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 10 Units Townhouse Development

86 Thomas Street
Mississauga, Ontario

3rd Submission: February 28 2024

1st Submission: Jully 02 2020
2nd Submission: August 16 2020
ZBA No.: OZ 20-11
Project No:NT-19-013

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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 10 units stacked townhouses development at 86 Thomas Street, in Mississauga, Peel Region.

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 site is approximately 0.1643 hectares in area and is located at the northwest corner of Thomas Street and Hillside Drive, as shown in **Figure 1** after the report. The site will convey 0.055ha for road widening, hence the subject site area will be 0.1588ha.

The subject site is bounded by:

- Townhouse development on 80 Thomas St. to the north and east (Dunpar Development).
- Existing residential property to the west.
- Thomas Street to the south.

3.0 PROPOSED DEVELOPMENT

The proposed development consists of 10 units townhouses, 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
Average Day Consumption	280 L/person/day
PPU	2.7 person per unit
Maximum Day Factor	2.0
Peak Hour Factor	3.0

Region of Peel, Watermain Design Criteria, Revised June 2010

4.1.2 Existing

As shown in the City's 'As-Built' drawings (contained in **Appendix B**), there is an existing 300 mm dia. watermain located on the northside of Thomas Street that runs along the southern frontage of the subject site.

There are 2 fire hydrants on Thomas Street. One is located in front of 80 Thomas Street, approximately 53m northeast of the subject site, and the other located in front of 96 Thomas Street, approximately 45m southwest of the subject site.

ONYX.SPRINKLER Installations Inc. performed the flow test for the development at 80 Thomas Street on November 10th 2020. Since the subject site is adjacent to 80 Thomas St. development, the flow test was used for this project, details can be found in **Appendix C**.

4.1.3 Proposed Water Demand

Reference to the calculation in **Appendix C**, the water demand and pressures are shown in Table 1 below:

Table 1 Water Demand & Pressure

	Water Demand l/s	Required Pressure kPa	Provided Pressure kPa
Average Daily Demand, l/s	0.09	275 - 690	550
Maximum Daily Demand. l/s	0.18	275 - 690	550
Peak Hourly Demand, l/s	0.26	275 - 690	550
Fire Scenario	273	>140	>140

According to our calculations, a minimum fire suppression flow of 273 l/s at 140 kPa will be required, refer to detailed calculations in **Appendix C**. ONYX flow tests show that the existing water system has 391 l/s at 140 kPa (20 psi). Based on the flow test and Table 1, there is sufficient pressure and flow in the existing water system to support the subject development.

4.1.4 Proposed Water Servicing

A proposed 150mm dia. PVC watermain will be used to service the site with 25mm PVC water connections to each unit. The site service connection will be made to the existing 300 mm watermain on Thomas Street as per Region of Peel standard 1-8-2, see details in drawing SS-01.

At this time no additional Fire Hydrants are being proposed since there are 2 existing hydrants within 75m which provides sufficient coverage for the proposed site.

4.2 SANITARY

4.2.1 Design Criteria

Type of Construction	Residential
PPU	2.7 people per unit
Peak sanitary flow factor	Harmon Formula

Average Daily Flow	302.8 L/capita/day
Peak Extraneous Flow	0.2 L/s/ha 0.028 l/s/m of sewer

Region of Peel, Sanitary Sewer Design Criteria, Modified March 2017 REV 0.9

4.2.2 Existing Conditions

As shown in City's 'As-Built' drawings (contained in **Appendix B**), there are two (2) existing sanitary sewers along Thomas Street. One located in the middle of Thomas Street with size of 375mm dia. at slope of 0.6%, named as EX. N. SAN in drawings. The other is located on the south side of Thomas Street with size of 300mm dia.

4.2.3 Proposed Sanitary Flow

During the site development, the proposed sanitary flow will be 1.84 l/s, for detailed calculation see **Appendix D**. The proposed development will add 1.4% of the existing sanitary sewer capacity, which can be considered negligible.

4.2.4 Proposed Sanitary Servicing

A proposed 250mm dia. PVC sanitary sewer will be provided to service the site with 125mm PVC sanitary lateral to service each unit. The site service connection will be made to the existing 375mm dia. sanitary sewer on Thomas Street by installing a new SAN MH as per Peel Region standard 2-5-18, see details in drawing SS-01.

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:

- 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)
- Development Requirements Manual, Section 8 – Storm Drainage Design Requirements, City of Mississauga, Effective January 2020

5.1.2 Stormwater Quality Control

Under the Wet Weather Flow Management Guidelines, the site is required to provide a long-term removal of 80% of total suspended solids (TSS) on an average annual basis.

5.1.3 Storm Water Quantity Control

Provide post to pre control for 2-, 5-, 10-, 25-, 50- & 100-year storm events.

5.1.4 Erosion Control

As indicated in WWFMG, 'For small infill/redevelopment sites < 2 ha, erosion control in the form of stormwater detention is normally not required, provided the on-site minimum runoff retention from a small design rainfall event (typically 5mm) is achieved under the Water Balance Criteria.'

5.2 EXISTING CONDITIONS

5.2.1 Existing Drainage pattern

The overland flow on site generally drains southernly uncontrolled to Thomas Street and finally collected by the existing storm sewer system on Thomas Street.

5.2.2 Existing Stormwater Service

There is an existing 1200mm dia. C.P. storm sewer located on Thomas Street, runs along the southern frontage of the subject site with a slope of 1.66%, see in **Appendix B**.

5.2.3 Pre-Development Target Flow

The pre-development target flow is summarized in Table 2 below, and drainage areas can be found on Drawing DAP.

Table 2 – Pre-Development Target Peak Flow

On Site, Pre-development Catchment Area: A=0.1643 ha		
Return Period	"C"	Target Peak Flow
1:2	0.25	6.60 L/s
1:5	0.25	8.88 L/s
1:10	0.25	10.94 L/s
1:25	0.28	13.82 L/s
1:50	0.30	16.82 L/s
1:100	0.31	19.39 L/s

5.3 STORMWATER QUANTITY CONTROL

The majority of stormwater from the site (area of A1) will be collected via catchbasins, manholes, and area drains. A small area at the south and east of the property (area of A2) will drain to Thomas Street as uncontrolled flow.

The following tables identify the input post development parameters, and the corresponding detailed calculations can be found in **Appendix E**.

Table 3 – Post-Development Stormwater Flows

Catchment ID	Return Period	Drainage Area ha	Runoff "C"	Flow l/s	**Discharge**
A1	1:5	0.1370	0.71	21.9	controlled to internal STM system
	1:100		0.89	47.8	
A2	1:5	0.0218	0.71	3.5	uncontrolled to Thomas St.
	1:100		0.89	7.6	

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)	Flow after Quantity Control (L/s) (5)	Post- Flow (L/s) (6)	Required Storage (m^3) (7)
1:2	6.60	2.57	16.26	4.02	6.59	11.5
1:5	8.88	3.46	21.86	5.29	8.75	15.7
1:10	10.94	4.26	26.92	6.65	10.91	19.1
1:25	13.82	5.38	34.02	8.32	13.70	24.5
1:50	16.82	6.55	41.42	10.22	16.77	29.8
1:100	19.39	7.55	47.75	11.70	19.25	34.6

The required storage calculated for the site in 100-year storm event is 34.6 m^3.

Stormwater Storage V = 34.6 m^3;

Irrigation V = 4.07 m^3 (see section 5.6)

Total required V = 34.6 + 4.07 = 38.67 m^3

An underground tank will be provided for the quantity control in order to maintain the pre-development flows. The maximum outflow from the site will be controlled via a 75mm dia. orifice plate located in the outlet of the tank wall, upstream STM CON. MH. The 100 year storm event elevation is 154.42m and there will not be any ponding on site in the 100yr storm event.

For flows in excess of the 100yr storm event, the runoff from the site will drain from the west to east along the driveway.

5.4 DOWNSTREAM STORM SEWER IMPACT ANALYSIS

Reference to the report of "Storm Sewer Downstream Capacity Analysis", it shows a flow of 10.94 l/s in 10-year storm event was considered for this site. However, the proposed development was over controlled and the revised flow is now 10.91l/s, and will not be affecting the existing downstream

storm sewer system capacity.

5.5 STORMWATER QUALITY CONTROL

Under the Wet Weather Flow Management Guidelines, 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 StormCon SDD3-1200 at the upstream STM CON. MH.
- Enhanced landscaping features to treat runoff from the property.

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

Table 5 – TSS Removal

Surface	Site Area (ha)	Fraction of Site Area	Proposed TSS Removal	TSS Removal Overall
Controlled Area				
Impervious	0.0863	54.3%	88.98%	48.8%
Permeable pavers	0.0296	18.6%	88.98%	16.6%
Landscape (300mm absorbent soil)	0.0211	13.4%	88.98%	11.9%
Uncontrolled Area				
Landscape (300mm absorbent soil)	0.0064	4%	85%	3.4%
Impervious	0.0154	9.7%	0	0
Total	0.1588			**80.7%**

** SDD3-1200: Annual TSS removal efficiency of 88.98% , see details in Appendix E.*

5.6 WATER BALANCE

The water balance criteria require that 5 mm of rainfall be diverted from the storm sewer system through infiltration, evapotranspiration, or rainwater reuse. A total of 7.94 m^3 of water is to be retained on site (1588 m^2 x 5 mm).

Table 6 – Water Balance Analysis

Type	Area		Initial Abs.		Initial Absorbed	
Hard Surface - roof	313	m^2	1	mm	0.31	m^3
Hard Surface – driveway+walkway	704	m^2	1	mm	0.70	m^3
Permeable Pavers	296	m^2	5	mm	1.48	m^3
Landscape	275	m^2	5	mm	1.38	m^3
Total	**1588**	**m^2**			**3.87**	**m^3**

There is a shortfall: 7.94 – 3.87 = 4.07 m^3. The required 4.07m^3 will be stored in the underground tank and used for irrigation.

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: future road	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
P.Eng.

Ghansham Ramnath
P.Eng.

NEXTRANS (CONSULTING ENGINEERS)

DATE: FEB 13, 2019
PROJECT NO. NT-19-013
DRAWING NO. FIGURE 1

PROJECT NAME:
86 THOMAS STREET
CITY OF MISSISSAUGA

DRAWING TITLE:
LOCATION PLAN

nexTrans CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

APPENDIX A – SITE PLAN

SITE STATISTICS

ZONING REGULATIONS - From Table 4.14.1 - RM9 and RM10 Permitted Uses and Zone Regulations

ZONE RM-10 (BACK TO BACK AND STACKED TOWNHOUSES)				REXTON DEVELOPMENT
1.	**ZONE REGULATIONS**		**REQUIRED**	**PROPOSED**
2.		MAXIMUM DWELLING HEIGHT		
3.	5.1	Measured to the mean height level of a flat roof on top of a sloped roof.	15.0 m. 3 Storeys.	9.86 m. 3 Storeys.
4. 5.	6.0	MINIMUM FRONT YARD	7.50 m.	3.80 m (South)
7. 8.	7.0	MINIMUM EXTERIOR SIDE YARD	4.5 m.	N/A N/A
9. 10.	8.0	MINIMUM INTERIOR SIDE YARD	4.5 m.	8.78 m (West) 1.23 m (East)
11.	12.2	MINIMUM PARKING SPACES		
12.		2.0 spaces per 4-4 bedroom unit = 8 parking spaces. 1.5 spaces per 6-2 bedroom unit = 9 spaces.	17 spaces	18 spaces
13.	12.3	MINIMUM VISITOR PARKING SPACES		
14.		0.25 spaces per 10 units = 2.5 spaces.	2.5 spaces	3 spaces (Includes 1 H/C space)
15.	13.0	PARKING AREAS SETBACKS		
16.		Minimum setback between a parking space and an interior side lot line and/or rear lot line.	3.0 metres	1.63 metres
17.	15.0	MINIMUM AMENITY AREA AND LANDSCAPE AREA		
18.	15.1	MINIMUM LANDSCAPE AREA	40 % of lot area.	30.59 % (502.68 m²)
19.	15.2	MINIMUM REQUIRED LANDSCAPED SOFT AREA	50 % of landscaped area	61.68 % (310.04 m²)
20.	15.3	MINIMUM LANDSCAPED BUFFER ABUTTING ANY SIDE AND REAR LOT LINE	3.0 metres	1.23 m East yard. 1.28 m West yard.
21.	15.4	MINIMUM CONTIGUOUS AMENITY AREA	82.17 m² (5 % of the lot area)	82.17 m² outdoor.
22.	15.7	MINIMUM CONTIGUOUS PRIVATE OUTDOOR SPACE PER UNIT	6.0 m²	7.53 m²

LEGAL DESCRIPTION
PART OF Lot 4
Concession 5, West of Hurontario Street
City of Mississauga
Regional Municipality of Peel

SITE STATISTICS

ZONING:
RM10 (Back to back & stacked townhouse)

LOT AREA 1,643.35 m² (17,689 Ft²) (0.406 ac)

BUILDING COVERAGE:
PERMITTED: N/A
PROPOSED: 877.76 m² (9,448.13 Ft²) 53.41%

DWELLING UNIT WIDTH:
MINIMUM PERMITTED: 4.5 m
PROPOSED: 5.73 m

LOT FRONTAGE:
REQUIRED (MIN.): 38.0 m
PROPOSED: 39.04 m

BUILDING G.F.A.:

FIRST FLOOR AREA	283.18 m² (3,048.12 Ft²)
SECOND FLOOR AREA	877.76 m² (9,448.13 Ft²)
THIRD FLOOR AREA	877.76 m² (9,448.13 Ft²)
TOTAL GROSS AREA	**2,038.70 m²** (21,944.38 Ft²)

SETBACKS REQUIRED PROVIDED

Front Yard (South)	4.5 m	3.80 m
Rear Yard (North)	7.5 m	3.84 m
Interior Side Yard (East)	2.5 m	1.23 m
Interior Side Yard (West)	2.5 m	8.78 m
PARKING SETBACKS:		
East (to a Residential Zone)	4.5 m	1.63 m

BUILDING HEIGHT: MAXIMUM PERMITTED 15.0 m 3 Storeys
PROVIDED: 9.86 m 3 Storeys

PARKING:
REQUIRED:
2.0 spaces per 4-4 bedroom unit = 8 parking spaces
1.5 spaces per 6-2 bedroom unit = 9 spaces.
0.25 visitor spaces per 10 units = 2.5 spaces
Total: 20 spaces
PROVIDED: 21 spaces
Includes 3 visitor spaces: 1-V, 20-V and 21-V (H/C space)

LANDSCAPE AREA
MINIMUM REQUIRED 40 %
PROPOSED 30.59 % (502.68 m²)

SNOW STORAGE
REQUIRED MIN.: 32.87 m² (2.00 % of Lot Area)
PROVIDED: 32.87 m² (2.00% of Lot Area)

General Note:

i. I hereby certify that this drawing confirms in all respects to the site development plans Architect or Engineer's Signature (if applicable) and Professional seal

ii. The City of Mississauga requires that all working drawings submitted to the Building Division as part of an application for the issuance of a building permit shall be certified by the architect or engineer as being in conformity with the site development plan as approved by the City of Mississauga.

iii. All exterior lighting will be directed onto the site and will not infringe upon the adjacent properties.

iv. All rooftop mechanical units shall be screened from view by the applicant.

v. Parking spaces reserved for people with disabilities must be identified by a sign, installed at the applicant's expense, in accordance with the By-law Requirements and Building Code Requirements.

vi. The applicant will be responsible for ensuring that all plans confirm to Transport Canada's restrictions.

vii. Grades will be met with a 33% maximum slope at the property lines and within the site.

viii. All damaged areas are to be reinstated with topsoil and sod prior to the release of securities.

ix. Signage shown on the site development plans is for information purposes only. All signs will be subject to the provisions of Sign by-law 0054-2002, as amended, and a separate sign application will be required through the Building Division.

x. Any fencing adjacent to municipal lands is to be located 15 cm (6.0 in.) inside the property line.

xi. Only "shielded" lighting fixtures are permitted for all development, except for detached and semi-detached dwellings within 60 m (196.8 ft.) of a residentially zoned property and must confirm to the Engineer Certified Lighting Plan.

xii. The Engineer Certified Lighting Plan must be signed by the consulting Engineer.

xiii. The Owner covenants and agrees to construct and install "shielded" lighting fixtures on the subject lands, in conformity with the Site Plan and Engineer Certified Lighting Plan to the satisfaction of the City of Mississauga.

xiv. The applicant will be responsible for ensuring that all plans confirm to Transport Canada's restrictions.

xv. Where planting is to be located in landscaped areas on top of an underground parking structure, it is the responsibility of the applicant to arrange the coordination of the design of the underground parking structure with the Landscape Architect and the Consulting Engineering. Underground parking structures with landscaping area to be capable of supporting the following loads:

- 15 cm of drainage gravel plus 40 cm topsoil for sod
- 15 cm of drainage gravel plus 60 cm topsoil for shrubs
- 15 cm of drainage gravel plus 90 cm for trees

Or

- Prefabricated sheet drain system* with a compressive strength of 1003 Kpa plus 40 cm topsoil for sod
- Prefabricated sheet drain system* with a compressive strength of 1003 Kpa plus 60 cm topsoil for shrubs
- Prefabricated sheet drain system* with a compressive strength of 1003 Kpa plus 90 cm topsoil for trees

* Terradrain 900 or approved equal

xvi. The structural design of any retaining wall over 0.6 m in height or any retaining wall located on a property line is to be shown on the Site Grading plan for this project and is to be approved by the Consulting Engineer for the project.

xvii. Continuous 15 cm high barrier type poured concrete curbing will be provided between all asphalt and landscaped areas throughout the site.

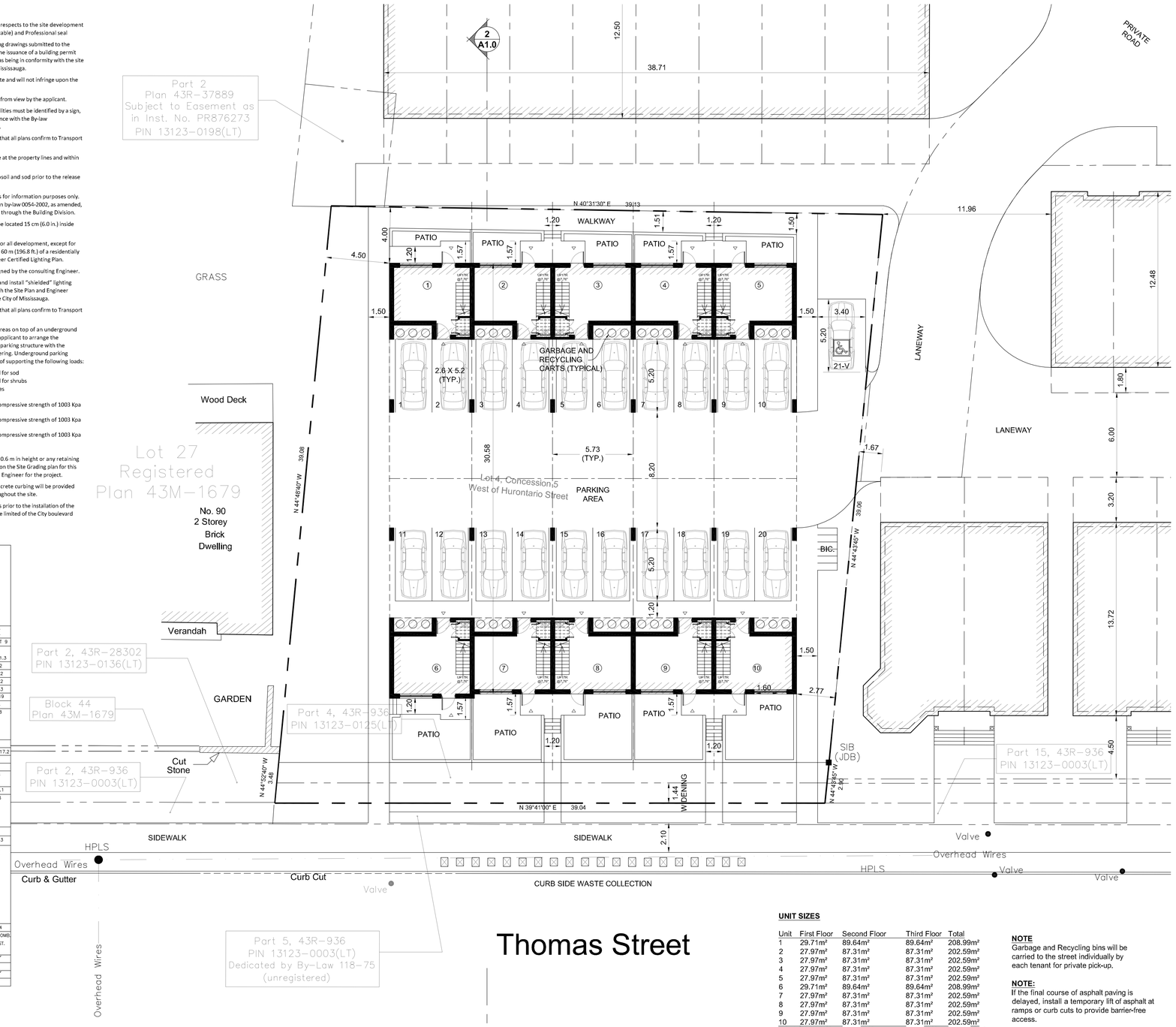
xviii. All utility companies will be notified for locates prior to the installation of the hoarding that lies within the site and within the limited of the City boulevard area.

WES SURDYKA architect inc
3645 KEELE STREET , 2nd FLOOR , STE 108
TORONTO ONTARIO M3J 1M8
TEL (416) 630-2254 FAX (416) 630-5741
E-mail: surdykaarchitect@bellnet.ca

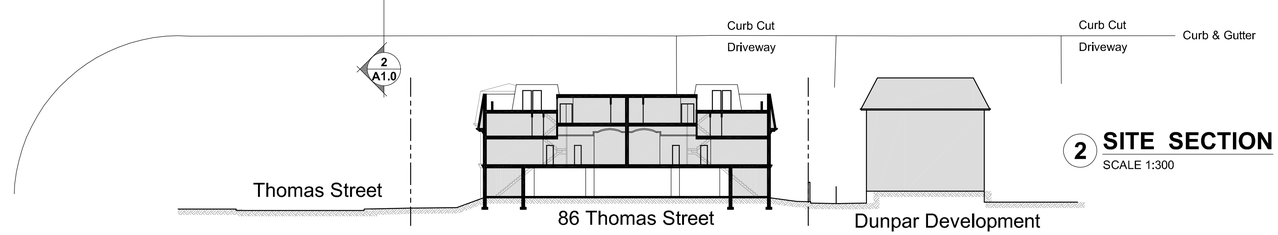
NAME OF PROJECT: PROPOSED RESIDENTIAL DEVELOPMENT
LOCATION: 86 THOMAS ST. MISSISSAUGA, ONTARIO

ITEM	ONTARIO BUILDING CODE DATA MATRIX			OBC REFERENCE
1	PROJECT DESCRIPTION: ☑ NEW ☐ ADDITION ☐ ALTERATION ☐ CHANGE OF USE		☐ PART 11 1.1.1 TO 11.4	☑ PART 3 2.1.1	☐ PART 9 2.1.1 9.10.1.3
2	MAJOR OCCUPANCY(S) C			3.1.2.1.(1)	9.10.2
3	BUILDING AREA (m²) EXISTING 0 NEW 877.76 TOTAL 877.76			1.1.3.2	1.1.3.2
4	GROSS AREA (m²) EXISTING 0 NEW 2038.70 TOTAL 2038.70			1.1.3.2	1.1.3.2
5	NUMBER OF STOREYS ABOVE GRADE: 3 BELOW GRADE: 0			3.2.1.1 & 1.1.3.2	2.1.1.3
6	NUMBER OF STREET/ACCESS ROUTES 1			3.2.2.10 & 3.2.5.5	9.10.19
7	BUILDING CLASSIFICATION 3.2.2.44			3.2.2.20-.83	9.10.4
8	SPRINKLER SYSTEM PROPOSED ☐ ENTIRE BUILDING ☐ BASEMENT ONLY ☐ IN LIEU OF ROOF RATING ☑ NOT REQUIRED			3.2.2.20-.83 3.2.1.5 3.2.2.17	9.10.8
9	STANDPIPE REQUIRED ☐ YES ☑ NO			3.2.9	N/A
10	FIRE ALARM REQUIRED ☐ YES ☑ NO			3.2.4	9.10.17.2
11	WATER SERVICE/SUPPLY IS ADEQUATE ☑ YES ☐ NO			3.2.5.7	N/A
12	HIGH BUILDING ☐ YES ☑ NO			3.2.6	N/A
13	PERMITTED CONSTRUCTION ☑ COMBUSTIBLE ☐ NON-COMBUSTIBLE ☐ BOTH; ACTUAL CONSTRUCTION ☑ COMBUSTIBLE ☐ NON-COMBUSTIBLE ☐ BOTH			3.2.2.20-.83	9.10.6
14	MEZZANINE(S) AREA (M²) 2		N/A	3.2.1.1.(3)-(8)	9.10.4.1
15	OCCUPANT LOAD BASED ON BASEMENT: 1 ST. FLOOR 2 ST. FLOOR 3 ST. FLOOR	m²/PERSON OCCUPANCY OCCUPANCY OCCUPANCY	DESIGN OF BUILDING LOAD PERSON LOAD PERSON LOAD PERSON LOAD PERSON	3.1.16	9.9.1.3
16	BARRIER-FREE DESIGN ☐ YES ☑ NO (EXPLAIN) N/A			3.8	9.5.2
17	HAZARDOUS SUBSTANCES ☐ YES ☑ NO			3.3.1.2.(1)&3.3.1.19(1)	9.10.1.3
18	REQUIRED FIRE RESISTANCE RATING (FRR)	HORIZONTAL ASSEMBLIES FRR (HOURS)	LISTED DESIGN No. OR DESCRIPTION (SG-2)	3.2.2.20-.83& 3.2.1.4	9.10.8 9.10.9
		FLOORS 1 HOURS			
		ROOF 1 HOURS			
		MEZZANINE N/A HOURS			
		FRR OF SUPPORTING MEMBERS	LISTED DESIGN No. OR DESCRIPTION (SG-2)		
		FLOORS 1 HOURS			
		ROOF 1 HOURS			
		MEZZANINE N/A HOURS			
19	SPATIAL SEPARATION-CONSTRUCTION OF EXTERIOR WALLS			3.2.3.1.D	9.10.14

WALL	AREA OF EBF (m²)	L.D. (m)	L/H OR H/L	PERMITTED MAX % OF OPENINGS	PROPOSED % OF OPENINGS	FRR (HOURS)	LISTED DESIGN OR DESCRIPTION	COMB. CONST.	COMB. CONSTR NONC. CLADDING	NON-COMB. CONST.
NORTH	245.43	3.54	2.35:1	9.64	29.49	1				✓
SOUTH	252.58	17.03	2.23:1	100.00	28.49	0		✓		
EAST	342.93	1.23	2.58:1	7.00	20.53	1				✓
WEST	342.93	8.78	2.58:1	23.53	19.81	1			✓	



1 SITE PLAN
SCALE 1:150



2 SITE SECTION
SCALE 1:300

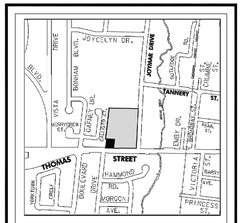
UNIT SIZES

Unit	First Floor	Second Floor	Third Floor	Total
1	29.71m²	89.64m²	89.64m²	208.99m²
2	27.97m²	87.31m²	87.31m²	202.59m²
3	27.97m²	87.31m²	87.31m²	202.59m²
4	27.97m²	87.31m²	87.31m²	202.59m²
5	27.97m²	87.31m²	87.31m²	202.59m²
6	29.71m²	89.64m²	89.64m²	208.99m²
7	27.97m²	87.31m²	87.31m²	202.59m²
8	27.97m²	87.31m²	87.31m²	202.59m²
9	27.97m²	87.31m²	87.31m²	202.59m²
10	27.97m²	87.31m²	87.31m²	202.59m²
Total	283.18m²	877.76m²	877.76m²	2,038.70m²

NOTE
Garbage and Recycling bins will be carried to the street individually by each tenant for private pick-up.

NOTE:
If the final course of asphalt paving is delayed, install a temporary lift of asphalt at ramps or curb cuts to provide barrier-free access.

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON SITE. ALL DRAWINGS ARE THE PROPERTY OF THE ARCHITECT AND MAY NOT BE USED WITHOUT HIS PERMISSION. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNTIL COUNTERSIGNED BY THE ARCHITECT. DRAWINGS ARE NOT TO BE SCALED.



KEY PLAN
N.T.S.

LEGEND
- ORGANICS CART (100 L)
- SMALL GARBAGE CART (120 L)

SITE PLAN APPLICATION NUMBER: OZ 20 11

NO.	DATE	REVISION/ISSUED FOR	BY
3	JULY 5 2021	SITE PLAN APPROVAL COMMENTS	
2	JUN 03 2020	SITE PLAN APPROVAL	
1	MAR 21 2019	PRE-APPLICATION CONSULTATION	

PROJECT NAME
PROPOSED RESIDENTIAL DEVELOPMENT
86 THOMAS ST.
MISSISSAUGA, ON

CONSTRUCTION NORTH

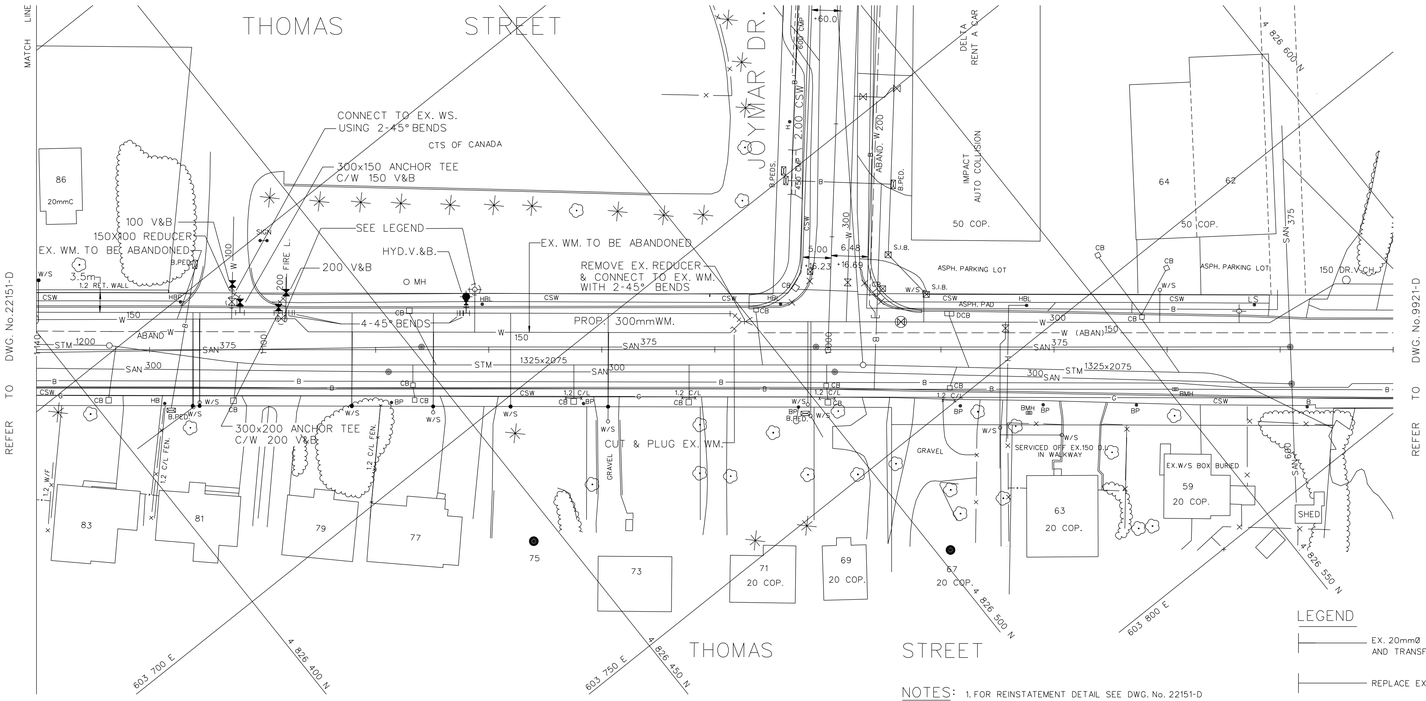
WES SURDYKA architect inc
3645 KEELE STREET , 2nd FLOOR , STE 108
TORONTO ONTARIO M3J 1M8
TEL (416) 630-2254 FAX (416) 630-5741
E-mail: surdykaarchitect@bellnet.ca

DRAWING TITLE
SITE PLAN

DRAWN BY	
PLOTTED	OCT 12, 2023
SCALE	AS SHOWN
START DATE	MAR 2019
PROJECT NO.	18-12

DRAWING NO.
A1.0
OF

APPENDIX B – AS-BUILT DRAWINGS



NOTES: 1. FOR REINSTATEMENT DETAIL SEE DWG. No. 22151-D

2. FOR TRENCH BEDDING DETAIL SEE DWG. No. 22570-D

LEGEND

EX. 20mmØ & LARGER COPPER W/S TO BE CUT AND TRANSFERED OR EXTENDED TO THE NEW WM.

REPLACE EX. W/S WITH 20mmØ COPPER

EX. HYD. V. & B. TO BE REMOVED AND HYD. TO BE RETURNED TO REGION YARD IN MISSISSAUGA. VALVES TO BE DISPOSED OF OFF SITE.

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN. SEWERS			GAS MAINS		
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			ONT. HYDRO		
PARK & REC.			CTV		
ONT. CLEAN WATER					

REVISIONS

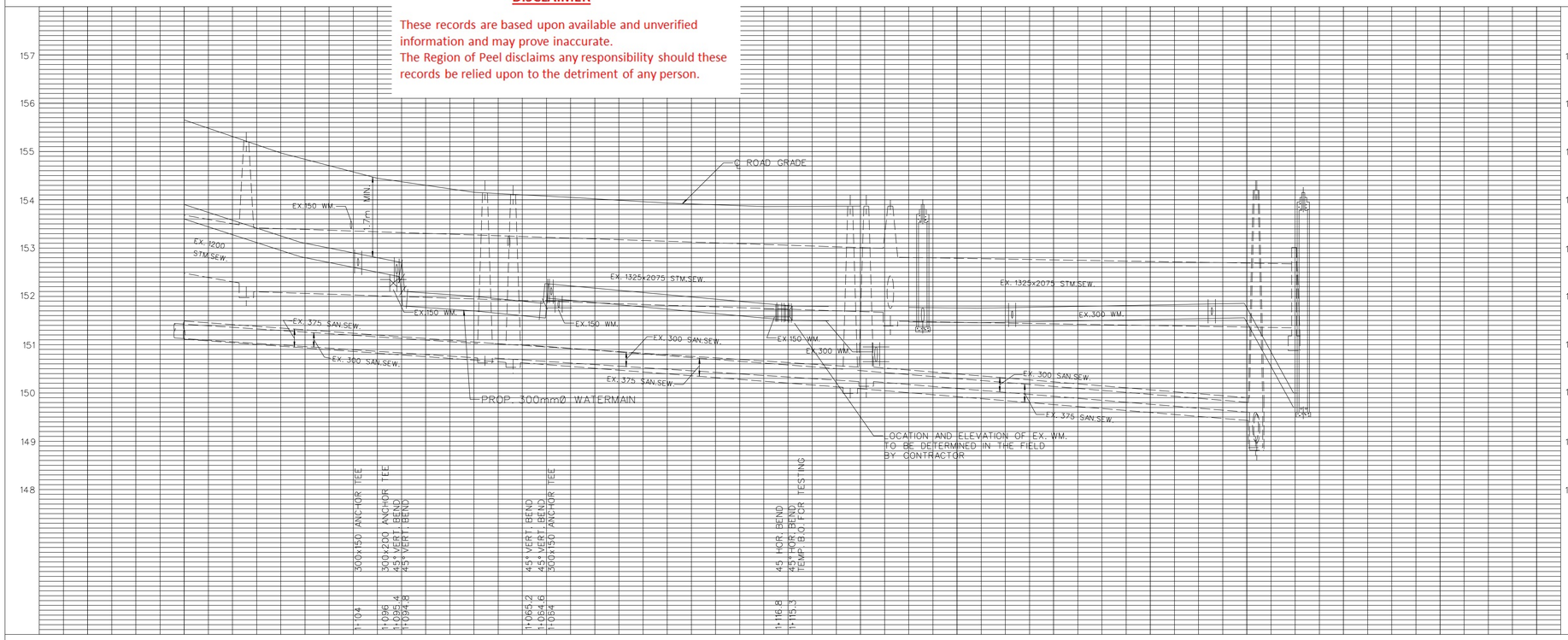
DATE	DETAILS	INIT.
OCT. 1997	AS CONSTRUCTED	J.P.

GENERAL NOTES:

1. ALL COPPER (LESS THEN 20mm),GALVANIZED & LEAD WATER SERVICES ARE TO BE REPLACED WITH 20mm TYPE 'K' COPPER FROM THE NEW WATERMAIN TO THE STREET LINE COMPLETE WITH A NEW SERVICE BOX AT STREET LINE.
   ALL W/S'S MUST HAVE A MIN. OF 1.7m COVER ON CURB & GUTTER ROADS AND A MIN. OF 2.1m COVER ON UNIMPROVED ROADS.
   IF W/S CONFLICTS WITH SEWERS AND/OR EXISTING WATERMAIN W/S HAS TO BE INSTALLED UNDER SEWER AND/OR WATERMAIN WITH A MIN. OF 300mm CLEARANCE.
   REMOVE & DISPOSE OF EXISTING WATER SERVICE BOXES.
2. PLUG THE ENDS OF THE ABANDONED WATERMAIN WITH CONCRETE.
3. 50mm TEMP. BLOW-OFF AND/OR RISER PIPE FOR SWABBING OF THE WATERMAIN IS/ARE TO BE LOCATED IN THE BOULEVARD.
4. INSTALL W/S BY BORING UNDER PAVEMENT, TREES AND SHRUBS.
5. LOCATION OF EXISTING W/S IS APPROXIMATE ONLY AND IS TO BE STAKED OUT IN THE FIELD.
6. INSTALL TEMP. PLUG & B.O. AT END OF EACH PIPE FOR TEST.
7. NEW HYDRANT OFFSET TO BE 3.5m FROM STREET LINE UNLESS OTHERWISE SHOWN.
8. EXISTING HYDRANT AND VALVE TO BE REMOVED AND RETURNED TO REGION YARD AT 3515 WOLFDALE ROAD, MISSISSAUGA.
9. ALL EXISTING VALVE BOXES TO BE REMOVED AND DISPOSED OF OFF SITE.

DISCLAIMER

These records are based upon available and unverified information and may prove inaccurate.
The Region of Peel disclaims any responsibility should these records be relied upon to the detriment of any person.



General Notes

- All Driveways ASPHALT Unless Otherwise Noted.
- All Service Locations Are Approximate And Must Be Located Accurately In The Field
- Denotes Building - Not Located
- Denotes Building Located

B.M. No. Elev.

The Contractor Is Responsible For Locating And Protecting All Existing Utilities Prior To And During Construction Location of Existing Utilities Approximate Only, To Be Verified In Field By Contractor.

Designed by | Approved by

Chkd.

NOTICE TO CONTRACTOR

48 HOURS PRIOR TO COMMMENCING WORK NOTIFY THE FOLLOWING

THE REGIONAL MUNICIPALITY OF PEEL
CITY OF MISSISSAUGA WORKS DEPT.
CITY OF BRAMPTON WORKS DEPT.
TOWN OF CALEDON WORKS DEPT.
BELL TELEPHONE COMPANY
CONSUMERS GAS COMPANY
MINISTRY OF TRANSPORTATION
ONTARIO CLEAN WATER AGENCY
HYDRO ELECTRIC POWER COMM. OF ONTARIO
HYDRO ELECTRIC COMM. CITY OF MISSISSAUGA
HYDRO ELECTRIC COMM. CITY OF BRAMPTON
HYDRO ELECTRIC COMM. TOWN OF CALEDON
CABLE TELEVISION

10m 0 10m 20m 30m HORIZONTAL SCALE
1m 0 1m 2m 3m VERTICAL SCALE

Region of Peel
Public Works

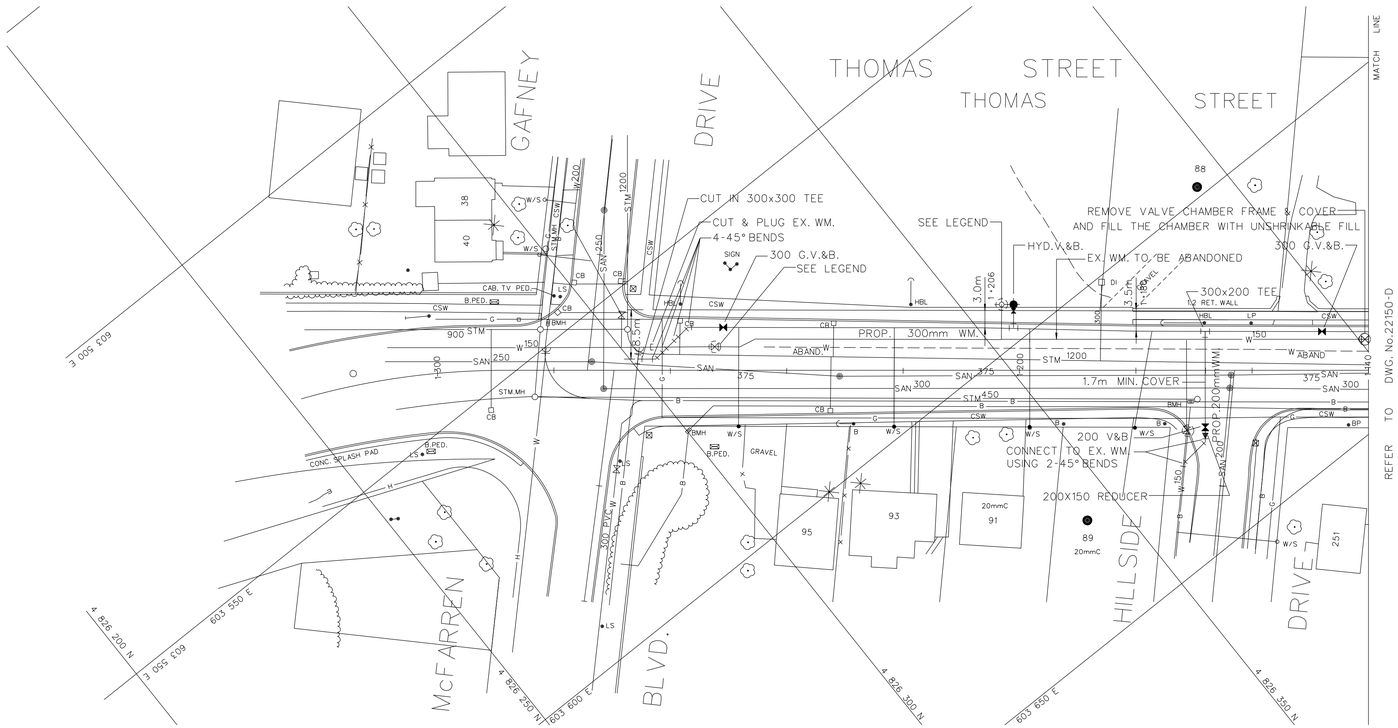
THOMAS STREET

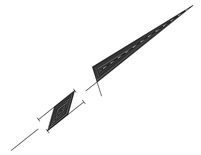
(FROM JOYMAR DR. TO GAFNEY DR.)

PROP. 300mmØ WATERMAIN

Sta. 1+000 **To Sta.** 1+140

Lots	Area Z-39 N	Project No.	96-1440
Checked by	Drawn by YC/JP	Plan No.	22150-D
Date AUG. 03, 1995	Sheet 1 of 2		





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SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
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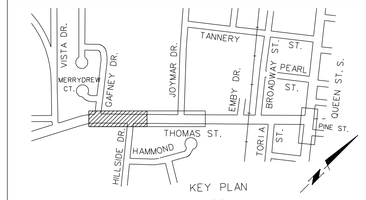
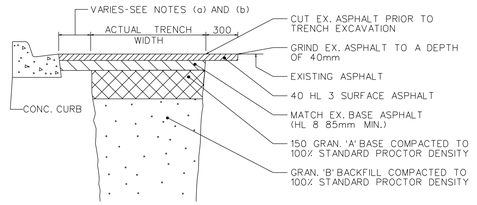
STORM SEWERS			BELL U/G CABLE		
WATERMAINS			HYDRO U/G CABLE		
TRANSIT			ONT. HYDRO		
PARK & REC.			CTV		
ONT. CLEAN WATER					

REVISIONS

DATE	DETAILS	INIT.
OCT. 1997	AS CONSTRUCTED	J.P.



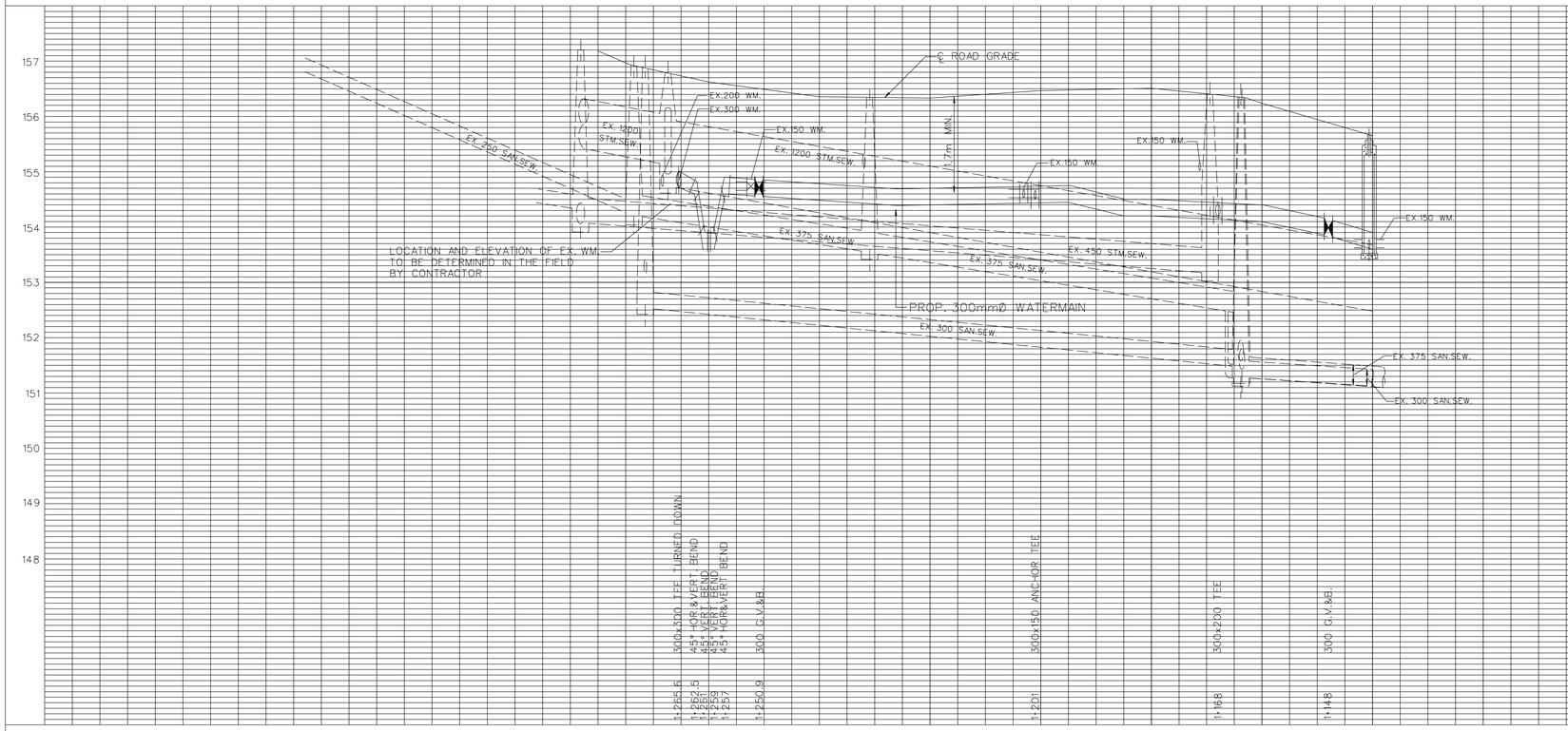
NOTES:
1. FOR GENERAL NOTES AND LEGEND SEE DWG. No.22150-D
2. FOR TRENCH BEDDING DETAIL SEE DWG. No.22570-D
3. REMOVE AND DISPOSE OF ABANDONED WATERMAIN IF IT CONFLICTS WITH PROPOSED WATERMAIN



NOTES: (a). 300mmx40mm GRIND WIDE WHERE DISTANCE FROM EDGE OF TRENCH TO CURB EXCEEDS 1.0m
(b). FULL WIDTH TO CURB WHERE DISTANCE LESS THEN 1.0m

REINSTATEMENT DETAIL (THOMAS ST. AND QUEEN ST.)

N.T.S.



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Designed by ____ Chkd. ____ Approved by

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HYDRO ELECTRIC COMM. CITY OF BRAMPTON
HYDRO ELECTRIC COMM. TOWN OF CALEDON
CABLE TELEVISION

10m 0 10m 20m 30m HORIZONTAL SCALE
1m 0 1m 2m 3m VERTICAL SCALE

Region of Peel
Public Works

THOMAS STREET

(FROM JOYMAR DR. TO GAFNEY DR.)

PROP. 300mmØ WATERMAIN

Sta. 1+140 **To Sta.** 1+300

Lots	Area Z-39 N	Project No. 96-1440
Checked by	Drawn by Y.C.	Plan No. 22151-D
Date AUG. 03, 1995	Sheet 2 of 2	

APPENDIX C – WATER DATA

DOMESTICE WATER CALCULATION - New Building

86 Thomas Street		
Mississauga, ON		
January 15, 2024		
File No.: NT-19-013		
Nextrans Engineering		
Prepared by: W.L.		
Checked by: G.R.	**Type of Housing**	**Residential**

Unit Quantity Determination

1. Type of Construction	Residential	
2. PPU	2.7	
3. Number of Units	10	
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	0.09	L/s
2. Maximum Daily Demand	0.18	L/s
3. Peak Hourly Demand	0.26	L/s

FIRE WATER DEMAND CALCULATION (FUS 1999)

86 Thomas Street		
Mississauga, ON		
January 15, 2024		
File No.: NT-19-013		
Nextrans Engineering		
Checked by: G.R.	**Type of Housing**	**Townhouse**
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)	2,039	m^2
3.	Fire Hazard Factor	Combustible	0%
4.	Automatice Sprinkler Protection	no	0%
5.	Fully Supervised System	no	0%
6.	Exposure Factor		0.65
	East Side	3.1 to 10m	0.2
	West Side	3.1 to 10m	0.2
	South Side	30.1 to 45m	0.05
	North Side	3.1 to 10m	0.2

Fire Water Determination

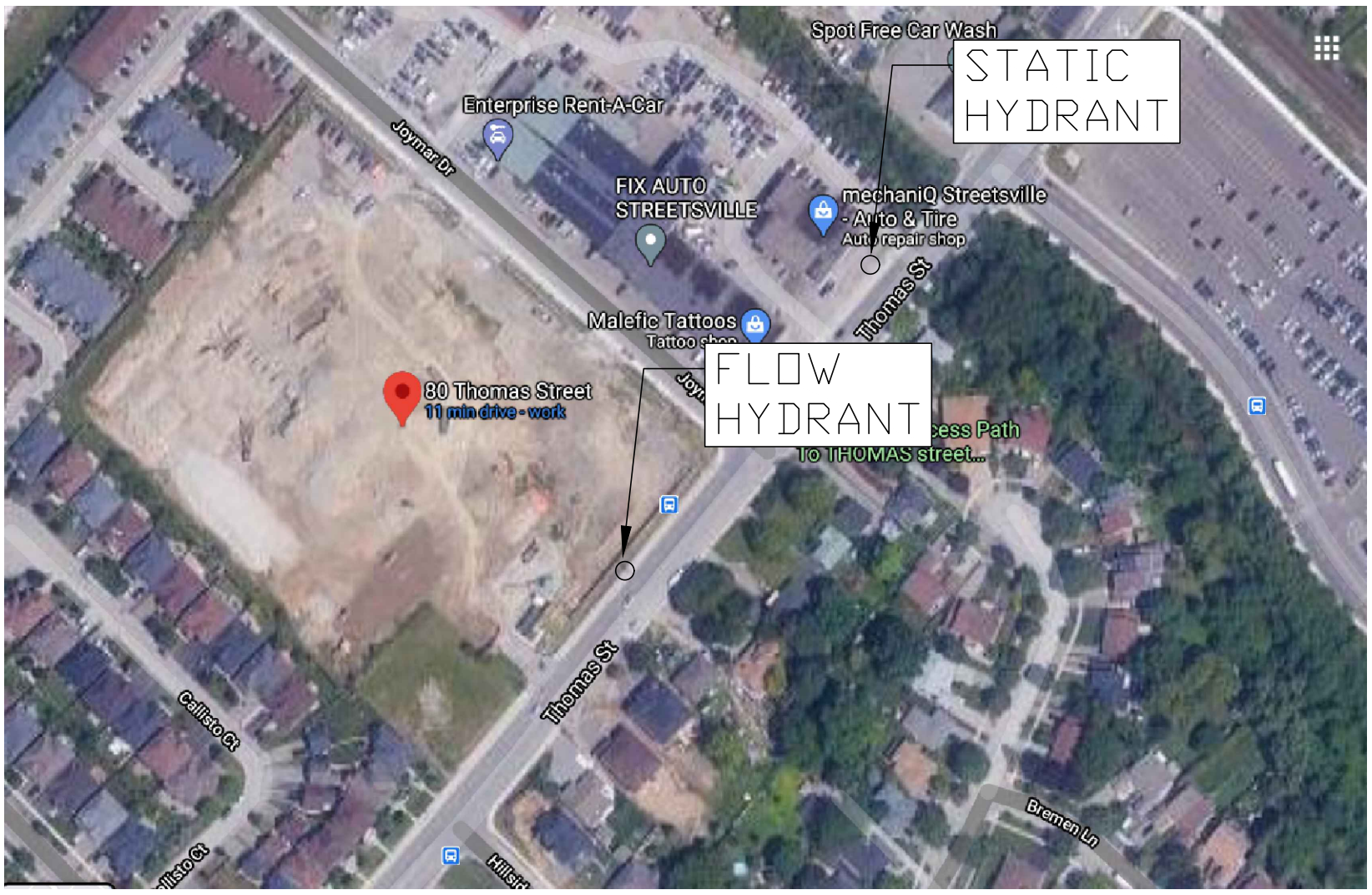
1.	$F=220*C*A^{0.5}$	9,933.4	l/min
2.	Adjusted by Fire Hazard Factor	9,933.4	l/min
3.	Adjusted by Automatic Sprinkler System	0.0	l/min
4.	Adjusted by Supervised System	0.0	l/min
5.	Adjusted by Exposure Factor	6,456.7	l/min
	Fire Water Demand	**16,390.2**	l/min
		273	L/s

FIRE HYDRANT FLOW TEST REPORT

ONYX SPRINKLER INSTALLATIONS INC.

400 MATHESON BLVD W,
MISSISSAUGA, ON
L5R 1B8
TEL. 416-674-5633
FAX. 416-674-9623

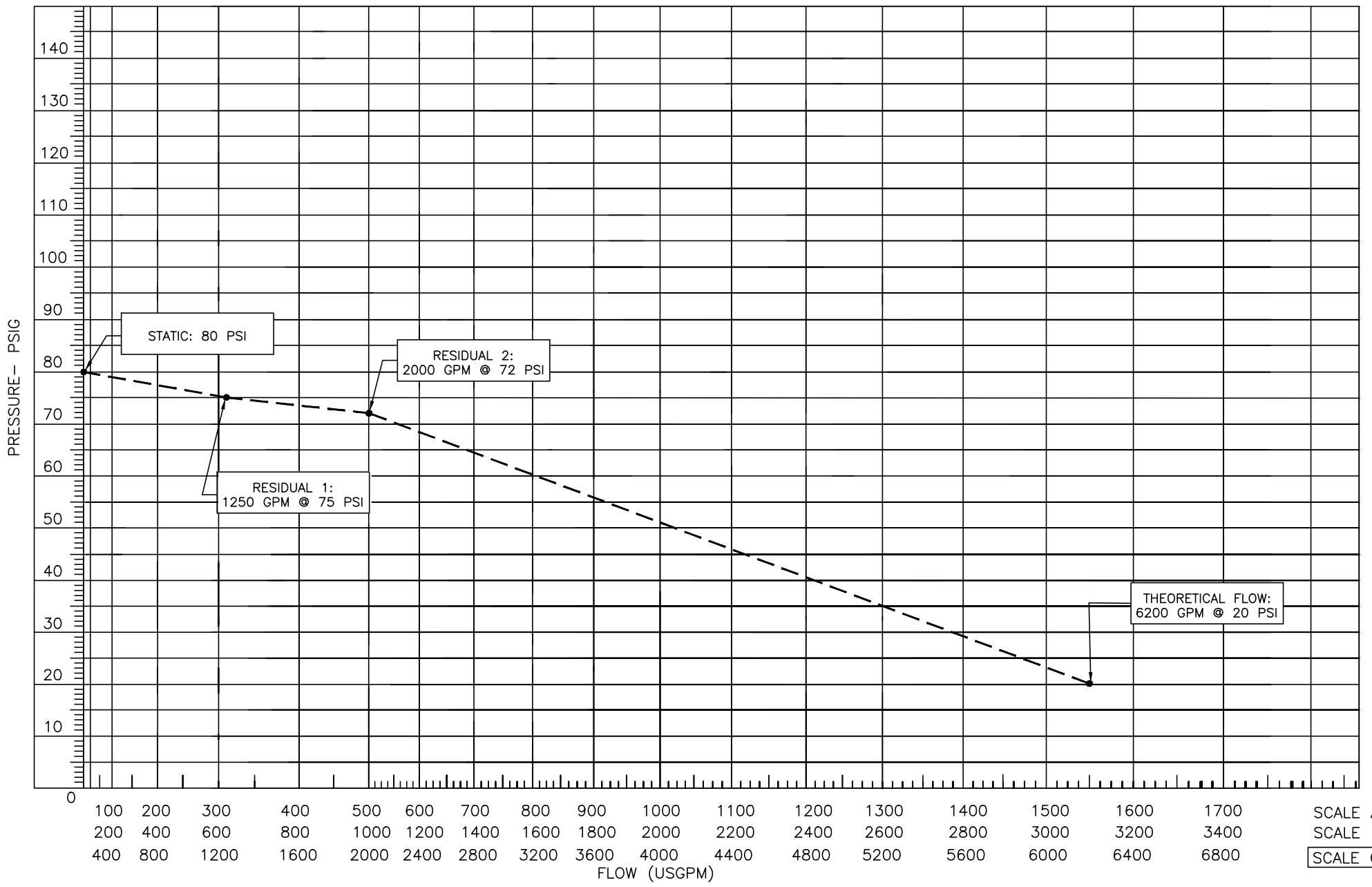
LOCATION:	80 THOMAS, MISSISSAUGA, ON
TEST DATE:	11/10/2020
TIME:	08:00 AM
CONDUCTED BY:	ONYX SPRINKLER INSTALLATIONS INC.
WITNESSED BY:	JAKUB
W/O NO.:	20201103-116
SPF NO.:	SPF3155



LOCATION MAP

FLOW TEST RESULT DATA

TEST NO.	PRESSURE (PSI)	FLOW (USGPM)	# OF PORTS	PRESSURE (BAR)	FLOW (L/MIN)
1	80	0	0	5.52	0.0
2	75	1250	1	5.17	4731.8
3	72	2000	2	4.96	7570.8
*4	20	6200	*		



APPENDIX D – SANITARY DATA

nexTrans ENGINEERING

Proposed Sanitary Drainage Design Sheet

Street Name	Up Stream	Down Stream	Increment			Cumulative		FLOW									PIPE							
	MH	MH	Units	PPU	Areas, ha	P	Areas, ha	KH	Pop/Flow	A Gross	Infilt. Flow	Infilt. 1	Len. sewer	Infilt. Flow	Infilt. 2	Q Total	L	Act. Size	Nom. Size	Grade	Nom. Cap.	Vel.	Act. Vel.	% Pipe
									l/s	ha	L/s.ha	l/s	m	L/s.m	l/s	l/s	m	mm	mm	%	l/s	m/s	m/s	Full
New Development			10	2.7	0.1588	27	0.1588	4.36	0.41	0.1588	0.20	0.03	50.00	0.028	1.40	1.84		250	250	2.00	84.1	1.71	0.69	2.2
Sewer to Thomas Street						27	0.1588									1.84		375	375	0.60	135.8	1.23	0.43	1.4

A = area in ha
PPU = persons per unit
P = population
KH = $1+14/\{4+(P/1000)^{1/2}\}$
Qaverage=302.8 L/capita/day

86 Thomas Street
11 Units Townhouse
Sanitary Sewer Design

Design:	W.L.	Job No.	NT-19-013		
Check:	G.R.	Date	Jan 2024	Sheet	1 of 1

APPENDIX E – STORMWATER DATA

nexTrans ENGINEERING

Drainage Area

86 Thomas St.
File No. NT-19-013
Date: Jan. 2024

Pre-Development			C	
Site Area	0.1643	ha		
Conveyed Area	0.0055	ha		
Area in pre-developmen	**0.1588**	ha	**0.25**	Drain to Thomas St.

Post-Development			C	
post-area:				
A1 - Controlled	**0.1370**	ha	**0.71**	Drain to internal STM system
roof	0.0313	ha	0.90	
lanscape	0.0211	ha	0.25	
permeable Unit Paver	0.0296	ha	0.50	
walkway+driveway	0.0550	ha	0.90	
A2 - Uncontrolled	**0.0218**	ha	**0.71**	Drain to Thomas St.
landscape	0.0064	ha	0.25	
walkway+patio	0.0154	ha	0.90	

nexTrans ENGINEERING

Rational Method

Pre-Development Flow Calculation

86 Thomas Street
File No. NT-19-013
Date: January 2024

Time of Concentration Calculation

Area Number	Area (ha)	C	Tc (min.)
Area in pre-development	0.1588	0.25	15.0

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)
Area in pre-development	0.1588	0.25	0.04	15.0	59.9	0.007	6.60

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)
Area in pre-development	0.1588	0.25	0.04	15	80.5	0.009	8.88

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)
Area in pre-development	0.1588	0.25	0.040	15	99.2	0.0109	10.94

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)
Area in pre-development	0.1588	0.28	0.044	15	113.9	0.0138	13.82

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)
Area in pre-development	0.1588	0.30	0.048	15	127.1	0.0168	16.82

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)
Area in pre-development	0.1588	0.31	0.050	15	140.7	0.0194	19.39

nexTrans ENGINEERING

Rational Method

Post-Development Flow Calculation

86 Thomas Street
File No. NT-19-013
Date:January 2024

Time of Concentration Calculation

Area Number	Area (ha)	C	Tc (min.)
A1 - Controlled	0.1370	0.71	15.0
A2 - Uncontrolled	0.0218	0.71	15.0

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)
A1 - Controlled	0.1370	0.71	0.10	15.0	59.9	0.016	16.26
A2 - Uncontrolled	0.0218	0.71	0.02	15.0	59.9	0.003	2.57

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)
A1 - Controlled	0.1370	0.71	0.10	15	80.5	0.022	21.86
A2 - Uncontrolled	0.0218	0.71	0.02	15	80.5	0.003	3.46

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)
A1 - Controlled	0.1370	0.71	0.098	15	99.2	0.0269	26.92
A2 - Uncontrolled	0.0218	0.71	0.015	15	99.2	0.0043	4.26

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)
A1 - Controlled	0.1370	0.78	0.108	15	113.9	0.0340	34.02
A2 - Uncontrolled	0.0218	0.78	0.017	15	113.9	0.0054	5.38

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)
A1 - Controlled	0.1370	0.86	0.117	15	127.1	0.0414	41.42
A2 - Uncontrolled	0.0218	0.85	0.019	15	127.1	0.0066	6.55

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)
A1 - Controlled	0.1370	0.89	0.122	15	140.7	0.0477	47.75
A2 - Uncontrolled	0.0218	0.89	0.019	15	140.7	0.0076	7.55

nexTrans ENGINEERING

Orifice Flow Calculation

86 Thomas Street
File No. NT-19-013
Date: Jan. 2024

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

Where

A =	area of orifice	0.004	m^2
C =	orifice plate coefficient	0.62	
h =	hydraulic head	**m**	
g =	gravity acc.	9.81	m/s^2

Pipe Data:

	Diameter of Orifice	=	0.075 m
	Pre-development Flow Rate in 100yr event	=	19.4 l/s
	Uncontrolled Flow Rate in 100yr event	=	7.6 l/s
	100yr Allowable Release Rate	=	11.8 l/s
	100yr hydraulic head	=	0.93 m
	100yr Calculated Flow, Q	=	**11.70 l/s**
100-yr Elev:	Orifice Plate Invert	=	153.49 m
	100-year Elev.	=	**154.46** m
	Pre-development Flow Rate in 50yr event	=	16.8 l/s
	Uncontrolled Flow Rate in 50yr event	=	6.6 l/s
	50yr Allowable Release Rate	=	10.3 l/s
	50yr hydraulic head	=	0.71 m
	50yr Calculated Flow, Q	=	**10.22 l/s**
	Pre-development Flow Rate in 25yr event	=	13.8 l/s
	Uncontrolled Flow Rate in 25yr event	=	5.4 l/s
	25yr Allowable Release Rate	=	8.4 l/s
	25yr hydraulic head	=	0.47 m
	25yr Calculated Flow, Q	=	**8.32 l/s**
	Pre-development Flow Rate in 10yr event	=	10.9 l/s
	Uncontrolled Flow Rate in 10yr event	=	4.3 l/s
	10yr Allowable Release Rate	=	6.7 l/s
	10yr hydraulic head	=	0.30 m
	10yr Calculated Flow, Q	=	**6.65 l/s**
	Pre-development Flow Rate in 5yr event	=	8.9 l/s
	Uncontrolled Flow Rate in 5yr event	=	3.5 l/s
	5yr Allowable Release Rate	=	5.4 l/s
	5yr hydraulic head	=	0.19 m
	5yr Calculated Flow, Q	=	**5.29 l/s**
	Pre-development Flow Rate in 2yr event	=	6.6 l/s
	Uncontrolled Flow Rate in 2yr event	=	2.6 l/s
	2yr Allowable Release Rate	=	4.0 l/s
	2yr hydraulic head	=	0.11 m
	2yr Calculated Flow, Q	=	**4.02 l/s**

nexTrans ENGINEERING

100yr Required Storage

86 Thomas Street
File No. NT-19-013
Date: Jan. 2024

Post-Development:

Controlled	A1	=	0.1370	ha
	C	=	0.89	
Orifice Rate	Q	=	11.7	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)
5	242.5	0.082	24.69	0.0117	3.51	21.2
10	176.3	0.060	35.90	0.0117	7.02	28.9
15	140.7	0.048	42.97	0.0117	10.53	32.4
20	118.1	0.040	48.11	0.0117	14.04	34.1
25	102.4	0.035	52.14	0.0117	17.55	**34.6**
30	90.8	0.031	55.45	0.0117	21.06	34.4
35	81.8	0.028	58.28	0.0117	24.57	33.7
40	74.6	0.025	60.75	0.0117	28.08	32.7
45	68.7	0.023	62.94	0.0117	31.59	31.3
50	63.8	0.022	64.91	0.0117	35.11	29.8
55	59.6	0.020	66.71	0.0117	38.62	28.1
60	56.0	0.019	68.36	0.0117	42.13	26.2
65	52.8	0.018	69.89	0.0117	45.64	24.3
70	50.0	0.017	71.32	0.0117	49.15	22.2
75	47.6	0.016	72.66	0.0117	52.66	20.0
80	45.4	0.015	73.92	0.0117	56.17	17.8
85	43.4	0.015	75.11	0.0117	59.68	15.4
90	41.6	0.014	76.24	0.0117	63.19	13.1
95	40.0	0.014	77.32	0.0117	66.70	10.6
100	38.5	0.013	78.35	0.0117	70.21	8.1
120	33.6	0.011	82.05	0.0117	84.25	0.0
180	24.7	0.008	90.63	0.0117	126.38	0.0
210	22.0	0.007	94.04	0.0117	147.44	0.0
240	19.9	0.007	97.06	0.0117	168.51	0.0

100-year Required Storage = 34.6 m^3

nexTrans ENGINEERING

50yr Required Storage

86 Thomas Street
File No. NT-19-013
Date: Jan. 2024

Post-Development:

Controlled	A1	=	0.1370	ha
	C	=	0.86	
Orifice Rate	Q	=	10.2	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)
5	220.9	0.072	21.60	0.0102	3.07	18.5
10	159.7	0.052	31.23	0.0102	6.13	25.1
15	127.1	0.041	37.28	0.0102	9.20	28.1
20	106.6	0.035	41.67	0.0102	12.27	29.4
25	92.3	0.030	45.11	0.0102	15.34	**29.8**
30	81.7	0.027	47.94	0.0102	18.40	29.5
35	73.6	0.024	50.36	0.0102	21.47	28.9
40	67.1	0.022	52.47	0.0102	24.54	27.9
45	61.8	0.020	54.34	0.0102	27.61	26.7
50	57.3	0.019	56.03	0.0102	30.67	25.4
55	53.5	0.017	57.57	0.0102	33.74	23.8
60	50.3	0.016	58.98	0.0102	36.81	22.2
65	47.4	0.015	60.29	0.0102	39.88	20.4
70	45.0	0.015	61.51	0.0102	42.94	18.6
75	42.7	0.014	62.66	0.0102	46.01	16.7
80	40.8	0.013	63.74	0.0102	49.08	14.7
85	39.0	0.013	64.76	0.0102	52.14	12.6
90	37.4	0.012	65.73	0.0102	55.21	10.5
95	35.9	0.012	66.65	0.0102	58.28	8.4
100	34.5	0.011	67.53	0.0102	61.35	6.2
120	30.1	0.010	70.71	0.0102	73.62	0.0
180	22.2	0.007	78.07	0.0102	110.42	0.0
210	19.7	0.006	80.99	0.0102	128.83	0.0
240	17.8	0.006	83.59	0.0102	147.23	0.0

50-year Required Storage = 29.8 m^3

nexTrans ENGINEERING

25yr Required Storage

86 Thomas Street
File No. NT-19-013
Date: Jan. 2024

Post-Development:

Controlled	A1	=	0.1370	ha
	C	=	0.78	
Orifice Rate	Q	=	8.3	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)
5	198.7	0.059	17.81	0.0083	2.50	15.3
10	143.3	0.043	25.68	0.0083	4.99	20.7
15	113.9	0.034	30.61	0.0083	7.49	23.1
20	95.4	0.028	34.19	0.0083	9.98	24.2
25	82.6	0.025	36.99	0.0083	12.48	**24.5**
30	73.1	0.022	39.30	0.0083	14.97	24.3
35	65.8	0.020	41.27	0.0083	17.47	23.8
40	60.0	0.018	42.99	0.0083	19.97	23.0
45	55.2	0.016	44.52	0.0083	22.46	22.1
50	51.2	0.015	45.89	0.0083	24.96	20.9
55	47.8	0.014	47.15	0.0083	27.45	19.7
60	44.9	0.013	48.30	0.0083	29.95	18.4
65	42.4	0.013	49.37	0.0083	32.44	16.9
70	40.2	0.012	50.37	0.0083	34.94	15.4
75	38.2	0.011	51.30	0.0083	37.43	13.9
80	36.4	0.011	52.18	0.0083	39.93	12.3
85	34.8	0.010	53.02	0.0083	42.43	10.6
90	33.4	0.010	53.81	0.0083	44.92	8.9
95	32.0	0.010	54.56	0.0083	47.42	7.1
100	30.8	0.009	55.28	0.0083	49.91	5.4
120	26.9	0.008	57.87	0.0083	59.90	0.0
180	19.8	0.006	63.89	0.0083	89.84	0.0
210	17.6	0.005	66.27	0.0083	104.82	0.0
240	15.9	0.005	68.39	0.0083	119.79	0.0

25-year Required Storage = 24.5 m^3

nexTrans ENGINEERING

10yr Required Storage

86 Thomas Street
File No. NT-19-013
Date: Jan. 2024

Post-Development:

Controlled	A1	=	0.1370	ha
	C	=	0.71	
Orifice Rate	Q	=	6.6	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)
5	173.0	0.047	14.01	0.0066	1.99	12.0
10	124.8	0.034	20.20	0.0066	3.99	16.2
15	99.2	0.027	24.09	0.0066	5.98	18.1
20	83.1	0.022	26.90	0.0066	7.98	18.9
25	71.9	0.019	29.11	0.0066	9.97	**19.1**
30	63.7	0.017	30.92	0.0066	11.96	19.0
35	57.3	0.015	32.47	0.0066	13.96	18.5
40	52.2	0.014	33.82	0.0066	15.95	17.9
45	48.1	0.013	35.03	0.0066	17.94	17.1
50	44.6	0.012	36.11	0.0066	19.94	16.2
55	41.7	0.011	37.09	0.0066	21.93	15.2
60	39.1	0.011	38.00	0.0066	23.93	14.1
65	36.9	0.010	38.84	0.0066	25.92	12.9
70	35.0	0.009	39.63	0.0066	27.91	11.7
75	33.2	0.009	40.36	0.0066	29.91	10.5
80	31.7	0.009	41.06	0.0066	31.90	9.2
85	30.3	0.008	41.71	0.0066	33.90	7.8
90	29.0	0.008	42.33	0.0066	35.89	6.4
95	27.9	0.008	42.93	0.0066	37.88	5.0
100	26.9	0.007	43.49	0.0066	39.88	3.6
120	23.4	0.006	45.53	0.0066	47.85	0.0
180	17.2	0.005	50.26	0.0066	71.78	0.0
210	15.3	0.004	52.14	0.0066	83.74	0.0
240	13.8	0.004	53.81	0.0066	95.70	0.0

10-year Required Storage = 19.1 m^3

nextrans ENGINEERING

5yr Required Storage

86 Thomas Street
File No. NT-19-013
Date: Jan. 2024

Post-Development:

Controlled	A1	=	0.1370	ha
	C	=	0.71	
Orifice Rate	Q	=	5.3	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)
5	140.5	0.038	11.37	0.0053	1.59	9.8
10	101.3	0.027	16.40	0.0053	3.17	13.2
15	80.5	0.022	19.56	0.0053	4.76	14.8
20	67.4	0.018	21.84	0.0053	6.35	15.5
25	58.4	0.016	23.63	0.0053	7.93	**15.7**
30	51.7	0.014	25.11	0.0053	9.52	15.6
35	46.5	0.013	26.36	0.0053	11.11	15.3
40	42.4	0.011	27.46	0.0053	12.69	14.8
45	39.0	0.011	28.44	0.0053	14.28	14.2
50	36.2	0.010	29.32	0.0053	15.87	13.4
55	33.8	0.009	30.12	0.0053	17.45	12.7
60	31.8	0.009	30.85	0.0053	19.04	11.8
65	30.0	0.008	31.54	0.0053	20.63	10.9
70	28.4	0.008	32.17	0.0053	22.21	10.0
75	27.0	0.007	32.77	0.0053	23.80	9.0
80	25.7	0.007	33.33	0.0053	25.39	7.9
85	24.6	0.007	33.87	0.0053	26.97	6.9
90	23.6	0.006	34.37	0.0053	28.56	5.8
95	22.7	0.006	34.85	0.0053	30.15	4.7
100	21.8	0.006	35.31	0.0053	31.73	3.6
120	19.0	0.005	36.97	0.0053	38.08	0.0
180	14.0	0.004	40.81	0.0053	57.12	0.0
210	12.4	0.003	42.33	0.0053	66.64	0.0
240	11.2	0.003	43.69	0.0053	76.16	0.0

5-year Required Storage = 15.7 m^3

nexTrans ENGINEERING

2yr Required Storage

86 Thomas Street
File No. NT-19-013
Date: Jan. 2024

Post-Development:

Controlled	A1	=	0.1370	ha
	C	=	0.71	
Orifice Rate	Q	=	4.0	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)
5	104.5	0.028	8.46	0.0040	1.21	7.3
10	75.4	0.020	12.20	0.0040	2.41	9.8
15	59.9	0.016	14.55	0.0040	3.62	10.9
20	50.2	0.014	16.25	0.0040	4.83	11.4
25	43.4	0.012	17.58	0.0040	6.04	**11.5**
30	38.4	0.010	18.68	0.0040	7.24	11.4
35	34.6	0.009	19.61	0.0040	8.45	11.2
40	31.5	0.009	20.43	0.0040	9.66	10.8
45	29.0	0.008	21.15	0.0040	10.87	10.3
50	26.9	0.007	21.81	0.0040	12.07	9.7
55	25.2	0.007	22.40	0.0040	13.28	9.1
60	23.6	0.006	22.95	0.0040	14.49	8.5
65	22.3	0.006	23.46	0.0040	15.70	7.8
70	21.1	0.006	23.93	0.0040	16.90	7.0
75	20.1	0.005	24.38	0.0040	18.11	6.3
80	19.1	0.005	24.80	0.0040	19.32	5.5
85	18.3	0.005	25.19	0.0040	20.52	4.7
90	17.5	0.005	25.57	0.0040	21.73	3.8
95	16.9	0.005	25.93	0.0040	22.94	3.0
100	16.2	0.004	26.27	0.0040	24.15	2.1
120	14.2	0.004	27.50	0.0040	28.98	0.0
180	10.4	0.003	30.36	0.0040	43.46	0.0
210	9.3	0.002	31.49	0.0040	50.71	0.0
240	8.4	0.002	32.50	0.0040	57.95	0.0

2-year Required Storage = 11.5 m^3

StormCon SDD3 SIZING REPORT

PROJECT INFORMATION

Project Name :	86 Thomas St
Location	Mississauga
Unit :	OGS

SITE INFORMATION AND SIZING CRITERIA

Site Area (hectares)	0.164
Imperviousness %	84%
Target TSS removal (%)	80%
Rainfall station :	Toronto, ONT
Particle Size Distribution	ETV

STORMWATER TREATEMENT RECOMMENDATION

RESULTS SUMMARY

Model	TSS	Volume
SDD3-1200	88.98%	100.0%
SDD3-1500	90.07%	100.0%
SDD3-1800	90.75%	100.0%
SDD3-2400	91.26%	100.0%
SDD3-3000	91.44%	100.0%
SDD3-3200	91.47%	100.0%
SDD3-3600	91.54%	100.0%
SDD3-4000	91.57%	100.0%

Recommended Model	SDD3-1200

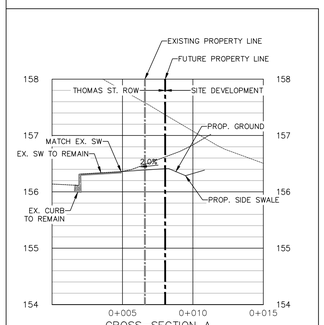
Annual TSS removal efficiency (%)[1]	Manhole Diameter (mm)	No Bypass Flow (lps)	Maximum Flow (lps)	Maximum Pipe Diameter (mm)	Oil Storage Capacity (L)	Sediment Storage Capacity (m^3)	Height from invert to SDD floor (m)	Treatment area (m^2)
88.98%	1220	27	51	475	284.00	0.98	1.74	1.17

DETAILED SDD3 SIZING REPORT

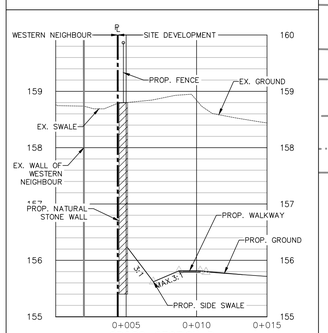
Rainfall Interval Point (mm/hr)[2]	Flow Rate (Lps)	Loading Rate (Lps/m^2)	Loading Rate (Lpm/m^2)	Total Rainfall (%)	Removal Efficiency (%)	Cumulative rainfall volume (%)	Relative Efficiency (%)
0.50	0.2	0.2	9.4	0.19%	91.60	0.19%	0.18%
1.00	0.4	0.3	18.8	13.38%	91.60	13.57%	12.25%
1.50	0.5	0.5	28.2	16.44%	91.60	30.01%	15.06%
2.00	0.7	0.6	37.6	13.68%	91.60	43.69%	12.53%
2.50	0.9	0.8	47.0	3.36%	91.47	47.05%	3.08%
3.00	1.1	0.9	56.4	1.37%	91.29	48.43%	1.25%
3.50	1.3	1.1	65.8	8.99%	91.11	57.41%	8.19%
4.00	1.5	1.3	75.2	5.39%	90.93	62.80%	4.90%
4.50	1.6	1.4	84.6	1.33%	90.72	64.13%	1.20%
5.00	1.8	1.6	94.0	5.16%	90.46	69.29%	4.67%
6.00	2.2	1.9	112.8	4.23%	89.95	73.52%	3.80%
7.00	2.6	2.2	131.6	4.48%	89.44	78.00%	4.01%
8.00	2.9	2.5	150.4	3.17%	88.93	81.17%	2.82%
9.00	3.3	2.8	169.2	2.31%	88.42	83.48%	2.05%
10.00	3.7	3.1	188.0	2.18%	87.90	85.66%	1.92%
20.00	7.3	6.3	376.0	9.37%	78.01	95.03%	7.31%
30.00	11.0	9.4	564.0	2.72%	76.82	97.75%	2.09%
40.00	14.7	12.5	752.0	1.13%	76.39	98.88%	0.87%
50.00	18.3	15.7	940.0	0.46%	75.82	99.35%	0.35%
100.0	36.6	31.3	1879.9	0.56%	70.73	99.91%	0.40%
150.0	54.9	47.0	2819.9	0.08%	70.73	99.99%	0.06%
200.0	73.3	62.7	3759.8	0.01%	70.73	100.01%	0.01%
					70.73		
			Total cumulative rainfall (%)[4] :	100.0%		Net Annual (%) :	88.98%

Performance based on 50-1000 um PSD and ETV verification protocol

APPENDIX F – ENGINEERING DRAWINGS



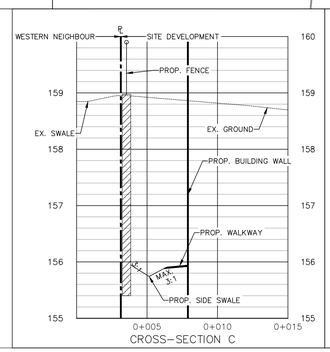
CROSS-SECTION A



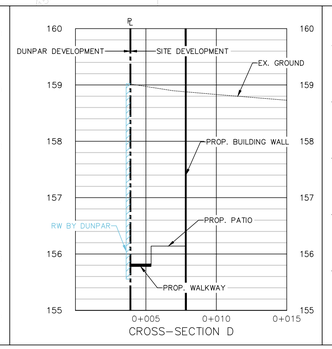
CROSS-SECTION B

MINIMUM PAVEMENT DESIGN FOR INTERNAL PRIVATE DRIVEWAY AND PARKING AREA
- DEVELOPMENT REQUIREMENTS MANUAL, SECTION 6, CITY OF MISSISSAUGA

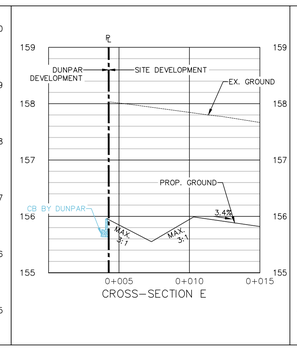
GRANULAR B	250mm
GRANULAR A	200mm
HL8 BASE ASPHALT	65mm
HL3 TOP ASPHALT	40mm



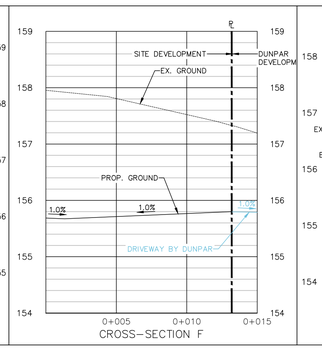
CROSS-SECTION C



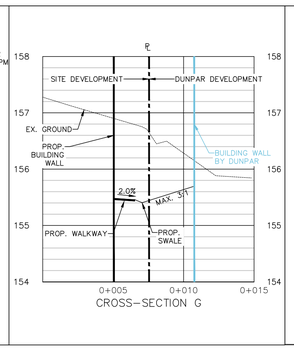
CROSS-SECTION D



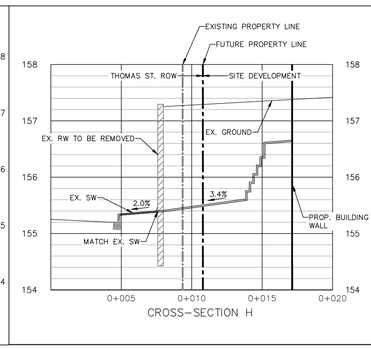
CROSS-SECTION E



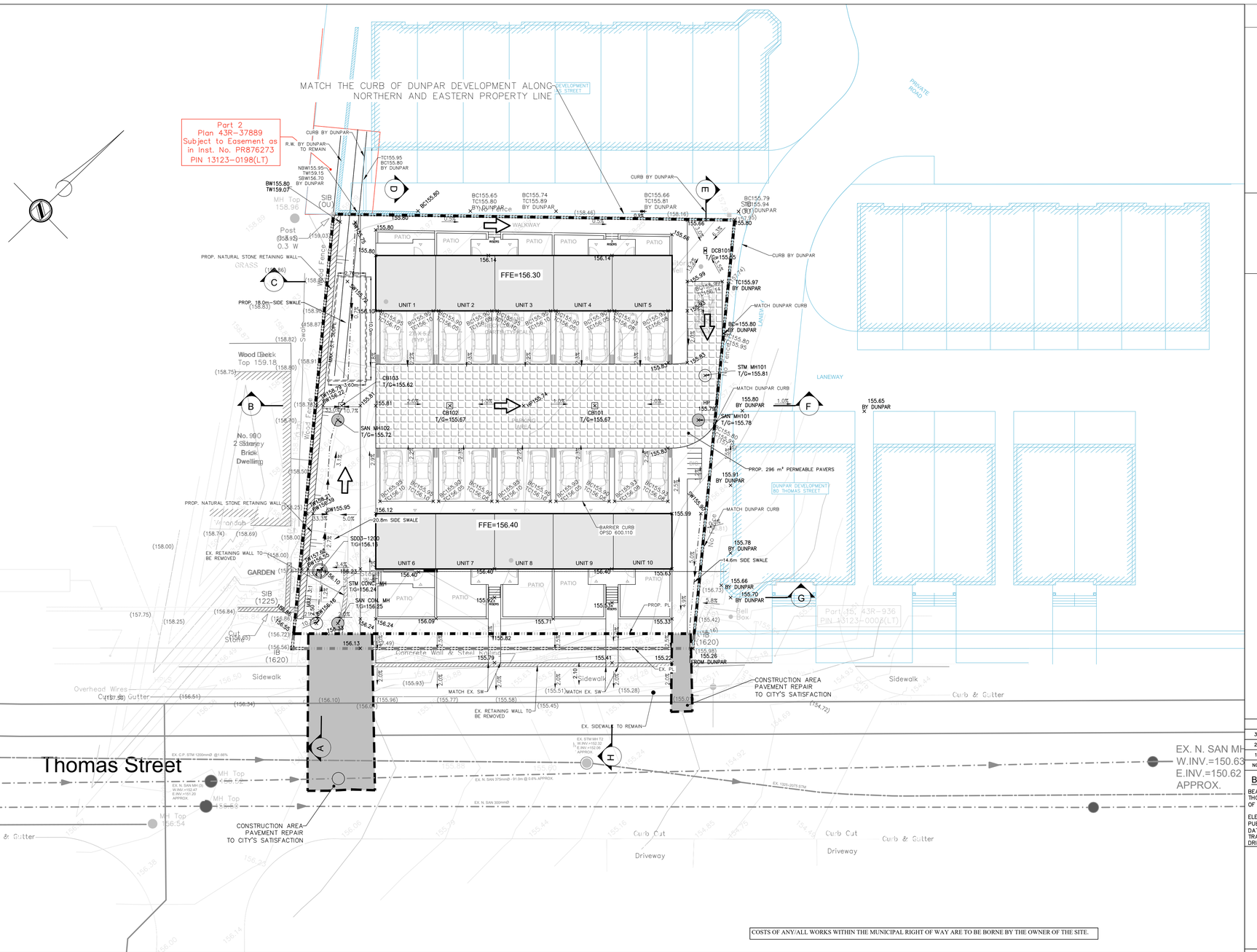
CROSS-SECTION F



CROSS-SECTION G



CROSS-SECTION H



KEY PLAN

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED BEFORE STARTING WORK. THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

LEGEND

- PROPERTY LINE
- PROP. ℄ OF SWALE
- DUNPAR DEVELOPMENT
- EASEMENT
- 232.55 × PROPOSED ELEVATION
- (232.43)× EXISTING ELEVATION
- ×232.55TC TOP OF CURB
- ×232.55BC BOTTOM OF CURB
- ×232.55TW TOP OF WALL
- ×232.55BW BOTTOM OF WALL
- ×232.55SW CENTER OF SWALE
- BUILDING ENTRANCE
- 3:1 SLOPE
- EXISTING RETAINING WALL
- PROPOSED RETAINING WALL
- CONSTRUCTION AREA
- OVERLAND FLOW ROUTE

NO.	Revision	Date	By	Appr'd
3	SUBMISSION FOR ZBA	FEB. 28 2024	W.L.	G.R.
2	SUBMISSION FOR SP APPROVAL	AUG. 16 2021	W.L.	G.R.
1	SUBMISSION FOR REVIEW	JULY 02 2020	W.L.	G.R.

BENCHMARK

BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE NORTHERLY LIMIT OF THOMAS STREET, AS SHOWN ON DEPOSITED PLAN 42R-28302, HAVING A BEARING OF N 39° 41' 00" E.

ELEVATIONS ARE REFERENCED TO CITY OF MISSISSAUGA BENCHMARK No. 1069, PUBLISHED AS HAVING AN ELEVATION OF 157.50 METERS (CANADIAN GEODETIC DATUM, 1928). #1069 SET HORIZONTALLY AT THE BASE OD A 750mm CONCRETE TRAFFIC POLE AT THE NORTH-WEST CORNER OF THOMAS STREET AND GAFNEY DRIVE.

CONSULTANT

LICENSED PROFESSIONAL ENGINEER G. RAMNATH 100132848 28 Feb 24 PROVINCE OF ONTARIO

ACCEPTED CITY OF MISSISSAUGA

SIGNATURE DATE

MISSISSAUGA

nexTrans CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

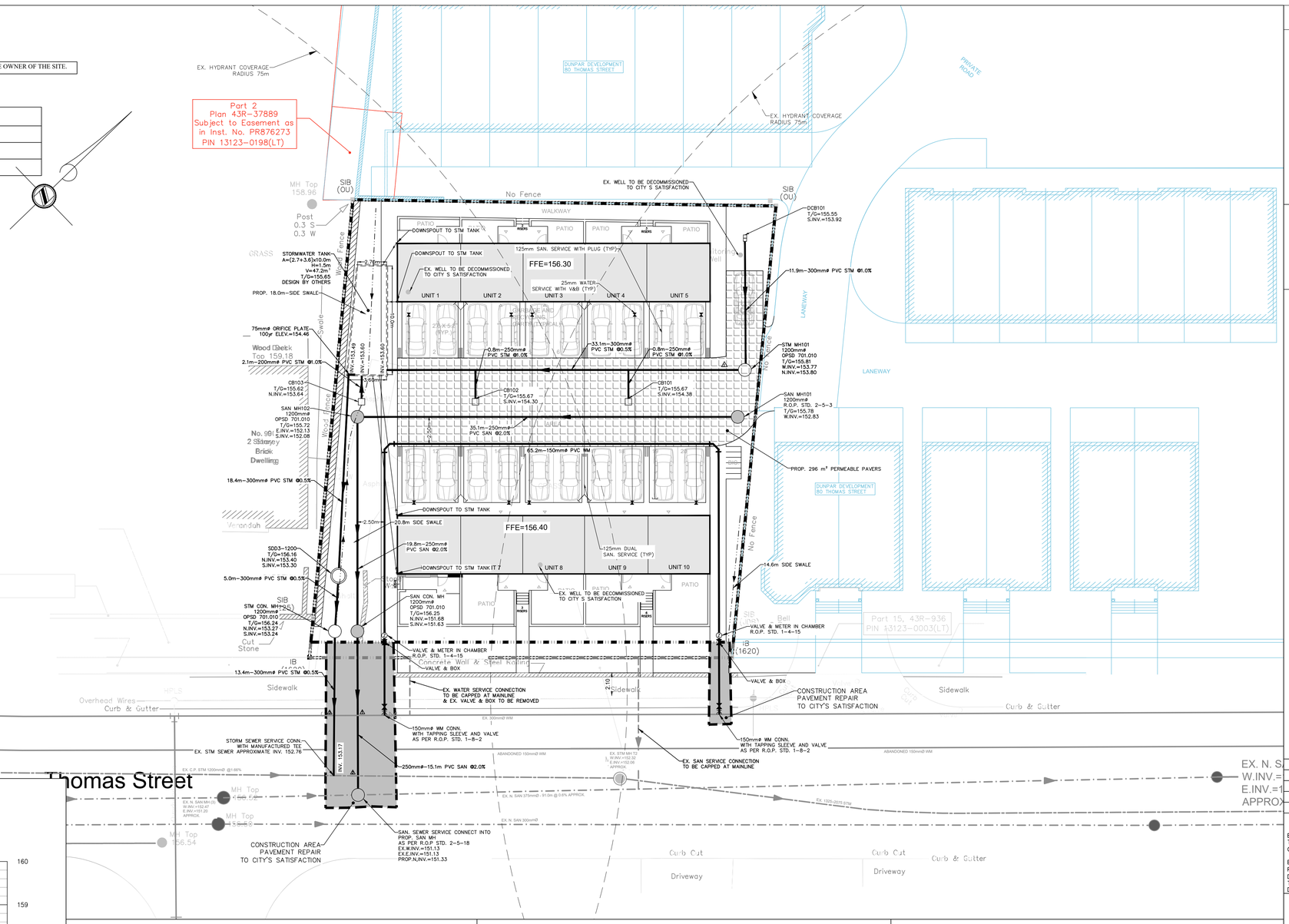
Proposed 10 Units Townhouse 86 THOMAS STREET

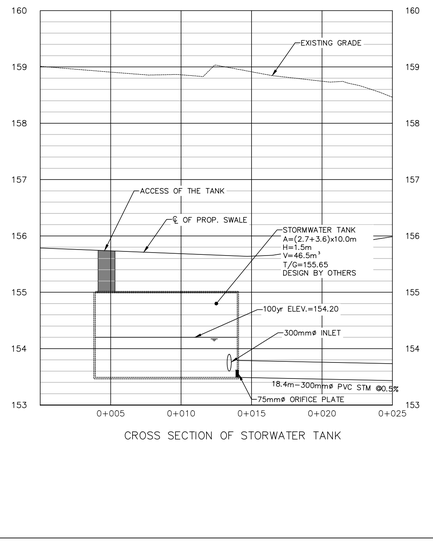
SITE GRADING PLAN

Surveyed by:	Checked by: G.R.	Project No. NT-19-013
Drawn by: W.L.	Approved by: G.R.	
Designed by: W.L.	Date: JUNE 04, 2019	Drawing No. SG-01
Scale: HORIZONTAL: 1:200 VERTICAL: 1:50		Sheet No. 1 OF 5
Mississauga ZBA No.: OZ 20-11 Region File No.: C600401		

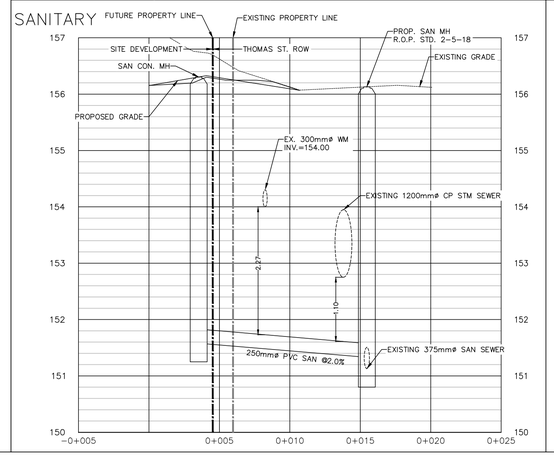
COSTS OF ANY/ALL WORKS WITHIN THE MUNICIPAL RIGHT OF WAY ARE TO BE BORNE BY THE OWNER OF THE SITE.

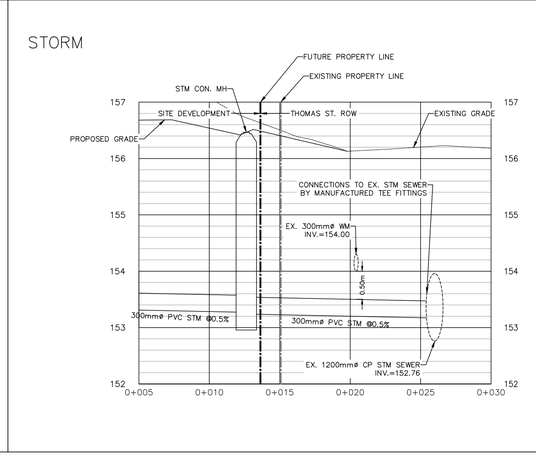
CROSSING INFORMATION
1. EX. WM INV.=154.00, PROP. SAN OBV.=151.73
2. EX. STM INV.=152.72, PROP. SAN OBV.=151.62
3. EX. WM INV.=154.00, PROP. STM OBV.=153.50

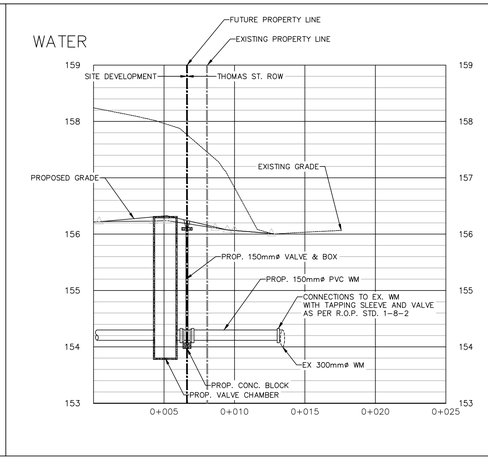




CROSS SECTION OF STORWATER TANK







KEY PLAN

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

LEGEND

- PROPOSED WATERMAIN
- EXISTING WATERMAIN
- PROPOSED SANITARY SEWER
- EXISTING SANITARY SEWER
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- PROPOSED ROOF DRAIN PIPE
- EXISTING HYDRANT AND VALVE
- EXISTING VALVE CHAMBER
- EXISTING STORM MH
- EXISTING SANITARY MH
- PROPOSED STORM MH
- PROPOSED SANITARY MH
- PROPOSED STORM CATCHBASIN MH
- EXISTING CATCHBASIN SINGLE
- PROPOSED CATCHBASIN
- PROPERTY LINE
- PROPOSED AREA DRAIN
- PROPOSED DOWNSPOUT
- PROPOSED PERMEABLE PAVERS
- EXISTING RETAING WALL
- CONSTRUCTION AREA
- DUNPAR DEVELOPMENT
- EASEMENT

3	SUBMISSION FOR ZBA	FEB. 28 2024	W.L.	G.R.
2	SUBMISSION FOR SP APPROVAL	AUG. 16 2021	W.L.	G.R.
1	SUBMISSION FOR REVIEW	JULY 02 2020	W.L.	G.R.
	Revision	Date	By	Appr'd

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CONSULTANT

LICENSED PROFESSIONAL ENGINEER G. RAMNATH 100122948 28.Feb.24 PROVINCE OF ONTARIO

ACCEPTED CITY OF MISSISSAUGA

SIGNATURE DATE

MISSISSAUGA

nexTrans CONSULTING ENGINEERS
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Proposed 10 Units Townhouse 86 THOMAS STREET

SITE SERVICING PLAN

Surveyed by: [illegible]	Checked by: G.R.	Project No. NT-19-013
Drawn by: W.L.	Approved by: G.R.	
Designed by: W.L.	Date: JUNE 04, 2019	Drawing No. SS-01
Scale: HORIZONTAL: 1:200 VERTICAL: 1:50		Sheet No. 2 OF 5
Mississauga ZBA No.: OZ 20-11 Region File No.: C600401		

EROSION AND SEDIMENTATION CONTROL

PRIOR TO CONSTRUCTION OR STRIPPING TOPSOIL, THE CONTRACTOR SHALL MAKE PROVISIONS TO PROVIDE "GOOD HOUSE KEEPING" SITE. THESE MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

1. PROVIDE SILT FENCES AROUND THE PERIMETER OF THE SITE TO REDUCE SILT FROM LEAVING THE SITE.

2. PROVIDE SILT TRAPS AT CATCH BASINS UPON THEIR INSTALLATION TO REDUCE THE AMOUNT OF SILT ENTERING THE SEWER SYSTEM DURING CONSTRUCTION.

3. USE OF A "MUD MAT" OR TEMPORARY TRACKING CONTROL AT THE ENTRANCE OF THE SITE TO MINIMIZE MUD TRACKING FROM THE SITE. (OWNER SHALL CLEAN ADJACENT ROADS ON A REGULAR BASIS).

4. STABILIZE SITE AS SOON AS POSSIBLE BY RE-ESTABLISHING VEGETATIVE GROUND COVER AND AVOIDING BARE SOIL AREAS. ALL AREAS (INCLUDING STOCKPILES) WHERE SITE IMPROVEMENTS ARE NOT EXPECTED TO OCCUR IMMEDIATELY SHALL BE REVEGETATED WITH 100MM OF TOPSOIL AND HYDROSEEDED IN ACCORDANCE WITH O.P.S.D.

5. ALL DRAINAGE WORKS REQUIRE EROSION/SEDIMENT CONTROL SATISFACTORY TO THE APPROVAL AGENCIES DURING CONSTRUCTION PERIOD AND MUST BE MONITORED AND MAINTAINED ON A REGULAR BASIS TO ENSURE MAXIMUM BENEFIT AND MINIMUM SILT MIGRATION OFF-SITE.

ESC PHASING

PHASE 1

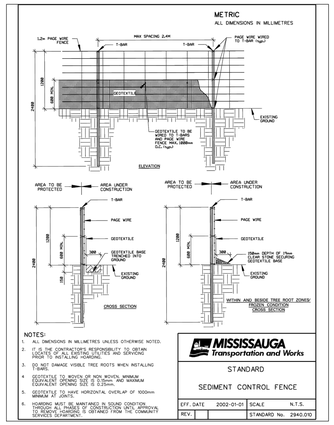
PRIOR TO TOPSOIL STRIPPING AND AREA GRADING. INSTALL SILT FENCE, AND CATCH BASINS PROTECTION.

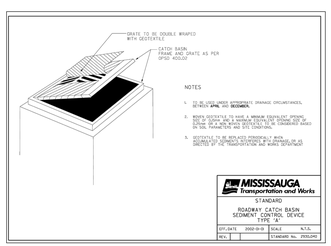
PHASE 2

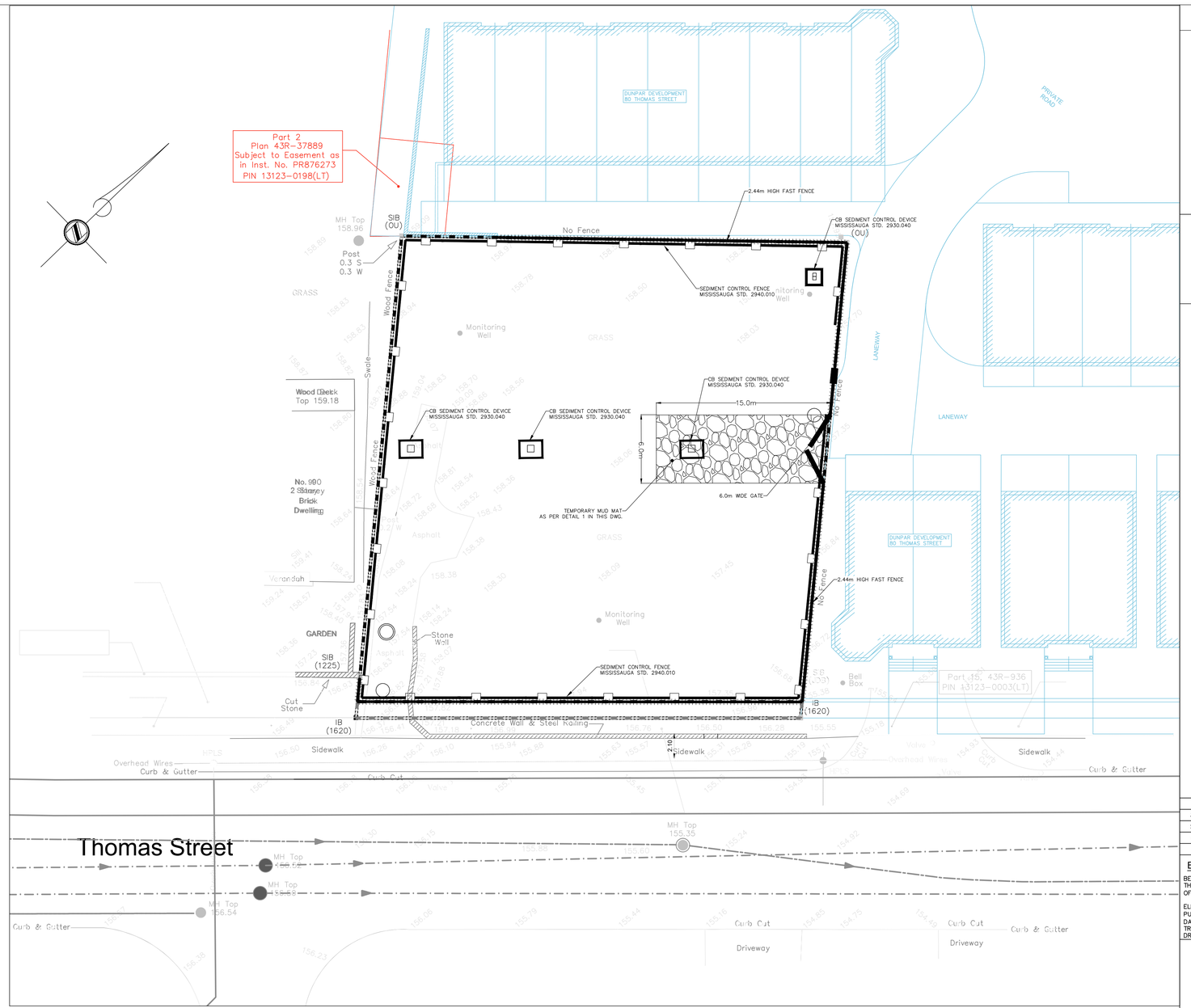
COMPLETE GRADING AND RESTORATION TO DISTURBED AREAS. MAINTAIN SEDIMENT TRAPS BY REMOVAL OF ACCUMULATED SEDIMENTS. INSPECT AND REPAIR DAMAGE TO SILT FENCE ON A REGULAR BASIS.

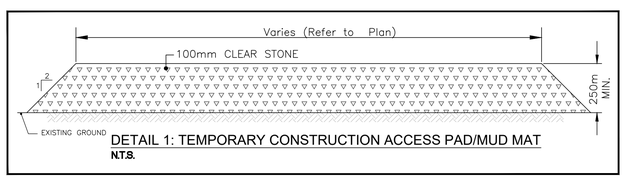
PHASE 3

PRIOR TO FINAL PLACING OF TOPSOIL AND SODDING, REMOVE ALL INSTALLATIONS IN PHASE 1 AND PHASE 2.









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LEGEND

- PROPERTY LINE
- SILT FENCE
- 2.44m HIGH FAST FECNE
- DUNPAR DEVELOPMENT
- EASEMENT

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CONSULTANT

LICENSED PROFESSIONAL ENGINEER G. RAMNATH 100132948 28-Feb-24 PROVINCE OF ONTARIO

ACCEPTED CITY OF MISSISSAUGA

SIGNATURE DATE

MISSISSAUGA

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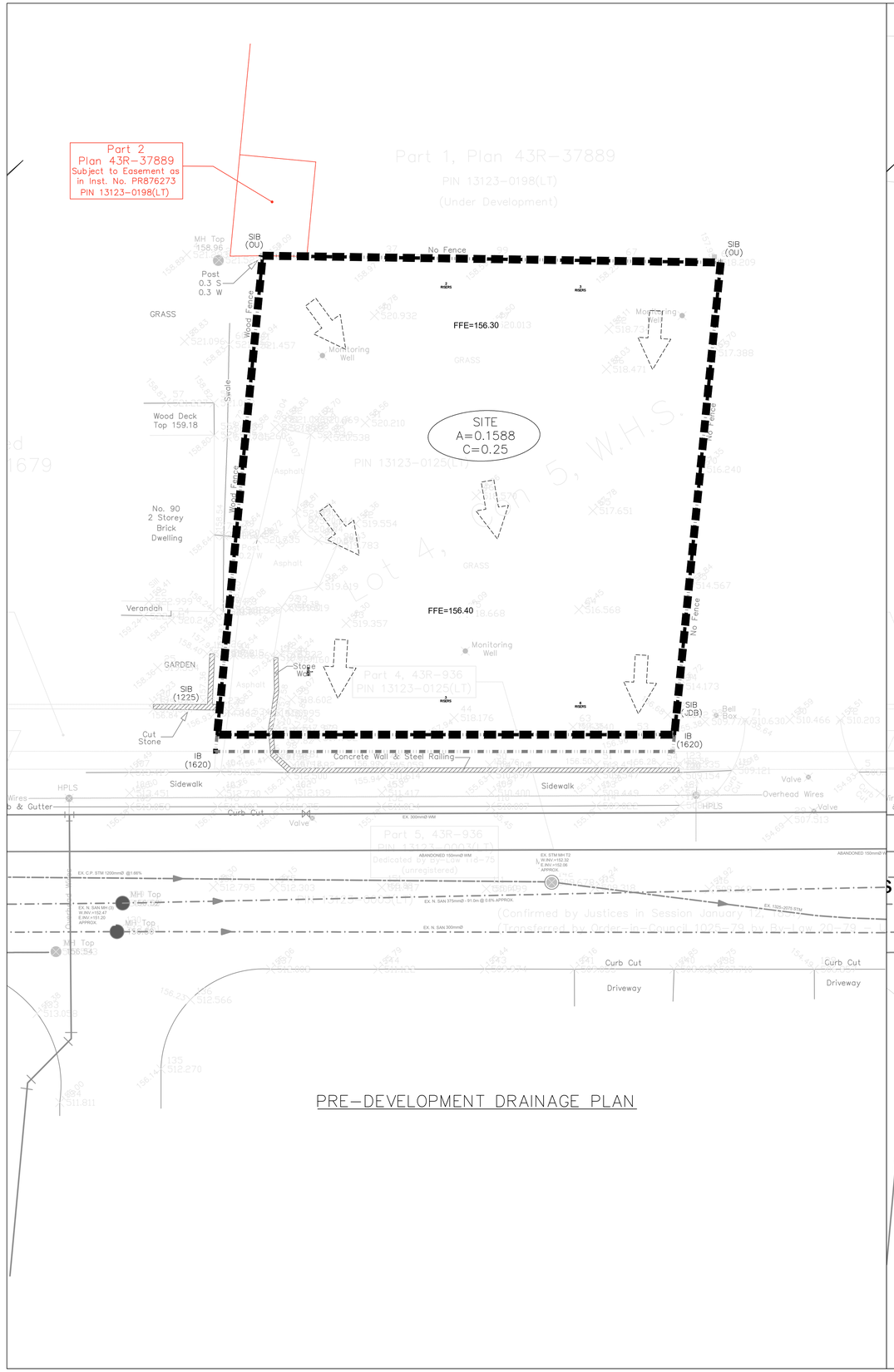
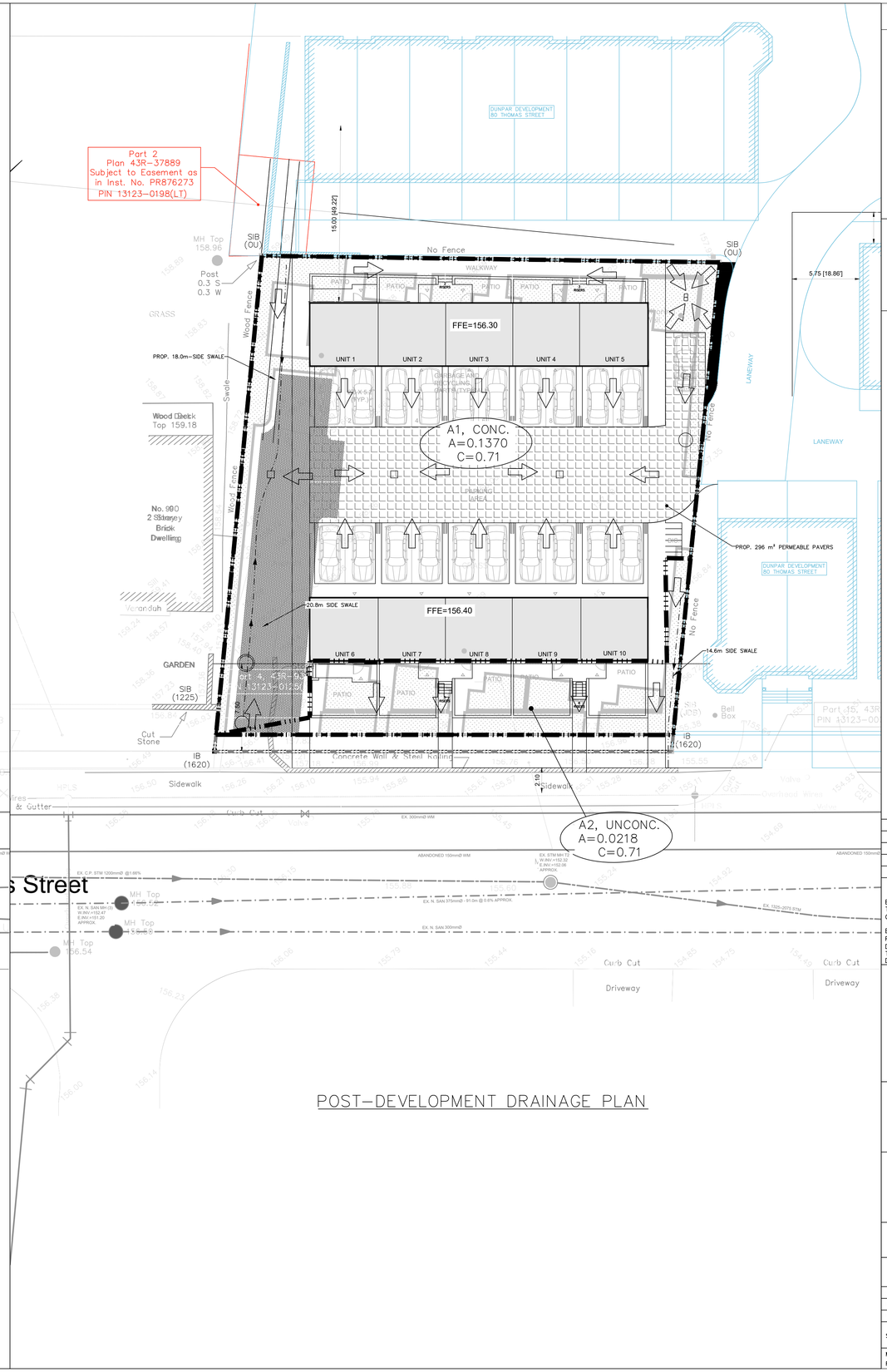
Proposed 10 Units Townhouse 86 THOMAS STREET

EROSION & SEDIMENT CONTROL PLAN

Surveyed by: [illegible]	Checked by: G.R.	Project No. NT-19-013
Drawn by: W.L.	Approved by: G.R.	Drawing No. ESC-01
Designed by: W.L.	Date: JUNE 04, 2019	
Scale: 1:200		Sheet No. 3 OF 5
Mississauga ZBA No.: OZ 20-11 Region File No.: C600401		



PRE-DEVELOPMENT DRAINAGE PLAN



POST-DEVELOPMENT DRAINAGE PLAN

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LEGEND

- PROPERTY LINE
- EXISTING DRAINAGE BOUNDARY
- PROPOSED DRAINAGE BOUNDARY
- EXISTING FLOW ROUTE
- PROPOSED FLOW ROUTE
- DUNPAR DEVELOPMENT
- EASEMENT

3	SUBMISSION FOR ZBA	FEB. 28 2024	W.L.	G.R.
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CONSULTANT

LICENSED PROFESSIONAL ENGINEER
G. RAMNATH
100132846
28.Feb.24
PROVINCE OF ONTARIO

ACCEPTED
CITY OF MISSISSAUGA

SIGNATURE DATE

MISSISSAUGA

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Proposed 10 Units Townhouse
86 THOMAS STREET

PRE-DEVELOPMENT DRAINAGE PLAN & POST-DEVELOPMENT DRAINAGE PLAN

Surveyed by: [illegible]	Checked by: G.R.	Project No. NT-19-013
Drawn by: W.L.	Approved by: G.R.	
Designed by: W.L.	Date: JUNE 04, 2019	Drawing No. DAP-01
Scale: 1:200		Sheet No. 4 OF 5
Mississauga ZBA No.: OZ 20-11 Region File No.: C600401		

GENERAL

1. PRIOR TO STARTING ANY WORKS, THE CONTRACTOR MUST ENSURE THAT ALL NECESSARY APPROVALS ARE IN PLACE FROM THE MUNICIPALITY, REGION, AND OTHER APPROVAL AGENCIES, AS REQUIRED.
2. WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS. THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
3. WORKS AND MATERIALS SHALL CONFORM TO CURRENT MINISTRY OF THE ENVIRONMENT & CLIMATE CHANGE, MUNICIPAL, REGIONAL AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS. FOR WORK WITHIN PRIVATE PROPERTY, WORKS AND MATERIALS SHALL CONFORM TO THE ONTARIO BUILDING CODE OR THE ABOVE-NOTED STANDARDS, WHICHEVER IS MORE STRINGENT.
4. WORKS BY OTHERS (EITHER ON-SITE OR OFF-SITE) MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS TO PREVENT CONSTRUCTION CONFLICTS.
5. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ANY EXISTING UTILITIES AND SERVICES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND/OR SUPPORTING ALL EXISTING UTILITIES AND SERVICES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION AND/OR REPAIR, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION, FOR ANY UTILITIES DISTURBED DURING CONSTRUCTION. DISCREPANCIES BETWEEN THE DRAWINGS AND FIELD CONDITIONS TO BE IMMEDIATELY REPORTED TO THE ENGINEER.
6. ALL TEMPORARY TRAFFIC CONTROL AND SIGNAGE DURING CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT ONTARIO TRAFFIC MANUAL BOOK 7: TEMPORARY CONDITIONS FIELD EDITION.
7. ANY AREAS BEYOND THE LIMIT OF THE SITE, DISTURBED DURING CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR, TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE EXECUTIVE DIRECTOR, TECHNICAL SERVICES.
8. REFER TO THE ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND LAYOUT INFORMATION.
9. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER 1 (ONE) SET OF AS-CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.

GRADING

1. PRIOR TO COMMENCEMENT OF EARTHWORKS, SITE ALTERATION PLANS MUST BE APPROVED AND ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND OPERATIONAL. THE CONTRACTOR SHALL MAINTAIN ALL WORKS UNTIL CONSTRUCTION IS COMPLETED TO THE SATISFACTION OF THE ENGINEER.
2. ENGINEERED FILL SHALL CONFORM TO THE SPECIFICATIONS PROVIDED IN THE GEOTECHNICAL REPORT, OR LATEST AMENDMENT THEREOF.
3. ENGINEERED FILL SHALL BE INSPECTED AND TESTED BY THE GEOTECHNICAL CONSULTANT. PROOF ROLLING OF SUBGRADE WILL BE REQUIRED PRIOR TO PLACEMENT OF GRANULAR MATERIALS. COORDINATE INSPECTIONS WITH GEOTECHNICAL CONSULTANT.
4. ALL ENGINEERED FILL SHALL BE PLACED AND COMPACTED PER GEOTECHNICAL REPORT, OR LATEST AMENDMENT THEREOF.
5. GRANULAR COMPACTION: PER THE SPECIFICATIONS PROVIDED IN THE GEOTECHNICAL REPORT, OR LATEST AMENDMENT THEREOF.
6. ROAD PAVEMENT STRUCTURE: PER THE SPECIFICATIONS PROVIDED IN THE GEOTECHNICAL REPORT, OR LATEST AMENDMENT THEREOF.

LIGHT DUTY PAVEMENT		HEAVY DUTY PAVEMENT	
40mm	HL3 SURFACE	40mm	HL3 SURFACE
50mm	HL8 BINDER	60mm	HL8 BINDER
150mm	GRANULAR A BASE	150mm	GRANULAR A BASE
300mm	GRANULAR B SUBBASE	400mm	GRANULAR B SUBBASE

7. ASPHALT COMPACTION: PER THE SPECIFICATIONS PROVIDED IN THE GEOTECHNICAL REPORT, OR LATEST AMENDMENT THEREOF.
8. BARRIER CURB WITHIN THE SITE TO BE CONSTRUCTED AS PER OPSD 600.110, UNLESS OTHERWISE SHOWN AND SHALL BE 0.15m IN HEIGHT ABOVE FINISHED PAVEMENT SURFACE UNLESS OTHERWISE NOTED.
9. CONCRETE SIDEWALK WIHITIN PRIVATE PROPERTY: 125mm DEEP WITH 125mm GRANULAR 'A' BASE. CONCRETE SIDEWALK WITHIN MUNICIPAL RIGHT-OF-WAY: PER CITY STANDARD 2240.010
10. LAP JOINTS SHALL BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT.
11. PERFORATED SUB-DRAINS SHALL BE CONNECTED TO ALL CATCHBASINS.
12. PAVEMENT MARKINGS SHALL BE PLACED AS SHOWN ON THE ARCHITECTURAL SITE PLAN WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT BASED PAINT AS PER OPSS 1712.
13. INSTALL SIGNAGE AS PER THE ARCHITECTURAL SITE PLAN.
14. ALL EXCESS EXCAVATED MATERIAL SHALL BE REMOVED OFFSITE TO THE CONTRACTOR'S APPROVED DISPOSAL SITE.
15. EMBANKMENTS SHALL BE SLOPED AT A MAXIMUM OF 3H:1V, UNLESS OTHERWISE SPECIFIED.
16. DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER. THE RELOCATION OR REMOVAL OF TREES AND SHRUBS SHALL BE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT OR ARBORIST.
17. REFER TO LANDSCAPE DRAWINGS FOR LOCATION AND TYPE OF ALL HARD LANDSCAPE SURFACES, INCLUDING CONCRETE SIDEWALKS, PERMEABLE PAVERS, PAVING STONES, COLOURED CONCRETE, ETC.

CITY OF MISSISSAUGA NOTES:

1. THE STRUCTURAL DESIGN OF ANY RETAINING WALL OVER 0.6 M IN HEIGHT OR ANY RETAINING WALL LOCATED ON A PROPERTY LINE IS TO BE SHOWN ON THE SITE GRADING PLAN FOR THIS PROJECT AND IS TO BE APPROVED BY THE CONSULTING ENGINEER FOR THE PROJECT.
2. CONTINUOUS 15 CM HIGH BARRIER TYPE POURED CONCRETE CURBING WILL BE PROVIDED BETWEEN ALL ASPHALT AND LANDSCAPED AREAS THROUGHOUT THE SITE.
3. ALL UTILITY COMPANIES WILL BE NOTIFIED FOR LOCATES PRIOR TO THE INSTALLATION OF THE HOARDING THAT LIES WITHIN THE SITE AND WITHIN THE LIMITED OF THE CITY BOULEVARD AREA.
4. ALL SURFACE DRAINAGE TO BE SELF CONTAINED, COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO ISSUANCE OF A BUILDING PERMIT.

REGION OF PEEL NOTES - WATER

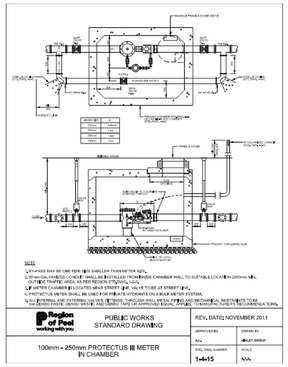
1. ALL MATERIALS AND CONSTRUCTION METHODS MUST CORRESPOND TO THE CURRENT PEEL PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
2. WATERMAIN AND/OR WATER SERVICE MATERIALS 100 MM (4") AND LARGER MUST BE POLYVINYL CHLORIDE (PVC) CLASS 150 DR-18 PIPE. SIZE 50 MM (2") AND SMALLER MUST BE TYPR 'K' COPPER.
3. WATERMAINS AND/OR WATER SERVICES ARE TO HAVE A MINIMUM COVER OF 1.7 M (5'6") WITH A MINUMUM HORIZONTAL SPACING OF 1.2 M (4") FROM THEMSELVES AND ALL OTHER UTILITIES.
4. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED WITH AT LEAST A 50 MM (2") OUTLET ON 100 MM (4") AND LARGER LINES. COPPER LINES ARE TO HAVE FLUSHING POINTS AT THE END, THE SAME SIZE AS THE LINE. THEY MUST ALSO BE HOSED OR PIPED TO ALLOW THE WATER TO DRAIN ONTO A PARKING LOT OR DOWN A DRAIN. ON FIRE LINES, FLUSHING OUTLET TO BE 100 MM (4") DIAMETER MINIMUM ON A HYDRANT.
5. ALL CURB STOPS TO BE 3.0 M (10') OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED.
6. HYDRANT AND VALVE SET TO REGION STANDARD 1-6-1 DIMENSION AND B, 0.7 M (2') AND 0.9 M (3') AND TO HAVE PUMPER NOZZLE.
7. WATERMAINS TO BE INSTALLED TO GRADES AS SHOWN ON APPROVED SITE PLAN. COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR TO COMMENCEMENT OF WORK, WHERE REQUESTED BY INSPECTOR.
8. WATERMAINS MUST HAVE A MINIMUM VERTICAL CLEARANCE OF 0.3 M (12") OVER / 0.5 M (20") UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING.
9. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLOTINATING FROM EXISTING SYSTEMS.
10. ALL LIVE TAPPING AND OPERATION OF REGION WATER VALVES SHALL BE ARRANGED THROUGH THE REGIONAL INSPECTOR ASSIGNED OR BY CONTACTING THE OPERATIONS AND MAINTENANCE DIVISION.
11. LOCATION OF ALL EXISTING UTILITIES IN THE FIELD TO BE ESTABLISHED BY THE CONTRACTOR.
12. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATES, EXPOSING, SUPPORTING AND PROTECTING OF ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF THEIR WORK, WHETHER SHOWN ON THE PLANS OR NOT AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
13. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITING NOTICE TO THE UTILITIES PRIOR TO CROSSING SUCH UTILITY. FOR THE PURPOSE OF INSPECTION BY THE CONCERNED UTILITY. THIS INSPECTION WILL BE FOR THE DURATION OF THE CONSTRUCTION, WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTION.
14. ALL PROPOSED WATER PIPING MUST BE ISOLATED THEOUGH A TEMPORARY CONNECTION THAT SHALL INCLUDE AN APPROPRIATE CROSSOCONNECTION CONTROL DEVICE, CONSISTENT WITH THE DEGREE OF HAZARD, FOR BACKFLOW PREVENTION OF THE ACTIVE DISTRIBUTION SYSTEM, CONFORMING TO REGION OF PEEL STANDARDS 1-7-7 OR 1-7-8.

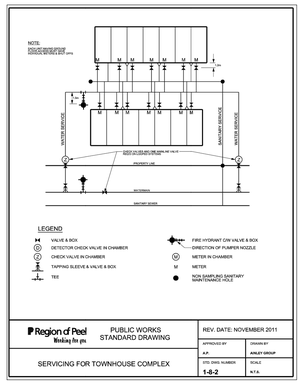
REGION OF PEEL NOTES - SANITARY

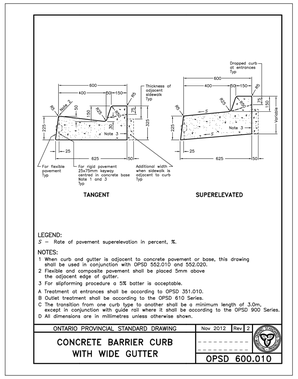
1. REFER TO REGION OF PEEL STD DWG 2-0-1 FOR GERNERAL NOTES AND REFERENCES.
2. SANITARY SEWERS SHALL BE INSTALLED WITH BEDDING AS PER STD DWG 2-3-1.
3. PIPE MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT MANUFACTURE'S APPROVED PRODUCTS LIST, SANITARY SEWER AND APPURTENANCES SECTION.
4. MAINTENANCE HOLES SHALL CONFORM TO THE CURRENT MANUFACTURER'S APPROVED LIST, SANITARY AND APPURTENANCES, STD 2-3-1 TO 2-9-9.
5. MAXIMUM SPACING OF MAINTENANCE HOLES SHALL BE 120m FOR SEWERS UP TO 600mm.
6. A SAFETY PLATFORM SHALL BE PROVIDED AS PER REGIONAL STANDARD 2-6-13 TO 2-6-15 WHERE DEPTH FROM INVERT TO MAINTENANCE HOLE EXCEEDS 5.0m.
7. MINIMUM DEPTH OF SANITARY PIPE SHALL BE 2.5m.
8. CONNECTIONS FROM FOUNDATION, WEEPING TILE DRAINAGE, ROOF DRAINAGE OR ANY OTHER STORM SOURCE ARE NOT PERMITTED TO DISCHARGE INTO THE SANITARY SEWER SYSTEM.

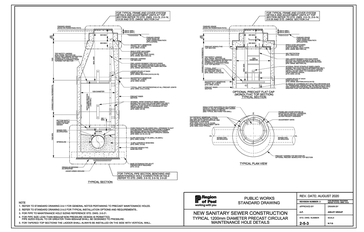
REGION OF PEEL NOTES - STORM

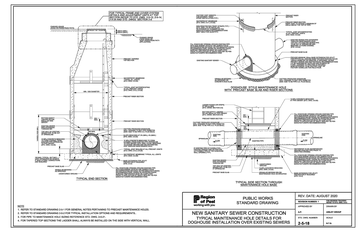
1. MINIMUM DEPTH OF STORM PIPE SHALL BE 1.5m
2. STORM SEWERS SHALL BE INSTALLED WITH BEDDING AS PER STD DWG 2-3-1.
3. PIPE MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT MANUFACTURER'S APPROVED LIST, WASTEWATER.
4. MAINTENANCE HOLES, STORMCEPTORS AND CATCHBASINS SHALL BE AS PER OPSD.
5. MAXIMUM SPACING OF MAINTENANCE HOLES SHALL BE 120m FOR SEWERS UP TO 600mm.
6. A SAFETY PLATFORM SHALL BE PROVIDED AS PER REGIONAL STANDARD 2-2-1 WHERE DEPTH FROM INVERT TO MAINTENANCE HOLE EXCEEDS 5.0m.
7. MAXIMUM SPACING OF CATCHBASINS SHALL NOT EXCEED 75m.











KEY PLAN

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

LEGEND

- PROPERTY LINE
- PROP. ℄ OF SWALE
- DUNPAR DEVELOPMENT
- 232.55 × PROPOSED ELEVATION
- (232.43)× EXISTING ELEVATION
- ×232.55TC TOP OF CURB
- ×232.55BC BOTTOM OF CURB
- ×232.55TW TOP OF WALL
- ×232.55BW BOTTOM OF WALL
- ×232.55SW CENTER OF SWALE
- BUILDING ENTRANCE
- 3:1 SLOPE
- EXISTING RETAINING WALL
- PROPOSED RETAINING WALL
- CONSTRUCTION AREA
- OVERLAND FLOW ROUTE

NO.	Revision	Date	By	Appr'd
3	SUBMISSION FOR ZBA	FEB. 28 2024	W.L.	G.R.
2	SUBMISSION FOR SP APPROVAL	AUG. 16 2021	W.L.	G.R.
1	SUBMISSION FOR REVIEW	JULY 02 2020	W.L.	G.R.

BENCHMARK

BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE NORTHERLY LIMIT OF THOMAS STREET, AS SHOWN ON DEPOSITED PLAN 42R-28302, HAVING A BEARING OF N 39° 41' 00" E.

ELEVATIONS ARE REFERENCED TO CITY OF MISSISSAUGA BENCHMARK No. 1069, PUBLISHED AS HAVING AN ELEVATION OF 157.50 METERS (CANADIAN GEODETIC DATUM, 1928). #1069 SET HORIZONTALLY AT THE BASE OD A 750mm CONCRETE TRAFFIC POLE AT THE NORTH-WEST CORNER OF THOMAS STREET AND GAFNEY DRIVE.

CONSULTANT

LICENCED PROFESSIONAL ENGINEER G. RAMNATH 100132845 28.Feb.24 PROVINCE OF ONTARIO

ACCEPTED CITY OF MISSISSAUGA

SIGNATURE DATE

MISSISSAUGA

nexTrans CONSULTING ENGINEERS
Suite 201, 520 Industrial Parkway South
Aurora ON L4G 6W8
Tel: 905-503-2563
Web: www.nextrans.ca

Proposed 10 Units Townhouse 86 THOMAS STREET

GENERAL NOTES & DETAILS

Surveyed by: DONALD A. BROWN SURVEYING LTD.	Checked by: G.R.	Project No. NT-19-013
Drawn by: W.L.	Approved by: G.R.	Drawing No. GN-01
Designed by: W.L.	Date: JUNE 04, 2019	
Scale: HORIZONTAL: 1:200 VERTICAL: 1:50		Sheet No. 5 OF 5
Mississauga ZBA No.: OZ 20-11 Region File No.: C600401		