

Functional Servicing & Stormwater Management Report

Proposed Mixed-Use Development
2451-2495 Danforth Avenue,
Toronto, Ontario

Prepared for:
First Capital REIT

<i>Rev. No.</i>	<i>Date</i>	<i>Description</i>
0	November 11, 2024	Issued for Official Plan Amendment and Rezoning (ZBA) Application
1	September 10, 2025	Rev. per City comments; Re-issued for Official Plan Amendment and Rezoning (ZBA) Application

Project No.: 22-010

Executive Summary

Prospective Development Site

- The subject Site is located in the *Toronto & East York* District of Toronto, Ontario.
- The site's area is approximately 0.77 Ha and presently comprises a one-storey grocery store building with paved asphalt parking lot areas.
- The Owner is proposing to develop the Site as a mixed-use development comprising one tower and one midrise building, sharing a common podium.

Watermains & Water Servicing

- There are existing 150mm-dia. And 300mm-dia. Watermains within Danforth Ave., adjacent to the site's frontage.
- It has been determined that the existing 150mm watermain is sufficient to service the development and domestic/fire service connections are proposed to that main.

Sanitary Servicing & Combined Sewers

- There are existing parallel 300mm-dia. and 450mm-dia. combined sewers within Danforth Ave., adjacent to the Site's frontage.
- The Site is preliminarily serviceable to the combined sewers in the adjacent municipal R.O.W.
- Sanitary sewer connections are proposed to connect to the existing 300mm combined sewer.
- Combined sewer capacity & Procedure F-5-5 are addressed acceptably in the development of the site.

Storm Servicing, Storm Sewers & Stormwater Management

- There are no separated storm sewers within the municipal R.O.W. adjacent to the Site.
- It is proposed to service the Development to the existing combined sewers, to which the subject site presently (pre-development) drains.
- Stormwater management quality, quantity and retention criteria are satisfied.

Foundation Drainage & Groundwater

- The proposed building will be constructed in a watertight manner, without drained foundations.

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1. Introduction & Background

a. Introduction

civilGo Engineering Inc. was retained by First Capital REIT on behalf of FCHT Holdings (Ontario) Corporation, to prepare a **Functional Servicing and Stormwater Management Report** for submission to the City of Toronto in support of an Official Plan Amendment and Zoning Bylaw Amendment Submission. The proposed Development for which the Submission is being made comprises two Buildings (A & B) within the subject lands, 2451-2495 Danforth Avenue, in Toronto, Ontario. The following report has accordingly been prepared to provide discussion and engineering analysis pertaining to the site servicing, grading and stormwater management for the proposed Development.

b. Subject Lands Description

The subject Site has municipal addresses 2451-2495 Danforth Avenue, Toronto, Ontario and postal code M4C 1L1. The Site's area is 0.77 Ha.

Presently, site comprises an existing one-storey commercial building ('Sobeys' food store), which occupies approximately the middle of the site, as well as adjacent ground-level asphalt parking lots. Refer to the *Existing Site Summary Figure* on the following page for the existing subject lands and adjacent infrastructure.

The site is bounded by Danforth Avenue to the north, Westlake Avenue to the west, detached houses to the south and existing commercial buildings to the east.

c. Proposed Development Description

It is proposed to demolish the existing one-storey commercial building ('Sobeys' food store) and adjacent ground-level asphalt parking lots. It is proposed to construct in their place a Development comprising two mixed-use Buildings (A & B), Building A comprising 29-storeys and Building B comprising 13-storeys, sharing a two-storey podium. The Development will comprise a two-level below-grade parking structure. A 0.0354 Ha P.O.P.S. (Privately-Owned Public Space) is proposed at the Site's eastern area.

Refer to the architectural Site Plan and Statistics by Superkül Architects in Appendix A for the proposed Development layout and specifics as referenced herein.

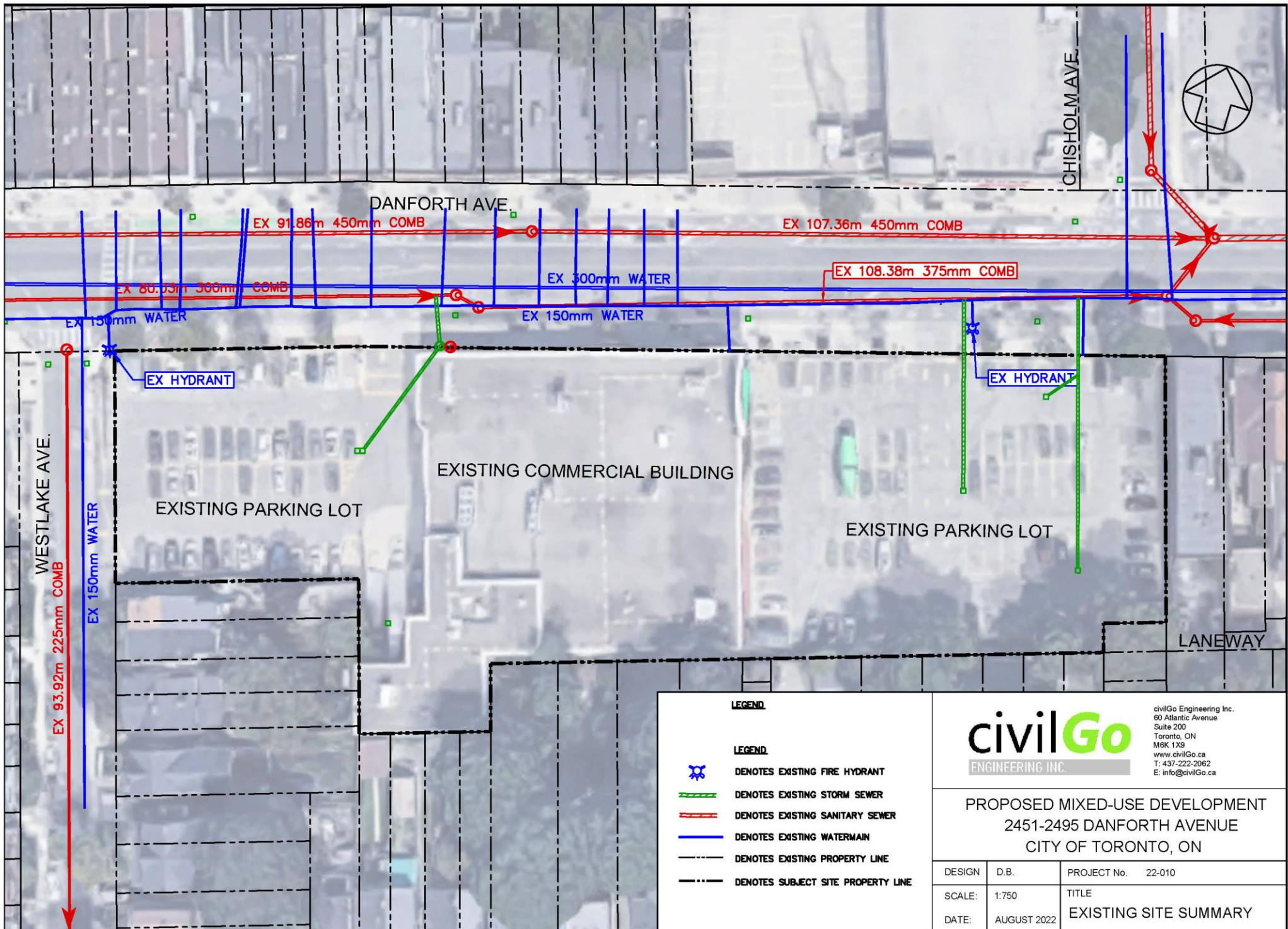
d. Report Scope and Terms of Reference

The scope of this Report is outlined below. The scope has been reviewed for compliance with the Terms of Reference for both Servicing Reports and Stormwater Management Reports as given in the City of Toronto's Website *Application Support Material: Terms of Reference*.

This report has, further, been prepared in accordance with the Terms of Reference given by the City of Toronto's *Design Criteria for Sewers and Watermains* (January 2021) as well as the City of Toronto's *Wet Weather Flow Management Guidelines* (November 2006).

The scope of this report, in general, comprises the following.

- Obtaining the most recent engineering records (Plan & Profile Drawings) as well as Digital Mapping Owners' Group (DMOG) drawing from the City of Toronto.
- Providing support to the Owner in undertaking a Subsurface Utility Engineering (SUE) Investigation to verify existing infrastructure.
- Reviewing all background information pertaining to existing water infrastructure, topography and related characteristics of the subject Lands.
- Evaluating the capacity of existing sewer and water mains to support the proposed Development of the subject Site.
- Provide stormwater management analysis and designs whereby the stormwater quality and quantity objectives given by the *Wet Weather Flow Management Guidelines* are addressed.



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PROPOSED MIXED-USE DEVELOPMENT 2451-2495 DANFORTH AVENUE CITY OF TORONTO, ON			
DESIGN	D.B.	PROJECT No.	22-010
SCALE:	1:750	TITLE	EXISTING SITE SUMMARY
DATE:	AUGUST 2022		

2. Watermains & Water Servicing

a. Water Servicing Criteria

The City of Toronto's site servicing policy typically requires all buildings/podiums/towers on a development to have separate respective water service connections to the street to which that component of the development fronts.

Design criteria pertaining to water servicing is given in Chapter 4 of the City of Toronto's *Design Criteria for Sewers and Watermains* (January 2021). The criteria that are observed herein is as follows.

- Per-capita average domestic water demand (multi-unit development): 190 L/cap/day
- Peaking Factors:
 - Peak Hour: 2.50 x average day demand
 - Maximum Day: 1.30 x average day demand
- Fire Flow Demand: is given by the calculation as per the manual *Water Supply for Public Fire Protection* by the *Fire Underwriters' Survey* (1999).
- Minimum residual pressure in maximum demand scenario (Fire Flow Demand + Max. Day) is 140 kPa.

Combined domestic water and fire service connections are to be installed as per City-standard drawings, including T-1104.02-3.

b. Existing Water Mains

The existing Streets adjacent to the Site are presently understood to comprise the following watermains, adjacent to the Site's frontage.

- Danforth Avenue: 150mm watermain (within the south side of the R.O.W., south of the following 300mm watermain).
- Danforth Avenue: 300mm watermain (within the south side of the R.O.W., north of the above 150mm watermain).
- Westlake Avenue: 150mm watermain (within the east side of the R.O.W.).

There are two existing Fire Hydrants at the Site's frontage to Danforth Avenue, both connected to the 150mm watermain.

A hydrant flow test was conducted on the 150mm watermain and the test report is provided in the following pages. The testing was completed in accordance with *NFPA 291: Recommended practice for Fire Flow Testing and Marking of Hydrants*.

c. Proposed Water Servicing

It is proposed to service each of the two buildings (Building A and Building B) with separate respective domestic water service connections and fire service connections. Each of Building A and Building B is proposed to be serviced by a 200mm fire service connection with branch 150mm domestic water connection. Building A, which is greater-than 84m in height, additionally has a second 200mm fire service connection to the second watermain within Danforth Ave., in accordance with OBC 3.2.9.7. (4). The Commercial Component in the Podium, further, will have a separate respective 100mm-dia. domestic water connection. Refer to the Functional Servicing Plan for proposed domestic water and fire service connections.

d. Water Demand & Existing System Adequacy

The domestic water demand (using average-day, peak-hour and max.-day peaking factors) as well as fire flow demand, are summarized as follows.

It is evident, as per the below hydrant flow test reports, that the available flow at the minimum residual pressure of 140 kPa in the Danforth Ave. watermain is **3056 USGM**, which is greater than the maximum demand, **2423.4 USGM** (Fire Flow + Max. Day Demand), therefore the existing Danforth Ave. 150mm watermain is sufficient to service the proposed Development. No watermain infrastructure improvements are required.

Table 1 - Water Demand Summary

	Average Day Demand (ADD) (Pop'n* x 190 L/c/d)	Max. Day Demand (MDD) (1.3x ADD)	Peak Hour Demand (PHD) (2.5xADD)	Fire Flow Demand	Required Water Demand (Fire Flow Demand + MDD)
Prop Building A	1.45 L/s 22.98 USGM	1.88 L/s 29.80 USGM	3.62 L/s 57.38 USGM		
Prop Building B	0.93 L/s 14.74 USGM	1.20 L/s 19.02 USGM	2.32 L/s 36.77 USGM		
Prop Commercial Building	0.08 L/s 1.27 USGM	0.10 L/s 1.43 USGM	0.19 L/s 2.85 USGM		
Total	2.45 L/s 39.00 USGM	3.18 L/s 50.40 USGM	6.13 L/s 97.16 USGM	150.0 L/s 2373.0 USGM	153.2 L/s 2423.4 USGM

**Population is given in Table 2, below*

The fire flow demand calculation is provided on the following page. The following assumptions were made in the Fire Flow Demand calculation.

- The proposed buildings are of reinforced concrete construction.
- The proposed buildings will be sprinklered and the sprinklers will be fully monitored according to NFPA 13.
- The proposed buildings' contents (residences and retail) will be non-combustible in nature.
- Proposed building floor areas are as given in the architectural statistics in Appendix A

Domestic Water Demand Flow Calculation Sheet

Project: 2451-2495 Danforth Avenue, Toronto, ON - Proposed Mixed-use Development

Project No.: 22-010

Date: Oct 2024 Rev. Sept 2025

By: MP



Development Component	Proposed Residential Water Flows					Prop. Non-Residential Water Flows			Total Proposed Population	Total Flows		
	1 BR + Studio Unit	2BR Unit	3BR Unit	4BR Unit	Total Residential Population	Instit'l Floor Area GFA	Commercial/Retail Floor Area GFA	Non-Residential Population		Average Day Demand (ADD)	Max. Day Demand (MDD) (1.3ADD)	Peak Hour Demand (PHD) (2.5ADD)
	(Units)	(Units)	(Units)	(Units)	(Persons)	(m ²)	(m ²)	(Persons)		(L/s)	(L/s)	(L/s)
Prop Apt Bldg A	248	95	36	0	658		0.0	0.0	658	1.45	1.88	3.62
Prop Apt Bldg B	159	56	25	1	421		0.0	0.0	421	0.93	1.20	2.32
Prop Comm'l	0	0	0	0	0		3219.5	35.4	35	0.08	0.10	0.19

Reference Sanitary Flows as per *Design Criteria for Sewers and Watermains* (City of Toronto, January 2021)

Residential Unit Population:

1BR = 1.4 person/unit

2BR = 2.1 person/unit

3BR = 3.1 person/unit

4BR = 3.7 person/unit

Non-Residential Unit Population:

Office = 3.3 person/100m² GFA

Commercial/Retail = 1.1 person/100m² GFA

Institutional = GFA(m²) x 1 bed/30m² x 1 person/bed

Unit Water Demand = 190 L/cap/day

Fire Flow Demand Calculation

as per Water Supply for Public Fire Protection, 2020 (Fire Underwriters' Survey)

Project:	2451-2945 Danforth Avenue, Toronto, ON
Project No.:	22-010
Date:	Rev Sept. 2025

$$RFF = 220C\sqrt{A}$$

Where:

RFF = the Required Fire Flow in litres per minutes (LPM)
C = the Construction Coefficient is related to the type of construction of the building
A = the Total Effective Floor Area (effective building area) in square metres of the building

Fire Flow is given by the following calculation:

Step A:	Type of Construction Factor, 'C' = 0.6 Type V - Wood Frame Construction 1.5 Type IV-A - Mass Timber Construction 0.8 Type IV-B - Mass Timber Construction 0.9 Type IV-C - Mass Timber Construction 1.0 Type IV-D - Mass Timber Construction 1.5 Type III - Ordinary Construction: 1.0 Type II - Non-Combustible Construction: 0.8 Type I - Fire Resistive Construction: 0.6	Step B:	Building Area, 'A' = 1 3987.9 m ² 2 1479 m ² 3 2700.8 m ² 4 2701.8 m ² 5 2650.1 m ² 6 2650.1 m ² 7 2650.1 m ² 8 2650.1 m ² 9 2266.1 m ² 10 2266.1 m ² 'A' = 15734.5 m²
Step C:	RFF = 220C√A = 16558 L/Min RFF = 17000 L/Min (Rounded) RFF = 4491 USGPM		

Are Vertical Openings &
Exterior Vertical Connections
Adequately Protected?:

Yes/No: Yes

Step D:	Occupancy Hazard Reduction = -15 % F reduction = -15% x 17000 L/min = -2550 L/min Therefore, F = 14450 L/min	Where % Reduction = Non-Combustible -25% Limited Combustible -15% Combustible 0% Free Burning +15% Rapid Burning +25%
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Step E:	Complete Automatic Sprinkler Protection Deduction = 50 %, Where: Credit for adequately designed system conforming to NFPA 13: 30% Reduction Credit for Standard Water Supply: 10% Reduction Credit for Fully Supervised System: 10% Reduction F reduction = 50% x 14450 L/min = 7225 L/min
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Step F:	Exposure Charge: <table border="1"> <thead> <tr> <th></th> <th>Exposure Distance:</th> <th>Exposure Length (m)</th> <th>Exp Height (Storey's)</th> <th>Length-Ht-Factor*</th> <th>Exposure Charge**:</th> </tr> </thead> <tbody> <tr> <td>Exposure to North</td> <td>27.1 m</td> <td>151.3</td> <td>2</td> <td>302.6</td> <td>5%</td> </tr> <tr> <td>Exposure to East</td> <td>11.1 m</td> <td>31.1</td> <td>2</td> <td>62.2</td> <td>3%</td> </tr> <tr> <td>Exposure to South</td> <td>14.8 m</td> <td>151.3</td> <td>2.5</td> <td>378.25</td> <td>5%</td> </tr> <tr> <td>Exposure to West</td> <td>20.4 m</td> <td>22.9</td> <td>2</td> <td>45.8</td> <td>2%</td> </tr> <tr> <td colspan="5">Total Exposure Charge =</td> <td>15%</td> </tr> </tbody> </table> <p>* Length-Ht-Factor = Length of Exposed Bldg Face(m) x Height(Storeys) ** Exposure Charge as per Table 6 of FUS Manual *** 2-Hour Fire Wall to be provided, therefore no Exposure Charge is added (FUS page 23) F increase = 15% x 14450 L/min = 2168 L/min </p>		Exposure Distance:	Exposure Length (m)	Exp Height (Storey's)	Length-Ht-Factor*	Exposure Charge**:	Exposure to North	27.1 m	151.3	2	302.6	5%	Exposure to East	11.1 m	31.1	2	62.2	3%	Exposure to South	14.8 m	151.3	2.5	378.25	5%	Exposure to West	20.4 m	22.9	2	45.8	2%	Total Exposure Charge =					15%
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Step G:	F = F (Step D) minus F reduction (Step E) plus F increase (Step F) F = 14450 L/min minus 7225 L/min plus 2168 L/min F = 9393 L/min F = 9000 L/min (Rounded to nearest 1,000 L/min) F = 150.0 L/s F = 2378 USGPM
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GENERAL INFORMATION:

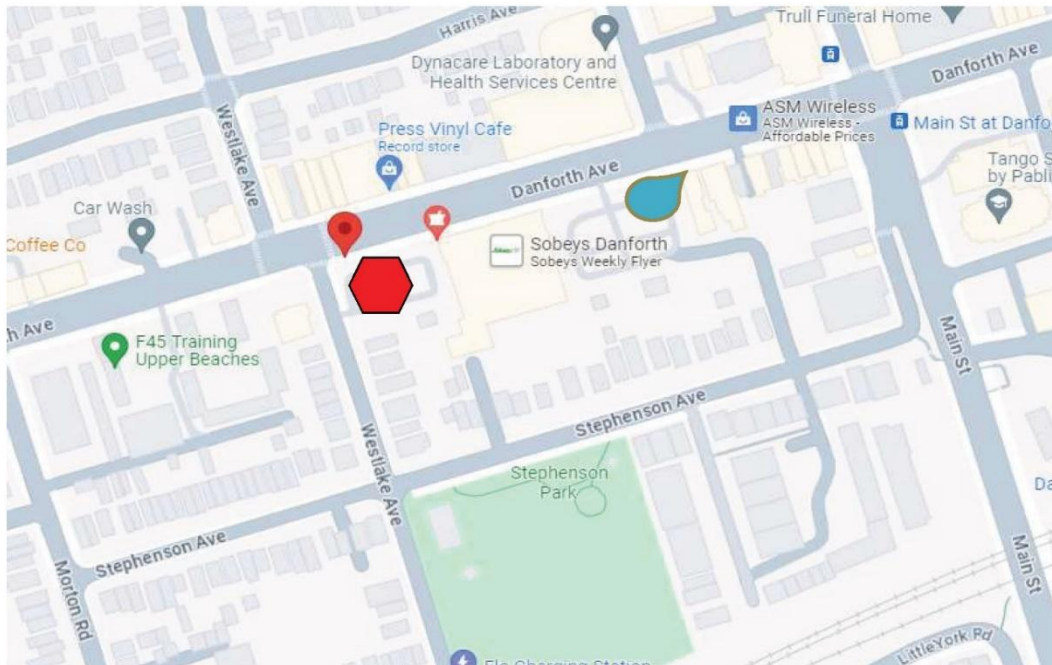
PROJECT ID	2451 Danforth Ave
PROJECT NAME	Daniel Bancroft
BUILDING ADDRESS	2451 Danforth Ave Toronto, Ontario

TESTED BY	AA
DATE	2024-04-24
TIME	12:30:00 PM

WATER MAIN INFORMATION:

MAIN SIZE / MATERIAL	
CONFIGURATION	Looped

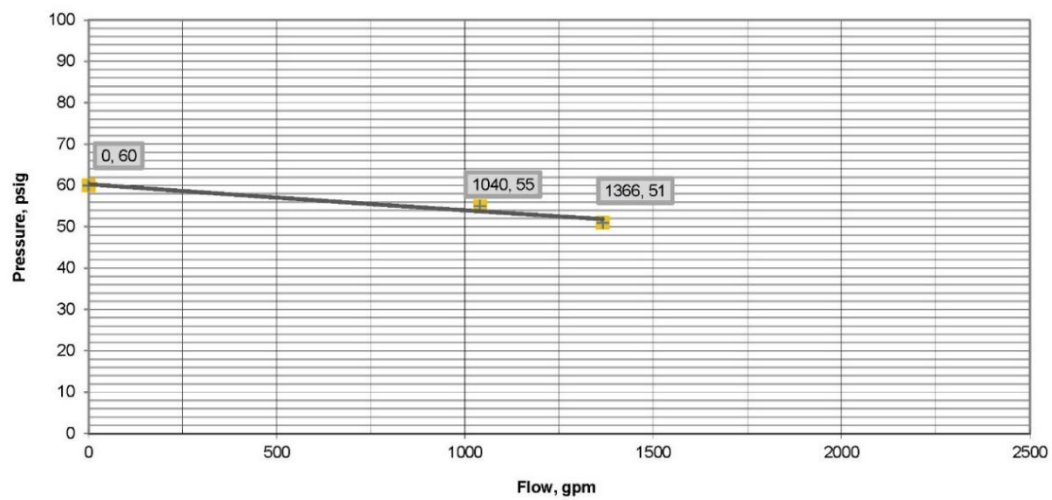
HYDRANT LOCATION:



LEGEND:  STATIC HYDRANT  RESIDUAL HYDRANT

FINAL RESULTS:

Test #	Number of Outlets	Orifice Size (in)	Pitot Reading (psig)	Equivlnt Flow (usgpm)	Total Flow (usgpm)	Projected flow at 20psi (usgpm)	Gau ge Pres sure (psi)	Discharge Coefnt
Static	N/A	N/A	N/A	N/A	0	N/A	60	N/A
1	1	2.47	51	1040	1040	3196	55	0.8
2	2	2.47	22	683	1366	3056	51	0.8



superkül

MEMO

Subject: FUS Calculations

Project Name: 2451-2495 Danforth

Date: October 24, 2024

Project Number: 2216

416 596 0700

For the purposes of an Official Plan and Zoning By-law Amendment, to meet the fire flow test requirements the proposed buildings are expected to be fully sprinklered and assume the following:

- *All buildings shall be constructed as Type I Fire Resistive Construction with all structural elements, walls, arches, floors, and roofs constructed with a minimum 2-hour fire resistance rating, and all materials used in the construction of the structural elements, walls, arches, floors, and roofs are constructed with non-combustible materials;*
- *The major occupancy of the development will be Group C;*
- *The building will conform to Part 3 of the OBC;*
- *Automatic sprinkler protection throughout the building conforming to the NFPA 13 Standards for Installation of Sprinkler Systems.*

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Construction types are subject to change as the project is further developed.

Sincerely,



Andre D'Elia, OAA, FRAIC
Partner | Superkül

101-35 Golden Avenue, Toronto ON, Canada M6R 2J5



A MEMBER OF  BPA

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TORONTO, ON CANADA M5H 3T4
TMP@TMPTORONTO.COM
P: 416-499-8000

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March 11, 2025

Attention: Chief Engineer and Executive Director, Engineering and Construction Services
c/o Manager, Development Engineering

cc: General Manager, Toronto Water
c/o Manager, Environmental Monitoring and Protection Unit
30 Dee Ave, Toronto ON M9N 1S9

RE: 2451-2494 DANFORTH AVENUE
OUR FILE NO. 24-1084-000

Dear Sir or Madam,

This letter is to confirm that the building noted above will be provided with a fully supervised sprinkler system designed in accordance with NFPA 13 and other relevant standards.

The proposed development will be fed with a standard water supply. Based on our experience and height of the buildings, a fire pump would be required for a building of this height in any fire flow test scenario, and we see no concerns with selecting a fire pump to achieve the required flows and pressures required for this building.

We trust this addresses your concerns and do not hesitate to contact us if there is any further questions.

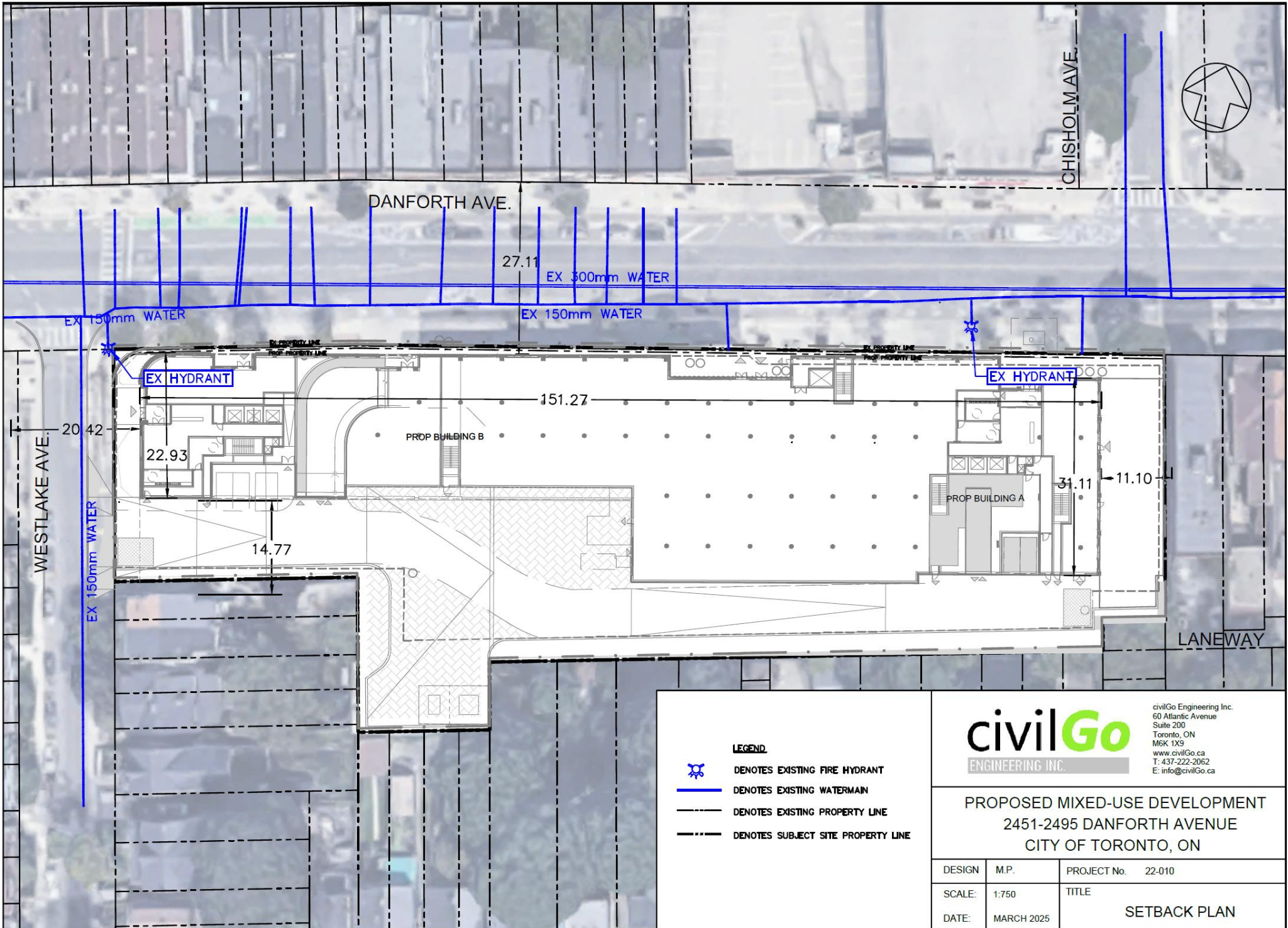
Yours very truly,

THE MITCHELL PARTNERSHIP INC.



Steve Orchard, P.Eng
Partner





3. Sanitary & Combined Sewers

a. Criteria & Terms of Reference

The City of Toronto's site servicing policy typically requires all buildings/podiums/towers on a development to have separate respective sanitary service connections to a municipal sewer in the street to which that component of the development fronts.

Sanitary servicing criteria is given in Chapter 2 of the City of Toronto's *Design Criteria for Sewers and Watermains* manual (January 2021). The following sanitary sewage flow-calculation criteria are applied in this report as given in the City's manual.

- Per-capita average sanitary sewage flow: 450 L/cap/day (for the design of new sewers & sewer connections)
- Per-capita average sanitary sewage flow, for the analysis of existing sewer systems:
 - Residential population: 240 L/cap/day
 - Non-Residential population: 250 L/cap/day
- Unit population (Residential) – Bachelor & 1-B Units = 1.4 person/unit; 2-B Units = 2.1 person/unit; 3-B Units = 3.1 person/unit; 4-B Units = 3.7 person/unit; single-family = 3.5 person/unit; townhouse = 2.7 person/unit.
- Unit population (Non-residential) – Office = 3.3 person/100m² GFA; Commercial/Retail = 1.1 person/100m² GFA
- Inflow & Infiltration Flows (I&I) Originating from Subject Site = 0.26 L/s/Ha
- Peaking Factor – given by Harman Equation

Where a development project is in an area serviced by Combined sewers (rather than separated sanitary sewers) – design criteria is given by the foregoing City manual and the Province of Ontario's *Procedure F-5-5 – Determination of Treatment Requirements for Municipal and Private Combined Sewers*. These criteria generally require development projects in such sewer sheds not to compound or increase the risk of Combined Sewer Overflow events by a proposed development.

b. Existing Sanitary & Combined Sewers

There are no separated sanitary sewer mains in the area of the subject site.

The existing Streets adjacent to the Site are presently understood to comprise the following combined sewers, adjacent to the Site's frontage. Refer to the Functional Servicing Plan.

- Within Danforth Avenue, beneath the south side of the street, there is a 300mm-diameter (increasing to 375mm-diameter) vitrified pipe combined sewer flowing easterly. This sewer outlets into a 700mm x 1050mm combined sewer, discussed below.
- Within Danforth Avenue, beneath the north side of the street, there is a 450mm-diameter vitrified pipe combined sewer flowing easterly. This sewer outlets into the same 700mm x 1050mm combined sewer, discussed below.
- Within Danforth Avenue, near the site's northeast corner, a 700mm x 1050mm brick combined sewer commences and flows easterly. Both of the foregoing sewer's discharge into this sewer.

- Within Westlake Avenue, adjacent to the site's west frontage, there is a 225mm-diameter combined sewer which flows southerly.

c. Basement Flooding Environmental Assessment (BFEA) – Combined Sewers Discussion

The City of Toronto has undertaken a *Basement Flooding Protection Program* to help reduce the risk of flooding by making improvements to the sewer system and overland drainage routes. The intent and scope of the program is to undertake analysis of the City's drainage systems (municipal storm, sanitary and combined sewers) in order to identify system deficiencies and thereby recommend infrastructure improvements.

The program divides the City into 67 different Study Areas for which Basement Flooding Environmental Assessments (EA) have been or will be individually undertaken. Many of the study areas have been completed presently as given in the City of Toronto's *Basement Flooding Protection Program Map*.

The City's criteria typically requires Functional Servicing Reports prepared in support of Development applications to review and address the conclusions and recommendations of the Basement Flooding EA, where complete, with respect to the proposed Development's drainage.

The subject proposed Development of 2451-2495 Danforth Avenue falls within BFEA Study Area 32, which is complete. The completed EA Report is titled *Investigation of Chronic Basement Flooding (Eastern Beaches Area 32)* by Genivar and dated May 2012.

The following comments are provided with respect to the conclusions of the EA Report, pertaining to combined sewers and sanitary drainage. Refer to Section 4., below, for comments pertaining to storm sewers.

- The EA Report identifies the performance of the combined sewer system in the various design storm events. The Report shows that the combined sewer system presently operates acceptably and does not recommend improvements to the combined sewers adjacent to the site.
- Figure 6.6.a., *2-Year Design Storm Combined and Sanitary Sewer System*, in the EA Report shows that the combined sewer segments adjacent to the site's frontages are flowing with no surcharge in the pipes (with one exception) (in the 2-year storm) and that the freeboard (or depth from grade to surcharge water elevation) is greater than 1.8m below-grade in all Combined Sewer Maintenance Holes adjacent to the Site's frontage.
- Figure 9.1, *Preferred Solutions, Cluster 1*, in the EA Report does not recommend any improvements within the combined or storm sewers near the subject Site.

Given the above discussion, no sanitary/combined sewer infrastructure improvements are required as part of this development on account of the Basement Flooding EA's recommendations.

d. Proposed Sanitary Servicing & Sanitary Flows

It is proposed to service each of the two proposed Buildings (Building A and Building B) and the Commercial Podium with a separate respective 200mm sanitary sewer connection to the existing combined sewer within Danforth Avenue. Refer to the Functional Servicing Plan for the proposed services.

The proposed Development's sanitary flows are summarized as follows. Detailed sanitary flow calculations are provided on the following page.

Table 2 - Proposed Sanitary Flows Summary

	Total Proposed Population	Residential Sanitary Flows	Non-Residential Sanitary Flows	Inflow & Infiltration (I&I) Flows	Total Proposed Sanitary Flows
Prop Building A	658	13.4 L/s	-	0.061 Ha	13.47 L/s
Prop Building B	421	8.80 L/s	-	0.124 Ha	8.84 L/s
Prop Commercial	35	-	0.8 L/s	0.585 Ha	0.95 L/s
Total	1117	22.3 L/s	0.8 L/s	0.770 Ha	23.21 L/s

The proposed sanitary flows as outlined above will discharge into municipal sewers by three 200mm @ 2.0% sanitary service connections. Each of the Buildings (A & B) and the Podium has separate proposed sanitary connections to the existing combined sewer within Danforth Avenue. Each of the three sanitary sewer connections has a capacity of 46 L/s, which is greater than the sanitary flows from each component of the development as above, therefore the proposed sanitary sewer connections are adequately designed.

Proposed Sanitary Flows Calculation Sheet (Using 450 L/c/d)

Project: 2451-2495 Danforth Avenue, Toronto, ON - Proposed Mixed-Use Development
Project No.: 22-010
Date: Oct 2024 Rev. Sept 2025
By: MP

Development Component	Proposed Residential Sanitary Flows							Proposed Non-Residential Sanitary Flows					Prop. I&I Flows & Groundwater			Peak Sanitary Flows
	1 BR Unit + Studio	2BR Unit	3BR Unit	4BR Unit	Residential Population	Peaking Factor	Peak Residential Sanitary Flow	Inst'l Floor Area GFA	Commercial/Retail Floor Area GFA	Non-Residential Population	Peaking Factor	Peak Non-Residential Sanitary Flow	Inflow & Infiltration Area	Site I&I Flow	Groundwater Flows	
	(Units)	(Units)	(Units)	(Units)	(Persons)	M	(L/s)	(m²)	(m²)	(Persons)	M	(L/s)	(Ha)	(L/s)	(L/s)	
Prop Bldg A	248	95	36	0	658	3.9	13.4						0.061	0.02	0.0	13.42
Prop Bldg B	159	56	25	1	421	4.0	8.80						0.124	0.03	0.0	8.84
Total of Prop Bldg (A+B)	407	151	61	1	1080	7.9	22.2	0.0	0.0	0.0	4.5	0.0	0.185	0.05	0.0	22.26
Prop Comm'l	0	0	0	0	0	4.5	0.0	0.0	3219.5	35.4	4.3	0.8	0.585	0.15	0.0	0.95
Total (Prop Bldg A + Prop Bldg B + Prop Comm'l)													0.770			23.21

Reference Sanitary Flows as per *Design Criteria for Sewers and Watermains* (City of Toronto, January 2021)

Residential Unit Population:

1BR = 1.4 person/unit
2BR = 2.1 person/unit
3BR = 3.1 person/unit
4BR = 3.7 person/unit

Non-Residential Unit Population:

Office = 3.3 person/100m² GFA
Commercial/Retail = 1.1 person/100m² GFA
Institutional = GFA(m²) x 1 bed/30m² x 1 person/bed

Unit I&I Flow = 0.26 L/s/Ha

Unit Sanitary Flow = 450 L/c/d (for design of new sewers)

Peaking Factor, M = $1 + 14/(4 + P/1000)^2$

Peak Sanitary Flow, Q(D) (L/s) = $P * Q * M / 86,400$

e. Receiving Combined Sewer Capacity & F-5-5 Compliance

It is demonstrated as follows that the existing municipal combined sewers, to which it is proposed to connect the development, will be operating under the reduced conditions pre-development as in post-development conditions. There will therefore be no adverse impacts on the capacity of the municipal combined sewer by the proposed development. The development is, further, in compliance with the Province of Ontario's *Procedure F-5-5*.

The pre-development and post-development flows which drain to the combined sewer are summarized in the following table.

Existing sewer outlets and sewer connections were identified in a Dye Test and CCTV Investigation, which is provided here in Appendix B. The dye test investigation informed the *Pre-Development Drainage Plan*, which is provided on the following page.

It is shown as follows that there is a reduction of 60.1 L/s in flows draining to the combined sewers from the Pre-Development Scenario to the Post-Development Scenario. No combined sewer infrastructure improvements are therefore required to accommodate the proposed development.

Table 3 - Comparison of Flows Draining into Combined Sewer, Pre-Development to Post-Development

	Sanitary Flow (DWF) (@ 240 L/c/d)*	Storm Flow (WWF) (2-Year Storm)**	Groundwater Flows	Total Flows Draining into Combined Sewer
Pre-Development Scenario	1.21L/s (Existing Building)	Ex-A + Ex-B + Ex-C + Ex-D+ Ex-E = 2.78CiA =2.78*0.88*88.2*0.77 =166.14 L/s	-	167.35 L/s
Post-Development Scenario	23.21 L/s*	84 L/s**	-	107.21 L/s
Change from Pre-Development to Post-Development	+22.00 L/s	-82.14L/s	-	-60.14 L/s

*As per Table 2, above.

**Storm flows are calculated using the Rational Method formula ($Q_{2-y}=2.78CiA$), where the catchment area is given on the Pre-Development Drainage Plan, in reference to the Dye Test Investigation (Appendix B)

Existing Sanitary Flows Calculation Sheet (Using 240 L/c/d & 250 L/c/d)

Project: 2451-2495 Danforth Avenue, Toronto, ON - Proposed Mixed-Use Development
Project No.: 22-010
Date: Oct 2024
By: MP



Development Component	Residential Sanitary Flows						Non-Residential Sanitary Flows					I&I Flows & Groundwater			Peak Sanitary Flows
	1 BR Unit + Studio	2BR Unit	DTH House	Residential Population	Peaking Factor	Peak Residential Sanitary Flow	Ind'l Floor Area GFA	Commercial / Retail Floor Area GFA	Non-Residential Population	Peaking Factor	Peak Non-Residential Sanitary Flow	Inflow & Infiltration Area	Segment I&I Flow	Groundwater Flows	
	(Units)	(Units)	(Units)	(Persons)	M	(L/s)	(m²)	(m²)	(Persons)	M	(L/s)	(Ha)	(L/s)	(L/s)	(L/s)
Ex. Bldg	0	0	0	0	4.5	0.0	0.0	2483.5	82.0	4.3	1.01	0.772	0.20	0.0	1.21

Reference Sanitary Flows as per *Design Criteria for Sewers and Watermains* (City of Toronto, January 2021)

Residential Unit Population:

1BR = 1.4 person/unit
2BR = 2.1 person/unit
3BR = 3.1 person/unit
DTH = 3.5 person/unit

Non-Residential Unit Population:

Office = 3.3 person/100m² GFA
Commercial/Retail = 1.1 person/100m² GFA
Institutional = GFA(m²) x 1 bed/30m² x 1 person/bed
Industrial = GFA (m²) x 0.0272 persons/m²

Unit I&I Flow = 0.26 L/s/Ha

Unit Non-Residential Sanitary Flow = 250 L/c/d (for analysis of existing sewers)

Unit Residential Sanitary Flow = 240 L/c/d (for analysis of existing sewers)

Peaking Factor, $M = 1 + 14 / (4 + P / 1000)^2$

Peak Sanitary Flow, $Q(D) \text{ (L/s)} = P * Q * M / 86,400$

4. Storm Drainage & Stormwater Management

a. Criteria & Terms of Reference

The City of Toronto's site servicing policy typically requires all buildings/podiums/towers on a development to have separate respective storm service connections to a municipal sewer in the street to which that component of the development fronts. Alternatively, it is typically permissible to drain more than one building on a single Site into a common stormwater management facility, provided that sampling facilities (sampling ports, etc.) are provided for each prospective building.

Storm servicing criteria is given in Chapter 3 of the City of Toronto's *Design Criteria for Sewers and Watermains* manual (January 2021).

Stormwater Management criteria is given in the City of Toronto's *Wet Weather Flow Management Guidelines* (WWFMG) manual (2006). Table 7 provides stormwater management criteria therein. Table 7 states that the allowable release rate shall be given by the pre-development 2-year storm flow rate, utilizing the lesser of the actual pre-development runoff coefficient, or a runoff coefficient of 0.5. Table 7 therein allows for the use of the Rational Method for calculation of allowable flows, where site area is less than 5.0 Ha.

The following IDF curves represent the City of Toronto's storms which will be analyzed herein, as per the above manuals.

$$I_{2-Year} = 21.8 * T^{-0.78}$$

$$I_{100-Year} = 59.7 * T^{-0.80}$$

Where:

I = intensity (mm/hr)

T = Time of Concentration in hours

The *Toronto Green Standard* (TGS) provides criteria for stormwater retention/water balance. TGS Version 4, Tier 1, *WQ 1.1 Water Balance, Quality and Quantity* requires the proponent to address the following criteria.

- Water Balance: Retain a minimum of 50% of average annual rainfall volume (or equivalent 5mm each rainfall event).
- Water Quality: Provide long-term average removal of 80% Total Suspended Solids (TSS).
- Water Quantity: Peak flow control in accordance with WWFMG, above.

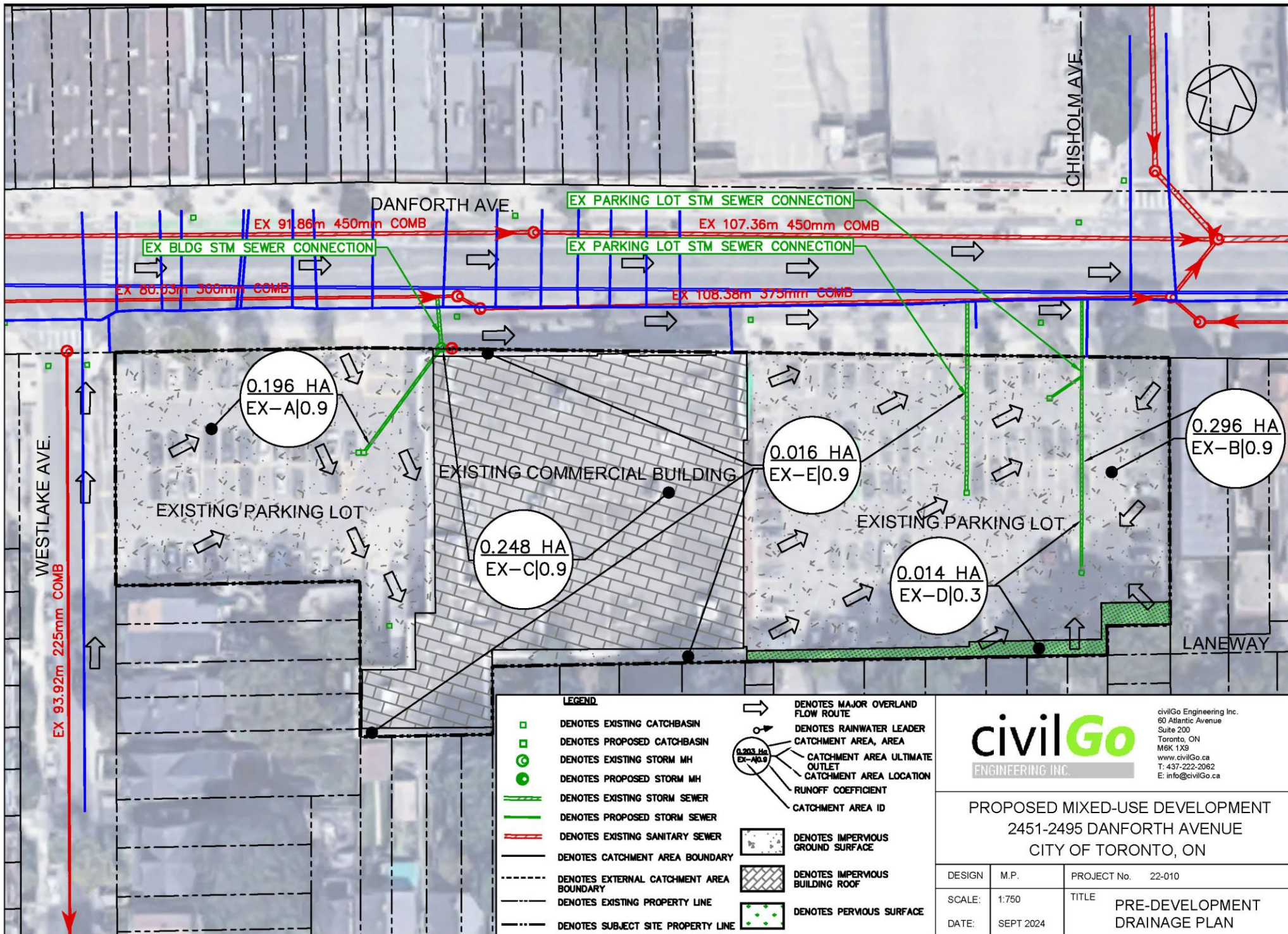
b. Existing Storm Sewers & Drainage

There are no existing storm sewers within the municipal R.O.W. to which the site fronts. The adjacent streets (Danforth Avenue and Westlake Avenue) presently drain by catch basins which are connected to the combined sewers therein – discussed in Section 4.0 a., above.

The existing site presently drains by a total of three existing storm sewer connections which are connected to the Danforth Avenue combined sewers. Refer to the *Pre-Development Storm Drainage Plan* on the following page for pre-development (existing) storm drainage patterns and outlets.

The Site's pre-development drainage patterns are described as follows:

- Catchment Ex-A: is a 0.196 Ha catchment area that comprises the impervious surfaces such as the existing parking lot to the west of the existing commercial building. The existing parking lot drain is connected by the existing building storm sewer connection; the existing storm sewer is connected into the Danforth Avenue combined sewer.
- Catchment Ex-B: is a 0.296 Ha catchment area that comprises the impervious surfaces such as the existing parking lot to the east of the existing commercial building. The existing parking lot drain is connected by the existing parking lot storm sewer connection; the existing storm sewer is connected into the Danforth Avenue combined sewer.
- Catchment Ex-C: is a 0.248 Ha catchment area that comprises the impervious surfaces such as the roof of the existing commercial building on the Site. The roof is connected by roof drains, and into the Danforth Avenue combined sewer.
- Catchment Ex-D: is a 0.014 Ha catchment area that comprises the existing pervious softscape surfaces within the Site, which drain by overland flow towards the east side existing parking lot storm sewer connections into the Danforth Avenue combined sewer.
- Catchment Ex-E: is a 0.016 Ha catchment area that comprises the impervious surfaces such as the front and the back existing ground surface of the existing commercial building within the Site, which drain by overland flow towards the east side existing parking lot storm sewer connections into the Danforth Avenue combined sewer.



c. Basement Flooding Environmental Assessment (BFEA) – Storm Sewers Discussion

A Basement Flooding Environmental Assessment (BFEA) has been undertaken for this area, as discussed in Section 3. c., above. Refer to Section 3. c. for overall discussion pertaining to the context for the EA and for discussion pertaining to sanitary and combined sewers.

The following comments are provided with respect to the conclusions of the EA Report, pertaining to storm sewers and storm drainage.

- There are no separated storm sewers within the Streets adjacent to the site, therefore the EA's conclusions regarding storm sewer performance do not apply to this development.
- The EA Report identifies the performance of the combined sewer system in the various design storm events. The Report shows that the combined sewer system presently operates acceptably and does not recommend improvements to the combined sewers adjacent to the site.
- Figure 6.6.a., *2-Year Design Storm Combined and Sanitary Sewer System*, in the EA Report shows that the combined sewer segments adjacent to the site's frontages are flowing with no surcharge in the pipes (with one exception) (in the 2-year storm) and that the freeboard (or depth from grade to surcharge water elevation) is greater than 1.8m below-grade in all Combined Sewer Maintenance Holes adjacent to the Site's frontage.
- Figure 6.6.d., *100-Year Design Storm Combined and Sanitary Sewer System*, in the EA Report shows that the combined sewer segments adjacent to the site's frontages are surcharged (in the 100-year storm). This figure shows that the freeboard is greater than 1.80m below-grade in the combined sewers on the north side of Danforth Ave. and both sides of the street near the northeast corner, but that the HGL is less than 1.80m below-grade in the MH's at the NW corner.
- Figure 9.1, *Preferred Solutions, Cluster 1*, in the EA Report does not recommend any improvements within the combined or storm sewers near the subject Site.

Given the above discussion, no sanitary/combined sewer infrastructure improvements are required as part of this development on account of the Basement Flooding EA's recommendations.

d. Allowable Storm Release Rate

Stormwater quantity/detention controls are required to satisfy the criteria given in Table 7 of the WWFMG, as outlined above. The allowable release rate to municipal infrastructure is calculated as follows.

It is proposed to drain storm flows from the proposed Development to the Danforth Avenue storm sewer.

The allowable release rate is calculated using the Rational Method formula, as follows. It is calculated based on the areas which drained to Danforth Ave. in the existing condition (Catchment Areas Ex-A, Ex-B, Ex-C, Ex-D, and Ex-E – refer to the *Pre-Development Drainage Plan*) minus the areas that will flow uncontrolled into the Danforth Ave. combined sewer in the post-development condition (Catchment Area H – refer to the *Post-Development Drainage Plan*). The allowable discharge flow rate is determined as follows to be 42 L/s for each of Building A and B (or 84 L/s for the Development as a whole).

Table 4 - Allowable Release Rate

<u>Discharge Outlet</u>	Site Area (A) (Ha)	Runoff Coefficient* (C _{Pre-Dev}) (unitless)	2-Year Storm Rainfall Intensity (I) (mm/hr)	Allowable Discharge Flow Rate (=2.78CIA)
Danforth Ave. 375mm dia. Combined Sewer	Ex-A + Ex-B + Ex-C + Ex-D + Ex-E = 0.77 Ha	0.50	88.2 (2-year storm)	94 L/s
Deduction from Uncontrolled Runoff to Danforth Ave. 375mm dia. Combined Sewer (Catchment – H)	H = 0.017 Ha	0.90	250.3 (100-year storm)	10 L/s
Remaining Allowable Release Rate = 94 L/s – 10 L/s =				84 L/s
Allowable Release Rate for each-of Building A & B				42 L/s

* $C_{Pre-Dev} = \frac{C \cdot A}{A} = \frac{(0.9 \cdot 0.196) + (0.9 \cdot 0.296) + (0.9 \cdot 0.248) + (0.3 \cdot 0.014) + (0.9 \cdot 0.016)}{0.196 + 0.296 + 0.248 + 0.014 + 0.016} = 0.88$; greater-than 0.50,
therefore $C_{Pre-Dev}$ taken-as = 0.5

e. Proposed Storm Drainage, Servicing & Stormwater Management

It is proposed to service the proposed development with 200mm @ 2.00% storm sewer connections, for each of Building A and B, to the existing 375mm-dia. combined sewer within Danforth Avenue. Refer to the Functional Servicing Plan.

The Proposed Development's storm drainage conveyances are described as follows.

- Rainwater falling on the proposed building's roofs and ground-level surfaces will drain uncontrolled into storm area drains & roof drains (to be designed by the mechanical engineer). The storm roof drains will drain uncontrolled by mechanical storm drainage piping, into the site's proposed below-grade 100-year storm water detention tank(s). The tanks will be of cast-in-place concrete construction and constructed in the below-grade basement levels, adjacent-to the Danforth Avenue. Refer to the Functional Servicing Plan for the location of the tanks.
 - Aside: storm events up-to 5mm-depth will drain-into and fill the stormwater retention tank, which will spill into the stormwater detention tank. Refer to Section 4. f. for discussion.
- Note: detailed design of the orifice device and stormwater management tank are to be undertaken at the SPA-stage.

The Site's post-development storm catchment areas are outlined on the *Post-Development Drainage Plan*, below, and summarized in Table 5.

Table 5 - Post-Development Catchment Area Parameters

<u>Catchment Area ID</u>	Catchment Area (Ha)	Hydrology/Volume Method	Runoff Coefficient, C
<u>Building A</u>			
Catchment B (Pervious Surfaces – Green roof)	0.0610	Modified Rational Method	0.30
Catchment C (Pervious Softscape Surfaces)	0.031	Modified Rational Method	0.30
Catchment D (Impervious Regular Roof)	0.1839	Modified Rational Method	0.90
Catchment G (Impervious Ground-Level (Surfaces))	0.016	Modified Rational Method	0.90

Building B

Catchment A (Pervious Softscape Surfaces)	0.0074	Modified Rational Method	0.30
Catchment E (Impervious Regular Roof)	0.0543	Modified Rational Method	0.90
Catchment F (Impervious Surfaces)	0.002	Modified Rational Method	0.90
Catchment H (Impervious Surfaces)	0.017	Rational Method (Uncontrolled)	0.90
Catchment I (Pervious Surfaces – Green roof)	0.124	Modified Rational Method	0.30
Catchment J (Impervious Driveway Surfaces)	0.264	Modified Rational Method	0.90
Total	0.76		6.6

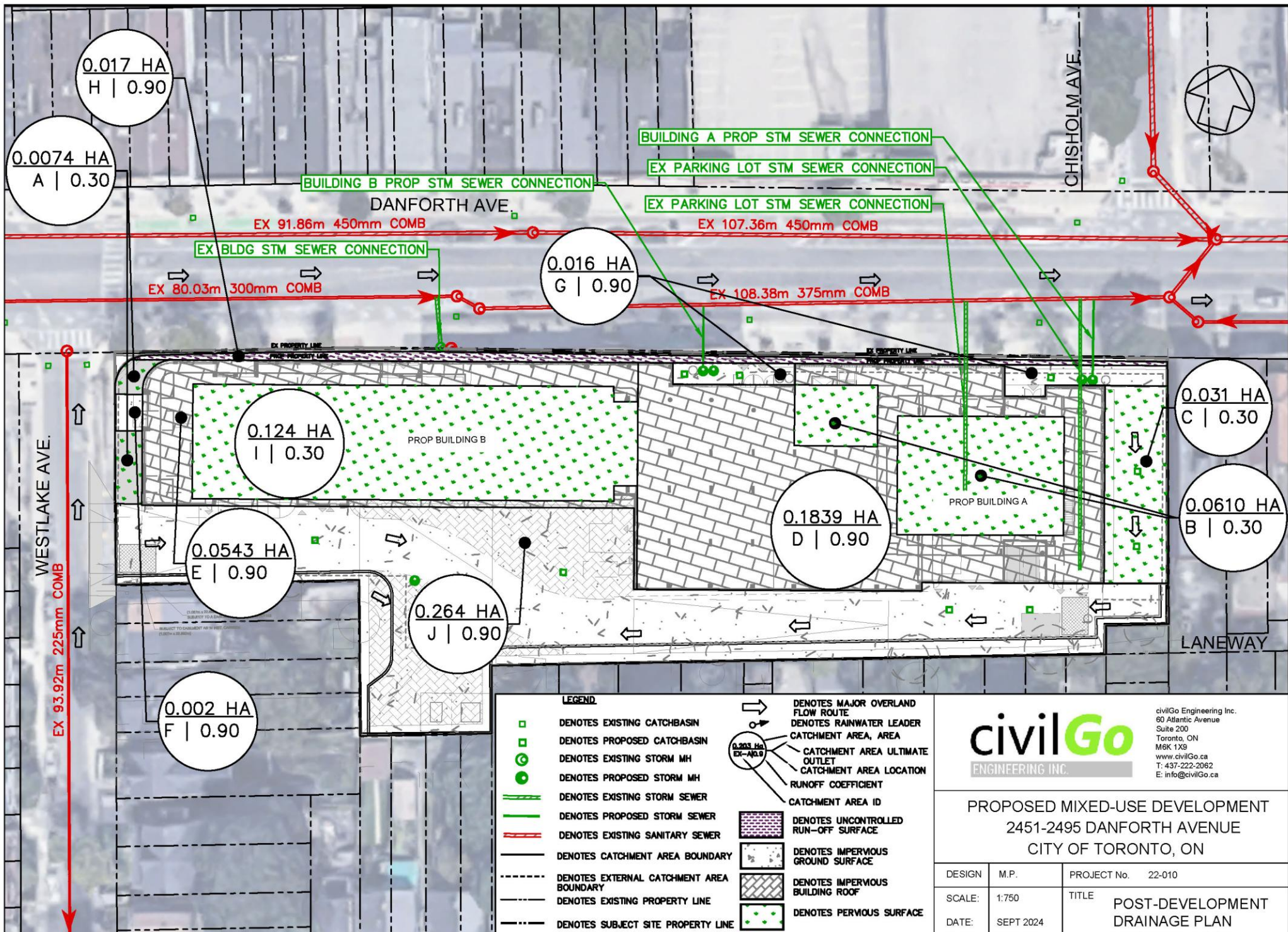
The required volume of stormwater detention was determined utilizing the *Modified Rational Method*. The required volume of stormwater storage is summarized in Table 6, as follows. Modified Rationale Method calculation sheets for the 1-in-2-year storm and 1-in-100-year storm are provided on the following pages, below.

It is evident in Table 6 that the proposed controlled release rate in the 100-year storm (42 L/s), is no-more-than the allowable release rate (42 L/s) for each of Building A and B, therefore the City's allowable release rate criteria is addressed. Further, the required volume of stormwater storage in Building A in a 1-in-100-year storm (61.44m³) will be accommodated in the proposed 150m³ below-grade stormwater detention tank, and the required volume of stormwater storage in Building B in a 1-in-100-year storm (118.29m³) will be accommodated in the proposed 150m³ below-grade stormwater detention tank. Therefore, the stormwater detention criteria with respect to the 1-in-100-year storm is addressed. Refer to the Functional Servicing Plan (Drawing No. CV-101) for the design of the stormwater detention tank whereby this criterion is addressed.

Table 6 - Stormwater Quantity Control (Detention) Results Summary

Storm Event	Allowable Release Rate (Q_{all})	Max Controlled Flows (Q_c)	Uncontrolled Flows (Q_{uc})	Total Release Rate from Site (Q_T=Q_c+Q_{uc})	Required Detention Storage Volume	Provided Detention Storage Volume
<u>Building A</u>						
2-Year Storm	42 L/s (Table 4)	42 L/s	N/A	42 L/s	5.32 m ³ (below*)	150 m ³
100-Year Storm	42 L/s (Table 4)	42 L/s	N/A	42 L/s	61.44 m ³ (below*)	150 m ³
<u>Building B</u>						
2-Year Storm	42 L/s (Table 4)	42 L/s	N/A	42 L/s	25.25 m ³ (below*)	150 m ³
100-Year Storm	42 L/s (Table 4)	42 L/s	N/A	42 L/s	118.29 m ³ (below*)	150 m ³

*Refer to Modified Rational Method – Stormwater Storage Volume Calculation Sheets, below





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Modified Rational Method - Stormwater Storage Volume Calculation

100-Year Storm

Project Name:	Proposed Mixed-Use Development - BLDG B
Project Address:	2451-2495 Danforth Avenue, Toronto, ON
civilGo Project No.:	22-010
Date:	Sep 2024
Rev. No:	0
Ref. Drawing:	Servicing Plan
By:	MP

Stormwater Quantity Control Criteria:

Control 1-in-100-Year Post-Development Storm Flow to 1-in-2-Year Pre-Development Storm Flow

Q _a = Allowable Release Rate =	42 L/s (see FSR Table 5)
Q _c = Controlled Release Rate =	42 L/s (Max outflow from Orifice)

Post-Development Catchment Area Parameters:

Catchment Areas: A, E, F, H, I, J	See Post Development Catchment Plan
C _{post} =	0.73 Post-Development Composite Runoff Coefficient (unitless)
A _{post} =	0.47 Site Area, Post-Development (Ha)
T _c =	10 Initial Time of Concentration (minutes)

Rainfall Intensity for Storm Even

100-Year

$$i = A / (T_d + B)^C$$

Where:	i =	rainfall intensity (mm/hr)
	A =	59.7
	B =	0
	C =	0.8
	T _d =	T _c + storm duration

City of Toronto 100-Year Storm IDF

Post-Development Runoff Flow Rate, Q_p

$$Q_p = 2.78 * C_{Post} * i * A_{Post}$$

Required Storage Volume, S_R

$$S_R = Q_p * T_d - Q_c * T_d$$

T _d (min)	i (mm/hr)	Q _p (L/s)	S _R (m ³)
10	250.3	238.7	118.01
11	231.9	221.2	118.25
12	216.3	206.3	118.29
13	202.9	193.5	118.17
14	191.2	182.4	117.90
15	181.0	172.6	117.51
16	171.9	163.9	117.00
17	163.7	156.1	116.40
18	156.4	149.1	115.71
19	149.8	142.8	114.95
20	143.8	137.1	114.10
21	138.3	131.8	113.20
22	133.2	127.0	112.23
23	128.6	122.6	111.21
24	124.3	118.5	110.13
25	120.3	114.7	109.01
26	116.6	111.1	107.85
27	113.1	107.8	106.64
28	109.8	104.7	105.40
29	106.8	101.8	104.12
30	103.9	99.1	102.80
31	101.3	96.5	101.45
32	98.7	94.1	100.08
33	96.3	91.8	98.67
34	94.0	89.7	97.24
35	91.9	87.6	95.79

>Max

T _d (min)	i (mm/hr)	Q _p (L/s)	S _R (m ³)
36	89.8	85.7	94.31
37	87.9	83.8	92.80
38	86.0	82.0	91.28
39	84.3	80.3	89.73
40	82.6	78.7	88.17
41	81.0	77.2	86.58
42	79.4	75.7	84.98
43	77.9	74.3	83.36
44	76.5	73.0	81.72
45	75.1	71.7	80.07
46	73.8	70.4	78.40
47	72.6	69.2	76.72
48	71.4	68.1	75.02
49	70.2	66.9	73.31
50	69.1	65.9	71.59
51	68.0	64.8	69.85
52	66.9	63.8	68.11
53	65.9	62.9	66.35
54	65.0	61.9	64.58
55	64.0	61.0	62.79
56	63.1	60.2	61.00
57	62.2	59.3	59.20
58	61.3	58.5	57.38
59	60.5	57.7	55.56
60	59.7	56.9	53.73
61	58.9	56.2	51.89



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Modified Rational Method - Stormwater Storage Volume Calculation 100-Year Storm

Project Name:	Proposed Mixed-Use Development - BLDG A
Project Address:	2451-2495 Danforth Avenue, Toronto, ON
civilGo Project No.:	22-010
Date:	Sep 2024
Rev. No:	0
Ref. Drawing:	Servicing Plan
By:	MP

Stormwater Quantity Control Criteria:

Control 1-in-100-Year Post-Development Storm Flow to 1-in-2-Year Pre-Development Storm Flow

Q_a = Allowable Release Rate =	42	L/s (see FSR Table 5)
Q_c = Controlled Release Rate =	42	L/s (Max outflow from Orifice)

Post-Development Catchment Area Parameters:

Catchment Areas:	B, C, D, G	See Post Development Catchment Plan
C_{post} =	0.71	Post-Development Composite Runoff Coefficient (unitless)
A_{post} =	0.29	Site Area, Post-Development (Ha)
T_c =	10	Initial Time of Concentration (minutes)

Rainfall Intensity for Storm Even 100-Year

$$i = A / (T_d + B)^C$$

Where:	i =	rainfall intensity (mm/hr)
	A =	59.7
	B =	0
	C =	0.8
	T_d =	T_c + storm duration

City of Toronto 100-Year Storm IDF

Post-Development Runoff Flow Rate, Q_P

$$Q_P = 2.78 * C_{post} * i * A_{post}$$

Required Storage Volume, S_R

$$S_R = Q_P * T_d - Q_c * T_d$$

T_d (min)	i (mm/hr)	Q_P (L/s)	S_R (m3)
10	250.3	144.4	61.44
11	231.9	133.8	60.59
12	216.3	124.8	59.62
13	202.9	117.1	58.55
14	191.2	110.3	57.39
15	181.0	104.4	56.16
16	171.9	99.1	54.86
17	163.7	94.5	53.50
18	156.4	90.2	52.09
19	149.8	86.4	50.63
20	143.8	82.9	49.13
21	138.3	79.8	47.58
22	133.2	76.8	46.00
23	128.6	74.2	44.39
24	124.3	71.7	42.74
25	120.3	69.4	41.07
26	116.6	67.2	39.37
27	113.1	65.2	37.64
28	109.8	63.4	35.89
29	106.8	61.6	34.12
30	103.9	60.0	32.33
31	101.3	58.4	30.52
32	98.7	56.9	28.70
33	96.3	55.6	26.85
34	94.0	54.2	24.99
35	91.9	53.0	23.11

>Max

T_d (min)	i (mm/hr)	Q_P (L/s)	S_R (m3)
36	89.8	51.8	21.22
37	87.9	50.7	19.32
38	86.0	49.6	17.40
39	84.3	48.6	15.47
40	82.6	47.6	13.53
41	81.0	46.7	11.57
42	79.4	45.8	9.61
43	77.9	45.0	7.63
44	76.5	44.1	5.65
45	75.1	43.4	3.65
46	73.8	42.6	1.65
47	72.6	41.9	-0.37
48	71.4	41.2	-2.39
49	70.2	40.5	-4.42
50	69.1	39.8	-6.46
51	68.0	39.2	-8.50
52	66.9	38.6	-10.56
53	65.9	38.0	-12.62
54	65.0	37.5	-14.68
55	64.0	36.9	-16.76
56	63.1	36.4	-18.84
57	62.2	35.9	-20.92
58	61.3	35.4	-23.02
59	60.5	34.9	-25.11
60	59.7	34.4	-27.22
70	52.8	30.4	-48.54



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Modified Rational Method - Stormwater Storage Volume Calculation

2-Year Storm

Project Name:	Proposed Mixed-Use Development -BLDG B
Project Address:	2451-2455 Danforth Avenue, Toronto, ON
civilGo Project No.:	22-010
Date:	Sep 2024
Rev. No:	0
Ref. Drawing:	Servicing Plan
By:	MP

Stormwater Quantity Control Criteria:

Control 1-in-100-Year Post-Development Storm Flow to 1-in-2-Year Pre-Development Storm Flow

Q _a = Allowable Release Rate =	42	L/s (see FSR Table 5)
Q _c = Controlled Release Rate =	42	L/s (Max outflow from Orifice)

Post-Development Catchment Area Parameters:

Catchment Areas: A, E, F, H, I, J	See Post Development Catchment Plan
C _{post} =	0.73 Post-Development Composite Runoff Coefficient (unitless)
A _{post} =	0.4687 Site Area, Post-Development (Ha)
T _c =	10 Initial Time of Concentration (minutes)

Rainfall Intensity for Storm Even

2-Year

$$i = A / (T_d + B)^C$$

Where:	i =	rainfall intensity (mm/hr)
	A =	21.8
	B =	0
	C =	0.78
	T _d =	T _c + storm duration

City of Toronto 100-Year Storm IDF

Post-Development Runoff Flow Rate, Q_P

$$Q_P = 2.78 * C_{Post} * i * A_{Post}$$

Required Storage Volume, S_R

$$S_R = Q_P * T_d - Q_c * T_d$$

T _d (min)	i (mm/hr)	Q _P (L/s)	S _R (m ³)
10	88.2	84.1	25.25
11	81.9	78.1	23.80
12	76.5	72.9	22.28
13	71.9	68.5	20.69
14	67.8	64.7	19.05
15	64.3	61.3	17.36
16	61.1	58.3	15.63
17	58.3	55.6	13.86
18	55.8	53.2	12.06
19	53.5	51.0	10.23
20	51.4	49.0	8.36
21	49.4	47.1	6.48
22	47.7	45.5	4.57
23	46.1	43.9	2.64
24	44.6	42.5	0.69
25	43.2	41.1	-1.28
26	41.9	39.9	-3.26
27	40.6	38.8	-5.26
28	39.5	37.7	-7.28
29	38.4	36.6	-9.31
30	37.4	35.7	-11.35
31	36.5	34.8	-13.41
32	35.6	33.9	-15.47
33	34.8	33.1	-17.55
34	34.0	32.4	-19.64
35	33.2	31.6	-21.74

>Max

T _d (min)	i (mm/hr)	Q _P (L/s)	S _R (m ³)
36	32.5	31.0	-23.84
37	31.8	30.3	-25.96
38	31.1	29.7	-28.08
39	30.5	29.1	-30.21
40	29.9	28.5	-32.35
41	29.3	28.0	-34.50
42	28.8	27.5	-36.66
43	28.3	27.0	-38.82
44	27.8	26.5	-40.98
45	27.3	26.0	-43.16
46	26.8	25.6	-45.34
47	26.4	25.1	-47.52
48	25.9	24.7	-49.71
49	25.5	24.3	-51.91
50	25.1	24.0	-54.11
51	24.7	23.6	-56.32
52	24.4	23.2	-58.53
53	24.0	22.9	-60.74
54	23.7	22.6	-62.96
55	23.3	22.2	-65.19
56	23.0	21.9	-67.42
57	22.7	21.6	-69.65
58	22.4	21.3	-71.88
59	22.1	21.1	-74.12
60	21.8	20.8	-76.37
61	21.5	20.5	-78.62



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Toronto, ON M6K 1X9
www.civilGo.ca
T: 437-222-2062
E: info@civilGo.ca

Modified Rational Method - Stormwater Storage Volume Calculation

2-Year Storm

Project Name:	Proposed Mixed-Use Development - BLDG A
Project Address:	2451-2455 Danforth Avenue, Toronto, ON
civilGo Project No.:	22-010
Date:	Sep 2024
Rev. No:	0
Ref. Drawing:	Servicing Plan
By:	MP

Stormwater Quantity Control Criteria:

Control 1-in-100-Year Post-Development Storm Flow to 1-in-2-Year Pre-Development Storm Flow

Q_a = Allowable Release Rate =	42	L/s (see FSR Table 5)
Q_c = Controlled Release Rate =	42	L/s (Max outflow from Orifice)

Post-Development Catchment Area Parameters:

Catchment Areas:	B, C, D, G	See Post Development Catchment Plan
C_{post} =	0.71	Post-Development Composite Runoff Coefficient (unitless)
A_{post} =	0.29	Site Area, Post-Development (Ha)
T_c =	10	Initial Time of Concentration (minutes)

Rainfall Intensity for Storm Event: 2-Year

Post-Development Runoff Flow Rate, Q_p

$$i = A / (T_d + B)^C$$

$$Q_p = 2.78 * C_{post} * i * A_{post}$$

Where:	i =	rainfall intensity (mm/hr)
	A =	21.8
	B =	0
	C =	0.78
	T_d =	T_c + storm duration

City of Toronto 100-Year Storm IDF

Required Storage Volume, S_R

$$S_R = Q_p * T_d - Q_c * T_d$$

T_d (min)	i (mm/hr)	Q_p (L/s)	S_R (m3)
10	88.2	50.9	5.32
11	81.9	47.2	3.45
12	76.5	44.1	1.53
13	71.9	41.5	-0.42
14	67.8	39.1	-2.41
15	64.3	37.1	-4.43
16	61.1	35.3	-6.47
17	58.3	33.6	-8.54
18	55.8	32.2	-10.62
19	53.5	30.8	-12.73
20	51.4	29.6	-14.85
21	49.4	28.5	-16.98
22	47.7	27.5	-19.13
23	46.1	26.6	-21.30
24	44.6	25.7	-23.47
25	43.2	24.9	-25.66
26	41.9	24.1	-27.85
27	40.6	23.4	-30.06
28	39.5	22.8	-32.28
29	38.4	22.2	-34.50
30	37.4	21.6	-36.73
31	36.5	21.0	-38.97
32	35.6	20.5	-41.21
33	34.8	20.0	-43.47
34	34.0	19.6	-45.72
35	33.2	19.1	-47.99

>Max

T_d (min)	i (mm/hr)	Q_p (L/s)	S_R (m3)
36	32.5	18.7	-50.26
37	31.8	18.3	-52.53
38	31.1	18.0	-54.81
39	30.5	17.6	-57.10
40	29.9	17.3	-59.39
41	29.3	16.9	-61.68
42	28.8	16.6	-63.98
43	28.3	16.3	-66.29
44	27.8	16.0	-68.59
45	27.3	15.7	-70.90
46	26.8	15.5	-73.22
47	26.4	15.2	-75.53
48	25.9	15.0	-77.86
49	25.5	14.7	-80.18
50	25.1	14.5	-82.51
51	24.7	14.3	-84.84
52	24.4	14.1	-87.17
53	24.0	13.9	-89.51
54	23.7	13.7	-91.84
55	23.3	13.5	-94.19
56	23.0	13.3	-96.53
57	22.7	13.1	-98.87
58	22.4	12.9	-101.22
59	22.1	12.7	-103.57
60	21.8	12.6	-105.93
61	21.5	12.4	-108.28

f. Stormwater Retention & 'Water Balance'

Criteria for stormwater retention, or 'Water Balance/Reuse', is given by the City of Toronto's *Wet Weather Flow Management Guidelines (WWFMG)* and *Toronto Green Standard (TGS)*. TGS WQ 1.1 *Water Balance, Quality and Quantity* requires the proponent to address the following criteria.

- Water Balance: Retain a minimum of 50% of average annual rainfall volume (or equivalent 5mm each rainfall event).

The WWFMG and Toronto Water's criteria typically requires that retained stormwater is reused on-site within 72-hours of the 5mm storm.

It is shown, as follows, that the required retention volume to satisfy the TGS and WWFMG criteria is $38.1\text{m}^3/72\text{-Hours}$ and that this volume of stormwater may be retained on-site by a combination of initial abstractions and storage in a retention cistern (for subsequent greywater and irrigation reuse), providing a total retention volume of $38.2\text{m}^3/72\text{-Hour}$.

Table 7 - 'Water Balance', or Stormwater Retention and Reuse, Summary

<u>Catchment Area</u>	Surface Description	Catchment Area (m ²)	Initial Abstraction (mm)	Retention Volume (m ³)
Target Volume	N/A	7620 m ²	5mm	38.10 m³

Stormwater Retention by Initial Abstraction, as Follows:

<u>Building A</u>				
Green roof (Catchment B)	Pervious Surfaces	610 m ²	5 mm	3.05 m ³
Softscape Surfaces (Catchment C)	Pervious Surfaces	310m ²	5 mm	1.55 m ³
Regular Roof (Catchment D)	Impervious Surfaces	1839 m ²	1 mm	1.83 m ³
Ground-Level Surfaces (Catchment G)	Impervious Surfaces	160 m ²	1 mm	0.16 m ³
<u>Building B</u>				
Softscape Surfaces (Catchment A)	Pervious Surfaces	74 m ²	5 mm	0.37 m ³
Regular Roof (Catchment E)	Impervious Surfaces	543 m ²	1 mm	0.543 m ³
Ground-Level Surfaces (Catchment F)	Impervious Surfaces	20 m ²	1 mm	0.02 m ³

Ground-Level Surfaces (Catchment H)	Impervious Surfaces	170 m ²	1 mm	0.17 m ³
Green roof (Catchment I)	Pervious Surfaces	1240 m ²	5 mm	6.2 m ³
Driveway Surface (Catchment J)	Impervious Surfaces	2640 m ²	1 mm	2.64m ³
Total Stormwater Retention by Initial Abstractions:				16.53 m³
Retention in Cistern (for Greywater Reuse & Irrigation):				21.67 m³
Total On-Site Stormwater Retention Capacity:				38.2 m³

As shown above, water balance retention of 16.53 m³ is provided by surface initial abstractions. There remains a deficit of 21.67 m³/72-hour, which is addressed by retention in a below-grade stormwater retention cistern and thereafter dispersed on-site by irrigation and greywater reuse. 'Clean' stormwater runoff from the building's roof will drain into a stormwater retention cistern to be designed at the SPA stage.

g. Stormwater Quality

Criteria for stormwater quality is given by the City of Toronto's *Wet Weather Flow Management Guidelines (WWFMG)* and *Toronto Green Standard (TGS)*. TGS Version 4, Tier 1, *WQ 1.1 Water Balance, Quality and Quantity* requires the proponent to address the following criteria.

- Water Quality: Provide long-term average removal of 80% Total Suspended Solids (TSS).

There is an open-to-above driveway area at the Site's rear, fronting the laneway, which will be subject to winter maintenance and will require stormwater quality treatment. A stormwater filter device will be specified at the SPA stage, to provide 80% TSS Removal. Preliminarily, a *Jellyfish Filter* by Imbrium Systems will be specified. The Jellyfish Filter has Canadian Environmental Technology Verification (ETV) and NJDEP certification for 80% TSS Removal.

5. Foundation Drainage & Groundwater

a. Criteria

The City of Toronto enacted a foundation drainage policy applying to new development applications made after January 1, 2022, providing criteria for consideration of foundation drainage. The policy applies to new development applications made after January 1, 2022. The policy effectively categories below-grade construction into the following scenarios.

- ‘Scenario 1’: Below-grade construction extends below the stable groundwater table elevation (or within 1.0m of it) – in which case the foundations must be constructed in a watertight or ‘bathtubbed’ manner.
- ‘Scenario 2’: Below-grade construction does not extend below the stable groundwater table, and stops 1.0m higher-than the stable groundwater table elevation. The policy offers two solutions in this scenario:
 - ‘Scenario 2A’: If the project is in a storm or sanitary sewer-shed – the foundations may be constructed in a ‘drained’ manner and the resulting foundation drainage water discharged to the storm or sanitary sewer (subject to satisfying the applicable City criteria with respect to water quality and the sewer having capacity).
 - ‘Scenario 2B’: If the project is in a combined sewer-shed – the foundations must be constructed in a watertight or ‘bathtubbed’ manner.

The policy also allows the collection and discharge of foundation drainage on-site, into an infiltration gallery or such solution, provided the quality of the water is acceptable.

b. Hydrogeological Investigation Results

The hydrogeological investigation informs which scenario, above, applies to this development.

A Hydrogeological Investigation was prepared by WSP, dated November 2024, to qualitatively and quantitatively characterize the groundwater at the Site with respect to the City’s criteria. The conclusions of the report are generally as follows.

The seasonally high groundwater table, considering the required vertical freeboard contingencies, is higher-than the proposed building’s foundation drains. The ‘Scenario 1’ discussion from the City’s foundation drainage policy, as outlined, above applies. The proposed building will be constructed in a watertight manner and the hydro-geological manner states so accordingly.

In the short-term, construction-stage, scenario, the daily volume of water entering the excavation (thus requiring discharge) is 353m³/day (which equates to 4.1 L/s).

c. Long-Term Scenario

In the long-term scenario, the proposed building will be constructed in a watertight manner, therefore there will be no long-term discharge of foundation drainage water. A letter has been provided by each of the owner, mechanical engineer and structural engineer, accordingly, on the following pages.

d. Short-Term 'Construction-Stage' Scenario

It is proposed, in the short-term scenario, to collect the water in the excavation for the proposed development and discharge it into the site's existing sanitary sewer connection.

The flow rate of short-term groundwater is $353\text{m}^3/\text{day}$ (which equates to 4.1 L/s). This flow rate is less than the future development's post-development sanitary flow rate (as per Table 3), therefore it follows that the receiving combined sewers have available capacity for the temporary groundwater discharge.



A MEMBER OF  BPA

200 KING STREET WEST, SUITE 310
TORONTO, ON CANADA M5H 3T4
TMP@TMP.TORONTO.COM
P: 416-499-8000

tmp.toronto.com

November 5, 2024

Attention: Chief Engineer and Executive Director, Engineering and Construction services
c/o Manager, Development Engineering

cc: General Manager, Toronto Water
c/o Manager, Environmental Monitoring and Protection Unit
30 Dee Ave, Toronto ON M9N 1S9

RE: 2451-2494 DANFORTH AVENUE

Dear Sir or Madam,

I Steve Orchard, confirm that all building(s) on the subject lands 2451-2494 Danforth Ave will be designed and constructed in a manner without Private Water Drainage System (subsurface drainage system) consisting of but not limited to weeping tile(s), foundation drain(s), private water collections 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 directly or indirectly or drainage system for disposal directly or indirectly in a municipal sewer. Underground structure(s) of the proposed building(s) will be built completely watertight without any direct or indirect connection to the city sewer for the discharge of groundwater (from a PWDS or floor drain or other infrastructure).

I understand that a Private Water Drainage System as an emergency backup system is not permitted, as part of this proposal.

Yours very truly,
THE MITCHELL PARTNERSHIP INC.



Steve Orchard, P.Eng
Partner





Entuitive Corporation
200 University Avenue, 7th Floor
Toronto, ON M5H 3C6 Canada

T. 416.477.5832

November 7th, 2024

Attention: Executive Director, Engineering and Construction Services
c/o Manager, Development Engineering
5100 Yonge Street, 4th Floor, Toronto, ON M2N 5V7

Cc: General Manager, Toronto Water
c/o Manager, Environmental Monitoring and Protection Unit
30 Dee Ave, Toronto, ON M9N 1S9

Re: Watertight Below-Grade Structure, 2451 Danforth Avenue, Toronto, ON
Our Project No. EN024-01874

Dear Sir or Madam,

I, Robin Djuita, confirm that all buildings on the subject lands at 2451 Danforth Avenue can be constructed completely water-tight below grade in a manner that will resist hydrostatic pressure without any necessity for Private Water Drainage System (subsurface drainage system) consisting of but 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 directly or indirectly or drainage system for disposal directly or indirectly in a municipal sewer.

Note: For structural design only to resist hydrostatic pressure. Entuitive is not responsible for waterproofing, construction and active or passive drainage systems as referenced above.

Sincerely,
Entuitive

Robin Djuita, P.Eng.
Associate
robin.djuita@entuitive.com
D: 416 305 2860



entuitive.com



November 11, 2024

Corporate Headquarters

85 Hanna Ave, Suite 400
Toronto, ON M6K 3S3

Attention: Executive Director, Engineering and Construction Services
c/o Manager, Development Engineering

cc: General Manager, Toronto Water
c/o Manager, Environmental Monitoring and Protection Unit
30 Dee Ave, Toronto ON M9N 1S9

Dear Sir or Madam,

I, Joshua Butcher, confirm and undertake that I will construct and maintain the new buildings to be constructed on the subject lands at 2451-2495 in a manner which shall be completely water-tight below grade and resistant to hydrostatic pressure without any necessity for Private Water Drainage System (subsurface drainage system) consisting of but 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 directly or indirectly or drainage system for disposal directly or indirectly in a municipal sewer.

FCHT Holdings (Ontario) Corp.

A handwritten signature in black ink, appearing to read "J Butcher", written over a horizontal line.

Joshua Butcher
Senior Director, Development

I, Joshua Butcher, have the authority to bind the corporation.

85 Hanna Avenue, Suite 400 Toronto, Ontario M6K 3S3

fcr.ca

6. Grading & Topography

The Site is generally level and no significant grade changes warranting retaining walls etc. are required.

The proposed development fronts on two sides to existing municipal Rights of Way. It is proposed to re-construct the existing municipal sidewalks on those two frontages, according to City standards.

7. Erosion & Sediment Control

Erosion and sediment control practices will be employed during the construct phase to mitigate sediment transport, in accordance with TRCA and City of Toronto requirements. Refer to the *Erosion and Sediment Control Plan* for the proposed measures.

8. Conclusions

This report has outlined the manner in which the proposed development will be serviced and by which the stormwater management criteria will be satisfied.

Please contact the undersigned with any questions.

Respectfully submitted,



Daniel Bancroft, P.Eng.,
civilGo Engineering Inc.

APPENDIX A

- Architectural Site Plan by Superkül Architects
- Architectural Statistics by Superkül Architects



Statistics Template – Toronto Green Standard Version 4.0

City Agency, Corporation & Division-Owned Facilities

The Toronto Green Standard Version 4.0 Statistics Template is submitted with Site Plan Control Applications and stand-alone Zoning Bylaw Amendment applications. Complete the table and copy it directly onto the Site Plan submitted as part of the application.

For Zoning Bylaw Amendment applications: complete General Project Description and Section 1.
For Site Plan Control applications: complete General Project Description, Section 1 and Section 2.
For further information, please visit www.toronto.ca/greendevlopment

General Project Description	Proposed	
Total Gross Floor Area	42493.2 m²	457393.4 ft²
Breakdown of project components (m²):		
Retail GROCERY GFA:	2276.8 m²	24507.3 ft²
Commercial TOTAL RETAIL GFA:	943.1 m²	10152.0 ft² (EXCLUDING GROCERY)
Industrial		
Institutional/Other		
Total number of residential units	620	

Section 1: For Stand Alone Zoning Bylaw Amendment Applications and Site Plan Control Applications

Low Emissions Transportation	Required	Proposed	Proposed %
Number of Parking Spaces	8	254	>100%
Number of EV Parking Spaces (Residential)	177	177	100%
Number of EV Parking Spaces (Non - Residential)	20	20	100%

Cycling Infrastructure	Required	Proposed	Proposed %
Number of long-term bicycle parking spaces (all-uses)	565	567	>100%
Number of long-term bicycle parking located on:			
a) first storey of building			
b) second storey of building			
c) first level below-ground		567	100%
d) second level below-ground			
e) other levels below-ground			
Number of short-term bicycle parking spaces	147	147	100%
Number of shower and change facilities	2	2	



Page 1 of 3



Statistics Template – Toronto Green Standard Version 4.0

City Agency, Corporation & Division-Owned Facilities

Tree Canopy	Required	Proposed	Proposed %
Total Soil Volume (40% of the site area + 66 m² x 30 m³)	1387 m3	1387 m3	100%
Soil volume provided within the site area (m³)		869.4 m3	
Soil Volume provided within the public boulevard (m³)		517.6 m3	

Definitions

FLOOR PLATE AREA - The total area of a floor of a building, measured from the exterior of the main wall of the floor level, including voids at the level of the floor, such as an atrium, mezzanine, stairwell, escalator, elevator, ventilation duct or utility shaft.

GREEN ROOF - An extension of an above grade roof, built on top of a human-made structure, that allows vegetation to grow in a growing medium and which is designed, constructed and maintained in accordance with the Toronto Green Roof Construction Standard.

GROSS FLOOR AREA - The total area of each floor level of a building, above and below average grade, measured from the exterior of the main wall of each floor level, including voids at the level of each floor, such as an atrium, mezzanine, stairwell, escalator, elevator, ventilation duct or utility shaft, but excluding areas used for the purpose of parking or loading.

PRIVATE TERRACE - Outdoor amenity area on a roof that is available exclusively for use by the occupants of an abutting residential unit for recreational or social activities.

GREEN ROOF STATISTICS	Proposed	
Gross Floor Area, as defined in Green Roof Bylaw (m²)	41904.6 m²	
Total Roof Area (m²)	613.7 m²	
Area of Residential Private Terraces (m²)	4231.2 m²	
Rooftop Outdoor Amenity Space, if in a Residential Building (m²)	1098.6 m²	
Area of Renewable Energy Devices (m²)	0 m²	
Tower (s)Roof Area with floor plate less than 750 m²	N/A	
Total Available Roof Space (m²)	2518.9 m²	
Green Roof Coverage	Required	Proposed
Coverage of Available Roof Space (m²)	1511.34 m²	1530.7 m²
Coverage of Available Roof Space (%)	60 %	60 %

GCA AND GFA BREAKDOWN							PROJECT STATISTICS SUMMARY				
		GROSS CONSTRUCTION AREA		ZBL 569-2013 EXCLUSIONS		CITY WIDE BY-LAW 569-2013 GROSS FLOOR AREA		NUMBER OF FLOORS: 13/29		FSI (GFA/LOT AREA): 5.62	
BELOW GRADE							GROSS CONSTRUCTION AREA (GCA) ABOVE GRADE:		46594.9 m² 501543.3 ft²		
Level	GCA, m2	GCA, sf	GFA Exclusion, m2	GFA Exclusion, sf	GFA, m2	GFA, sf	TOTAL GROSS FLOOR AREA (GFA): 42493.2 m² 457393.4 ft² <small>*as defined in ZBL 569-2013</small>				
P2	6202.9 m²	66768.0 ft²	5803.6 m²	62469.7 ft²	399.3 m²	4298.3 ft²	RESIDENTIAL GFA: 39273.3 m² 422734.2 ft²				
P1	6161.4 m²	66321.2 ft²	5946.2 m²	64004.7 ft²	215.2 m²	2316.5 ft²	RETAIL GFA: 943.1 m² 10152.0 ft²				
Grand total	12364.4 m²	133089.2 ft²	11749.9 m²	126474.5 ft²	614.5 m²	6614.7 ft²	GROCERY STORE GFA: 2276.8 m² 24507.3 ft²				
ABOVE GRADE							POPS AREA:		353.9 m² 3809.4 ft²		
Level	GCA, m2	GCA, sf	GFA Exclusion, m2	GFA Exclusion, sf	GFA, m2	GFA, sf	LOT AREA: 7,724 m²				
Ground Floor	3987.6 m²	42922.7 ft²	478.1 m²	5146.2 ft²	3509.5 m²	37776.5 ft²	CONVEYANCES AREA: 168m²				
Level02	1479.1 m²	15920.5 ft²	122.0 m²	1313.0 ft²	1357.1 m²	14607.6 ft²	ADJUSTED LOT AREA: 7,556m²				
Level03	2700.9 m²	29071.8 ft²	1540.4 m²	16580.4 ft²	1160.5 m²	12491.4 ft²	NUMBER OF RESIDENTIAL UNITS: 620				
Level04	2701.8 m²	29082.4 ft²	102.5 m²	1102.8 ft²	2599.4 m²	27979.6 ft²	NUMBER OF AFFORDABLE UNITS:				
Level05	2650.2 m²	28526.4 ft²	102.5 m²	1102.8 ft²	2547.7 m²	27423.6 ft²	<small>*Affordable Units Note: To be provided in accordance with statutory Z requirements. Number of units to be reviewed during the Site Plan Approval process.</small>				
Level06	2650.2 m²	28526.4 ft²	102.5 m²	1102.8 ft²	2547.7 m²	27423.6 ft²					
Level07	2650.2 m²	28526.4 ft²	102.5 m²	1102.8 ft²	2547.7 m²	27423.6 ft²					
Level08	2650.2 m²	28526.4 ft²	102.5 m²	1102.8 ft²	2547.7 m²	27423.6 ft²					
Level09	2266.2 m²	24393.3 ft²	102.5 m²	1102.8 ft²	2163.8 m²	23290.5 ft²	UNIT COUNT AND MIX				
Level10	2266.2 m²	24393.3 ft²	102.5 m²	1102.8 ft²	2163.8 m²	23290.5 ft²	BUILDING A*: SEE UNIT MIX CHAIRMAN GREY AREA				
Level11	2056.7 m²	22138.0 ft²	104.4 m²	1123.3 ft²	1952.3 m²	21014.7 ft²	Level	Residential GFA, m2	Residential GFA, sf	Count	
Level12	2056.7 m²	22138.0 ft²	104.4 m²	1123.3 ft²	1952.3 m²	21014.7 ft²	Level03	320.0 m²	3444.8 ft²	5	
Level13	2056.7 m²	22138.0 ft²	104.4 m²	1123.3 ft²	1952.3 m²	21014.7 ft²	Level04	992.5 m²	10683.0 ft²	16	
Level14/MPH	1159.4 m²	12480.1 ft²	349.4 m²	3760.7 ft²	810.1 m²	8719.4 ft²	Level05	992.5 m²	10683.0 ft²	16	
Level15	850.6 m²	9156.0 ft²	49.4 m²	531.2 ft²	801.3 m²	8624.8 ft²	Level06	992.5 m²	10683.0 ft²	16	
Level16	850.6 m²	9156.0 ft²	49.4 m²	531.2 ft²	801.3 m²	8624.8 ft²	Level07	992.5 m²	10683.0 ft²	16	
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MPH	503.5 m²	5419.6 ft²	455.9 m²	4907.0 ft²	47.6 m²	512.6 ft²	Level21	719.1 m²	7740.2 ft²	14	
Grand total	46594.9 m²	501543.3 ft²	4716.2 m²	50764.7 ft²	41878.7 m²	450778.7 ft²					

DEFINITIONS		CAR PARKING																																																						
<p>From the City of Toronto ZBL 569-2013:</p> <p>In the Residential Zone category, the Gross Floor Area of an apartment building is reduced by the area in the building used for:</p> <p>(A) parking, loading and bicycle parking below established grade;</p> <p>(B) required loading spaces and required bicycle parking spaces at or above established grade;</p> <p>(C) storage rooms, washrooms, electrical, utility, mechanical and ventilation rooms in the basement;</p> <p>(D) shower and change facilities and bicycle maintenance facilities required by this By-law for required bicycle parking spaces; (By-law: B39-2022)</p> <p>(E) indoor amenity space required by this By-law;</p> <p>(F) elevator shafts;</p> <p>(G) garbage shafts;</p> <p>(H) mechanical penthouses; and</p> <p>(I) end stairwells in the building.</p> <p>Floor Space Index Calculation</p> <p>In the Residential Zone category, the floor space index:</p> <p>(A) for a non-residential building, is the result of the gross floor area of a building divided by the area of the lot;</p> <p>(B) for a residential building, other than an apartment building, is the result of the gross floor area, plus the area of an attic described in regulation 10.5.40.40(1) and subject to regulation 10.5.40.40(2) minus the areas listed in regulation 10.5.40.40(3), divided by the area of the lot; and</p> <p>(C) for an apartment building, is the result of the gross floor area, minus the areas of an apartment building listed in regulation 10.5.40.40(4), divided by the area of the lot.</p>		<table><tr><th>Level</th><th>Visitor/Commercial Parking Provided</th><th>Visitor/Commercial Parking Required</th><th>Car-Share Provided</th></tr><tr><td>P1</td><td>77</td><td>8</td><td>2</td></tr></table> <p>*required visitor parking = 2 + (0.01 per unit)</p> <table><tr><th>Level</th><th>Residential Parking Provided</th></tr><tr><td>P2</td><td>149</td></tr><tr><td>P1</td><td>28</td></tr><tr><td></td><td>177</td></tr></table> <table><tr><th>Total Parking Provided</th></tr><tr><td>254</td></tr></table>		Level	Visitor/Commercial Parking Provided	Visitor/Commercial Parking Required	Car-Share Provided	P1	77	8	2	Level	Residential Parking Provided	P2	149	P1	28		177	Total Parking Provided	254																																			
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<p>*Affordable Units Note:To be provided in accordance with statutory I2 requirements. Number of units to be reviewed during the Site Plan Approval process.</p>		<p>REQUIRED BIKE PARKING SPACES:</p> <table><tr><th>Land Use</th><th>Units / GFA</th><th>Short Term</th><th>Long Term*</th><th>Spaces Required</th></tr><tr><td>Residential</td><td>620 Units</td><td>0.2 per unit = 124</td><td>0.9 per unit = 558</td><td>682 Spaces</td></tr><tr><td>Retail / Grocery</td><td>3219.9 m²</td><td>3 + 0.3 per 100 m² = 13</td><td>0.2 per 100 m² = 7</td><td>20 Spaces</td></tr><tr><td>At Grade</td><td>N/A</td><td>10 Spaces</td><td></td><td>10 Spaces</td></tr><tr><td>Totals:</td><td></td><td>147 Spaces</td><td>565 Spaces</td><td>712 Spaces</td></tr></table> <p><small>*TOTAL OF REQUIRED LONG TERM RESIDENTIAL BICYCLE PARKING SPACES TO BE PROVIDED: 677 (20 SPACES ARE AT THE TOP LEVEL)</small></p> <p>PROVIDED BIKE PARKING SPACES:</p> <table><tr><th>Land Use</th><th>Short Term</th><th>Long Term**</th><th>Spaces Provided</th></tr><tr><td>Residential</td><td>124 Spaces</td><td>560 Spaces</td><td>684 Spaces</td></tr><tr><td>Retail / Grocery</td><td>13 Spaces</td><td>7 Spaces</td><td>20 Spaces</td></tr><tr><td>At Grade</td><td>10 Spaces</td><td></td><td>10 Spaces</td></tr><tr><td>Totals:</td><td>147 Spaces</td><td>567 Spaces</td><td>714 Spaces</td></tr></table> <p><small>**THE LONG TERM RESIDENTIAL BICYCLE PARKING SPACES TO BE EQUIPPED FOR CYCLISTS</small></p> <p>BIKE PARKING LOCATIONS:</p> <table><tr><th>Level</th><th>Count</th></tr><tr><td>P1</td><td>176 x 4 = 704*</td></tr><tr><td>Ground Floor</td><td>10</td></tr><tr><td>Total:</td><td>714</td></tr></table> <p>*REFER TO P1 PLAN FOR DERO DECKER SYSTEM</p>		Land Use	Units / GFA	Short Term	Long Term*	Spaces Required	Residential	620 Units	0.2 per unit = 124	0.9 per unit = 558	682 Spaces	Retail / Grocery	3219.9 m²	3 + 0.3 per 100 m² = 13	0.2 per 100 m² = 7	20 Spaces	At Grade	N/A	10 Spaces		10 Spaces	Totals:		147 Spaces	565 Spaces	712 Spaces	Land Use	Short Term	Long Term**	Spaces Provided	Residential	124 Spaces	560 Spaces	684 Spaces	Retail / Grocery	13 Spaces	7 Spaces	20 Spaces	At Grade	10 Spaces		10 Spaces	Totals:	147 Spaces	567 Spaces	714 Spaces	Level	Count	P1	176 x 4 = 704*	Ground Floor	10	Total:	714
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Level28	719.1 m²	7740.2 ft²	14
Level29	719.1 m²	7740.2 ft²	14
	20383.2 m²	219403.1 ft²	379

BUILDING A UNIT MIX:

Name	Count	Unit Mix	Average Area, m2	Average Area, sf
UNIT 1BD	201	53.0%	46.8 m²	503.6 ft²
UNIT 2BD	95	25.1%	65.3 m²	702.4 ft²
UNIT 3 BD	36	9.5%	91.5 m²	984.7 ft²
UNIT STUDIO	47	12.4%	31.6 m²	340.6 ft²
	379		235.2 m²	2531.3 ft²

BUILDING B*: SEE UNIT MIX CHARTER HATCHED AREA

Level	Residential GFA, m2	Residential GFA, sf	Count
Level02	972.8 m²	10470.6 ft²	14
Level03	724.8 m²	7801.4 ft²	11
Level04	1298.7 m²	13979.3 ft²	24
Level05	1252.1 m²	13477.7 ft²	23
Level06	1252.1 m²	13477.7 ft²	23
Level07	1252.1 m²	13477.7 ft²	23
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Level09	1252.1 m²	13477.7 ft²	23
Level10	1252.1 m²	13477.7 ft²	23
Level11	1045.4 m²	11252.9 ft²	18
Level12	1045.4 m²	11252.9 ft²	18
Level13	1045.4 m²	11252.9 ft²	18
	13645.3 m²	146876.3 ft²	241

BUILDING B UNIT MIX:

Name	Count	Unit Mix	Average Area, m2	Average Area, sf
UNIT 1BD	111	46.1%	52.3 m²	563.0 ft²
UNIT 2BD	56	23.2%	64.7 m²	696.6 ft²
UNIT 3 BD	25	10.4%	95.2 m²	1024.6 ft²
UNIT 4 BD	1	0.4%	126.9 m²	1366.1 ft²
UNIT STUDIO	48	19.9%	35.6 m²	383.3 ft²
	241		374.7 m²	4033.5 ft²

BUILDING A & B UNIT MIX:

Name	Count	Unit Mix	Average Area, m2	Average Area, sf
UNIT 1BD	311	50%	48.7 m²	524.7 ft²
UNIT 2BD	152	24%	65.1 m²	700.2 ft²
UNIT 3 BD	61	10%	93.0 m²	1001.1 ft²
UNIT 4 BD	1	0%	126.9 m²	1366.1 ft²
UNIT STUDIO	95	15%	33.6 m²	362.2 ft²
	620		367.4 m²	3954.2 ft²

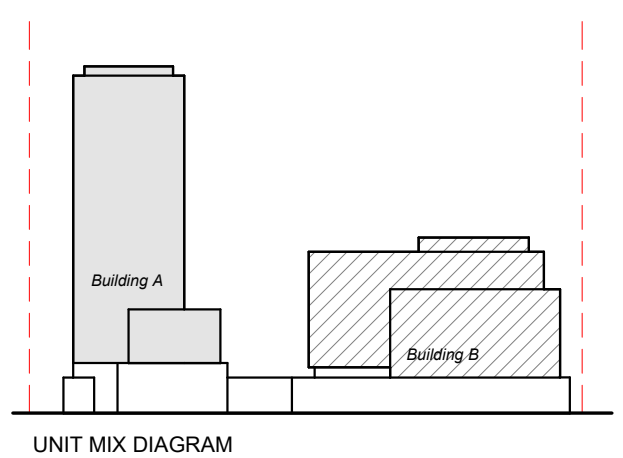
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Prior to commencement of the Work the Contractor shall verify all drawing dimensions, datums, and levels with the Contract Documents and with the conditions on site; ascertain any discrepancies between the site and the Contract Documents, and bring these items to the attention of the Architect for clarification.

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UNIT MIX DIAGRAM

BUILDING A*: *SEE UNIT MIX DIAGRAM HATCHED AREA			
Level	Residential GFA, m2	Residential GFA, sf	Count
Level03	320.0 m²	3444.8 ft²	5
Level04	992.5 m²	10683.0 ft²	16
Level05	992.5 m²	10683.0 ft²	16
Level06	992.5 m²	10683.0 ft²	16
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GREEN ROOF STATISTICS		Proposed
Gross Roof Area, as defined in Green Roof Bylaw (m²)		41904.6 m² 6133.7 m²
Total Roof Area (m²)		4231.2 m²
Area of Residential Private Terraces (m²)		1098.6 m²
Rooftop Outdoor Amenity Space, if in a Residential Building (m²)		0 m²
Area of Renewable Energy Devices (m²)		N/A
Tower (s)Roof Area with floor plate less than 750 m²		
Total Available Roof Space (m²)		2518.9 m²
Green Roof Coverage		
Coverage of Available Roof Space (m²)	Required	Proposed
Coverage of Available Roof Space (%)	1511.34 m² 60 %	1530.7 m² 60 %

Definitions		
FLOOR PLATE AREA - The total area of a floor of a building, measured from the exterior of the main wall of the floor level, including voids at the level of the floor, such as an atrium, mezzanine, stairwell, escalator, elevator, ventilation duct or utility shaft.		
GREEN ROOF - An extension of an above grade roof, built on top of a human-made structure, that allows vegetation to grow in a growing medium and which is designed, constructed and maintained in accordance with the Toronto Green Roof Construction Standard.		
GROSS FLOOR AREA - The total area of each floor level of a building, above and below average grade, measured from the exterior of the main wall of each floor level, including voids at the level of each floor, such as an atrium, mezzanine, stairwell, escalator, elevator, ventilation duct or utility shaft, but excluding areas used for the purpose of parking or loading.		
PRIVATE TERRACE - Outdoor amenity area on a roof that is available exclusively for use by the occupants of an abutting residential unit for recreational or social activities.		

LOADING NOTES		
1. TYPE G LOADING SPACE AND ADJACENT STAGING PAD HAVE VERTICAL CLEARANCE OF MIN 6.1 METERS.		
OVERHEAD DOOR TO LOADING SPACE WILL HAVE MIN 4.4 METER HEIGHT. 2.1M DEEP STAGING AREA DIRECTLY IN FRONT OF THE LOADING AREA TO HAVE MIN. VERTICAL CLEARANCE OF 6.1M.		
2. TYPE G LOADING SPACE WILL BE SHARED BETWEEN RESIDENTIAL AND NON-RESIDENTIAL USES. NON-RESIDENTIAL COMPONENT WILL ONLY SCHEDULE USE OF THE TYPE G LOADING SPACE ON DIFFERENT DAYS FROM THE COLLECTION DAYS OF THE RESIDENTIAL COMPONENT TO ENSURE THAT THE TYPE G LOADING SPACE WILL BE VACANT FOR CITY WASTE COLLECTION.		
3. NON-RESIDENTIAL WASTE WILL BE LABELLED AND STORED SEPARATELY FROM THE BINS FOR RESIDENTIAL WASTE.		
4. TYPE G LOADING SPACE WILL BE LEVEL (1% - 2%) AND CONSTRUCTED WITH MIN 200mm THICK SACRIFICIAL CONCRETE SLAB.		
5. A WARNING SYSTEM WILL BE PROVIDED, ALERTING DRIVERS WHEN EXITING THE UNDERGROUND PARKING GARAGE THAT LARGE TRUCKS ARE MANOEUVRING WITHIN THE PUBLIC LANE.		
6. ALL ACCESS DRIVEWAYS TO BE USED BY THE GARBAGE COLLECTION VEHICLE WILL HAVE:		
a) MAXIMUM GRADIENT OF 8%;		
b) MINIMUM VERTICAL CLEARANCE OF 4.4 METRES THROUGHOUT;		
c) MINIMUM WIDTH OF 4.5 METRES THROUGHOUT; AND		
d) 6 METRES WIDE AT POINT OF INGRESS AND EGRESS.		
7. NO PARKING SIGNS TO BE PROVIDED AND MAINTAINED ADJACENT TO THE LOADING SPACE.		
8. CONSTRUCT ANY TYPE G LOADING SPACE AND ALL DRIVEWAYS AND PASSAGEWAYS PROVIDING ACCESS THERETO, TO THE REQUIREMENTS OF THE ONTARIO BUILDING CODE, INCLUDING ALLOWANCE FOR CITY OF TORONTO BULK LIFT AND REAR BIN LOADING WITH IMPACT FACTORS WHERE THEY ARE TO BE BUILT AS SUPPORTED STRUCTURES.		
9. THE RESIDENTIAL SOLID WASTE ROOM WILL ACCOMMODATE GARBAGE, RECYCLING AND ORGANICS FOR THE RESIDENTIAL COMPONENT OF THE BUILDING VIA USE OF A BIKORTER IN THE DEVELOPMENT.		
10. BULK WASTE HAS 10m² DESIGNATED FLOOR AREA FOR THE DEVELOPMENT.		
11. COLLECTION OF WASTE MATERIALS FOR THIS DEVELOPMENT WILL TAKE PLACE IN AN ENCLOSED LOADING BAY. AN ON-SITE STAFF PERSON IS RESPONSIBLE FOR MOVING THE BINS FROM THE GARBAGE STORAGE SPACE TO THE COLLECTION POINT AND PROVIDE VEHICULAR DIRECTIVES TO THE COLLECTION VEHICLE OPERATOR AS REQUIRED.		
12. THIS BUILDING IS DESIGNED WITH A TYPE G LOADING SPACE, A FLASHING WARNING LIGHT SYSTEM AND/OR APPROPRIATE SIGNAGE ADJACENT TO THE SPACE, AT NO COST TO THE CITY, WILL BE IN PLACE AND ACTIVATED DURING COLLECTION AND REMAIN ACTIVE UNTIL THE VEHICLE EXITS THE SITE. REFER TO TRAFFIC CONSULTANT REPORT FOR SWEEP PATH.		
13. SOLID WASTE MANAGEMENT TO BE NOTIFIED UPON COMPLETION OF THE DEVELOPMENT AND SHOULD PUBLIC WASTE COLLECTION BE USED, ALL NECESSARY APPLICATION AND WAIVER FORMS TO BE COMPLETED PRIOR TO COMMENCEMENT OF CITY REFUSE COLLECTION.		
14. NON-RESIDENTIAL GARBAGE WILL BE COLLECTED BY LICENSED PRIVATE WASTE MANAGEMENT COMPANY.		
15. REFUSE GENERATED BY THE NON-RESIDENTIAL USE MUST BE STORED ON SITE, IN RODENT PROOF CONTAINERS IN ACCORDANCE WITH CHAPTER 841 OF THE MUNICIPAL CODE, "WASTE COLLECTION, COMMERCIAL PROPERTIES".		
16. TRAINED ON-SITE STAFF MEMBER WILL BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING. IN THE EVENT THE ON-SITE STAFF IS UNAVAILABLE AT THE TIME THE CITY COLLECTION VEHICLE ARRIVES AT THE SITE, THE COLLECTION VEHICLE WILL LEAVE THE SITE AND NOT RETURN UNTIL THE NEXT SCHEDULED COLLECTION DATE. FOR SPECIFIC TRUCK DIMENSIONS AND TURNING RADII, REFER TO TRAFFIC CONSULTANT'S REPORT.		

SITE PLAN NOTES		
1. THE BUILDING IS TO BE SPRINKLERED.		
2. RESIDENTIAL VISITOR PARKING SPACES WILL BE INDIVIDUALLY SIGNED AT THE FRONT OF EACH SPACE FOR THE USE OF RESIDENTIAL VISITORS. BUILDING MANAGEMENT SHALL PROVIDE ENFORCEMENT OF THIS ARRANGEMENT.		
3. SIDEWALKS AND BOULEVARDS WITHIN THE RIGHT OF WAY TO HAVE A MINIMUM 1% AND MAXIMUM 4% SLOPE TOWARDS THE ROADWAY.		
4. REFER TO SITE SERVING DOCUMENTS FOR SEWER AND WATER SERVICE INFORMATION.		
5. ANY RETAINING WALLS ARE TO BE PROFESSIONALLY ENGINEERED.		
6. ALL EXISTING ACCESSES, CURB CUTS, TRAFFIC CONTROL SIGNS, ETC. ALONG THE DEVELOPMENT SITE FRONTAGES THAT ARE NO LONGER REQUIRED ARE TO BE REMOVED. THE BOULEVARD WITHIN THE PUBLIC RIGHT OF WAY, IN ACCORDANCE WITH CITY STANDARDS AND TO THE SATISFACTION OF THE EXECUTIVE DIRECTOR OF TECHNICAL SERVICES ARE TO BE REINSTATED.		
7. PROPOSED ACCESS TO THE RIGHT-OF-WAY/LANEWAY FOR THIS PROJECT TO BE DESIGNED IN ACCORDANCE WITH CITY STANDARD NO.1310-850-1 FOR COMBINED CURB AND SIDEWALK VEHICULAR ENTRANCES.		
8. NO SPEED BUMPS SHALL BE INSTALLED ON ANY DESIGNATED FIRE ROUTE.		
9. MAX. POROSITY OF ALL GROUND LEVEL VENTILATION GRATES MUST BE 20mm X 20mm PER TORONTO GREEN STANDARDS.		
10. ALL EXTERIOR LIGHT FIXTURES TO BE DARK SKY COMPLIANT.		
UTILITIES/SERVICES NOTES		
1. THE METHOD OF INSTALLATION FOR THE PROPOSED SERVICE CONNECTIONS WILL BE AT THE DISCRETION OF TORONTO WATER.		
2. EXISTING CONNECTIONS NO LONGER IN USE SHALL BE DISCONNECTED BY TORONTO WATER AT THE OWNERS COST.		
3. THE LOCATION OF THE WATER METER SHALL BE TO TORONTO WATER'S SATISFACTION.		
4. THE OWNER IS REQUIRED TO INSTALL AND MAINTAIN A PREMISE ISOLATION DEVICE FOR ALL APPLICABLE WATER SERVICES IN ACCORDANCE WITH THE TORONTO MUNICIPAL CODE, CHAPTER 851 WATER SUPPLY, THE BUILDING CODE AND CSA 864 SERIES STANDARDS.		
5. THE BUILDING'S STORM AND SANITARY SYSTEM MUST BE DESIGNED TO BE ABLE TO OPERATE UNDER MUNICIPAL BURCHARGE CONDITIONS.		
6. BE ADVISED THAT SHOULD ANY PARTY, INCLUDING THE APPLICANT OR ANY SUBSEQUENT OWNER, APPLY FOR MORE THAN ONE CONDOMINIUM CORPORATION ENCOMPASSING ANY OR ALL OF THIS DEVELOPMENT OR MAKE AN APPLICATION THAT RESULTS IN A LAND DIVISION, STAFF MAY REQUIRE LEGAL ASSURANCES, INCLUDING BUT NOT LIMITED TO EASEMENTS, WITH RESPECT TO THE APPROVED SERVICES. SUCH ASSURANCES WILL BE DETERMINED AT THE TIME OF APPLICATION FOR CONDOMINIUM APPROVAL.		

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Prior to commencement of the Work the Contractor shall verify all drawing dimensions, datums, and levels with the Contract Documents and with the conditions on site, ascertain any discrepancies between the site and the Contract Documents, and bring these items to the attention of the Architect for clarification.		
101 - 35 Golden Avenue Toronto, ON M6R 2J5		
t> 416.596.0700 f> 416.533.6986 www.superkul.ca		

PRINCIPAL ENTRY		
ENTRY/ EXIT		
VEHICULAR ENTRY/ EXIT		
FIRE DEPARTMENT CONNECTION		
FIRE HYDRANT		
MANHOLE COVER		
CATCH BASIN		
HYDRO POLE		
ELECTRICAL STAND		
EXTENT OF BELOW GRADE		
BUILDING ELEMENT ABOVE		
OPEN TO BELOW		
EXTENT OF GROUND FLOOR		
123.45		
GEODETIC ELEVATION		
HT: 12.38 m		
ELEVATION FROM ESTABLISHED GRADE		
78.20		
EXISTING GRADE ELEVATION FH		
BARRIER FREE TURNING RADIUS		
EXISTING BUILDING		
PROPERTY CONVEYANCE		
PROPERTY LINE		
FFE FINISHED FLOOR ELEVATION		
TOP TOP OF PARAPET		
TOR TOP OF ROOF		
TOS TOP OF STRUCTURE		
TGS TORONTO GREEN STANDARDS		
TPZ TREE PROTECTION ZONE		

NOTE:		
SURVEY INFORMATION TAKEN FROM "LOT 1 AND PART OF LOT 2 REGISTERED PLAN 614 YORK AND PART OF LOT 13 SOUTH SIDE OF DANFORTH AVENUE REGISTERED PLAN 90 YORK AND PART OF LOTS 3, 4, 5, 6, 7 AND 8 REGISTERED PLAN 580 YORK CITY OF TORONTO" BY KROMER SURVEYORS LTD. DATED JULY, 27 2022.		
2	SEP 10, 2025	Re-Issued for OPA and ZBA
1	OCT 28, 2024	Issued for OPA and ZBA
No.	Date	Issue/Revision

ONTARIO ASSOCIATION OF ARCHITECTS		
ANDREW LUCIO 5620		

2451-2495 Danforth		
2451-2495 Danforth Avenue, Toronto, ON M6R 2J5		

Title:		
SITE PLAN		
Project No.	2216	Scale As indicated
Drawing No.		
A.100		

1 Site Plan		
1 : 300		

<u>GREEN ROOF STATISTICS</u>		Proposed
Gross Floor Area, as defined in Green Roof Bylaw (m²)		41904.6 m² 613.7 m²
Total Roof Area (m²)		4231.2 m²
Area of Residential Private Terraces (m²)		
Rooftop Outdoor Amenity Space, if in a Residential Building (m²)		1098.6 m²
Area of Renewable Energy Devices (m²)		0 m²
Tower (s)Roof Area with floor plate less than 750 m²		N/A
Total Available Roof Space (m²)		2518.9 m²
Green Roof Coverage	Required	Proposed
Coverage of Available Roof Space (m²)	1511.34 m²	1530.7 m²
Coverage of Available Roof Space (%)	60 %	60 %

APPENDIX B

- Dye Test Investigation by Aquaflow Technologies



**226 WILKINSON ROAD, BRAMPTON, ONTARIO L6T 4N7
(905) 792-8169**

**COMBINED SEWER INVESTIGATION REPORT
DYE TEST**

100 MM - 450 MM DIAMETER COMBINED SEWERS

FOR

2451 - 2495 DANFORTH AVENUE

CITY OF TORONTO

**CONSULTING ENGINEER: CIVIL GO ENG. INC.
CONSULTING ENGINEER'S REPRESENTATIVE:
DANIEL BANCROFT
OWNER: FIRST CAPITAL
OWNER'S REPRESENTATIVE: MADELEINE BRADSHAW**

WEDNESDAY, AUGUST 9TH, 2023

INDEX:

- 1. TITLE PAGE AND INDEX**
- 2. SUMMARY REPORT AND CONCLUSIONS**
- 3. SKETCH OF SEWERS INSPECTED**

**SEWER CLEANING, VIDEO INSPECTION, INSITU REPAIRS &
MUNICIPAL ENGINEERING SERVICES**

2. SUMMARY REPORT AND CONCLUSIONS:

The investigation of the combined sewers at 2451 - 2495 Danforth Avenue was carried out by Steven Lostracco, P.Eng. of Aquaflow Technology, and was authorized by Daniel Bancroft of Civil Go Eng. Inc. The investigation was carried out on Wednesday August, 9th, 2023.

The purpose of this report was to determine which municipal sewer the building storm and sanitary drains connect to. Dye testing was carried out to confirm which sewer the building connects to.

1. All drains on site connect to the Danforth Avenue 300 mm / 375 mm combined sewer (sewer on the south side of Danforth Avenue). DCB-1, CB-2, CB-3, CB-4, CB-5, all roof drains and the sanitary drains all connect to the combined sewer system.
2. Note, all storm drains on the west side of the site connect to the property line STM-MH, then connect to the combined sewer. All sanitary sewers for the site connect to the property line SAN-MH, then connect to the combined sewer.



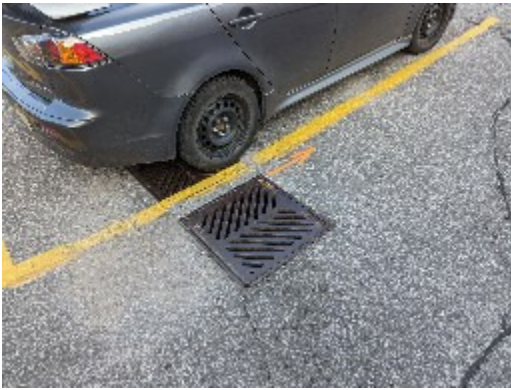
1. 2451-2495 Danforth Ave



2. Property line STM + SAN MH's



3. Dye observed in 300 mm / 375 mm comb. swr



4. DCB-1



5. CB-3



6. Roof drains



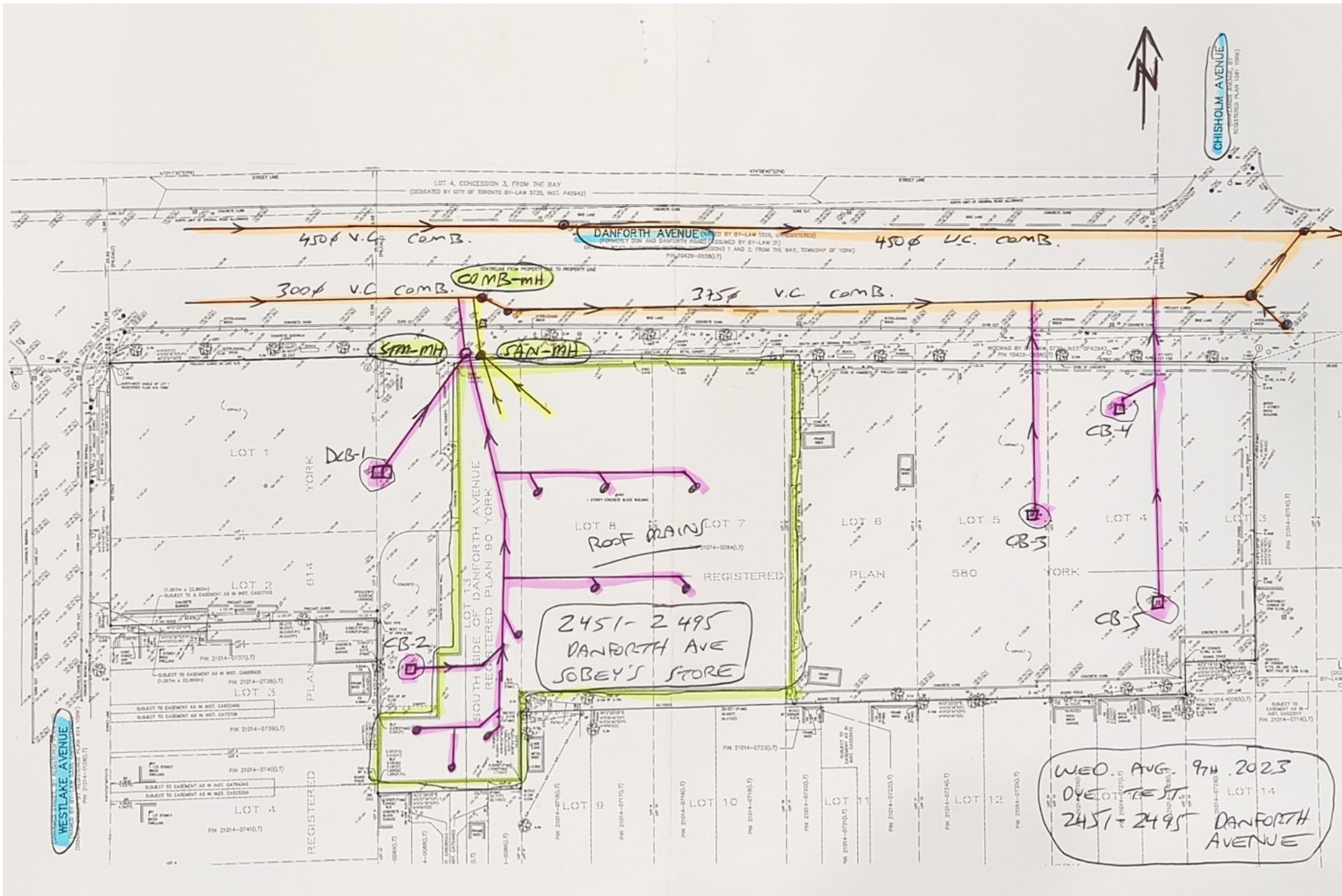
7. Roof drains



8. Flush truck + video van for dye testing

Report Prepared by:

Steven Lostracco, P. Eng.



APPENDIX C

- City Engineering Records – City of Toronto Drawing No. D-110-1

