STORMWATER MANAGEMENT & FUNCTIONAL SERVICING REPORT

PROPOSED RESIDENTIAL TOWNHOUSE DEVELOPMENT

SIXTY SIX TWENTY
DI BLASIO HOMES
6620 ROTHSCHILD TRAIL

CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

FILE No. 224-M15

September 10, 2024

SKIRA & ASSOCIATES LTD.
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1.0 INTRODUCTION

The purpose of this report is to define the existing and proposed servicing scheme in support of the proposed residential townhouse condominium development consisting of seventeen (17) townhouses.

The existing parcel of land includes Lot 20 & 21, Reg. Plan 43M-1710, in Mississauga. The site is located on Rothschild Trail at the end of the cul-de-sac.

It is intended that this report will be sufficient to support amendments to the Official Plan and Zoning Bylaw and will result in an "approval in principle," of the design proposal by the City of Mississauga, Region of Peel, and any other relevant authorities. Detail design will be provided as part of the Site Pan Application.

2.0 STUDY AREA INFORMATION

The subject property is known legally as Lot 20 & 21, Reg. Plan 43M-1710, in the City of Mississauga, Regional Municipality of Peel and further defined by Reg. Ref. Plan 43R-40361, Parts 9 to 17 inclusive.

The site is bound by Rothschild Trail on the east, Fletcher's Creek Valley on the south, and existing residential buildings to the north. **Refer to *Figure No. 1 – Key Plan*.**

The site is located on 6620 Rothschild Trail and is presently developed with a residential building. The existing building is scheduled for demolition prior to the start of construction.

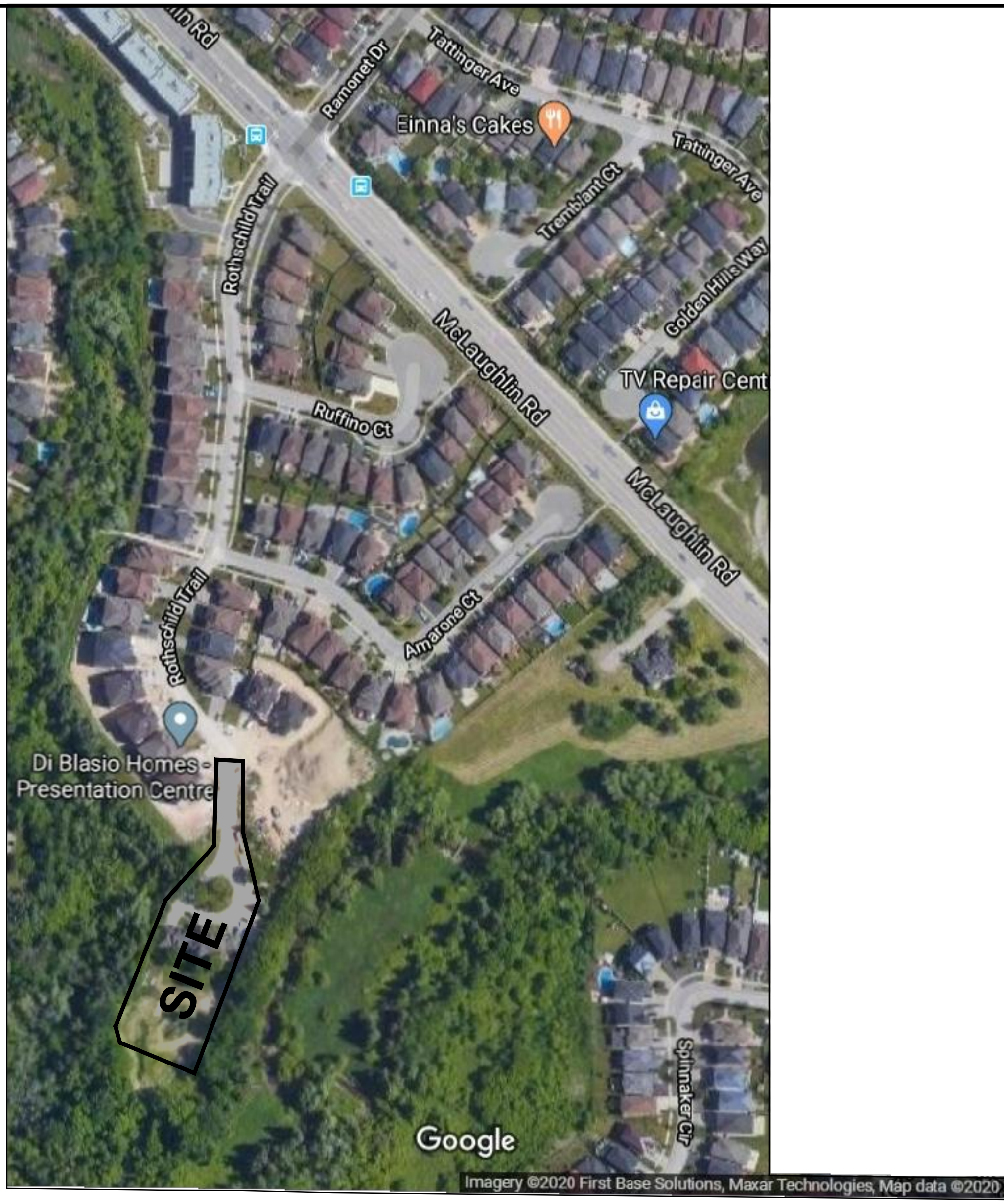
The total site area is 0.6696 Ha.
(Site area excludes Lot 19, 20 & 21 – created through OZ 19/10 process.)

The site is relatively flat within the central portion of the lot with a slope from east to west. East portion of the site grade differential is approx. 3.0m sloping towards Fletcher's Creek Valley.

An area of 0.2590 Ha, below the top of bank, surveyed by D.B. Searles, staked on May 26, 2015 by CVC, will be dedicated to the City of Mississauga. These lands are located north and west on the subject lands from part of Fletcher's Creek Valley and have been dedicated to the City of Mississauga as valley greenbelt.

The site will be developed with a townhouse condominium along private condo road.

We have investigated existing services through City and Region records for information related to Rothschild Trail. Drawings related to Di Blasio Estates West Phase 2 by Urban Ecosystems Limited have been obtained.



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KEY PLAN

PROJECT No. 218-M14		FIGURE No. 1
DATE - MARCH 2018		
SCALE - N.T.S.	DRAWN BY - E.W.	

3.0 TRANSPORTATION SYSTEM

The subject site is located at the end of the cul-de-sac on Rothschild Trail. Access to existing property if from Rothschild Trail.

Proposed condominium road will be designed as a City of Mississauga condominium road to provide access for dire and garbage trucks. Existing driveway is to be eliminated, and boulevard restored as per City of Mississauga requirements.

Rothschild Trail will provide direct access to major roads, being McLaughlin Rd. and Derry Rd.
For Road Construction Details refer to *Dwg. No. 224-M15 – Grading Plan & Details*.

4.0 STORM DRAINAGE SYSTEM

Currently the site is developed. The existing residential dwelling will be demolished prior to construction.

The existing site drainage is currently directed to Fletcher's Creek.

4.1 Pre-Development Conditions

Based on existing site conditions, site area prior to land dedication:

Area	= 0.9287 Ha
Ex. Roof	= 0.0372 Ha
Paved Area	= 0.0640 Ha
Landscaped Area	= 0.8275 Ha

Runoff Coefficient:

$$= (0.25 \times 0.8275 + 0.90 \times 0.1012) / 0.9287$$
$$= 0.321$$

Based on the top of bank dedication only, 0.6696 Ha will be subject to townhouse condominium development.

4.2 Post-Development Conditions

Previously approved zoning application and land division severed two (2) single lots. Based on the existing, the single residential lots will continue to drain towards the previously assigned drainage area towards Rothschild Trail based on subdivision drainage plans. The proposed single dwelling area, approx. 0.19 Ha, will be designed to convey surface drainage towards right-of-way storm sewer. The storm sewer was designed to C = 0.55 runoff coefficient matching City of Mississauga subdivision criteria.

The proposed condominium block will contribute runoff towards Fletcher's Creek Valley through direct outfall storm headwall.

The condominium block runoff will be provided with outlet to Fletcher's Creek directly. Based on CVC criteria, quality, erosion, and thermal controls are required.

- On-site quantity control is not required for this site under City of Mississauga storm criteria.

Allowable Discharge Q_{ALL} $= 0.6696 \times 99.18 \times 0.60 / 360$
$= 0.110 m^3/s$

- Quality control for the provided site will provide Level 1 TSS removal.

- Erosion control and runoff reduction to 5mm of all impervious areas on-site retention for all storm events.

4.3 Erosion Control & 5mm Retention Consideration

CVC requirement for erosion control is to retain 5mm of every rainfall event to slow down flow towards the creek and both can be combined and infiltration will be used to control runoff on-site.

The latest City of Mississauga Water Balance Management Plan contains a similar water balance target/criteria that requires the site to retain 5mm of every rainfall and allow it to infiltrate back into the ground.

The impervious area amount to 3,734m² of roof and asphalt surface.

The green space lawn areas are capable of retaining a portion of the 5mm rainfall. All back roof downspouts to be directed towards landscape rear yard areas, sheet flow towards valley and front downspouts to discharge directly onto permeable driveway areas.

The required volume is as follows:

$$V_{5mm} = 3{,}734\text{m}^2 \times 0.005\text{m}$$
$$= \mathbf{18.67m^3} \text{ per rainfall}$$

The proposed residential development will convey runoff along the private road to the Fletcher's Creek outlet located at the north end of the site. The proposed storm sewer outlet including headwall will be servicing only the proposed townhouse site.

The weighted runoff coefficient is calculated using the following site statistics:

Site Area = 6,696m²
Roof Area = 1,711m²
Asphalt Area = 2,023m²
Landscape Area = 2,962m²

$$C_W = (0.95 \times 0.1711 + 0.90 \times 0.2023 + 0.25 \times 0.2962) / 0.6696$$
$$= 0.25 + 0.27 + 0.11$$
$$= 0.62$$

The inlet catchbasins will be designed to capture 10-yr storm intensity flow to minimize runoff directed to the valley overland and direct and convey it towards the outlet headwall.

Permeable paving proposed on visitor parking surface driveways and sections of common element condo road will provide storage for infiltration. 373m² of permeable paving area will provide volume within the gravel portion of pavement. Additional surfaces such as walkways, contribute to the permeable surface drainage.

$$V = 373 \times 0.30 \times 0.40 \text{ (porosity)}$$
$$= 44.76\text{m}^3$$

Permeable pavement is capable of infiltrating higher storm intensity volumes.

Total volume provided is as follows:

V_{TOTAL} = 44.76m³ exceeding City requirements

Based on the Soils Report prepared by Brice A. Brown Associates Limited for this site, infiltration has been established at 37.5mm/hr and groundwater elevation depth at 174.10, approx. 6.0m below bottom of the permeable paving.

The expected drawdown time for the infiltration cell was calculated using Equation 4.3 of the MECP Stormwater Management Planning & Design Manual.

Based on Equation 4.3:

(time to infiltrate)

$$\Delta t = \frac{1{,}000V}{APn}$$

Where,
- A = bottom of trench area
- V = volume to be infiltrated
- n = porosity
- P = percolation rate of native soil
- Δt = retention time

Using the surface of the trench elevation 174.10 and 37.5mm/hr (silty sand):

$$\Delta t = \frac{1{,}000 \times 11.76}{373 \times 0.40 \times 37.5 / 2.5 \text{ (safety factor)}}$$

$$= 5.25\text{hrs}$$

The time of infiltration is acceptable as per the latest WWM guidelines for max. 48hrs.

4.4 Quality Control

The proposed development will utilize a **treatment train** approach that includes clean building roof runoff and landscaped areas discharging to valley lands and/or collected and discharged through permeable paving.

The runoff from the asphalt drive aisle will be captured in the permeable paving and filtered through gravel layers and conveyed to an oil/grit interceptor.

The City of Mississauga and Credit Valley Conservation Wet Weather Flow Management Guidelines state that the improvement of the quality of stormwater runoff as a primary goal. According to the Ministry of the Environment & Climate Change's Stormwater Management Planning & Design Manual, the site is required to provide a long-term removal of 80% Total Suspended Solids (TSS) for the protection of waterways.

The summary chart of the TSS removal based on-site is shown below:

SURFACE TYPE	TSS REMOVAL (%)	AREA (m²)	AREA WITH TSS REMOVED (m³)
Impervious Roof (clean water)	80	1,711	1,369
Landscape	80	2,962	2,370
Asphalt Pavement	0	1,605	-
Permeable Pavers Driveway/Road	50	373	187
	TOTAL	**6,696**	**3,926**
			2,926 / 6,696 = 0.58

As the chart above illustrates, the majority of the site provides clean water with a TSS removal rate of 58%. The clean water provided by landscape and roof areas. The dirty water from the parking/asphalt area will pass through permeable paving gravel prior to final treatment through the oil/grit interceptor. The quality control of the entire system will provide required 80% TSS removal.

For STC Structure TSS Removal Calculations see *Appendix B*.

4.4.1 Operation & Maintenance

The stormceptor shall be inspected post-construction prior to being put into services for damages, debris and sediments. The structure shall be inspected annually to determine accumulation of sediments and if cleaning is required a waste management approach is to be employed to vac clean sediments and remove off-site. Typically, the structure shall be cleaned out once sediment reaches 15% of storage capacity.

Periodic vacuum sweeping and preventative measures as no snow storage over permeable paving features or construction material contribute to critical operation of surface and prevention of clogging.

4.5 Overland Flow Route

Existing overland flow route is directed towards Fletcher's Creek. Our proposed gradin will continue to have the escape route in the same direction (in excess of 100-yr storm). As such, we are not modifying existing conditions.

5.0 SANITARY SEWER SYSTEM

The proposed townhouse residential condominium project will be serviced to the existing 250mm dia. sanitary sewer located within the existing sanitary sewer easement on the south limit of the property. The existing 250mm dia. sanitary sewer has sufficient depth to accept sanitary flows from the townhouse condominium dwellings.

The proposed sanitary invert at the property line is approx. 178.23m. The proposed lowest finished main floor is approx. 180.95. Therefore, the building main floor and above will have gravity sewage flows. The basement and underground drains will also gravity drain to the existing sanitary system.

The proposed residential dwellings fronting the private road will be provided with individual sanitary connections. All individual dwellings will be able to discharge sanitary sewer gravity including basement elevations.

Sanitary Flow Calculations

Residential Dwellings = 17 dwellings x 4.15
= 70.55

Total Population = 71

Peak Factor $= 1 + \dfrac{14}{4 + P^{0.5}}$

Where, P = population in thousands

$= 1 + \dfrac{14}{4 + 0.071^{0.5}}$

= 1 + 3.28
= **4.28 (max. 4.0)**

Expected Peak Factor = 302.8 x 71 x
= 85,995.2 L/day = 0.99 L/s

6.0 WATER DISTRIBUTION SYSTEM

The proposed townhouse residential condominium will be serviced to the existing 200mm dia. watermain located on Rothschild Trail. The existing 200mm watermain has been extended approx. 35m to provide better coverage.

The existing fire hydrant on Rothschild Trail will be utilised to provide external fire coverage for the single residential building and new internal fire hydrant will be constructed to provide condominium coverage.

Proposed 150mm dia. watermain connection will be constructed for fire and 100mm water service for domestic use for the proposed condominium.

The proposed seventeen (17) residential dwellings fronting the private road will be provided with individual connections to the watermain on the short side of the boulevard.

Water Demand Calculations

Proposed Units (71 population, as per previous calculations)	= 17 townhouses
Total Expected Peak Flow	= 280 x 71 x 3.0 = 59,640 L/day = 0.69 L/s
Total Expected Max. Daily Flow	= 280 x 71 x 2.0 = 39,760 L/day = 0.46 L/s

Based on *Fire Underwriters Survey 1999*, the fire flow is calculated on the are of two largest floors + 50% of 8 floors using the following formula:

$$F = 220\sqrt{A} \times C$$

Where, C = coefficient of fire resistance construction = 1.0 (wood construction)
A = area (largest block)
F = fire flow in L/min

$A = 2{,}490 m^2$

$F = 220 \times 1.0 \times \sqrt{2{,}490}$
= 10,987 L/min = **182.96 L/s**

The fire flow will be conducted on the existing watermain and confirms that the existing system can provide sufficient domestic fire flows. The fire flow test has been conducted and adequate pressure exists on Rothschild Trail to meet domestic and fire demand. **See *Appendix C* for results.**

7.0 SUMMARY

The proposed development can be fully serviced by connecting to existing services, which have been designed to accommodate the proposed development and therefore have sufficient capacity.

- Storm sewer outlet will be directly to Fletcher's Creek.
- Sanitary sewer is available on municipal easement.
- Watermain is available on Rothschild Trail.

The findings and recommendations were prepared in accordance with Accepted Professional Engineering Principles & Practices. Based on the above, the proposed development can be adequately serviced in accordance with City and Region standards. The findings of this report are global and not related to servicing functionality of this application. These findings by no means are final and are not to replace the detail review of this application which shall take place upon submission of Site Plan or Servicing Agreement. In no case is the proposed development expected to negatively impact the impact the existing infrastructure system.

Trusting that the above information will be satisfactory to your review and approval.

Yours truly,

SKIRA & ASSOCIATES LTD.

LICENSED PROFESSIONAL ENGINEER
M. JOZWIK
Sep. 10, 2024
PROVINCE OF ONTARIO

Michael Jozwik, P. Eng.
MJ:ak

APPENDIX A
STORMCEPTOR OIL/GRIT SEPARATOR COMPUTER OUTPUT

Stormceptor Sizing Detailed Report

PCSWMM for Stormceptor

Project Information

Date	6/6/2018
Project Name	Sixty Six Twenty - Di Blasio Homes
Project Number	218-M14
Location	6620 Rothschilds Trail, Mississauga

Stormwater Quality Objective

This report outlines how Stormceptor System can achieve a defined water quality objective through the removal of total suspended solids (TSS). Attached to this report is the Stormceptor Sizing Summary.

Stormceptor System Recommendation

The Stormceptor System model STC 300 achieves the water quality objective removing 84% TSS for a Fine (organics, silts and sand) particle size distribution.

The Stormceptor System

The Stormceptor oil and sediment separator is sized to treat stormwater runoff by removing pollutants through gravity separation and flotation. Stormceptor's patented design generates positive TSS removal for all rainfall events, including large storms. Significant levels of pollutants such as heavy metals, free oils and nutrients are prevented from entering natural water resources and the re-suspension of previously captured sediment (scour) does not occur.

Stormceptor provides a high level of TSS removal for small frequent storm events that represent the majority of annual rainfall volume and pollutant load. Positive treatment continues for large infrequent events, however, such events have little impact on the average annual TSS removal as they represent a small percentage of the total runoff volume and pollutant load.

Stormceptor is the only oil and sediment separator on the market sized to remove TSS for a wide range of particle sizes, including fine sediments (clays and silts), that are often overlooked in the design of other stormwater treatment devices.

Small storms dominate hydrologic activity, US EPA reports

"*Early efforts in stormwater management focused on flood events ranging from the 2-yr to the 100-yr storm. Increasingly stormwater professionals have come to realize that small storms (i.e. < 1 in. rainfall) dominate watershed hydrologic parameters typically associated with water quality management issues and BMP design. These small storms are responsible for most annual urban runoff and groundwater recharge. Likewise, with the exception of eroded sediment, they are responsible for most pollutant washoff from urban surfaces. Therefore, the small storms are of most concern for the stormwater management objectives of ground water recharge, water quality resource protection and thermal impacts control.*"

"*Most rainfall events are much smaller than design storms used for urban drainage models. In any given area, most frequently recurrent rainfall events are small (less than 1 in. of daily rainfall).*"

"Continuous simulation offers possibilities for designing and managing BMPs on an individual site-by-site basis that are not provided by other widely used simpler analysis methods. Therefore its application and use should be encouraged."

– US EPA Stormwater Best Management Practice Design Guide, Volume 1 – General Considerations, 2004

Design Methodology

Each Stormceptor system is sized using PCSWMM for Stormceptor, a continuous simulation model based on US EPA SWMM. The program calculates hydrology from up-to-date local historical rainfall data and specified site parameters. With US EPA SWMM's precision, every Stormceptor unit is designed to achieve a defined water quality objective.

The TSS removal data presented follows US EPA guidelines to reduce the average annual TSS load. Stormceptor's unit process for TSS removal is settling. The settling model calculates TSS removal by analyzing (summary of analysis presented in Appendix 2):

- Site parameters
- Continuous historical rainfall, including duration, distribution, peaks (Figure 1)
- Interevent periods
- Particle size distribution
- Particle settling velocities (Stokes Law, corrected for drag)
- TSS load (Figure 2)
- Detention time of the system

The Stormceptor System maintains continuous positive TSS removal for all influent flow rates. Figure 3 illustrates the continuous treatment by Stormceptor throughout the full range of storm events analyzed. It is clear that large events do not significantly impact the average annual TSS removal. There is no decline in cumulative TSS removal, indicating scour does not occur as the flow rate increases.

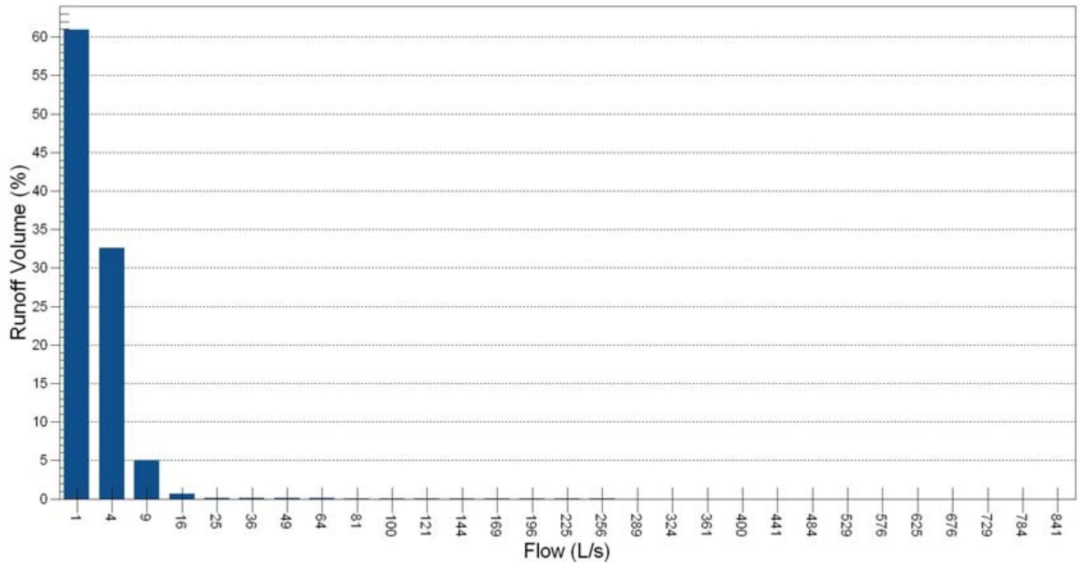


Figure 1. Runoff Volume by Flow Rate for TORONTO CENTRAL – ON 100, 1982 to 1999 for 0.46 ha, 74.2% impervious. Small frequent storm events represent the majority of annual rainfall volume. Large infrequent events have little impact on the average annual TSS removal, as they represent a small percentage of the total annual volume of runoff.

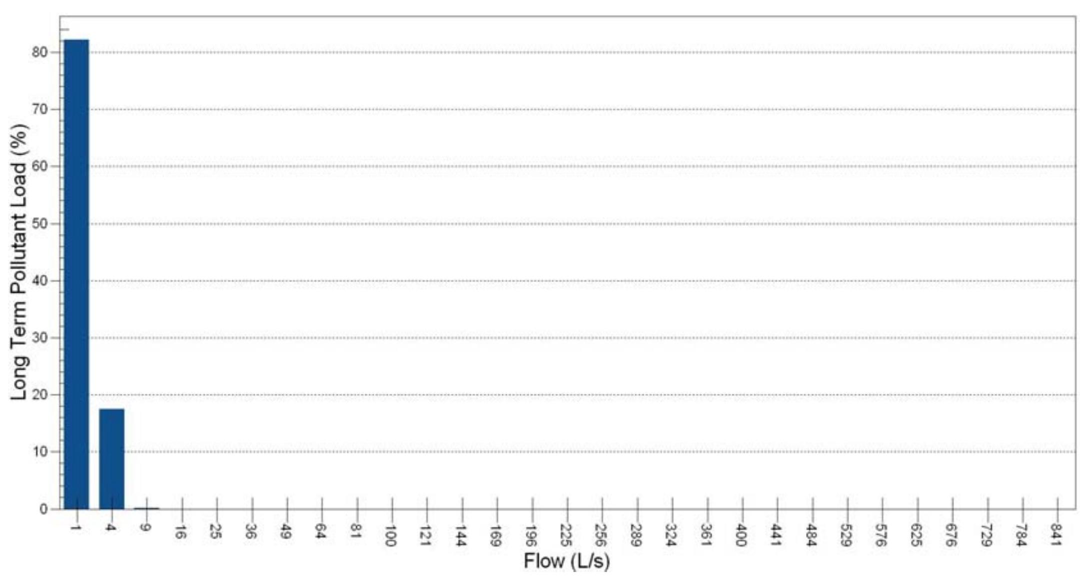
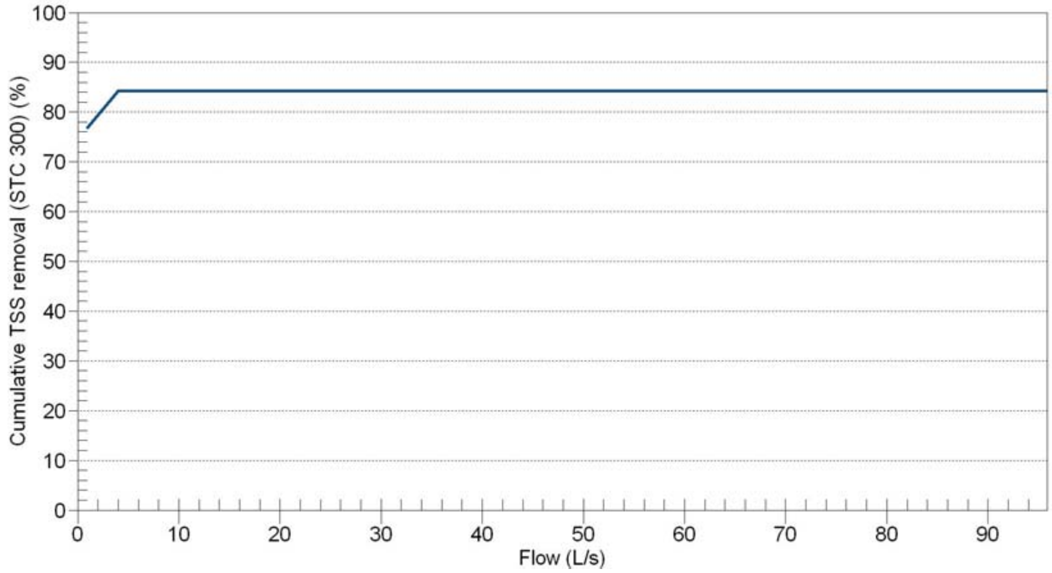


Figure 2. Long Term Pollutant Load by Flow Rate for TORONTO CENTRAL – 100, 1982 to 1999 for 0.46 ha, 74.2% impervious. The majority of the annual pollutant load is transported by small frequent storm events. Conversely, large infrequent events carry an insignificant percentage of the total annual pollutant load.



Stormceptor Model	STC 300	Drainage Area (ha)	0.46
TSS Removal (%)	84	Impervious (%)	74.2

Figure 3. Cumulative TSS Removal by Flow Rate for TORONTO CENTRAL – 100, 1982 to 1999. Stormceptor continuously removes TSS throughout the full range of storm events analyzed. Note that large events do not significantly impact the average annual TSS removal. Therefore no decline in cumulative TSS removal indicates scour does not occur as the flow rate increases.

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Appendix 1
Stormceptor Design Summary

Project Information

Date	6/6/2018
Project Name	Sixty Six Twenty - Di Blasio Homes
Project Number	218-M14
Location	6620 Rothschilds Trail, Mississauga

Designer Information

Company	Skira & Associates Ltd.
Contact	michael jozwik

Notes

N/A

Drainage Area

Total Area (ha)	0.46
Imperviousness (%)	74.2

The Stormceptor System model STC 300 achieves the water quality objective removing 84% TSS for a Fine (organics, silts and sand) particle size distribution.

Rainfall

Name	TORONTO CENTRAL
State	ON
ID	100
Years of Records	1982 to 1999
Latitude	45°30'N
Longitude	90°30'W

Water Quality Objective

TSS Removal (%)	80

Upstream Storage

Storage (ha-m)	Discharge (L/s)
0.000	00.000
0.005	10.000
0.006	12.000
0.007	14.100

Stormceptor Sizing Summary

Stormceptor Model	TSS Removal %
STC 300	**84**
STC 750	90
STC 1000	89
STC 1500	89
STC 2000	92
STC 3000	92
STC 4000	94
STC 5000	94
STC 6000	95
STC 9000	97
STC 10000	96
STC 14000	97

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Particle Size Distribution

Removing silt particles from runoff ensures that the majority of the pollutants, such as hydrocarbons and heavy metals that adhere to fine particles, are not discharged into our natural water courses. The table below lists the particle size distribution used to define the annual TSS removal.

Fine (organics, silts and sand)								
Particle Size µm	Distribution %	Specific Gravity	Settling Velocity m/s		Particle Size µm	Distribution %	Specific Gravity	Settling Velocity m/s
20	20	1.3	0.0004					
60	20	1.8	0.0016					
150	20	2.2	0.0108					
400	20	2.65	0.0647					
2000	20	2.65	0.2870					

Stormceptor Design Notes

- Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor version 1.0
- Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal.
- Only the STC 300 is adaptable to function with a catch basin inlet and/or inline pipes.
- Only the Stormceptor models STC 750 to STC 6000 may accommodate multiple inlet pipes.
- Inlet and outlet invert elevation differences are as follows:

Inlet and Outlet Pipe Invert Elevations Differences

Inlet Pipe Configuration	STC 300	STC 750 to STC 6000	STC 9000 to STC 14000
Single inlet pipe	75 mm	25 mm	75 mm
Multiple inlet pipes	75 mm	75 mm	Only one inlet pipe.

- Design estimates are based on stable site conditions only, after construction is completed.
- Design estimates assume that the storm drain is not submerged during zero flows. For submerged applications, please contact your local Stormceptor representative.
- Design estimates may be modified for specific spills controls. Please contact your local Stormceptor representative for further assistance.
- For pricing inquiries or assistance, please contact Hanson Pipe & Precast, 1-888-888-3222.

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Appendix 2
Summary of Design Assumptions

SITE DETAILS

Site Drainage Area

Total Area (ha)	0.46	Imperviousness (%)	74.2

Surface Characteristics

Width (m)	136
Slope (%)	2
Impervious Depression Storage (mm)	0.508
Pervious Depression Storage (mm)	5.08
Impervious Manning's n	0.015
Pervious Manning's n	0.25

Infiltration Parameters

Horton's equation is used to estimate infiltration

Max. Infiltration Rate (mm/h)	61.98
Min. Infiltration Rate (mm/h)	10.16
Decay Rate (s^{-1})	0.00055
Regeneration Rate (s^{-1})	0.01

Maintenance Frequency

Sediment build-up reduces the storage volume for sedimentation. Frequency of maintenance is assumed for TSS removal calculations.

Maintenance Frequency (months)	12

Evaporation

Daily Evaporation Rate (mm/day)	2.54

Dry Weather Flow

Dry Weather Flow (L/s)	No

Upstream Attenuation

Stage-storage and stage-discharge relationship used to model attenuation upstream of the Stormceptor System is identified in the table below.

Storage ha-m	Discharge L/s
0.000	00.000
0.005	10.000
0.006	12.000
0.007	14.100

Hanson

PARTICLE SIZE DISTRIBUTION

Particle Size Distribution

Removing fine particles from runoff ensures the majority of pollutants, such as heavy metals, hydrocarbons, free oils and nutrients are not discharged into natural water resources. The table below identifies the particle size distribution selected to define TSS removal for the design of the Stormceptor System.

Fine (organics, silts and sand)								
Particle Size µm	Distribution %	Specific Gravity	Settling Velocity m/s		Particle Size µm	Distribution %	Specific Gravity	Settling Velocity m/s
20	20	1.3	0.0004					
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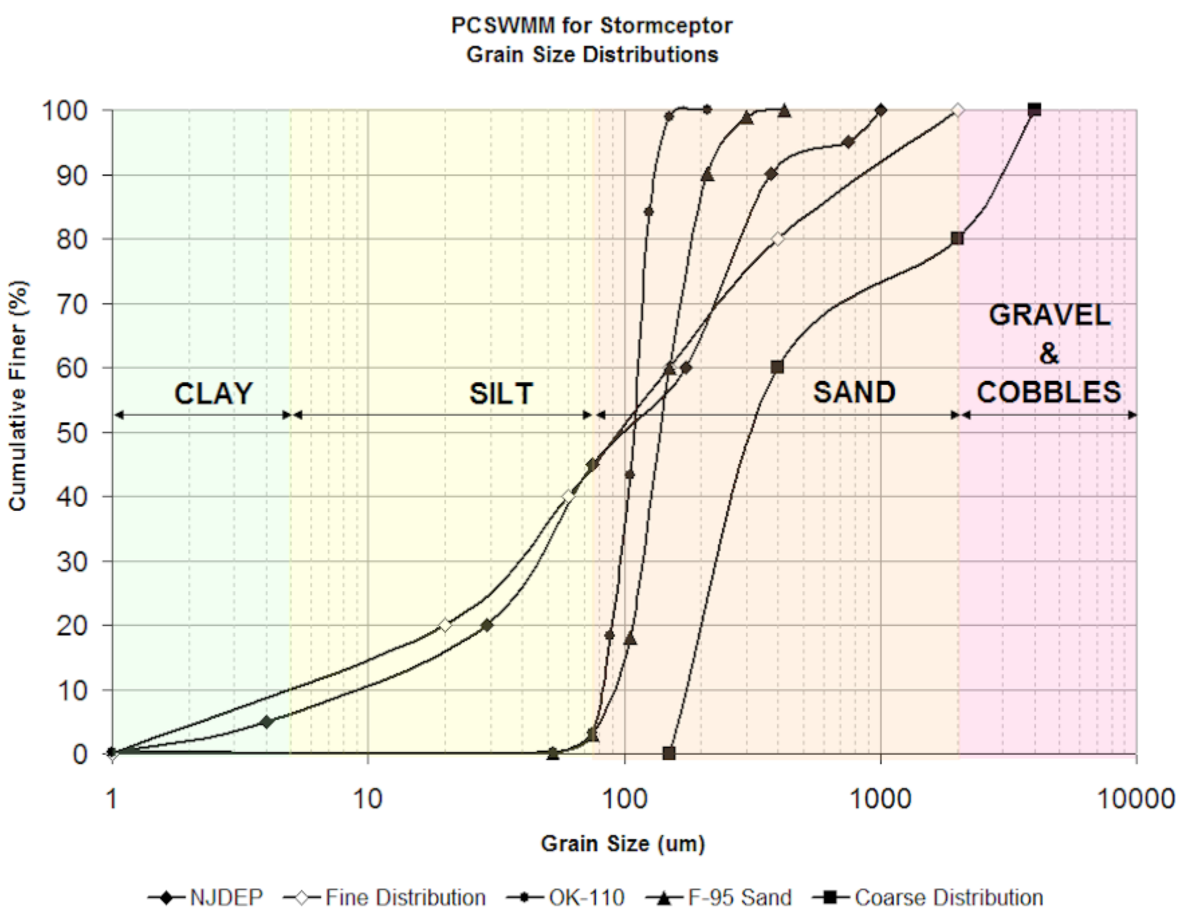


Figure 1. PCSWMM for Stormceptor standard design grain size distributions.

TSS LOADING

TSS Loading Parameters

TSS Loading Function	Buildup / Washoff

Parameters

Target Event Mean Concentration (EMC) (mg/L)	125
Exponential Buildup Power	0.4
Exponential Washoff Exponential	0.2

HYDROLOGY ANALYSIS

PCSWMM for Stormceptor calculates annual hydrology with the US EPA SWMM and local continuous historical rainfall data. Performance calculations of the Stormceptor System are based on the average annual removal of TSS for the selected site parameters. The Stormceptor System is engineered to capture fine particles (silts and sands) by focusing on average annual runoff volume ensuring positive removal efficiency is maintained during all rainfall events, while preventing the opportunity for negative removal efficiency (scour).

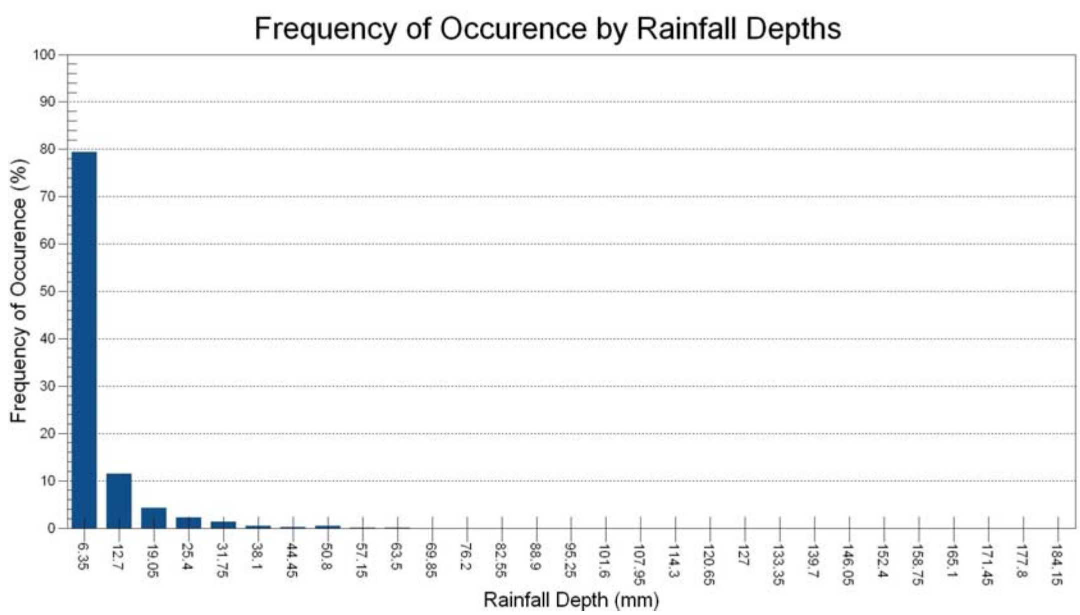
Smaller recurring storms account for the majority of rainfall events and average annual runoff volume, as observed in the historical rainfall data analyses presented in this section.

Rainfall Station

Rainfall Station	TORONTO CENTRAL		
Rainfall File Name	ON100.NDC	Total Number of Events	3020
Latitude	45°30'N	Total Rainfall (mm)	13190.7
Longitude	90°30'W	Average Annual Rainfall (mm)	732.8
Elevation (m)		Total Evaporation (mm)	963.9
Rainfall Period of Record (y)	18	Total Infiltration (mm)	3387.8
Total Rainfall Period (y)	18	Percentage of Rainfall that is Runoff (%)	67.6

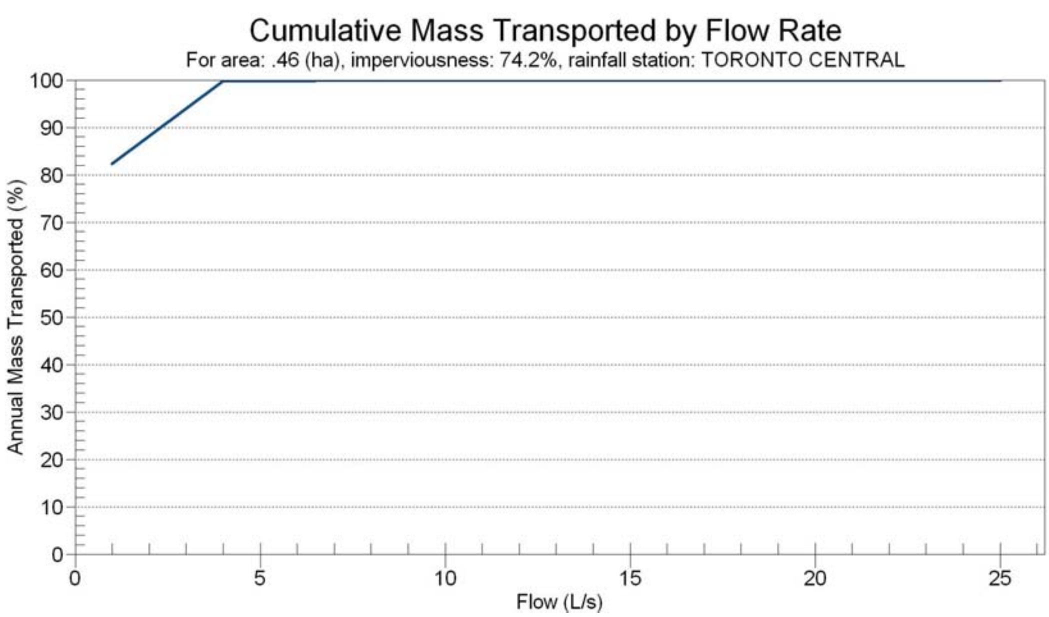
Rainfall Event Analysis

Rainfall Depth mm	No. of Events	Percentage of Total Events %	Total Volume mm	Percentage of Annual Volume %
6.35	2398	79.4	3626	27.5
12.70	346	11.5	3182	24.1
19.05	130	4.3	2037	15.4
25.40	66	2.2	1432	10.9
31.75	38	1.3	1075	8.2
38.10	16	0.5	545	4.1
44.45	7	0.2	292	2.2
50.80	13	0.4	611	4.6
57.15	2	0.1	106	0.8
63.50	2	0.1	121	0.9
69.85	0	0.0	0	0.0
76.20	0	0.0	0	0.0
82.55	1	0.0	79	0.6
88.90	1	0.0	85	0.6
95.25	0	0.0	0	0.0
101.60	0	0.0	0	0.0
107.95	0	0.0	0	0.0
114.30	0	0.0	0	0.0
120.65	0	0.0	0	0.0
127.00	0	0.0	0	0.0
133.35	0	0.0	0	0.0
139.70	0	0.0	0	0.0
146.05	0	0.0	0	0.0
152.40	0	0.0	0	0.0
158.75	0	0.0	0	0.0
165.10	0	0.0	0	0.0
171.45	0	0.0	0	0.0
177.80	0	0.0	0	0.0
184.15	0	0.0	0	0.0
190.50	0	0.0	0	0.0
196.85	0	0.0	0	0.0
203.20	0	0.0	0	0.0
209.55	0	0.0	0	0.0
>209.55	0	0.0	0	0.0



Pollutograph

Flow Rate L/s	Cumulative Mass %
1	82.3
4	99.8
9	100.0
16	100.0
25	100.0
36	100.0
49	100.0
64	100.0
81	100.0
100	100.0
121	100.0
144	100.0
169	100.0
196	100.0
225	100.0
256	100.0
289	100.0
324	100.0
361	100.0
400	100.0
441	100.0
484	100.0
529	100.0
576	100.0
625	100.0
676	100.0
729	100.0
784	100.0
841	100.0
900	100.0



APPENDIX B

SOILS REPORT
BY: BRUCE A. BROWN ASSOCIATES LIMITED

BRUCE A. BROWN ASSOCIATES LIMITED
Consultants in the Environmental and Applied Earth Sciences
101-102Aerodrome Crescent
Toronto, Ontario, Canada M4G 4J4
Tel: (416) 424-3355 Email bruce@brownassociates.ca

Project 19*4458
July 13, 2022

Attn: Mr. Alvaro Di Blasio

1215846 Ontario Ltd.
C.O.B. as Di Blasio Homes
410 – 5975 Whittle Road
Mississauga, ON
L4Z 3N1

Email: alvaro@diblasiocorp.com

Dear Mr. Di Blasio,

Re: Soil Percolation Testing
6620 Rothschild Trail, City of Mississauga, ON

Bruce A. Brown Associates Limited coordinated a percolation testing program in the footprint of a proposed Stormceptor© treatment system, presently situated in the circular driveway of the remaining original residence at the end of this cul-de-sac. The location is shown in the attached detail. A value for soil infiltration is required for engineering design of a stormwater infiltration system for a proposed residential condominium to be constructed on the lands beyond this remaining building to be demolished and in the building location.

A hand excavation 325mm in diameter was advanced to a depth of 910mm on June 27, 2022. It was repeatedly filled with water over the next three days to ensure saturation of surrounding undisturbed sandy silt soils.

On July 1, the hole was again filled to the top and successive measurements of 2.54mm increments were taken from a depth of 100mm downward. The process was repeated twice with the following results:

Interval of Test mm below grade	Time for 25.4mm fall - Test One	Time for 25.4mm fall – Test Two	Percolation Time in minutes/centimeter
100 - 125.4mm	10	22.5	3.9/8.9
125.4-150.8mm	15	29.5	5.9/11.6
150.8-176.6mm	22.5	30.5	8.7/12.0
176.8-202.0mm	33	40	13.0/15.7

Since there is a marked decrease in measured rates with increasing interval depths of measurement in the same hole, consistent with more consolidated soil at depth, the more conservative measurements from greater depth are therefore more appropriate. Likewise, the second set of numbers, with three hours of saturation directly beforehand, is also likely to provide the more valid measurement.

Accordingly, for engineering design purposes, a percolation rate of 16 minutes per centimeter is appropriate.

We trust that this information is sufficient for your present requirements. Should any questions arise, please do not hesitate to call. I am often working remotely and can be found at 416-779-7743. Thank you for this opportunity to once again be of service.

Yours very truly,

BRUCE A. BROWN ASSOCIATES LIMITED

Bruce A. Brown, Ph. D., RPP, P. Eng., QP(ESA)

:

Encl: Location plan detail .

APPENDIX C
FIRE HYDRANT FLOW TEST RESULTS
BY: APPLIED FIRE

5-200 Connie Cres. Concord ON L4K 1M1 Phone 416-883-9777 Fax 905-303-6977

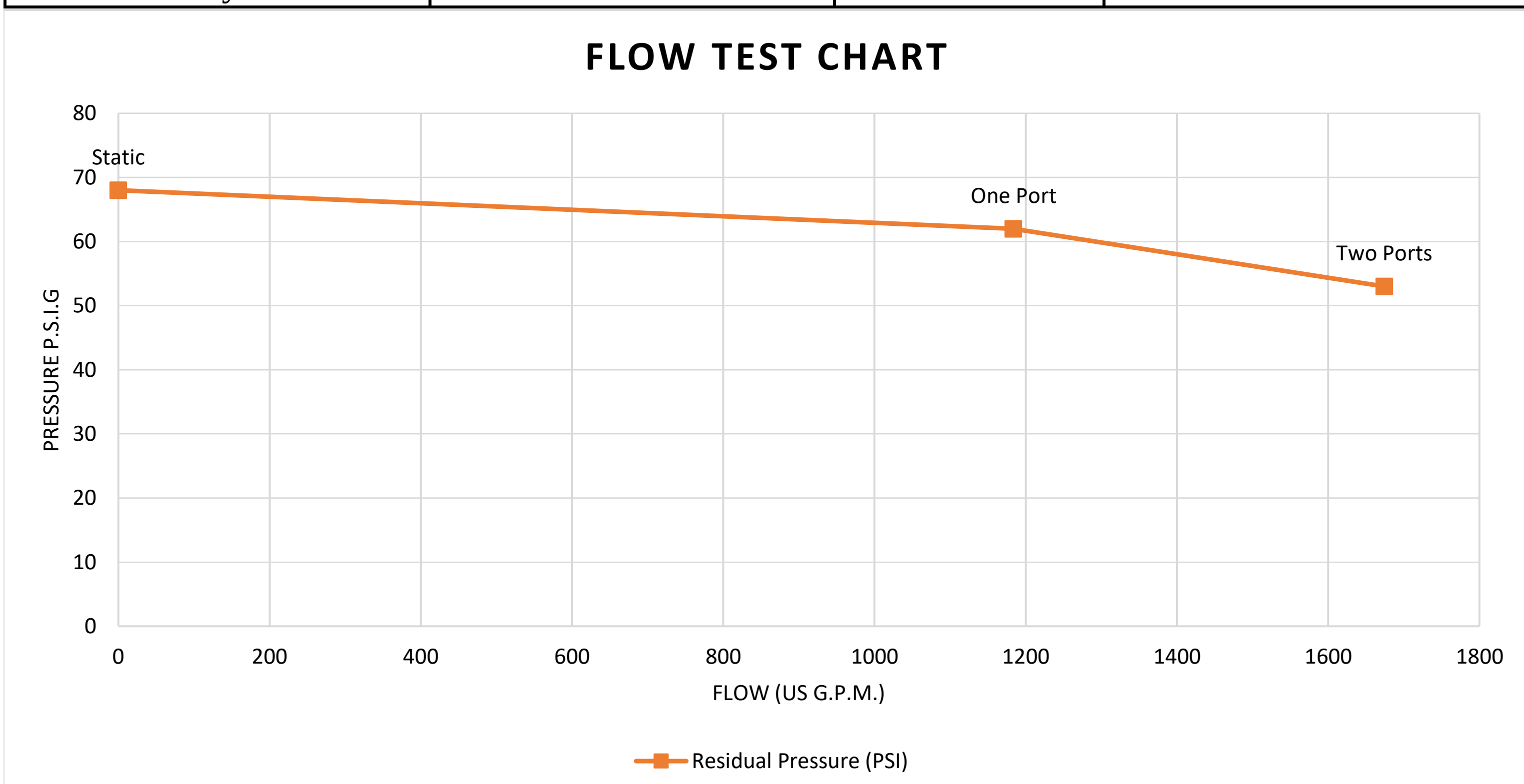
FLOW TEST REPORT

Location of Residual Hydrant : 6624 Rothschild Trail, Mississauga

Location of Flow Hydrant : 6616 Rothschild Trail, Mississauga

Time of Test : 8:50 AM Watermain Size : 200 mm Static Pressure : 68 PSI

Number of Outlets	Pitot Pressure (PSI)	Flow (US G.P.M.)	Residual Pressure (PSI)
Static Pressure (Zero Port)	0	0	68
One 2½" Hydrant Port	50	1184	62
Two 2½" Hydrant Port	25	1674	53



Project Location: 6624 Rothschild Trail, Mississauga Date: 22-Aug-24

Company Name: Expo-Contracting Ltd Aquazition Employee: Herb Kewley