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FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

1771 JANE STREET
CITY OF TORONTO
M9N 2S5

PREPARED FOR:
MEDALLION REALTY HOLDINGS
44 APEX ROAD
TORONTO, ON M6A 2V2

DATE: DECEMBER 2025

PROJECT: 251581



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1.0 INTRODUCTION

The purpose of this report is to provide detailed design information related to the stormwater management (SWM) plan and site servicing for 1771 Jane Street in the City of Toronto. This report will demonstrate the SWM measures that will be undertaken to deal with water quality and quantity, water balance as well as the proposed sanitary and water servicing designs.

1.1 Site Description

The site is located east of Jane Street, north of Marshlynn Avenue in the City of Toronto. There is residential development to the north, west, south and east in the general vicinity of the site.

There is an existing mixed-use development on the site, with the existing 14-storey residential building to remain. The residential building to the north of the site and the commercial building to the south will be demolished as part of the proposed development, with new residential buildings to replace them. The total site area is 8,063m^2.

The proposed development includes two 12-storey mixed-use buildings with retail on the ground floor and residential development above, with one level of underground parking for the northern building and two levels of underground parking for the southern building.

The site location is shown on **Figure 1**.

1.2 Background

The proposed servicing and stormwater management design for the site has been designed to meet the requirements of the City of Toronto. The following materials were referenced in the preparation of this report.

- The City of Toronto's Wet Weather Flow Management Guidelines (WWFM Guidelines).
- The City of Toronto's Design Criteria for Sewers and Watermains, dated January 2021.
- The City of Toronto's Sewer Capacity Assessment Guidelines, 1st Edition, dated July 2021.
- The Stormwater Management Planning and Design Manual (MECP Guidelines), prepared by the Ministry of the Environment, March 2003.
- As-constructed plan and profile drawings for the area as provided by the City of Toronto.
- The Class Environmental Assessment (EA) completed by IBI Group for Sewershed Area 45 of the City's Chronic Basement Flooding, dated July 16, 2021. The completed EA reports, dynamic sewer model and model calibration technical memorandum were provided by the City to assist in completing the analysis for this site.
- The Hydrogeological Investigation (HI), prepared by DS Consultants Ltd., dated October 2025.

Infrastructure Intelligence Services Inc. completed fieldwork to confirm the details of the existing infrastructure on-site. The locate survey and dye test results can be referenced in **Appendix A**.



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FIGURE 1
1771 JANE STREET
SITE LOCATION

DATE: DECEMBER 2025 SCALE: 1:1500 PROJECT: 251581

2.0 STORM DRAINAGE

2.1 Existing Drainage

There is an existing 450mm diameter storm sewer under Jane Street that conveys flows to the north. There is a 300mm diameter storm sewer along Marshlynn Avenue, which conveys flows to the east.

The existing topography on the site is relatively flat, with drainage generally directed towards the northeast corner of the site, where it outlets through an easement to Black Creek to the east. The majority of the site drains this way, with the western portion directed to Jane Street, and the southern portion directed towards Marshlynn Avenue. This was confirmed by a dye test completed in October 14, 2025 by Infrastructure Intelligence Services Inc., which can be referenced in **Appendix A.** Refer to **Figure 2** for the existing site drainage.

2.2 Site Grading

All grading will be completed in a manner to satisfy the following goals:

- Enable gravity servicing connections (where possible) to the existing sewers located on Jane Street and Marshlynn Avenue.
- Meet the stormwater management objectives for the site.

The site will be graded to capture surface flows, which will be directed to catchbasins and area drains, and then to the proposed underground storage system for stormwater management, where possible. The site will be graded to suit the City's design criteria and accommodate any constraints that may be imposed by the storm drainage and servicing objectives. Details can be referenced on **Drawing SW1.**

2.3 Minor System Drainage

The internal storm sewer system will be designed to collect drainage from the site for a 100-year design storm. All of the storm drainage structures will drain to the underground storage system within the storm network.

The controlled stormwater flows will discharge to the existing storm sewer located on Jane Street for the northern portion of the site, and to Marshlynn Avenue for the southern portion.

An orifice control in conjunction with the cistern will be used to limit the release rates from the site, as per the WWFM Guidelines. Refer to **Section 3.0** for details on the on-site controls.

2.4 Major System Drainage

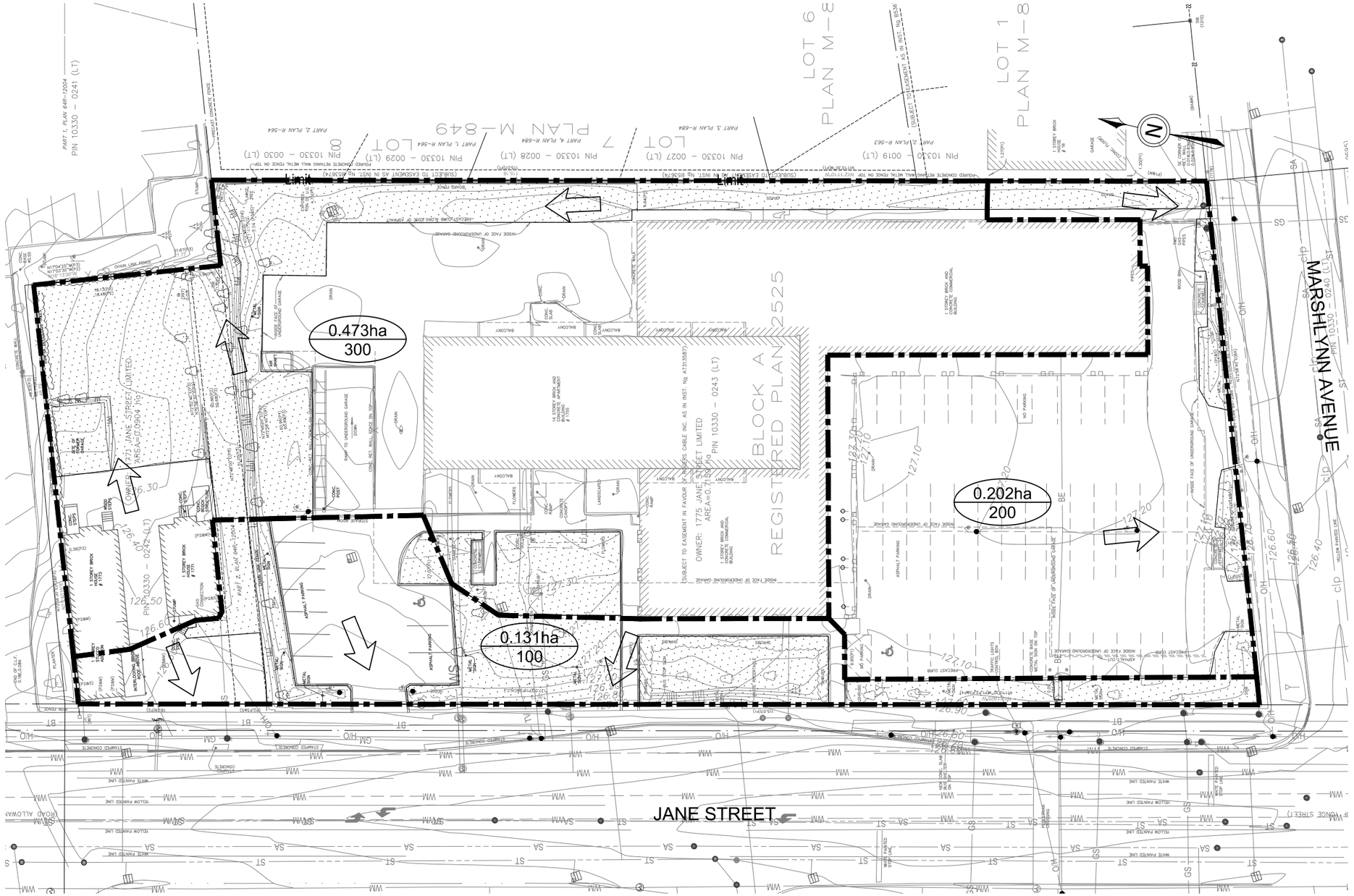
For storm events exceeding the capacity of the minor system, drainage will pond above the catchbasins and be conveyed to the minor system. The maximum depth of ponding above the area drains will be 0.3m. For extreme events, drainage will be conveyed overland onto Jane Street and Marshlynn Avenue.

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 development without causing damage to the proposed and adjacent public and private properties.

CATCHMENT 100			
	AREA (ha)	C	C x A
PERVIOUS	0.070	0.25	0.017
IMPERVIOUS	0.058	0.90	0.053
BUILDING	0.003	0.90	0.002
TOTAL	0.131	0.55	0.072

CATCHMENT 200			
	AREA (ha)	C	C x A
PERVIOUS	0.016	0.25	0.004
IMPERVIOUS	0.186	0.90	0.167
BUILDING	0.000	0.90	0.000
TOTAL	0.202	0.85	0.171

CATCHMENT 300			
	AREA (ha)	C	C x A
PERVIOUS	0.131	0.25	0.033
IMPERVIOUS	0.130	0.90	0.117
BUILDING	0.212	0.90	0.191
TOTAL	0.473	0.72	0.341



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- DRAINAGE BOUNDARY
- OVERLAND FLOW DIRECTION
- PERVIOUS AREA
- 0.28ha / 101 — CATCHMENT AREA (ha) / CATCHMENT ID

FIGURE 2
1771 JANE STREET
EXISTING DRAINAGE

DATE: DECEMBER 2025 SCALE: 1:500 PROJECT: 251581

Existing drainage patterns on adjacent properties shall not be altered, and drainage from the site will maintain the existing drainage patterns.

3.0 STORMWATER MANAGEMENT

3.1 Stormwater Management Criteria

The WWFM Guidelines require a hierarchy approach to wet weather flow management using source controls, conveyance controls and finally end-of-pipe controls to meet the following objectives:

- Water balance – maintenance of annual runoff volume may be required.
- Water quality – water quality control. Enhanced control is required based on MOE guidelines, where applicable.
- Water quantity - peak flow controls for flood management and erosion protection.

The SWM criteria are referenced in Table 7 of the WWFM Guidelines, based on Section 4 – Non-Residential and Mixed Uses (Site area greater than 0.3 but smaller than 5ha).

The requirements are as follows:

Water Balance – 5mm of on-site retention over the affected site area is required. The City of Toronto permits a maximum drawdown time of 72 hours for infiltration measures. The on-site retention requirements for this site will be achieved through use of a cistern for on-site water reuse and site landscaping.

Water Quality – The water quality criteria for this site is 80 percent average annual TSS removal from runoff originating on-site. An Up-Flo filter unit will be implemented to achieve the water quality requirements for each of the drainage outlets on-site.

Water Quantity – The site will outlet to the municipal storm sewer system; therefore, the flood flow requirement is to control the 100-year post development flow to the 2-year pre-development level, as per the WWFM Guidelines.

For small infill/redevelopment sites less than 2 hectares, erosion control in the form of stormwater detention is not required, provided the on-site minimum runoff retention from a 5mm rainfall event is achieved under the Water Balance criteria.

The existing site runoff coefficient is 0.55 to Jane Street and 0.85 to Marshlynn Avenue; therefore, a runoff coefficient of 0.50 is used to determine the allowable peak flow, based on Section 2.2.3.8 of the WWFM Guidelines. The target flow for the outlet to Jane Street is 16.0L/s, while the target flow for the outlet to Marshlynn Avenue is 24.8L/s. Refer to **Figure 2** for details of the existing site conditions, and **Appendix B** for the SWM calculations.

3.2 Stormwater Management Plan

As noted, the proposed stormwater management plan for the site is based on meeting the requirements of the WWFM Guidelines for the proposed development. The proposed building and surface area on site are included, with controls proposed to meet the required targets.

3.2.1 Water Balance

The WWFM Guidelines require retention of water on site, to the extent possible, to match pre-development runoff volumes. As per the WWFM Guidelines, this requirement is typically achieved by retaining the runoff from a 5mm, 24-hour storm on-site, which is equivalent to approximately 50% of the total average annual rainfall volume (WWFM Guidelines, 2006).

To determine the initial abstraction from site runoff, the following assumptions were made:

- For flat rooftop areas, the initial abstraction is generally 1mm. The depression storage is based on the roughness of the surface area and will increase as the rooftop and terrace surfaces degrade with time. This volume of water will generally evaporate.
- The landscaped areas on the site will be well vegetated, with an initial abstraction of 5mm assumed based on the proposed topsoil depths. The rainfall will initially infiltrate into the growing medium/substrate and eventually evapo-transpire (ET).
- Green roof area is credited with an initial abstraction of 5mm to 7mm for extensive and intensive green roofs, respectively. An initial abstraction of 5mm was used, based on the proposed design and discussions with the landscape architect.

Based on the total site area of 8,063m^2, the retention volume required by the WWFM Guidelines is 40.3m^3.

Table 1 provides a summary of the initial abstraction estimates and resulting retention volumes for the post development site. Refer to **Figure 3** for the proposed areas on site, and **Appendix B** for calculations.

Table 1. On-Site Retention – Water Balance

Catchment	Area (m^2)	% of Total Area	IA (mm)	IA Over Site (mm)	Retention (m^3)
Rooftop	3,894	48.3	1	0.48	3.89
Impervious Area	2,758	34.2	1	0.34	2.76
Landscape	1,411	17.5	5	0.87	7.06
Infiltration Chamber				3.35	29.8
TOTAL:	**8,063**	**100%**		**5.40**	**43.51**

The initial abstraction for the proposed site will capture 13.71m^3 of rainfall on an annual basis. This reduces the total requirement of 40.32m^3 down to 26.61m^3. A total retention volume of 29.8m^3 will be provided in an infiltration chamber to provide the remaining requirement to meet the City's guidelines. Infiltration rates and drawdown times are discussed in **Section 3.2.4**.

3.2.2 Quality Control

Based on the City's and TRCA requirements, the water quality criteria for this site is 80 percent average annual TSS removal from runoff originating onsite.

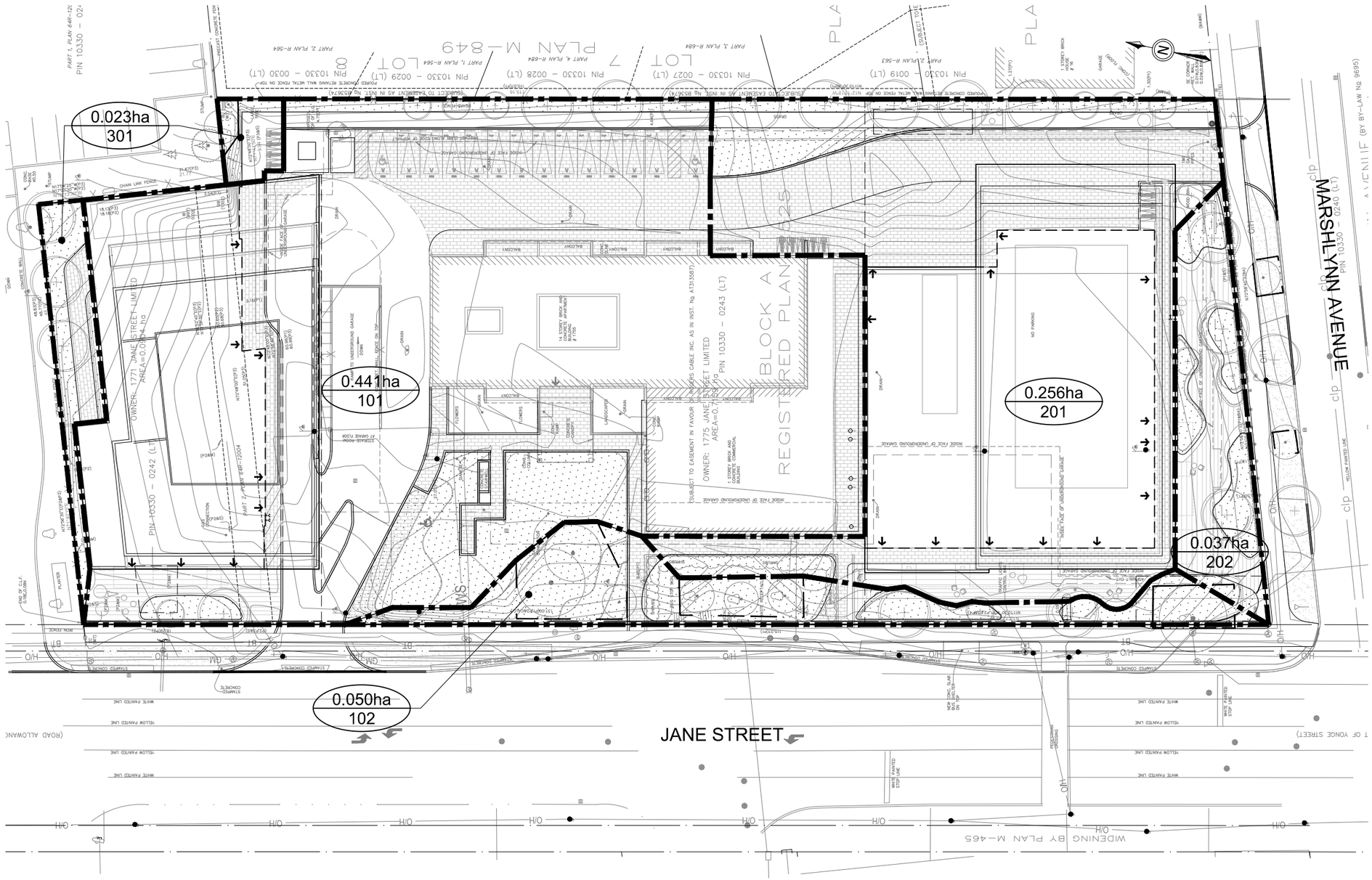
CATCHMENT 101			
	AREA (ha)	C	C x A
PERVIOUS	0.043	0.25	0.011
IMPERVIOUS	0.162	0.90	0.146
BUILDING	0.237	0.90	0.213
TOTAL	0.441	0.84	0.369

CATCHMENT 102			
	AREA (ha)	C	C x A
PERVIOUS	0.047	0.25	0.017
IMPERVIOUS	0.003	0.90	0.003
TOTAL	0.050	0.29	0.015

CATCHMENT 201			
	AREA (ha)	C	C x A
PERVIOUS	0.017	0.25	0.004
IMPERVIOUS	0.086	0.90	0.078
BUILDING	0.153	0.90	0.137
TOTAL	0.256	0.86	0.219

CATCHMENT 202			
	AREA (ha)	C	C x A
PERVIOUS	0.012	0.25	0.003
IMPERVIOUS	0.024	0.90	0.022
TOTAL	0.037	0.68	0.025

CATCHMENT 301			
	AREA (ha)	C	C x A
PERVIOUS	0.023	0.25	0.006
IMPERVIOUS	0.000	0.90	0.000
TOTAL	0.023	0.25	0.006



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LEGEND

DRAINAGE BOUNDARY

PERVIOUS AREA

0.28ha / 101 — CATCHMENT AREA (ha) / CATCHMENT ID

FIGURE 3
1771 JANE STREET
PROPOSED SWM PLAN

DATE: DECEMBER 2025 SCALE: 1:500 PROJECT: 251581

Site

The majority of the site is rooftop and landscape area, which produces generally clean runoff. The quality control requirements for the site can be addressed through a combination of the rooftop and other on-site landscape measures. Overall TSS removal capabilities are based on the following assumptions:

- Rooftop runoff is generally clean; runoff from the rooftop will be routed to the underground storage/infiltration facility. Based on acceptable values provided by Toronto Water, rooftop runoff is credited with 80 percent TSS removal.
- Landscaped and green roof areas provide significant infiltration and generally have a lower TSS loading compared to roadways. Based on acceptable values provided by Toronto Water, landscape runoff is credited with 80 percent TSS removal.
- The remaining site area is the driveway and loading area, which is credited with 0 percent TSS removal as per Toronto Water standards. Therefore, a UFF-5 Up-Flo Filter is proposed for the northern portion and a UFF-3 Up-Flo Filter is proposed for the southern portion of the site to treat the flow from the site surface on the ground level before entering the proposed cisterns, to provide 80 percent TSS removal.

The proposed Up-Flo units in conjunction with landscaping will be used to achieve the water quality targets onsite for each drainage catchment. An Up-Flo Filter stormwater treatment system is a filtration-based MTD certified by the Environmental Technology Verification (ETV) to provide 80% TSS Removal as a standalone treatment device, and is recognized by the City of Toronto as an acceptable stormwater treatment device.

The overall TSS removal for the site is summarized below in **Table 2**.

Table 2. Quality Control Summary

Catchment	Area (ha)	TSS Removal Credit*	Up-Flo Filter TSS Removal	Overall TSS Removal
Roof (101A)	0.24	80%	80%	80%
Surface Area (101B)	0.20	0%	80%	80%
Uncontrolled Landscape (102)	0.05	80%	0%	80%
Total to Jane St	0.49			80%
Roof (201A)	0.15	80%	80%	80%
Surface Area (201B)	0.10	0%	80%	80%
Uncontrolled Landscape (202)	0.04	80%	0%	80%
Total to Marshlynn Ave	0.29			80%
Total to East (301)	0.02	80%	0%	80%

* - Rooftop and green roof areas are considered clean flows and are credited with 80% TSS removal.

Therefore, with the Up-Flo Filters treating the runoff, all quality control requirements are satisfied. Refer to **Appendix C** for details and the certification letter for the Up-Flo Filter units, the ETV certifications, and the maintenance manual.

Additional quality controls for the Site will be provided by installing goss traps on catchbasins and directing impervious runoff to landscaped areas, where possible.

3.2.3 Quantity Control

The site has been designed to limit the peak release rate to the required rates based on a 2-year design storm, as per the WWFM Guidelines. As noted, the runoff coefficient in the existing scenario for each catchment is greater than 0.50; therefore, a runoff coefficient of 0.50 was used, as per the WWFM Guidelines. For the Rational Method calculations for the flow rate based on the runoff coefficient, the City's minimum time of concentration of 10 minutes, and the City of Toronto IDF curves were used.

The target flow for the outlet to Jane Street is 16.0L/s, while the target flow for the outlet to Marshlynn Avenue is 24.8L/s. Calculations are shown in **Appendix B**.

The following options were considered for quantity control on site:

Storage cistern – A restrictor pipe could be provided at the site outlet, with surplus storage provided in storage tanks.

Rooftop Storage – Controlled flow roof drains could be installed on the rooftop, and water could be stored on the rooftops to attenuate peak flows. With typical flat rooftop design, flows can generally be limited to approximately 42L/s/ha. However, this is not proposed for this development.

In order to meet the allowable release rates for the site, it is proposed that a cistern will be used as part of the proposed design for the catchments to Jane Street and Marshlynn Avenue.

Quantity Control Summary – Jane Street

Drainage and grading will be generally consistent with the existing site. The proposed site modifications will not significantly change the hydrological characteristics of the site.

As mentioned previously, flows from the proposed building and adjacent surface area within the site area will be routed through the mechanical system of the proposed building to a cistern, to provide storage for the controlled flows discharging to the Jane Street storm sewer system.

The total release rate for the site will be as shown in **Table 3**.

Table 3. Site Summary – Quantity Control for Jane Street

Description	Total Area (m^2)	Target Flow (L/s)	Release Rate (L/s)	Storage (m^3)
Catchment 101(Controlled)	4,413		5.9	212
Catchment 102 (Uncontrolled)	501		10.1	
TOTAL:	**4,914**	**16.0**	**16.0**	**212**

It is proposed that the collected water be pumped from the bottom of the cistern to the outlet reservoir of the cistern at a rate of 5.9L/s. The outlet reservoir of the cistern will outlet to the Control MH. A 100mm orifice tube will be provided at the control MH to provide a redundant control to protect against any unforeseen issues with the internal drainage system. An emergency overflow has been provided for the site, as required. Refer to **Appendix B** for details and **Drawing SW2** for details of the connection to the existing system.

Quantity Control Summary – Marshlynn Avenue

Drainage and grading will be generally consistent with the existing site. The proposed site modifications will not significantly change the hydrological characteristics of the site.

As mentioned previously, flows from the proposed building and adjacent surface area within the site area will be routed through the mechanical system of the proposed building to a cistern, to provide storage for the controlled flows discharging to the Marshlynn Avenue storm sewer system.

The total release rate for the site will be as shown in **Table 4**.

Table 4. Site Summary – Quantity Control for Marshlynn Avenue

Description	Total Area (m^2)	Target Flow (L/s)	Release Rate (L/s)	Storage (m^3)
Catchments 201/202 (Controlled Site)	2,555		7.4	106
Catchment 203 (Uncontrolled)	368		17.4	-
TOTAL:	**2,923**	**24.8**	**24.8**	**106**

It is proposed that the collected water be pumped from the bottom of the cistern to the outlet reservoir of the cistern at a rate of 7.4L/s. The outlet reservoir of the cistern will outlet to the Control MH. A 100mm orifice tube will be provided at the control MH to provide a redundant control to protect against any unforeseen issues with the internal drainage system. An emergency overflow has been provided for the site, as required. Refer to **Appendix B** for detailed calculations and **Drawing SW2** for details of the connection to the existing system.

Uncontrolled Area – To the East

As shown on **Figure 3**, there is a portion of the proposed development (Catchment 301) that drains uncontrolled to the east based on grading constraints associated the tree protection areas. The estimated flow is 3.9L/s from the catchments in the 100-year event, which is significantly less than the 2-year flow draining to the east in the existing condition (58.0L/s). Refer to **Appendix B** for the calculations

As shown, the total release rate for the site in the post development scenario during the 100 year event will meet the required release rates as per the WWFM Guidelines. There are sufficient controls to meet all the required targets for water balance, as well as for water quality and quantity for the site. Calculations for storage volume requirements and peak flows are provided in **Appendix B**.

3.2.4 Infiltration Rate

A Single Well Response Test (SWRT) has been completed to determine the hydraulic conductivity of the underlying soils as part of the Hydrogeological Investigation (HI) prepared by DS Consultants Ltd.

As outlined in the letter, the hydraulic conductivity was determined to be 3.8×10^{-6} cm/s, based on the SWRT at MW15-2. As per Appendix C of the Low Impact Development SWM Planning and Design Guide, a factor of safety was applied to the measured infiltration rate to determine a design infiltration rate. Therefore, the design Infiltration rate for the proposed infiltration chamber is 29.7mm/hr.

The retention volume and drawdown time is summarized below in **Table 5**.

Table 5. Drawdown Times

Required Retention Volume (m^3)	Retention Depth (mm)	Retention Volume Provided (m^3)	Retention Drawdown Time (hours)
26.6	1010	29.8	34

As shown above in **Table 5**, the required volume for water balance and quality control will drawdown within 48 hours. Therefore, all drawdown requirements are satisfied.

As outlined in the HI, the peak static groundwater elevation on the site is 123.85. Based on the groundwater elevation, the bottom of the chambers is proposed to be a minimum of one metre above the groundwater depth at 125.00. This depth to the water table supports the proposed design of the infiltration chambers. The proposed infiltration chambers will be a minimum of 5m from the existing and proposed building foundation as per OBC Requirements.

The Hydrogeological Investigation can be referenced in **Appendix C**.

4.0 FOUNDATION DRAINAGE

A Hydrogeological Investigation (HI) has been completed by DS Consultants Ltd. to properly identify groundwater levels in relation to the elevation of the lowest level of the proposed building, including seasonal fluctuations, and the rate, quality and quantity of any groundwater proposed to be pumped and discharged.

The results of the HI confirmed that the groundwater level within the affected area of the site was 123.85m, or approximately 3.45m below the ground surface. Based on the estimated elevation of the P2 floor slab at 119m, a conventional sub-floor Permanent Drainage System (PDS) with perimeter/underfloor weeping tile is proposed.

The groundwater sample collected from BH15-3 in June 16, 2025 was analyzed, and it was determined that the sample complies with the Limits for Sanitary & Combined Sewer Discharge; however, for Limits for Storm Sewer Discharge, there were exceedances of Total Suspended Solids and Manganese.

The short-term construction dewatering rate of 4,000L/day for Phase 1 and 8,000L/day for Phase 2 was used in the calculations, as outlined in the HA. The total maximum volume (groundwater + storm water) is estimated to be 55,000L/day (0.64L/s) for Phase 1 and 32,000L/day (0.37L/s) for Phase 2. The maximum short-term pump peak flow rate will be designed to convey this flow at a minimum, to be confirmed in the detailed design in coordination with the mechanical engineer. The flow rate of 0.64L/s is less than the proposed sanitary flow as outlined in **Section 5.2**, so will not have an adverse impact on the downstream sanitary sewer system.

The estimated steady-state discharge of the PDS in the wet seasons of the year was calculated to be approximately 1000L/day for Phase 1 and 4000L/day for Phase 2. The groundwater sump pumps will be sized at the detailed design stage to discharge to the proposed infiltration facility to the west of the existing building. This is discussed further in **Section 4.1**.

4.1 Groundwater Infiltration Facility Design

The HI stated that the total seasonal groundwater captured by the perimeter drain for Phase 1 and Phase 2 would be 5000L/day ($5m^3$/day) for the proposed development. Therefore, a groundwater infiltration system is proposed to infiltrate this volume of water, and no discharge to the municipal system is proposed. A 24-hour drawdown time is used for the system design.

An underground infiltration system is proposed to provide an infiltration volume of $6.5m^3$ at a depth of 660mm. Based on the design infiltration rate of 29.6mm/hr, determined in **Section 3.2.4**, the drawdown time for the required groundwater storage ($5m^3$) is approximately 22 hours. As shown on **Drawing SW2**, the groundwater will outlet to the infiltration chamber with no connection to the municipal sewer. At no time will the groundwater be released into the downstream municipal infrastructure.

The infiltration gallery can infiltrate one hundred percent of the expected peak groundwater flow year-round, and is located not less than 5m from a building foundation with the drainage away from the building. The bottom of the facility is 1m above the seasonally high water table, as required.

The City's groundwater forms and the Hydrological Assessment are provided in **Appendix D**. The detailed design of the internal system will be finalized at the building permit stage of the project, in conjunction with the mechanical engineer.

5.0 SANITARY DRAINAGE

5.1 Receiving System

There is an existing 250mm diameter and 300mm diameter sanitary sewer along Jane Street and a 250mm diameter sanitary sewer along Marshlynn Avenue. The proposed buildings will be serviced off the 250mm diameter sewer along Jane Street by separate connections; refer to **Drawing SW2**.

5.2 Proposed Sanitary System

The estimated population for the proposed residential buildings are based on the 107 and 141 total units for the north and south buildings, respectively.

The breakdown is as follows:

North Building:

- 1 bedroom – 52 units
- 2 bedroom – 43 units
- 3 bedroom – 12 units

The equivalent population is outlined in **Table 5**.

Table 5. Sanitary Flow – North Building

Land Use	Equivalent Population[1]	Groundwater Flow (L/s)	Trade Flow (L/s)
Post-development			
Residential:		0	
1 Bedroom Units (52)	73		
2 Bedroom Units (43)	91		
3 Bedroom Units (12)	38		
Non-Residential:			
Retail[2] (368m^2)	-		0.08
Total	**202**	**0**	**0.08**

[1]Equivalent population as per the latest City of Toronto *Design Criteria for Sewers and Watermain*
(1.4 persons/1 bedroom apartment; 2.1 persons/2 bedroom apartment; 3.1 persons/3 bedroom apartment)
[2]Trade Flow for commercial based on 180,000L/floor ha/day.

For sizing the service connection, the peak flow is based on 450L/c/day; therefore, it will be as follows:

- Harmon Peaking Factor (PF=1 + (14/(4+(P/1000)^{½})) = 4.15.
- Peak Sanitary Flow = 4.36L/s.
- Groundwater Pump Rate = 0L/s.
- Total Flow = 4.36L/s.

South Building:

- 1 bedroom – 67 units
- 2 bedroom – 62 units
- 3 bedroom – 12 units

The equivalent population is outlined in **Table 6**.

Table 6. Sanitary Flow– South Building

Land Use	Equivalent Population[1]	Groundwater Flow (L/s)	Trade Flow (L/s)
Post-development			
Residential:		0	
1 Bedroom Units (67)	94		
2 Bedroom Units (62)	131		
3 Bedroom Units (12)	38		
Non-Residential:			
Retail[2] (499m^2)	-		0.10
Total	**263**	**0**	**0.10**

[1]Equivalent population as per the latest City of Toronto *Design Criteria for Sewers and Watermain*
(1.4 persons/1 bedroom apartment; 2.1 persons/2 bedroom apartment; 3.1 persons/3 bedroom apartment)
[2]Trade Flow for commercial based on 180,000L/floor ha/day.

For sizing the service connection, the peak flow is based on 450L/c/day; therefore, it will be as follows:

- Harmon Peaking Factor (PF=1 + (14/(4+(P/1000)$^{1/2}$)) = 4.10.
- Peak Sanitary Flow = 5.62L/s.
- Groundwater Pump Rate = 0L/s.
- Total Flow = 5.62L/s.

The proposed 200mm sanitary service connection, with a slope of 2.0 percent, has a capacity of 46L/s; therefore, it is adequate to convey the proposed flow from each building. Note that the flow used for the downstream capacity analysis is less, as it is based on the calibrated flows and peaking factors established based on flow monitoring, as described in the sections below.

Refer to **Drawing SW2** for the proposed sanitary design.

5.4 Downstream Capacity Analysis

The proposed site is located within Sewershed Area 45 of the City's Chronic Basement Flooding Class Environmental Assessment (EA). The EA was completed by IBI Group and dated July 16, 2021. The completed EA reports, dynamic sewer model and model calibration technical memorandum were provided by the City to assist in completing the analysis for this site.

The area of the EA is extensive and includes analysis of combined trunk sewers within the sewershed area. It is our understanding that the City only requires the receiving downstream sewer system be analysed from the site to the trunk connection point. The model provided was used to analyse the impacts of the proposed development on the receiving sewer system.

5.4.1 Model Conversion and Validation

The City provided the Infoworks ICM model that was prepared as part of EA 45, which is the latest version of the software. The 5-year and 100-year, 6-hour Chicago design storms were provided, as well as the May 12, 2000 historical event. It is our understanding that for the analysis of sanitary sewer systems, the level of protection required to be provided is based on the May 12, 2000 event.

Engineering validation was then completed to ensure model integrity remained intact. Any errors were resolved, and the model was reviewed to ensure it provided reasonable results. The model results were determined to be consistent with the results figures provided in the EA Study Report.

As requested by the City, the model has been reviewed and verified so that:

- The sewer analysis sheet correctly represents the sewer system, including any updates to the sewer analysis sheet to reflect changes (i.e. sewer construction) since the model was initially prepared.
- Flow rates from all development since the sewer analysis sheet was prepared, including new builds, sites where zoning has been completed and where applications are currently in progress.
- Best efforts have been made to include all flows from Private Water discharge agreements in the sewer shed.

5.4.2 Population Revisions

The site's sewer catchment area upstream of the trunk extends to the north and east as shown on **Figure 4**. The City's Application Information Centre (AIC) was revied for any projects within the sewershed that have been developed or received development approval from the City. As of September 2025, no new developments were found.

Table 7 summarizes the model revisions for proposed development.

Table 7. Model Updates for New Developments (Population and Trade Flow)

New Development Location	Subcatchment ID	New Development Proposed Population	Existing Model Population	Revised Model Population
1771 Jane Street	SP_MH4029404442.1	465	717.6	1182.6

As shown above, the proposed development is the only new development within the sewershed at this time. As no model calibration data information was available at this time, the proposed population was simply added to the existing model population without accounting for any removals. Therefore, the analysis is conservative.

Table 8 summarizes the trade flow and private water contributions to the sanitary system from the proposed development.

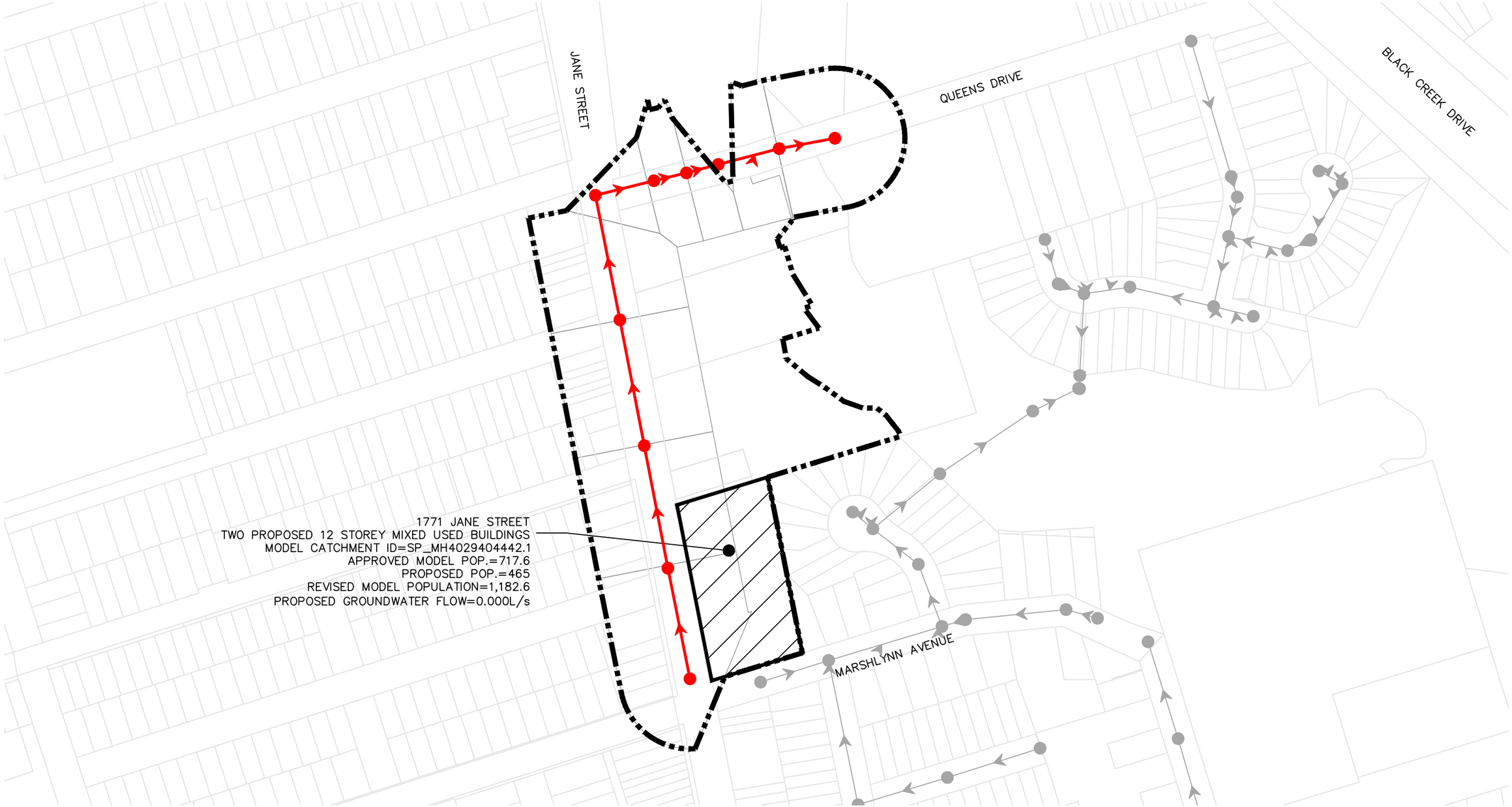
Table 8. Model Updates for New Developments (Trade Flow and Private Water Discharge)

New Development Location	Subcatchment ID	Trade Flow (L/s)	Private Water Discharge Rate (L/s)
1771 Jane Street	SP_MH4029404442.1	0.20	0

The above trade flow was added to the existing trade flow in the approved model to remain conservative. As shown in the above tables, the proposed development will result in a population increase of 465 and a 0.20L/s increase in trade flow. There is no private water discharge to any municipal sewer proposed at this time.

With the proposed development incorporated into the model, the receiving system can be evaluated. All proposed and approved developments within the sewershed that were listed on the City's Application Information Center as of September 2025 were included in this analysis. Four scenarios were created to ensure the proposed development complies with City requirements. All scenarios were formed to examine the receiving combined sewer system, as described below:

1. Pre-Development Dry Weather Flow (DWF) – Sanitary Flow
2. Post Development Dry Weather Flow (DWF) – Sanitary Flow
3. Pre-Development Wet Weather Flow (WWF) – Sanitary and May 12, 2000 Storm Flow
4. Post Development Wet Weather Flow (WWF) – Sanitary and May 12, 2000 Storm Flow



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LEGEND

SANITARY SEWERSHED

SANITARY SEWER SYSTEM

FIGURE 4

1771 JANE STREET

DOWNSTREAM SANITARY ASSESSMENT - EA45

DATE: NOVEMBER 2025 SCALE: 1:2500 PROJECT: 251581

5.4.3 Model Updates

The approved model for the sanitary sewer analysis was updated to include the proposed development listed in **Table 6** and trade flows in **Table 7**. The model for the Pre-Development scenarios remained the same as the base model, as there were no additional proposed developments within the sewershed.

In the approved model, sanitary flows directed from the site, located in catchment SP_MH4029404442.1, to the 250mm sanitary sewer along Jane Street were simulated by increasing the population and trade flow of the subject site to 1182.6 and 0.20L/s, respectively, in the Post Development scenarios.

The wastewater profile assigned to the site was reviewed. A per capita flow rate of 134L/capita/day was used with the existing peaking factor. Since this flow rate is not in accordance with City standards for modelling new contributions to existing systems, a new wastewater group was created with a per capita flow rate of 240L/capita/day. The peaking factor was determined through flow monitoring and calibrated in the model; therefore, it was not altered. As such, a new wastewater group was assigned to the site in the calibrated model for the post development scenarios.

5.4.4 Dry Weather Flow Analysis

Dry weather flow for sanitary sewers is classified as the sanitary contribution to the network. Two scenarios were prepared and run for dry weather conditions. The City requires that there be no surcharging of any pipes during dry weather conditions. The results of the DWF models are summarized in **Table 9**.

As noted, the proposed development is within Catchment SP_MH4029404442.1. For this catchment, in the pre-development model, the domestic wastewater peak flow is 1.74L/s. In the post development scenario, with the increased population, the domestic wastewater flow is 4.90L/s. The additional domestic flow of 3.16L/s represents the total sanitary contribution from the proposed development to the combined sewer.

Table 9. Dry Weather Flows Model Results (Site to Trunk)

	Scenario 1 - Existing			Scenario 2 - Proposed		
Upstream Node ID	**Dry Weather Peak Flow (L/s)**	**Pipe Capacity (L/s)**	**Percent Full**	**Dry Weather Peak Flow (L/s)**	**Pipe Capacity (L/s)**	**Percent Full**
MH4029404442	1.89	55	3%	5.05	55	9%
MH4036504428	2.04	55	4%	5.19	55	9%
MH4044404412	5.68	55	10%	8.57	55	16%
MH4052504397	7.83	55	14%	10.57	55	19%
MH4060504381	7.93	96	8%	10.68	96	11%
MH4061404419	7.97	115	7%	10.72	115	9%
MH4061904439	7.99	96	8%	10.75	96	11%
MH4062504460	8.35	96	9%	11.09	96	12%
MH4063504499	8.47	74	11%	11.21	74	15%

As shown, all pipes downstream of the proposed development are flowing less than their theoretical capacity. Therefore, the downstream network has sufficient capacity to accommodate the proposed development in DWF conditions.

5.4.5 Wet Weather Flow Analysis

The City of Toronto defines wet weather flow (WWF) of a combined sewer as stormwater generated from the May 12, 2000 historical event coupled with the sanitary contribution of the sewershed. In the event of surcharging in wet weather conditions, the City requires the following where connections are present:

i. The proposed Hydraulic Grade Line (HGL) freeboard must be no less than 1.8m when the existing HGL freeboard is greater than 1.8m for the extreme WWF condition;
ii. The proposed HGL freeboard must not be less than the existing HGL freeboard when the existing HGL freeboard is less than 1.8m for the extreme WWF condition.

During WWF conditions, it was determined that the outfall conditions in the model surcharges the local system. Through previous discussions with the City on similar projects, the scope of the analysis is only required to include the local system. As such, the model was revised to eliminate the impacts of the outfall on the analysis.

Table 10 summarizes the wet weather model results.

Table 10. Wet Weather Flows Model Results – Pipe Capacity (Site to Trunk)

	Scenario 3 - Existing			Scenario 4 - Proposed		
Upstream Node ID	**Wet Weather Peak Flow (L/s)**	**Pipe Capacity (L/s)**	**Percent Full**	**Wet Weather Peak Flow (L/s)**	**Pipe Capacity (L/s)**	**Percent Full**
MH4029404442	2.960	55	5%	5.310	55	10%
MH4036504428	4.540	55	8%	6.890	55	13%
MH4044404412	8.250	55	15%	10.610	55	19%
MH4052504397	10.560	55	19%	12.930	55	24%
MH4060504381	11.860	96	12%	14.230	96	15%
MH4061404419	12.350	115	11%	14.720	115	13%
MH4061904439	12.650	96	13%	15.030	96	16%
MH4062504460	13.760	96	14%	16.140	96	17%
MH4063504499	15.190	74	21%	17.570	74	24%

As shown above, the pipes in the downstream network from the proposed development are flowing less than their theoretical capacity during WWF conditions. Therefore, the downstream network has sufficient capacity to accommodate the proposed development in WWF conditions.

Therefore, there is sufficient capacity in the downstream system to accommodate the proposed development, and no municipal infrastructure improvements are required.

Infoworks ICM profiles and outputs are provided in **Appendix E**.

6.0 WATER DISTRIBUTION

6.1 Proposed Water System

There is an existing 300mm diameter watermain on the east side of Jane Street that the proposed development will use to provide water for the site. There is also a 900mm watermain within the Jane Street ROW. Refer to **Drawing SW2** for more details.

A hydrant flow test has been completed by Hydrant Test Ontario on September 10, 2025. The test was completed in accordance with NFPA 291 Guidelines, refer to **Appendix F**.

The following is a summary of the domestic water demand and fire flow requirements for the proposed development. The summary is based on the design guidelines from the City of Toronto's Design Criteria for Sewers and Watermains and the Ontario Building Code.

City of Toronto's Design Criteria for Sewers and Watermains:

Persons per unit:	1 bedroom:	1.4
	2 bedroom:	2.1
	3 bedroom:	3.1
Residential per capita demand (multi-unit):		191 L/capita/day
Peaking Factor:	peak hour (apartments)	2.5
	peak hour (commercial)	1.2
	maximum day (apartments)	1.3
	maximum day (commercial)	1.1
Minimum Pressure (under non-fire demand scenario):		275 kilopascals(kPa)
Minimum Pressure (under fire demand scenario):		140 kPa

6.2 Domestic Water Analysis

The domestic water analysis for the proposed development is based on the preliminary design by Arcadis Achitects Inc. dated November 2025. The proposed development consists of two 12 storey mixed use development.

Based on the preliminary design, the water demand for the site will be based on the populations determined in Tables 5 and 6 in Section 5.2.

6.2.1 Average Daily Demand:

North Residential = [12(3 bedroom) x 3.1(persons/unit) + 43(2 bedroom) x 2.1(persons/unit) + 52(I bedroom) x 1.4(persons/unit)] x 191 L/capita/day
= [202] x 191
= 38,582 L/day

North Retail = 368m^2/10,000 x 180,000 litres/floor ha/day
= 6,624 L/day

South Residential = [12(3 bedroom) x 3.1(persons/unit) + 62(2 bedroom) x 2.1(persons/unit) + 67(I bedroom) x 1.4(persons/unit)] x 191 L/capita/day
= [263] x 191
= 50,233L/day

South Retail = 499m^2/10,000 x 180,000 litres/floor ha/day
= 8,982 L/day
Total = 104,421L/day

6.2.2 Peak Hour Demand:

North Residential = 38,582 L/day x 2.50 (peaking factor (pf))
= 96,455 L/day
= 1.12L/sec (17.8 gallons/minute)
North Retail = 6,624 L/day x 1.20 (peaking factor (pf))
= 7,949 L/day
= 0.09 L/sec (1.4 gallons/minute)
South Residential = 50,233 L/day x 2.50 (peaking factor (pf))
= 125,583 L/day
= 1.45L/sec (23.0 gallons/minute)
South Retail = 8,982 L/day x 1.20 (peaking factor (pf))
= 10,778 L/day
= 0.12 L/sec (1.9 gallons/minute)
Total = 2.78 L/sec (44.1 gallons/minute)

6.2.3 Maximum Day Demand:

North Residential = 38,582 L/day x 1.30 (peaking factor (pf))
= 50,157 L/day
= 0.58L/sec (9.2 gallons/minute)
North Retail = 6,624 L/day x 1.10 (peaking factor (pf))
= 7,286 L/day
= 0.08 L/sec (1.3 gallons/minute)
South Residential = 50,233 L/day x 1.30 (peaking factor (pf))
= 65,303 L/day
= 0.76L/sec (12.0 gallons/minute)
South Retail = 8,982 L/day x 1.10 (peaking factor (pf))
= 9,880 L/day
= 0.11 L/sec (1.7 gallons/minute)
Total = 1.53 L/sec (24.3 gallons/minute)

With maximum day and peak hour domestic flows of 24.3 gallons/minute and 44.1 gallons/minute for the proposed building. Interpolating on the hydrant flow test graph demonstrates that under peak hour and maximum day flow conditions, the pressure in the watermain will be 545kPa (79psi); therefore, the proposed site will meet the City minimum pressure of 275kPa (40psi).

6.3 Fire Analysis

The detailed fire formula on page 17 of the Fire Underwriter's Survey was used to calculate the minimum fire flow. The architect provided the following information for the proposed development:

- Maximum Floor Area:
  North Building = 1297.5m^2

South Building= 1551.0m^2

- Vertical openings and exterior vertical communications are properly protected
- Fire resistive construction
- Sprinkler system as per NFPA 13

Table 11 provides the building characteristics and minimum fire flow requirements for the building.

Table 11. Fire Flow Estimates

Population Type	Area (m^2)	Construction Coefficient	Occupancy Increase/ Decrease	Sprinkler	Exposure	Required Flow (L/min.)
North Building	1297.5	0.6	0%	30%	35%	6,000
South Building	1551.0	0.6	0%	30%	40%	7,000

When using this information, the minimum fire flow was 6,000 L/min for the north building and 7,000L/min for the south building, if the buildings are constructed using 'fire resistive construction' with fully automated sprinkler system and vertical openings and exterior vertical communications properly protected.

FUS calculations have been completed based on the hydrant flow test result, which confirms that the theoretical fire flow at the minimum City pressure of 140kPa (20psi) was 18,855L/min (4,981gal/min). Based on the required minimum fire flow of 7,000L/min (1,1849gal/min), the proposed building will be protected with sufficient pressure, and the proposed development will not have an adverse impact on the existing system.

Drawing SW2 shows the proposed service connections. Refer to **Appendix F** for Water Demand and FUS Calculations.

7.0 EROSION AND SEDIMENT CONTROL

An Erosion and Sediment Control Plan will be prepared to limit sediment and debris from leaving the site during all stages of construction.

The plan will be designed to limit sediment and debris from leaving the site during construction and from entering the adjacent lands. The plan consists of the following:

- A sediment control fence will be installed along the perimeter of the site where the grade will direct flows off-site.
- Catchbasin sediment control devices will be installed on all existing catchbasins around the perimeter of the site, as required.
- Site access will be limited to one entrance. A gravel access pad will be installed to remove mud from vehicles leaving the site.

Erosion measures will be in place prior to any grading on the site. A program will be in place to monitor and maintain the erosion and sediment controls. The sediment controls will be inspected by the Site Engineer and contractor every two weeks and after each significant rainfall event.

8.0 CONCLUSIONS

The stormwater management design for the site has been designed to meet the criteria outlined by the City and the MECP Guidelines. The plan will consist of the following:

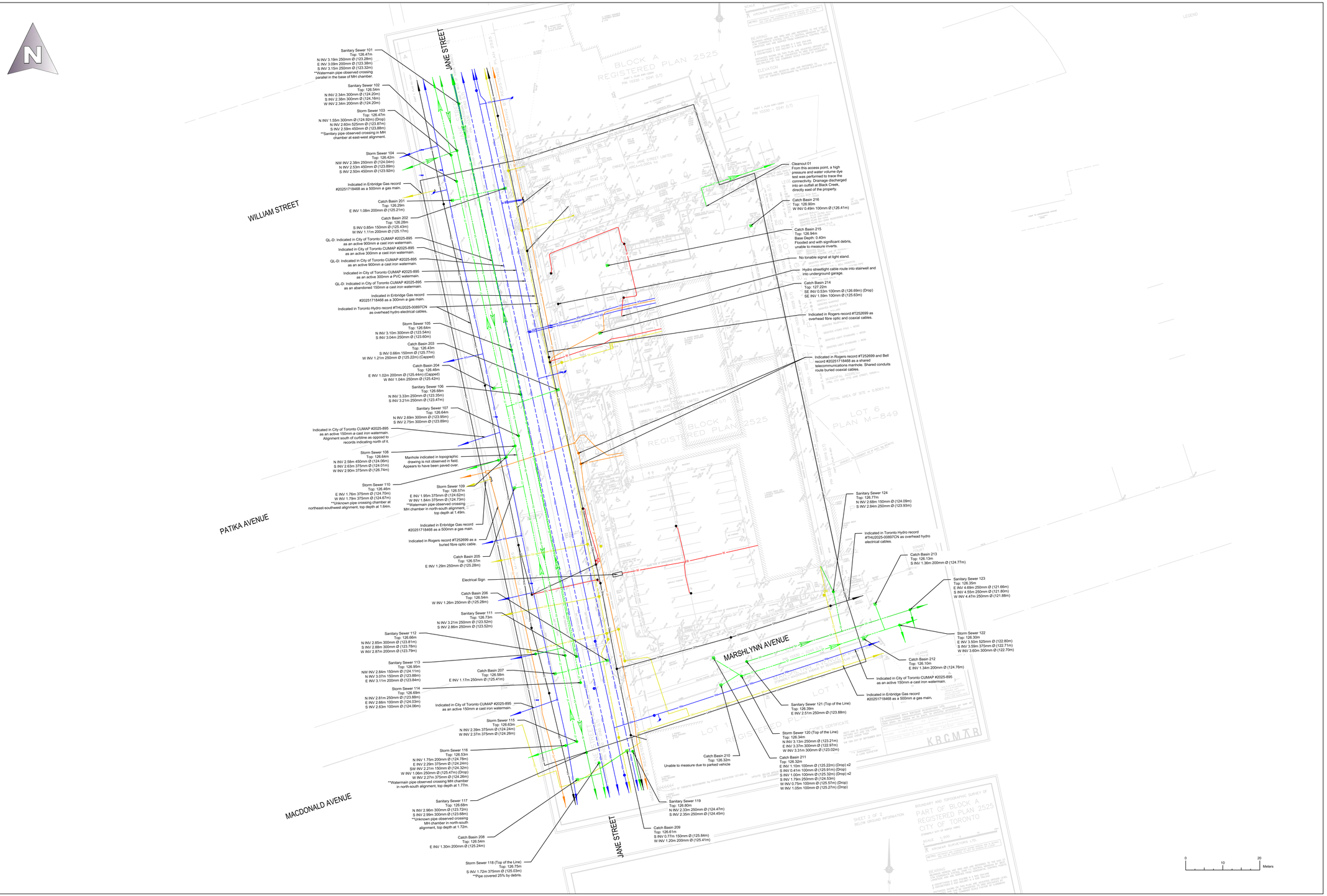
- The existing storm sewer on Jane Street and Marshlynn Avenue adjacent to the site can be used to direct the flows from the proposed development to the existing storm sewer system downstream of the site. The proposed development meets the criteria of the WWFM Guidelines.
- There is sufficient capacity in the storm sewer to convey the proposed storm flows as per City Design Criteria.
- The water balance targets for the site are achieved through the proposed landscape areas and proposed infiltration system on the site.
- Quality control is provided through the use of an Up-Flo filter units, rooftop and landscaped areas.
- Peak flows will be controlled using a cistern such that the post development flows from the proposed development area in the 100-year storm event will not be greater than 16.0L/s to Jane Street, and will not be greater than 24.8L/s to Marshlynn Avenue, as required.
- The proposed grading on the site will not adversely impact the future development of the site to the north or the future extension of the laneway to Millwood Road.
- Sanitary drainage from the proposed development can be conveyed to the existing sewer on Jane Street. The additional flows will not adversely affect the downstream system.
- No sewer upgrades to the downstream combined system are required to accommodate the flows from the proposed development.
- The existing watermain on Jane Street can be used to service the proposed development. Sufficient pressure for domestic and fire flows has been confirmed with the hydrant flow test as outlined herein.
- The proposed development will not have an adverse effect on the existing Municipal infrastructure.

Therefore, based on the information provided herein, the stormwater management and site servicing requirements for the Site Plan application have been met.



APPENDIX A

BACKGROUND INFORMATION



KEY MAP



GENERAL NOTES

1. FIELD INVESTIGATION DISCLAIMER:
THE FIELD INVESTIGATION WAS CONDUCTED IN MAY 2025. ANY CHANGES TO UTILITIES OR CONDITIONS THAT HAVE OCCURRED AFTER THE DATE OF OUR INVESTIGATION MAY NOT BE REFLECTED IN THE PROVIDED DOCUMENTATION. IT IS RECOMMENDED THAT THIS PLAN BE UPDATED PRIOR TO FINAL DESIGN AND CONSTRUCTION TO ACCOUNT FOR ANY MODIFICATIONS OR ALTERATIONS. THE INVESTIGATION IS LIMITED TO THE FOLLOWING AREAS: THE PROPERTIES OF 1771-1775 JANE STREET, TORONTO; THE FULL RIGHT OF WAY OF JANE STREET BOUND IN THE NORTH BY WILLIAM STREET TO THE SOUTH BY MACDONALD AVENUE AND MARSHLYNN AVENUE BY JANE STREET TO HEARNE AVENUE. ANY AREAS OUTSIDE THIS SCOPE ARE EXCLUDED FROM THE INVESTIGATION.

2. FIELD UTILITY VERIFICATION METHODOLOGY:
FIELD VERIFICATION OF UTILITIES WAS PERFORMED USING A COMBINATION OF ELECTROMAGNETIC PIPE AND CABLE LOCATE EQUIPMENT. HOWEVER, THIS METHOD MAY NOT HAVE IDENTIFIED ALL UTILITIES, AND THERE MAY BE UNDISCOVERED UTILITIES OR FACILITIES NOT INCLUDED IN THE SURVEY. FURTHER INVESTIGATIONS SUCH GEOPHYSICS AND/OR DAYLIGHTING SHOULD BE CONSIDERED DEPENDING ON THE NATURE OF FUTURE WORK PLANNED.

3. EXCLUSION OF CERTAIN INFRASTRUCTURE:
EMPTY CONDUITS, SERVICES, LATERALS TO BUILDINGS, ABANDONED FACILITIES (E.G., STREETLIGHT CABLES), AND OTHER NON-DOCUMENTED FEATURES WITHIN THE INVESTIGATION AREA MAY NOT BE SHOWN ON THE DRAWING. THE REPRESENTATION OF UTILITIES MAY BE INCOMPLETE AND SHOULD BE VERIFIED THROUGH ADDITIONAL INVESTIGATION AS NECESSARY. I2S MADE REASONABLE EFFORTS TO IDENTIFY THE LOCATION OF UNDOCUMENTED UTILITIES BASED ON AVAILABLE RESOURCES, HOWEVER, I2S CANNOT BE HELD RESPONSIBLE FOR THE FAILURE TO LOCATE OR IDENTIFY ALL UNDOCUMENTED UTILITIES. USERS OF THIS INFORMATION ARE ADVISED TO CONDUCT THEIR OWN INDEPENDENT INVESTIGATION IF NECESSARY.

4.BASE PLAN ACCURACY DISCLAIMER:
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UTILITY INFORMATION AND QUALITY LEVELS

THE UTILITY INFORMATION SHOWN ON THIS DRAWING WAS COLLECTED BASED ON THE ASCE STANDARD 38-02. THE DATA IS CATEGORIZED INTO DIFFERENT "QUALITY LEVELS," WHICH DESCRIBE THE ACCURACY AND METHODOLOGY USED TO FIND THE UTILITY INFORMATION.

"LOWER CERTAINTY"

QUALITY LEVEL "D": THE UTILITY INFORMATION COMES FROM EXISTING RECORDS OR FROM PEOPLE'S MEMORIES. IT MAY NOT BE VERY PRECISE.

QUALITY LEVEL "C": THE INFORMATION WAS GATHERED BY LOOKING AT VISIBLE UTILITY FEATURES ABOVE GROUND, AND THEN USING PROFESSIONAL JUDGMENT TO LINK THIS DATA WITH THE LESS ACCURATE "QUALITY LEVEL D" DATA.

QUALITY LEVEL "B": THE INFORMATION WAS COLLECTED USING SPECIALIZED TOOLS TO CHECK THE GROUND'S SUBSURFACE FOR SIGNS OF UTILITIES, AND THEN USED TO ESTIMATE WHERE THE UTILITIES ARE LOCATED HORIZONTALLY (LEFT TO RIGHT, SIDE TO SIDE).

QUALITY LEVEL "A": THIS IS THE MOST ACCURATE LEVEL. IT SHOWS THE EXACT HORIZONTAL (LEFT/RIGHT) AND VERTICAL (UP/DOWN) LOCATION OF BURIED UTILITIES, BASED ON ACTUALLY EXPOSING AND MEASURING THE UTILITIES THEMSELVES.

"HIGHER CERTAINTY"

LEGEND

- GM — GAS MAIN
- GS — GAS SERVICE
- WM — WATER MAIN
- WS — WATER SERVICE
- SA — SANITARY SEWER
- ST — STORM SEWER
- COM — COMBINED SEWER
- BE — BURIED ELECTRIC
- SL — BURIED ELECTRIC STREET LIGHT
- TL — BURIED ELECTRIC TRAFFIC LIGHT
- UNK — UNKNOWN
- FO — FIBRE OPTIC CABLE
- TV — BURIED TELEVISION CABLE
- BT — BURIED TELECOMMUNICATIONS
- STE — STEAM
- O/H — OVERHEAD WIRE
- QUALITY LEVEL "B"
- QUALITY LEVEL "C"
- QUALITY LEVEL "D"
- LIMIT — LIMIT OF INVESTIGATION
- HANDWELL
- MONITORING WELL
- 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
- LOSS OF SIGNAL

PREPARED BY.

I2S Infrastructure Intelligence Services Inc.
INTEGRITY | COLLABORATION | PERFORMANCE

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HUSSON ENGINEERING + MANAGEMENT

ENGINEER'S SEAL

THE ENGINEER'S SEAL CERTIFIES THAT THE UTILITY INFORMATION SHOWN WAS INVESTIGATED IN ACCORDANCE WITH STANDARD SUBSURFACE UTILITY ENGINEERING (SUE) PRACTICES. ALL OTHER INFORMATION PROVIDED BY THIRD PARTIES IS NOT PART OF THIS CERTIFICATION AND IS NOT THE ENGINEER'S RESPONSIBILITY FOR ACCURACY OR COMPLETENESS.

REVISIONS

DRAWN	B. Lee	Oct 14, 25
CHECKED	N. Quinlan	Oct 15, 25
APPROVED	N. Quinlan	Oct 15, 25
SCALE	1:500	

PROJECT.
1771-1775 Jane Street, Toronto

DRAWING.
SUE Investigation Results - QL-B

PROJECT NO. 2025-937

SHEET NO. 01 of 01

Husson

Infrastructure Intelligence Services Inc.

INTEGRITY | COLLABORATION | PERFORMANCE

On-site Dye Testing Results - Phase Two
1771-1775 Jane Street, Toronto





Project # 2025-937
October 14, 2025

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October 14, 2025

Husson
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Infrastructure Intelligence Services Inc.
INTEGRITY | COLLABORATION | PERFORMANCE

Att: David Sharp,

RE: On-site Dye Testing Results - Phase Two
1771-1775 Jane Street, Toronto

Infrastructure Intelligence Services Inc. (I2S Inc.) is pleased to submit our results for the phase two on-site dye testing results completed at the above referenced site. The intent of this investigation was to further investigate the dye testing results from a previous investigation visit, dated August 2025. These results will assist in future redevelopment of the site.

A summary of findings are as follows:

- Previous dye testing investigation identified all storm drainage from the property discharged towards the northeast corner of the property, observable from a cleanout (CO01) in the underground parking garage.
- One (1) cleaning pass was performed for the drainage pipe from a cleanout in the underground parking garage, on the northeast corner of the property.
- With a higher pressure and volume water dye test at CO01, the dye was located discharging from an outfall on Black Creek, directly east of the property.
- Reinspection with a push camera and locating, identified the sewer segment makes a 90 degree turn in the easement north of the 1755 Jane Street and proceeds in a straight line towards Black Creek via the outfall.

The QLB Composite Utility Drawing and Dye Test Results Map in **Appendix A** have been updated based on these new findings.

Attachments

The following information is attached**:**

Appendix A – Site Drawings

- Contains drawing(s) depicting Composite Utility Drawing and the dye test results.

Appendix B – Supplementary Photos and Videos

- Photos and videos of the dye tests.

Given the size and nature of the attachments, they are provided via a digital sharing link – Attachment Link.

Closing

Please feel free to contact the undersigned if you have any questions or comments.

Sincerely,



Niall Quinlan
Manager, I&I Services
Tel.: 647-229-9175
Email: niall.quinlan@i2sinc.ca

Prepared By:

Infrastructure Intelligence Services Inc.



Brian Lee, C. Tech.
Project Coordinator

Infrastructure Intelligence Services Inc.



Niall Quinlan
Manager, Inflow and Infiltration Services

Revisions Registry

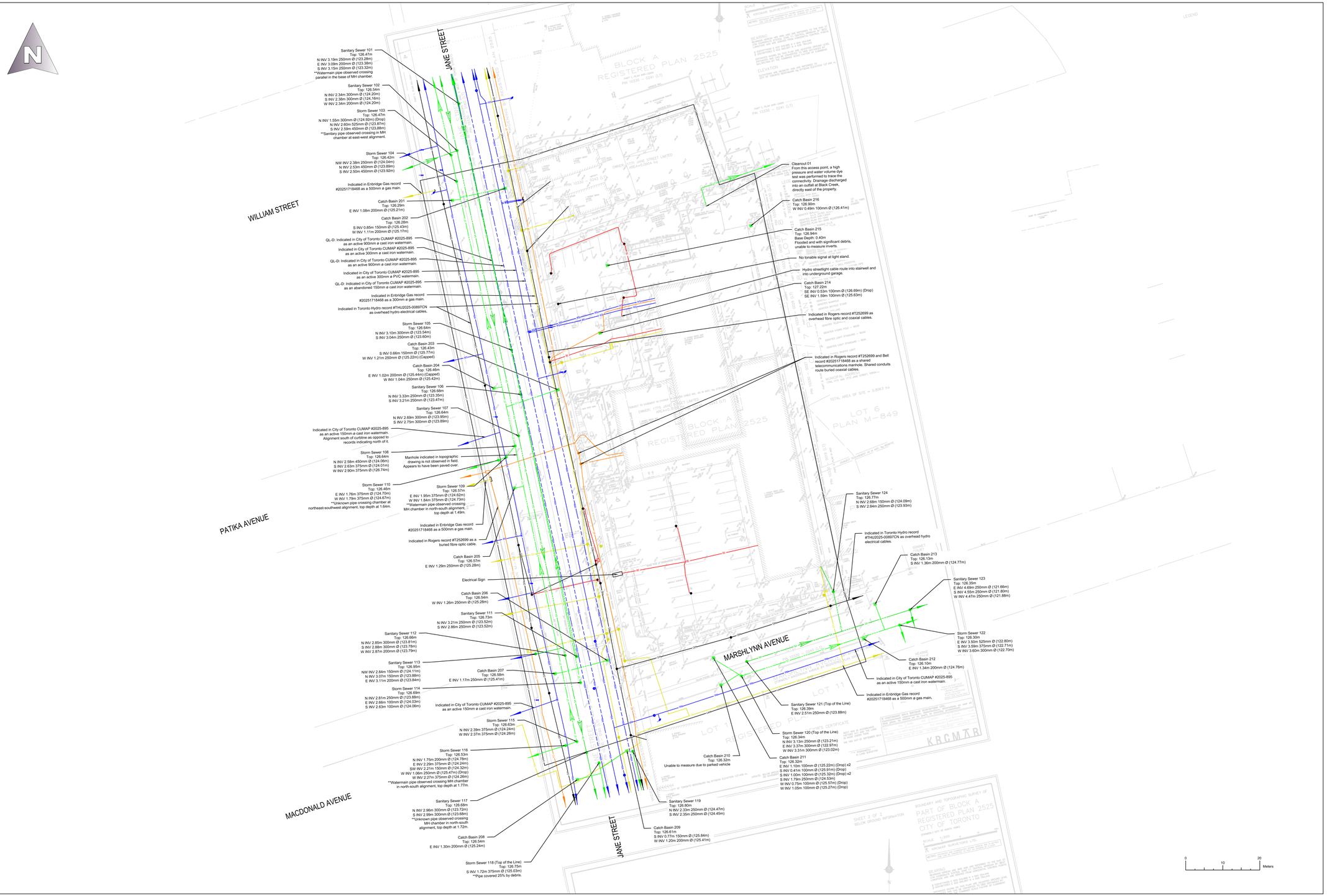
Description	Date	Comments

Qualifications and Limitations

Infrastructure Intelligence Services Inc. (I2S) has prepared this report for the Project Owner in accordance with the industry practices and the scope of work agreed upon for the project. The information contained is based on the judgement of data provide to I2S and collected in the field by I2S. The information is current as per the date that the information was collected, and any changes made following the investigation are not covered by this report. Third party information provided by the Project Owner has been relied upon and I2S is not responsible for the accuracy of that information. The report should be treated as confidential information and should not be used by any third parties unless agreed upon by I2S. Any damages incurred by unauthorized parties using the data is their responsibility.

Appendix A

Site Drawings



KEY MAP



GENERAL NOTES

1. FIELD INVESTIGATION DISCLAIMER:
THE FIELD INVESTIGATION WAS CONDUCTED IN MAY 2025. ANY CHANGES TO UTILITIES OR CONDITIONS THAT HAVE OCCURRED AFTER THE DATE OF OUR INVESTIGATION MAY NOT BE REFLECTED IN THE PROVIDED DOCUMENTATION. IT IS RECOMMENDED THAT THIS PLAN BE UPDATED PRIOR TO FINAL DESIGN AND CONSTRUCTION TO ACCOUNT FOR ANY MODIFICATIONS OR ALTERATIONS. THE INVESTIGATION IS LIMITED TO THE FOLLOWING AREAS: THE PROPERTIES OF 1771-1775 JANE STREET, TORONTO; THE FULL RIGHT OF WAY OF JANE STREET BOUND IN THE NORTH BY WILLIAM STREET TO THE SOUTH BY MACDONALD AVENUE AND MARSHLYNN AVENUE BY JANE STREET TO HEARNE AVENUE. ANY AREAS OUTSIDE THIS SCOPE ARE EXCLUDED FROM THE INVESTIGATION.

2. FIELD UTILITY VERIFICATION METHODOLOGY:
FIELD VERIFICATION OF UTILITIES WAS PERFORMED USING A COMBINATION OF ELECTROMAGNETIC PIPE AND CABLE LOCATE EQUIPMENT. HOWEVER, THIS METHOD MAY NOT HAVE IDENTIFIED ALL UTILITIES, AND THERE MAY BE UNDISCOVERED UTILITIES OR FACILITIES NOT INCLUDED IN THE SURVEY. FURTHER INVESTIGATIONS SUCH GEOPHYSICS AND/OR DAYLIGHTING SHOULD BE CONSIDERED DEPENDING ON THE NATURE OF FUTURE WORK PLANNED.

3. EXCLUSION OF CERTAIN INFRASTRUCTURE:
EMPTY CONDUITS, SERVICES, LATERALS TO BUILDINGS, ABANDONED FACILITIES (E.G., STREETLIGHT CABLES), AND OTHER NON-DOCUMENTED FEATURES WITHIN THE INVESTIGATION AREA MAY NOT BE SHOWN ON THE DRAWING. THE REPRESENTATION OF UTILITIES MAY BE INCOMPLETE AND SHOULD BE VERIFIED THROUGH ADDITIONAL INVESTIGATION AS NECESSARY. I2S MADE REASONABLE EFFORTS TO IDENTIFY THE LOCATION OF UNDOCUMENTED UTILITIES BASED ON AVAILABLE RESOURCES, HOWEVER, I2S CANNOT BE HELD RESPONSIBLE FOR THE FAILURE TO LOCATE OR IDENTIFY ALL UNDOCUMENTED UTILITIES. USERS OF THIS INFORMATION ARE ADVISED TO CONDUCT THEIR OWN INDEPENDENT INVESTIGATION IF NECESSARY.

4.BASE PLAN ACCURACY DISCLAIMER:
THE BASE PLAN USED IN THIS INVESTIGATION WAS PROVIDED BY THE CLIENT. I2S IS NOT RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF THE BASE PLAN, AND ANY ERRORS OR OMISSIONS IN THE BASE PLAN ARE THE RESPONSIBILITY OF THE CLIENT.

5. UTILITY INFORMATION ACCURACY:
UTILITY OWNERSHIP, MATERIAL, SIZE, AND FLOW DETAILS SHOWN ON THE DRAWING ARE BASED ON RECORDS, FIELD INVESTIGATION RESULTS, AND PROFESSIONAL JUDGMENT. I2S MAKES NO WARRANTY REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, AND USERS SHOULD VERIFY UTILITY DETAILS INDEPENDENTLY BEFORE PROCEEDING WITH CONSTRUCTION OR DESIGN.

6. DISCLAIMER
THIS DRAWING HAS BEEN PREPARED BY I2S INC. FOR THE EXCLUSIVE USE OF THE CLIENT. IT MAY NOT BE USED, REPRODUCED, OR RELIED UPON BY THIRD PARTIES EXCEPT AS AGREED IN WRITING BY I2S INC. WE ACCEPTS NO RESPONSIBILITY AND DISCLAIMS ALL LIABILITY FOR ANY UNAUTHORIZED USE, REPRODUCTION, OR MODIFICATION OF THIS DRAWING.

UTILITY INFORMATION AND QUALITY LEVELS

THE UTILITY INFORMATION SHOWN ON THIS DRAWING WAS COLLECTED BASED ON THE ASCE STANDARD 38-02. THE DATA IS CATEGORIZED INTO DIFFERENT "QUALITY LEVELS," WHICH DESCRIBE THE ACCURACY AND METHODOLOGY USED TO FIND THE UTILITY INFORMATION.

"LOWER CERTAINTY"

QUALITY LEVEL "D": THE UTILITY INFORMATION COMES FROM EXISTING RECORDS OR FROM PEOPLE'S MEMORIES. IT MAY NOT BE VERY PRECISE.

QUALITY LEVEL "C": THE INFORMATION WAS GATHERED BY LOOKING AT VISIBLE UTILITY FEATURES ABOVE GROUND, AND THEN USING PROFESSIONAL JUDGMENT TO LINK THIS DATA WITH THE LESS ACCURATE "QUALITY LEVEL D" DATA.

QUALITY LEVEL "B": THE INFORMATION WAS COLLECTED USING SPECIALIZED TOOLS TO CHECK THE GROUND'S SUBSURFACE FOR SIGNS OF UTILITIES, AND THEN USED TO ESTIMATE WHERE THE UTILITIES ARE LOCATED HORIZONTALLY (LEFT TO RIGHT, SIDE TO SIDE).

QUALITY LEVEL "A": THIS IS THE MOST ACCURATE LEVEL. IT SHOWS THE EXACT HORIZONTAL (LEFT/RIGHT) AND VERTICAL (UP/DOWN) LOCATION OF BURIED UTILITIES, BASED ON ACTUALLY EXPOSING AND MEASURING THE UTILITIES THEMSELVES.

"HIGHER CERTAINTY"

LEGEND

- GM — GAS MAIN
- GS — GAS SERVICE
- WM — WATER MAIN
- WS — WATER SERVICE
- SA — SANITARY SEWER
- ST — STORM SEWER
- COM — COMBINED SEWER
- BE — BURIED ELECTRIC
- SL — BURIED ELECTRIC STREET LIGHT
- TL — BURIED ELECTRIC TRAFFIC LIGHT
- UNK — UNKNOWN
- FO — FIBRE OPTIC CABLE
- TV — BURIED TELEVISION CABLE
- BT — BURIED TELECOMMUNICATIONS
- STE — STEAM
- O/H — OVERHEAD WIRE
- QUALITY LEVEL "B"
- QUALITY LEVEL "C"
- QUALITY LEVEL "D"
- LIMIT — LIMIT OF INVESTIGATION
- HANDWELL
- MONITORING WELL
- 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
- LOSS OF SIGNAL

PREPARED BY.

I2S Infrastructure Intelligence Services Inc.
INTEGRITY | COLLABORATION | PERFORMANCE

CLIENT.
Husson
208 Wyecroft Road, #100
Oakville, ON L6K 3V1

HUSSON ENGINEERING + MANAGEMENT

ENGINEER'S SEAL

THE ENGINEER'S SEAL CERTIFIES THAT THE UTILITY INFORMATION SHOWN WAS INVESTIGATED IN ACCORDANCE WITH STANDARD SUBSURFACE UTILITY ENGINEERING (SUE) PRACTICES. ALL OTHER INFORMATION PROVIDED BY THIRD PARTIES IS NOT PART OF THIS CERTIFICATION AND IS NOT THE ENGINEER'S RESPONSIBILITY FOR ACCURACY OR COMPLETENESS.

REVISIONS

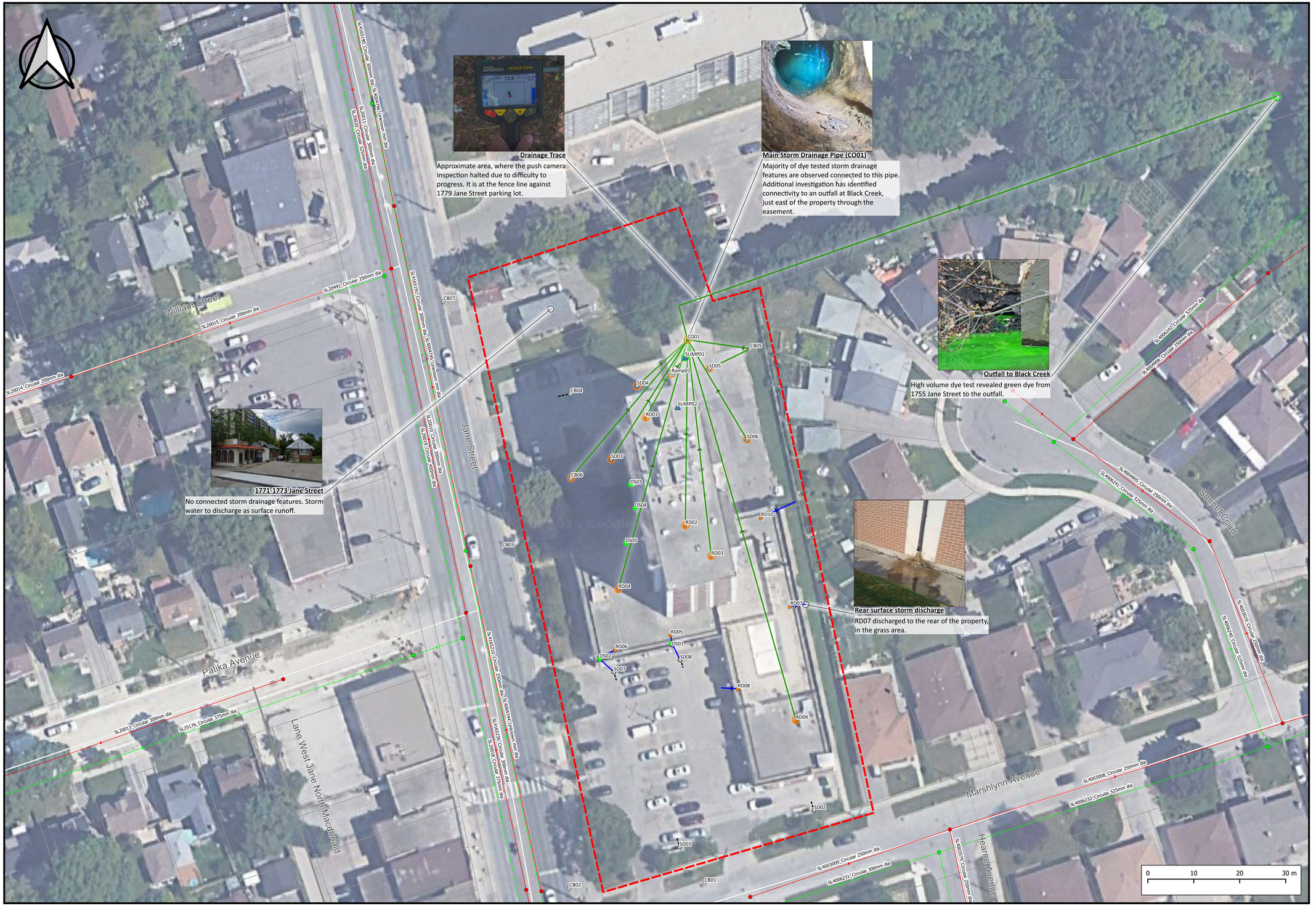
DRAWN	B. Lee	Oct 14, 25
CHECKED	N. Quinlan	Oct 15, 25
APPROVED	N. Quinlan	Oct 15, 25
SCALE	1:500	

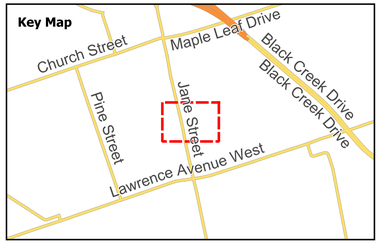
PROJECT.
1771-1775 Jane Street, Toronto

DRAWING.
SUE Investigation Results - QL-B

PROJECT NO. 2025-937

SHEET NO. 01 of 01





General Notes

Map Legend

- Investigation Extent

Drainage Features

- Catch Basin
- Surface Drain
- Ramp Drain
- Manhole
- Roof Drain
- Sump Pump
- Cleanout
- Sanitary Feature
- Downspout Into the Ground
- Downspout To Surface
- Downspout Status Unknown/Not Visible
- Downspout Old Pipe from Disconnection

Dye Test Trace Lines

- To Storm
- To Combo
- To Sanitary
- To Unknown/Not Found
- To Surface Flow
- Dye Injection Point
- Dye Observation Point

Central Data Sewerlines Toronto

- Combined
- Sanitary
- Storm
- Combined Manhole
- Sanitary Manhole
- Storm Manhole

Sources:

Projection System: NAD 83 UTM ZONE 17N

Prepared By: I2S

Associated With: HUSSON ENGINEERING + MANAGEMENT

Drawn:	B. Lee	Oct 15, 2025
Checked:	N. Quinlan	Oct 15, 2025
Approved:	N. Quinlan	Oct 15, 2025

Revision History

Project: On-site Dye Testing Results

Address: 1771-1775 Jane Street, Toronto

Project #: 2025-937_02

APPENDIX B

STORMWATER MANAGEMENT DESIGN CALCULATIONS

Rational Method Calc.

Project: 1771 Jane Street
Project No.: 2511581
Municipality: City of Toronto
Catchment: Pre-Development

Pre-Development Flow	Catchment 100		Catchment 200		Catchment 300	
	2 Year	100 Year	2 Year	100 Year	2 Year	100 Year
Runoff Coefficient (C) =	0.50	0.50	0.50	0.50	0.50	0.50
Area (A) =	0.131	0.131	0.202	0.202	0.473	0.473
A:	21.80	59.70	21.80	59.70	21.80	59.70
B:	0	0.00	0.00	0.00	0.00	0.00
C:	0.78	0.80	0.78	0.80	0.78	0.80
Tc:	0.167	0.167	0.167	0.167	0.167	0.167
Intensity (I) mm/hr =	88.2	250.3	88.2	250.3	88.2	250.3
Peak Flow (Q) L/s =	**16.0**	45.5	**24.8**	70.3	**58.0**	164.6

Area to Jane Street (100)

	Area (m^2)	C	CxA
Building	27	0.90	24.30
Landscape	697	0.25	174.25
Impervious Area	584	0.90	525.60
	1308	0.55	724.15

Area to Marshlynn Avenue (200)

	Area (m^2)	C	CxA
Building	0	0.90	0.00
Landscape	161	0.25	40.25
Impervious Area	1860	0.90	1674.00
	2021	0.85	1714.25

Area to East (300)

	Area (m^2)	C	CxA
Building	2119	0.90	1907.10
Landscape	1313	0.25	328.25
Impervious Area	1302	0.90	1171.80
	4734	0.72	3407.15

Rational Method Calc.

Project:	1771 Jane Street
Project No.:	2511581
Municipality:	City of Toronto
Catchment:	Proposed Uncontrolled Area

Uncontrolled Flow	Catchment 102	
	2 Year	100 Year
Runoff Coefficient (C) =	0.29	0.29
Area (A) =	0.0501	0.0501
A:	21.80	59.70
B:	0.00	0.00
C:	0.78	0.80
Tc:	0.167	0.167
Intensity (I) mm/hr =	88.2	250.3
Peak Flow (Q) L/s =	3.6	10.2

Uncontrolled to Jane Street (102)

	Area (m2)	C	CxA
Landscape	469	0.25	117.3
Impervious Area	32	0.90	28.8
	501	0.29	146.1

Controlled to Jane Street (101)

	Area (m2)	C	CxA
Building	2367	0.90	2130.30
Landscape	427	0.25	106.75
Impervious Area	1619	0.90	1457.10
	4413	0.84	3694.15

Uncontrolled Flow	Catchment 202	
	2 Year	100 Year
Runoff Coefficient (C) =	0.68	0.68
Area (A) =	0.0368	0.0368
A:	21.80	59.70
B:	0.00	0.00
C:	0.78	0.80
Tc:	0.167	0.167
Intensity (I) mm/hr =	88.2	250.3
Peak Flow (Q) L/s =	6.1	17.4

Uncontrolled to Marshlynn Avenue (202)

	Area (m2)	C	CxA
Landscape	124	0.25	31.00
Impervious Area	244	0.90	219.60
	368	0.68	250.60

Controlled to Marshlynn Avenue (201)

	Area (m2)	C	CxA
Building	1527	0.90	1374.30
Landscape	165	0.25	41.25
Impervious Area	863	0.90	776.70
	2555	0.86	2192.25

Uncontrolled Flow	Catchment 301	
	2 Year	100 Year
Runoff Coefficient (C) =	0.25	0.25
Area (A) =	0.0226	0.0226
A:	21.80	59.70
B:	0.00	0.00
C:	0.78	0.80
Tc:	0.167	0.167
Intensity (I) mm/hr =	88.2	250.3
Peak Flow (Q) L/s =	1.4	3.9

Uncontrolled to East (301)

	Area (m2)	C	CxA
Landscape	226	0.25	56.50
Impervious Area	0	0.90	0.00
	226	0.25	56.50

Modified Rational Method

Project:	1771 Jane Street		
Project No.:	2511581		
Municipality:	City of Toronto		
Catchment:	101/102		
			100-Year
Area:	0.441 ha	Rainfall $I=A*(T+B)^C$	
Runoff Coefficient:	0.84	A:	1579.4
		B:	0
Target Flow:	0.006 m^3/s	C:	-0.8
Storage Required	212 m^3		

Initial Time	10 min		Increment	5 min	
Time (min)	Intensity (mm/hr)	Peak Flow (m^3/s)	Runoff Volume (m^3)	Discharge Volume (m^3)	Storage Volume (m^3)
10	250.3	0.257	154.12	3.52	150.6
15	181.0	0.186	167.14	5.28	161.9
20	143.8	0.148	177.04	7.04	170.0
25	120.3	0.123	185.12	8.80	176.3
30	103.9	0.107	191.99	10.56	181.4
35	91.9	0.094	198.00	12.32	185.7
40	82.6	0.085	203.36	14.08	189.3
45	75.1	0.077	208.21	15.84	192.4
50	69.1	0.071	212.64	17.60	195.0
55	64.0	0.066	216.73	19.36	197.4
60	59.7	0.061	220.54	21.12	199.4
65	56.0	0.057	224.10	22.88	201.2
70	52.8	0.054	227.44	24.64	202.8
75	49.9	0.051	230.60	26.40	204.2
80	47.4	0.049	233.60	28.16	205.4
85	45.2	0.046	236.45	29.91	206.5
90	43.2	0.044	239.17	31.67	207.5
95	41.3	0.042	241.77	33.43	208.3
100	39.7	0.041	244.26	35.19	209.1
105	38.2	0.039	246.66	36.95	209.7
110	36.8	0.038	248.96	38.71	210.2
115	35.5	0.036	251.19	40.47	210.7
120	34.3	0.035	253.33	42.23	211.1
125	33.2	0.034	255.41	43.99	211.4
130	32.2	0.033	257.42	45.75	211.7
135	31.2	0.032	259.37	47.51	211.9
140	30.3	0.031	261.26	49.27	212.0
145	29.5	0.030	263.10	51.03	212.1
150	28.7	0.029	264.89	52.79	212.1
155	27.9	0.029	266.64	54.55	212.1
160	27.2	0.028	268.34	56.31	212.0
165	26.6	0.027	269.99	58.07	211.9
170	25.9	0.027	271.61	59.83	211.8
175	25.4	0.026	273.19	61.59	211.6
180	24.8	0.025	274.73	63.35	211.4

Orifice Flow Calculation

Pipe Diameter	100	mm
Area	0.008	m^2
Maximum WL	125.50	m
Invert	125.20	m
Head (h)	0.25	m
Co-efficient	0.62	
Flow (Q)	$Q=CA(2gh)^{0.5}$	
	0.011	m^3/s

(100mm orifice tube to convey the flow.)

Cistern Volume	231	m^3
Footprint:	77	m^2
Height:	3	m

Uncontrolled Area	0.0102	m^3/s
Total Peak Flow	0.0160	m^3/s
Target	0.0160	m^3/s
Difference	0.0000	m^3/s

Modified Rational Method

Project:	1771 Jane Street			
Project No.:	2511581			
Municipality:	City of Toronto			
Catchment:	200/201			
				100-Year
Area:	0.256	ha	Rainfall $I=A*(T+B)^C$	
Runoff Coefficient:	0.86		A:	1579.4
			B:	0
Target Flow:	0.007	m^3/s	C:	-0.8
Storage Required	106	m^3		

Initial Time 10 min Increment 5 min

Time (min)	Intensity (mm/hr)	Peak Flow (m^3/s)	Runoff Volume (m^3)	Discharge Volume (m^3)	Storage Volume (m^3)
10	250.3	0.152	91.46	4.20	87.3
15	181.0	0.110	99.19	6.30	92.9
20	143.8	0.088	105.06	8.40	96.7
25	120.3	0.073	109.85	10.50	99.4
30	103.9	0.063	113.93	12.60	101.3
35	91.9	0.056	117.50	14.70	102.8
40	82.6	0.050	120.68	16.80	103.9
45	75.1	0.046	123.56	18.90	104.7
50	69.1	0.042	126.19	21.00	105.2
55	64.0	0.039	128.62	23.10	105.5
60	59.7	0.036	130.88	25.20	105.7
65	56.0	0.034	132.99	27.30	105.7
70	52.8	0.032	134.97	29.40	105.6
75	49.9	0.030	136.85	31.50	105.3
80	47.4	0.029	138.63	33.60	105.0
85	45.2	0.028	140.32	35.70	104.6
90	43.2	0.026	141.93	37.80	104.1
95	41.3	0.025	143.47	39.90	103.6
100	39.7	0.024	144.95	42.00	103.0
105	38.2	0.023	146.38	44.10	102.3
110	36.8	0.022	147.74	46.20	101.5
115	35.5	0.022	149.06	48.30	100.8
120	34.3	0.021	150.34	50.40	99.9
125	33.2	0.020	151.57	52.50	99.1
130	32.2	0.020	152.76	54.60	98.2
135	31.2	0.019	153.92	56.70	97.2
140	30.3	0.018	155.04	58.80	96.2
145	29.5	0.018	156.14	60.90	95.2
150	28.7	0.017	157.20	63.00	94.2
155	27.9	0.017	158.23	65.10	93.1
160	27.2	0.017	159.24	67.20	92.0
165	26.6	0.016	160.22	69.30	90.9
170	25.9	0.016	161.18	71.40	89.8
175	25.4	0.015	162.12	73.50	88.6
180	24.8	0.015	163.04	75.60	87.4

Orifice Flow Calculation

Pipe Diameter	100	mm
Area	0.008	m^2
Maximum WL	123.70	m
Invert	123.40	m
Head (h)	0.25	m
Co-efficient	0.80	
Flow (Q)	$Q=CA(2gh)^{0.5}$	
	0.014	m^3/s

(100mm orifice tube to convey the flow.)

Cistern Volume	147	m^3
Footprint:	49	m^2
Height:	3	m

Uncontrolled Area	0.0174	m^3/s
Total Peak Flow	0.0244	m^3/s
Target	0.0248	m^3/s
Difference	0.0003	m^3/s

Stormwater Infiltration Drawdown Time

Project:	1771-1775 Jane Street
Project No.:	251581
Municipality:	City of Toronto

Infiltration rate =	74.0	mm/hour

Infiltration Unit Sizing

Required Space for the System =	31	m2
Infiltration Depth =	1010	mm
Retention Volume Provided =	29.8	m3

Drawdown Time

Required Retention Volume =	27.0	m3	
Design Infiltration Rate =	29.6	mm/hr	(2.5 factor of safety applied)
Retention Drawdown Time =	34	hr	

Groundwater Infiltration Drawdown Time

Project:	1771-1775 Jane Street
Project No.:	251581
Municipality:	City of Toronto

Infiltration rate =	74.0	mm/hour

Infiltration Unit Sizing

Required Space for the System =	10.2	m2
Infiltration Depth =	660	mm
System volume =	6.5	m3

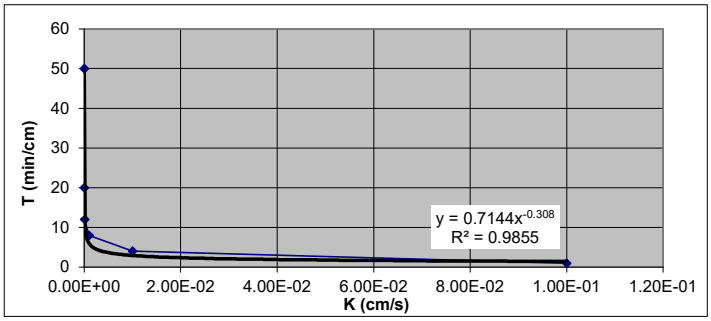
Drawdown Time

Required Storage Volume =	5.0	m3	
Required Drawdown Time =	24	hr	
Design Infiltration Rate =	29.6	mm/hr	(2.5 factor of safety applied)
Actual Drawdown time =	22	hr	

Relationship between Permeability and Percolation Time

K (cm/s)	T (min/cm)	T (mm/hour)
1.00E-01	1	600
1.00E-02	4	150
1.00E-03	8	75
1.00E-04	12	50
1.00E-05	20	30
1.00E-06	50	12
1.00E-07	102	5.9

	K(m/s)	K(cm/s)	T (min/cm)	T (mm/hour)	with 2.5 factor of Safety
MW 25-1	4.00E-09	4.00E-07	67	9	3.6
MW 25-2	4.50E-09	4.50E-07	64	9	3.7
MW 15-1	2.60E-09	2.60E-07	76	8	3.1
MW 15-2	3.80E-06	3.80E-04	8	74	29.7
MW 15-3	5.50E-07	5.50E-05	15	41	16.4
Geomean	**6.30E-08**	**6.30E-06**	**29**	**21**	**8.4**





APPENDIX C

UP-FLO FILTER DETAILS

September 12, 2025

ADS UFF Sizing Summary

Project Name: 1771 Jane Street - Filter 1

Consulting Engineer: Husson Engineering + Management

Location: Toronto, ON

Sizing Completed By: Haider Nasrullah **Email:** haider.nasrullah@ads-pipe.com

Recommended Unit	
Recommended Model:	UFF-5
TSS Removal Percentage:	81.3%
Total Site Volume Treated:	90.3%

Site Details	
Site Area:	0.4 ha
% Impervious:	-
Rational C:	0.85
Rainfall Station:	Toronto, ONT
Particle Size Distribution:	ETV

Unit Specifications:	
Number of Filter Modules:	5
Maximum Treatment Flowrate:	8 L/s
Inlet - Outlet Drop:	240 mm*
Max. Pipe Diameter:	600 mm
Operating Head:	760 mm

* Drop across unit can be reduced when required.

Site Elevations:	
Rim Elevation:	PER SITE PLAN
Inlet Pipe Elevation:	PER SITE PLAN
Outlet Pipe Elevation:	PER SITE PLAN

Consult approved shop drawings for final elevations. Riser sections (and/or grade rings) may be required to reach final grade on site.

Rainfall Intensity[1]	Fraction of Rainfall[1]	Removal Efficiency[2]	Weighted Net-Annual Removal Efficiency
mm/hr	%	%	%
0.50	0.2%	92.3%	0.2%
1.00	14.8%	91.4%	13.5%
1.50	15.1%	90.5%	13.6%
2.00	13.6%	89.6%	12.2%
2.50	3.9%	88.6%	3.5%
3.00	1.3%	87.7%	1.1%
3.50	8.9%	86.8%	7.7%
4.00	5.3%	85.9%	4.6%
4.50	1.2%	85.0%	1.0%
5.00	5.2%	84.1%	4.3%
6.00	4.2%	82.3%	3.5%
7.00	4.6%	80.4%	3.7%
8.00	3.1%	78.6%	2.4%
9.00	2.3%	76.8%	1.7%
10.00	2.2%	75.0%	1.7%
20.00	9.3%	56.7%	5.2%
30.00	2.7%	38.5%	1.0%
40.00	1.1%	20.3%	0.2%
50.00	0.5%	2.1%	0.0%
100.00	0.6%	0.0%	0.0%
150.00	0.1%	0.0%	0.0%
Net Annual Treatment			**81.3%**
Total Runoff Volume Treated:			**90.3%**

Rainfall Data: 1953:2007, HLY03, Toronto , ON, 6158350 & 6158355

Notes:

Removal efficiencies are based on NJDEP Test Protocols and independently verified.

All units supplied by ADS have numerous local, provincial, and international certifications (copies of which can be provided upon request). The design engineer is responsible for ensuring compliance with applicable regulations.

September 12, 2025

ADS UFF Sizing Summary

Project Name: 1771 Jane Street - Filter 2

Consulting Engineer: Husson Engineering + Management

Location: Toronto, ON

Sizing Completed By: Haider Nasrullah **Email:** haider.nasrullah@ads-pipe.com

Recommended Unit	
Recommended Model:	UFF-3
TSS Removal Percentage:	80.8%
Total Site Volume Treated:	90.0%

Site Details	
Site Area:	0.25 ha
% Impervious:	-
Rational C:	0.85
Rainfall Station:	Toronto, ONT
Particle Size Distribution:	ETV

Unit Specifications:	
Number of Filter Modules:	3
Maximum Treatment Flowrate:	4.8 L/s
Inlet - Outlet Drop:	240 mm*
Max. Pipe Diameter:	600 mm
Operating Head:	760 mm

* Drop across unit can be reduced when required.

Site Elevations:	
Rim Elevation:	PER SITE PLAN
Inlet Pipe Elevation:	PER SITE PLAN
Outlet Pipe Elevation:	PER SITE PLAN

Consult approved shop drawings for final elevations. Riser sections (and/or grade rings) may be required to reach final grade on site.

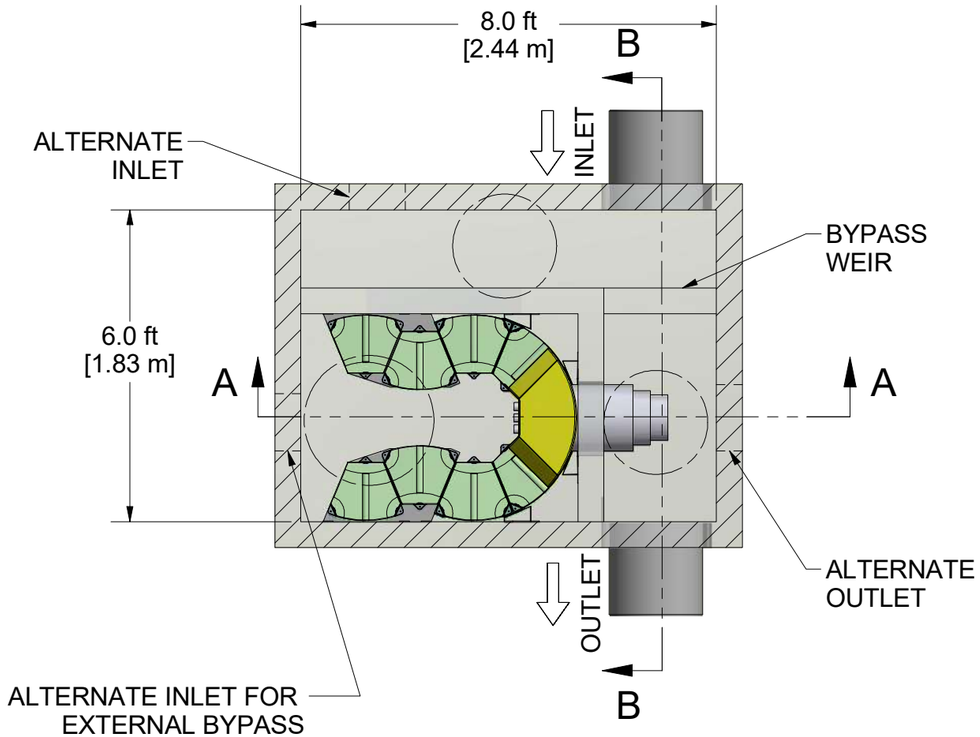
Rainfall Intensity[1]	Fraction of Rainfall[1]	Removal Efficiency[2]	Weighted Net-Annual Removal Efficiency
mm/hr	%	%	%
0.50	0.2%	92.3%	0.2%
1.00	14.8%	91.3%	13.5%
1.50	15.1%	90.4%	13.6%
2.00	13.6%	89.4%	12.2%
2.50	3.9%	88.5%	3.5%
3.00	1.3%	87.5%	1.1%
3.50	8.9%	86.6%	7.7%
4.00	5.3%	85.6%	4.5%
4.50	1.2%	84.7%	1.0%
5.00	5.2%	83.7%	4.3%
6.00	4.2%	81.8%	3.4%
7.00	4.6%	79.9%	3.7%
8.00	3.1%	78.0%	2.4%
9.00	2.3%	76.1%	1.7%
10.00	2.2%	74.2%	1.6%
20.00	9.3%	55.2%	5.1%
30.00	2.7%	36.2%	1.0%
40.00	1.1%	17.3%	0.2%
50.00	0.5%	0.0%	0.0%
100.00	0.6%	0.0%	0.0%
150.00	0.1%	0.0%	0.0%
Net Annual Treatment			**80.8%**
Total Runoff Volume Treated:			**90.0%**

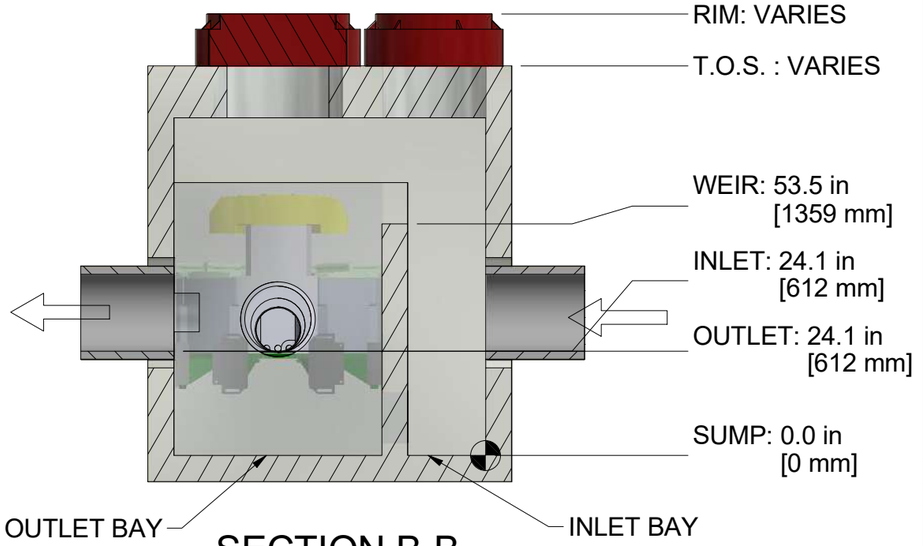
Rainfall Data: 1953:2007, HLY03, Toronto , ON, 6158350 & 6158355

Notes:

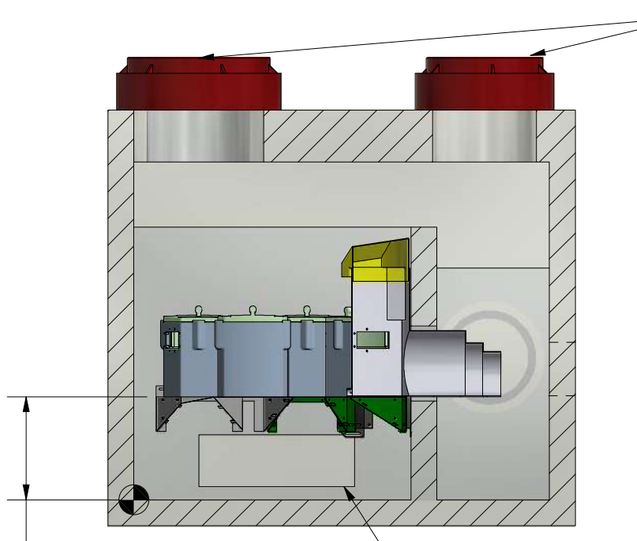
Removal efficiencies are based on NJDEP Test Protocols and independently verified.

All units supplied by ADS have numerous local, provincial, and international certifications (copies of which can be provided upon request). The design engineer is responsible for ensuring compliance with applicable regulations.





SECTION B-B



SECTION A-A

CAPACITIES:

- Minimum performance: 80% removal. Washington DOE/NJCAT verified at the peak treatment flow.
- Peak treatment flow:
  .033 CFS (0.9 LPS) (15 GPM) per module (Ribbons)
  .022 CFS (0.6 LPS) (10 GPM) per module (Long Ribbons)
  .056 CFS (1.6 LPS) (25 GPM) per module (CPZ)
- Maximum number of ribbon modules per outlet module: 36
- Maximum number of CPZ modules per outlet module: 18 (contract Hydro if more are required)

ADDITIONAL DESIGN INFORMATION:

- Normal operating W.S.E. is 26-30" (660-762mm) above the outlet invert
- Media Types Available: Ribbons, CPZ

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DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES.

TOLERENCES ARE:
FRACTIONS ± 1/16
DECIMALS:
X.X ± .06
X.XX ± .03
X.XXX ± .015
ANGLES: ± .5°

PROJECTION

COMMENTS:
1. STRUCTURE WALL AND SLAB THICKNESSES ARE NOT TO SCALE
2. CONTACT HYDRO INTERNATIONAL FOR A BOTTOM OF STRUCTURE ELEVATION PRIOR TO SETTING THE STRUCTURE
3. NOT FOR CONSTURCION CONTACT HYDRO FOR SITE SPECIFIC DRAWING
4. NOT ALL SIZES AVAILABLE IN ALL AREAS
5. SUMP DEPTH AVAILABLE IN 24" (610mm) CPZ, RIBBONS AND 36" (914mm) LONG RIBBONS DEPTH

REVISION HISTORY

REV	BY	DESCRIPTION	DATE
-	ER	FIRST RELEASE	3/8/2019

DATE: 3/8/2019
SCALE: 1:35
DRAWN BY: ER
CHECKED BY:
APPROVED BY

Title
UP-FLO FILTER
6ft (1829mm) X 8ft (2438mm)

8 MODULES MAX

Hydro International

94 Hutchins Drive
Portland, ME 04102
Tel: +1 (207) 756-6200
Fax: +1 (207) 756-6212
hydro-int.com

WEIGHT: N/A
MATERIAL:
NEXT ASSEMBLY: 6x8-1
DRAWING NO.: 6x8-UFF-1
SHEET SIZE: B
SHEET: 1 OF 1
Rev: -

Verification Statement



Hydro International Up-Flo® Filter with CPZ™ Media

Registration number: (V-2019-06-01)
Date of issue: (2020-May-13)

Technology type	Stormwater Filtration Device		
Application	Technology to remove sediment, nutrients and metals from stormwater runoff		
Company	Hydro International	**Website**	https://www.hydro-int.com
Address	94 Hutchins Drive, Portland, Maine USA 04102		
E-mail	TechSupport@hydro-int.com	**Phone**	+1 (207) 756 6200

This Verification Statement was prepared by VerifiGlobal to summarize the results reported in the Verification Report for the Hydro International Up-Flo® Filter with CPZ™ Media, dated November 26, 2019. The Verification Report was prepared by Good Harbour Laboratories Inc. (GHL) for VerifiGlobal in accordance with the requirements of the International Organization for Standardization (ISO) 14034 Environmental Technology Verification (ETV) standard and the VerifiGlobal Performance Verification Protocol. All the information provided in this Statement are based on the independent, third-party review and verification of technical information, performance test reports, performance data and specific performance claims documented in the Verification Report.

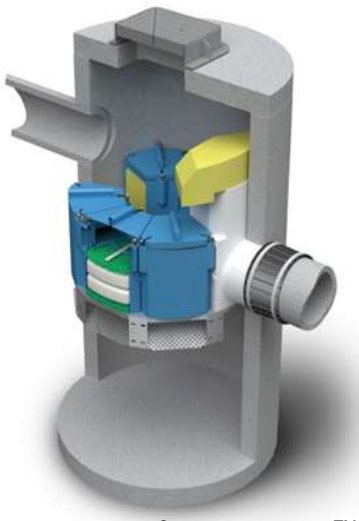


Figure 1: Up-Flo® Filter with CPZ™ Media

Technology Description

The Up-Flo® Filter with CPZ™ Media is a stormwater remedial device that incorporates gravitational separation of floating and settling materials, screening, and filtration of polluted stormwater to offer treatment train capabilities in a standalone device. Each Up-Flo® Filter consists of a highly configurable array of modules that are typically supplied as a complete system housed in a 4-ft (1.2 m) diameter manhole or precast vault. Manhole configurations consist of a single ring assembly containing one to six modules. Vaulted systems are highly configurable and may contain single or multiple arrays each consisting of one to 18 Filter Modules depending on availability of vault sizes.

Verified Performance Claims

Verification of the Hydro International Up-Flo® Filter with CPZ™ Media is based on existing performance test data from two different locations with different rainfall characteristics, catchment areas and pollutant loadings. Supporting data were obtained from three independent perfomance monitoring studies. One was conducted by Engineering School of Sustainable Infrastructure and Environment (ESSIE) at the University of Florida (UF) under the supervision of Dr. John Sansalone and two were conducted by Department of Civil, Construction, and Environmental Engineering (CCEE) at the University of Alabama (UA) under the supervision of Dr. Bob Pitt.

All three studies performance monitoring studies were conducted following the requirements of the New Jersey Department of Environmental Protection (NJDEP) Technology Acceptance Reciprocity Partnership (TARP) Tier II Protocol for Stormwater Best Management Practice Demonstrations (2003) and its 2006 and 2009 amendments. In total, there were 66[1] storms assessed to verify that an Up-Flo® Filter with CPZ™ Media achieves the performance listed in Tables 1 and 2, when designed to the following parameters:

- System hydraulic loading rate of 25 gpm (1.58 L/s) per filter module, with bypass of higher flows.
- Filter flux rate of 22.7 gpm/ft2 (15.4 L/s/m2)
- Operating head of ≤30 in. (76.2 cm)
- Effective Sedimentation/ Filtration Treatment Area (ESA/EFTA) –12.6/6.6 (1.91)
- Maximum sediment storage volume of 16.8 ft3 (0.476 m3) at a sediment depth of 16 inches (0.41m).

Table 1. Up-Flo® Filter with CPZ™ Media – Verified Concentration Removal Efficiency

Constituent	Lower 95% Confidence Interval	Median	Upper 95% Confidence Interval
SSC *	85.9%	92.8%	94.7%
SSC **	73.9%	82.8%	86.3%
TSS *	79.0%	89.2%	91.0%
TSS **	72.0%	78.3%	85.2%
TN *	9.0%	28.5%	64.7%
TP *	33.8%	43.9%	50.9%
Zn **	39.4%	50.0%	62.1%
Cu **	72.6%	80.7%	85.2%
* Based on ESSIE (UF) Performance monitoring results ** Based on CCEE (UA) Performance monitoring results			

Table 2. Up-Flo® Filter with CPZ™ Media – Verified Flow Weighted Mass Removal Efficiency

Constituent	ESSIE (UF) Performance monitoring results		CCEE (UA) Performance monitoring results
	6-month	12-month	12-month
SSC	93%	92%	86%
TSS*	89%	87%	87%
TN **	68%	39%	***
TP **	48%	48%	***
Zn	***	***	59%
Cu	***	***	70%
* TSS results for UF are a function of SSC. ** TN and TP load data was time dependent after 6-months *** No data submitted			

[1]Of the total 66 storms (16 storms from UF and 50 storms from UA), 62 were identified as qualifying events having quality data for TSS, and 59 for SSC. Fewer events with metals detected in the runoff limited the metals data sets. There were a total of 28 and 17 storms for Zn and Cu, respectively, solely from the UA data. Total Nitrogen and Total Phosphorous claims were based on the 16 storms recorded solely from the UF data.

Description of Test Procedure

Table 3 shows the target criteria as outlined by the TARP and TAPE programs as well as the results achieved at the two locations. Table 4 provides a more detailed description of the observed operating conditions over the testing period. At the time of testing, the TARP and TAPE programs both allowed for field testing data to be used to obtain certification in participating states. They were the most widely used protocols and were generally accepted as industry standards. The TARP program has since stopped accepting field data, but the TAPE program remains in effect and is currently referenced to benchmark the quality of data obtained from stormwater monitoring programs.

Table 3. Up-Flo® Filter with CPZ™ Media Performance Testing - Specified TARP & TAPE criteria, and achieved results, for storm selection and sampling

Description	TARP Criteria	TAPE Criteria	Achieved value	
			ESSIE - UF	CCEE - UA
Total rainfall/storm	≥2.5 mm (0.1”)	≥3.81 mm (0.15”)	>2.5 mm (0.1")	≥4.6 mm (0.18”)
Minimum inter-event period	6 h	6 h	≥ 6 h	≥ 6 h
Minimum flow-weighted composite sample storm coverage	70% including as much of the first 20% of the storm	75% including as much of the first 20% of the storm	100%	87.6%
Minimum influent/effluent samples	10, but a minimum of 5 subsamples for composite samples	12, but a minimum of 10 subsamples for composite samples	5, whole manual samples	11
Total sampled rainfall	≥ 381 mm (15”)	NA	195 mm (7.66”)	765 mm (30.07”)
Total sampled storms	≥ 20	≥ 12	16	29

Table 4. Up-Flo® Filter with CPZ™ Media Performance Testing - Observed operational conditions for events monitored over each performance test period

Operating parameter	Observed range	
	ESSIE - UF	CCEE - UA Total*
Storm duration	0.35-5.78 h	0.67-64.7 h
Previous dry hours**	6-213	> 6 hrs for the 20 storms in 1st study and 12-632 hrs for 30 storms in second study
Rainfall depth	0.10-1.64 in	0.18-2.44 in
Runoff volume	223-4095 gal (0.84-15.5 m^3)	2,065-61,131 gal(7.82-231 m^3)
Peak rainfall intensity (5 min)	1.2-5.4 in/h (3.0-13.7 cm)	0.24-4.68 in/h (0.61-11.9 cm)
Peak runoff flow rate	27.7-233 gpm (1.75-14.7 L/s)	68-1023 gpm (4.29-64.5 L/s)
Event median flow rate	2.4-21.4 gpm (0.15-1.35 L/s)	28-175 gpm (1.75-11.0 L/s)

* The UA data ranges cover the storms for both studies; ranges for individual studies might be narrower.
** This is the same as the time period between events, or time since it last rained a qualifying event.

For the UF study, performance monitoring was conducted at the Reitz Union surface parking lot, which had a drainage area of 0.12-0.20 acres (0.049-0.081 ha),which was 76% impervious, depending on storm intensity and wind direction. The area generated a flow rate in excess of the 150 gpm (9.55 L/s) maximum treatment flow rate (MTFR) in 3 of the 16 storms. The 4-ft diameter (1.2 m) test unit was installed above ground in a temporary installation at the bottom of a hill sloping down from the lot. An inlet catch basin conveyed runoff from the parking lot through a Pashall flume into the filter. Monitoring occurred over a period of 12 months and the UF team recovered the captured mass at the end of the perfomance monitoring study. No maintenance was required or conducted during the year long monitoring period from 12 September 2015 through 1 September 2016.

The UA perfomance monitoring studies covered a total of 50 storms, but not all of them yielded useful data for all parameters. The site used in both cases was the Riverwalk parking lot near the Bama Belle in Tuscaloosa, Alabama. The drainage area was about 0.9 acres (0.36 ha), 68% impervious. The unit was installed in a 4 ft. (1.2 m) diameter below-grade catch basin inlet manhole on the site. Monitoring occurred in two stages of approximately 12 months each over a total of 32 months. The first round of testing occurred from July 16, 2010 to April 11, 2011 and the second from May 31st, 2012 to March 30th, 2013.

The UA perfomance monitoring study used autosamplers to generate the flow-weighted composite samples and the event mean concentration data. This data was used to calculate removal efficiencies. However, in the UF performance monitoring study, sediment removal performance was assessed by taking full cross section samples of the influent and effluent streams at regular intervals for the duration of the storm and combining the samples into flow-weighted composites. The data was converted into event mean concentrations for the purposes of calculating removals.

The following approved analytical methods were used:

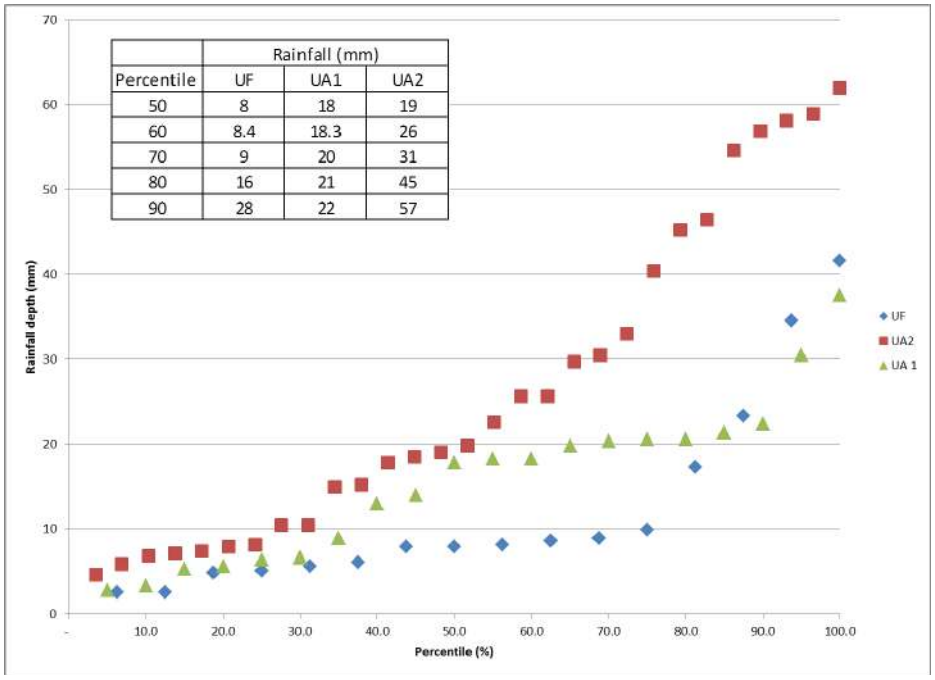
- TSS – ASTM D2540
- SSC – ASTM D3977-97(2013) Standard Test Methods for Determining Sediment Concentration in Water Samples
- PSD – ASTM D422 – 63 Standard Test Method for Particle-Size Analysis of Soils and ASTM C136 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
- PSD – ASTM 2560- C, D (UF used 2560D laser diffraction or light-scattering method and UA used 2560C Coulter Counter or light-blocking method)
- TP – S.M.4500-P-B Acid Hydrolysis
- TN – Persulfate Digestion Method
- Cu – EPA 200.8 Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry
- Zn - EPA 200.8 Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry

As part of the mass balance measurements, the UF team allowed all samples to sit for an hour and reported concentrations of suspended solids, measured using ASTM 2540D, as TSS, in addition to the usual SSC measurement using SM3977. In order to be able to report a TSS comparable to other perfomance monitoring studies, Dr. Sansalone developed a correlation equation for TSS* = f(SSC) as well as equations for the 95% confidence limits of TSS*.

Summary of Verification Results

The cumulative frequency of rainfall depths monitored during the three perfomance monitoring studies is presented in Figure 2. The median rainfall depths in the three perfomance monitoring studies were 0.31, 0.71, and 0.75 inches (8, 18 & 19 mm) while the 90th percentile rainfall depths were 1.1, 0.9 and 2.2 inches (28, 22 and 57 mm). Thus the data presented covers a comparatively wide range of rain events.

Figure 2. Rainfall depth frequency curves



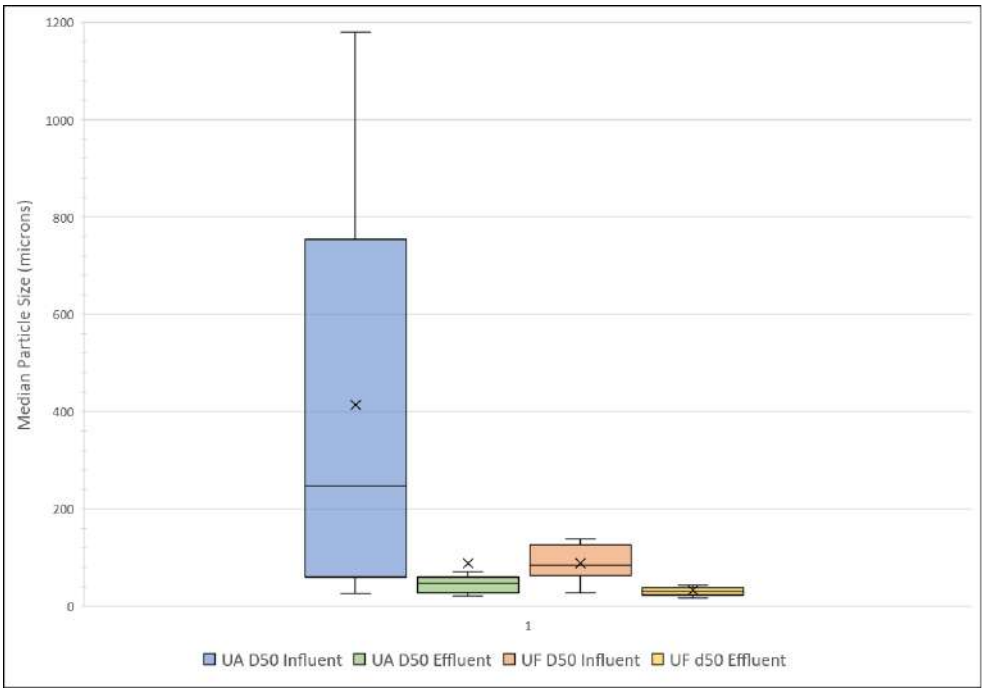
For UF monitoring, a total of 16 storm events, with varying rainfall intensity and runoff volume from event to event, were monitored. The cumulative rainfall depth was 7.66 inches (195 mm) and the cumulative influent runoff volume was 20,022 gallons (7.65 m^3). The entire volume was treated by the Up-Flo® Filter system. Of the 16 storms treated, three storms generated flow rates exceeding the MTFR of 150 gpm (9.55 L/s) but there was no bypass, because the excess was not sufficient to top the overflow weir, and all sampled flows passed through the filtration media. Median driving head difference for an event never exceeded 13.1 inches (33.3 cm) and peak driving head difference never exceeded 27.1 inches (68.8 cm), which indicates the media was not occluded.

For the UA site, all of the storm events from May 31st, 2012 to March 30th, 2013 were monitored for flow but only 30 events were sampled. The total rainfall depth for this period was 49 inches (124.5 cm) or 982,192 gal. (3,718 m^3) of runoff volume that was routed through the filter. Actual storm data from the monitoring period showed about 624,503 gal. (2,364 m^3) of runoff (from about 30 inches or 76.2 cm of rainfall) was treated by the media filter system. This included about 28.5 % of bypass flow volume, which was sampled and included in the performance results. Given that the total bypassed volume was almost three times the expected bypass volume at the UA site, the UA results are considered conservative.

Influent particle sizes varied considerably between the two monitored locations and between storm events. Catchment characteristics and available sources, sampling methods (auto sampling vs. grab sampling), storm intensities, duration and volumes all influence the particle size range. The particle size analyses were completed for just the median particle size for each storm. A comparison of statistical descriptive values for influent and effluent median particle sizes for the two monitored sites is illustrated with the Whisker-Box-Plot shown in Figure 3.

Due to larger storm events and curbside erosion, the median UA influent particle size range and d_{50} were substantially the larger of the two monitored sites. The interquartile range for the influent median particles sizes was 659 µm for UA compared to 59 µm for UF and the UA d50 was 247 µm compared to 85 µm for UF. However, despite the influent particle size differences between locations, the median UA and UF effluent particle size range and d50 were similar. The interquartile range for the effluent median particles sizes was 33 µm for UA compared to 13 µm for UF and the UA d50 was 48 µm compared to 30 µm for UF.

Figure 3. UF and UA Summary of Influent and Effluent Median Particle Sizes



Summary statistics for the influent and effluent concentration removal efficiencies as well as the overall mass load reductions are shown in Table 4 and Table 5 for UF and UA, respectively.

While the flow weighted removal efficiency for TP and TN were 48% and 39%, respectively, TP and TN reduction tended to decrease with the overall volume treated. Results showed that if the filter maintnenance cycle is limited to 6-8 months, the long-term load reduction for TP and TN would have been 50% and 70%, respectively.

Table 4: Up-Flo® Filter with CPZ™ Media Performance Testing - Summary statistics for influent and effluent event mean concentrations (EMCs) and the overall mass load reductions for selected constituents (UF Test)

Parameter	Sample Location	Min	Max	Median	SD	Mass Load Reduction
SSC	Influent	146	1584	487	360	92%
	Effluent	19.9	96.5	43.25	20.2	
TSS*	Influent	93.3	870	277	194	87%
	Effluent	25.0	66.4	37.6	10.9	
TP	Influent	0.79	6.05	1.9	1.70	48%
	Effluent	.56	2.19	1.1	0.56	
TN	Influent	.41	7.89	2.1	2.18	39%
	Effluent	.52	3.84	1.2	1.21	

Table 5. Up-Flo® Filter with CPZ™ Media Performance Testing - Summary statistics for influent and effluent event mean concentrations (EMCs) and the overall mass load reductions for selected constituents (UA Tests)

Parameter	Sample Location	Min	Max	Median	SD	Mass Load Reduction
SSC (mg/L)	Influent	23	879	88	166	86%
	Effluent	3	69	17	18	
TSS (mg/L)	Influent	11	571	89	128	87%
	Effluent	3	64	19	22	
Total Zn (µg/L)	Influent	7.0	157	22.0	0.71	59%
	Effluent	2.5*	72	14.0	0.68	
Total Cu (µg/L)	Influent	6	181	9	42	70%
	Effluent	1.3**	42	1.3	20.9	

* There was a single effluent value that was non-detect (ND). Since it was only 1 value ½ the detection limit 1.3 µg/L, was substituted when calculating statistics.
**The Cu data was highly censored (many non-detect, ND, effluents). Statistics were calculated by substituting ½ the detection limit, 1.3 µg/L, for all ND data then bootstrapping as usual.

As the independent third-party verifier, following the requirements of ISO 14034, GHL has confirmed that:

- The Hydro International Up-Flo® Filter with CPZ™ Media is based on sound scientific and engineering principles, providing a net environmental benefit.
- Performance testing of the Hydro International Up-Flo® Filter with CPZ™ Media was based on defined parameters and was conducted following the requirements of the NJDEP TARP Tier II Protocol for Stormwater Best Management Practice Demonstrations (2003) and its 2006 and 2009 amendments.
- Performance testing of the Hydro International Up-Flo® Filter with CPZ™ Media was performed by a qualified testing organization.
- Sample analyses were carried out as part of the test plan by a third-party analytical laboratory in a manner that meets the quality requirements of ISO 17025. Operating conditions and performance during each testing run were documented.
- Frequency of sampling and duration of each performance test were determined based on the specifications in a credible test plan and the requirements to produce sufficient data to support the performance claim at a 95% confidence level.
- Performance measurements and calculations were based on the technology application and relevant performance parameters as outlined in the Verification Plan.
- Performance calculations were done according to generally accepted test methods described in the test design, including the applicable mathematical and statistical principles and procedures.
- Data storage, transfer and control were adequate, carried out in accordance with the intent of ISO 9001 enabling control and retrieval of documents and records.
- Quality assurance requirements were addressed throughout the performance testing process and in the generation of performance test results. This confirmation included reviewing all data sheets and data downloads, as well as overall management of test system quality.

Quality Assurance

Performance testing and verification of the Hydro International Up-Flo® Filter with CPZ™ Media were performed in accordance with the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. The verifier, Good Harbour Laboratories, has confirmed that quality assurance requirements were addressed throughout the performance testing process and in the generation of performance test results. This includes reviewing all data sheets and data downloads, as well as overall management of the test system, quality control and data integrity.

References

Technology Acceptance Reciprocity Partnership (TARP) Protocol and New Jersey Department of Environmental Protection (NJDEP amendments to the TARP Protocol, dated August 5, 2009 and Revised December 5th, 2009

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Description of Up-Flo® Filter

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Up-Flo® Filter Verification Brochure

ISO/IEC 14034, Environmental management – Environmental technology verification

ISO/IEC 17025, General requirements for the competence of testing and calibration laboratories

ISO/IEC 9001, Quality Management Systems.

VerifiGlobal Performance Verification Protocol (Applying ISO 14034:2016)

VerifiGlobal Test Body Assessment – Guidance (2018)

What is ISO 14034?

The purpose of environmental technology verification is to provide a credible and impartial account of the performance of environmental technologies. Environmental technology verification is based on a number of principles to ensure that verifications are performed and reported accurately, clearly, unambiguously and objectively. The International Organization for Standardization (ISO) standard for environmental technology verification (ETV) is ISO 14034, which was published in November 2016.

Benefits of ETV

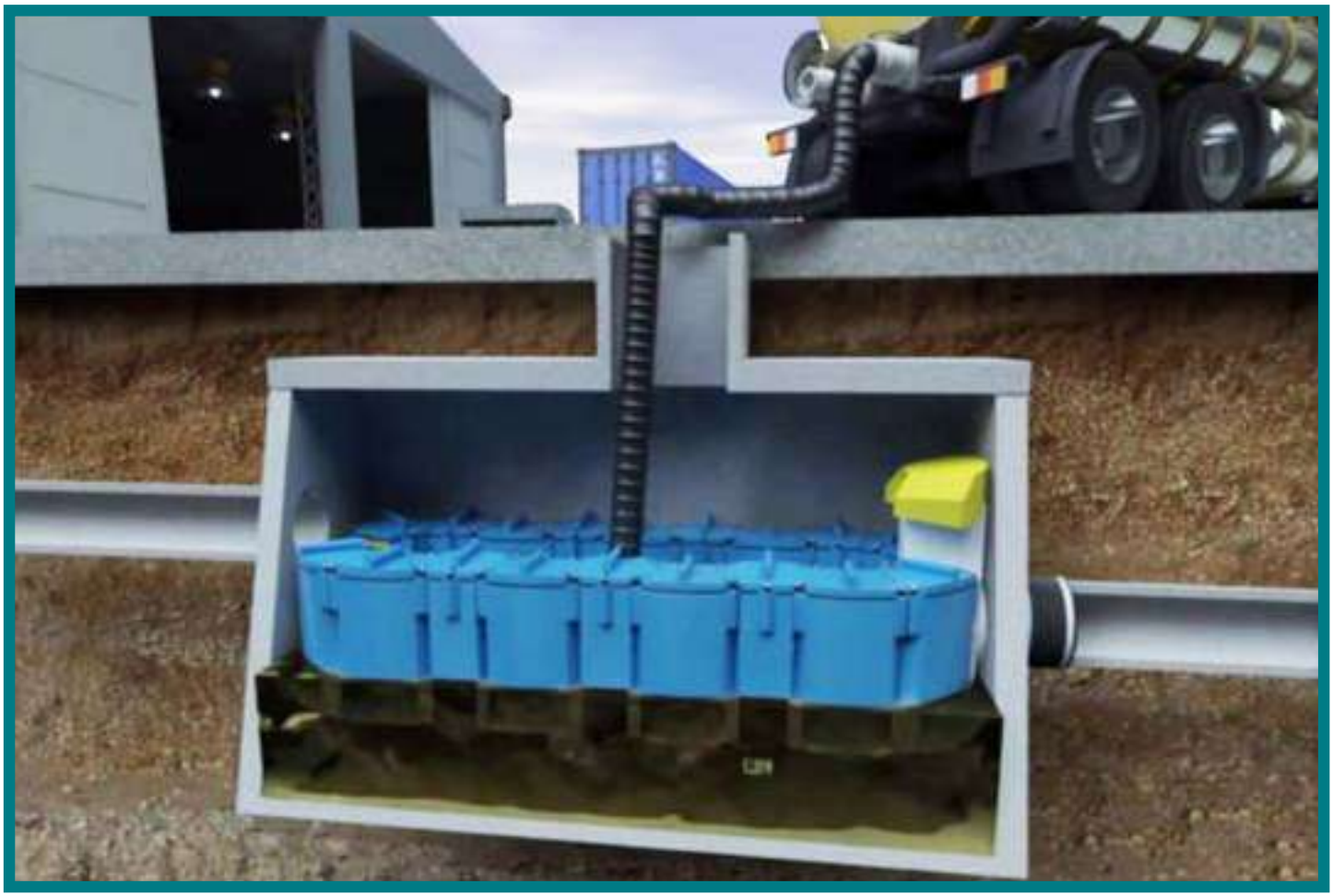
ETV contributes to protection and conservation of the environment by promoting and facilitating market uptake of innovative environmental technologies, especially those that perform better than relevant alternatives. ETV is particularly applicable to those environmental technologies whose innovative features or performance cannot be fully assessed using existing standards. Through the provision of objective evidence, ETV provides an independent and impartial confirmation of the performance of an environmental technology based on reliable test data. ETV aims to strengthen the credibility of new, innovative technologies by supporting informed decision-making among interested parties.

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Signed for Hydro International: *Original signed by:* *Phillip Taylor* Phillip Taylor Technical Product Manager, Americas Stormwater	Signed for VerifiGlobal: *Original signed by:* *Thomas Bruun* Thomas Bruun, Managing Director *Original signed by:* *John Neate* John Neate, Managing Director

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Hydro International®



Operation and Maintenance Manual

Stormwater Solutions

Up-Flo® Filter

Filtration System for Stormwater Treatment

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Portland, ME 04102

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stormwaterinquiry@hydro-int.com

www.hydro-int.com

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IMPORTANT - ORDER REPLACEMENT PARTS FOR MAINTENANCE - IMPORTANT

Annual maintenance requires replacement of the Media Packs and the Drain Down Filter. Contact Hydro International to order replacements. Allow 2-4 weeks for delivery.

Office hours Monday thru Friday 8:00 A.M. to 5:00 P.M. EST
Toll free: 1-888-382-7808
Phone: 207-756-6200
Fax: 207-756-6212
Email: services@hydro-int.com

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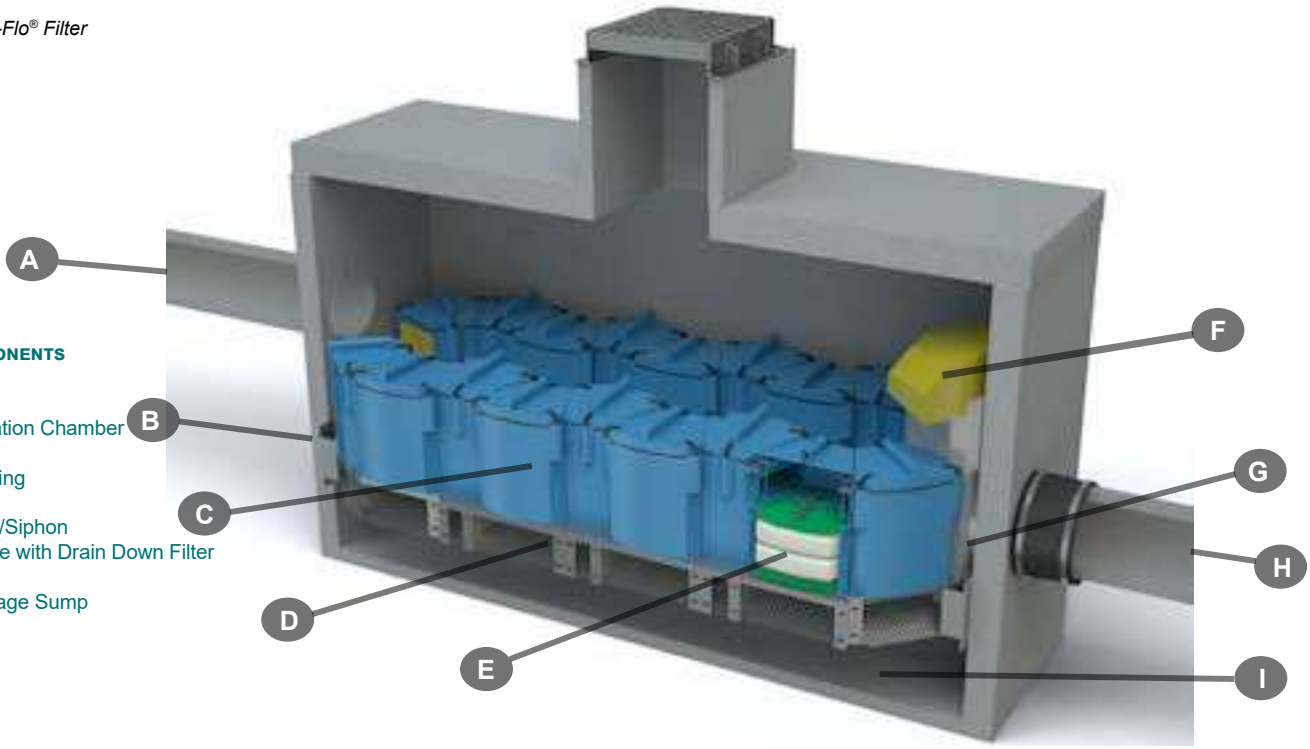
DISCLAIMER: Information and data contained in this manual is exclusively for the purpose of assisting in the operation and maintenance of Hydro International plc's Up-Flo®Filter. No warranty is given nor can liability be accepted for use of this information for any other purpose. Hydro International plc have a policy of continuous product development and reserve the right to amend specifications without notice.

Overview & Product Description

The Up-Flo® Filter is a modular high-rate stormwater filtration device designed to capture trash, oil, sediment and remove fine pollutants such as dissolved and particulate metals and nutrients from stormwater runoff. Designed with efficiency, longevity and upkeep in mind, this high performance, low maintenance filter option that offers higher loading rates and longer media life for higher quality stormwater for longer periods between servicings.

In general, a minimum of two inspections are required per year to monitor sediment and gross pollutant accumulations. In order to achieve an annual TSS removal rate of 80% for the Up-Flo® Filter, the minimum maintenance frequency specified in the maintenance section for replacement of the Media Pack and removal of accumulated sediment from the sump is mandatory.

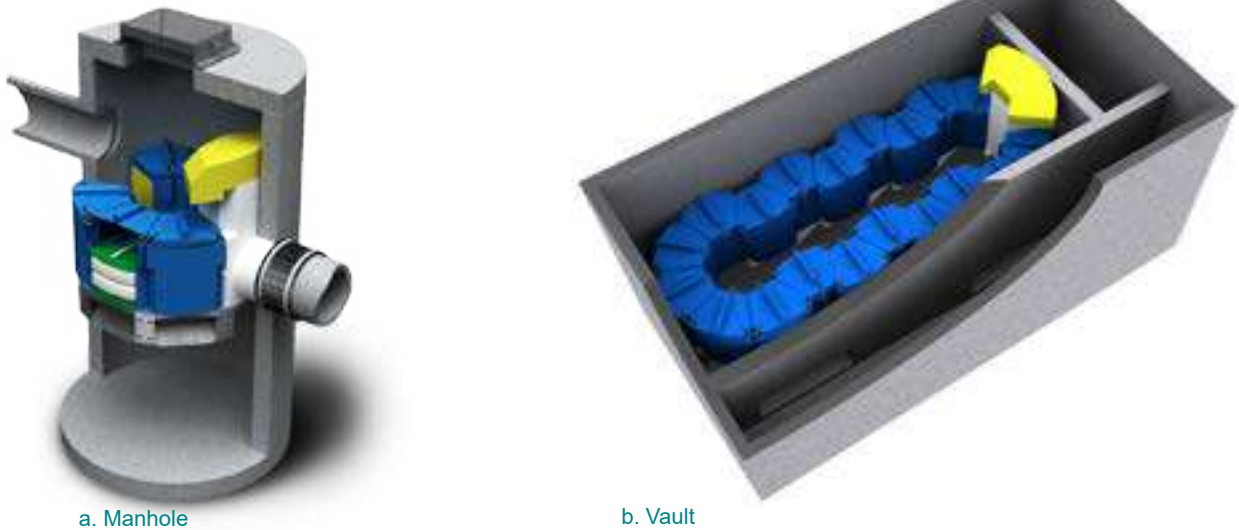
Fig.1 *The Up-Flo® Filter*



System Components

A. Inlet Pipe
B. Precast Filtration Chamber
C. Filter Module
D. 4mm Screening
E Media bag
F. Bypass Hood/Siphon
G. Outlet Module with Drain Down Filter
H. Outlet pipe
I. Pollutant Storage Sump

Product Configurations



a. Manhole

b. Vault

Fig.2 *The Up-Flo® Filter is installed in a) 4-ft (1.2m) round manholes or b) in rectangular precast vaults. Both configurations have a wide central opening in the Up-Flo® Filter.*

Hydro Maintenance Services

Hydro International has been engineering stormwater treatment systems for over 30 years. We understand the mechanics of removing pollutants from stormwater and how to keep systems running at an optimal level.

Nobody Knows our Systems Better than we do



Avoid Service Negligence

Sanitation services providers not intimately familiar with stormwater treatment systems are at risk of the following:

- Inadvertently breaking parts or failing to clean/replace system components appropriately.
- Charging you for more frequent maintenance because they lacked the tools to service your system properly in the first place.
- Billing you for replacement parts that might have been covered under your Hydro warranty plan
- Charging for maintenance that may not yet have been required.

Leave the Dirty Work to us

Trash, sediment and polluted water is stored inside treatment systems until they are removed by our team with a vactor truck. Sometimes teams must physically enter the system chambers in order to prepare the system for maintenance and install any replacement parts. Services include are are not limited to:

- Solids removal
- Removal of liquid pollutants
- Replacement media installation (when applicable)



Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

Better Tools, Better Results

Not all vactor trucks are created equal. Appropriate tools and suction power are needed to service stormwater systems appropriately. Companies who don't specialize in stormwater treatment won't have the tools to properly clean systems or install new parts.



Service Warranty

Make sure you're not paying for service that is covered under your warranty plan. Only Hydro International's service teams can identify tune-ups that should be on us, not you.

Treatment Systems Serviced by Hydro:

- Stormwwater filters
- Stormwater separators
- Baffle boxes
- Biofilters/biorention systems
- Storage structures
- Catch basins
- Stormwater ponds
- Permeable pavement







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Operation

Introduction

The Up-Flo® Filter operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirements and is fabricated with durable non-corrosive components. Personnel are not required to operate the unit and maintenance is limited to periodic inspections, sediment and floatables removal, Media Pack replacement and Drain Down Filter replacement.

Pollutant Capture

The Up-Flo® Filter is designed to operate as a "treatment train" by incorporating multiple treatment technologies into a single device. Trash and gross debris are removed by sedimentation and screening before they are introduced to the filtration media, preventing surface blinding of the filter media. The Up-Flo® Filter is a wet-sump device. Between storm events, oil and floatables are stored on the water surface separate from the sediment storage volume in the sump (see **Fig.1**). The high-capacity bypass siphon acts as a floatables baffle to prevent washout of captured floatable pollutants during high intensity events.

Reduced Clogging

The Up-Flo® Filter has been designed to minimize the occurrence of clogging and blinding and employs a unique Drain Down Filter that allows the water level in the chamber to drop below the filter media between events. The Drain Down Filter mechanism creates a reverse flow that flushes captured pollutants off the surface of the Media Bag, helping to prevent blinding. By allowing the water to drain out, the Drain Down Filter also reduces the weight of the Media Bags. This makes the bags easier and safer to remove during maintenance operations.

Overflow Protection

The Angled Screens are designed to prevent ragging and blinding and are situated below the Filter Modules, sheltering them from the direct path of the influent. Coarse debris settles in the sump before the runoff flows up through the screens, protecting them from blinding. In the unlikely event of a blockage, the high capacity siphonic Bypass Hood is designed to convey high enough flow to minimize the risk of large storm creating upstream flooding.

Best Practices

Good housekeeping upstream of the Up-Flo® Filter can significantly extend Media Bag life. For example, sweeping paved surfaces, collecting leaves and grass trimmings, and protecting bare ground from erosion will reduce loading to the system. Media Packs should not be installed in the Filter Modules until construction activities are complete and site stabilization is effective.

Damage Due to Lack of Maintenance

Delayed maintenance would result in clogged Media Bags and/or blinded Angled Screens. In that situation, the Up-Flo® Filter would go into bypass and there would be no treatment of the incoming stormwater. Because the Bypass Weir can easily convey all of the flow to the Outlet Module, there would be no lasting damage to the system. Replacement of the Media Bags and removal of sediment from the sump would restore the Up-Flo® Filter to its original treatment efficiency. Establishing and adhering to a regular maintenance schedule ensures optimal performance of the system.

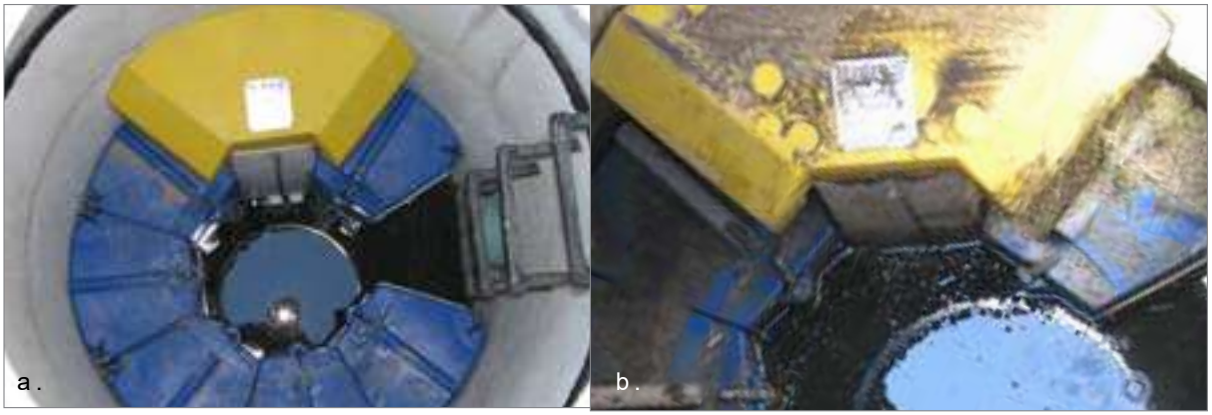


Fig.3 a) The water level in a properly functioning Up-Flo® Filter will drain down to the base of the Filter Modules. b) When the Drain Down Filter becomes clogged, the base of the Filter Modules will be submerged in standing water. Note, above right, that the Drain Down Filter is submerged in standing water.

Inspection & Maintenance

Overview

The Up-Flo® Filter protects the environment by removing a wide range of pollutants from stormwater runoff. Periodic removal of these captured pollutants is essential to the proper functioning of the Up-Flo® Filter.

Maintenance activities can be categorized as those that may be performed from outside the Up-Flo® vessel and those that are performed inside the vessel. Maintenance performed from outside the modules includes removal of floatables and oils that have accumulated on the water surface and removal of sediment from the sump. Maintenance performed inside the vessel includes removal and replacement of Media Bags, Flow Distribution Media and the Drain Down Filter. A vactor truck is required for removal of oils, water, sediment, and to completely pump out the vessel to allow for maintenance inside. If you are not using Hydro Internatioanl or a trained servcie provider you must follow OSHA Confined Space Entry procedures when entering the Up-Flo® vessel.

The Up-Flo® Filter design has a wide central opening between the Filter Modules for easy access to all of the components (see **Fig.3**). In the case of inspection and floatables removal, a vactor truck is not required. Otherwise, a vactor truck is normally required for oil removal, removal of sediment from the sump, and replacement of the Media Packs and Drain Down Filter. In most cases, entry into the Up-Flo® Filter vessel is required for replacement of the Media Packs and Drain Down Filter.

The minimum required frequency for replacement of the Media Pack is annually, whereas the minimum required frequency for removal of accumulated sediment from the sump is dependent on the Up-Flo® Filter configuration. Configurations with a larger sediment storage volume per module will require less frequent removal of accumulated sediment. Regardless, whenever sediment depth in the sump is found to be greater than 16 inches, sediment removal is required.



Fig.4 a) A new Media Bag of Hydro Filter Sand. b) A spent media bag of Hydro Filter Sand.

At a minimum, media bags must be replaced at least once a year.

Make Sure your System was Installed Correctly

First Year Inspection and Maintenance

The frequency of inspection and maintenance can be determined in the field after installation. The frequency of ongoing maintenance needs is based on site characteristics such as contributing area, types of surfaces (e.g., paved and/or landscaped), site activities (e.g., short-term or long-term parking), and other site maintenance (e.g., sanding and sweeping). At a minimum, inspection and maintenance should be conducted at intervals of no more than six months during the first year of operation. Maintenance personnel should observe and record pollutant accumulations during the first year of service in order to benchmark the maintenance intervals that will later be established for the site. Pollutant accumulations should be measured or monitored using the following procedures:

- Measurement of sediment depth in the sump: A minimum of 8 inches (20 cm) should separate the Drain Down Filter inlet from stored sediment in the sump in order to minimize sediment migration into the Drain Down Filter. A simple probe, such as the Sludge-Judge®, can be used to determine the depth of the solids in the sump. In a typical 4-ft (1.2m) diameter manhole installation, the sediment depth should be no more than 16 inches (41 cm).

- Maintenance personnel should then enter the structure, remove the Media Pack from one of the Filter Modules, and weigh the Media Bags. Media Bags with a wet weight of approximately 40 lbs (18 kg) or more are an indication that the filter media has become full and that the Media Packs in all of the Filter Modules will require replacement (Fig.4). Minimum filtration rate is generally reached when the Media Bags have accumulated approximately 20 lbs (9 kg) of sediment. Determining the amount of accumulated sediment will be accomplished by removing both of the Media Bags from one of the Media Packs and weighing the bags separately. Since a new Media Bag weighs approximately 30 lbs (14 kg) wet, the difference in weight will approximately equal the weight of solids that have accumulated in the bag. A spent Media Bag weighs approximately 50 lbs (23 kg) wet.

- Measurement of oil layer on water surface: Since water in the Up-Flo® vessel drains down to an elevation below the bottom of the Filter Modules when the system is idle, the amount of accumulated oil must be minimized so that oil is not entrained in the Media Pack when stormwater begins to fill the vessel at the start of a storm event. Oil accumulation should be limited to 1.5 inches (4 cm) or less. Probes can be used to measure oil thickness.

- Monitoring for Drain Down Filter clogging: The water level in the Up-Flo® Filter should be monitored to ensure that the Drain Down Filter is operating properly. The Drain Down Filter is designed to lower the water level in the Up-Flo® vessel to an elevation below the bottom of the Filter Modules between storm events. Periodically conduct an inspection one to two days after a storm event during the first year of operation. Approximately 36 hours after a 1-in (2.5-cm) rainfall, the water level inside the vessel should have dropped to a point where it is equal with the base of the Filter Modules. If the water level has not reached that point, then the Drain Down Filter has either become clogged or blinded by trash or debris (Fig.5 a and b). If there is no evidence of trash or debris around the Drain Down Filter inlet, then it has likely become clogged with particles.

- Monitoring for slime and debris covering the Flow Distribution Media or Angled Screens: After removal of the Media Bags, the bottom Flow Distribution Media should be removed and inspected to determine if it is coated with slime or debris. Similarly, the Angled Screen should be inspected for blockages and ragging.

Find out how Frequently your System Needs Maintenance

Monitoring for floatables on the water surface: Similar to oil, the amount of accumulated floatables must be minimized to prevent trash and loose debris from becoming trapped on the Angled Screens when stormwater begins to fill the Up-Flo® vessel at the start of a storm event. Visual inspection is adequate to determine the amount of floatables. Floatables should be removed before they form a mat on the surface of the water.

The solids loading rate in the sump will be calculated by measuring the sediment depth in the sump and dividing the depth by the correlating interval of time since the sump was last cleaned. Similarly, starting with fresh Media Bags, the solids loading rate in the Media Packs will be calculated by weighing the Media Bags and dividing the weights by the correlating interval of time since they were installed. The wet weight of the heaviest bag will be used to determine the loading rate. As previously mentioned, a spent Media Bag weighs approximately 50 lbs (23 kg) wet. The spent Media Bag weight estimate was based on calculations of sediment loading in an Up-Flo® Filter that was run to exhaustion during laboratory testing.

The rate of oil accumulation will be calculated by measuring the thickness of the oil layer and dividing the thickness by the correlating interval of time since the sump was last cleaned. Ordinarily, oil thickness will not be measurable unless a spill has occurred. Consequently, any oil will typically be removed along with water when cleaning the sump.

Monitoring the Drain Down Filter for clogging, monitoring the Flow Distribution Media and Angled Screens for slime and debris, and monitoring the accumulation of floatables will provide an estimate of how long the Up-Flo® Filter can operate before its performance can become impaired by one of these factors.

Routine Inspection and Maintenance

After completion of the first year of operation, determining and then following the established inspection and maintenance intervals will keep pollutant loadings within their respective limits. Removal of oils and floatables, replacement of the Drain Down Filter, replacement of Flow Distribution Media (see Fig.9, pg 11), and cleaning of Angled Screens will occur at the same frequency as cleaning of the sump and replacement of Media Bags unless the first year of operation indicates otherwise. Keeping to the established maintenance intervals will keep treatment flow rates at, or above, the design flow rate. Typically, annual maintenance is adequate.

In addition to scheduled maintenance, occasional checks for Up-Flo® Filter clogging can be performed by removing the manhole cover during a storm, monitoring the water level in the manhole or vault, and determining whether the filter is in bypass. A properly-sized filter (on-line or off-line) that is in bypass during a storm that is producing runoff at, or below, the filter's design filtration rate needs maintenance.

Don't want to go it alone? Call Hydro and we'll take care of inspection, replacement media and cleanout.

Call 1 (888) 382-7808 for a quote

Inspection & Maintenance

Routine Inspection

Inspection is a simple process that requires monitoring pollutant accumulations. Maintenance crews should be familiar with the Up-Flo® Filter and its components prior to inspection.

The following instructions are intended for non-Hydro maintenance service providers and/or those intending to maintain thier own Up-Flo® Filter:

Scheduling

- Inspection may be conducted during any season of the year but should occur shortly after a predicted rainfall to ensure components are operating properly.

Necessary Equipment

- Safety Equipment and Personal Protective Equipment (traffic cones, work gloves, etc.)
- Scale to measure the weight of the Media Bags
- Crow bar to remove grate or lid
- Pole with skimmer or net
- Sediment probe (such as a Sludge-Judge®)
- Hydro International Up-Flo® Filter Maintenance Log
- Trash bags for removed floatables

Routine Inspection Procedures

1. Set up any necessary safety equipment (such as traffic cones) to provide access to the Up-Flo® Filter. Safety equipment should notify passing pedestrian and road traffic that work is being done.
2. Remove the grate or lid to the manhole or vault.
3. Without entering the vessel, look down into the chamber to inspect the inside and to determine whether the high-water level indicator has been activated. Make note of any irregularities. See Fig.6 for a typical Inspection View.
4. Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the chamber.
5. Using a sediment probe such as a Sludge-Judge®, measure the depth of sediment that has collected in the sump of the vessel.
   Maximum sediment depth is 16 inches (41 cm).
6. If the high-water level indicator has been activated after two consecutive storms, remove the Filter Module lid by turning the cam latch and remove the Filter Media Pack (*refer to page 11 Replacement Procedures*). Weigh the Media Bags from one or two modules. Media Bags should be replaced if the wet weight exceeds 40 lbs (18 kg).
7. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or a high standing water level (see Fig.6 for the standard standing water level).
8. Securely replace the grate or lid.
9. Remove safety equipment.
10. Contact Hydro International at (800) 848-2706 to discuss any irregularities noted during inspection.

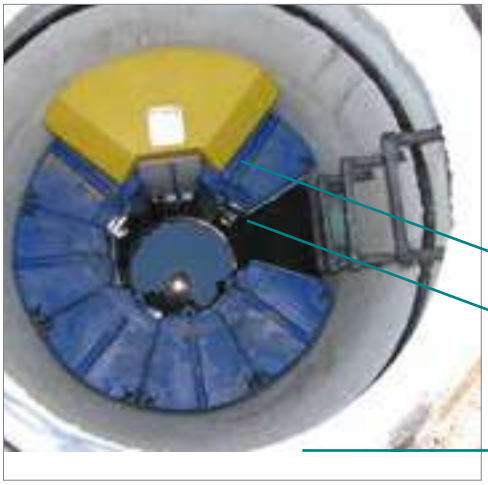


Fig.6 Inspection view of the Up-Flo® Filter.

Routine Maintenance

Maintenance activities are grouped into two categories:

- *Activities **Not Requiring** Man Entry Into the Up-Flo® Filter*
  These activities include floatables removal, oil removal and removal of sediment from the sump.
- *Activities **Requiring** Man Entry Into the Up-Flo® Filter*
  Media Pack replacement and Drain Down Filter replacement.

Maintenance intervals are determined from monitoring the Up-Flo® Filter during its first year of operation. Depending on the site, some maintenance activities may have to be performed on a more frequent basis than others. In the case of floatables removal, a vactor truck is not required. Floatables and loose debris can be netted with a skimmer and pole.

A vactor truck is normally required for oil removal, removal of sediment from the sump, and to dewater the vessel for replacement of the Media Packs and Drain Down Filter (Fig.7). All inspection and maintenance activities would be recorded in an Inspection and Maintenance Log.

Completion of all the maintenance activities for a typical 4-ft (1.2m) diameter manhole installation takes less than one hour. Approximately 360 gallons of water and up to 0.6 yd^3 (0.5 m^3) of sediment may be removed in the process. In an installation equipped with six Filter Modules, 12 Media Bags (2 bags per module) would be removed and replaced. Assuming a spent Media Bag weight of 50 lbs (23 kg), up to 600 lbs (272 kg) of spent Media Bags would be removed. All consumables, including Media Bags, Flow Distribution Media, and replacement Drain Down Filters are supplied by Hydro International.

The access port located at the top of the manhole provides unobstructed access for a vactor hose and/or skimmer pole to be lowered to the base of the sump.

Maintenance Activities Not Requiring Man Entry

These activities include floatables removal, oil removal and removal of sediment from the sump.

Scheduling

- Floatables and sump cleanout may typically be done during any season of the year - before and after rainy season
- Floatables and sump cleanout should occur as soon as possible following a contaminated spill in the contributing drainage area

Recommended Equipment

- Safety Equipment (traffic cones, etc)
- Crow bar to remove grate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge-Judge®)
- Vactor truck (flexible hose preferred)
- Pressure nozzle attachment or other screen-cleaning device



Fig.7 Sediment is removed from the sump with a vactor hose. Man entry is not required for this step.

No Man Entry Required: Floatables, Oil and Sediment:

1. Set up any necessary safety equipment (such as traffic cones) around the access of the Up-Flo® Filter. Safety equipment should notify passing pedestrian and road traffic that work is being done.

2. Remove the grate or lid to the manhole or vault.

3. Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.

4. If the standing water level in the sump is above the base of the Filter Modules (see Fig.8), tug the Pull Chain(s) to release the Drain Down Filter plug(s). Allow the excess water to drain out of the chamber.

5. Use the skimmer pole to fit the Drain Down Filter plug back into the open port.

6. Once all floatables and oil have been removed, drop the vactor hose to the base of the sump. Vactor out the sediment and gross debris from the sump floor. Up to 0.3 yd^3 (0.2 m^3) of sediment and 360 gallons (1,363 L) of water will be removed from a typical manhole Up-Flo® Filter during this process.

7. Retract the vactor hose from the vessel.

8. Inspect the Angled Screens for blockages and ragging. If present, remove the obstruction or ragging materials from the surface using a hose or other screen-cleaning device.

9. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables, oils, and gross debris removed, and the depth of sediment measured. Note any apparent irregularities such as damaged components or blockages.

10. Securely replace the grate or lid. Remove safety equipment.

11. Dispose of sediment and gross debris following local regulations.

12. Dispose of oil and sump water at a licensed water treatment facility or following local regulations.

13. Contact Hydro International at (800) 848-2706 to discuss any irregularities noted during cleanout.

Maintenance Activities Requiring Man Entry

These activities include replacement of the Media Packs and Drain Down Filter.

Unless the Up-Flo® Filter has been installed as a very shallow unit, it is necessary to have an OSHA-confined space entry trained person enter the vessel to replace Media Packs.

The access port located at the top of the manhole or vault provides access to the Up-Flo® vessel for maintenance personnel to enter the vessel and remove and replace Media Packs. The same access would be used for maintenance personnel working from the surface to net or skim debris and floatables or to vactor out sediment, oil, and water. Unless the Up-Flo® Filter has been installed in a very shallow configuration, it is necessary to have personnel with OSHA Confined Space Entry training performing the maintenance that occurs inside the vessel.

Scheduling

- Call Hydro International to order replacement Media Packs and Drain Down Filter prior to scheduling maintenance.

- Because Media Pack replacement requires entry into the Up-Flo® chamber, maintenance events should be scheduled during dry weather.

- Media Pack replacement should occur immediately after a contaminated spill in the contributing drainage area.

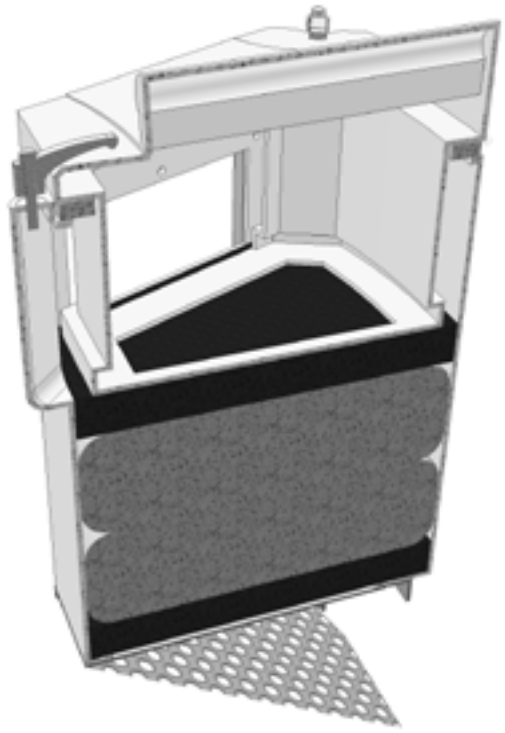


Fig.8 Cutaway view of the Filter Module

Recommended Equipment

- Safety Equipment (traffic cones, etc.)
- Crow bar to remove grate or lid
- Pole with skimmer or net (if floatables removal is not to be done with vactor hose)
- Sediment probe (such as a Sludge-Judge®)
- Vactor truck (flexible hose preferred)
- OSHA Confined Space Entry Equipment
- Up-Flo® Filter Replacement Media Packs (available from Hydro International)
- Hydro International Up-Flo® Filter Maintenance Log
- Screwdriver (flat head)
- Replacement Drain Down Filter components supplied by Hydro International

Man Entry Required: Media Pack and Drain Down Filter

1. Follow Floatables and Sump Cleanout Procedures, 1 – 13.
2. Following OSHA Confined Space Entry procedures, enter the Up-Flo® Filter Chamber.
3. Open the Filter Module by turning the three cam latches on the front and sides of the module. Remove the lid (1) to gain access to the Media Pack (Fig.9).
4. Remove and discard the spent Media Pack. The Media Pack contents include:
    - A top layer of (A) Flow Distributing Sheets
    - Two (2) Media Bags (B) equipped with nylon handles.
    - A bottom layer of (A) Flow Distributing Media.
5. Insert a new Media Pack, supplied by Hydro International.
    - First, insert a bottom layer of green Flow Distributing Media. Be sure that the media sits snugly and level at the bottom of the Filter Module.
    - Next, insert the first of two (2) replacement Media Bags. Smooth the bag out with your hands to make sure that the bag extends snugly to the walls and corners of the Filter Module.
    - Insert the second Media Bag, following the same procedure.
    - Insert the top layer of green Flow Distributing Media.

1. Filter Module Cover and Media Restraint

2. Replaceable Media Pack:
    a) Flow distribution sheets
    b) Filter Media Bags

3. Cam Latch

4. Conveyance Channel

5. Filter Module

6. Support Bracket / Angled Screen

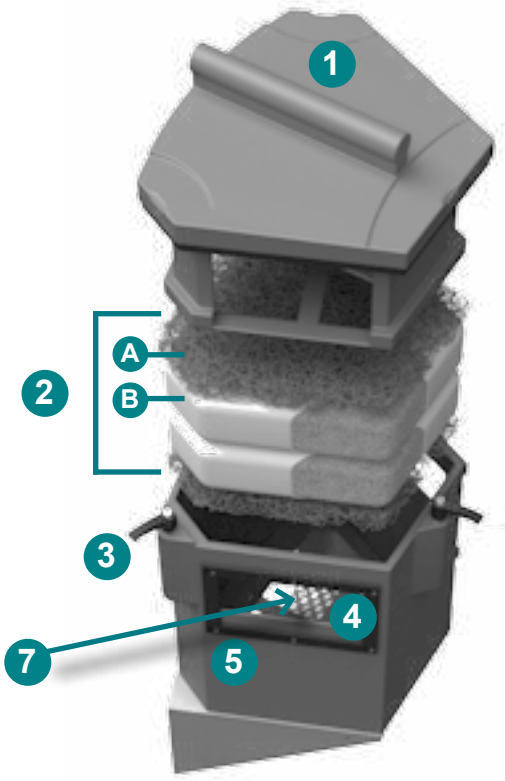


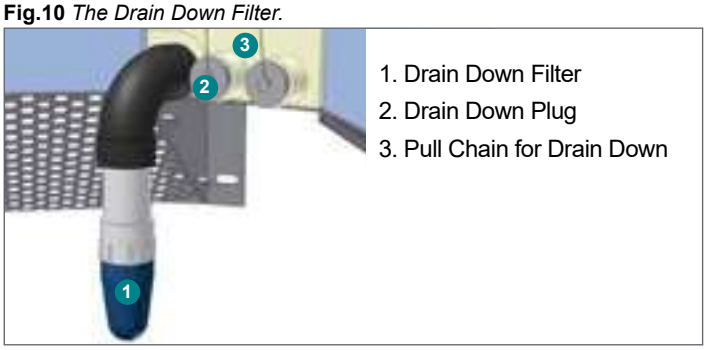
Fig.9 The Filter Module houses the Media Restraint and the Media Pack.

Be sure that the piece fits snugly against the walls and corners of the Filter Module.

- Put the lid on and secure the three latches. Check to make sure that the latches are closed properly.

6. Use a screwdriver to unscrew the Drain Down Filter from the face of the Outlet Module (see Fig.10). DO NOT DISCARD THIS PIECE.
7. Install new Drain Down Filter supplied by Hydro International.
8. Exit the Up-Flo® Filter chamber and securely replace the grate __or lid.
9. On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables, oil and gross debris removed, and the depth of sediment measured. Note the number of Media Packs replaced. Note any irregularities such as damaged components or blockages.

Fig.10 *The Drain Down Filter.*



10. Remove safety equipment.
11. Dispose of spent media packs at your local landfill, following local regulations.
12. Return the spent Drain Down Filter to Hydro International.
13. Contact Hydro International to discuss any irregularities noted during annual maintenance.

Solids Disposal

Sediment, floatables, gross debris, and spent Media Bags can generally be disposed of at the local landfill in accordance with local regulations. The toxicity of the residues captured will depend on the activities in the contributing drainage area, and testing of the residues may be required if they are considered potentially hazardous.

Sump water can generally be disposed of at a licensed water treatment facility but the local sewer authority should be contacted for permission prior to discharging the liquid. Significant accumulations of oil removed separately from sump water should be transported to a licensed hazardous waste treatment facility for treatment or disposal. **In all cases, local regulators should be contacted about disposal requirements.**

Maintenance at a Glance

Activity	Frequency
Inspection	- Regularly during first year of installation - Every 6 months after the first year of installation
Floatables/Oils Removal	- Twice per year or as needed - Following a contaminated spill in the drainage area
Sediment Removal	- Every six to 12 months, depending on the Up-Flo® Filter Configuration - The maximum allowable sediment depth in any Up-Flo Filter configuration is 16 inches (41 cm) - Following a contaminated spill in the drainage area
Media Pack Replacement	- Once per year - Replacement is required anytime inspection reveals that the high-water level indicator has been activated after two consecutive storms and the subsequent weighing of the Media Bags shows a wet weight greater than 40 lbs - Following a contaminated spill in the drainage area
Drain Down Filter Replacement	- Once per year with Media Pack replacement - Replacement is required anytime inspection reveals that the water level inside the vessel has not reached a level equal with the base of the Filter Modules approximately 36 hours after a 1-inch (2.5 cm) rainfall - As needed, in the event of continuous base flow conditions

Up-Flo® Filter Installation Log

SITE REFERENCE NAME OR NUMBER FOR THIS UP-FLO® FILTER LOCATION:	
SITE NAME:	
SITE LOCATION:	
OWNER:	**SITE CONTRACTOR:**
CONTACT NAME:	**CONTACT NAME:**
COMPANY NAME:	**COMPANY NAME:**
ADDRESS:	**ADDRESS:**
TELEPHONE:	**TELEPHONE:**
FAX:	**FAX:**

INSTALLATION DATE: / /

CONFIGURATION (CIRCLE ONE): **MANHOLE** **VAULT SYSTEM**

TOTAL NUMBER OF UP-FLO® FILTER MODULES: _____

Up-Flo® Filter Inspection Log

Site Name: _____ Owner Change since last inspection? Y N

Location: _____

Owner Name: _____

Address: _____ Phone Number: _____

Site Status: _____

Date: _____ Time: _____ Site conditions*: _____

(Stable, Under Construction, Needing Maintenance, etc.)

Inspection Frequency Key: A=annual; M=monthly; S=after major storms

Inspection Items	Inspection Frequency	Inspected? (Yes/No)	Maintenance Needed? (Yes/No)	Comments/Description
Debris Removal				
Adjacent area free of debris?	M			
Inlets and Outlets free of debris?	M			
Facility (internally) free of debris?	M			
Vegetation				
Surrounding area fully stabilized? (no evidence of eroding material into Up-Flo® Filter)	A			
Grass mowed?	M			
Water retention where required				
Water holding chamber(s) at normal pool?	A			
Evidence of erosion?	A			
Sediment Deposition				
Filtration Chamber free of sediments?	A			
Sedimentation sump not more than 50% full?	A			
Structural Components				
Any evidence of structural deterioration?	A			
Grates in good condition?	A			
Spalling or cracking of structural parts?	A			
Outlet/Overflow Spillway	A			
Other				
Noticeable odors?	A			
Any evidence of filter(s) clogging?	M			
Evidence of flow bypassing facility?	A			

Inspector Comments: _____

_____

_____

_____

Overall Condition of Up-Flo® Filter**: ☐ Acceptable ☐ Unacceptable

***"Acceptable" would mean properly functioning; "unacceptable" would mean damaged or required further maintenance.*

If any of the above Inspection Items are checked "Yes" for "Maintenance Needed", list Maintenance actions and their completion dates below or on the Maintenance Log provided on page 15 of the Up-Flo® Filter Operation & Maintenance Manual:

Maintenance Action Needed	Due Date

The next routine inspection is schedule for approximately: (date) _____

Inspected by: (signature) _____

Inspected by: (printed) _____

Up-Flo® Filter Maintenance Log

Site Name: _____ Owner Change since last inspection? Y N

Location: _____

Owner Name: _____

Address: _____ Phone Number: _____

Site Status: _____

Date: _____ Time: _____ Site conditions: _____
**(Stable, Under Construction, Needing Maintenance, etc.)*

Estimated volume of oil/floatable trash removed: _____

Sediment depth measured in sump prior to removal: _____

Number of Filter Modules fitted with new media packs: _____

Inspector Comments: _____

_____

_____

_____

Overall Condition of Up-Flo® Filter: ☐ Acceptable ☐ Unacceptable
***"Acceptable" would mean properly functioning; "unacceptable" would mean damaged or required further maintenance.*

Maintained by: (signature) _____

Maintained by: (printed) _____

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APPENDIX D

HYDROGEOLOGICAL REVIEW AND GROUNDWATER FORMS

Hydrogeological Investigation

Proposed Highrise Buildings
1771-1775 Jane Street
Toronto, ON

Prepared For:

Medallion Corporation

Project #: 25-163-100
Date: October 2, 2025

DS CONSULTANTS LTD.
6221 Highway 7, Unit 16
Vaughan, Ontario, L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

25-163-100 **October 2, 2025**

Medallion Corporation

Attention: Luka Kot
via email: LukaKot@medallioncorp.com

RE: Hydrogeological Investigation- Proposed Highrise Buildings at 1771-1775 Jane Street, Toronto M9N 2S5

DS Consultants Limited (DS) was retained by Medallion Corporation to conduct a hydrogeological investigation for the proposed residential development at 1771-1775 Jane Street, Toronto, Ontario (the Site). The Site is currently occupied by a 14-storey apartment building with one level of underground parking. DS understands that two additional residential buildings are proposed in phases at the north and south ends of the existing building, each with underground parking. The north building (Phase 1) will include one (1) level of underground parking (P1), whereas the south building (Phase 2) will include two (2) levels of underground parking (P2). The proposed ground elevation is approximately 127.3 masl. The lowest finished floor elevations are 123.7 masl for the P1 level and 121 masl for the P2 level.

This hydrogeological investigation includes an overview of the existing geological and hydrogeological conditions at the Site and the surrounding area, an assessment of the hydrogeological constraints, and impacts of the proposed development on the local groundwater and provides an estimation of construction dewatering and permanent drainage requirements during the proposed development phases. This investigation is based on monitoring wells installed by DS in July 2025 and by SPL in 2015.

The hydrogeological investigation report has been prepared in general accordance with the Ontario Water Resource Act (OWRA), the Ontario Water Taking Regulation (O.Reg.387/04), and the City of Toronto Sewers By-law (Toronto Municipal Code, Chapter 681, Sewers). If needed, the results of this investigation can be used in support of an Environmental Activity Sector Registry (EASR) for construction dewatering from the Ministry of the Environment, Conservation and Parks (MECP). The hydrogeological report may also be used to support Site Plan Approvals (SPA) and discharge permitting from the City of Toronto. Based on the results of our investigation, the following conclusions and recommendations are presented:

Based on the results of our investigation, the following conclusions and recommendations are presented:

1. Based on the Ministry of Environment, Conservation and Parks (MECP) water well records search, there are 67 water wells within a 500 m radius of the Site. All wells are noted as monitoring/test holes or not-in-use wells. The study area is fully serviced with municipal water, and therefore, no groundwater users are expected in the area.

2. In September 2025, DS advanced two boreholes (BH 25-1 and BH 25-2) in the proposed building footprints to a depth of approximately 46.3 and 49.4 m below the existing ground level (mbgl). Both boreholes were equipped with a monitoring well. Monitoring wells were screened within silty clay to clayey silt till at 7.7 and 20 mbgs. In addition, the existing monitoring wells installed by SPL Consultant

Limited (BH 15-1, BH 15-2 Shallow and Deep and BH 15-3) were incorporated to assess groundwater conditions at the site. The monitoring wells BH 15-1, BH 15-2 S and BH 15-3 were screened within silty clay to clayey silt(till), each to a depth of 9.2 m. The deep monitoring well was screened within sand, sand and gravel at 41.6 mbgs.

3. The study area (500 m radius) lies within the Iroquois Plain physiographic region of Southern Ontario. The surficial geology is characterized by coarse-textured glaciolacustrine deposits consisting of sand, gravel, minor silt and clay. The geology at the Site consists of glacial deposits of clayey silt till to silty clay till to 36.7-42.7 mbgs, followed by a 3-7 m thick silty sand/sand unit to the termination depth of about 49 mbgs.

4. A total of five (5) monitoring wells (MWs) were used to enable groundwater monitoring. The wells were installed in the clayey silt to silty clay, sandy units. A bi-weekly groundwater monitoring was completed for three (3) months from June to August 2025 to assess groundwater fluctuation and to comply with guidelines provided by the City of Toronto for discharge permitting and foundation drainage. The groundwater in overburden ranges between 3.42 and 5.2 mbgs (Elev 123.85- 121.0 masl). The peak static groundwater level observed in June was 123.85 masl, and the determined maximum anticipated groundwater level is 125.75 masl with a fluctuation allowance of 1.9 m for October. The maximum anticipated groundwater level is determined using “Option 1: flexible, year-round monitoring”, outlined in sections 2.2 and 2.3 of the City’s foundation policy guideline.

5. Short-term Dewatering: Considering the unsealed excavation method, the estimated dewatering rates for buildings with P1-P2 levels are summarised below.

Building	Flow Rate Q- without a safety factor (L/day)	Flow Rate Q- with a safety factor x 2 (L/day)	Stormwater (@ 10 mm/24 hrs.) (L/day)	Design Flow Rate (L/day)
Phase 1- North Building with P1 Level	2,000	4,000	51,000	55,000
Phase 2- South Building with P2 Levels	4,000	8,000	24,000	32,000

6. Permanent Drainage/ Foundation Drainage: Following the construction of the underground structure, long-term groundwater flow to the underfloor drainage system for the building will be a function of the upward flux and drainage along the foundation wall. The estimated dewatering rates for the buildings with P1-P2 levels are summarised below.

Building	Flow Rate Q-without a safety factor (L/day)	Flow Rate Q- with a safety factor x 1.5 (L/day)
Phase 1- North Building with P1 Level	500	1,000
Phase 2- South Building with P2 Levels	2,000	4,000

7. The City of Toronto’s foundation drainage policy has been reviewed during the design for on-site management of foundation drainage or permanent drainage. As per the policy, discharge of foundation drainage or permanent groundwater flow to the building is not allowed to the City’s sewer system. As mentioned in the policy, on-site management options for foundation drains/permanent

drainage may include, but are not limited to, waterproofing the foundation, modifying the building design to avoid intersection with the maximum anticipated groundwater level, and/or above-ground discharge and infiltration from sump pumps.

8. For Phase 1 (North Building) construction, the anticipated dewatering rate may exceed the daily pumping limit of 50,000 L/day, triggering the need for an EASR. However, dewatering requirements for Phase 2(South Building) are expected to remain below the daily pumping limit and therefore an EASR is not expected. Dewatering below the 50,000 L/day would eliminate the requirement for an EASR.

9. A discharge permit will be required from the City of Toronto if private water is to be sent to the sewer system for the short term. As per the City of Toronto's foundation drainage policy, January 2022, discharge of foundation drains or permanent flow into sewers is not allowed. Therefore, on-site management of permanent drainage will be required.

10. An unfiltered groundwater sample was collected from monitoring well BH/MW 15-3 on June 16, 2025. The sample was submitted to SGS Laboratory for analysis in accordance with the City of Toronto Sewer Use By-law to assess groundwater quality for potential discharge. Groundwater quality analysis indicates that all parameters tested met the City's Sanitary Sewer Use by-law discharge criteria. However, exceedances were reported for TSS and manganese for the City's Storm Sewer By-law discharge criteria. Therefore, groundwater at the development site is suitable for discharge into the City's sanitary sewer without pre-treatment, but not into the storm sewer. The treatment requirement can be changed during the construction based on the pumped water quality. Additional water quality testing will be a part of the discharge permit to comply with the city's sewer discharge criteria during short-term discharge. Treatment options include, but are not limited to, settlement and filtration of sediments.

11. If a groundwater dewatering system is set up at the Site, daily and weekly monitoring should be implemented to assess the groundwater conditions, such as water levels, measurement of discharge flow, discharge water quality and any adverse impacts because of dewatering.

12. In conformance with Regulation 903 of the Ontario Water Resources Act, the decommissioning of any dewatering system and monitoring wells should be conducted by a licensed contractor under the supervision of a licensed water well technician.

Should you have any questions regarding these findings, please contact the undersigned.

DS Consultants Ltd.

Prepared By:

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1.0 INTRODUCTION

DS Consultants Limited (DS) was retained by Medallion Corporation to conduct a hydrogeological investigation for the proposed residential development at 1771-1775 Jane Street, Toronto, Ontario (the Site). The Site is currently occupied by a 14-storey apartment building with one level of underground parking. DS understands that two additional buildings are proposed in phases at the north and south ends of the existing building, each with underground parking. The north building (Phase 1) will include one (1) level of underground parking (P1), whereas the south building (Phase 2) will include two (2) levels of underground parking (P2). The proposed ground elevation is approximately 127.3 masl. The lowest finished floor elevations are 123.7 masl for the P1 level and 121 masl for the P2 level.

This hydrogeological investigation includes an overview of the existing geological and hydrogeological conditions at the Site and the surrounding area, an assessment of the hydrogeological constraints, and impacts of the proposed development on the local groundwater and provides an estimation of construction dewatering and permanent drainage requirements during the proposed development phases. This investigation is based on monitoring wells installed by DS in July 2025 and by SPL in 2015.

1.1 Purpose

The purpose of this investigation was to review and determine the need for dewatering, estimate dewatering rates, assess groundwater quality, and determine the need for an Environmental Activity Sector Registry (EASR) from the Ministry of Environment and Conservation and Parks (MECP) for construction dewatering. Potential impacts related to construction dewatering and associated monitoring/mitigation measures were also to be investigated.

1.2 Scope of Work

The scope of work for this investigation included:

(i) Site visits;

(ii) Collecting and interpreting available reports and data, including the MECP Water Well Records (WWR), geotechnical and environmental studies completed at the Site;

(iii) In-situ hydraulic conductivity testing of newly installed and existing monitoring wells;

(iv) Estimation of the temporary groundwater flow rate during the construction;

(v) Estimation of long-term or permanent discharge rate;

(vi) Assessing groundwater quantity and quality to evaluate discharge options; and,

(vii) Potential impacts assessment due to dewatering activities

(viii) Data analysis and report preparation.

2.0 FIELD INVESTIGATION

- In September 2025, DS advanced two boreholes (BH 25-1 and BH 25-2) in the proposed building footprints to a depth of approximately 46.3 and 49.4 m below the existing ground level (mbgl). Both boreholes were equipped with a monitoring well. Monitoring wells were screened within silty clay to clayey silt till at 7.7 and 20 mbgs. In addition, the existing monitoring wells installed by SPL Consultant Limited (BH 15-1, BH 15-2 Shallow and Deep and BH 15-3) were incorporated to assess groundwater conditions at the site. The monitoring wells BH 15-1, BH 15-2 S and BH 15-3 were screened within silty caly to clayey silt(till), each to a depth of 9.2 m. The deep monitoring well was screened within sand, sand and gravel at 41.6 mbgs.

- A total of five (5) monitoring wells were used for hydrological investigation. All monitoring wells available with water were developed before use to allow for groundwater level monitoring, hydraulic conductivity testing, and assessing groundwater quality.

- A total of five (5) well response tests (SWRTs) were completed by performing a rising head test to estimate the hydraulic conductivity values of the overburden at the Site.

- One unfiltered groundwater sample was collected and analyzed against the City of Toronto Sewers Discharge Bylaw to assess groundwater discharge options during construction.

3.0 PHYSICAL SETTING

Available topographic maps and environmental, geotechnical, and hydrogeological reports were used to develop an understanding of the physical setting of the study area. The borehole logs from all investigations at the site, as well as the MECP water well records (WWRs), were used to interpret the geological and hydrogeological conditions at the Site.

3.1 Physiography and Drainage

The topography at the Site is relatively flat with a surface elevation ranging between 126 and 127 meters above sea level (masl). The topography within the study area generally slopes south, towards Black Creek, which is located approximately 170 m west of the Site. The site is within a well-developed urban area. Drainages in the study area follow local topography and are controlled by streams, artificial channels, and underground utilities.

3.2 Geology

The following presents a brief description of regional and site geology based on the review of available information and site-specific soil investigations.

3.2.1 Quaternary Geology

The study area (500 m radius) lies within the Iroquois Plain physiographic region of Southern Ontario. As shown on the surficial geology map in **Figure 2**, the surficial geology is characterized by coarse-textured glaciolacustrine deposits consisting of sand, gravel, minor silt and clay.

3.2.2 Bedrock Geology

Available published mapping shows that bedrock in the area is predominantly shale and limestone, as part of the Georgian Bay Formation (MNDM Map 2544 Bedrock Geology of Ontario). Based on the review of existing borehole logs and well record information, the depth to bedrock in the study area is estimated to be deeper than 50 meters below the existing ground. Bedrock was not encountered during drilling.

3.2.3 Site Geology

On-site subsurface soils were interpreted according to a geotechnical and hydrogeology investigation report prepared by DS based on the boreholes/monitoring wells (BHs/MWs) drilled by DS and Others. The locations of the BHs/MWs are shown in **Figure 3,** and detailed subsurface conditions are presented on the borehole Logs in **Appendix A**. The subsurface soil sequence identified from the boreholes is as follows, and the geologic cross-section (A-A') is presented in **Figure 4.**

- **Clayey silt to silty clay till:** These layers with an intervening silty clay and sand layer, encountered in all boreholes and extending to a maximum explored depth of 49.4 meters below ground surface (mbgs).
- **Sand/Sand and Gravel/CoarseSand:** A 3-7 m thick silty sand and sand gravel unit encountered in deeper boreholes at 36.6 and 42.7 mbgs, extending to a maximum explored depth of 49 mbgs.

3.3 Hydrogeology

The hydrogeology at the Site was evaluated using the on-site monitoring wells installed by DS and SPL, local domestic wells, and existing hydrogeological and geotechnical reports for the area.

3.3.1 Local Groundwater Use

As part of the hydrogeological study, DS completed a search of the Ministry of the Environment, Conservation and Parks (MECP) Water Well Record (WWR) database (**Appendix B**). Based on the Ministry of Environment, Conservation and Parks (MECP) water well records search, there are 67 water wells within a 500 m radius of the Site. All wells are noted as monitoring/test holes or not-in-use wells. The study area is fully serviced with municipal water, and therefore, no groundwater users are expected in the area. **Figure 1** shows the MECP water well location plan.

3.3.2 Groundwater Conditions

A total of five (5) monitoring wells (MWs) were used to enable groundwater monitoring. The wells were installed in the clayey, silty to silty clay, sandy units. A bi-weekly groundwater monitoring was completed for three (3) months from June to August 2025 to assess groundwater fluctuation and to comply with guidelines provided by the City of Toronto for discharge permitting and foundation drainage. Based on groundwater level measurements taken, two groundwater regimes were identified. The Groundwater in overburden ranges between 3.42 and 5.2 mbgs (Elev 123.85- 121.0 masl). **Table 3- 1** presents the groundwater levels in all monitoring wells, and the groundwater monitoring data are presented in **Appendix E**. The peak static groundwater level observed in June was 123.85 masl, and the determined maximum anticipated groundwater level is 125.75 masl with a fluctuation allowance of 1.9 m for October. The maximum anticipated groundwater level is determined using "Option 1: flexible, year-round monitoring", outlined in sections 2.2 and 2.3 of the City's foundation policy guideline.

Table 1: Groundwater Levels in Monitoring Wells (August- October 2024)

Well ID	Ground Elevation (masl)	Screened Interval (mbgs)	Screened Formation	Groundwater Level	
				Depth to Water (mbgs)	Groundwater Elevation (masl)
MW 25-1	126.20	4.7-7.7	Clayey Silt to Silty Clayey (Till)	3.65-5.20	122.65-121.0
MW 25-2	126.90	17.0-20.0	Clayey Silt to Silty Clayey (Till)	4.32-5.15	122.58-121.72
MW 15-1	126.60	6.2-9.2	Clayey Silt to Silty Clayey (Till)	3.42-4.73	123.18-121.87
MW 15-2	127.00	6.2-9.2	Clayey Silt to Silty Clayey (Till)	3.45-3.62	123.55-123.38
MW 15-3	127.30	6.2-9.2	Clayey Silt to Silty Clayey (Till)	3.45-3.95	123.85-123.35

3.3.3 Hydraulic Conductivity

A Single Well Response Test (SWRT) was completed in five(5) monitoring wells to estimate hydraulic conductivity (k) for the representative geological units in which the wells were completed. SWRTs were completed by performing a rising head test (slug test) with the use of Waterra® tubing to 'instantaneously' remove water from the well. A data logger was placed at the bottom of the wells to monitor recovery every 1 sec up to 1 to 24 hrs. Hydraulic conductivity (k) values were calculated using the Hvorslev method.

The calculated hydraulic conductivity (k) for the representative clayey silt to silty clay (till) ranged from 3.8 x 10^{-6} m/s to 4 x 10^{-9} m/s with a geometric mean k-value of 6.3 x 10^{-8} m/s. **Table 3-2** presents a summary of the hydraulic conductivity (k) results for the representative geological units.

Table 2: Summary of Hydraulic Conductivity (k) Test Results

Well ID	Screen Interval (m)	Screened Formation	K- Value (m/s)
MW 25-1	4.7-7.7	Clayey Silt to Silty Clayey (Till)	4.0 x 10^{-9}
MW 25-2	17.0-20.0	Clayey Silt to Silty Clayey (Till)	4.5 x 10^{-9}

Well ID	Screen Interval (m)	Screened Formation	K- Value (m/s)
MW 15-1	6.2-9.2	Clayey Silt to Silty Clayey (Till)	2.6×10^{-9}
MW 15-2	6.2-9.2	Clayey Silt to Silty Clayey (Till), Sandy	3.8×10^{-6}
MW 15-3	6.2-9.2	Clayey Silt to Silty Clayey (Till)	5.5×10^{-7}
Geomean			6.3×10^{-8}

3.3.4 Groundwater Quality

An unfiltered groundwater sample was collected from monitoring well BH/MW 15-3 on June 16, 2025. The sample was submitted to SGS Laboratory for analysis in accordance with the City of Toronto Sewer Use By-law to assess groundwater quality for potential discharge.

Groundwater quality analysis indicates that all parameters tested met the City's Sanitary Sewer Use by-law discharge criteria. However, exceedances were reported for TSS and manganese for the City's Storm Sewer By-law discharge criteria. **Table 3-3** presents a summary of exceeded parameters, and the certificates of analysis are provided in **Appendix D.**

Table 3-3: Parameters in Groundwater Exceeding the City of Toronto Sewer Use By-law

Parameter Exceeded	Unit	Sanitary Sewer Criteria	Storm Sewer Criteria	BH/MW 15-3 Concentration
Total Suspended Solids (TSS)	mg/L	350	15	**51**
Manganese	mg/L	5	0.05	**0.528**

Note: **Bold** – Exceeded sanitary sewer Criteria, Underline – Exceeded storm Sewer Criteria

4.0 CONSTRUCTION DEWATERING

For the dewatering assessment, the established ground elevation is approximately 127.3 meters above sea level (masl). DS understands that two additional buildings are proposed in phases at the north and south ends of the existing building, each with underground parking. The north building (Phase 1) will include one level of underground parking, whereas the south building (Phase 2) will include two levels of underground parking. The proposed ground elevation is approximately 127.3 masl. The lowest finished floor elevations are 123.7 masl for the P1 level and 121 masl for the P2 level. The proposed underground structure is expected to be below the groundwater level; therefore, dewatering will be required during the excavation of overburdened material. Below is a summary of the below-grade construction:

4.1 Estimation of Flow Rate – Underground Parking (P1 and P2 Levels)

This section calculates the estimated dewatering required during the construction of the proposed buildings based on the geomean k-value, the highest groundwater elevations at the Site, using the steady-state flow equation for unsealed excavation as follows. The estimated flow rates for the proposed buildings are summarised in **Table 4-1**.

$$Q_R = K\,x\frac{H^2 - h^2}{0.733}\,x\,Log\,(R_0/r_e)$$

$$r_e = \left(\frac{(a\,x\,b)}{\pi}\right)^{0.5}$$

$$R_0 = (r_e + 3000)(H - h)(k^{0.5})$$

Table: 4-1 Estimation of Flow Rate (Short-term Discharge)

Parameter	Phase 1- North Building (P1 Level)	Phase 1- South Building (P2 Levels)
Average Grade- masl	127.3	127.3
Underground Parling- Finished Floor Level (FFL)	123.7	121.0
Considered lowest excavation/Foundation Elevation- masl	121.7	119.0
Considered the bottom of the aquifer	120.7	118
Considered Groundwater Elevation- masl	124	124
Considered K -Hydraulic conductivity(m/s) -Geomen for Till	6.3×10^{-8}	6.3×10^{-8}
H-Distance from water level to the bottom of an aquifer (m)	3.3	6.0
h -Depth of water in the well while pumping (m)	0.5	0.5
Area (a x b)- (m)	72 m x 72 m	49 m x 49 m
r_e–equivalent radius, where a and b, excavation dimensions (m)	41	28
R_o- re+ Radius of the cone of depression/Zone of Influence (ZOI)- (m)	40+2=42	28+4=32
Estimated Flow Rate- L/day (without safety factor)	**2,000**	**4,000**
Estimated Flow Rate- L/day (with safety factor x 2)	**4,000**	**8,000**
Additional Dewatering- Stormwater (assumed 10 mm /24 hrs)- L/day	**51,000**	**24,000**

4.2 Total Flow Rate (Short-Term/ Temporary Discharge)

Considering the unsealed excavation method, the estimated dewatering during Phase 1 is 4,000 L/day and during Phase 2 construction is 8,000 L/day, with a safety factor of x 2.0. Additional water enters the open excavation as a result of precipitation. Therefore, the recommended pumping rate for construction dewatering design and permitting is 55,000 L/day for Phase 1 and 32,000 L/day for Phase 2 construction. The dewatering rates must be reassessed once final design drawings are available.

4.3 Permanent Drainage (Long-term Discharge)

Following the construction of the underground structure, long-term groundwater flow to the underfloor drainage system for the building will be a function of the upward flux and drainage along the foundation wall. The flow rate for the north building after construction would be 1,000 L/day, and for the south building would be 4,000, with a safety factor of x 2. The permanent discharge must be re-assessed once final design

drawings are available. The estimated permanent drainage flow rate, estimated using a steady-state flow equation, is summarised in **Table 4-2.**

The City of Toronto's foundation drainage policy has been reviewed during the design for on-site management of foundation drainage or permanent drainage. As per the policy, discharge of foundation drainage or permanent groundwater flow to the building is not allowed to the City's sewer system. As mentioned in the policy, on-site management options for foundation drains/permanent drainage may include, but are not limited to, waterproofing the foundation, modifying the building design to avoid intersection with the maximum anticipated groundwater level, and/or above-ground discharge and infiltration from sump pumps.

Table: 4-2 Estimation of Flow Rate -Long-term Discharge

Parameter	Phase 1- North Building (P1 Level)	Phase 2- South Building (P2 Levels)
Average Grade- masl	127.3	127.3
Underground Parling- Finished Floor Level (FFL)	123.7	121.0
Considered foundation drain Elevation- masl	123.5	120.5
Considered the bottom of the aquifer	123.5	120.5
Considered Groundwater Elevation- masl	124	124
Considered K -Hydraulic conductivity(m/s) -Geomean for Till	6.3×10^{-8}	6.3×10^{-8}
H-Distance from water level to the bottom of an aquifer (m)	0.5	3.5
h -Depth of water in the well while pumping (m)	0	0
Area (a x b)- (m)	72 m x 72 m	49 m x 49 m
r_e–equivalent radius, where a and b, excavation dimensions (m)	41	28
R_o- re+ Radius of the cone of depression/Zone of Influence(ZOI)- (m)	41+0=41	28+3=31
Estimated Flow Rate- L/day (without safety factor)	**500**	**2,000**
Estimated Flow Rate- L/day (with safety factor x 2)	**1000**	**4,000**

4.4 Permit Requirements

4.4.1 Environmental Activity and Sector Registry (EASR)

An Environmental Activity Sector Registration (EASR) submission to the Ministry of the Environment, Conservation and Parks (MECP) is required if the taking of groundwater and/or stormwater for a temporary construction project exceeds 50,000 L/day. The EASR application is an online registry and should be submitted to the MECP before any construction dewatering.

For Phase 1(North Building) construction, the anticipated dewatering rate may exceed the daily pumping limit of 50,000 litres, triggering the need for an EASR. However, dewatering requirements for Phase 2(South Building) are expected to remain below the daily pumping limit and therefore an EASR is not expected. Dewatering below the 50,000 L/day would eliminate the requirement for an EASR.

4.4.2 Discharge Permit (Construction Dewatering)

A discharge permit will be required from the City of Toronto if private water is to be sent to the sewer system for the short term. As per the City of Toronto's foundation drainage policy, discharge of foundation drains or permanent flow into sewers is not allowed. Therefore, on-site management of permanent drainage will be required.

5.0 POTENTIAL IMPACTS

The following are the predicted potential impacts of construction dewatering:

5.1 Local Groundwater Use

The area is fully serviced by a municipal water supply. Use of groundwater as a source of drinking water is not expected within a zone of influence of about 42 m from the centre of the site, and therefore, no short-term or long-term impacts are anticipated to private water wells because of dewatering activities.

5.2 Source Protection Area

The site is located within the Toronto Source Protection Area (SPA). The Toronto Source Protection Plan contains policies aimed at protecting drinking water sources by reducing or eliminating significant threats to the source of municipal drinking water. The study area is serviced by municipal water. Therefore, no impacts are anticipated on the drinking water supply within the zone of influence.

5.3 Highly Vulnerable Aquifer

The Site is located within a Highly Vulnerable Aquifer (HVA) with a vulnerability score of 6. This score indicates that groundwater is highly vulnerable to contamination from the surface. Any spills directly onto the ground should be avoided during construction to protect groundwater sources.

5.4 Wellhead Protection Area

The site and the study area are not located around municipal wells. Also, the site does not fall within the wellhead protection area (WHPA)-E for water quality.

5.5 Intake Protection Zone

The site and the study area are not located within a water intake protection zone (IPZ). No IPZ impacts are anticipated due to the proposed temporary or long-term dewatering.

5.6 Surface Water

Surface water bodies do not exist at the site or within the predicted zone of influence of about 42 m from the centre of the site, and therefore, impacts on surface water due to any dewatering activities are unlikely.

5.7 Point of Discharge and Groundwater Quality

Groundwater quality analysis indicates that all parameters tested met the City's Sanitary Sewer Use by-law discharge criteria. However, exceedances were reported for TSS and manganese for the City's Storm Sewer By-law discharge criteria. Therefore, groundwater at the development site is suitable for discharge into the City's sanitary sewer without pre-treatment, but not into the storm sewer. However, the treatment requirement can be changed during the construction based on the pumped water quality. Additional water quality testing will be a part of the discharge permit to comply with the city's sewer discharge criteria during short-term discharge. Treatment options include, but are not limited to, settlement and filtration of sediments.

5.8 Settlement Due to Dewatering Activities

Structures and utilities are expected within the predicted zone of influence (ZOI) of approximately 2-4 meters from the boundary of the site when considering an unsealed excavation. As construction will occur within low-permeable till, and the dewatering rate is expected to be minimal, settlement impacts related to dewatering are not anticipated.

6.0 MONITORING AND MITIGATION

Based on the preliminary hydrogeological investigation, the following monitoring and mitigation program is recommended:

- Baseline groundwater quality has been assessed and established before construction. However, groundwater quality can change based on several factors (land-use change, spills, etc.) and should be monitored during construction dewatering and after construction to ensure that water quality meets the guidelines or regulations associated with any permits from the MECP and the City of Toronto.

- A discharge permit is required to be submitted to the city for short-term dewatering if private water is sent to the sewer system.

- If a groundwater dewatering system is set up at the Site, a daily and weekly monitoring program should be implemented to assess the groundwater conditions, such as water levels, measurement of discharge flow, discharge water quality and any adverse impacts because of dewatering.

- Following the completion of construction activities, all dewatering wells, well points, eductors and monitoring wells installed at various stages of this project must be decommissioned. The installation and eventual decommissioning of the wells and the dewatering system must be conducted by a licensed water well contractor per Regulation 903 of the Ontario Water Resources Act.

Should you have any questions regarding these findings, please contact the undersigned.

DS Consultants Ltd.

Prepared By:

Pradeep Patel, M.Sc. P.Geo.
Hydrogeologist

Reviewed By:

Martin Gedeon, M.Sc., P.Geo.
Senior Hydrogeologist

PROFESSIONAL GEOSCIENTIST
PRADEEPKUMAR A. PATEL
PRACTISING MEMBER
2710
ONTARIO

7.0 CONSULTANTS QUALIFICATIONS

Martin Gedeon, M.Sc., P.Geo., is a Professional Geoscientist (P.Geo.) with over 28 years of experience as an environmental/hydrogeological consultant in the areas of groundwater and soil monitoring, environmental site assessments, environmental due diligence, and remediation. Martin has significant experience in physical and contaminant hydrogeology across Canada and overseas and has provided hydrogeological/environmental technical support on various projects. Martin has prepared hundreds of hydrogeological reports in support of permit applications for a private sector development application, municipal dewatering operations and provincial infrastructure projects across the province.

Pradeep Patel, M.Sc., P.Geo., is a hydrogeologist at DS Consultants Ltd. and has more than 17 years of experience working in the environmental industry. He engages in numerous Hydrogeological and Geotechnical investigation projects. His experience includes the preparation of construction dewatering activities and hydrogeological investigations in support of Environmental Activity and Sector Registry (EASR) and Permit to Take Water (PTTW) applications.

8.0 REFERENCES

Chapman, L.J., and D.F. Putnam; The Physiography of Southern Ontario, Third Edition, Ontario Geological Survey Special Volume 2; 1984, & 2007.

Freeze, R.A., and J.A. Cherry. “Groundwater”. Prentice-Hall, Inc. Englewood Cliffs, NJ. 1979.

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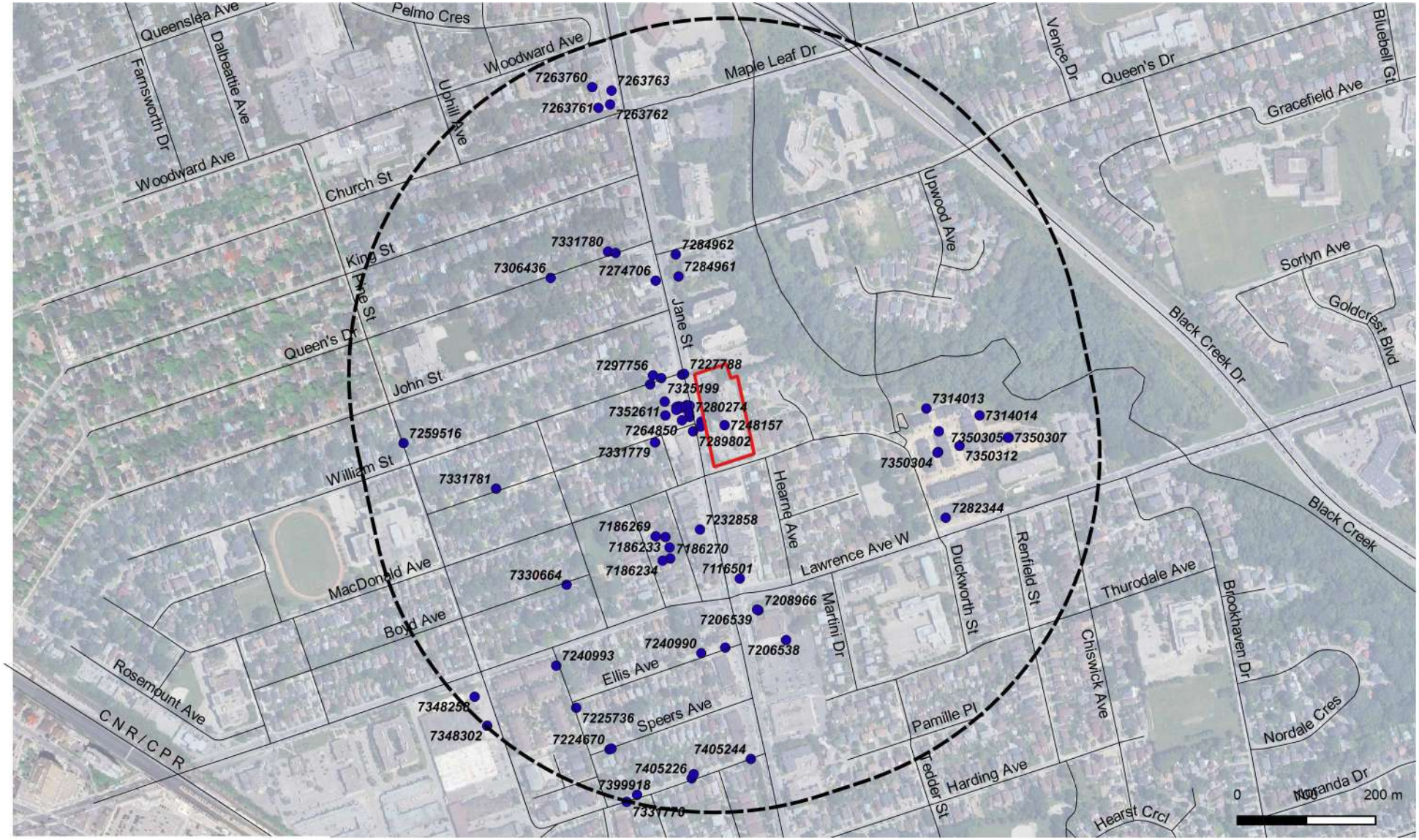
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Pat M. Cashman and Martin Preene; Groundwater Lowering in Construction- Second Edition, CRC Press.

Figures

J:\-GIS\2025 PROJECTS\25-163-100 - 1771-1775 Jane Street, North York\1-QGIS\HydroG\Figure 1 – Site Location and MECP Well Records.qgs Sep-10 00:30



Legend

- Site Boundary
- 500m Buffer
- Registered Water Well (MECP WWR)

DS CONSULTANTS LTD.
6221 Highway 7, UNIT 16
Vaughan, Ontario L4H 0K8
Telephone: (905) 264-9393
www.dsconsultants.ca

Client: MEDALLION CORPORATION

Project: HYDROGEOLOGICAL INVESTIGATION
1771-1775 Jane Street, North York, ON

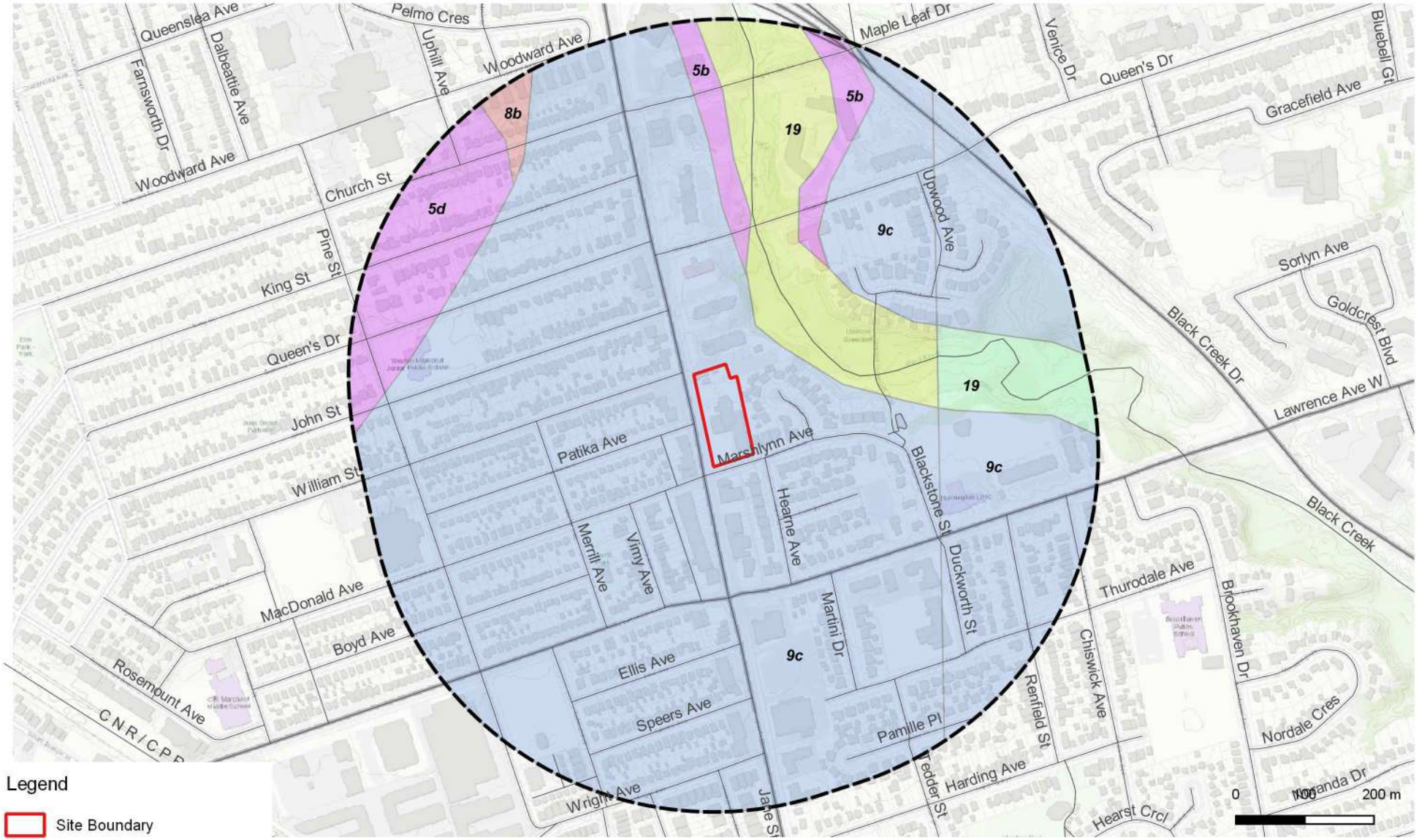
Title: **SITE LOCATION AND MECP WELL RECORDS**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	P.P	S.Y	September 2025
Rev: 0	Scale: As Shown	Project No.: 25-163-300	Figure No.: 1

Image/Map Source: *Google Satellite Image*

J:\-GIS\2025 PROJECTS\25-163-100 - 1771-1775 Jane Street, North York\1-QGIS\HydroG\Figure 2 – Surficial Geology Map.qgs Sep-10 00:41



Legend

- Site Boundary
- 500m Buffer
- 19 - Modern Alluvium
- 19 - River deposits
- 5b - Till
- 8b - Glaciolacustrine Deposits
- 9c - Coarse-textured Glacial Lake Deposits

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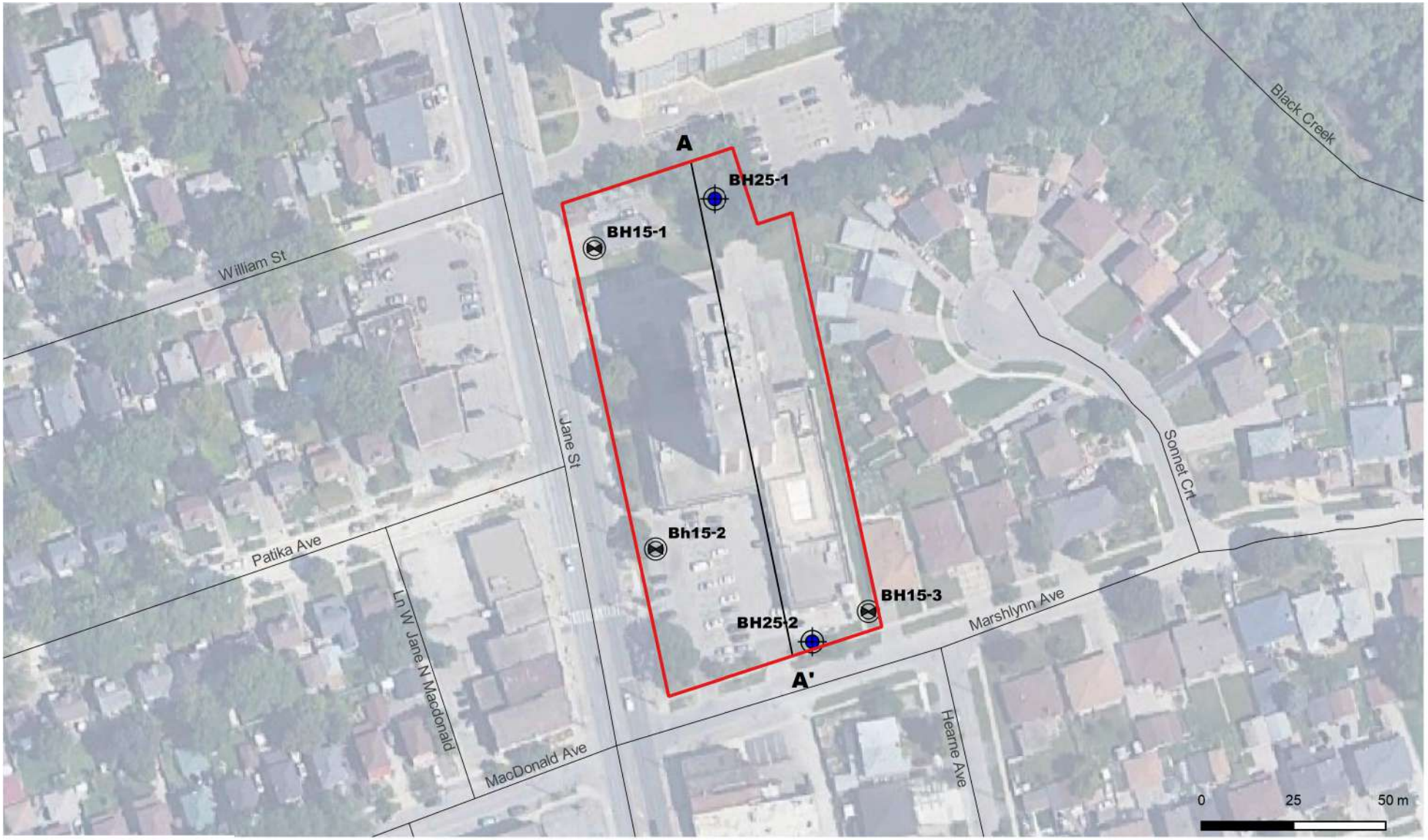
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Client: MEDALLION CORPORATION

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	P.P	S.Y	September 2025
Rev: 0	Scale: As Shown	Project No.: 25-163-300	Figure No.: 2

Image/Map Source: *Google Satellite Image*

J:\-GIS\2025 PROJECTS\25-163-100 - 1771-1775 Jane Street, North York\1-QGIS\HydroG\Figure 3 – Borehole and Monitoring Well Locations.qgs Sep-30 12:25



Legend

- Site Boundary
- Monitoring Well
- mointoring Well - Other
- Cross Section

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Client: MEDALLION CORPORATION

Project: HYDROGEOLOGICAL INVESTIGATION
1771-1775 Jane Street, North York, ON

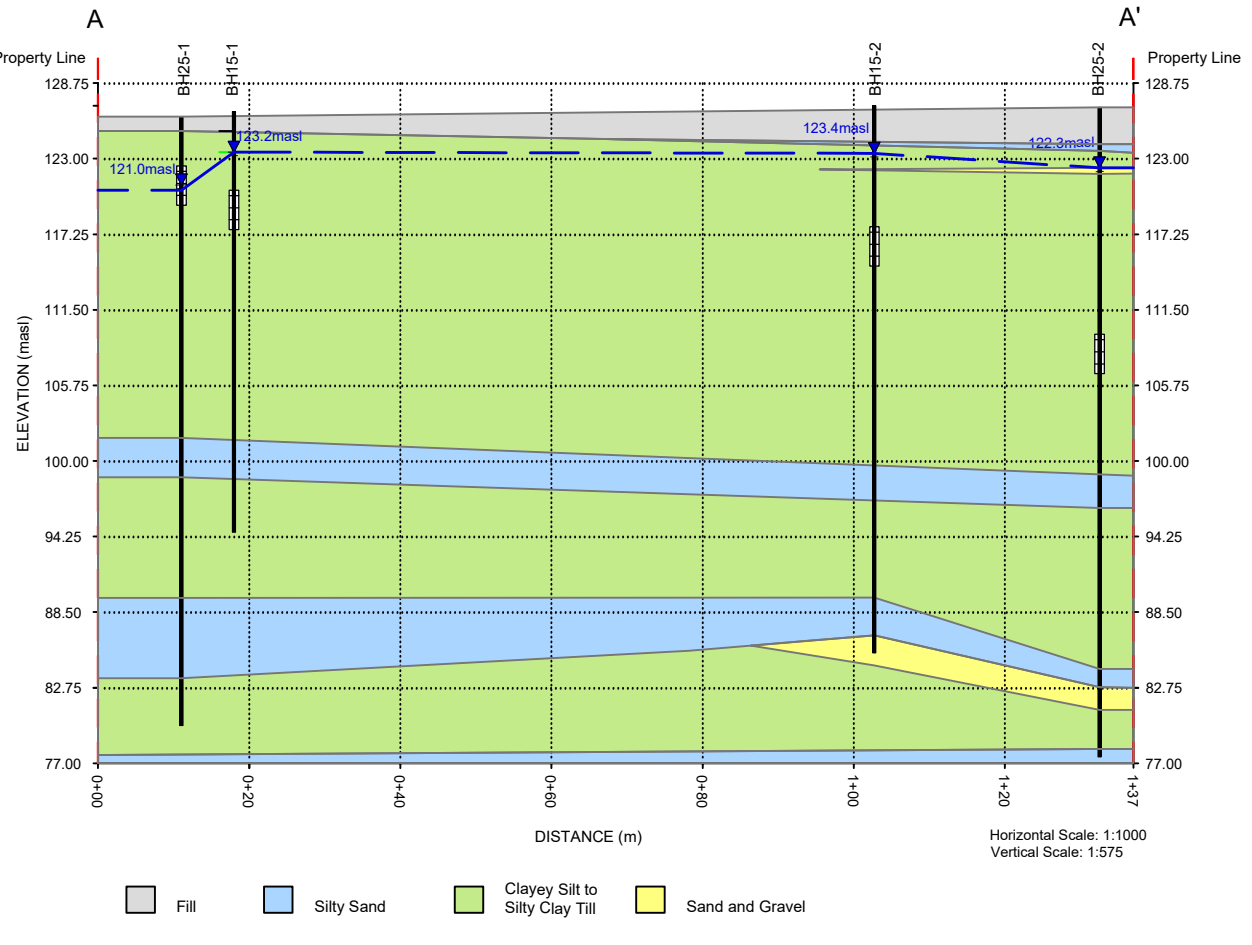
Title: **BOREHOLE AND MONITORING WELL LOCATIONS**

N

Size:	Approved By:	Drawn By:	Date:
8.5 x 11	P.P	S.Y	September 2025
Rev: 0	Scale: As Shown	Project No.: 25-163-300	Figure No.: 3

Image/Map Source: *Google Satellite Image*

Path:j:\-gis\2025 projects\25-163-100 - 1771-1775 jane street, north york\7-misc\cad\geological cross section 25-163.dwg



Groundwater Elevation (Aug 29, 2025)

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Project: HYDROGEOLOGICAL INVESTIGATION
1771-1775 Jane Street, North York, ON

Title: **GEOLOGICAL CROSS SECTION A-A'**

Client:	Size:	Approved By:	Drawn By:	Date:
MEDALLION CORPORATION	8.5 x 11	P.P	S.Y	October 2025
	Rev.	Scale: As Shown	Project No: 25-163-300	Figure No. 4

APPENDIX

Appendix A: Borehole Logs

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LOG OF BOREHOLE BH25-1

PROJECT: Geotechnical Investigation
CLIENT: Medallion Corporation
PROJECT LOCATION: 1771-1775 Jane Street, North York, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4840285.7 E 620541.5

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Jun-02-2025 to Jun-03-2025

REF. NO.: 25-163-100
ENCL NO.: 2

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	ELEVATION
126.2					
126.0 / 0.1	**TOPSOIL/ORGANIC MATERIAL:** 100mm	1	SS	9	126
125.1 / 1.1	**FILL:** clayey silt, some sand, trace rootlets, trace organics, trace asphalt piece & brick piece, dark brown, very moist, stiff	2	SS	10	
		3	SS	24	
	CLAYEY SILT TO SILTY CLAY TILL: some sand to sandy, trace gravel, occasional cobble/boulder, brown, moist, stiff to very stiff	4	SS	21	124
		5	SS	21	
	grey, stiff below 4.6m	6	SS	12	122
		7	SS	12	
		8	SS	12	118
		9	SS	9	
		10	SS	12	116
		11	SS	14	114
		12	SS	8	112
111.0 / 15.2	**SILTY CLAY:** trace sand, trace gravel, grey, moist to very moist, firm to stiff	13	SS	9	110
		14	SS	11	
		15	SS	11	108
	firm at 19.8m	16	SS	4	106
		17	SS	10	
	frequent wet sand seams at 22.9m	18	SS	12	104
101.8 / 24.4	**SILTY SAND:** trace clay, trace gravel, grey, wet, dense silty clay to clayey silt layer at 24.9m	19	SS	38	102
		20	SS	43	100
98.8 / 27.4	**SILTY CLAY:** wet silty sand layers/interbedded, trace gravel, grey, moist, hard	21	SS	54	98

W. L. 120.6 m
Jun 17, 2025

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
200		
200		
175		Switched to mud rotary
8		
		2 22 52 24
		0 1 53 46
150		

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+3, ×3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH25-1

PROJECT: Geotechnical Investigation
CLIENT: Medallion Corporation
PROJECT LOCATION: 1771-1775 Jane Street, North York, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4840285.7 E 620541.5

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: Jun-02-2025 to Jun-03-2025

REF. NO.: 25-163-100
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L — WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	SILTY CLAY: wet silty sand layers/interbedded, trace gravel, grey, moist, hard(Continued)						96					
			22	SS	36				○	175		
32							94					
			23	SS	49				○	150		
34							92					
36												
89.6							90					
36.6	**SILTY SAND:** trace clay, grey, wet, compact to dense		24	SS	42				○			0 71 22 7
38							88					
40			25	SS	28				○			
	gravelly sand layer at 40.5m						86					
42												
83.5							84					
42.7	**SILTY CLAY:** trace sand, trace gravel, grey, moist, hard		26	SS	54				○	150		
44							82					
80.5												
45.7	**SILTY CLAY:** interbedded wet silty sand, grey, moist, hard		27	SS	43				○			
79.9							80					
46.3	**END OF BOREHOLE**											

Notes:
1) 50mm dia. monitoring well (MW) was installed upon completion.
2) Water Level Readings:

Date:	W.L.(mbgs):
June 17, 2025	5.6

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

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LOG OF BOREHOLE BH25-2

PROJECT: Geotechnical Investigation
CLIENT: Medallion Corporation
PROJECT LOCATION: 1771-1775 Jane Street, North York, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4840165.4 E 620568

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: May-29-2025 to May-30-2025

REF. NO.: 25-163-100
ENCL NO.: 3

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	ELEVATION	POCKET PEN. (Cu) (kPa)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
126.9							
126.7	**TOPSOIL/ORGANIC MATERIAL:** 180mm	1	SS	4			
126.1 / 0.8	**FILL:** clayey silt with organics, trace rock fragments, some organics, dark brown to black, moist, firm	2	SS	5	126		
2		3	SS	9			
124.1 / 2.8	**FILL:** silty sand, trace clay, brown, wet, loose to compact	4	SS	12	124		
123.6 / 3.3	**SILTY SAND:** trace clay, brown, wet, loose to compact	5	SS	5			
4							
122.3	**SILTY CLAY:** trace sand, grey, moist, firm				W. L. 122.6 m Jun 17, 2025		
122.0 / 4.9	**SAND AND GRAVEL:** trace clay, trace silt, brown, wet, compact	6	SS	14			Switched to mud rotary
6	**CLAYEY SILT TO SILTY CLAY TILL:** some sand to sandy, trace gravel, occasional cobble/boulder, grey, moist, stiff to very stiff	7	SS	20	120	175	
8		8	SS	11			
		9	SS	10	118		
10		10	SS	10	116		
12		11	SS	9	114		
		12	SS	11			
14		13	SS	10	112		
16		14	SS	9	110		
18		15	SS	8	108		2 29 50 19
20		16	SS	8			
105.6 / 21.3	**SILTY CLAY:** trace sand, grey, moist, very soft to firm	17	SS	5	106		
22							
		18	SS	WH	104		
24							
102.5 / 24.4	**CLAYEY SILT TILL:** trace to some sand, trace gravel, grey, moist, stiff to hard	19	SS	14	102		
26		20	SS	45		200	
99.5 / 27.4	**SILTY CLAY:** trace sand, grey, moist, hard (verify)	21	SS	38	100		
99.0 / 27.9	**SILTY SAND:** trace clay, grey, wet, dense				98		
30							

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P — NATURAL MOISTURE CONTENT w — LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

NATURAL UNIT WT (kN/m³)

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+3, ×3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

DS SOIL LOG-2021-DRAFT 25-163-100 GEO.GPJ DS.GDT 25-6-18

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LOG OF BOREHOLE BH25-2

PROJECT: Geotechnical Investigation
CLIENT: Medallion Corporation
PROJECT LOCATION: 1771-1775 Jane Street, North York, ON
DATUM: Geodetic
BH LOCATION: See Drawing 1 N 4840165.4 E 620568

DRILLING DATA
Method: Hollow Stem Auger/Mud Rotary
Diameter: 200mm
Date: May-29-2025 to May-30-2025

REF. NO.: 25-163-100
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%) (10 20 30)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
96.4												
30.5	**SILTY CLAY TILL:** trace to some sand, trace gravel, seams of sand and gravel, grey, moist, very stiff		22	SS	25		96					
32												
93.4							94					
33.5	**SILTY CLAY:** trace to some sand, trace gravel, frequent wet silty sand layers below, very stiff to hard		23	SS	35							
34							92					
36												
			24	SS	22		90					
38												
							88					
40			25	SS	18					125		2 10 46 42
42							86					
84.2												
42.7	**SILTY SAND:** some clay, trace gravel, grey, wet, compact		26	SS	28		84					
44 82.8												
44.1	**COARSE SAND:** trace silt, trace clay, grey, wet, compact		27	SS	33		82					
81.2												
46 45.7	**SILTY CLAY:** trace sand, frequent wet silty sand layers, grey, moist, very stiff		28	SS	18							
	150mm wet silty sand layer at 47.2m		29	SS	23		80					0 7 73 20
48												
78.1												
48.8 77.5	**SILTY SAND:** trace clay, grey, wet, dense		30	SS	40		78					
49.4	**END OF BOREHOLE**											

Notes:
1) WH-Weight of Hammer
2) 50mm dia. monitoring well (MW) was installed upon completion.
3) Water Level Readings:

Date:	W.L.(mbgs):
June 17, 2025	4.3

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

DS SOIL LOG-2021-DRAFT 25-163-100 GEO.GPJ DS.GDT 25-6-18

SPL

LOG OF BOREHOLE BH15-1

PROJECT: Geotechnical Investigation - Proposed Buildings
CLIENT: Medallion Realty Holdings Ltd.
PROJECT LOCATION: 1775 Jane Street, Toronto, ON
DATUM: Geodetic
BH LOCATION: Refer to Drawing 1

DRILLING DATA
Method: Hollow stem auger/Tricone
Diameter: 203 mm
Date: May/14/2015

REF. NO.: 10001779
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER LEVEL	ELEVATION	GROUND WATER LEVEL	DYNAMIC CONE PENETRATION RESISTANCE PLOT (20 40 60 80 100) / SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE (20 40 60 80 100)	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) (10 20 30)	POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
126.6													
126.5 / 0.1	**ASPHALT:** 100mm												
	FILL: sandy silt, mixed with topsoil, trace asphalt fragments, dark brown, moist, loose		1	SS	7		126						
1			2	SS	7								
125.1							125						
1.5	**SANDY SILT:** trace clay, brown, very moist, loose		3	SS	5								
2 / 124.3						▽		W. L. 124.4 m: Jun 01, 2015 Holeplug					
2.3	**SAND AND GRAVEL:** trace silt, trace clay, brown, saturated, compact		4	SS	20								
3 / 123.5							123						
3.1	**SILTY CLAY TILL:** trace to some sand, trace gravel, grey, moist, stiff to hard		5	SS	21								
4													
5			6	SS	26		122						
6							121	Sand					
			7	SS	13								
7							120						
8			8	SS	12			Screen					
9							118						
			9	SS	7		117						2 18 51 29
10			10	SS	9								Tricone below 9.6m
11							116						
12	embedded silt layers, wet sand seams below 11.6m		11	SS	15		115						
13							114						
			12	SS	30		113						
14 / 112.0													
14.6 / 111.6	**SAND:** some gravel, grey, wet, compact		13	SS	15		112						
15	**SILT:** some clay, grey, very moist, compact												
16							111						
110.1													
16.5			14	SS	23		110						
17													

Continued Next Page

GROUNDWATER ELEVATIONS
Shallow/ Single Installation ▽ 1st ▽ 2nd Deep/Dual Installation ▽ 1st ▽ 2nd

GRAPH NOTES: + 3, × 3, Numbers refer to Sensitivity ○ ε=3% Strain at Failure

SPL SOIL LOG-2014-2 SEPARATE WELLS 10001779 GINT FILE - FOR GEO.GPJ SPL.GDT 6/29/15

LOG OF BOREHOLE BH15-1

PROJECT: Geotechnical Investigation - Proposed Buildings
CLIENT: Medallion Realty Holdings Ltd.
PROJECT LOCATION: 1775 Jane Street, Toronto, ON
DATUM: Geodetic
BH LOCATION: Refer to Drawing 1

DRILLING DATA
Method: Hollow stem auger/Tricone
Diameter: 203 mm
Date: May/14/2015

REF. NO.: 10001779
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER LEVEL	ELEVATION	GROUND WATER LEVEL	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	CLAYEY SILT: some sand, occasional gravel, grey, moist, stiff to very stiff(Continued)						109						
18			15	SS	12								
19 107.4							108						
19.2	**SILTY CLAY:** trace sand, contains sand seams, grey, moist, stiff		16	SS	8		107						
20													
21			17	SS	10		106						
22							105						
			18	SS	8		104						
23							103						
24			19	SS	8								0 1 46 53
25 101.3							102						
25.3	**SILTY CLAY TILL:** some sand, contains sand seams, trace gravel, grey, moist, hard		20	SS	63/ 275mm		101						
26 99.8													
26.8	**SILTY SAND:** trace clay, grey, wet, very dense		21	SS	59		100						0 64 26 8
28 98.3							99						
28.3	**SILTY CLAY TILL:** some sand, contains silt seams, trace gravel, grey, moist, hard		22	SS	41		98						2 16 49 33
29 96.7							97						
29.9	**SILTY SAND:** trace clay, grey, wet to saturated, very dense		23	SS	50								
31 95.2							96						
31.4	**CLAYEY SILT TILL:** sandy, trace gravel, occasional wet sand layers, grey, moist, hard		24	SS	35		95						
32 94.6													
32.0	**END OF BOREHOLE** Notes: 1) 50mm diameter monitoring well installed to a depth of 9.m on completion of drilling. 2) Water level in well on June 1, 2015 recorded at 5.81 mbgs.												

SPL SOIL LOG-2014-2 SEPARATE WELLS 10001779 GINT FILE - FOR GEO.GPJ SPL.GDT 6/29/15

GROUNDWATER ELEVATIONS
Shallow/ Single Installation 1st 2nd Deep/Dual Installation 1st 2nd

GRAPH NOTES + 3, × 3, Numbers refer to Sensitivity ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH15-2

PROJECT: Geotechnical Investigation - Proposed Buildings
CLIENT: Medallion Realty Holdings Ltd.
PROJECT LOCATION: 1775 Jane Street, Toronto, ON
DATUM: Geodetic
BH LOCATION: Refer to Drawing 1

DRILLING DATA
Method: Hollow stem auger/Tricone
Diameter: 203 mm
Date: May/19/2015

REF. NO.: 10001779
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
127.0							
0.0 / 126.2	**FILL:** silty sand, trace clay, trace to some asphalt, trace gravel, dark brown, moist, compact		1	SS	21		
0.8 / 125.2	**FILL:** sandy silt, some clay, trace rootlets, brown, moist, loose to compact		2	SS	9	126	
			3	SS	11		
1.8 / 123.9	**SANDY SILT:** trace clay, brown, wet, compact to loose		4	SS	7	125	
3.1 / 122.4	**CLAYEY SILT:** trace sand, trace gravel, brown to grey, moist, stiff		5	SS	9	124	Bentonite W. L. 123.6 m Jun 01, 2015
4.6 / 122.0	**SAND AND GRAVEL:** trace clay, grey, saturated, loose		6	SS	9	123	
5.0	**SILTY CLAY TILL:** some sand, trace gravel, grey, moist, stiff to very stiff					122	
			7	SS	18	121	Sand
			8	SS	14	120	Screen
	embedded silt layer at 10m		9	SS	9	119	
			10	SS	9	118	
			11	SS	8	117	W. L. 115.3 m: Jun 01, 2015
	occasional sand layers below 12.9m		12	SS	8	116	
			13	SS	8	115	
			14	SS	9	114	
						113	
						112	
						111	

Tricone/Mud rotary below 9.8m

Continued Next Page

GROUNDWATER ELEVATIONS
Shallow/ Single Installation 1st 2nd
Deep/Dual Installation 1st 2nd

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

SPL SOIL LOG-2014-2 SEPARATE WELLS 10001779 GINT FILE - FOR GEO.GPJ SPL.GDT 6/29/15

PROJECT: Geotechnical Investigation - Proposed Buildings

CLIENT: Medallion Realty Holdings Ltd.

PROJECT LOCATION: 1775 Jane Street, Toronto, ON

DATUM: Geodetic

BH LOCATION: Refer to Drawing 1

DRILLING DATA

Method: Hollow stem auger/Tricone

Diameter: 203 mm

Date: May/19/2015

REF. NO.: 10001779

ENCL NO.: 3

SOIL PROFILE			SAMPLES			GROUND WATER LEVEL	ELEVATION	GROUND WATER LEVEL	DYNAMIC CONE PENETRATION RESISTANCE PLOT / SHEAR STRENGTH (kPa) / WATER CONTENT (%)	POCKET PEN (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m				20 40 60 80 100 — PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT (w_P w w_L); ○ UNCONFINED + FIELD VANE & Sensitivity; ● QUICK TRIAXIAL × LAB VANE; 10 20 30			GR SA SI CL
	SILTY CLAY TILL: some sand, trace gravel, grey, moist, stiff to very stiff(Continued)											
18			15	SS	9		109					
19 107.8												
							Bentonite Grout					
19.2	**SILTY CLAY:** trace sand, occasional gravel, grey, moist, stiff		16	SS	12		107					
20												
21			17	SS	9		106					
22							105					
			18	SS	9							
23 103.5							104					
23.5	**SILTY CLAY TILL:** some sand, trace gravel, occasional cobble/boulder, grey, moist, very stiff											
24	layer of gravelly sand at 24.2m		19	SS	21		103					
25 101.5							102					
25.5	**SAND:** some silt, grey, wet, compact		20	SS	28							
26 100.2							101					
26.8	**SILTY CLAY TILL:** some sand, trace gravel, contains wet sand seams, occasional silt seams, grey, moist, very stiff		21	SS	19		100					
28 98.7							99					
28.3	**SILTY SAND TO SANDY SILT:** trace clay, grey, wet to saturated, compact		22	SS	24		98					
29												
30			23	SS	31		97					
31 95.6							96					
31.4	**CLAYEY SILT:** trace sand, occasional gravel, contains wet sand seams, grey, moist, very stiff		24	SS	16		95					
32 94.1												
32.9	**SANDY SILT:** trace clay, grey, saturated, dense		25	SS	40		94					
33												

Continued Next Page

GROUNDWATER ELEVATIONS

Shallow/ Single Installation ▽ 1st ▼ 2nd Deep/Dual Installation ▽ 1st ▼ 2nd

GRAPH NOTES $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity ○ $^{\varepsilon=3\%}$ Strain at Failure

LOG OF BOREHOLE BH15-2

PROJECT: Geotechnical Investigation - Proposed Buildings
CLIENT: Medallion Realty Holdings Ltd.
PROJECT LOCATION: 1775 Jane Street, Toronto, ON
DATUM: Geodetic
BH LOCATION: Refer to Drawing 1

DRILLING DATA
Method: Hollow stem auger/Tricone
Diameter: 203 mm
Date: May/19/2015

REF. NO.: 10001779
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	SAMPLES NUMBER	TYPE	"N" BLOWS/0.3 m	GROUND WATER LEVEL	ELEVATION	GROUND WATER LEVEL	DYNAMIC CONE PENETRATION RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED + FIELD VANE & Sensitivity ● QUICK TRIAXIAL × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN (CU) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
92.6													
34.4	**SILTY CLAY TILL:** some sand, contains wet sand seams, trace gravel, grey, moist, stiff		26	SS	10		92						
			27	SS	12		91						
89.5							90						
37.5	**SILTY SAND:** trace clay, embedded clayey silt layers, grey, saturated, dense		28	SS	35		89 Sand						
			29	SS	40		88						
86.8							Screen						
40.2	**SAND:** some silt, trace clay, grey, saturated, dense		30	SS	41		86						
85.8													
41.2	**SANDY GRAVEL:** trace silt, trace clay, occasional cobble/boulder,												
85.4			31	SS	50/125mm								
41.6	grey, saturated, very dense												
	END OF BOREHOLE												

Notes:
1) Tricone refusal at 41.6m on possible boulder or bedrock.
2) 19 mm dia. peizometer (deep well) installed to a depth of 41.6m in borehole upon completion.
3) Water level in 19mm piezometer on June 1, 2015 recorded at 11.7 mbgs.
4) 50mm dia. monitoring well (shallow well) installed in an adjacent separate borehole at 9.3m.
5) Water level in 50mm well on June 1, 2015 recorded at 3.4 mbgs.

GROUNDWATER ELEVATIONS
Shallow/ Single Installation 1st ▽ 2nd ▼ Deep/Dual Installation 1st ▼ 2nd ▼

GRAPH NOTES: + 3, × 3, Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

SPL SOIL LOG-2014-2 SEPARATE WELLS 10001779 GINT FILE - FOR GEO.GPJ SPL.GDT 6/29/15

LOG OF BOREHOLE BH15-3

PROJECT: Geotechnical Investigation - Proposed Buildings
CLIENT: Medallion Realty Holdings Ltd.
PROJECT LOCATION: 1775 Jane Street, Toronto, ON
DATUM: Geodetic
BH LOCATION: Refer to Drawing 1

DRILLING DATA
Method: Hollow stem auger
Diameter: 203 mm
Date: May/26/2015

REF. NO.: 10001779
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER LEVEL	ELEVATION	GROUND WATER LEVEL
127.3								
127.0 0.4	**TOPSOIL:** 100mm							
126.5	**FILL:** sandy silt, some clay, trace rootlets, trace gravel, brown, moist, compact		1	SS	16		127	
1 0.8	**FILL:** clayey silt, some organics, dark brown to brown, moist, firm		2	SS	6			
125.6							126	
2 1.7	**SILTY SAND TO SANDY SILT:** trace clay, brown, moist, loose to compact		3	SS	6			
			4	SS	13		125	
3 124.0							Holeplug	
3.3	**SILTY CLAY:** trace sand, trace gravel, grey, moist, stiff		5	SS	8		124	
4 122.7							W. L. 123.6 m Jun 01, 2015	
4.6	**SAND:** some gravel, trace silt, grey, saturated, compact		6	SS	21		123	
5 121.2							122	
6.1	**SILTY CLAY TILL:** some sand, contains wet sand seams, trace gravel, grey, moist, very stiff		7	SS	21		Sand	
7							121	
8			8	SS	17		120	
9 118.0	interbed of silty clay at 9.1 m						Screen	
9.3	**SAND:** trace silt, grey, wet, very loose		9	SS	3		119	
117.6							118	
9.7	**END OF BOREHOLE**							

Notes:
1) 50mm diameter monitoring well installed to a depth of 9.1m on completion of drilling.
2) Water level in well on June 1, 2015 recorded at 3.67 mbgs.

DYNAMIC CONE PENETRATION RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Shallow/ Single Installation ▽ 1st ▼ 2nd
Deep/Dual Installation ▽ 1st ▼ 2nd

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

SPL SOIL LOG-2014-2 SEPARATE WELLS 10001779 GINT FILE - FOR GEO.GPJ SPL.GDT 6/29/15

Appendix B: MECP Water Wells Records

Table: MECP Water Wells Records (500 m Radius)
Location: 1771-1775 Jane Street, Toronto

TOWNSHIP C	E	N	DATE CNTR	CASING	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
TH YORK BORO	620493	4840223	2017-01 7241	2			MT	0006 10	7280274	BLCK 0010 BRWN SAND SILT 0016
TH YORK BORO	620913	4840225	2018-05 7644	2	14		TH MO	40	7314014	
TH YORK BORO	620836	4840235	2018-05 7644	2	7		TH MO	0040 10	7314013	
TH YORK BORO	620510	4840216	2017-05 7241	2			TH MO	0007 10	7290027	BLCK ---- 0000 GREY ---- 0001 BRWN FILL 0004 BRWN SAND SILT 0015 GREY CLAY 0017
TH YORK BORO	620509	4840209	2015-05 7241	2			TH MO	0010 10	7289803	BLCK ---- 0000 GREY ---- 0001 BRWN SAND SILT 0010 GREY CLAY SILT 0020
TH YORK BORO	620498	4840202	2017-05 7241	2			TH MO	0007 10	7289802	BLCK ---- 0000 GREY ---- 0001 BRWN SAND SILT 0010 GREY CLAY SILT 0017
TH YORK BORO	620473	4840458	2017-03 7241	2			TH MO	0004 8	7284962	BLCK LOAM 0004 BRWN SILT SAND 0012
TH YORK BORO	620477	4840426	2017-03 7241	2			TH MO	0004 8	7284961	BLUE LOAM 0003 BRWN SILT SAND 0012
TH YORK BORO	620854	4840202	2018-04 7644	2	14		TH MO	0015 5	7314015	
TH YORK BORO	620491	4840234	2017-01 7241	2			MT	0010 10	7280276	BLCK CMTD 0001 BRWN SAND 0008 BRWN SILT CLAY TILL 0020
TH YORK BORO	620489	4840240	2017-01 7241	2			MT	0010 10	7280277	BLCK CMTD 0001 BRWN SAND 0008 BRWN SILT CLAY TILL 0020
TH YORK BORO	620544	4840211	2015-05 6032	1			MO	0126 10	7248157	BRWN LOAM SAND SOFT 0003 BRWN SAND GRVL SOFT 0015 GREY SILT CLAY WBRG 0030 GREY CLAY SILT WBRG 0090 GREY SILT SAND DNSE 0110 GREY SILT CLAY WBRG 0136
TH YORK BORO	620482	4840284	2014-08 7241	2.04			MT	0004 10	7227789	BRWN SAND SLTY SOFT 0005 BRWN CLAY SLTY SOFT 0010 GREY CSND SOFT 0014
TH YORK BORO	620485	4840285	2014-08 7241	2.04			MT	0004 10	7227788	BRWN SAND SLTY SOFT 0005 BRWN SAND SLTY SOFT 0010 GREY CSND SOFT 0014
TH YORK BORO	620593	4839943	2013-09 7241	2			MT	0008 10	7208966	BRWN SAND 0010 BRWN SAND WBRG 0012 GREY CLAY 0018
TH YORK BORO	620591	4839944	2013-07 7241	2			MT	0015 10	7206539	BRWN SAND FILL 0009 GREY SILT CLAY 0025
TH YORK BORO	620633	4839900	2013-07 7241	2			MT	0010 10	7206538	BRWN SAND FILL 0011 GREY SILT CLAY 0020
TH YORK BORO	620864	4840077	2017-02 6607						7282344	
TH YORK BORO	620955	4840193	2019-11 7472						7350307	
TH YORK BORO	620954	4840193	2019-11 7472						7350305	
TH YORK BORO	620853	4840172	2019-11 7472						7350306	
TH YORK BORO	620884	4840181	2019-11 7472						7350312	
TH YORK BORO	620852	4840171	2019-11 7472						7350304	
TH YORK BORO	620493	4840239	2019-05 7230	2.04	UT 0009	///:	MT	0006 10	7336366	
TH YORK BORO	620492	4840229	2017-01 7241	0.79			MT	0020 33	7280275	BLCK CMTD 0033 BRWN SAND SILT 0052
TORONTO CITY	620566	4839989	2008-11 7147	12.6			TH NU	0003 10	7116501	BLCK 0001 BRWN FILL 0010 BRWN SILT CLAY 0015

Table: MECP Water Wells Records (500 m Radius)
Location: 1771-1775 Jane Street, Toronto

TORONTO CITY	620436	4840270	2004-08 6607	1.97	FR 0008			0005 10	6928184	GREY SAND GRVL FILL 0002 BRWN SILT CLAY SOFT 0010 GREY SILT CLAY 0015
ORK BOROUG	620478	4840238	2014-11 7241	2			MT	0009 10	7235398	BRWN FILL 0005 BRWN SAND SILT 0010 BRWN SAND GRVL 0014 GREY SILT CLAY 0019
ORK BOROUG	620474	4840237	2014-11 7241	2			MT	0011 10	7235397	BRWN FILL CLAY 0005 BRWN SAND SILT 0012 BRWN SAND GRVL 0018 GREY SILT CLAY 0021
ORK BOROUG	620377	4839742	2014-06 7360						7224670	
ORK BOROUG	620510	4839881	2015-02 7247		6				7240990	
ORK BOROUG	620380	4839743	2015-02 7247		UT 0008				7240991	
ORK BOROUG	620300	4839863	2015-02 7247		UT 0009				7240993	
ORK BOROUG	620079	4840185	2015-11 6032	2			MO	0025 5	7259516	BLCK GRVL HARD 0000 BLCK FILL LYRD 0010 BRWN SILT CLAY HARD 0020 GREY SAND SILT SOFT 0025
ORK BOROUG	620508	4840060	2014-11 7147						7232858	
ORK BOROUG	620329	4839802	2014-06 7360						7225736	
ORK BOROUG	620378	4840675	2016-04 7241	2			MT	0010 10	7263762	BLCK ---- 0004 BRWN SAND GRVL 0008 BRWN CLAY SILT TILL 0020
ORK BOROUG	620457	4840245	2019-10 7324						7352611	
ORK BOROUG	620417	4839676	2021-09 6946						7399918	
ORK BOROUG	620465	4840018	2012-07 7241	2			MT	0004 10	7186270	BRWN FILL 0005 BRWN CLAY SILT 0009 BRWN SAND SILT 0013 GREY CLAY SILT 0014
ORK BOROUG	620444	4840050	2012-07 7241	2			MT	0004 10	7186269	BRWN FILL 0005 BRWN CLAY SILT 0009 BRWN SAND SILT 0011 GREY CLAY SILT 0014
ORK BOROUG	620454	4840015	2012-07 7241	2			MT	0004 10	7186234	BRWN FILL 0005 BRWN CLAY SILT 0007 BRWN SAND SILT 0014
ORK BOROUG	620458	4840049	2012-07 7241	2			MT	0004 10	7186233	BRWN FILL 0005 BRWN CLAY SILT 0009 BRWN SAND 0010 GREY CLAY SILT 0014
ORK BOROUG	620464	4840034	2012-07 7241	2			MT	0005 10	7186232	BRWN FILL 0005 BRWN CLAY SILT 0011 BRWN SAND SILT 0014 GREY CLAY SILT 0015
ORK BOROUG	620496	4839700	2021-09 7472	2		///:	MO	0015 10	7405226	GREY GRVL SAND PCKD 0010 GREY SAND SILT PCKD 0016 GREY CLAY SILT PCKD 0025
ORK BOROUG	620545	4839889	2014-06 7360						7225737	
ORK BOROUG	620402	4839666	2019-04 7230	2.04	UT 0009	///:	MT	0007 10	7331776	
ORK BOROUG	620315	4839980	2019-03 7147	1.97		///:	NU	0010 5	7330664	
ORK BOROUG	620452	4840279	2018-10 7421						7325199	
ORK BOROUG	620375	4840462	2019-03 7230	2.04	UT 0004	///:	MT		7331780	
ORK BOROUG	620213	4840119	2019-04 7230	2.04	UT 0006	///:	MT	0008 10	7331781	
ORK BOROUG	620499	4839706	2019-03 7230	2.04	UT 0006	///:	MT	0008 10	7331782	

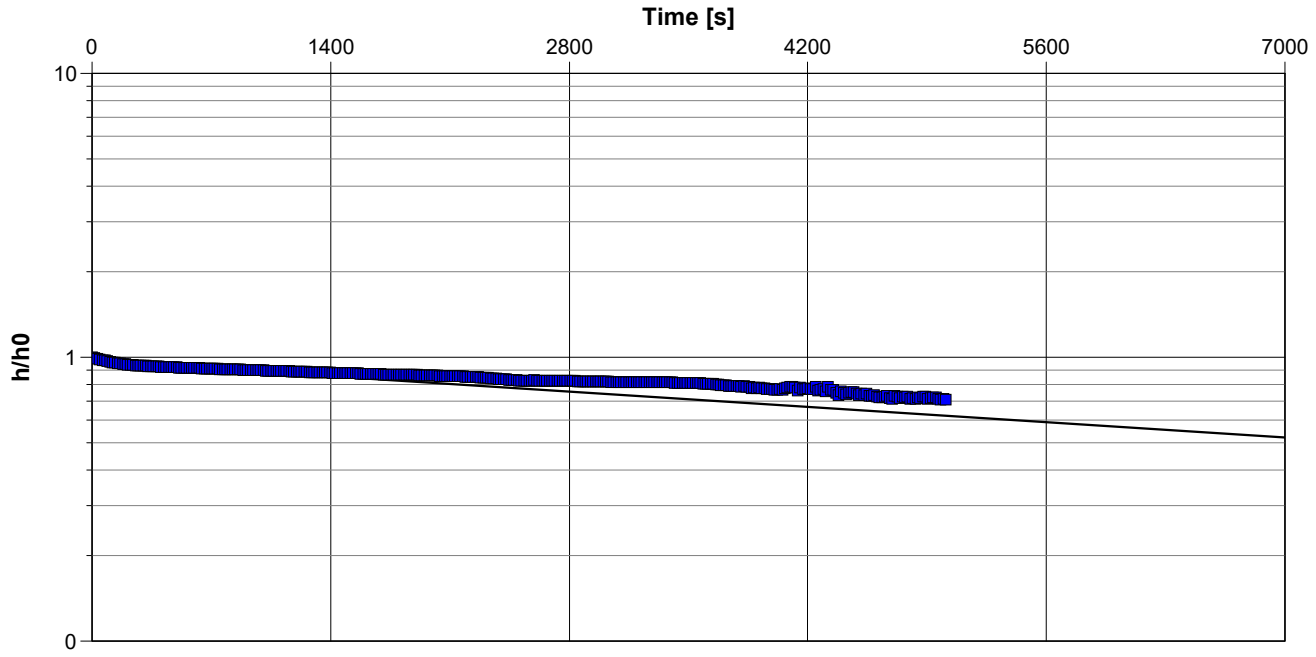
Table: MECP Water Wells Records (500 m Radius)
Location: 1771-1775 Jane Street, Toronto

ORK BOROUG	620292	4840424	2017-11 7472	2			MO	0010 10	7306436	BRWN SAND SILT LOOS 0010 GREY CLAY SILT PCKD 0020
ORK BOROUG	620386	4840460	2017-11 7147	1.17			MO	0010 10	7300883	BRWN SILT 0020
ORK BOROUG	620440	4840283	7383	2			MO	0010 5	7297756	BRWN SAND GRVL CLAY 0008 GREY CLAY SILT 0015
ORK BOROUG	620352	4840700	2016-04 7241	2			MT	0010 10	7263760	BLCK ---- 0004 BRWN SAND GRVL 0008 BRWN CLAY SILT 0020
ORK BOROUG	620182	4839818	2019-10 7241	2		///:	MT	0005 10	7348258	BRWN SAND 0003 BRWN SILT SAND 0008 GREY SAND SILT 0015
ORK BOROUG	620361	4840670	2016-04 7241	2			MT	0010 10	7263761	BLCK ---- 0004 BRWN SAND GRVL 0008 BRWN CLAY SILT TILL 0020
ORK BOROUG	620582	4839728	2021-09 7472	2		///:	MO	0015 10	7405244	GREY GRVL SAND PCKD 0010 GREY SAND SILT PCKD 0016 GREY CLAY SILT PCKD 0025
ORK BOROUG	620200	4839776	2019-10 7241	2		///:	MT	0005 10	7348302	BRWN SAND 0003 BRWN SILT SAND 0008 GREY SAND 0015
ORK BOROUG	620444	4840420	2016-08 6607	20	UT 0046		MO	0044 10	7274706	BRWN SAND SILT LOOS 0010 GREY CLAY SILT PCKD 0020 BRWN SAND SILT DNSE 0054
ORK BOROUG	620481	4840236	2016-05 7241	2			MT	0005 10	7264935	BLCK ---- 0000 BRWN FILL 0001 BRWN SILT SAND 0010 GREY SAND SILT 0015
ORK BOROUG	620474	4840233	2016-05 7241	2			MT	0005 10	7264934	BLCK ---- 0000 BRWN FILL 0001 BRWN SILT SAND 0009 GREY SAND SILT 0015
ORK BOROUG	620458	4840225	2016-05 7241	2			MT	0005 10	7264933	BLCK ---- 0000 BRWN FILL 0001 BRWN SAND SILT SOFT 0011 GREY SILT SAND 0015
ORK BOROUG	620482	4840218	2016-05 7241	2			MT	0005 10	7264850	BLCK ---- 0003 BRWN SAND 0009 GREY SILT SAND WBRG 0015
ORK BOROUG	620380	4840695	2016-04 7241	2			MT	0010 10	7263763	BLCK ---- 0004 BRWN SAND GRVL 0008 BRWN SILT CLAY TILL 0020
ORK BOROUG	620443	4840186	2019-04 7230	2.04	UT 0006	///:	MT	0007 10	7331779	

Appendix C: Hydraulic Conductivity Analysis

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 25-162-100
	Client: Medallion Corporation

Location: 1771-1775 Jane Street, Toronto	Slug Test: MW 25-1	Test Well: MW 25-1
Test Conducted by: PP		Test Date: 8/14/2025
Analysis Performed by: PP	Hvorslev	Analysis Date: 8/14/2025
Aquifer Thickness: 4.10 m		

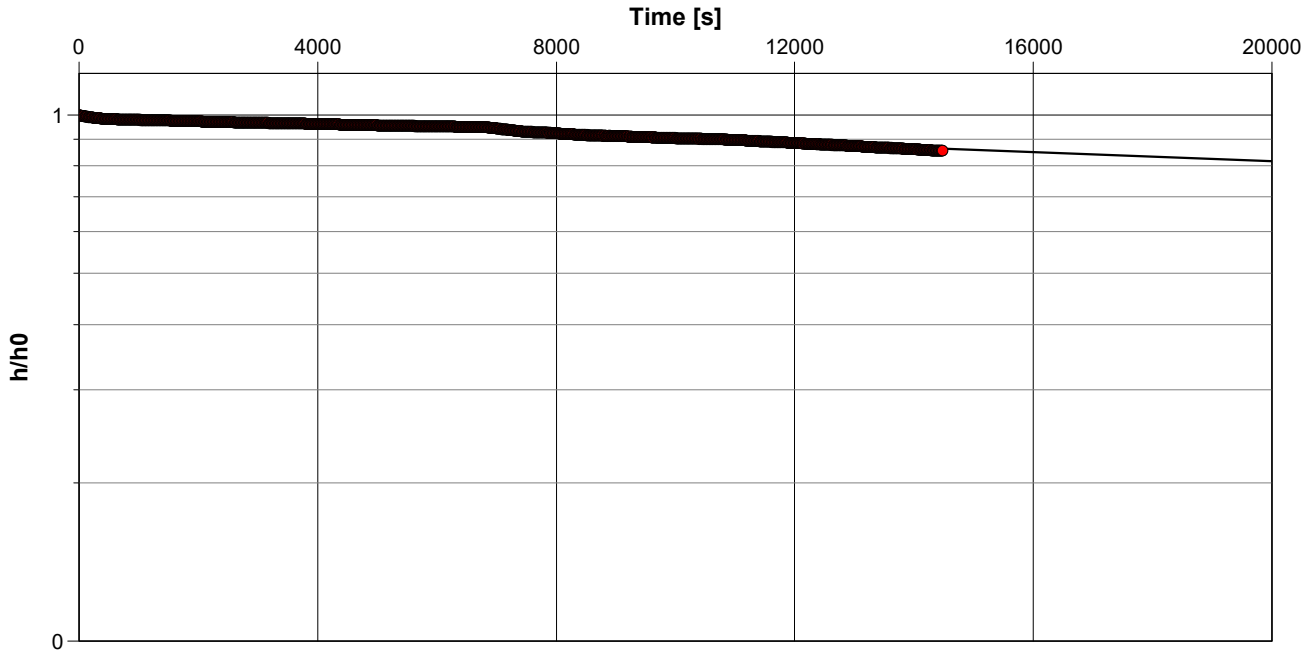


Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
MW 25-1	4.03×10^{-8}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 25-162-100
	Client: Medallion Corporation

Location: 1771-1775 Jane Street, Toronto	Slug Test: MW 25-2	Test Well: MW 25-2
Test Conducted by: PP		Test Date: 8/15/2025
Analysis Performed by: PP	Hvorslev	Analysis Date: 8/15/2025
Aquifer Thickness: 14.73 m		

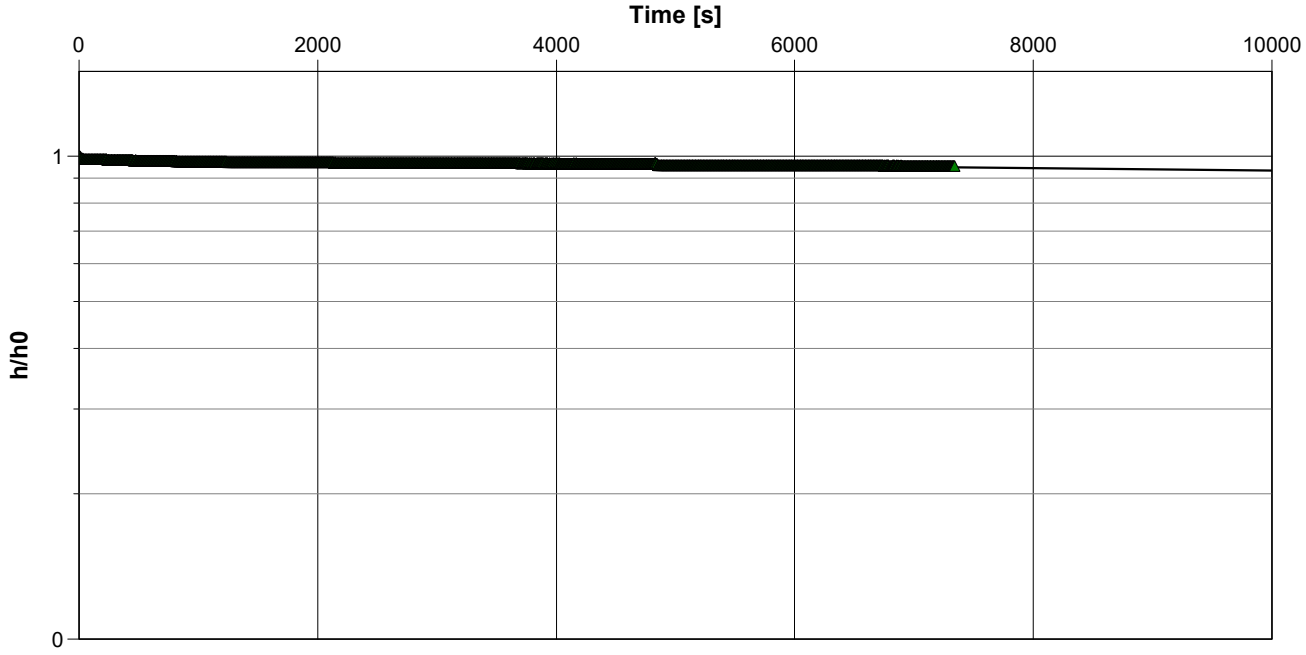


Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
MW 25-2	4.50×10^{-9}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 25-162-100
	Client: Medallion Corporation

Location: 1771-1775 Jane Street, Toronto	Slug Test: MW 15-1	Test Well: MW 15-1
Test Conducted by: pp		Test Date: 8/15/2025
Analysis Performed by: PP	Hvorslev	Analysis Date: 8/15/2025
Aquifer Thickness: 5.39 m		

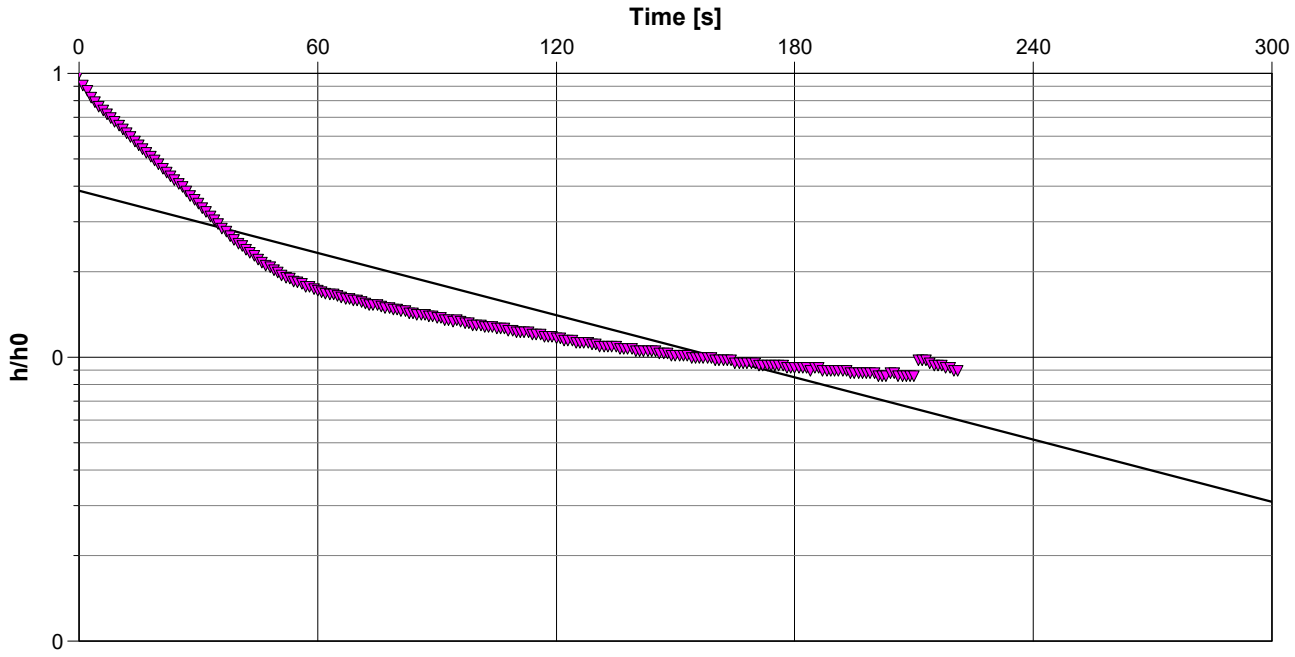


Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
MW 15-1	2.63×10^{-9}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 25-162-100
	Client: Medallion Corporation

Location: 1771-1775 Jane Street, Toronto	Slug Test: MW 15-2	Test Well: MW 15-2
Test Conducted by: PP		Test Date: 8/15/2025
Analysis Performed by: PP	Hvorslev	Analysis Date: 8/15/2025
Aquifer Thickness:		

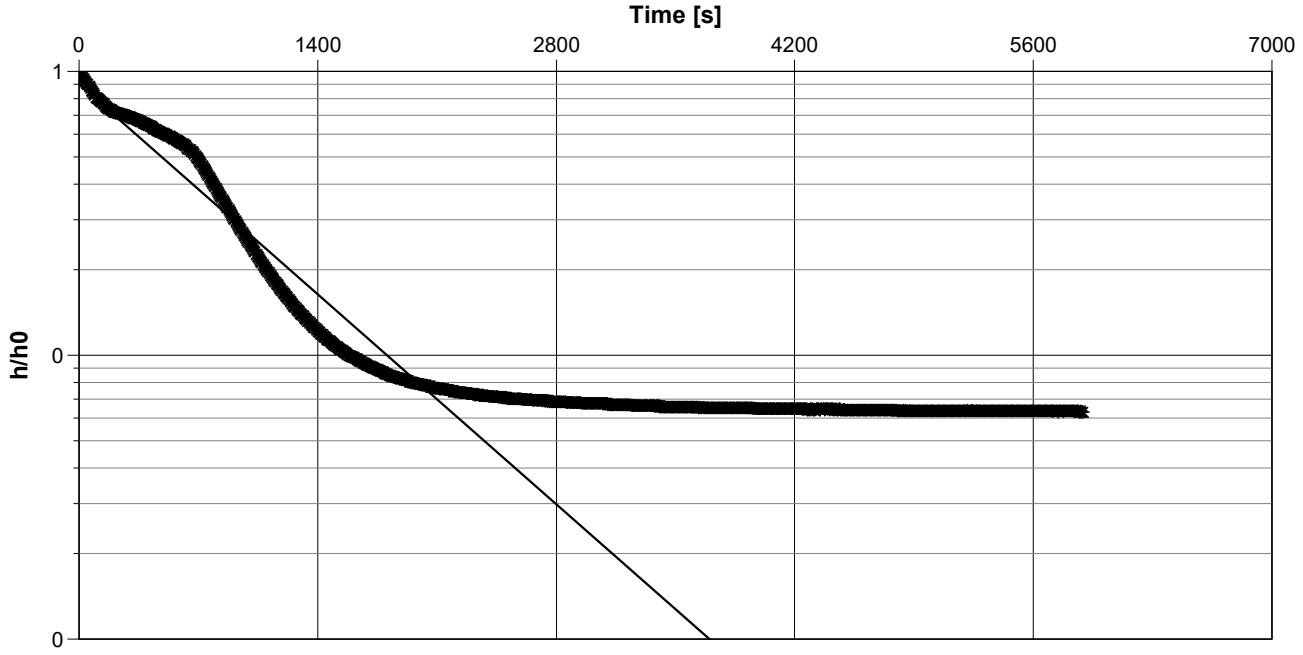


Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
MW 15-2	3.79×10^{-6}	

	Slug Test Analysis Report
	Project: Hydrogeological Investigation
	Number: 25-162-100
	Client: Medallion Corporation

Location: 1771-1775 Jane Street, Toronto	Slug Test: MW 15-3	Test Well: MW 15-3
Test Conducted by: PP		Test Date: 8/15/2025
Analysis Performed by: PP	Hvorslev	Analysis Date: 8/15/2025
Aquifer Thickness: 6.21 m		



Calculation using Hvorslev

Observation Well	Hydraulic Conductivity [m/s]	
MW 15-3	5.49×10^{-7}	

Appendix D: Groundwater Quality Certificate of Analysis



FINAL REPORT

CA40161-JUN25 R1

25-163-100, 1735 June St, North York

Prepared for

DS Consultants

FINAL REPORT

First Page

CLIENT DETAILS

Client	DS Consultants
Address	6221 Highway 7 Unit 16 Vaughan, Ontario L4H 0K8. Canada
Contact	Meysam Jafari
Telephone	905-264-9393
Facsimile	905-264-2685
Email	mjafari@dsconsultants.ca
Project	25-163-100, 1735 June St, North York
Order Number	
Samples	Ground Water (1)

LABORATORY DETAILS

Project Specialist	Maarit Wolfe, Hon.B.Sc
Laboratory	SGS Canada Inc.
Address	185 Concession St., Lakefield ON, K0L 2H0
Telephone	705-652-2000
Facsimile	705-652-6365
Email	Maarit.Wolfe@sgs.com
SGS Reference	CA40161-JUN25
Received	06/16/2025
Approved	06/23/2025
Report Number	CA40161-JUN25 R1
Date Reported	06/23/2025

COMMENTS

RL - SGS Reporting Limit

Nonylphenol Ethoxylates is the sum of nonylphenol monoethoxylate and nonylphenol diethoxylate.

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present: yes
Custody Seal Present: yes

Chain of Custody Number: 043186

SIGNATORIES

Maarit Wolfe, Hon.B.Sc



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Client: DS Consultants
Project: 25-163-100, 1735 June St, North York
Project Manager: Meysam Jafari
Samplers: Ken

MATRIX: WATER

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law - Storm Sewer Discharge - BL_100_2016

Sample Number	8
Sample Name	BH15-3
Sample Matrix	Ground Water
Sample Date	16/06/2025

Parameter	Units	RL	L1	L2	Result
General Chemistry					
Biochemical Oxygen Demand (BOD5)	mg/L	2	300	15	5
Total Kjeldahl Nitrogen	as N mg/L	0.5	100		0.6
Total Suspended Solids	mg/L	2	350	15	51
Metals and Inorganics					
Fluoride	mg/L	0.06	10		0.08
Cyanide (total)	mg/L	0.01	2	0.02	< 0.01
Aluminum (total)	mg/L	0.001	50		0.951
Antimony (total)	mg/L	0.0009	5		< 0.0009
Arsenic (total)	mg/L	0.0002	1	0.02	0.0043
Cadmium (total)	mg/L	0.000003	0.7	0.008	0.000271
Chromium (total)	mg/L	0.00008	4	0.08	0.00225
Cobalt (total)	mg/L	0.000004	5		0.00126
Copper (total)	mg/L	0.001	2	0.04	0.006
Lead (total)	mg/L	0.00009	1	0.12	0.00206
Manganese (total)	mg/L	0.00001	5	0.05	0.528
Molybdenum (total)	mg/L	0.0004	5		0.0009
Nickel (total)	mg/L	0.0001	2	0.08	0.0054
Phosphorus (total)	mg/L	0.003	10	0.4	0.091
Selenium (total)	mg/L	0.00004	1	0.02	0.00021
Silver (total)	mg/L	0.00005	5	0.12	< 0.00005
Tin (total)	mg/L	0.00006	5		0.00436

Client: DS Consultants
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Samplers: Ken

MATRIX: WATER

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law - Storm Sewer Discharge - BL_100_2016

Sample Number	8
Sample Name	BH15-3
Sample Matrix	Ground Water
Sample Date	16/06/2025

Parameter	Units	RL	L1	L2	Result
Metals and Inorganics (continued)					
Titanium (total)	mg/L	0.0001	5		0.0155
Zinc (total)	mg/L	0.002	2	0.04	0.010
Microbiology					
Ecoli	mpn/100mL	0		200	0
Nonylphenol and Ethoxylates					
Nonylphenol	mg/L	0.001	0.02	0.001	< 0.001
Nonylphenol Ethoxylates	mg/L	0.01	0.2	0.01	< 0.01
Nonylphenol diethoxylate	mg/L	0.01			< 0.01
Nonylphenol monoethoxylate	mg/L	0.01			< 0.01
Oil and Grease					
Oil & Grease (total)	mg/L	2			< 4 ↑
Oil & Grease (animal/vegetable)	mg/L	4	150		< 4
Oil & Grease (mineral/synthetic)	mg/L	4	15		< 4

Client: DS Consultants
Project: 25-163-100, 1735 June St, North York
Project Manager: Meysam Jafari
Samplers: Ken

MATRIX: WATER

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law - Storm Sewer Discharge - BL_100_2016

Sample Number	8
Sample Name	BH15-3
Sample Matrix	Ground Water
Sample Date	16/06/2025

Parameter	Units	RL	L1	L2	Result
Other (ORP)					
pH	No unit	0.05	11.5	9.5	7.53
Chromium VI	mg/L	0.0002	2	0.04	< 0.0002
Mercury (total)	mg/L	0.00001	0.01	0.0004	< 0.00001
PAHs					
Benzo(b+j)fluoranthene	mg/L	0.0001			< 0.0001
PCBs					
Polychlorinated Biphenyls (PCBs) - Total	mg/L	0.0001	0.001	0.0004	< 0.0001
Phenols					
4AAP-Phenolics	mg/L	0.001	1	0.008	0.002
SVOCs					
3,3-Dichlorobenzidine	mg/L	0.0005	0.002	0.0008	< 0.0005
di-n-Butyl Phthalate	mg/L	0.002	0.08	0.015	< 0.002
Bis(2-ethylhexyl)phthalate	mg/L	0.002	0.012	0.0088	0.005
Pentachlorophenol	mg/L	0.0005	0.005	0.002	< 0.0005
PAHs (Total)	mg/L		0.005	0.002	< 0.001
Perylene	mg/L	0.0005			< 0.0005

Client: DS Consultants
Project: 25-163-100, 1735 June St, North York
Project Manager: Meysam Jafari
Samplers: Ken

MATRIX: WATER

Sample Number 8
Sample Name BH15-3
Sample Matrix Ground Water
Sample Date 16/06/2025

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law - Storm Sewer Discharge - BL_100_2016

Parameter	Units	RL	L1	L2	Result
SVOCs - PAHs					
7Hdibenzo(c,g)carbazole	mg/L	0.0001			< 0.0001
Anthracene	mg/L	0.0001			< 0.0001
Benzo(a)anthracene	mg/L	0.0001			< 0.0001
Benzo(a)pyrene	mg/L	0.0001			< 0.0001
Benzo(e)pyrene	mg/L	0.0001			< 0.0001
Benzo(ghi)perylene	mg/L	0.0002			< 0.0002
Benzo(k)fluoranthene	mg/L	0.0001			< 0.0001
Chrysene	mg/L	0.0001			< 0.0001
Dibenzo(a,h)anthracene	mg/L	0.0001			< 0.0001
Dibenzo(a,i)pyrene	mg/L	0.0001			< 0.0001
Dibenzo(a,j)acridine	mg/L	0.0001			< 0.0001
Fluoranthene	mg/L	0.0001			< 0.0001
Indeno(1,2,3-cd)pyrene	mg/L	0.0002			< 0.0002
Phenanthrene	mg/L	0.0001			< 0.0001
Pyrene	mg/L	0.0001			< 0.0001

Client: DS Consultants
Project: 25-163-100, 1735 June St, North York
Project Manager: Meysam Jafari
Samplers: Ken

MATRIX: WATER

L1 = SANSEW / WATER / - - Toronto Sewer Use By Law - Sanitary and Combined Sewer Discharge - BL_100_2016

L2 = SANSEW / WATER / - - Toronto Sewer Use By Law - Storm Sewer Discharge - BL_100_2016

Sample Number	8
Sample Name	BH15-3
Sample Matrix	Ground Water
Sample Date	16/06/2025

Parameter	Units	RL	L1	L2	Result
VOCs					
Chloroform	mg/L	0.0005	0.04	0.002	< 0.0005
1,2-Dichlorobenzene	mg/L	0.0005	0.05	0.0056	< 0.0005
1,4-Dichlorobenzene	mg/L	0.0005	0.08	0.0068	< 0.0005
cis-1,2-Dichloroethylene	mg/L	0.0005	4	0.0056	< 0.0005
trans-1,3-Dichloropropene	mg/L	0.0005	0.14	0.0056	< 0.0005
Methylene Chloride	mg/L	0.0005	2	0.0052	< 0.0005
1,1,2,2-Tetrachloroethane	mg/L	0.0005	1.4	0.017	< 0.0005
Tetrachloroethylene (perchloroethylene)	mg/L	0.0005	1	0.0044	< 0.0005
Trichloroethylene	mg/L	0.0005	0.4	0.0076	< 0.0005
VOCs - BTEX					
Benzene	mg/L	0.0005	0.01	0.002	< 0.0005
Ethylbenzene	mg/L	0.0005	0.16	0.002	< 0.0005
Toluene	mg/L	0.0005	0.016	0.002	< 0.0005
Xylene (total)	mg/L	0.0005	1.4	0.0044	< 0.0005
m-p-xylene	mg/L	0.0005			< 0.0005
o-xylene	mg/L	0.0005			< 0.0005

EXCEEDANCE SUMMARY

Parameter	Method	Units	Result	SANSEW / WATER / - - Toronto Sewer Use By Law - Sanitary and Combined Sewer Discharge - BL_100_2016 L1	SANSEW / WATER / - - Toronto Sewer Use By Law - Storm Sewer Discharge - BL_100_2016 L2
BH15-3					
Total Suspended Solids	SM 2540D	mg/L	51		15
Manganese	SM 3030/EPA 200.8	mg/L	0.528		0.05

QC SUMMARY

Biochemical Oxygen Demand

Method: SM 5210 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-007

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Biochemical Oxygen Demand (BOD5)	BOD0033-JUN25	mg/L	2	< 2	0	30	112	70	130	73	70	130

Cyanide by SFA

Method: SM 4500 I Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Cyanide (total)	SKA0167-JUN25	mg/L	0.01	<0.01	ND	10	90	90	110	102	75	125

Fluoride by Specific Ion Electrode

Method: SM 4500 I Internal ref.: ME-CA-IENVIEWL-LAK-AN-014

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Fluoride	EWL0476-JUN25	mg/L	0.06	<0.06	2	10	98	90	110	109	75	125

QC SUMMARY

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-[ENV]SKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA0165-JUN25	mg/L	0.0002	<0.0002	ND	20	100	80	120	96	75	125

Mercury by CVAAS

Method: EPA 7471A/SM 3112B | Internal ref.: ME-CA-[ENV]SPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury (total)	EHG0022-JUN25	mg/L	0.00001	< 0.00001	ND	20	115	80	120	123	70	130

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver (total)	EMS0150-JUN25	mg/L	0.00005	<0.00005	ND	20	97	90	110	73	70	130
Aluminum (total)	EMS0150-JUN25	mg/L	0.001	<0.001	4	20	101	90	110	101	70	130
Arsenic (total)	EMS0150-JUN25	mg/L	0.0002	<0.0002	15	20	99	90	110	101	70	130
Cadmium (total)	EMS0150-JUN25	mg/L	0.000003	<0.000003	20	20	99	90	110	96	70	130
Cobalt (total)	EMS0150-JUN25	mg/L	0.000004	<0.000004	5	20	99	90	110	98	70	130
Chromium (total)	EMS0150-JUN25	mg/L	0.00008	<0.00008	ND	20	101	90	110	109	70	130
Copper (total)	EMS0150-JUN25	mg/L	0.001	<0.001	3	20	100	90	110	105	70	130
Manganese (total)	EMS0150-JUN25	mg/L	0.00001	<0.00001	9	20	99	90	110	100	70	130
Molybdenum (total)	EMS0150-JUN25	mg/L	0.0004	<0.0004	ND	20	103	90	110	101	70	130
Nickel (total)	EMS0150-JUN25	mg/L	0.0001	<0.0001	ND	20	104	90	110	96	70	130
Lead (total)	EMS0150-JUN25	mg/L	0.00009	<0.00009	9	20	100	90	110	96	70	130
Phosphorus (total)	EMS0150-JUN25	mg/L	0.003	<0.003	7	20	98	90	110	NV	70	130
Antimony (total)	EMS0150-JUN25	mg/L	0.0009	<0.0009	ND	20	99	90	110	96	70	130
Selenium (total)	EMS0150-JUN25	mg/L	0.00004	<0.00004	2	20	103	90	110	102	70	130
Tin (total)	EMS0150-JUN25	mg/L	0.00006	<0.00006	6	20	100	90	110	NV	70	130
Titanium (total)	EMS0150-JUN25	mg/L	0.0001	<0.0001	3	20	98	90	110	NV	70	130
Zinc (total)	EMS0150-JUN25	mg/L	0.002	<0.002	19	20	99	90	110	122	70	130

QC SUMMARY

Microbiology

Method: SM 9223B | Internal ref.: ME-CA-IENVIMIC-LAK-AN-021

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Ecoli	BAC9256-JUN25	mpn/100mL	-	ACCEPTED	ACCEPTED							

Nonylphenol and Ethoxylates

Method: ASTM D7065-06 | Internal ref.: ME-CA-IENVIGC-LAK-AN-015

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nonylphenol diethoxylate	GCM0316-JUN25	mg/L	0.01	<0.01			92	55	120			
Nonylphenol monoethoxylate	GCM0316-JUN25	mg/L	0.01	<0.01			92	55	120			
Nonylphenol	GCM0316-JUN25	mg/L	0.001	<0.001			92	55	120			

QC SUMMARY

Oil & Grease

Method: MOE E3401 | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (total)	GCM0290-JUN25	mg/L	2	<2	NSS	20	104	75	125			

Oil & Grease-AV/MS

Method: MOE E3401/SM 5520F | Internal ref.: ME-CA-[ENV]GC-LAK-AN-019

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Oil & Grease (animal/vegetable)	GCM0290-JUN25	mg/L	4	< 4	NSS	20	NA	70	130			
Oil & Grease (mineral/synthetic)	GCM0290-JUN25	mg/L	4	< 4	NSS	20	NA	70	130			

pH

Method: SM 4500 | Internal ref.: ME-CA-[ENV]EWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0411-JUN25	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Phenols by SFA

Method: SM 5530B-D | Internal ref.: ME-CA-[ENVISFA-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
4AAP-Phenolics	SKA0190-JUN25	mg/L	0.001	0.005	ND	10	102	80	120	103	75	125

Polychlorinated Biphenyls

Method: MOE E3400/EPA 8082A | Internal ref.: ME-CA-[ENVIGC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Polychlorinated Biphenyls (PCBs) - Total	GCM0255-JUN25	mg/L	0.0001	<0.0001	NSS	30	77	60	140	NSS	60	140

QC SUMMARY

Semi-Volatile Organics

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENV]GC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
7Hdibenzo(c,g)carbazole	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	104	50	140	NSS	50	140
Anthracene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	90	50	140	NSS	50	140
Benzo(a)anthracene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Benzo(a)pyrene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	90	50	140	NSS	50	140
Benzo(b+j)fluoranthene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	101	50	140	NSS	50	140
Benzo(e)pyrene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	104	50	140	NSS	50	140
Benzo(ghi)perylene	GCM0276-JUN25	mg/L	0.0002	< 0.0002	NSS	30	99	50	140	NSS	50	140
Benzo(k)fluoranthene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	97	50	140	NSS	50	140
Bis(2-ethylhexyl)phthalate	GCM0276-JUN25	mg/L	0.002	< 0.002	NSS	30	102	50	140	NSS	50	140
Chrysene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
di-n-Butyl Phthalate	GCM0276-JUN25	mg/L	0.002	< 0.002	NSS	30	100	50	140	NSS	50	140
Dibenzo(a,h)anthracene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	98	50	140	NSS	50	140
Dibenzo(a,i)pyrene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	98	50	140	NSS	50	140
Dibenzo(a,j)acridine	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	100	50	140	NSS	50	140
Fluoranthene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	96	50	140	NSS	50	140
Indeno(1,2,3-cd)pyrene	GCM0276-JUN25	mg/L	0.0002	< 0.0002	NSS	30	99	50	140	NSS	50	140
Pentachlorophenol	GCM0276-JUN25	mg/L	0.0005	< 0.0005	NSS	30	105	50	140	NSS	50	140
Perylene	GCM0276-JUN25	mg/L	0.0005	< 0.0005	NSS	30	109	50	140	NSS	50	140
Phenanthrene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	90	50	140	NSS	50	140
Pyrene	GCM0276-JUN25	mg/L	0.0001	< 0.0001	NSS	30	97	50	140	NSS	50	140

QC SUMMARY

Semi-Volatile Organics (continued)

Method: EPA 3510C/8270D | Internal ref.: ME-CA-[ENVIGC-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
3,3-Dichlorobenzidine	GCM0331-JUN25	mg/L	0.0005	< 0.0005	NSS	30	80	30	130	NSS	30	130

Suspended Solids

Method: SM 2540D | Internal ref.: ME-CA-[ENVIEWL-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Suspended Solids	EWL0439-JUN25	mg/L	2	< 2	1	10	95	90	110	NA		

Total Nitrogen

Method: SM 4500-N C/4500-NO3- F | Internal ref.: ME-CA-[ENVISFA-LAK-AN-002

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Total Kjeldahl Nitrogen	SKA0173-JUN25	as N mg/L	0.5	<0.5	2	10	100	90	110	100	75	125

QC SUMMARY

Volatile Organics

Method: EPA 5030B/8260C | Internal ref.: ME-CA-[ENV]GC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
1,1,2,2-Tetrachloroethane	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	106	60	130	105	50	140
1,2-Dichlorobenzene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	108	60	130	107	50	140
1,4-Dichlorobenzene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	108	60	130	106	50	140
Benzene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	98	60	130	96	50	140
Chloroform	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	104	60	130	102	50	140
cis-1,2-Dichloroethylene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	103	60	130	101	50	140
Ethylbenzene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	105	60	130	103	50	140
m-p-xylene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	105	60	130	104	50	140
Methylene Chloride	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	104	60	130	101	50	140
o-xylene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	105	60	130	104	50	140
Tetrachloroethylene (perchloroethylene)	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	95	60	130	100	50	140
Toluene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	100	60	130	98	50	140
trans-1,3-Dichloropropene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	97	60	130	93	50	140
Trichloroethylene	GCM0267-JUN25	mg/L	0.0005	<0.0005	ND	30	98	60	130	98	50	140

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS	Insufficient sample for analysis.
RL	Reporting Limit.
↑	Reporting limit raised.
↓	Reporting limit lowered.
NA	The sample was not analysed for this analyte
ND	Non Detect

Results relate only to the sample tested.
Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.
"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.
Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.
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This report supersedes all previous versions.

-- End of Analytical Report --

Request for Laboratory Services and CHAIN OF CUSTODY

SGS Industries & Environment - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 043186 Page _____ of _____

Laboratory Information Section - Lab use only

Received By: Ahmeer
Received Date: 06 12 25 (mm/dd/yy)
Received Time: 11:30 (hr : min)
Received By (signature):
Custody Seal Present: Yes ☑ No ☐
Custody Seal Intact: Yes ☐ No ☐
Cooling Agent Present: Yes ☑ No ☐ Type: ICE
Temperature Upon Receipt (°C) 9x3
CA 40161 JUN 25
LAB LIMS #:

REPORT INFORMATION

Company: DS Consultants
Contact: Meysam Jafari
Address: 6221 Hwy 7 Unit 116, Vaughan
Phone: 905-264-9383
Fax:
Email: MJafari@dsconsultants.ca

INVOICE INFORMATION

☒ (same as Report Information)
Company: Accounting
Contact:
Address:
Phone:
Email:

Quotation #: 25-163-100
Project #: 1755 Jane St, Northyork
P.O. #:
Site Location/ID:

TURNAROUND TIME (TAT) REQUIRED

☐ Client Regular TAT ☒ Regular TAT (5-7days)
TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day

RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION

Specify Due Date:

*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS

☐ O.Reg 153/04 ☐ O.Reg 406/19
☐ Table 1 ☐ Res/Park Soil Texture: ☐ Coarse
☐ Table 2 ☐ Ind/Com ☐ Medium/Fine
☐ Table 3 ☐ Agri/Other
☐ Table _____ Appx. _____
Soil Volume ☐ <350m3 ☐ >350m3

Other Regulations:
☐ Reg 347/558 (3 Day min TAT)
☐ PWQO ☐ MMER
☐ CCME ☐ Other:
☐ MISA
☐ ODWS Not Reportable *See note

Sewer By-Law:
☒ Sanitary
☒ Storm
Municipality: Toronto

RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO

ANALYSIS REQUESTED

	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	# OF BOTTLES	MATRIX	M&I: Field Filtered (Y/N)	M&I: Metals & Inorganics (incl CrVI, CN, Hg pH,(B(HWS),EC,SAR–soil) (Cl, Na–water)	M&I: Full Metals Suite (ICP metals plus B(HWS-soil only) Hg, CrVI	M&I: ICP Metals only Sb,As,Ba,Be,B,Cd, Cr,Co,Cu,Pb,Mo,Ni,Se,Ag,Tl,U,V,Zn	SVOC: PAHs only	SVOC: SVOCs all incl PAHs, ABNs, CPs	PCB: PCBs Total ☐ Aroclor ☐	PHC: F1-F4 + BTEX	PHC: F1-F4 only no BTEX	VOC: VOCs all incl BTEX	VOC: BTEX only	Pest: Pesticides Organochlorine or specify other	Other (please specify)	Other	Other	Other	Other: Sewer Use: Specify pkg:	Other: Water Characterization Pkg General ☐ Extended ☐	SPLP: Specify tests ☐ Metals ☐ VOC ☐ 1,4-Dioxane ☐ OCP ☐ ABN	TCLP: Specify tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.	COMMENTS:
1	BH 5-3	June 16 2025	AM	19	GW	N																			Mulfiltered
2																									
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

Observations/Comments/Special Instructions

Sampled By (NAME): Ken **Signature:** Ken Date: 6/16/25 (mm/dd/yy)
Relinquished by (NAME): Ken **Signature:** Ken Date: 6/16/25 (mm/dd/yy)

Pink Copy - Client
Yellow & White Copy - SGS

Revision #: 1.8
Date of Issue: 06 SEP 2024

Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. {2} Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). {3} Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Appendix E: Groundwater Monitoring Data

Table: Groundwater Monitoring D

Location: 1771-1775 Jan Street

Date					20-Jun-25			04-Jul-25			18-Jul-25			01-Aug-25			15-Aug-25			29-Aug-25		
Well ID	Ground Level	Stick Up	Well Depth	Well Depth	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.
	masl	m	T.O.P m	(mbgs)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)
25-1	126.20	0.85	8.50	7.65	5.88	5.03	121.17	5.42	4.57	121.63	4.35	4.50	121.70	4.41	3.56	122.64	5.40	4.55	121.65	6.05	5.20	121.00
25-2	126.90	0.00	19.90	19.90	4.44	4.44	122.46	4.57	4.57	122.33	4.32	4.32	122.58	5.18	5.18	121.72	4.59	4.59	122.31	4.62	4.62	122.28
15-1	126.60	0.00	9.20	9.20	4.65	4.65	121.95	4.73	4.73	121.87	4.61	4.61	121.99	3.82	3.82	122.78	3.52	3.52	123.08	3.42	3.42	123.18
15-2	127.00	0.00	9.20	9.20	3.45	3.45	123.55	3.51	3.51	123.49	3.54	3.54	123.46	3.57	3.57	123.43	3.60	3.60	123.40	3.62	3.62	123.38
15-3	127.30	0.00	9.20	9.20	3.45	3.45	123.85	3.76	3.76	123.54	3.86	3.86	123.44	3.88	3.88	123.42	3.91	3.91	123.39	3.95	3.95	123.35

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HYDROLOGICAL REVIEW SUMMARY

The form is to be completed by the Professional that prepared the Hydrological Review.
Use of the form by the City of Toronto is not to be construed as verification of engineering/hydrological content.

Refer to the Terms of Reference, Hydrological Review:
http://www1.toronto.ca/static_files/CityPlanning/PDF/geotechnical.pdf

For City Staff Use Only:	
Name of ECS Case Manager (Please print)	
Date Review Summary provided to to TW, EM&P	

IF ANY OF THE REQUIREMENTS LISTED BELOW HAVE NOT BEEN INLCUDED IN THE HYDROLOGICAL REVIEW, THE REVIEW WILL BE CONSIDERED INCOMPLETE.
THE GREY SHADED BOXES WILL REQUIRE A CONSISTANCY CHECK BY THE ECS CASE MANAGER.

Summary of Key Information:

SITE INFORMATION		**Page # & Section # of Review**	**Review Includes this Information City Staff (Check)**
Site Address	1771-1775 jane Street	Title Page, P.ii	
Postal Code	M9N 2S5	Title Page, P.ii	
Property Owner (on request for comments memo)	Medallion Corporation	Title Page, P.ii,1	
Proposed description of the project (if applicable) (point towers, number of podiums)	The Site is currently occupied by a 14-storey apartment building with one level of underground parking. Two additional buildings are proposed in phases at the north and south ends of the existing building, each with underground parking. T	P.ii,1	
Land Use (ex. commercial, residential, mixed, institutional, industrial)	Residential	P.ii,1	

August 2018

HYDROLOGICAL REVIEW SUMMARY

Number of below grade levels for the proposed structure	Up to 2 level- North building one level, South Building 2 level	P ii, Sc1-Pg 1, Sc.4.0 Pg	
HYDROLOGICAL REVIEW INFORMATION			
Date Hydrological Review was prepared:	October 2, 2025	Title page, P.ii	
Who Performed the Hydrological Review (Consulting Firm)	DS Consultants Ltd.	Title page	
Name of Author of Hydrological Review	Pradeep Patel, M.Sc., P.Geo & Martin Gedeon, M.Sc., P.Geo	Pg. iv & Pg.11	
Check the directories on the website for Professional Geoscientists and/or Professional Engineers of Ontario been checked to ensure that the Hydrological Report has been prepared by a qualified person who is a licensed Professional Geoscientist as set out in the Professional Geoscientist Act of Ontario or a Professional Engineer? PEO: http://peo.on.ca/index.php?ci_id=1798&la_id=1 APGO: https://www.apgo.net/search/registered-members	Pradeep Patel – APGO membership # 2710 Martin Gedeon- APGO membership- #0682	Pg. iv & Pg.11	
Has the Hydrological Review been prepared in accordance with all the following: • Ontario Water Resources Act • Ontario Regulation 387/04 • Toronto Municipal Code Chapter 681-Sewers	Yes	P.ii., Sc.1-P1, Sc-3-P5, Sc4 &6-Pg5-8	

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HYDROLOGICAL REVIEW SUMMARY

		Page # & Section # of every occurrence in the Review	Review Includes this Information City Staff (Check)
Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) **with safety factor included**	North Building-One level of Basement- A total volume of 55,000 L/day includes 51,000 L/day storm water consideration. What safety factor was used? x2 South Building-One level of Basement- A total volume of 32,000 L/day includes 24,000 L/day storm water consideration. What safety factor was used? x2	Sc.4.1 to Sc.4.3-Pg6-7	
Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) **without safety factor included**	North building- 2000 L/day (steady-state flow rate) South building- 4000 L/day (steady-state flow rate)	Sc.4.1 to Sc.4.3-Pg6-7	
Total Volume (L/day) Long Term drainage of groundwater (from foundation drainage, weeping tiles, sub slab drainage) **with safety factor included.** If the development is part of a multiple tower complex, include total volume for each separate tower	Proposed on-site management of foundation drain.	Sc.4.3-Pg 7	
List the nearest surface water (river, creek, lake)	There are no surface water features at the Site. The nearest surface water feature is a Black Creek located approximately 170 meters west of the Site.	Sc.3.1-pg 2	

HYDROLOGICAL REVIEW SUMMARY

Lowest basement elevation	North Building- 123.7 South Building- 121.0	P.ii Sc.1.0-Pg1 Sc.4.0-Pg 6,7	
Foundation elevation	North Building- 121.7 South Building- 119.0	Sc.4.0-Pg 6-7 Also, Foundation is Discussed in the geotechnical report under a separate cover by DS Consultants.	
Ground elevation	127.3 masl	Sc.1.0-Pg1 Sc.4.0-Pg 6-7	
STUDY AREA MAP		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information City Staff (Check)**
Study area map(s) have been included in the report.	◯ Yes	Figure 1 to Figure 4	N/A
Study area map(s) been prepared according to the Hydrological Review Terms of Reference.	◯ Yes		N/A
The onsite well(s) referenced in the report have been installed at locations that represent the entire proximity of the site (it is required that the well(s) be installed at a minimum of 38mm diameter and 2 meters below the lowest elevation in the proposed building structure(s) if the site is larger than 30m X 30m.	◯ Yes ◯ Yes N/A	Borehole logs in Appendix A	N/A

HYDROLOGICAL REVIEW SUMMARY

WATER LEVEL AND WELLS		Page # & Section # of every occurrence in the Review	Review Includes this Information (City Staff Initial)
The groundwater level has been monitored using all wells located on-site (within property boundary).	Yes	Pg.4., Sc.3.3.2	
The static water level measurements have been monitored at all monitoring wells for a minimum of 3 months with The intent is for the qualified professional to use professional judgement to estimate the seasonally high groundwater level.	Yes. A groundwater level monitoring program was implemented at the site on a bi-weekly basis for three (3) months to assess seasonal fluctuations as per Toronto Water requirements.	Pg.4., Sc.3.3.2 Appendix E Also attached with this form under an additional info.	
All water levels in the wells have been measured with respect to masl.	Yes.	P.4., Sc.3.3.2	
A table of geology/soil stratigraphy for the property has been included.	Yes	Sc.- 3and 3, Borehole logs- Appendix A	
GEOLOGY AND PHYSICAL HYDROLOGY		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information (City Staff Initial)**
The review has made reference to the soil materials including thickness, composition and texture, and bedrock environments.	Yes	P.3 Sc.3.2.3 And Borehole logs in Appendix A	
Key aquifers and the site's proximity to nearby surface water has been identified.	◯ Yes	Sc.3-Pg.3., Sc.3.2.3,3.3.2	N/A
PUMP TEST/SLUG TEST/DRAWDOWN ANALYSIS		**Page # & Section # of every**	**Review Includes this**

HYDROLOGICAL REVIEW SUMMARY

		occurrence in the Review	Information City Staff (Check)
A summary of the pumping test data and analysis is included in the review.	Pumping tests were not conducted as part of the hydrogeological investigation. Rising head tests (slug tests) were completed.	Pg4-.5., Sc. 3.3.3	
The pump test been carried out for at least 24 hours if possible. If not, has a slug test been conducted?	Yes- slug tests were conducted	Pg.4-5., Sc. 3.3.3	
Has the monitoring well(s) have been monitored using digital devices? If yes how frequently?	Yes; data loggers were placed at the bottom of the aquifer set to every 1-5 sec for up to24 hrs.	Pg.4-5., Sc.3.3.3	
If a slug or pump test has been conducted, has the static groundwater level been monitored at all monitoring well(s) multiple times to measure recovery? -prior to the slug or pumping test(s)? -post slug or pumping test(s)?	◯ **Yes** Slug tests were completed at five monitoring wells.	Pg.4-5., Sc.3.3.3 Appendix C	N/A
The above noted slug or pump tests have been included in the report.	◯ **Yes**	Pg.4-5., Sc.3.3.3 Appendix C	
WATER QUALITY		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information City Staff (Check)**
The report includes baseline water quality samples from a laboratory. The water quality must be analyzed for all parameters listed in Tables 1 and 2 of Chapter 681 Sewers of the Toronto Municipal Code (found in Appendix A) and the samples must be taken unfiltered within 9 months of the date of submission.	The groundwater sample was submitted On June 16, 2025 and analyzed for all parameters listed in Tables 1 and 2 of Chapter 681 Sewers of the Toronto Municipal Code). Groundwater Quality is presented in Appendix A of this form.	Pg5., Sc.3.3.4 Appendix D	
The water quality data templates in Appendix A have been completed for each sample taken for both sanitary/combined and storm sewer limits.	Yes.	The water quality data templates in Appendix A	

	For sanitary discharge- See the sanitary/combined sewer parameter limit template For storm discharge- See the storm sewer parameter limit template		
Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the sanitary/combined Bylaw limits. **If there are any sample parameter Exceedances the groundwater can't be discharged as is.**	No violation. All parameters met the City of Toronto's Sanitary Sewer Discharge Bylaw limit.	Pg.5., Sc.3.3.4 Appendix D	
Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the storm Bylaw limits. **If there are any sample parameter exceedances the groundwater can't be discharged as is.**	Total Suspended Solids (TSS) Manganese	P.5., Sc.3.3.4 Appendix D	
The water quality samples have been analyzed by a Canadian laboratory accredited and licensed by Standards Council of Canada and/or Canadian Association for Laboratory Accreditation. List of Canadian accredited laboratories: https://www.scc.ca/en/search/palcan	◯ **Yes** SGS Laboratory- accredited	Pg.5., Sc.3.3.4 Appendix D	
A chain of custody record for the samples is included with the report.	Yes	Appendix D	
Has the chain of custody reference any filtered sample? If yes, the report has to be amended and re-submitted to include only non-filtered samples.	No. Unfiltered sample submitted.	Page 5, Sc. 3.3.4 Appendix C	
List any of the sample parameters that exceed the Bylaw limits with the reporting detection limit (RDL) included.	Total Suspended Solids- 51 mg/L (RDL-2 mg/L)	P.5., Sc.3.3.4 Appendix D	

HYDROLOGICAL REVIEW SUMMARY

	Manganese- 0.528mg/L (RDL-0.00001 mg/L)		
A true copy of the Certificate of Analysis report, is included with the report.	Yes	Appendix C	
EVALUATION OF IMPACT		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information City Staff (Check)**
Does the report recommend a back-up system or relief safety valve(s)? Does the associated Geotechnical report recommend a back-up system or relief safety valve(s)?	◯ **Yes** ◯ **No** ◯ **Yes** ◯ **No**	Not referenced in report	
The taking and discharging of groundwater on site has been analyzed to ensure that no negative impacts will occur to: the City sewage works in terms of quality and quantity (including existing infrastructure), the natural environment, and settlement issues.	◯ **Yes**	Pg.8-9 Sc.5.1 to Sc.5.8	N/A
Has it been determined that there will be a negative impact to the natural environment, City sewage works, or surrounding properties has the study identified the following: the extent of the negative impact, the detail of the precondition state of all the infrastructure, City sewage works, and natural environment within the effected zone and the proposed remediation and monitoring plan?	◯ **Yes** **If yes, identify impact:** Groundwater at the Site is not suitable for discharge to storm sewers without treatment. ◯ **No**	Pg.8-9., Sc.5.1, Sc.6	N/A

Summary of Additional Information and Key Items (if applicable):

Table: Groundwater Monitoring Data
Location: 1771-1775 Jane Street, Toronto

HYDROLOGICAL REVIEW SUMMARY

Date					20-06-25			04-07-25			18-07-25		
Well ID	Ground Level	Stick Up	Well Depth	Well Depth	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.
	masl	m	T.O.P m	(mbgs)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)
25-1	126.20	0.85	8.50	7.65	5.88	5.03	121.17	5.42	4.57	121.63	4.35	4.50	121.70
25-2	126.90	0.00	19.90	19.90	4.44	4.44	122.46	4.57	4.57	122.33	4.32	4.32	122.58
15-1	126.60	0.00	9.20	9.20	4.65	4.65	121.95	4.73	4.73	121.87	4.61	4.61	121.99
15-2	127.00	0.00	9.20	9.20	3.45	3.45	123.55	3.51	3.51	123.49	3.54	3.54	123.46
15-3	127.30	0.00	9.20	9.20	3.45	3.45	123.85	3.76	3.76	123.54	3.86	3.86	123.44

Date					01-08-25			15-08-25			29-08-25		
Well ID	Ground Level	Stick Up	Well Depth	Well Depth	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.	Water Level	Water Level	Water Level Elev.
	masl	m	T.O.P m	(mbgs)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)	T.O.P-m	(mbgs)	(masl)
25-1	126.20	0.85	8.50	7.65	4.41	3.56	122.64	5.40	4.55	121.65	6.05	5.20	121.00
25-2	126.90	0.00	19.90	19.90	5.18	5.18	121.72	4.59	4.59	122.31	4.62	4.62	122.28
15-1	126.60	0.00	9.20	9.20	3.82	3.82	122.78	3.52	3.52	123.08	3.42	3.42	123.18
15-2	127.00	0.00	9.20	9.20	3.57	3.57	123.43	3.60	3.60	123.40	3.62	3.62	123.38
15-3	127.30	0.00	9.20	9.20	3.88	3.88	123.42	3.91	3.91	123.39	3.95	3.95	123.35

Appendix A:

SANITARY/COMBINED **Sample Location: MW 15-3**

Inorganics		Sample Result	Sample Result with upper RDL included	
Parameter	mg/L	mg/L	mg/L	ug/L
BOD	300	5	<2	300,000
Fluoride	10	0.08	<0.06	10,000
TKN	100	0.6	<0.5	100,000
pH	6.0 - 11.5(no unit)	7.53	<0.05	6.0 - 11.5
Phenolics 4AAP	1	0.002	<0.002	1,000
TSS	350	51	<2	350,000
Total Cyanide	2	< 0.01	<0.01	2,000
Metals				
Chromium Hexavalent	2	< 0.0002	<0.0002	2,000
Mercury	0.01	< 0.00001	<0.000010	10
Total Aluminum	50	0.951	<0.001	50,000
Total Antimony	5	< 0.0009	<0.0009	5,000
Total Arsenic	1	0.0043	<0.0002	1,000
Total Cadmium	0.7	0.000271	<0.000003	700
Total Chromium	4	0.00225	<0.00008	4,000
Total Cobalt	5	0.00126	<0.000004	5,000
Total Copper	2	0.006	<0.0002	2,000
Total Lead	1	0.00206	<0.00001	1,000
Total Manganese	5	0.528	<0.00001	5,000
Total Molybdenum	5	0.0009	<0.00004	5,000
Total Nickel	2	0.0054	<0.0001	2,000
Total Phosphorus	10	0.091	<0.003	10,000
Total Selenium	1	0.00021	<0.00004	1,000
Total Silver	5	< 0.00005	<0.00005	5,000
Total Tin	5	0.00436	<0.00006	5,000
Total Titanium	5	0.0155	<0.00005	5,000
Total Zinc	2	0.010	<0.002	2,000
Petroleum Hydrocarbons				
Animal/Vegetable Oil & Grease	150	< 4	<4	150,000
Mineral/Synthetic Oil & Grease	15	< 4	<4	15,000

August 2018

HYDROLOGICAL REVIEW SUMMARY

Volatile Organics		**Sample Result**	**Sample Result with upper RDL included**	
Parameter	mg/L	mg/L	mg/L	ug/L
Benzene	0.01	< 0.0005	<0.0005	10
Chloroform	0.04	< 0.0005	<0.0005	40
1,2-Dichlorobenzene	0.05	< 0.0005	<0.0005	50
1,4-Dichlorobenzene	0.08	< 0.0005	<0.0005	80
Cis-1,2-Dichloroethylene	4	< 0.0005	<0.0005	4,000
Trans-1,3-Dichloropropylene	0.14	< 0.0005	<0.0005	140
Ethyl Benzene	0.16	< 0.0005	<0.0005	160
Methylene Chloride	2	< 0.0005	<0.0005	2,000
1,1,2,2-Tetrachloroethane	1.4	< 0.0005	<0.0005	1,400
Tetrachloroethylene	1	< 0.0005	<0.0005	1,000
Toluene	0.016	< 0.0005	<0.0005	16
Trichloroethylene	0.4	< 0.0005	<0.0005	400
Total Xylenes	1.4	< 0.0005	<0.0005	1,400
Semi-Volatile **Organics**	mg/L	mg/L	mg/L	ug/L
Di-n-butyl Phthalate	0.08	< 0.002	<0.002	80
Bis (2-ethylhexyl) Phthalate	0.012	0.005	<0.002	12
3,3'-Dichlorobenzidine	0.002	< 0.0005	<0.0005	2
Pentachlorophenol	0.005	< 0.0005	<0.0005	5
Total PAHs	0.005	< 0.001	---	5
Misc **Parameters**	mg/L	mg/L	mg/L	ug/L
Nonylphenols	0.02	< 0.001	<0.001	20
Nonylphenol Ethoxylates	0.2	< 0.01	<0.01	200
Polychlorinated Biphenyls (PCBs) - Total	0.001	<0.0001	<0.0001	1

Sample Collected: June 16., 2025
Temperature: 9 degrees C

August 2018

HYDROLOGICAL REVIEW SUMMARY

STORM

Sample Location: MW 15-3

Inorganics		Sample Result	Sample Result with upper RDL included	
Parameter	mg/L	mg/L	mg/L	ug/L
pH	6.0 - 9.5(no unit)	7.53	<0.05	
BOD	15	5	<2	15,000
Phenolics 4AAP	0.008	0.002	<0.002	8
TSS	15	51	<2	15,000
Total Cyanide	0.02	< 0.01	<0.01	20
Metals				
Total Arsenic	0.02	0.0043	<0.0002	20
Total Cadmium	0.008	0.000271	<0.000003	8
Total Chromium	0.08	0.00225	<0.00008	80
Chromium Hexavalent	0.04	<0.0002	<0.0002	40
Total Copper	0.04	0.006	<0.0002	40
Total Lead	0.12	0.00206	<0.00001	120
Total Manganese	0.05	0.528	<0.00001	50
Total Mercury	0.0004	< 0.00001	<0.000010	0.4
Total Nickel	0.08	0.0054	<0.0001	80
Total Phosphorus	0.4	0.091	<0.003	400
Total Selenium	0.02	0.00021	<0.00004	20
Total Silver	0.12	< 0.00005	<0.00005	120
Total Zinc	0.04	0.010	<0.002	40
Microbiology				
E.coli	Cfu/100mL	0	<20	200,000 cfu/100mL
Volatile Organics				
Parameter	mg/L	mg/L	mg/L	ug/L
Benzene	0.002	< 0.0005	<0.0005	2
Chloroform	0.002	< 0.0005	<0.0005	2
1,2-Dichlorobenzene	0.0056	< 0.0005	<0.0005	6
1,4-Dichlorobenzene	0.0068	< 0.0005	<0.0005	7
Cis-1,2-Dichloroethylene	0.0056	< 0.0005	<0.0005	6
Trans-1,3-Dichloropropylene	0.0056	< 0.0005	<0.0005	6
Ethyl Benzene	0.002	< 0.0005	<0.0005	2
Methylene Chloride	0.0052	< 0.0005	<0.0005	5
1,1,2,2-Tetrachloroethane	0.017	< 0.0005	<0.0005	17
Tetrachloroethylene	0.0044	< 0.0005	<0.0005	4
Toluene	0.002	< 0.0005	<0.0005	2
Trichloroethylene	0.0076	< 0.0005	<0.0005	8
Total Xylenes	0.0044	< 0.0005	<0.0005	4

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HYDROLOGICAL REVIEW SUMMARY

Semi-Volatile Organics		Sample Result	Sample Result with upper RDL included	
Di-n-butyl Phthalate	0.08	< 0.002	<0.002	80
Bis (2-ethylhexyl) Phthalate	0.012	0.005	<0.002	12
3,3'-Dichlorobenzidine	0.002	< 0.0005	<0.0005	2
Pentachlorophenol	0.005	< 0.0005	<0.0005	5
Total PAHs	0.005	< 0.001	---	5
Hexachlorocyclohexane	0.1	N/A (See note 1)	N/A	100
Misc Parameters	**mg/L**	**mg/L**	**mg/L**	**ug/L**
Nonylphenols	0.001	< 0.001	<0.001	1
Nonylphenol Ethoxylates	0.01	< 0.01	<0.01	10
Polychlorinated Biphenyls (PCBs) - Total	0.0004	<0.0001	<0.0001	0.4

Sample Collected: June16, 2025
Temperature: 9 degrees C

Note 1- Hexachlorocyclohexane is no longer analyzed in the Toronto Sanitary and Storm Package.

Consulting Firm that prepared Hydrological Report: DS Consultants Ltd.

Qualified Professional who completed the report summary: Pradeep Patel
Print Name

PROFESSIONAL GEOSCIENTIST
PRADEEPKUMAR A. PATEL
PRACTISING MEMBER
2710
ONTARIO

Qualified Professional who completed the report summary: P. A. Patel Oct 2/2025
Signature Date & Stamp

TORONTO

December 2017

SERVICING REPORT GROUNDWATER SUMMARY

The form is to be completed by the Professional that prepared the Servicing Report.
Use of the form by the City of Toronto is not to be construed as verification of engineering/hydrological content.

For City Staff Use Only:	
Name of ECS Case Manager (please print)	
Date Review Summary provided to to TW	

A. SITE INFORMAITON		**Included in SR (reference page number)**	**Report Includes this information City staff (Check)**
Date Servicing Report was prepared: December 2025		Cover	
Title of Servicing Report: Functional Servicing and Stormwater Management Report		Cover	
Name of Consulting Firm that prepared Servicing Report: HUSSON		Cover	
Site Address	1771 Jane Street Finch and Weston Plaza Phase 3/4 Toronto, Ontario	Cover	
Postal Code	M9N 2S5	Cover	
Property Owner (identified on planning request for comments memo)	Medallion	Cover	
Proposed description of the project (ex. number of point towers, number of podiums, etc.)	Two multi-storey residential/commercial buildings with Two (2) levels of underground parking	1	
Land Use (ex. commercial, residential, mixed, industrial, institutional) as defined by the Planning Act	Mixed	1	
Number of below-grade levels	2 levels proposed	1	

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SERVICING REPORT GROUNDWATER SUMMARY

Does the SR include a private water drainage system (PWDS)? **PWDS: Private Water Drainage System:** A subsurface drainage system which may consist of but is not limited to weeping tile(s), foundation drain(s), private water collection sump(s), private water pump or any combination thereof for the disposal of private water on the surface of the ground or to a private sewer connection or drainage system for disposal in a municipal sewer.	If **Yes** continue completing Section B (Information Relating to Groundwater) **ONLY** **If Yes, Number of PWDS?** _____ *(Each of these PWDS may require a separate Toronto Water agreement)* If **No** skip to Sections C (On-site Groundwater Containment) and/or D (Water Tight Requirements) as applicable	◯ YES Ⓧ NO Infiltration for groundwater is proposed.	
B. INFORMATION RELATING TO GROUNDWATER		**Included in SR (reference page number)**	**Report Includes this information City Staff (Check)**
A copy of the pump schedule(s) for **ALL** groundwater sump pump(s) for the development site has been included in the SR **or** A letter written by a Mechanical Consultant (signed and stamped by a Professional Engineer of Ontario) shall be attached to the SR stating the peak flow rate of the groundwater discharge for the development site for all groundwater sump pump(s). This peak flow rate must be based on the pump schedule(s) that have been designed by the Mechanical Consultant. A template of this letter is attached in Schedule A. ****If there is more than one groundwater**	N/A	N/A	

SERVICING REPORT GROUNDWATER SUMMARY

sump they must ALL be included in the letters along with a combined flow**			
Is it proposed that the groundwater from the development site will be discharged to the sanitary, combined or storm sewer?	◯ Sanitary Sewer (short-term only) ◯ Combined Sewer ◯ Storm Sewer	N/A	
Will the proposed PWDS discharge from the site go to the Western Beaches Tunnel (WBT)? *Reference attached WBT drainage map*	◯ YES ⓧ NO **If Yes, private water discharge fees will apply and site requires a sanitary discharge agreement.**		
What is the street name where the receiving sewer is located?		N/A	
What is the diameter of the receiving sewer?		N/A	
Is there capacity in the proposed local sewer system? **x** YES ◯ NO	Are there any improvements required to the sewer system? If yes, identify them below and refer to the section and page number of the SR where this information can be found. If a sewer upgrade is required, the owner is required to enter into an Agreement with the City to improve the infrastructure? ◯ YES	10-14	
Total allowable peak flow rate during a 100 year storm event (L/sec) to storm sewer When groundwater is to be discharged to the storm sewer the total groundwater and stormwater discharge shall not exceed the permissible peak flow rate during a 2 year pre development storm event, as per the City's Wet Weather Flow Management Guidelines, dated 2006	_____16.0_____ L/sec (to Jane Street)	6	

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SERVICING REPORT GROUNDWATER SUMMARY

Short-Term Groundwater Discharge Provide proposed total flow rate to the sanitary/combined sewer in post-development scenario Total Flow (L/sec) = sanitary flow + peak short-term groundwater flow rate	_____1.01_____ L/sec	8	
Long-Term Groundwater Discharge Provide proposed total flow rate to the sanitary/combined sewer in post-development scenario Total Flow (L/sec) = sanitary flow + peak long-term groundwater flow rate	_____9.98_____ L/sec Sanitary Flow Only	10	
Does the water quality meet the receiving sewer Bylaw limits? ◯ YES ◯ NO	If the water quality does not meet the applicable receiving sewer Bylaw limits and the applicant is proposing a treatment system the applicant will need to include a letter stating that a treatment system will be installed and the details of the treatment system will be included in the private water discharge application that will be submitted to TW EM&P.	N/A	
C. ON-SITE GROUNDWATER CONTAINMENT		**Included in SR (reference page number)**	**Report Includes this information City Staff (Check)**

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SERVICING REPORT GROUNDWATER SUMMARY

How is the site proposing to manage the groundwater discharge on site?	An underground infiltration system is proposed to provide an infiltration volume of 6.5m^3 at a depth of 660mm.	9	
Has the above proposal been approved by:	◯ TW-WIM And ◯ TW-EM&P And ◯ ECS		
If the site is proposing a groundwater infiltration gallery, has it been stated that the groundwater infiltration gallery will not be connected to the municipal sewer? A connection between the infiltration gallery/dry well and the municipal sewer is not permitted Please be advised if an infiltration gallery/dry well on site is not connected to the municipal sewer, the site **must** submit two letters using the templates in Schedule B and Schedule C.	ⓧ YES ◯ NO	9	
Confirm that the infiltration gallery can infiltrate 100% of the expected peak groundwater flow year round, ensure that the top of the infiltration trench is below the frost line (1.8m depth), not less than 5 m from the building foundation, bottom of the trench 1m above the seasonally high water table, and located so that the drainage is away from the building.	Yes	9	

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SERVICING REPORT GROUNDWATER SUMMARY

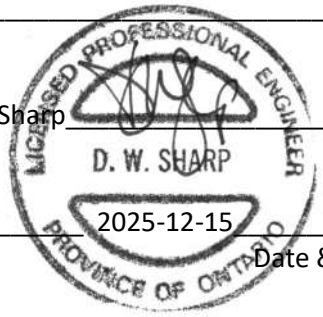
D. WATER TIGHT REQUIREMENTS	Included in SR (reference page number)	Report Includes this information City Staff (Check)
If the site is proposing a water tight structure: 1. The owner must submit a letter using the template in Schedule D. 2. A Professional Engineer (Structural), licensed to practice in Ontario and qualified in the subject must submit a letter using the template in Schedule E. 3. A Professional Engineer (Mechanical), licensed to practice in Ontario and qualified in the subject must submit a letter using the template in Schedule F.	N/A	

Provide a copy of the approved SR to Toronto Water Environmental Monitoring & Protection Unit at pwapplication@toronto.ca.

Consulting Firm that prepared Servicing Report: _____HUSSON_____

Professional Engineer who completed the report summary: _____David Sharp_____
Print Name

Professional Engineer who completed the report summary: _____ 2025-12-15 _____
Signature Date & Stamp



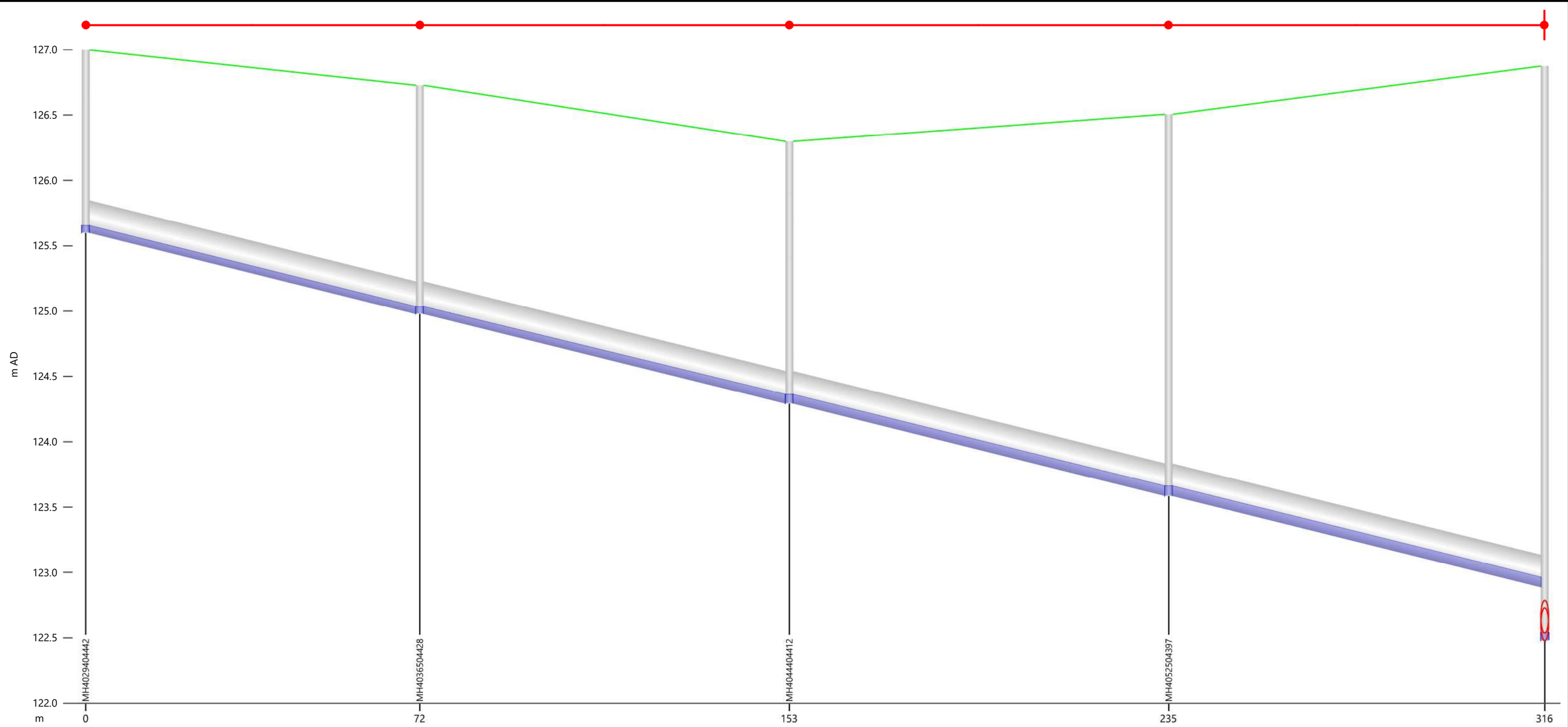
APPENDIX E

DOWNSTREAM SEWER ANALYSIS

1771 Jane Street - Sanitary Sewer Capacity Analysis
Estimated Pipe Capacities for Dry Weather Flows
Infoworks ICM Model Output - EA45

Scenario: Dry Weather Flow
Project No: 251581
Date: 08-Sep-25
Designer: NGN

UPSTREAM NODE ID	CONDUIT ID (SUFFIX)	PIPE DATA						EXISTING RESULTS			PROPOSED RESULTS			
		U/S INVERT (m)	D/S INVERT (m)	LENGTH (m)	SLOPE (%)	DIAMETER (mm)	CAPACITY (L/s)	U/S MAX FLOW (L/s)	PERCENT FULL (%)	SURCHARGE STATE	U/S MAX FLOW (L/s)	PERCENT FULL (%)	SURCHARGE STATE	UPGRADES REQUIRED (Y/N)
MH4029404442	1	125.599	124.98	72.5	0.86%	250	55	1.89	3%	0.15	5.05	9%	0.22	N
MH4036504428	1	124.977	124.29	80.2	0.86%	250	55	2.04	4%	0.23	5.19	9%	0.28	N
MH4044404412	1	124.29	123.59	82.3	0.86%	250	55	5.68	10%	0.26	8.57	16%	0.30	N
MH4052504397	1	123.585	122.89	81.5	0.86%	250	55	7.83	14%	0.27	10.57	19%	0.31	N
MH4060504381	1	122.478	121.47	38.8	2.61%	250	96	7.93	8%	0.22	10.68	11%	0.25	N
MH4061404419	1	121.455	120.65	21.5	3.76%	250	115	7.97	7%	0.20	10.72	9%	0.23	N
MH4061904439	1	120.144	119.59	21.2	2.61%	250	96	7.99	8%	0.22	10.75	11%	0.25	N
MH4062504460	1	119.591	118.55	40.4	2.59%	250	96	8.35	9%	0.22	11.09	12%	0.25	N
MH4063504499	1	115.116	114.55	36.5	1.55%	250	74	8.47	11%	0.25	11.21	15%	0.28	N

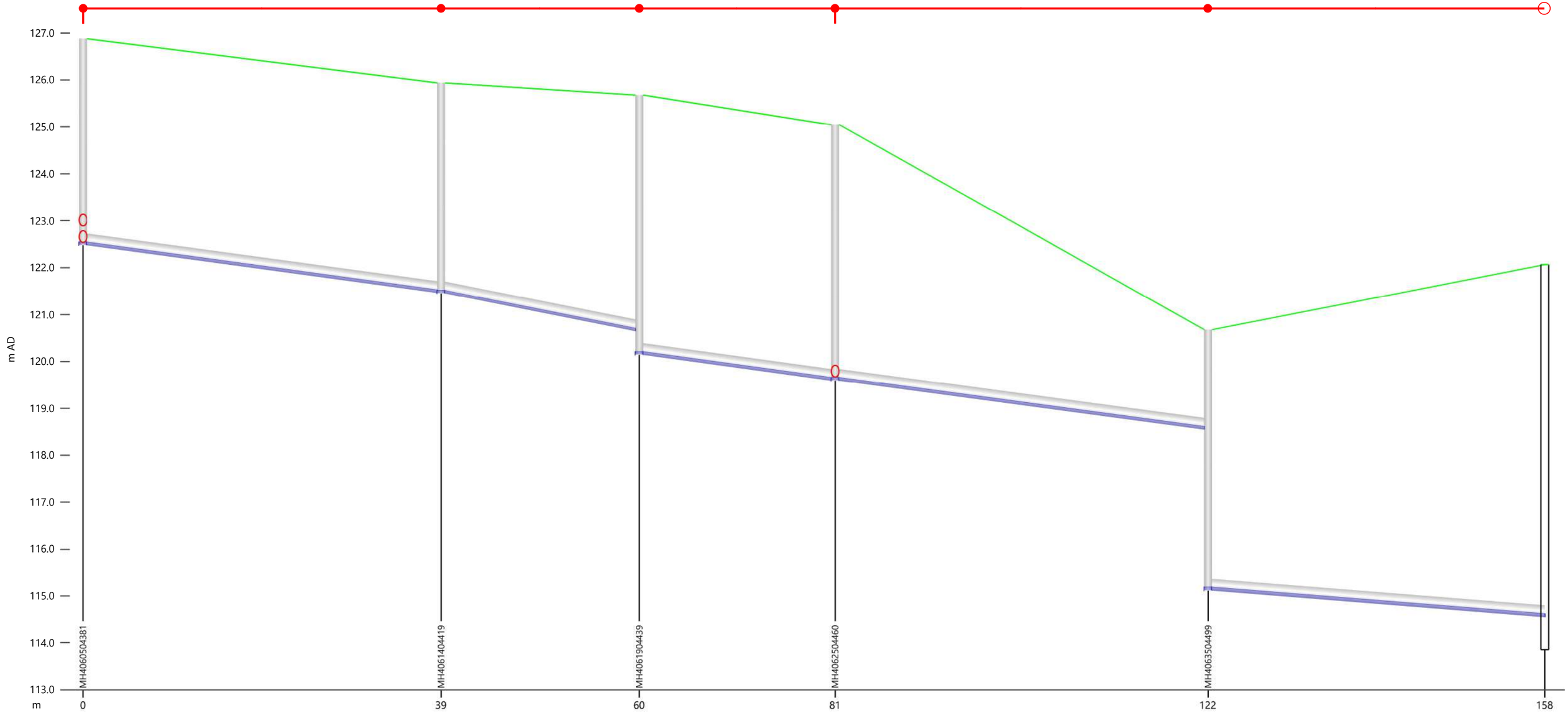


Link	MH4029404442.1	MH4036504428.1	MH4044404412.1	MH4052504397.1
US node ID	MH4029404442	MH4036504428	MH4044404412	MH4052504397
width (mm)	250	250	250	250
pfc (m3/s)	0.055	0.055	0.055	0.055
surc	0.22	0.28	0.30	0.31
US flow (m3/s)	0.00505	0.00519	0.00857	0.01057

Node	MH4029404442	MH4036504428	MH4044404412	MH4052504397	MH4060504381
ground (m AD)	126.998	126.727	126.298	126.506	126.874
level (m AD)	125.653	125.033	124.360	123.662	122.540
flood dep (m)	-1.345	-1.694	-1.938	-2.844	-4.334

Post Development DWF - Profile 1

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Link	MH4060504381.1	MH4061404419.1	MH4061904439.1	MH4062504460.1	MH4063504499.1
US node ID	MH4060504381	MH4061404419	MH4061904439	MH4062504460	MH4063504499
width (mm)	250	250	250	250	250
pfc (m3/s)	0.096	0.115	0.096	0.096	0.074
surc	0.25	0.23	0.25	0.25	0.28
US flow (m3/s)	0.01068	0.01072	0.01075	0.01109	0.01121

Node	MH4060504381	MH4061404419	MH4061904439	MH4062504460	MH4063504499	MH4064204535
ground (m AD)	126.874	125.939	125.680	125.048	120.682	122.068
level (m AD)	122.540	121.512	120.206	119.654	115.186	
flood dep (m)	-4.334	-4.427	-5.474	-5.394	-5.496	

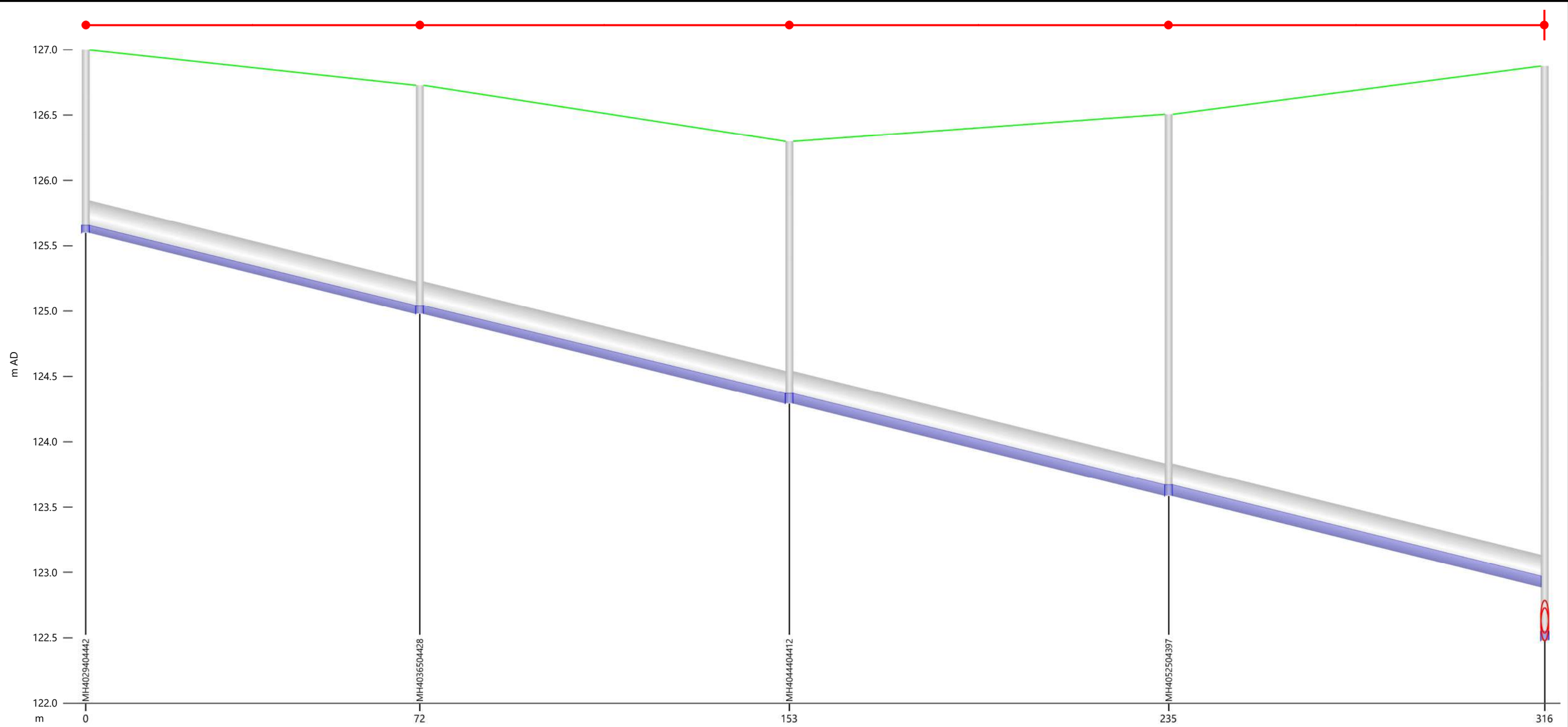
Post Development DWF - Profile 2

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1771 Jane Street - Sanitary Sewer Capacity Analysis
Estimated Pipe Capacities for Wet Weather Flows
Infoworks ICM Model Output - EA45

Scenario: Wet Weather Flow
Project No: 251581
Date: 08-Sep-25
Designer: NGN

UPSTREAM NODE ID	CONDUIT ID (SUFFIX)	PIPE DATA						EXISTING RESULTS					PROPOSED RESULTS						
		U/S INVERT (m)	D/S INVERT (m)	LENGTH (m)	SLOPE (%)	DIAMETER (mm)	CAPACITY (L/s)	U/S MAX FLOW (L/s)	PERCENT FULL (%)	SURCHARGE STATE	HGL ELEVATION (m)	FREEBOARD PROVIDED (m)	U/S MAX FLOW (L/s)	PERCENT FULL (%)	SURCHARGE STATE	HGL ELEVATION (m)	FREEBOARD PROVIDED (m)	FREEBOARD INCREASE (m)	UPGRADES REQUIRED (Y/N)
MH4029404442	1	125.599	124.98	72.5	0.86%	250	55	2.96	5%	0.21	125.642	-1.356	5.31	10%	0.25	125.654	-1.344	0.012	N
MH4036504428	1	124.977	124.29	80.2	0.86%	250	55	4.54	8%	0.27	125.030	-1.697	6.89	13%	0.31	125.040	-1.687	0.010	N
MH4044404412	1	124.29	123.59	82.3	0.86%	250	55	8.25	15%	0.30	124.359	-1.939	10.61	19%	0.34	124.367	-1.931	0.008	N
MH4052504397	1	123.585	122.89	81.5	0.86%	250	55	10.56	19%	0.31	123.662	-2.844	12.93	24%	0.34	123.670	-2.836	0.008	N
MH4060504381	1	122.478	121.47	38.8	2.61%	250	96	11.86	12%	0.26	122.543	-4.331	14.23	15%	0.28	122.548	-4.326	0.005	N
MH4061404419	1	121.455	120.65	21.5	3.76%	250	115	12.35	11%	0.24	121.516	-4.423	14.72	13%	0.26	121.520	-4.419	0.004	N
MH4061904439	1	120.144	119.59	21.2	2.61%	250	96	12.65	13%	0.28	120.210	-5.470	15.03	16%	0.30	120.215	-5.465	0.005	N
MH4062504460	1	119.591	118.55	40.4	2.59%	250	96	13.76	14%	0.27	119.660	-5.388	16.14	17%	0.30	119.665	-5.383	0.005	N
MH4063504499	1	115.116	114.55	36.5	1.55%	250	74	15.19	21%	0.32	115.197	-5.485	17.57	24%	0.35	115.203	-5.479	0.006	N

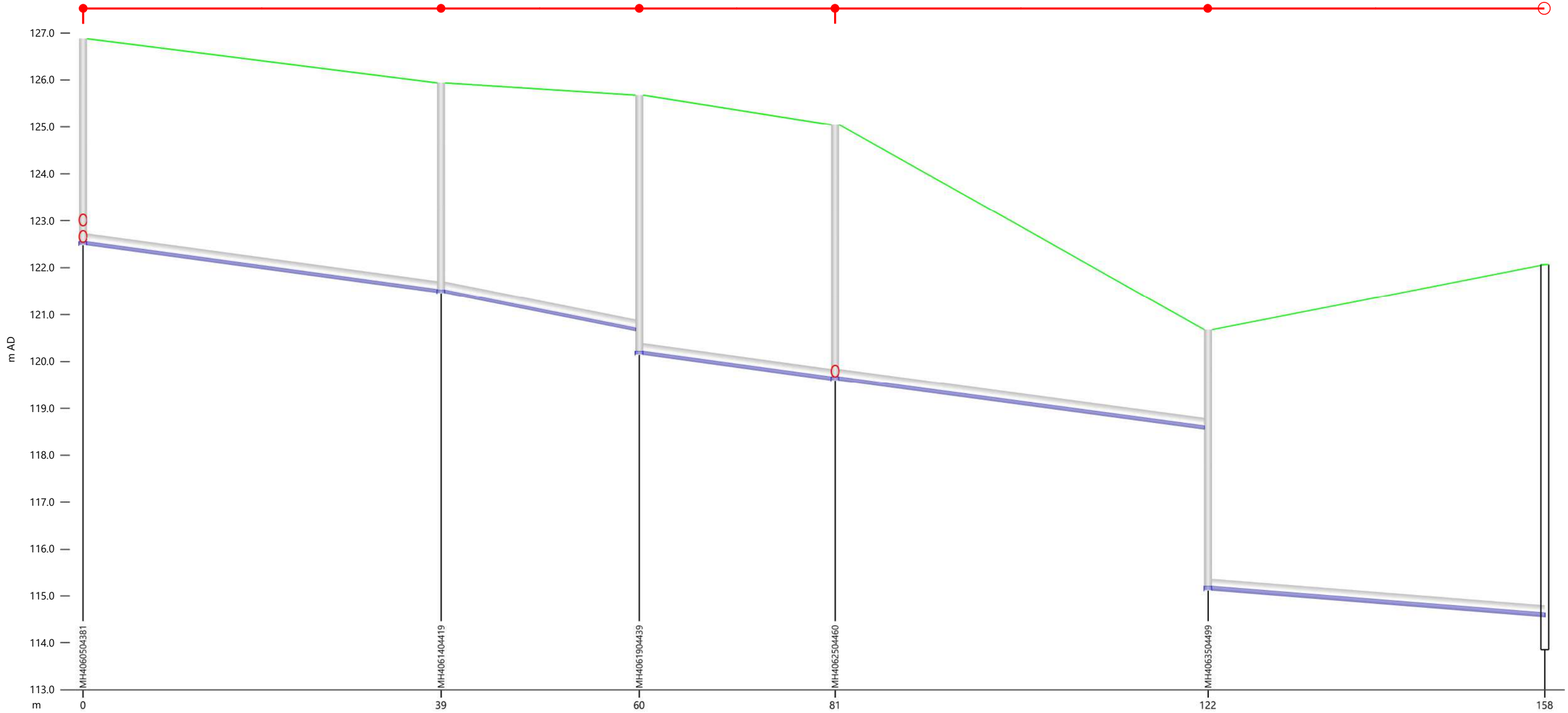


Link	MH4029404442.1	MH4036504428.1	MH4044404412.1	MH4052504397.1
US node ID	MH4029404442	MH4036504428	MH4044404412	MH4052504397
width (mm)	250	250	250	250
pfc (m3/s)	0.055	0.055	0.055	0.055
surc	0.25	0.31	0.34	0.34
US flow (m3/s)	0.00531	0.00689	0.01061	0.01293

Node	MH4029404442	MH4036504428	MH4044404412	MH4052504397	MH4060504381
ground (m AD)	126.998	126.727	126.298	126.506	126.874
level (m AD)	125.654	125.040	124.367	123.670	122.548
flood dep (m)	-1.344	-1.687	-1.931	-2.836	-4.326

Post Development WWF - Profile 1

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Link	MH4060504381.1	MH4061404419.1	MH4061904439.1	MH4062504460.1	MH4063504499.1
US node ID	MH4060504381	MH4061404419	MH4061904439	MH4062504460	MH4063504499
width (mm)	250	250	250	250	250
pfc (m3/s)	0.096	0.115	0.096	0.096	0.074
surc	0.28	0.26	0.30	0.30	0.35
US flow (m3/s)	0.01423	0.01472	0.01503	0.01614	0.01757

Node	MH4060504381	MH4061404419	MH4061904439	MH4062504460	MH4063504499	MH4064204535
ground (m AD)	126.874	125.939	125.680	125.048	120.682	122.068
level (m AD)	122.548	121.520	120.215	119.665	115.203	
flood dep (m)	-4.326	-4.419	-5.465	-5.383	-5.479	

Post Development WWF - Profile 2

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APPENDIX F

HYDRANT TEST AND WATERMAIN ANALYSIS

Hydrant Testing Ontario
Tel: 289-354-1942
Info@HTOntario.ca

REPORT
N°. 2668

September 10, 2025

To:

HUSSON ENGINEERING + MANAGEMENT
M 647.746.3526
WWW.HUSSON.CA

RE: Hydrant Flow Test – 1771 JANE STREET TORONTO

Please find the Report for the following works

Scope: Conducted Hydrant Flow Test as per NFPA291 Recommended Practices for Water Flow Testing and Marking of Hydrants.



HYDRANT FLOW TEST

TORONTO

DATE: September 5, 2025 TIME: 10:00 AM

R -TEST HYDRANT 1775 JANE STREET HYDRANT No. HYD-R1

HYDRANT MODEL: TWW COLOUR: BLUE

STATIC PRESSURE psi (hr-20^0.54): **80** VARIANCE: 10%

Q - FLOW HYDRANT 1779 JANE STREET HYDRANT No. HYD-F1

HYDRANT MODEL: CLOW COLOUR: BLUE

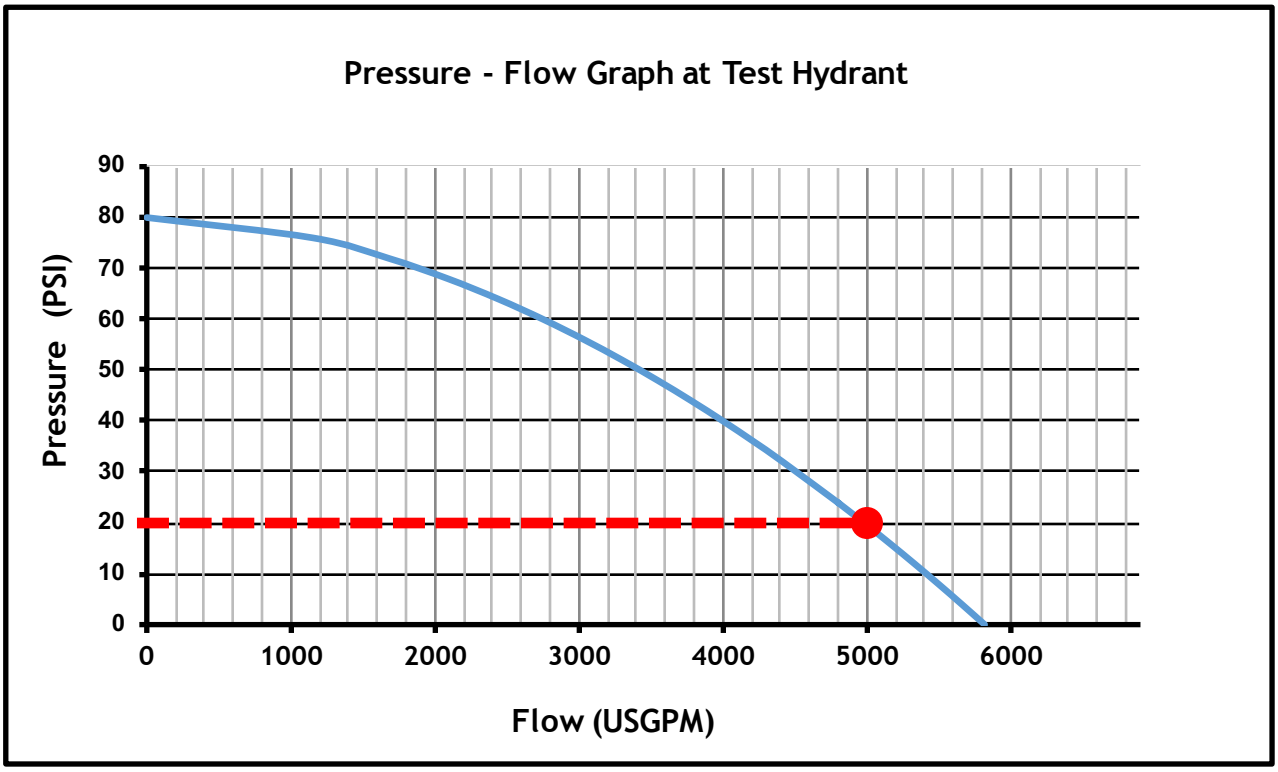
No. Outlets	Residual Pressure (hf-R^0.54)	Orifice Dia Dia. (in.) (d^2)	Coefficient	Nozzle PSI $(\sqrt{psi})$	Q = Flow (USGPM) $Q = 29.83\,(c)\,(d2)\,(\sqrt{psi})$
1	76	2.5	0.9	50	1186
2	72	2.5	0.9	25	839
			Q_F = Total Flow (USGPM)		**1678**

Q_R = flow predicted @ 20 psi

$Q_R = Q_F * (H_r - 20^{\wedge 0.54}) / (H_f - R^{\wedge 0.54})$

4981	USGPM
314	L/s

NFPA Rating: **CLASS AA - BLUE**



Test Conclusion

The system at the time of testing produced a theorectical projected flow rate of:

LOCATION	Total USGPM	USGPM at 20 psi	lps at 20 psi	Test #
JANE STREET	1678	4981	314	1

Hydrants are classified in accordance with their rated capacities as per NFPA291.

COLOUR	CLASS	Available Flow @ 20psi
BLUE	AA	1500 GPM or more
GREEN	A	1000 – 1499 GPM
ORANGE	B	500 – 999 GPM
RED	C	Below 500 GPM

We strongly feel that all attempts have been made to ensure that the required data as stipulated was captured, stored and presented in an accurate, efficient and timely manner for the required period.

We look forward to working with you in the future.

Please feel free to contact the undersigned should you require any further information.

Best Regards



Rob Gamache E.P
Manager of Operations
Hydrant Testing Ontario
Info@HTOntario.ca

Fire Flow Requirements

Project:	1771 Jane Street
Project No.:	251581
Municipality:	Toronto
Building:	North Building

Residential Development

GUIDE FOR DETERMINATION OF REQUIRED FIRE FLOW
(as per the Water Supply for Public Fire Protection 2020 manual by the Fire Underwriters Survey)

STEP 1
Determine the fire flow.

Required Fire Flow (F)	F = 220 x C x sqrt(A)		The required fire flow in litres per minute.
Maximum Floor Area (A) =	1297.50	m2	If the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.
		4th Floor	865 m2
		5th Floor	865 m2
		6th Floor	865 m2
Coefficient (C) =	0.6		Coefficient related to the type of construction.
			1.5 for Type V Wood Frame Construction
			0.8 for Type IV-A Mass Timber Construction
			0.9 for Type IV-B Mass Timber Construction
			1.0 for Type IV-C Mass Timber Construction
			1.5 for Type IV-D Mass Timber Construction
			1.0 for Type III Ordinary Construction
			0.8 for Type II Noncombustible Construction
			0.6 for Type I Fire Resistive Construction
F =	5000	L/min.	

STEP 2
Determine the increase or decrease for occupancy.

	0%		Reduction for Low Hazard Occupancy (Dwellings).
Decrease	0	L/min.	

STEP 3
Determine the decrease, if any, for automatic sprinkler protection.

	30%		30% for sprinklered as per NFPA 13.
Decrease	1500	L/min.	50% for fully automatic sprinkler.

STEP 4
Determine the total increase for exposures.

0 -3m (25%), 3-10m (20%), 10-20m (15%), 20-30m (10%), 30-45m (5%)

North (Residential)	10%		27 m
East (Residential)	10%		22 m
South (Existing Building)	15%		12 m
West (Commercial across Jane Street.)	0%		47 m
	35.0%		Maximum exposure increase is 75%.
Increase	1750	L/min.	

STEP 5
Determine the minimum required fire flow.

F =	**6,000**	**L/min.**
Q_R =	**4981**	**GPM**
	18,855	**L/min**

Fire Flow Requirements

Project:	1771 Jane Street
Project No.:	251581
Municipality:	Toronto
Building:	South Building

Residential Development

GUIDE FOR DETERMINATION OF REQUIRED FIRE FLOW
(as per the Water Supply for Public Fire Protection 2020 manual by the Fire Underwriters Survey)

STEP 1
Determine the fire flow.

Required Fire Flow (F)	F = 220 x C x sqrt(A)	The required fire flow in litres per minute.
Maximum Floor Area (A) =	1551.00 m2	If the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.
	4th Floor	1034 m2
	5th Floor	1034 m2
	6th Floor	1034 m2
Coefficient (C) =	0.6	Coefficient related to the type of construction.
		1.5 for Type V Wood Frame Construction
		0.8 for Type IV-A Mass Timber Construction
		0.9 for Type IV-B Mass Timber Construction
		1.0 for Type IV-C Mass Timber Construction
		1.5 for Type IV-D Mass Timber Construction
		1.0 for Type III Ordinary Construction
		0.8 for Type II Noncombustible Construction
		0.6 for Type I Fire Resistive Construction
F =	6000 L/min.	

STEP 2
Determine the increase or decrease for occupancy.

	0%	Reduction for Low Hazard Occupancy (Dwellings).
Decrease	0 L/min.	

STEP 3
Determine the decrease, if any, for automatic sprinkler protection.

	30%	30% for sprinklered as per NFPA 13.
Decrease	1800 L/min.	50% for fully automatic sprinkler.

STEP 4
Determine the total increase for exposures.

0 -3m (25%), 3-10m (20%), 10-20m (15%), 20-30m (10%), 30-45m (5%)

North (Existing Building)	20%	6 m
East (Residential)	10%	8 m
South (Commercial across Marshlynn Ave.)	5%	39 m
West (Commercial across Jane Street.)	5%	31 m
	40.0%	Maximum exposure increase is 75%.
Increase	2400 L/min.	

STEP 5
Determine the minimum required fire flow.

F =	**7,000 L/min.**	
Q_R =	**4981 GPM**	
	18,855 L/min	



DRAWINGS

HUSSON

ENGINEERING + MANAGEMENT

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MARKHAM, ON L6C 0Z8
HUSSON.CA