nexTrans Consulting

A Division of NextEng Consulting Group Inc.

Transportation Planning

Traffic Impact Assessment

Parking Assessment

Site Access Design & Review

Site Servicing and Grading

Stormwater Management

Municipal Road Design

Functional Servicing and Storm Water Management Report

Proposed 2-Storey Commercial/Office Building

3650 Eglington Avenue West
Mississauga, Ontario

December 11 2023 DRAFT
Project No:NT-22-129

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1.0 INTRODUCTION

This Functional Servicing & Stormwater Management Report has been prepared in support of the Rezoning (ZBA) and Site Plan Control Application (SPCA) for the proposed 2-Storey Commercial/Office development at 3650 Eglinton Avenue West, in the City of Mississauga, Region of Peel.

The purpose of this report is to identify and document how the proposed development will be serviced by the City's existing municipal infrastructure (i.e. water, storm and sanitary) and the measures to be used to provide appropriate stormwater management.

2.0 SITE LOCATION & EXISTING CONDITIONS

The subject site is approximately 0.4193 hectares in area and is located at the southwest corner of Eglinton Avenue West and Ridgeway Drive, as shown in **Figure 1 after the report**.

The subject site is bounded by:

- Commercial Plaza to the south, east and west (PLATINUM CENTRE).
- Eglinton Avenue West to the north.

3.0 PROPOSED DEVELOPMENT

The proposed development consists of a 2-storey commercial/office building with total GFA of 2240.9 m^2, as shown in the Site Plan contained in **Appendix A**.

4.0 MUNICIPAL SERVICING

4.1 WATER

4.1.1 Design Criteria

Type of Construction	Residential - Single Detached	Commercial
Average Water Deman	280 L/person/day	300 L/person/day
PPU	4.2 persons/unit	50 persons/ha
Maximum Day Factor	2.0	1.4
Peak Hour Factor	3.0	3.0

Region of Peel, Watermain Design Criteria, Revised June 2010

4.1.2 Existing Conditions

As shown in the City's 'As-Built' drawings (contained in **Appendix B**), there is an existing 400 mm dia. concrete watermain located on the southside of Eglinton Avenue West that runs along the northern frontage of the subject site.

There are 2 fire hydrants on Eglinton Avenue West. One is located at east of the subject site with approximate 4.0m distance to the eastern property, and the other located at west of the subject site with approximate 60.0m distance to the western property.

Currently there is a detached house on the site and has an existing average water demand of 0.01 l/s, see detailed calculation in Appendix C.

4.1.3 Proposed Water Demand

Based on the calculation in **Appendix C**, water demand and pressure as below in Table 1:

Table 1 Proposed Water Demand & Pressure

	Water Demand	Required Pressure, kPa
Average Daily Demand, l/s	0.07	275 - 690
Maximum Daily Demand. l/s	0.10	275 - 690
Peak Hourly Demand, l/s	0.22	275 - 690

According to our calculations as per FUS, a minimum fire suppression flow of 174 l/s (10,000 l/min) at 140 kPa will be required, refer to detailed calculations in **Appendix C**.

A Hydrant Flow Test will be provided at the detailed design stage to confirm pressures and flows according to the Watermain Design Criteria, Region of Peel.

4.1.4 Proposed Water Servicing

A proposed 200mm dia. water servicing line will be proposed to service the site, which will connect to the existing 400mm dia. conc. watermain on Eglinton Avenue West as per Peel Region standard drawing of 1-8-4.

Currently no additional Fire Hydrants are being proposed since there are 2 existing hydrants within 75m which provides sufficient coverage for the proposed development.

4.2 SANITARY

4.2.1 Design Criteria

Type of Construction	Residential - Single Detached	Commercial
PPU	4.2 persons/unit	50 persons/ha
Peak sanitary flow factor	Harmon Formula	
Average Daily Sanitary Flow	290 L/capita/day	270 L/capita/day
Peak Extraneous Flow	0.26 L/s/ha	

Region of Peel, Linear Wastewater Standards, March 2023

4.2.2 Existing Conditions

As shown in City's 'As-Built' drawings (contained in **Appendix B**), there is an existing 375mm dia. concrete sanitary sewer along Eglinton Avenue West running to east.

Currently there is a detached house on the site and has an existing sanitary flow of 0.17 l/s, see detailed calculation in Appendix D. As per the as-built drawing from City, the existing sanitary servicing line to the subject site is connected from the existing SAN MH124A with size of 150mm dia., slope of 8.20% and material of PVC, see details in the as-built drawing in Appendix B.

4.2.3 Proposed Sanitary Flow

Due to the proposed site development, the proposed sanitary flow will be 0.37 l/s, for detailed calculation see in **Appendix D**. The proposed development will contribute an additional 0.5% to the existing sanitary servicing line (150mm dia.) for a fullness of 0.9%. Similarly, the proposed development will contribute an additional 0.20 l/s to the existing sanitary sewer (375mm dia.) capacity for a fullness of 0.3%, both increase in flows can be considered negligible. See detailed calculation in Appendix D.

4.2.4 Proposed Sanitary Servicing

The existing sanitary servicing line will remain and will be re-used in post development. However, a sanitary control MH is proposed at the property line. The conditions of the existing sanitary servicing line will be confirmed in detailed design stage.

5.0 GRADING, DRAINAGE & STORMWATER MANAGEMENT

5.1.1 Stormwater Design Criteria

The most current version of the following guidelines, policies and standards will apply to the design of storm drainage facilities in the City of Mississauga:

- Development Requirements Manual, Section 8 – Storm Drainage Design Requirements, City of Mississauga, Effective November 2020
- M.T.O. Drainage Management Technical Guidelines,
- MOECC (i.e., Stormwater Management Planning and Design Manual, March 2003)
- Wet Weather Flow Management Guidelines, WWFMG, November 2006
- Low Impact Development Stormwater Management Planning and Design Guide (TRCA, 2011)

5.1.2 Stormwater Quality Control

At a site level, applicants are required to provide a minimum treatment of 80% total suspended solids removal (TSS Removal) on an average annual basis.

5.1.3 Storm Water Quantity Control

As per City's watershed boundaries, the subject site is located within the Sawmill Creek watershed

area, see in Appendix E in FSR.

As per the Table 1 (Stormwater Quantity Control Requirements), Section 8 – Storm Drainage Design Requirements, Development Requirements Manual, City of Mississauga, Effective November 2020, the quantity control criteria is to provide post to pre control for all storms (i.e. 2, 5, 10, 25, 50 & 100-year storm event).

5.1.4 Water Balance

The first 5mm of runoff shall be retained on-site and managed by way of infiltration, evapotranspiration, re-use or infiltration.

5.2 EXISTING CONDITIONS

5.2.1 Existing Stormwater Service

As per City's as-built drawing in Appendix B, there is an existing 1950mm dia. concrete storm sewer along Eglinton Avenue West running to east.

There is an existing CB located at north of the site which collects the runoff from the site and conveys the stormwater to the existing 1950mm dia. concrete storm sewer on Eglinton Avenue west. As per City's as-built drawing in Appendix B, the existing CB lead has a size of 375mm dia. and slope of 2.0%.

5.2.2 Pre-Development Stormwater Flow

Quantity calculations for pre-development storm flows are provided in Appendix E and summarized in Table 2. Pre-development flows for the site were determined as per the City of Mississauga Intensity of Rainfall.

Detailed calculations and stormwater plan can be found in **Appendix E** and pre-development drainage patterns can be found in **DAP-01** drawing.

Table 2 – Pre-Development Stormwater Flow

Return Period	Drainage Area, ha	Runoff "C"	Flow, l/s
1:2	0.4193	0.42	29.1
1:5		0.42	39.1
1:10		0.42	48.2
1:25		0.46	60.9
1:50		0.50	74.2
1:100		0.52	85.5

5.3 STORMWATER QUANTITY CONTROL

Most of the runoff from the pose-development (B101) will be collected via an internal storm system including catchbasins and manholes, runoff from area of B102 at north of the site will drain uncontrolled to Eglinton Avenue West. Detailed calculations and stormwater plan can be found in

Appendix E and post-development drainage patterns can be found in **DAP-01** drawing.

The following table identifies the input post development parameters and the corresponding detailed calculations can be found in **Appendix E**.

Table 3 – Post-Development Stormwater Flow

Catchment ID	Return Period	Drainage Area ha	Runoff "C"	Flow l/s	**Discharge**
B101	1:5	0.3956	0.82	73.6	to internal storm system
	1:100		1.00	154.6	
B102	1:5	0.0237	0.51	2.7	uncontrolled to Eglinton ROW
	1:100		0.64	6.0	

Table 4 – Post-Development Quantity Control Analysis

Return Period (1)	Pre- Flow (L/s) (2)	Uncontrolled Flows (L/s) (3)	Flow before Quantity Control (L/s) (4)	Controlled Flow after Quantity Control (L/s) (5)	Required Storage (m^3) (6)
1:100	85.5	6.0	154.6	78.6	73.9

The required storage calculated for the site is 73.9m^3.

Hence: Storage for quantity control = 73.9 m^3;

Storage for infiltration =6.23 m^3, see section 5.5

Total V=73.9 + 6.23 = 80.13 m^3

An underground GreenStorm tank (size 12.0 x 5.6m x 1.32) will be provided for quantity control in order to maintain the pre-development flows. The maximum outflow from the site will be controlled via a 150mm dia. orifice tube located in the upstream of STM CON. MH. The 100 year storm event elevation is 180.10m and there will not be any ponding on site in the 100yr storm event.

The existing CB lead has a capacity of 248.0 l/s with size of 375mm dia. and slope of 2.0%, the controlled flow from the site will be 78.6 l/s, which accounts for 31.7% of the pipe fullness. Hence, the existing CB lead has sufficient capacity for the post development flows and will remain and to be re-used in post-development.

5.4 STORMWATER QUALITY CONTROL

The site is proposed to provide a long-term removal of 80% of total suspended solids (TSS) on an average annual basis.

To address this requirement, NexTrans is proposing to provide:

- A Stormceptor EFO4 at the upstream STM Control MH.
- Enhanced landscaping features to treat runoff from the property.

Table 5 below quantitively demonstrates how criteria targets are being addressed.

Table 5 – TSS Removal

Surface	Site Area (ha)	Fraction of Site Area	Proposed TSS Removal	TSS Removal Overall
Controlled				
Impervious	0.3540	84.4%	89%	75.1%
Landscape (300mm absorbent soil)	0.0416	9.9%	89%	8.8%
Uncontrolled				
Impervious	0.0007	0.2%	0	0%
Permeable Pavers	0.0230	5.5%	80%	4.4%
Total	0.4193			**88.3%**

5.5 WATER BALANCE

The water balance criterion requires that 5 mm of rainfall be diverted from the storm sewer system through infiltration, evapotranspiration, or rainwater reuse.

A total of 20.97m^3 of water is to be retained on site (4193m^2 $\times$ 5mm). **Table 6** below outlines the water balance totals based on the following:

- 1mm of abstraction for Asphalt and Roof area;
- 5mm of abstraction for landscape area with 300mm topsoil
- 25mm of abstraction for the 2 bio-swales on west and east sides of the site

Table 6 – Water Balance Analysis

Type	Area		Initial Abs.		Initial Absorbed	
Hard Surface - walkway+roof	3547	m^2	1	mm	3.55	m^3
Soft Surface - permeable pavers	230	m^2	5	mm	1.15	m^3
Landscape	18	m^2	5	mm	0.09	m^3
Bio-swales	398	M2	25	mm	9.95	m^3
Total	**4193**	**m^2**			**14.74**	**m^3**

Shortfall of Water Balance will be: 20.97-14.74=6.23 m^3. In order to address this shortfall in the water

balance, 6.23m^3 of the rainwater will be stored in the GreenStorm system for additional infiltration, details can be found in Appendix E.

6.0 SUMMARY

Table 7 – STM Plan Summary

	Criteria	Proposed	Met the Criteria?
Water Balance	5mm	5mm	yes
STM Quantity Control	Retain to pre-development	Minor System: internal pipe Major System: ex. plaza	yes
STM Quality Control	80% of TSS removal	80% min.	yes

This Functional Servicing and Stormwater Management Report has outlined the requirements for servicing the proposed development. Reference to Table 7, these preliminary studies and general results indicate that the subject development can be serviced by existing municipal services (storm, sanitary and water) and the existing infrastructure is adequate to support the proposed development.

7.0 LIMITATIONS OF REPORT and DRAWINGS

This Functional Servicing and Stormwater Management Report was prepared by NexTrans Consulting Engineers and for review by its designated agents, financial institutions, and government agencies. Use of the report is subject to the conditions and limitations of the contractual agreement.

The material in the report reflects the judgement of Wendy Li, P.Eng. and Ghansham Ramnath, P.Eng., in the light of the information available to it at the time of preparation. Any use which a Third Party makes of this report, and/or any reliance on decisions to be made based on it are the responsibility of such Third Parties. NexTrans Consulting Engineers accepts no responsibility for damages, if any, suffered by any Third Party as a result of decisions made or actions based on this report.

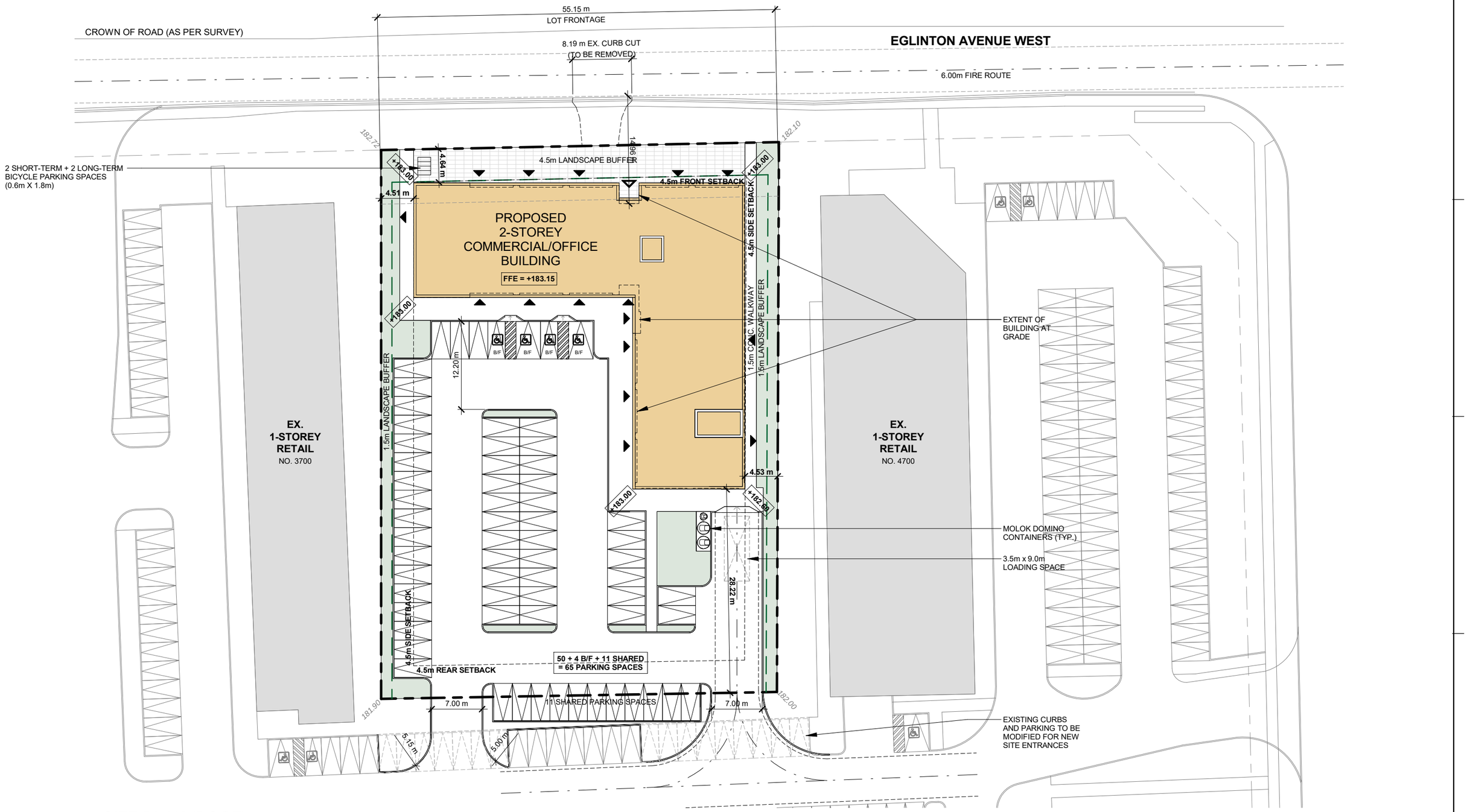
Report Prepared By: Report Reviewed By:

Wendy Li Ghansham Ramnath

P.Eng. P.Eng.

NEXTRANS (CONSULTING ENGINEERS)

Appendix A – Site Plan



1 SITE PLAN (ROOF)
1 : 500

CARICARI LEE ARCHITECTS

113 Miranda Avenue
Toronto, ON M6B 3W8
t/ 416 962 9670 f/ 416 962 9671
e/ info@caricarilee.com
www.caricarilee.com

CLA

PROJECT NAME
EGLINTON OFFICE BUILDING
3650 EGLINTON AVENUE W, MISSISSAUGA, ON

DRAWING TITLE
SITE PLAN

No.	Date:	Issued / Revision:	By:

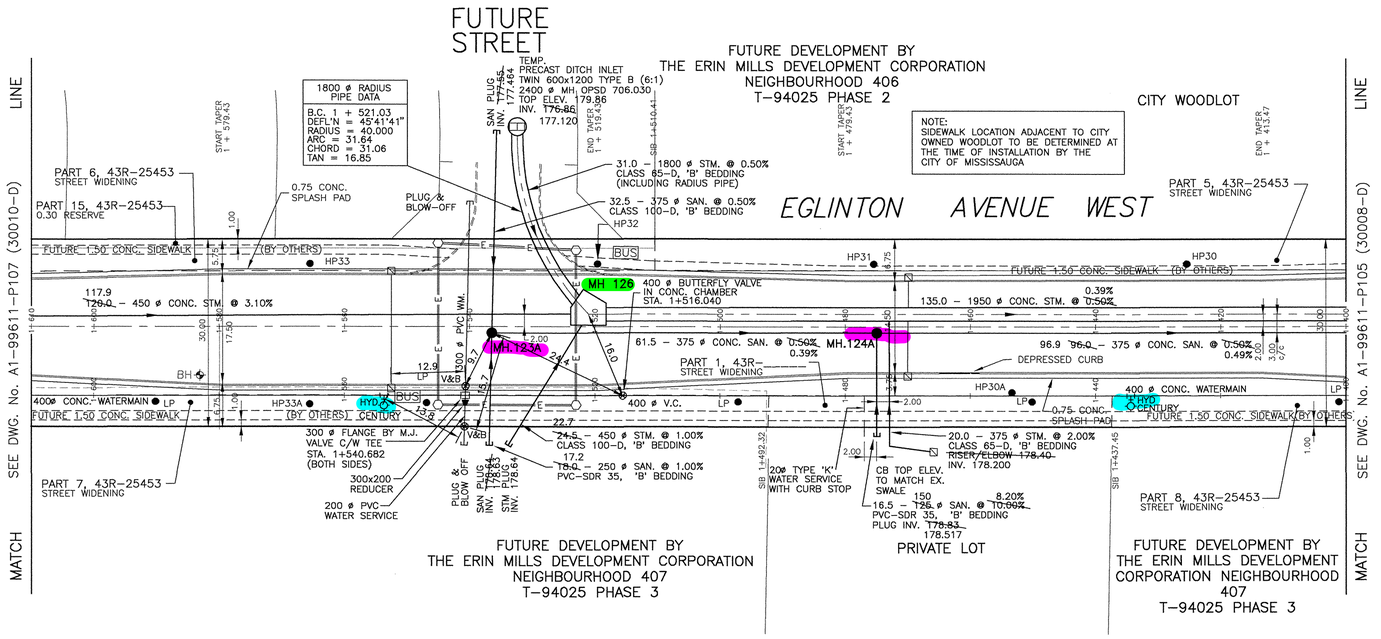
SCALE	1 : 500
PROJECT NO.	22032
DATE	NOV 2023
DRAWN BY	AL
CHECKED BY	MNG

NORTH: PN TN

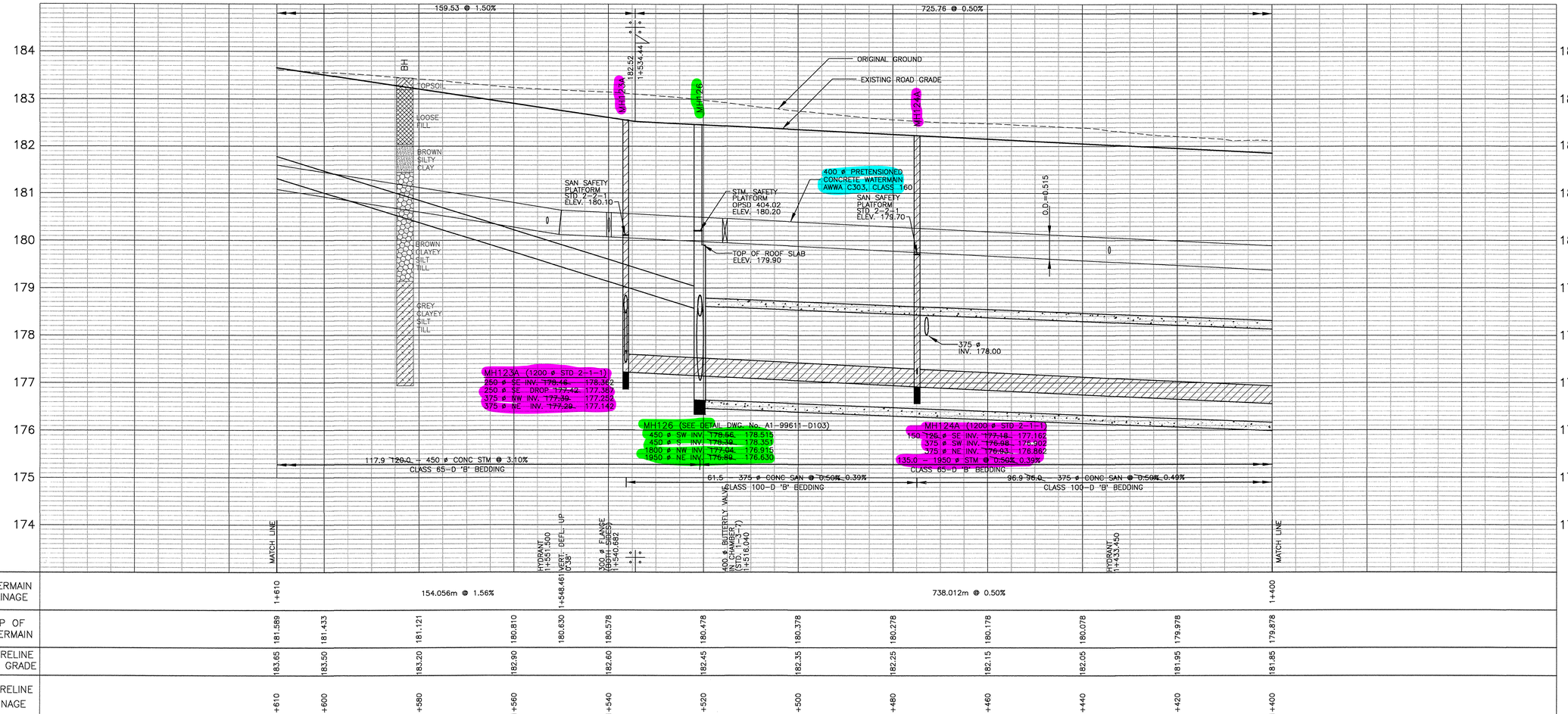
DRAWING NO.
A 1.30

11/27/2023 11:48:29 AM

Appendix B – As-Built Drawings & Survey

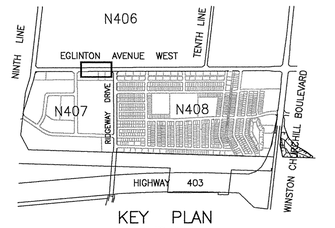


ROAD DESIGN TABLE (all dimensions in millimetres)					
STREET	HL3	HL8	20mm CRUSHED LIMESTONE	50mm CRUSHED LIMESTONE	TOTAL Thickness
EGLINTON AVE	40	100	200	400	740



ERIN MILLS
THE ERIN MILLS DEVELOPMENT CORPORATION

EGLINTON AVENUE WEST RECONSTRUCTION



KEY PLAN
NOT TO SCALE

GENERAL NOTES

1. SEE DRAWING A1-99611-NOTES FOR GENERAL NOTES.

LEGEND

- 20 mm DIA. WATER SERVICE (TYPE 'K' SOFT COPPER)
- SINGLE HOUSE SERVICE
- DOUBLE HOUSE SERVICE (ALL SERVICES LOCATED ON LOT LINES ARE DOUBLE SERVICES)
- ELECTRICAL HANDWELL
- E UNDERGROUND ELECTRICAL DUCT WORK
- CURB DEPRESSION
- CONC. ENCASEMENT
- SINGLE CATCHBASIN
- SINGLE CATCHBASIN WITH TYPE 'A' INLET CONTROL
- DOUBLE CATCHBASIN
- HP1 HYDRO POLE
- LP LIGHT POLE
- BUS BUS PLATFORM

No.	REVISIONS	Date	By	Approved
4	AS CONSTRUCTED	MAY.03	R.W.S.	
3	FINAL SUBMISSION	AUG.01	R.W.S.	
2	PRE-SERVICING SUBMISSION: NOT FOR CONSTRUCTION	JUN.01	R.W.S.	
1	FIRST SUBMISSION: NOT FOR CONSTRUCTION	APR.01	R.W.S.	

City of Mississauga Bench Mark
BM No.801 – On the South face at the West corner of a concrete Traffic Signal control box at the Northeast corner of Eglinton Avenue and Winston Churchill Boulevard. Elevation 177.232

Designed By:

REGISTERED PROFESSIONAL ENGINEER D. E. ROCKEL PROVINCE OF ONTARIO P. Eng.
Approved By

EARTH TECH
Earth Tech Canada Inc. Markham, Ontario 905.886.7022

MISSISSAUGA *Transportation and Works*

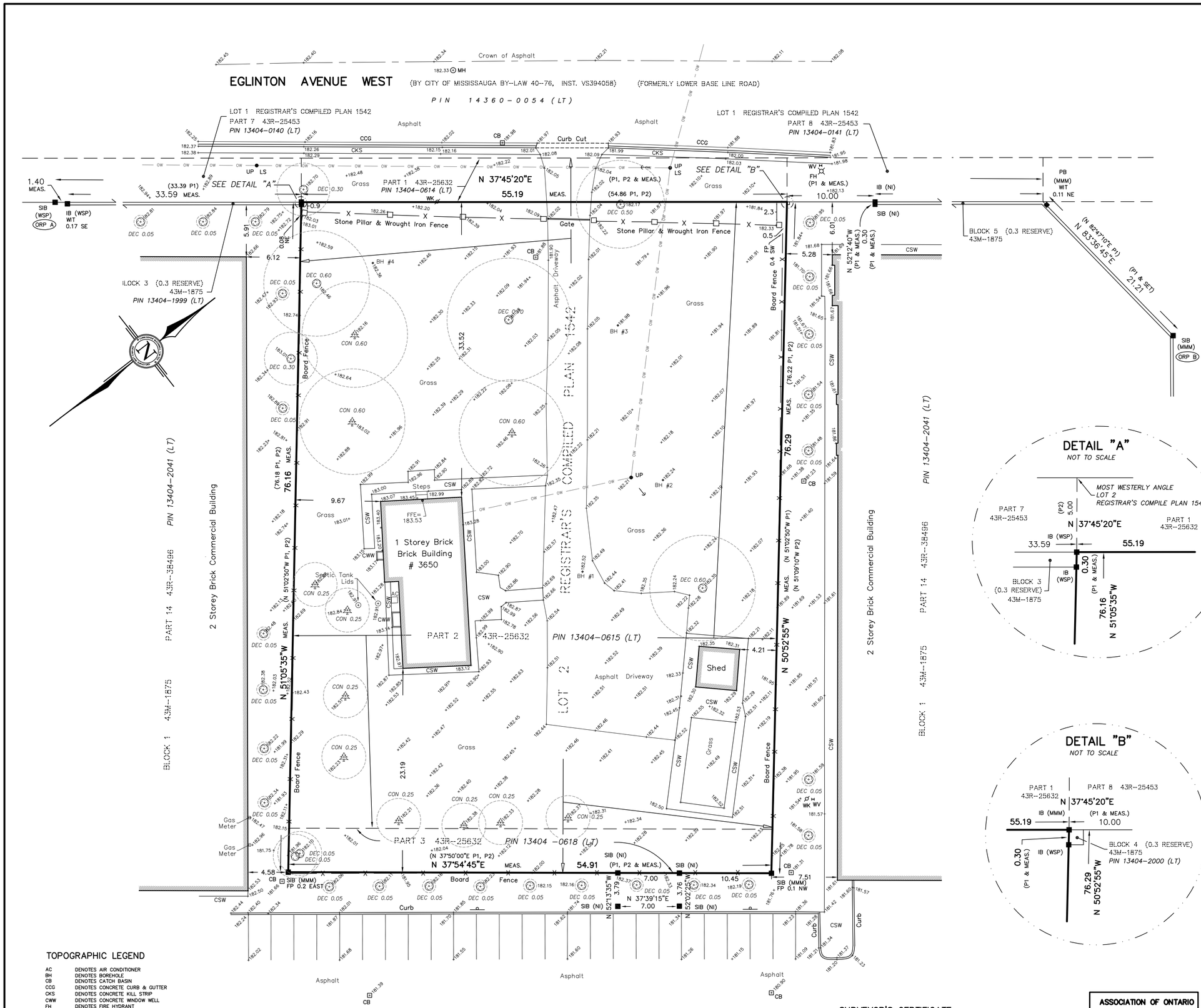
Region of Peel
PUBLIC WORKS

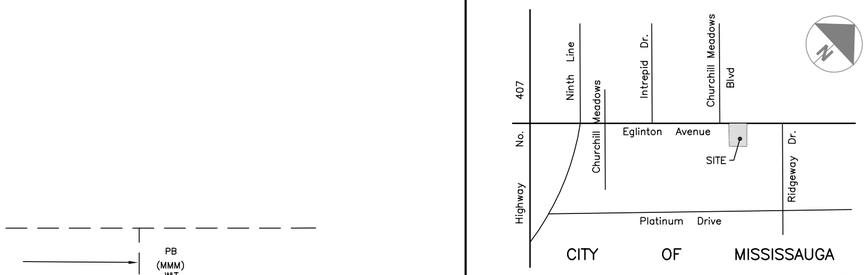
EGLINTON AVENUE WEST

Sheet 6 of 8
From Sta. 1+400 to Sta. 1+610

CITY FILE No. CD.06.ERI

Scale:	HOR. 1 : 500 VERT. 1 : 50	Project No.	EO 99611
Drawn By:	CADD	Drawing No.	A1-99611-P106
Designed By:	P.G.		(30009-D)
Checked By:	R.W.S.		C-44534
Date:	JUNE 2000		





KEY PLAN
(NOT TO SCALE)

TOPOGRAPHIC SURVEY OF

PART OF LOT 2
REGISTRAR'S COMPILED PLAN 1542

(N° 3650 EGLINTON AVENUE WEST)

CITY OF MISSISSAUGA

REGIONAL MUNICIPALITY OF PEEL

SCALE 1:300

6 0 6 12 18 metres

GRAPHIC SCALE

ELEVATION NOTE

ALL ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO THE CITY OF MISSISSAUGA BENCH MARK NO. 1044 HAVING AN ELEVATION OF 178.836 METRES (CGVD : 1928).

TREE NOTE

ONLY TREES OF A DIAMETER GREATER THAN 0.10 m WERE LOCATED FOR THIS PLAN.

METRIC NOTE

ALL DISTANCES SHOWN HEREON ARE IN METRES AND CAN BE CONVERTED INTO FEET BY DIVIDING BY 0.3048.

UNDERGROUND SERVICES NOTE

ONLY UNDERGROUND SERVICES VISIBLE ON THE GROUND WERE LOCATED FOR THIS PLAN.

THE USER OF THIS PLAN SHALL CONTACT THE LOCAL UTILITY COMPANIES FOR LOCATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	"	SURVEY MONUMENT SET
SIB	"	STANDARD IRON BAR
SSIB	"	SHORT STANDARD IRON BAR
IB	"	IRON BAR
PB	"	PLASTIC BAR
MMM	"	MMM GEOMATICS ONTARIO LIMITED O.L.S.
WSP	"	WSP GEOMATICS ONTARIO LIMITED O.L.S.
NI	"	NO IDENTIFICATION
950	"	CUNNINGHAM McCONNELL LIMITED
PIN	"	PROPERTY IDENTIFIER NUMBER
MEAS.	"	MEASURED
WIT	"	WITNESS
NTS	"	NOT TO SCALE
P1	"	REGISTERED PLAN 43M-1875
P2	"	PLAN 43R-25632
FP	"	FENCE POST

INTEGRATION NOTE:

BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS (ORP'S) A & B BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD 83 (CSRS, 2010).

COORDINATES ARE UTM ZONE 17, NAD 83 (CSRS, 2010), TO URBAN ACCURACY PER SEC. 14 (2) OF O.REG. 216/10, AND CANNOT , IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

POINT ID	NORTHING	EASTING
A	4818684.69	590032.23
B	4818472.87	590207.97

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999737.

BEARING COMPARISONS:

FOR THE PURPOSES OF COMPARISONS, PREVIOUS SURVEYS HAVE BEEN ROTATED TO UTM BEARINGS BY THE ANGLES SHOWN BELOW.

PLAN	ROTATION FOR NORTHEAST BEARINGS
P1, P2	- 01°302'10"

TOPOGRAPHIC LEGEND

AC	DENOTES AIR CONDITIONER
BH	DENOTES BOREHOLE
CB	DENOTES CATCH BASIN
CCG	DENOTES CONCRETE CURB & GUTTER
CKS	DENOTES CONCRETE KILL STRIP
CWW	DENOTES CONCRETE WINDOW WELL
FH	DENOTES FIRE HYDRANT
LS	DENOTES LIGHT STANDARD
MH	DENOTES MANHOLE
CON 0.20	DENOTES CONIFEROUS TREE DIA=0.20
DEC 0.20	DENOTES DECIDUOUS TREE DIA=0.20
-W-	DENOTES UNDERGROUND WATERMAIN
+89.00	DENOTES EXISTING GROUND ELEVATION
UP	DENOTES UTILITY POLE
WK	DENOTES WATER KEY
WV	DENOTES WATER VALVE
-OW-	DENOTES OVERHEAD WIRE(S)
	DENOTES PARKING LINE
	DENOTES SIGN

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON DECEMBER 13, 2023.

DATE: JANUARY 19, 2023

ROBERT D. McCONNELL
ONTARIO LAND SURVEYOR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-36523

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR

In accordance with Regulation 1026, Section 29(3).

CUNNINGHAM McCONNELL LIMITED
ONTARIO LAND SURVEYORS

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205 MAIN STREET
MILTON, ONTARIO L9T 1N7
PHONE (905) 878-7810
FAX (905) 878-6672
EMAIL: milton.office@cmlsurveyors.ca

CLIENT: U & N

O.L.S FILE N° 132-22

PLAN N° 132-22-1

Appendix C – Water Data

DOMESTICE WATER CALCULATION - Existing Detached House

3650 Eglinton Ave. W.		
Mississauga, ON		
September 28, 2023		
File No.: NT-22-129		
Nextrans Engineering		
Prepared by: W.L.		
Checked by: G.R.	**Type of Housing**	**Residential**

Unit Quantity Determination

1. Type of Construction	Residential	
2. PPU	4.2	
3. Number of Units	1	
4. Maximum Day Factor	2.00	
5. Peak Hour Factor	3.00	
6. Average Daily Demand	280	L/person/day

Water Usage Determination

1. Average Daily Demand	0.01	L/s
2. Maximum Daily Demand	0.03	L/s
3. Peak Hourly Demand	0.04	L/s

DOMESTICE WATER CALCULATION - Proposed Development

3650 Eglinton Ave. W.		
Mississauga, ON		
September 28, 2023		
File No.: NT-22-129		
Nextrans Engineering		
Prepared by: W.L.		
Checked by: G.R.	**Type of Housing**	**ICI**

Unit Quantity Determination

1. Type of Construction	ICI	
2. PPU	50	persons/ha
3. Site Area	0.4193	ha
4. Maximum Day Factor	1.40	
5. Peak Hour Factor	3.00	
6. Average Daily Demand	300	L/person/day

Water Usage Determination

1. Proposed Persons	21	persons
2. Average Daily Demand	0.07	L/s
3. Maximum Daily Demand	0.10	L/s
4. Peak Hourly Demand	0.22	L/s

FIRE WATER DEMAND CALCULATION (FUS 1999)

3650 Eglinton Ave. W.		
Mississauga, ON		
September 28, 2023		
File No.: NT-22-129		
Nextrans Engineering		
Checked by: G.R.	**Type of Housing**	**Commercial**
Prepared by: W.L.	**ID**	New Building

Design Parameters

1 C - Type of Construction		ordinary construction	1.0
2. Total Floor Area (from site plan)		2,240.9	m^2
3. Fire Hazard Factor		Combustible	0%
4. Automatice Sprinkler Protection		yes	30%
5. Fully Supervised System		yes	10%
6. Exposure Factor			0.4
	East Side	3.1 to 10m	0.2
	West Side	3.1 to 10m	0.2
	South Side	>45m	0
	North Side	>45m	0

Fire Water Determination

1. $F=220*C*A^{0.5}$	10,414.4	l/min
2. Adjusted by Fire Hazard Factor	10,414.4	l/min
3. Adjusted by Automatic Sprinkler System	3124.3	l/min
4. Adjusted by Supervised System	1041.4	l/min
5. Adjusted by Exposure Factor	4,165.8	l/min
Fire Water Demand	**10,414.4**	l/min
	174	L/s

A min. flow of 174 l/s must be available at the nearest hydrant with a minimum pressure of 140 kPa.

Appendix D – Sanitary Data

Proposed Sanitary Drainage Design Sheet

Street Name	Increment			Cumulative		FLOW						PIPE							
	Units	PPU	Areas, ha	P	Areas, ha	KH	Pop. Flow	A Gross	Infilt. Q	Infilt. Q	Q Total	L	Act. Size	Nom. Size	Grade	Nom. Cap.	Vel.	Act. Vel.	% Pipe
							l/s	ha	L/s.ha	l/s	l/s	m	mm	mm	%	l/s	m/s	m/s	Full
Existing Detached House	1	4.2	0.4193	4	0.4193	4.00	0.06	0.4193	0.26	0.11	0.17	16.50	150	150	8.20	43.6	2.47	0.57	0.4
Sewer on Eglinton Ave. W.											0.17		375	375	0.49	122.7	1.11	0.18	0.1
Site Development		50	0.4193	21	0.4193	4.00	0.26	0.4193	0.26	0.11	0.37	16.50	150	150	8.20	43.6	2.47	0.73	0.9
Sewer on Eglinton Ave. W.											0.37		375	375	0.49	122.7	1.11	0.25	0.3

A = area in ha
PPU = persons per unit
P = population
KH = $1+14/\{4+(P/1000)^{1/2}\}$
Residential Sanitary Flow = 290 L/capita/day
ICI Sanitary Flow = 270 L/capita/day

3650 Eglinton Ave. W.
Proposed 2-storey Commercial/office
Sanitary Sewer Design

Design:	W.L.	Job No.	NT-22-129		
Check:	G.R.	Date	Jan 2023	Sheet	1 of 1

Appendix E – Stormwater Data

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Drainage Area

3650 Eglinton Ave. W.
File No. NT-22-129
Date: September 2023

Pre-Development

		C	
A101	**0.4193 ha**	**0.42**	drain to ex. CB
where roof	0.0245 ha	0.90	
conc. walkway	0.0835 ha	0.90	
landscape	0.3113 ha	0.25	

Post-Development

post-area:		C	
B101	**0.3956 ha**	**0.83**	controlled to internal storm system
where roof	0.1151 ha	0.90	
conc. surface	0.2389 ha	0.90	
permeabel pavers	0.0000 ha	0.50	
landscape	0.0416 ha	0.25	
B102	**0.0237 ha**	**0.51**	uncontrolled to Eglinton ROW
where conc. surface	0.0007 ha	0.90	
permeabel pavers	0.0230 ha	0.50	

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Rational Method

Runoff Flows Calculation

3650 Eglinton Ave. W.
File No. NT-22-129
Date:Jan. 2023

Area Number	Area (ha)	C	Tc (min.)	
A101	0.4193	0.42	15.0	drain to ex. CB
B101	0.3956	0.83	15.0	controlled to internal storm system
B102	0.0237	0.51	15.0	uncontrolled to Eglinton ROW

Rational Method Calculation

Event 2 yr
IDF Data Set City of Mississauga
a = 610.00 b= 4.6
c = -0.7800

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A101	0.4193	0.42	0.18	15.0	59.9	0.029	29.1
B101	0.3956	0.83	0.33	15.0	59.9	0.055	54.7
B102	0.0237	0.51	0.01	15.0	59.9	0.002	2.0

Event 5 yr
IDF Data Set City of Mississauga
a = 820.00 b= 4.6
c = -0.7800

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A101	0.4193	0.42	0.18	15	80.5	0.039	39.1
B101	0.3956	0.83	0.33	15	80.5	0.074	73.6
B102	0.0237	0.51	0.01	15.0	80.5	0.003	2.7

Event 10 yr
IDF Data Set City of Mississauga
a = 1010.00 b= 4.6
c = -0.7800

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A101	0.4193	0.42	0.18	15	99.2	0.0482	48.2
B101	0.3956	0.83	0.33	15	99.2	0.0906	90.6
B102	0.0237	0.51	0.01	15.0	99.2	0.0033	3.3

Event 25 yr
IDF Data Set City of Mississauga
a = 1160.00 b= 4.6
c = -0.7800

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A101	0.4193	0.46	0.19	15	113.9	0.0609	60.9
B101	0.3956	0.91	0.36	15	113.9	0.1145	114.5
B102	0.0237	0.56	0.01	15.0	113.9	0.0042	4.2

Event 50 yr
IDF Data Set City of Mississauga
a = 1300.00 b= 4.7
c = -0.7800

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A101	0.4193	0.50	0.21	15	127.1	0.0742	74.2
B101	0.3956	1.00	0.39	15	127.1	0.1394	139.4
B102	0.0237	0.61	0.01	15.0	127.1	0.0051	5.1

Event 100 yr
IDF Data Set City of Mississauga
a = 1450.00 b= 4.9
c = -0.7800

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A101	0.4193	0.52	0.219	15	140.7	0.0855	85.5
B101	0.3956	1.00	0.396	15	140.7	0.1546	154.6

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Orifice Flow Calculation

3650 Eglinton Ave. W.
File No.: NT-22-129
Date: Sep. 2023

Orifice Equation **Q = C x A (2 x g x h) ^0.5**

Where

A =	area of orifice	0.018	m^2
C =	orifice tube coefficient	0.82	
h =	hydraulic head	**1.50**	**m**
g =	gravity acc.	9.81	m/s^2

Pipe Data:

	Diameter of Orifice	=	0.150	m
	Allowable Release Rate	=	79.6	l/s
	Calculated Flow, Q	=	**78.6**	**l/s**
100-yr Elev:	Orifice Tube Invert	=	178.6	m
	100-year Elev.	=	**180.1**	m

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100yr Required Storage

3650 Eglinton Ave. W.
File No.: NT-22-129
Date: Sep. 2023

Post-Development:

Controlled	B101	=	0.3956	ha
	C	=	0.83	
Orifice Rate	Q	=	78.6	l/s

Time	Intensity (100yr)	Inflows	Inflow Volumes	Outflows	Outflow Volumes	Storage Volume Required
(Min.)	(mm/hr)	(m^3/sec.)	(m^3)	(m^3/sec.)	(m^3)	(m^3)
0	419.8	0.48	0.00	0.0786	0.00	0.0
5	242.5	0.28	83.12	0.0786	23.59	59.5
10	176.3	0.20	120.85	0.0786	47.17	**73.7**
15	140.7	0.16	144.65	0.0786	70.76	73.9
16	135.4	0.15	148.50	0.0786	75.48	73.0
17	130.6	0.15	152.13	0.0786	80.19	71.9
18	126.1	0.14	155.57	0.0786	84.91	70.7
19	122.0	0.14	158.83	0.0786	89.63	69.2
20	118.1	0.13	161.93	0.0786	94.35	67.6
21	114.5	0.13	164.88	0.0786	99.06	65.8
22	111.2	0.13	167.70	0.0786	103.78	63.9
23	108.1	0.12	170.40	0.0786	108.50	61.9
24	105.2	0.12	173.00	0.0786	113.21	59.8
25	102.4	0.12	175.48	0.0786	117.93	57.6
26	99.8	0.11	177.88	0.0786	122.65	55.2
27	97.4	0.11	180.19	0.0786	127.37	52.8
28	95.1	0.11	182.42	0.0786	132.08	50.3
29	92.9	0.11	184.57	0.0786	136.80	47.8
30	90.8	0.10	186.66	0.0786	141.52	45.1
31	88.8	0.10	188.67	0.0786	146.23	42.4
32	86.9	0.10	190.63	0.0786	150.95	39.7
33	85.1	0.10	192.53	0.0786	155.67	36.9
34	83.4	0.10	194.38	0.0786	160.39	34.0
35	81.8	0.09	196.17	0.0786	165.10	31.1
36	80.2	0.09	197.92	0.0786	169.82	28.1
37	78.7	0.09	199.62	0.0786	174.54	25.1
38	77.3	0.09	201.27	0.0786	179.26	22.0
39	75.9	0.09	202.89	0.0786	183.97	18.9
40	74.6	0.09	204.47	0.0786	188.69	15.8
41	73.3	0.08	206.01	0.0786	193.41	12.6
42	72.1	0.08	207.52	0.0786	198.12	9.4
43	70.9	0.08	208.99	0.0786	202.84	6.2
44	69.8	0.08	210.43	0.0786	207.56	2.9
45	68.7	0.08	211.84	0.0786	212.28	-0.4
46	67.6	0.08	213.23	0.0786	216.99	-3.8
47	66.6	0.08	214.58	0.0786	221.71	-7.1
48	65.6	0.07	215.91	0.0786	226.43	-10.5
49	64.7	0.07	217.21	0.0786	231.15	-13.9
50	63.8	0.07	218.49	0.0786	235.86	-17.4
60	56.0	0.06	230.10	0.0786	283.04	-52.9

100-year Required Storage = 73.9 m^3

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Rational Method
Ex. STM Pipe Capacity Calculation

3650 Eglinton Ave. W.
File No. NT-22-129
Date: August 2020

Post Development Flow

100year controlled flow = **78.6** l/s

Ex. Storm Pipe Capacity

Pipe	Size	Slope	Capacity	Controlled Flow	Pipe Fullness
	mm		l/s	l/s	%
STM connection	375	2.00%	248.0	78.6	**31.7%**
STM on Eglinton	1950	0.39%	8886.5	78.6	**0.9%**