BURNSIDE

South Station Street
13-21 John Street and 36-40 South Station Street, Toronto ON M9N 1J2

21 John Dev Inc.
31 Scarsdale Road, Unit 5
Toronto ON M3B 2R2

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October 2022
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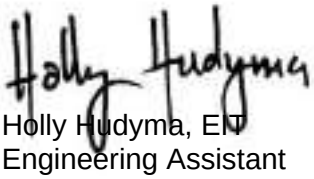
Report Prepared By:



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Report Reviewed By:

Jennifer Scherer, P.Eng.
Engineer
JS:cv

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1.0 Introduction

1.1 General Information

R.J. Burnside & Associates Limited (Burnside) has been retained by Devron Developments to prepare a Functional Servicing and Stormwater Management Report for the proposed redevelopment of 13-21 John Street, 36-40 South Station Street and part of 1919 Weston Road in the City of Toronto.

The subject site is approximately 0.38 ha and located southeast of the intersection of John Street and South Station Street. Refer to Figure 1 for the proposed site location. The four existing buildings on-site are to be demolished. The proposed redevelopment comprises of a 40-storey residential building with a podium including residential amenities, commercial retail space, and two levels of underground parking. The redevelopment will also include a private laneway which will connect to South Station Street and John Street and will provide access to the underground parking and loading bay.

This Functional Servicing and Stormwater Management Report (FSR) will support the Rezoning Application and future Site Plan Applications for the proposed redevelopment. The attached engineering designs and drawings related to site servicing and grading will incorporate the functional concepts outlined in this report.

1.2 Objectives

The objectives of this Functional Servicing and Stormwater Management Report are:

- To evaluate and confirm adequate supply and on-site distribution of municipal water to meet domestic and fire flow requirements.
- To evaluate and confirm capacity for sanitary servicing including:
  - Review of the pre- and post-development sanitary flow under the design and wet weather flow conditions.
- To evaluate the stormwater management opportunities and constraints including:
  - Review of the existing quality and quantity control facilities for the site.
  - Determine suitable methods for attenuation and treatment of stormwater runoff.
  - Demonstrate compliance of the proposed stormwater control measures with the City of Toronto's Wet Weather Flow Management Guidelines (WWFMG) for stormwater management criteria.

The above will be completed in accordance with accepted engineering practices and governing criteria from the approval agencies in support of the redevelopment applications.

Site lighting, traffic, and parking considerations are not part of the scope of this report and will be addressed by others.

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Client

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M3B 2R2

Project Name

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

Drawing Title

SITE LOCATION PLAN

Drawn	Checked	Date	Drawing No.
CL	JS	21/11/25	**FIG1**
Scale		Project No.	
N.T.S.		300054203	

2.0 Background

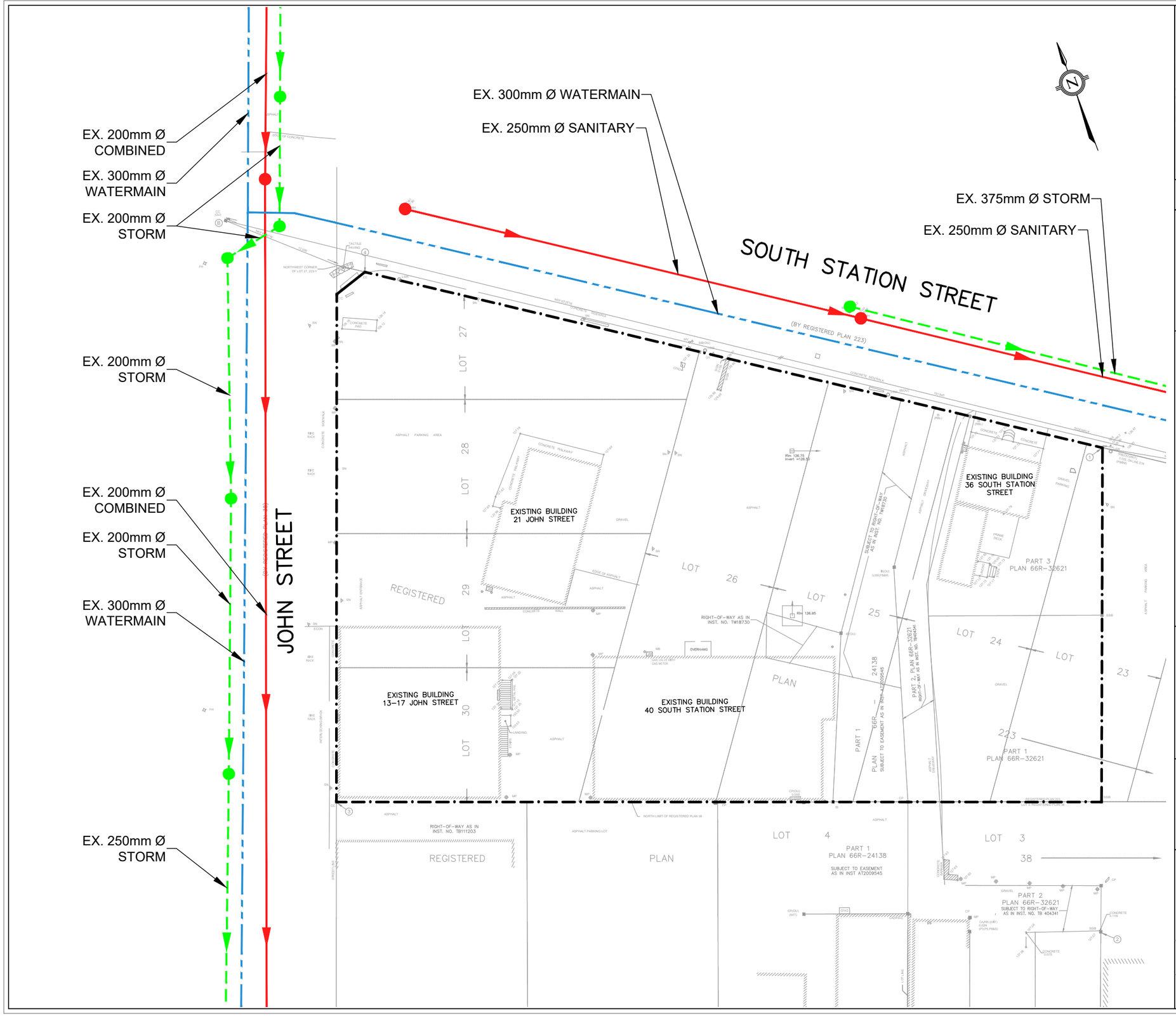
2.1 Existing Conditions

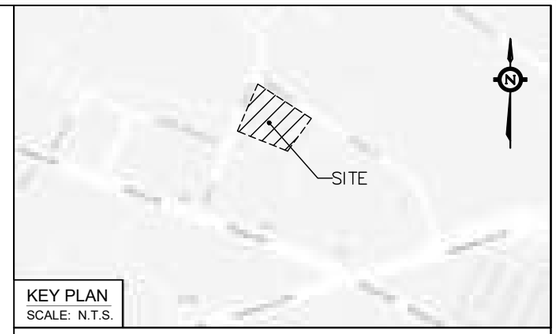
The subject site located at 13-21 John Street, 36-40 South Station Street, and 1919 Weston Road. It is bound by John Street to the west, South Station Street to the north, commercial and institutional buildings to the east and south. The subject site has an approximate area of 0.38 ha and is currently composed of four existing buildings and street-level parking areas. Refer to Figure 2 for the existing site condition. The existing buildings will be demolished prior to the proposed redevelopment of the site. The existing features currently occupying the site are outlined in Table 1.

Table 1: Existing Site Breakdown

Existing Site Component	Area
Existing Building	0.091 ha
Existing Parking Lot	0.289 ha
Total Area	**0.380 ha**

The existing properties are serviced via storm sewer, sanitary sewer and watermain connections within South Station Street, and the existing storm sewer, combined sewer and watermain connections within John Street. The existing infrastructure within the South Station Street and John Street Road Rights-of-Way (ROW) can be utilized for the proposed redevelopment.





KEY PLAN
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LEGEND:

- SITE PROPERTY LINE
- EXISTING STORM SEWER
- EXISTING SANITARY/COMB. SEWER
- EXISTING WATERMAIN

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TORONTO, ON M9N 1J2

Drawing Title

EXISTING CONDITIONS

Drawn	Checked	Date	Drawing No.
CL	JS	21/11/25	**FIG2**
Scale		Project No.	
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File Name: 054203 - FIG2.dwg Date Plotted: October 5, 2022 - 8:56 AM

2.2 Proposed Redevelopment

The proposed redevelopment at 13-21 John Street, 36-40 South Station Street and 1919 Weston Road will include the demolition of the four existing buildings on-site and the construction of a 40-storey residential building with a podium including residential amenities, commercial retail space, and two levels of underground parking. Refer to Table 2 for the proposed development components.

Table 2: Proposed Development Components

Site Component	Number of Floors
Tower	40
Podium	8
Parking	2

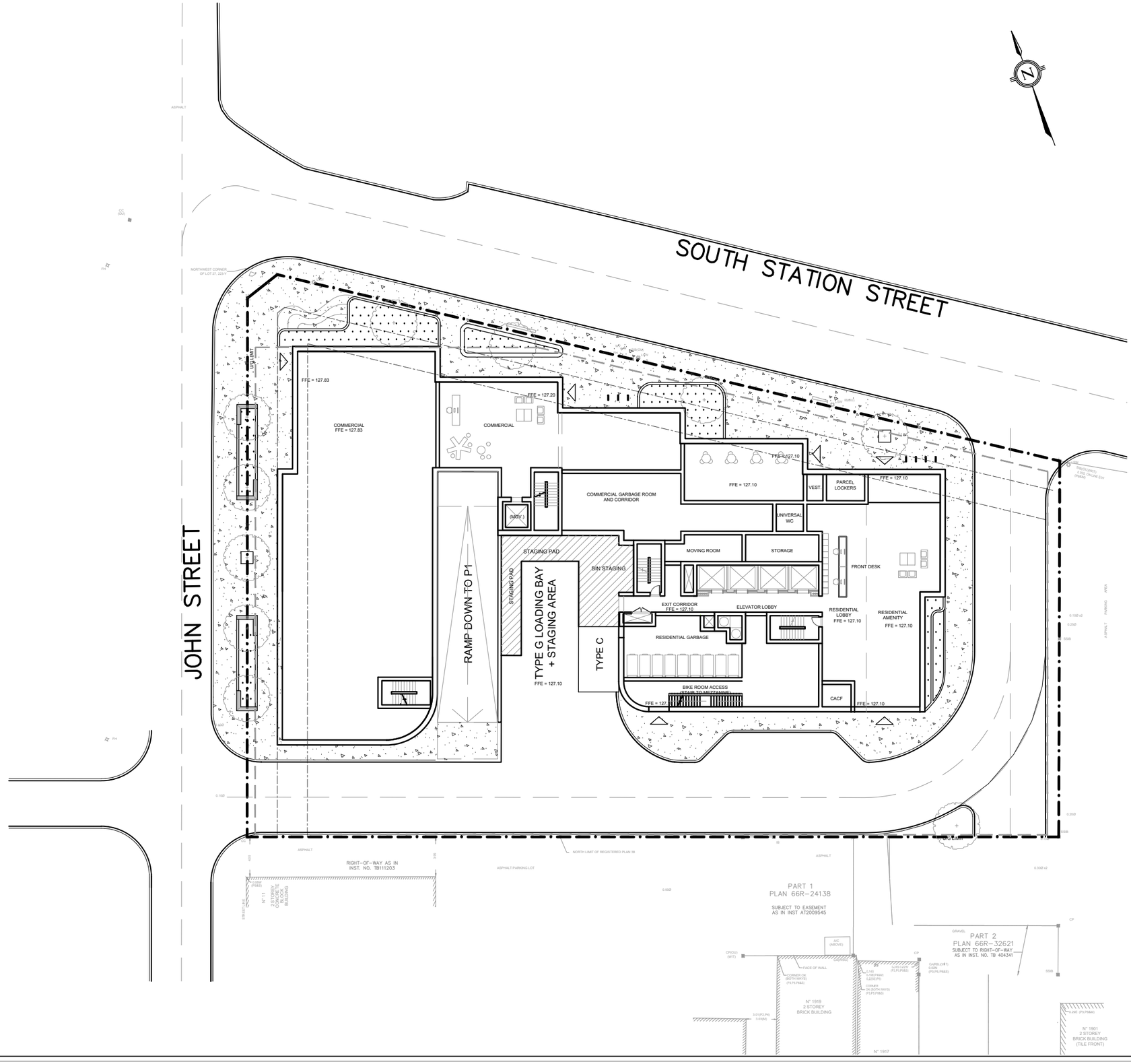
As part of the proposed redevelopment, a private laneway has been included to provide access to the underground parking levels and loading bay area. The laneway is located along the south of the site with an entrance on John Street and South Station Street. A lay-by area will be provided along the laneway as a drop-off zone.

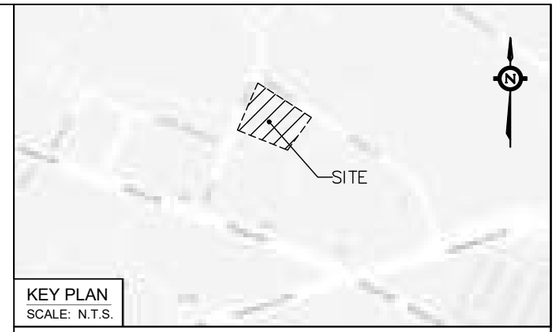
A site breakdown of the proposed redevelopment is outlines in Table 3.

Table 3: Proposed Site Breakdown

Component	Area
Flat Roof	0.165 ha
Green Roof	0.052 ha
Hardscape	0.150 ha
Landscape	0.013 ha
Total	**0.380 ha**

Refer to Figure 3 and Figure 4 for the proposed ground level and rooftop site plans, respectively.





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LEGEND:

SITE PROPERTY LINE

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Project Name

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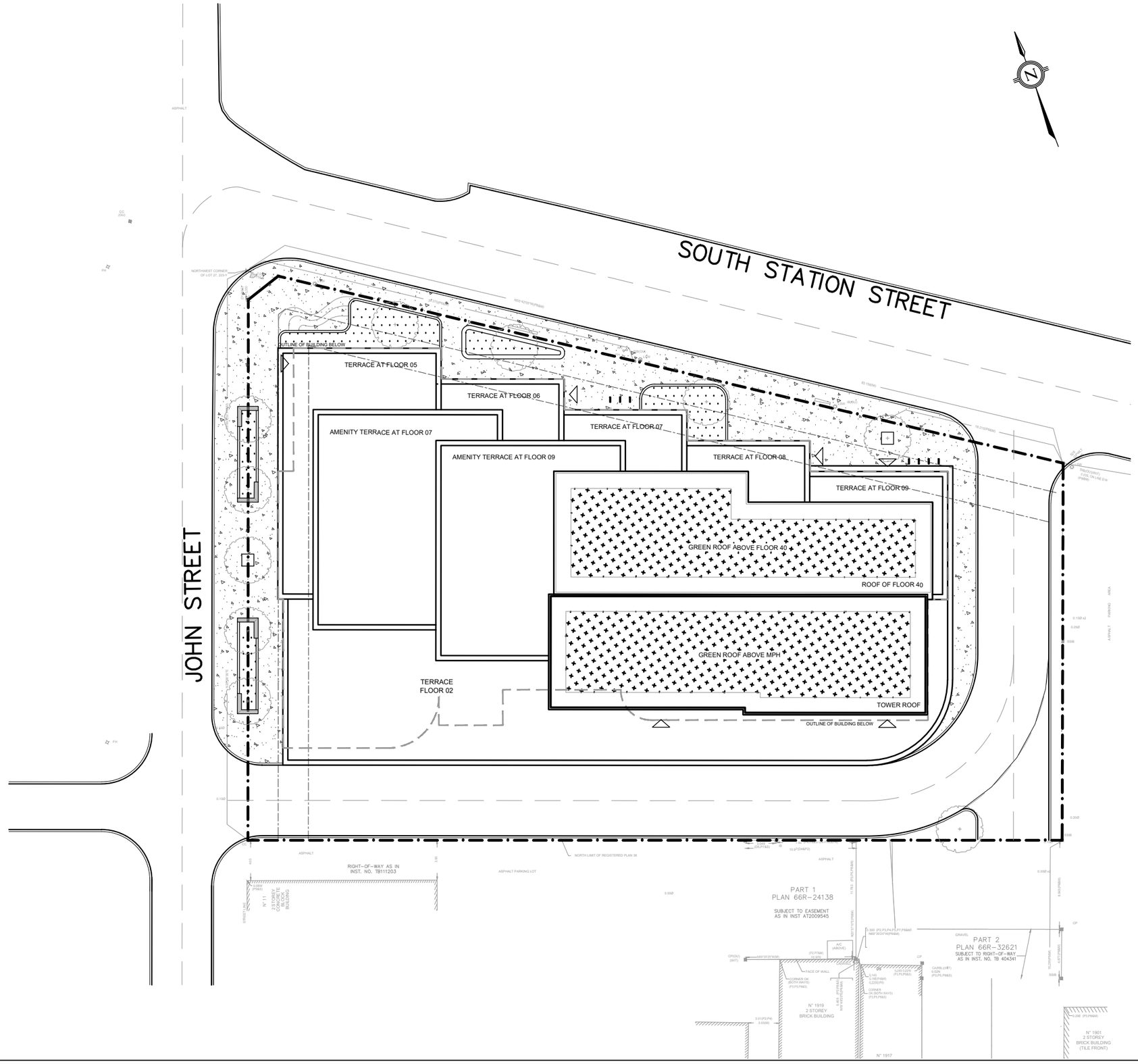
13-21 JOHN ST & 36-40 SOUTH STATION ST
TORONTO, ON M9N 1J2

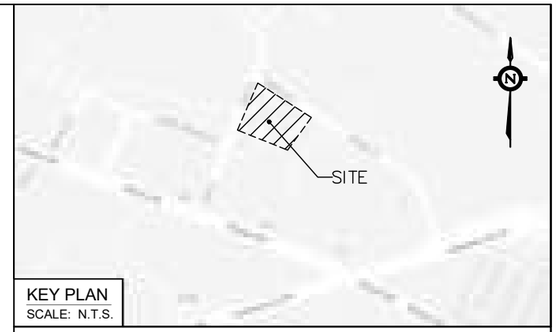
Drawing Title

PROPOSED SITE PLAN

Drawn	Checked	Date	Drawing No.
CL	JS	21/11/25	FIG3
Scale		Project No.	
1:400		300054203	

File Name: 054203 - FIG3.dwg Date Plotted: October 5, 2022 - 9:06 AM





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LEGEND:

SITE PROPERTY LINE

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Drawing Title

PROPOSED ROOF PLAN

Drawn	Checked	Date	Drawing No.
CL	JS	21/11/25	**FIG4**
Scale		Project No.	
1:400		300054203	

File Name: 054203 - FIG4.dwg Date Plotted: October 5, 2022 - 9:02 AM

3.0 Water Supply and Distribution

3.1 Existing Water Infrastructure

The existing water infrastructure adjacent to the site includes:

- A 300 mm diameter watermain in the west side of John Street.
- A 300 mm diameter watermain in the south side of South Station Street.

A subsurface utility investigation completed by T2 Utility Engineers on September 29, 2022, confirms that the existing development is serviced via connections to the 300 mm diameter watermain within South Station Street and the 300 mm diameter watermain within John Street.

Refer to Figure 2 and Drawing S1 for the location of the existing watermains located near the proposed redevelopment. Refer to Appendix A for the CUMAP and existing plan and profiles obtained from the City of Toronto.

3.2 Proposed Water Infrastructure

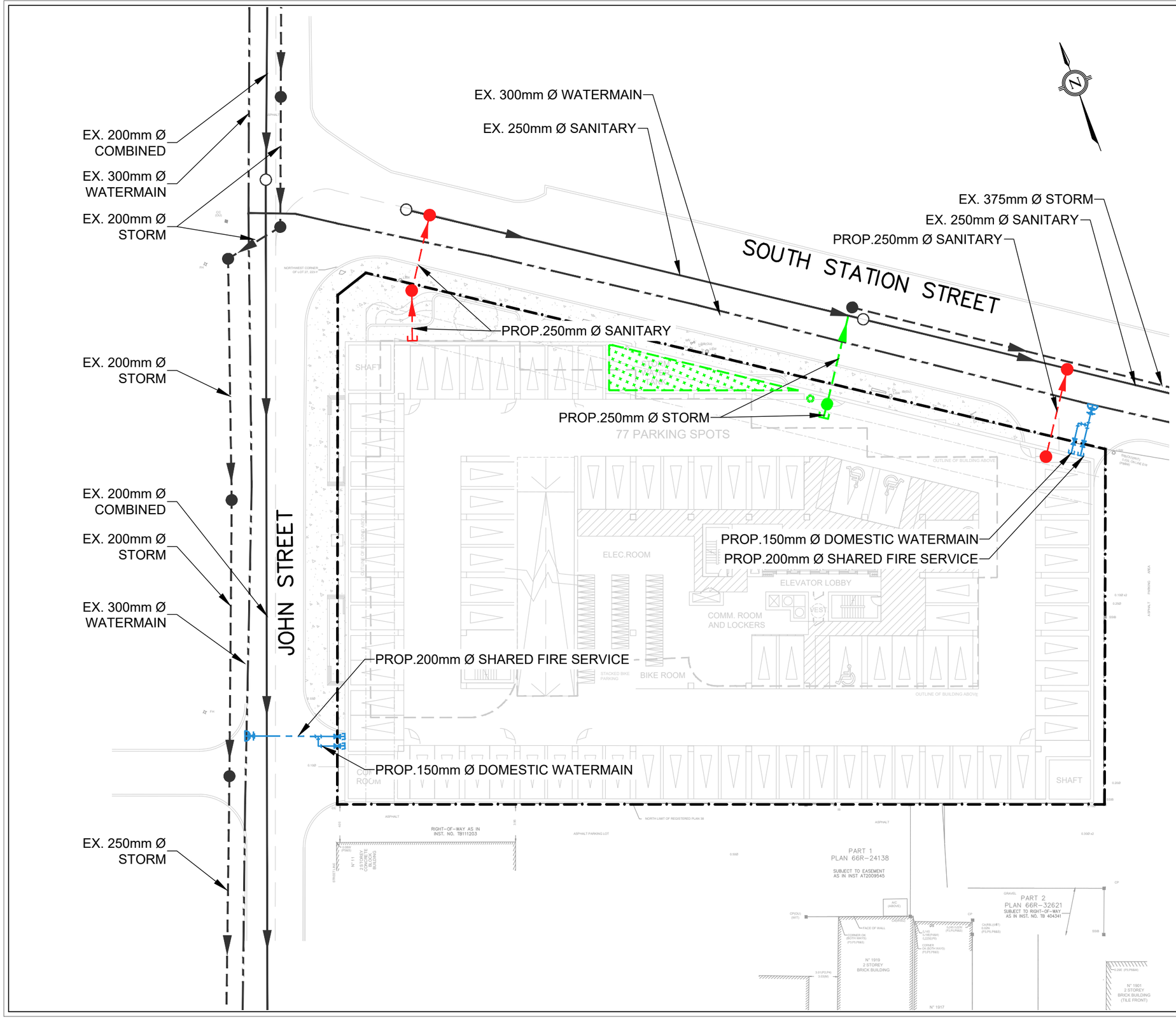
The proposed residential tower has a height of 124.00 m. As per the Ontario Building Code (OBC) for buildings with more than 84 m in height, two fire services are required from two sources of public watermain. As such, two fire services will be provided for the proposed redevelopment to satisfy the OBC requirement.

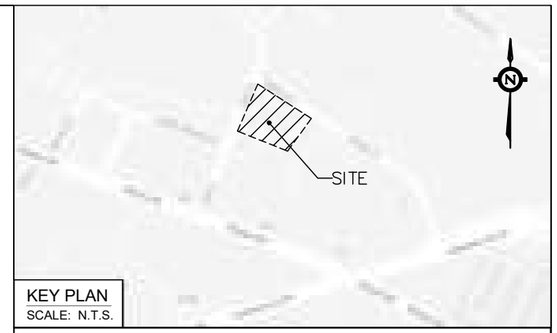
The residential tower is proposed to be serviced via 200 mm diameter fire connection to the existing 300 mm diameter on the south side of South Station Street, and via 150 mm diameter domestic connection off the 200 mm diameter fire connection.

To satisfy OBC requirements, a secondary 200 mm diameter fire connection is proposed to the existing 300 mm diameter on the west side of John Street. An additional 150 mm diameter domestic connection off the 200 mm diameter fire connection is proposed to service the podium. Each 200 mm diameter fire connection will be equipped with a detector check assembly in the building and each 150 mm diameter domestic connection will be equipped with a water meter and backflow preventor in the building.

Fire protection will be provided utilizing the existing hydrants on nearby the site. One additional private hydrant has been proposed within the southwest portion site to ensure adequate hydrant coverage. The proposed buildings will be equipped with an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

Refer to Figure 5 and Drawing S1 for further details on the locations of the fire and domestic connection locations.





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LEGEND:

- SITE PROPERTY LINE
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING WATERMAIN
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING HYDRANT AND VALVE
- VALVE & BOX
- WATER METER
- BACKFLOW PREVENTOR
- DETECTOR ASSEMBLY
- AREA DRAIN
- PROPOSED HYDRANT AND VALVE
- PROPOSED OGS
- PROPOSED STORM TANK

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Project Name

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TORONTO, ON M9N 1J2

Drawing Title

FUNCTIONAL SERVICING PLAN

Drawn	Checked	Date	Drawing No.
CL	JS	21/11/25	**FIG5**
Scale		Project No.	
1:400		300054203	

File Name: 054203 - FIG5.dwg Date Plotted: October 5, 2022 - 8:56 AM

3.3 Proposed Water Demand

The proposed redevelopment will be designed in accordance with the Fire Underwriters Survey (FUS) and the fire calculations were designed as per the "Water Supply for Public Fire Protection, A Guide to Recommended Practice in Canada," dated 2020. The following assumptions were made for the fire flow calculations:

- The redevelopment will be non-combustible construction and fully protected (Minimum 1-hour rating) with a coefficient of 0.8.
- The largest floor area plus 25% of two adjoining floors have been considered.
- The buildings will contain limited combustible contents resulting in a 15% reduction.
- A reduction of 25% has been considered for all buildings to include an NFPA Sprinkler System.

As per the City of Toronto's Design Criteria for Sewers and Watermains (2nd Ed. 2021), an average consumption rate of 190 L/cap/day and a maximum hourly peaking factor of 2.5 were considered in the domestic flow calculation to determine the anticipated total fire flow value for the proposed redevelopment.

The fire flow calculation for the proposed redevelopment indicates that the domestic and fire flow requirements are 3,005 GPM (190 L/s). Refer to Appendix B for the fire flow calculations.

Hydrant flow testing was completed by L&D Waterworks Inc. on June 24, 2022, for two hydrants located near the subject site. The existing hydrants are located on the West side of John Street at Pantelis Kalamaris Lane, and on the south side of South Station Street at 40 South Station Street. The hydrant flow testing results indicated the following:

- A theoretical flow of 5,508 GPM at 20 psi within the 300 mm diameter watermain on the west side of John Street.
- A theoretical flow of 6,434 GPM at 20 psi within the 300 mm diameter watermain on the south side of South Station Street.

The fire flow calculation for the proposed redevelopment indicates that the domestic and fire flow requirements are 3,005 GPM. As such, the results of the hydrant flow testing confirm that the existing water infrastructure can support the proposed redevelopment and that no upgrades to the watermain are required. Refer to Appendix B for the hydrant flow testing results.

4.0 Stormwater Management Analysis

4.1 Design Criteria

The proposed redevelopment is located within the City of Toronto and must comply with the City of Toronto's Wet Weather Flow Management Guidelines (WWFMG). Therefore, stormwater management design criteria for the site are as follows:

- Post-development flows must not exceed the 2-year pre-development flows with a runoff coefficient of C=0.50 (100-year post-development flows controlled to 2-year pre-development levels).
- Water balance controls are to retain the 5 mm rain event through infiltration, evapotranspiration, or rainwater re-use.
- The proposed redevelopment ensures no increase in erosion or downstream flooding.
- Provide an enhanced level of stormwater quality treatment (80% TSS Removal).

4.2 Method of Analysis

The Modified Rational Method (MRM) was used to calculate runoff rates from all drainage catchments, to quantify the detention storage for all control measures, and to demonstrate the site's overall SWM compliance, as specified by the WWFMG. Intensity-Duration-Frequency curves from the City of Toronto were used to simulate rainfall data.

4.3 Existing Stormwater Infrastructure

The existing storm infrastructure adjacent to the site includes:

- A 375 mm diameter storm sewer traveling in a southeast direction in the center of South Station Street.
- A 200 mm to 250 mm diameter storm sewer traveling in a southwest direction in the west side of John Street.
- A 250 mm diameter combined sewer traveling in a southwest direction in the center of John Street.

The subject site has a total area of 0.38 ha and is currently composed of four existing buildings and street-level parking areas.

A subsurface utility investigation completed by T2 Utility Engineers on September 29, 2022, confirms that the existing development is serviced via connections to the 375 mm diameter storm sewer within South Station Street.

Based on the plan and profiles and topographical survey information, it has been determined that the majority of the site's drainage is contained within the site and a

minor amount of external drainage is expected to enter the site from adjacent properties to the east and south.

Under existing conditions, the overland flow route for the site is split with the east portion draining in a northerly direction towards South Station Street and the remaining west portion draining in a westerly direction towards John Street. This overland flow route is to be maintained through the redevelopment of the site to ensure no negative impacts to the existing drainage patterns. Refer to Figure 6 for the existing drainage conditions.

4.4 Allowable Release Rate

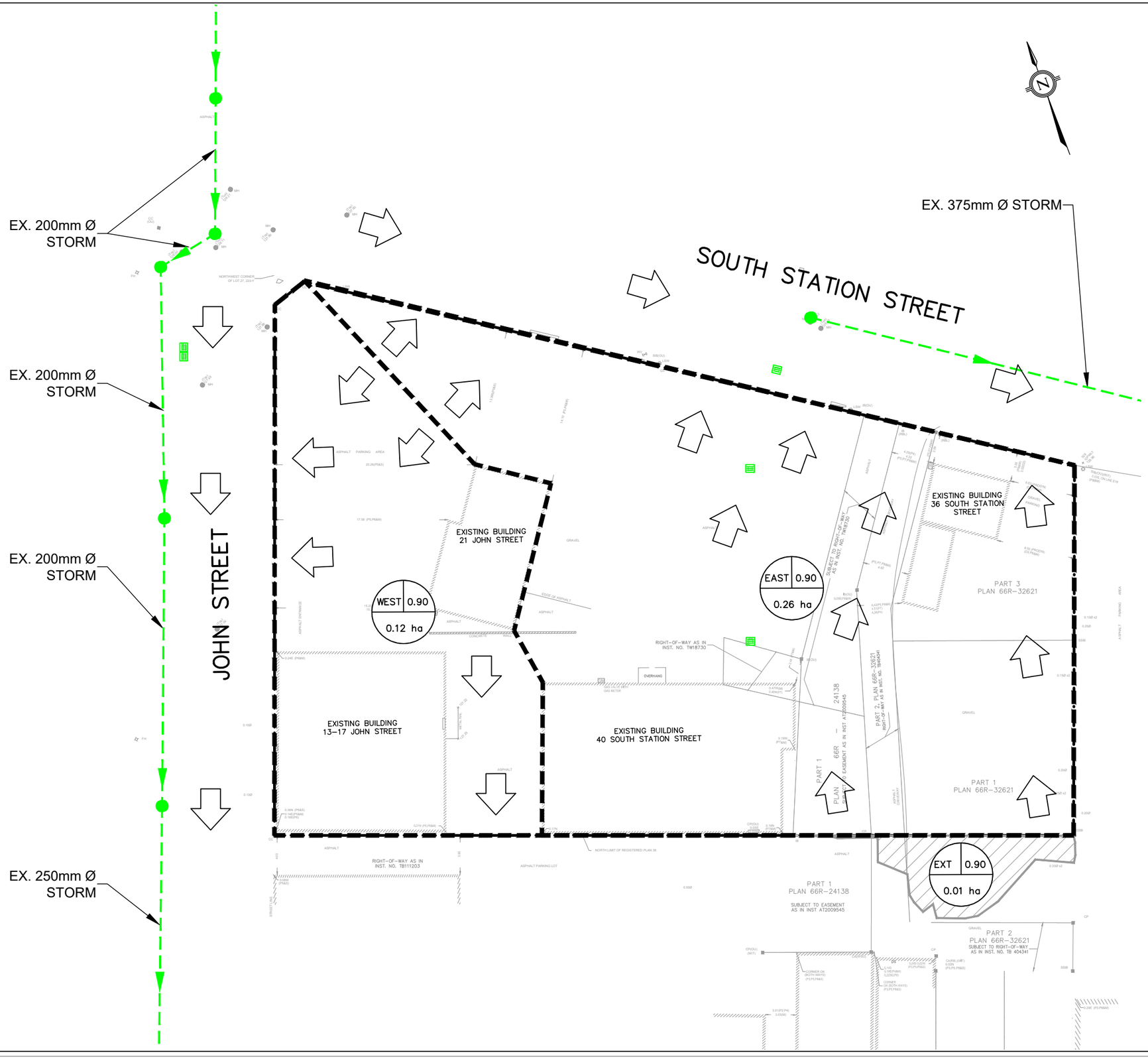
The pre-development peak flow rate for the site was modelled using the Modified Rational Method at a runoff coefficient of C=0.50 as per the Wet Weather Flow Management Guidelines.

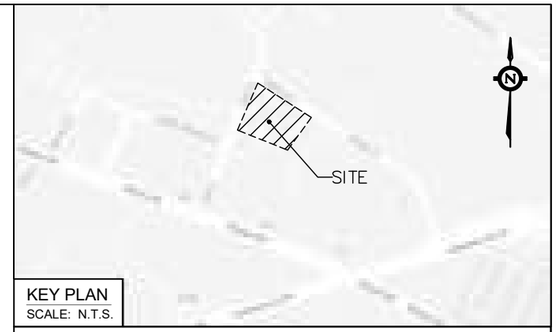
The site area of 0.38 ha was considered to determine the 2-year pre-development runoff rate for the proposed redevelopment using a runoff coefficient of C=0.50. In accordance with the City of Toronto Design Criteria for Sewers and Watermains and the WWFMG, the 100-year post-development runoff rate for the site area must be controlled back to an allowable release rate equal to the 2-year pre-development runoff rate of 46.6 L/s.

Under existing conditions, the overland flow route across the subject site is divided with only the west portion draining to South Station Street. The 0.26 ha drainage area which outlets to South Station Street under the existing conditions has a 2-year pre-development flow of 57.4 L/s considering a runoff coefficient C=0.90. The allowable release rate of 46.6 L/s was selected as the maximum release rate for this redevelopment to ensure there are no negative impacts to the storm sewer downstream of the redevelopment.

Under existing conditions, there is an external drainage area which is conveyed through the proposed redevelopment. The allowable release rate for the proposed redevelopment has been adjusted to account for the external storm flow that is expected to enter the site. The 2-year pre-development runoff rate for this external area was calculated to be 2.4 L/s. The allowable release rate has been increased to account for this external runoff that will be conveyed through the site. As such, the allowable release rate from the subject site is 49.0 L/s (46.6 L/s + 2.4 L/s).

Refer to Figure 7 and Drawing S1 for details. Refer to Appendix C for stormwater calculations.





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LEGEND:

- SITE PROPERTY LINE
- DRAINAGE BOUNDARY
- EXTERNAL DRAINAGE BOUNDARY
- DRAINAGE AREA NUMBER
- RUNOFF COEFFICIENT
- DRAINAGE AREA (ha)
- OVERLAND FLOW ROUTE
- EXISTING CATCHBASIN / DOUBLE CATCHBASIN
- EXISTING STORM SEWER

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Drawing Title

PRE-DEVELOPMENT STORM DRAINAGE PLAN

Drawn	Checked	Date	Drawing No.
CL	JS	21/11/25	**FIG6**
Scale		Project No.	
1:400		300054203	

File Name: 054203 - FIG6.dwg Date Plotted: October 5, 2022 - 8:56 AM

5.0 Proposed Stormwater Management

5.1 Stormwater Quantity Control

The proposed redevelopment has been designed with one drainage area which has an outlet to the existing storm sewer within South Station Street. The subject site has been designed to control the 100-year post-development flows to the 2-year pre-development flows and on-site storage has been provided accordingly.

There may be runoff from rainstorms that exceeds the capacity of the City's storm service connections. Therefore, the Owner shall be responsible to provide flood protection or a safe overland flow route for the proposed redevelopment without causing damage to the proposed and adjacent public and private properties.

Existing drainage patterns on adjacent properties shall not be altered and stormwater runoff from the subject redevelopment shall not be directed to drain onto adjacent properties.

The controlled flow for the site is proposed to outlet via 250 mm diameter storm sewer connection to the existing 375 mm diameter storm sewer within South Station Street at EX.STM-MH1.

Table 4 summarizes the stormwater quantity requirements to meet the allowable release rate for the site. Refer to Figure 7 for the proposed stormwater design.

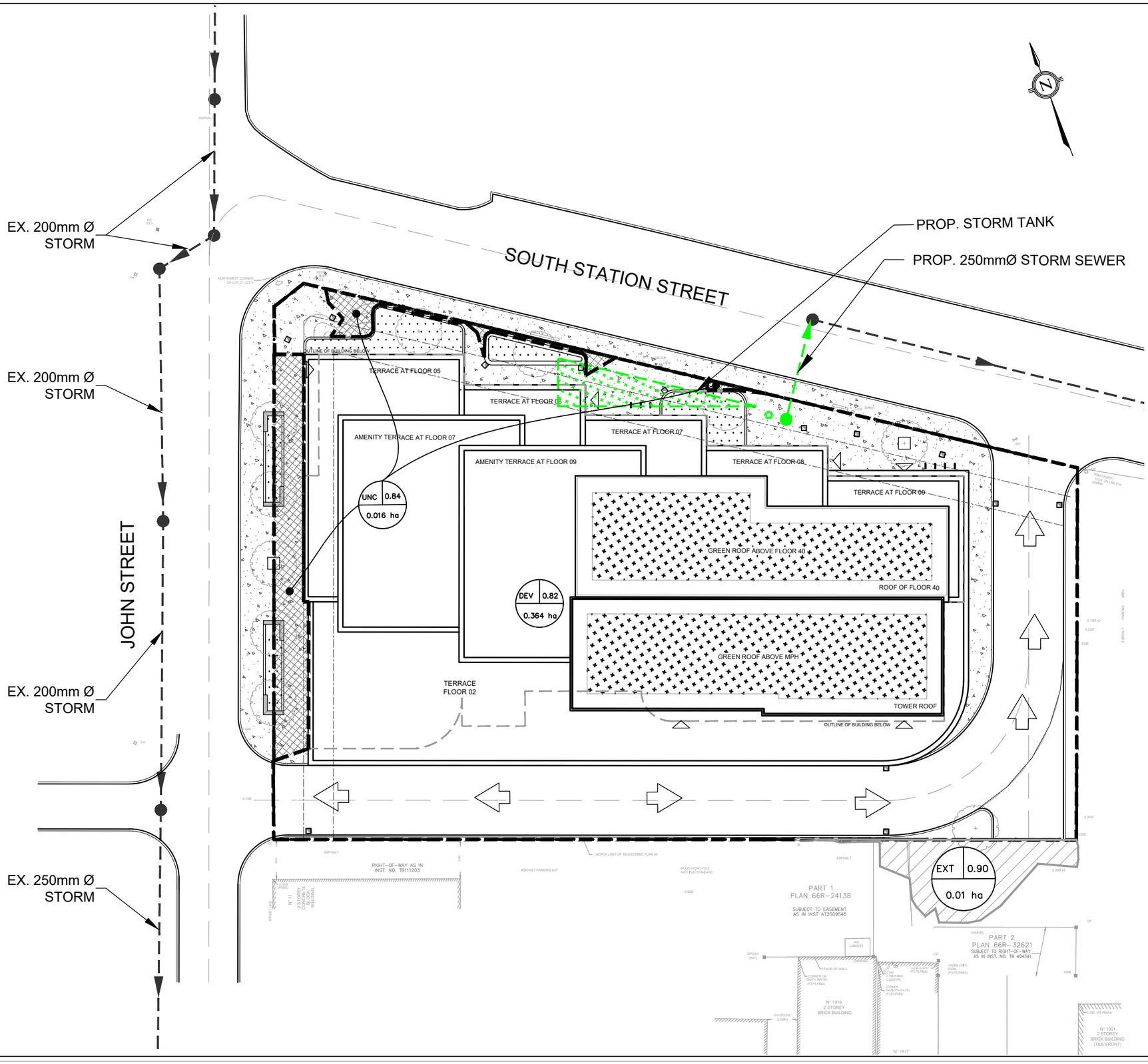
Table 4: Release Rates and Storage Volumes

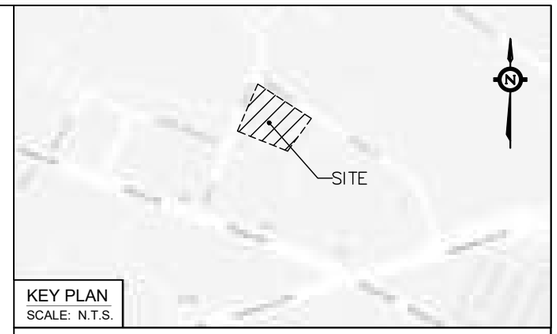
Area ID	Description	Area (ha)	Target Release Rate (L/s)	Actual Release Rate (L/s)	Active Storage Required (m^3)
DEV	Rooftop	0.17	49.0	38.1	122
	Green Roof	0.05			
	Hardscape	0.13			
	Landscape	0.01			
UNC	Uncontrolled Area	0.02		9.4	-
Total		**0.38**		**47.5**	**122**

To ensure that the outlet to the proposed storm sewer system discharges at or below the target release rate, the use of an outlet orifice control is necessary. The orifice that releases at a rate nearest the target release rate of 39.3 L/s (49.0 L/s - 9.4 L/s) is a 125 mm DR11 orifice with an inner diameter of 114.07 mm with a release rate of 38.1 L/s. The orifice will be placed upstream of the control manhole to control the flow to the South Station Street storm sewer.

The proposed stormwater storage tank will be located in the P1 level and is proposed to be pumped due to shallow depth of the tank outlet. The required active storage volume is 122.0 m^3. The required storage volume is based on an actual release rate of 38.1 L/s; should the release rate be controlled to less than 38.1 L/s, the required storage will be greater than 122.0 m^3.

Refer to Appendix C for the stormwater calculations, Figure 7, Drawing S1, and Drawing G1 for further details.





KEY PLAN
SCALE: N.T.S.

Notes

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LEGEND:

- SITE PROPERTY LINE
- DRAINAGE CATCHMENT AREAS
- EXISTING STORM SEWER AND MANHOLE
- PROPOSED STORM SEWER AND MANHOLE
- PROPOSED OGS
- PROPOSED STORM TANK
- EXTERNAL DRAINAGE BOUNDARY
- UNCONTROLLED DRAINAGE BOUNDARY
- DRAINAGE AREA NUMBER
- RUNOFF COEFFICIENT
- DRAINAGE AREA (ha)
- OVERLAND FLOW ROUTE
- AREA DRAIN

DEV 0.82 0.364 ha

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web www.rjburnside.com

Client
21 JOHN DEV INC.
31 SCARSDALE ROAD, UNIT 5
TORONTO, ON
M3B 2R2

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

Drawing Title
POST DEVELOPMENT DRAINAGE PLAN

Drawn	Checked	Date	Drawing No.
CL	JS	21/11/25	**FIG7**
Scale		Project No.	
1:400		300054203	

File Name: 054203 - FIG7.dwg Date Plotted: October 5, 2022 - 9:03 AM

5.2 Stormwater Retention (Water Balance)

As per the City of Toronto Wet Weather Flow Management Guidelines, it is required that the 5 mm rainfall event be retained on-site through infiltration, evapotranspiration, or rainwater reuse.

The full site area of 0.38 ha has been considered in determining the minimum rainfall re-use volume to meet both the quality and water balance requirements for the proposed redevelopment. The following method has been considered in determining the minimum rainfall re-use volume:

Minimum Rainfall Re-Use = Site Area (m^2) x 5 mm

Minimum Rainfall Re-Use = (3,801) x (0.005) = 19.01 m^3

The initial abstraction for the subject site considers the proposed roof, green roof, hardscape, and landscape areas. These abstracted volumes are presented in Table 5.

Table 5: Initial Abstraction

Surface	Initial Abstraction (m)	Area (m^2)	Initial Abstraction Volume (m^3)
Impervious Roof	0.001	1677	1.7
Green Roof	0.005	518	2.6
Impervious Areas	0.001	1478	1.5
Pervious Areas	0.005	127	0.6
	Total	**3801**	**6.4**

The following method has been used to determine the minimum rainfall re-use volume following initial abstraction:

Minimum Rainfall Re-Use = Site Area (m^2) x 5 mm – IA

Minimum Rainfall Re-Use = 19.01 m^3 - 6.4 m^3 = 12.6 m^3

To achieve the water balance criteria, the required retention and reuse for the proposed site area of 0.38 ha is 12.6 m^3.

Dead storage will be provided within the stormwater storage tank to store and re-use the stormwater on-site. The proposed stormwater system will be designed to re-use the stormwater for irrigation (rainwater harvesting) on-site. Should the irrigation methods be insufficient to re-use the full volume of stormwater, alternative water re-use methods will be considered such as grey-water toilets within the podium. This will be determined at the detailed design stage and Site Plan Approval.

Refer to Appendix C for the stormwater calculations.

5.3 Stormwater Quality Control

As per the City of Toronto's Wet Weather Flow Management Guidelines and the Ministry of the Environment Stormwater Management Planning and Design Manual (March 2003), stormwater quality control is required for the site to achieve a TSS removal efficiency of 80%. Refer to Table 6 below.

Table 6: Effective TSS Removal Rate

Surface	Effective TSS Removal (%)	Treated Area (m^2)	% of Total Area	TSS Removal Over Total Site
Impervious Roof	80%	1,677	44.1%	35.3%
Green Roof	80%	518	13.6%	10.9%
Hardscape	0%	1,478	38.9%	0.0%
Landscape	80%	127	3.4%	2.7%
	Total	**3,801**	**100%**	**48.9%**

To achieve a TSS Removal Rate of 80%, a treatment train approach will be required. The first step of the treatment train is to re-use the stormwater retention on-site for irrigation; 50% of the stormwater is considered to be treated for 80% TSS removal when re-used for irrigation. The TSS removal rate of the site after irrigation is 69.33%; please refer to the calculations below.

R = A + B - ([A x B] / 100)
R = Total TSS Removal Rate
A = TSS Removal Rate of First BMP
B = TSS Removal Rate of Second BMP

TSS Removal Rate = 48.9% + (50% x 80%) - [(48.9% x 50% x 80%) / 100)]
TSS Removal Rate = 69.33%

As per the City of Toronto Wet Weather Flow Management Guidelines, OGS devices operating at their original design capacities, are capable of achieving a maximum TSS removal of 50%.

To achieve a TSS removal of 80% for the subject site, an OGS unit will be provided upstream of the outlet at the control manhole to treat the stormwater in a treatment train approach. Refer to the calculation below.

R = A + B - ([A x B] / 100)
R = Total TSS Removal Rate

A = TSS Removal Rate of First BMP
B = TSS Removal Rate of Second BMP

TSS Removal = 69.33% + 50% - [(69.33% x 50%) / 100)]
TSS Removal = 84.67%

The TSS removal for the subject site after treatment with the OGS unit is 84.67% which exceeds the 80% TSS removal target. Refer to Appendix C for details.

6.0 Groundwater Management

A Hydrogeological Assessment Report is required at the Rezoning Application and Site Plan Application stages to determine the anticipated post-development and temporary construction flow rates and quality of the groundwater. If groundwater is proposed to be discharged to a municipal sewer in the short-term, the Property Owner is required to enter into a Sewer Discharge Agreement with Toronto Water, Environmental Monitoring and Protection for the temporary discharge of groundwater into a Municipal combined, storm, or sanitary sewer, and is required to submit a Groundwater Discharge Application to Toronto Water, Environmental Monitoring and Protection and obtain short-term discharge approval as per Toronto Municipal Code Chapter 681.

A Hydrogeological Assessment Report was completed by EXP Services Inc., dated September 13, 2022, refer to Appendix D.

6.1 Permanent Private Water Drainage System (PWDS)

Based on the City of Toronto Foundation Drainage Policy which came into effect January 1, 2022, long-term discharge of foundation drainage to the City's sanitary sewer system will not be permitted. Long-term discharge of foundation drainage that contains any groundwater will not be permitted to the City's storm or combined sewer system. As such, the proposed substructure must be designed to be fully waterproofed without the need for a Private Water Drainage System (PWDS), and there will be no groundwater discharge from the redevelopment permitted to the municipal sewer system.

6.2 Short-Term Construction Dewatering

Groundwater will need to be managed during the construction phase either by discharging to the sewer, for which a Short-Term Construction Discharge Agreement with the City would be required, or by hauling water from the site.

The proposed redevelopment will include the demolition of the existing buildings on the site and the construction of a residential tower with a podium including residential amenities, commercial retail spaces, and two levels of underground parking.

A steady state dewatering requirement was estimated for the proposed redevelopment at 135,000 L/day of total volume with a Safety Factor of 2 (excluding precipitation). As dewatering flow rates can be significantly higher during and after precipitation events, a potential maximum dewatering requirement was also estimated to be 185,000 L/day of total volume with a Safety Factor of 2 (including precipitation). If the total dewatering rate exceeds 400,000 L/day, a Permit to Take Water (PTTW) will be required from the Ministry of Environment, Conservation and Parks (MECP) under the Ontario Water Resources Act. If the total dewatering rate is between 50,000 to 400,000 L/day, the water taking must be registered with the Environmental Activity and Sector Registry

(EASR), and if the total dewatering rate is less than 50,000 L/day, a permit is not required. While 185,000 L/day is the rate which will be required to be discharged to the municipal sewer system, the construction dewatering rate excluding the precipitation amount is the rate used for permit application. As 135,000 L/day is within the 50,000 to 400,000 L/day range, the water taking for this development will be registered with the EASR, but a PTTW is not required.

Discharge of groundwater to the sewer is subject to provisions of the Sewer Use By-Law, provided that the quality limits for discharging groundwater into the sanitary sewers satisfy the limits listed in Table 1 of Chapter 681, and the quality limits for discharging of groundwater into the storm sewers satisfy the limits as listed in Table 2 of Chapter 681. Groundwater chemistry sampling will be undertaken to determine if any samples exhibit exceedances of City of Toronto Storm/Sanitary Sewer Use By-Law criteria limits. If they do, additional groundwater sampling and testing will be undertaken to confirm the observed exceedances and determine the appropriate treatment options to facilitate short-term groundwater discharge to the municipal sewer system.

From preliminary sampling undertaken, it is anticipated that TSS levels and other parameters in the pumped groundwater may become elevated and exceed both the Sanitary and Storm Sewer Use By-Law limits. A suitable treatment method will be implemented to discharge to the applicable sewer system.

7.0 Sanitary Servicing

7.1 Existing Sanitary Servicing

The existing sanitary infrastructure adjacent to the site includes:

- A 200 mm to 250 mm diameter combined sewer travelling in a southwest direction in the center of John Street.
- A 250 mm diameter sanitary sewer travelling in a southeast direction in the center of South Station Street.

Refer to Figure 6 and Drawing S1 for the location of the existing sanitary sewer and combined sewer.

7.2 Existing Sanitary Sewer Flow

A subsurface utility investigation completed by T2 Utility Engineers on September 29, 2022, confirms that the existing development at 13-21 John Street contributes to the combined sewer within John Street and the existing development at 36-40 South Station Street contributes to the sanitary sewer within South Station Street.

An equivalent population was calculated to determine the existing sanitary flow using the City of Toronto's Design Criteria for Sewer and Watermains (2nd Ed., 2021). The existing theoretical flow from the existing buildings, including an infiltration allowance, was calculated to be 0.15 L/s to the John Street combined sewer and 0.39 L/s to the South Station Street sanitary sewer.

Refer to Appendix E for the existing sanitary sewer calculations.

7.3 Proposed Sanitary Servicing

An equivalent population was calculated to determine the proposed sanitary flow using population densities for residential units and commercial areas per the City of Toronto's Design Criteria for Sewer and Watermains (2nd Ed., 2021).

The residential sanitary flow for the proposed redevelopment was calculated using the following:

- Domestic sewage flow based upon a unit sewage flow of 240 L/cap/day for residential uses with a peaking factor (2.00<PF>4.00).
- Infiltration rate of 0.26 L/s/ha.

The commercial flows were calculated using the maximum of:

- Domestic sewage flows based upon an average flow of 180,000 L/floor ha/day for commercial uses (PF=1).

- Domestic sewage flows based upon a unit sewage flow of 250 L/cap/day for commercial uses with a peaking factor (PF=1).

Using these domestic sewage flows, the proposed sanitary contribution to the South Station Street sewer was calculated to be 9.76 L/s, including an infiltration allowance. The proposed redevelopment will result in a 9.37 L/s (9.70 L/s - 0.39 L/s) increase in sanitary flow contributing to the sanitary sewer system within South Station Street. The proposed sanitary flow will be conveyed via two new 250 mm diameter sanitary connections to the existing 250 mm diameter sanitary sewer in South Station Street. As the proposed redevelopment is causing an increase in flow to the existing sanitary sewer system, a downstream sewer analysis has been completed to confirm that there are no negative impacts to the existing sewer system. Refer to Section 8.0 for further details.

Refer to Figure 5 and Drawing S1 for further details regarding the proposed connection locations. Refer to Appendix E for the proposed sanitary calculations.

8.0 Downstream Sanitary Analysis

The subject site at 13-21 John Street and 36-40 South Station Street is located within Study Area 51 of the City of Toronto Basement Flooding Protection Program Map. The Basement Flooding Environmental Assessment for Study Area 51 began in 2019, as such, no InfoWorks model for the Study Area is available at this time.

A sanitary sewer analysis was completed to confirm if the existing sewer network to the downstream sanitary trunk has sufficient capacity to service the proposed redevelopment. The sanitary sewer network for this study starts at South Station Street and runs through Lawrence Avenue West where it connects to the existing 750 mm diameter trunk sewer at Humber River, southwest of Lawrence Avenue West and Hickory Tree Road.

As per Toronto Water's Sewer Capacity Assessment Criteria, analyses have been completed under the design flow and extreme wet weather flow conditions to determine the capacity constraints of the sanitary sewer system downstream of the proposed redevelopment to the trunk sewer located at Humber River, southwest of Lawrence Avenue West and Hickory Tree Road.

This preliminary downstream capacity analysis reviews the capacity of the municipal sewer system from the proposed redevelopment to the existing 750 mm diameter trunk sewer at Humber River, southwest of Lawrence Avenue West and Hickory Tree Road.

As per Toronto Water's Sewer Capacity Assessment Criteria, sufficient sanitary flow is defined such that:

- Under the dry weather flow scenario, the flow shall be less than the full pipe flow capacity meaning there is no surcharge in any section of the pipe.
- Under the wet weather flow scenario, the modelled hydraulic grade line (HGL) of the flow must be at least 1.8 m below the ground surface.

As per Toronto Water's Sewer Assessment Criteria, this analysis has been completed under the dry weather and wet weather flow conditions to determine the capacity constraints of the sanitary sewer system downstream of the proposed redevelopment.

8.1 Downstream Sanitary Sewer Capacity Analysis Assumptions and Considerations

As the InfoWorks model for Study Area 51 has not yet been completed; design sheets were used to complete the analysis. The assumptions made to complete the analysis include:

- Existing plan and profiles were used to determine the existing invert, pipe sizes, and manhole top elevations for the analysis:
  - Note: The existing plan and profiles provided by the City of Toronto (prepared in 1955, 1967, and 1992) did not align with one another and had inverts which yielded up to 0.5 m differences.
  - At the time of writing this report, an underground utility investigation is underway for the subject site and surrounding roads; further connection information will be provided in a future submission.
- The City of Toronto's Design Criteria was used to establish theoretical population flows generated within the Drainage Areas. GIS imagery and City of Toronto Zoning Maps were used to determine existing land-usage.
- Average per capita flow rates of 240 L/capita/day for residential population considering Harmon peaking factor, and 250 L/capita/day were applied for Industrial, Commercial, and Institutional (ICI) populations to determine contributing flow.
- Furthermore, the average flow rate of 180,000 L/floor ha/d was calculated for ICI contributing areas and compared to the flows generated by population to determine the maximum flow rate.
- The hydraulic gradeline (HGL) for this analysis was established to be the obvert of the downstream sanitary sewer at the trunk.
- Recent development application updates to the existing conditions were considered using information publicly available from the City of Toronto Development Applications Website.

The preliminary downstream sanitary sewer capacity analysis was completed taking the above noted assumptions into consideration from the proposed redevelopment at 13-21 John Street and 36-40 South Station Street to the 750 mm diameter trunk sewer at Humber River. At the time of writing this report, flow monitoring data has not been received from the City of Toronto. Once that data is available, the downstream capacity analysis will be updated accordingly.

8.2 Existing Conditions Model

The sanitary flows contributing to the trunk sewer were analyzed using two scenarios based on the design (dry weather) and extreme wet weather flows for the pre-development conditions:

- Design (Dry Weather) Conditions (I/I = 0.26 L/s/ha).
- Extreme Wet Weather Conditions (I/I = 3.0 L/s/ha).

The following assumptions were made:

- The existing trunk sewer has sufficient capacity for the existing flows.
- The HGL connection to the trunk sewer has been set to the obvert of the connecting pipe.

The existing sanitary sewer capacity and hydraulic grade line elevations were examined from the proposed redevelopment to the trunk sewer. The results of the analysis are below.

8.2.1 Scenario 1: Pre-Development Sanitary Flow – Design Conditions (Dry Weather)

As per the Existing Condition Sanitary Sewer Design Sheet for dry weather, no downstream sewer has a pipe capacity exceeding 100%; as such, no pipe is surcharged.

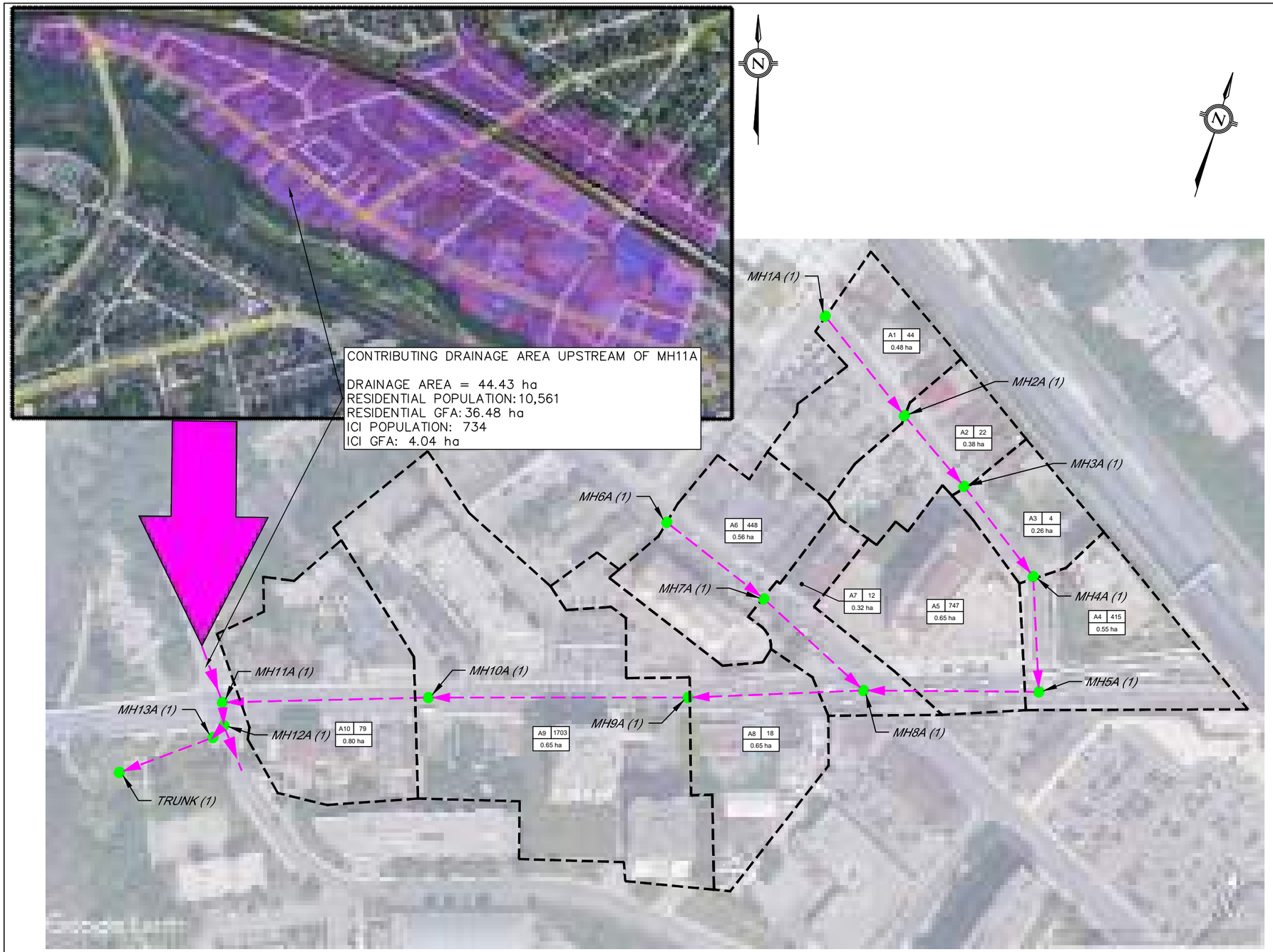
8.2.2 Scenario 2: Pre-Development Sanitary Flow – Extreme Wet Weather

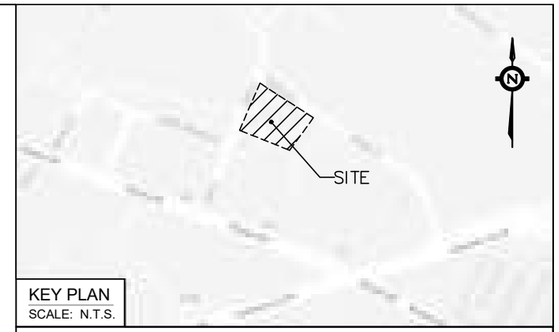
As per the Existing Condition Sanitary Sewer Design Sheet for Extreme Wet Weather, there are three segments of sewer downstream of the subject site that have an HGL elevation less than 1.8 m from the surface. Refer to Table 7.

Table 7: Scenario 2 – Pre-Development

From	To	Diameter (mm)	Slope	Depth to HGL US (m)	Depth to HGL DS (m)
MH10A	MH11A	300	2.20%	1.91	1.44
MH11A	MH12A	450	0.38%	1.44	1.71
MH12A	MH13A	450	38.70%	1.71	2.82

Refer to Appendix E and Figure 8 for details.





KEY PLAN
SCALE: N.T.S.

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LEGEND:

- DRAINAGE BOUNDARY
- EXISTING COMBINED SEWER
- BLOCK ID
- TOTAL POPULATION
- INFILTRATION AREA (ha)

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Client

21 JOHN DEV INC.

31 SCARSDALE ROAD, UNIT 5
TORONTO, ON
M3B 2R2

Project Name

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

Drawing Title

SANITARY DOWNSTREAM ANALYSIS EXISTING CONDITIONS

Drawn	Checked	Date	Drawing No.
AH	PM	21/11/25	**FIG8**
Scale		Project No.	
NOT TO SCALE		300054203	

File Name: 054203 - FIG8.dwg Date Plotted: October 4, 2022 - 12:40 PM

8.3 Existing Conditions + Recent Developments Model

To ensure that the downstream sanitary capacity analysis reflects the existing conditions today, the City of Toronto's Development Application Website was used to identify recent developments within the sewershed. The recent developments added to the existing condition can be found in Table 8 below.

Table 8: Recent Developments

Site Address	Land Use Type	Description
2278 Weston Road	Residential	Proposed additional two units to existing 33-unit residential development.
2270-2274 Weston Road	Residential	Proposed 12-storey apartment building with 107 units.
2179 Weston Road	Residential	Proposed three 4-storey townhouses and nine single-family units.
64 King Street	Residential	Proposed dividing one single-family lot into two single-family lots.
1956 Weston Road	Mixed-Use	Proposed two 29-storey residential towers and podium with a total of 592 residential units and commercial retail.

The developments listed above were added to the existing condition. Refer to Figure 9 and Appendix E for further details on the recent developments added to the analysis.

The sanitary sewers contributing to the trunk sewer were analyzed using two scenarios based on the design (dry weather) and extreme wet weather flows for the existing conditions plus recent developments model.

- Design (Dry Weather) Conditions (I/I = 0.26 L/s/ha).
- Extreme Wet Weather Conditions (I/I = 3.0 L/s/ha).

The following assumptions were made:

- The existing trunk sewer has sufficient capacity for the proposed flows.
- The HGL connection to the trunk sewer has been set to the obvert of the connecting pipe.

The proposed sanitary sewer capacity and hydraulic grade line elevations were examined from the proposed redevelopment to the trunk sewer. The results of the analysis are below.

8.3.1 Scenario 3: Existing Conditions + Recent Developments Sanitary Flow – Design Conditions (Dry Weather)

As per the Existing Condition + Recent Developments Sanitary Sewer Design Sheet for dry weather, no downstream sewer has a pipe capacity exceeding 100%; as such, no pipe is surcharged.

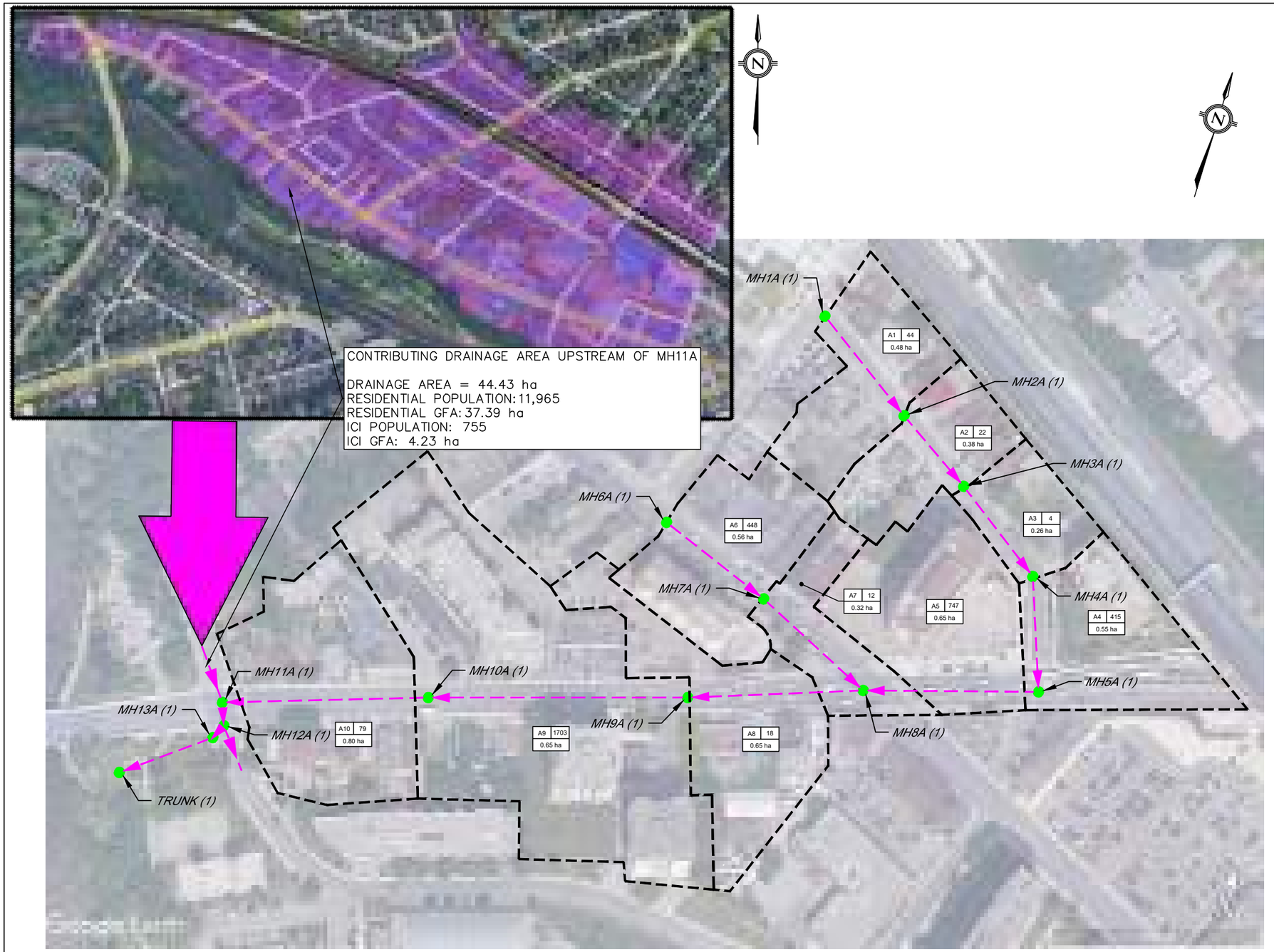
8.3.2 Scenario 4: Existing Conditions + Recent Developments Sanitary Flow – Extreme Wet Weather

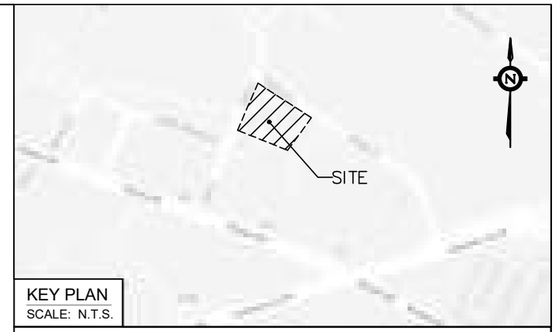
As per the Existing Condition + Recent Development Sanitary Sewer Design Sheet for Extreme Wet Weather, there are three segments of sewer downstream of the subject site that have an HGL elevation less than 1.8 m from the surface. Refer to Table 9 below.

Table 9: Scenario 4 – Pre-Development + Recent Developments

From	To	Diameter (mm)	Slope	Depth to HGL US (m)	Depth to HGL DS (m)
MH10A	MH11A	300	2.20%	1.91	1.42
MH11A	MH12A	450	0.38%	1.42	1.71
MH12A	MH13A	450	38.70%	1.71	2.82

Refer to Appendix E and Figure 9 for details.





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LEGEND:

- DRAINAGE BOUNDARY
- EXISTING COMBINED SEWER
- BLOCK ID
- TOTAL POPULATION
- INFILTRATION AREA (ha)

A1 | 44
0.48 ha

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Client

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TORONTO, ON
M3B 2R2

Project Name

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

Drawing Title

SANITARY DOWNSTREAM ANALYSIS - EXISTING CONDITIONS + RECENT DEVELOPMENTS

Drawn	Checked	Date	Drawing No.
AH	PM	21/11/25	**FIG9**
Scale		Project No.	
NOT TO SCALE		300054203	

File Name: 054203 - FIG9.dwg Date Plotted: October 4, 2022 - 12:39 PM

8.4 Post-Development Sanitary Sewer Analysis

The sanitary sewers contributing to the trunk sewer were analyzed using two scenarios based on the design (dry weather) and extreme wet weather flows for the post-redevelopment conditions:

- Design (Dry Weather) Conditions (I/I = 0.26 L/s/ha).
- Extreme Wet Weather Conditions (I/I = 3.0 L/s/ha).

The following assumptions were made:

- The existing trunk sewer has sufficient capacity for the proposed flows.
- The HGL connection to the trunk sewer has been set to the obvert of the connecting pipe.

The proposed sanitary sewer capacity and hydraulic grade line elevations were examined from the proposed redevelopment to the trunk sewer. The results of the analysis are below.

8.4.1 Scenario 5: Post-Development Sanitary Flow – Design Conditions (Dry Weather)

As per the Proposed Condition Sanitary Sewer Design Sheet for dry weather, no downstream sewer has a pipe capacity exceeding 100%; as such, no pipe is surcharged.

8.4.2 Scenario 6: Post-Development Sanitary Flow – Extreme Wet Weather

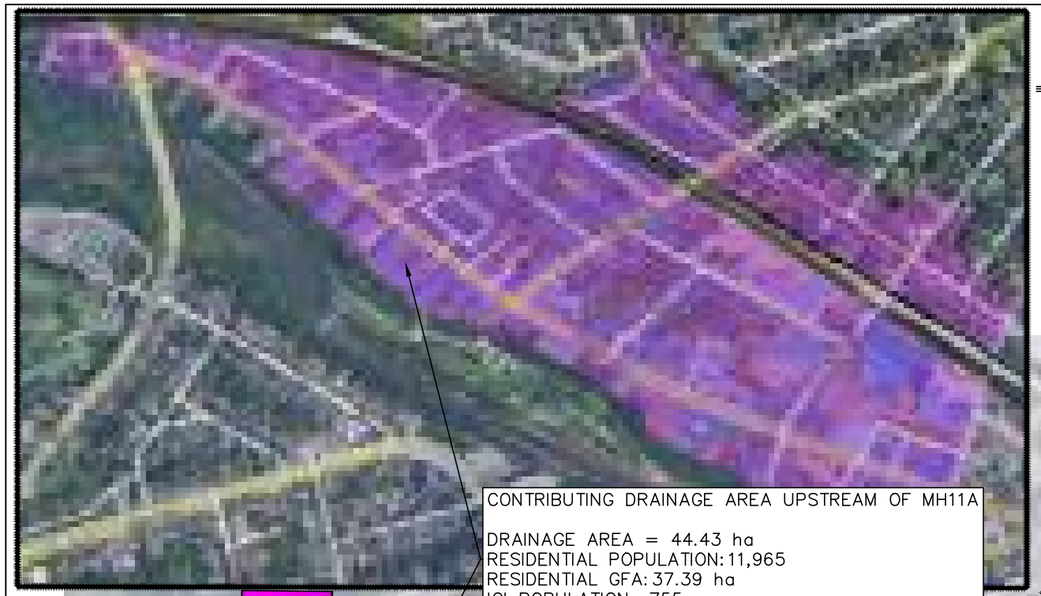
As per the Post-Development Condition Sanitary Sewer Design Sheet for Extreme Wet Weather, there are three segments of sewer downstream of the subject site that have an HGL elevation less than 1.8 m from the surface. Refer to Table 10 below.

Table 10: Scenario 6 – Post-Development

From	To	Diameter (mm)	Slope	Depth to HGL US (m)	Depth to HGL DS (m)
MH10A	MH11A	300	2.20%	1.91	1.42
MH11A	MH12A	450	0.38%	1.42	1.71
MH12A	MH13A	450	38.70%	1.71	2.82

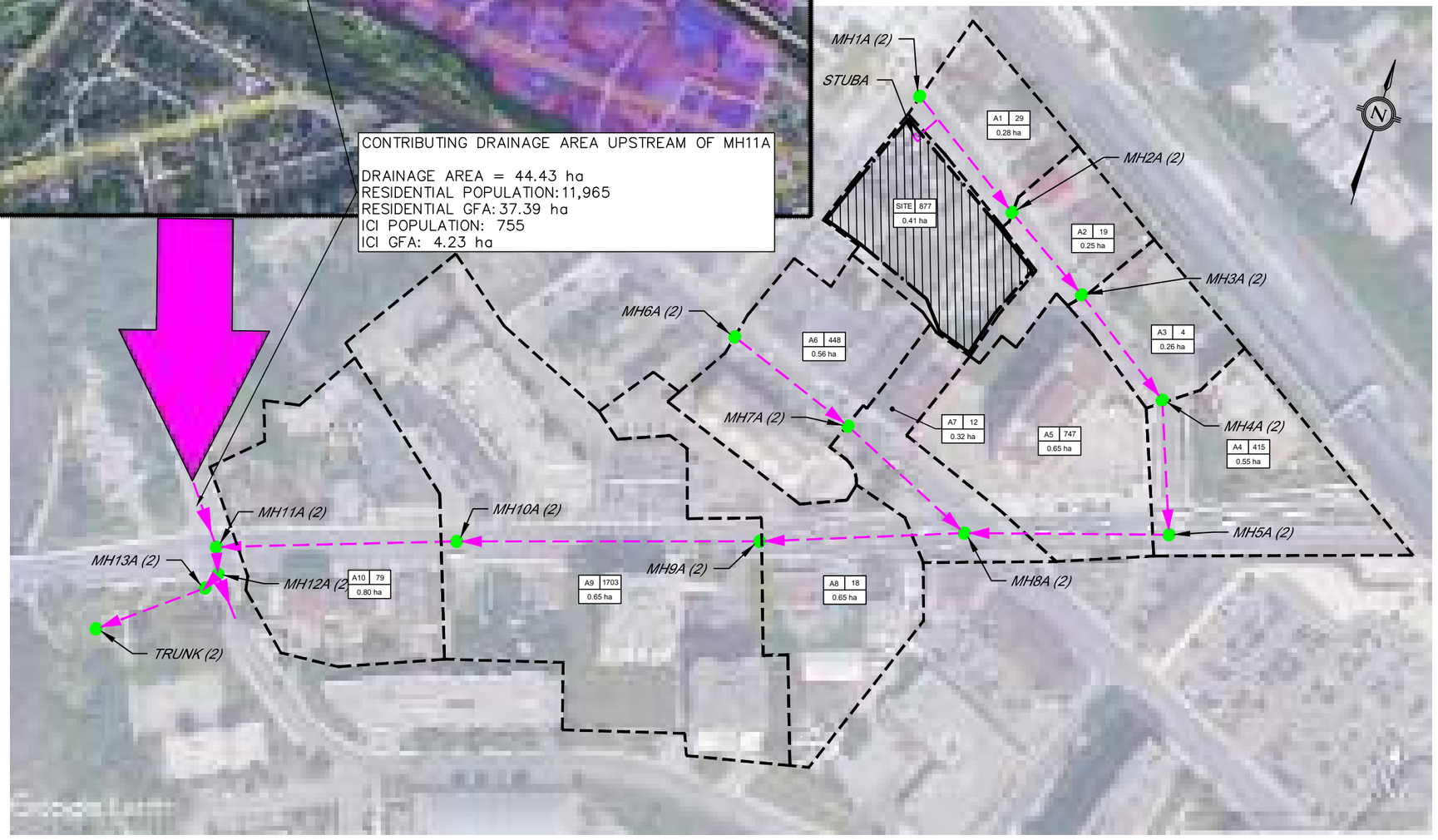
As the additional 9.37 L/s of sanitary flow from the proposed redevelopment does not cause any increases to the existing HGL, it will not cause any negative impacts to the existing sanitary sewer system.

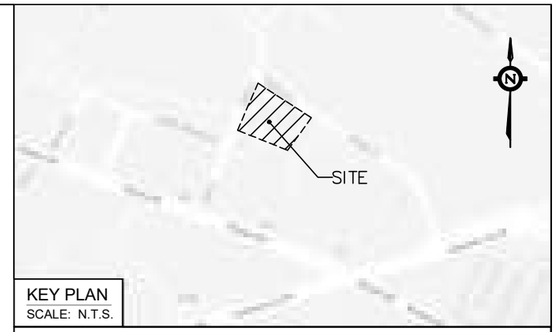
Refer to Appendix F and Figure 10 for details.



CONTRIBUTING DRAINAGE AREA UPSTREAM OF MH11A

DRAINAGE AREA = 44.43 ha
RESIDENTIAL POPULATION: 11,965
RESIDENTIAL GFA: 37.39 ha
ICI POPULATION: 755
ICI GFA: 4.23 ha





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LEGEND:

- SITE PROPERTY LINE
- DRAINAGE BOUNDARY
- EXISTING COMBINED SEWER
- PROPOSED SANITARY SEWER
- SITE AREA
- BLOCK ID
- TOTAL POPULATION
- INFILTRATION AREA (ha)

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TORONTO, ON M9N 1J2

Drawing Title
SANITARY DOWNSTREAM ANALYSIS POST DEVELOPMENT

Drawn	Checked	Date	Drawing No.
AH	PM	21/11/25	**FIG10**
Scale		Project No.	
NOT TO SCALE		300054203	

9.0 Erosion and Sediment Control

The Erosion and Sediment Control Plan for the site will be designed in conformance with the City of Toronto Guidelines. The erosion and sediment control strategy will include the following:

- Temporary sediment control fence at construction limits and/or downstream of any disturbed areas prior to grading.
- Gravel mud mats at construction vehicle access points to minimize off-site tracking of any sediments.
- Sediment traps in existing and proposed catch basins.
- Routine inspections, monitoring, and repair as necessary of all erosion and sediment control measures during construction.
- Removal of temporary controls once the areas they serve are restored and stable.

All reasonable measures will be taken to ensure that sediment loading is minimized both during and following construction. Refer to Drawing ESC1 (Erosion and Sediment Control Plan) for further details.

10.0 Conclusions and Recommendations

The servicing analysis provided above is summarized as follows:

10.1 Water Servicing

- Two connections to existing watermain will be provided to service the proposed redevelopment: one combined fire and domestic connection to the existing 300 mm diameter watermain within South Station Street, and one combined fire and domestic connection to the existing 300 mm diameter watermain within John Street.
- Fire protection will be accommodated through the use of existing hydrants within the John Street and South Station Street ROW, and one proposed private hydrant within the site.
- The proposed redevelopment will be equipped with an adequately designed system conforming to NFP 13 and other NFPA sprinkler standards.
- Hydrant flow testing completed adjacent to the site in June 2022, can confirm that the existing water infrastructure can support the proposed redevelopment and that no upgrades to the existing watermain infrastructure are required.

10.2 Stormwater Management

- The site will control the 100-year flows to the pre-development 2-year flows at a runoff coefficient of 0.50 as per the WWFMG.
- Quantity control will be achieved through the use of an orifice control downstream of the proposed stormwater storage tank.
- Quality control will be achieved using a treatment train approach and the implementation of an oil and grit separator (OGS). An enhanced TSS removal of 80% will be achieved on-site.
- Water balance will be achieved by retaining the 5 mm storm event and the stormwater tank will be design for stormwater re-use. Re-use methods will be confirmed at the time of Site Plan Application.

10.3 Groundwater Management

- The proposed substructure must be designed to the fully waterproofed without the need for a Private Water Drainage System (PWDS), and there will be no long-term groundwater discharge from the redevelopment to the municipal sewer system.
- Groundwater and rainwater totaling 185,000 L/day will be managed during the construction period either through hauling water from the site or discharge to the sewer. An EASR will be required to facilitate the construction dewatering program.
- As it is anticipated that TSS levels and some other parameters exceed the limits of the Sanitary and Storm Sewer Use By-law limits, suitable treatment methods will be implemented to discharge to the applicable sewer system.

10.4 Sanitary Servicing

- Sanitary drainage from the proposed redevelopment will be conveyed via two connections to the existing 250 mm diameter sanitary sewer within South Station Street.
- The proposed redevelopment will generate an increase in peak sanitary flows of 9.37 L/s (9.76 L/s - 0.39 L/s), from the existing condition.

10.5 Downstream Sanitary Analysis

- A downstream analysis was completed for the subject site based on the information received to date and can confirm that the proposed increase in sanitary flow will not cause a negative impact to the existing sewer system.

In summary, further subsurface utility investigations and flow monitoring will be required to confirm if the site can be serviced by the surrounding municipal infrastructure.

Accordingly, upon receipt and review of the above noted additional information, we hereby recommend the adoption of this report as it relates to the provision of servicing and stormwater management works, and for the purposes of this Rezoning Application and future Site Plan Applications.

BURNSIDE

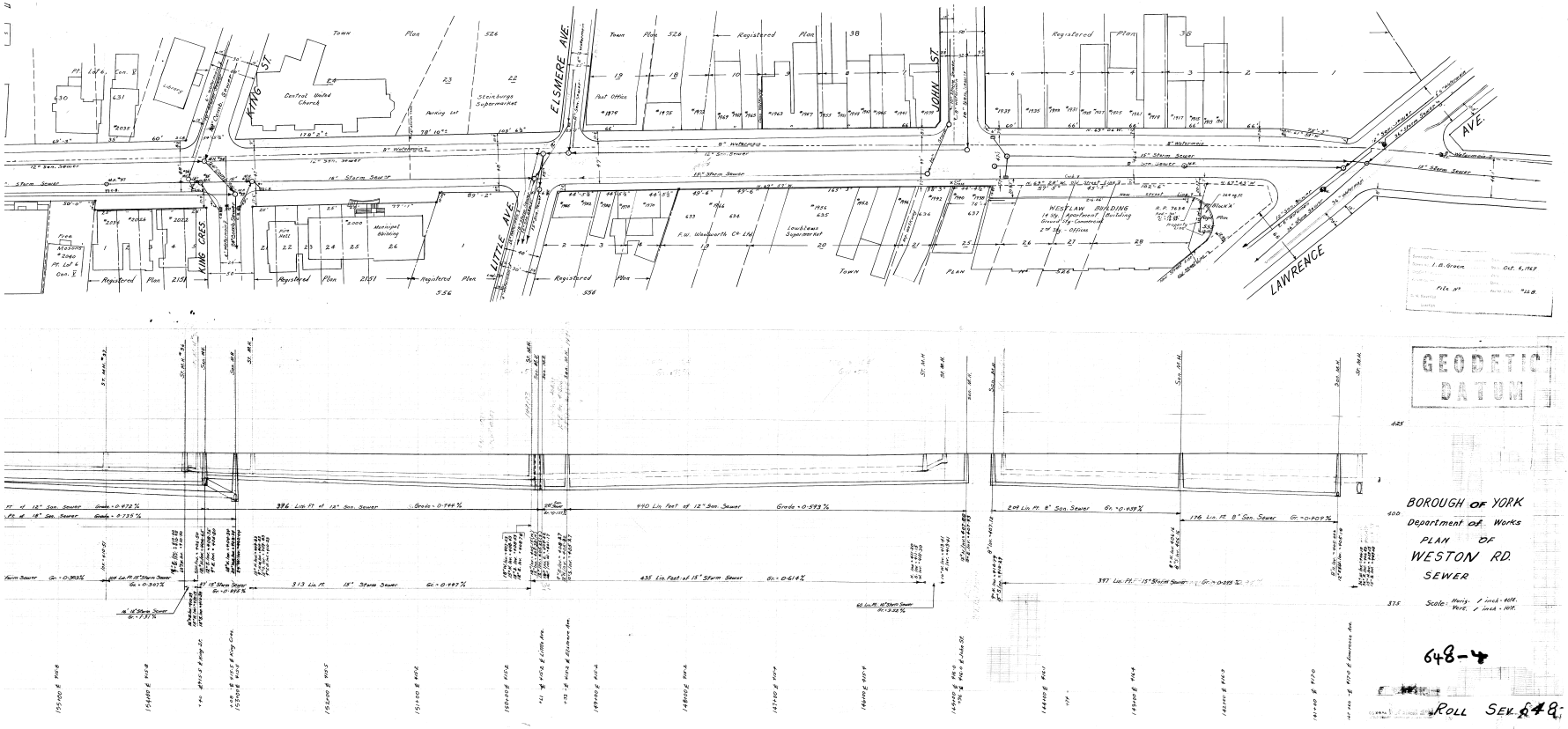
[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Background Information

CUMAP Drawing
Existing Plan and Profile Drawings


CONRON PLACE
CHURCH ST.
FERN AVE.
Registered Plan 1624
Registered Plan 5
Registered Plan 1443
Block 'A'
Block 'J'
Town Plan No. 526
Right of Way
Pt. Lot 7, Con. V
Pt. Lot 6 Con. V
Cruikshank
Concession Line Between Lots 6 and 7
12" San. Sewer
18" Storm Sewer
10" Watermain
15" Storm Sewer
290 Lin. Ft. 12" San. Sewer Grade 0.731 %
286 Lin. Ft. 12" San. Sewer Grade 2.479 %
260 Lin. Ft. 12" San. Sewer Grade 2.019 %
249 Lin. Ft. 12" Sanitary Sewer Gr. 0.977 %
333 Lin. Ft. 18" Sanitary Sewer Gr. 0.673 %
285 Lin. Ft. 12" Sanitary Sewer Grade 0.270 %
198' 18" Sanitary Sewer Grade 0.687 %
303 Lin. Ft. 12" Storm Sewer Gr. 0.413 %
44 Lin. Ft. 12" Storm Sewer Gr. 2.43 %
58' 15" Storm Sewer Gr. 0.763 %
272.4 Lin. Ft. 15" Storm Sewer Gr. 2.07 %
59 Lin. Ft. 12" Storm Sewer Gr. 0.966 %
140 Lin. Ft. 15" Storm Sewer Gr. 0.518 %
163 Lin. Ft. 15" Storm Sewer Gr. 0.518 %
160 Lin. Ft. Storm Sewer Gr. 0.164 %
90 Lin. Ft. 15" Storm Sewer Gr. 0.164 %
195 Lin. Ft.



GEODETIC DATUM

BOROUGH OF YORK
Department of Works
PLAN OF
WESTON RD.
SEWER

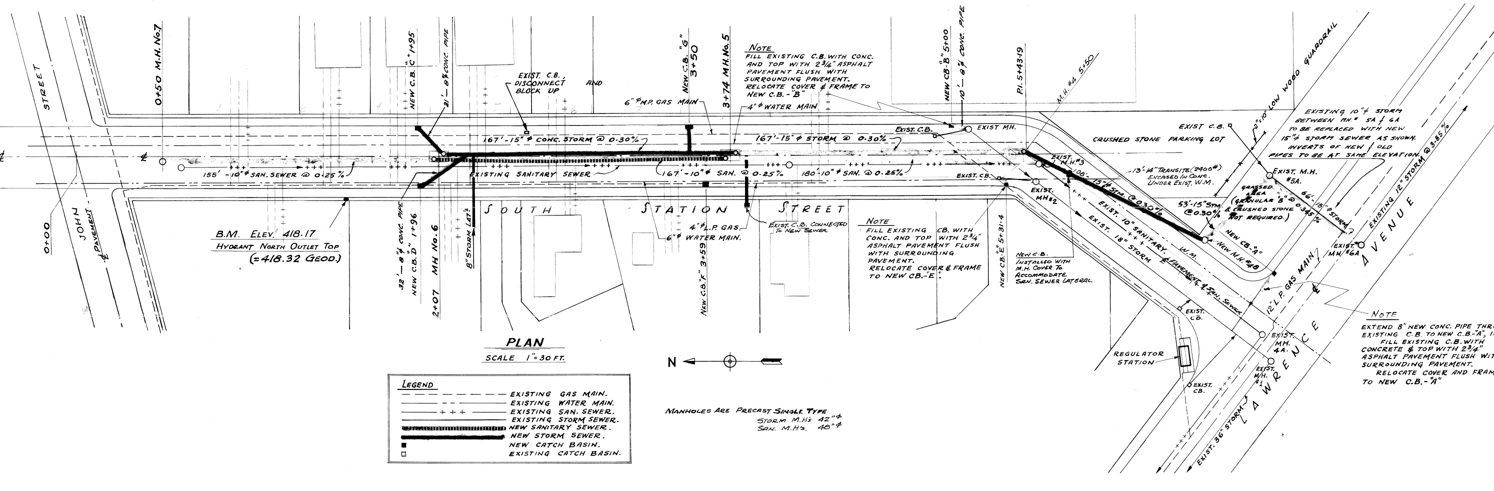
Scale: Horiz. 1 inch = 40 ft.
Vert. 1 inch = 10 ft.

I. B. Green — Oct. 6, 1949

File No. 1148

648-4

ROLL SEW. 648

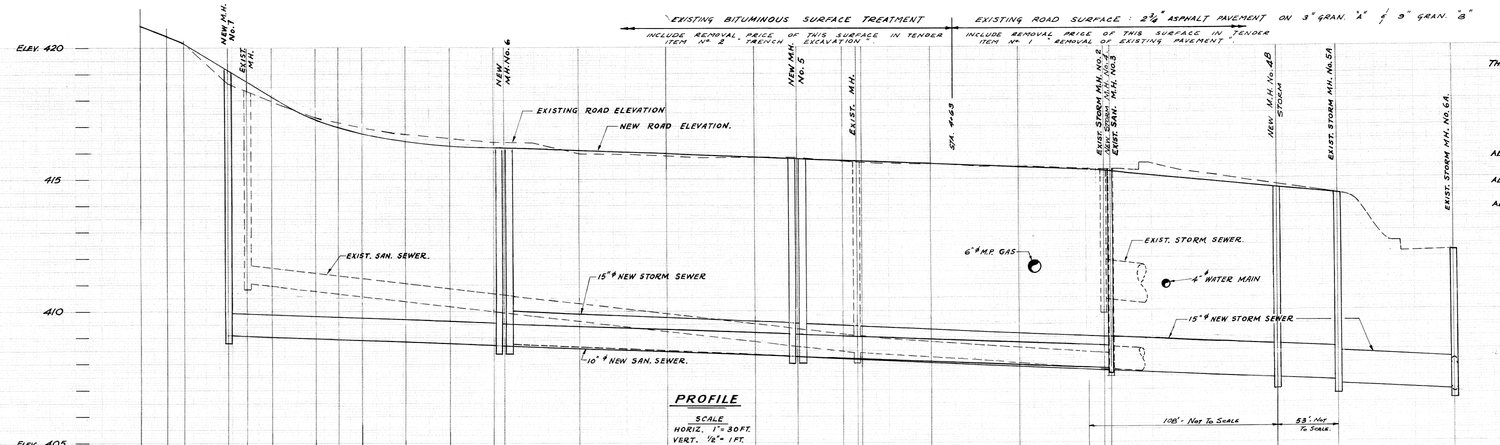


MANHOLE DATA.

	M.H. Nº	CHAINAGE	TOP ELEV.	INVERT ELEVATIONS. SAN. IN	SAN. OUT	STORM IN	STORM OUT
	4	5+39	415·30	407·85	407·84	407·78	407·77
	5	3+74	415·75	408·27	408·26	408·27	408·26
	6	2+07	416·18	408·70	408·69	—	408·77
	7	0+50	419·14	—	409·09	—	—
EXISTING MANHOLES	1	—	414·85			408·57	407·15
	2	5+54.4±	415·29				410·27
	3	5+52·2±	415·29	407.80	407·78		
	4A	—	414·52	406·09	405·92		
	5A	—	414·40			407·21	407·16
	6A.	—	412·25			406·93	406·83
	4B.	—	414.88±			407.43	407.37

NEW C.B. DATA

C.B. MARK	CHAINAGE	TOP ELEV.	REMARKS
A		413.20±	TOP ELEV. TO SUIT
B	5+00	415.52±	TOP ELEV. TO SUIT.
C	1+95	415·82	
D	1+96	415·81	
E	5+31·4		TOP ELEV. TO SUIT
F	3+59	415.34	
G	3+50	415.36	



NEW ROAD ELEVATION.	420.87	420.53	420.14	419.09		418.07	417.26	416.94	416.70	416.39	416.28	416.21		415.97			415.72			415.47		414.40	412.25
EXISTING GROUND ELEVATION.	420.87	420.53	420.14	418.64		417.86	417.38		416.97	416.71	416.57	416.41	415.96	415.88	415.80		415.67		415.56	415.47			412.25
CHAINAGE ALONG ℄ SURVEY.	0+00	0+15	0+25	0+50	0+60.8	0+75	1+00	1+13	1+26	1+51	1+76	2+01 2+07	2+50	3+00	3+50	3+74	4+00	4+10.5	4+50	5+00	5+48 5+50		

THE CONTRACTOR IS TO:-
(1) VERIFY LOCATIONS OF ALL UTILITIES & SUPPORT THEM AS REQUIRED BY EXISTING REGULATIONS.
(2) PROVIDE ADEQUATE PROTECTION FOR CATCH BASIN & HOUSE LATERALS DURING CONSTRUCTION.
(3) PROVIDE ADEQUATE SHORING AS REQUIRED.
(4) COMPACT BACKFILL TO 95% STANDARD PROCTOR DENSITY.

ALL STORM SEWER PIPE C14 EXTRA STRENGTH CLASS "B" BEDDING.

ALL SANITARY SEWER PIPE ASBESTOS-CEMENT CLASS 2400 CLASS "B" BEDDING.

ALL ~~POURED CONCRETE TO BE 3000 PSI @ 28 DAYS.~~

DATE	ISSUED FOR	DATE	BY	BULLETIN
APR '63	AS BUILT		J.M.H.	
APR. 18/63	C.B.'s "F" & "G" ADDED.		J.M.H.	
SEPT. 26/62	TENDER CALL			

REVISION

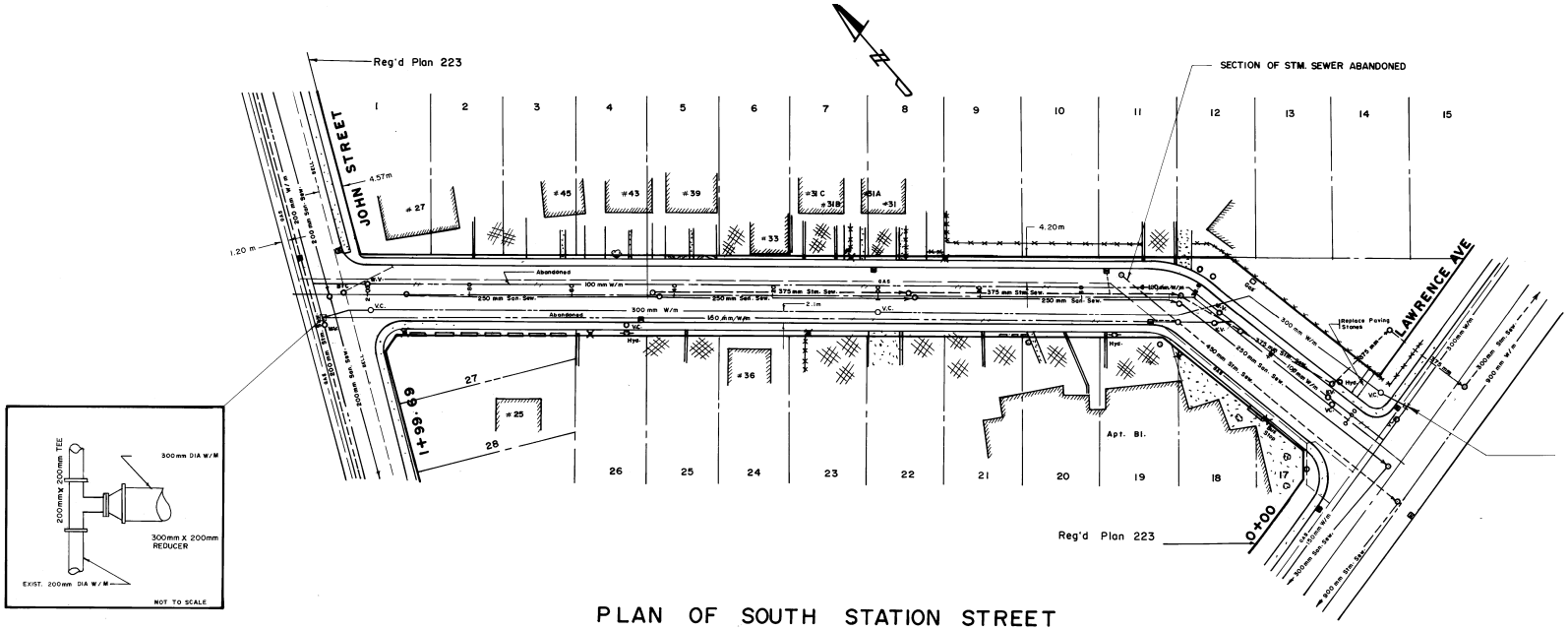
REGISTERED PROFESSIONAL ENGINEER J. M. HALL PROVINCE OF ONTARIO

CLIENT: TOWN OF WESTON, ONTARIO
JOB TITLE: SOUTH STATION ST. WIDENING.
SHEET TITLE: PLAN & PROFILE FOR STORM & SANITARY SEWERS.

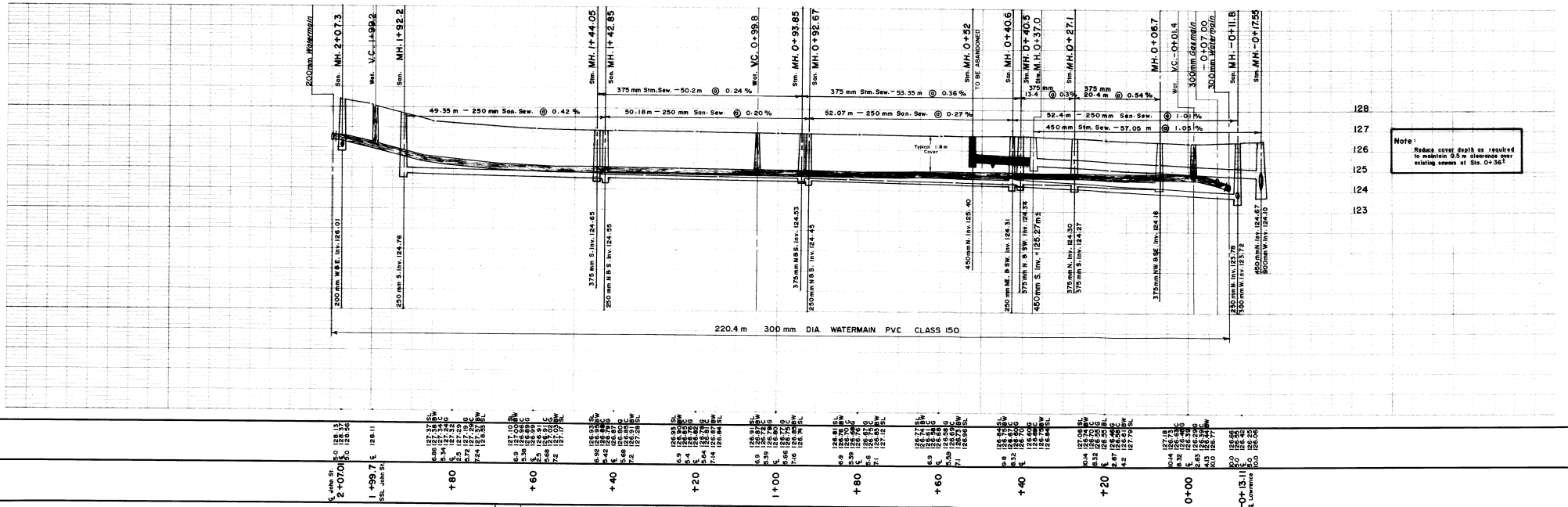
GIFFELS & VALLET OF CANADA, LTD.
ENGINEERS
TORONTO, ONT. WINDSOR, ONT.

DRAWN: ELW.	DATE:	PROJECT CHIEF: J. M. HALL.	JOB: C61-57-AX9
CHECKED: J.M.H.		IN CHARGE:	
DESIGNED: K.E.L./J.M.H.		DATE:	SHEET: 1
APPROVED:		JOB CAPTAIN:	

FILE Nº 4-60-1
SEW. 561



PLAN OF SOUTH STATION STREET



GENERAL NOTE:

Units are in meters except as noted.

NO.	REVISIONS	DATE	BY	APPROVED	DATE
3	As Constructed Contract 92-11	Feb./93	M.H.	T. Dodds	Feb./93
2	Re-locate Valve Chamber	June/92	J.N.D	T. Dodds	June/92
1	Watermain re-location	May/92	G.Vand	T. Dodds	May/92

SURVEYED BY A. AZZOLI
DRAWN BY A. LEFEL & J. DORAZIO
DESIGNED BY J. DORAZIO
CHECKED BY T. DODDS
DATE MAR., 1992

T. D. DODDS — REGISTERED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

APPROVED

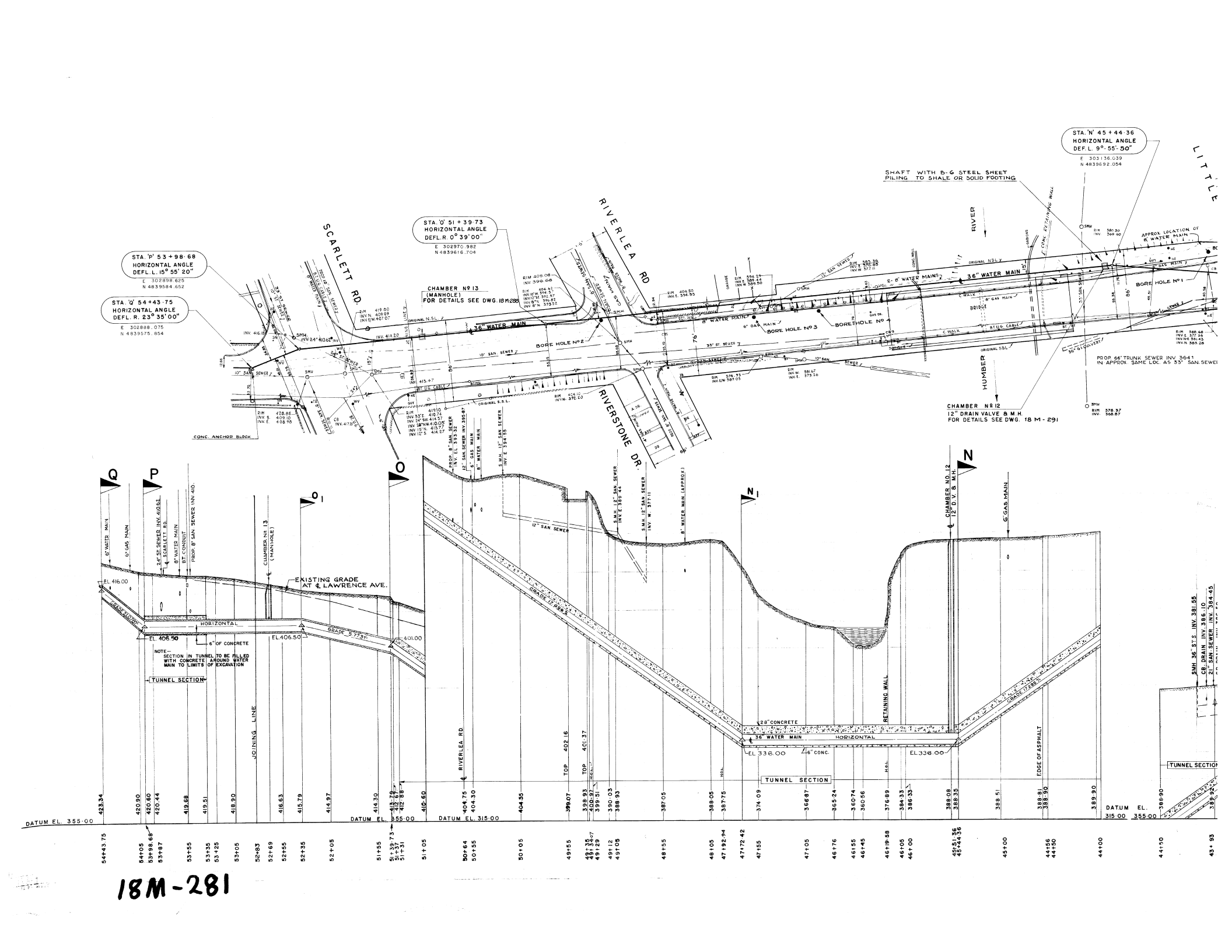
SCALES 1: 100 VERTICAL

CITY OF YORK • DEPARTMENT OF WORKS

SOUTH STATION STREET

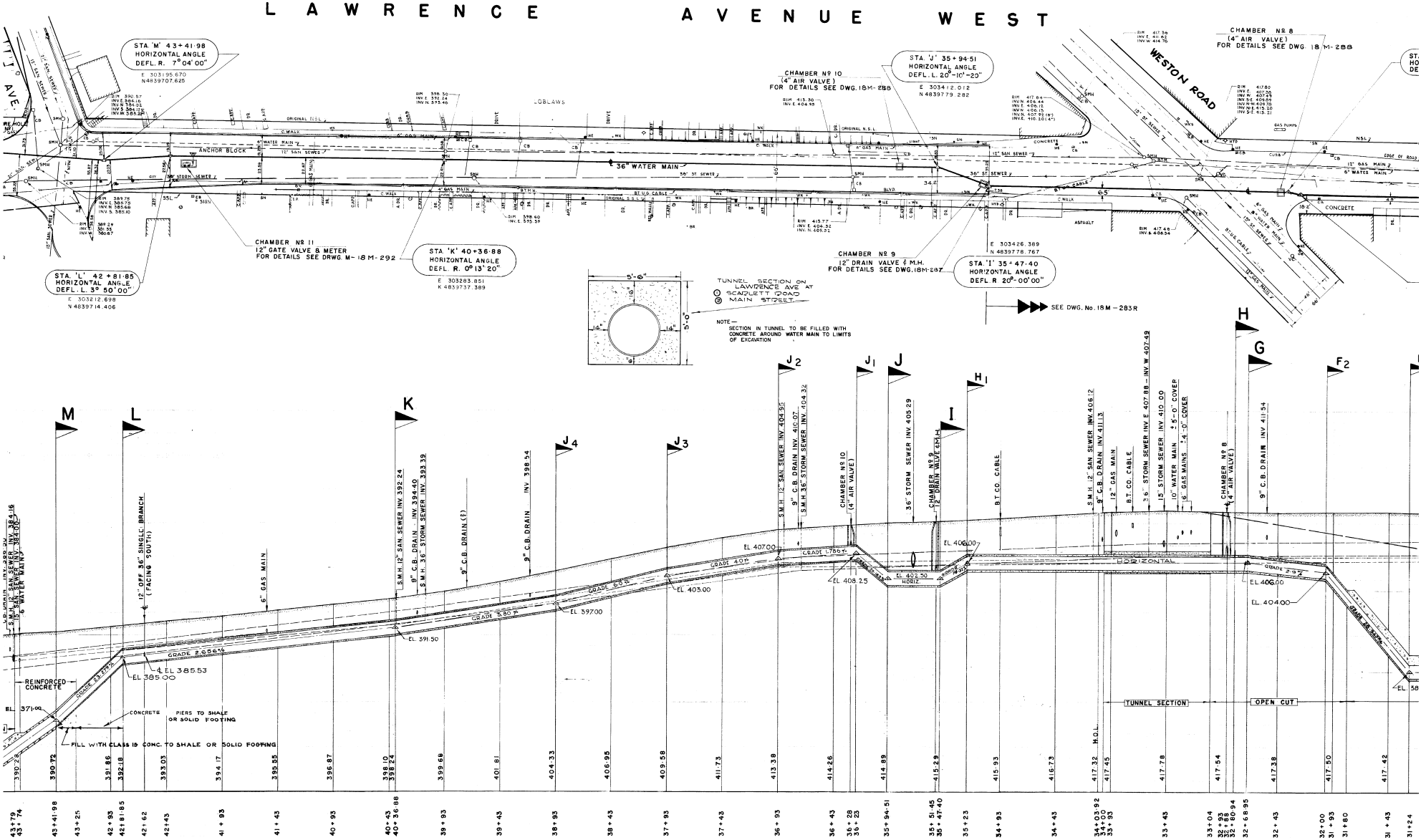
DRAWING NUMBER WAT. 561

REV. 3

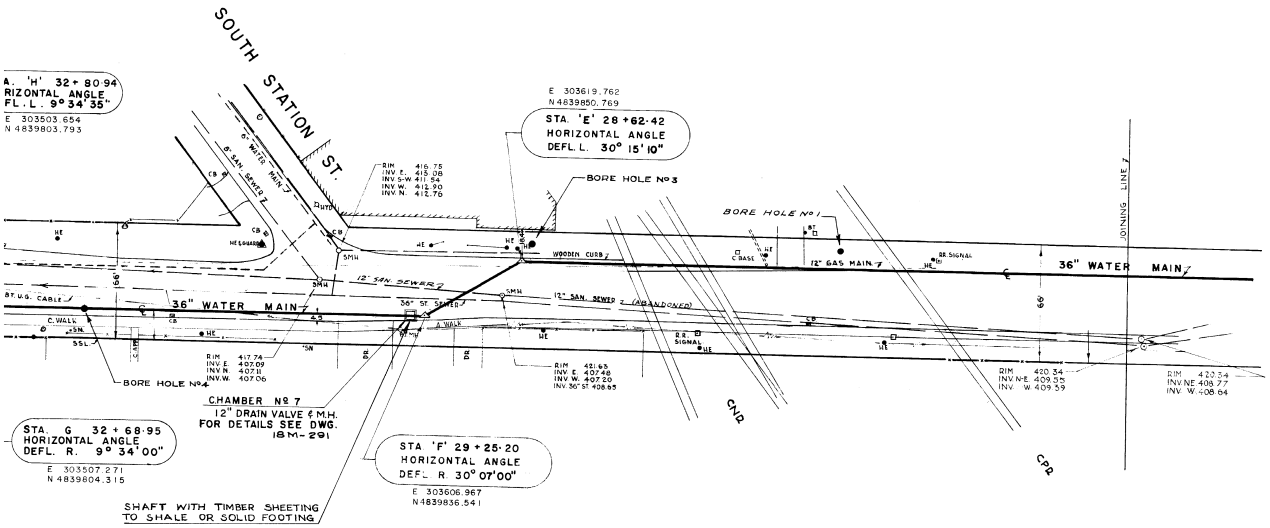

STA. 'P' 53+98.68
HORIZONTAL ANGLE
DEFL. L. 15° 55' 20"
E 302898.625
N 4839584.652
STA. 'Q' 54+43.75
HORIZONTAL ANGLE
DEFL. R. 23° 35' 00"
E 302888.075
N 4839575.854
STA. 'O' 51+39.73
HORIZONTAL ANGLE
DEFL. R. 0° 39' 00"
E 302970.982
N 4839616.704
STA. 'N' 45+44.36
HORIZONTAL ANGLE
DEFL. L. 9°-55'-50"
E 303136.039
N 4839692.054
SCARLETT RD.
RIVERLEA RD
RIVERSTONE DR.
HUMBER
RIVER
LITTLE
SHAFT WITH B-G STEEL SHEET PILING TO SHALE OR SOLID FOOTING
CHAMBER Nº 13 (MANHOLE) FOR DETAILS SEE DWG. 18M288
CHAMBER Nº 12
12" DRAIN VALVE & M.H.
FOR DETAILS SEE DWG. 18 M - 291
36" WATER MAIN
2-8" WATER MAINS
8" WATER MAIN
6" GAS MAIN
BORE HOLE Nº 1
BORE HOLE Nº 2
BORE HOLE Nº 3
BRIDGE
CONC. ANCHOR BLOCK
PROP. 66" TRUNK SEWER INV. 364± IN APPROX. SAME LOC. AS 33" SAN. SEWER
EXISTING GRADE AT ℄ LAWRENCE AVE.
CHAMBER Nº 13 (MANHOLE)
JOINING LINE
HORIZONTAL
GRADE 9.73%
GRADE 17.88%
6" OF CONCRETE
28" CONCRETE
RETAINING WALL
TUNNEL SECTION
NOTE— SECTION IN TUNNEL TO BE FILLED WITH CONCRETE AROUND WATER MAIN TO LIMITS OF EXCAVATION
EDGE OF ASPHALT
DATUM EL. 355·00
DATUM EL. 315·00
DATUM EL. 355·00
DATUM EL. 315·00 355·00

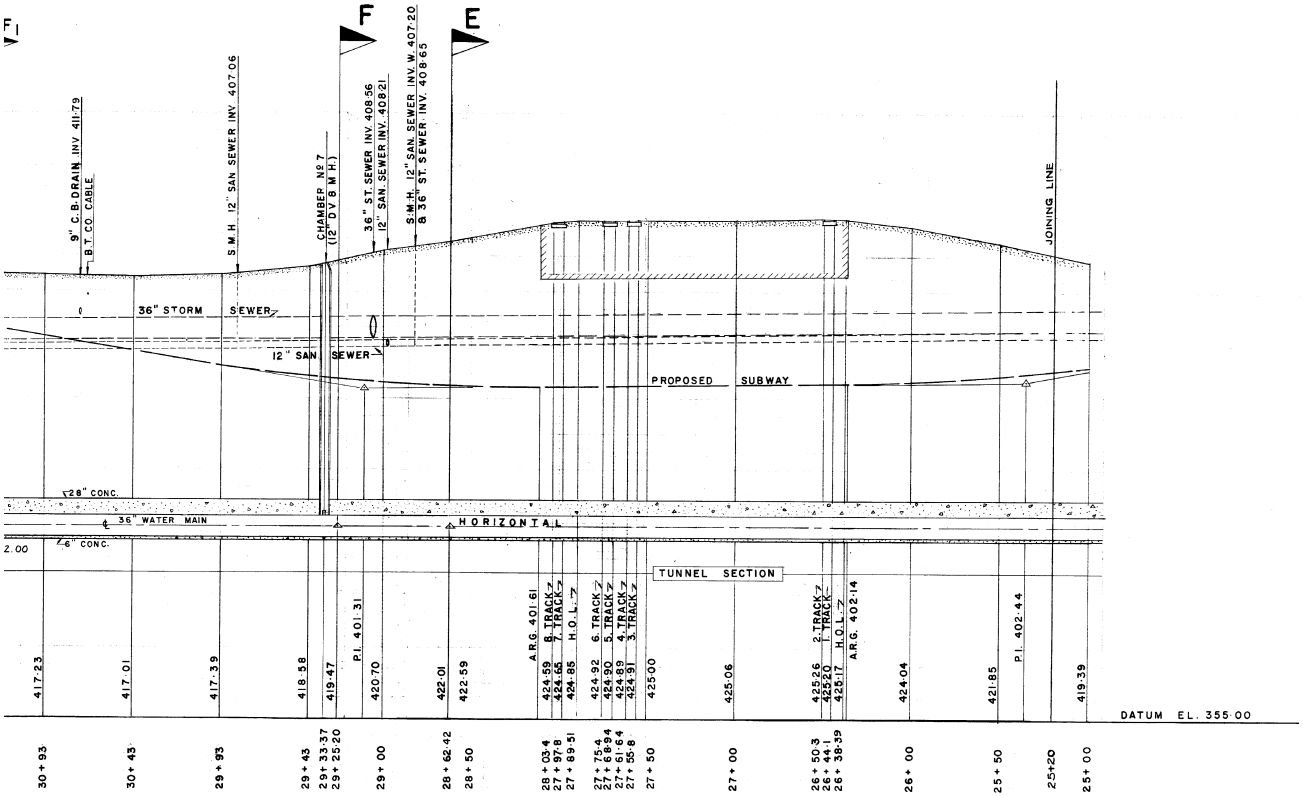
18M-281

LAWRENCE AVENUE WEST



18M-281





REVISION	DESCRIPTION	DATE	BY
	CURB LINES ADDED & TIES TO ℄ OF MAIN	NOV./84	W.L.

MUNICIPALITY OF METROPOLITAN TORONTO

DEPARTMENT OF WORKS WATER WORKS DIVISION

36" WATER MAIN
ON LAWRENCE AVE. FROM
JANE ST. TO ROYAL YORK RD.

GENERAL PLAN & PROFILE PART NO. 2.

DRAWN BY J. CEPUKAS

CHECKED BY A. FIELDS

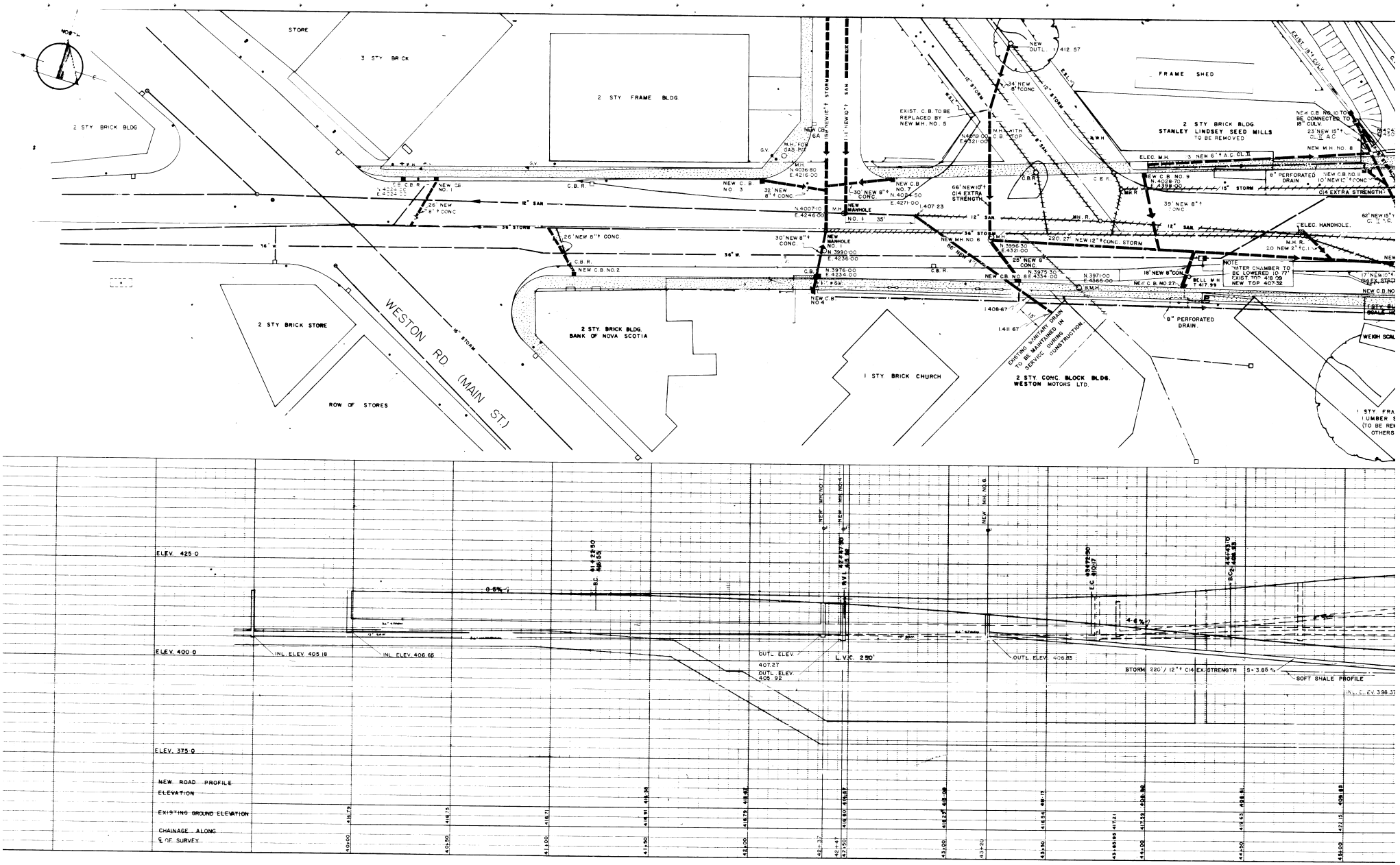
SCALE HORIZONTAL 1"= 40FT
VERTICAL- 1"= 10FT

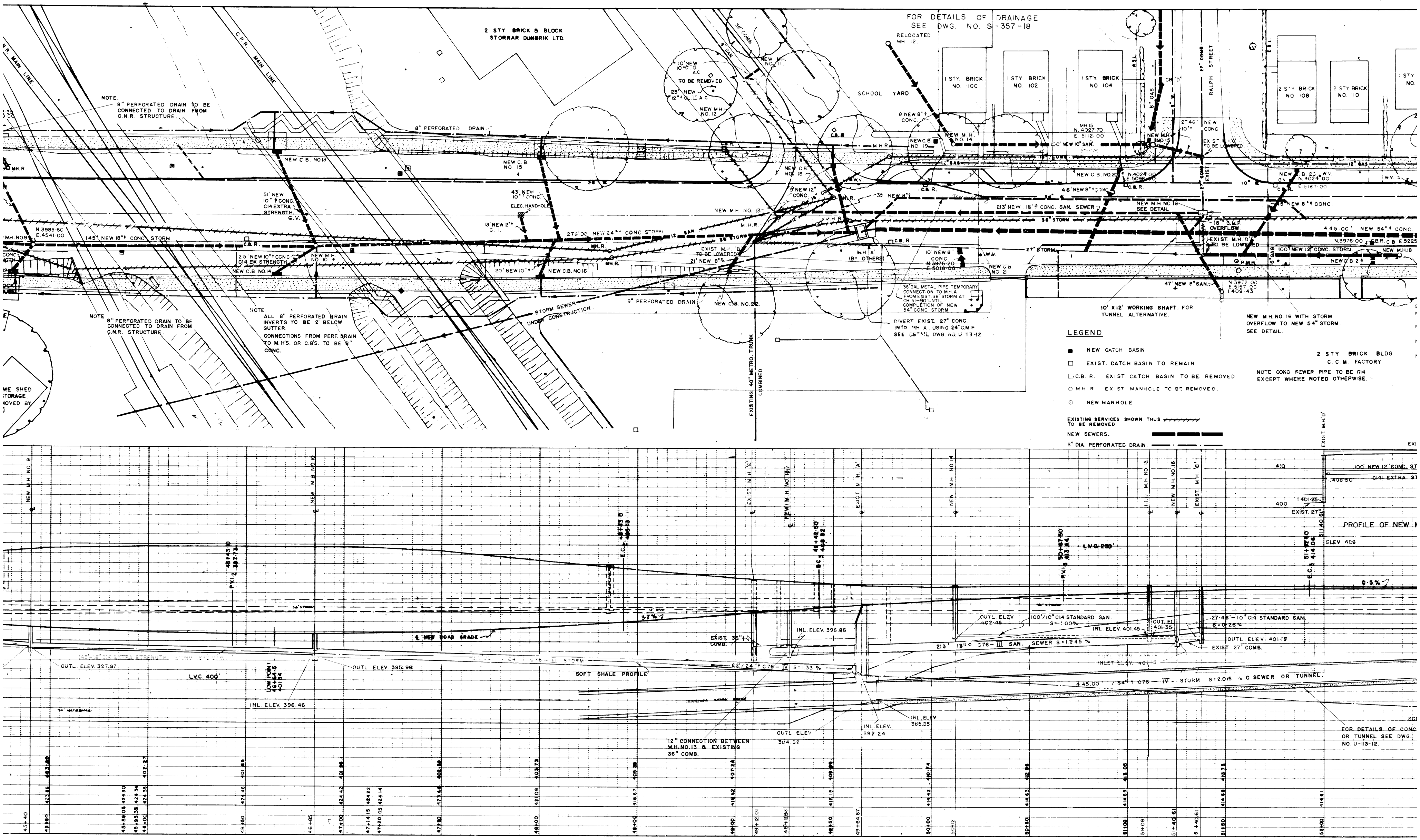
APPROVED BY [signature]

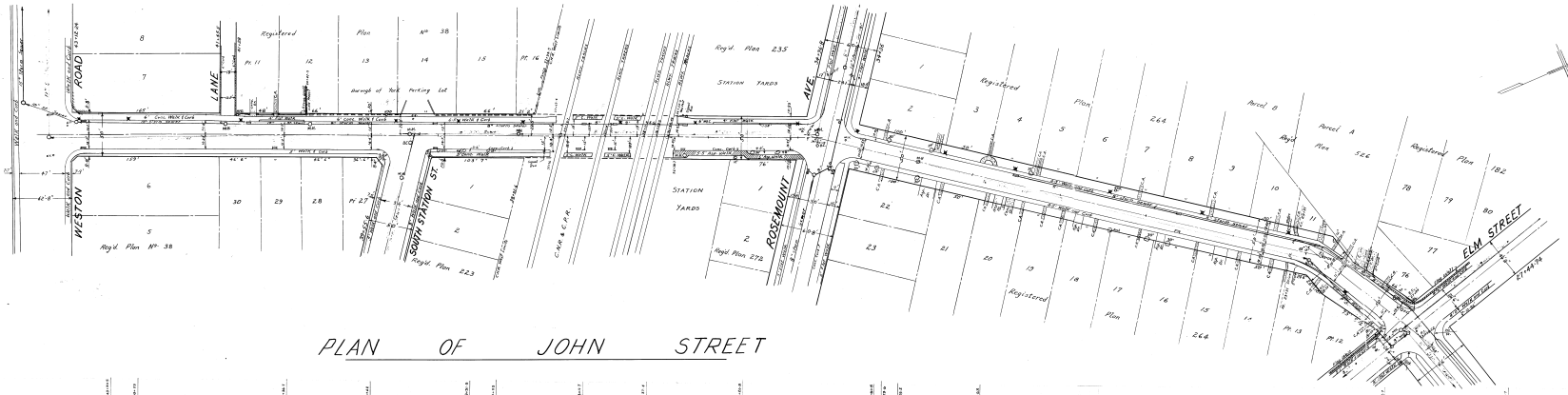
APPROVED BY [signature]

DATE DEC. 1955

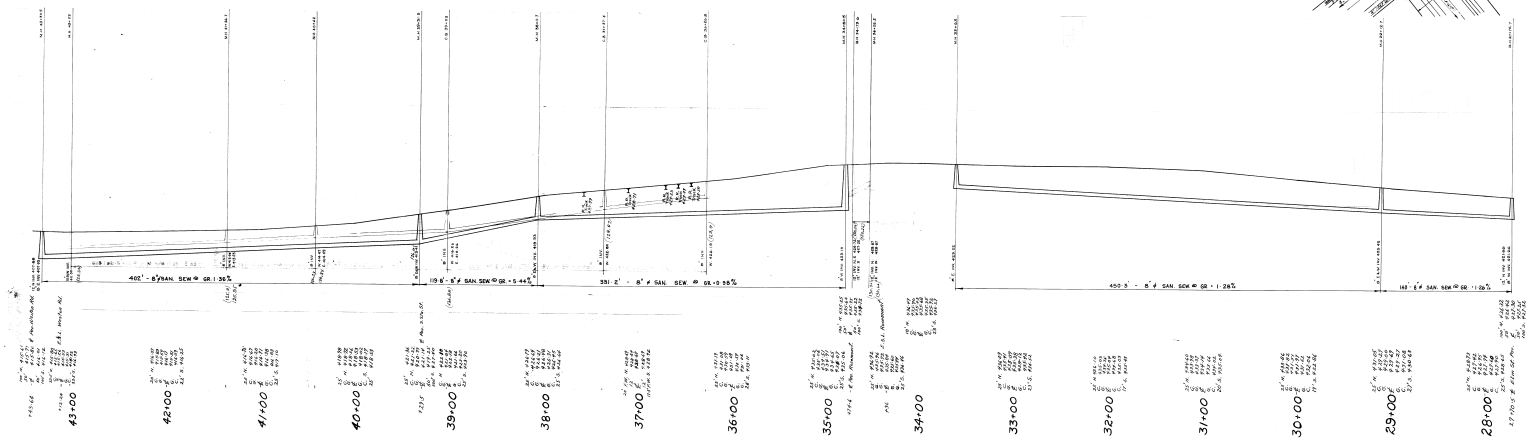
DRAWING Nº 18M — 281


STORE
3 STY BRICK
2 STY FRAME BLDG
2 STY BRICK BLDG
FRAME SHED
2 STY BRICK BLDG.
STANLEY LINDSEY SEED MILLS
TO BE REMOVED
EXIST. C.B. TO BE REPLACED BY NEW MH. NO. 5
NEW MH. NO. 8
NEW C.B. NO. 9
NEW C.B. NO. 11
8" PERFORATED DRAIN
ELEC. MH.
ELEC. HANDHOLE.
NEW C.B. NO. 3
NEW C.B. NO. 7
NEW MANHOLE NO. 4
NEW MH. NO. 6
NEW C.B. NO. 2
NEW C.B. NO. 4
NEW C.B. NO. 8
NEW C.B. NO. 27
BELL M.H.
B.M.H.
2 STY BRICK STORE
ROW OF STORES
WESTON RD. (MAIN ST.)
2 STY BRICK BLDG.
BANK OF NOVA SCOTIA
1 STY BRICK CHURCH
2 STY CONC. BLOCK BLDG.
WESTON MOTORS LTD.
EXISTING SANITARY DRAIN TO BE MAINTAINED IN SERVICE DURING CONSTRUCTION
NOTE
WATER CHAMBER TO BE LOWERED 10'7"
EXIST. TOP 418.29
NEW TOP 407.32
ELEV. 425.0
ELEV. 400.0
ELEV. 375.0
NEW ROAD PROFILE
ELEVATION
EXISTING GROUND ELEVATION
CHAINAGE ALONG
℄ OF SURVEY
INV. ELEV. 405.18
INV. ELEV. 406.65
OUTL. ELEV. 407.27
OUTL. ELEV. 405.92
L.V.C. 250'
OUTL. ELEV. 406.83
STORM 220' / 12"ø CI4 EX. STRENGTH
S=3.65%
SOFT SHALE PROFILE


FOR DETAILS OF DRAINAGE SEE DWG. NO. S-357-18
2 STY BRICK & BLOCK STORRAR DUNBRIK LTD.
C.P.R. MAIN LINE
C.N.R. MAIN LINE
NOTE. 8" PERFORATED DRAIN TO BE CONNECTED TO DRAIN FROM C.N.R. STRUCTURE.
8" PERFORATED DRAIN
SCHOOL YARD
I STY. BRICK NO. 100
I STY. BRICK NO. 102
I STY. BRICK NO. 104
2 STY BRICK NO. 108
RALPH STREET
NEW C.B. NO.13
NEW C.B. NO. 15
NEW C.B. NO.14
NEW C.B. NO.16
NEW M.H. NO. 10
NEW M.H. NO. 12
NEW M.H. NO. 13
NEW M.H. NO. 14
NEW M.H. NO. 15
NEW M.H. NO. 16 SEE DETAIL
145' NEW 18" CONC. STORM
276'-00 NEW 24" CONC STORM
213' NEW 18" CONC. SAN. SEWER
445.00' NEW 54" CONC.
100' NEW 12" CONC. STORM
10' X 12' WORKING SHAFT. FOR TUNNEL ALTERNATIVE.
NEW M.H. NO. 16 WITH STORM OVERFLOW TO NEW 54" STORM. SEE DETAIL.
NOTE. ALL 8" PERFORATED DRAIN INVERTS TO BE 2' BELOW GUTTER. CONNECTIONS FROM PERF. DRAIN TO M.H.'S. OR C.B.'S. TO BE 8" CONC.
STORM SEWER UNDER CONSTRUCTION
EXISTING 48" METRO. TRUNK COMBINED
M.H. 'A' (BY OTHERS)
36" GAL METAL PIPE TEMPORARY CONNECTION TO MH. A FROM EXIST. 36" STORM AT CH 51+90 UNTIL COMPLETION OF NEW 54" CONC. STORM
DIVERT EXIST. 27" CONC. INTO MH. A USING 24" C.M.P. SEE DETAIL DWG NO. U-113-12
LEGEND
NEW CATCH BASIN
EXIST. CATCH BASIN TO REMAIN
C.B. R. EXIST. CATCH BASIN TO BE REMOVED
M.H. R. EXIST. MANHOLE TO BE REMOVED
NEW MANHOLE
EXISTING SERVICES SHOWN THUS TO BE REMOVED
NEW SEWERS.
8" DIA. PERFORATED DRAIN.
2 STY BRICK BLDG C C M FACTORY
NOTE CONC SEWER PIPE TO BE C14 EXCEPT WHERE NOTED OTHERWISE.
PROFILE OF NEW
SOFT SHALE PROFILE
L.V.C. 400'
L.V.C. 250'
INL. ELEV. 396.46
OUTL. ELEV. 395.96
OUTL. ELEV. 397.87
INL. ELEV. 396.86
OUTL. ELEV 402.45
100' 10" C14 STANDARD SAN. S=1.00%
INL. ELEV. 401.45
OUTL. ELEV. 401.35
27.45' - 10" C14 STANDARD SAN. S=0.26%
OUTL. ELEV. 401.15
EXIST. 27" COMB.
213' 18" C76 - III SAN. SEWER S=1.545%
445.00' 54" C76 - IV - STORM S=2.015% SEWER OR TUNNEL
12" CONNECTION BETWEEN M.H. NO. 13 & EXISTING 36" COMB.
OUTL. ELEV 384.32
INL. ELEV 392.24
INL. ELEV 385.35
FOR DETAILS OF CONC OR TUNNEL SEE DWG. NO. U-113-12
EXIST. 36" COMB.



PLAN OF JOHN STREET



GEODETIC DATUM

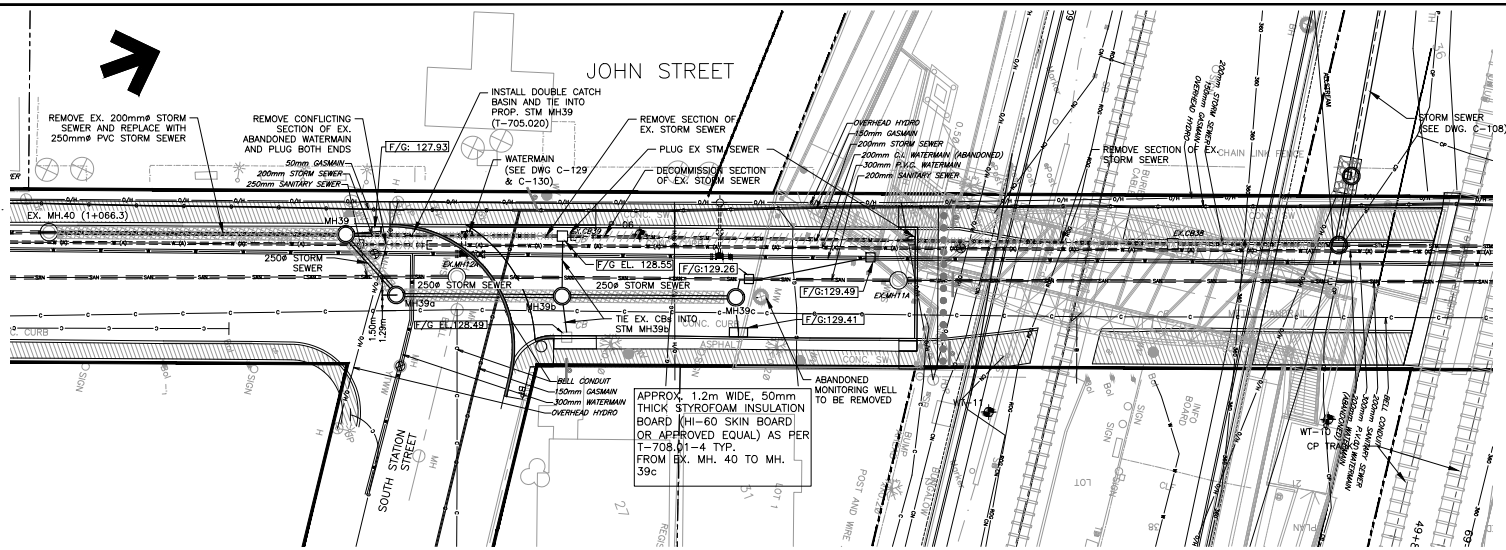
BOROUGH of YORK
DEPARTMENT of WORKS

PLAN AND PROFILE
OF
JOHN STREET

Scale: Horiz. 1 inch = 40 ft.
Vert. 1 inch = 10 ft.

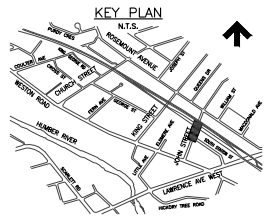
Deputy Commissioner | Commissioner of Works

344-



ESTIMATED EXISTING CROWN ELEVATION		128.21	128.21	128.61	129.63	130.52	130.86
STATION		1+060.7	1+056.6	1+040	1+020	1+000	0+980

KEY PLAN
N.T.S.



LEGEND

- EXISTING WATERMAIN
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING VALVE CHAMBER
- PROPOSED WATERMAIN
- EXISTING STORM MAINTENANCE HOLE
- EXISTING STORM SEWER
- PROPOSED STORM MAINTENANCE HOLE
- PROPOSED STORM SEWER
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING SANITARY MAINTENANCE HOLE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY MAINTENANCE HOLE
- PROPOSED SANITARY SEWER
- EXISTING CURB
- EXISTING CONCRETE SIDEWALK
- MUNICIPAL PROPERTY LINE
- GO METROLINX PROPERTY LINE
- PRIVATE PROPERTY LINE
- EXISTING CENTER LINE OF TRACKS
- PROPOSED CENTER LINE OF TRACKS
- WT-07 BOREHOLE LOCATION AND ID
- SEWER OR MH TO BE REMOVED
- SEWER OR MH TO BE DECOMMISSIONED
- STYROFOAM INSULATION

STM MH LOCATION COORDINATES (6 DEGREES UTM NAD 83)		
MH NO.	NORTHING	EASTING
MH39	4839798.247	619470.444
MH39a	4839800.592	619476.365
MH39b	4839813.468	619481.051
MH39c	4839828.568	619486.546

NOTES

1. SEE DRAWING C-100 FOR GENERAL NOTES.
2. ALL PIPE DIAMETERS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS SHOWN ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE NOTED.
4. STORM SEWER PIPE LENGTHS ARE SHOWN FACE TO FACE OF M.H.

ENGINEERING AND CONSTRUCTION SERVICES

ACCEPTED TO BE IN ACCORDANCE WITH THE CITY OF TORONTO STANDARDS. THIS ACCEPTANCE IS NOT CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER, DEVELOPMENT ENGINEERING
CITY OF TORONTO

DATE

REFERENCE DRAWINGS		ISSUE			REVISIONS		
					0	DEC 5, 2016	AS-BUILT
DWG NO.	TITLE	NO.	DATE	ISSUED FOR	REV.	DATE	

DRAWN BY: XLS	DESIGNED BY: XLS
CHECKED BY: FB	APPROVED BY: CM
SCALE: 1:200 HORIZONTAL 1:100 VERTICAL	FULL SIZE ONLY

PARSONS

AS-BUILT DRAWING PREPARED BY PARSONS PER MARK-UP BY OTHERS. INFORMATION NOT INDEPENDENTLY VERIFIED BY PARSONS.

A Division of Metrolinx

METROLINX PROJECT NO. 09-6703

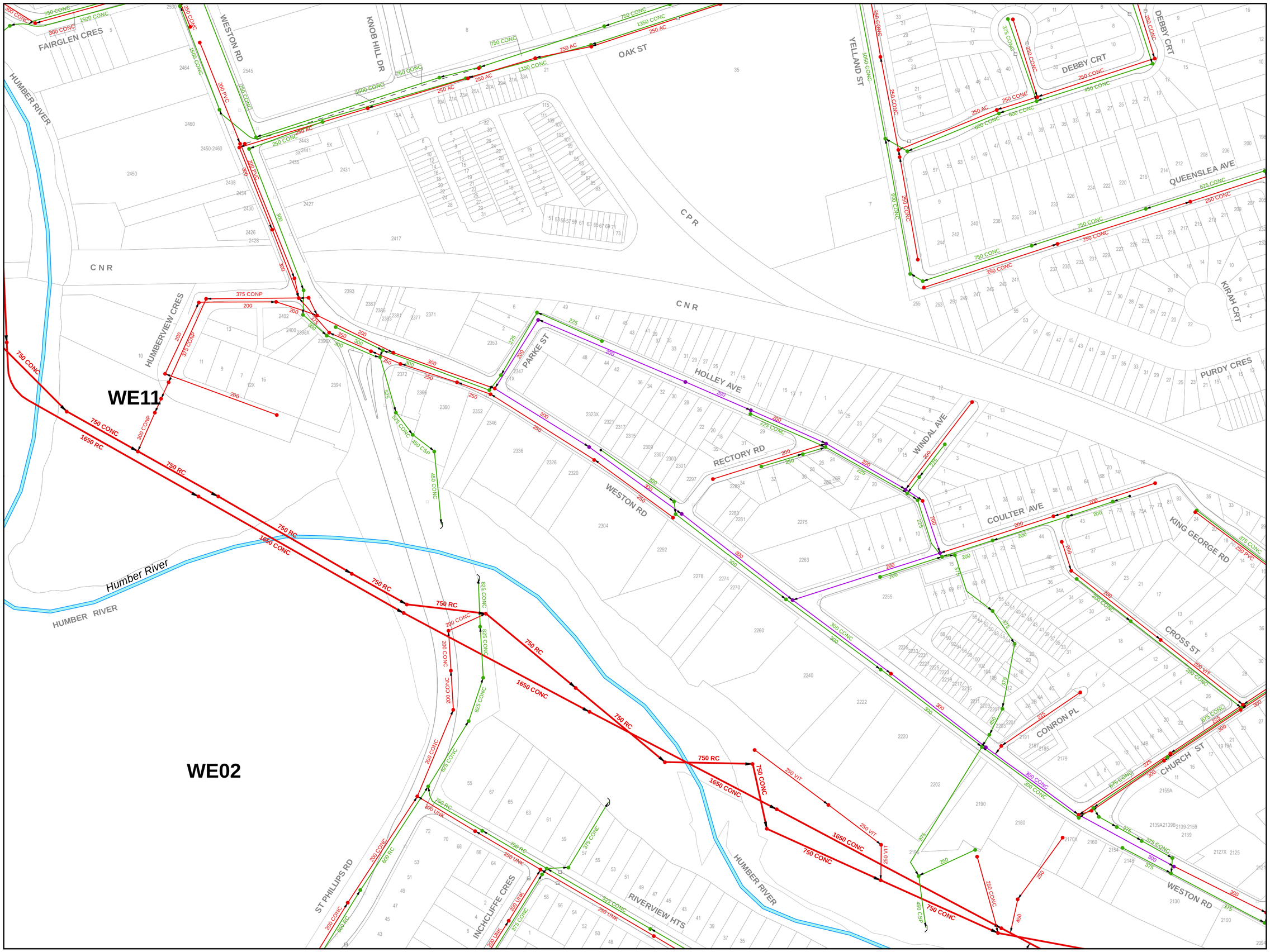
GTS-WESTON TUNNEL-PHASE 3

JOHN STREET

STORM SEWER PLAN AND PROFILE
FROM STA. 0+980 TO STA. 1+060

CONTRACT NO.	DWG. NO.	REV.	SHEET
IT-2011-CIG-003	C-108b	0	216B/239

J:\Division\Water\Projects\MARKHAM\BT3294 WESTON TUNNEL\CAD\As-Built_Design\C-108b\09-6703-C108b_CAD.dwg Dec 05, 2016 - 11:47am



Toronto Sewer Atlas

Manhole
- Combined
- Dual
- Sanitary
- Storm
- Foundation

Large Chamber

Control Manhole
- Combined
- Dual
- Sanitary
- Storm

Outfall
- Outfall

Sewer Pump Station
- Sewer Pump Station

Catchbasin
- Other
- Twin Inlet Catchbasin

Sewer
- Foundation Drain
- Combined
- Sanitary
- Storm
- Combined Trunk
- Sanitary Trunk
- Storm Trunk
- Abandoned Sewer

- River
- Highway
- Curb
- Wards Boundary

0 50 100 150 200 Metres

Third Edition
Date: 01/09/2010

General Notes:
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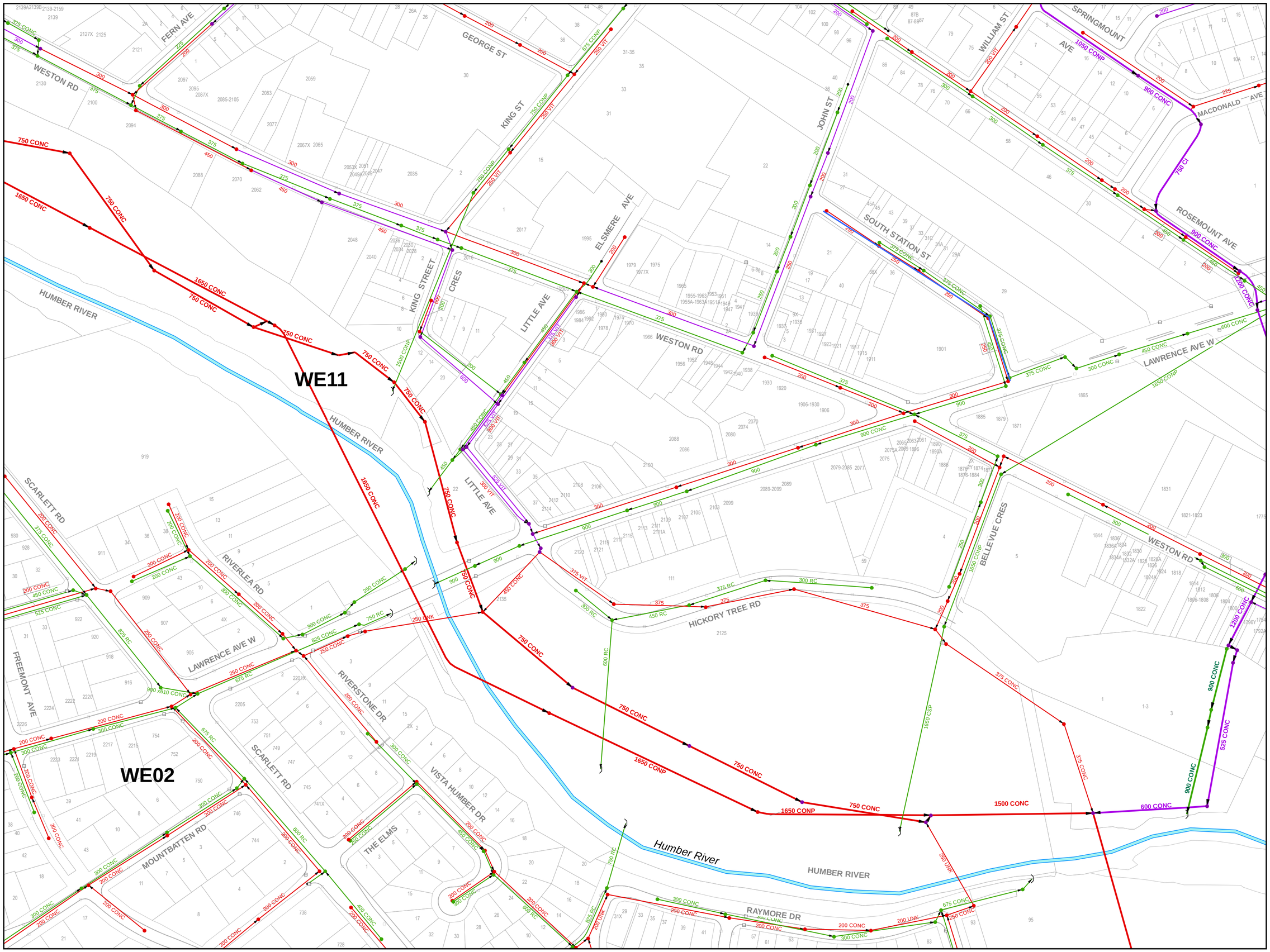
N W E S

184	219	254
185	220	255
186	221	256



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N W E S

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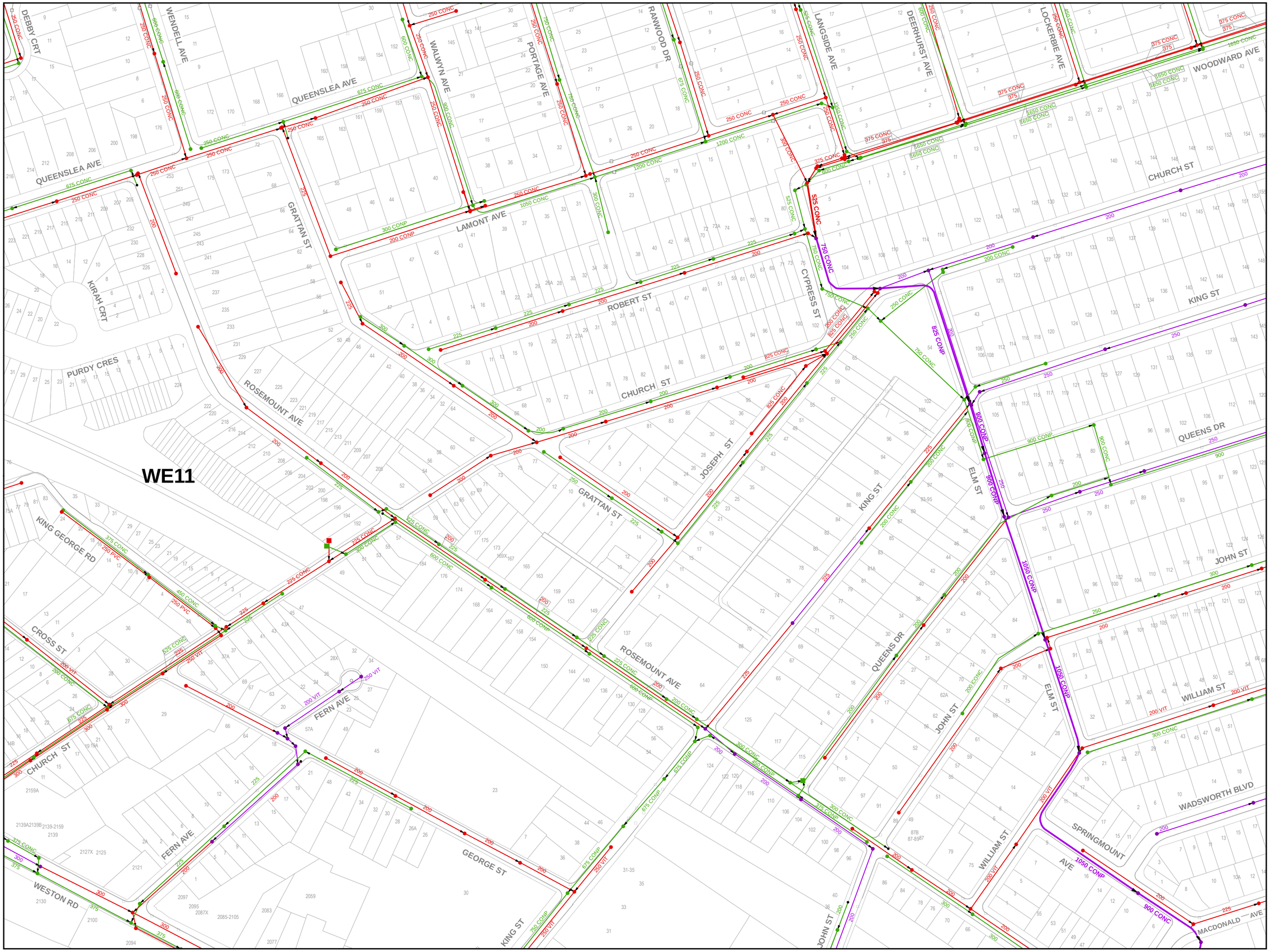
221	256	291
222	257	292



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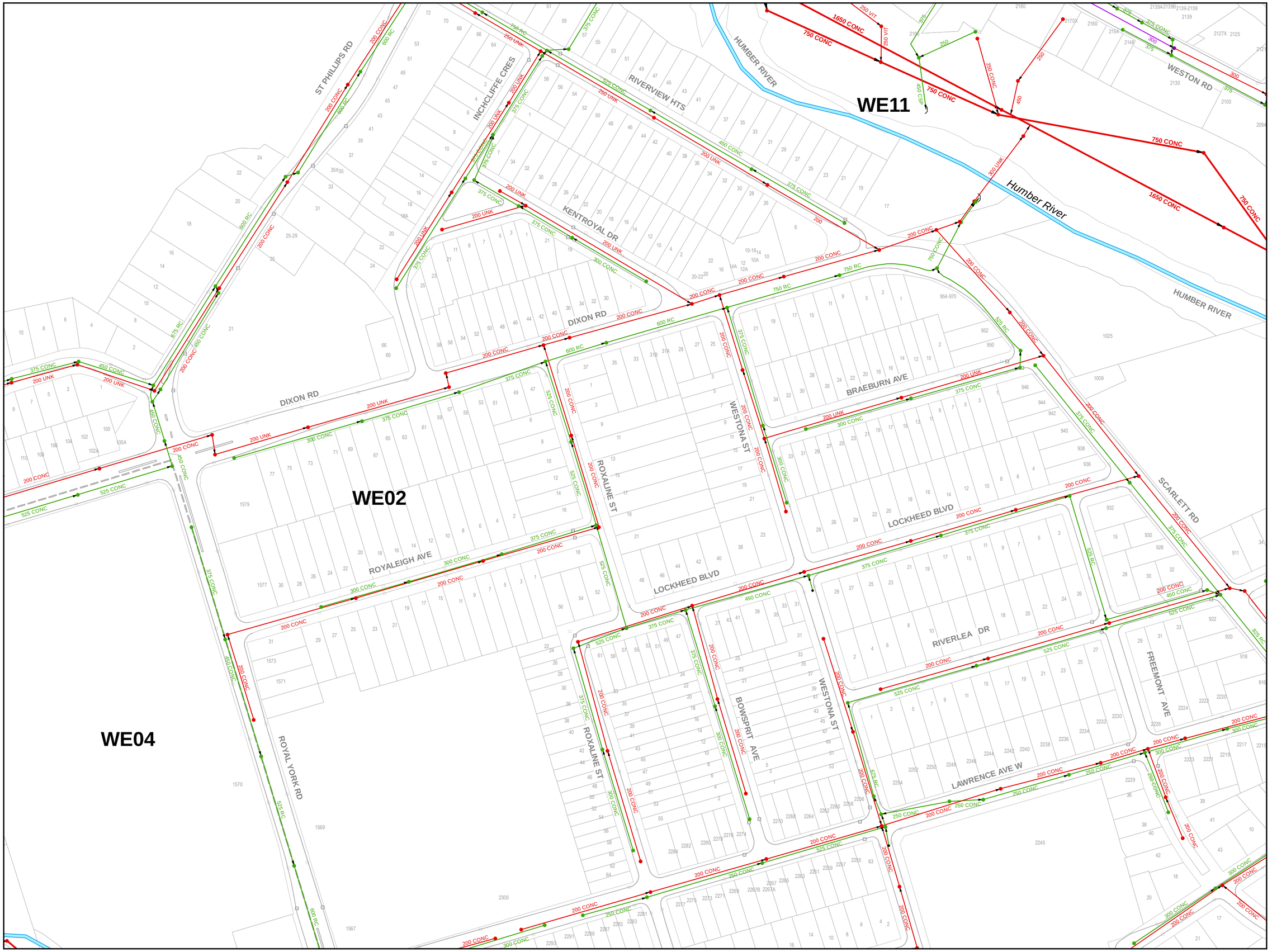

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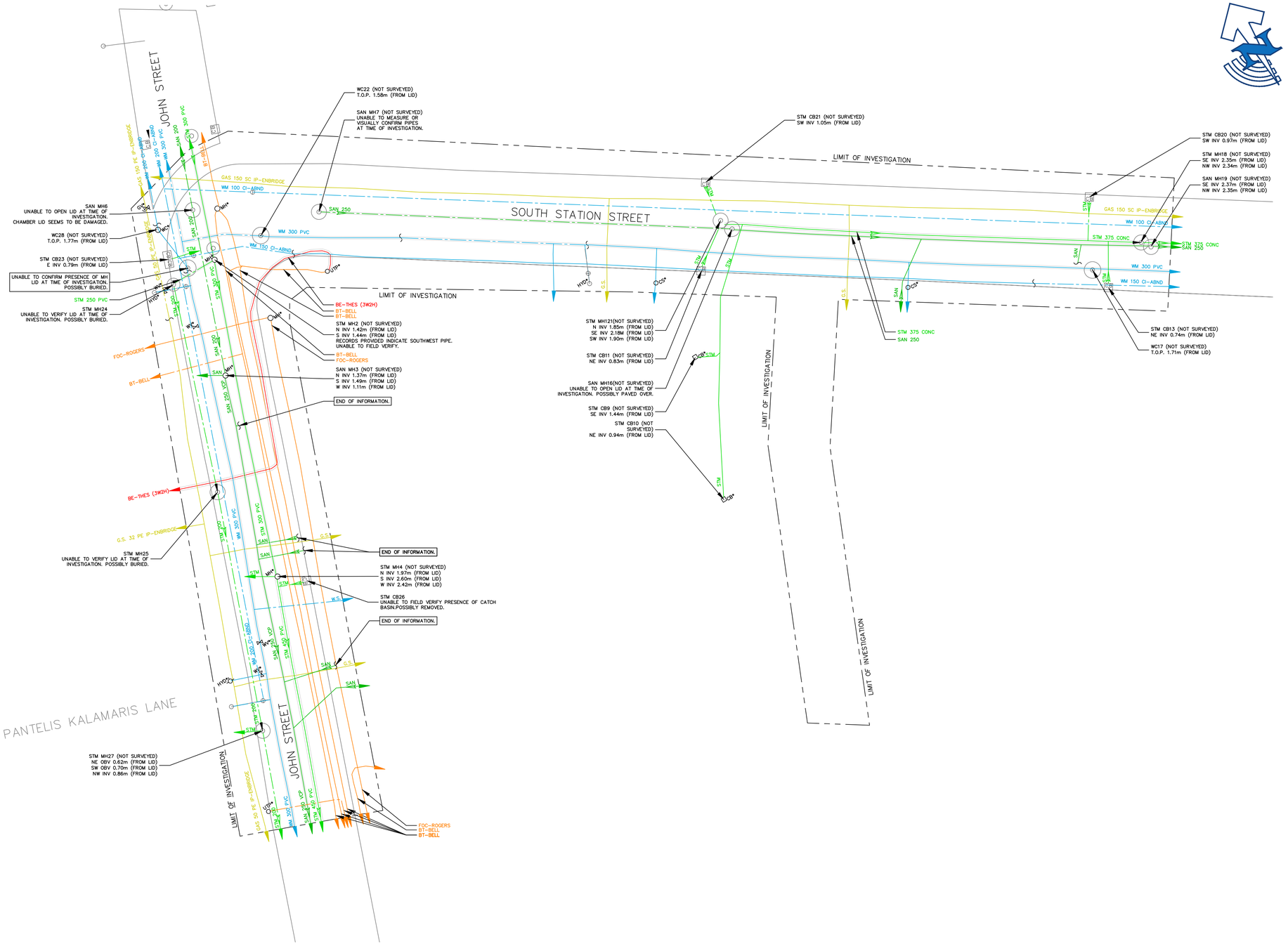
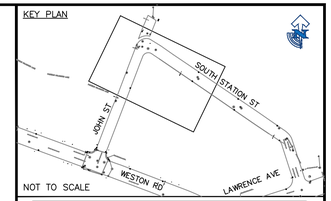


KEY PLAN



NOT TO SCALE

GENERAL NOTES

1. T2UE'S SUE FIELD INVESTIGATION WAS PERFORMED AUGUST 2022. CHANGES TO UTILITIES THAT OCCURRED FOLLOWING OUR INVESTIGATION MAY NOT BE SHOWN. CONSIDERATION SHOULD BE GIVEN TO UPDATING THIS PLAN PRIOR TO FINAL DESIGN AND CONSTRUCTION.

2. LIMIT OF INVESTIGATION:

- RIGHT OF WAYS FRONTING 13-21 JOHN STREET AND 36-40 SOUTH STATION STREET – AS SHOWN ON DRAWING.

3. FIELD VERIFICATION OF UTILITIES WAS COMPLETED USING A COMBINATION OF ELECTROMAGNETIC PIPE AND CABLE LOCATE EQUIPMENT.

4. EMPTY CONDUITS, SERVICES, LATERALS TO BUILDINGS, ABANDONED FACILITIES SUCH AS STREET LIGHT CABLES, WITHIN THE INVESTIGATION AREA MAY NOT BE SHOWN ON THE DRAWING.

5. T2UE USED AVAILABLE MEANS IN AN ATTEMPT TO DETERMINE THE LOCATION OF UNDOCUMENTED UTILITIES HOWEVER CANNOT BE RESPONSIBLE FOR FINDING ALL UNDOCUMENTED UTILITIES.

6. THE BASEPLAN WAS PROVIDED BY THE CLIENT, THEREFORE T2UE IS NOT RESPONSIBLE FOR ITS ACCURACY.

7. UTILITY OWNERSHIP, MATERIAL, SIZES AND FLOW SHOWN ON DRAWING ARE BASED ON RECORDS INFORMATION RECEIVED, FIELD INVESTIGATION AND PROFESSIONAL JUDGEMENT.

8. UTILITY WIDTHS ON DRAWING ARE BASED ON RECORDS RECEIVED.

9. PIPE OFFSETS ARE SHOWN WHERE THE CENTER OF THE PIPE IS OFFSET FROM CENTER OF THE CHAMBER LID BASED ON RECORDS OR VISUAL VERIFICATION. DISTANCE SHOWN IS APPROXIMATE AND DIRECTION IS NOTED FROM THE CENTER OF THE LID.

10. PLANT SHOWN AS "ABANDONED (ABND)" ON THE DRAWINGS ARE BASED ON RECORD INFORMATION PROVIDED. STATUS OF THE UTILITY SHOULD TO BE CONFIRMED WITH THE UTILITY OWNER.

11. SEE PROJECT REPORT FOR ADDITIONAL INFORMATION.

ASCE QUALITY LEVELS

THE UTILITY INFORMATION SHOWN ON THIS DRAWING WAS COLLECTED IN ACCORDANCE TO ASCE STANDARD 38-02. THE INFORMATION IS SHOWN BY QUALITY LEVEL WHICH INDICATES THE LEVEL OF EFFORT USED TO DETERMINE THE LOCATION OF THE DATA

INCREASED QUALITY

QUALITY LEVEL "D" – INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL RECOLLECTIONS.

QUALITY LEVEL "C" – INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO THE QUALITY LEVEL "D" INFORMATION.

QUALITY LEVEL "B" – INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE UTILITIES.

QUALITY LEVEL "A" – PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES.

LEGEND

GAS	GAS
G.S.	GAS SERVICE
WM	WATER
W.S.	WATER SERVICE
SAN	SANITARY SEWER
SAN LAT.	SANITARY LATERAL
STM	STORM SEWER
STM LAT.	STORM LATERAL
BE	BURIED ELECTRIC
BE-SL	BURIED ELECTRIC STREET LIGHT
BE-TL	BURIED ELECTRIC TRAFFIC LIGHT
UNK	UNKNOWN CONDUCTIVE
FOC	FIBRE OPTIC CABLE
TV	BURIED TELEVISION CABLE
BT	BURIED TELECOMMUNICATIONS
o/h	OVERHEAD WIRE
	QUALITY LEVEL "B"
	QUALITY LEVEL "C"
	QUALITY LEVEL "D"
	LIMIT OF INVESTIGATION
	TEST HOLE QUALITY LEVEL "A"
	CONTINUATION ARROW
	FLOW ARROW
	END CAP
*	NOT SURVEYED, LOCATION BASED ON FIELD OBSERVATION
#	NOT SURVEYED, LOCATION BASED ON RECORD INFORMATION
O/S	OFFSET
	LOSS OF SIGNAL

REVISIONS

DISCLAIMER.

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PREPARED BY.

T2 utility engineers
1-855-222-T2UE | WWW.T2UE.COM

THE ENGINEER'S SEAL HEREON IS TO CERTIFY THAT THE UTILITIES SHOWN HAVE BEEN INVESTIGATED IN ACCORDANCE WITH STANDARD SUE INDUSTRY PRACTICES. ALL OTHER INFORMATION HEREON HAS BEEN PROVIDED BY OTHERS AND IS NOT A PART OF THIS CERTIFICATION.

		DATE (MM/DD/YY)
DRAWN	C. SANCHEZ	09/21/22
CHECKED	H. YOUSSEF	09/22/22
APPROVED		

SCALE 1: 250 (0, 5, 10m)

PROJECT.
13-21 JOHN ST. AND 36-40 SOUTH STATION ST.
TORONTO ONTARIO

DRAWING.
SUBSURFACE UTILITY ENGINEERING
MAPPING SERVICES

CLIENT.
BURNSIDE

PROJECT NO. 61002461

SHEET NO. 01 OF 01

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Fire Flow Calculations

BURNSIDE

CALCULATION SHEET

Project: **John Street and South Station Street**

Domestic and Fire Flow Calculations

Prepared by:	HH
Checked by:	JS
Project No:	300054203
Date:	September 27, 2022

Based on Fire Underwriters Survey

1 F= 220 C (sqrt (A))

Where F= Fire flow in Lpm
C= construction type coefficient
= 0.8 Type II Noncombustible Construction
A = total floor area in sq.m. excluding basements, includes garage

Floor	Area (sq.m)	%
4	1,719	100%
3	1,719	25%
5	1,556	25%

Largest Area= 2,537 sq.m
F = 8,866 L/min

Round to nearest 1000 l/min
F = 9,000 Ll/min

2 Occupancy Reduction
15% reduction for normal residential occupancy
Reduction = 1350 L/min
F = 7,650 L/min

3 Separation Charge — Update with new site plan in CAD

15%	North Side	10.1m to 20m
20%	East Side	3.1m to 10m
20%	South Side	3.1m to 10m
15%	West Side	10.1m to 20m
70%	Total Separation Charge,	**5355** L/min

Note: Maximum Total Separation Charge is 75%

4 Sprinkler Reduction
25% Reduction for NFPA Sprinkler System
Reduction = **1913** L/min

5 Domestic Flow Calculations

Population = 879 persons
Ave. Day Demand = 190 L/cap/day
116 L/min
Max. Hourly Peaking Factor = 2.5
Max. Domestic Flow Rate F_{dom} = **290** L/min

F = 13,005 - 1913 + 290 = 11,382 l/min
F = 190 L/s
F = 3005 GPM

Hydrant Flow Test Report

SITE NAME:

SITE ADDRESS / MUNICIPALITY: **13-21 John Street Toronto, On**

TEST HYDRANT LOCATION : **Front of 40 South Station Street Hydrant ID# HY1057**

BASE HYDRANT LOCATION: **29 South Station Street, Hydrant ID# Hy1082**

TEST BY: Luzia Wood

TEST DATE: June 24,2022

TEST TIME: 8:30AM

TEST DATA

FLOW HYDRANT — Pipe Diam. (in / mm): 300mm P.V.C

	PITOT 1	PITOT 2
SIZE OPENING (inches):	2.5	2.5
COEFFICIENT (**note 1**):	0.90	0.90
PITOT READING (psi):	60	47 / 47
FLOW (usgpm):	**1300**	**2301**

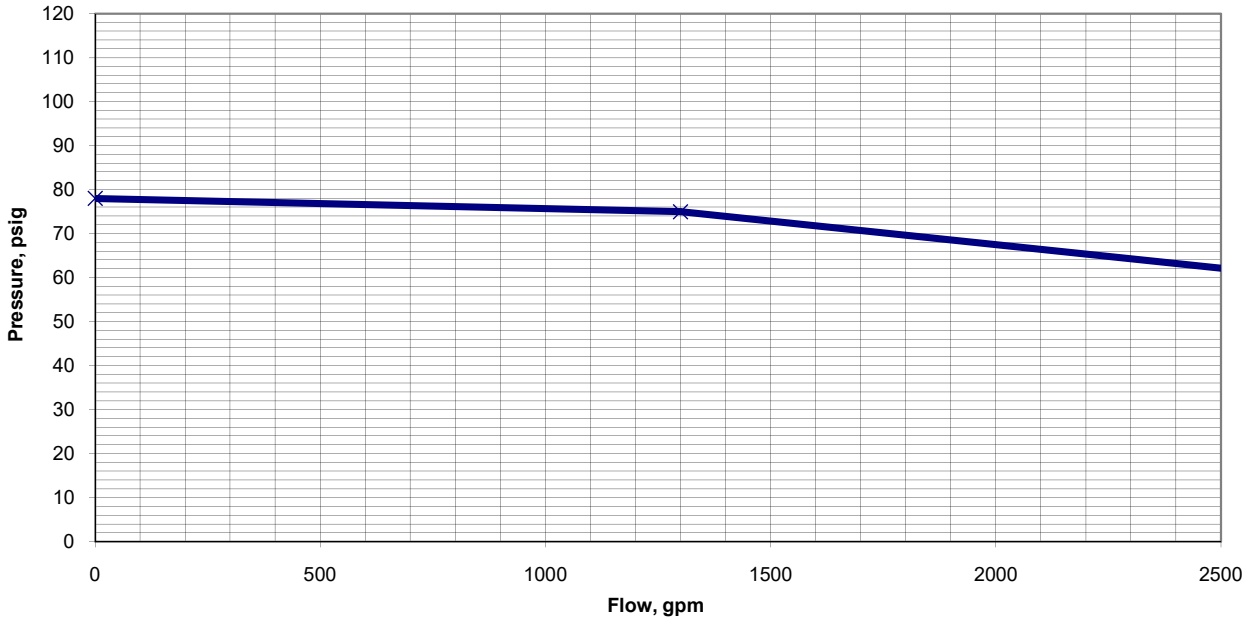
THEORETICAL FLOW @ 20 PSI 6434

BASE HYDRANT — Pipe Diam. (in / mm): 300mm P.V.C

STATIC READING (psi): 78 RESIDUAL 1 (psi): 75 RESIDUAL 2 (psi): 68

REMARKS:

NOTE 1: Conversion factor of .90 used for flow calculation based on rounded and flush internal nozzle configuration. No appreciable difference in pipe invert between flow and base hydrants.



491 Port Maitland Rd
Dunnville, ON N1A 2W6

Hydrant Flow Test Report

SITE NAME:

SITE ADDRESS / MUNICIPALITY: **13-21 John Street Toronto, On**

TEST HYDRANT LOCATION : **Front of 22 John Street Hydrant ID# HY3164**

BASE HYDRANT LOCATION: **John Street at Pantelis Kalamaris Ln, Hydrant ID# No ID**

TEST BY: Luzia Wood

TEST DATE: June 24,2022

TEST TIME: 8:00AM

TEST DATA

FLOW HYDRANT — Pipe Diam. (in / mm): 300mm P.V.C

	PITOT 1	PITOT 2
SIZE OPENING (inches):	2.5	2.5
COEFFICIENT (**note 1**):	0.90	0.90
PITOT READING (psi):	60	48 / 48
FLOW (usgpm):	**1300**	**2325**

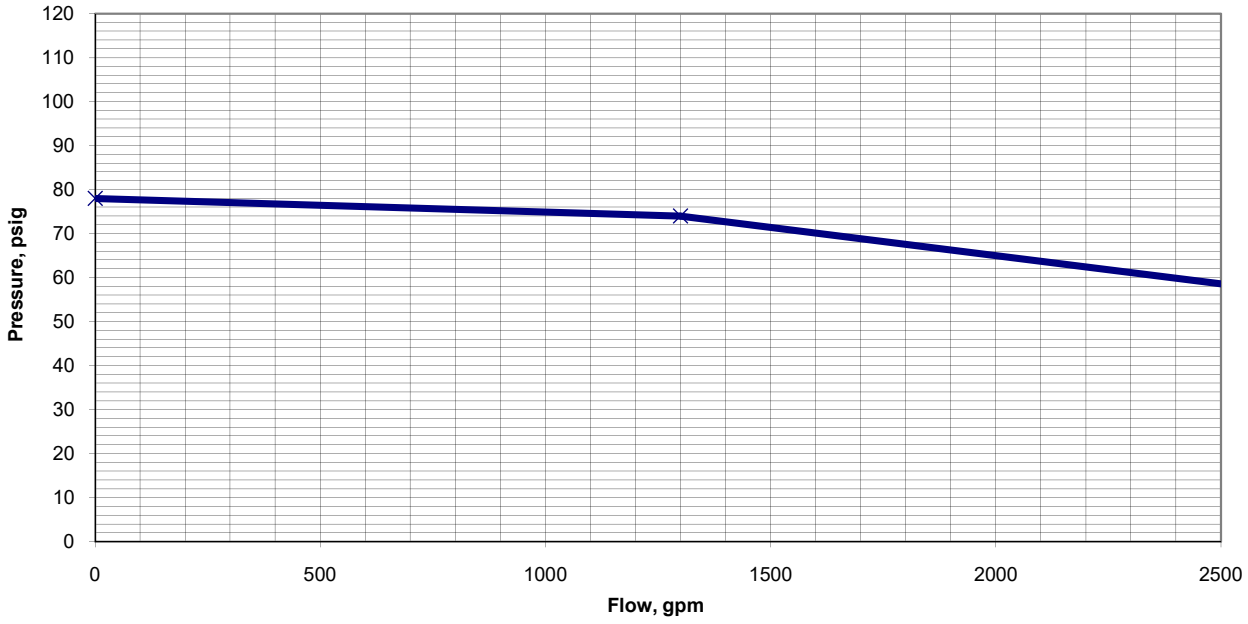
THEORETICAL FLOW @ 20 PSI 5508

BASE HYDRANT — Pipe Diam. (in / mm): 300mm P.V.C

STATIC READING (psi): 78 RESIDUAL 1 (psi): 74 RESIDUAL 2 (psi): 68

REMARKS:

NOTE 1: Conversion factor of .90 used for flow calculation based on rounded and flush internal nozzle configuration. No appreciable difference in pipe invert between flow and base hydrants.



491 Port Maitland Rd
Dunnville, ON N1A 2W6

BURNSIDE

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Appendix C

Stormwater Calculations

Created By: HH
Checked By: JS
Date: 10/4/2022

Project Title: South Station Street
Project #: 300054203

EXISTING SITE		
DESCRIPTION	**AREA (sq.m.)**	**AREA (ha)**
EXISTING SITE AREA	3801	0.38
EXISTING AREA DRAINING TO SOUTH STATION	2605	0.26
EXISTING AREA DRAINING TO JOHN STREET	1196	0.12
EXISTING EXTERNAL AREA	110	0.01
PROPOSED SITE		
DESCRIPTION	**AREA (sq.m.)**	**AREA (ha)**
EXISTING EXTERNAL AREA	110	0.01
PROPOSED SITE		
FLAT ROOF	1677	0.17
GREEN ROOF	518	0.05
CONTROLLED HARDSCAPE	1333	0.13
CONTROLLED LANDSCAPE	113	0.01
UNCONTROLLED HARDSCAPE	146	0.01
UNCONTROLLED LANDSCAPE	14	0.00
TOTAL AREA	**3801**	0.38

BURNSIDE

Project: **South Station Street**
Task: **Pre-Development Flows**
Date: **4-Oct-22**

Prepared by: **HH**
Checked by: **JS**
Project no.: **300054203**

2-year Pre-Development Flow — **Existing Site**

A	21.8	
B	0	
C	0.78	
T	0.17	hr

Land Use Description	Runoff Coefficient	Intensity (mm/hr)	Area (ha)	Runoff (L/s)
Site Area	0.50	88.19	0.38	**46.6**
TOTAL			0.38	**46.6**

$$Q_{Allowable\ Release} = \frac{CiA}{0.36}$$

46.6 **L/s**

BURNSIDE

Project: **South Station Street**
Task: **Pre-Development Flows**
Date: **4-Oct-22**

Prepared by: **HH**
Checked by: **JS**
Project no.: **300054203**

2-year Pre-Development Flow — **Existing Area Draining to South Station**

A	21.8	
B	0	
C	0.78	
T	0.17	hr

Land Use Description	Runoff Coefficient	Intensity (mm/hr)	Area (ha)	Runoff (L/s)
Drainage Area	0.90	88.19	0.26	**57.4**
TOTAL			0.26	**57.4**

$$Q_{Allowable\ Release} = \frac{CiA}{0.36}$$

57.4 **L/s**

BURNSIDE	Project: **South Station Street**	Prepared by:	**HH**
	Task: **Pre-Development Flows**	Checked by:	**JS**
	Date: **4-Oct-22**	Project no.:	**300054203**

2-year Pre-Development Flow

Existing External Area

A	21.8	
B	0	
C	0.78	
T	0.17	hr

Land Use Description	Runoff Coefficient	Intensity (mm/hr)	Area (ha)	Runoff (L/s)
External Area	0.90	88.19	0.011	**2.4**
TOTAL			0.011	**2.4**

$$Q_{Allowable\ Release} = \frac{CiA}{0.36}$$

2.4 **L/s**

Composite Runoff Coefficient Calculations

Controlled Site Area

Area ID	Area (ha)	RC	Area x RC
Flat Roof	0.168	0.90	0.151
Green Roof	0.052	0.50	0.026
Controlled Landscape	0.011	0.25	0.003
Controlled Hardscape	0.133	0.90	0.120
Total:	0.364		0.300

Composite RC: 0.82

Composite Runoff Coefficient Calculations

Uncontrolled Site Area

Area ID	Area (ha)	RC	Area x RC
Uncontrolled Landscape	0.001	0.25	0.000
Uncontrolled Hardscape	0.015	0.90	0.013
Total:	0.016		0.013

Composite RC: 0.84

BURNSIDE

Project: **South Station Street**
Task: **Post-Development**
Date: **4-Oct-22**

Prepared by:	**HH**
Checked by:	**JS**
Project no.:	**300054203**

100-Year Post-Development Flows

A	59.7	
B	0.0	
C	0.8000	
T	0.17	min

Land Use Description	Runoff Coefficient	Intensity (mm/hr)	Area (ha)	Runoff (L/s)
Flat Roof	0.90	250.32	0.168	105.0
Green Roof	0.50	250.32	0.052	18.0
Landscape	0.25	250.32	0.011	2.0
Hardscape	0.90	250.32	0.133	83.4
TOTAL	0.82		0.364	**208.3**

Uncontrolled Flows

Uncontrolled	0.84	250.32	0.016	9.4

$$Q_{Allowable\ Release} = \frac{CiA}{0.36}$$

217.7 **L/s**

BURNSIDE

Project: South Station Street
Project No.: 300054203
Modelled By: HH
Date: 2022/10/04

MODIFIED RATIONAL METHOD
POST-DEVELOPMENT CONTROLLED FLOWS

Rainfall IDF Coefficients	100	-year		
A =	59.7		A =	
C =	-0.800		B =	
			C =	
Area =	0.39	ha		
Runoff Coefficient, C =	0.82			
C*A =	0.32			
Time of Concentration, t_c =	10.0	min		
Storm Duration Increment =	20.0	min		
Target Release Rate =	49.0	L/s		
Constant Inflow =	0.0	L/s	Roof Drainage = 42 L/s/ha	
Uncontrolled Outflow =	9.4	L/s		
Max. Allowable Outflow =	38.1	L/s		

Storm Duration (min)	Rainfall Intensity (mm/hr)	Max. Runoff Flow (L/s)	Runoff Volume (m^3)	Released Volume (m^3)	Storage Volume (m^3)	Max. Storage Volume Required (m^3)	Drawdown Time (hrs)
10.0	250.32	223.79	134	23	111		
30.0	103.94	92.93	167	46	122	122	1.89
50.0	69.07	61.75	185	69	117		
70.0	52.77	47.18	198	91	107		
90.0	43.16	38.59	208	114	94		
110.0	36.76	32.86	217	137	80		
130.0	32.16	28.75	224	160	64		
150.0	28.68	25.64	231	183	48		
170.0	25.95	23.20	237	206	31		
190.0	23.74	21.22	242	228	14		
210.0	21.91	19.59	247	251	0		
230.0	20.38	18.22	251	274	0		
250.0	19.06	17.04	256	297	0		
270.0	17.92	16.02	260	320	0		
290.0	16.93	15.13	263	343	0		
310.0	16.05	14.35	267	365	0		

BURNSIDE

Project:	**South Station Street**	Prepared by:	**HH**
Task:	**Orifice Sizing**	Checked by:	**JS**
Date:	**4-Oct-22**	Project no.:	**300054203.00**

Orifice Tube	**Tank**		
Catch Basin top =	127		
Pipe Outlet Invert =	125.94		
Ponding Height at CB=	0		
Height =	1.00	m	
C =	0.84		
$d_{orifice}$ =	**114.07**	mm (minimum)	**125 mm DR11**
$r_{orifice}$ =	57.035	mm	
Q $_{Orifice}$ =	**0.0381**	m^3/s	

Q = CA(√2gh)

Discharge Coefficients Plate = 0.62 ; Tube = 0.84 ; Tube w/ 90deg transition = 0.71

BURNSIDE	Project: **South Station Street** Task: **Retention Volume Calculations** Date: **10/4/2022**	Prepared by: **HH** Checked by: **JS** Project no.: **300054203**

Retention Volume Calculations

Redevelopment Area		
Area =	3801	m^2
Rainfall depth =	5.00	mm
Required volume =	**19.01**	m^3

Initial Abstraction

Surface	Initial Abstraction (m)	Area (m2)	Initial Abstraction Volume (m3)
Impervious Roof	0.001	1677	1.7
Green Roof	0.005	518	2.6
Impervious Areas	0.001	1478	1.5
Pervious Areas	0.005	127	0.6
		Total =	6.4

Required Volume =	19.0
Initial Abstraction Volume =	6.4
Remaining Required Volume =	12.6

BURNSIDE	Project: **South Station Street** Task: **TSS Removal Calculations** Date: **4-Oct-22**		Prepared by: **HH** Checked by: **JS** Project no.: **300054203**

TSS Removal Calculations

SURFACE	Effective TSS Removal (%)	Treated Area (m2)	% of Total Area	TSS Removal Over Total Site
IMPERVIOUS ROOF	80%	1677	44.1%	35.3%
GREEN ROOF	80%	518	13.6%	10.9%
HARDSCAPE	0%	1478	38.9%	0.0%
LANDSCAPE	80%	127	3.4%	2.7%
Total		**3801**	**100%**	**48.9%**

New Jersey Stormwater Best Practices Manual Equation for TSS Removal Rates for BMPs in Series

R = A + B - [(A x B) / 100]

R= Total TSS Removal Rate
A = TSS Removal Rate of First BMP
B = TSS Removal Rate of Second BMP

5 mm Runoff Event - Reused for Irrigation - Treats 50% of all runoff at 80% TSS Removal

TSS Removal = 48.9% + 50% x 80% - (48.9% x 50% x 80%) / 100))

TSS Removal = 69.33%

OGS Treatment - Treats 100% of all runoff at 50% TSS Removal

TSS Removal = 69.33% + 50% - (69.33% x 50%) / 100))

TSS Removal = 84.67%

Total TSS Removal = 84.67%

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

Hydrogeological Assessment Report

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

M9N 1J2

Hydrogeological Investigation

Client:
21 John Dev Inc.
31 Scardale Road, Unit 5
Toronto, ON, M3B 2R2

Attention: Stephanie Bonic

Type of Document:
Draft Report

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

Project Number:
BRM-21021990-A0

EXP Services Inc.
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Date Submitted:
2021-12-17
Revision 1: 2021-12-23
Revision 2: 2022-09-13

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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, & 21 John Street and 36, 38, & 40 South Station Street, 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 thirty-eight (38) storey mixed-use building with two (2) levels of underground parking (P2). 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 six (6) rounds of groundwater level measurements at all monitoring wells. As per the City of Toronto's requirements, a three (3)-month monitoring program is currently in progress.
- 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 six (6) monitoring events between November 30, 2021, and August 18, 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 is currently in progress. This hydrogeological assessment report will be updated upon the completion of the noted program.

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 117.77 masl (9.63 mbgs at BH201 on July 29, 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

4E-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	2 Levels (P2)	-	
Ground Surface Elevation	127.4	masl	Highest ground surface elevation at the Site (EXP, 2021 and 2022)
Top of Slab Elevation	121.4	masl	Based on the architectural drawings, the top of slab is anticipated to be six (6) meters below ground surface (Appendix H).
Lowest Footing Elevation	119.7	masl	The lowest foundation elevation as per the geotechnical report (EXP, 2022)
Excavation Area (Length x Width)	~ 3,335 (78 x 43)	m^2 (m x m)	Approximate area (length x width) of Site for the proposed development (Assumed)

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 Two (2) Levels of Underground Parking (L/day)**
Total Volume (L/day) Short Term Discharge of Groundwater (Construction dewatering) without Safety Factor (including precipitation)	118,000
Total Volume (L/day) Short Term Discharge of Groundwater (Construction dewatering) with Safety Factor of 2 (including precipitation)	185,000
Total Volume (L/day) Short Term Discharge of Groundwater (construction dewatering) with Safety Factor of 2 (excluding Precipitation) for EASR	135,000

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

It is our understanding that the development plan includes a permanent foundation sub-drain system that will ultimately discharge to the municipal sewer system if conventional footings are installed.

As of January 1, 2022, the foundation drainage policy from the City of Toronto prohibits post construction discharge of groundwater into the municipal sewer system.

The long-term dewatering was based on the same equations as construction dewatering shown in Section 4.1. The calculation for the estimated flow to the future sub-drain system (with no cutoff walls) is provided in Appendix F. The dewatering target for the foundation drainage system is taken at 0.5 m below the lowest slab elevation.

The foundation drain analysis provides a flow rate estimate. Once the foundation drain is built, actual flow rate measurements of the sump discharge will be required to confirm the estimated flow rate.

Based on the assumptions provided in this report, the estimated sub-drain discharge volumes are summarized in Appendix F. Seasonal and daily fluctuations are expected. These estimates may be affected by hydrogeological conditions beyond those encountered at this time, fluctuations in groundwater regimes, surrounding Site alterations, and existing and future infrastructures.

Table 4-3: Summary of Long-Term Dewatering Rate

Long-Term Dewatering Flow Rate	Two (2) Levels of Underground Parking (L/day)
Total Volume (L/day) Long-Term Drainage of groundwater (from foundation drainage, weeping tiles, sub slab drainage) with Safety Factor of 1.5	35,000
Long-Term Dewatering Rate without Safety Factor	24,000

Intermittent cycling of sump pumps and seasonal fluctuation in groundwater regimes should be considered for pump specifications. A safety factor was applied to the flow rate to account for water level fluctuations due to seasonal changes.

These estimates assume that pits (elevator and/or sump pits) are made as watertight structures (without drainage), if their depths extend below the dewatering target, as previously stated. The dewatering assumptions are based on using shoring system without open cuts. Open cuts can act as preferential groundwater pathways in the long-term and cause foundation drainage volumes to increase.

The sub-drain rate estimate is based on the assumptions outlined in this report. Any variations in hydrogeological conditions beyond those encountered as part of this investigation may significantly influence the sub-drain discharge volumes.

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)

In accordance with the Ontario Water Resources Act, if the water taking for the construction dewatering is more than 50,000 L/day, then an application for a Category 3 Permit to Take Water (PTTW) will be required from the MECP.

Based on the dewatering estimate shown in Table 4-3 less than 50,000 L/day, permit to take water will not be required for the post-construction phase.

The safety factor for construction (short-term) dewatering is selected larger than for long-term to account for anticipated greater groundwater volumes during initial dewatering. The applied analytical formula is adequate for long-term (steady state) conditions as it omits specific yield and time dependency. When the formula is used for short-term conditions a larger safety factor is recommended to cover a larger initial dewatering rate, which is required to remove stored groundwater. Moreover, a large initial construction dewatering rate is favorable, as it supports reducing the time to reach the dewatering target elevation.

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.

For the long-term (post construction) dewatering discharge to the 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.

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..
- A three (3) month monitoring program is currently in progress. This report will be updated upon the completion of the noted program.
- Based on the assumptions outlined in this report, the estimated peak dewatering rate for proposed construction activities is approximately 185,000 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 approximately 135,000 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.
- The estimated MECP dewatering rate for proposed post-construction activities is approximately 35,000 L/day. As the dewatering flow rate estimate is less than 50,000 L/day, permit to take water will not be required for the post-construction phase.
- 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.

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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.

Peyman Sayyah, M.Sc., P.Geo.
Senior Hydrogeologist
Environmental Services

Francois Chartier, M.Sc., P.Geo.
Discipline Manager, Hydrogeology
Environmental Services

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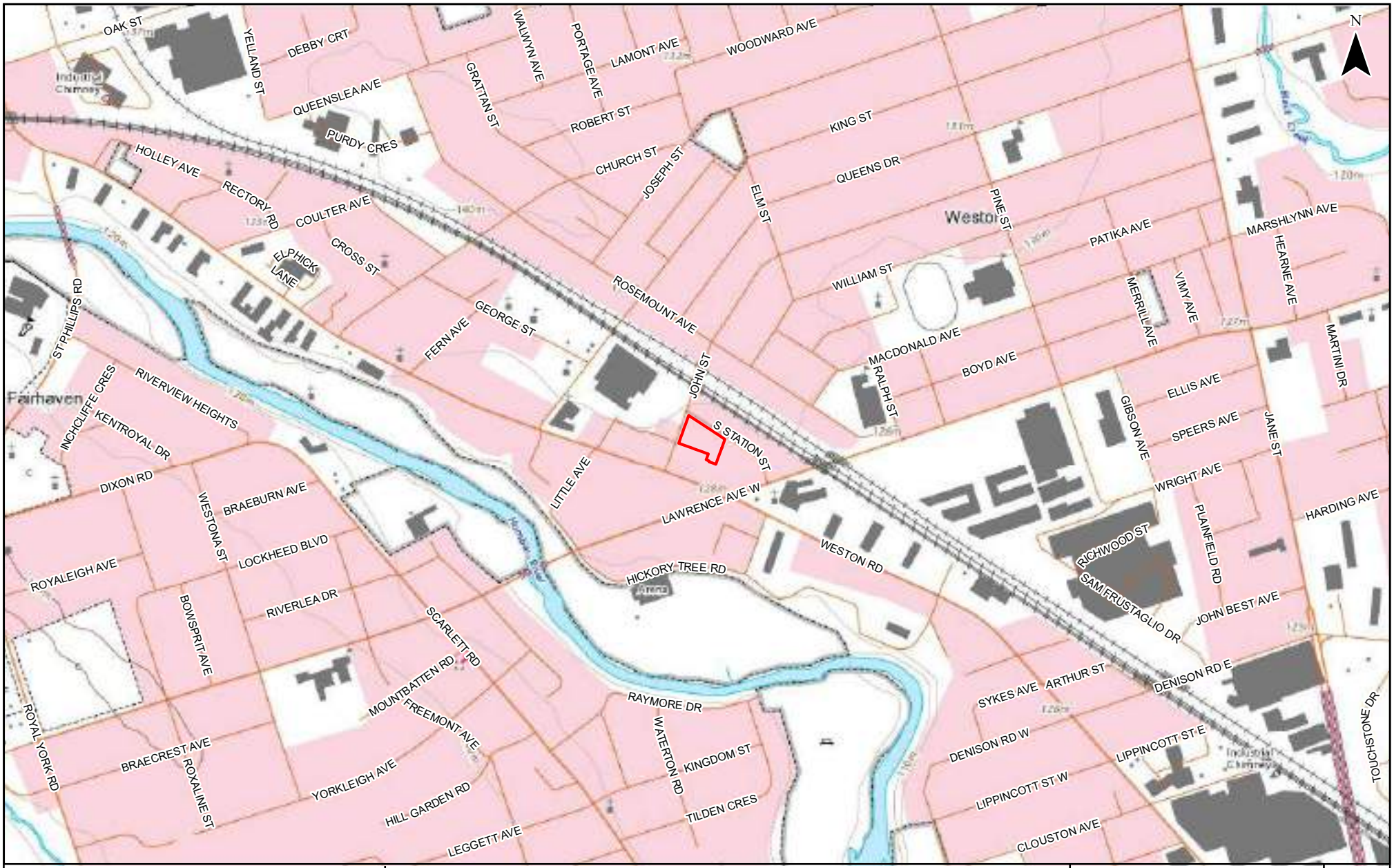
Figures



SCALE:

0 100 200 300 400 500 m

LEGEND:

APPROXIMATE SITE BOUNDARY

SITE LOCATION PLAN

FIGURE: 1

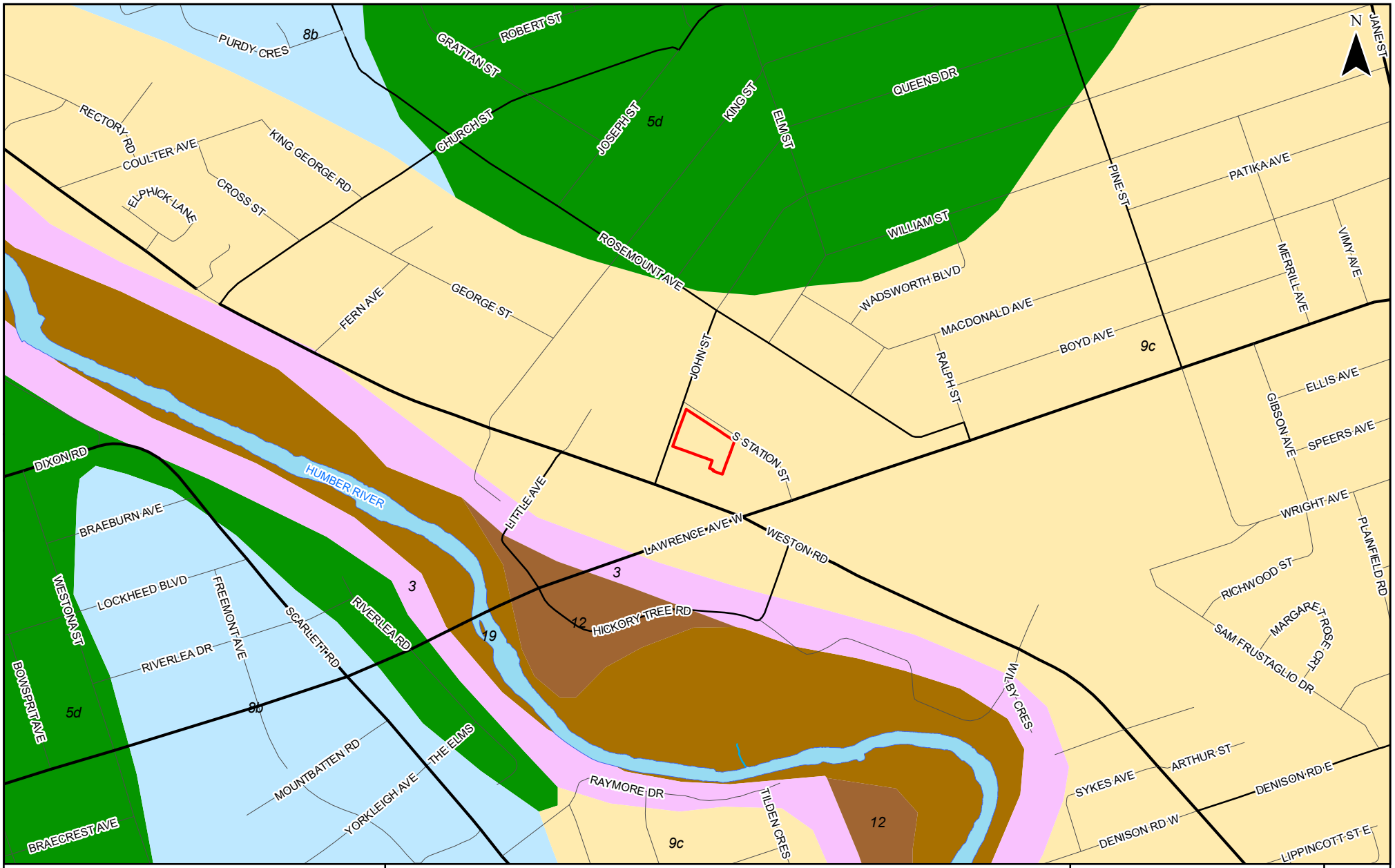
HYDROGEOLOGICAL INVESTIGATION
13, 15, 17 AND 21 JOHN STREET AND
36, 38, AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

exp.

DRAWN BY:	CHECKED BY:
AC	FC

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.

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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

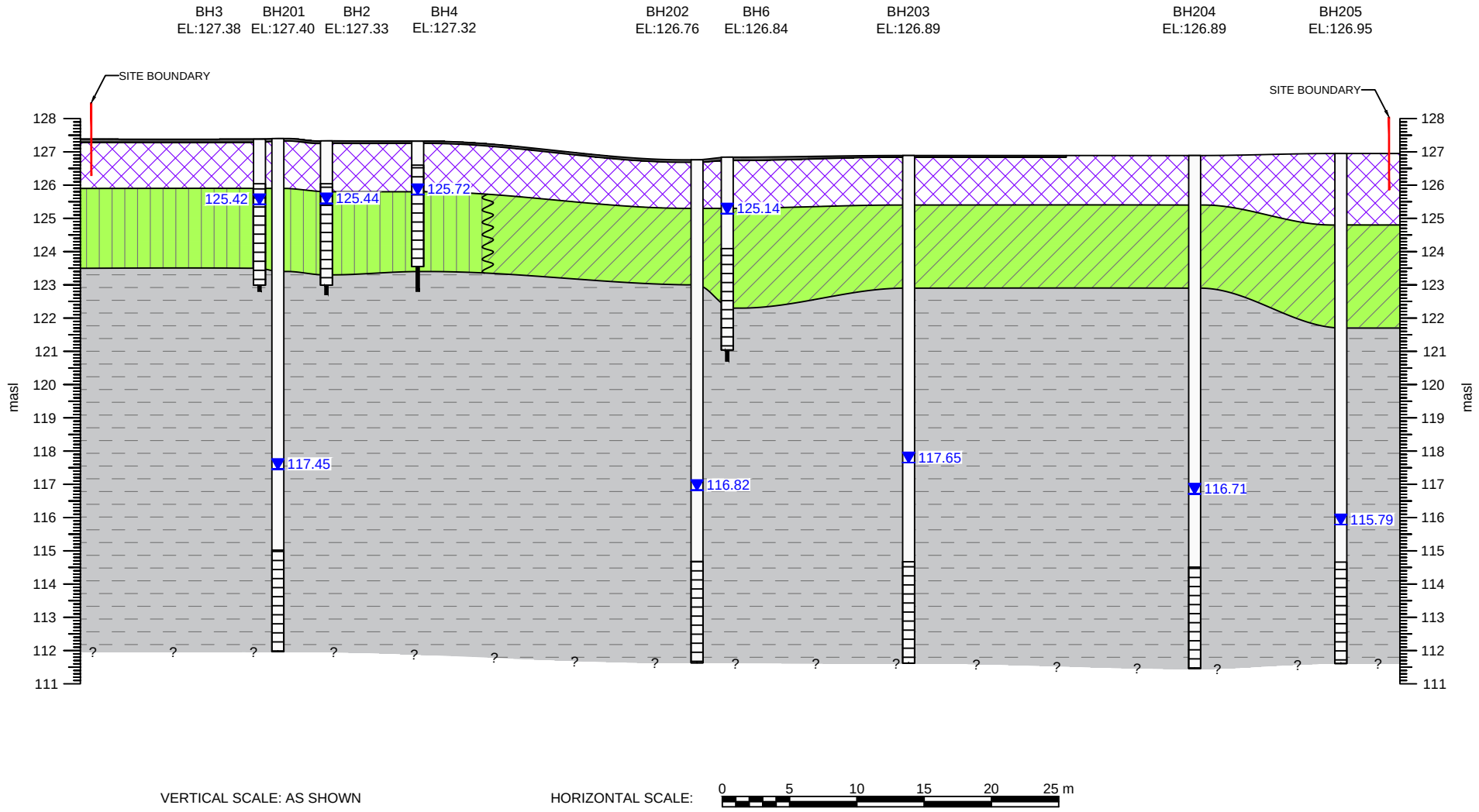
HYDROGEOLOGICAL INVESTIGATION
13, 15, 17 AND 21 JOHN STREET AND
36, 38, AND 40 SOUTH STATION STREET
TORONTO, ONTARIO

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.

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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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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 (S)

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

Soil Description	ELEV. m	Depth (m)
	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
	~125.0	
SILTY CLAY: trace sand, brown, moist		3
	~124.2	
SILTY CLAY TILL: some sand, trace gravel, brown and grey, moist		4
	~122.7	5
WEATHERD SHALE: trace clay, grey, moist		6
	~121.1	
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: 15, 5, 6, 13, 16, 50/76mm, 50/51mm

Natural Unit Weight kN/m³: 20.5, 19.7, 21.8

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

Soil Description	ELEV. m	Depth (m)	Sample	Natural Unit Weight kN/m³
	127.33	0		
~ 76mm **ASPHALT** and ~ 300 mm **GRANULAR**	~127.2 ~126.9			
FILL: Clayey silt, trace sand and cobbles, brown, moist - sand seams, trace gravel, petroleum odour, dark grey		1		
	~125.8			
SILTY CLAY: trace sand, grey, moist		2		19.8
	~125.0			
SILTY CLAY TILL: trace sand and gravel, brown, moist				21.5
		3		21.9
- grey, moist	~123.3	4		
WEATHERED SHALE: trace clay, grey				
- very moist	~122.7			
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, 10, 8, 17, 13, 73/203mm, 50/102mm

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

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

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 ✚ 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)	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/m³
		~ 100 mm **ASPHALT** and ~ 300 mm **GRANULAR**	127.38 ~127.3 ~127.0	0	16			
		FILL: Clayey silt, trace gravel, some sand, dark, moist - sand seams, trace sand, petroleum odour, moist	~125.9	1	7			
		FILL: Silty clay, trace sand, brown, moist	~125.1	2	6			20.1
		SILTY CLAY: trace sand, brown, moist	~124.3	3	10			20.0
		SILTY CLAY TILL: trace to some sand, trace gravel, brown, moist			12			20.6
		- some sand, brown, moist	~123.5	4	50/76mm			
		WEATHERED SHALE: trace clay, grey	~122.8		50/51mm			
		END OF BOREHOLE						

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

Soil Description	ELEV. m	Depth (m)
FILL: Silty sand, trace gravel, brown, moist	127.32	0
- No Recovery		1
	~125.8	
FILL: Silty sand, trace gravel, very strong gas odour, dark grey, wet		2
	~125.0	
FILL: Silty clay, trace sand, very strong gas odour, grey, wet		3
	~124.3	
SILTY CLAY TILL: trace sand and gravel, sand seams, grey, moist		4
	~123.4	
WEATHERED SHALE: trace clay, grey, moist		
	~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: 14, 8, 0, 3, 15, 50/100mm, 100/76mm

Natural Unit Weight: 21.6 kN/m³

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

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

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 (S)

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

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

Depth (m): 0, 1, 2, 3, 4, 5, 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

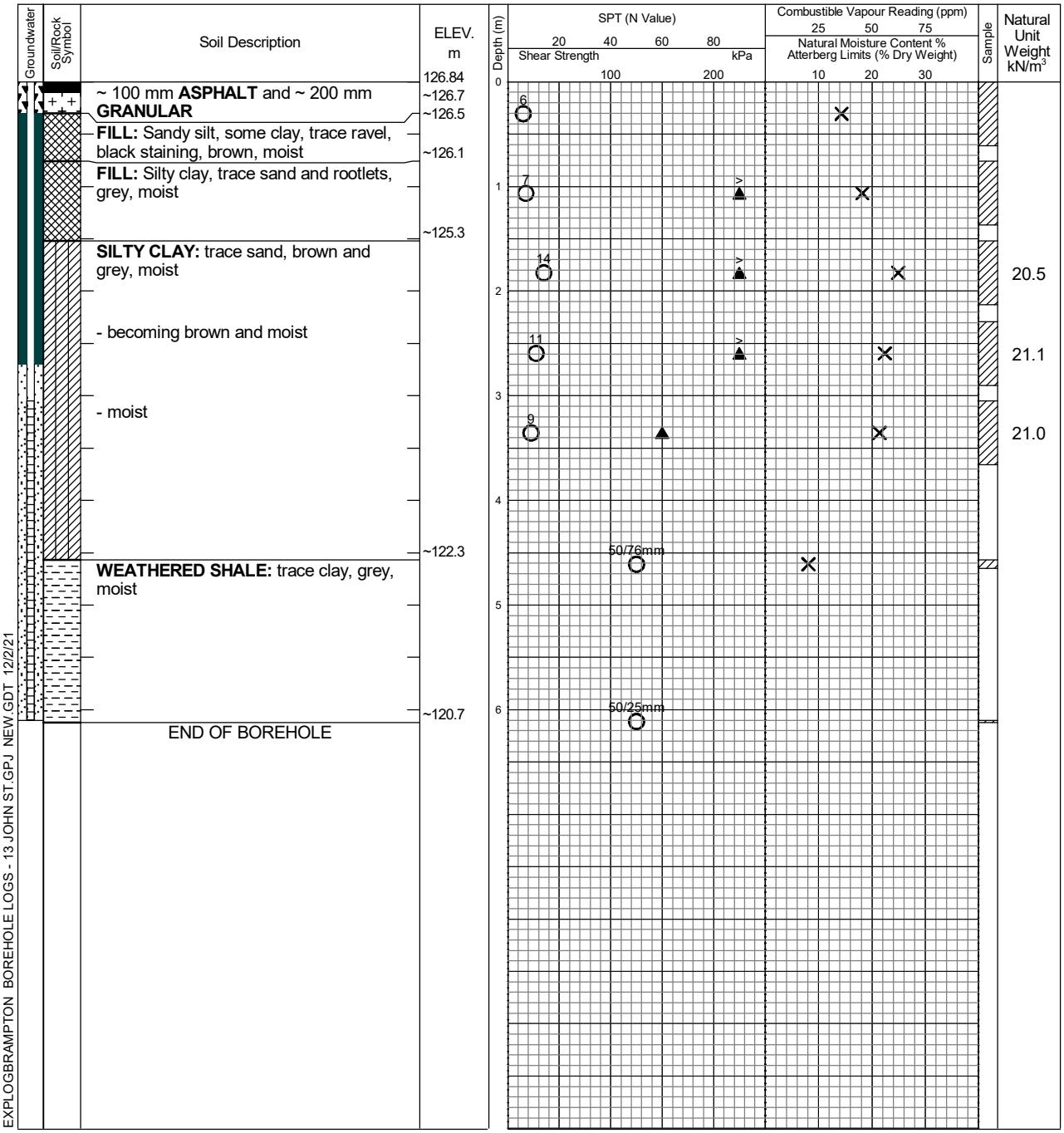
Date Drilled: November 3, 2021

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 ▲



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

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

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)	Natural Unit Weight kN/m³
	127.01	0	
~ 115 mm **ASPHALT** and ~ 175 mm **GRANULAR**	~126.9		
FILL: Clayey silt, trace gravel, some sand, dark stains, moist	~126.7		
	~125.5	1	
SILTY CLAY: trace to some sand, brown, moist		2	20.3
- trace sand			20.8
	~123.2	3	20.9
Shale Complex	~123.1		
WEATHERED SHALE: trace clay, grey, moist		4	
	~122.4		
END OF BOREHOLE			

SPT (N Value): 6, 5, 11, 15, 12, 50/25mm, 50/51mm

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

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 ☒ | 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
ASPHALT: ~75 mm	127.40	0	14		21.8
GRANULAR FILL: ~175 mm	~127.3				
FILL: sandy silt to clayey silt, trace gravel, hydrocarbon odour, dark brown, moist.	~127.1	1	6		20.9
SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to stiff.	~125.9	2	9		20.4
			13		22.1
		3	11		21.7
SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey.	~123.4	4	50/75mm		22.3
See rock core logs for details		5			
		6			
		7			
		8			
		9			
		10			

Groundwater | Soil/Rock Symbol | Sample

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	9.63	-
August 4, 2022	10.47	-
August 18, 2022	9.95	-

exp.

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

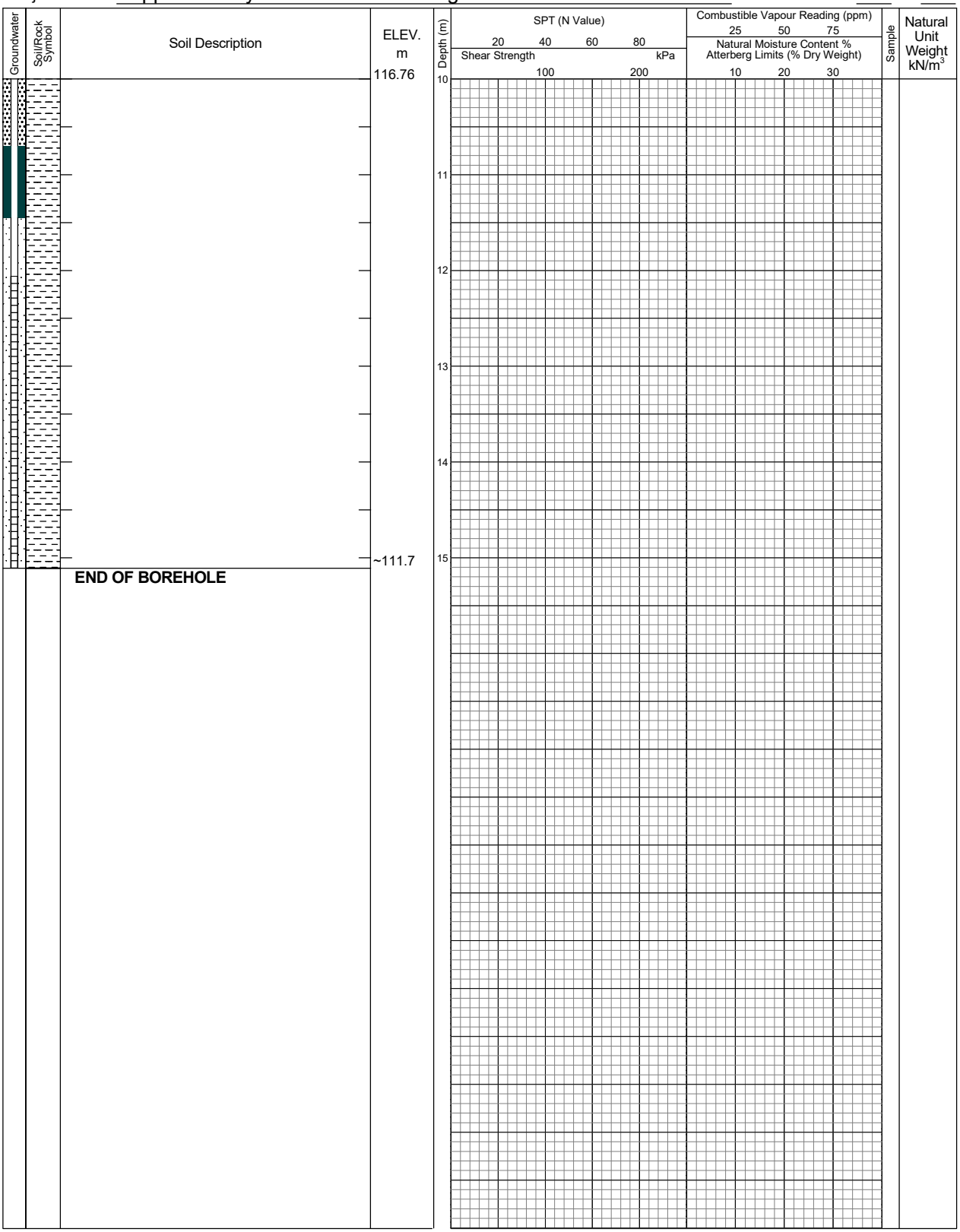
Date	Water Level (m)	Hole Open to (m)
July 29, 2022	1.62	-
August 4, 2022	10.12	-
August 18, 2022	9.94	-

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



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 ☒ | 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
ASPHALT: ~50 mm	126.89	0	15	×	
GRANULAR FILL: ~175 mm	~126.8				
FILL: sandy silt to clayey silt, trace gravel, dark brown, moist.	~126.7	1	7	×	20.3
	~125.4	2	17	×	20.1
SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to very stiff.			17	×	22.0
		3	11	×	21.7
	~122.9	4	50/75 mm	×	21.8
SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey.			50/100 mm		
See rock core logs for details		5			
		6			
		7			
		8			
		9			
		10			

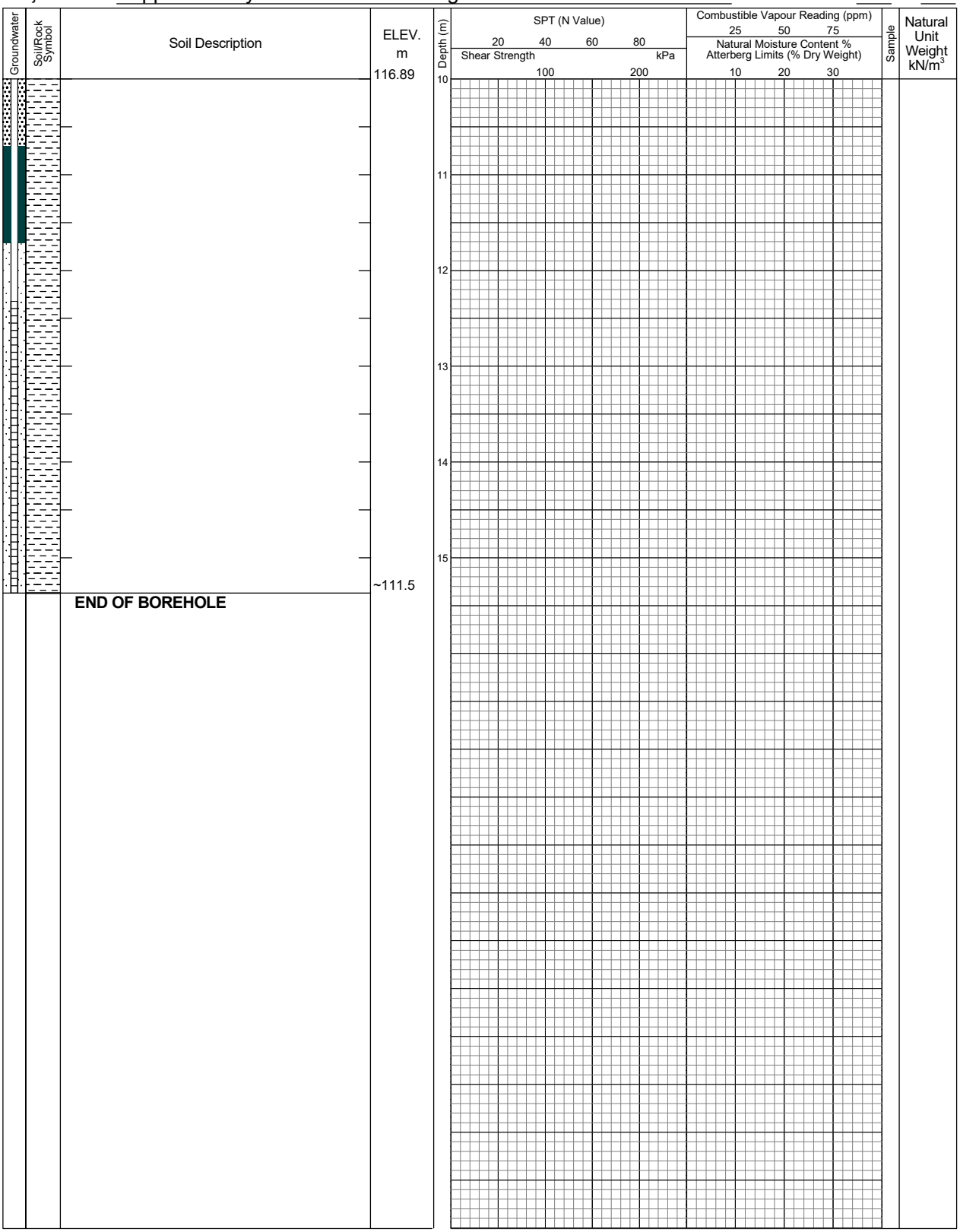
Continued Next Page

Date	Water Level (m)	Hole Open to (m)
July 29, 2022	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



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 ☒
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
GRANULAR FILL: ~225 mm	126.89	0	12		
	~126.7				
FILL: sandy silt to clayey silt, trace gravel, dark brown, moist.		1	8		
	~125.4				
SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to very stiff.		2	20		20.9
			28		21.8
		3	24		21.8
	~122.9	4	50/75 mm		22.6
SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey.			50/75 mm		
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	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 | 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)	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		
- becomes silty sand		1	21.2
	~124.8	2	
SILTY CLAY TILL: some sand, trace gravel, grey, moist, firm to hard.		3	19.9
		4	20.6
		5	23.2
	~121.7	6	
SHALE BEDROCK: Georgian Bay Formation, some limestone interbeds, weathered and fractured in upper zones, grey.		7	
See rock core logs for details		8	
		9	
		10	

SPT (N Value): 25, 8, 11, 11, 13, 16, 50/25 mm, 50/25 mm

Shear Strength (kPa) 100 200

Combustible Vapour Reading (ppm) 25 50 75

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

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

Groundwater	Soil/Rock Symbol	Soil Description	ELEV. m	Depth (m)
			116.95	10
				11
				12
				13
				14
				15
			~111.6	
		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	2.82	-
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 F	V V												
	5		Shale with interbedded siltstone, and clay layers.															
			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 F	V 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							WEATHERING	STRENGTH	FRACTURE FREQUENCY	RUN NUMBER	RECOVERY (%)	RQD	WATER RECOVERY (%)	WATER COLOUR
				NO. OF SETS	JOINT TYPE	ORIENTATION	SPACING	ROUGHNESS	FILLING	APERTURE (mm)								
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
BH 1	127.25	4.53	125.45	125.65	mbgs	1.62	1.80	1.76	**0.60**	1.63	1.60
					masl	125.63	125.45	125.49	126.65	125.62	125.65
BH 2	127.33	4.34	125.43	125.60	mbgs	1.73	1.85	1.89	1.87	1.90	1.89
					masl	125.60	125.48	125.44	125.46	125.43	125.44
BH 3	127.38	4.39	125.33	125.61	mbgs	1.77	1.88	1.90	2.05	1.99	1.96
					masl	125.61	125.50	125.48	125.33	125.39	125.42
BH 4	127.32	3.77	125.50	125.84	mbgs	1.48	1.71	1.82	1.58	1.60	1.60
					masl	125.84	125.61	125.50	125.74	125.72	125.72
BH 5	126.66	4.40	125.18	125.45	mbgs	1.21	1.28	1.48	1.39	1.38	1.39
					masl	125.45	125.39	125.18	125.27	125.28	125.27
BH 6	126.84	5.80	124.93	125.34	mbgs	1.50	1.60	1.91	1.70	1.80	1.70
					masl	125.34	125.24	124.93	125.14	125.04	125.14
BH 7	127.01	5.26	124.78	125.12	mbgs	1.90	2.06	2.23	2.15	2.12	2.11
					masl	125.12	124.95	124.78	124.86	124.89	124.90
BH201	127.40	15.43	116.93	117.77	mbgs	-	-	-	9.63	10.47	9.95
					masl	-	-	-	117.77	116.93	117.45
BH202	126.76	15.13	116.64	116.82	mbgs	-	-	-	**1.62**	10.12	9.94
					masl	-	-	-	125.14	116.64	116.82
BH203	126.89	15.27	117.48	117.65	mbgs	-	-	-	**2.50**	9.41	9.24
					masl	-	-	-	124.39	117.48	117.65
BH204	126.89	15.43	116.61	116.71	mbgs	-	-	-	**4.60**	10.28	10.18
					masl	-	-	-	122.29	116.61	116.71
BH205	126.95	15.34	115.65	115.79	mbgs	-	-	-	**2.82**	11.30	11.16
					masl	-	-	-	124.13	115.65	115.79

Notes:

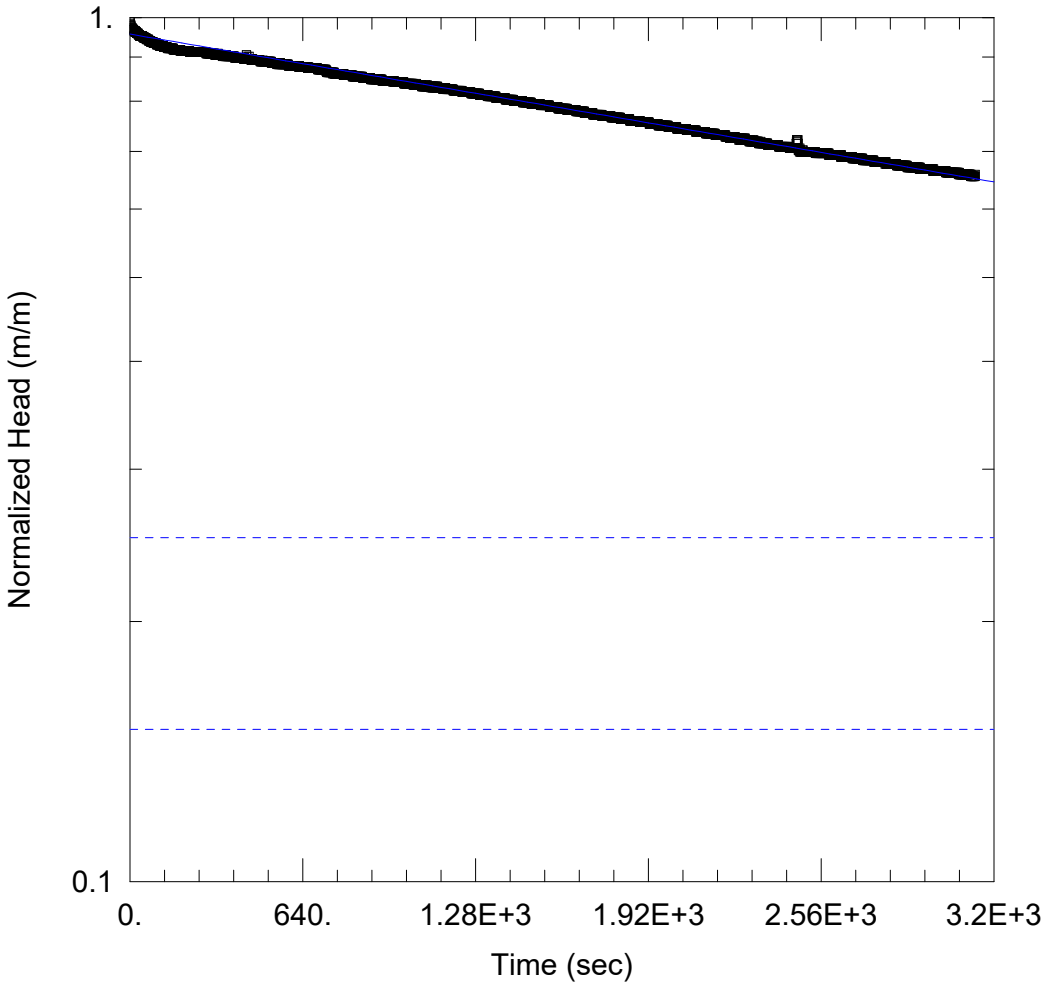
mbTOP - meters below top of the pipe

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



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.

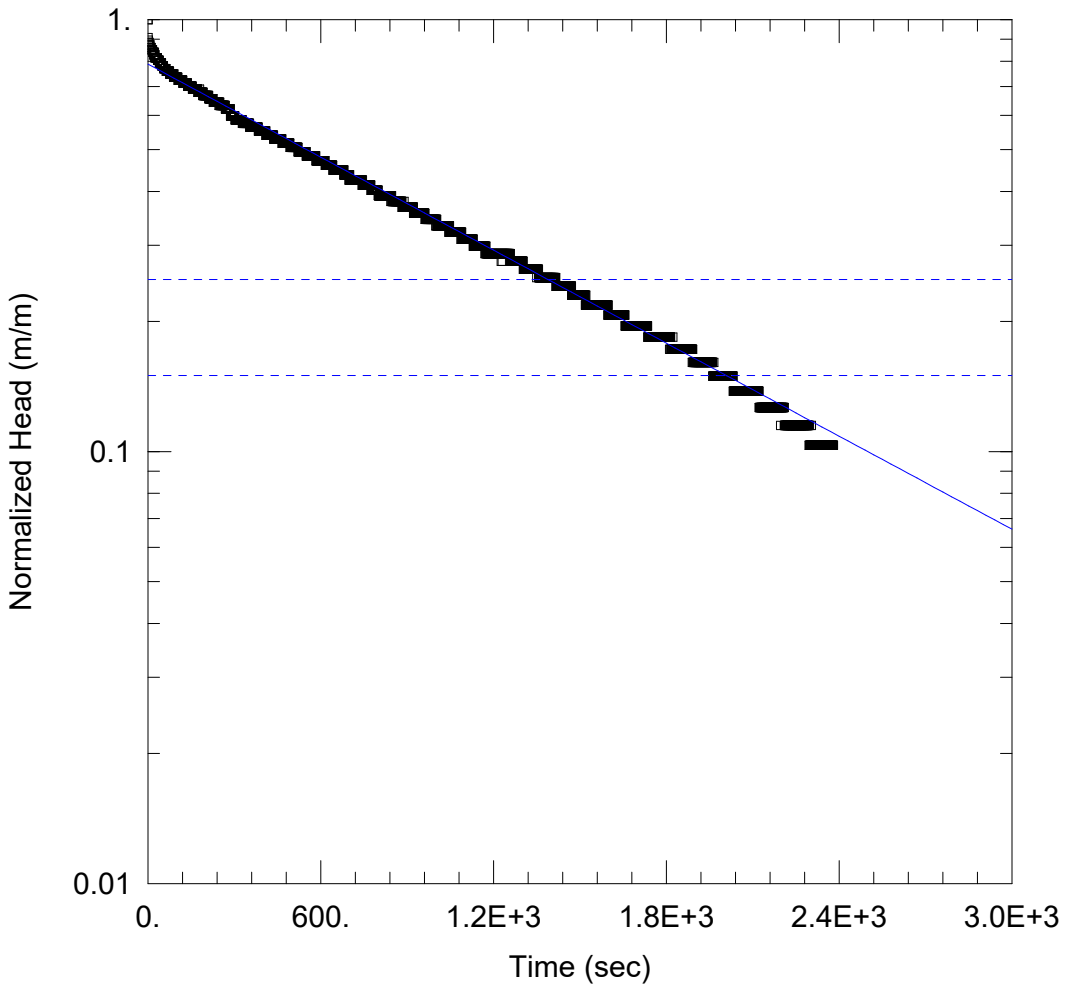
WELL DATA (BH 1)

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.

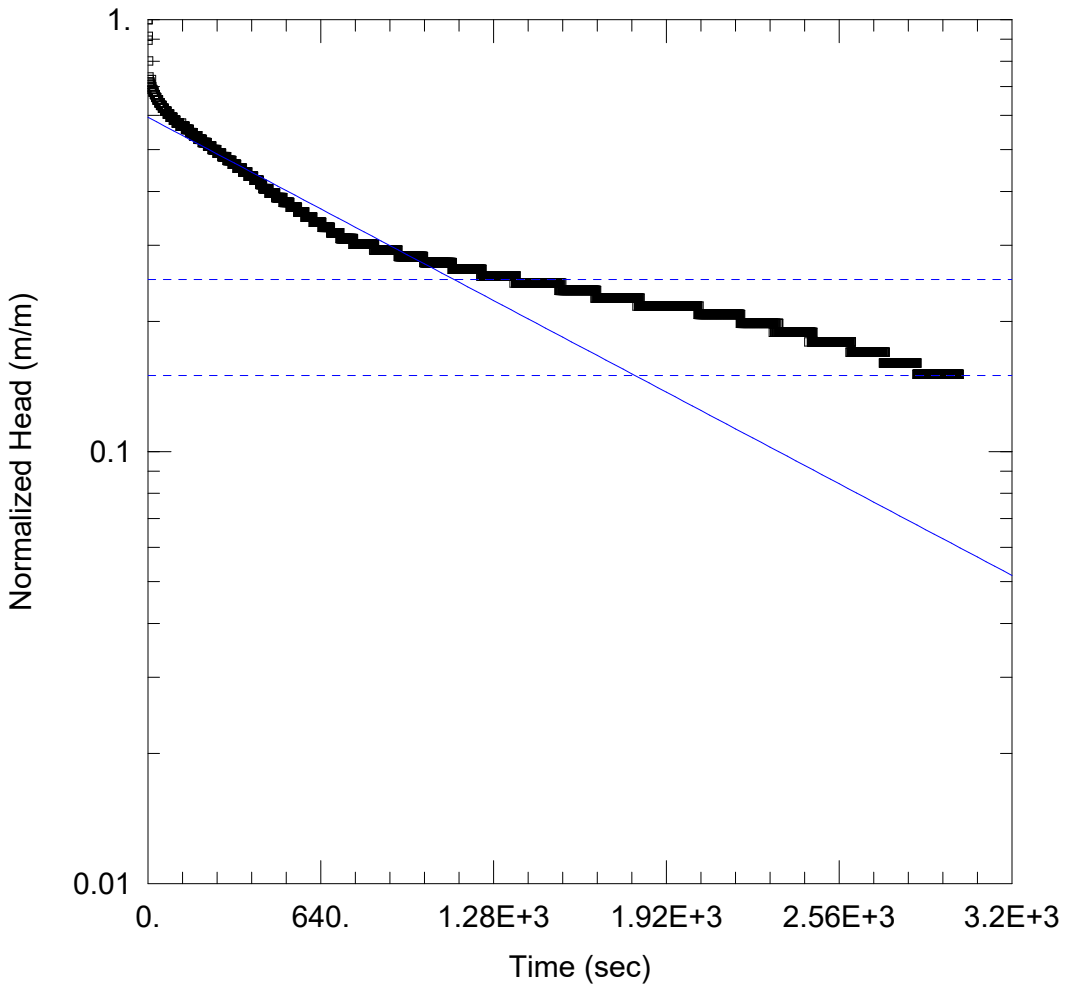
WELL DATA (BH 2)

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.

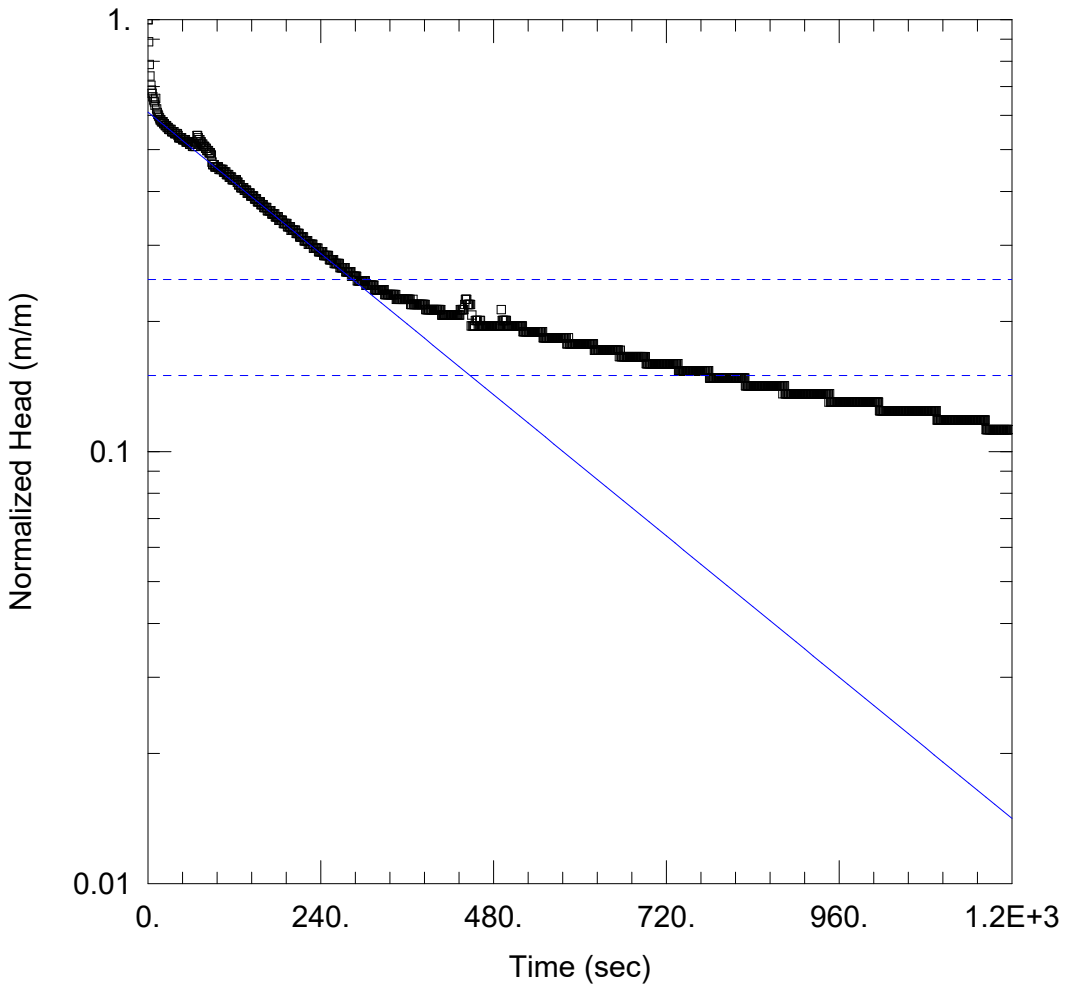
WELL DATA (BH 3)

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.

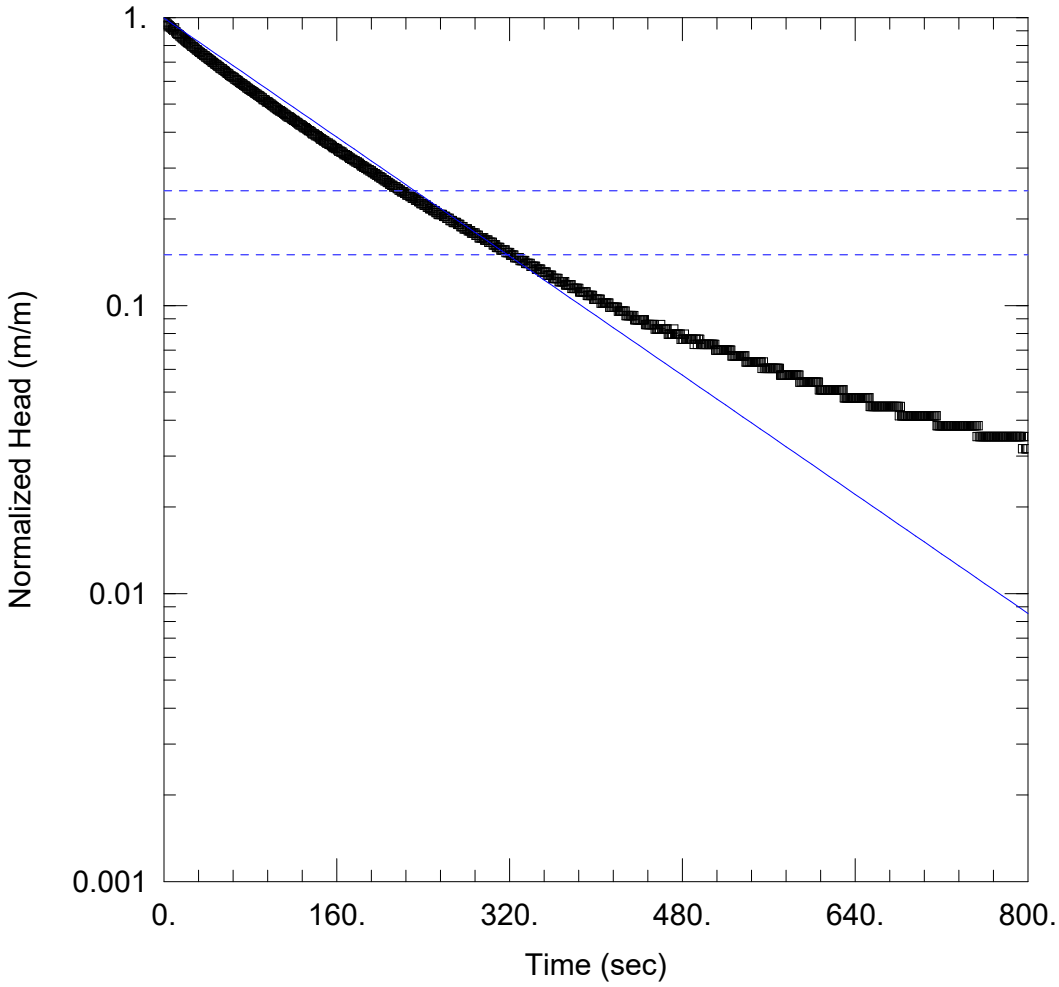
WELL DATA (BH 4)

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.

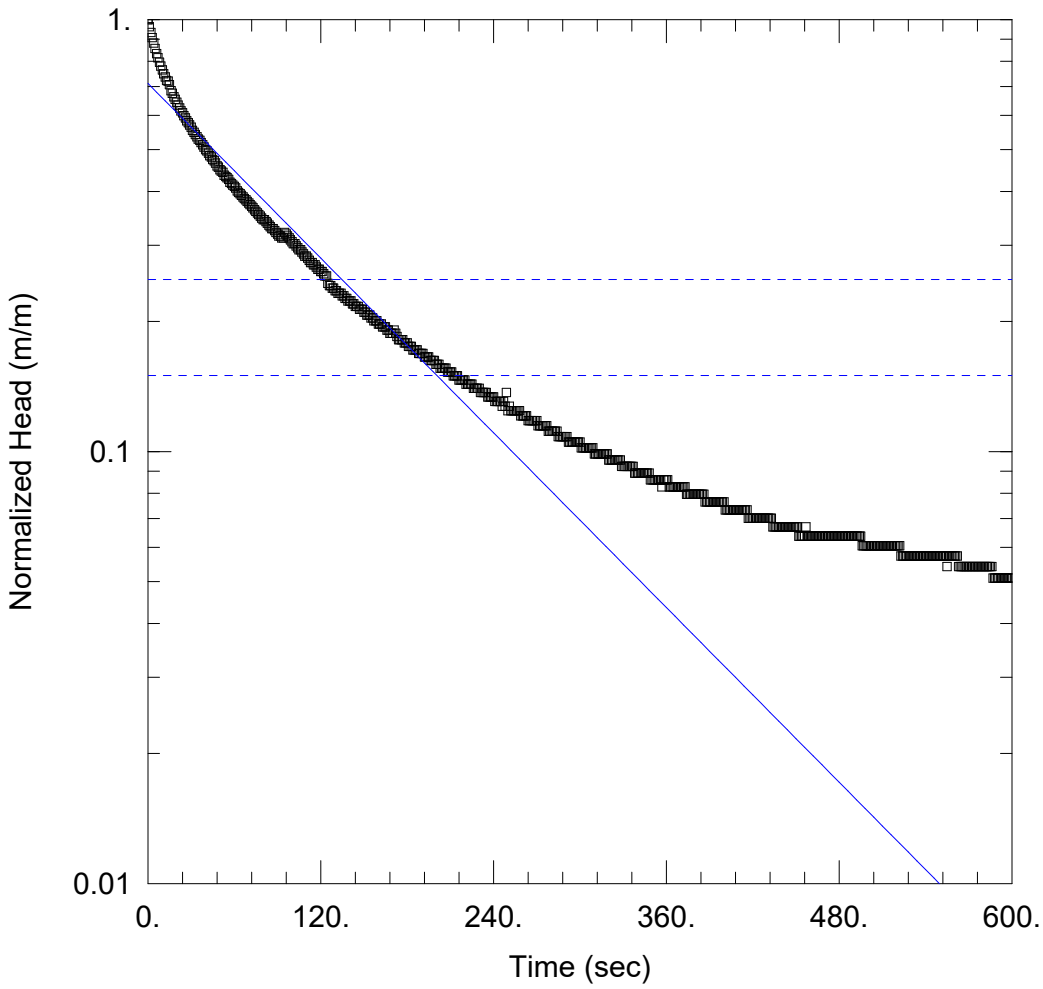
WELL DATA (BH 5)

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.

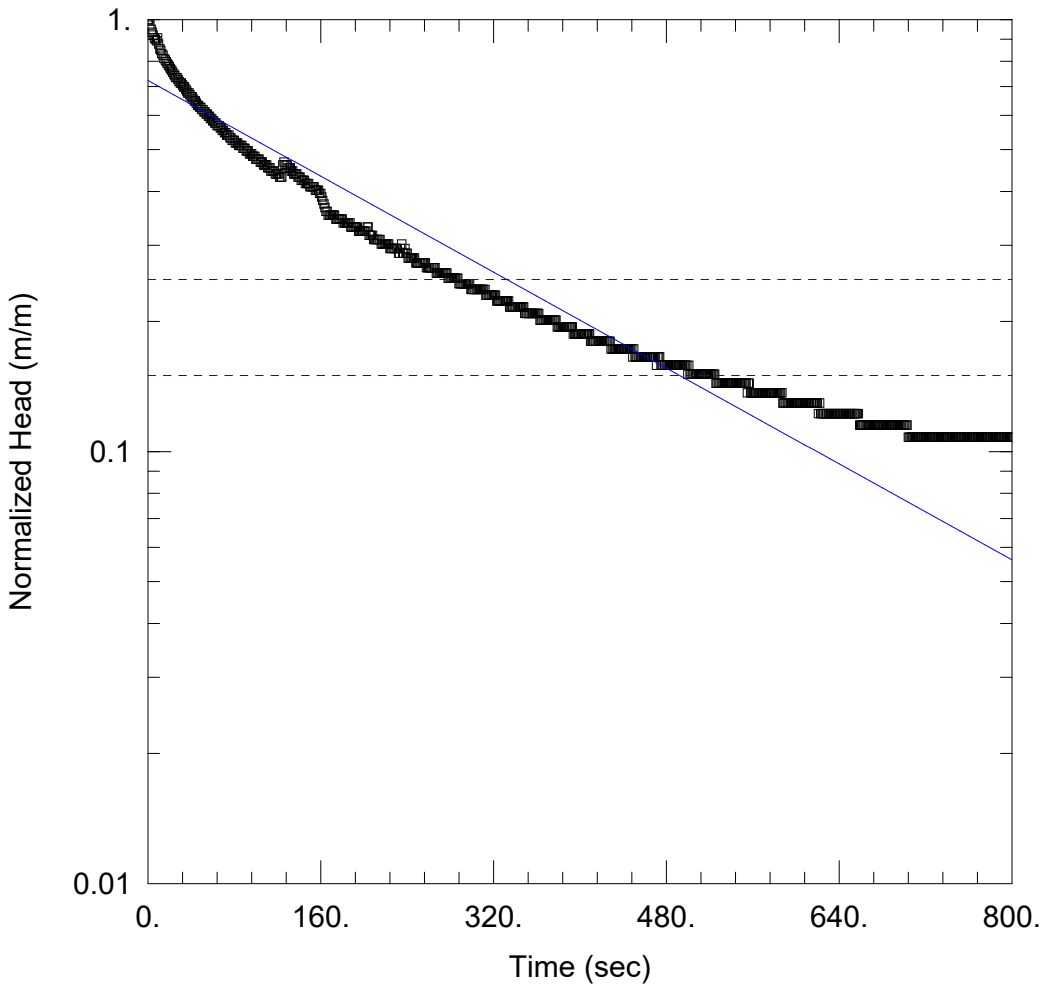
WELL DATA (BH 6)

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.

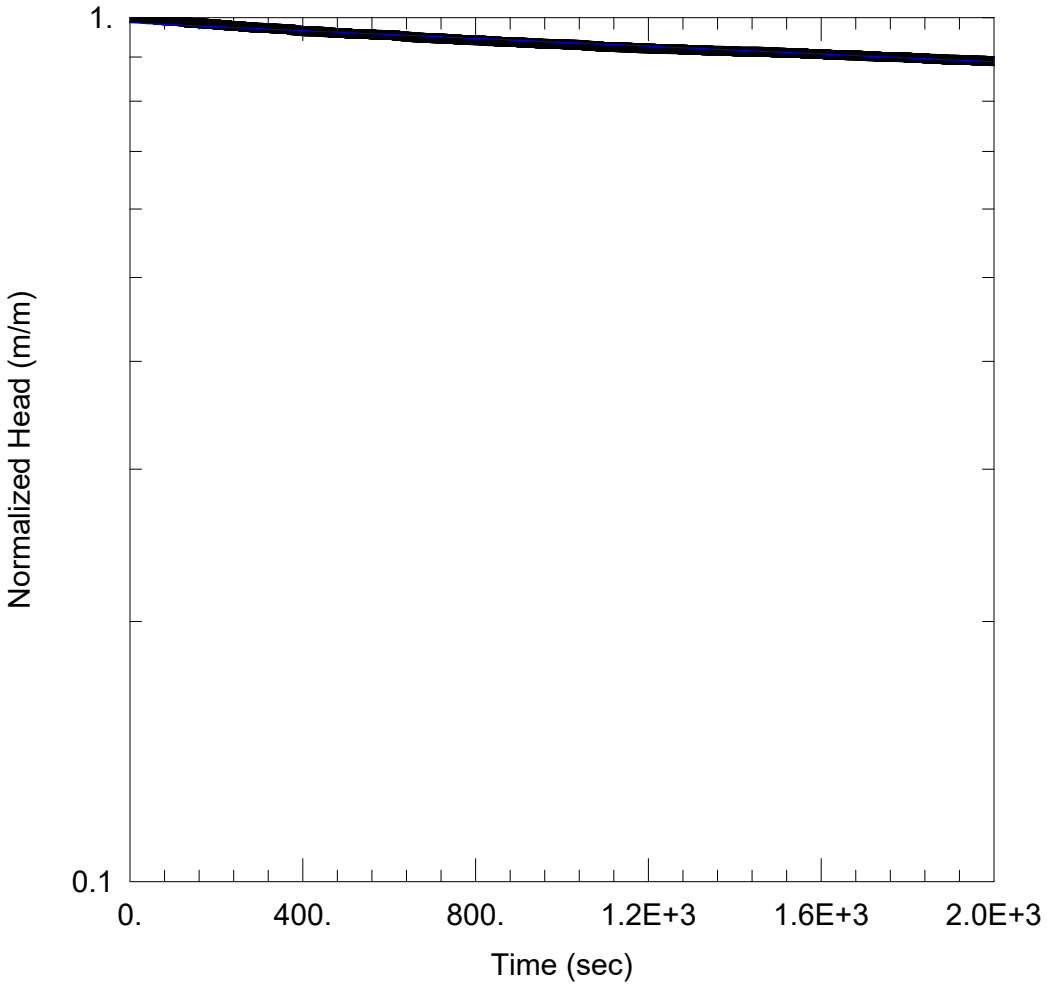
WELL DATA (BH 7)

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.

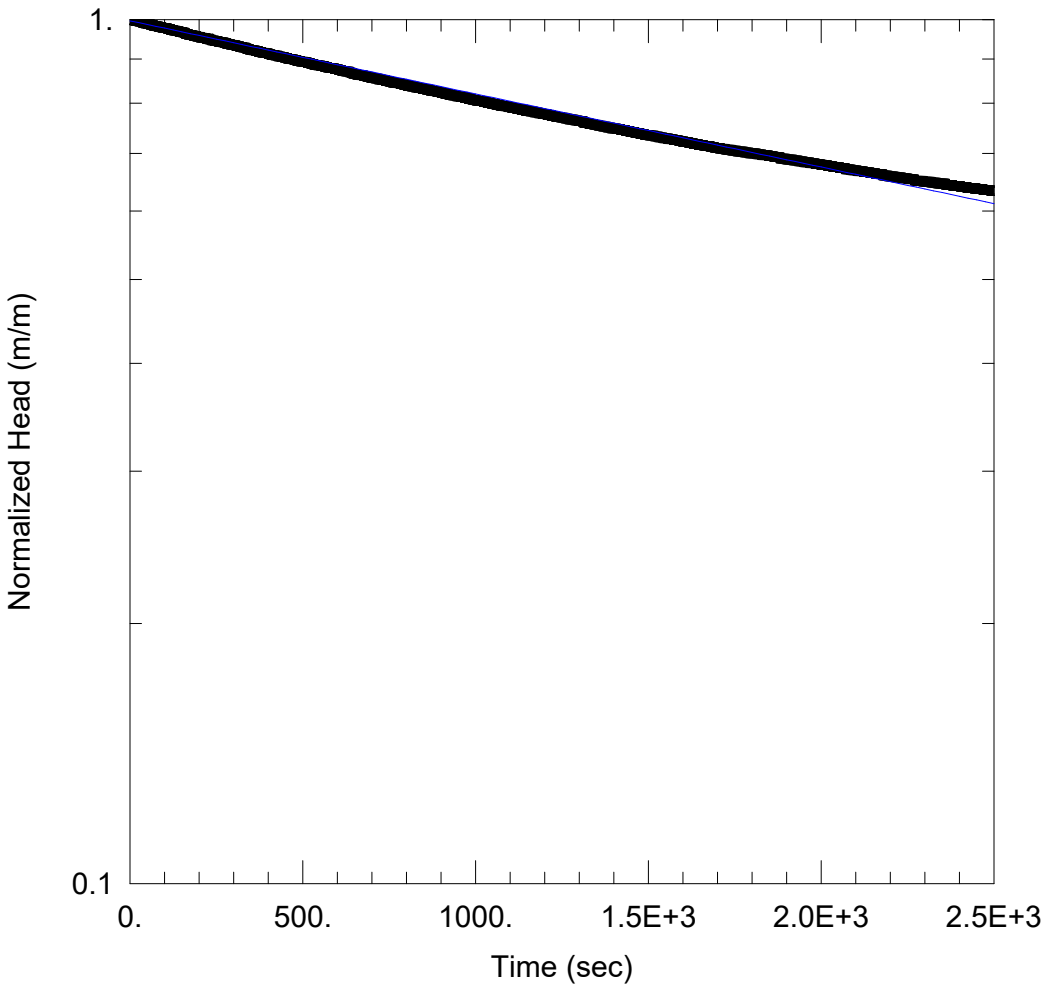
WELL DATA (BH201)

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

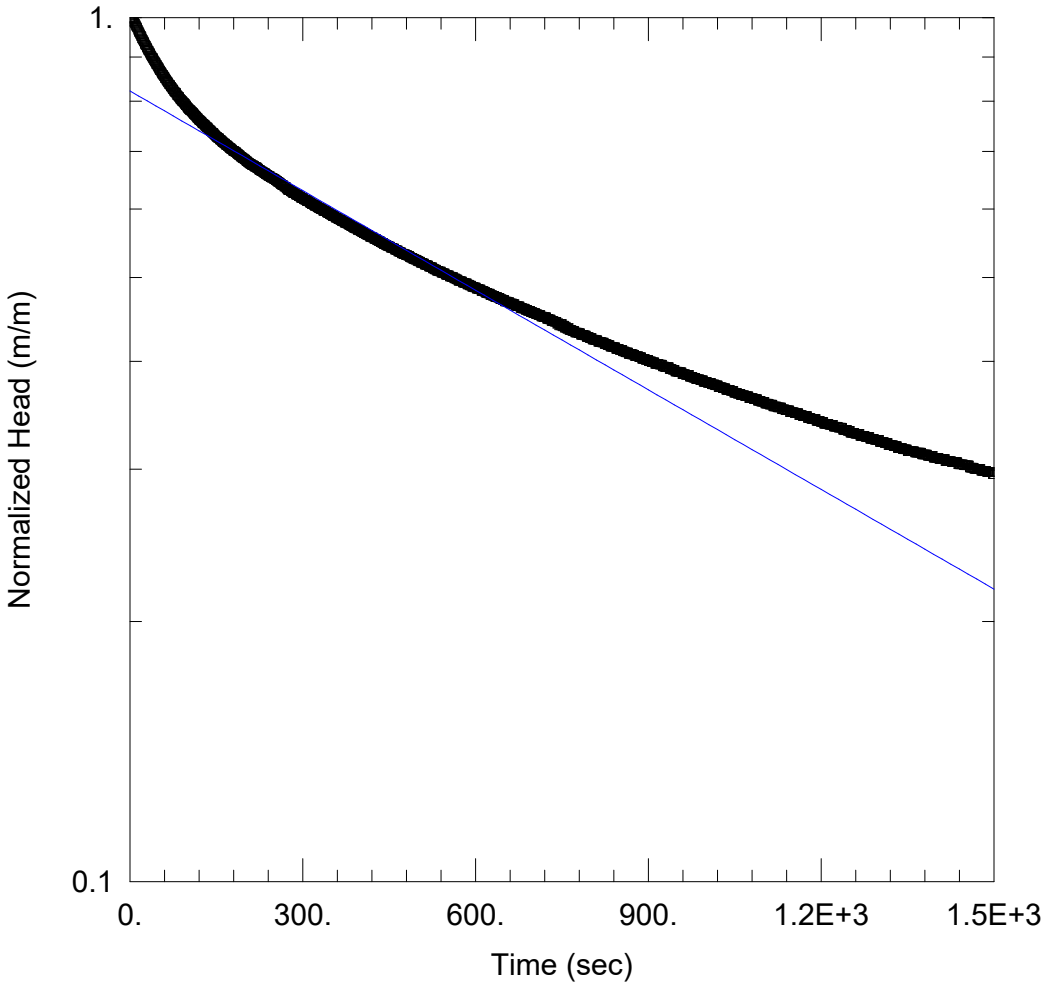
Saturated Thickness: 5.01 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (BH202)

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

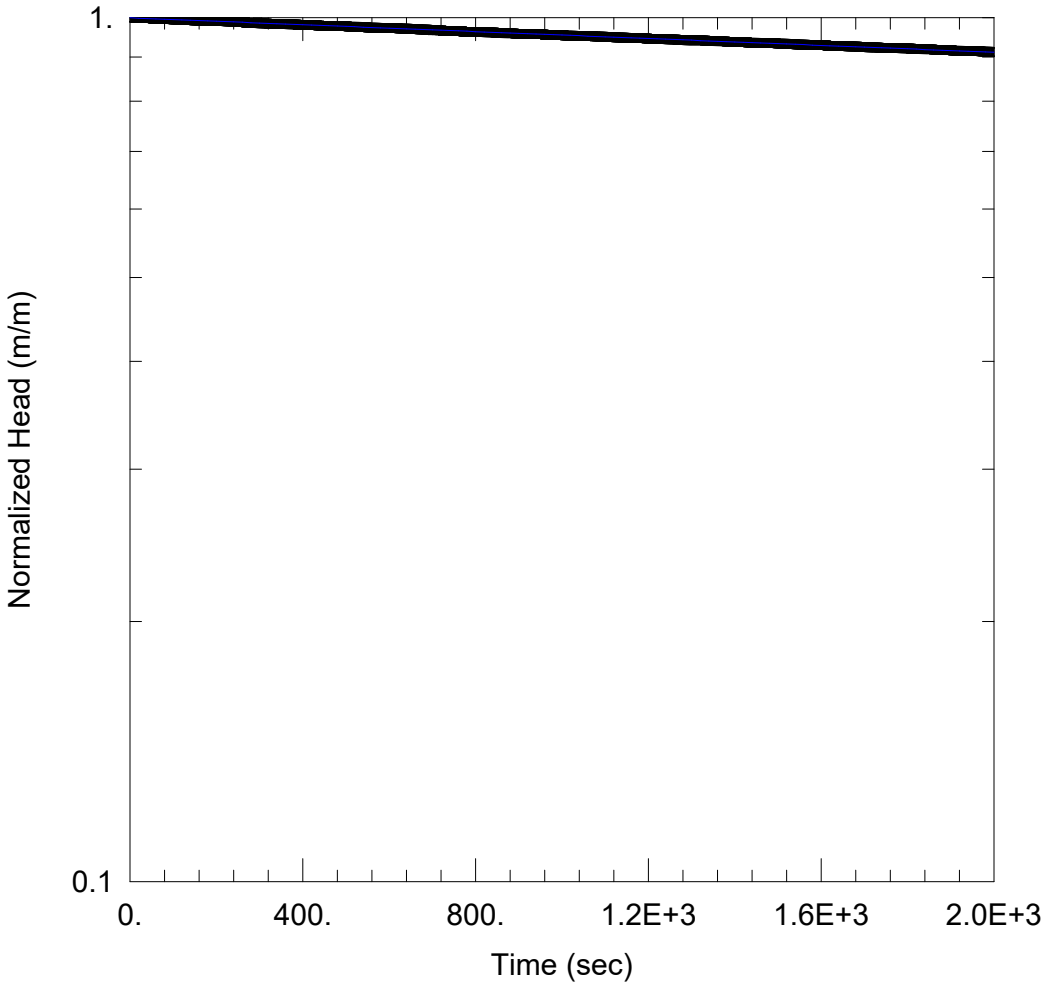
WELL DATA (BH 203)

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.

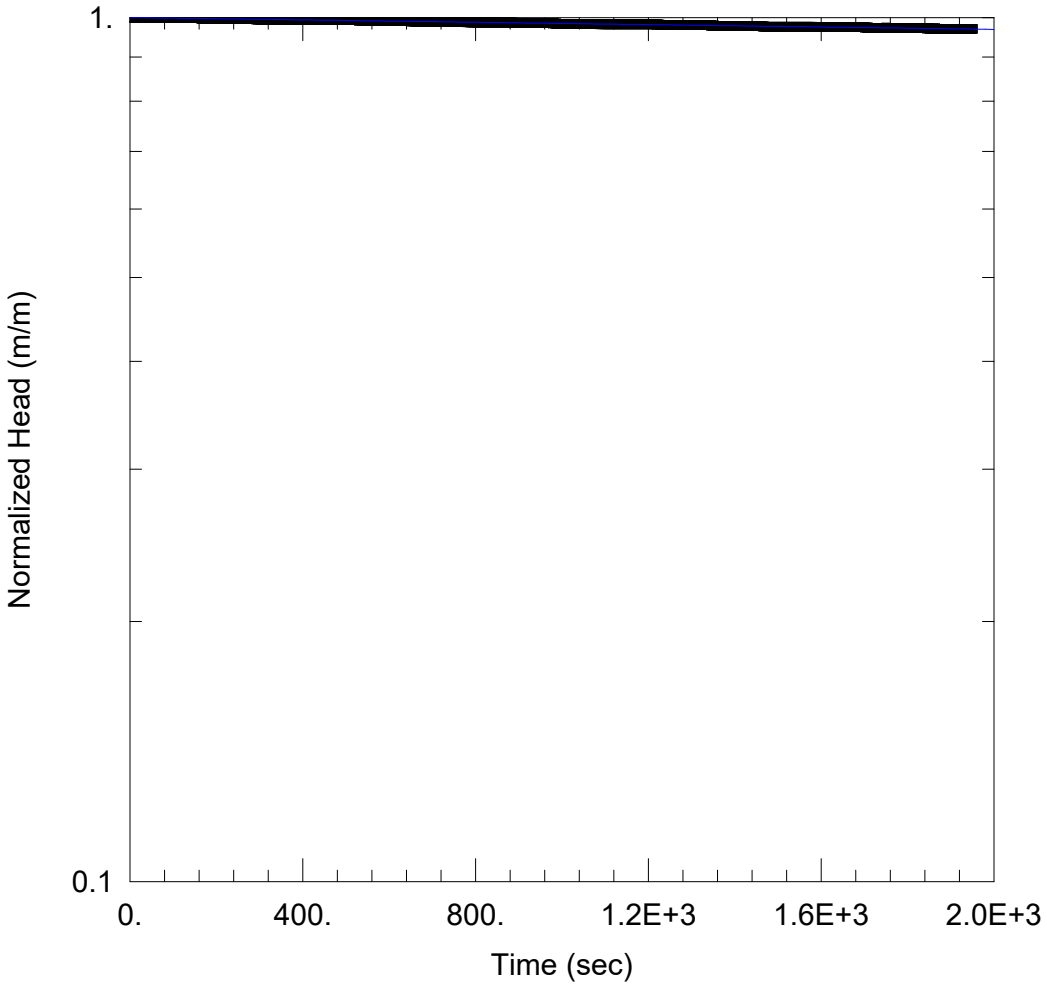
WELL DATA (BH204)

Initial Displacement: 1.531 m
Total Well Penetration Depth: 5.19 m
Casing Radius: 0.0254 m
Static Water Column Height: 5.19 m
Screen Length: 3. 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 Static Water Column Height: 4.1 m
Total Well Penetration Depth: 4.1 m Screen Length: 3. m
Casing Radius: 0.0254 m Well Radius: 0.0762 m

SOLUTION

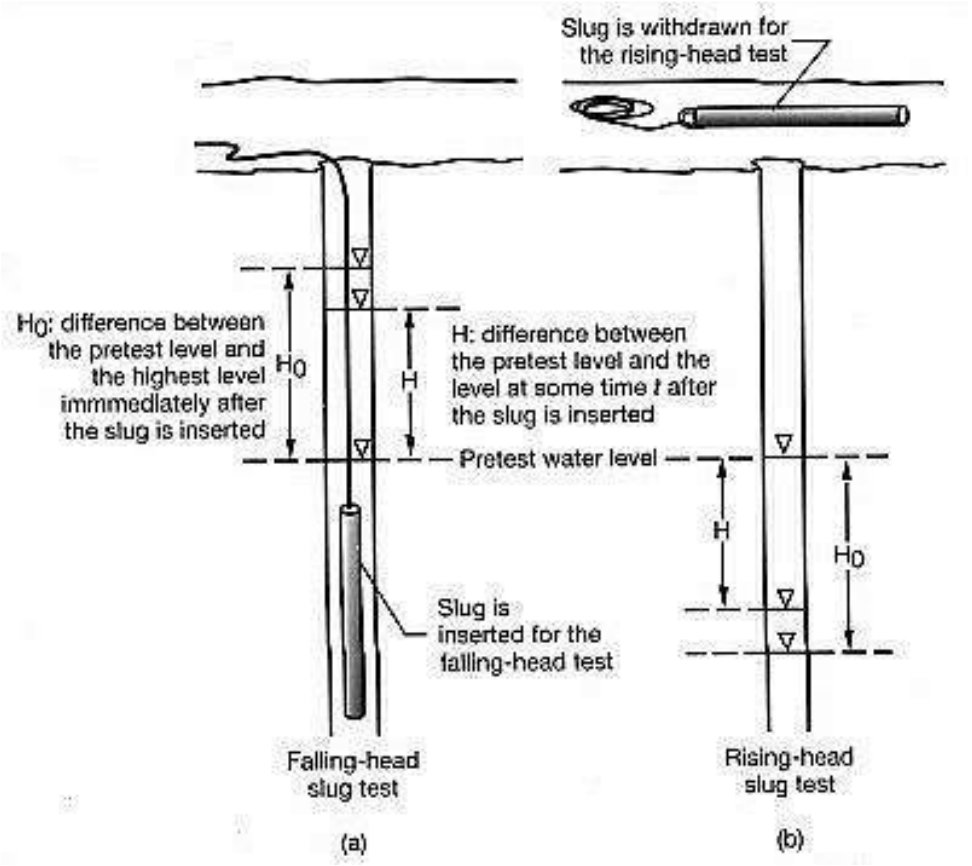
Aquifer Model: Confined Solution Method: Hvorslev
K = 7.419E-9 m/sec y0 = 1.629 m

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.

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

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
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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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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
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
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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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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
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.

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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

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

exp Services Inc
Client Project #: BRM-21021990-A0
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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).

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

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

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:

Company Name	#30554 exp Services Inc
Attention	Accounts Payable
Address	1595 Clark Blvd
	Brampton ON L6T 4V1
Tel	(905) 793-9800 Fax (905) 793-0641
Email	AP@exp.com; Karen.Burke@exp.com

REPORT TO:

Company Name	EXP Services Inc
Attention	Francois Chartier
Address	yogiraj.rama@exp.com
	Jay.Samarakkody@exp.com
Tel	(905) 793-9800 Ext. 2523 Fax
Email	Francois.Chartier@exp.com

PROJECT INFORMATION:

Quotation #	C20374
P.O. #	ENV-BRM STREAM 2
Project	BRM-21021990-A0
Project Name	13 John St, TORONTO
Site #	
Sampled By	Yogiraj Rama

Laboratory Use Only:

Bureau Veritas Job #	Bottle Order #
COC #:	Project Manager:
	Patricia Legette

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

Other Regulations: ☒ Sanitary Sewer Bylaw ☒ Storm Sewer Bylaw Municipality TORONTO

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

Regular (Standard) TAT: ☑

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered	Sanitary Sewer	# of Bottles	Comments
1		BH 203	22/08/04	1 PM	GW	N	✓	19	please Provide COC with Report 5 Day from TAT
2									
3									
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
Yogiraj	22/08/04	1:30PM	DIPIKA SINGH	2022/08/04	19:30

Temperature (°C) on Receipt: 24/27/26

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.

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AGAT Laboratories

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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.*
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- *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:

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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.

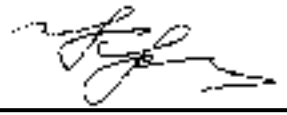
Toronto Sanitary and Combined Sewer Use By-law - Organic

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:



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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

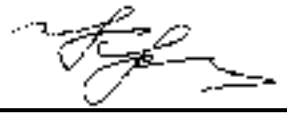
		SAMPLE DESCRIPTION:	**BH7**
		SAMPLE TYPE:	**Water**
		DATE SAMPLED:	**2021-11-30 12:00**
Surrogate	**Unit**	**Acceptable Limits**	**3272934**
Toluene-d8	% Recovery	50-140	77
4-Bromofluorobenzene	% Recovery	50-140	89
Decachlorobiphenyl	%	50-140	104
2,4,6-Tribromophenol	%	50-140	105
2-Fluorophenol	%	50-140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

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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

AGAT WORK ORDER: 21T837512

PROJECT: BRM-21021990-A0

ATTENTION TO: Jay Samarakkody

SAMPLING SITE:John St. and Station St.

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

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.

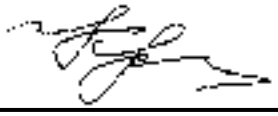
SAMPLED BY:M.L.

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:



AGAT Laboratories

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FAX (905)712-5122
http://www.agatlabs.com

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.

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:

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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.

Water 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 - 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

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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
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

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
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 | large

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form

Laboratory Use Only

Work Order #: 21T834512

Cooler Quantity:

Arrival Temperatures: 18 | 24 | 25

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:

☐ Regulation 153/04 ☐ Excess Soils R406 ☒ Sewer Use (Toronto)

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

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-00021990-A0

Site Location: John St. and Station St.

Sampled By: M.L.

AGAT Quote #: PO:

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:

Contact:

Address:

Email:

Sample Matrix Legend

Code	Matrix
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)	Toronto Sanitary and Storm Sewer Package
BH7	21/11/22	12:00 AM	36	GW		N	X

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

Samples Received By (Print Name and Sign): [illegible]

Page 1 of 1

Nº: T 128001

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

Appendix F – Construction and Post Constrcution 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 and Post-Construction Dewatering Assessment

Parameters	Symbols	Unit	Construction	Post-Construction
Geological Formation	-	-	Glacial Deposit	Glacial Deposit
INPUTS				
Ground Elevation	-	mASL	**127.40**	**127.40**
Highest Groundwater Elevation	-	mASL	**126.84**	**126.84**
Lowest Top Slab Elevation	-	mASL	**121.40**	**121.40**
Lowest Foundation Invert Elevation	-	mASL	**119.90**	**119.90**
Height of Static Water Table Above the Base of the Water-Bearing Zone	**H**	m	15.34	15.34
Dewatering Target Elevation	-	mASL	118.90	120.90
Height of Target Water Level Above the Base of Water-Bearing Zone	**h_w**	m	7.40	9.40
Drawdown	**s**	m	7.94	5.94
Dupuit Check (> 45%)		m	48%	61%
Base of Aquifer / Water Bearing Zone	-	mASL	**111.50**	**111.50**
Hydraulic Conductivity	**K**	m/s	**7.3E-07**	**7.3E-07**
Length of Excavation	-	m	**78.00**	**78.00**
Width of Excavation	-	m	**43.00**	**43.00**
Equivalent Radius (equivalent perimeter)	**r_e**	m	38.52	38.52
Method to Calculate Radius of Influence	-	-	**Cooper-Jacob**	**Cooper-Jacob**
Time (days)			**30.00**	**365.00**
Time (seconds)	**t**	s	2592000	31536000
Specific Yield	**Sy**		**0.09**	**0.09**
OUTPUTS				
Cooper-Jacob's Radius of Influence from Sides of Excavation	**Rcj**	m	27	94
Radius of Influence	**Ro**	m	65	132
Dewatering Flow Rate (unconfined radial flow component)	**Q**	m^3/day	**67**	**24**
Factor of Safety	**fs**	-	2.00	1.50
Dewatering Flow Rate (multiplied by factor of safety)	**Q.fs**	m^3/day	**135**	**35**
Precipitation Event	-	mm/day	15	-
Volume from Precipitation	-	m^3/day	50	-
Total Volume (L/day) Discharge of Groundwater (Construction dewatering) **without Safety Factor** (including precipitation)	-	m^3/day	**118**	**-**
Total Volume (L/day) Discharge of Groundwater (Construction dewatering) **with Safety Factor** (including precipitation)	-	m^3/day	**185**	**-**

Precipitation Event 2 year storm	-	mm/day	57
Volume from Precipitation	-	m^3/event	191
Precipitation Event 100 year storm	-	mm/day	124.4
Volume from Precipitation	-	m^3/event	417

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)

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

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)

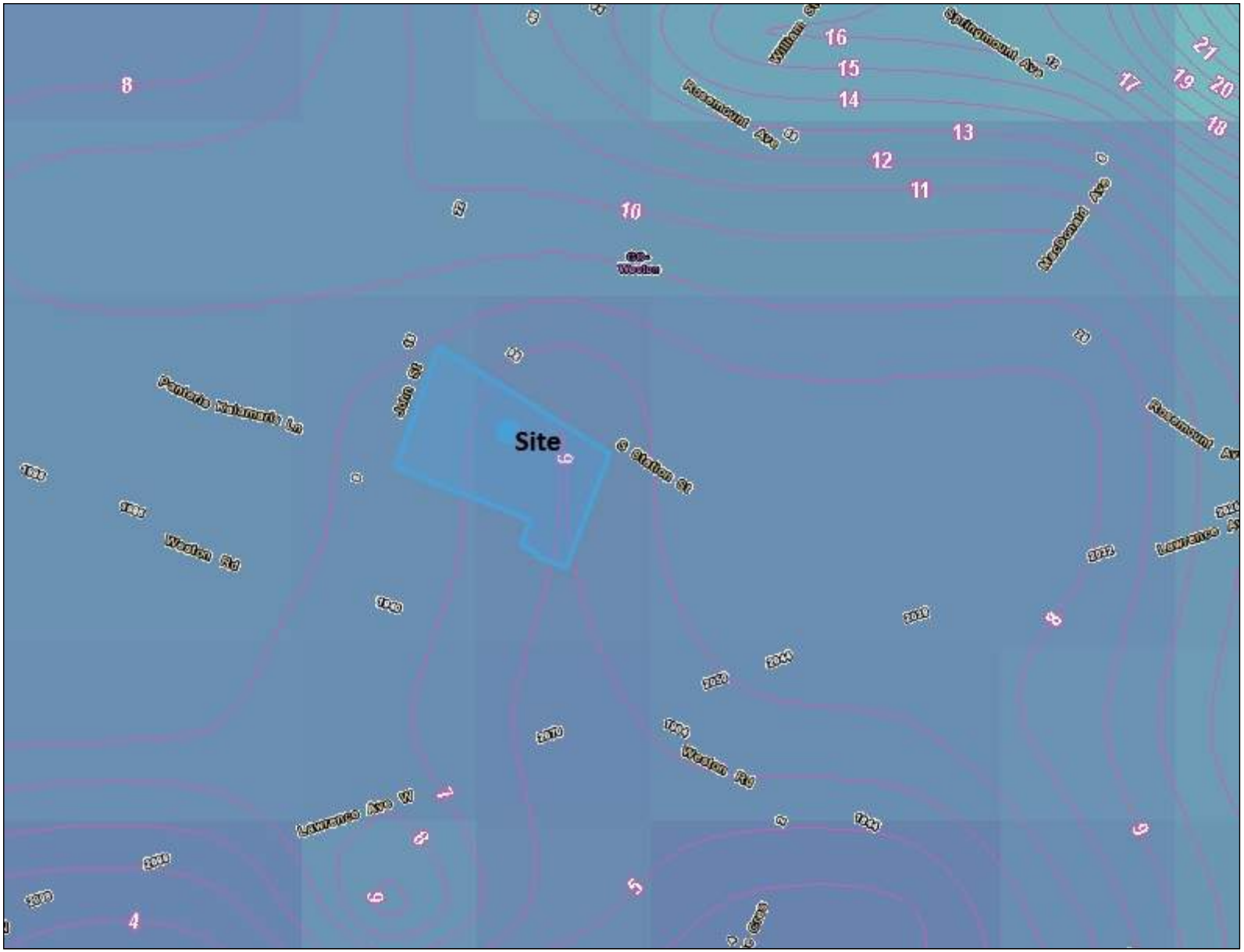
Rcj=Cooper Jacob Radius of Influence (m)

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 to B (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

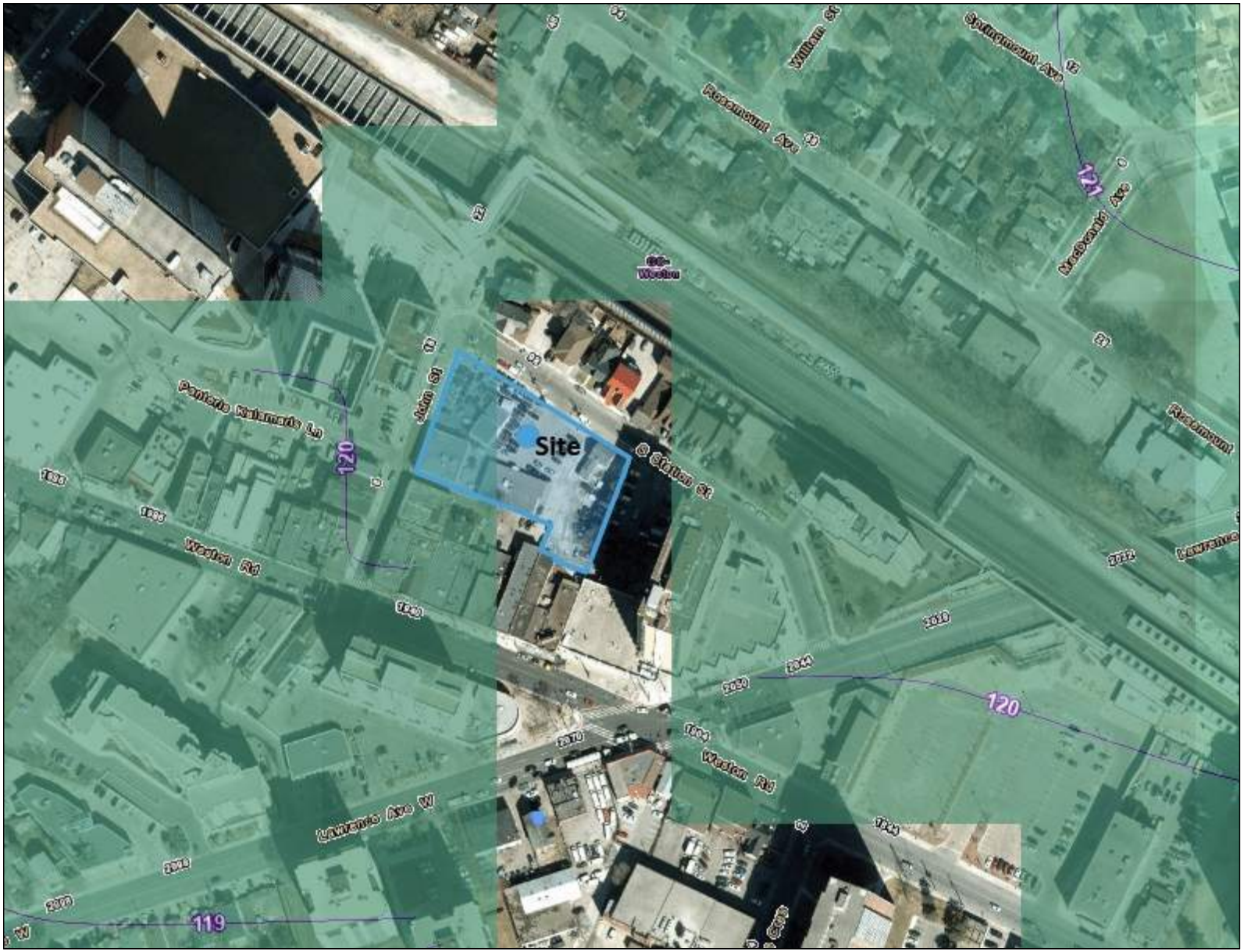
This map is for information purposes only and the Oak Ridges Moraine Groundwater Program takes no responsibility for, nor guarantees, the accuracy of all the information contained within the map.

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.) (mASL)

York Region

0.2 0 0.09 0.2 Km

1: 3,377

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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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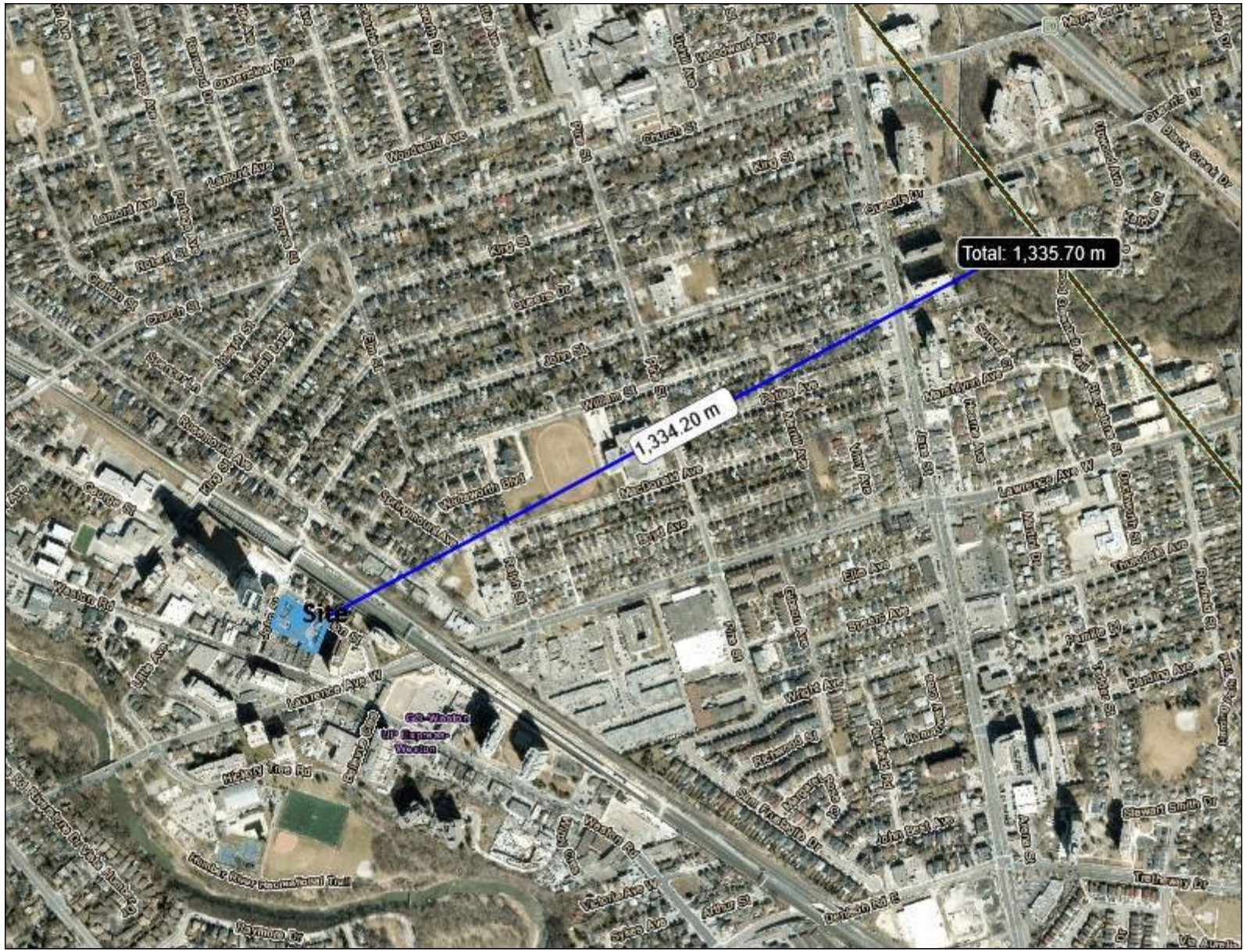
DATE PRINTED: September 7, 2022

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

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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)

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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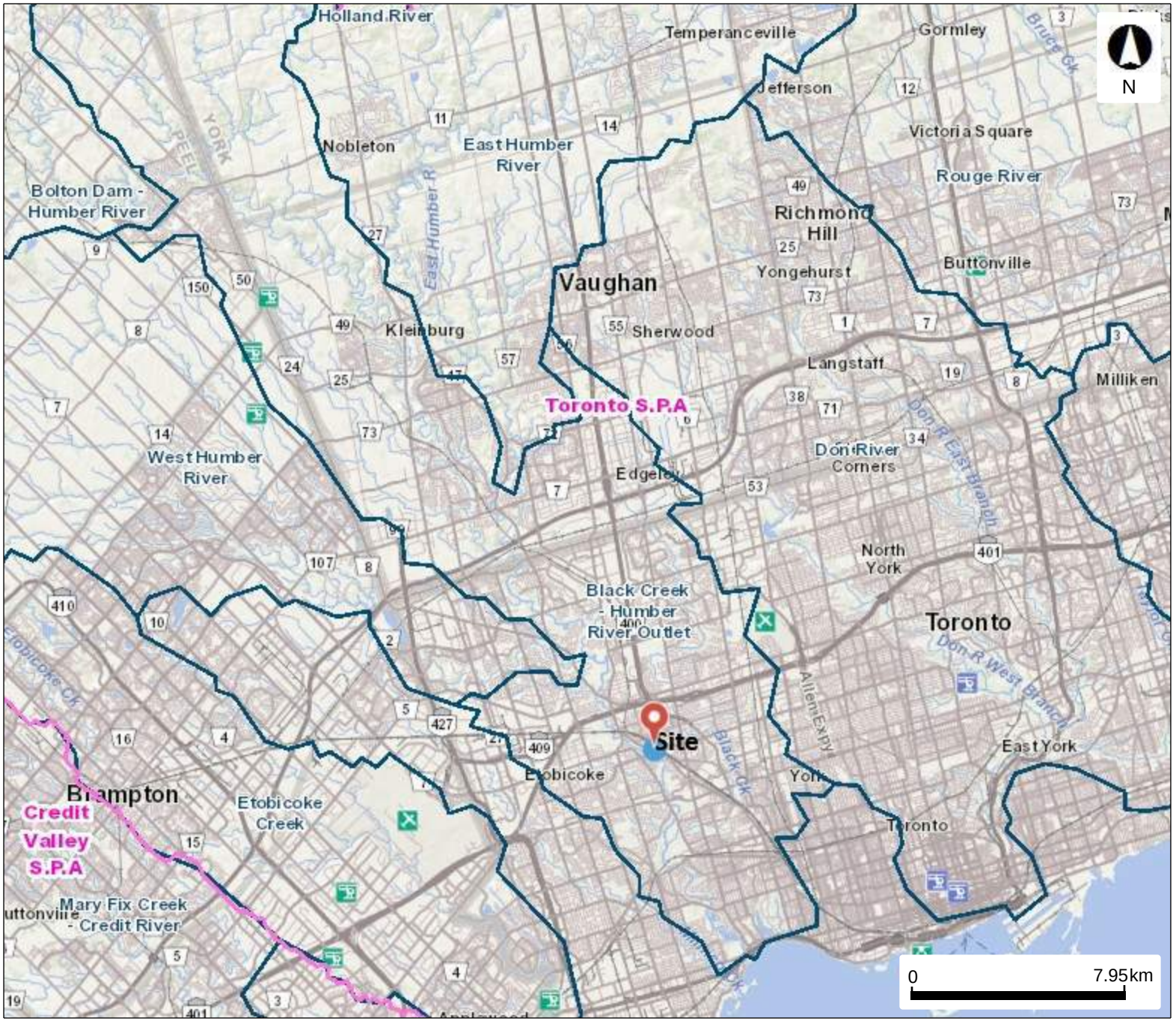
PROJECTION: WGS_1984_Web_Mercator_Auxiliary_Sphere

DATE PRINTED: September 7, 2022

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



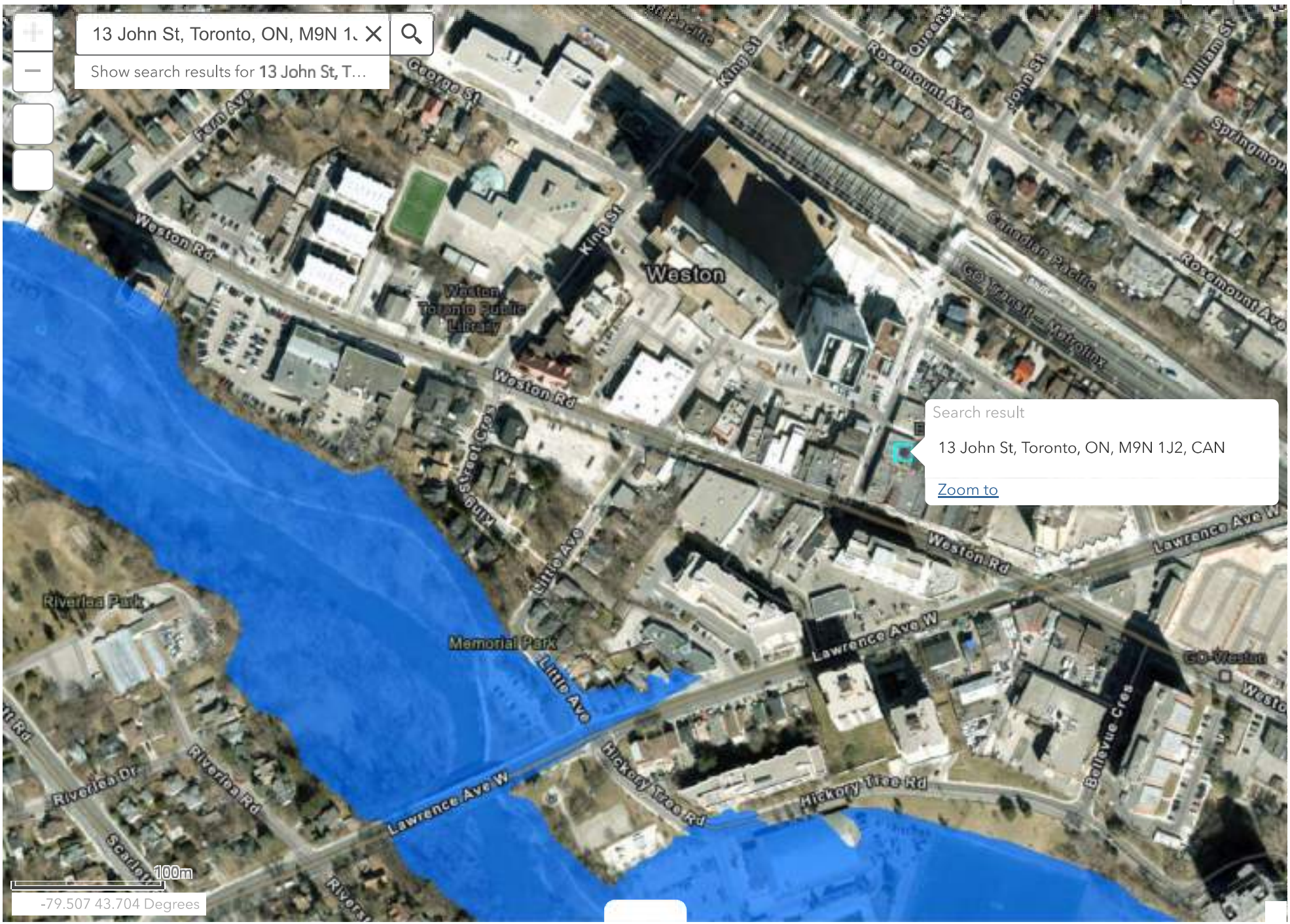
Legend

- 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.

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

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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

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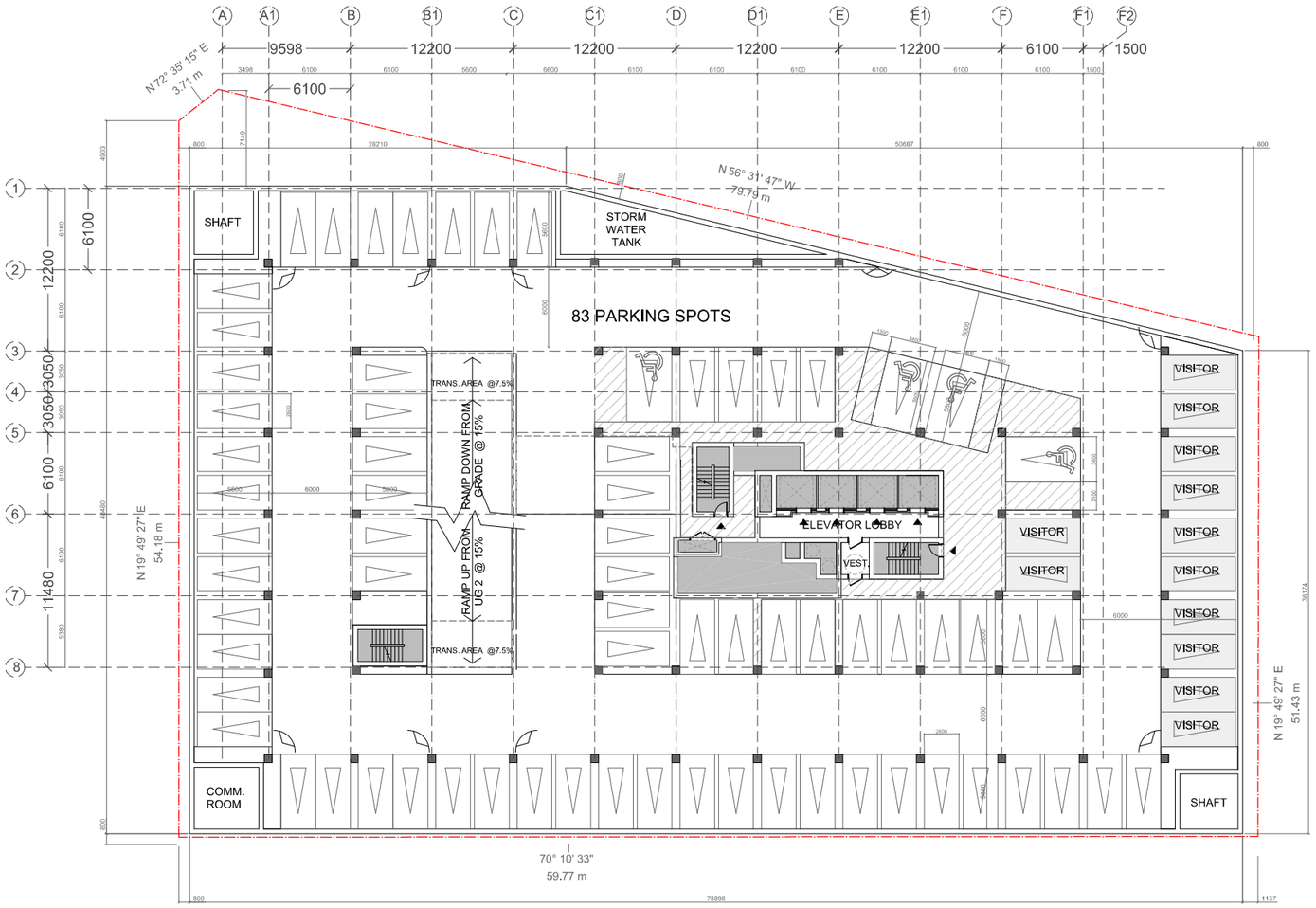
DATE PRINTED: September 7, 2022

Appendix H – Architectural Drawings



N

0 5m 10m

Scale 1:200

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	SUBMISSION | REVISION	DATE
2	ZBA SUBMISSION	XX.XX.22
1	PAC SUBMISSION	13.07.22

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416 425 2222

SOUTH STATION ST.

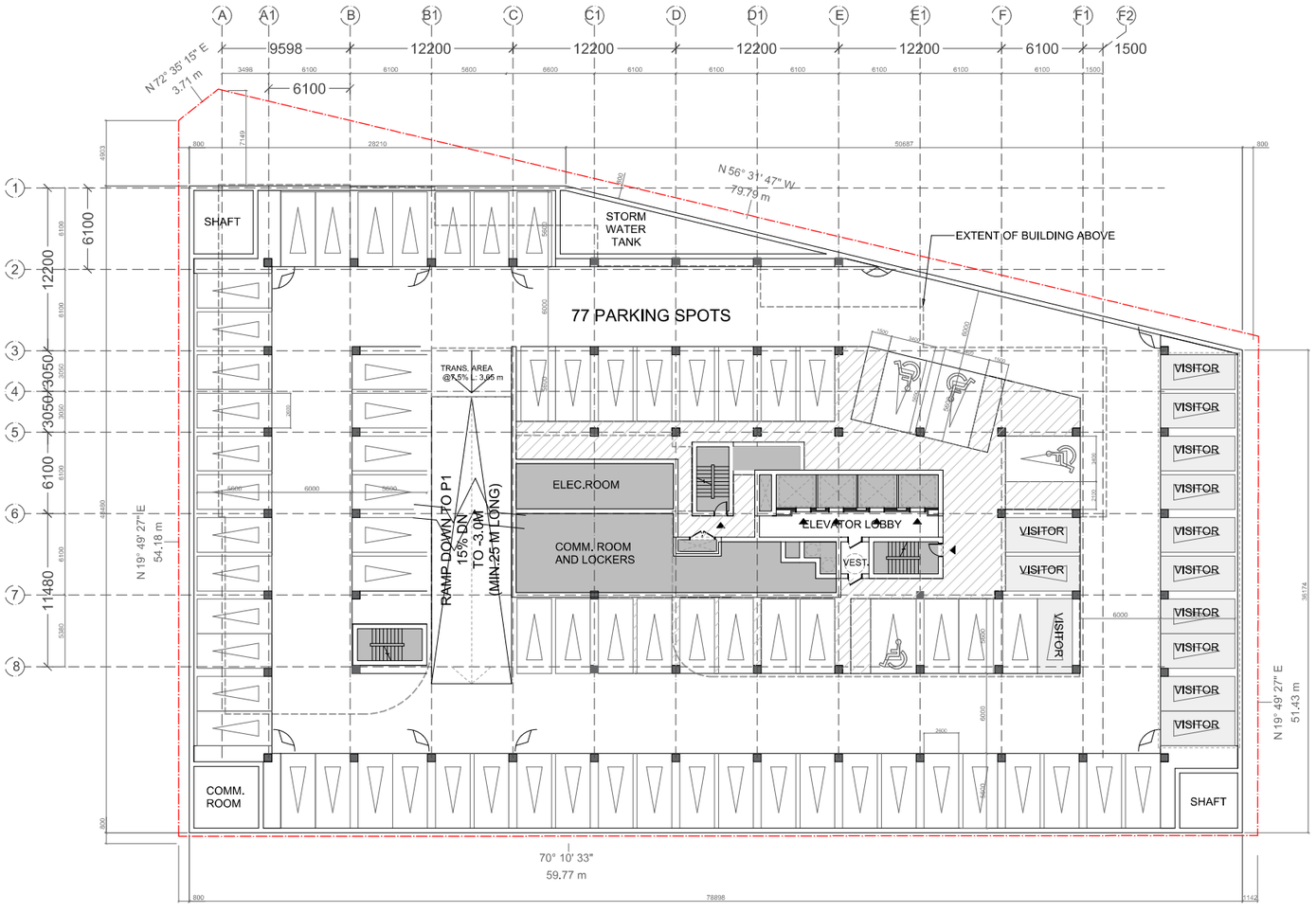
13-21 JOHN ST / 36-40 SOUTH STATION ST
TORONTO, ON, M9N 1J2

DRAWING TITLE

BASEMENT LEVEL 2 FLOOR PLAN

PROJECT NUMBER	850006
SCALE	1:200
SHEET SIZE	ARCH D
DRAWING NO.	**A100**
DATE	2022.08.22
REVIEWED BY	GPI
SHEET	5OF 19

1 **BASEMENT LEVEL 2 FLOOR PLAN**
####



N

0 5m 10m

Scale 1:200

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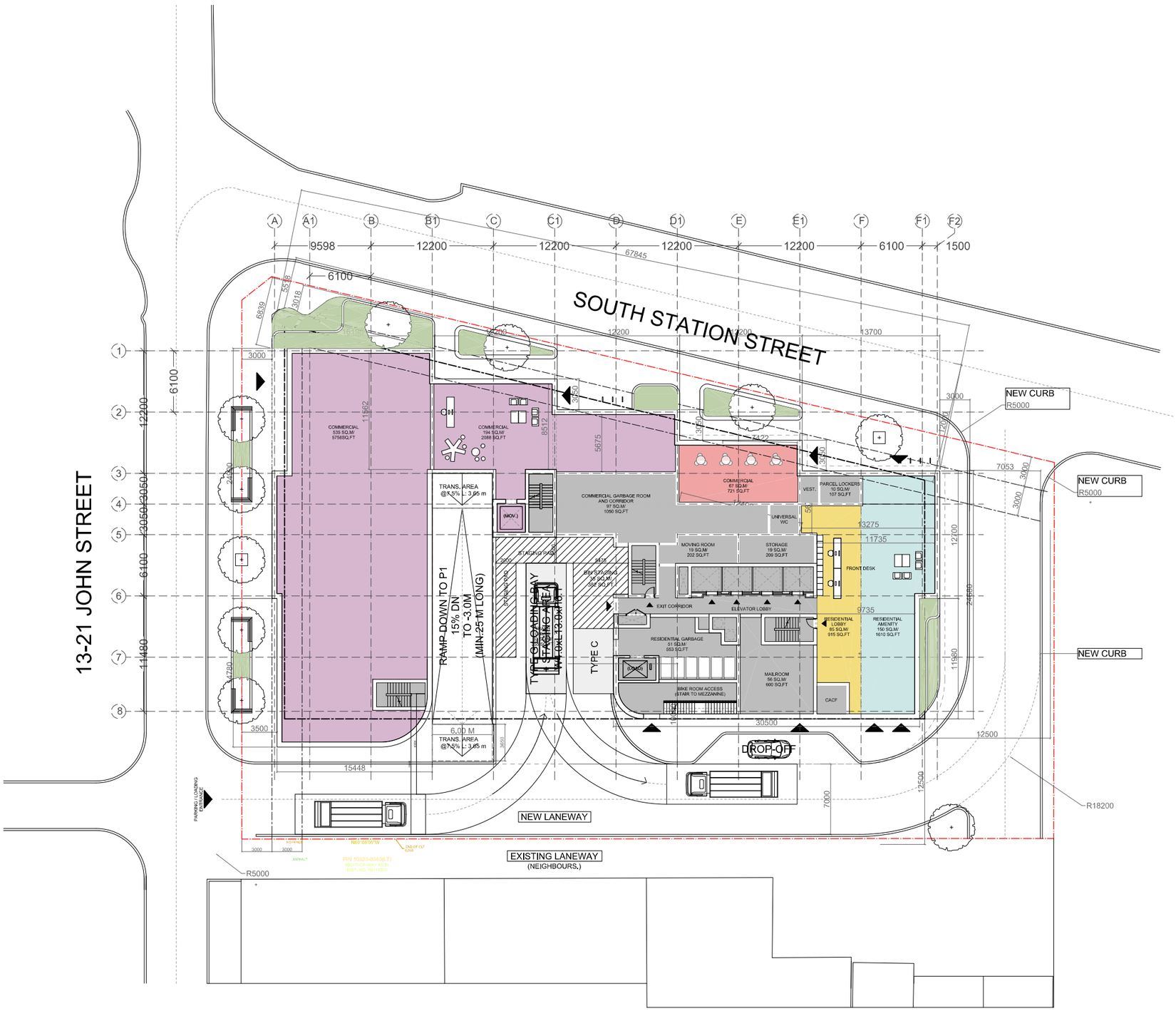
DRAWING TITLE

BASEMENET LEVEL 1 FLOOR PLAN

PROJECT NUMBER	850006
SCALE	1:200
SHEET SIZE	ARCH D
DRAWING NO.	**A101**
DATE	2022.08.22
REVIEWED BY	GPI
SHEET	6OF 19

1 **BASEMENT LEVEL 1 FLOOR PLAN**

####



PRELIMINARY
NOT FOR CONSTRUCTION

NO.	SUBMISSION | REVISION	DATE
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1	PAC SUBMISSION	13.07.22

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SOUTH STATION ST.

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

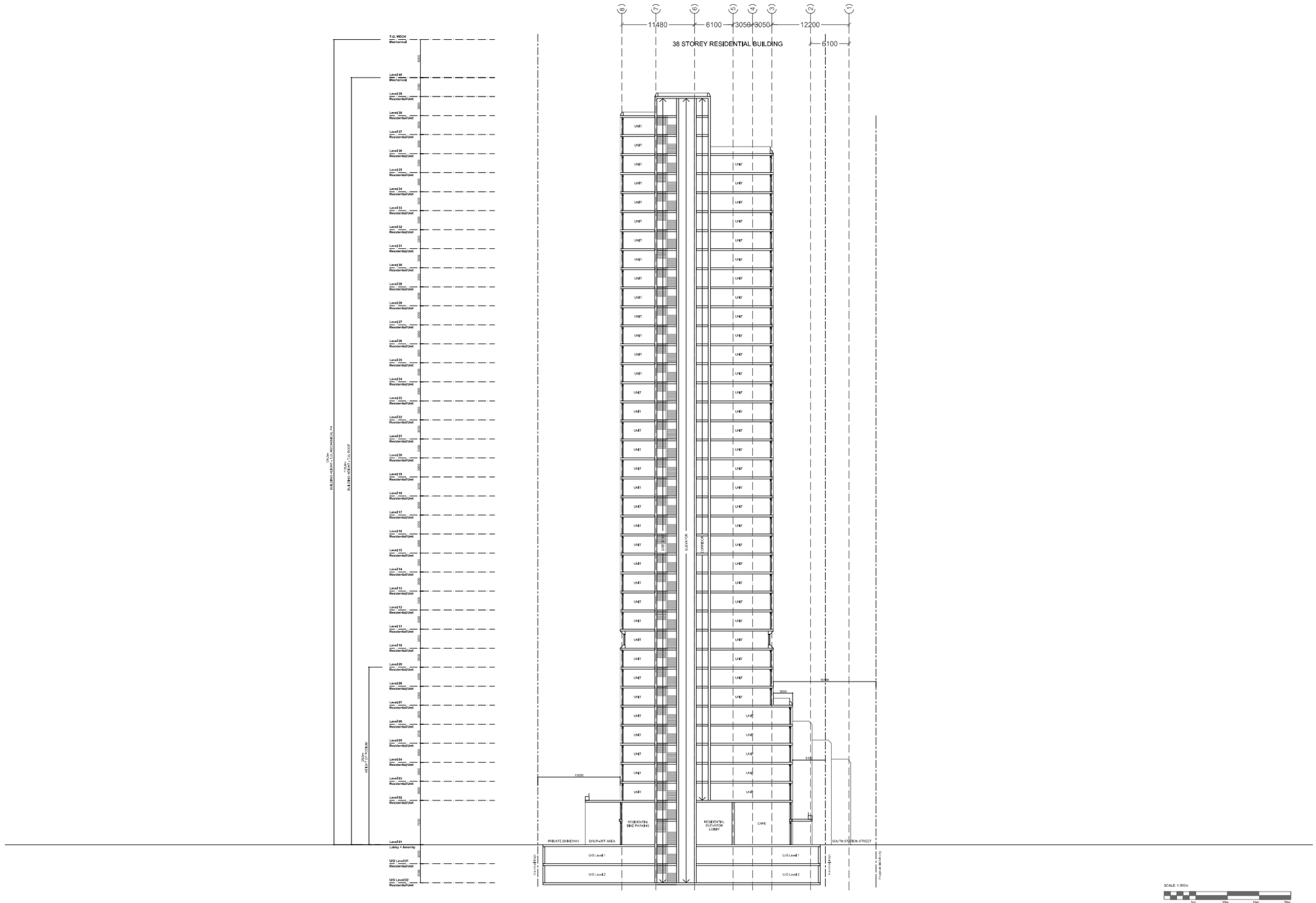
DRAWING TITLE

LEVEL 1
FLOOR PLAN

PROJECT NUMBER	850006
SCALE	1;200
SHEET SIZE	ARCH D
DRAWING NO.	A102
DATE	2022.08.22
REVIEWED BY	GPI
SHEET	7OF 19

1 LEVEL 1 FLOOR PLAN

####



PRELIMINARY
NOT FOR CONSTRUCTION

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1	PAC SUBMISSION	13.07.22

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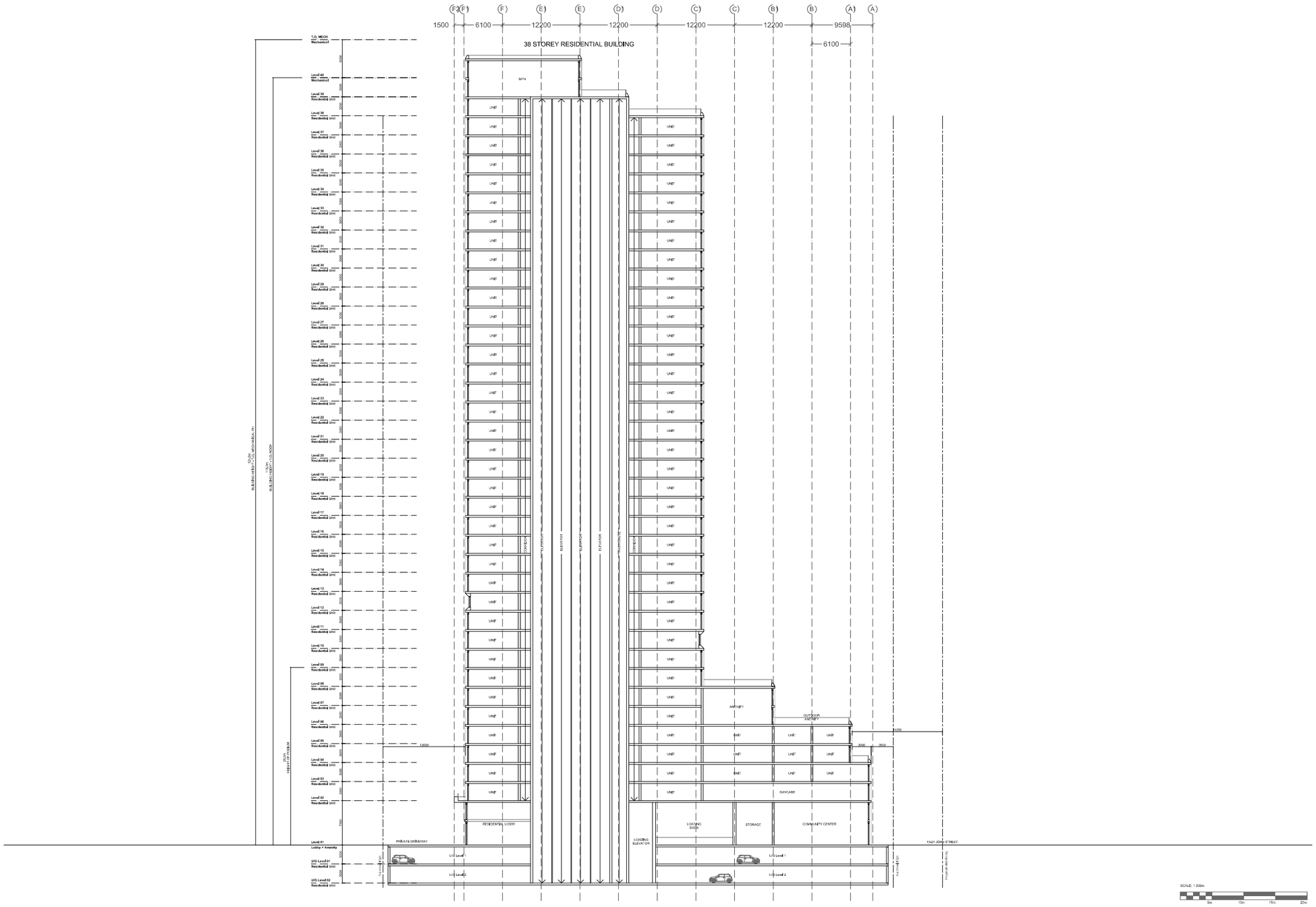
13-21 JOHN ST / 36-40 SOUTH STATION ST
TORONTO, ON, M9N 1J2

DRAWING TITLE

SECTION 01

PROJECT NUMBER	850006
SCALE	1:300
SHEET SIZE	ARCH D
DRAWING NO.	**A250**
DATE	2022.08.22
REVIEWED BY	GPI
SHEET	23OF 19

1 SECTION 01
#####



1	SECTION 02
#####	

PRELIMINARY
NOT FOR CONSTRUCTION

NO.	SUBMISSION | REVISION	DATE
2	ZBA SUBMISSION	XX.XX.22
1	PAC SUBMISSION	13.07.22

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SOUTH STATION ST.

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TORONTO, ON, M9N 1J2

DRAWING TITLE

SECTION 02

PROJECT NUMBER	850006
SCALE	1:300
SHEET SIZE	ARCH D
DRAWING NO.	**A251**
DATE	2022.08.22
REVIEWED BY	GPI
SHEET	24OF 19

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

Sanitary Sewer Calculations and Downstream Sanitary Analysis

BURNSIDE

CALCULATION SHEET

Project:	**John St & South Station St**	Prepared by:	AH
	Toronto, Ontario	Checked by:	JS
		Project No:	300054203
	Sanitary Servicing Analysis	Date:	September 27, 2022

Existing Site Flows

Commercial

GFA (m^2)	GFA (ha)	P/m^2	Population
627	0.063	0.011	7

P=	7	persons	
Q=	250	L/cap/day	(ICI)
Q=	180000	L/floor ha/day	(ICI)

$Q_{(ICI)}$=	0.13	L/s

Infiltration Allowance=	0.26	L/s/ha
Area=	0.08	ha
$Q_{infiltration}$=	0.02	L/s

$Q_{Existing\ Total}$=	**0.15**	**L/s**

BURNSIDE

CALCULATION SHEET

Project:	**John St & South Station St**	Prepared by:	AH
	Toronto, Ontario	Checked by:	JS
		Project No:	300054203
	Sanitary Servicing Analysis	Date:	September 27, 2022

Existing Site Flows

Residential

Unit Type	Number of Units	Pop/Unit	Population
Single Family	1	3.5	4
Total	**1**		**4**

$$Q_{(Res.)} = \frac{PxQxM}{86400}$$

P= 4 persons

Q= 240 L/cap/day

$$M = 1 + \frac{14}{4+(P/1000)^{1/2}}$$

M= 4.45

$Q_{(Res.)}$= 0.04 L/s

Commercial

GFA (m^2)	GFA (ha)	P/m^2	Population
740	0.074	0.011	8

Office

GFA (m^2)	GFA (ha)	P/m^2	Population
402	0.040	0.033	13

P= 21 persons

Q= 250 L/cap/day (ICI)

Q= 180000 L/floor ha/day (ICI)

$Q_{(ICI)}$= 0.24 L/s

Infiltration Allowance= 0.26 L/s/ha

Area= 0.41 ha

$Q_{infiltration}$= 0.11 L/s

$Q_{Existing\ Total}$= 0.39 L/s

BURNSIDE

CALCULATION SHEET

Project:	**John St & South Station St**	Prepared by:	AH
	Toronto, Ontario	Checked by:	JS
		Project No:	300054203
	Sanitary Servicing Analysis	Date:	September 27, 2022

Proposed Site Flows

Residential

Unit Type	Number of Units	Pop/Unit	Population
Bachelor	31	1.4	43
1B/1B+D	197	1.4	276
2B/2B+D	185	2.1	389
3B/3B+D	45	3.1	140
Total	**458**		**847**

$$Q_{(Res.)} = \frac{PxQxM}{86400}$$

P= 847 persons
Q= 240 L/cap/day
M= $1+\frac{14}{4+(P/1000)^{1/2}}$
M= 3.85

$Q_{(Res.)}$= 9.05 L/s

Commercial

GFA (m^2)	GFA (ha)	P/m^2	Population
2,916	0.292	0.011	32

P= 32 persons
Q= 250 L/cap/day (ICI)
Q= 180000 L/floor ha/day (ICI)

$Q_{(ICI)}$= 0.61 L/s

Infiltration Allowance= 0.26 L/s/ha
Area= 0.41 ha
$Q_{infiltration}$= 0.11 L/s

$Q_{Proposed\ Total}$= 9.76 L/s

BURNSIDE

Project: **South Station Street**
Task: **Storm Flows on Fern Ave**
Date: **27-Sep-22**

Prepared by: **AH**
Checked by: **JS**
Project no.: **300054203**

2-year Pre-Development Flow

Fern Avenue Storm

A	21.8	
B	0	
C	0.78	
T	0.17	hr

Land Use Description	Runoff Coefficient	Intensity (mm/hr)	Area (ha)	Runoff (L/s)
Single Family	0.65	88.19	0.36	**57.3**
Road/Pavement	0.90	88.19	0.39	**86.1**
TOTAL			0.75	**143.4**

$$Q_{Allowable\ Release} = \frac{CiA}{0.36}$$

143.4 **L/s**

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Existing Condition

Prepared by:	**AH**
Checked by:	**JS**
Project No:	**300054203**
Date:	**27-Sep-22**

Type of Development	Density	Unit
Office	3.30	p/100sqm
Apartment	4.00	p/100sqm
Commercial	1.10	p/100sqm
Townhouse (Area)	1.70	p/100sqm
School/Church	2.58	p/100sqm
Institutional	3.33	p/100sqm
Industrial	2.72	p/100sqm

Type of housing	P/Unit
Single Family	3.5
Semi-detached	2.7
Townhouse (Unit)	2.7
Duplex	2.3
Triplex	3.7
Apartment - Bachelor	1.4
Apartment - 1 B	1.4
Apartment - 2 B	2.1
Apartment - 3 B	3.1
Apartment - 4 B	3.7

$Qres = \frac{PxQxM}{86400} + AxI$

Qres= 240 L/cap/day
Qici= 250 L/cap/day
$M = 1 + \frac{14}{4+(P/1000)^{1/2}}$
I= 0.26 L/s/ha

*All Estimates are Based on City of Toronto Wet Weather Flow Management Guidelines (Nov 2006) and Design Criteria for Sewers and Watermains (Nov 2009 1st ed.)
*ICI stands for Industrial/Commercial/Institutional

Existing Buildings Contributing to Sanitary Sewer

Area 1 - Drains to MH1A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
21 John St	144	1		Commercial	144	1.58
27 John St	166	3		Office	498	16.43
31 John St	141	1	1	Single Family	141	3.50
45 South Station St	165	3	2	Semi-detached	495	5.40
43 South Station St	136	2	1	Single Family	272	3.50
40 South Station St	402	1		Office	402	13.27
Total						**43.68**

Block Address	Area
Area 1	4,849
Total =	**4,849**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	12	132	0.0908
ICI:	32	307	0.1044

Area 2 - Drains to MH2A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
37-39 South Station St	165	2	2	Semi-detached	330	5.40
33 South Station St	216	1		Commercial	216	2.38
31B - 31C South Station St	175	3	2	Semi-detached	525	5.40
31 - 31A South Station St	142	3	2	Semi-detached	426	5.40
36 South Station St	106	1	1	Single Family	106	3.50
Total						**22.08**

Block Address	Area
Area 2	3,803
Total =	**3,803**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	20	144	0.1387
ICI:	2	93	0.0216

Area 3 - Drains to MH3A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
28A South Station St	72	3	1	Single Family	216	3.50
Total						**3.50**

Block Address	Area
Area 3	2,598
Total =	**2,598**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	4	185	0.0216
ICI:	0	0	0.0000

Area 4 - Drains to MH4A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
29 South Station St	798	13		Apartment	10374	414.96
Total						**414.96**

Block Address	Area
Area 4	5,523
Total =	**5,523**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	415	400	1.0374
ICI:	0	0	0.0000

Area 5 - Drains to MH5A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1901 Lawrence Ave W - Commercial	2155	1		Commercial	2155	23.71
1901 Lawrence Ave W - Residential	1130	16		Apartment	18080	723.20
Total						**746.91**

Block Address	Area
Area 5	6,538
Total =	**6,538**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	723	400	1.808
ICI:	24	111	0.2155

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Existing Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

Area 6 - ***Drains to MH6A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1906-1930 Weston Rd - Commercial	1759	2		Commercial	3518	38.70
1906-1930 Weston Rd - Residential	761	12		Apartment	9132	365.28
1919-1937 Weston Rd	1992	2		Commercial	3984	43.82
Total						**447.80**

Block Address	Area
Area 6	5,644
Total =	**5,644**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	365	400	0.9132
ICI:	83	111	0.7502

Area 7 - ***Drains to MH7A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1919-1937 Weston Rd	535	2		Commercial	1070	11.77
Total						**11.77**

Block Address	Area
Area 7	3,206
Total =	**3,206**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	0	0	0
ICI:	12	112	0.1070

Area 8 - ***Drains to MH8A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2079-2085 Lawrence Ave W	267	2		Commercial	534	5.87
2077 Lawrence Ave W	446	2		Commercial	892	9.81
2075 Lawrence Ave W	206	1		Commercial	206	2.27
Total						**17.95**

Block Address	Area
Area 8	6,488
Total =	**6,488**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	0	0	0
ICI:	18	110	0.1632

Area 9 - ***Drains to MH9A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2089 Lawrence Ave W	739	16		Apartment	11824	472.96
2099 Lawrence Ave W	785	16		Apartment	12560	502.40
2074 Lawrence Ave W	356	2		Commercial	712	7.83
2086 Lawrence Ave W	1603	11		Apartment	17633	705.32
2103 Lawrence Ave W	126	1		Institutional	126	4.20
2105 Lawrence Ave W	138	3	1	Single Family	414	3.50
2107 Lawrence Ave W	90.4	1	1	Single Family	90.4	3.50
2109 Lawrence Ave W	74	1	1	Single Family	74	3.50
Total						**1703.21**

Block Address	Area
Area 9	6,488
Total =	**6,488**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1691	397	4.25954
ICI:	12	143	0.0838

Area 10 - ***Drains to MH10A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2100 Lawrence Ave W	764	2		Commercial	1528	16.81
2106 Lawrence Ave W	109	3	1	Single Family	327	3.50
2108 Lawrence Ave W	122	2	1	Single Family	244	3.50
2110 Lawrence Ave W	101	2.5	1	Single Family	252.5	3.50
2112 Lawrence Ave W	89.6	2.5	1	Single Family	224	3.50
37 Little Avenue	141	3	1	Single Family	423	3.50
2111 Lawrence Ave W	139	2	1	Single Family	278	3.50
2113 Lawrence Ave W	164	2	1	Single Family	328	3.50
2115 Lawrence Ave W	82.4	2	1	Single Family	164.8	3.50
2117 Lawrence Ave W	97.4	3	1	Single Family	292.2	3.50
2119 Lawrence Ave W	86.9	3	1	Single Family	260.7	3.50
2121 Lawrence Ave W	178	3	1	Single Family	534	3.50
2123 Lawrence Ave W	140	4		Apartment	560	22.40
Total						**77.71**

Block Address	Area
Area 10	8,010
Total =	**8,010**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	61	157	0.38882
ICI:	17	111	0.1528

BURNSIDE

CALCULATION SHEET

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Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC1 - HUMBERVIEW CRESCENT

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
6	165	2	1	Single Family	330	3.50
11	122	2	1	Single Family	244	3.50
9	157	2	1	Single Family	314	3.50
7	11	2	1	Single Family	22	3.50
16	227	2	1	Single Family	454	3.50
2402	280	2	1	Single Family	560	3.50
Total						**21.00**

Block Address	Area
HUMBERVIEW CRESCENT	10,923
Total =	**10,923**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	21	109	0.1924
ICI:	0	0	0.0000

SC2 - WESTON ROAD 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2385	81	2	1	Single Family	162	3.50
2381-2383	142	2	2	Semi-detached	284	5.40
2377	102	2	1	Single Family	204	3.50
2375	110	2	2	Duplex	220	4.60
2371	797	1		Commercial	797	8.77
Total						**25.77**

Block Address	Area
WESTON ROAD 1	5,863
Total =	**5,863**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	17	195	0.087
ICI:	9	113	0.0797

SC3 - PARKE ST.

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2353	183	1		Commercial	183	2.01
2	71.5	2.5	1	Single Family	178.75	3.50
4	65.8	2	1	Single Family	131.6	3.50
6	71.3	2	1	Single Family	142.6	3.50
2347	207	2.5		Commercial	517.5	5.69
Total						**18.21**

Block Address	Area
PARKE STREET	4,566
Total =	**4,566**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	11	243	0.045295
ICI:	7	100	0.0701

SC4 - HOLLEY AVENUE 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
49A	157	2	1	Single Family	314	3.50
49B	185	1	1	Single Family	185	3.50
47	110	2	1	Single Family	220	3.50
45	96.5	2	1	Single Family	193	3.50
43	88.2	3	1	Single Family	264.6	3.50
41	76.4	3	1	Single Family	229.2	3.50
39	111	3	1	Single Family	333	3.50
48	86	3	1	Single Family	258	3.50
44	104	3	1	Single Family	312	3.50
42	117	3	1	Single Family	351	3.50
Total						**35.00**

Block Address	Area
HOLLEY AVENUE 1	4,408
Total =	**4,408**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	35	132	0.26598
ICI:	0	0	0.0000

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Project No:	300054203
Date:	27-Sep-22

SC5 - HOLLEY AVE 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
36	108	3	1	Single Family	324	3.50
34	115	2	1	Single Family	230	3.50
32	104	2	1	Single Family	208	3.50
30	98.3	3	1	Single Family	294.9	3.50
28	108	3	1	Single Family	324	3.50
26	99.2	2	1	Single Family	198.4	3.50
22	86.1	3	1	Single Family	258.3	3.50
37	61.6	3	1	Single Family	184.8	3.50
35	73.2	3	1	Single Family	219.6	3.50
33	84.2	3	1	Single Family	252.6	3.50
31	86.2	3	1	Single Family	258.6	3.50
29	76.7	3	1	Single Family	230.1	3.50
27	121	3	1	Single Family	363	3.50
25	87.6	3	1	Single Family	262.8	3.50
21	122	3	1	Single Family	366	3.50
Total						**52.50**

Block Address	Area
HOLLEY AVENUE 2	6,343
Total =	**6,343**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	53	133	0.39751
ICI:	0	0	0.0000

SC6 - HOLLEY AVE 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
20	63.4	3	1	Single Family	190.2	3.50
18	71.6	3	1	Single Family	214.8	3.50
19	106	3	1	Single Family	318	3.50
17	67.9	3	1	Single Family	203.7	3.50
15	64.1	3	1	Single Family	192.3	3.50
13	101	3	1	Single Family	303	3.50
7	248	3	1	Single Family	744	3.50
1	122	1	1	School/Church	122	3.15
1A	126	3	1	Single Family	378	3.50
25	106	2	1	Single Family	212	3.50
Total						**34.65**

Block Address	Area
HOLLEY AVENUE 3	7,259
Total =	**7,259**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	32	116	0.2756
ICI:	3	246	0.0122

SC7 - WESTON ROAD 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2321	109	3	1	Single Family	327	3.50
2317	94.4	3	1	Single Family	283.2	3.50
2315	110	3	1	Single Family	330	3.50
2309	187	3	1	Single Family	561	3.50
2307	124	3	1	Single Family	372	3.50
2303	118	2	1	Single Family	236	3.50
2301	92	2	1	Single Family	184	3.50
2297	206	3	1	Single Family	618	3.50
Total						**28.00**

Block Address	Area
WESTON ROAD 2	8,562
Total =	**8,562**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	28	96	0.29112
ICI:	0	0	0.0000

SC8 - RECTORY ROAD 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2289	120	3	1	Single Family	360	3.50
34	80.4	3	1	Single Family	241.2	3.50
32	128	2	1	Single Family	256	3.50
30	78.7	3	1	Single Family	236.1	3.50
26-28	135	3	2	Semi-detached	405	5.40
35	82.5	3	1	Single Family	247.5	3.50
31	169	3	1	Single Family	507	3.50
29	120	2	1	Single Family	240	3.50
Total						**29.90**

Block Address	Area
RECTORY ROAD 1	5,039
Total =	**5,039**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	30	120	0.24928
ICI:	0	0	0.0000

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SC9 - RECTORY ROAD 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
24	119	2.5	1	Single Family	297.5	3.50
22	89.7	2.5	1	Single Family	224.25	3.50
20	89.9	2.5	1	Single Family	224.75	3.50
8	84.6	3	1	Single Family	253.8	3.50
23	138	2	1	Single Family	276	3.50
21	129	2	1	Single Family	258	3.50
19	114	2	1	Single Family	228	3.50
17	145	2	1	Single Family	290	3.50
15	123	2	1	Single Family	246	3.50
11	72.4	1	1	Single Family	72.4	3.50
9	95.4	2.5	1	Single Family	238.5	3.50
7, 5, 3	111	3	2	Semi-detached	333	5.40
1	105	3	1	Single Family	315	3.50
Total						**47.40**

Block Address	Area
RECTORY ROAD 2	5,755
Total =	**5,755**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	47	144	0.32572
ICI:	0	0	0.0000

SC10 - WINDAL AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
4	92	2	1	Single Family	184	3.50
6	115	2	1	Single Family	230	3.50
8	93.7	3	1	Single Family	281.1	3.50
10	116	3	1	Single Family	348	3.50
1	127	3	1	Single Family	381	3.50
3	96.4	3	1	Single Family	289.2	3.50
5	111	3	1	Single Family	333	3.50
7	166	3	1	Single Family	498	3.50
11	92.4	3	1	Single Family	277.2	3.50
Total						**31.50**

Block Address	Area
WINDAL AVENUE	6,652
Total =	**6,652**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	32	113	0.28215
ICI:	0	0	0.0000

SC11 - WESTON ROAD 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2292	696	8		Apartment	5568	222.72
2278	587	4		Apartment	2348	93.92
2260	1119	9		Apartment	10071	402.84
2281-2287	134	3	2	Semi-detached	402	5.40
2275	835	4		Apartment	3340	133.60
2263	677	4		Apartment	2708	108.32
Total						**966.80**

Block Address	Area
WESTON ROAD 3	15,783
Total =	**15,783**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	967	396	2.4437
ICI:	0	0	0.0000

SC12 - COULTER AVENUE 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2	67.8	3	1	Single Family	203.4	3.50
4	99	2	1	Single Family	198	3.50
6	111	2	1	Single Family	222	3.50
8	136	2	1	Single Family	272	3.50
10	123	2	1	Single Family	246	3.50
54	202	3		Apartment	606	24.24
38	70.2	3	1	Single Family	210.6	3.50
19	57.4	3	1	Single Family	172.2	3.50
21	66.2	3	1	Single Family	198.6	3.50
23	60.6	2.5	1	Single Family	151.5	3.50
25	58.5	2.5	1	Single Family	146.25	3.50
Total						**59.24**

Block Address	Area
COULTER AVENUE 1	7,465
Total =	**7,465**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	59	225	0.262655
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

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Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC13 - COULTER AVENUE 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
52	163	3	1	Single Family	489	3.50
56	114	3	1	Single Family	342	3.50
58	88	2	1	Single Family	176	3.50
60	46.4	3	1	Single Family	139.2	3.50
54	93.7	3	1	Single Family	281.1	3.50
68-70	182	3	2	Semi-detached	546	5.40
74	84.2	3	1	Single Family	252.6	3.50
76	73.5	3	1	Single Family	220.5	3.50
71	81.5	3	1	Single Family	244.5	3.50
73	50	3	1	Single Family	150	3.50
75-75A	241	3	2	Semi-detached	723	5.40
77-79	236	2.5	2	Semi-detached	590	5.40
81-83	211	3	2	Semi-detached	633	5.40
Total						**53.10**

Block Address	Area
COULTER AVENUE 2	8,368
Total =	**8,368**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	53	111	0.47869
ICI:	0	0	0.0000

SC14 - WESTON ROAD 4

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2240	819	19		Apartment	15561	622.44
2220-2222	2522	6		Apartment	15132	605.28
2202	1370	5		Apartment	6850	274.00
2255	681	12		Apartment	8172	326.88
2215-2235	766	4	12	Townhouse (Unit)	3064	32.40
2201-2211	419	4	6	Townhouse (Unit)	1676	16.20
2A-4C	332	4	5	Townhouse (Unit)	1328	13.50
12-22	341	4	6	Townhouse (Unit)	1364	16.20
88-106	597	4	10	Townhouse (Unit)	2388	27.00
42-56	564	4	8	Townhouse (Unit)	2256	21.60
31-41	319	4	6	Townhouse (Unit)	1276	16.20
43-55	419	4	7	Townhouse (Unit)	1676	18.90
61-65	139	4	2	Semi-detached	556	5.40
67-69	137	4	2	Semi-detached	548	5.40
73-75	134	4	2	Semi-detached	536	5.40
Total						**2006.80**

Block Address	Area
WESTON ROAD 4	31,525
Total =	**31,525**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	2007	322	6.2383
ICI:	0	0	0.0000

SC15 - WESTON ROAD 5

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2190	768	8		Apartment	6144	245.76
2180	642	8		Apartment	5136	205.44
2160	197	2		Institutional	394	13.13
2154	87	3	2	Duplex	261	4.60
2148	85.6	2.5	1	Single Family	214	3.50
2130	828	14		Apartment	11592	463.68
6-7	120	3	2	Semi-detached	360	5.40
5	92.8	3	1	Single Family	278.4	3.50
3	150	2	1	Single Family	300	3.50
2204	180	1.5		Commercial	270	2.97
2181-2189	371	1		Commercial	371	4.08
2131-2159	1284	1		Commercial	1284	14.12
2131-2159-2	1200	1		Apartment	1200	48.00
2123-2	548	1		Institutional	548	18.27
2121	462	1		Commercial	462	5.08
Total						**1041.04**

Block Address	Area
WESTON ROAD 5	25,878
Total =	**25,878**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	983	386	2.54854
ICI:	58	174	0.3329

BURNSIDE

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SC16 - CHURCH STREET 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
5470	204	1		Commercial	204	2.24
8	140	3	2	Semi-detached	420	5.40
10	121	3	2	Semi-detached	363	5.40
12	108	3	1	Single Family	324	3.50
14	225	3	2	Semi-detached	675	5.40
16	200	3	2	Semi-detached	600	5.40
22	207	3	2	Semi-detached	621	5.40
24	148	3	1	Single Family	444	3.50
26	200	3	1	Single Family	600	3.50
11	113	3	1	Single Family	339	3.50
15	148	3	2	Semi-detached	444	5.40
17	84	3	1	Single Family	252	3.50
19	187	3	2	Semi-detached	561	5.40
21	68.7	3	1	Single Family	206.1	3.50
23	95	3	1	Single Family	285	3.50
27	236	2	2	Semi-detached	472	5.40
Total						**69.94**

Block Address	Area
CHURCH STREET 1	9,178
Total =	**9,178**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	68	103	0.66061
ICI:	2	98	0.0204

SC17 - CROSS ST

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
44	119	3		School/Church	357	9.21
40	65.7	3	1	Single Family	197.1	3.50
38	63.5	3	1	Single Family	190.5	3.50
36	53	3	1	Single Family	159	3.50
34	252	2	2	Semi-detached	504	5.40
32	139	3	1	Single Family	417	3.50
30	95	2	1	Single Family	190	3.50
24	128	2	1	Single Family	256	3.50
28	86	3	1	Single Family	258	3.50
18	95.4	2	1	Single Family	190.8	3.50
14	46.6	3	1	Single Family	139.8	3.50
12	177	2	1	Single Family	354	3.50
8-10	329	2	2	Semi-detached	658	5.40
6	209	2	1	Single Family	418	3.50
3	93.8	3	1	Single Family	281.4	3.50
7	918	1	1	Single Family	918	3.50
11	122	2	1	Single Family	244	3.50
13	93.4	3	1	Single Family	280.2	3.50
17	132	3	1	Single Family	396	3.50
21	171	3	1	Single Family	513	3.50
23	69.2	3	1	Single Family	207.6	3.50
31	210	3	1	Single Family	630	3.50
37	213	3	1	Single Family	639	3.50
41	119	3	1	Single Family	357	3.50
43	132	2	1	Single Family	264	3.50
Total						**97.01**

Block Address	Area
CROSS STREET	16,484
Total =	**16,484**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	88	102	0.86624
ICI:	9	252	0.0357

SC18 - KING GEORGE ROAD

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
24	70	3	1	Single Family	210	3.50
20	99.5	3	1	Single Family	298.5	3.50
18	176	2	1	Single Family	352	3.50
16	151	2	1	Single Family	302	3.50
14	180	2	1	Single Family	360	3.50
12	183	2	1	Single Family	366	3.50
10	98.5	3	1	Single Family	295.5	3.50
8	97.9	2	1	Single Family	195.8	3.50
6	66.4	3	1	Single Family	199.2	3.50
4	42.7	2.5	1	Single Family	106.75	3.50
1-3	153	3	2	Semi-detached	459	5.40
5-7	135	3	2	Semi-detached	405	5.40
9-11	140	3	2	Semi-detached	420	5.40
15-17	126	3	2	Semi-detached	378	5.40
19-21	171	3	2	Semi-detached	513	5.40
23-25	134	3	2	Semi-detached	402	5.40
27-29	155	3	2	Semi-detached	465	5.40
Total						**72.80**

Block Address	Area
KING GEORGE ROAD	8,703
Total =	**8,703**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	73	127	0.572775
ICI:	0	0	0.0000

BURNSIDE

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Checked by:	JS
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SC19 - CHURCH STREET 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
30	113	3	1	Single Family	339	3.50
36	608	6		Apartment	3648	145.92
40	84.6	2	1	Single Family	169.2	3.50
42	113	1.5	1	Single Family	169.5	3.50
29	651	1.5	1	Single Family	976.5	3.50
33	99.2	1	1	Single Family	99.2	3.50
35	179	3	2	Semi-detached	537	5.40
37	99.9	2	1	Single Family	199.8	3.50
31	66.8	23	1	Single Family	1536.4	3.50
39	137	3	1	Single Family	411	3.50
41	126	2	1	Single Family	252	3.50
43	156	2	1	Single Family	312	3.50
45	151	2	1	Single Family	302	3.50
Total						**189.82**

Block Address	Area
CHURCH STREET 2	11,825
Total =	**11,825**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	190	212	0.89516
ICI:	0	0	0.0000

SC20 - FERN AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2	120	3	1	Single Family	360	3.50
4	101	2.5	1	Single Family	252.5	3.50
6	82.8	2.5	1	Single Family	207	3.50
8	99.8	3	1	Single Family	299.4	3.50
10	118	3	1	Single Family	354	3.50
12	128	3	1	Single Family	384	3.50
14	122	3	1	Single Family	366	3.50
16	176	3	1	Single Family	528	3.50
18	153	3	1	Single Family	459	3.50
1	76.9	2.5	1	Single Family	192.25	3.50
5	94.9	2	1	Single Family	189.8	3.50
7	107	3	1	Single Family	321	3.50
9	107	3	1	Single Family	321	3.50
11	105	3	1	Single Family	315	3.50
13	122	2.5	1	Single Family	305	3.50
15	119	3	1	Single Family	357	3.50
17	130	2.5	1	Single Family	325	3.50
19	112	3	1	Single Family	336	3.50
21	113	3	1	Single Family	339	3.50
Total						**66.50**

Block Address	Area
FERN AVENUE	15,647
Total =	**15,647**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	67	108	0.621095
ICI:	0	0	0.0000

SC21 = GEORGE AND FERN

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
69	155	3	2	Single Family	465	7.00
67	71.5	2	1	Single Family	143	3.50
65	105	1	1	Single Family	105	3.50
20	101	2	1	Single Family	202	3.50
22	109	3	1	Single Family	327	3.50
24	101	3	1	Single Family	303	3.50
26	84.9	3	1	Single Family	254.7	3.50
57	221	3	2	Duplex	663	4.60
49	177	3	1	Single Family	531	3.50
49-2	559	2	1	School/Church	1118	28.84
48	149	3	1	Single Family	447	3.50
42	147	3	1	Single Family	441	3.50
34	119	3	1	Single Family	357	3.50
Total						**75.44**

Block Address	Area
GEORGE AND FERN	11,542
Total =	**11,542**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	47	111	0.42387
ICI:	28	250	0.1118

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Existing Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC22 - WESTON ROAD 6

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2100	586	21		Apartment	12306	492.24
2088	201	1		Commercial	201	2.21
2105	1288	2		Commercial	2576	28.34
2077	607	2		Institutional	1214	40.47
2065 (1-3)	2148	3	48	Townhouse (Unit)	6444	129.60
2062	1474	1		Commercial	1474	16.21
2050	1092	2		Commercial	2184	24.02
2040	292	1		Commercial	292	3.21
2032	460	1		Institutional	460	15.33
2032-2	460	1		Apartment	460	18.40
2035	1297	1.5		Commercial	1945.5	21.40
2047	253	1		Commercial	253	2.78
2047-2	253	1		Apartment	253	10.12
Total						**804.34**

Block Address	Area
WESTON ROAD 6	32,237
Total =	**32,237**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	650	334	1.9463
ICI:	154	145	1.0600

SC23 - GEORGE STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
30 KING	3150	2		School/Church	6300	162.54
36	290	3	1	Single Family	870	3.50
38	244	3	1	Single Family	732	3.50
23	2566	3		School/Church	5293	136.56
32	119	3	1	Single Family	357	3.50
28	125	3	1	Single Family	375	3.50
26	172	3	1	Single Family	516	3.50
26	97.8	3	1	Single Family	293.4	3.50
25	129	3	1	Single Family	387	3.50
Total						**323.60**

Block Address	Area
GEORGE STREET	28,234
Total =	**28,234**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	25	71	0.35304
ICI:	299	258	1.1593

SC24 - KING STREET CRES

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
11	134	2	1	Single Family	268	3.50
9	124	3	1	Single Family	372	3.50
7	148	3	1	Single Family	444	3.50
3	102	3	1	Single Family	306	3.50
20	121	3	1	Single Family	363	3.50
14	122	3	1	Single Family	366	3.50
12	67.4	3	1	Single Family	202.2	3.50
10	136	2.5	1	Single Family	340	3.50
8	131	2.5	1	Single Family	327.5	3.50
6	135	3	1	Single Family	405	3.50
4	245	1		Institutional	245	8.17
2	247	2	1	Single Family	494	3.50
Total						**46.67**

Block Address	Area
KING STREET CRES	9,267
Total =	**9,267**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	39	100	0.38877
ICI:	8	327	0.0245

SC25 - KING STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1	1076	2		School/Church	2152	55.52
15	841	12		Apartment	10092	403.68
2	253	1		Commercial	253	2.78
18	244	1		Commercial	244	2.68
33-1	8605	3		Apartment	25815	1032.60
33-2	1319	27		Apartment	35613	1424.52
Total						**2921.79**

Block Address	Area
KING STREET	22,245
Total =	**22,245**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	2861	400	7.152
ICI:	61	230	0.2649

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Existing Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC26 - WESTON 7

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2016	214	2		Commercial	428	4.71
1995	1592	1		Commercial	1592	17.51
1979	810	1		Commercial	810	8.91
1976-1986	2037	1		Commercial	2037	22.41
1976-1986-2	2037	1		Apartment	2037	81.48
1940-1952	1243	1		Commercial	1243	13.67
1940-1952-2	1243	1		Apartment	1243	49.72
1965-1971	2600	1		Apartment	2600	104.00
1965-1971-2	2600	1		Commercial	2600	28.60
Total						**331.01**

Block Address	Area
WESTON 7	24,448
Total =	**24,448**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	235	400	0.588
ICI:	96	110	0.8710

SC27 - JOHN STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
22-1	1927	5		Apartment	9635	385.40
22-2	880	25		Apartment	22000	880.00
Total						**1265.40**

Block Address	Area
JOHN STREET	10,731
Total =	**10,731**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1265	400	3.1635
ICI:	0	0	0.0000

SC28 - LITTLE AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
3	158	2	2	Semi-detached	316	5.40
5	101	3	1	Single Family	303	3.50
7	103	2	1	Single Family	206	3.50
9	85.7	2	1	Single Family	171.4	3.50
11	96	2	1	Single Family	192	3.50
15	179	3	1	Single Family	537	3.50
19	145	3	1	Single Family	435	3.50
23	115	3	2	Semi-detached	345	5.40
25-27	155	3	2	Semi-detached	465	5.40
29-31	153	3	2	Semi-detached	459	5.40
33	75.6	3	2	Semi-detached	226.8	5.40
35	135	3	1	Single Family	405	3.50
Total						**51.50**

Block Address	Area
LITTLE AVENUE	8,158
Total =	**8,158**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	52	128	0.40612
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Existing Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC29 - ROSEMOUNT 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
235	227	3	1	Single Family	681	3.50
233	128	2	1	Single Family	256	3.50
229	116	2	1	Single Family	232	3.50
227	110	2	1	Single Family	220	3.50
225	139	3	2	Semi-detached	417	5.40
223	199	3	1	Single Family	597	3.50
221	89.8	3	1	Single Family	269.4	3.50
219	110	3	1	Single Family	330	3.50
217	65.6	3	1	Single Family	196.8	3.50
215	78.2	2	1	Single Family	156.4	3.50
213	76	3	1	Single Family	228	3.50
211	79.6	3	1	Single Family	238.8	3.50
209	73.8	3	1	Single Family	221.4	3.50
207	96.9	3	1	Single Family	290.7	3.50
205	98.3	3	1	Single Family	294.9	3.50
203	97.7	3	1	Single Family	293.1	3.50
52	156	3	1	Single Family	468	3.50
224	2083	4	42	Townhouse (Unit)	8332	113.40
220-222	234	2	2	Semi-detached	468	5.40
216-218	208	2	2	Semi-detached	416	5.40
212-214	241	2	2	Semi-detached	482	5.40
208-210	227	2	2	Semi-detached	454	5.40
204-206	228	2	2	Semi-detached	456	5.40
200-202	261	2	2	Semi-detached	522	5.40
198	125	3	1	Single Family	375	3.50
196	139	3	1	Single Family	417	3.50
194	125	3	1	Single Family	375	3.50
192	125	3	1	Single Family	375	3.50
Total						**221.20**

Block Address	Area
ROSEMOUNT 1	29,341
Total =	**29,341**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	221	122	1.80625
ICI:	0	0	0.0000

SC31 - ROSEMOUNT 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
49	45.5	3	2	Semi-detached	136.5	5.40
51	87.6	1	1	Single Family	87.6	3.50
53	99.7	3	1	Single Family	299.1	3.50
55	75.4	3	1	Single Family	226.2	3.50
57	88.1	2	1	Single Family	176.2	3.50
184	89.6	3	1	Single Family	268.8	3.50
176	190	3	1	Single Family	570	3.50
174	92.9	2	1	Single Family	185.8	3.50
168	162	1.5	1	Single Family	243	3.50
164	127	2	1	Single Family	254	3.50
162	109	2	1	Single Family	218	3.50
158	98.8	3	1	Single Family	296.4	3.50
154	94.4	3	1	Single Family	283.2	3.50
152	480	5		Apartment	2400	96.00
150	92.1	3	1	Single Family	276.3	3.50
140	201	3	1	Single Family	603	3.50
136	148	3	1	Single Family	444	3.50
134	79.6	3	1	Single Family	238.8	3.50
130	119	2	1	Single Family	238	3.50
128	136	3	1	Single Family	408	3.50
54	112	2	1	Single Family	224	3.50
56	245	3	2	Semi-detached	735	5.40
177	89.2	2	2	Semi-detached	178.4	5.40
175	119	3	1	Single Family	357	3.50
173	117	3	1	Single Family	351	3.50
167	142	3	1	Single Family	426	3.50
165	128	3	1	Single Family	384	3.50
163	109	3	1	Single Family	327	3.50
159	130	3	1	Single Family	390	3.50
153	131	3	1	Single Family	393	3.50
149	110	3	1	Single Family	330	3.50
137	123	3	1	Single Family	369	3.50
135	179	3	1	Single Family	537	3.50
64	291	3	1	Single Family	873	3.50
68	76.5	3	1	Single Family	229.5	3.50
70	123	3	1	Single Family	369	3.50
72	144	3	1	Single Family	432	3.50
69	109	3	1	Single Family	327	3.50
67	96.4	3	1	Single Family	289.2	3.50
65	95.5	3	1	Single Family	286.5	3.50
125	185	3	1	Single Family	555	3.50
Total						**241.70**

Block Address	Area
ROSEMOUNT 2	37,565
Total =	**37,565**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	242	149	1.62155
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Existing Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC32 - ROSEMOUNT 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
124	117	3	1	Single Family	351	3.50
120-122	200	3	1	Single Family	600	3.50
118	122	3	1	Single Family	366	3.50
116	110	3	1	Single Family	330	3.50
110	183	3	1	Single Family	549	3.50
106	136	3	1	Single Family	408	3.50
104	141	2	1	Single Family	282	3.50
102	142	2	1	Single Family	284	3.50
100	135	3	1	Single Family	405	3.50
98	114	2	1	Single Family	228	3.50
96	122	2	1	Single Family	244	3.50
40	183	1	1	Single Family	183	3.50
117	166	3.5	1	Single Family	581	3.50
115	135	3	1	Single Family	405	3.50
113	74.8	3	1	Single Family	224.4	3.50
101	162	2	1	Single Family	324	3.50
97	117	3	1	Single Family	351	3.50
91	113	2	1	Single Family	226	3.50
Total						**63.00**

Block Address	Area
ROSEMOUNT 3	14,315
Total =	**14,315**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	63	99	0.63414
ICI:	0	0	0.0000

SUMMARY TABLE

BLOCK ADDRESS	BLOCK AREA (m2)	RES POP	RES DENSITY	RES GFA (ha)	ICI POP	ICI DENSITY	ICI GFA (ha)
HUMBERVIEW CRESCENT	10923	21	109	0.19	0	0	0.00
WESTON ROAD 1	5,863	17	195	0.09	9	113	0.08
PARKE STREET	4,566	11	243	0.05	7	100	0.07
HOLLEY AVENUE 1	4,408	35	132	0.27	0	0	0.00
HOLLEY AVENUE 2	6,343	53	133	0.40	0	0	0.00
HOLLEY AVENUE 3	7,259	32	116	0.28	3	246	0.01
WESTON ROAD 2	8,562	28	96	0.29	0	0	0.00
RECTORY ROAD 1	5,039	30	120	0.25	0	0	0.00
RECTORY ROAD 2	5,755	47	144	0.33	0	0	0.00
WINDAL AVENUE	6,652	32	113	0.28	0	0	0.00
WESTON ROAD 3	15,783	967	396	2.44	0	0	0.00
COULTER AVENUE 1	7,465	59	225	0.26	0	0	0.00
COULTER AVENUE 2	8,368	53	111	0.48	0	0	0.00
WESTON ROAD 4	31,525	2007	322	6.24	0	0	0.00
WESTON ROAD 5	25,878	983	386	2.55	58	174	0.33
CHURCH STREET 1	9,178	68	103	0.66	2	98	0.02
CROSS STREET	16,484	88	102	0.87	9	252	0.04
KING GEORGE ROAD	8,703	73	127	0.57	0	0	0.00
CHURCH STREET 2	11,825	190	212	0.90	0	0	0.00
FERN AVENUE	15,647	67	108	0.62	0	0	0.00
GEORGE AND FERN	11,542	47	111	0.42	28	250	0.11
WESTON ROAD 6	32,237	650	334	1.95	154	145	1.06
GEORGE STREET	28,234	25	71	0.35	299	258	1.16
KING STREET CRES	9,267	39	100	0.39	8	327	0.02
KING STREET	22,245	2861	400	7.15	61	230	0.26
WESTON 7	24,448	235	400	0.59	96	110	0.87
JOHN STREET	10,731	1265	400	3.16	0	0	0.00
LITTLE AVENUE	8,158	52	128	0.41	0	0	0.00
ROSEMOUNT 1	29,341	221	122	1.81	0	0	0.00
ROSEMOUNT 2	37,565	242	149	1.62	0	0	0.00
ROSEMOUNT 3	14,315	63	99	0.63	0	0	0.00
TOTALS	**444309**	**10561**	**289.47**	**36.48**	**734**	**181.58**	**4.04**

OUTPUT DATA:

SANITARY SEWER DESIGN SHEET - DRY WEATHER

EXISTING CONDITION

John St & South Station St, Toronto

Project #: 300054203.0000
Date: 27-Sep-22
Designed: AH
Checked: JS

Min Diameter = 200 mm
Mannings 'n'= 0.013
Min. Velocity = 0.60 m/s
Max. Velocity = 3.00 m/s

Avg. Dom. Flow Res. = 240.0 l/c/d
Avg. Dom. Flow ICI. = Max 250.0 l/c/d And 180000 L/Floor ha/d
Infiltration = 0.260 l/s/ha

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						INFILTRATION				FLOW CALCULATIONS							PIPE DATA				
			AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	BLOCK AREA (ha)	ACCUM. BLOCK AREA (ha)	NFILTRATIOI (l/s)	ACCUM. INFILTRATION (l/s)	TOTAL ACCUM. POP.	RESIDENTIAL PEAKING FACTOR	POP. FLOW (l/s)	CONSTANT FLOW (l/s)	ACCUM. CONSTANT FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)
Area 1	MH1A	MH2A	0.09	0.09		132		12	12	0.10	0.10	307		32	32	0.5	0.5	0.1	0.1	44	4.41	0.4			0.5	0.42	250	38.5	0.79	0.27	1%
Area 2	MH2A	MH3A	0.14	0.23		144		20	32	0.02	0.13	93		2	34	0.4	0.9	0.1	0.2	66	4.35	0.6			0.9	0.20	250	26.6	0.54	0.25	3%
Area 3	MH3A	MH4A	0.02	0.25		185		4	36		0.13				34	0.3	1.1	0.1	0.3	70	4.34	0.7			1.0	0.27	250	30.9	0.63	0.29	3%
Area 4	MH4A	MH5A	1.04	1.29		400		415	451	0.00	0.13				34	0.6	1.7	0.1	0.4	485	4.00	5.3			5.7	1.01	250	59.8	1.22	0.77	10%
Area 5	MH5A	MH8A	1.81	3.10		400		723	1174	0.22	0.34	111		24	58	0.7	2.3	0.2	0.6	1232	3.75	13.0			13.6	0.26	300	49.3	0.70	0.60	28%
Area 6	MH6A	MH7A	0.91	0.91		400		365	365	0.75	0.75	111		83	83	0.6	0.6	0.1	0.1	448	4.04	5.7			5.8	0.46	250	40.3	0.82	0.58	14%
Area 7	MH7A	MH8A		0.91					365	0.11	0.86	112		12	95	0.3	0.9	0.1	0.2	460	4.04	5.9			6.1	0.41	250	38.0	0.77	0.57	16%
Area 8	MH8A	MH9A		4.01					1539	0.16	1.36	110		18	171	0.6	3.9	0.2	1.0	1710	3.67	18.5			19.5	0.42	300	62.7	0.89	0.78	31%
Area 9	MH9A	MH10A	4.26	8.27		397		1691	3230	0.08	1.45	143		12	183	0.6	4.5	0.2	1.2	3413	3.41	33.7			34.8	2.20	300	143.4	2.03	1.67	24%
Area 10	MH10A	MH11A	0.39	8.66		157		61	3291	0.15	1.60	111		17	200	0.8	5.3	0.2	1.4	3491	3.41	34.5			35.9	2.20	300	143.4	2.03	1.69	25%
	MH11A	MH12A	36.48	45.14		289		10561	13852	4.04	5.64	182		734	934	44.4	49.7	11.6	12.9	14786	2.81	120.0			132.9	0.38	450	175.8	1.11	1.21	76%
	MH12A	MH13A		45.14					13852		5.64				934		49.7		12.9	14786	2.81	120.0			132.9	38.70	450	1773.6	11.15	6.55	7%
	MH13A	TRUNK		45.14					13852		5.64				934		49.7		12.9	14786	2.81	120.0			132.9	3.35	450	521.8	3.28	2.74	25%

OUTPUT DATA:

SANITARY SEWER DESIGN SHEET - WET WEATHER

EXISTING CONDITION

John St & South Station St, Toronto

Project #: 300054203.0000
Date: 27-Sep-22
Designed: AH
Checked: JS

Min Diameter = 200 mm
Mannings 'n'= 0.013
Min. Velocity = 0.60 m/s
Max. Velocity = 3.00 m/s

Avg. Dom. Flow Res. = 240.0 l/c/d
Avg. Dom. Flow ICI. = Max 250.0 l/c/d And 180000 L/Floor ha/d
Infiltration = 3.000 l/s/ha

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						INFILTRATION				FLOW CALCULATIONS							PIPE DATA				HGL DATA						
			AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	BLOCK AREA (ha)	ACCUM. BLOCK AREA (ha)	NFILTRATIO (l/s)	ACCUM. INFILTRATION (l/s)	TOTAL ACCUM. POP.	RESIDENTIAL PEAKING FACTOR	POP. FLOW (l/s)	CONSTANT FLOW (l/s)	ACCUM. CONSTANT FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)	HGL U/S (m)	HGL D/S (m)	Surface Elevation U/S (m)	Surface Elevation D/S (m)	Depth to HGL U/S (m)	Depth to HGL D/S (m)	Surcharge U/S
Area 1	MH1A	MH2A	0.09	0.09		132		12	12	0.10	0.10	307		32	32	0.5	0.5	1.5	1.5	44	4.41	0.4			1.8	0.42	250	38.5	0.79	0.40	5%	125.01	124.80	127.70	126.88	2.69	2.08	0.00
Area 2	MH2A	MH3A	0.14	0.23		144		20	32	0.02	0.13	93		2	34	0.4	0.9	1.1	2.6	66	4.35	0.6			3.2	0.20	250	26.6	0.54	0.37	12%	124.80	124.70	126.88	126.77	2.08	2.07	0.00
Area 3	MH3A	MH4A	0.02	0.25		185		4	36		0.13				34	0.3	1.1	0.8	3.4	70	4.34	0.7			4.1	0.27	250	30.9	0.63	0.44	13%	124.70	124.56	126.77	126.72	2.07	2.16	0.00
Area 4	MH4A	MH5A	1.04	1.29		400		415	451	0.00	0.13				34	0.6	1.7	1.7	5.0	485	4.00	5.3			10.3	1.01	250	59.8	1.22	0.91	17%	124.56	124.03	126.72	126.44	2.16	2.41	0.00
Area 5	MH5A	MH8A	1.81	3.10		400		723	1174	0.22	0.34	111		24	58	0.7	2.3	2.0	7.0	1232	3.75	13.0			19.9	0.26	300	49.3	0.70	0.66	40%	124.03	123.80	126.44	127.11	2.41	3.31	0.00
Area 6	MH6A	MH7A	0.91	0.91		400		365	365	0.75	0.75	111		83	83	0.6	0.6	1.7	1.7	448	4.04	5.7			7.4	0.46	250	40.3	0.82	0.62	18%	124.34	124.05	126.81	126.95	2.47	2.90	0.00
Area 7	MH7A	MH8A		0.91					365	0.11	0.86	112		12	95	0.3	0.9	1.0	2.7	460	4.04	5.9			8.5	0.41	250	38.0	0.77	0.62	22%	124.05	123.83	126.95	127.11	2.90	3.28	0.00
Area 8	MH8A	MH9A		4.01					1539	0.16	1.36	110		18	171	0.6	3.9	1.9	11.6	1710	3.67	18.5			30.1	0.42	300	62.7	0.89	0.88	48%	123.80	123.44	127.11	125.80	3.31	2.36	0.00
Area 9	MH9A	MH10A	4.26	8.27		397		1691	3230	0.08	1.45	143		12	183	0.6	4.5	1.9	13.5	3413	3.41	33.7			47.2	2.20	300	143.4	2.03	1.82	33%	121.85	119.67	125.80	121.57	3.95	1.90	0.00
Area 10	MH10A	MH11A	0.39	8.66		157		61	3291	0.15	1.60	111		17	200	0.8	5.3	2.4	15.9	3491	3.41	34.5			50.4	2.20	300	143.4	2.03	1.85	35%	119.66	117.40	121.57	118.84	1.91	1.44	0.00
	MH11A	MH12A	36.48	45.14		289		10561	13852	4.04	5.64	182		734	934	44.4	49.7	133.3	149.2	14786	2.81	120.0	143.4	143.4	412.6	0.38	450	175.8	1.11		>100%	117.40	117.13	118.84	118.84	1.44	1.71	0.22
	MH12A	MH13A		45.14					13852		5.64				934		49.7		149.2	14786	2.81	120.0		143.4	412.6	38.70	450	1773.6	11.15	9.09	23%	117.13	115.97	118.84	118.79	1.71	2.82	0.00
	MH13A	TRUNK		45.14					13852		5.64				934		49.7		149.2	14786	2.81	120.0		143.4	412.6	3.35	450	521.8	3.28	3.64	79%	115.14	113.00	118.79	115.78	3.65	2.78	0.00

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Existing Condition Plus Recent Developments

Prepared by:	**AH**
Checked by:	**JS**
Project No:	**300054203**
Date:	**27-Sep-22**

Type of Development	Density	Unit
Office	3.30	p/100sqm
Apartment	4.00	p/100sqm
Commercial	1.10	p/100sqm
Townhouse (Area)	1.70	p/100sqm
School/Church	2.58	p/100sqm
Institutional	3.33	p/100sqm
Industrial	2.72	p/100sqm

Type of housing	P/Unit
Single Family	3.5
Semi-detached	2.7
Townhouse (Unit)	2.7
Duplex	2.3
Triplex	3.7
Apartment - Bachelor	1.4
Apartment - 1 B	1.4
Apartment - 2 B	2.1
Apartment - 3 B	3.1
Apartment - 4 B	3.7

$$Qres = \frac{P \times Q \times M}{86400} + A \times I$$

Qres= 240 L/cap/day
Qici= 250 L/cap/day

$$M = 1 + \frac{14}{4 + (P/1000)^{1/2}}$$

I= 0.26 L/s/ha

*All Estimates are Based on City of Toronto Wet Weather Flow Management Guidelines (Nov 2006) and Design Criteria for Sewers and Watermains (Nov 2009 1st ed.)
*ICI stands for Industrial/Commercial/Institutional

Existing Buildings Plus Recent Developments Contributing to Sanitary Sewer

Area 1 - Drains to MH1A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
21 John St	144	1		Commercial	144	1.58
27 John St	166	3		Office	498	16.43
31 John St	141	1	1	Single Family	141	3.50
45 South Station St	165	3	2	Semi-detached	495	5.40
43 South Station St	136	2	1	Single Family	272	3.50
40 South Station St	402	1		Office	402	13.27
Total						**43.68**

Block Address	Area
Area 1	4,849
Total =	**4,849**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	12	132	0.0908
ICI:	32	307	0.1044

Area 2 - Drains to MH2A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
37-39 South Station St	165	2	2	Semi-detached	330	5.40
33 South Station St	216	1		Commercial	216	2.38
31B - 31C South Station St	175	3	2	Semi-detached	525	5.40
31 - 31A South Station St	142	3	2	Semi-detached	426	5.40
36 South Station St	106	1	1	Single Family	106	3.50
Total						**22.08**

Block Address	Area
Area 2	3,803
Total =	**3,803**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	20	144	0.1387
ICI:	2	93	0.0216

Area 3 - Drains to MH3A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
28A South Station St	72	3	1	Single Family	216	3.50
Total						**3.50**

Block Address	Area
Area 3	2,598
Total =	**2,598**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	4	185	0.0216
ICI:	0	0	0.0000

Area 4 - Drains to MH4A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
29 South Station St	798	13		Apartment	10374	414.96
Total						**414.96**

Block Address	Area
Area 4	5,523
Total =	**5,523**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	415	400	1.0374
ICI:	0	0	0.0000

Area 5 - Drains to MH5A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1901 Lawrence Ave W - Commercial	2155	1		Commercial	2155	23.71
1901 Lawrence Ave W - Residential	1130	16		Apartment	18080	723.20
Total						**746.91**

Block Address	Area
Area 5	6,538
Total =	**6,538**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	723	400	1.808
ICI:	24	111	0.2155

BURNSIDE

CALCULATION SHEET

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Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

Area 6 - ***Drains to MH6A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1906-1930 Weston Rd - Commercial	1759	2		Commercial	3518	38.70
1906-1930 Weston Rd - Residential	761	12		Apartment	9132	365.28
1919-1937 Weston Rd	1992	2		Commercial	3984	43.82
Total						**447.80**

Block Address	Area
Area 6	5,644
Total =	**5,644**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	365	400	0.9132
ICI:	83	111	0.7502

Area 7 - ***Drains to MH7A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1919-1937 Weston Rd	535	2		Commercial	1070	11.77
Total						**11.77**

Block Address	Area
Area 7	3,206
Total =	**3,206**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	0	0	0
ICI:	12	112	0.1070

Area 8 - ***Drains to MH8A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2079-2085 Lawrence Ave W	267	2		Commercial	534	5.87
2077 Lawrence Ave W	446	2		Commercial	892	9.81
2075 Lawrence Ave W	206	1		Commercial	206	2.27
Total						**17.95**

Block Address	Area
Area 8	6,488
Total =	**6,488**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	0	0	0
ICI:	18	110	0.1632

Area 9 - ***Drains to MH9A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2089 Lawrence Ave W	739	16		Apartment	11824	472.96
2099 Lawrence Ave W	785	16		Apartment	12560	502.40
2074 Lawrence Ave W	356	2		Commercial	712	7.83
2086 Lawrence Ave W	1603	11		Apartment	17633	705.32
2103 Lawrence Ave W	126	1		Institutional	126	4.20
2105 Lawrence Ave W	138	3	1	Single Family	414	3.50
2107 Lawrence Ave W	90.4	1	1	Single Family	90.4	3.50
2109 Lawrence Ave W	74	1	1	Single Family	74	3.50
Total						**1703.21**

Block Address	Area
Area 9	6,488
Total =	**6,488**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1691	397	4.25954
ICI:	12	143	0.0838

Area 10 - ***Drains to MH10A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2100 Lawrence Ave W	764	2		Commercial	1528	16.81
2106 Lawrence Ave W	109	3	1	Single Family	327	3.50
2108 Lawrence Ave W	122	2	1	Single Family	244	3.50
2110 Lawrence Ave W	101	2.5	1	Single Family	252.5	3.50
2112 Lawrence Ave W	89.6	2.5	1	Single Family	224	3.50
37 Little Avenue	141	3	1	Single Family	423	3.50
2111 Lawrence Ave W	139	2	1	Single Family	278	3.50
2113 Lawrence Ave W	164	2	1	Single Family	328	3.50
2115 Lawrence Ave W	82.4	2	1	Single Family	164.8	3.50
2117 Lawrence Ave W	97.4	3	1	Single Family	292.2	3.50
2119 Lawrence Ave W	86.9	3	1	Single Family	260.7	3.50
2121 Lawrence Ave W	178	3	1	Single Family	534	3.50
2123 Lawrence Ave W	140	4		Apartment	560	22.40
Total						**77.71**

Block Address	Area
Area 10	8,010
Total =	**8,010**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	61	157	0.38882
ICI:	17	111	0.1528

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
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Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC1 - HUMBERVIEW CRESCENT

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
6	165	2	1	Single Family	330	3.50
11	122	2	1	Single Family	244	3.50
9	157	2	1	Single Family	314	3.50
7	11	2	1	Single Family	22	3.50
16	227	2	1	Single Family	454	3.50
2402	280	2	1	Single Family	560	3.50
Total						**21.00**

Block Address	Area
HUMBERVIEW CRESCENT	10,923
Total =	**10,923**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	21	109	0.1924
ICI:	0	0	0.0000

SC2 - WESTON ROAD 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2385	81	2	1	Single Family	162	3.50
2381-2383	142	2	2	Semi-detached	284	5.40
2377	102	2	1	Single Family	204	3.50
2375	110	2	2	Duplex	220	4.60
2371	797	1		Commercial	797	8.77
Total						**25.77**

Block Address	Area
WESTON ROAD 1	5,863
Total =	**5,863**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	17	195	0.087
ICI:	9	113	0.0797

SC3 - PARKE ST.

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2353	183	1		Commercial	183	2.01
2	71.5	2.5	1	Single Family	178.75	3.50
4	65.8	2	1	Single Family	131.6	3.50
6	71.3	2	1	Single Family	142.6	3.50
2347	207	2.5		Commercial	517.5	5.69
Total						**18.21**

Block Address	Area
PARKE STREET	4,566
Total =	**4,566**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	11	243	0.045295
ICI:	7	100	0.0701

SC4 - HOLLEY AVENUE 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
49A	157	2	1	Single Family	314	3.50
49B	185	1	1	Single Family	185	3.50
47	110	2	1	Single Family	220	3.50
45	96.5	2	1	Single Family	193	3.50
43	88.2	3	1	Single Family	264.6	3.50
41	76.4	3	1	Single Family	229.2	3.50
39	111	3	1	Single Family	333	3.50
48	86	3	1	Single Family	258	3.50
44	104	3	1	Single Family	312	3.50
42	117	3	1	Single Family	351	3.50
Total						**35.00**

Block Address	Area
HOLLEY AVENUE 1	4,408
Total =	**4,408**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	35	132	0.26598
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

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Sanitary Sewer Population Analysis - Existing Condition Plus Recent Developments

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC5 - HOLLEY AVE 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
36	108	3	1	Single Family	324	3.50
34	115	2	1	Single Family	230	3.50
32	104	2	1	Single Family	208	3.50
30	98.3	3	1	Single Family	294.9	3.50
28	108	3	1	Single Family	324	3.50
26	99.2	2	1	Single Family	198.4	3.50
22	86.1	3	1	Single Family	258.3	3.50
37	61.6	3	1	Single Family	184.8	3.50
35	73.2	3	1	Single Family	219.6	3.50
33	84.2	3	1	Single Family	252.6	3.50
31	86.2	3	1	Single Family	258.6	3.50
29	76.7	3	1	Single Family	230.1	3.50
27	121	3	1	Single Family	363	3.50
25	87.6	3	1	Single Family	262.8	3.50
21	122	3	1	Single Family	366	3.50
Total						**52.50**

Block Address	Area
HOLLEY AVENUE 2	6,343
Total =	**6,343**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	53	133	0.39751
ICI:	0	0	0.0000

SC6 - HOLLEY AVE 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
20	63.4	3	1	Single Family	190.2	3.50
18	71.6	3	1	Single Family	214.8	3.50
19	106	3	1	Single Family	318	3.50
17	67.9	3	1	Single Family	203.7	3.50
15	64.1	3	1	Single Family	192.3	3.50
13	101	3	1	Single Family	303	3.50
7	248	3	1	Single Family	744	3.50
1	122	1	1	School/Church	122	3.15
1A	126	3	1	Single Family	378	3.50
25	106	2	1	Single Family	212	3.50
Total						**34.65**

Block Address	Area
HOLLEY AVENUE 3	7,259
Total =	**7,259**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	32	116	0.2756
ICI:	3	246	0.0122

SC7 - WESTON ROAD 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2321	109	3	1	Single Family	327	3.50
2317	94.4	3	1	Single Family	283.2	3.50
2315	110	3	1	Single Family	330	3.50
2309	187	3	1	Single Family	561	3.50
2307	124	3	1	Single Family	372	3.50
2303	118	2	1	Single Family	236	3.50
2301	92	2	1	Single Family	184	3.50
2297	206	3	1	Single Family	618	3.50
Total						**28.00**

Block Address	Area
WESTON ROAD 2	8,562
Total =	**8,562**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	28	96	0.29112
ICI:	0	0	0.0000

SC8 - RECTORY ROAD 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2289	120	3	1	Single Family	360	3.50
34	80.4	3	1	Single Family	241.2	3.50
32	128	2	1	Single Family	256	3.50
30	78.7	3	1	Single Family	236.1	3.50
26-28	135	3	2	Semi-detached	405	5.40
35	82.5	3	1	Single Family	247.5	3.50
31	169	3	1	Single Family	507	3.50
29	120	2	1	Single Family	240	3.50
Total						**29.90**

Block Address	Area
RECTORY ROAD 1	5,039
Total =	**5,039**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	30	120	0.24928
ICI:	0	0	0.0000

SC9 - RECTORY ROAD 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
24	119	2.5	1	Single Family	297.5	3.50
22	89.7	2.5	1	Single Family	224.25	3.50
20	89.9	2.5	1	Single Family	224.75	3.50
8	84.6	3	1	Single Family	253.8	3.50
23	138	2	1	Single Family	276	3.50
21	129	2	1	Single Family	258	3.50
19	114	2	1	Single Family	228	3.50
17	145	2	1	Single Family	290	3.50
15	123	2	1	Single Family	246	3.50
11	72.4	1	1	Single Family	72.4	3.50
9	95.4	2.5	1	Single Family	238.5	3.50
7, 5, 3	111	3	2	Semi-detached	333	5.40
1	105	3	1	Single Family	315	3.50
Total						**47.40**

Block Address	Area
RECTORY ROAD 2	5,755
Total =	**5,755**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	47	144	0.32572
ICI:	0	0	0.0000

SC10 - WINDAL AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
4	92	2	1	Single Family	184	3.50
6	115	2	1	Single Family	230	3.50
8	93.7	3	1	Single Family	281.1	3.50
10	116	3	1	Single Family	348	3.50
1	127	3	1	Single Family	381	3.50
3	96.4	3	1	Single Family	289.2	3.50
5	111	3	1	Single Family	333	3.50
7	166	3	1	Single Family	498	3.50
11	92.4	3	1	Single Family	277.2	3.50
Total						**31.50**

Block Address	Area
WINDAL AVENUE	6,652
Total =	**6,652**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	32	113	0.28215
ICI:	0	0	0.0000

SC11 - WESTON ROAD 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2292	696	8		Apartment	5568	222.72
2278	587	4		Apartment	2348	93.92
2278 - NEW	587		2	Apartment - 1 B	0	2.80
2260	1119	9		Apartment	10071	402.84
2281-2287	134	3	2	Semi-detached	402	5.40
2270-2274	824	12	68	Apartment - 1 B	12576	95.20
2270-2274			39	Apartment - 2 B	0	81.90
2275	835	4		Apartment	3340	133.60
2263	677	4		Apartment	2708	108.32
Total						**1146.70**

Block Address	Area
WESTON ROAD 3	15,783
Total =	**15,783**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1147	310	3.7013
ICI:	0	0	0.0000

SC12 - COULTER AVENUE 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2	67.8	3	1	Single Family	203.4	3.50
4	99	2	1	Single Family	198	3.50
6	111	2	1	Single Family	222	3.50
8	136	2	1	Single Family	272	3.50
10	123	2	1	Single Family	246	3.50
54	202	3		Apartment	606	24.24
38	70.2	3	1	Single Family	210.6	3.50
19	57.4	3	1	Single Family	172.2	3.50
21	66.2	3	1	Single Family	198.6	3.50
23	60.6	2.5	1	Single Family	151.5	3.50
25	58.5	2.5	1	Single Family	146.25	3.50
Total						**59.24**

Block Address	Area
COULTER AVENUE 1	7,465
Total =	**7,465**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	59	225	0.262655
ICI:	0	0	0.0000

SC13 - COULTER AVENUE 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
52	163	3	1	Single Family	489	3.50
56	114	3	1	Single Family	342	3.50
58	88	2	1	Single Family	176	3.50
60	46.4	3	1	Single Family	139.2	3.50
54	93.7	3	1	Single Family	281.1	3.50
68-70	182	3	2	Semi-detached	546	5.40
74	84.2	3	1	Single Family	252.6	3.50
76	73.5	3	1	Single Family	220.5	3.50
71	81.5	3	1	Single Family	244.5	3.50
73	50	3	1	Single Family	150	3.50
75-75A	241	3	2	Semi-detached	723	5.40
77-79	236	2.5	2	Semi-detached	590	5.40
81-83	211	3	2	Semi-detached	633	5.40
Total						**53.10**

Block Address	Area
COULTER AVENUE 2	8,368
Total =	**8,368**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	53	111	0.47869
ICI:	0	0	0.0000

SC14 - WESTON ROAD 4

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2240	819	19		Apartment	15561	622.44
2220-2222	2522	6		Apartment	15132	605.28
2202	1370	5		Apartment	6850	274.00
2255	681	12		Apartment	8172	326.88
2215-2235	766	4	12	Townhouse (Unit)	3064	32.40
2201-2211	419	4	6	Townhouse (Unit)	1676	16.20
2A-4C	332	4	5	Townhouse (Unit)	1328	13.50
12-22	341	4	6	Townhouse (Unit)	1364	16.20
88-106	597	4	10	Townhouse (Unit)	2388	27.00
42-56	564	4	8	Townhouse (Unit)	2256	21.60
31-41	319	4	6	Townhouse (Unit)	1276	16.20
43-55	419	4	7	Townhouse (Unit)	1676	18.90
61-65	139	4	2	Semi-detached	556	5.40
67-69	137	4	2	Semi-detached	548	5.40
73-75	134	4	2	Semi-detached	536	5.40
Total						**2006.80**

Block Address	Area
WESTON ROAD 4	31,525
Total =	**31,525**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	2007	322	6.2383
ICI:	0	0	0.0000

SC15 - WESTON ROAD 5

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2190	768	8		Apartment	6144	245.76
2180	642	8		Apartment	5136	205.44
2160	197	2		Institutional	394	13.13
2154	87	3	2	Duplex	261	4.60
2148	85.6	2.5	1	Single Family	214	3.50
2130	828	14		Apartment	11592	463.68
6-7	120	3	2	Semi-detached	360	5.40
5	92.8	3	1	Single Family	278.4	3.50
3	150	2	1	Single Family	300	3.50
2204	180	1.5		Commercial	270	2.97
2179			3	Townhouse (Unit)	0	8.10
2179			9	Single Family	0	31.50
2181-2189	371	1		Commercial	371	4.08
2131-2159	1284	1		Commercial	1284	14.12
2131-2159-2	1200	1		Apartment	1200	48.00
2123-2	548	1		Institutional	548	18.27
2121	462	1		Commercial	462	5.08
Total						**1080.64**

Block Address	Area
WESTON ROAD 5	25,878
Total =	**25,878**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1023	401	2.54854
ICI:	58	174	0.3329

BURNSIDE

CALCULATION SHEET

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Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC16 - CHURCH STREET 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
5470	204	1		Commercial	204	2.24
8	140	3	2	Semi-detached	420	5.40
10	121	3	2	Semi-detached	363	5.40
12	108	3	1	Single Family	324	3.50
14	225	3	2	Semi-detached	675	5.40
16	200	3	2	Semi-detached	600	5.40
22	207	3	2	Semi-detached	621	5.40
24	148	3	1	Single Family	444	3.50
26	200	3	1	Single Family	600	3.50
11	113	3	1	Single Family	339	3.50
15	148	3	2	Semi-detached	444	5.40
17	84	3	1	Single Family	252	3.50
19	187	3	2	Semi-detached	561	5.40
21	68.7	3	1	Single Family	206.1	3.50
23	95	3	1	Single Family	285	3.50
27	236	2	2	Semi-detached	472	5.40
Total						**69.94**

Block Address	Area
CHURCH STREET 1	9,178
Total =	**9,178**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	68	103	0.66061
ICI:	2	98	0.0204

SC17 - CROSS ST

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
44	119	3		School/Church	357	9.21
40	65.7	3	1	Single Family	197.1	3.50
38	63.5	3	1	Single Family	190.5	3.50
36	53	3	1	Single Family	159	3.50
34	252	2	2	Semi-detached	504	5.40
32	139	3	1	Single Family	417	3.50
30	95	2	1	Single Family	190	3.50
24	128	2	1	Single Family	256	3.50
28	86	3	1	Single Family	258	3.50
18	95.4	2	1	Single Family	190.8	3.50
14	46.6	3	1	Single Family	139.8	3.50
12	177	2	1	Single Family	354	3.50
8-10	329	2	2	Semi-detached	658	5.40
6	209	2	1	Single Family	418	3.50
3	93.8	3	1	Single Family	281.4	3.50
7	918	1	1	Single Family	918	3.50
11	122	2	1	Single Family	244	3.50
13	93.4	3	1	Single Family	280.2	3.50
17	132	3	1	Single Family	396	3.50
21	171	3	1	Single Family	513	3.50
23	69.2	3	1	Single Family	207.6	3.50
31	210	3	1	Single Family	630	3.50
37	213	3	1	Single Family	639	3.50
41	119	3	1	Single Family	357	3.50
43	132	2	1	Single Family	264	3.50
Total						**97.01**

Block Address	Area
CROSS STREET	16,484
Total =	**16,484**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	88	102	0.86624
ICI:	9	252	0.0357

SC18 - KING GEORGE ROAD

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
24	70	3	1	Single Family	210	3.50
20	99.5	3	1	Single Family	298.5	3.50
18	176	2	1	Single Family	352	3.50
16	151	2	1	Single Family	302	3.50
14	180	2	1	Single Family	360	3.50
12	183	2	1	Single Family	366	3.50
10	98.5	3	1	Single Family	295.5	3.50
8	97.9	2	1	Single Family	195.8	3.50
6	66.4	3	1	Single Family	199.2	3.50
4	42.7	2.5	1	Single Family	106.75	3.50
1-3	153	3	2	Semi-detached	459	5.40
5-7	135	3	2	Semi-detached	405	5.40
9-11	140	3	2	Semi-detached	420	5.40
15-17	126	3	2	Semi-detached	378	5.40
19-21	171	3	2	Semi-detached	513	5.40
23-25	134	3	2	Semi-detached	402	5.40
27-29	155	3	2	Semi-detached	465	5.40
Total						**72.80**

Block Address	Area
KING GEORGE ROAD	8,703
Total =	**8,703**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	73	127	0.572775
ICI:	0	0	0.0000

BURNSIDE

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Checked by:	JS
Project No:	300054203
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SC19 - CHURCH STREET 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
30	113	3	1	Single Family	339	3.50
36	608	6		Apartment	3648	145.92
40	84.6	2	1	Single Family	169.2	3.50
42	113	1.5	1	Single Family	169.5	3.50
29	651	1.5	1	Single Family	976.5	3.50
33	99.2	1	1	Single Family	99.2	3.50
35	179	3	2	Semi-detached	537	5.40
37	99.9	2	1	Single Family	199.8	3.50
31	66.8	23	1	Single Family	1536.4	3.50
39	137	3	1	Single Family	411	3.50
41	126	2	1	Single Family	252	3.50
43	156	2	1	Single Family	312	3.50
45	151	2	1	Single Family	302	3.50
Total						**189.82**

Block Address	Area
CHURCH STREET 2	11,825
Total =	**11,825**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	190	212	0.89516
ICI:	0	0	0.0000

SC20 - FERN AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2	120	3	1	Single Family	360	3.50
4	101	2.5	1	Single Family	252.5	3.50
6	82.8	2.5	1	Single Family	207	3.50
8	99.8	3	1	Single Family	299.4	3.50
10	118	3	1	Single Family	354	3.50
12	128	3	1	Single Family	384	3.50
14	122	3	1	Single Family	366	3.50
16	176	3	1	Single Family	528	3.50
18	153	3	1	Single Family	459	3.50
1	76.9	2.5	1	Single Family	192.25	3.50
5	94.9	2	1	Single Family	189.8	3.50
7	107	3	1	Single Family	321	3.50
9	107	3	1	Single Family	321	3.50
11	105	3	1	Single Family	315	3.50
13	122	2.5	1	Single Family	305	3.50
15	119	3	1	Single Family	357	3.50
17	130	2.5	1	Single Family	325	3.50
19	112	3	1	Single Family	336	3.50
21	113	3	1	Single Family	339	3.50
Total						**66.50**

Block Address	Area
FERN AVENUE	15,647
Total =	**15,647**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	67	108	0.621095
ICI:	0	0	0.0000

SC21 = GEORGE AND FERN

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
69	155	3	2	Single Family	465	7.00
67	71.5	2	1	Single Family	143	3.50
65	105	1	1	Single Family	105	3.50
20	101	2	1	Single Family	202	3.50
22	109	3	1	Single Family	327	3.50
24	101	3	1	Single Family	303	3.50
26	84.9	3	1	Single Family	254.7	3.50
57	221	3	2	Duplex	663	4.60
49	177	3	1	Single Family	531	3.50
49-2	559	2	1	School/Church	1118	28.84
48	149	3	1	Single Family	447	3.50
42	147	3	1	Single Family	441	3.50
34	119	3	1	Single Family	357	3.50
Total						**75.44**

Block Address	Area
GEORGE AND FERN	11,542
Total =	**11,542**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	47	111	0.42387
ICI:	28	250	0.1118

BURNSIDE

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Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC22 - WESTON ROAD 6

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2100	586	21		Apartment	12306	492.24
2088	201	1		Commercial	201	2.21
2105	1288	2		Commercial	2576	28.34
2077	607	2		Institutional	1214	40.47
2065 (1-3)	2148	3	48	Townhouse (Unit)	6444	129.60
2062	1474	1		Commercial	1474	16.21
2050	1092	2		Commercial	2184	24.02
2040	292	1		Commercial	292	3.21
2032	460	1		Institutional	460	15.33
2032-2	460	1		Apartment	460	18.40
2035	1297	1.5		Commercial	1945.5	21.40
2047	253	1		Commercial	253	2.78
2047-2	253	1		Apartment	253	10.12
Total						**804.34**

Block Address	Area
WESTON ROAD 6	32,237
Total =	**32,237**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	650	334	1.9463
ICI:	154	145	1.0600

SC23 - GEORGE STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
30 KING	3150	2		School/Church	6300	162.54
36	290	3	1	Single Family	870	3.50
38	244	3	1	Single Family	732	3.50
23	2566	3		School/Church	5293	136.56
32	119	3	1	Single Family	357	3.50
28	125	3	1	Single Family	375	3.50
26	172	3	1	Single Family	516	3.50
26	97.8	3	1	Single Family	293.4	3.50
25	129	3	1	Single Family	387	3.50
Total						**323.60**

Block Address	Area
GEORGE STREET	28,234
Total =	**28,234**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	25	71	0.35304
ICI:	299	258	1.1593

SC24 - KING STREET CRES

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
11	134	2	1	Single Family	268	3.50
9	124	3	1	Single Family	372	3.50
7	148	3	1	Single Family	444	3.50
3	102	3	1	Single Family	306	3.50
20	121	3	1	Single Family	363	3.50
14	122	3	1	Single Family	366	3.50
12	67.4	3	1	Single Family	202.2	3.50
10	136	2.5	1	Single Family	340	3.50
8	131	2.5	1	Single Family	327.5	3.50
6	135	3	1	Single Family	405	3.50
4	245	1		Institutional	245	8.17
2	247	2	1	Single Family	494	3.50
Total						**46.67**

Block Address	Area
KING STREET CRES	9,267
Total =	**9,267**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	39	100	0.38877
ICI:	8	327	0.0245

SC25 - KING STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1	1076	2		School/Church	2152	55.52
15	841	12		Apartment	10092	403.68
2	253	1		Commercial	253	2.78
18	244	1		Commercial	244	2.68
33-1	8605	3		Apartment	25815	1032.60
33-2	1319	27		Apartment	35613	1424.52
Total						**2921.79**

Block Address	Area
KING STREET	22,245
Total =	**22,245**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	2861	400	7.152
ICI:	61	230	0.2649

BURNSIDE

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Prepared by:	AH
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Date:	27-Sep-22

SC26 - WESTON 7

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2016	214	2		Commercial	428	4.71
1995	1592	1		Commercial	1592	17.51
1979	810	1		Commercial	810	8.91
1956 Weston Road			507	Apartment - 1 B	0	709.80
1956 Weston Road			158	Apartment - 2 B	0	331.80
1956 Weston Road			74	Apartment - 3 B	0	229.40
1956 Weston Road				Commercial	3961	43.57
1940-1952	1243	1		Commercial	1243	13.67
1940-1952-2	1243	1		Apartment	1243	49.72
1965-1971	2600	1		Apartment	2600	104.00
1965-1971-2	2600	1		Commercial	2600	28.60
Total						**1541.69**

Block Address	Area
WESTON 7	24,448
Total =	**24,448**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1425	3708	0.3843
ICI:	117	110	1.0634

SC27 - JOHN STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
22-1	1927	5		Apartment	9635	385.40
22-2	880	25		Apartment	22000	880.00
Total						**1265.40**

Block Address	Area
JOHN STREET	10,731
Total =	**10,731**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1265	400	3.1635
ICI:	0	0	0.0000

SC28 - LITTLE AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
7	103	2	1	Single Family	206	3.50
9	85.7	2	1	Single Family	171.4	3.50
11	96	2	1	Single Family	192	3.50
15	179	3	1	Single Family	537	3.50
19	145	3	1	Single Family	435	3.50
23	115	3	2	Semi-detached	345	5.40
25-27	155	3	2	Semi-detached	465	5.40
29-31	153	3	2	Semi-detached	459	5.40
33	75.6	3	2	Semi-detached	226.8	5.40
35	135	3	1	Single Family	405	3.50
Total						**42.60**

Block Address	Area
LITTLE AVENUE	8,158
Total =	**8,158**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	43	125	0.34422
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

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John St & South Station St
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Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC29 - ROSEMOUNT 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
235	227	3	1	Single Family	681	3.50
233	128	2	1	Single Family	256	3.50
229	116	2	1	Single Family	232	3.50
227	110	2	1	Single Family	220	3.50
225	139	3	2	Semi-detached	417	5.40
223	199	3	1	Single Family	597	3.50
221	89.8	3	1	Single Family	269.4	3.50
219	110	3	1	Single Family	330	3.50
217	65.6	3	1	Single Family	196.8	3.50
215	78.2	2	1	Single Family	156.4	3.50
213	76	3	1	Single Family	228	3.50
211	79.6	3	1	Single Family	238.8	3.50
209	73.8	3	1	Single Family	221.4	3.50
207	96.9	3	1	Single Family	290.7	3.50
205	98.3	3	1	Single Family	294.9	3.50
203	97.7	3	1	Single Family	293.1	3.50
52	156	3	1	Single Family	468	3.50
224	2083	4	42	Townhouse (Unit)	8332	113.40
220-222	234	2	2	Semi-detached	468	5.40
216-218	208	2	2	Semi-detached	416	5.40
212-214	241	2	2	Semi-detached	482	5.40
208-210	227	2	2	Semi-detached	454	5.40
204-206	228	2	2	Semi-detached	456	5.40
200-202	261	2	2	Semi-detached	522	5.40
198	125	3	1	Single Family	375	3.50
196	139	3	1	Single Family	417	3.50
194	125	3	1	Single Family	375	3.50
192	125	3	1	Single Family	375	3.50
Total						**221.20**

Block Address	Area
ROSEMOUNT 1	29,341
Total =	**29,341**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	221	122	1.80625
ICI:	0	0	0.0000

SC31 - ROSEMOUNT 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
49	45.5	3	2	Semi-detached	136.5	5.40
51	87.6	1	1	Single Family	87.6	3.50
53	99.7	3	1	Single Family	299.1	3.50
55	75.4	3	1	Single Family	226.2	3.50
57	88.1	2	1	Single Family	176.2	3.50
184	89.6	3	1	Single Family	268.8	3.50
176	190	3	1	Single Family	570	3.50
174	92.9	2	1	Single Family	185.8	3.50
168	162	1.5	1	Single Family	243	3.50
164	127	2	1	Single Family	254	3.50
162	109	2	1	Single Family	218	3.50
158	98.8	3	1	Single Family	296.4	3.50
154	94.4	3	1	Single Family	283.2	3.50
152	480	5		Apartment	2400	96.00
150	92.1	3	1	Single Family	276.3	3.50
140	201	3	1	Single Family	603	3.50
136	148	3	1	Single Family	444	3.50
134	79.6	3	1	Single Family	238.8	3.50
130	119	2	1	Single Family	238	3.50
128	136	3	1	Single Family	408	3.50
54	112	2	1	Single Family	224	3.50
56	245	3	2	Semi-detached	735	5.40
177	89.2	2	2	Semi-detached	178.4	5.40
175	119	3	1	Single Family	357	3.50
173	117	3	1	Single Family	351	3.50
167	142	3	1	Single Family	426	3.50
165	128	3	1	Single Family	384	3.50
163	109	3	1	Single Family	327	3.50
159	130	3	1	Single Family	390	3.50
153	131	3	1	Single Family	393	3.50
149	110	3	1	Single Family	330	3.50
137	123	3	1	Single Family	369	3.50
135	179	3	1	Single Family	537	3.50
64	291		2	Single Family	0	7.00
68	76.5	3	1	Single Family	229.5	3.50
70	123	3	1	Single Family	369	3.50
72	144	3	1	Single Family	432	3.50
69	109	3	1	Single Family	327	3.50
67	96.4	3	1	Single Family	289.2	3.50
65	95.5	3	1	Single Family	286.5	3.50
125	185	3	1	Single Family	555	3.50
Total						**245.20**

Block Address	Area
ROSEMOUNT 2	37,565
Total =	**37,565**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	245	160	1.53425
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Existing Condition Plus Recent Developments

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC32 - ROSEMOUNT 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
124	117	3	1	Single Family	351	3.50
120-122	200	3	1	Single Family	600	3.50
118	122	3	1	Single Family	366	3.50
116	110	3	1	Single Family	330	3.50
110	183	3	1	Single Family	549	3.50
106	136	3	1	Single Family	408	3.50
104	141	2	1	Single Family	282	3.50
102	142	2	1	Single Family	284	3.50
100	135	3	1	Single Family	405	3.50
98	114	2	1	Single Family	228	3.50
96	122	2	1	Single Family	244	3.50
40	183	1	1	Single Family	183	3.50
117	166	3.5	1	Single Family	581	3.50
115	135	3	1	Single Family	405	3.50
113	74.8	3	1	Single Family	224.4	3.50
101	162	2	1	Single Family	324	3.50
97	117	3	1	Single Family	351	3.50
91	113	2	1	Single Family	226	3.50
Total						**63.00**

Block Address	Area
ROSEMOUNT 3	14,315
Total =	**14,315**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	63	99	0.63414
ICI:	0	0	0.0000

SUMMARY TABLE

BLOCK ADDRESS	BLOCK AREA (m2)	RES POP	RES DENSITY	RES GFA (ha)	ICI POP	ICI DENSITY	ICI GFA (ha)
HUMBERVIEW CRESCENT	10923	21	109	0.19	0	0	0.00
WESTON ROAD 1	5,863	17	195	0.09	9	113	0.08
PARKE STREET	4,566	11	243	0.05	7	100	0.07
HOLLEY AVENUE 1	4,408	35	132	0.27	0	0	0.00
HOLLEY AVENUE 2	6,343	53	133	0.40	0	0	0.00
HOLLEY AVENUE 3	7,259	32	116	0.28	3	246	0.01
WESTON ROAD 2	8,562	28	96	0.29	0	0	0.00
RECTORY ROAD 1	5,039	30	120	0.25	0	0	0.00
RECTORY ROAD 2	5,755	47	144	0.33	0	0	0.00
WINDAL AVENUE	6,652	32	113	0.28	0	0	0.00
WESTON ROAD 3	15,783	1147	310	3.70	0	0	0.00
COULTER AVENUE 1	7,465	59	225	0.26	0	0	0.00
COULTER AVENUE 2	8,368	53	111	0.48	0	0	0.00
WESTON ROAD 4	31,525	2007	322	6.24	0	0	0.00
WESTON ROAD 5	25,878	1023	401	2.55	58	174	0.33
CHURCH STREET 1	9,178	68	103	0.66	2	98	0.02
CROSS STREET	16,484	88	102	0.87	9	252	0.04
KING GEORGE ROAD	8,703	73	127	0.57	0	0	0.00
CHURCH STREET 2	11,825	190	212	0.90	0	0	0.00
FERN AVENUE	15,647	67	108	0.62	0	0	0.00
GEORGE AND FERN	11,542	47	111	0.42	28	250	0.11
WESTON ROAD 6	32,237	650	334	1.95	154	145	1.06
GEORGE STREET	28,234	25	71	0.35	299	258	1.16
KING STREET CRES	9,267	39	100	0.39	8	327	0.02
KING STREET	22,245	2861	400	7.15	61	230	0.26
WESTON 7	24,448	1425	3708	0.38	117	110	1.06
JOHN STREET	10,731	1265	400	3.16	0	0	0.00
LITTLE AVENUE	8,158	43	125	0.34	0	0	0.00
ROSEMOUNT 1	29,341	221	122	1.81	0	0	0.00
ROSEMOUNT 2	37,565	245	160	1.53	0	0	0.00
ROSEMOUNT 3	14,315	63	99	0.63	0	0	0.00
TOTALS	**444309**	**11965**	**320.02**	**37.39**	**755**	**178.28**	**4.23**

OUTPUT DATA:

SANITARY SEWER DESIGN SHEET - DRY WEATHER

EXISTING CONDITION PLUS RECENT DEVELOPMENTS

John St & South Station St, Toronto

Project #: 300054203.0000
Date: 27-Sep-22
Designed: AH
Checked: JS

Min Diameter = 200 mm
Mannings 'n'= 0.013
Min. Velocity = 0.60 m/s
Max. Velocity = 3.00 m/s

Avg. Dom. Flow Res. = 240.0 l/c/d
Avg. Dom. Flow ICI. = Max 250.0 l/c/d And 180000 L/Floor ha/d
Infiltration = 0.260 l/s/ha

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						INFILTRATION				FLOW CALCULATIONS							PIPE DATA				
			AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	BLOCK AREA (ha)	ACCUM. BLOCK AREA (ha)	NFILTRATIOI (l/s)	ACCUM. INFILTRATION (l/s)	TOTAL ACCUM. POP.	RESIDENTIAL PEAKING FACTOR	POP. FLOW (l/s)	CONSTANT FLOW (l/s)	ACCUM. CONSTANT FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)
Area 1	MH1A	MH2A	0.09	0.09		132		12	12	0.10	0.10	307		32	32	0.5	0.5	0.1	0.1	44	4.41	0.4			0.5	0.42	250	38.5	0.79	0.27	1%
Area 2	MH2A	MH3A	0.14	0.23		144		20	32	0.02	0.13	93		2	34	0.4	0.9	0.1	0.2	66	4.35	0.6			0.9	0.20	250	26.6	0.54	0.25	3%
Area 3	MH3A	MH4A	0.02	0.25		185		4	36		0.13				34	0.3	1.1	0.1	0.3	70	4.34	0.7			1.0	0.27	250	30.9	0.63	0.29	3%
Area 4	MH4A	MH5A	1.04	1.29		400		415	451	0.00	0.13				34	0.6	1.7	0.1	0.4	485	4.00	5.3			5.7	1.01	250	59.8	1.22	0.77	10%
Area 5	MH5A	MH8A	1.81	3.10		400		723	1174	0.22	0.34	111		24	58	0.7	2.3	0.2	0.6	1232	3.75	13.0			13.6	0.26	300	49.3	0.70	0.60	28%
Area 6	MH6A	MH7A	0.91	0.91		400		365	365	0.75	0.75	111		83	83	0.6	0.6	0.1	0.1	448	4.04	5.7			5.8	0.46	250	40.3	0.82	0.58	14%
Area 7	MH7A	MH8A		0.91					365	0.11	0.86	112		12	95	0.3	0.9	0.1	0.2	460	4.04	5.9			6.1	0.41	250	38.0	0.77	0.57	16%
Area 8	MH8A	MH9A		4.01					1539	0.16	1.36	110		18	171	0.6	3.9	0.2	1.0	1710	3.67	18.5			19.5	0.42	300	62.7	0.89	0.78	31%
Area 9	MH9A	MH10A	4.26	8.27		397		1691	3230	0.08	1.45	143		12	183	0.6	4.5	0.2	1.2	3413	3.41	33.7			34.8	2.20	300	143.4	2.03	1.67	24%
Area 10	MH10A	MH11A	0.39	8.66		157		61	3291	0.15	1.60	111		17	200	0.8	5.3	0.2	1.4	3491	3.41	34.5			35.9	2.20	300	143.4	2.03	1.69	25%
	MH11A	MH12A	37.39	46.05		320		11965	15256	4.23	5.83	178		755	955	44.4	49.7	11.6	12.9	16211	2.77	129.6			142.5	0.38	450	175.8	1.11	1.23	81%
	MH12A	MH13A		46.05					15256		5.83				955		49.7		12.9	16211	2.77	129.6			142.5	38.70	450	1773.6	11.15	6.69	8%
	MH13A	TRUNK		46.05					15256		5.83				955		49.7		12.9	16211	2.77	129.6			142.5	3.35	450	521.8	3.28	2.79	27%

OUTPUT DATA:

SANITARY SEWER DESIGN SHEET - WET WEATHER

EXISTING CONDITION PLUS RECENT DEVELOPMENTS

John St & South Station St, Toronto

Project #: 300054203.0000
Date: 27-Sep-22
Designed: AH
Checked: JS

Min Diameter = 200 mm
Mannings 'n'= 0.013
Min. Velocity = 0.60 m/s
Max. Velocity = 3.00 m/s

Avg. Dom. Flow Res. = 240.0 l/c/d
Avg. Dom. Flow ICI. = Max 250.0 l/c/d And 180000 L/Floor ha/d
Infiltration = 3.000 l/s/ha

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						INFILTRATION				FLOW CALCULATIONS							PIPE DATA				HGL DATA						
			AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	BLOCK AREA (ha)	ACCUM. BLOCK AREA (ha)	NFILTRATIO (l/s)	ACCUM. INFILTRATION (l/s)	TOTAL ACCUM. POP.	RESIDENTIAL PEAKING FACTOR	POP. FLOW (l/s)	CONSTANT FLOW (l/s)	ACCUM. CONSTANT FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)	HGL U/S (m)	HGL D/S (m)	Surface Elevation U/S (m)	Surface Elevation D/S (m)	Depth to HGL U/S (m)	Depth to HGL D/S (m)	Surcharge U/S
Area 1	MH1A	MH2A	0.09	0.09		132		12	12	0.10	0.10	307		32	32	0.5	0.5	1.5	1.5	44	4.41	0.4			1.8	0.42	250	38.5	0.79	0.40	5%	125.01	124.80	127.70	126.88	2.69	2.08	0.00
Area 2	MH2A	MH3A	0.14	0.23		144		20	32	0.02	0.13	93		2	34	0.4	0.9	1.1	2.6	66	4.35	0.6			3.2	0.20	250	26.6	0.54	0.37	12%	124.80	124.70	126.88	126.77	2.08	2.07	0.00
Area 3	MH3A	MH4A	0.02	0.25		185		4	36		0.13				34	0.3	1.1	0.8	3.4	70	4.34	0.7			4.1	0.27	250	30.9	0.63	0.44	13%	124.70	124.56	126.77	126.72	2.07	2.16	0.00
Area 4	MH4A	MH5A	1.04	1.29		400		415	451	0.00	0.13				34	0.6	1.7	1.7	5.0	485	4.00	5.3			10.3	1.01	250	59.8	1.22	0.91	17%	124.56	124.03	126.72	126.44	2.16	2.41	0.00
Area 5	MH5A	MH8A	1.81	3.10		400		723	1174	0.22	0.34	111		24	58	0.7	2.3	2.0	7.0	1232	3.75	13.0			19.9	0.26	300	49.3	0.70	0.66	40%	124.03	123.80	126.44	127.11	2.41	3.31	0.00
Area 6	MH6A	MH7A	0.91	0.91		400		365	365	0.75	0.75	111		83	83	0.6	0.6	1.7	1.7	448	4.04	5.7			7.4	0.46	250	40.3	0.82	0.62	18%	124.34	124.05	126.81	126.95	2.47	2.90	0.00
Area 7	MH7A	MH8A		0.91					365	0.11	0.86	112		12	95	0.3	0.9	1.0	2.7	460	4.04	5.9			8.5	0.41	250	38.0	0.77	0.62	22%	124.05	123.83	126.95	127.11	2.90	3.28	0.00
Area 8	MH8A	MH9A		4.01					1539	0.16	1.36	110		18	171	0.6	3.9	1.9	11.6	1710	3.67	18.5			30.1	0.42	300	62.7	0.89	0.88	48%	123.80	123.44	127.11	125.80		2.36	0.00
Area 9	MH9A	MH10A	4.26	8.27		397		1691	3230	0.08	1.45	143		12	183	0.6	4.5	1.9	13.5	3413	3.41	33.7			47.2	2.20	300	143.4	2.03	1.82	33%	121.85	119.67	125.80	121.57	3.95	1.90	0.00
Area 10	MH10A	MH11A	0.39	8.66		157		61	3291	0.15	1.60	111		17	200	0.8	5.3	2.4	15.9	3491	3.41	34.5			50.4	2.20	300	143.4	2.03	1.85	35%	119.66	117.42	121.57	118.84	1.91	1.42	0.00
	MH11A	MH12A	37.39	46.05		320		11965	15256	4.23	5.83	178		755	955	44.4	49.7	133.3	149.2	16211	2.77	129.6	143.4	143.4	422.2	0.38	450	175.8	1.11		>100%	117.42	117.13	118.84	118.84	1.42	1.71	0.24
	MH12A	MH13A		46.05					15256		5.83				955		49.7		149.2	16211	2.77	129.6		143.4	422.2	38.70	450	1773.6	11.15	9.14	24%	117.13	115.97	118.84	118.79	1.71	2.82	0.00
	MH13A	TRUNK		46.05					15256		5.83				955		49.7		149.2	16211	2.77	129.6		143.4	422.2	3.35	450	521.8	3.28	3.65	81%	115.14	113.00	118.79	115.78	3.65	2.78	0.00

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Proposed Condition

Prepared by:	**AH**
Checked by:	**JS**
Project No:	**300054203**
Date:	**27-Sep-22**

Type of Development	Density	Unit
Office	3.30	p/100sqm
Apartment	4.00	p/100sqm
Commercial	1.10	p/100sqm
Townhouse (Area)	1.70	p/100sqm
School/Church	2.58	p/100sqm
Institutional	3.33	p/100sqm
Industrial	2.72	p/100sqm

Type of housing	P/Unit
Single Family	3.5
Semi-detached	2.7
Townhouse (Unit)	2.7
Duplex	2.3
Triplex	3.7
Apartment - Bachelor	1.4
Apartment - 1 B	1.4
Apartment - 2 B	2.1
Apartment - 3 B	3.1
Apartment - 4 B	3.7

$Qres = \frac{PxQxM}{86400} + AxI$

Qres= 240 L/cap/day
Qici= 250 L/cap/day
$M = 1 + \frac{14}{4+(P/1000)^{1/2}}$
I= 0.26 L/s/ha

*All Estimates are Based on City of Toronto Wet Weather Flow Management Guidelines (Nov 2006) and Design Criteria for Sewers and Watermains (Nov 2009 1st ed.)
*ICI stands for Industrial/Commercial/Institutional

Existing Buildings Plus Recent Developments & Proposed Site Contributing to Sanitary Sewer

Site - ***Drains to Stub A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
Site - 1 Bedroom	1696	40	197	Apartment - 1 B	47350.13	275.80
Site - 2 Bedroom			185	Apartment - 2 B		388.50
Site - 3 Bedroom			45	Apartment - 3 B		139.50
Site - Studio			31	Apartment - Bachelor		43.40
Site - Commercial, Indoor Amenity, and Lobby				Commercial	2,916	32.07
Total						**879.27**

Block Address	Area
Site	4,095
Total =	**4,095**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	847	179	4.735013
ICI:	32	110	0.2916

Area 1 - ***Drains to MH1A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
21 John St	144	1		Commercial	144	1.58
27 John St	166	3		Office	498	16.43
31 John St	141	1	1	Single Family	141	3.50
45 South Station St	165	3	2	Semi-detached	495	5.40
43 South Station St	136	2	1	Single Family	272	3.50
40 South Station St	402	1		Office	402	13.27
Total						**43.68**

Block Address	Area
Area 1	4,849
Total =	**4,849**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	12	132	0.0908
ICI:	32	307	0.1044

Area 2 - ***Drains to MH2A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
37-39 South Station St	165	2	2	Semi-detached	330	5.40
33 South Station St	216	1		Commercial	216	2.38
31B - 31C South Station St	175	3	2	Semi-detached	525	5.40
31 - 31A South Station St	142	3	2	Semi-detached	426	5.40
36 South Station St	106	1	1	Single Family	106	3.50
Total						**22.08**

Block Address	Area
Area 2	3,803
Total =	**3,803**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	20	144	0.1387
ICI:	2	93	0.0216

Area 3 - ***Drains to MH3A***

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
28A South Station St	72	3	1	Single Family	216	3.50
Total						**3.50**

Block Address	Area
Area 3	2,598
Total =	**2,598**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	4	185	0.0216
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Proposed Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

Area 4 - Drains to MH4A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
29 South Station St	798	13		Apartment	10374	414.96
Total						**414.96**

Block Address	Area
Area 4	5,523
Total =	**5,523**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	415	400	1.0374
ICI:	0	0	0.0000

Area 5 - Drains to MH5A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1901 Lawrence Ave W - Commercial	2155	1		Commercial	2155	23.71
1901 Lawrence Ave W - Residential	1130	16		Apartment	18080	723.20
Total						**746.91**

Block Address	Area
Area 5	6,538
Total =	**6,538**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	723	400	1.808
ICI:	24	111	0.2155

Area 6 - Drains to MH6A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1906-1930 Weston Rd - Commercial	1759	2		Commercial	3518	38.70
1906-1930 Weston Rd - Residential	761	12		Apartment	9132	365.28
1919-1937 Weston Rd	1992	2		Commercial	3984	43.82
Total						**447.80**

Block Address	Area
Area 6	5,644
Total =	**5,644**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	365	400	0.9132
ICI:	83	111	0.7502

Area 7 - Drains to MH7A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1919-1937 Weston Rd	535	2		Commercial	1070	11.77
Total						**11.77**

Block Address	Area
Area 7	3,206
Total =	**3,206**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	0	0	0
ICI:	12	112	0.1070

Area 8 - Drains to MH8A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2079-2085 Lawrence Ave W	267	2		Commercial	534	5.87
2077 Lawrence Ave W	446	2		Commercial	892	9.81
2075 Lawrence Ave W	206	1		Commercial	206	2.27
Total						**17.95**

Block Address	Area
Area 8	6,488
Total =	**6,488**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	0	0	0
ICI:	18	110	0.1632

Area 9 - Drains to MH9A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2089 Lawrence Ave W	739	16		Apartment	11824	472.96
2099 Lawrence Ave W	785	16		Apartment	12560	502.40
2074 Lawrence Ave W	356	2		Commercial	712	7.83
2086 Lawrence Ave W	1603	11		Apartment	17633	705.32
2103 Lawrence Ave W	126	1		Institutional	126	4.20
2105 Lawrence Ave W	138	3	1	Single Family	414	3.50
2107 Lawrence Ave W	90.4	1	1	Single Family	90.4	3.50
2109 Lawrence Ave W	74	1	1	Single Family	74	3.50
Total						**1703.21**

Block Address	Area
Area 9	6,488
Total =	**6,488**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1691	397	4.25954
ICI:	12	143	0.0838

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Area 10 - Drains to MH10A

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2100 Lawrence Ave W	764	2		Commercial	1528	16.81
2106 Lawrence Ave W	109	3	1	Single Family	327	3.50
2108 Lawrence Ave W	122	2	1	Single Family	244	3.50
2110 Lawrence Ave W	101	2.5	1	Single Family	252.5	3.50
2112 Lawrence Ave W	89.6	2.5	1	Single Family	224	3.50
37 Little Avenue	141	3	1	Single Family	423	3.50
2111 Lawrence Ave W	139	2	1	Single Family	278	3.50
2113 Lawrence Ave W	164	2	1	Single Family	328	3.50
2115 Lawrence Ave W	82.4	2	1	Single Family	164.8	3.50
2117 Lawrence Ave W	97.4	3	1	Single Family	292.2	3.50
2119 Lawrence Ave W	86.9	3	1	Single Family	260.7	3.50
2121 Lawrence Ave W	178	3	1	Single Family	534	3.50
2123 Lawrence Ave W	140	4		Apartment	560	22.40
Total						**77.71**

Block Address	Area
Area 10	8,010
Total =	**8,010**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	61	157	0.38882
ICI:	17	111	0.1528

SC1 - HUMBERVIEW CRESCENT

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
6	165	2	1	Single Family	330	3.50
11	122	2	1	Single Family	244	3.50
9	157	2	1	Single Family	314	3.50
7	11	2	1	Single Family	22	3.50
16	227	2	1	Single Family	454	3.50
2402	280	2	1	Single Family	560	3.50
Total						**21.00**

Block Address	Area
HUMBERVIEW CRESCENT	10,923
Total =	**10,923**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	21	109	0.1924
ICI:	0	0	0.0000

SC2 - WESTON ROAD 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2385	81	2	1	Single Family	162	3.50
2381-2383	142	2	2	Semi-detached	284	5.40
2377	102	2	1	Single Family	204	3.50
2375	110	2	2	Duplex	220	4.60
2371	797	1		Commercial	797	8.77
Total						**25.77**

Block Address	Area
WESTON ROAD 1	5,863
Total =	**5,863**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	17	195	0.087
ICI:	9	113	0.0797

SC3 - PARKE ST.

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2353	183	1		Commercial	183	2.01
2	71.5	2.5	1	Single Family	178.75	3.50
4	65.8	2	1	Single Family	131.6	3.50
6	71.3	2	1	Single Family	142.6	3.50
2347	207	2.5		Commercial	517.5	5.69
Total						**18.21**

Block Address	Area
PARKE STREET	4,566
Total =	**4,566**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	11	243	0.045295
ICI:	7	100	0.0701

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SC4 - HOLLEY AVENUE 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
49A	157	2	1	Single Family	314	3.50
49B	185	1	1	Single Family	185	3.50
47	110	2	1	Single Family	220	3.50
45	96.5	2	1	Single Family	193	3.50
43	88.2	3	1	Single Family	264.6	3.50
41	76.4	3	1	Single Family	229.2	3.50
39	111	3	1	Single Family	333	3.50
48	86	3	1	Single Family	258	3.50
44	104	3	1	Single Family	312	3.50
42	117	3	1	Single Family	351	3.50
Total						**35.00**

Block Address	Area
HOLLEY AVENUE 1	4,408
Total =	**4,408**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	35	132	0.26598
ICI:	0	0	0.0000

SC5 - HOLLEY AVE 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
36	108	3	1	Single Family	324	3.50
34	115	2	1	Single Family	230	3.50
32	104	2	1	Single Family	208	3.50
30	98.3	3	1	Single Family	294.9	3.50
28	108	3	1	Single Family	324	3.50
26	99.2	2	1	Single Family	198.4	3.50
22	86.1	3	1	Single Family	258.3	3.50
37	61.6	3	1	Single Family	184.8	3.50
35	73.2	3	1	Single Family	219.6	3.50
33	84.2	3	1	Single Family	252.6	3.50
31	86.2	3	1	Single Family	258.6	3.50
29	76.7	3	1	Single Family	230.1	3.50
27	121	3	1	Single Family	363	3.50
25	87.6	3	1	Single Family	262.8	3.50
21	122	3	1	Single Family	366	3.50
Total						**52.50**

Block Address	Area
HOLLEY AVENUE 2	6,343
Total =	**6,343**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	53	133	0.39751
ICI:	0	0	0.0000

SC6 - HOLLEY AVE 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
20	63.4	3	1	Single Family	190.2	3.50
18	71.6	3	1	Single Family	214.8	3.50
19	106	3	1	Single Family	318	3.50
17	67.9	3	1	Single Family	203.7	3.50
15	64.1	3	1	Single Family	192.3	3.50
13	101	3	1	Single Family	303	3.50
7	248	3	1	Single Family	744	3.50
1	122	1	1	School/Church	122	3.15
1A	126	3	1	Single Family	378	3.50
25	106	2	1	Single Family	212	3.50
Total						**34.65**

Block Address	Area
HOLLEY AVENUE 3	7,259
Total =	**7,259**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	32	116	0.2756
ICI:	3	246	0.0122

SC7 - WESTON ROAD 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2321	109	3	1	Single Family	327	3.50
2317	94.4	3	1	Single Family	283.2	3.50
2315	110	3	1	Single Family	330	3.50
2309	187	3	1	Single Family	561	3.50
2307	124	3	1	Single Family	372	3.50
2303	118	2	1	Single Family	236	3.50
2301	92	2	1	Single Family	184	3.50
2297	206	3	1	Single Family	618	3.50
Total						**28.00**

Block Address	Area
WESTON ROAD 2	8,562
Total =	**8,562**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	28	96	0.29112
ICI:	0	0	0.0000

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SC8 - RECTORY ROAD 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2289	120	3	1	Single Family	360	3.50
34	80.4	3	1	Single Family	241.2	3.50
32	128	2	1	Single Family	256	3.50
30	78.7	3	1	Single Family	236.1	3.50
26-28	135	3	2	Semi-detached	405	5.40
35	82.5	3	1	Single Family	247.5	3.50
31	169	3	1	Single Family	507	3.50
29	120	2	1	Single Family	240	3.50
Total						**29.90**

Block Address	Area
RECTORY ROAD 1	5,039
Total =	**5,039**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	30	120	0.24928
ICI:	0	0	0.0000

SC9 - RECTORY ROAD 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
24	119	2.5	1	Single Family	297.5	3.50
22	89.7	2.5	1	Single Family	224.25	3.50
20	89.9	2.5	1	Single Family	224.75	3.50
8	84.6	3	1	Single Family	253.8	3.50
23	138	2	1	Single Family	276	3.50
21	129	2	1	Single Family	258	3.50
19	114	2	1	Single Family	228	3.50
17	145	2	1	Single Family	290	3.50
15	123	2	1	Single Family	246	3.50
11	72.4	1	1	Single Family	72.4	3.50
9	95.4	2.5	1	Single Family	238.5	3.50
7, 5, 3	111	3	2	Semi-detached	333	5.40
1	105	3	1	Single Family	315	3.50
Total						**47.40**

Block Address	Area
RECTORY ROAD 2	5,755
Total =	**5,755**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	47	144	0.32572
ICI:	0	0	0.0000

SC10 - WINDAL AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
4	92	2	1	Single Family	184	3.50
6	115	2	1	Single Family	230	3.50
8	93.7	3	1	Single Family	281.1	3.50
10	116	3	1	Single Family	348	3.50
1	127	3	1	Single Family	381	3.50
3	96.4	3	1	Single Family	289.2	3.50
5	111	3	1	Single Family	333	3.50
7	166	3	1	Single Family	498	3.50
11	92.4	3	1	Single Family	277.2	3.50
Total						**31.50**

Block Address	Area
WINDAL AVENUE	6,652
Total =	**6,652**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	32	113	0.28215
ICI:	0	0	0.0000

SC11 - WESTON ROAD 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2292	696	8		Apartment	5568	222.72
2278	587	4		Apartment	2348	93.92
2278 - NEW	587		2	Apartment - 1 B	0	2.80
2260	1119	9		Apartment	10071	402.84
2281-2287	134	3	2	Semi-detached	402	5.40
2270-2274	824	12	68	Apartment - 1 B	12576	95.20
2270-2274			39	Apartment - 2 B	0	81.90
2275	835	4		Apartment	3340	133.60
2263	677	4		Apartment	2708	108.32
Total						**1146.70**

Block Address	Area
WESTON ROAD 3	15,783
Total =	**15,783**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1147	310	3.7013
ICI:	0	0	0.0000

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SC12 - COULTER AVENUE 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2	67.8	3	1	Single Family	203.4	3.50
4	99	2	1	Single Family	198	3.50
6	111	2	1	Single Family	222	3.50
8	136	2	1	Single Family	272	3.50
10	123	2	1	Single Family	246	3.50
54	202	3		Apartment	606	24.24
38	70.2	3	1	Single Family	210.6	3.50
19	57.4	3	1	Single Family	172.2	3.50
21	66.2	3	1	Single Family	198.6	3.50
23	60.6	2.5	1	Single Family	151.5	3.50
25	58.5	2.5	1	Single Family	146.25	3.50
Total						**59.24**

Block Address	Area
COULTER AVENUE 1	7,465
Total =	**7,465**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	59	225	0.262655
ICI:	0	0	0.0000

SC13 - COULTER AVENUE 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
52	163	3	1	Single Family	489	3.50
56	114	3	1	Single Family	342	3.50
58	88	2	1	Single Family	176	3.50
60	46.4	3	1	Single Family	139.2	3.50
54	93.7	3	1	Single Family	281.1	3.50
68-70	182	3	2	Semi-detached	546	5.40
74	84.2	3	1	Single Family	252.6	3.50
76	73.5	3	1	Single Family	220.5	3.50
71	81.5	3	1	Single Family	244.5	3.50
73	50	3	1	Single Family	150	3.50
75-75A	241	3	2	Semi-detached	723	5.40
77-79	236	2.5	2	Semi-detached	590	5.40
81-83	211	3	2	Semi-detached	633	5.40
Total						**53.10**

Block Address	Area
COULTER AVENUE 2	8,368
Total =	**8,368**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	53	111	0.47869
ICI:	0	0	0.0000

SC14 - WESTON ROAD 4

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2240	819	19		Apartment	15561	622.44
2220-2222	2522	6		Apartment	15132	605.28
2202	1370	5		Apartment	6850	274.00
2255	681	12		Apartment	8172	326.88
2215-2235	766	4	12	Townhouse (Unit)	3064	32.40
2201-2211	419	4	6	Townhouse (Unit)	1676	16.20
2A-4C	332	4	5	Townhouse (Unit)	1328	13.50
12-22	341	4	6	Townhouse (Unit)	1364	16.20
88-106	597	4	10	Townhouse (Unit)	2388	27.00
42-56	564	4	8	Townhouse (Unit)	2256	21.60
31-41	319	4	6	Townhouse (Unit)	1276	16.20
43-55	419	4	7	Townhouse (Unit)	1676	18.90
61-65	139	4	2	Semi-detached	556	5.40
67-69	137	4	2	Semi-detached	548	5.40
73-75	134	4	2	Semi-detached	536	5.40
Total						**2006.80**

Block Address	Area
WESTON ROAD 4	31,525
Total =	**31,525**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	2007	322	6.2383
ICI:	0	0	0.0000

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SC15 - WESTON ROAD 5

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2190	768	8		Apartment	6144	245.76
2180	642	8		Apartment	5136	205.44
2160	197	2		Institutional	394	13.13
2154	87	3	2	Duplex	261	4.60
2148	85.6	2.5	1	Single Family	214	3.50
2130	828	14		Apartment	11592	463.68
6-7	120	3	2	Semi-detached	360	5.40
5	92.8	3	1	Single Family	278.4	3.50
3	150	2	1	Single Family	300	3.50
2204	180	1.5		Commercial	270	2.97
2179			3	Townhouse (Unit)	0	8.10
2179			9	Single Family	0	31.50
2181-2189	371	1		Commercial	371	4.08
2131-2159	1284	1		Commercial	1284	14.12
2131-2159-2	1200	1		Apartment	1200	48.00
2123-2	548	1		Institutional	548	18.27
2121	462	1		Commercial	462	5.08
Total						**1080.64**

Block Address	Area
WESTON ROAD 5	25,878
Total =	**25,878**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1023	401	2.54854
ICI:	58	174	0.3329

SC16 - CHURCH STREET 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
5470	204	1		Commercial	204	2.24
8	140	3	2	Semi-detached	420	5.40
10	121	3	2	Semi-detached	363	5.40
12	108	3	1	Single Family	324	3.50
14	225	3	2	Semi-detached	675	5.40
16	200	3	2	Semi-detached	600	5.40
22	207	3	2	Semi-detached	621	5.40
24	148	3	1	Single Family	444	3.50
26	200	3	1	Single Family	600	3.50
11	113	3	1	Single Family	339	3.50
15	148	3	2	Semi-detached	444	5.40
17	84	3	1	Single Family	252	3.50
19	187	3	2	Semi-detached	561	5.40
21	68.7	3	1	Single Family	206.1	3.50
23	95	3	1	Single Family	285	3.50
27	236	2	2	Semi-detached	472	5.40
Total						**69.94**

Block Address	Area
CHURCH STREET 1	9,178
Total =	**9,178**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	68	103	0.66061
ICI:	2	98	0.0204

SC17 - CROSS ST

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
44	119	3		School/Church	357	9.21
40	65.7	3	1	Single Family	197.1	3.50
38	63.5	3	1	Single Family	190.5	3.50
36	53	3	1	Single Family	159	3.50
34	252	2	2	Semi-detached	504	5.40
32	139	3	1	Single Family	417	3.50
30	95	2	1	Single Family	190	3.50
24	128	2	1	Single Family	256	3.50
28	86	3	1	Single Family	258	3.50
18	95.4	2	1	Single Family	190.8	3.50
14	46.6	3	1	Single Family	139.8	3.50
12	177	2	1	Single Family	354	3.50
8-10	329	2	2	Semi-detached	658	5.40
6	209	2	1	Single Family	418	3.50
3	93.8	3	1	Single Family	281.4	3.50
7	918	1	1	Single Family	918	3.50
11	122	2	1	Single Family	244	3.50
13	93.4	3	1	Single Family	280.2	3.50
17	132	3	1	Single Family	396	3.50
21	171	3	1	Single Family	513	3.50
23	69.2	3	1	Single Family	207.6	3.50
31	210	3	1	Single Family	630	3.50
37	213	3	1	Single Family	639	3.50
41	119	3	1	Single Family	357	3.50
43	132	2	1	Single Family	264	3.50
Total						**97.01**

Block Address	Area
CROSS STREET	16,484
Total =	**16,484**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	88	102	0.86624
ICI:	9	252	0.0357

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SC18 - KING GEORGE ROAD

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
24	70	3	1	Single Family	210	3.50
20	99.5	3	1	Single Family	298.5	3.50
18	176	2	1	Single Family	352	3.50
16	151	2	1	Single Family	302	3.50
14	180	2	1	Single Family	360	3.50
12	183	2	1	Single Family	366	3.50
10	98.5	3	1	Single Family	295.5	3.50
8	97.9	2	1	Single Family	195.8	3.50
6	66.4	3	1	Single Family	199.2	3.50
4	42.7	2.5	1	Single Family	106.75	3.50
1-3	153	3	2	Semi-detached	459	5.40
5-7	135	3	2	Semi-detached	405	5.40
9-11	140	3	2	Semi-detached	420	5.40
15-17	126	3	2	Semi-detached	378	5.40
19-21	171	3	2	Semi-detached	513	5.40
23-25	134	3	2	Semi-detached	402	5.40
27-29	155	3	2	Semi-detached	465	5.40
Total						**72.80**

Block Address	Area
KING GEORGE ROAD	8,703
Total =	**8,703**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	73	127	0.572775
ICI:	0	0	0.0000

SC19 - CHURCH STREET 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
30	113	3	1	Single Family	339	3.50
36	608	6		Apartment	3648	145.92
40	84.6	2	1	Single Family	169.2	3.50
42	113	1.5	1	Single Family	169.5	3.50
29	651	1.5	1	Single Family	976.5	3.50
33	99.2	1	1	Single Family	99.2	3.50
35	179	3	2	Semi-detached	537	5.40
37	99.9	2	1	Single Family	199.8	3.50
31	66.8	23	1	Single Family	1536.4	3.50
39	137	3	1	Single Family	411	3.50
41	126	2	1	Single Family	252	3.50
43	156	2	1	Single Family	312	3.50
45	151	2	1	Single Family	302	3.50
Total						**189.82**

Block Address	Area
CHURCH STREET 2	11,825
Total =	**11,825**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	190	212	0.89516
ICI:	0	0	0.0000

SC20 - FERN AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2	120	3	1	Single Family	360	3.50
4	101	2.5	1	Single Family	252.5	3.50
6	82.8	2.5	1	Single Family	207	3.50
8	99.8	3	1	Single Family	299.4	3.50
10	118	3	1	Single Family	354	3.50
12	128	3	1	Single Family	384	3.50
14	122	3	1	Single Family	366	3.50
16	176	3	1	Single Family	528	3.50
18	153	3	1	Single Family	459	3.50
1	76.9	2.5	1	Single Family	192.25	3.50
5	94.9	2	1	Single Family	189.8	3.50
7	107	3	1	Single Family	321	3.50
9	107	3	1	Single Family	321	3.50
11	105	3	1	Single Family	315	3.50
13	122	2.5	1	Single Family	305	3.50
15	119	3	1	Single Family	357	3.50
17	130	2.5	1	Single Family	325	3.50
19	112	3	1	Single Family	336	3.50
21	113	3	1	Single Family	339	3.50
Total						**66.50**

Block Address	Area
FERN AVENUE	15,647
Total =	**15,647**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	67	108	0.621095
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Proposed Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC21 = GEORGE AND FERN

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
69	155	3	2	Single Family	465	7.00
67	71.5	2	1	Single Family	143	3.50
65	105	1	1	Single Family	105	3.50
20	101	2	1	Single Family	202	3.50
22	109	3	1	Single Family	327	3.50
24	101	3	1	Single Family	303	3.50
26	84.9	3	1	Single Family	254.7	3.50
57	221	3	2	Duplex	663	4.60
49	177	3	1	Single Family	531	3.50
49-2	559	2	1	School/Church	1118	28.84
48	149	3	1	Single Family	447	3.50
42	147	3	1	Single Family	441	3.50
34	119	3	1	Single Family	357	3.50
Total						**75.44**

Block Address	Area
GEORGE AND FERN	11,542
Total =	**11,542**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	47	111	0.42387
ICI:	28	250	0.1118

SC22 - WESTON ROAD 6

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2100	586	21		Apartment	12306	492.24
2088	201	1		Commercial	201	2.21
2105	1288	2		Commercial	2576	28.34
2077	607	2		Institutional	1214	40.47
2065 (1-3)	2148	3	48	Townhouse (Unit)	6444	129.60
2062	1474	1		Commercial	1474	16.21
2050	1092	2		Commercial	2184	24.02
2040	292	1		Commercial	292	3.21
2032	460	1		Institutional	460	15.33
2032-2	460	1		Apartment	460	18.40
2035	1297	1.5		Commercial	1945.5	21.40
2047	253	1		Commercial	253	2.78
2047-2	253	1		Apartment	253	10.12
Total						**804.34**

Block Address	Area
WESTON ROAD 6	32,237
Total =	**32,237**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	650	334	1.9463
ICI:	154	145	1.0600

SC23 - GEORGE STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
30 KING	3150	2		School/Church	6300	162.54
36	290	3	1	Single Family	870	3.50
38	244	3	1	Single Family	732	3.50
23	2566	3		School/Church	5293	136.56
32	119	3	1	Single Family	357	3.50
28	125	3	1	Single Family	375	3.50
26	172	3	1	Single Family	516	3.50
26	97.8	3	1	Single Family	293.4	3.50
25	129	3	1	Single Family	387	3.50
Total						**323.60**

Block Address	Area
GEORGE STREET	28,234
Total =	**28,234**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	25	71	0.35304
ICI:	299	258	1.1593

SC24 - KING STREET CRES

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
11	134	2	1	Single Family	268	3.50
9	124	3	1	Single Family	372	3.50
7	148	3	1	Single Family	444	3.50
3	102	3	1	Single Family	306	3.50
20	121	3	1	Single Family	363	3.50
14	122	3	1	Single Family	366	3.50
12	67.4	3	1	Single Family	202.2	3.50
10	136	2.5	1	Single Family	340	3.50
8	131	2.5	1	Single Family	327.5	3.50
6	135	3	1	Single Family	405	3.50
4	245	1		Institutional	245	8.17
2	247	2	1	Single Family	494	3.50
Total						**46.67**

Block Address	Area
KING STREET CRES	9,267
Total =	**9,267**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	39	100	0.38877
ICI:	8	327	0.0245

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Proposed Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC25 - KING STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
1	1076	2		School/Church	2152	55.52
15	841	12		Apartment	10092	403.68
2	253	1		Commercial	253	2.78
18	244	1		Commercial	244	2.68
33-1	8605	3		Apartment	25815	1032.60
33-2	1319	27		Apartment	35613	1424.52
Total						**2921.79**

Block Address	Area
KING STREET	22,245
Total =	**22,245**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	2861	400	7.152
ICI:	61	230	0.2649

SC26 - WESTON 7

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
2016	214	2		Commercial	428	4.71
1995	1592	1		Commercial	1592	17.51
1979	810	1		Commercial	810	8.91
1956 Weston Road			507	Apartment - 1 B	0	709.80
1956 Weston Road			158	Apartment - 2 B	0	331.80
1956 Weston Road			74	Apartment - 3 B	0	229.40
1956 Weston Road				Commercial	3961	43.57
1940-1952	1243	1		Commercial	1243	13.67
1940-1952-2	1243	1		Apartment	1243	49.72
1965-1971	2600	1		Apartment	2600	104.00
1965-1971-2	2600	1		Commercial	2600	28.60
Total						**1541.69**

Block Address	Area
WESTON 7	24,448
Total =	**24,448**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1425	3708	0.3843
ICI:	117	110	1.0634

SC27 - JOHN STREET

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
22-1	1927	5		Apartment	9635	385.40
22-2	880	25		Apartment	22000	880.00
Total						**1265.40**

Block Address	Area
JOHN STREET	10,731
Total =	**10,731**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	1265	400	3.1635
ICI:	0	0	0.0000

SC28 - LITTLE AVENUE

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
7	103	2	1	Single Family	206	3.50
9	85.7	2	1	Single Family	171.4	3.50
11	96	2	1	Single Family	192	3.50
15	179	3	1	Single Family	537	3.50
19	145	3	1	Single Family	435	3.50
23	115	3	2	Semi-detached	345	5.40
25-27	155	3	2	Semi-detached	465	5.40
29-31	153	3	2	Semi-detached	459	5.40
33	75.6	3	2	Semi-detached	226.8	5.40
35	135	3	1	Single Family	405	3.50
Total						**42.60**

Block Address	Area
LITTLE AVENUE	8,158
Total =	**8,158**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	43	125	0.34422
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Proposed Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC29 - ROSEMOUNT 1

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
235	227	3	1	Single Family	681	3.50
233	128	2	1	Single Family	256	3.50
229	116	2	1	Single Family	232	3.50
227	110	2	1	Single Family	220	3.50
225	139	3	2	Semi-detached	417	5.40
223	199	3	1	Single Family	597	3.50
221	89.8	3	1	Single Family	269.4	3.50
219	110	3	1	Single Family	330	3.50
217	65.6	3	1	Single Family	196.8	3.50
215	78.2	2	1	Single Family	156.4	3.50
213	76	3	1	Single Family	228	3.50
211	79.6	3	1	Single Family	238.8	3.50
209	73.8	3	1	Single Family	221.4	3.50
207	96.9	3	1	Single Family	290.7	3.50
205	98.3	3	1	Single Family	294.9	3.50
203	97.7	3	1	Single Family	293.1	3.50
52	156	3	1	Single Family	468	3.50
224	2083	4	42	Townhouse (Unit)	8332	113.40
220-222	234	2	2	Semi-detached	468	5.40
216-218	208	2	2	Semi-detached	416	5.40
212-214	241	2	2	Semi-detached	482	5.40
208-210	227	2	2	Semi-detached	454	5.40
204-206	228	2	2	Semi-detached	456	5.40
200-202	261	2	2	Semi-detached	522	5.40
198	125	3	1	Single Family	375	3.50
196	139	3	1	Single Family	417	3.50
194	125	3	1	Single Family	375	3.50
192	125	3	1	Single Family	375	3.50
Total						**221.20**

Block Address	Area
ROSEMOUNT 1	29,341
Total =	**29,341**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	221	122	1.80625
ICI:	0	0	0.0000

SC31 - ROSEMOUNT 2

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
49	45.5	3	2	Semi-detached	136.5	5.40
51	87.6	1	1	Single Family	87.6	3.50
53	99.7	3	1	Single Family	299.1	3.50
55	75.4	3	1	Single Family	226.2	3.50
57	88.1	2	1	Single Family	176.2	3.50
184	89.6	3	1	Single Family	268.8	3.50
176	190	3	1	Single Family	570	3.50
174	92.9	2	1	Single Family	185.8	3.50
168	162	1.5	1	Single Family	243	3.50
164	127	2	1	Single Family	254	3.50
162	109	2	1	Single Family	218	3.50
158	98.8	3	1	Single Family	296.4	3.50
154	94.4	3	1	Single Family	283.2	3.50
152	480	5		Apartment	2400	96.00
150	92.1	3	1	Single Family	276.3	3.50
140	201	3	1	Single Family	603	3.50
136	148	3	1	Single Family	444	3.50
134	79.6	3	1	Single Family	238.8	3.50
130	119	2	1	Single Family	238	3.50
128	136	3	1	Single Family	408	3.50
54	112	2	1	Single Family	224	3.50
56	245	3	2	Semi-detached	735	5.40
177	89.2	2	2	Semi-detached	178.4	5.40
175	119	3	1	Single Family	357	3.50
173	117	3	1	Single Family	351	3.50
167	142	3	1	Single Family	426	3.50
165	128	3	1	Single Family	384	3.50
163	109	3	1	Single Family	327	3.50
159	130	3	1	Single Family	390	3.50
153	131	3	1	Single Family	393	3.50
149	110	3	1	Single Family	330	3.50
137	123	3	1	Single Family	369	3.50
135	179	3	1	Single Family	537	3.50
64	291		2	Single Family	0	7.00
68	76.5	3	1	Single Family	229.5	3.50
70	123	3	1	Single Family	369	3.50
72	144	3	1	Single Family	432	3.50
69	109	3	1	Single Family	327	3.50
67	96.4	3	1	Single Family	289.2	3.50
65	95.5	3	1	Single Family	286.5	3.50
125	185	3	1	Single Family	555	3.50
Total						**245.20**

Block Address	Area
ROSEMOUNT 2	37,565
Total =	**37,565**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	245	160	1.53425
ICI:	0	0	0.0000

BURNSIDE

CALCULATION SHEET

Project:
John St & South Station St
Sanitary Sewer Population Analysis - Proposed Condition

Prepared by:	AH
Checked by:	JS
Project No:	300054203
Date:	27-Sep-22

SC32 - ROSEMOUNT 3

Building Address	Building Footprint (sq.m)	Stories	Unit No.	Land Use	GFA (sq.m)	Population
124	117	3	1	Single Family	351	3.50
120-122	200	3	1	Single Family	600	3.50
118	122	3	1	Single Family	366	3.50
116	110	3	1	Single Family	330	3.50
110	183	3	1	Single Family	549	3.50
106	136	3	1	Single Family	408	3.50
104	141	2	1	Single Family	282	3.50
102	142	2	1	Single Family	284	3.50
100	135	3	1	Single Family	405	3.50
98	114	2	1	Single Family	228	3.50
96	122	2	1	Single Family	244	3.50
40	183	1	1	Single Family	183	3.50
117	166	3.5	1	Single Family	581	3.50
115	135	3	1	Single Family	405	3.50
113	74.8	3	1	Single Family	224.4	3.50
101	162	2	1	Single Family	324	3.50
97	117	3	1	Single Family	351	3.50
91	113	2	1	Single Family	226	3.50
Total						**63.00**

Block Address	Area
ROSEMOUNT 3	14,315
Total =	**14,315**

Sanitary Pop. Stats	Pop.	Density (P/ha)	Area (ha)
Residential:	63	99	0.63414
ICI:	0	0	0.0000

SUMMARY TABLE

BLOCK ADDRESS	BLOCK AREA (m2)	RES POP	RES DENSITY	RES GFA (ha)	ICI POP	ICI DENSITY	ICI GFA (ha)
HUMBERVIEW CRESCENT	10923	21	109	0.19	0	0	0.00
WESTON ROAD 1	5,863	17	195	0.09	9	113	0.08
PARKE STREET	4,566	11	243	0.05	7	100	0.07
HOLLEY AVENUE 1	4,408	35	132	0.27	0	0	0.00
HOLLEY AVENUE 2	6,343	53	133	0.40	0	0	0.00
HOLLEY AVENUE 3	7,259	32	116	0.28	3	246	0.01
WESTON ROAD 2	8,562	28	96	0.29	0	0	0.00
RECTORY ROAD 1	5,039	30	120	0.25	0	0	0.00
RECTORY ROAD 2	5,755	47	144	0.33	0	0	0.00
WINDAL AVENUE	6,652	32	113	0.28	0	0	0.00
WESTON ROAD 3	15,783	1147	310	3.70	0	0	0.00
COULTER AVENUE 1	7,465	59	225	0.26	0	0	0.00
COULTER AVENUE 2	8,368	53	111	0.48	0	0	0.00
WESTON ROAD 4	31,525	2007	322	6.24	0	0	0.00
WESTON ROAD 5	25,878	1023	401	2.55	58	174	0.33
CHURCH STREET 1	9,178	68	103	0.66	2	98	0.02
CROSS STREET	16,484	88	102	0.87	9	252	0.04
KING GEORGE ROAD	8,703	73	127	0.57	0	0	0.00
CHURCH STREET 2	11,825	190	212	0.90	0	0	0.00
FERN AVENUE	15,647	67	108	0.62	0	0	0.00
GEORGE AND FERN	11,542	47	111	0.42	28	250	0.11
WESTON ROAD 6	32,237	650	334	1.95	154	145	1.06
GEORGE STREET	28,234	25	71	0.35	299	258	1.16
KING STREET CRES	9,267	39	100	0.39	8	327	0.02
KING STREET	22,245	2861	400	7.15	61	230	0.26
WESTON 7	24,448	1425	3708	0.38	117	110	1.06
JOHN STREET	10,731	1265	400	3.16	0	0	0.00
LITTLE AVENUE	8,158	43	125	0.34	0	0	0.00
ROSEMOUNT 1	29,341	221	122	1.81	0	0	0.00
ROSEMOUNT 2	37,565	245	160	1.53	0	0	0.00
ROSEMOUNT 3	14,315	63	99	0.63	0	0	0.00
TOTALS	**444309**	**11965**	**320.02**	**37.39**	**755**	**178.28**	**4.23**

OUTPUT DATA:

SANITARY SEWER DESIGN SHEET - DRY WEATHER

PROPOSED CONDITION

John St & South Station St, Toronto

Project #: 300054203.0000
Date: 27-Sep-22
Designed: AH
Checked: JS

Min Diameter = 200 mm
Mannings 'n'= 0.013
Min. Velocity = 0.60 m/s
Max. Velocity = 3.00 m/s

Avg. Dom. Flow Res. = 240.0 l/c/d
Avg. Dom. Flow ICI. = Max 250.0 l/c/d And 180000 L/Floor ha/d
Infiltration = 0.260 l/s/ha

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						INFILTRATION				FLOW CALCULATIONS							PIPE DATA			
			AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	BLOCK AREA (ha)	ACCUM. BLOCK AREA (ha)	INFILTRATION (l/s)	ACCUM. INFILTRATION (l/s)	TOTAL ACCUM. POP.	RESIDENTIAL PEAKING FACTOR	POP. FLOW (l/s)	CONSTANT FLOW (l/s)	ACCUM. CONSTANT FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)
Site	StubA	MH1A	4.74	4.74	0	179	0	847	847	0.29	0.29	110	0.000	32	32	0.4	0.4	0.1	0.1	879	3.85	9.65	0.0	0.0	9.8	2.00	200	46.4	1.48	1.17	21%
Area 1	MH1A	MH2A	0.09	4.83		132		12	859	0.10	0.40	307		32	64	0.5	0.9	0.1	0.2	923	3.84	9.99			10.2	0.42	250	38.5	0.79	0.66	27%
Area 2	MH2A	MH3A	0.14	4.96		144		20	879	0.02	0.42	93		2	66	0.4	1.3	0.1	0.3	945	3.84	10.23			10.6	0.20	250	26.6	0.54	0.51	40%
Area 3	MH3A	MH4A	0.02	4.99		185		4	883		0.42				66	0.3	1.5	0.1	0.4	949	3.83	10.27			10.7	0.27	250	30.9	0.63	0.57	35%
Area 4	MH4A	MH5A	1.04	6.02		400		415	1298	0.00	0.42				66	0.6	2.1	0.1	0.5	1364	3.72	14.30			14.8	1.01	250	59.8	1.22	1.01	25%
Area 5	MH5A	MH8A	1.81	7.83		400		723	2021	0.22	0.63	111		24	90	0.7	2.7	0.2	0.7	2111	3.58	21.43			22.1	0.26	300	49.3	0.70	0.68	45%
Area 6	MH6A	MH7A	0.91	0.91		400		365	365	0.75	0.75	111		83	83	0.6	0.6	0.1	0.1	448	4.04	5.66			5.8	0.46	250	40.3	0.82	0.58	14%
Area 7	MH7A	MH8A		0.91					365	0.11	0.86	112		12	95	0.3	0.9	0.1	0.2	460	4.04	5.88			6.1	0.41	250	38.0	0.77	0.57	16%
Area 8	MH8A	MH9A		8.74					2386	0.16	1.65	110		18	203	0.6	4.3	0.2	1.1	2589	3.52	26.81			27.9	0.42	300	62.7	0.89	0.86	45%
Area 9	MH9A	MH10A	4.26	13.00		397		1691	4077	0.08	1.74	143		12	215	0.6	4.9	0.2	1.3	4292	3.33	41.29			42.6	2.20	300	143.4	2.03	1.77	30%
Area 10	MH10A	MH11A	0.39	13.39		157		61	4138	0.15	1.89	111		17	232	0.8	5.7	0.2	1.5	4370	3.32	42.10			43.6	2.20	300	143.4	2.03	1.78	30%
	MH11A	MH12A	37.39	50.78		320		11965	16103	4.23	6.12	178		755	987	44.4	50.2	11.6	13.0	17090	2.75	135.64			148.7	0.38	450	175.8	1.11	1.24	85%
	MH12A	MH13A		50.78					16103		6.12				987		50.2		13.0	17090	2.75	135.64			148.7	38.70	450	1773.6	11.15	6.77	8%
	MH13A	TRUNK		50.78					16103		6.12				987		50.2		13.0	17090	2.75	135.64			148.7	3.35	450	521.8	3.28	2.83	28%

OUTPUT DATA:

SANITARY SEWER DESIGN SHEET - EXTREME WET WEATHER

PROPOSED CONDITION
John St & South Station St, Toronto

Project #: 300054203.0000
Date: 27-Sep-22
Designed: AH
Checked: JS

Min Diameter = 200 mm
Mannings 'n'= 0.013
Min. Velocity = 0.60 m/s
Max. Velocity = 3.00 m/s

Infiltration (PR. Site) = 0.260 l/s/ha

Avg. Dom. Flow Res. = 240.0 l/c/d
Avg. Dom. Flow ICI. = Max 250.0 l/c/d And 180000 L/Floor ha/d
Infiltration = 3.000 l/s/ha

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	RESIDENTIAL							COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						INFILTRATION				FLOW CALCULATIONS							PIPE DATA				HGL DATA						
			AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (p/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	BLOCK AREA (ha)	ACCUM. BLOCK AREA (ha)	INFILTRATION (l/s)	ACCUM. INFILTRATION (l/s)	TOTAL ACCUM. POP.	RESIDENTIAL PEAKING FACTOR	POP. FLOW (l/s)	CONSTANT FLOW (l/s)	ACCUM. CONSTANT FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)	HGL U/S (m)	HGL D/S (m)	Surface Elevation U/S (m)	Surface Elevation D/S (m)	Depth to HGL U/S (m)	Depth to HGL D/S (m)	Surcharge U/S
Site - Parcel A	StubA	MH1A	4.74	4.74	0	179	0	847	847	0.29	0.29	110	0.000	32	32	0.4	0.4	0.1	0.1	879	3.85	9.65	0.0	0.0	9.8	2.00	200	46.4	1.48	1.17	21%	125.25	125.05	128.00	127.70	2.75	2.65	0.00
Area 1	MH1A	MH2A	0.09	4.83		132		12	859	0.10	0.40	307		32	64	0.5	0.9	1.5	1.6	923	3.84	9.99			11.6	0.42	250	38.5	0.79	0.69	30%	125.01	124.80	127.70	126.88	2.69	2.08	0.00
Area 2	MH2A	MH3A	0.14	4.96		144		20	879	0.02	0.42	93		2	66	0.4	1.3	1.1	2.7	945	3.84	10.23			12.9	0.20	250	26.6	0.54	0.54	49%	124.80	124.70	126.88	126.77	2.08	2.07	0.00
Area 3	MH3A	MH4A	0.02	4.99		185		4	883		0.42				66	0.3	1.5	0.8	3.5	949	3.83	10.27			13.8	0.27	250	30.9	0.63	0.61	45%	124.70	124.56	126.77	126.72	2.07	2.16	0.00
Area 4	MH4A	MH5A	1.04	6.02		400		415	1298	0.00	0.42				66	0.6	2.1	1.7	5.1	1364	3.72	14.30			19.4	1.01	250	59.8	1.22	1.09	33%	124.56	124.03	126.72	126.44	2.16	2.41	0.00
Area 5	MH5A	MH8A	1.81	7.83		400		723	2021	0.22	0.63	111		24	90	0.7	2.7	2.0	7.1	2111	3.58	21.43			28.5	0.26	300	49.3	0.70	0.72	58%	124.03	123.80	126.44	127.11	2.41	3.31	0.00
Area 6	MH6A	MH7A	0.91	0.91		400		365	365	0.75	0.75	111		83	83	0.6	0.6	1.7	1.7	448	4.04	5.66			7.4	0.46	250	40.3	0.82	0.62	18%	124.34	124.05	126.81	126.95	2.47	2.90	0.00
Area 7	MH7A	MH8A		0.91					365	0.11	0.86	112		12	95	0.3	0.9	1.0	2.7	460	4.04	5.88			8.5	0.41	250	38.0	0.77	0.62	22%	124.05	123.83	126.95	127.11	2.90	3.28	0.00
Area 8	MH8A	MH9A		8.74					2386	0.16	1.65	110		18	203	0.6	4.3	1.9	11.7	2589	3.52	26.81			38.5	0.42	300	62.7	0.89	0.93	61%	123.80	123.44	127.11	125.80	3.31	2.36	0.00
Area 9	MH9A	MH10A	4.26	13.00		397		1691	4077	0.08	1.74	143		12	215	0.6	4.9	1.9	13.6	4292	3.33	41.29			54.9	2.20	300	143.4	2.03	1.89	38%	121.85	119.67	125.80	121.57	3.95	1.90	0.00
Area 10	MH10A	MH11A	0.39	13.39		157		61	4138	0.15	1.89	111		17	232	0.8	5.7	2.4	16.1	4370	3.32	42.10			58.2	2.20	300	143.4	2.03	1.92	41%	119.66	117.42	121.57	118.84	1.91	1.42	0.00
	MH11A	MH12A	37.39	50.78		320		11965	16103	4.23	6.12	178		755	987	44.4	50.2	133.3	149.3	17090	2.75	135.64	143.4	143.4	428.4	0.38	450	175.8	1.11		>100%	117.42	117.13	118.84	118.84	1.42	1.71	0.24
	MH12A	MH13A		50.78					16103		6.12				987		50.2		149.3	17090	2.75	135.64		143.4	428.4	38.70	450	1773.6	11.15	9.18	24%	117.13	115.97	118.84	118.79	1.71	2.82	0.00
	MH13A	TRUNK		50.78					16103		6.12				987		50.2		149.3	17090	2.75	135.64		143.4	428.4	3.35	450	521.8	3.28	3.66	82%	115.14	113.00	118.79	115.78	3.65	2.78	0.00

R.J. Burnside & Associates Limited