13, 15, 17, 19, & 21 John Street and 36, 38, & 40 South Station Street, Toronto, Ontario

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Hydrogeological Investigation

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1 Introduction

1.1 Project Description

EXP Services Inc. (EXP) was retained by 21 John Dev Inc.. to prepare a Hydrogeological Investigation Report associated with the proposed development located at 13, 15, 17, 19 and 21 John Street and 36, 38 and 40 South Station Toronto, Ontario (hereinafter referred to as the 'Site').

It is our understanding that the proposed development plan is to demolish the existing structures and construct a forty (40) storey mixed-use building with three (3) levels of underground parking (P3). The architectural drawings are provided in Appendix H. The Site location plan is shown on Figure 1.

EXP conducted a Geotechnical Investigation in conjunction with this investigation. The pertinent information gathered from the noted investigation is utilized for this report.

1.2 Project Objectives

The main objectives of the Hydrogeological Investigation are as follows:

Establish the local hydrogeological settings within the Site;

Provide recommendations on construction (short--term) and post-construction (long-term) dewatering;

Assess groundwater quality; and

Prepare a Hydrogeological Investigation Report.

1.3 Scope of Work

To achieve the investigation objectives, EXP has completed the following scope of work:

Reviewed available geological and hydrogeological information for the Site;

Developed and conducted Single Well Response Tests (SWRT) on all five (5) monitoring wells installed in geotechnical boreholes during the geotechnical drilling program to assess hydraulic conductivities of the saturated soils at the Site;

Completed nine (9) rounds of groundwater level measurements at all monitoring wells. As per the City of Toronto's requirements, a three (3)-month monitoring program was completed.

Collected two (2) groundwater samples for analyses of parameters, as listed in the City of Toronto Sanitary and Storm Sewer Use By-Law;

Evaluated the information collected during the field investigation program, including borehole geological information, Water Well Records (WWR), SWRT results, groundwater level measurements and groundwater water quality;

Prepared site plans, cross sections, geological mapping and groundwater contour mapping for the Site;

Estimated construction (short-term) and post-construction (long-term) dewatering flow rates;

Provided recommendations on the Ministry of Environment, Conservation and Parks (MECP) Water Taking Permits and City of Toronto Sewer Discharge Agreements (SDA) for the construction and post-construction phases;

Prepared a Hydrogeological Investigation Report; and

As per the City's requirements, Hydrology Review Form is completed under a separate cover.

The Hydrogeological Investigation was prepared in accordance with the Ontario Water Resources Act, Ontario Regulation 387/04, and Toronto Municipal Code 681-Sewers. The scope of work outlined above was made to assess dewatering and did not include a review of Environmental Site Assessments (ESA).

Any past and/or future geotechnical, hydrogeological, environmental and risk assessments, and updated development/architectural plans should be provided to update this hydrogeological report prior to submission of permits and approvals by the municipalities and agencies.

1.4 Review of Previous Documents

The following documents were reviewed as part of this Hydrogeological Investigation:

EXP Services Inc. (September 9, 2022), Supplementary Geotechnical Investigation, Proposed Multi-Storey Mixed-Use Development 13, 15, 17, 19 and 21 John Street and 36, 38 and 40 South Station Street, Toronto, Ontario, prepared for 21 John Dev Inc.

3XN USA LLC (July 22, 2022), Draft Architectural Drawings, South Station Street, 13-21 John Street / 30-40 South Station Street, Toronto, ON, prepared for Devron.

EXP Services Inc. (December 9, 2021), Preliminary Geotechnical Investigation, Proposed Multi-Storey Mixed-Use Development 13, 15, 17, 19 and 21 John Street and 36, 38 and 40 South Station Street, Toronto, Ontario, prepared for Devron Developments.

Any past and/or future geotechnical, hydrogeological, environmental and risk assessments, and updated development/architectural plans should be provided to update this hydrogeological report prior to submission of permits and approvals by the municipalities and agencies.

2 Hydrogeological Setting

2.1 Regional Setting

2.1.1 Regional Physiography

The Site is within a physiographic region known as the Iroquois Plain. The physiographic landform is named Sand Plains. The South Slope lies to the north of the Iroquois Plain (Chapman & Putnam, 2007).

The Iroquois Plain was created along the shores of former Lake Iroquois, an ancient glacial lake. The noted Plain primarily consists of shallow water sandy deposits.

The topography of the Iroquois Plain is relatively flat with a gradual slope to the south, toward Lake Ontario.

2.1.2 Regional Geology and Hydrogeology

The surficial geology can be described as coarse textured (foreshore-basinal) glaciolacustrine deposits consisting of sand, gravel, minor silt and clay (Ministry of Northern Development and Mines, 2012). The surficial geology of the Site and surrounding areas is shown on Figure 2.

Based on the available regional geology maps, the subsurface stratigraphy of the Site from top to bottom is summarized in Table 2-1 (TRCA, 2008 and Oak Ridge Moraine Groundwater Program, 2022). The overburden thickness is approximately between 7 and 9 meters (Appendix G).

Table 2-1: Summary of Subsurface Stratigraphy

Stratigraphic Unit	General Description	Top Elevation of Stratigraphic Unit (masl)
Oak Ridges Moraine or Equivalent (Aquifer)	This geology unit mainly consists of interbedded fine-grained sand and silt deposits where coarse-grained sand and gravel along with clay laminae are locally reported.	127
Thorncliffe Formation (Aquifer)	This geology formation generally consists of glaciofluvial (sand, silty sand) or glaciolacustrine deposits (silt, sand, pebbly silt and clay).	126
Sunnybrook Formation (Aquitard)	This lithologic unit was deposited near an ice sheet. It predominately consists of silt and clay.	120
Georgian Bay Formation	Bedrock primarily consists of interbedded shale, limestone, dolostone and siltstone. It belongs to the Upper Ordovician, (Ministry of Northern Development and Mines, 2012).	119

Regional groundwater across the area flows south-southeast, towards Humber River and Lake Ontario, respectively (Oak Ridge Moraine Groundwater Program, 2022). Local deviation from the regional groundwater flow pattern may occur in response to changes in topography and/or soils, as well as the presence of surface water features and/or existing subsurface infrastructure.

2.1.3 Existing Water Well Survey

Water Well Records (WWRs) were compiled from the database maintained by the Ministry of the Environment, Conservation and Parks (MECP) and reviewed to determine the number of water wells documented within a 500-m radius of the Site centroid. The locations of the MECP WWRs within 500 m of the Site centroid are shown on Figure 3. A summary of the WWR is included in Appendix A.

The MECP WWR database indicates ninety-seven (97) offsite records (Figure 3 and Appendix A). Well distances are calculated relative to the Site centroid, therefore some distances exceed 500 m.

The database indicates that the offsite wells are at an approximate distance of forty-three (43) m or greater from the Site centroid. All offsite wells are reportedly identified as monitoring and observation wells, test holes, abandoned and/or listed with unknown use. The reported water levels ranged from depths of 0.4 m to 11.5 meters below ground surface (mbgs).

2.2 Site Setting

2.2.1 Site Topography

The Site is in an commercial land use setting. The topography is considered relatively flat with a regional gradual southerly slope towards Humber River.

As indicated on the borehole logs included in Appendix B, the surface elevation of the Site ranges between approximately 126.66 to 127.40 meters above sea level (masl).

2.2.2 Local Surface Water Features

The Site is within the Black Creek - Humber River Outlet watershed. No surface water features exist onsite. The nearest surface water feature is Humber River, approximately located 350 meters southwest of the Site boundary. Lake Ontario is approximately 8.5 km from the Site boundary to the southeast (Appendix G).

Based on the Toronto Region and Conservation Authority floodplain database, the Site is not within the floodplain areas (Appendix G).

2.2.3 Local Geology and Hydrogeology

A summary of subsurface soil stratigraphy is provided in the following paragraphs. The soil descriptions are based on the geotechnical investigation report (EXP, 2021 and 2022). They are summarized for the hydrogeological interpretations. As such, the information provided in this section shall not be used for construction design purposes.

The detailed soil profiles encountered in each borehole and the results of moisture content determinations are presented on the attached borehole logs (Appendix B). The interpreted geological cross-section is shown on Figure 5. The soil boundaries indicated on the borehole logs are inferred from non-continuous sampling and observations during drilling. These boundaries are intended to reflect approximate transition zones for the Hydrogeological Investigation and shall not be interpreted as exact planes of geological change.

The "Notes on Sample Description" preceding the borehole logs form an integral part of the logs and should be read in conjunction with this report. The following is a brief description of the soil conditions encountered during the investigation.

Based on the results of the geotechnical investigation, the general subsurface soil stratigraphy consists of the following units from top to bottom:

Pavement Structure

According to the EXP's geotechnical report issued in 2021, pavement structure comprising asphalt with thickness ranging from about 75 to 115 mm underlain by granular fill 150 to 300 mm in thickness was encountered at Borehole 1, 2, 3, 6 and 7 locations.

According to the EXP's geotechnical report issued in 2022, pavement structure comprising asphalt with thickness ranging from about 50 to 75 mm underlain by granular fill 75 to 175 mm in thickness was encountered at Borehole 201, 202 and 203.

Fill

According to the EXP's geotechnical report issued in 2021, fill was encountered at the surface of Borehole 4 and 5 locations and below the pavement structure in all other borehole locations. The fill extends to depths ranging from about 1.5 to 3 m below existing ground surface. The fill comprises a mix of clayey silt, silty clay, sandy silt and silty sand, with traces of gravel. Moisture contents in the fill ranged from approximately 4 to 24 percent. The samples were described to be in moist to very moist condition.

According to the EXP's geotechnical report issued in 2022, fill was encountered at the surface of Borehole 204 and 205 locations and below the pavement structure in all other borehole locations. The fill extends to depths ranging from about 1.5 to 2.3 m below existing ground surface. The fill comprises a mix of clayey silt, silty clay, sandy silt and silty sand, with traces of gravel. Moisture contents in the fill ranged from approximately 3 to 23 percent. The samples were described to be in moist to very moist condition.

Silty Clay

According to the EXP's geotechnical report issued in 2021, a silty clay deposit was encountered below the fill in Borehole 1, 2, 3, 5, 6 and 7 locations. The deposit was encountered at approximate depths of 1.5 to 2.3 m, and extended to depths of about 2.3 to 4.5 m. This deposit contains trace sand and gravel. It is brown in colour and has moisture contents of about 18 to 25 percent of dry mass indicating very moist condition. The silty clay has a firm to stiff consistency (recorded 'N'-values of 8 to 14).

Silty Clay Till

According to the EXP's geotechnical report issued in 2021, silty clay till was encountered below the silty clay in Boreholes 1, 2 and 3 and below the fill in Borehole 4. The silty clay till was encountered at approximate depths of 2.3 to 3 m and extends to depths of about 4 to 4.5 m below existing ground surface. This deposit contains some sand and trace gravel and is brown in colour. It has moisture contents of 13 to 18 percent of dry mass indicating moist condition. The silty clay till has a stiff to very stiff consistency (recorded 'N'-values of 12 to 17).

According to the EXP's geotechnical report issued in 2022, a silty clay deposit was encountered below the fill in all borehole locations. The deposit was encountered at approximate depths of 1.5 to 2.3 m and extended to depths of about 3.8 to 5.2m. This deposit contains trace sand and gravel. It is brown in colour, changing to grey with depth and has moisture contents of about 11 to 26 percent of dry mass indicating moist to very moist condition. The silty clay has a firm to firm to very stiff consistency (recorded 'N'-values of 8 to 28).

Shale Bedrock

According to the EXP's geotechnical report issued in 2021, shale bedrock was encountered below the silty clay till in Boreholes 1, 2, 3, and 4 and below the silty clay in Boreholes 5, 6, and 7. All boreholes were terminated by auger refusal in the shale bedrock. Highly weathered shale was encountered at approximate depths of about 4 to 4.5 m. The recorded 'N'-values in the shale were 50 blows for less than 150 mm of penetration.

According to the EXP's geotechnical report issued in 2022, shale bedrock was encountered below the silty clay till in all borehole locations. Highly weathered shale was encountered at approximate depths of about 3.8 to 5.3 m. The recorded 'N'-values in the shale were 50 blows for less than 150 mm of penetration. Upon encountering auger refusal, rock coring was initiated to verify bedrock conditions. The coring was carried out using 'H' sized double tube wireline equipment. The boreholes were terminated in the shale bedrock at depths ranging from about 15.1 to 15.5 m. The shale contains 71 to 84% shale, 3 to 8% limestone, 9 to 16% siltstone, and 0 to 1% clay seams.

3 Results

3.1 Monitoring Well Details

The monitoring well network was installed as part of the Geotechnical and Environmental Investigations at the Site. It consists of the following:

Seven (7) shallow monitoring wells, including BH1 through BH 7 were installed to an approximate depth ranged from 3.8 mbgs to 5.8 mbgs;

Five (5) deep monitoring wells, including BH201 through BH205 were installed to an approximate depth ranged from 15.1 mbgs to 15.4 mbgs.

Each monitoring well is equipped with a 50-mm (2-inch) diameter PVC casing, a flush-mount, and a three (3)-meter long screen.

Borehole logs and monitoring well installation details are provided in Appendix B. The monitoring well locations are shown on Figure 4.

3.2 Water Level Monitoring

As part of the Hydrogeological Investigation, static water levels were recorded in nine (9) monitoring events between November 30, 2021, and October 20, 2022. A summary of all static water level data as it relates to the elevation survey is given in Appendix C. As per the City's requirements, a three (3)-month monitoring program was completed.

The groundwater elevation recorded for the shallow wells ranged from 124.78 masl (2.23 mbgs at BH 7 on January 18, 2022) to 125.84 masl (1.48 at BH 4 on November 30, 2021).

The groundwater elevation recorded for the deep wells ranged from 115.65 masl (11.30 mbgs at BH205 on August 4, 2022) to 118.70 masl (8.70 mbgs at BH201 on October 4, 2022).

Two (2) maps were created for the Site to show groundwater contours in the shallow and deep water-bearing zones (Figures 6A and 6B, respectively). Accordingly, the groundwater flow direction is interpreted to be south of the Site, towards Humber River.

The groundwater monitoring data obtained from the Site indicates that vertical groundwater gradient at the Site is downward. However, based on the ORMGP's database mapping, the vertical groundwater gradient is shown upward (Appendix G).

Groundwater levels are expected to show seasonal fluctuations and vary in response to prevailing climate conditions. This may also affect the direction and rate of flow. It is recommended to conduct seasonal groundwater level measurements to provide more information on seasonal groundwater level fluctuations.

3.3 Hydraulic Conductivity Testing

Twelve (12) Single Well Response Tests (SWRT's) were completed on all monitoring wells on December 3, 2021, as well as August 4 and 18, 2022. The tests were completed to estimate the saturated hydraulic conductivity (K) of the lithologic units at the well screen depths. Water level in each well was recorded both manually and electronically. A pre-programmed data-logger was utilized to record the water displacements in one (1) second interval electronically.

The static water level within each monitoring well was measured prior to the start of testing. In advance of performing SWRTs, each monitoring well underwent development to remove fines introduced into the screens following construction. The development process involved purging of the monitoring wells to induce the flow of fresh formation water through the screen. Each monitoring well was permitted to fully recover prior to performing SWRTs.

Hydraulic conductivity values were calculated from the SWRT and constant rate test data as per Hvorslev's solution included in the Aqtesolv Pro. V.4.5 software package. The semi-log plots for normalized drawdown versus time are included in Appendix D. A summary of the hydraulic conductivities (K-values) estimated from the SWRTs are provided in Tables 3-1 and 3-2 below.

Table 3-1: Summary of Hydraulic Conductivity Test Results for Shallow Water-Bearing Zone

Monitoring Well	Well Depth (mbgs)*	Screen Interval (mbgs)*		Screened Lithology**	Estimated Hydraulic Conductivity (m/s)
		from	to		
BH 1	4.53	1.53	4.53	Fill (Clayey Silt/Silty Clay), Silty Clay/Silty Clay Till	7.7E-08
BH 2	4.34	1.34	4.34	Silty Clay / Silty Clay Till/ Weathered Shale	5.7E-07
BH 3	4.39	1.39	4.39	Fill (Silty Clay)/Silty Clay/Silty Clay Till/Weathered Shale	5.2E-07
BH 4	3.77	0.77	3.77	Fill (Silty Sand/Silty Clay)/Silty Clay Till/Weathered Shale	2.6E-06
BH 5	4.40	1.40	4.40	Silty Clay/Weathered Shale	2.8E-06
BH 6	5.80	2.80	5.80	Silty Clay/Weathered Shale	3.6E-06
BH 7	5.26	2.26	5.26	Silty Clay/Weathered Shale	1.5E-06
				Highest Estimated K-Value for Overburden and Weathered Bedrock	3.6E-06
				Arithmetic Mean of K-Values for Overburden and Weathered Bedrock	1.7E-06
				Geometric Mean of Estimated K-Values for Overburden and Weathered Bedrock	9.8E-07

Table 3-2: Summary of Hydraulic Conductivity Test Results for Deep Water-Bearing Zone (Sound Bedrock)

Monitoring Well	Well Depth (mbgs)*	Screen Interval (mbgs)*		Screened Lithology**	Estimated Hydraulic Conductivity (m/s)
		from	to		
BH201	15.43	12.43	15.43	Shale	2.4E-08
BH202	15.13	12.13	15.13	Shale	9.1E-08
BH203	15.27	12.27	15.27	Shale	3.5E-07
BH204	15.43	12.43	15.43	Shale	1.8E-08
BH205	15.34	12.34	15.34	Shale	7.4E-09
				Highest Estimated K-Value for Sound Bedrock	3.5E-07
				Arithmetic Mean of K-Values for Sound Bedrock	9.8E-08
				Geometric Mean of Estimated K-Values for Sound Bedrock	4.0E-08

Notes:
mbgs: meters below ground surface
*based on field measurements
**based on the geotechnical borehole logs (EXP, 20121 and 2022)

SWRTs provide K-estimates of the geological formation surrounding the well screens and may not be representative of bulk formation hydraulic conductivity. As shown on Table 3-1, the highest K-value of the tested shallow water-bearing zone (saturated overburden and weathered bedrock) is 3.6E-6 m/s. The geometric and arithmetic means of the K-values for the same zone are 9.8E-7 m/s and 1.7E-6 m/s, respectively. As shown on Table 3-2, the highest K-value for the tested deep water-bearing zone (saturated sound bedrock) is 3.5e-7 m/s. The geometric and arithmetic means of K-value for the same zone are

4.0E-8 m/s and 9.8E-8 m/s, respectively. Considering the approximate thicknesses of shallow and deep water-bearing zones as well as the arithmetic K-values for the noted zones, the weighted K-value is estimated 7.3E-7 m/s.

3.4 Groundwater Quality

To assess the suitability for discharging pumped groundwater into the sewers owned by the City of Toronto during dewatering activities, two (2) groundwater samples were collected from monitoring wells BH 7 on November 30, 2021, and BH 203 on August 4, 2022, using a peristaltic pump. Prior to collecting the noted water samples, approximately three (3) standing well volumes of groundwater were purged from the referred well. The samples were collected unfiltered and placed into pre-cleaned laboratory-supplied vials and/or bottles provided with analytical test group specific preservatives, as required. Dedicated nitrile gloves were used during sample handling. The groundwater samples were submitted for analysis to Bureau Veritas Laboratory, a CALA certified independent laboratory in Mississauga, Ontario. Analytical results are provided in Appendix E. Table 3-3 summarizes exceedance(s) of the Sanitary (Table 1) and Storm (Table 2) Sewer Use By-Law parameters.

When comparing the chemistry of the collected groundwater samples to the City of Toronto Sanitary and Combined Sewer Discharge Criteria (Table 1), there were no parameter exceedances to be reported.

When comparing the chemistry of the collected groundwater samples to the City of Toronto Storm Sewer Discharge Criteria (Table 2), the concentrations of Total Suspended Solids (TSS) and Total Manganese (Mn) exceeded the applicable guidelines.

Reporting detection limits (RDLs) were below the Sewer Use By-Law parameter criteria of Tables 1 and 2.

Table 3-3: Summary of Analytical Results

Parameter	Units	City of Toronto Sanitary and Combined Sewer Discharge Limit (Table 1)	City of Toronto Storm Sewer Discharge Limit (Table 2)	Concentration	
				BH 7 November 30, 2021	BH 203 August 4, 2022
Total Suspended Solids (TSS)	mg/L	350	15	**46**	**29**
Total Manganese (Mn)	µg/L	5,000	50	**1,640**	**52**

Notes:
Bold – Exceeds City of Toronto Storm Sewer Discharge Limit (Table 2).

For the short-term dewatering system (construction phase), it is anticipated that TSS levels and some other parameters (for example, Total Metals) in the pumped groundwater become elevated and exceed both Sanitary and Storm Sewer Use By-Law limits. To control the concentration of TSS and associated metals, it is recommended that a suitable treatment method be implemented (filtration or decantation facilities and/ or any other applicable treatment system) during construction dewatering activities prior to discharging to the applicable sewer system. The specifications of the treatment system will need to be adjusted to the reported water quality results by the treatment contractor/process engineer.

An agreement to discharge into the sewers owned by the City of Toronto will be required prior to releasing dewatering effluent.

4 Dewatering Assessment

The dimensions of the proposed structure to support the dewatering assessment are summarized in Table 4-1 below.

Table 4-1 Building Dimensions for Dewatering Assessment

Input Parameter	Assumption	Units	Notes
Number of Subgrade Levels	3 Levels (P3)	-	
Ground Surface Elevation	127.4	masl	Highest ground surface elevation at the Site (EXP, 2021 and 2022)
Top of Slab Elevation	116.9	masl	Based on the architectural drawings, the top of slab is anticipated to be 10.5 meters below ground surface (Appendix H).
Lowest Footing Elevation	115.40	masl	The lowest foundation elevation as per the geotechnical report (EXP, 2022)
Excavation Area (Length x Width)	~ 3,335 (50 x 49)	m^2 (m x m)	Approximate area (length x width) of Site for the proposed development as per parking level 3 and 2 drawing number A101 dated March 20, 2023 prepared by Design Architect 3XN USA LLc.

4.1 Dewatering Flow Rate Estimate and Zone of Influence

The Dupuit-Forcheimer equation for radial flow to both sides of an excavation through an unconfined aquifer resting on a horizontal impervious surface was used to obtain a flow rate estimate. Dewatering flow rate is expressed as follows:

$$Q_w = \frac{\pi K(H^2 - h^2)}{Ln\left[\frac{R_o}{r_e}\right]}$$

$$r_e = \frac{a+b}{\pi} \qquad R_o = R_{cj} + r_e$$

Where:

Qw = Rate of pumping (m^3/s)
X = Length of excavation (m)
K = Hydraulic conductivity (m/s)
H = Hydraulic head beyond the influence of pumping (static groundwater elevation) (m)
h = Hydraulic head above the base of aquifer in an excavation (m)
R_0 = Radius of influence (m)
R_{cj} = Cooper-Jacob's radius of influence (m)
r_e = Equivalent perimeter (m)
a = Length of the excavation area (m)
b = Width of the excavation area (m)

It is expected that the initial dewatering rate will be higher 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, primarily from storage, resulting in lower seepage rates into the excavation.

4.2 Cooper-Jacob's Radius of Influence

The radius of influence (Rcj) for the construction dewatering was calculated based on Cooper-Jacob's equation. This equation is used to predict the distance at which the drawdown resulting from pumping is negligible.

The estimated radius of influence due to pumping is based on Cooper-Jacob's formula as follows:

$$R_{cj} = \sqrt{2.25KDt/s}$$

Where:

Ro = Estimated radius of influence (m)
D = Aquifer thickness (original saturated thickness) (m)
K = Hydraulic conductivity (m/s)
S = Storage coefficient
t = Duration of pumping (s)

4.3 Stormwater

Additional pumping capacity may be required to maintain dry conditions within the excavation during and following significant precipitation events. Therefore, the dewatering rates at the Site should also include removing stormwater from the excavation.

A 15 mm precipitation event was utilized for estimating the stormwater volume. The calculation of the stormwater volume is included in Appendix E.

The estimate of the stormwater volume only accounts for direct precipitation into the excavation. The dimensions of the excavation are considered in the dewatering calculations. Runoff which originated outside of the excavation's footprint is excluded and it should be directed away from the excavation.

During precipitation events greater than 15 mm (ex: 100-year storm), measures should be taken by the contractor to retain stormwater onsite in a safe manner to not exceed the allowable water taking and discharge limits, as necessary. A two (2) and a one hundred (100) year storm event over a 24-hour period are 57.0 and 124.4 mm, which would produce 191 m^3 and 417 m^3 stormwater volume (refer to Appendix F).

4.4 Results of Dewatering Rate Estimates

4.4.1 Construction Dewatering Rate Estimate

For this assessment, it was assumed that the proposed construction plans include an excavation with shoring extending to the Site boundaries. EXP should be retained to review the assumptions outlined in this section, should the assumed shoring design change. Short-term (construction) dewatering calculations are presented in Appendix F.

Pits (elevator, sump pits) are assumed to have the same excavation depth and dewatering target as the main excavation; deeper pits may require localized dewatering and revised dewatering estimates.

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

Table 4-2 Summary of Construction Dewatering Rate

Dewatering Estimates	
Description	**With three (3) Levels of Underground Parking (L/day)**
Total Volume (L/day) Short Term Discharge of Groundwater (Construction dewatering) without Safety Factor (including precipitation)	134,000
Total Volume (L/day) Short Term Discharge of Groundwater (Construction dewatering) with Safety Factor of 2 (including precipitation)	230,000
Total Volume (L/day) Short Term Discharge of Groundwater (construction dewatering) with Safety Factor of 2 (excluding Precipitation) for EASR	194,000

The peak dewatering flow rates does not account for flow from utility beddings and variations in hydrogeological properties beyond those encountered during this investigation.

Local dewatering may be required for pits (elevator pits, sump pits), if these extend deeper than the dewatering target. Local dewatering is not considered to be part of this assessment. Dewatering estimates should be reviewed once the pit dimensions are available.

Local dewatering may be required for pits (elevator pits, sump pits, raft) and for localized areas with permeable, soft, or wet soil conditions. Local dewatering is not considered to be part of this assessment, but contractor should be ready to install additional system to manage such conditions. Dewatering estimates should be reviewed once the pit dimensions are available.

All grading around the perimeter of the excavation should be graded away from the shoring the systems and ramp/site access to redirect runoff away from excavation.

The dewatering assumptions are based on using shoring system without open cuts and sloped excavations.

If groundwater cutoff systems (ex: caisson walls, sheet piles) are installed, these should be designed for maximal hydrostatic pressure for shallow and deep water levels, without dewatering on the outer side of the groundwater cutoff. Soldier pile and lagging and caisson wall systems should be designed to account for shallow groundwater conditions and take into consideration that dewatering systems may not provide fully dewatered soil conditions.

All grading around the perimeter of the construction Site should be graded away from the shoring the system.

The contractor is responsible for the design of the dewatering systems (depth of wells, screen length, number of wells, spacing sand pack around screens, prevent soil loss etc.) to ensure that dry conditions are always maintained within the excavation at all costs.

Dewatering should be monitored using dedicated monitoring wells within and around the perimeter of the excavation, and these wells should be monitored using manual measurements and with electronic data loggers; records should be maintained on site to track dewatering progress. Discharge rates should be monitored using calibrated flow meters and records of dewatering progress, and daily precipitation as per MECP requirements should be maintained.

4.4.2 Post-Construction Dewatering Rate Estimate

Based on the newly adopted policy by the City of Toronto, effective from January 1, 2022, long-term groundwater discharge from foundation drainage systems will not be permitted to the City of Toronto storm, sanitary and combined sewer system.

Therefore, it is our understanding that considered area of the proposed underground parking will be constructed as a watertight (bathtub) structure, which will bear the hydrostatic pressure on underground floors and side walls during the post construction phase. It is assumed that pits (elevator, sump) will also be completed as watertight structures (without drainage).

Since the proposed watertight foundation prevents groundwater seeping into the underground areas, a sub-drain system and long-term dewatering will not be required to manage groundwater seepage during post-construction phase. As such, discharging groundwater into the City's sewer system will not be required from the underground areas, during the post development phase of the project.

4.5 MECP Water Taking Permits

4.5.1 Short-Term Discharge Rate (Construction Phase)

In accordance with the Ontario Water Resources Act, if the water taking for the construction dewatering is more than 50,000 L/day but less than 400,000 L/day, then an online registration in the Environmental Activity and Sector Registry (EASR) with the MECP will be required. If groundwater dewatering rates onsite exceed 400,000 L/day, a Category 3 Permit to Take Water (PTTW) will be required from the MECP.

As of July 1, 2021, an amendment of O. Reg. 63/16 has come into effect and replaced the former subsection 7 (5) such that the EASR water taking limit of 400,000 L/day would apply to groundwater takings of each dewatered work area only, excluding stormwater.

The dewatering estimate including a safety factor is greater than 50,000 L/day and less than 400, 000 L/day as shown in Table 4-2. The MECP construction dewatering rate excludes the precipitation amount and is the rate used for the permit application. Based on the MECP construction dewatering an EASR will be required to facilitate the construction dewatering program of the Site.

A Discharge Plan (dewatering sketch, sewer discharge agreement) must be developed and applied for any discharges from the Site. Monitoring of both water quantity and water quality must be carried out for the entire duration of the construction dewatering phase. During this phase, the Discharge Plan and the daily water taking records must be available onsite.

The EASR, Discharge Plan, hydrogeological investigation report, and geotechnical assessment of settlements must also be available at the construction Site during the entire construction dewatering. EXP should be notified immediately about any changes to the construction dewatering schedule or design, since the EASR will need to be updated to reflect these modifications. Altogether, the hydrogeological report, EASR, Discharge Plan and geotechnical assessment constitute the Water Taking Plan which needs to be available onsite during the construction dewatering.

4.5.2 Long-Term Discharge Rate (Post Construction Phase)

Since the proposed watertight foundation prevents groundwater seeping into the underground areas, a sub-drain system and long-term dewatering will not be required to manage groundwater seepage during post-construction phase. As such, PTTW and discharging groundwater into the City's sewer system will not be required from the underground areas, during the post development phase of the project.

5 Environmental Impact

5.1 Surface Water Features

The Site is within the Black Creek - Humber River Outlet watershed. No surface water features exist onsite. The nearest surface water feature is Humber River, approximately located 350 meters southwest of the Site boundary. Lake Ontario is approximately 8.5 km from the Site boundary to the southeast (Appendix G).

Based on the Toronto Region and Conservation Authority floodplain database, the Site is not within the floodplain areas (Appendix G).

Due to the limited extent of zone of influence and the wide distance to the nearest surface water feature, no detrimental impacts on surface water features are expected during construction activities.

5.2 Groundwater Sources

Well Records from the MECP Water Well Record (WWR) Database were reviewed to determine the presence and number of water supply wells within a 500 m radius of the Site boundaries. Given that the dewatering zone of influence is limited, no dewatering related impact is expected on the water wells in the area.

5.3 Geotechnical Considerations

As per the MECP technical requirement for PTTW and EASRs, the geotechnical assessment of the stability of the soils due to water taking (ex: settlement, soil loss, subsidence, etc.) is required. The water taking should not have unacceptable interference on soils and underground structures (foundations, utilities, etc.).

A letter related to geotechnical issues as it pertains to the Site is required to be completed under a separate cover.

5.4 Groundwater Quality

It is our understanding that the potential effluent from the dewatering system during the construction will be released to the municipal sewer system. As such, the quality of groundwater discharge is required to conform the City of Toronto Sewer Use By-Law.

Dewatering may induce migration of contaminants within the zone of influence and beyond due to changing hydraulic gradients, hydrogeological conditions beyond Site boundaries and preferential pathways in utility beddings etc. The water quality sampling conducted as part of this assessment was performed under static conditions. As a result, monitoring may be required during dewatering activities to monitor potential migration, and this should be performed more frequently during early dewatering stages.

For the Short-term (construction) discharge to the Sanitary/Storm sewer system (post-development phase) and based on the water quality results, it is recommended to implement a suitable pre-treatment, as required.

The water quality results presented in this report may not be representative of the long-term condition of groundwater quality onsite. As such, regular water quality monitoring is recommended for the post-construction phase as required by the City.

An agreement to discharge into the sewers owned by the City of Toronto will be required prior to releasing dewatering effluent.

5.5 Well Decommissioning

In conformance with Regulation 903 of the Ontario Water Resources Act, the installation and eventual decommissioning of any dewatering system wells or monitoring wells must be completed by a licensed well contractor. This will be required for all wells that are no longer in use.

6 Conclusions and Recommendations

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

When comparing the chemistry of the collected groundwater samples to the City of Toronto Sanitary and Combined Sewer Discharge Criteria (Table 1), there were no parameter exceedances to be reported.

When comparing the chemistry of the collected groundwater samples to the City of Toronto Storm Sewer Discharge Criteria (Table 2), the concentrations of Total Suspended Solids (TSS) and Total Manganese (Mn) exceeded the applicable guidelines..

Based on the assumptions outlined in this report, the estimated peak dewatering rate for proposed construction activities is approximately 230,000 L/Day This is the rate which will be required to be discharged to the municipal sewer system.

The estimated MECP dewatering rate for proposed construction activities is approximately194,000 L/Day. As the dewatering flow rate estimate is between 50,000 L/day and 400,000 L/day, an EASR will be required to facilitate the construction dewatering program for the Site.

Since the proposed watertight foundation prevents groundwater seeping into the underground areas, a sub-drain system and long-term dewatering will not be required to manage groundwater seepage during post-construction phase. As such, PTTW and discharging groundwater into the City's sewer system will not be required from the underground areas, during the post development phase of the project.

The construction dewatering discharge volume is based on the assumptions outlined in this report. Any variations in hydrogeological conditions beyond those encountered as part of this preliminary investigation may significantly influence the discharge volume.

For the short-term dewatering system (construction phase), it is anticipated that TSS levels and some other parameters (for example, Total Metals) in the pumped groundwater may become elevated and exceed both, Sanitary and Storm Sewer Use By-Law limits. To control the concentration of TSS and associated metals, it is recommended that a suitable treatment method be implemented (filtration or decantation facilities and/ or any other applicable treatment system) during construction dewatering activities to discharge to the applicable sewer system. The specifications of the treatment system will need to be adjusted to the reported water quality results by the treatment contractor/process engineer.

As per the MECP technical requirement for EASR, the geotechnical assessment of the stability of the soils due to water taking (ex: settlement, soil loss, subsidence etc.) is required. The water taking should not have unacceptable interference on soils and underground structures (foundations, utilities etc.). A letter related to geotechnical issues as it pertains to the Site is required to be completed under a separate cover.

An agreement to discharge into the sewers owned by the City of Toronto will be required prior to releasing dewatering effluent.

The EASR registration allows construction dewatering discharge of up to 400,000 L/day. A Discharge Plan (dewatering sketch, sewer discharge agreement) must be developed and applied for any discharges from the Site. The Discharge Plan and monitoring for both water quantity and water quality must be carried at the Site during the entire construction dewatering phase. The daily water taking records must be maintained onsite for the entire construction dewatering phase. The EASR, Discharge Plan, hydrogeological investigation report, and geotechnical assessment of settlements must always also be available at the construction Site for the entire construction dewatering. EXP should be notified immediately about any changes to the construction dewatering schedule or design, since EASR will need to be updated to reflect these modifications. The hydrogeological report, EASR, Discharge Plan and geotechnical assessment constitutes the Water Taking Plan which needs to be available onsite for the duration of construction dewatering.

In conformance with Regulation 903 of the Ontario Water Resources Act, the installation and eventual decommissioning of any dewatering system wells or monitoring wells must be completed by a licensed well contractor. This will be required for all wells that are no longer in use.

The conclusions and recommendations provided above should be reviewed in conjunction with the entirety of the report. They assume that the present design concept described throughout the report will proceed to construction. This report is solely intended for the construction and long-term dewatering assessments. Any changes to the design concept may result in a modification to the recommendations provided in this report.

7 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 conclusions and recommendations presented within this report reflect Site conditions existing at the time of the assessment. EXP must be contacted immediately, if any unforeseen Site conditions are experienced during construction activities. This will allow EXP 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 EXP, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the geoscience/engineering profession. No other warranty or representation, either expressed or implied, is included or intended in this report.

This report was prepared for the exclusive use of 21 John Dev Inc. This report may not be reproduced in whole or in part, without the prior written consent of EXP, or used or relied upon in whole or in part by other parties for any purposes whatsoever. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on 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.

Sincerely,

EXP Services Inc.

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Environmental Services

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Senior Hydrogeologist
Environmental Services

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Environmental Services

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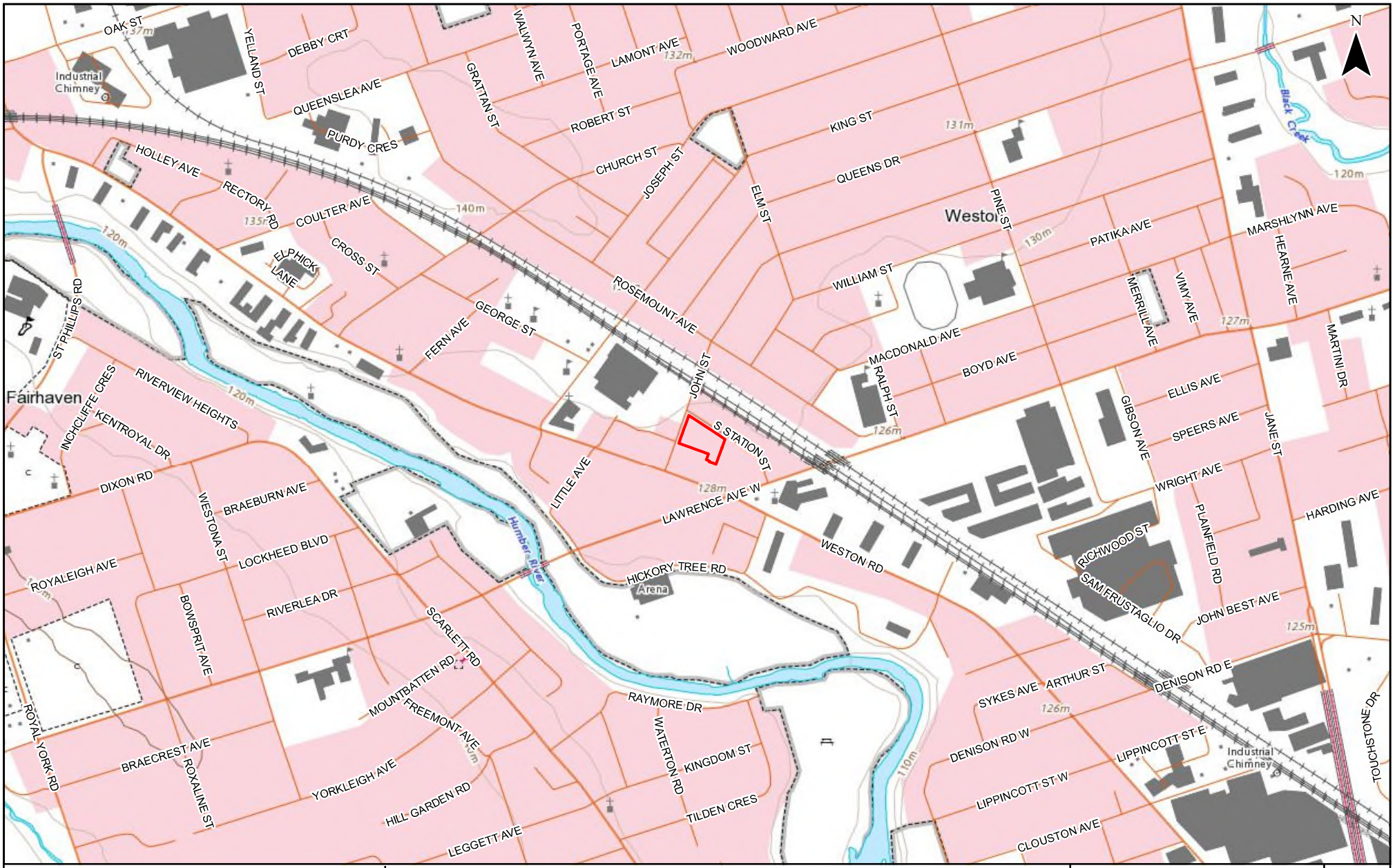
Figures



SCALE:

0 100 200 300 400 500 m

LEGEND:

APPROXIMATE SITE BOUNDARY

exp.

DRAWN BY:	CHECKED BY:
AC	FC

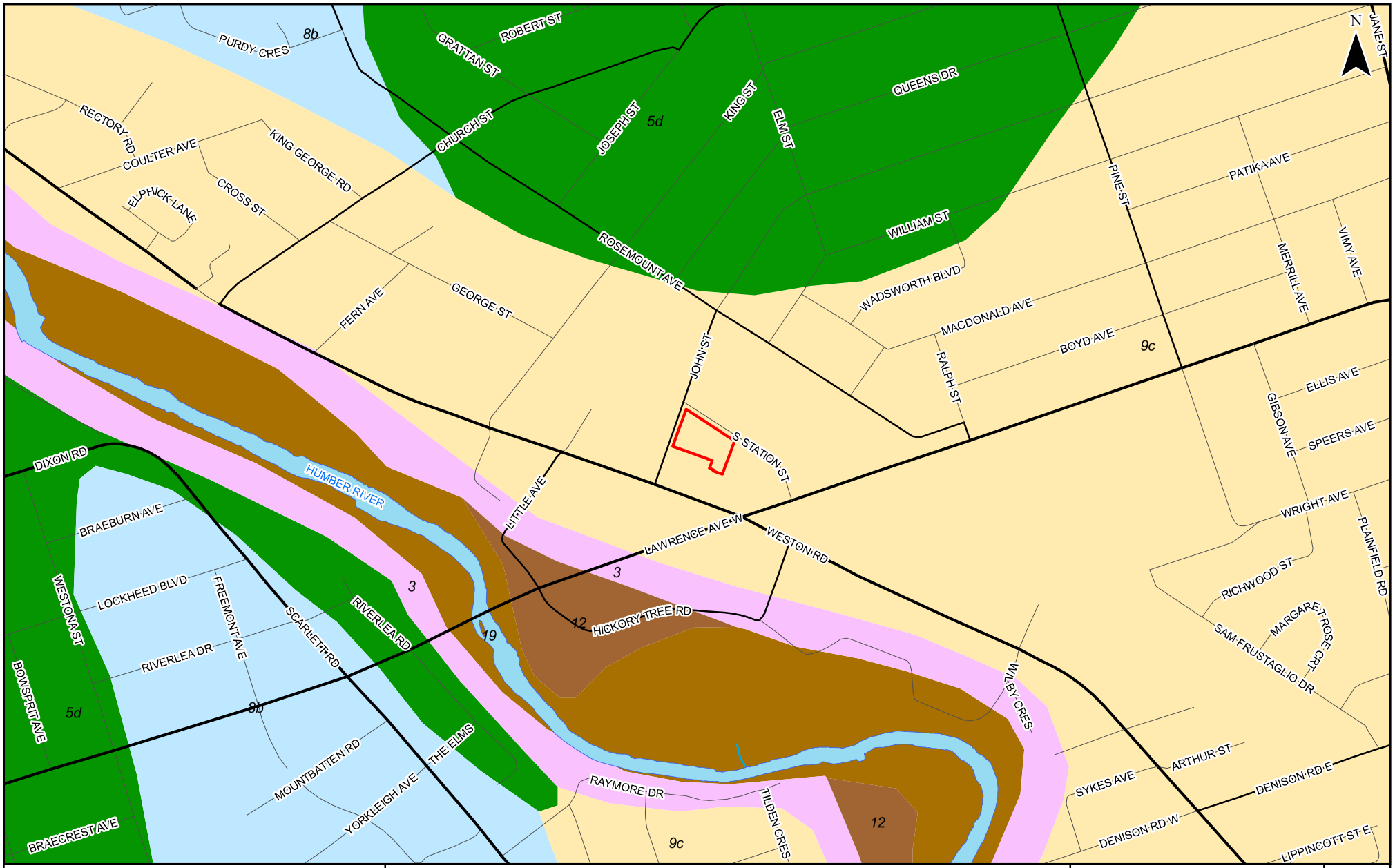
SITE LOCATION PLAN

FIGURE: 1

HYDROGEOLOGICAL INVESTIGATION
13, 15, 17 AND 21 JOHN STREET AND
36, 38, AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

PROJECT NUMBER: BRM-21021990-A0

DATE: AUGUST 2022



SCALE:
0 100 200 300 400 500 m

SOURCE:
BASED ON ONTARIO GEOLOGICAL SURVEY DATA PUBLISHED IN 2010

exp.

DRAWN BY:	CHECKED BY:
AC	FC

LEGEND:
- APPROXIMATE SITE BOUNDARY
- 19: MODERN ALLUVIAL DEPOSITS
- 12: OLDER ALLUVIAL DEPOSITS
- 9C: COARSE-TEXTURED (FORESHORE-BASINAL) GLACIOLACUSTRINE DEPOSITS
- 8B: INTERBEDDED FLOW TILL, RAINOUT DEPOSITS AND SILT AND CLAY
- 5D: GLACIOLACUSTRINE-DERIVED SILTY TO CLAYEY TILL
- 3: PALEOZOIC BEDROCK

SURFICIAL GEOLOGY

FIGURE: 2

HYDROGEOLOGICAL INVESTIGATION
13, 15, 17 AND 21 JOHN STREET AND
36, 38, AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

PROJECT NUMBER: BRM-21021990-A0 | DATE: AUGUST 2022

SCALE:
0 80 160 240 320 400 m

SOURCE:
BASED ON GOOGLE EARTH IMAGERY DATED 2020,
AVAILABLE WELL RECORD INFORMATION AS OF SEPTEMBER 2019

exp.

DRAWN BY:	CHECKED BY:
AC	FC

LEGEND:
- MONITORING WELL / TEST HOLE
- ABANDONED WELL
- UNCLASSIFIED / UNFINISHED WELL
- APPROXIMATE SITE BOUNDARY
- 500 m ZONE

MECP WATER WELL RECORDS MAP

FIGURE: 3

HYDROGEOLOGICAL INVESTIGATION
13, 15, 17 AND 21 JOHN STREET AND
36, 38, AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

PROJECT NUMBER: BRM-21021990-A0 | DATE: AUGUST 2022

SCALE:

0 10 20 30 40 50 m

LEGEND:

- BOREHOLE / MONITORING WELL (EXP, 2022)
- BOREHOLE / MONITORING WELL (EXP, 2021)
- CROSS SECTION AXIS
- APPROXIMATE SITE BOUNDARY

exp.

DRAWN BY:	CHECKED BY:
AC	FC

BOREHOLE / MONITORING WELL LOCATION PLAN

FIGURE: 4

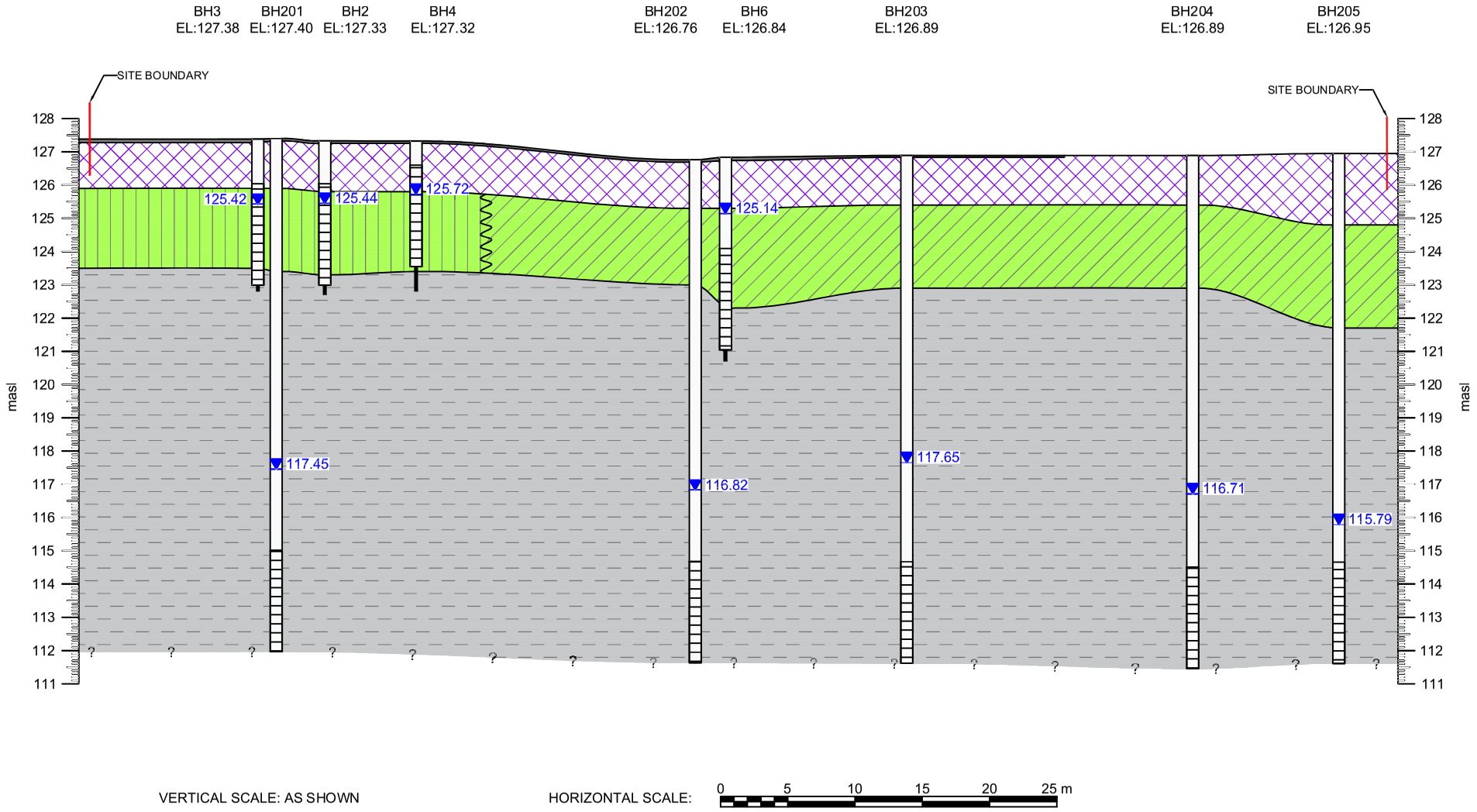
HYDROGEOLOGICAL INVESTIGATION
13, 15, 17 AND 21 JOHN STREET AND
36, 38, AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

PROJECT NUMBER: BRM-21021990-A0

DATE: AUGUST 2022

A
NORTHWEST

A'
SOUTHEAST



VERTICAL SCALE: AS SHOWN

HORIZONTAL SCALE: 0 5 10 15 20 25 m

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LEGEND:

- ASPHALT
- FILL
- SILTY CLAY
- SILTY CLAY TILL
- SHALE BEDROCK
- GROUNDWATER ELEVATION (masl) AS MEASURED ON AUGUST 18, 2022

TITLE AND LOCATION:

CROSS SECTION A-A'

HYDROGEOLOGICAL INVESTIGATION
13 15, 17 AND 21 JOHN STREET AND
36, 38 AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

PROJECT NO.: BRM-21021990-A0	DWN.: JA
SCALE: AS NOTED	CK: FC
DATE: AUGUST 2022	FIG. NO.: 5

E:\BRM\BRM-21021990-A0\60 Execution\65 Drawings\Cross Sections\BRM-21021990-A0.dwg

SCALE:

0 5 10 15 20 25 m

LEGEND:

- BOREHOLE / MONITORING WELL (EXP, 2021)
- [XX.XX] GROUNDWATER ELEVATION (m asl) AS MEASURED ON AUGUST 18, 2022
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE SITE BOUNDARY

exp.

DRAWN BY:	CHECKED BY:
AC	FC

SHALLOW GROUNDWATER CONTOUR PLAN

FIGURE: 6A

HYDROGEOLOGICAL INVESTIGATION
13, 15, 17 AND 21 JOHN STREET AND
36, 38, AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

PROJECT NUMBER: BRM-21021990-A0

DATE: AUGUST 2022

SCALE:

0 5 10 15 20 25 m

LEGEND:

- BOREHOLE / MONITORING WELL (EXP, 2022)
- [XX.XX] GROUNDWATER ELEVATION (m asl) AS MEASURED ON AUGUST 18, 2022
- GROUNDWATER CONTOUR
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE SITE BOUNDARY

exp.

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AC	FC

DEEP GROUNDWATER CONTOUR PLAN

FIGURE: 6B

HYDROGEOLOGICAL INVESTIGATION
13, 15, 17 AND 21 JOHN STREET AND
36, 38, AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

PROJECT NUMBER: BRM-21021990-A0 | DATE: AUGUST 2022

Appendix A – MECP WWR Summary Table

Off-Site															
BORE_HOLE_ID	WELL_ID	DATE	EAST83	NORTH83	ELEVATION (m ASL)	LOCATION ACCURACY	STREET	CITY	DISTANCE FROM SITE CENTROID (m)	CONSTRUCTION METHOD	WELL DEPTH (m bgs)	WATER FOUND (m bgs)	CASING DIAMETER (cm)	1st USE	2nd USE	FINAL STATUS
11327685	6928716	12/30/2004	619390	4839799	129.6	margin of error : 30 m - 100 m	2 ELSMERE AVE	TORONTO	113	Boring	4.0		5.1			Observation Wells
23051050	7051050	8/8/2007	619918	4839647	125.7	margin of error : 10 - 30 m	2013 LAWRANCE AVE.TORONTO		437	Boring		2.0	5.1	Monitoring		Observation Wells
1001910633	7116621	11/19/2008	619112	4839856	127.0	margin of error : 10 - 30 m	2065 WESTON ROAD	Toronto	395	PORT AUGER	4.6	2.8	3.2	Not Used		Test Hole
1002674000	7128204	8/17/2009	619150	4839840	127.2	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	355	PORT. AUGER	4.8	3.6	3.2	Not Used	Monitoring	Test Hole
1002817371	7128204	8/17/2009	619115	4839843	127.0	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	389	AUGER		3.6	3.2	Not Used	Monitoring	Test Hole
1002817380	7128204	8/17/2009	619124	4839818	126.8	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	376	AUGER		3.6	3.2	Not Used	Monitoring	Test Hole
1002817389	7128204	8/17/2009	619114	4839815	126.4	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	385	AUGER		3.6	3.2	Not Used	Monitoring	Test Hole
1002817398	7128204	8/17/2009	619180	4839796	127.2	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	317	AUGER		3.6	3.2	Not Used	Monitoring	Test Hole
1002817407	7128204	8/17/2009	619150	4839840	127.2	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	355	AUGER		3.6	3.2	Not Used	Monitoring	Test Hole
1002817416	7128204	8/17/2009	619156	4839816	127.2	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	344	AUGER		3.6	3.2	Not Used	Monitoring	Test Hole
1002817425	7128204	8/17/2009	619134	4839830	127.2	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	368	AUGER		3.6	3.2	Not Used	Monitoring	Test Hole
1002817434	7128204	8/17/2009	619143	4839819	126.8	margin of error : 30 m - 100 m	2035 WESTON ROAD	Toronto	357	AUGER		3.6	3.2	Not Used	Monitoring	Test Hole
1003339628	7151924	8/24/2010	619854	4839467	126.0	margin of error : 30 m - 100 m	1768 WESTON ROAD	Toronto	461	DIRECT PUSH	4.9		3.8	Monitoring and Test Hole		Monitoring and Test Hole
1003339630	7151925	8/24/2010	619877	4839440	125.8	margin of error : 30 m - 100 m	3600 FINCH AVENUE	Toronto	496	DIRECT PUSH	4.9		3.8	Monitoring and Test Hole		Monitoring and Test Hole
1003339632	7151926	8/24/2010	619884	4839473	125.8	margin of error : 10 - 30 m	1768 WESTON ROAD	Toronto	481	DIRECT PUSH	4.9		3.8	Monitoring and Test Hole		Monitoring and Test Hole
1003352910	7153341	9/30/2010	619100	4839840	127.0	margin of error : 10 - 30 m	2065 WESTON RD.	TORONTO	403	Boring	4.3	3.8	5.0	Monitoring		Observation Wells
1004103047	7185193	1/4/2012	619337	4839806	129.1	margin of error : 30 m - 100 m	6 ELSMERE AVE	TORONTO	165	Boring	4.6		5.1	Monitoring		Observation Wells
1004596506	7209122	7/4/2013	619843	4839398	121.6	margin of error : 10 - 30 m	10 WILBY CRESCENT	Toronto	500	Rotary (Convent.)	24.1	11.0	5.1	Monitoring and Test Hole		Monitoring and Test Hole
1004630591	7211024	9/26/2013	619400	4839810	128.5	margin of error : 30 m - 100 m	16 JOHN ST	TORONTO	109	Boring	6.0		5.2	Monitoring		Observation Wells
1004630594	7211025	9/26/2013	619414	4839846	131.1	margin of error : 30 m - 100 m	16 JOHN ST	TORONTO	121	Rotary (Reverse)	6.0		5.2	Monitoring		Observation Wells
1004630597	7211026	9/26/2013	619468	4839851	128.1	margin of error : 30 m - 100 m	16 JOHN ST	TORONTO	98	Boring	6.0		5.2	Monitoring		Observation Wells
1004748864	7220129	3/29/2014	619153	4839908	129.2	margin of error : 30 m - 100 m	30 KING ST.	York	374	Boring	5.3		5.2	Monitoring		Observation Wells
1004893328	7222358	3/29/2014	619170	4839897	129.5	margin of error : 30 m - 100 m	30 KING ST	York	354	Boring	6.1		5.2	Monitoring		Observation Wells
1004900225	7222835	5/14/2014	619428	4839789	127.4	margin of error : 30 m - 100 m	16 JOHN STREET	NORTH YORK	74	Direct Push	4.6		5.1	Monitoring and Test Hole		Test Hole
1004900258	7222836	5/14/2014	619452	4839780	127.4	margin of error : 30 m - 100 m	16 JOHN ST.	NORTH YORK	49	Direct Push	11.9		5.1	Monitoring and Test Hole		Test Hole
1004900261	7222837	5/14/2014	619422	4839746	126.7	margin of error : 30 m - 100 m	16 JOHN ST	NORTH YORK	73	Direct Push	12.2		5.1	Monitoring and Test Hole		Test Hole
1004900264	7222838	5/14/2014	619471	4839826	128.4	margin of error : 30 m - 100 m	16 JOHN STREET	NORTH YORK	74	Direct Push	12.2		5.1	Monitoring and Test Hole		Test Hole
1004900267	7222839	5/14/2014	619468	4839821	128.4	margin of error : 30 m - 100 m	16 JOHN STREET	NORTH YORK	70	Direct Push	4.9		5.1	Monitoring and Test Hole		Test Hole
1004900284	7222840	5/14/2014	619440	4839807	127.4	margin of error : 30 m - 100 m	16 JOHN STREET	NORTH YORK	75	Direct Push	4.6		5.1	Monitoring and Test Hole		Test Hole
1001601015	7105668	4/15/2008	619113	4839964	132.7	margin of error : 10 - 30 m	42 GEORGE ST.	Toronto	435	PIONJAR	4.1		3.2	Not Used	Monitoring	Test Hole
1002694899	7105668	4/15/2008	619096	4839976	132.5	margin of error : 10 - 30 m	42 GEORGE ST.	Toronto	455	PIONJAR			3.2	Not Used	Monitoring	Test Hole
1002694908	7105668	4/15/2008	619097	4839967	132.5	margin of error : 10 - 30 m	42 GEORGE ST.	Toronto	450	PIONJAR			3.2	Not Used	Monitoring	Test Hole
1002694917	7105668	4/15/2008	619105	4839965	132.7	margin of error : 10 - 30 m	42 GEORGE ST.	Toronto	442	PIONJAR			3.2	Not Used	Monitoring	Test Hole
1005307586	7237568	1/14/2015	619394	4839819	130.0	margin of error : 30 m - 100 m	33 KING STREET	YORK	119	Rotary (Convent.)	6.1			Monitoring and Test Hole		Monitoring and Test Hole
1005307589	7237569	1/14/2015	619402	4839827	130.0	margin of error : 30 m - 100 m	33 KING STREET	YORK	117	Rotary (Convent.)	5.5			Monitoring and Test Hole		Monitoring and Test Hole
1005307592	7237570	1/14/2015	619406	4839819	130.0	margin of error : 30 m - 100 m	33 KING STREET	YORK	109	Rotary (Convent.)	4.9			Monitoring and Test Hole		Test Hole
1005320848	7239531	12/19/2014	619453	4839864	130.2	margin of error : 30 m - 100 m	36 JOHN ST	Toronto	115	Boring	4.5			Monitoring		Observation Wells
1005773866	7251155	10/14/2015	619435	4839861	130.2	margin of error : 30 m - 100 m	16 JOHN ST.	WESTON	120	Direct Push	5.5			Monitoring and Test Hole		Test Hole
1005872048	7256468	12/10/2015	619443	4839762	126.8	margin of error : 30 m - 100 m	14 JOHN STREET	Toronto	52	Rotary (Convent.)	4.3			Monitoring and Test Hole		Monitoring and Test Hole
1005872051	7256469	12/14/2015	619429	4839783	127.4	margin of error : 30 m - 100 m	14 JOHN STREET	Toronto	71	Rotary (Convent.)	4.3			Monitoring and Test Hole		Monitoring and Test Hole
1005872054	7256470	12/14/2015	619400	4839776	127.1	margin of error : 30 m - 100 m	14 JOHN STREET	Toronto	97	Rotary (Convent.)	4.3			Monitoring and Test Hole		Monitoring and Test Hole
1006217069	7269218	7/8/2016	619449	4839788	127.4	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	56	Direct Push		0.4		Monitoring and Test Hole		Abandoned-Other
1006217072	7269219	7/8/2016	619447	4839789	127.4	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	58	Direct Push		2.8		Monitoring and Test Hole		Monitoring and Test Hole
1006217075	7269220	7/8/2016	619400	4839815	130.0	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	111	Direct Push		0.9		Monitoring and Test Hole		Abandoned-Other
1006217078	7269221	7/8/2016	619406	4839825	130.0	margin of error : 30 m - 100 m	33 KING STREET	Toronto	112	Direct Push		0.9		Monitoring and Test Hole		Abandoned-Other
1006217081	7269222	7/8/2016	619408	4839823	130.0	margin of error : 30 m - 100 m	33 KING STREET	Toronto	109	Direct Push				Monitoring and Test Hole		Abandoned-Other
1006217098	7269223	7/8/2016	619406	4839820	130.0	margin of error : 30 m - 100 m	33 KING STREET	Toronto	109	Direct Push		0.5		Monitoring and Test Hole		Abandoned-Other
1006217399	7269248	7/8/2016	619423	4839836	128.6	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	107			0.7				Abandoned-Other
1006217402	7269249	7/8/2016	619432	4839852	130.2	margin of error : 30 m - 100 m	22 JOHN STREET		114							Abandoned-Other
1006217584	7269250	7/8/2016	619468	4839830	128.4	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	78	Direct Push		2.9		Monitoring and Test Hole		Abandoned-Other
1006217587	7269251	7/8/2016	619467	4839823	128.4	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	72	Direct Push		0.7		Monitoring and Test Hole		Abandoned-Other

Off-Site															
BORE_HOLE_ID	WELL_ID	DATE	EAST83	NORTH83	ELEVATION (m ASL)	LOCATION ACCURACY	STREET	CITY	DISTANCE FROM SITE CENTROID (m)	CONSTRUCTION METHOD	WELL DEPTH (m bgs)	WATER FOUND (m bgs)	CASING DIAMETER (cm)	1st USE	2nd USE	FINAL STATUS
1006217590	7269252	7/8/2016	619442	4839802	127.4	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	70	Direct Push		0.8		Monitoring and Test Hole		Abandoned-Other
1006217593	7269253	7/8/2016	619461	4839784	127.4	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	44	Direct Push		2.8		Monitoring and Test Hole		Abandoned-Other
11328516	6929547	10/27/2005	619969	4839743	125.6	margin of error : 30 m - 100 m	2013 LAWRENCE AVENUE WEST	TORONTO	474							Abandoned-Other
1003504234	7162463	4/6/2011	619151	4839839	127.2	margin of error : 10 - 30 m			354							
1003504236	7162464	4/6/2011	619151	4839839	127.2	margin of error : 10 - 30 m			354							
1003518581	7164051	5/31/2011	619304	4839786	127.5	margin of error : 10 - 30 m			193							
1003753458	7179440	1/19/2012	619521	4839866	130.4	margin of error : 30 m - 100 m			113							
1004197163	7188623	4/25/2012	619843	4839417	121.6	margin of error : 30 m - 100 m			486							
1004208832	7191935	8/14/2012	619863	4839404	121.0	margin of error : 10 - 30 m			510							
1004467270	7205506	4/6/2013	619261	4839975	132.6	margin of error : 30 m - 100 m			320							
1004712990	7216591	1/29/2014	619089	4839627	112.7	margin of error : 30 m - 100 m			426							
1004731198	7219142	12/19/2013	619305	4839961	132.8	margin of error : 100 m - 300 m			279							
1006217596	7269254	7/8/2016	619461	4839785	127.4	margin of error : 30 m - 100 m	22 JOHN STREET	Toronto	44	Direct Push		0.6		Monitoring and Test Hole		Abandoned-Other
1006258932	7272396	7/4/2016	619858	4839378	121.4	margin of error : 30 m - 100 m	10 WILBY ST	Toronto	525	Rotary (Convent.)	24.4			Monitoring and Test Hole		
1006359669	7282083	1/17/2017	619901	4839838	125.8	margin of error : 30 m - 100 m	BOYD AVE APPROX 120M W OF PINE ST	Toronto	414	Boring	5.0			Monitoring		Observation Wells
1006746459	7295978	8/31/2017	619124	4840057	132.6	margin of error : 30 m - 100 m	FERN AVENUE	TORONTO	477			1.5				Abandoned-Other
1006746462	7295979	8/31/2017	619163	4840049	132.6	margin of error : 30 m - 100 m	34 FERN AVE	Toronto	442			0.9				Abandoned-Other
1006746465	7295980	8/31/2017	619129	4840030	132.7	margin of error : 30 m - 100 m	34 FERN AVE	Toronto	457			2.4				Abandoned-Other
1006746468	7295981	8/31/2017	619297	4839974	131.7	margin of error : 30 m - 100 m	46 KING STREET	Toronto	294			3.7				Abandoned-Other
1006746471	7295982	8/31/2017	619308	4839946	132.8	margin of error : 30 m - 100 m	46 KING STREET	Toronto	266			2.7				Abandoned-Other
1006854074	7300627	7/17/2017	619284	4839974	131.7	margin of error : 30 m - 100 m	46 KING ST	TORONTO	303	Direct Push	5.8			Test Hole	Monitoring	Observation Wells
1006854077	7300628	7/17/2017	619308	4839950	132.8	margin of error : 30 m - 100 m	46 KING ST	TORONTO	269	Direct Push	5.8			Test Hole	Monitoring	Observation Wells
1006854080	7300629	7/17/2017	619294	4839960	132.8	margin of error : 30 m - 100 m	46 KING ST	TORONTO	286	Direct Push	5.8			Test Hole	Monitoring	Test Hole
1006854134	7300630	7/17/2017	619143	4840051	132.6	margin of error : 30 m - 100 m	34 FERN AVE	TORONTO	459	Direct Push	5.8			Test Hole	Monitoring	Observation Wells
1006854477	7300631	7/17/2017	619129	4840060	132.6	margin of error : 30 m - 100 m	34 FERN AVE	TORONTO	475	Direct Push	4.6			Test Hole	Monitoring	Observation Wells
1006858197	7300632	7/17/2017	619122	4840048	132.6	margin of error : 30 m - 100 m	34 FERN AVE	Toronto	473	Direct Push	4.6			Test Hole	Monitoring	Test Hole
1007589515	7339525	12/3/2018	619853	4839410	121.0	margin of error : 30 m - 100 m	10 WILBY CRES	Toronto	498	Boring	14.9	10.6		Monitoring and Test Hole		Observation Wells
1007589534	7339527	12/3/2018	619834	4839380	121.3	margin of error : 30 m - 100 m	10 WILBY CRES	Toronto	507	Boring	14.9	10.7		Monitoring and Test Hole		Observation Wells
1008079661	7353018	1/31/2020	619838	4839384	121.3	margin of error : 30 m - 100 m	10 Wilby Crescent	Toronto	506			11.3				Abandoned-Other
1008079670	7353021	1/31/2020	619853	4839416	121.0	margin of error : 30 m - 100 m	10 Wilby Crescent	Toronto	494			11.5				Abandoned-Other
1008534580	7376293	10/21/2020	619898	4839415	125.4	margin of error : 30 m - 100 m	4 WILBY CRESCENT	NORTH YORK	528	Diamond	11.0			Monitoring		Observation Wells
1006234703	7270741	5/4/2015	619092	4839849	126.8	margin of error : 30 m - 100 m			413							
1007005992	7308192	3/12/2018	619968	4839526	126.3	margin of error : 30 m - 100 m			526							
1007309552	7322223	7/20/2018	619758	4839559	126.3	margin of error : 30 m - 100 m			329							
1008330161	7361425	2/27/2020	619532	4839516	125.3	margin of error : 30 m - 100 m			243							
1008416749	7364221	6/16/2020	619695	4839786	127.5	margin of error : 30 m - 100 m			202							
1008644423	7382974	2/1/2021	619896	4839433	125.9	margin of error : 30 m - 100 m			515							
1006959536	7302976	12/6/2017	620003	4839540	126.9	margin of error : 30 m - 100 m	1865 WESTON ROAD	ETOBICOKE	552	Rotary (Convent.)	9.1			Test Hole	Monitoring	Monitoring and Test Hole
1007589509	7339523	12/5/2018	619883	4839375	124.0	margin of error : 30 m - 100 m	10 WILBY CRES	Toronto	544	Boring	15.4	10.6		Test Hole	Dewatering	Observation Wells
1007589512	7339524	12/5/2018	619880	4839373	124.0	margin of error : 30 m - 100 m	10 WILBY CRES	Toronto	544	Boring	15.5	10.6		Monitoring and Test Hole		Observation Wells
1007589531	7339526	12/4/2018	619882	4839388	124.0	margin of error : 30 m - 100 m	10 WILBY CRES	Toronto	534	Boring	15.5	3.2		Monitoring		Observation Wells
1008079664	7353019	1/31/2020	619893	4839387	124.0	margin of error : 30 m - 100 m	10 Wilby Crescent	Toronto	543			11.1				Abandoned-Other
1008079667	7353020	1/31/2020	619887	4839369	124.0	margin of error : 30 m - 100 m	10 Wilby Crescent	Toronto	551			11.3				Abandoned-Other
1008084443	7353267	1/31/2020	619884	4839377	124.0	margin of error : 30 m - 100 m	10 Wilby Crescent	Toronto	544			11.3				Abandoned-Other
1007238223	7315995		619868	4839361	121.3	margin of error : 30 m - 100 m			544							
1008633606	7380997	9/25/2020	619925	4839401	125.9	margin of error : 30 m - 100 m			558							

Appendix B – Borehole Logs

Log of Borehole 1

Project No. Brm-21021990-A0

Drawing No. 2

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 13 John Street

Date Drilled: November 4, 2021

Drill Type: Hollow Auger Truck

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)	Natural Unit Weight kN/m³
	127.25	0	
~ 76 mm **ASPHALT** and ~ 152 mm **GRANULAR**	~127.2 ~127.0		
FILL: Clayey silt, trace sand, trace to some gravel, dark stains, grey, moist - petroleum odour, some sand		1	
	~125.7		
FILL: Silty clay, trace gravel, trace sand, petroleum odour, grey, moist		2	20.5
	~125.0		
SILTY CLAY: trace sand, brown, moist			19.7
	~124.2	3	
SILTY CLAY TILL: some sand, trace gravel, brown and grey, moist			21.8
	~122.7	4	
WEATHERD SHALE: trace clay, grey, moist		5	
	~121.1	6	
END OF BOREHOLE			

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

15
5
6
13
16
50/76mm
50/51mm

Date	Water Level (m)	Hole Open to (m)
On completion	Dry	0.3
December 2, 2021	1.94	-

EXPLOGBRAMPTON BOREHOLE LOGS - 13 JOHN ST.GPJ NEW.GDT 12/2/21

Log of Borehole 2

Project No. Brm-21021990-A0 | Drawing No. 3

Project: Geotechnical Investigation | Sheet No. 1 of 1

Location: 13 John Street

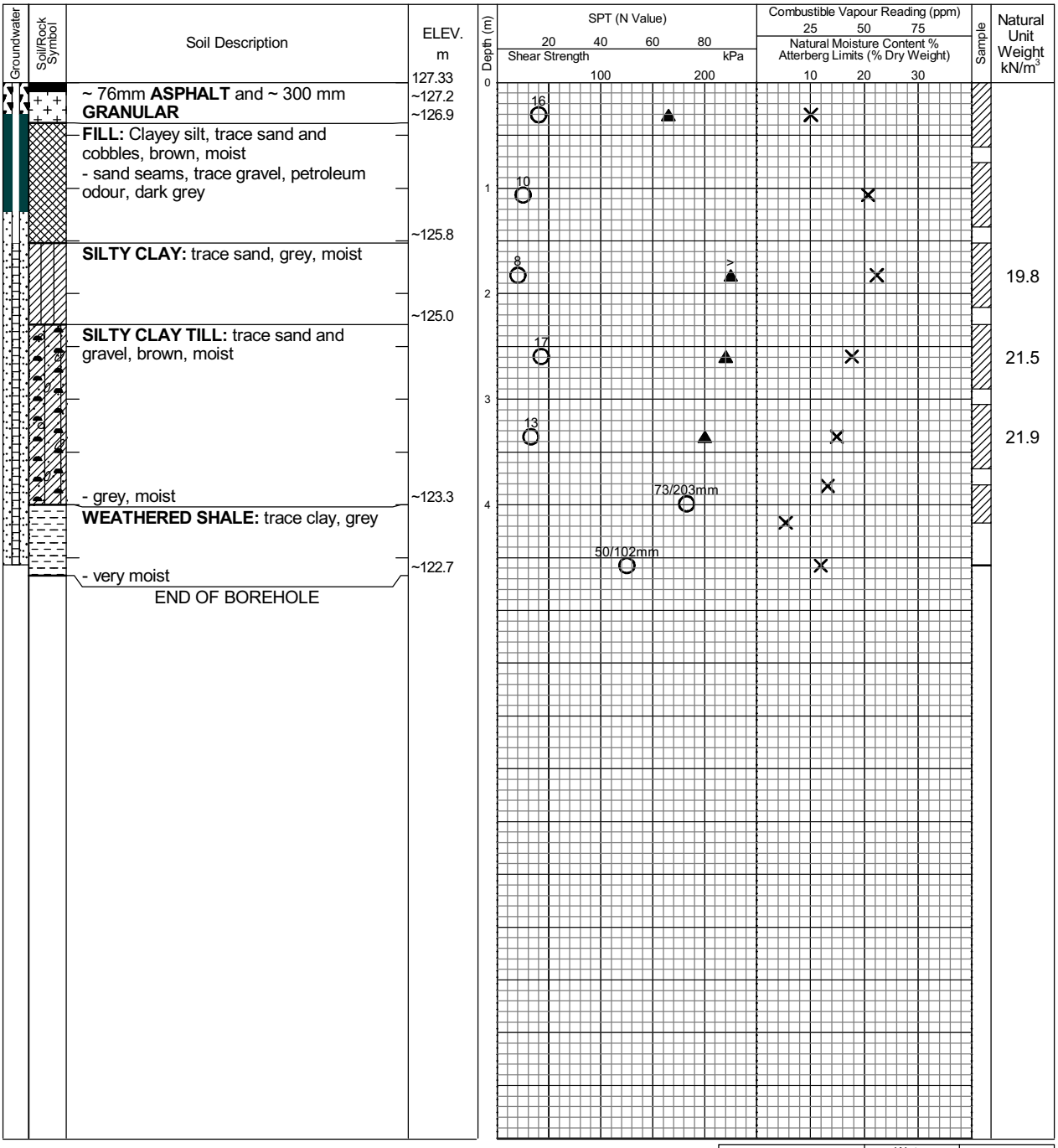
Date Drilled: November 4, 2021

Drill Type: Hollow Auger Truck

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



EXPLOGBRAMPTON BOREHOLE LOGS - 13 JOHN ST.GPJ NEW.GDT 12/2/21

Date	Water Level (m)	Hole Open to (m)
On completion	3.2	-
December 2, 2021	1.86	-

Log of Borehole 3

Project No. Brm-21021990-A0

Drawing No. 4

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 13 John Street

Date Drilled: November 4, 2021

Drill Type: Hollow Auger Truck

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)	Natural Unit Weight kN/m³
	127.38	0	
~ 100 mm **ASPHALT** and ~ 300 mm **GRANULAR**	~127.3 ~127.0		
FILL: Clayey silt, trace gravel, some sand, dark, moist - sand seams, trace sand, petroleum odour, moist	~125.9	1	
FILL: Silty clay, trace sand, brown, moist	~125.1	2	20.1
SILTY CLAY: trace sand, brown, moist	~124.3	3	20.0
SILTY CLAY TILL: trace to some sand, trace gravel, brown, moist			20.6
- some sand, brown, moist	~123.5	4	
WEATHERED SHALE: trace clay, grey	~122.8		
END OF BOREHOLE			

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

SPT values: 16, 7, 6, 10, 12, 50/76mm, 50/51mm

Date	Water Level (m)	Hole Open to (m)
On completion	Dry	Open
December 2, 2021	1.98	-

EXPLOGBRAMPTON BOREHOLE LOGS - 13 JOHN ST.GPJ NEW.GDT 12/2/21

Log of Borehole 4

Project No. Brm-21021990-A0 | Drawing No. 5

Project: Geotechnical Investigation | Sheet No. 1 of 1

Location: 13 John Street

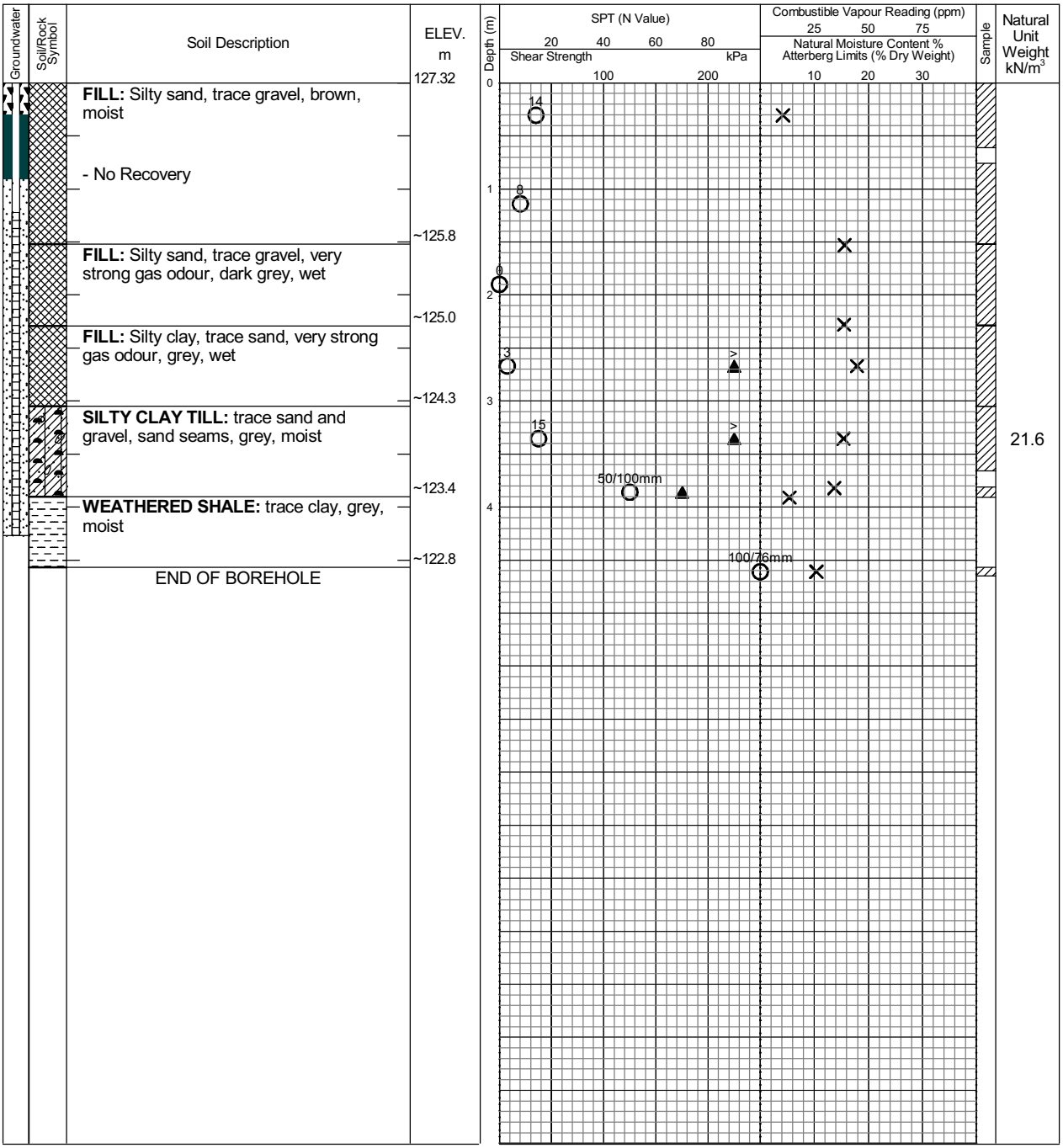
Date Drilled: November 4, 2021

Drill Type: Hollow Auger Truck

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



EXPLOGBRAMPTON BOREHOLE LOGS - 13 JOHN ST.GPJ NEW.GDT 12/2/21

Date	Water Level (m)	Hole Open to (m)
On completion	Dry	-
December 2, 2021	1.73	-

Log of Borehole 5

Project No. Brm-21021990-A0

Drawing No. 6

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 13 John Street

Date Drilled: November 3, 2021

Drill Type: Hollow Auger Truck

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)	Sample	Natural Unit Weight kN/m³
FILL: Clayey silt, trace gravel, some sand, bricks, dark stains, brown, moist	126.66	0		
- trace sand		1		
	~125.1			
SILTY CLAY: trace sand, brown, moist		2		20.6
- very moist to wet				22.3
	~122.8	3		
WEATHERED SHALE: some clay, grey		4		
- very moist				
	~121.5	5		
END OF BOREHOLE		6		

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

SPT values: 12, 6, 13, 12, 50/50mm, 50/130mm, 50/80mm

Date	Water Level (m)	Hole Open to (m)
On completion	3.05	-
December 2, 2021	1.25	-

EXPLOGBRAMPTON BOREHOLE LOGS - 13 JOHN ST.GPJ NEW.GDT 12/2/21

Log of Borehole 6

Project No. Brm-21021990-A0

Drawing No. 7

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 13 John Street

Date Drilled: November 3, 2021

Drill Type: Hollow Auger Truck

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)
	126.84	0
~ 100 mm **ASPHALT** and ~ 200 mm **GRANULAR**	~126.7	
	~126.5	
FILL: Sandy silt, some clay, trace ravel, black staining, brown, moist	~126.1	
FILL: Silty clay, trace sand and rootlets, grey, moist	~125.3	1
SILTY CLAY: trace sand, brown and grey, moist		2
- becoming brown and moist		3
- moist	~122.3	4
WEATHERED SHALE: trace clay, grey, moist		5
	~120.7	6
END OF BOREHOLE		

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

SPT values: 6, 7, 14, 11, 9, 50/76mm, 50/25mm

Sample

Natural Unit Weight kN/m³: 20.5, 21.1, 21.0

Date	Water Level (m)	Hole Open to (m)
On completion	3.05	-
December 2, 2021	1.60	-

EXPLOGBRAMPTON BOREHOLE LOGS - 13 JOHN ST.GPJ NEW.GDT 12/2/21

Log of Borehole 7

Project No. Brm-21021990-A0

Drawing No. 8

Project: Geotechnical Investigation

Sheet No. 1 of 1

Location: 13 John Street

Date Drilled: November 3, 2021

Drill Type: Hollow Auger Truck

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)	Sample	Natural Unit Weight kN/m³
	127.01			
~ 115 mm **ASPHALT** and ~ 175 mm **GRANULAR**	~126.9			
FILL: Clayey silt, trace gravel, some sand, dark stains, moist	~126.7			
	~125.5			
SILTY CLAY: trace to some sand, brown, moist				20.3
- trace sand				20.8
				20.9
	~123.2			
Shale Complex	~123.1			
WEATHERED SHALE: trace clay, grey, moist				
	~122.4			
END OF BOREHOLE				

SPT (N Value): 20 40 60 80
Shear Strength: 100 200 kPa
Combustible Vapour Reading (ppm): 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30

6
5
11
15
12
50/25mm
50/51mm

Date	Water Level (m)	Hole Open to (m)
On completion	3.05	-
December 2, 2021	2.03	-

EXPLOGBRAMPTON BOREHOLE LOGS - 13 JOHN ST.GPJ NEW.GDT 12/2/21

Log of Borehole 201

Project No. BRM-21021990-B0 | Drawing No. 2

Project: Supplementary Geotechnical Investigation | Sheet No. 1 of 2

Location: 13 John Street, Toronto, ON

Date Drilled: July 22, 2022

Drill Type: CME 75 Truck Mount

Datum: Geodetic

Auger Sample ☒
SPT (N) Value ○ ▨
Dynamic Cone Test —
Shelby Tube ■
Field Vane Test ✤ S

Combustible Vapour Reading □
Natural Moisture ×
Plastic and Liquid Limit |—○
Undrained Triaxial at % Strain at Failure ⊕
Penetrometer ▲

Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Natural Unit Weight kN/m³
ASPHALT: ~75 mm	127.40	0			
GRANULAR FILL: ~175 mm	~127.3				
FILL: sandy silt to clayey silt, trace gravel, hydrocarbon odour, dark brown, moist.	~127.1		14		21.8
		1	6		20.9
	~125.9				
SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to stiff.		2	9		20.4
			13		22.1
		3	11		21.7
	~123.4		50/75mm		22.3
SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey.		4			
See rock core logs for details		5			
		6			
		7			
		8			
		9			
		10			

Continued Next Page

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	9.63	-
August 4, 2022	10.47	-
August 18, 2022	9.95	-

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

Log of Borehole 201

Project No. BRM-21021990-B0 Drawing No. 2

Project: Supplementary Geotechnical Investigation Sheet No. 2 of 2

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) 20 40 60 80 / Shear Strength kPa 100 200	Combustible Vapour Reading (ppm) 25 50 75 / Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30	Sample	Natural Unit Weight kN/m^3
			117.40	10				
				11				
				12				
				13				
				14				
			~112.3	15				
		END OF BOREHOLE						

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	9.63	-
August 4, 2022	10.47	-
August 18, 2022	9.95	-

Log of Borehole 202

Project No. BRM-21021990-B0 Drawing No. 3

Project: Supplementary Geotechnical Investigation Sheet No. 1 of 2

Location: 13 John Street, Toronto, ON

Date Drilled: July 20, 2022

Drill Type: CME 75 Truck Mount

Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

Soil Description	ELEV. m	Depth (m)
ASPHALT: ~75 mm	126.76	0
GRANULAR FILL: ~75 mm	~126.7	
FILL: sandy silt to clayey silt, trace gravel, dark brown, moist.	~126.6	
SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to stiff.	~125.3	1
		2
		3
SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey. See rock core logs for details	~123.0	4
		5
		6
		7
		8
		9
		10

SPT (N Value): 20 at 0 m; 10 at 1 m; 14 at 2 m; 8 at 2.6 m; 12 at 3.3 m; 50/75 mm at 3.8 m

Shear Strength (kPa): 20 40 60 80 / 100 200

Combustible Vapour Reading (ppm): 25 50 75

Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

Natural Unit Weight kN/m³: 20.5 at 2 m; 22.0 at 2.6 m; 21.6 at 3.3 m

Continued Next Page

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	1.62	-
August 4, 2022	10.12	-
August 18, 2022	9.94	-

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

Log of Borehole 202

Project No. BRM-21021990-B0 Drawing No. 3

Project: Supplementary Geotechnical Investigation Sheet No. 2 of 2

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)	SPT (N Value) 20 40 60 80 / Shear Strength kPa 100 200	Combustible Vapour Reading (ppm) 25 50 75 / Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30	Sample	Natural Unit Weight kN/m^3
			116.76	10				
				11				
				12				
				13				
				14				
			~111.7	15				
		END OF BOREHOLE						

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	1.62	-
August 4, 2022	10.12	-
August 18, 2022	9.94	-

Log of Borehole 203

Project No. BRM-21021990-B0 Drawing No. 4

Project: Supplementary Geotechnical Investigation Sheet No. 1 of 2

Location: 13 John Street, Toronto, ON

Date Drilled: July 21, 2022

Drill Type: CME 75 Truck Mount

Datum: Geodetic

Auger Sample ☒
SPT (N) Value ○ ▨
Dynamic Cone Test ——
Shelby Tube ■
Field Vane Test S

Combustible Vapour Reading □
Natural Moisture ×
Plastic and Liquid Limit ⊢○
Undrained Triaxial at % Strain at Failure ⊕
Penetrometer ▲

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
			126.89	0
		ASPHALT: ~50 mm	~126.8	
		GRANULAR FILL: ~175 mm	~126.7	
		FILL: sandy silt to clayey silt, trace gravel, dark brown, moist.		1
			~125.4	2
		SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to very stiff.		3
			~122.9	4
		SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey.		5
		See rock core logs for details		6
				7
				8
				9
				10

SPT (N Value) 20 40 60 80
Shear Strength 100 200 kPa

Combustible Vapour Reading (ppm) 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30

Sample

Natural Unit Weight kN/m³

15
7 — 20.3
17 — 20.1
17 — 22.0
11 — 21.7
50/75 mm — 21.8
50/100 mm

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

Continued Next Page

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	2.5	-
August 4, 2022	9.41	-
August 18, 2022	9.24	-

Log of Borehole 203

Project No. BRM-21021990-B0 Drawing No. 4

Project: Supplementary Geotechnical Investigation Sheet No. 2 of 2

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
			116.89	10
				11
				12
				13
				14
				15
			~111.5	
		END OF BOREHOLE		

SPT (N Value) 20 40 60 80
Shear Strength kPa 100 200

Combustible Vapour Reading (ppm) 25 50 75
Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30

Sample

Natural Unit Weight kN/m^3

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	2.5	-
August 4, 2022	9.41	-
August 18, 2022	9.24	-

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

Log of Borehole 204

Project No. BRM-21021990-B0 | Drawing No. 5

Project: Supplementary Geotechnical Investigation | Sheet No. 1 of 2

Location: 13 John Street, Toronto, ON

Date Drilled: July 19, 2022

Drill Type: CME 75 Truck Mount

Datum: Geodetic

Auger Sample ☒ | Combustible Vapour Reading □

SPT (N) Value ○ ▨ | Natural Moisture ×

Dynamic Cone Test — | Plastic and Liquid Limit ⊢○

Shelby Tube ■ | Undrained Triaxial at % Strain at Failure ⊕

Field Vane Test S | Penetrometer ▲

Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Natural Unit Weight kN/m³
GRANULAR FILL: ~225 mm	126.89	0			
	~126.7				
FILL: sandy silt to clayey silt, trace gravel, dark brown, moist.		1	12, 8		
	~125.4	2	20, 28		20.9, 21.8
SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to very stiff.		3	24		21.8
	~122.9	4	50/75 mm, 50/75 mm		22.6
SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey.		5			
See rock core logs for details		6			
		7			
		8			
		9			
		10			

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

Continued Next Page

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	4.6	-
August 4, 2022	10.28	-
August 18, 2022	10.18	-

Log of Borehole 204

Project No. BRM-21021990-B0 Drawing No. 5

Project: Supplementary Geotechnical Investigation Sheet No. 2 of 2

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
			116.89	10
				11
				12
				13
				14
				15
			~111.5	
		END OF BOREHOLE		

SPT (N Value) 20 40 60 80

Shear Strength kPa 100 200

Combustible Vapour Reading (ppm) 25 50 75

Natural Moisture Content % Atterberg Limits (% Dry Weight) 10 20 30

Sample

Natural Unit Weight kN/m^3

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	4.6	-
August 4, 2022	10.28	-
August 18, 2022	10.18	-

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

Log of Borehole 205

Project No. BRM-21021990-B0 | Drawing No. 6

Project: Supplementary Geotechnical Investigation | Sheet No. 1 of 2

Location: 13 John Street, Toronto, ON

Date Drilled: July 18, 2022

Drill Type: CME 75 Truck Mount

Datum: Geodetic

Auger Sample ☒ | Combustible Vapour Reading □

SPT (N) Value ○ ▨ | Natural Moisture ×

Dynamic Cone Test — | Plastic and Liquid Limit ⊢○

Shelby Tube ■ | Undrained Triaxial at % Strain at Failure ⊕

Field Vane Test S | Penetrometer ▲

Soil Description	ELEV. m	Depth (m)	SPT (N Value) / Shear Strength kPa	Natural Moisture Content % / Atterberg Limits (% Dry Weight)	Natural Unit Weight kN/m³
GRANULAR FILL: ~50 mm	126.95	0			
FILL: sandy silt to clayey silt, trace gravel, dark brown, moist.	~126.9		25	×	
- becomes silty sand		1	8	×	21.2
		2	11	×	
SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to hard.	~124.8		11	×	19.9
		3	13	×	20.6
		4	16	×	23.2
			50/25 mm	×	
		5	50/25 mm	×	
SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey.	~121.7				
See rock core logs for details		6			
		7			
		8			
		9			
		10			

SPT (N Value): 20 40 60 80 | Shear Strength: 100 200 kPa

Combustible Vapour Reading (ppm): 25 50 75 | Natural Moisture Content % / Atterberg Limits (% Dry Weight): 10 20 30

Sample

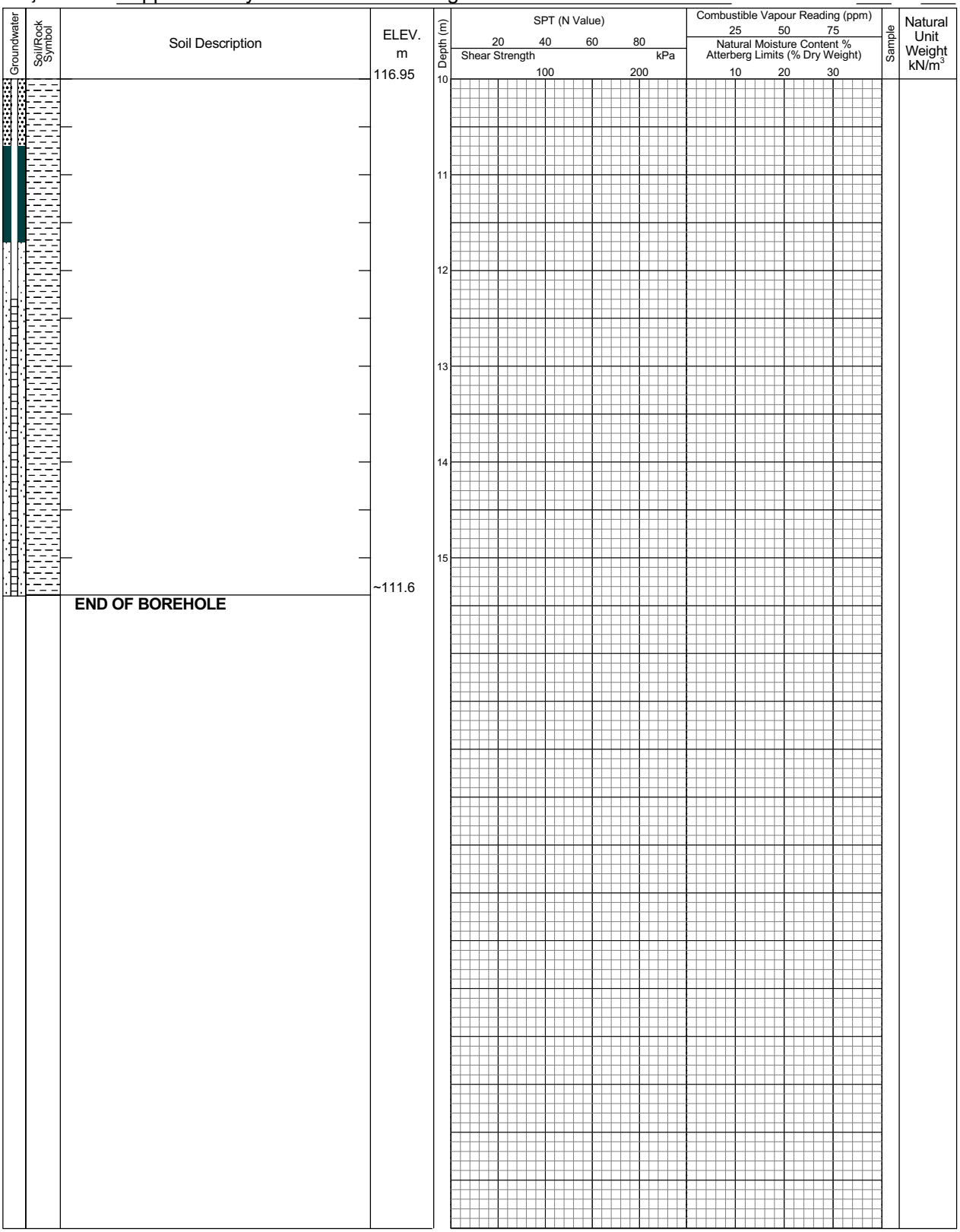
Continued Next Page

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	2.82	-
August 4, 2022	11.3	-
August 18, 2022	11.16	-

Log of Borehole 205

Project No. BRM-21021990-B0 Drawing No. 6

Project: Supplementary Geotechnical Investigation Sheet No. 2 of 2



Date	Water Level (m)	Hole Open to (m)
July 29, 2022	2.82	-
August 4, 2022	11.3	-
August 18, 2022	11.16	-

EXPLOGBRAMPTON 13 JOHN STREET BOREHOLE LOGS.GPJ NEW.GDT 9/1/22

ROCK CORE LOG

BH 202

PROJECT	ORIENTATION	ELEVATION (m)	DATUM	PROJECT NUMBER
Supplementary Geotechnical Investigation	Vertical		Geodetic	BRM-21021990-B0
LOCATION	**DATE STARTED**	**COMPLETED**	**LOGGED BY**	**DRAWING NUMBER**
13 John Street, Toronto, ON	07/21/22	07/21/22	D. Panchal	4A
CLIENT	**DRILLER**	**DRILL TYPE**	**CORE BARREL**	**SHEET**
		CME 55 - Truck	HQ	1 of 2

ELEVATION (m)	DEPTH (m)	SYMBOL	GENERAL DESCRIPTION	JOINT CHARACTERISTICS: NO. OF SETS	JOINT TYPE	ORIENTATION	SPACING	ROUGHNESS	FILLING	APERTURE (mm)	WEATHERING	STRENGTH	FRACTURE FREQUENCY	RUN NUMBER	RECOVERY (%)	RQD	WATER RECOVERY (%)	WATER COLOUR
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	4		See Borehole Log for Details															
			GEORGIAN BAY FORMATION		F	V												
	5		Shale with interbedded siltstone, and clay layers.		F	V												
			Shale (84%) thinly bedded or laminated, grey, low strength, alternating between heavily and slightly weathered to 6.29 and between moderately weathered and unweathered below.	1	B	F	C C	RU RP						1	100	36	95	Grey
			Limestone (3%) fine grained, grey, medium strength, unweathered		F	V												
	6		Siltstone (13%) fine grained, grey, medium strength, unweathered.															
			Discontinuities: bedding joints are rough planar to smooth undulating and at wide to very close intervals.		F	V												
			Vertical fractures were noted at 4.85 m, 4.96 m, 5.51 m, 5.78 m, 6.23 m, 7.35 m, 8.80 m, 9.12 m, 9.21 m, 9.71 m, 10.68 m and 12.71 m.															
			Rubble layers were noted at 5.23 m (90 mm), 5.42 m (100 mm), 5.82 m (50 mm), 6.07 m (50 mm) and 7.60 m (70 mm)	1	B	F	C C	RP RP						2	100	63	100	Grey
	7				F	V												
	8			1	B	F	C C	RP SU						3	100	78	100	Grey
					F	V												
	9				F	V												
					F	V												
					F	V												

EXP_ROCKCORE_ROCK_LOG_21021990B.GPJ CORE_LOG.GDT 7/9/22

exp.

ROCK CORE LOG

BH 202

PROJECT	ORIENTATION	ELEVATION (m)	DATUM	PROJECT NUMBER
Supplementary Geotechnical Investigation	Vertical		Geodetic	BRM-21021990-B0
LOCATION	**DATE STARTED**	**COMPLETED**	**LOGGED BY**	**DRAWING NUMBER**
13 John Street, Toronto, ON	07/21/22	07/21/22	D. Panchal	4A
CLIENT	**DRILLER**	**DRILL TYPE**	**CORE BARREL**	**SHEET**
		CME 55 - Truck	HQ	2 of 2

ELEVATION (m)	DEPTH (m)	SYMBOL	GENERAL DESCRIPTION	JOINT CHARACTERISTICS: NO. OF SETS	JOINT TYPE	ORIENTATION	SPACING	ROUGHNESS	FILLING	APERTURE (mm)	WEATHERING	STRENGTH	FRACTURE FREQUENCY	RUN NUMBER	RECOVERY (%)	RQD	WATER RECOVERY (%)	WATER COLOUR
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	10			1	B	F	C	SU						4	100	61	100	Grey
							C	SP										
					F	V												
	11																	
				1	B	F	M	SP						5	98	98	100	Grey
							C	SP										
	12																	
					F	V												
	13			1	B	F	M	SP						6	100	93	100	Grey
							M	SP										
	14																	
				1	B	F	M	SP						7	100	100	100	Grey
							M	SP										
	15																	
			End of Borehole at 15.1 m															

EXP_ROCKCORE_ROCK_LOG_21021990B.GPJ CORE_LOG.GDT 7/9/22

exp.

ROCK CORE LOG

BH 203

PROJECT	ORIENTATION	ELEVATION (m)	DATUM	PROJECT NUMBER
Supplementary Geotechnical Investigation	Vertical		Geodetic	BRM-21021990-B0
LOCATION	**DATE STARTED**	**COMPLETED**	**LOGGED BY**	**DRAWING NUMBER**
13 John Street, Toronto, ON	07/22/22	07/22/22	D. Panchal	3A
CLIENT	**DRILLER**	**DRILL TYPE**	**CORE BARREL**	**SHEET**
		CME 55 - Truck	HQ	1 of 2

ELEVATION (m)	DEPTH (m)	SYMBOL	GENERAL DESCRIPTION	JOINT CHARACTERISTICS: NO. OF SETS	JOINT TYPE	ORIENTATION	SPACING	ROUGHNESS	FILLING	APERTURE (mm)	WEATHERING	STRENGTH	FRACTURE FREQUENCY	RUN NUMBER	RECOVERY (%)	RQD	WATER RECOVERY (%)	WATER COLOUR
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	4		See Borehole Log for Details															
	5		Core Lost	1	B	F	VC C	RU RP						1	37	21	90	Grey
	6		**GEORGIAN BAY FORMATION** Shale with interbedded siltstone, and clay layers. Shale (71%) thinly bedded or laminated, grey, low strength, alternating between heavily and slightly weathered to 7.90 and between moderately weathered and unweathered below. Limestone (4%) fine grained, grey, medium strength, unweathered						NC	100 mm								
	7		Siltstone (16%) fine grained, grey, medium strength, unweathered. Discontinuities: bedding joints are rough planar to smooth undulating and at wide to very close intervals. Vertical fractures were noted at 9.29 m, 9.59 m, 9.76 m, 10.49 m, 13.27 m, 14.83 m, 15.23 m and 15.31 m.	1	B	F	C C	RP SU						2	100	87	100	Grey
	8		A clay (9%) layer, heavily weathered, very low strength was noted at 5.84 m. Rubble layers was noted at 15.17 m (60 mm).															
	9			1	B	F	C C	SU SU						3	100	70	100	Grey
					F	V												
					F	V												
					F	V												

EXP_ROCKCORE_ROCK_LOG_21021990B.GPJ CORE_LOG.GDT 7/9/22

exp.

ROCK CORE LOG

BH 203

PROJECT	ORIENTATION	ELEVATION (m)	DATUM	PROJECT NUMBER
Supplementary Geotechnical Investigation	Vertical		Geodetic	BRM-21021990-B0
LOCATION	**DATE STARTED**	**COMPLETED**	**LOGGED BY**	**DRAWING NUMBER**
13 John Street, Toronto, ON	07/22/22	07/22/22	D. Panchal	3A
CLIENT	**DRILLER**	**DRILL TYPE**	**CORE BARREL**	**SHEET**
		CME 55 - Truck	HQ	2 of 2

ELEVATION (m)	DEPTH (m)	SYMBOL	GENERAL DESCRIPTION	JOINT CHARACTERISTICS: NO. OF SETS	JOINT TYPE	ORIENTATION	SPACING	ROUGHNESS	FILLING	APERTURE (mm)	WEATHERING	STRENGTH	FRACTURE FREQUENCY	RUN NUMBER	RECOVERY (%)	RQD	WATER RECOVERY (%)	WATER COLOUR
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	10			1	B F	F V	C C	SU SP						4	100	65	100	Grey
	11			1	B	F	C M	SP SP						5	100	93	100	Grey
	12																	
	13			1	B F	F V	M M	SP SP						6	100	94	100	Grey
	14																	
	15			1	B F F	F V V	M C	SP SU						7	100	93	100	Grey
			End of Borehole at 15.4 m															

EXP_ROCKCORE_ROCK_LOG_21021990B.GPJ CORE_LOG.GDT 7/9/22

exp.

Appendix C – Groundwater Elevation Summary

Appendix C: Groundwater Elevation Summary

13, 15, 17, 19, & 21 John Street and 36, 38, & 40 South Station Street, Toronto, Ontario
BRM-21021990-A0

Monitoring Well ID	Ground Surface Elevation (masl)	Approximate Full Well Depth (mbgs)	Minimum GW Elevation (masl)	Maximum GW Elevation (masl)	Depth	30-Nov-21	3-Dec-21	18-Jan-22	29-Jul-22	4-Aug-22	18-Aug-22	13-Sep-22	4-Oct-22	20-Oct-22
BH 1	127.25	4.53	125.45	125.65	mbgs	1.62	1.80	1.76	**0.60**	1.63	1.60	1.75	1.75	1.72
					masl	125.63	125.45	125.49	126.65	125.62	125.65	125.50	125.50	125.53
BH 2	127.33	4.34	125.39	125.60	mbgs	1.73	1.85	1.89	1.87	1.90	1.89	1.92	1.81	1.94
					masl	125.60	125.48	125.44	125.46	125.43	125.44	125.41	125.52	125.39
BH 3	127.38	4.39	125.33	125.61	mbgs	1.77	1.88	1.90	2.05	1.99	1.96	1.96	1.97	1.99
					masl	125.61	125.50	125.48	125.33	125.39	125.42	125.42	125.41	125.39
BH 4	127.32	3.77	125.45	125.84	mbgs	1.48	1.71	1.82	1.58	1.60	1.60	1.87	1.69	1.70
					masl	125.84	125.61	125.50	125.74	125.72	125.72	125.45	125.63	125.62
BH 5	126.66	4.40	125.18	125.45	mbgs	1.21	1.28	1.48	1.39	1.38	1.39	1.40	1.43	1.42
					masl	125.45	125.39	125.18	125.27	125.28	125.27	125.26	125.23	125.24
BH 6	126.84	5.80	124.93	125.34	mbgs	1.50	1.60	1.91	1.70	1.80	1.70	1.80	1.80	1.79
					masl	125.34	125.24	124.93	125.14	125.04	125.14	125.04	125.04	125.05
BH 7	127.01	5.26	124.78	125.12	mbgs	1.90	2.06	2.23	2.15	2.12	2.11	2.11	2.12	2.13
					masl	125.12	124.95	124.78	124.86	124.89	124.90	124.90	124.89	124.88
BH201	127.40	15.43	116.93	118.70	mbgs	-	-	-	9.63	10.47	9.95	9.16	8.70	8.70
					masl	-	-	-	117.77	116.93	117.45	118.24	118.70	118.70
BH202	126.76	15.13	116.64	116.82	mbgs	-	-	-	**1.62**	10.12	9.94	9.99	10.06	10.01
					masl	-	-	-	125.14	116.64	116.82	116.77	116.70	116.75
BH203	126.89	15.27	117.48	117.79	mbgs	-	-	-	**2.50**	9.41	9.24	9.10	9.29	9.27
					masl	-	-	-	124.39	117.48	117.65	117.79	117.60	117.62
BH204	126.89	15.43	116.58	116.71	mbgs	-	-	-	**4.60**	10.28	10.18	10.29	10.31	10.30
					masl	-	-	-	122.29	116.61	116.71	116.60	116.58	116.59
BH205	126.95	15.34	115.65	115.80	mbgs	-	-	-	**2.82**	11.30	11.16	11.15	11.19	11.17
					masl	-	-	-	124.13	115.65	115.79	115.80	115.76	115.78

Notes:

mbTOP - meters below top of the pipe

mbgs - meters below ground surface

masl - meters above mean sea level

Bold and Red - No representative of statis level

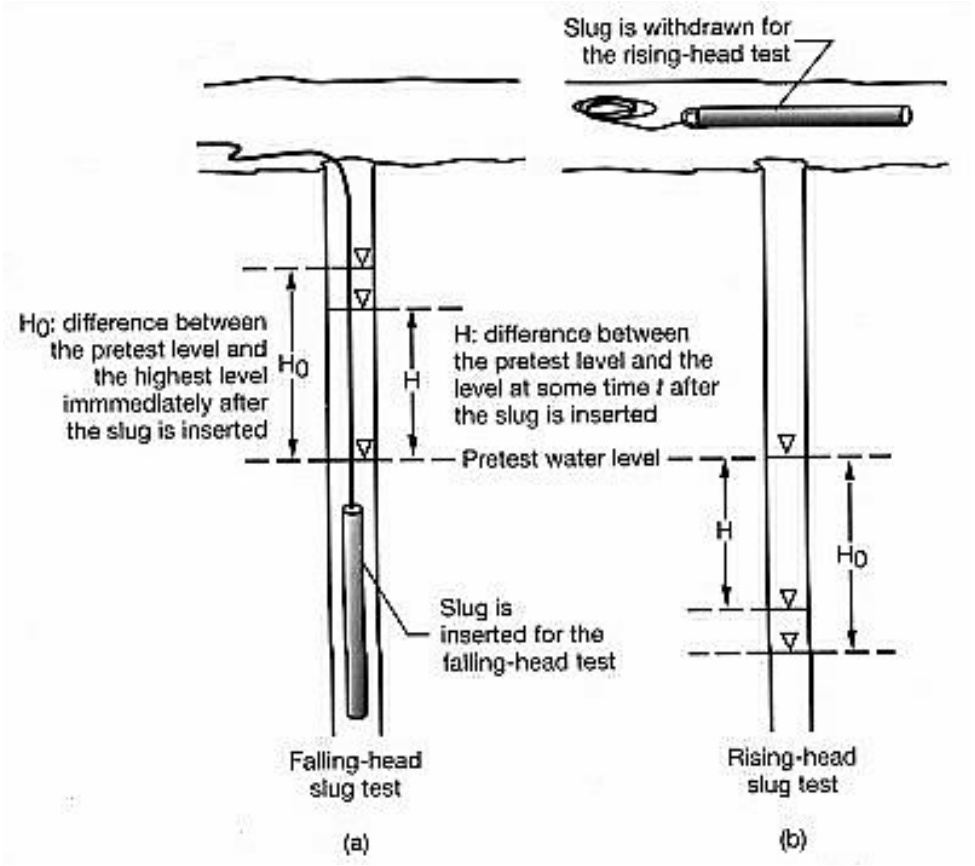
Appendix D – SWRT Procedures and Results

Single Well Response Test Procedure

A Single Well Response Test (SWRT), also known as a bail test or a slug test, is conducted in order to determine the saturated hydraulic conductivity (K) of an aquifer. The method of the SWRT is to characterize the change of groundwater level in a well or borehole over time.

In order to ensure consistency and repeatability, all **exp** employees are to follow the procedure outlined in this document when conducting SWRTs.

The figure below depicts a schematic of a slug and bail test and the respective water level changes.



Initials ___

Slug Test Procedure

Equipment Required

- Copy of a signed health and safety plan
- Copy of the work program
- PPE as required by Site-Specific HASP
- Copy of the monitoring well location plan/site plan
- Waterproof pen and bound field note book
- SWRT field data Entry form
- Disposable gloves
- Duct tape
- Deionized water
- Alconox (phosphate free detergent)
- Spray bottles
- Electronic water level meter and spare batteries
- Solid PVC or stainless steel slug of known volume or clean water
- String (nylon)
- Water pressure transducer (data logger) and baro-logger
- Watch or stop watch with second hand
- Plastic sheeting

Testing Procedure

1. Remove cap from well and collect static water level
2. Remove waterra tubing/bailer and place in garbage bag. Record static water level measurement again.
3. Lower the slug into the well and record the dynamic water level.
4. Record the drawdown (for the slug test) at set five (5) second intervals for the first five (5) minutes, then reduce to every one (1) minute.
5. Continue recording the drawdown until 95% recovery is reached. To calculate this value: Find the difference between the dynamic water level and the static water level, then multiply by 95% (.95). Add the resulting value to the dynamic water level.

   (Static Water Level – Dynamic Water Level).95 + Static Water Level = 95% Recovery Value
6. Once complete, replace the waterra tubing/bailer and re-secure the well cap.

Note: If the well is deep, more than one slug may be inserted by attaching the slugs to a series.

Slugs must be washed with methanol, then lab grade soap, and then rinsed with de-ionized water after each use.

Based on the recorded observations, the hydraulic conductivity (in m/s) of the aquifer will be determined. In order to determine the hydraulic conductivity; the well diameter, radius of the borehole and length of the screen will also be required.

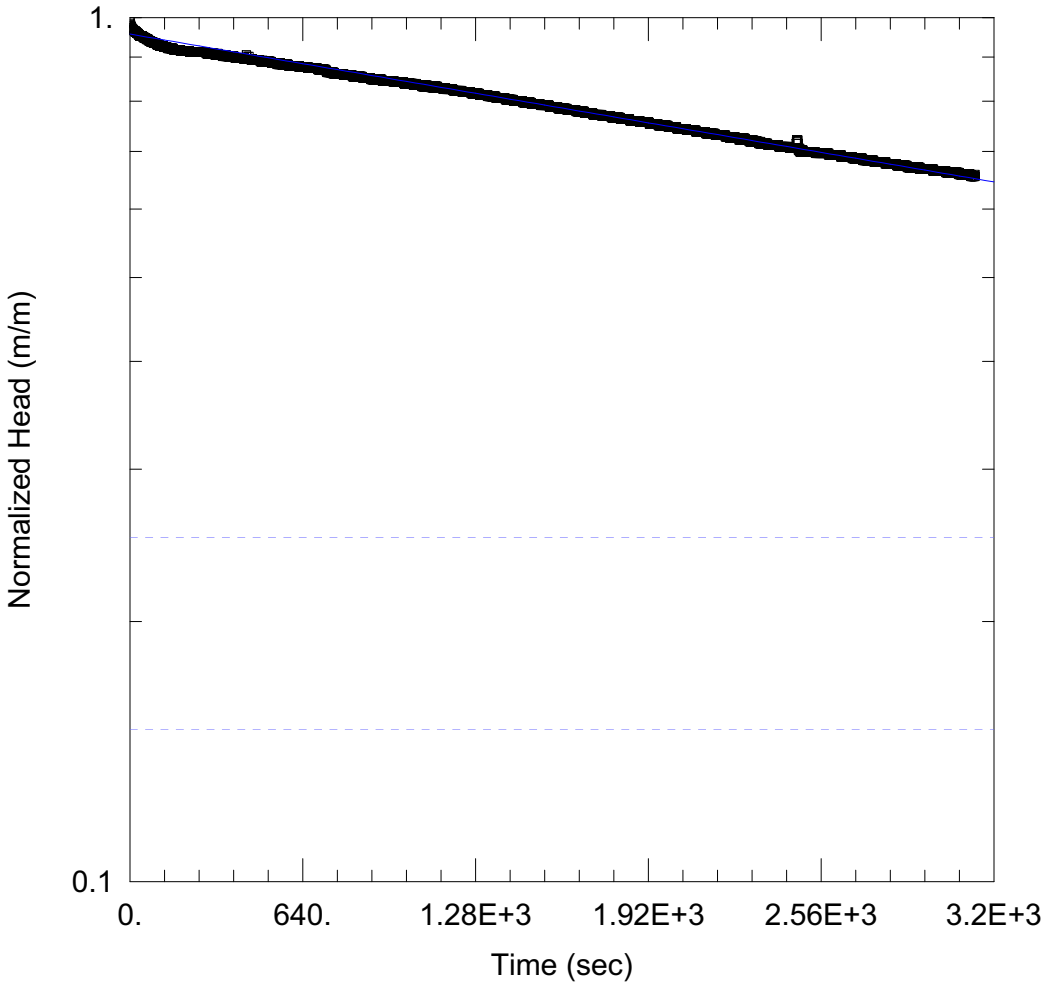
Bail Test Procedure

Equipment Required

- 20 L (5 gal) Graduated pail
- Stop watch or watch with seconds
- Garbage bags
- Water level meter
- Field sheets/log book
- Latex Gloves
- Bailer and Rope

Procedure

1. Remove cap from well and collect static water level.
2. If using a **bailer**:
    a. Affix the rope to the bailer.
    b. Remove the waterra tubing and place in garbage bag
    c. Record static water level measurement again.
    d. Record how much water was removed by either counting the number of full bailers or emptying removed water into a container.
    e. Quickly lower the bailer into the well and remove.
    f. Continue this process until the water level will reduce no further.
    g. Record the dynamic water level.
3. If using **waterra** to bail the water:
    a. Pump the water into graduated bucket until the water level will reduce no further.
    b. Record how much water has been removed.
    c. Record the dynamic water level.
4. Record the recovery at set five (5) second intervals for the first (5) minutes, then reduce to every one (1) minute.
5. Continue recording the drawdown/recovery until 95% recovery is reached.
6. Once complete, replace any waterra tubing that may have been removed from the well and re-secure the well cap.



SWRT BH 1 FALLING HEAD TEST

Data Set: C:\...\BH 1.aqt
Date: 12/14/21 Time: 14:54:59

PROJECT INFORMATION

Company: EXP Services Inc
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13 John Street, Toronto
Test Well: BH 1
Test Date: December 3, 2021

AQUIFER DATA

Saturated Thickness: 2.723 m Anisotropy Ratio (Kz/Kr): 1.

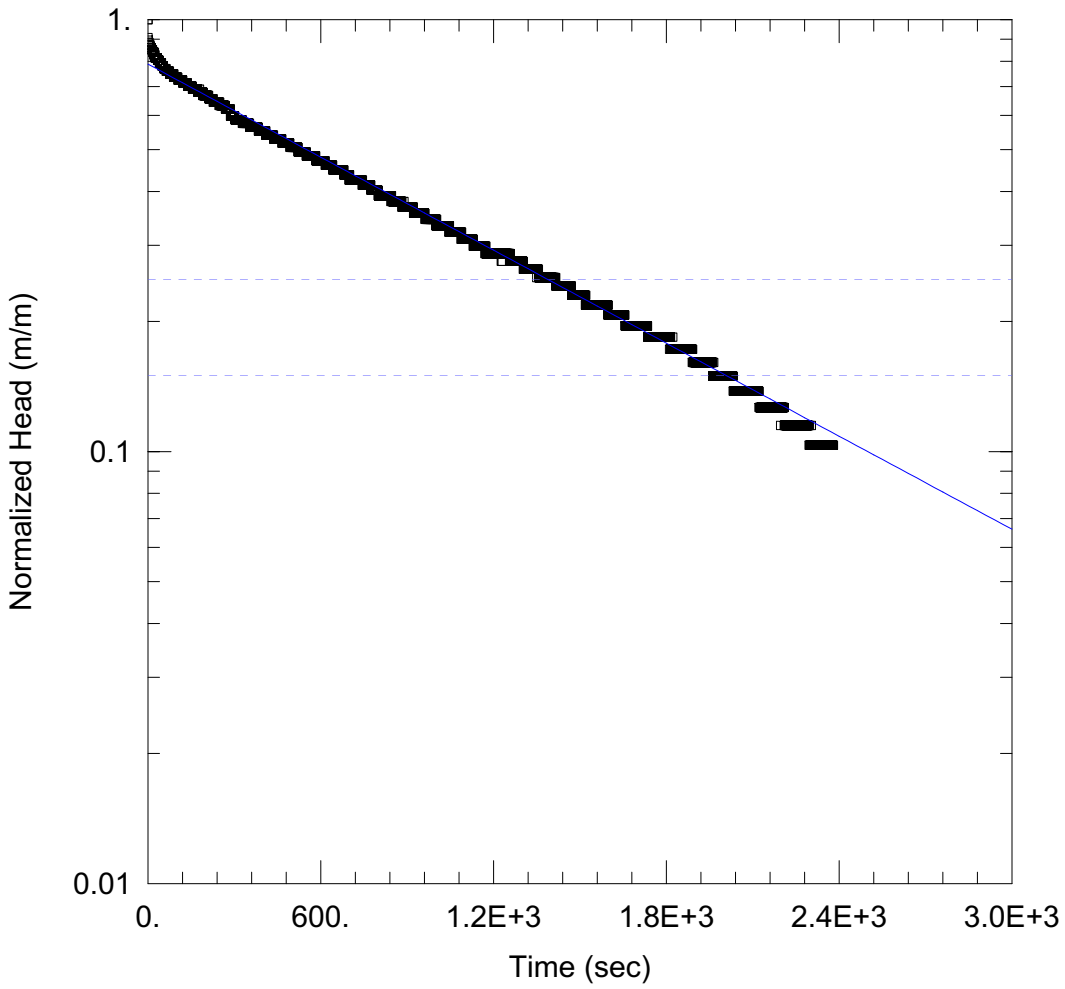
WELL DATA (BH 1)

Initial Displacement: 0.948 m
Total Well Penetration Depth: 3. m
Casing Radius: 0.0254 m
Static Water Column Height: 2.723 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 7.726E-8 m/sec y0 = 0.907 m



SWRT BH 2 - FALLING HEAD

Data Set: C:\...\BH 2 Falling.aqt
Date: 12/14/21 Time: 14:58:51

PROJECT INFORMATION

Company: EXP Services Inc
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13 John Street, Toronto
Test Well: BH 2
Test Date: December 3, 2021

AQUIFER DATA

Saturated Thickness: 2.495 m Anisotropy Ratio (Kz/Kr): 1.

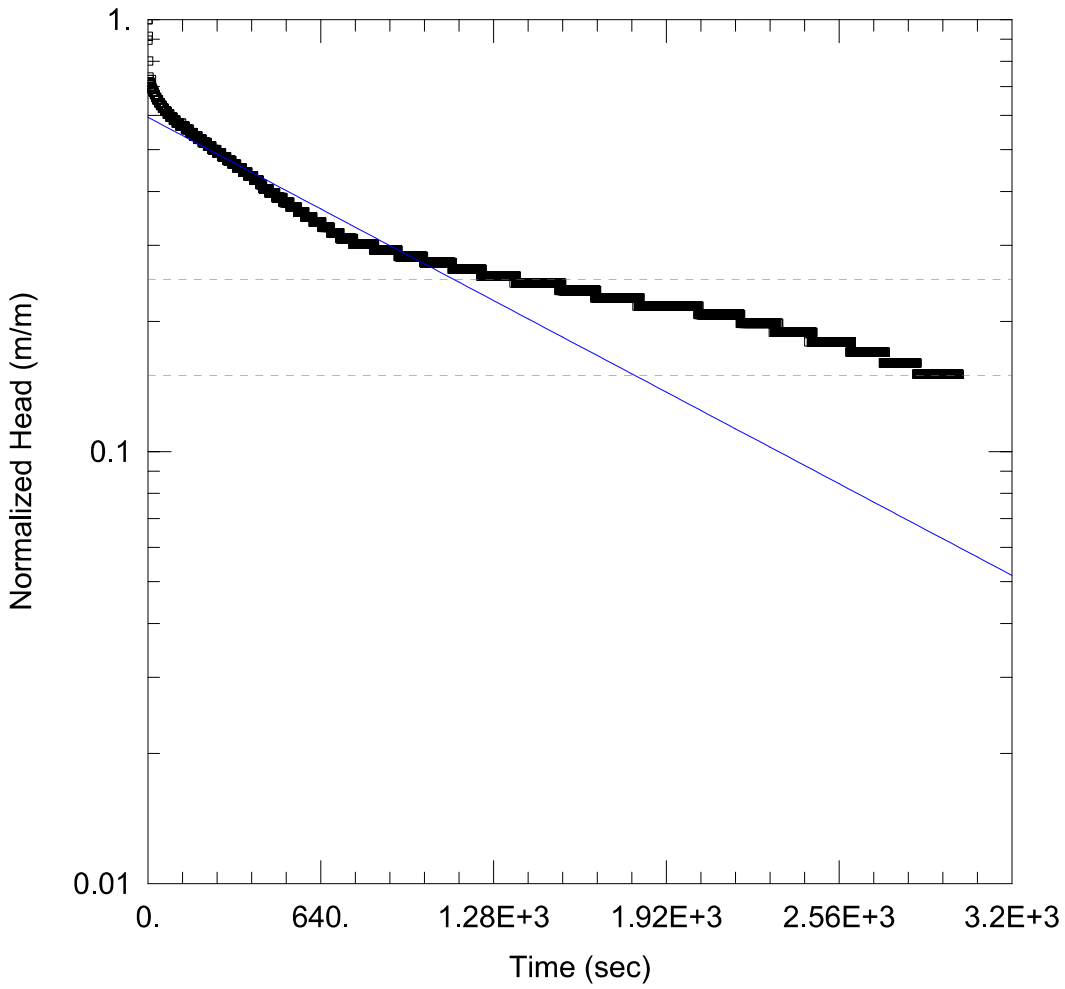
WELL DATA (BH 2)

Initial Displacement: 0.261 m
Total Well Penetration Depth: 3. m
Casing Radius: 0.0254 m
Static Water Column Height: 2.495 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 5.661E-7 m/sec y0 = 0.2058 m



SWRT BH 3 FALLING HEAD

Data Set: C:\...\BH 3.aqt
Date: 12/14/21 Time: 15:03:38

PROJECT INFORMATION

Company: EXP Services Inc
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13 John Street, Toronto
Test Well: BH 3
Test Date: December 3, 2021

AQUIFER DATA

Saturated Thickness: 2.511 m Anisotropy Ratio (Kz/Kr): 1.

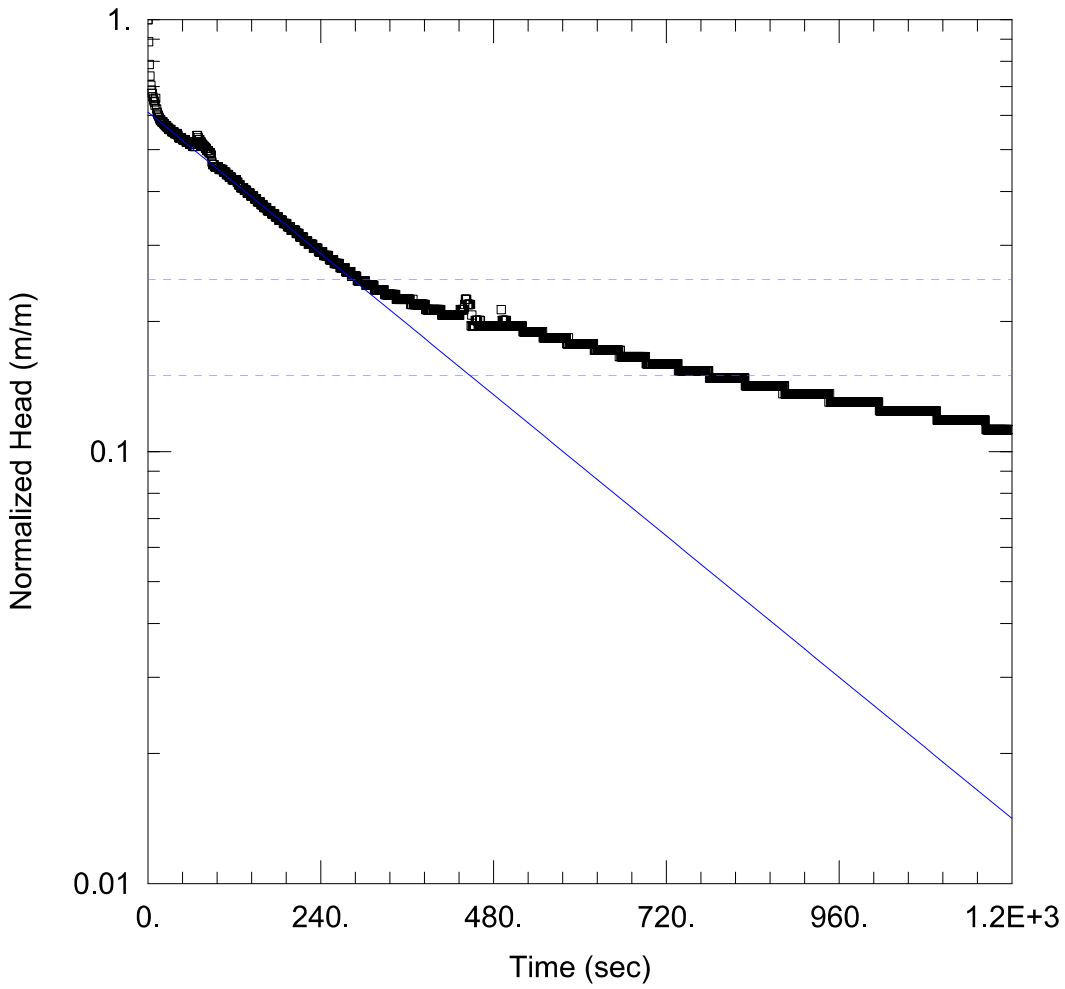
WELL DATA (BH 3)

Initial Displacement: 0.318 m
Total Well Penetration Depth: 3. m
Casing Radius: 0.0254 m
Static Water Column Height: 2.511 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 5.194E-7 m/sec y0 = 0.1889 m



SWRT BH 4 FALLING HEAD

Data Set: C:\...\BH 4 Falling.aqt
Date: 12/14/21 Time: 15:08:29

PROJECT INFORMATION

Company: EXP Services Inc
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13 John Street, Toronto
Test Well: BH 4
Test Date: December 3, 2021

AQUIFER DATA

Saturated Thickness: 2.053 m Anisotropy Ratio (Kz/Kr): 1.

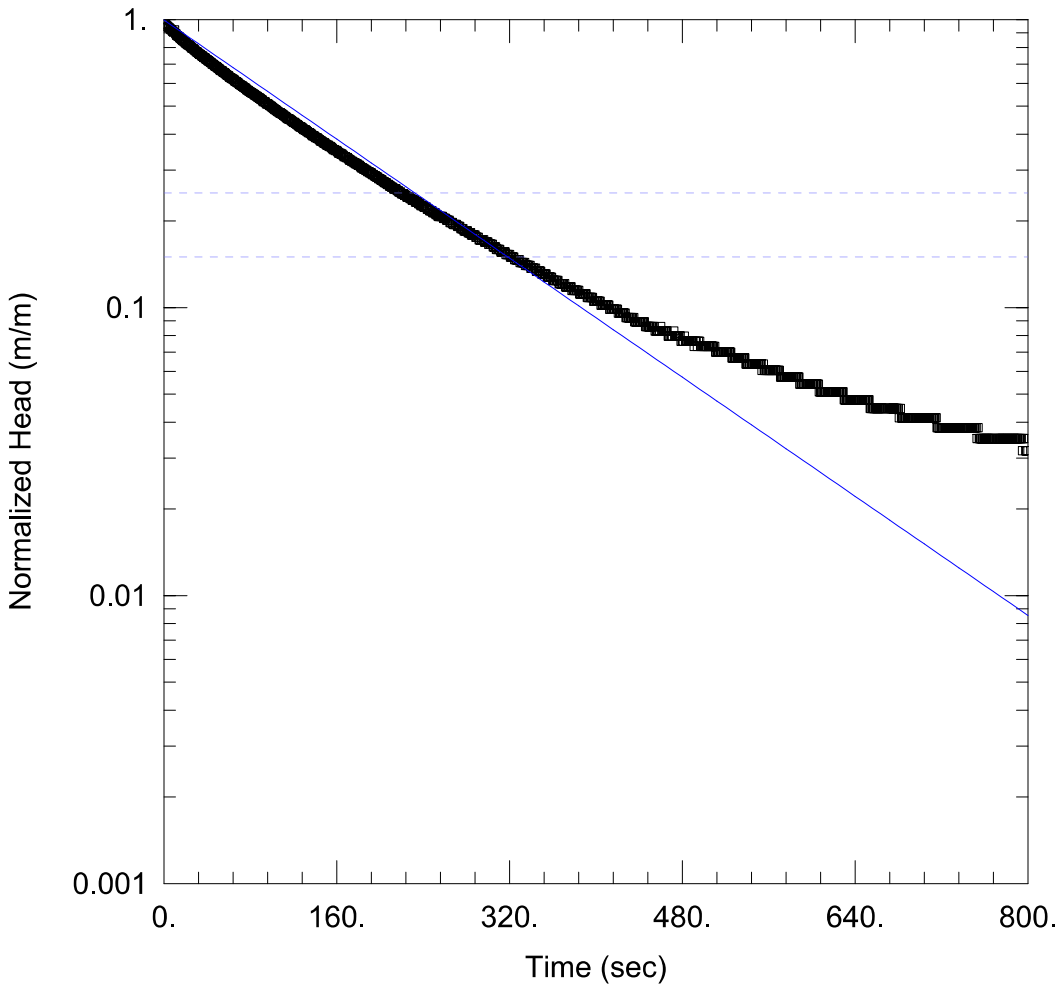
WELL DATA (BH 4)

Initial Displacement: 0.507 m
Total Well Penetration Depth: 3. m
Casing Radius: 0.0254 m
Static Water Column Height: 2.053 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 2.611E-6 m/sec y0 = 0.3093 m



SWRT BH 5 FALLING HEAD

Data Set: C:\...\BH 5.aqt
Date: 12/14/21 Time: 15:11:55

PROJECT INFORMATION

Company: EXP Services Inc
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13 John Street, Toronto
Test Well: BH 5
Test Date: December 3, 2021

AQUIFER DATA

Saturated Thickness: 3.123 m Anisotropy Ratio (Kz/Kr): 1.

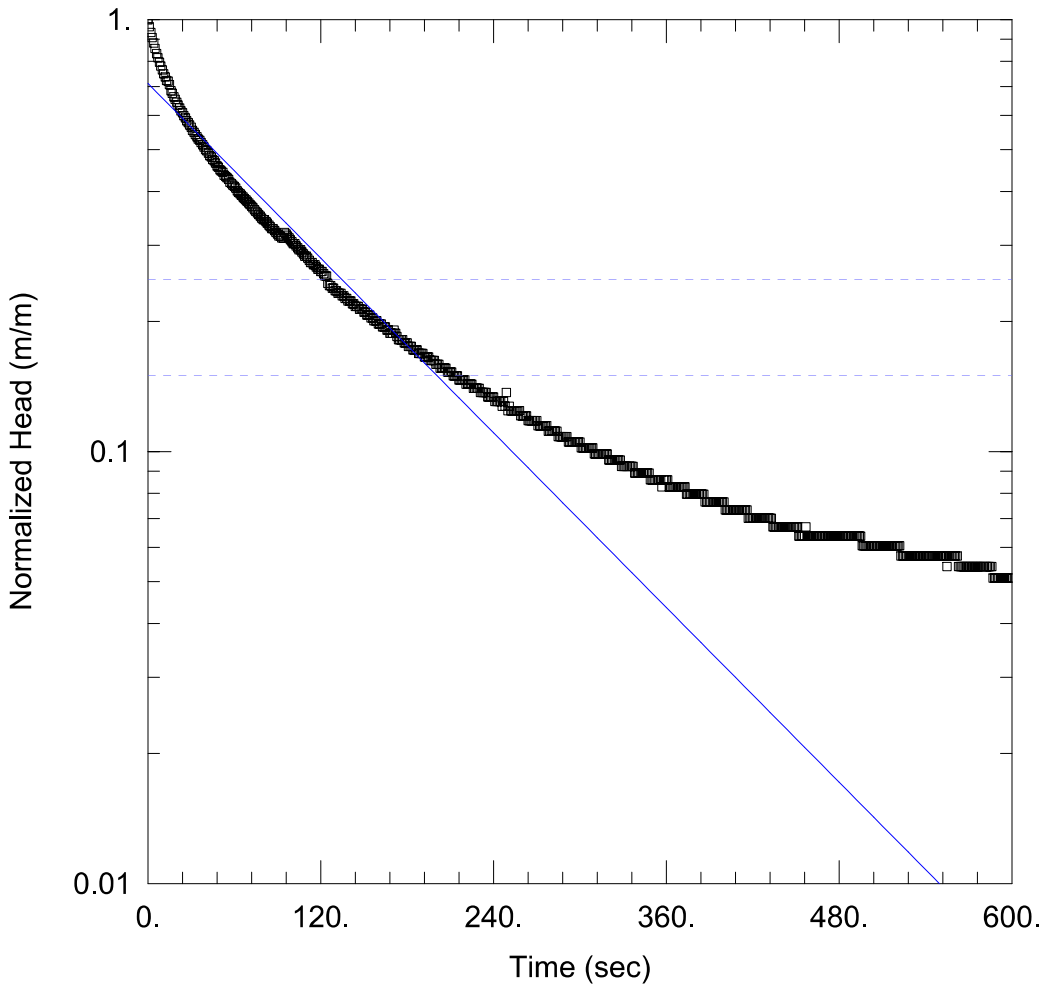
WELL DATA (BH 5)

Initial Displacement: 0.942 m
Total Well Penetration Depth: 3.123 m
Casing Radius: 0.0254 m
Static Water Column Height: 3.123 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 2.794E-6 m/sec y0 = 0.9383 m



SWRT BH 6 FALLING HEAD

Data Set: C:\...\BH 6 Falling.aqt
Date: 12/14/21 Time: 15:16:47

PROJECT INFORMATION

Company: EXP Services Inc
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13 John Street, Toronto
Test Well: BH 6
Test Date: December 3, 2021

AQUIFER DATA

Saturated Thickness: 4.192 m Anisotropy Ratio (Kz/Kr): 1.

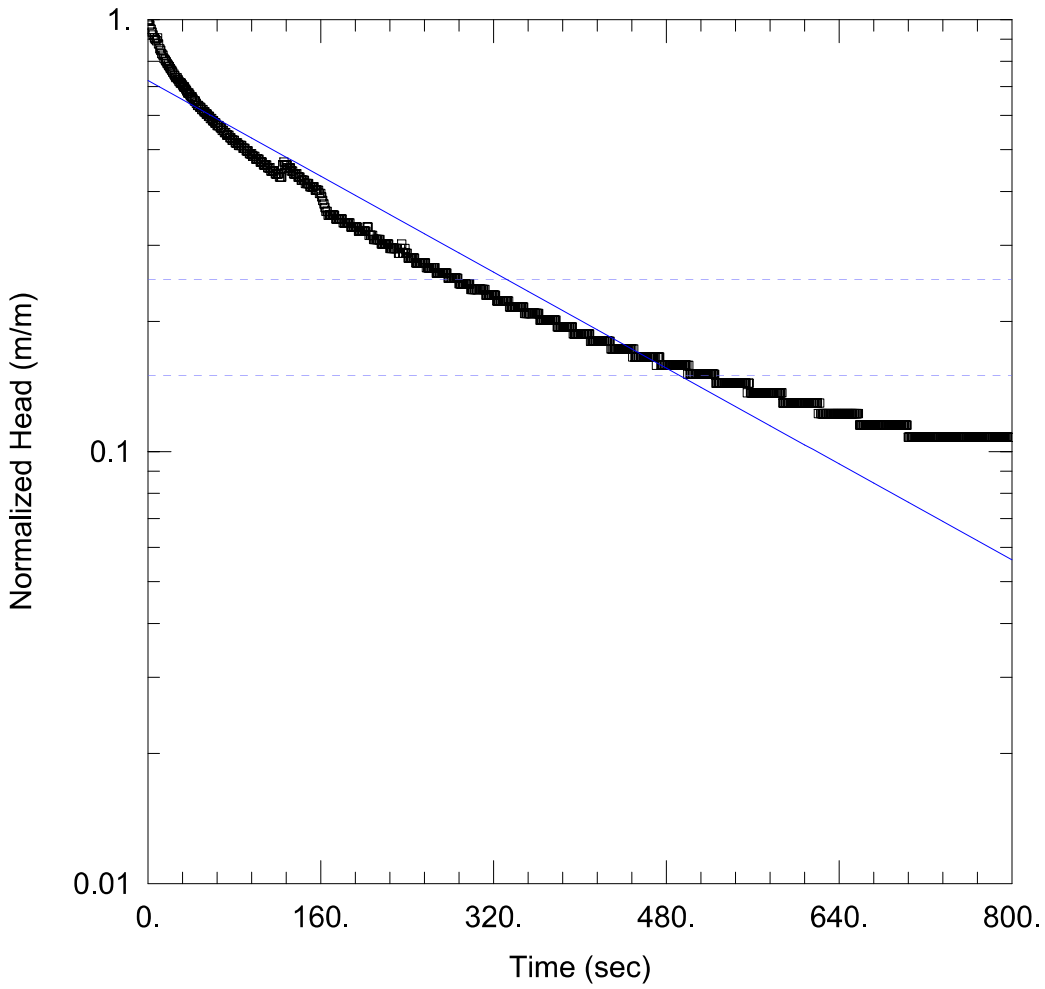
WELL DATA (BH 6)

Initial Displacement: 0.942 m
Total Well Penetration Depth: 4.192 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.192 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 3.643E-6 m/sec y0 = 0.67 m



SWRT BH 7 FALLING HEAD

Data Set: C:\...\BH 7 Falling.aqt
Date: 12/14/21 Time: 15:19:44

PROJECT INFORMATION

Company: EXP Services Inc
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13 John Street, Toronto
Test Well: BH 7
Test Date: December 3, 2021

AQUIFER DATA

Saturated Thickness: 3.198 m Anisotropy Ratio (Kz/Kr): 1.

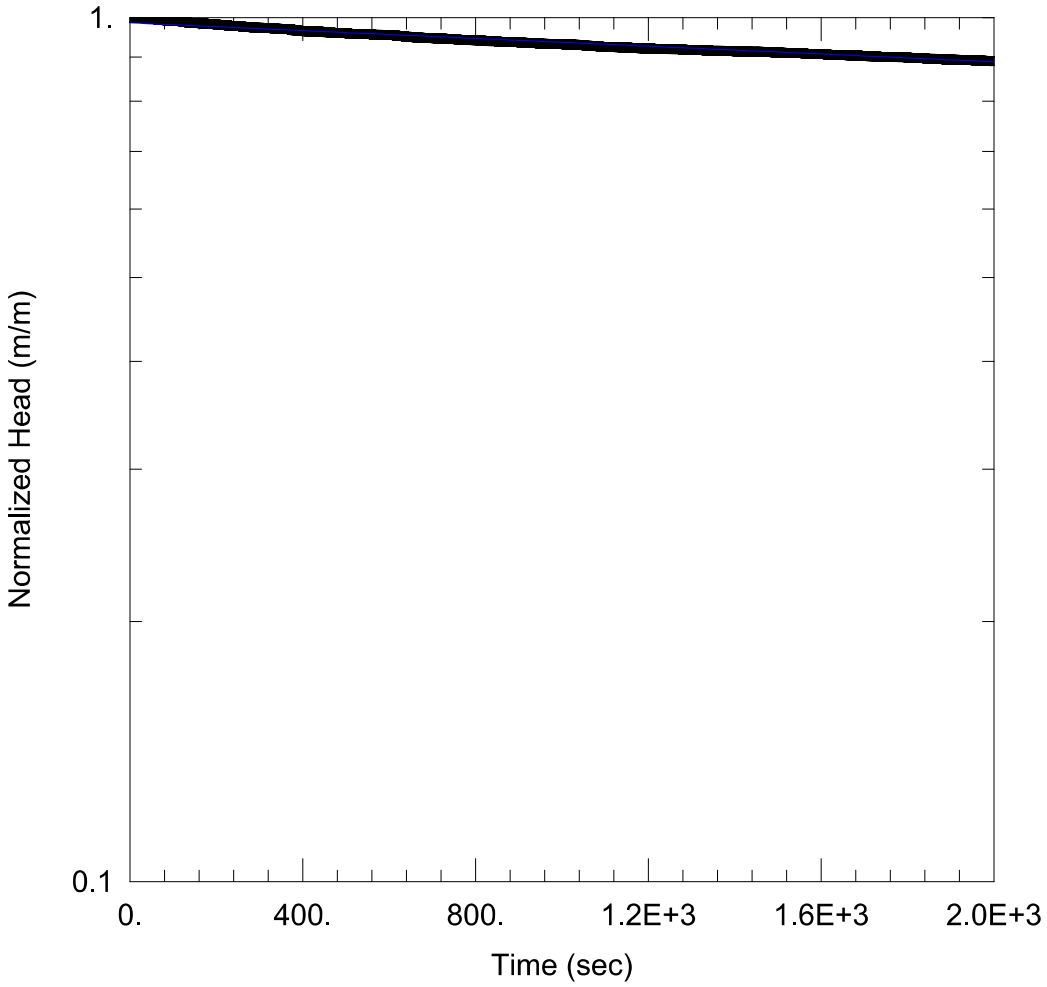
WELL DATA (BH 7)

Initial Displacement: 0.417 m
Total Well Penetration Depth: 3.198 m
Casing Radius: 0.0254 m
Static Water Column Height: 3.198 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Hvorslev

K = 1.5E-6 m/sec y0 = 0.3014 m



BH201 - FALLING HEAD

Data Set: I:\...\BH201.aqt
Date: 08/17/22 Time: 13:00:30

PROJECT INFORMATION

Company: EXP
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13-21 John St, Toronto
Test Well: BH201
Test Date: August 4, 2022

AQUIFER DATA

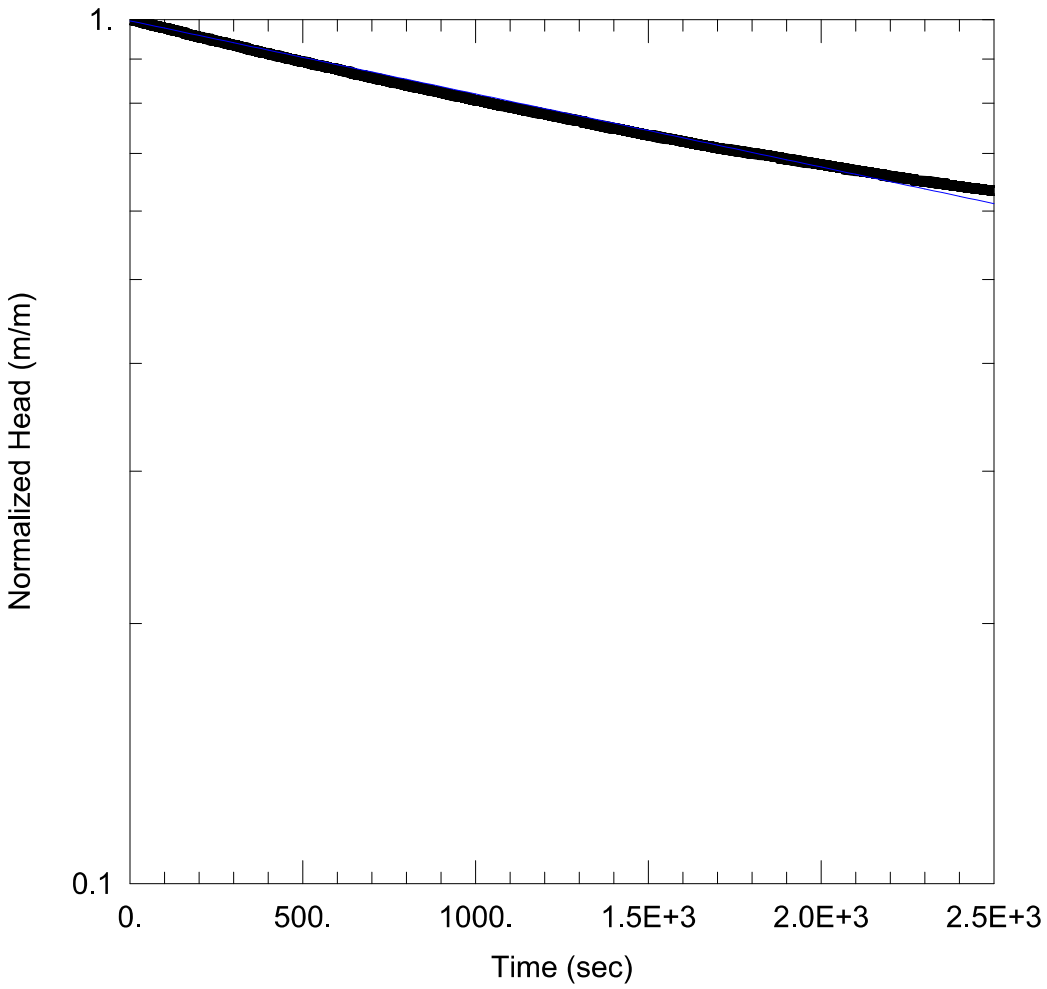
Saturated Thickness: 4.96 m
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH201)

Initial Displacement: 1.548 m
Total Well Penetration Depth: 4.96 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.96 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Confined
Solution Method: Hvorslev
K = 2.438E-8 m/sec
y0 = 1.526 m



BH202 - FALLING HEAD

Data Set: I:\...\BH202.aqt
Date: 08/17/22 Time: 13:02:44

PROJECT INFORMATION

Company: EXP
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13-21 John St, Toronto
Test Well: BH202
Test Date: August 4, 2022

AQUIFER DATA

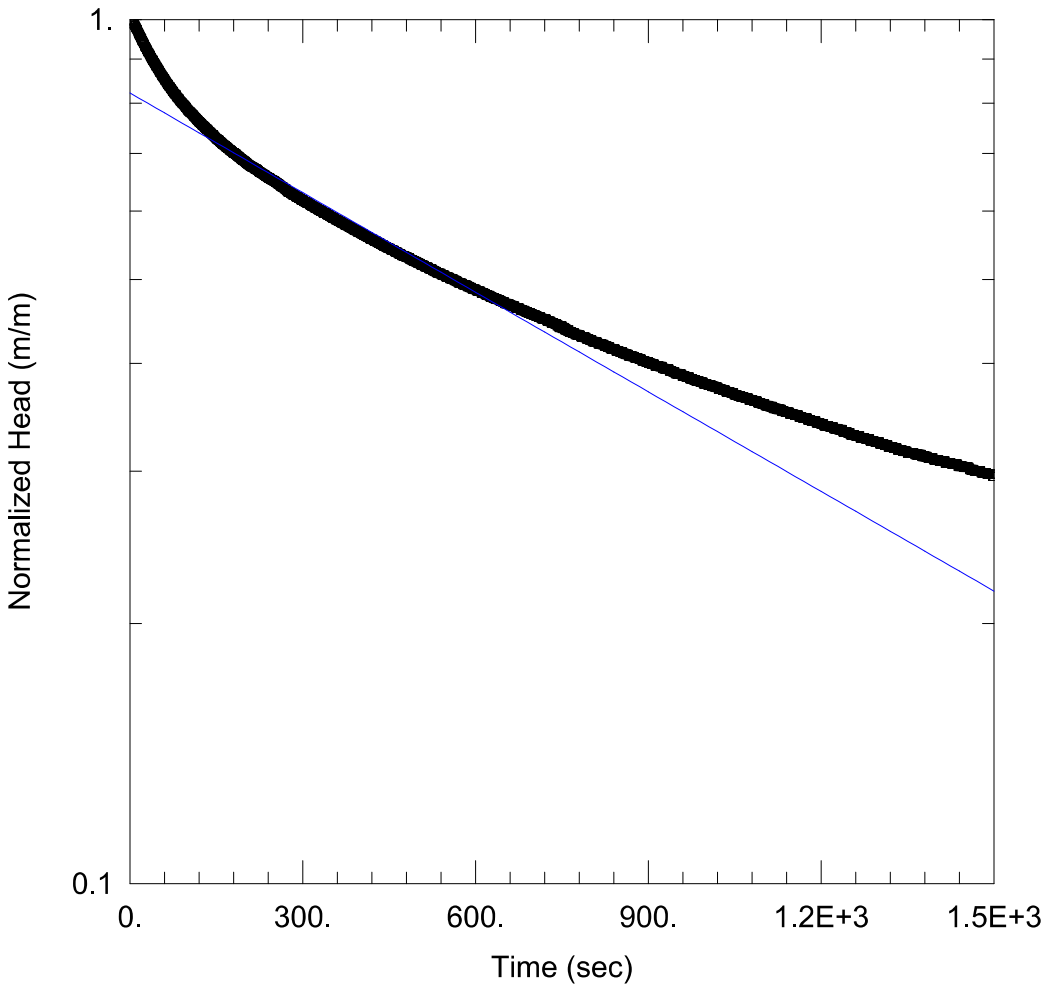
Saturated Thickness: 5.01 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH202)

Initial Displacement: 1.668 m Static Water Column Height: 5.01 m
Total Well Penetration Depth: 5.01 m Screen Length: 3. m
Casing Radius: 0.0254 m Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Confined Solution Method: Hvorslev
K = 9.148E-8 m/sec y0 = 1.662 m



BH 203 - FALLING HEAD TEST

Data Set: \...\BH 203_Falling Head.aqt
Date: 08/19/22 Time: 09:29:03

PROJECT INFORMATION

Company: EXP
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13-21 John St, Toronto
Test Well: BH203
Test Date: August 18, 2022

AQUIFER DATA

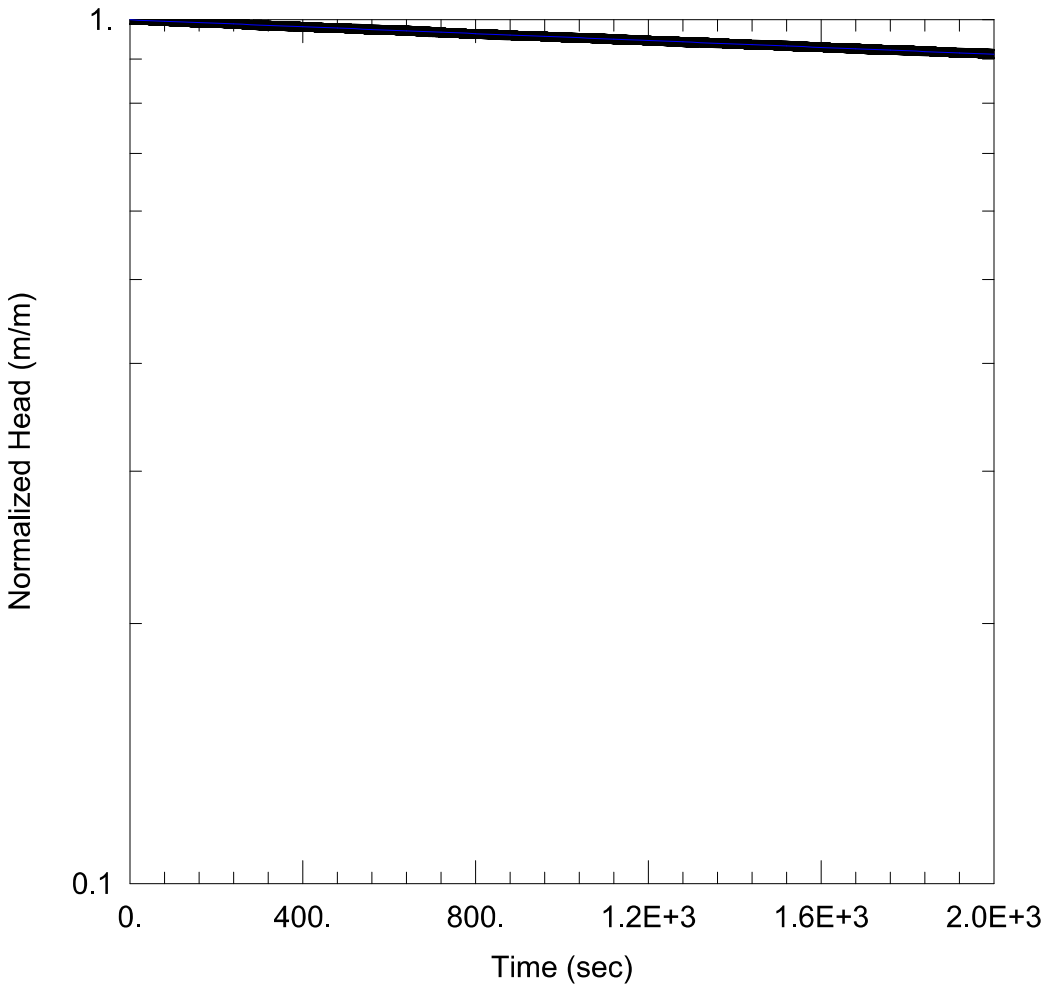
Saturated Thickness: 6.03 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH 203)

Initial Displacement: 1.125 m
Total Well Penetration Depth: 6.03 m
Casing Radius: 0.0254 m
Static Water Column Height: 6.03 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 3.495E-7 m/sec
y0 = 0.9249 m



BH204 - FALLING HEAD

Data Set: I:\...\BH204.aqt
Date: 08/17/22 Time: 13:05:18

PROJECT INFORMATION

Company: EXP
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13-21 John St, Toronto
Test Well: BH204
Test Date: August 4, 2022

AQUIFER DATA

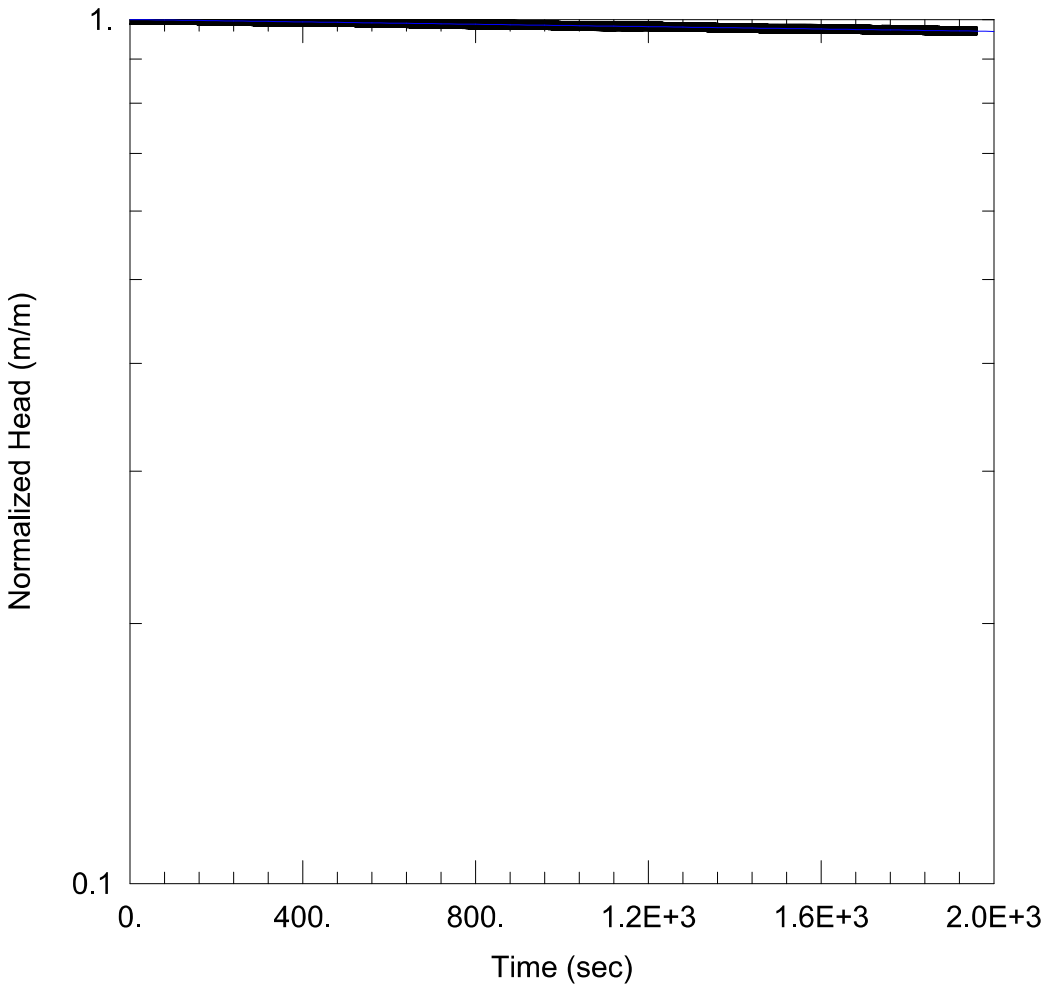
Saturated Thickness: 5.19 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH204)

Initial Displacement: 1.531 m Static Water Column Height: 5.19 m
Total Well Penetration Depth: 5.19 m Screen Length: 3. m
Casing Radius: 0.0254 m Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Confined Solution Method: Hvorslev
K = 1.815E-8 m/sec y0 = 1.53 m



BH205 - FALLING HEAD

Data Set: I:\...\BH205.aqt
Date: 08/17/22 Time: 13:05:59

PROJECT INFORMATION

Company: EXP
Client: Devron Developments
Project: BRM-21021990-A0
Location: 13-21 John St, Toronto
Test Well: BH205
Test Date: August 4, 2022

AQUIFER DATA

Saturated Thickness: 4.1 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH205)

Initial Displacement: 1.629 m
Total Well Penetration Depth: 4.1 m
Casing Radius: 0.0254 m
Static Water Column Height: 4.1 m
Screen Length: 3. m
Well Radius: 0.0762 m

SOLUTION

Aquifer Model: Confined
Solution Method: Hvorslev
K = 7.419E-9 m/sec
y0 = 1.629 m

Appendix E – Laboratory's Certificates of Analysis

Your P.O. #: ENV-BRM
Your Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your C.O.C. #: 886719-08-01

Attention: Francois Chartier

exp Services Inc
1595 Clark Blvd
Brampton, ON
CANADA L6T 4V1

Report Date: 2022/08/12
Report #: R7250797
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2L9821
Received: 2022/08/04, 19:30

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Sewer Use By-Law Semivolatile Organics	1	2022/08/05	2022/08/06	CAM SOP 00301	EPA 8270 m
Biochemical Oxygen Demand (BOD)	1	2022/08/05	2022/08/10	CAM SOP-00427	SM 23 5210B m
Chromium (VI) in Water	1	N/A	2022/08/09	CAM SOP-00436	EPA 7199 m
Total Cyanide	1	2022/08/08	2022/08/09	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2022/08/08	2022/08/10	CAM SOP-00449	SM 23 4500-F C m
Mercury in Water by CVAA	1	2022/08/08	2022/08/08	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	N/A	2022/08/09	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2022/08/04	CAM SOP-00552	MECP E3433
Total Nonylphenol in Liquids by HPLC	1	2022/08/10	2022/08/11	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2022/08/08	2022/08/09	CAM SOP-00313	In-house Method
Animal and Vegetable Oil and Grease	1	N/A	2022/08/10	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2022/08/10	2022/08/10	CAM SOP-00326	EPA1664B m,SM5520B m
Polychlorinated Biphenyl in Water	1	2022/08/08	2022/08/09	CAM SOP-00309	EPA 8082A m
pH	1	2022/08/08	2022/08/10	CAM SOP-00413	SM 4500H+ B m
Phenols (4AAP)	1	N/A	2022/08/10	CAM SOP-00444	OMOE E3179 m
Total Kjeldahl Nitrogen in Water	1	2022/08/09	2022/08/10	CAM SOP-00938	OMOE E3516 m
Total PAHs (1)	1	N/A	2022/08/07	CAM SOP - 00301	
Mineral/Synthetic O & G (TPH Heavy Oil) (2)	1	2022/08/10	2022/08/10	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2022/08/09	2022/08/10	CAM SOP-00428	SM 23 2540D m
Volatile Organic Compounds in Water	1	N/A	2022/08/08	CAM SOP-00228	EPA 8260C m

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, MELCC, 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

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Your P.O. #: ENV-BRM
Your Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your C.O.C. #: 886719-08-01

Attention: Francois Chartier

exp Services Inc
1595 Clark Blvd
Brampton, ON
CANADA L6T 4V1

Report Date: 2022/08/12
Report #: R7250797
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2L9821
Received: 2022/08/04, 19:30

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 your Project Manager.
Patricia Legette, Project Manager
Email: Patricia.Legette@bureauveritas.com
Phone# (905)817-5799
==========
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 Signature Page.

Bureau Veritas Job #: C2L9821
Report Date: 2022/08/12

exp Services Inc
Client Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your P.O. #: ENV-BRM
Sampler Initials: YR

TORONTO SANITARY&STORM SEWER (100-2016)

Bureau Veritas ID				TJA920		
Sampling Date				2022/08/04 13:00		
COC Number				886719-08-01		
	UNITS	Criteria	Criteria-2	BH 203	RDL	QC Batch
Calculated Parameters						
Total Animal/Vegetable Oil and Grease	mg/L	-	150	ND	0.50	8148726
Inorganics						
Total BOD	mg/L	15	300	ND	2	8149059
Fluoride (F-)	mg/L	-	10	1.3	0.10	8153263
Total Kjeldahl Nitrogen (TKN)	mg/L	-	100	3.8	0.10	8155157
pH	pH	6.0:9.5	6.0:11.5	8.23		8153271
Phenols-4AAP	mg/L	0.008	1.0	ND	0.0010	8158331
Total Suspended Solids	mg/L	15	350	**29**	10	8151625
Total Cyanide (CN)	mg/L	0.02	2	ND	0.0050	8153191
Petroleum Hydrocarbons						
Total Oil & Grease	mg/L	-	-	ND	0.50	8157596
Total Oil & Grease Mineral/Synthetic	mg/L	-	15	ND	0.50	8157600
Miscellaneous Parameters						
Nonylphenol Ethoxylate (Total)	mg/L	0.01	0.2	ND	0.005	8153846
Nonylphenol (Total)	mg/L	0.001	0.02	ND	0.001	8158747
Metals						
Chromium (VI)	ug/L	40	2000	ND	0.50	8155880
Mercury (Hg)	mg/L	0.0004	0.01	ND	0.00010	8152961
Total Aluminum (Al)	ug/L	-	50000	1400	4.9	8154965
Total Antimony (Sb)	ug/L	-	5000	2.4	0.50	8154965
Total Arsenic (As)	ug/L	20	1000	5.4	1.0	8154965
Total Cadmium (Cd)	ug/L	8	700	ND	0.090	8154965
Total Chromium (Cr)	ug/L	80	4000	ND	5.0	8154965
Total Cobalt (Co)	ug/L	-	5000	0.81	0.50	8154965
Total Copper (Cu)	ug/L	40	2000	1.8	0.90	8154965
Total Lead (Pb)	ug/L	120	1000	ND	0.50	8154965

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/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 Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

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

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Bureau Veritas Job #: C2L9821
Report Date: 2022/08/12

exp Services Inc
Client Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your P.O. #: ENV-BRM
Sampler Initials: YR

TORONTO SANITARY&STORM SEWER (100-2016)

Bureau Veritas ID				TJA920		
Sampling Date				2022/08/04 13:00		
COC Number				886719-08-01		
	UNITS	Criteria	Criteria-2	BH 203	RDL	QC Batch
Total Manganese (Mn)	ug/L	50	5000	**52**	2.0	8154965
Total Molybdenum (Mo)	ug/L	-	5000	16	0.50	8154965
Total Nickel (Ni)	ug/L	80	2000	1.8	1.0	8154965
Total Phosphorus (P)	ug/L	400	10000	ND	100	8154965
Total Selenium (Se)	ug/L	20	1000	ND	2.0	8154965
Total Silver (Ag)	ug/L	120	5000	ND	0.090	8154965
Total Tin (Sn)	ug/L	-	5000	ND	1.0	8154965
Total Titanium (Ti)	ug/L	-	5000	33	5.0	8154965
Total Zinc (Zn)	ug/L	40	2000	ND	5.0	8154965
Semivolatile Organics						
Di-N-butyl phthalate	ug/L	15	80	ND	2	8149948
Bis(2-ethylhexyl)phthalate	ug/L	8.8	12	ND	2	8149948
3,3'-Dichlorobenzidine	ug/L	0.8	2	ND	0.8	8149948
Pentachlorophenol	ug/L	2	5	ND	1	8149948
Phenanthrene	ug/L	-	-	ND	0.2	8149948
Anthracene	ug/L	-	-	ND	0.2	8149948
Fluoranthene	ug/L	-	-	ND	0.2	8149948
Pyrene	ug/L	-	-	ND	0.2	8149948
Benzo(a)anthracene	ug/L	-	-	ND	0.2	8149948
Chrysene	ug/L	-	-	ND	0.2	8149948
Benzo(b/j)fluoranthene	ug/L	-	-	ND	0.2	8149948
Benzo(k)fluoranthene	ug/L	-	-	ND	0.2	8149948
Benzo(a)pyrene	ug/L	-	-	ND	0.2	8149948
Indeno(1,2,3-cd)pyrene	ug/L	-	-	ND	0.2	8149948
Dibenzo(a,h)anthracene	ug/L	-	-	ND	0.2	8149948
Benzo(g,h,i)perylene	ug/L	-	-	ND	0.2	8149948
Dibenzo(a,i)pyrene	ug/L	-	-	ND	0.2	8149948

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/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 Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

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

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exp Services Inc
Client Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your P.O. #: ENV-BRM
Sampler Initials: YR

TORONTO SANITARY&STORM SEWER (100-2016)

Bureau Veritas ID				TJA920		
Sampling Date				2022/08/04 13:00		
COC Number				886719-08-01		
	UNITS	Criteria	Criteria-2	BH 203	RDL	QC Batch
Benzo(e)pyrene	ug/L	-	-	ND	0.2	8149948
Perylene	ug/L	-	-	ND	0.2	8149948
Dibenzo(a,j) acridine	ug/L	-	-	ND	0.4	8149948
7H-Dibenzo(c,g) Carbazole	ug/L	-	-	ND	0.4	8149948
1,6-Dinitropyrene	ug/L	-	-	ND	0.4	8149948
1,3-Dinitropyrene	ug/L	-	-	ND	0.4	8149948
1,8-Dinitropyrene	ug/L	-	-	ND	0.4	8149948
Calculated Parameters						
Total PAHs (18 PAHs)	ug/L	2	5	ND	1	8147802
Volatile Organics						
Benzene	ug/L	2	10	ND	0.40	8151007
Chloroform	ug/L	2	40	ND	0.40	8151007
1,2-Dichlorobenzene	ug/L	5.6	50	ND	0.80	8151007
1,4-Dichlorobenzene	ug/L	6.8	80	ND	0.80	8151007
cis-1,2-Dichloroethylene	ug/L	5.6	4000	ND	1.0	8151007
trans-1,3-Dichloropropene	ug/L	5.6	140	ND	0.80	8151007
Ethylbenzene	ug/L	2	160	ND	0.40	8151007
Methylene Chloride(Dichloromethane)	ug/L	5.2	2000	ND	4.0	8151007
1,1,2,2-Tetrachloroethane	ug/L	17	1400	ND	0.80	8151007
Tetrachloroethylene	ug/L	4.4	1000	ND	0.40	8151007
Toluene	ug/L	2	16	0.72	0.40	8151007
Trichloroethylene	ug/L	7.6	400	ND	0.40	8151007
p+m-Xylene	ug/L	-	-	ND	0.40	8151007
o-Xylene	ug/L	-	-	ND	0.40	8151007
Total Xylenes	ug/L	4.4	1400	ND	0.40	8151007
PCBs						
Total PCB	ug/L	0.4	1	ND	0.05	8153748

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/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 Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

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

exp Services Inc
Client Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
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TORONTO SANITARY&STORM SEWER (100-2016)

Bureau Veritas ID				TJA920		
Sampling Date				2022/08/04 13:00		
COC Number				886719-08-01		
	UNITS	Criteria	Criteria-2	BH 203	RDL	QC Batch
Microbiological						
Escherichia coli	CFU/100mL	200	-	<10	10	8148836
Surrogate Recovery (%)						
2,4,6-Tribromophenol	%	-	-	90		8149948
2-Fluorobiphenyl	%	-	-	76		8149948
D14-Terphenyl (FS)	%	-	-	90		8149948
D5-Nitrobenzene	%	-	-	84		8149948
D8-Acenaphthylene	%	-	-	82		8149948
Decachlorobiphenyl	%	-	-	71		8153748
4-Bromofluorobenzene	%	-	-	94		8151007
D4-1,2-Dichloroethane	%	-	-	119		8151007
D8-Toluene	%	-	-	89		8151007

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/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 Combined Sewers Discharge Guidelines. Referenced to the Chapter 681.

Bureau Veritas Job #: C2L9821
Report Date: 2022/08/12

exp Services Inc
Client Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your P.O. #: ENV-BRM
Sampler Initials: YR

TEST SUMMARY

Bureau Veritas ID: TJA920
Sample ID: BH 203
Matrix: Water

Collected: 2022/08/04
Shipped:
Received: 2022/08/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Sewer Use By-Law Semivolatile Organics	GC/MS	8149948	2022/08/05	2022/08/06	Adriana Zurita
Biochemical Oxygen Demand (BOD)	DO	8149059	2022/08/05	2022/08/10	Gurjot Kaur
Chromium (VI) in Water	IC	8155880	N/A	2022/08/09	Theodora Luck
Total Cyanide	SKAL/CN	8153191	2022/08/08	2022/08/09	Kruti Jitesh Patel
Fluoride	ISE	8153263	2022/08/08	2022/08/10	Kien Tran
Mercury in Water by CVAA	CV/AA	8152961	2022/08/08	2022/08/08	Jaswinder Kaur
Total Metals Analysis by ICPMS	ICP/MS	8154965	N/A	2022/08/09	Daniel Teclu
E.coli, (CFU/100mL)	PL	8148836	N/A	2022/08/04	Sonja Elavinamannil
Total Nonylphenol in Liquids by HPLC	LC/FLU	8158747	2022/08/10	2022/08/11	Dennis Boodram
Nonylphenol Ethoxylates in Liquids: HPLC	LC/FLU	8153846	2022/08/08	2022/08/09	Dennis Boodram
Animal and Vegetable Oil and Grease	BAL	8148726	N/A	2022/08/10	Automated Statchk
Total Oil and Grease	BAL	8157596	2022/08/10	2022/08/10	Maulik Jashubhai Patel
Polychlorinated Biphenyl in Water	GC/ECD	8153748	2022/08/08	2022/08/09	Svitlana Shaula
pH	AT	8153271	2022/08/08	2022/08/10	Kien Tran
Phenols (4AAP)	TECH/PHEN	8158331	N/A	2022/08/10	Mandeep Kaur
Total Kjeldahl Nitrogen in Water	SKAL	8155157	2022/08/09	2022/08/10	Rajni Tyagi
Total PAHs	CALC	8147802	N/A	2022/08/07	Automated Statchk
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	8157600	2022/08/10	2022/08/10	Maulik Jashubhai Patel
Total Suspended Solids	BAL	8151625	2022/08/09	2022/08/10	Shaneil Hall
Volatile Organic Compounds in Water	GC/MS	8151007	N/A	2022/08/08	Dina Wang

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GENERAL COMMENTS

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

Package 1	25.7°C

Sample TJA920 [BH 203] : VOC Analysis: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

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Bureau Veritas Job #: C2L9821
Report Date: 2022/08/12

QUALITY ASSURANCE REPORT

exp Services Inc
Client Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your P.O. #: ENV-BRM
Sampler Initials: YR

			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
8149948	2,4,6-Tribromophenol	2022/08/05	83	10 - 130	81	10 - 130	76	%				
8149948	2-Fluorobiphenyl	2022/08/05	77	30 - 130	68	30 - 130	71	%				
8149948	D14-Terphenyl (FS)	2022/08/05	89	30 - 130	84	30 - 130	97	%				
8149948	D5-Nitrobenzene	2022/08/05	81	30 - 130	81	30 - 130	82	%				
8149948	D8-Acenaphthylene	2022/08/05	77	30 - 130	72	30 - 130	75	%				
8151007	4-Bromofluorobenzene	2022/08/08	101	70 - 130	103	70 - 130	96	%				
8151007	D4-1,2-Dichloroethane	2022/08/08	111	70 - 130	111	70 - 130	117	%				
8151007	D8-Toluene	2022/08/08	104	70 - 130	104	70 - 130	90	%				
8153748	Decachlorobiphenyl	2022/08/09	105	60 - 130	75	60 - 130	84	%				
8149059	Total BOD	2022/08/10					ND,RDL=2	mg/L	NC	30	88	80 - 120
8149948	1,3-Dinitropyrene	2022/08/06	115	30 - 130	121	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8149948	1,6-Dinitropyrene	2022/08/06	109	30 - 130	113	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8149948	1,8-Dinitropyrene	2022/08/06	100	30 - 130	97	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8149948	3,3'-Dichlorobenzidine	2022/08/06	89	30 - 130	90	30 - 130	ND, RDL=0.8	ug/L	NC	40		
8149948	7H-Dibenzo(c,g) Carbazole	2022/08/06	106	30 - 130	108	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8149948	Anthracene	2022/08/06	84	30 - 130	86	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Benzo(a)anthracene	2022/08/06	89	30 - 130	89	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Benzo(a)pyrene	2022/08/06	88	30 - 130	92	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Benzo(b/j)fluoranthene	2022/08/06	90	30 - 130	94	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Benzo(e)pyrene	2022/08/06	88	30 - 130	92	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Benzo(g,h,i)perylene	2022/08/06	79	30 - 130	84	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Benzo(k)fluoranthene	2022/08/06	93	30 - 130	94	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Bis(2-ethylhexyl)phthalate	2022/08/06	78	30 - 130	78	30 - 130	ND,RDL=2	ug/L	NC	40		
8149948	Chrysene	2022/08/06	89	30 - 130	89	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Dibenzo(a,h)anthracene	2022/08/06	79	30 - 130	83	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Dibenzo(a,i)pyrene	2022/08/06	65	30 - 130	65	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Dibenzo(a,j) acridine	2022/08/06	102	30 - 130	114	30 - 130	ND, RDL=0.4	ug/L	NC	40		
8149948	Di-N-butyl phthalate	2022/08/06	88	30 - 130	92	30 - 130	ND,RDL=2	ug/L	NC	40		
8149948	Fluoranthene	2022/08/06	91	30 - 130	93	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Indeno(1,2,3-cd)pyrene	2022/08/06	80	30 - 130	87	30 - 130	ND, RDL=0.2	ug/L	NC	40		

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QUALITY ASSURANCE REPORT(CONT'D)

			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
8149948	Pentachlorophenol	2022/08/06	49	30 - 130	63	30 - 130	ND,RDL=1	ug/L	NC	40		
8149948	Perylene	2022/08/06	86	30 - 130	86	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Phenanthrene	2022/08/06	84	30 - 130	85	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8149948	Pyrene	2022/08/06	92	30 - 130	93	30 - 130	ND, RDL=0.2	ug/L	NC	40		
8151007	1,1,2,2-Tetrachloroethane	2022/08/08	106	70 - 130	106	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8151007	1,2-Dichlorobenzene	2022/08/08	96	70 - 130	95	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8151007	1,4-Dichlorobenzene	2022/08/08	107	70 - 130	105	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8151007	Benzene	2022/08/08	98	70 - 130	98	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8151007	Chloroform	2022/08/08	104	70 - 130	104	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8151007	cis-1,2-Dichloroethylene	2022/08/08	109	70 - 130	107	70 - 130	ND, RDL=0.50	ug/L	1.4	30		
8151007	Ethylbenzene	2022/08/08	87	70 - 130	88	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8151007	Methylene Chloride(Dichloromethane)	2022/08/08	108	70 - 130	108	70 - 130	ND, RDL=2.0	ug/L	NC	30		
8151007	o-Xylene	2022/08/08	87	70 - 130	92	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8151007	p+m-Xylene	2022/08/08	93	70 - 130	95	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8151007	Tetrachloroethylene	2022/08/08	NC	70 - 130	91	70 - 130	ND, RDL=0.20	ug/L	0.76	30		
8151007	Toluene	2022/08/08	97	70 - 130	98	70 - 130	ND, RDL=0.20	ug/L	NC	30		
8151007	Total Xylenes	2022/08/08					ND, RDL=0.20	ug/L	NC	30		
8151007	trans-1,3-Dichloropropene	2022/08/08	100	70 - 130	108	70 - 130	ND, RDL=0.40	ug/L	NC	30		
8151007	Trichloroethylene	2022/08/08	105	70 - 130	105	70 - 130	ND, RDL=0.20	ug/L	1.3	30		
8151625	Total Suspended Solids	2022/08/10					ND, RDL=10	mg/L	0.36	25	98	85 - 115
8152961	Mercury (Hg)	2022/08/08	96	75 - 125	96	80 - 120	ND, RDL=0.00010	mg/L	NC	20		
8153191	Total Cyanide (CN)	2022/08/08	97	80 - 120	99	80 - 120	ND, RDL=0.0050	mg/L	NC	20		
8153263	Fluoride (F-)	2022/08/10	106	80 - 120	106	80 - 120	ND, RDL=0.10	mg/L	6.6	20		
8153271	pH	2022/08/10			102	98 - 103			0.66	N/A		
8153748	Total PCB	2022/08/09	103	60 - 130	84	60 - 130	ND, RDL=0.05	ug/L	NC	40		
8153846	Nonylphenol Ethoxylate (Total)	2022/08/09	83	50 - 130	98	50 - 130	ND, RDL=0.005	mg/L	NC	40		
8154965	Total Aluminum (Al)	2022/08/09	103	80 - 120	101	80 - 120	ND, RDL=4.9	ug/L	6.4	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			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
8154965	Total Antimony (Sb)	2022/08/09	104	80 - 120	104	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8154965	Total Arsenic (As)	2022/08/09	99	80 - 120	99	80 - 120	ND, RDL=1.0	ug/L	4.3	20		
8154965	Total Cadmium (Cd)	2022/08/09	99	80 - 120	99	80 - 120	ND, RDL=0.090	ug/L	NC	20		
8154965	Total Chromium (Cr)	2022/08/09	97	80 - 120	95	80 - 120	ND, RDL=5.0	ug/L	NC	20		
8154965	Total Cobalt (Co)	2022/08/09	96	80 - 120	97	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8154965	Total Copper (Cu)	2022/08/09	97	80 - 120	98	80 - 120	ND, RDL=0.90	ug/L	6.3	20		
8154965	Total Lead (Pb)	2022/08/09	96	80 - 120	96	80 - 120	ND, RDL=0.50	ug/L	3.7	20		
8154965	Total Manganese (Mn)	2022/08/09	96	80 - 120	98	80 - 120	ND, RDL=2.0	ug/L	5.3	20		
8154965	Total Molybdenum (Mo)	2022/08/09	97	80 - 120	95	80 - 120	ND, RDL=0.50	ug/L	1.5	20		
8154965	Total Nickel (Ni)	2022/08/09	99	80 - 120	97	80 - 120	ND, RDL=1.0	ug/L	NC	20		
8154965	Total Phosphorus (P)	2022/08/09	103	80 - 120	96	80 - 120	ND, RDL=100	ug/L	NC	20		
8154965	Total Selenium (Se)	2022/08/09	102	80 - 120	104	80 - 120	ND, RDL=2.0	ug/L	NC	20		
8154965	Total Silver (Ag)	2022/08/09	93	80 - 120	94	80 - 120	ND, RDL=0.090	ug/L	NC	20		
8154965	Total Tin (Sn)	2022/08/09	103	80 - 120	101	80 - 120	ND, RDL=1.0	ug/L	NC	20		
8154965	Total Titanium (Ti)	2022/08/09	95	80 - 120	98	80 - 120	ND, RDL=5.0	ug/L	NC	20		
8154965	Total Zinc (Zn)	2022/08/09	98	80 - 120	99	80 - 120	ND, RDL=5.0	ug/L	NC	20		
8155157	Total Kjeldahl Nitrogen (TKN)	2022/08/10	109	80 - 120	100	80 - 120	ND, RDL=0.10	mg/L	0	20	102	80 - 120
8155880	Chromium (VI)	2022/08/09	101	80 - 120	100	80 - 120	ND, RDL=0.50	ug/L	NC	20		
8157596	Total Oil & Grease	2022/08/10			99	85 - 115	ND, RDL=0.50	mg/L	0.25	25		
8157600	Total Oil & Grease Mineral/Synthetic	2022/08/10			96	85 - 115	ND, RDL=0.50	mg/L	0.52	25		
8158331	Phenols-4AAP	2022/08/10	100	80 - 120	99	80 - 120	ND, RDL=0.0010	mg/L	12	20		

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QUALITY ASSURANCE REPORT(CONT'D)

			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
8158747	Nonylphenol (Total)	2022/08/11	116	50 - 130	98	50 - 130	ND, RDL=0.001	mg/L	NC	40		

N/A = Not Applicable

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: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction 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).

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Bureau Veritas Job #: C2L9821
Report Date: 2022/08/12

exp Services Inc
Client Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your P.O. #: ENV-BRM
Sampler Initials: YR

VALIDATION SIGNATURE PAGE

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

Cristina Carriere, Senior Scientific Specialist

Sonja Elavinamannil, Master of Biochemistry, Team Lead

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 Signature Page.

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MICRO

Bureau Veritas
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CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#30554 exp Services Inc	Company Name:	EXP Services Inc	Quotation #:	C20374	Bureau Veritas Job #:	Bottle Order #:
Attention:	Accounts Payable	Attention:	Francois Chartier	P.O. #:	ENV-BRM STREAM 2		886719
Address:	1595 Clark Blvd	Address:	yogiraj.singh.rana@exp.com	Project:	BRM-21021990-A0	COC #:	Project Manager:
	Brampton ON L6T 4V1		Jay.Samarakkody@exp.com	Project Name:	13 John St, TORONTO	C#886719-08-01	Patricia Legette
Tel:	(905) 793-9800 Fax: (905) 793-0641	Tel:	(905) 793-9800 Ext: 2523 Fax:	Site #:			
Email:	AP@exp.com; Karen.Burke@exp.com	Email:	Francois.Chartier@exp.com	Sampled By:	Yogiraj Rana		

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☐ Res/Park ☐ Medium/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☑ Sanitary Sewer Bylaw
- ☐ Reg 558. ☑ Storm Sewer Bylaw
- ☐ MISA Municipality TORONTO
- ☐ PWQO ☐ Reg 406 Table ___
- ☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? Y

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Toronto Sanitary&Storm Sewer (100-2016)	# of Bottles	Comments
1		BH 203	22/08/04	1 PM	GW	N	✓	19	Please Provide COC
2									with Report
3									5 Day Firm TAT
4									
5									
6									
7									
8									
9									
10									

04-Aug-22 19:30
Patricia Legette
C2L9821
URE ENV-1317

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Yogiraj Rana	22/08/04	7:30PM	DIPIVA SINGH	2022/08/04	19:30	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	24/27/26	Present		
		Intact	✓	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

onice

Bureau Veritas Job #: C2L9821
Report Date: 2022/08/12

exp Services Inc
Client Project #: BRM-21021990-A0
Site Location: 13 JOHN ST, TORONTO, ON
Your P.O. #: ENV-BRM
Sampler Initials: YR

Exceedance Summary Table – Toronto Storm Sewer

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BH 203	TJA920-09	Total Manganese (Mn)	50	52	2.0	ug/L
BH 203	TJA920-06	Total Suspended Solids	15	29	10	mg/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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 guidelines.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

AGAT Laboratories

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

CLIENT NAME: EXP SERVICES INC
1595 CLARK BLVD.
BRAMPTON, ON L6T4V1
(905) 793-9809

ATTENTION TO: Jay Samarakkody

PROJECT: BRM-21021990-A0

AGAT WORK ORDER: 21T837512

MICROBIOLOGY ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

TRACE ORGANICS REVIEWED BY: Inga Kuzmina, Trace Organics Lab Manager

ULTRA TRACE REVIEWED BY: Emmanuelle St-Pierre, chimiste

WATER ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

DATE REPORTED: Dec 14, 2021

PAGES (INCLUDING COVER): 17

VERSION*: 1

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

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *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.*

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Certificate of Analysis

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

E. Coli (Using MI Agar)

DATE RECEIVED: 2021-11-30 **DATE REPORTED: 2021-12-14**

				SAMPLE DESCRIPTION:	BH7
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2021-11-30 12:00
Parameter	**Unit**	**G / S**	**RDL**	**3272934**	
Escherichia coli	CFU/100mL	200		0	

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

3272934 Escherichia coli, Total Coliforms RDL = 1 CFU/100mL.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

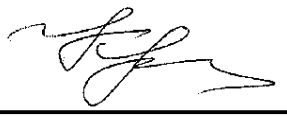
Toronto Sanitary and Combined Sewer Use By-law - Organic

DATE RECEIVED: 2021-11-30

DATE REPORTED: 2021-12-14

				SAMPLE DESCRIPTION:	BH7
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2021-11-30 12:00
Parameter	Unit	G / S: A	G / S: B	RDL	3272934
Oil and Grease (animal/vegetable) in water	mg/L	150		0.5	<0.5
Oil and Grease (mineral) in water	mg/L	15		0.5	<0.5
Methylene Chloride	mg/L	2	0.0052	0.0003	<0.0003
trans-1,3-Dichloropropylene	mg/L	0.14	0.0056	0.0003	<0.0003
cis-1,2-Dichloroethylene	mg/L	4	0.0056	0.0002	<0.0002
Chloroform	mg/L	0.04	0.002	0.0002	<0.0002
Benzene	mg/L	0.01	0.002	0.0002	<0.0002
Tetrachloroethylene	mg/L	1	0.0044	0.0001	<0.0001
Toluene	mg/L	0.016	0.002	0.0002	<0.0002
Trichloroethlyene	mg/L	0.4	0.0076	0.0002	<0.0002
Ethylbenzene	mg/L	0.16	0.002	0.0001	<0.0001
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017	0.0001	<0.0001
1,2-Dichlorobenzene	mg/L	0.05	0.0056	0.0001	<0.0001
1,4-Dichlorobenzene	mg/L	0.08	0.0068	0.0001	<0.0001
m & p-Xylene	mg/L			0.0002	0.0003
o-Xylene	mg/L			0.0001	<0.0001
Xylenes (Total)	mg/L	1.4	0.0044	0.0002	0.0003[<B]
PCBs	mg/L	0.001	0.0004	0.0002	<0.0002
Pentachlorophenol	mg/L	0.005	0.002	0.0001	<0.0001
Di-n-butyl phthalate	mg/L	0.08	0.015	0.0005	<0.0005
3,3'-Dichlorobenzidine	mg/L	0.002	0.0008	0.0005	<0.0005
Bis(2-Ethylhexyl)phthalate	mg/L	0.012	0.0088	0.0005	<0.0005
Total PAHs	mg/L	0.005	0.002	0.00030	<0.00030

Certified By:



AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

Toronto Sanitary and Combined Sewer Use By-law - Organic

DATE RECEIVED: 2021-11-30

DATE REPORTED: 2021-12-14

		SAMPLE DESCRIPTION:	**BH7**
		SAMPLE TYPE:	**Water**
		DATE SAMPLED:	**2021-11-30 12:00**
Surrogate	**Unit**	**Acceptable Limits**	**3272934**
Toluene-d8	% Recovery	50-140	77
4-Bromofluorobenzene	% Recovery	50-140	89
Decachlorobiphenyl	%	50-140	104
2,4,6-Tribromophenol	%	50-140	105
2-Fluorophenol	%	50-140	98
Chrysene-d12	%	50-140	88
phenol-d6 surrogate	%	50-140	90

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.

3272934 Oil and Grease animal/vegetable is a calculated parameter. The calculated value is the difference between Total O&G and Mineral O&G.
Total PAHs is calculated as sum of Anthracene, Benzo(a)pyrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Perylene, Phenanthrene and Pyrene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)

DATE RECEIVED: 2021-11-30

DATE REPORTED: 2021-12-14

				SAMPLE DESCRIPTION:	BH7
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2021-11-30 12:00
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**	**3272934**
Total Nonylphenol	mg/L	0.001	0.02	0.001	<0.001
NP1EO	mg/L			0.001	<0.001
NP2EO	mg/L			0.0003	<0.0003
Total Nonylphenol Ethoxylates	mg/L	0.01	0.2	0.001	<0.001

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

Certified By:

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

BOD5

DATE RECEIVED: 2021-11-30

DATE REPORTED: 2021-12-14

				SAMPLE DESCRIPTION:	**BH7**
				SAMPLE TYPE:	**Water**
				DATE SAMPLED:	**2021-11-30 12:00**
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**	**3272934**
Biochemical Oxygen Demand, Total	mg/L	15	300	2.00	<2.00

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

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO CHARTERED NIVINE BASILY CHEMIST

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

Toronto Sanitary and Combined Sewer Use By-law - Inorganics

DATE RECEIVED: 2021-11-30

DATE REPORTED: 2021-12-14

				SAMPLE DESCRIPTION:	**BH7**
				SAMPLE TYPE:	**Water**
				DATE SAMPLED:	**2021-11-30 12:00**
Parameter	**Unit**	**G / S: A**	**G / S: B**	**RDL**	**3272934**
pH	pH Units	6.0-11.5	6.0-9.5	NA	7.42
Fluoride	mg/L	10		0.05	<0.05
Total Kjeldahl Nitrogen	mg/L	100		0.10	1.65[<A]
Total Phosphorus	mg/L	10	0.4	0.02	0.04[<B]
Total Cyanide	mg/L	2	0.02	0.002	<0.002
Phenols	mg/L	1.0	0.008	0.001	0.006[<B]
Total Suspended Solids	mg/L	350	15	10	46[B-A]
Total Aluminum	mg/L	50		0.010	0.858[<A]
Total Antimony	mg/L	5		0.020	<0.020
Total Arsenic	mg/L	1	0.02	0.015	<0.015
Total Cadmium	mg/L	0.7	0.008	0.005	<0.005
Total Chromium	mg/L	4	0.08	0.020	<0.020
Chromium VI	mg/L	2	0.04	0.002	<0.002
Total Cobalt	mg/L	5		0.010	<0.010
Total Copper	mg/L	2	0.04	0.020	<0.020
Total Lead	mg/L	1	0.12	0.020	<0.020
Total Manganese	mg/L	5	0.05	0.020	1.64[B-A]
Total Mercury	mg/L	0.01	0.0004	0.0002	<0.0002
Total Molybdenum	mg/L	5		0.020	<0.020
Total Nickel	mg/L	2	0.08	0.030	<0.030
Total Selenium	mg/L	1	0.02	0.002	<0.002
Total Silver	mg/L	5	0.12	0.020	<0.020
Total Tin	mg/L	5		0.020	<0.020
Total Titanium	mg/L	5		0.010	0.019[<A]
Total Zinc	mg/L	2	0.04	0.020	<0.020

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:

AGAT Laboratories

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Exceedance Summary

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

CLIENT NAME: EXP SERVICES INC

ATTENTION TO: Jay Samarakkody

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
3272934	BH7	ON Toronto SM	Toronto Sanitary and Combined Sewer Use By-law - Inorganics	Total Manganese	mg/L	0.05	1.64
3272934	BH7	ON Toronto SM	Toronto Sanitary and Combined Sewer Use By-law - Inorganics	Total Suspended Solids	mg/L	15	46

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Quality Assurance

CLIENT NAME: EXP SERVICES INC
PROJECT: BRM-21021990-A0
SAMPLING SITE:John St. and Station St.

AGAT WORK ORDER: 21T837512
ATTENTION TO: Jay Samarakkody
SAMPLED BY:M.L.

Microbiology Analysis

RPT Date: Dec 14, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
E. Coli (Using MI Agar)															
Escherichia coli	3272917		0	0	NA										

Comments: NA - % RPD Not Applicable.

Certified By:

AGAT Laboratories

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Quality Assurance

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

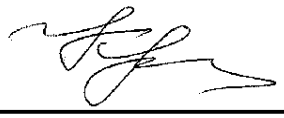
SAMPLED BY:M.L.

Trace Organics Analysis

RPT Date: Dec 14, 2021			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Toronto Sanitary and Combined Sewer Use By-law - Organic															
Oil and Grease (animal/vegetable) in water	3277280		< 0.5	< 0.5	NA	< 0.5	100%	70%	130%	103%	70%	130%	108%	70%	130%
Oil and Grease (mineral) in water	3277280		< 0.5	< 0.5	NA	< 0.5	84%	70%	130%	85%	70%	130%	83%	70%	130%
Methylene Chloride	3268783		<0.0003	<0.0003	NA	< 0.0003	120%	50%	140%	114%	60%	130%	118%	50%	140%
trans-1,3-Dichloropropylene	3268783		<0.0003	<0.0003	NA	< 0.0003	93%	50%	140%	108%	60%	130%	88%	50%	140%
cis-1,2-Dichloroethylene	3268783		<0.0002	<0.0002	NA	< 0.0002	95%	50%	140%	105%	60%	130%	112%	50%	140%
Chloroform	3268783		<0.0002	<0.0002	NA	< 0.0002	83%	50%	140%	81%	60%	130%	110%	50%	140%
Benzene	3268783		<0.0002	<0.0002	NA	< 0.0002	81%	50%	140%	76%	60%	130%	101%	50%	140%
Tetrachloroethylene	3268783		<0.0001	<0.0001	NA	< 0.0001	104%	50%	140%	109%	60%	130%	88%	50%	140%
Toluene	3268783		<0.0002	<0.0002	NA	< 0.0002	105%	50%	140%	80%	60%	130%	81%	50%	140%
Trichloroethlyene	3268783		<0.0002	<0.0002	NA	< 0.0002	119%	50%	140%	105%	60%	130%	91%	50%	140%
Ethylbenzene	3268783		<0.0001	<0.0001	NA	< 0.0001	92%	50%	140%	86%	60%	130%	113%	50%	140%
1,1,2,2-Tetrachloroethane	3268783		<0.0001	<0.0001	NA	< 0.0001	112%	50%	140%	119%	60%	130%	108%	50%	140%
1,2-Dichlorobenzene	3268783		<0.0001	<0.0001	NA	< 0.0001	118%	50%	140%	96%	60%	130%	104%	50%	140%
1,4-Dichlorobenzene	3268783		<0.0001	<0.0001	NA	< 0.0001	106%	50%	140%	101%	60%	130%	83%	50%	140%
m & p-Xylene	3268783		<0.0002	<0.0002	NA	< 0.0002	106%	50%	140%	102%	60%	130%	109%	50%	140%
o-Xylene	3268783		<0.0001	<0.0001	NA	< 0.0001	105%	50%	140%	108%	60%	130%	100%	50%	140%
PCBs	3278382		< 0.0002	< 0.0002	NA	< 0.0002	95%	50%	140%	92%	50%	140%	85%	50%	140%
Pentachlorophenol	3222492		< 0.0005	< 0.0005	NA	< 0.0001	95%	50%	140%	73%	50%	140%	93%	50%	140%
Di-n-butyl phthalate	3222492		< 0.0005	< 0.0005	NA	< 0.0005	78%	50%	140%	75%	50%	140%	105%	50%	140%
3,3'-Dichlorobenzidine	3222492		< 0.0005	< 0.0005	NA	< 0.0005	96%	30%	130%	96%	30%	130%	86%	30%	130%
Bis(2-Ethylhexyl)phthalate	3222492		< 0.0005	< 0.0005	NA	< 0.0005	105%	50%	140%	90%	50%	140%	98%	50%	140%

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

Certified By:



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http://www.agatlabs.com

Quality Assurance

CLIENT NAME: EXP SERVICES INC
PROJECT: BRM-21021990-A0
SAMPLING SITE:John St. and Station St.

AGAT WORK ORDER: 21T837512
ATTENTION TO: Jay Samarakkody
SAMPLED BY:M.L.

Ultra Trace Analysis

RPT Date: Dec 14, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Nonylphenol and Nonylphenol Ethoxylates (Ontario, mg/L)															
Total Nonylphenol	1	3281779	< 0.001	< 0.001	NA	< 0.001	NA	60%	140%	91%	60%	140%	NA	60%	140%
NP1EO	1	3281779	< 0.001	< 0.001	NA	< 0.001	NA	60%	140%	75%	60%	140%	NA	60%	140%
NP2EO	1	3281779	< 0.0003	< 0.0003	NA	< 0.0003	NA	60%	140%	67%	60%	140%	NA	60%	140%

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
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CANADA L4Z 1Y2
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Quality Assurance

CLIENT NAME: EXP SERVICES INC

PROJECT: BRM-21021990-A0

SAMPLING SITE:John St. and Station St.

AGAT WORK ORDER: 21T837512

ATTENTION TO: Jay Samarakkody

SAMPLED BY:M.L.

Water Analysis

RPT Date: Dec 14, 2021			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Toronto Sanitary and Combined Sewer Use By-law - Inorganics															
pH	3271799		7.65	7.71	0.8%	NA	101%	90%	110%						
Fluoride	3274669		<0.05	<0.05	NA	< 0.05	102%	70%	130%	104%	80%	120%	114%	70%	130%
Total Kjeldahl Nitrogen	3272934	3272934	1.65	1.79	8.1%	< 0.10	100%	70%	130%	100%	80%	120%	104%	70%	130%
Total Phosphorus	3272934	3272934	0.04	0.05	NA	< 0.02	102%	70%	130%	98%	80%	120%	102%	70%	130%
Total Cyanide	3252346		<0.002	<0.002	NA	< 0.002	109%	70%	130%	106%	80%	120%	104%	70%	130%
Phenols	3257568		<0.001	0.004	NA	< 0.001	106%	90%	110%	97%	90%	110%	NA	80%	120%
Total Suspended Solids	3275835		<10	<10	NA	< 10	98%	80%	120%						
Total Aluminum	3269822		0.022	0.015	NA	< 0.010	96%	70%	130%	102%	80%	120%	101%	70%	130%
Total Antimony	3269822		<0.020	<0.020	NA	< 0.020	103%	70%	130%	99%	80%	120%	104%	70%	130%
Total Arsenic	3269822		<0.015	<0.015	NA	< 0.015	98%	70%	130%	106%	80%	120%	106%	70%	130%
Total Cadmium	3269822		<0.005	<0.005	NA	< 0.005	101%	70%	130%	101%	80%	120%	106%	70%	130%
Total Chromium	3269822		<0.020	<0.020	NA	< 0.020	101%	70%	130%	102%	80%	120%	99%	70%	130%
Chromium VI	3291576		<0.002	<0.002	NA	< 0.002	102%	70%	130%	103%	80%	120%	111%	70%	130%
Total Cobalt	3269822		<0.010	<0.010	NA	< 0.010	104%	70%	130%	102%	80%	120%	100%	70%	130%
Total Copper	3269822		0.031	0.036	NA	< 0.020	103%	70%	130%	100%	80%	120%	105%	70%	130%
Total Lead	3269822		<0.020	<0.020	NA	< 0.020	99%	70%	130%	100%	80%	120%	102%	70%	130%
Total Manganese	3269822		<0.020	<0.020	NA	< 0.020	104%	70%	130%	100%	80%	120%	104%	70%	130%
Total Mercury	3274658		<0.0002	<0.0002	NA	< 0.0002	102%	70%	130%	99%	80%	120%	100%	70%	130%
Total Molybdenum	3269822		<0.020	<0.020	NA	< 0.020	107%	70%	130%	104%	80%	120%	110%	70%	130%
Total Nickel	3269822		<0.030	<0.030	NA	< 0.030	104%	70%	130%	103%	80%	120%	102%	70%	130%
Total Selenium	3269822		<0.002	<0.002	NA	< 0.002	99%	70%	130%	106%	80%	120%	108%	70%	130%
Total Silver	3269822		<0.020	<0.020	NA	< 0.020	101%	70%	130%	103%	80%	120%	104%	70%	130%
Total Tin	3269822		<0.020	<0.020	NA	< 0.020	103%	70%	130%	100%	80%	120%	104%	70%	130%
Total Titanium	3269822		<0.010	<0.010	NA	< 0.010	101%	70%	130%	90%	80%	120%	93%	70%	130%
Total Zinc	3269822		<0.020	<0.020	NA	< 0.020	105%	70%	130%	107%	80%	120%	115%	70%	130%

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

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

BOD5

Biochemical Oxygen Demand, Total	3269718	91.0	94.0	3.2%	< 2	89%	70%	130%	

Certified By:

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Method Summary

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Microbiology Analysis			
Escherichia coli	MIC-93-7010	EPA 1604	Membrane Filtration

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Method Summary

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 21T837512

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ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
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	modified from EPA SW-846 5230B & 8260D	(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
m & p-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5001	modified from EPA 5030B & EPA 8260D	CALCULATION
Toluene-d8	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
PCBs	ORG-91-5112	modified from EPA SW-846 3510C & 8082A	GC/ECD
Decachlorobiphenyl	ORG-91-5112	modified from EPA SW846 3510C & 8082A	GC/ECD
Pentachlorophenol	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Di-n-butyl phthalate	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
3,3'-Dichlorobenzidine	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Bis(2-Ethylhexyl)phthalate	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Total PAHs	ORG-91-5114	modified from EPA 3510C and EPA 8270E	CALCULATION
2,4,6-Tribromophenol	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
2-Fluorophenol	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS

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Method Summary

CLIENT NAME: EXP SERVICES INC

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PROJECT: BRM-21021990-A0

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Chrysene-d12	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
phenol-d6 surrogate	ORG-91-5114	modified from EPA 3510C and EPA 8270E	GC/MS
Ultra Trace Analysis			
Total Nonylphenol	TOX-151-19003F	ASTM D7065-6	LCMSMS
NP1EO	TOX-151-19003F	ASTM D7065-6	LCMSMS
NP2EO	TOX-151-19003F	ASTM D7065-6	LCMSMS
Total Nonylphenol Ethoxylates	TOX-19003F	ASTM D7065-6	LCMSMS

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Method Summary

CLIENT NAME: EXP SERVICES INC

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

SAMPLED BY:M.L.

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Biochemical Oxygen Demand, Total	INOR-121-6023	SM 5210 B	INCUBATOR
pH	INOR-93-6000	modified from SM 4500-H+ B	PC TITRATE
Fluoride	INOR-93-6004	modified from SM 4110 B	ION CHROMATOGRAPH
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-93-6073	modified from SM 3500-CR B	LACHAT FIA
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 3112 B	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

AGAT Laboratories

MIBI 1 large

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Mississauga, Ontario L4Z 1Y2
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webearth.agatlabs.com

Chain of Custody Record

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

Laboratory Use Only

Work Order #: 21T837512.

Cooler Quantity:

Arrival Temperatures: 1.8 | 2.4 | 2.5

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: free ice

Report Information:

Company: EXP Services Inc
Contact: Jay SamarakKody
Address: 1595 Clark Boulevard
Brampton, ON L6T 4V1
Phone: 905 793 9800 Fax:
Reports to be sent to:
1. Email: Jay.SamarakKody@exp.com
2. Email: Jeffrey.Leon@exp.com

Regulatory Requirements:

(Please check all applicable boxes)

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

☐ Excess Soils R406
Table ____ (Indicate One)

☐ Regulation 558

☐ CCME

☒ Sewer Use
☐ Sanitary ☐ Storm
Toronto (Region)

☐ Prov. Water Quality Objectives (PWQO)

☐ Other
(Indicate One)

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

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

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

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

OR Date Required (Rush Surcharges May Apply):

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

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

Project Information:

Project: BRM-81021990-A0
Site Location: John St. and Station St.
Sampled By: M.L.
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

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

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC Y/N	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs Analyze F4G if required ☐ Yes ☐ No	O. Reg 153: PAHs	O. Reg 153: PCBs	O. Reg 153: VOC	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Salt - EC/SAR	Toronto Sanitary and Storm Sewer Package	Potentially Hazardous or High Concentration (Y/N)
BH7	21/11/30	12:00 AM PM	26	GW		N											X	
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																
		AM PM																

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Mike Luong	21/11/30	14:30	Dave Eastman		
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

21 NOV 30 2:30PM

Page 1 of 1

N°: T 128001

Appendix F – Construction Flow Rate Calculations

APPENDIX F: Dewatering Flow Rate

13, 15, 17, 19, & 21 John Street and 36, 38, & 40 South Station Street, Toronto, Ontario
BRM-21021990-A0

Table F-1: Construction Dewatering Assessment

Parameters	Symbols	Unit	Construction
Geological Formation	-	-	Glacial Deposit
INPUTS			
Ground Elevation	-	mASL	**127.40**
Highest Groundwater Elevation	-	mASL	**126.84**
Lowest Top Slab Elevation	-	mASL	**116.90**
Lowest Foundation Invert Elevation	-	mASL	**115.40**
Height of Static Water Table Above the Base of the Water-Bearing Zone	**H**	m	26.84
Dewatering Target Elevation	-	mASL	114.40
Height of Target Water Level Above the Base of Water-Bearing Zone	**h_w**	m	14.40
Drawdown	**s**	m	12.44
Dupuit Check (> 45%)		m	54%
Base of Aquifer / Water Bearing Zone	-	mASL	**100.00**
Hydraulic Conductivity	**K**	m/s	**7.3E-07**
Length of Excavation	-	m	**50.00**
Width of Excavation	-	m	**49.00**
Equivalent Radius (equivalent perimeter)	**r_e**	m	31.51
Method to Calculate Radius of Influence	-	-	**Cooper-Jacob**
Time (days)			**45.00**
Time (seconds)	**t**	s	3888000
Specific Yield	**Sy**		**0.05**
OUTPUTS			
Cooper-Jacob's Radius of Influence from Sides of Excavation	**Rcj**	m	59
Radius of Influence	**Ro**	m	90
Dewatering Flow Rate (unconfined radial flow component)	**Q**	m^3/day	**97**
Factor of Safety	**fs**	-	2.00
Dewatering Flow Rate (multiplied by factor of safety)	**Q.fs**	m^3/day	**194**
Precipitation Event	-	mm/day	15
Volume from Precipitation	-	m^3/day	37
Total Volume (L/day) Discharge of Groundwater (Construction dewatering) **without Safety Factor** (including precipitation)	-	m^3/day	**134**
Total Volume (L/day) Discharge of Groundwater (Construction dewatering) **with Safety Factor** (including precipitation)	-	m^3/day	**230**

Precipitation Event 2 year storm	-	mm/day	57
Volume from Precipitation	-	m^3/event	140
Precipitation Event 100 year storm	-	mm/day	124.4
Volume from Precipitation	-	m^3/event	305

Notes:
mASL - meters above sea level

Analytical Solution for Estimating Radial Flow from an Unconfined Aquifer to a Fully-Penetrating Excavation

$$Q_w = \frac{\pi K(H^2 - h^2)}{Ln\,[\frac{R_o}{r_e}]}$$

(Based on the Dupuit-Forcheimer Equation)

$$r_e = \frac{a+b}{\pi} \qquad R_o = R_{cj} + r_e \qquad R_{cj} = \sqrt{2.25KDt/S}$$

Where:

Q_w = Flow rate per unit length of excavation (m^3/s)

K = Hydraulic conductivity (m/s)

H = Height of static water table above base of water-bearing zone (m)

h_w = Height of target water level above the base of water-bearing zone (m)

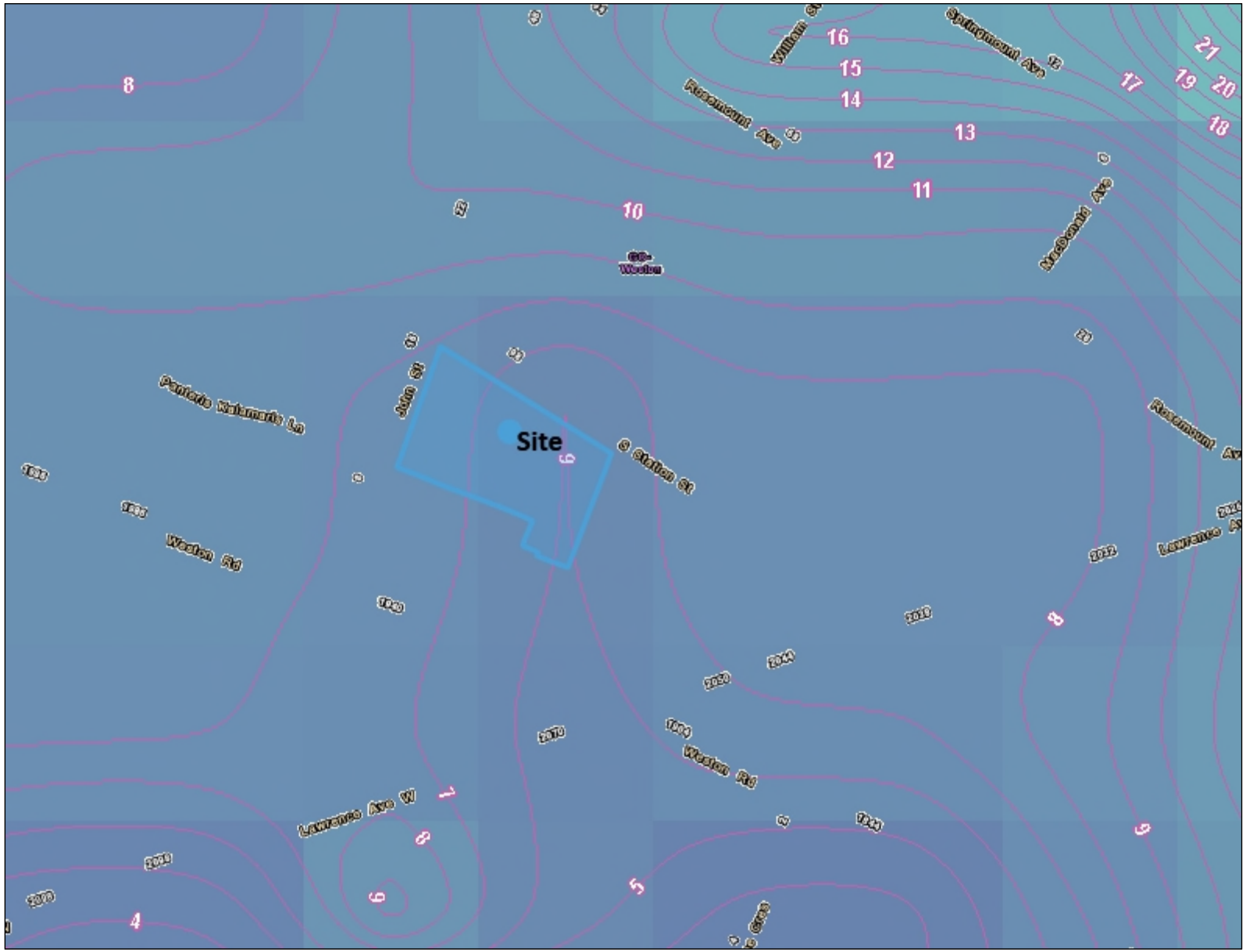
Rcj=Cooper Jacob Radius of Influence (m)

R_o=Radius of influence (m)

re=Equivalent perimeter (m)

Appendix G – ORMGP and TRCA

Thickness of Overburden_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON



Legend

Quaternary Sediment Thickness (Depth t (ORMGP)

World Hillshade

York Region

0.2 0 0.09 0.2 Km

1: 3,377

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

This map is for information purposes only and the Oak Ridges Moraine Groundwater Program takes no responsibility for, nor guarantees, the accuracy of all the information contained within the map.

SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Top of ORAC_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON

Legend

Top of Oak Ridges (or equiv.) (mASL)

York Region

0.2 0 0.09 0.2 Km

1: 3,377

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

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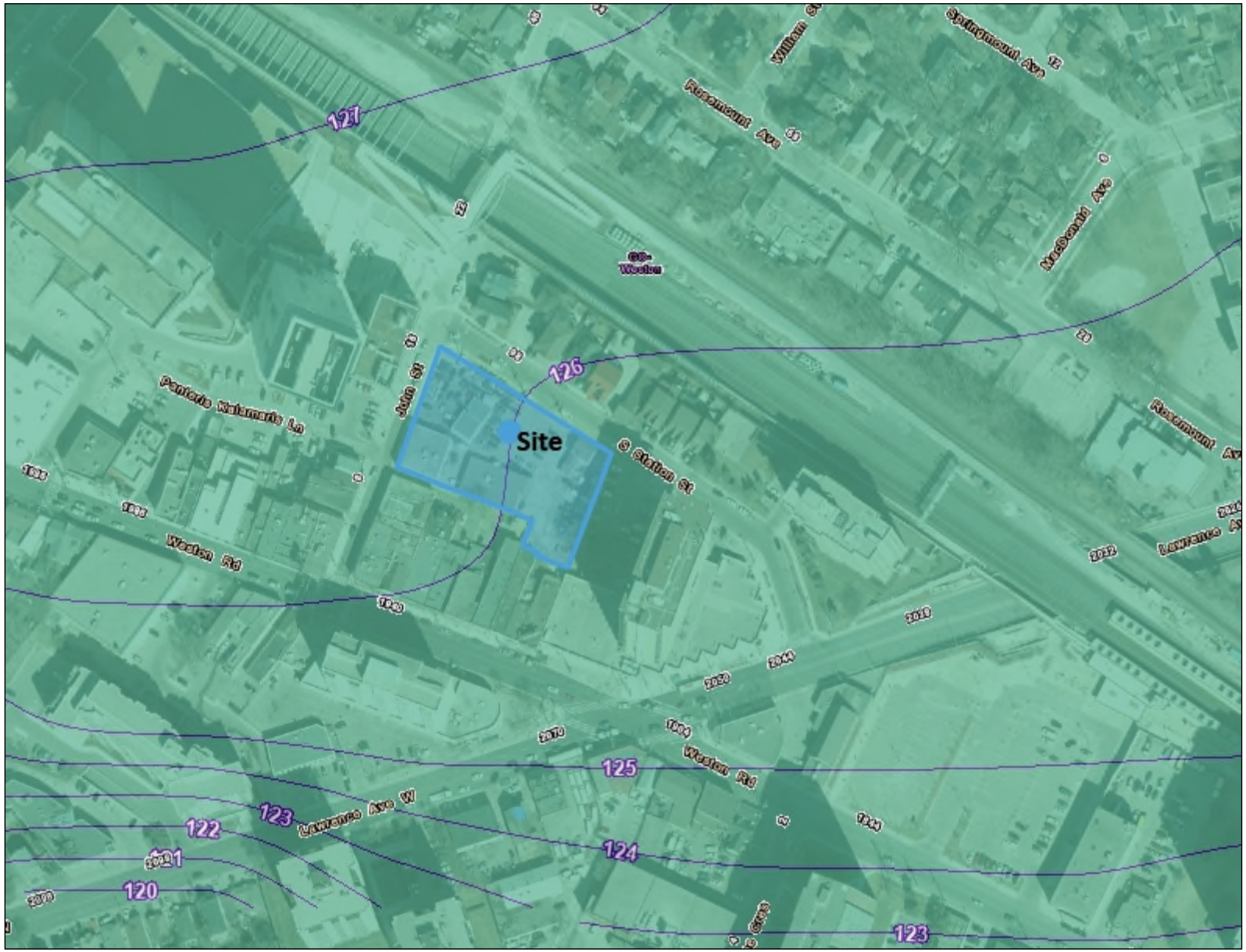
SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Top of Thornecliff_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON



Legend

Top of Thorncliffe Fm. (mASL)

York Region

0.2 0 0.09 0.2 Km

1: 3,377

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

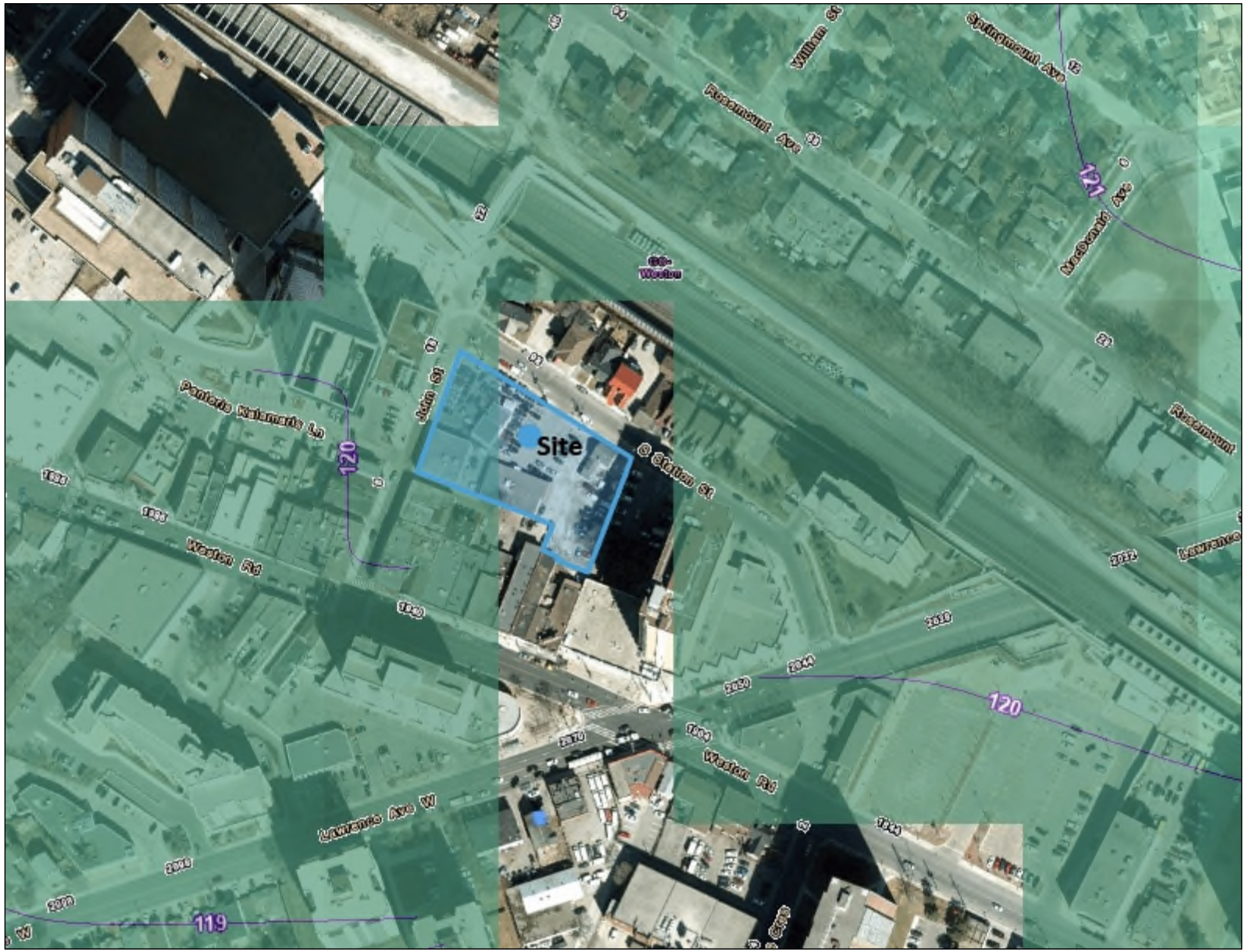
This map is for information purposes only and the Oak Ridges Moraine Groundwater Program takes no responsibility for, nor guarantees, the accuracy of all the information contained within the map.

SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Top of Sunnybrook_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON



Legend

Top of Sunnybrook Drift (or equiv.) (mAS

York Region

0.2 0 0.09 0.2 Km

1: 3,377

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

This map is for information purposes only and the Oak Ridges Moraine Groundwater Program takes no responsibility for, nor guarantees, the accuracy of all the information contained within the map.

SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Top of Bedrock_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON

Legend

Bedrock (mASL)

York Region

0.2 0 0.09 0.2 Km

1: 3,377

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

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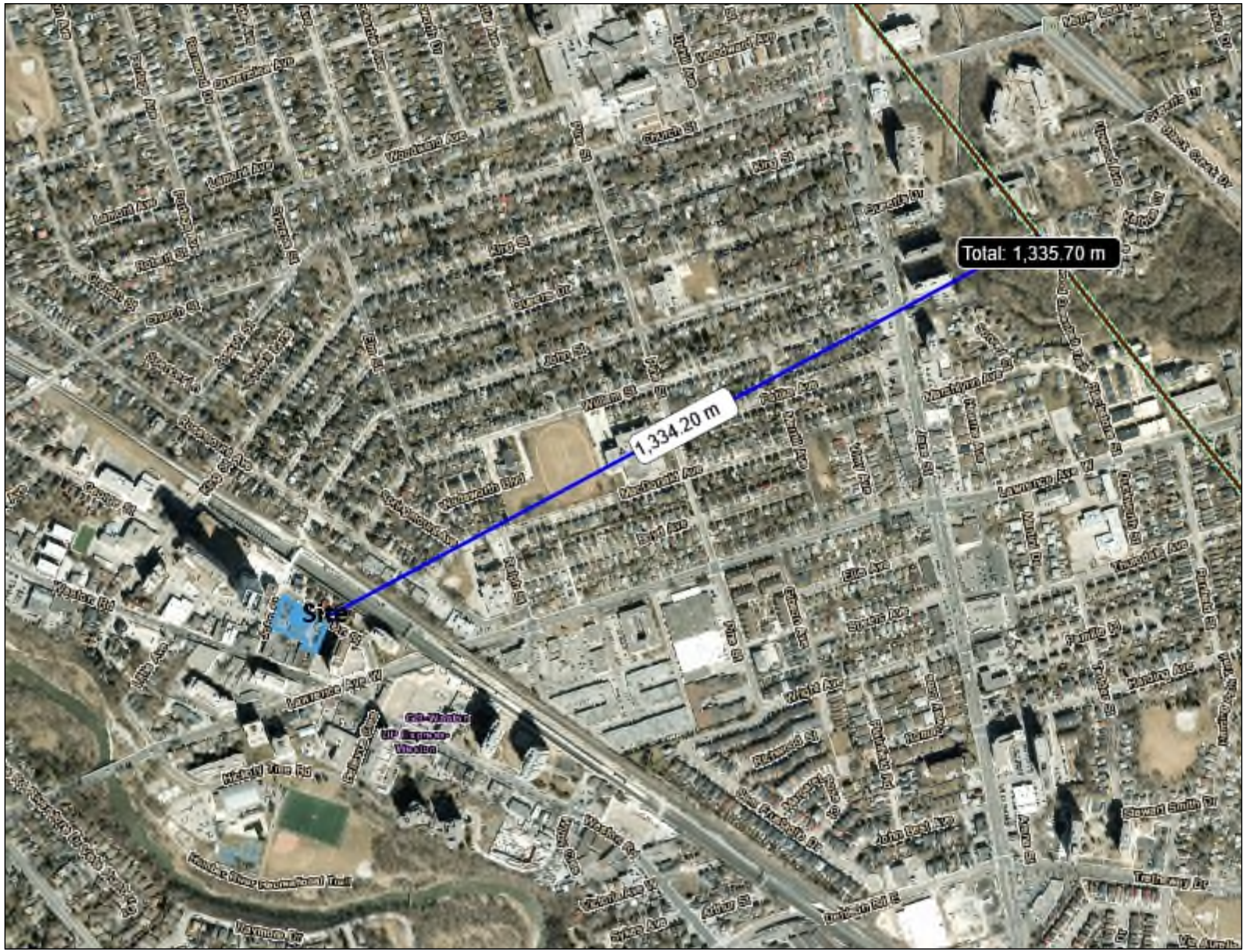
SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Bedrock Thalweg_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON



Legend

Bedrock Thalweg

0.7 0 0.34 0.7 Km

1: 13,508

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

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PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Surface Water Features_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON

Legend

- Shallow Wells (<20 m deep)
- Deep Wells (>40 m deep)
- Water Bodies
- Streams (Strahler > Class 3)

York Region

0.3 0 0.17 0.3 Km

1: 6,754

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

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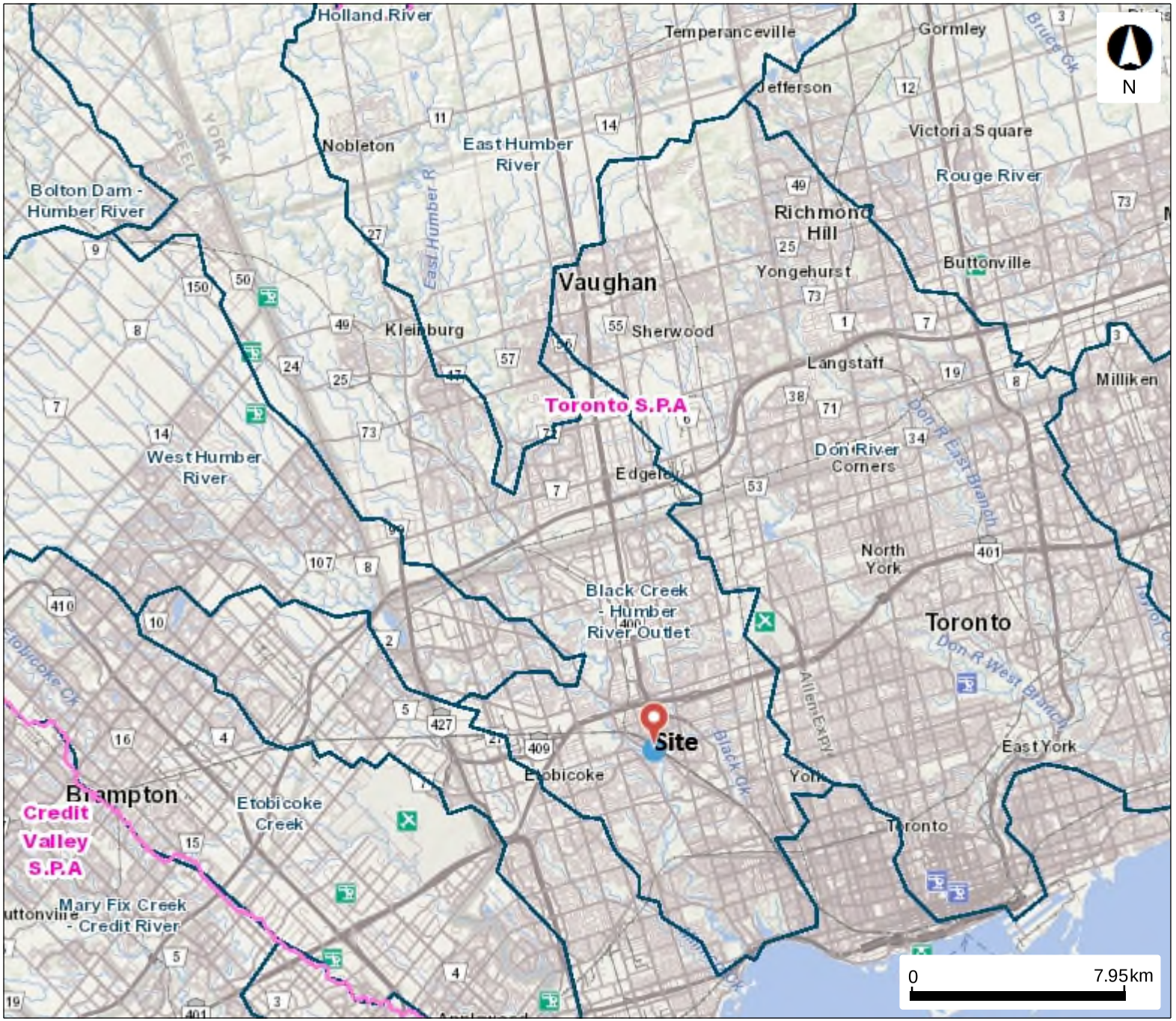
SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Watershed_13, 15, 17 and 21 John St and 36, 38, and 40 South Station St, Toronto, ON



Legend

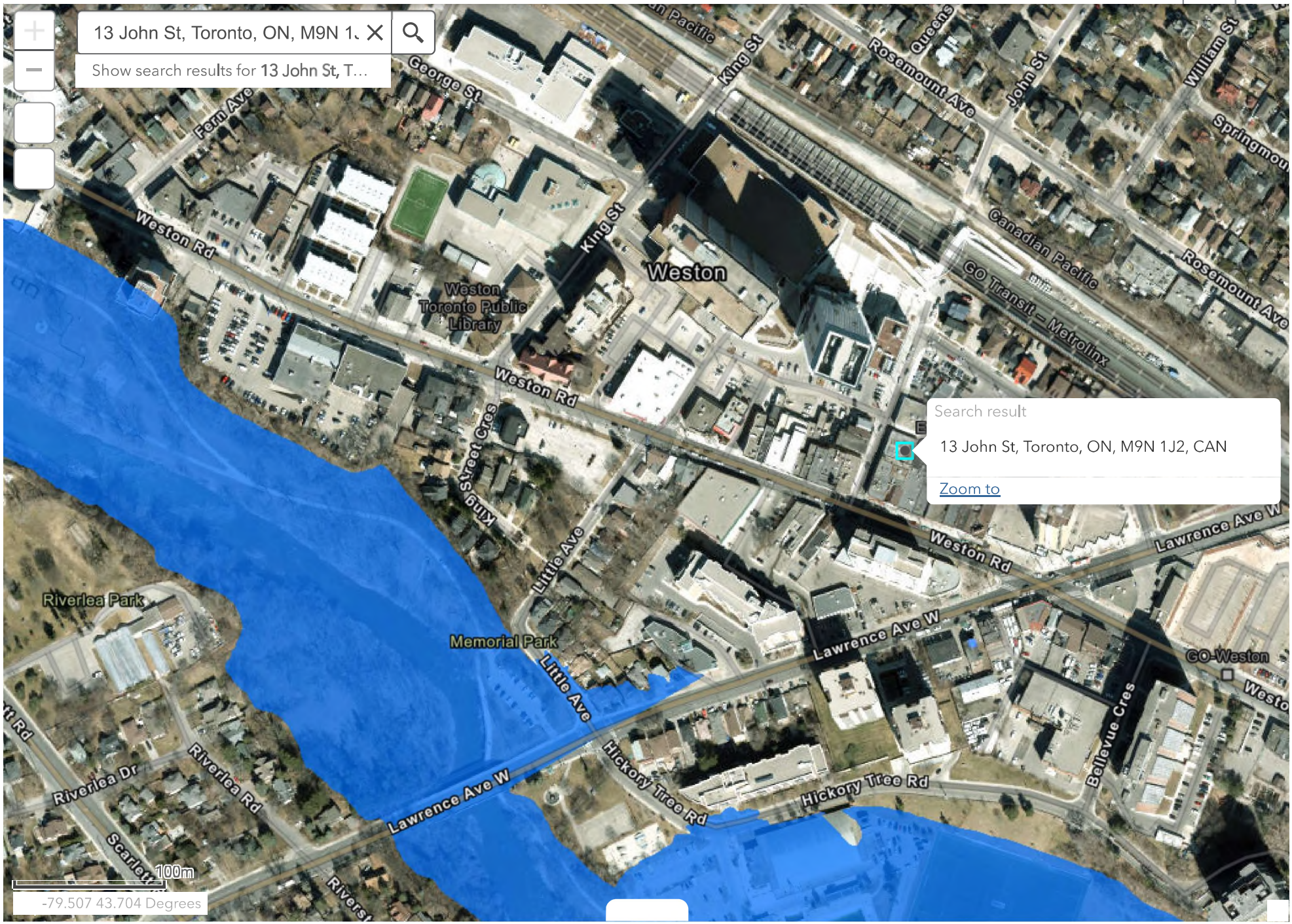
- Source Protection Areas
- Quaternary

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Environment, Conservation and Parks (MECP) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Ontario

Map Created: 9/7/2022
Map Center: 43.78001 N, -79.54798 W

Toronto & Region Conservation Floodplain Viewer



Groundwater Contour Map_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON

Legend

- Shallow Wells (<20 m deep)
- Deep Wells (>40 m deep)
- Water Bodies
- Streams (Strahler > Class 3)
- Water Table 1 (WT1) (mASL)

York Region

0.3 0 0.17 0.3 Km

1: 6,754

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

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SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Discharge Areas_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON

Legend

- Shallow Wells (<20 m deep)
- Deep Wells (>40 m deep)
- Water Bodies
- Streams (Strahler > Class 3)
- Potential Discharge Areas

0.3 0 0.17 0.3 Km

1: 6,754

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

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SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Vertical GW Gradient_13, 15, 17 and 21 John Street and 36, 38, and 40 South Station Street, Toronto, ON

Legend

- Shallow Wells (<20 m deep)
- Deep Wells (>40 m deep)
- Water Bodies
- Streams (Strahler > Class 3)
- Vertical Gradient (WT1 minus PS0)
- Upward Gradient (PS0>WT1)
- Downward Gradient (WT1 > PS0)

York Region

0.3 0 0.17 0.3 Km

1: 6,754

Map Compiled by the Oak Ridges Moraine Groundwater Program.101 Exchange Avenue, Vaughan, Ontario, M3N 1S4

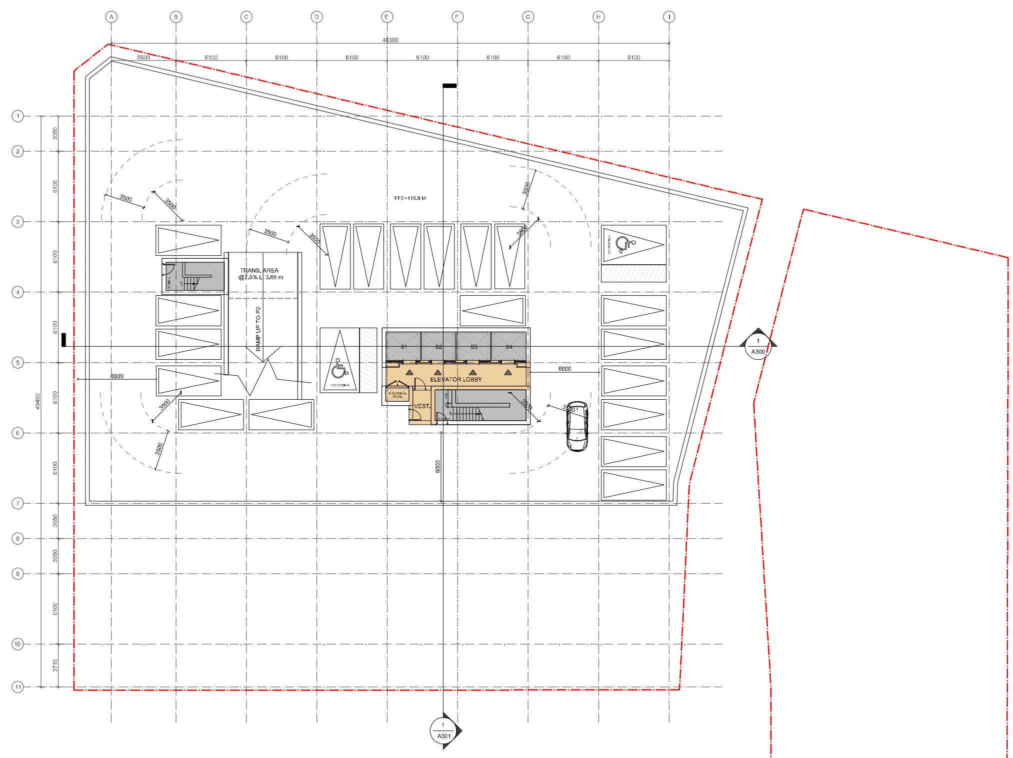
This map is for information purposes only and the Oak Ridges Moraine Groundwater Program takes no responsibility for, nor guarantees, the accuracy of all the information contained within the map.

SOURCE: ORMGP, 2022; MNRF, 2022;

PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

Appendix H – Architectural Drawings



LEGEND

- PRIMARY RESIDENTIAL ENTRANCE
- SECONDARY RESIDENTIAL ENTRANCE
- CORE ACCESS
- SITE BOUNDARY

BICYCLE PARKING SPACES:MINIMUM PERMITTED DIMENSIONS AS PER BY-LAW 569-2013

TYPICAL BICYCLE PARKING SPACE (HORIZONTAL): MIN 0.6 x 1.8 x 1.9 m HIGH

TYPICAL BICYCLE PARKING SPACE (VERTICAL): MIN 0.6 x 1.2 x 1.9 m HIGH

AREAS

- COMMERCIAL
- DAYCARE
- AMENITY
- RESIDENTIAL LOBBY
- RESIDENTIAL NON - SALEABLE
- RESIDENTIAL ONE BEDROOM APT
- RESIDENTIAL TWO BEDROOM APT
- RESIDENTIAL THREE BEDROOM APT
- RESIDENTIAL TERRACE
- AMENITY TERRACE
- SERVICE/ BACK OF HOUSE
- COMMUNITY CENTER

PRELIMINARY
NOT FOR CONSTRUCTION

OWNER
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DESIGN ARCHITECT
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T +1 646 843 9770

ARCHITECT OF RECORD
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416 425 2222

SOUTH STATION ST.

13-21 JOHN ST & 36-40 SOUTH STATION ST
TORONTO, ON, M9N 1J2

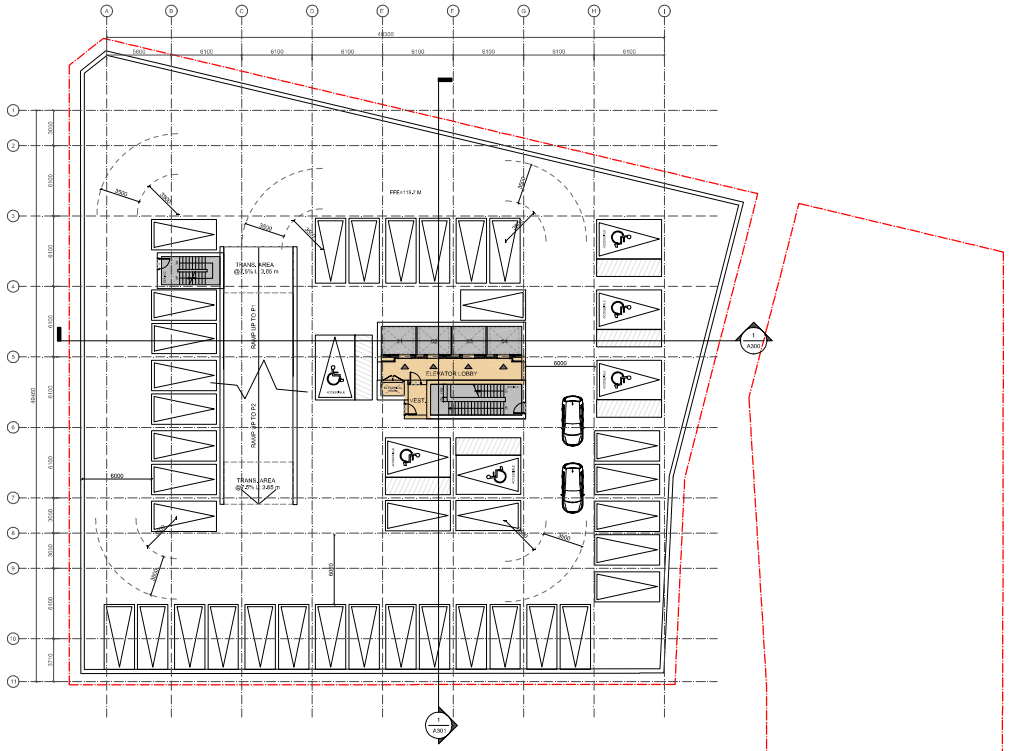
DRAWING TITLE

PARKING LEVEL 3 FLOOR PLAN

PROJECT NUMBER	850006
SCALE	1:200
SHEET SIZE	ARCH D
DRAWING NO.	A100
DATE	2023.03.20
REVIEWED BY	CJO
SHEET	14 OF 38

1 PARKING LEVEL 3 FLOOR PLAN

1:200



LEGEND

PRIMARY RESIDENTIAL ENTRANCE

SECONDARY RESIDENTIAL ENTRANCE

CORE ACCESS

SITE BOUNDARY

MIN 0.6 x 1.2 x 1.2 m HIGH

MIN 0.6 x 1.2 x 1.2 m HIGH

AREAS

COMMERCIAL

DAYCARE

AMENITY

RESIDENTIAL LOBBY

RESIDENTIAL NON-SALEABLE

RESIDENTIAL ONE BEDROOM APT

RESIDENTIAL TWO BEDROOM APT

RESIDENTIAL THREE BEDROOM APT

RESIDENTIAL TERRACE

AMENITY TERRACE

SERVICES BACK OF HOUSE

COMMUNITY CENTER

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NOT FOR CONSTRUCTION

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SOUTH STATION ST.

13-21 JOHN ST & 36-40 SOUTH STATION ST
TORONTO, ON, M5N 1J2

DRAWING TITLE

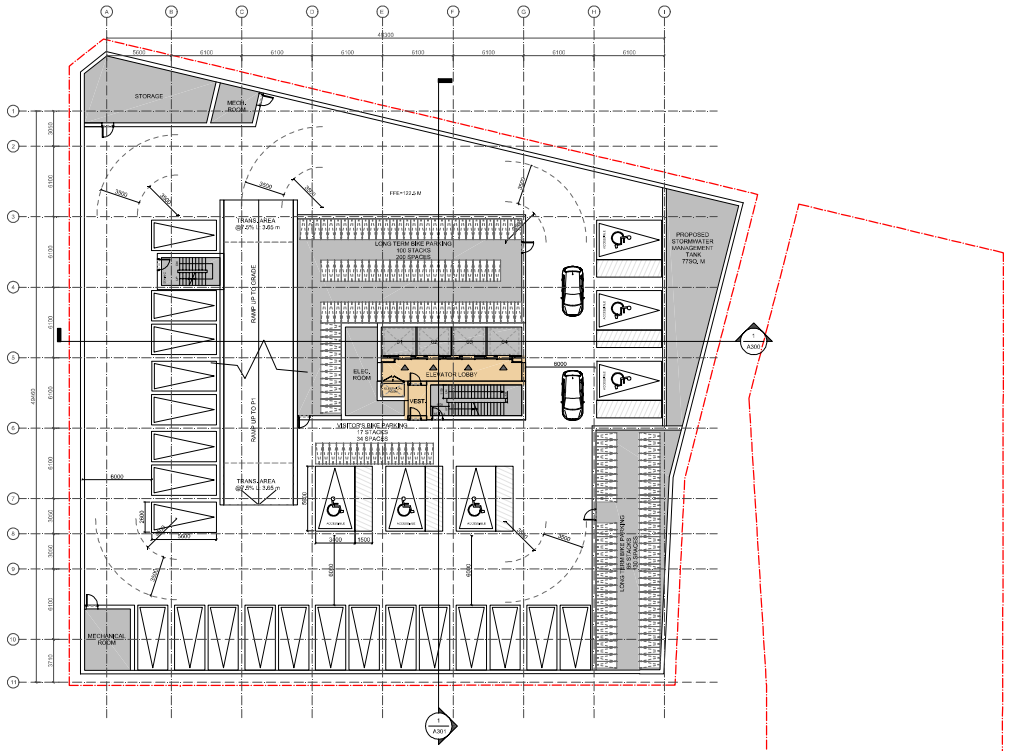
PARKING LEVEL 2 FLOOR PLAN

PROJECT NUMBER	850006
SCALE	1:200
SHEET SIZE	ARCH D

DRAWING NO. **A101**

DATE	2023.03.20
REVIEWED BY	CJO
SHEET	15OF 38

1 PARKING LEVEL 2 FLOOR PLAN
1:200



1 PARKING LEVEL 1 FLOOR PLAN

1:200

LEGEND

PRIMARY RESIDENTIAL ENTRANCE

SECONDARY RESIDENTIAL ENTRANCE

CORE ACCESS

SITE BOUNDARY

MIN 0.6 x 1.2 x 1.2m HIGH

MIN 0.6 x 1.2 x 1.2m HIGH

AREAS

COMMERCIAL

DAYCARE

AMENITY

RESIDENTIAL LOBBY

RESIDENTIAL NON-SALEABLE

RESIDENTIAL ONE BEDROOM APT

RESIDENTIAL TWO BEDROOM APT

RESIDENTIAL THREE BEDROOM APT

RESIDENTIAL TERRACE

AMENITY TERRACE

SERVICE, BACK OF HOUSE

COMMUNITY CENTER

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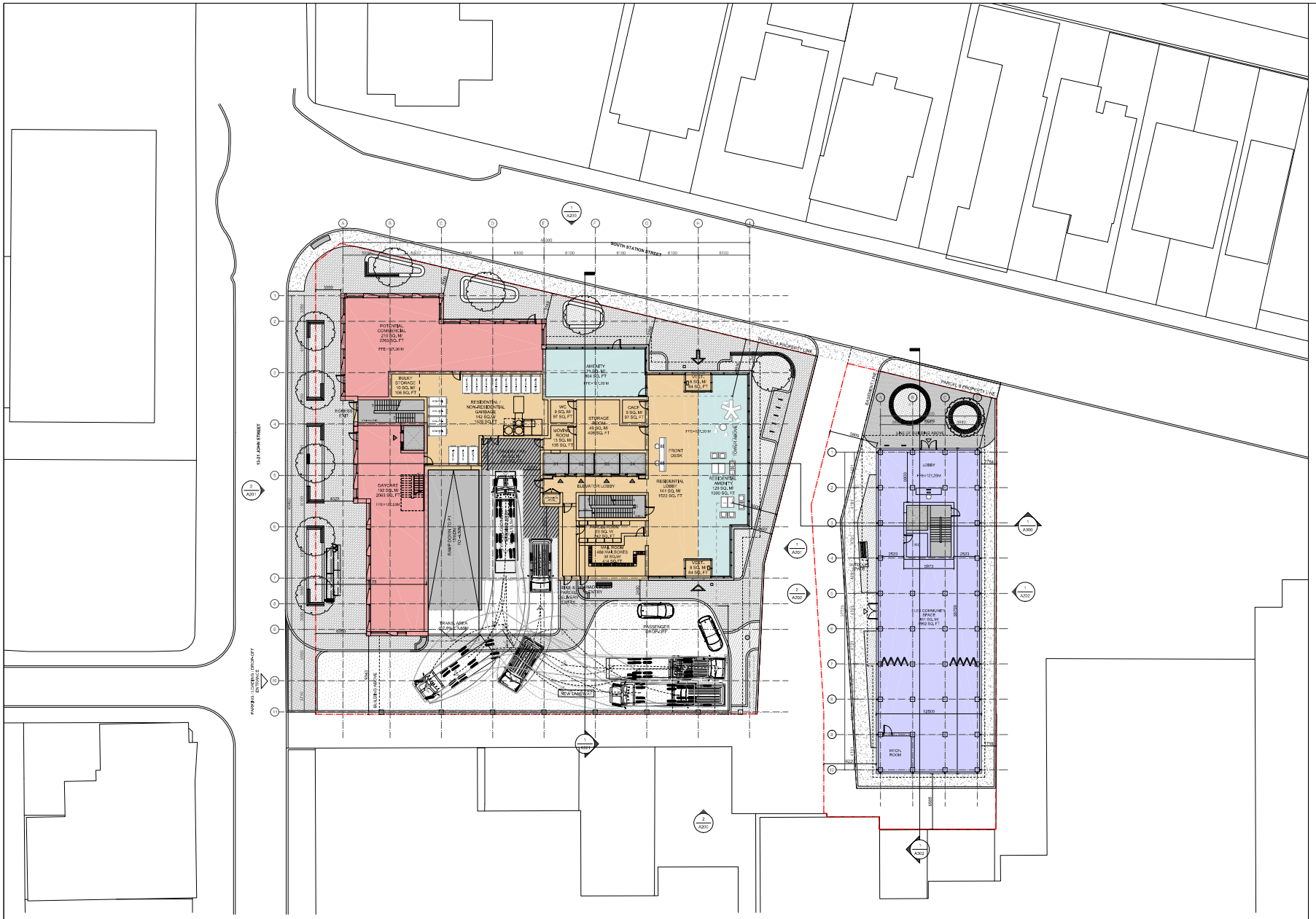
SOUTH STATION ST.

13-21 JOHN ST & 36-40 SOUTH STATION ST
TORONTO, ON, M5N 1J2

DRAWING TITLE

PARKING LEVEL 1 FLOOR PLAN

PROJECT NUMBER	850006
SCALE	1:200
SHEET SIZE	ARCH D
DRAWING NO.	**A102**
DATE	2023.03.20
REVIEWED BY	CJO
SHEET	16 OF 38



LEGEND

PRIMARY RESIDENTIAL ENTRANCE

SECONDARY RESIDENTIAL ENTRANCE

CORE ACCESS

SITE BOUNDARY

BICYCLE PARKING SPACES MINIMUM DIMENSIONS AS PER BY-LAW 1984-0273

TYPICAL BICYCLE PARKING SPACE (HORIZONTAL) MIN 0.6 X 1.8 + 1.2 H HIGH

TYPICAL BICYCLE PARKING SPACE (VERTICAL) MIN 0.6 X 1.2 + 1.2 H HIGH

AREAS

- COMMERCIAL
- DAYCARE
- AMENITY
- RESIDENTIAL LOBBY
- RESIDENTIAL NON-SALEABLE
- RESIDENTIAL ONE BEDROOM APT
- RESIDENTIAL TWO BEDROOM APT
- RESIDENTIAL THREE BEDROOM APT
- RESIDENTIAL TERRACE
- AMENITY TERRACE
- SERVICES BACK OF HOUSE
- COMMUNITY CENTER

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SOUTH STATION ST.

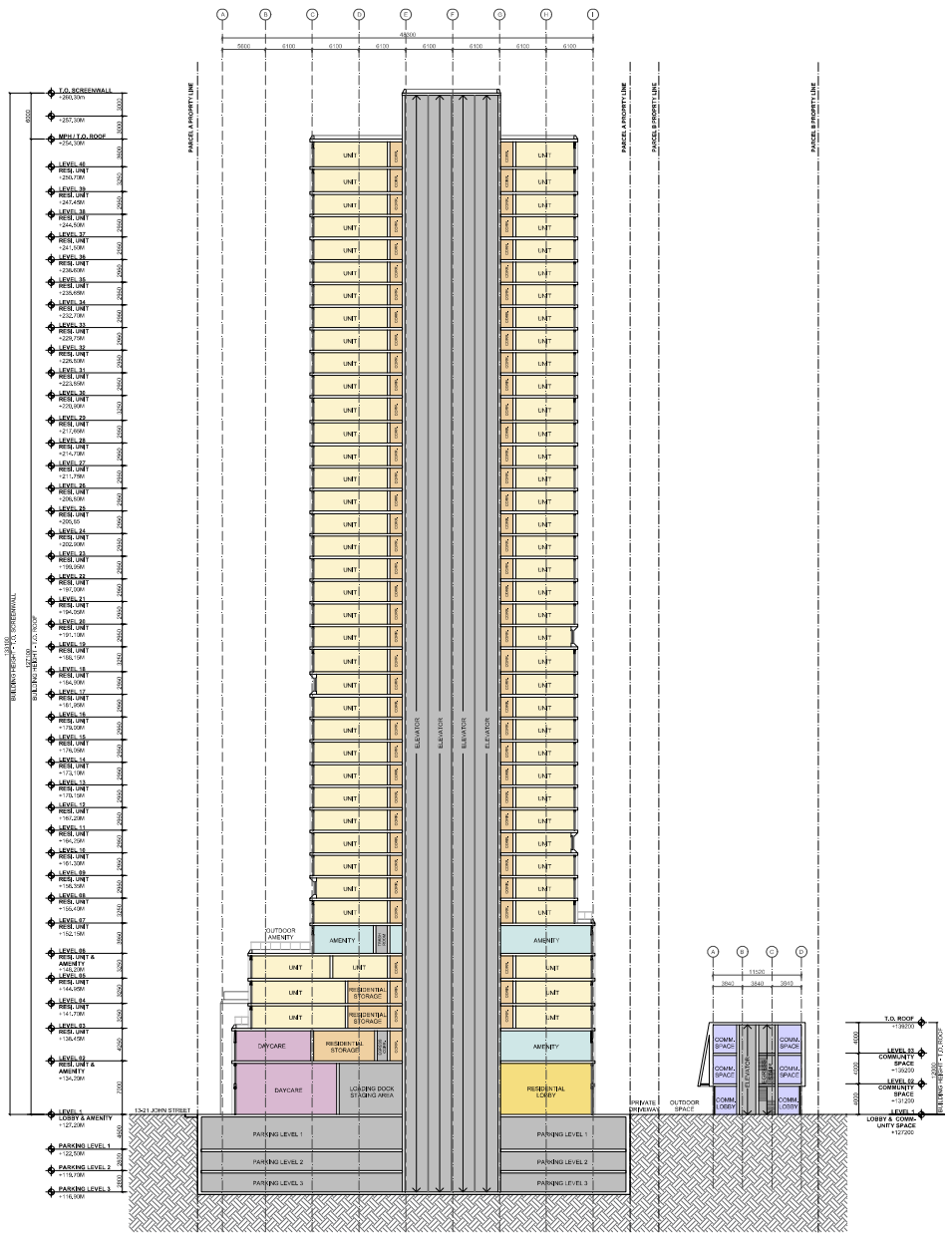
13-21 JOHN ST & 36-40 SOUTH STATION ST
TORONTO, ON, M5N 1J2

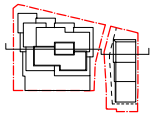
DRAWING TITLE

LEVEL 1 FLOOR PLAN

PROJECT NUMBER	850006
SCALE	1:200
SHEET SIZE	ARCH D
DRAWING NO.	**A103**
DATE	2023.03.20
REVIEWED BY	CJO
SHEET	17 OF 38

1 LEVEL 1 FLOOR PLAN
1:200





AREAS

- COMMERCIAL
- DAYCARE
- AMENITY
- RESIDENTIAL LOBBY
- RESIDENTIAL NON-SALEABLE
- RESIDENTIAL ONE BEDROOM APT
- RESIDENTIAL TWO BEDROOM APT
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416 425 2222

SOUTH STATION ST.

13-21 JOHN ST & 36-40 SOUTH STATION ST
TORONTO, ON, M5N 1J2

DRAWING TITLE

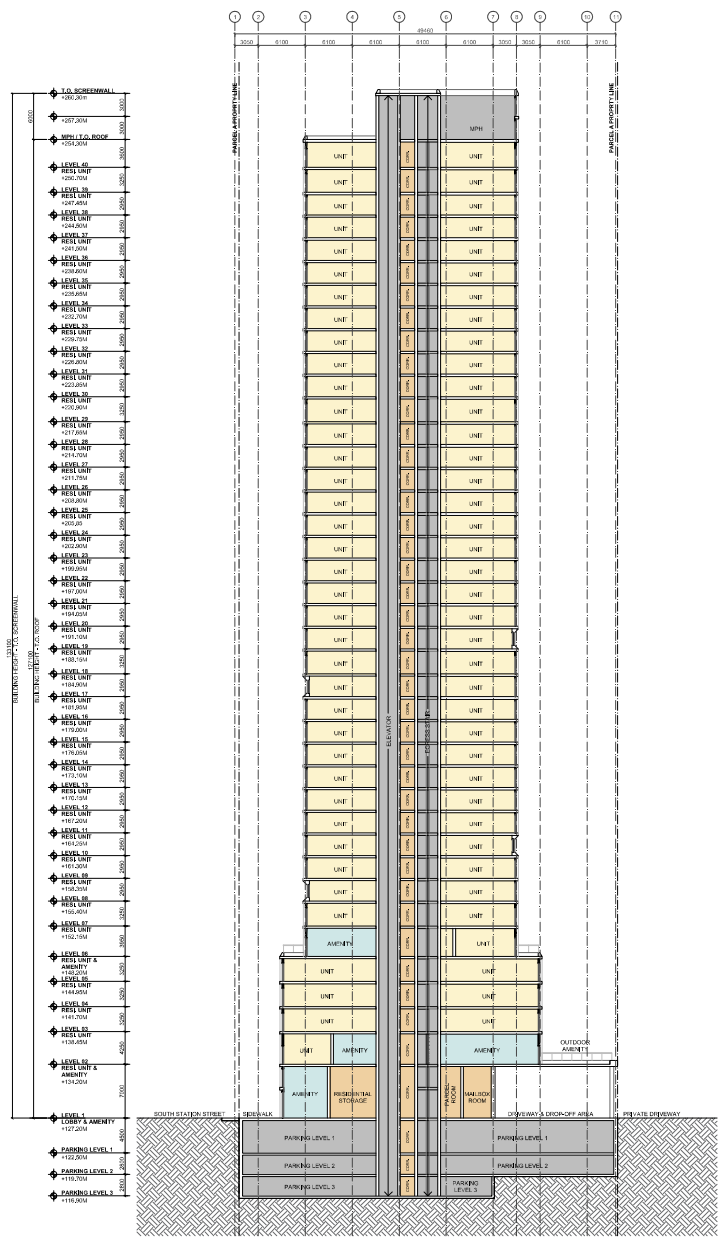
SECTION
EAST-WEST

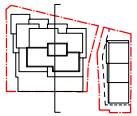
PROJECT NUMBER	850006
SCALE	1:300
SHEET SIZE	ARCH D

DRAWING NO. **A300**

DATE	2023.03.20
REVIEWED BY	CJO
SHEET	33OF 38

1 **SECTION EAST-WEST**
1:300





AREAS

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- DAYCARE
- AMENITY
- RESIDENTIAL LOBBY
- RESIDENTIAL NON-SALEABLE
- RESIDENTIAL ONE BEDROOM APT
- RESIDENTIAL TWO BEDROOM APT
- RESIDENTIAL THREE BEDROOM APT
- RESIDENTIAL TERRACE
- AMENITY TERRACE
- SERVICE BACK OF HOUSE
- COMMUNITY CENTER

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416 425 2222

SOUTH STATION ST.

13-21 JOHN ST & 36-40 SOUTH STATION ST
TORONTO, ON, M5N 1J2

DRAWING TITLE

SECTION N.S.
PARCEL A

PROJECT NUMBER	850006
SCALE	1:300
SHEET SIZE	ARCH D

DRAWING NO. **A301**

DATE	2023.03.20
REVIEWED BY	CJO
SHEET	34 OF 38

1 **SECTION NORTH-SOUTH PARCEL A**
1:300