		
8864513	o-Xylene	2023/08/21	97	70 - 130	96	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	p+m-Xylene	2023/08/21	99	70 - 130	97	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Tetrachloroethylene	2023/08/21	98	70 - 130	96	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Toluene	2023/08/21	100	70 - 130	96	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864513	Total Xylenes	2023/08/21					ND, RDL=0.20	ug/L	NC	30		
8864513	trans-1,3-Dichloropropene	2023/08/21	102	70 - 130	105	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8864513	Trichloroethylene	2023/08/21	97	70 - 130	94	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8864606	Fluoride (F-)	2023/08/21	93	80 - 120	97	80 - 120	ND, RDL=0.10	mg/L	4.6	20		
8864617	рН	2023/08/21			102	98 - 103			0.25	N/A		
8865394	Chromium (VI)	2023/08/21	105	80 - 120	103	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8865729	Total Cyanide (CN)	2023/08/21	91	80 - 120	93	80 - 120	ND, RDL=0.0050	mg/L	NC	20		

#### Page 8 of 13



B.I.G Consulting Inc.Client Project #: BIGC-GEO-154HSite Location: 26-38 HOUNSLOW AVESampler Initials: CW

			Matrix	Spike	SPIKED	BLANK	Method E	Blank	RP	D	QC Sta	ndard
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8865906	Mercury (Hg)	2023/08/21	98	75 - 125	98	80 - 120	ND, RDL=0.00010	mg/L	NC	20		
8866732	Phenols-4AAP	2023/08/21	100	80 - 120	100	80 - 120	ND, RDL=0.0010	mg/L	NC	20		
8866796	Nonylphenol (Total)	2023/08/23	117	50 - 130	108	50 - 130	ND, RDL=0.001	mg/L	NC	40		
8866852	Nonylphenol Ethoxylate (Total)	2023/08/23	95	50 - 130	95	50 - 130	ND, RDL=0.005	mg/L	NC	40		
8867699	Total PCB	2023/08/23	90	60 - 130	82	60 - 130	ND, RDL=0.05	ug/L	NC	40		
8868009	Total Suspended Solids	2023/08/23			99	85 - 115	ND, RDL=10	mg/L	NC	20		
8869636	1,3-Dinitropyrene	2023/08/23	46	30 - 130	92	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	1,6-Dinitropyrene	2023/08/23	49	30 - 130	83	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	1,8-Dinitropyrene	2023/08/23	42	30 - 130	81	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	3,3'-Dichlorobenzidine	2023/08/23	5.3 (1)	30 - 130	115	30 - 130	ND, RDL=0.8	ug/L	NC	40		
8869636	7H-Dibenzo(c,g) Carbazole	2023/08/23	96	30 - 130	107	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	Anthracene	2023/08/23	86	30 - 130	88	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(a)anthracene	2023/08/23	110	30 - 130	110	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(a)pyrene	2023/08/23	114	30 - 130	120	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(b/j)fluoranthene	2023/08/23	112	30 - 130	116	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(e)pyrene	2023/08/23	109	30 - 130	112	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(g,h,i)perylene	2023/08/23	115	30 - 130	124	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Benzo(k)fluoranthene	2023/08/23	107	30 - 130	107	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Bis(2-ethylhexyl)phthalate	2023/08/23	123	30 - 130	122	30 - 130	ND,RDL=2	ug/L	NC	40		
8869636	Chrysene	2023/08/23	100	30 - 130	101	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Dibenzo(a,h)anthracene	2023/08/23	104	30 - 130	108	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Dibenzo(a,i)pyrene	2023/08/23	76	30 - 130	91	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Dibenzo(a,j) acridine	2023/08/23	101	30 - 130	104	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8869636	Di-N-butyl phthalate	2023/08/23	101	30 - 130	100	30 - 130	ND,RDL=2	ug/L	15	40		
8869636	Fluoranthene	2023/08/23	103	30 - 130	103	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Indeno(1,2,3-cd)pyrene	2023/08/23	123	30 - 130	130	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Pentachlorophenol	2023/08/23	88	30 - 130	49	30 - 130	ND,RDL=1	ug/L	NC	40		

#### Page 9 of 13



B.I.G Consulting Inc.Client Project #: BIGC-GEO-154HSite Location: 26-38 HOUNSLOW AVESampler Initials: CW

			Matrix	Spike	SPIKED	BLANK	Method E	Blank	RP	D	QC Sta	indard
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8869636	Perylene	2023/08/23	102	30 - 130	103	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Phenanthrene	2023/08/23	89	30 - 130	88	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8869636	Pyrene	2023/08/23	104	30 - 130	103	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8870636	Total Aluminum (Al)	2023/08/24	NC	80 - 120	100	80 - 120	ND, RDL=4.9	ug/L	8.5	20		
8870636	Total Antimony (Sb)	2023/08/24	105	80 - 120	104	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8870636	Total Arsenic (As)	2023/08/24	103	80 - 120	102	80 - 120	ND, RDL=1.0	ug/L	4.6	20		
8870636	Total Cadmium (Cd)	2023/08/24	98	80 - 120	99	80 - 120	ND, RDL=0.090	ug/L	NC	20		
8870636	Total Chromium (Cr)	2023/08/24	98	80 - 120	95	80 - 120	ND, RDL=5.0	ug/L	NC	20		
8870636	Total Cobalt (Co)	2023/08/24	101	80 - 120	100	80 - 120	ND, RDL=0.50	ug/L	7.2	20		
8870636	Total Copper (Cu)	2023/08/24	99	80 - 120	100	80 - 120	ND, RDL=0.90	ug/L	8.2	20		
8870636	Total Lead (Pb)	2023/08/24	98	80 - 120	98	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8870636	Total Manganese (Mn)	2023/08/24	101	80 - 120	98	80 - 120	ND, RDL=2.0	ug/L	5.5	20		
8870636	Total Molybdenum (Mo)	2023/08/24	101	80 - 120	100	80 - 120	ND, RDL=0.50	ug/L	8.8	20		
8870636	Total Nickel (Ni)	2023/08/24	98	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L	6.9	20		
8870636	Total Phosphorus (P)	2023/08/24	105	80 - 120	96	80 - 120	ND, RDL=100	ug/L				
8870636	Total Selenium (Se)	2023/08/24	105	80 - 120	105	80 - 120	ND, RDL=2.0	ug/L	NC	20		
8870636	Total Silver (Ag)	2023/08/24	94	80 - 120	96	80 - 120	ND, RDL=0.090	ug/L	NC	20		
8870636	Total Tin (Sn)	2023/08/24	103	80 - 120	102	80 - 120	ND, RDL=1.0	ug/L	NC	20		
8870636	Total Titanium (Ti)	2023/08/24	105	80 - 120	99	80 - 120	ND, RDL=5.0	ug/L	15	20		
8870636	Total Zinc (Zn)	2023/08/24	102	80 - 120	100	80 - 120	ND, RDL=5.0	ug/L	0.42	20		
8871276	Total Kjeldahl Nitrogen (TKN)	2023/08/23	103	80 - 120	103	80 - 120	ND, RDL=0.10	mg/L	6.6	20	105	80 - 120
8883903	Total Oil & Grease	2023/08/29			99	85 - 115	ND, RDL=0.50	mg/L	0.76	25		



B.I.G Consulting Inc. Client Project #: BIGC-GEO-154H Site Location: 26-38 HOUNSLOW AVE Sampler Initials: CW

				Matrix Spike		SPIKED	SPIKED BLANK		Method Blank		RPD		ndard
Ι	QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
I	8883909	Total Oil & Grease Mineral/Synthetic	2023/08/29			96	85 - 115	ND, RDL=0.50	mg/L	1.0	25		
	N/A = Not A	pplicable											
	Duplicate: F	Paired analysis of a separate portion of the same s	sample. Used to	evaluate the	variance in	the measurem	ient.						
	Matrix Spike	e: A sample to which a known amount of the ana	lyte of interest l	nas been adde	ed. Used to e	evaluate samp	le matrix int	erference.					
	QC Standard	I: A sample of known concentration prepared by a	an external age	ncy under stri	ngent condi	tions. Used as	an indepen	dent check of r	nethod ac	curacy.			
	Spiked Blank	k: A blank matrix sample to which a known amour	nt of the analyte	e, usually from	n a second se	ource, has bee	en added. Us	ed to evaluate	method a	ccuracy.			
	Method Bla	nk: A blank matrix containing all reagents used in	the analytical p	procedure. Us	ed to identif	y laboratory c	ontaminatio	on.					
	Surrogate: /	A pure or isotopically labeled compound whose b	ehavior mirrors	the analytes of	of interest. l	Jsed to evalua	te extractio	n efficiency.					
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)													
	NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).												
	(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.												



#### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

Paramjit Paramjit, Analyst I

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.



## Exceedance Summary Table – Toronto Storm Sewer

**Result Exceedances** 

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS			
No Exceedances									
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to									
applicable regulatory g	uidelines.								

## Exceedance Summary Table – Toronto Sanitary Sewer

**Result Exceedances** 

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS		
No Exceedances								
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to								
applicable regulatory guideline	s.							

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Bureau Veritas Canada (2019) Inc.

# APPENDIX E: CONSTRUCTION DEWATERING ESTIMATE RATE CALCULATIONS



## **Construction Dewatering Rate Estimate**

26-38 Hounslow Avenue, Toronto, Ontario

2 levels of basement, Unconfined Aquifer, Groundwater seepage to rectangular excavation (Radial source)

## Table E-1: Precipitation Estimate

Location Assumed Precipitation Event (mm)		Length of Excavation (m)	Width of Excavation (m)	Rainwater Collection (L)	
Aerial Extent of the Site	20	54	39	42,000	

## Table E-2: Construction Dewatering Rate Estimates

Description	Symbol	Values	Unit	Explanation						
Input Data										
Proposed Ground Elevation		184.35	m asl	Based on drawing A6.00 Section A, prepared JCI, dated August 31, 2023						
Highest Groundwater Elevation		183.44	m asl	Highest water level (December 19, 2019) plus fluctuation						
P2 Footing Elevation		173.30	m asl	Assumed 2 m below P2 slab, P2 FFE is 175.3 m asl based on drawing A6.00 Section A, prepared by JCI, dated August 31, 2023						
Aquifer Bottom		170.30	m asl	Assume 3 m below basement slab						
Hydraulic Conductivity	К	1.25E-07	m/s	Highest K in clayey silt						
Length of Excavation	x	54.0	m	Based on drawing A3.00 Parking Level P2, prepared by JCI, dated August 31, 2023						
Width of Excavation	а	39.0	m	Based on drawing A3.00 Parking Level P2, prepared by JCI, dated August 31, 2023						
Output										
Top of Aquifer		183.44	m asl	Water table for unconfined aquifer						
Target Water Level		172.30	m asl	Assumed 1 m below basement floor level						
Water Level above aquifer bottom before dewatering	Н	13.1	m							
Target water level above aquifer bottom	h	2.0	m							
Effective radius	Re	25.89	m	Equal area						
Radius of Influence	L (R ₀ )	37.71	m	Sichardt's Formula C=3000						
Construction Dewatering Flow Rate - Steady State	Q	15.22	m³/day	Construction Dewatering Flow - Dupuit Equation						



Hounslow Holdings Inc. Hydrogeological Investigation 26-28 Hounsow Avenue, Toronto, Ontario BIGC-GEO-154H September 2023

Description	Symbol	Values	Unit	Explanation
Maximum Construction Flow Rate (safety factor of 3)	3Q	45.67	m³/day	During the initial period and after rains
Construction Dewatering Flow Rate - Steady State	Q	15,000	L/day	
Construction Flow Rate (safety factor of 3) 3Q		45,000	L/day	
Rainfall collection of a 20 mm precipitation event	42,000	L		
Total Approximate Construction Dewatering Rate		87,000	L/day	



# APPENDIX F: LONG TERM DRAINAGE FLOW RATE ESTIMATE CALCULATION



## Long Term Drainage Flow Rate Estimate

26-38 Hounslow Avenue, Toronto, Ontario

2 levels of basement, Unconfined Aquifer, Groundwater seepage to rectangular excavation (Radial source)

## Table F-1: Foundation Drain Flow Rate Estimates

Description	Symbol	Values	Unit	Explanation
Input Data			• 	·
Lowest Ground Elevation		184.35	m asl	Based on drawing A6.00 Section A, prepared JCI, dated August 31, 2023
Highest Groundwater Elevation		183.44	m asl	Highest water level (December 19, 2019) plus fluctuation
Basement Elevation		175.30	m asl	P2 FFE is 175.3 m asl based on drawing A6.00 Section A, prepared by JCI, dated August 31, 2023
Aquifer Bottom		172.30	m asl	Assume 3 m below basement slab
Hydraulic Conductivity	К	1.25E-07	m/s	Highest K in clayey silt
Length of Excavation	x	54.0	m	Based on drawing A3.00 Parking Level P2, prepared by JCI, dated August 31, 2023
Width of Excavation	а	39.0	m	Based on drawing A3.00 Parking Level P2, prepared by JCI, dated August 31, 2023
Output				
Top of Aquifer		183.44	m asl	Water table for unconfined aquifer
Target Water Level		174.80	m asl	Assumed 0.5 m below basement floor level
Water Level above aquifer bottom before dewatering	Н	11.1	m	
Target water level above aquifer bottom	h	2.5	m	
Effective radius	Re	25.89	m	Equal area
Radius of Influence	L (R ₀ )	35.0	m	Weber's Equation - $R_0$ after 170 days (from centre of the Site)
Long-Term Flow Rate - Steady State	Q	13.22	m³/day	Long-term flow rate - Dupuit Equation
Maximum Foundation Drain Flow Rate (safety factor of 3)	3Q	39.65	m³/day	During the initial period and after rains
Estimated Long-term Foundation Drain Flow Rate	Q	13,000	L/day	
Estimated Maximum Foundation Drain Flow Rate	3Q	39,000	L/day	

