SERVICING AND STORMWATER MANAGEMENT REPORT

Prepared for:
Miss BJL Corp.

9-Storey Mixed-Use Residential Building

21-51 Queen Street North
Mississauga, Ontario L5N 1A2

July 20, 2023
Project No.: 21-003

SITEPLANTECH INC.
YOUR URBAN REDEVELOPMENT SOURCE

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Table of Contents

LIST OF TABLES

APPENDICES

Submission History

Submission	Date	Issued For	Issued To
1	Dec. 6, 2021	RZA	City of Mississauga
2	July 20, 2023	SPA	City of Mississauga

1.0 INTRODUCTION

All *italicized* information listed below and all referenced documents are found in **Appendix A**.

1.1 Purpose

SITEPLANTECH was retained by Miss BJL Corp. to prepare a Servicing and Stormwater Management Report, in support of a Site Plan Application, to investigate water supply, sanitary sewerage and storm drainage for a proposed development located at 21-51 Queen Street North in Mississauga.

The purpose of this report is to provide site specific information for the municipality's review with respect to the adequacy of the existing infrastructure to support the proposed development.

1.2 Background Information

The following documents were requested and made available to SITEPLANTECH for our review and forms the basis of this report:

- *Waldemar Golinski, KRCMAR (2017, December 13), Plan of Survey Showing Topographical Information (17-245BT01). [Technical drawing].*
- *Authors unknown, A& Architects Inc. (2023, June 19), 21-51 Queen St. N., Mississauga (A-002, A-003, A-102, A-151, A-209). [Technical digital drawings].*
- Development Requirements Manual, City of Mississauga, dated January 2020.
- Public Works Design, Specifications & Procedures Manual, Region of Peel, Linear Infrastructure. Modified March 2017.
- Credit Valley Conservation (CVC) Stormwater Management Criteria, Dated august 2012.
- *D. Marchese (1994, June 16), Mississauga Road Britannia Rd to Erin Mills Pkwy (C-29203). [Technical drawing].*

1.3 Site Description

The subject site is approximately 9,676 square metres (0.97 hectares) and is currently occupied by a single storey multi-tenant retail building. The site is bounded by:

- An existing religious institution to the north;
- Existing low-density detached homes to the east;
- A commercial plaza to the south; and,
- Queen Street North to the west.

1.4 Proposed Development

The proposed development will consist of a 9-storey mixed use residential building with ground floor retail fronting on Queen Street North. The mixed-use building will include approximately 1,424 m^2 of commercial space and a mix of studios, one-, two- and three-bedroom suites yielding 444 units. Access to the 2-level underground parking ramp and loading area will be provided from Queen Street North along the northern property line. Please refer to **Plan A-002** and **A-102** in for additional information.

1.5 Easements and Land Conveyances

The following easements are registered on title:

- Servicing easement as per instruments ST4623 and ST4624. This is easement is parallel to the western property line and provides sanitary, storm and water services between Matlock Avenue and Britannia Road West.
- Servicing easement as per instruments R01096667. This is easement is parallel to the southern property line and has a storm sewer connecting Queen Street North to the storm sewer in the easement described above.

No new easements will be required in order develop this property, nor has the City requested any land conveyances.

2.0 SERVICING TERMS OF REFERENCE AND METHODOLOGY

2.1 Terms of Reference

This report was prepared in accordance with the City of Mississauga's Development Requirements Manual, the Credit Valley Stormwater Management Criteria and the Region of Peel's Specifications & Procedures Manual.

2.2 Methodology: Stormwater Management

The modified rational method will be used to calculate runoff rates and target release rates from the site based on Intensity-Duration-Frequency (IDF) rainfall curves from the City of Mississauga Development Requirements. We will provide a detailed account of the pre- and post-development conditions and demonstrate how the proposed development will meet the design requirements. The requirements for developments located within the CVC's Credit River sub-watershed (Norval to Port Credit) are summarized as follows:

- Erosion: The minimum on-site runoff detention of 5mm is required;
- Water quality: Long-term average of 80% TSS removal is required; and,
- Water quantity: No control required for all storms.

Detailed servicing and grading plans were prepared based on the recommendations of this report and are included in **Appendix E**.

2.3 Methodology: Sanitary Drainage

The sanitary sewage discharge from the site will be determined using sanitary sewer design sheets that consider the land use and building statistics as supplied by the design team. The calculated values provide peak sanitary flow discharge that considers infiltration.

The existing and proposed sanitary flows will be calculated based on the Region's criteria shown in **Table 1** below, based on a population density found in the Region of Peel's 202 DC Background Study:

Table 1: Sanitary Flow Design Criteria

Use	Population	Flow
Studio / 1-bdrm (<750 ft^2)	1.6	302.8 L/c/d
2-bdrm (<750 ft^2)	1.6	302.8 L/c/d
2-bdrm (>750 ft^2)	3.0	302.8 L/c/d
3-bdrm (>750 ft^2)	3.0	302.8 L/c/d
Commercial	50 p/Ha	302.8 L/c/d

The existing and proposed site generated flows will be compared, and recommendations will be made to address capacity issues identified, if applicable.

2.4 Methodology: Water Supply

The existing and proposed domestic water demands from the site will be determined in accordance with the Region's criteria as per **Table 2** below:

Table 2: Water Demand Criteria

Use	Flow	Max Day Factor	Peak Hour Factor
Residential	280 L/c/d	2.0	3.0
Commercial	300 L/c/d	1.4	3.0

The development will be fully sprinklered in accordance with OBC and NFPA 13 requirements.

Pressure and flow testing was conducted at hydrants on Queen Street North. Fire suppression calculations, in accordance with the Fire Underwriters Survey (FUS) Guidelines, will be undertaken to determine the minimum flow required at 140 KPa for fire protection, the results of which will be compared to the hydrant flow test to confirm adequate supply.

3.0 STORMWATER MANAGEMENT

All calculations and figures pertaining to the information summarized in the following sections are found in **Appendix B** unless otherwise noted.

3.1 Existing Drainage System

The site is bound by a 525mm concrete storm sewer located on the west side of Queen Street North which drains south then east through an easement (instruments R01096667) and ultimately connects to the 825mm storm sewer located near the centreline of the easement (instruments ST4623 and ST4624), along the east side of the property, which drains south to Britannia Drive and ultimately outlets directly to the Credit River.

Surface drainage from the site is conveyed to private storm infrastructure that connects to the 525mm storm sewer within the southern easement. Refer to **Figure 201** for details.

3.2 Existing Runoff

The pre-development runoff conditions were calculated based on the City's criteria and will be used to determine run-off conditions. The pre-development runoff from the site is summarized in **Table 3** below:

Table 3: Pre-Development Runoff

Return Period	Drainage Area (Ha)	Runoff C	Q (L/s)
2-Year	0.968	0.90	144.9
5-Year	0.968	0.90	194.8
10-Year	0.968	0.90	240.0
100-Year	0.968	0.90	340.5

3.3 Allowable Release Rate

As noted in **Section 2.2** above, quantity controls are not required for sites being developed within the Credit River sub-watershed (Norval to Port Credit). It is noted however that storm sewer capacity constraints may govern, stormwater management will be designed such that post-development flows do not exceed pre-development flows noted in **Section 3.2**.

3.4 Quantity Control

As per the requirements for developments located within the CVC's Credit River sub-watershed (Norval to Port Credit) water quantity controls are not required. Run-off from the site will be capture by surface area drains and the storm sewer connection (refer to **Section 3.9**) will be sized to convey the 10-year flow.

3.5 Quality Control

As per CVC's requirements quality controls must achieve a minimum of 80% total suspended solids (TSS) removal. The development will consist of green roofs, rooftop/terraces, perimeter landscaped and asphalt surfaces each having an effective removal rate as outlined in **Table 4** below:

Table 4: Effective TSS Removal Rate

Surface Type	Effective Removal Rate
Asphalt	0%
Roof	95%
Green roof/Landscape	100%

Based on the Effective TSS removal calculations, the proposed development will achieve a net TSS pre-treatment removal of 70%, therefore it is proposed to treat run-off from the asphalted areas with a filtration system (Upflo UFF-3). This runoff will be treated by the filtration system prior to entering the water balance component of the SWM chamber.

The proposed filtration system has documented evidence that it can achieve a TSS removal rate of 81% from the treated area (refer to NJDEP certification included). Based on this removal rate and our calculations, the proposed treatment train approach combined with the filtration system will achieve an overall net TSS removal of 80%. Refer to **Plan 101** for details.

3.6 Erosion Control

Based on the site area of 0.97 hectare, the required on-site water retention volume is 48.4m^3. An initial abstraction of 1mm and 5mm from the roof ballast and the green roofs respectively, will provide a volume reduction of 16.9m^3. Therefore, a net water balance volume of 31.2m^3 will be needed to meet CVC's requirements. Due to various site constraints, meeting the water balance criteria will require a multi-faceted approach. The following options were considered:

Infiltration:

Since the proposed footprint of the building is such that the foundations are less than 4.0m from the property limits, infiltration is not recommended and thus was not considered.

Green roof and Landscape Irrigation:

Approximately 23.5m^3 of the water balance volume will be used for the proposed green-roof irrigation within a period of 72 hours as per the water irrigation report prepared by Next Level included in **Appendix B**.

Gray water re-use:

In addition to the proposed green roof irrigation, a rainwater harvesting system will be implemented for use as grey-water within the building. A portion of the roof water from the stormwater management tank water balance bay will be directed to the grey-water system, the details of which will be provided by the mechanical consultant at the building permit stage. In order to achieve the Erosion Control target, a total of 7,700L (7.7m^3) will need to be re-used as part of a gray-water system within a period of 72 hours.

The required 31.2m^3 water balance volume will be provided as a separate compartment within the stormwater chamber. **Plan 101** for details. Details of the pumping and rainwater re-use system will be provided by the mechanical consultant as part of the building permit application.

3.7 100-Year Capture

As noted in **Section 3.4** stormwater controls are not required and thus 100-year capture points do not need to be designed provided that overland flow is directed away from the proposed building towards the municipal right-of-way.

We note however that there are proposed private patios along the southern and eastern façade as well as area drains within the main access. To ensure that the 100-year flow is captured from the sunken patios, area drains within the private patios and the drive aisles were modelled as horizontal orifice plates assuming a 50% blockage. A summary of the design flows and inlet capacity is summarized in **Table 5** below:

Table 5: 100-Year Capture Points

Drainage ID	Drain Type	Area (m^2)	100-Year Flow (L/s)	Max Head (m)	Inlet Q (L/s)
AD (Patio)	Z611	30	1.3	0.05	5.2
AD (Driveway)	Z662-HF	284	10.0	0.15	35.4

The area drain specified in the above table (or approved equal) will capture the 100-year flow adequately when 50% blockage has occurred.

The 100-year capture from the roof areas will be performed by uncontrolled roof drains outleting to the SWM chamber.

3.8 Proposed Drainage System

It is proposed to connect the building's storm outlet to the existing infrastructure located within the easement east of the site. The development will connect to the existing 825mm concrete storm sewer via a 375mm diameter storm sewer service connection with a grade of 3.0%, designed to convey the captured 10-year storm. Since the proposed service connection is less than half the diameter of the main sewer, connection at the main will be made with a riser as per the Region of Peel Standard 2-4-3. Refer to **Drawing 002** and **101** found in **Appendix E** for the details related to the service connection.

4.0 SANITARY DRAINAGE

All calculations pertaining to the information summarized in the following sections are found in **Appendix C** unless otherwise noted.

4.1 Existing Sanitary Drainage System

There is an existing 450mm concrete sanitary sewer located within the easement on the east side of the site and a 250mm PVC sanitary sewer along the frontage of the site on Queen Street North. Both sewers drain south to Britannia Drive.

4.2 Existing Sanitary Flows

Based on the Region of Peel criteria outlined in **Section 2.3**, the site contributes a peak sanitary flow of approximately 1.0L/s to the local infrastructure. It is noted however, based on a population per hectare equivalent of less then 1,000 persons as per Peel Region Standards 2-9-2, that the site is estimated to contribute 13.3L/s to the local infrastructure. Given the current land use, the calculated flow of 1.0 L/s is a more appropriate assessment of existing conditions.

4.3 Proposed Sanitary Flows

The sanitary discharge flows from the site were calculated based on the Region of Peel criteria outlined in **Section 2.3**, the proposed building and site information. A total peak design flow of 10.3 L/s was calculated for the subject property.

4.4 Proposed Sanitary Connection

The sanitary effluent from the above-grade portion of the development will discharge by gravity, while all sanitary flows from below grade portion of the development (i.e. parking garage) will be pumped to the outlet.

All sanitary flow from the proposed development will outlet into the existing 450mm concrete sanitary sewer in the easement east of the site. A 200mm sanitary sewer service connection with a grade of 2.0% will be adequate to convey the calculated design flow of 10.3 L/s. Since the proposed service connection is less than half the diameter of the main sewer, connection at the main will be made with a riser as per Region of Peel standard 2-4-3. Refer to **Drawing 002** and **101** found in **Appendix E** for the details related to the service connection.

5.0 WATER SUPPLY

All calculations pertaining to the information summarized in the following sections are found in **Appendix D**.

5.1 Existing System

An existing 200 mm diameter watermain is located within the easement located on the east side of the side and a 300mm diameter watermain is located on Queen Street North along the frontage of the site.

It is currently unknown where the existing building is serviced from as no visible/surveyed water valves were noted on site.

A hydrant flow tests was carried out within the vicinity of the site to determine flow and pressure conditions for each existing watermains. The tests were carried out by LHS Inc. on May 12, 2021. The test results indicate the watermain is operating at a static pressure of approximately 365 KPa (53 PSI), and that the available flow at 140 KPa (20 PSI) is approximately 14,200L/min (3750 USPGM).

5.2 Existing Water Demands

The existing water consumption was calculated as per the criteria outlined in **Section 2.4** above. Based on the gross floor area, the existing development requires an estimated average of 14,600 L/d (0.17L/s) from the municipal infrastructure.

5.3 Proposed Water Supply Requirements

The estimated water consumption was calculated as per the criteria outlined in **Section 2.4** above. The proposed average day domestic water consumption rate is estimated to be 2.3 L/s (maximum day demand of approximately 405,200L/d).

Water Supply for Public Fire Protection calculations, as provided by the Fire Underwriters Survey (FUS), were undertaken to determine the minimum requirement to provide adequate fire suppression. According to our calculations, a minimum fire suppression flow of approximately 9,900 L/min (2,600 USGPM) at a pressure of 140 KPa (20 PSI) will be required for the subject development. The Max Day + Fire Flow rate of approximately 10,300 L/min (2,690 USGPM) is available at a pressure which exceeds the minimum FUS requirements.

The municipal water system therefore has adequate flow and pressure to satisfy the water demands of the proposed development.

5.4 Proposed Water Connection

As the height of the proposed building does not exceed 84.0m, the development may be serviced by a single fire supply. Therefore the proposed building will be serviced with a combined fire and domestic water connection in accordance with the Region of Peel standard 1-8-3.

It is proposed to connect the 200 mm water service to the existing 300 mm diameter watermain at Queen Street North with a 300 mm X 200 mm tapping sleeve and valve. The 200 mm fire service line will be equipped with a detector check valve and the 150 mm domestic service with a meter and backflow preventor.

Refer to **Drawing 101** found in **Appendix E** for additional details.

6.0 SITE GRADING

All plans and figures pertaining to the information summarized in the following sections are found in **Appendix E** unless otherwise noted.

6.1 Existing Grades

The site consists of asphalt surfaces and by roofs from an existing commercial building which appears to be connected to the municipal storm infrastructure leading to the easement (refer to **Section 3.1** above). Generally, drainage is capture by private storm sewer infrastructure that drain to the storm sewer infrastructure located in the south easement draining to the east easement. The topography of the surrounding areas suggests that the lots from the east drain towards a non-defined swale along the east easement while a portion of the southern property drains to local catchbasins located along the southern property line.

Generally, the site is graded below the existing Queen Street North Centreline and tends to slope towards the east easement and has an approximate 1.5m grade difference from high to low point.

6.2 Proposed Grades

A review of the perimeter site grades suggests that the first-floor elevation of the residential lobby and retail is proposed to be set at 166.60 while the finished floor elevation for the townhouse units along the south and east side of the proposed building will be at 164.60. The underground parking garage ramp high point will be set at 166.15 to ensure overland flow is directed to Queen Street North. The proposed finished floor elevations and grading of the site perimeter will be compatible with the adjacent developments. Please refer to **Drawing 401** for additional information.

Existing catchbasins along the southern property line, picking drainage from the commercial development to the south, will be relocated to maintain existing drainage from the commercial property and ensure existing drainage patterns are maintained. In addition, rear-lot catchbasins will be constructed along the east side of the easement to ensure the rear yards of the existing residential lots are adequately drained.

Boulevard grades are designed to produce moderate grades in the range of 2.0% to 3.0% throughout the site frontages and existing grades will be met at the edge of pavement as the existing sidewalks will be replaced as per the landscaping plan.

The development of this site and will not adversely impact adjacent lands.

7.0 EROSION AND SEDIMENT CONTROL

In accordance with the City requirements (Section 6.01.08) for sites less than 1.0 hectare located more than 30m from a watercourse, an ESC permit will not be required.

To ensure stormwater runoff during the construction phase does not transport sediment to the existing municipal infrastructure, temporary catch basin sediment control devices are proposed on Queen Street North and all capture points within the adjacent easements. In addition, a temporary sediment control fence will be erected around the site perimeter and a temporary construction access (mud mat) will be built at the construction entrance on Queen Street North.

These measures will be designed and constructed in accordance with the "Erosion and Sediment Control Guideline for Urban Construction" document (December 2006). These measures, as well as any additional information pertaining to ESC Controls, are detailed on **Drawing 601** found in **Appendix E**. All reasonable measures will be taken to ensure sediment loading to the adjacent properties and municipal right-of-way is minimized both during and following construction.

8.0 CONCLUSIONS AND RECOMMENDATIONS

This report is to be read in conjunction with the application submission material for the project proposal known as 21-51 Queen Street North. We conclude and recommend the following:

8.1 STORMWATER MANAGEMENT

No quantity controls are required to develop this property.

Quality controls will be provided by a filtration system that will achieve 80% net total suspended solids removal.

A Volume of 31.2m^3 will be retained within the SWM chamber and will be reused as part of landscape irrigation and greywater re-use system, thereby meeting the CVC's erosion control requirements.

8.2 SANITARY DRAINAGE

The sanitary discharge from the proposed development will be directed to the infrastructure within the easement located along the east property limit.

8.3 WATER SUPPLY

According to the calculations and hydrant flow tests presented in this report, the existing municipal infrastructure is adequate to support the proposed development.

8.4 SITE GRADING

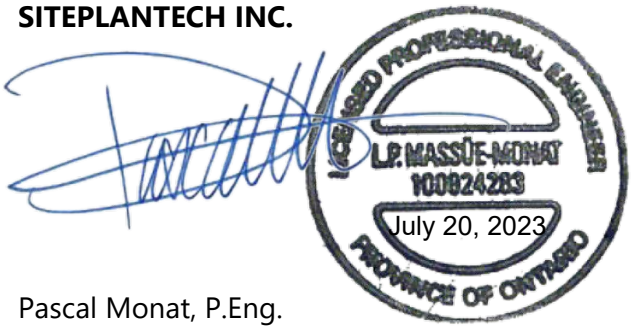
The proposed grading is compatible with existing elevations at the property limit, and will not adversely affect adjacent properties.

8.5 EROSION AND SEDIMENT CONTROL

ESC measures will be designed as per the "Erosion and Sediment Control Guideline for Urban Construction" document (December 2006). Provided that these measures are well maintained during construction, these will be adequate to keep sediments from entering the municipal infrastructure during construction.

Respectfully submitted,

SITEPLANTECH INC.



Pascal Monat, P.Eng.
Principal

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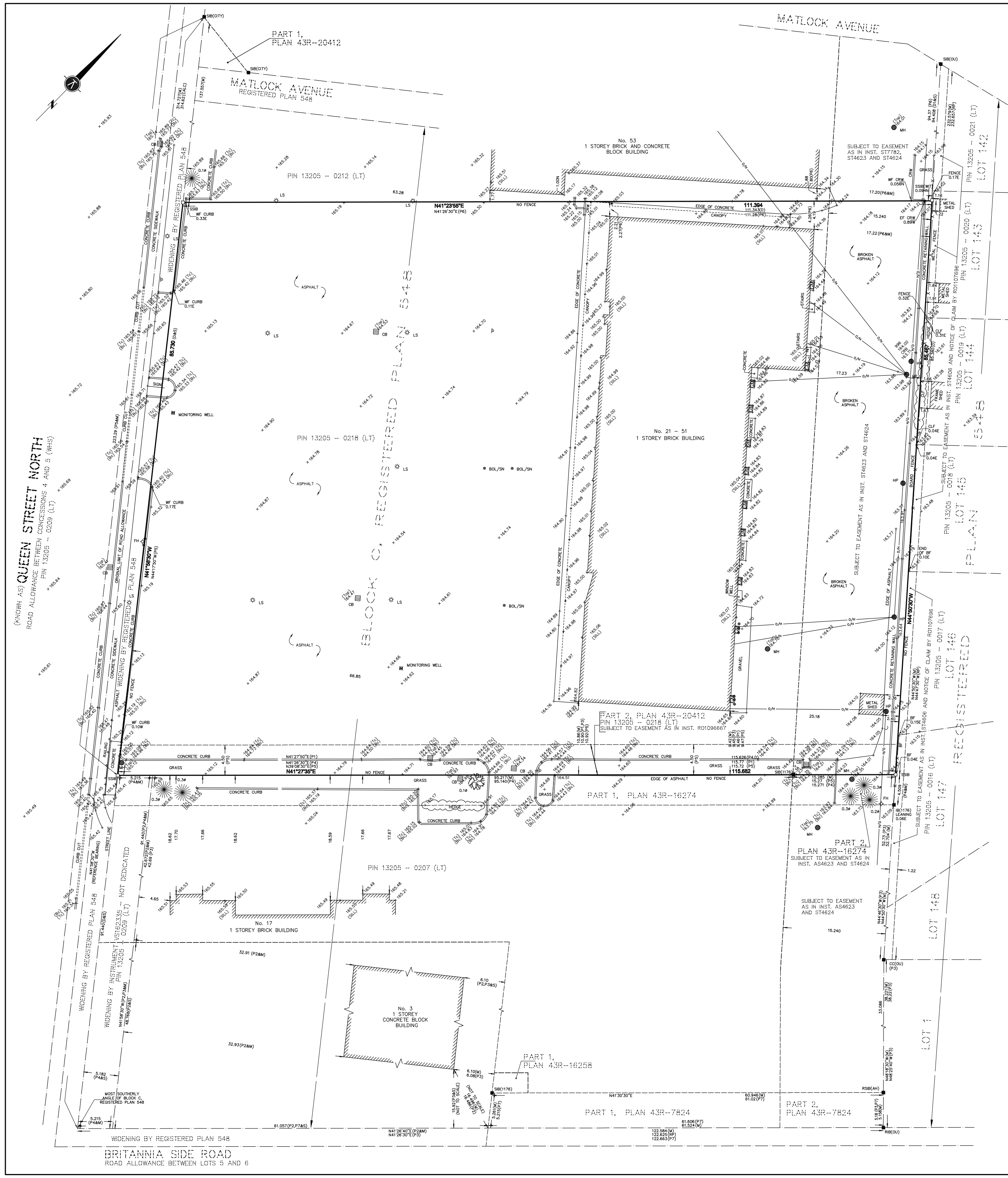
Appendix A

Background Information



PLAN OF SURVEY
SHOWING TOPOGRAPHICAL INFORMATION OF

PART OF BLOCK C, REGISTERED PLAN 548 CITY OF MISSIUSSAUGA

REGIONAL MUNICIPALITY OF PEEL

SCALE 1:250

5 0 5 10 15 20 25m

KRCMAR SURVEYORS LTD. 2017

METRIC: DISTANCES SHOWN HEREON ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING

BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE EASTERLY LIMIT OF QUEEN STREET NORTH AS SHOWN ON REGISTERED PLAN 548 HAVING A BEARING OF N41°58'30"W.

ELEVATION

ELEVATIONS SHOWN HEREON ARE MISSISSAUGA DATUM AND ARE RELATED TO THE CITY OF MISSISSAUGA BENCHMARK No. 075033019 HAVING AN ELEVATION OF 167.744 METRES.

LEGEND

■	DENOTES SURVEY MONUMENT FOUND
□	DENOTES SURVEY MONUMENT PLANTED
SIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES SHORT STANDARD IRON BAR
IB	DENOTES IRON BAR
RIB	DENOTES ROUND IRON BAR
RSIB	DENOTES ROUND STANDARD IRON BAR
IP	DENOTES IRON PIPE
CC	DENOTES CUT CROSS
(M)	DENOTES MEASURED
(S)	DENOTES SET
(OU)	DENOTES ORIGIN UNKNOWN
(WIT)	DENOTES WITNESS
(RP)	DENOTES REGISTERED PLAN 548
(P1)	DENOTES PLAN OF SURVEY BY McCONNELL AND MAUGHAN O.L.S. DATED SEPTEMBER 9, 1975
(P2)	DENOTES PLAN OF SURVEY BY McCONNELL, MAUGHAN LIMITED O.L.S. DATED JANUARY 5, 1979
(P3)	DENOTES PLAN OF SURVEY BY A. H. HEYWOOD INC, O.L.S. DATED MAY 10, 1983
(P4)	DENOTES PLAN 43R-16274
(P5)	DENOTES PLAN 43R-20412
(P6)	DENOTES TOPOGRAPHIC PLAN BY MARSHALL, MACKLIN MONAGHAN ONTARIO LIMITED O.L.S. JANUARY 18 AND 20 2001
(P7)	DENOTES PLAN 43R-7824
(D)	DENOTES INSTRUMENT R0682959
(D1)	DENOTES INSTRUMENT ST7782
(AH)	DENOTES A. H. HEYWOOD, O.L.S.
(CITY)	DENOTES CITY OF MISSISSAUGA
(1176)	DENOTES DONALD E. ROBERTS, O.L.S.
(1370)	DENOTES KRCMAR SURVEYORS LTD. O.L.S.
(CALC)	DENOTES REGISTERED PLAN 548 + PLAN 43R-20412
CRW	DENOTES CONCRETE RETAINING WALL
SILL	DENOTES DOOR SILL ELEVATION
BF	DENOTES BOARD FENCE
CLF	DENOTES CHAIN LINK FENCE
WF	DENOTES WEST FACE
EF	DENOTES EAST FACE
(Tc)	DENOTES TOP OF CURB
(Bc)	DENOTES BOTTOM OF CURB
+123.45	DENOTES EXISTING GRADE ELEVATION
⊕	DENOTES BOLLARD
⊕ BOL/SN	DENOTES BOLLARD WITH SIGN
CB	DENOTES CATCH BASIN
0.1ø	DENOTES CONIFEROUS TREE WITH TRUNK DIAMETER
0.1ø	DENOTES DECIDUOUS TREE WITH TRUNK DIAMETER
	DENOTES DOWN GUY ANCHOR
FH	DENOTES FIRE HYDRANT
GM	DENOTES GAS METER
GV	DENOTES GAS VALVE
HP	DENOTES HYDRO POLE
LS	DENOTES LAMP STANDARD
MH	DENOTES MANHOLE
	DENOTES SIGN
WV	DENOTES WATER VALVE

TOTAL AREA OF THE SITE = 0.9677 ha

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2038143
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29(3).

MUNICIPAL ADDRESSES
No. 21 – 51 QUEEN STREET NORTH, MISSISSAUGA

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 THE 12th DAY OF DECEMBER, 2017

DATE DECEMBER 13, 2017

WALDEMAR GOLINSKI
ONTARIO LAND SURVEYOR

PLAN AVAILABLE AT www.ProtectYourBoundaries.ca

FIELD:	J.L.	DRAWN:	J.M.	CHECKED:	W.G.	JOB NO:	17-245
DWG NAME:	17-245BT01	PLOT INFO:	10:09 13/Dec/2017	WORK ORDER NO:	20826		

1137 Centre Street Thornhill ON L4J 3M6 905.738.0053 F 905.738.9221 www.krcmar.ca

KRCMAR

SITE STATISTICS INCLUDING EASEMENT AREA				
Area	Building Foot Print	TOTAL GFA	COVERAGE	FSI
9,676 m²	6,009 m²	28,238 m²	0.62	2.92

GROSS FLOOR AREA (GFA) - APARTMENT ZONE

MEANS THE SUM OF THE AREAS OF EACH STOREY OF A BUILDING ABOVE OR BELOW ESTABLISHED GRADE, MEASURED FROM THE EXTERIOR OF OUTSIDE WALLS OF THE BUILDING INCLUDING FLOOR AREA OCCUPIED BY INTERIOR WALLS BUT EXCLUDING ANY PART OF THE BUILDING USED FOR MECHANICAL FLOOR AREA, STAIRWELLS, ELEVATORS, MOTOR VEHICLE PARKING, BICYCLE PARKING, STORAGE LOCKERS, BELOW-GRADE STORAGE, ANY ENCLOSED AREA USED FOR THE COLLECTION OR STORAGE OF DISPOSABLE OR RECYCLABLE WASTE GENERATED WITHIN THE BUILDING, COMMON FACILITIES FOR THE USE OF THE RESIDENTS OF THE BUILDING, A DAY CARE AND AMENITY AREA.

*AVERAGE GRADE= 165.55 + 165.05 /2 = 165.30

TOTAL OPEN TO BELOW AREA IS NOT INCLUDED IN GCA	
LEVEL	Area
LEVEL 2	2,229 m²

STATISTICS/ TOTAL

		GCA (ABOVE GRADE)- TOTAL		DEDUCTION												GFA-TOTAL	
LEVEL	NUMBER OF REPEATED FLOOR	GCA	GCA sf	PARKING	STORAGE / BIKE	GARBAGE CHUTE	ELEVATOR	MECH.PH	MECH./ELEC.	STAIR	GARBAGE LOADING	RESIDENTIAL GARBAGE LOADING	RETAIL GARBAGE LOADING	GARBAGE RETAIL	INDOOR AMENITY	TOTAL DEDUCTION	GFA	GFA sf
LEVEL 1	1	5,648.6 m²	60,801.1 SF	247.2 m²	406.5 m²	0.3 m²	34.0 m²	0 m²	1.2 m²	63.0 m²	285.2 m²	216.1 m²	22.2 m²	138.6 m²	313.5 m²	1,727.6 m²	3,921 m²	42,205.4 SF
LEVEL 2	1	3,442.1 m²	37,050.7 SF	0.0 m²	0.0 m²	0.6 m²	25.3 m²	0 m²	359.4 m²	101.5 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	906.9 m²	1,393.6 m²	2,048.5 m²	22,049.8 SF
LEVEL 3	1	4,052.4 m²	43,619.9 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	11.8 m²	55.8 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	258.2 m²	349.2 m²	3,703.2 m²	39,861.4 SF
LEVEL 4	1	4,052.9 m²	43,624.5 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	11.8 m²	55.9 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0 m²	91 m²	3,961.8 m²	42,644.5 SF
LEVEL 5	1	3,171.9 m²	34,142.3 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	9.4 m²	53.1 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0 m²	85.8 m²	3,086.1 m²	33,218.3 SF
LEVEL 6	1	3,201.3 m²	34,458 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	9.4 m²	53.1 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0 m²	85.9 m²	3,115.4 m²	33,533.9 SF
LEVEL 7-8	2	5,883.4 m²	63,328.6 SF	0.0 m²	0.0 m²	1.2 m²	45.5 m²	0 m²	18.8 m²	102.7 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0 m²	168.2 m²	5,715.2 m²	61,518 SF
LEVEL 9	1	2,772.8 m²	29,845.9 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	9.5 m²	53.0 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0 m²	85.9 m²	2,686.9 m²	28,921.7 SF
MPH	1	478 m²	5,145.6 SF	0.0 m²	0.0 m²	0.0 m²	32.5 m²	410.4 m²	0.0 m²	35.1 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0 m²	478 m²	0 m²	0 SF
		32,703.4 m²	352,016.7 SF	247.2 m²	406.5 m²	5.0 m²	251.0 m²	410.4 m²	431.3 m²	573.3 m²	285.2 m²	216.1 m²	22.2 m²	138.6 m²	1,478.6 m²	4,465.3 m²	28,238.2 m²	303,953 SF

STATISTICS/ RESIDENTIAL

		GCA(ABOVE GRADE)- RES.		DEDUCTION												GFA- RESIDENTIAL	
LEVEL	NUMBER OF REPEATED FLOOR	GCA	GCA sf	PARKING	STORAGE / BIKE	GARBAGE CHUTE	ELEVATOR	MECH.PH	MECH./ELEC.	STAIR	GARBAGE LOADING	RESIDENTIAL GARBAGE LOADING	RETAIL GARBAGE LOADING	GARBAGE RETAIL	INDOOR AMENITY	TOTAL DEDUCTION	GFA	GFA sf
LEVEL 1	1	4,064.2 m²	43,747 SF	247.2 m²	406.5 m²	0.3 m²	34.0 m²	0 m²	1.2 m²	63.0 m²	285.2 m²	216.1 m²	0.0 m²	0.0 m²	313.5 m²	1,566.8 m²	2,497.4 m²	26,881.7 SF
LEVEL 2	1	3,442.1 m²	37,050.7 SF	0.0 m²	0.0 m²	0.6 m²	25.3 m²	0 m²	359.4 m²	101.5 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	906.9 m²	1,393.6 m²	2,048.5 m²	22,049.8 SF
LEVEL 3	1	4,052.4 m²	43,619.9 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	11.8 m²	55.8 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	258.2 m²	349.2 m²	3,703.2 m²	39,861.4 SF
LEVEL 4	1	4,052.9 m²	43,624.5 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	11.8 m²	55.9 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	91 m²	3,961.8 m²	42,644.5 SF
LEVEL 5	1	3,171.9 m²	34,142.3 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	9.4 m²	53.1 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	85.8 m²	3,086.1 m²	33,218.3 SF
LEVEL 6	1	3,201.3 m²	34,458 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	9.4 m²	53.1 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	85.9 m²	3,115.4 m²	33,533.9 SF
LEVEL 7-8	2	5,883.4 m²	63,328.6 SF	0.0 m²	0.0 m²	1.2 m²	45.5 m²	0 m²	18.8 m²	102.7 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	168.2 m²	5,715.2 m²	61,518 SF
LEVEL 9	1	2,772.8 m²	29,845.9 SF	0.0 m²	0.0 m²	0.6 m²	22.8 m²	0 m²	9.5 m²	53.0 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	85.9 m²	2,686.9 m²	28,921.7 SF
MPH	1	478 m²	5,145.6 SF	0.0 m²	0.0 m²	0.0 m²	32.5 m²	410.4 m²	0 m²	35.1 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0.0 m²	478 m²	0 m²	0 SF
		31,119 m²	334,962.5 SF	247.2 m²	406.5 m²	5.0 m²	251.0 m²	410.4 m²	431.3 m²	573.3 m²	285.2 m²	216.1 m²	0.0 m²	0.0 m²	1478.6 m²	4,304.5 m²	26,814.5 m²	288,629.3 SF

STATISTICS/ RETAIL

		GCA(ABOVE GRADE)- RETAIL		DEDUCTION												GFA- RETAIL	
LEVEL	NUMBER OF REPEATED FLOOR	GCA	GCA sf	PARKING	Area Storage/ Bike	GARBAGE CHUTE	ELEVATOR	MECH.PH	MECH./ELEC.	STAIR	GARBAGE LOADING	RESIDENTIAL GARBAGE LOADING	RETAIL GARBAGE LOADING	GARBAGE RETAIL	INDOOR AMENITY	TOTAL DEDUCTION	GFA	GFA sf
LEVEL 1	1	1,584.4 m²	17,054.2 SF	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0 m²	0 m²	0.0 m²	0 m²	0.0 m²	22.2 m²	138.6 m²	0.0 m²	160.8 m²	1,423.6 m²	15,323.7 SF
		1,584.4 m²	17,054.2 SF	0.0 m²	0.0 m²	0.0 m²	0.0 m²	0 m²	0 m²	0.0 m²	0 m²	0.0 m²	22.2 m²	138.6 m²	0.0 m²	160.8 m²	1,423.6 m²	15,323.7 SF

NOTE: 90% OF LOADING AREA HAS BEEN DEDUCTED FOR RESIDENTIAL GFA CALCULATION
10% OF LOADING AREA HAS BEEN DEDUCTED FOR RETAIL GFA CALCULATION

LOADING AREA REQUIRED		REQUIRED	PROVIDED
RETAIL:	BETWEEN 2,350 sm UP TO 7,500 sm	2	N/A
RETAIL:	BETWEEN 250 sm UP TO 2,350 sm	1	1
RESIDENTIAL	APARTMENT MORE THAN 30 UNITS	1	1

GCA (BELOW GRADE PARKING AREA)			
Level	NUMBER OF REPEATED FLOOR	GCA	GCA sf
Not Placed	1	0 m²	0 SF
P2	1	7,240 m²	77,931 SF
P1	1	7,296.5 m²	78,539 SF
		14,536.5 m²	156,470 SF

REQUIRED PARKING (Zoning)					
STUDIO (X 1)	1B+1BD (X1.25)	2B+2BD (X 1.4)	3B (X1.75)	VIS. (x.2)	TOTAL
175	236.3	109	3.5	88.8	612.8

**RETAIL PARKING REQUIRED:
4.3 SPACES PER 100sm GFA = 62

ACCESSIBLE PARKING REQUIREMENT 4%
OF NON RESIDENTIAL / 4% OF VISITORS

TOTAL PROPOSED PARKING (NOT INCLUD TANDEM)	
Level	Count
P2	189
P1	169
Grand total	358

RESIDENTIAL UNIT COUNT								
		RESIDENTIAL UNIT COUNT						
LEVEL	NUMBER OF REPEATED FLOOR	STUDIO	1B	1BD	2B	2BD	3B	TOTAL UNIT
LEVEL 1	1	8	1	2	10	0	0	21
LEVEL 2	1	20	0	1	10	0	0	31
LEVEL 3	1	23	2	32	8	0	0	65
LEVEL 4	1	27	2	33	9	0	0	71
LEVEL 5	1	22	2	22	9	0	0	55
LEVEL 6	1	20	2	24	9	0	0	55
LEVEL 7-8	2	36	4	44	16	0	0	100
LEVEL 9	1	19	1	17	5	2	2	46
MPH	1	0	0	0	0	0	0	0
		175	14	175	76	2	2	444

REQUIRED BF UNITS 15%			
STUDIO_ BF %	1 B+ 1BD _BF%	2B+2BD_ BF %	3B_BF %
26.25	28.35	11.7	0

UNIT COUNT						
STUDIO	1B	1BD	2B	2BD	3B	TOTAL UNIT
175	14	175	76	2	2	444

*UNIT BREAKDOWN %							
NUMBER OF UNITS	STUDIO	1B	1 BD	2B	2BD	3B	TOTAL %
444	39.4%	3.2%	39.4%	17.1%	0.5%	0.5%	100.0

*UNIT BREAKDOWN COUNT%				
NUMBER OF UNITS	STUDIO	1B+1BD	2B+2BD+3B	TOTAL %
444	39.4%	42.6%	18.0%	100.0

*AVERAGE UNIT			
NUMBER OF UNITS	SALEABLE	AVERAGE UNITS	AVERAGE UNIT SF
444	23,023 m²	52 m²	558 SF

MIN AMENITY AREA IS THE GREATER OF 5.6 sm PER UNIT OR 10% OF THE SITE AREA

REQUIRED AMENITY AREA	
NET UNITS	TOTAL
444	2,486.4

TOTAL PROVIDED AMENITY	
LEVEL	Area
LEVEL 1	313 m²
LEVEL 2	907 m²
LEVEL 3	1,098 m²
LEVEL 3	258 m²
Grand total	2,576 m²

PROVIDED INTERIOR AMENITY	
LEVEL	Area
LEVEL 1	313 m²
LEVEL 2	907 m²
LEVEL 3	258 m²
Grand total	1,479 m²

INTERIOR AMENITY RATIO: TOTAL AREA / NUMBER OF UNIS = 1,469 /444=3.3

MIN EXTERIOR AMENITY 55 sm

PROVIDED EXTERIOR AMENITY	
LEVEL	Area
LEVEL 3	1,098 m²
Grand total	1,098 m²

EXTERIOR AMENITY RATIO: TOTAL AREA / NUMBER OF UNIS = 1,098/444=2.47

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CLIENT:
LAMB DEVELOPMENT CORP

PROJECT:
THE MISS QUEEN
21-51 QUEEN ST. N, MISSISSAUGA, ONTARIO

SCALE:

DATE:
DECEMBER 2020

TITLE:
STATISTICS

PROJECT NO.
20-121

A-002

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RESIDENTIAL UNIT COUNT B.F								
		RESIDENTIAL UNIT COUNT						
LEVEL	NUMBER OF REPEATED FLOOR	STUDIO	1B	1BD	2B	2BD	3B	TOTAL UNIT
LEVEL 1	1	0	0	0	1	0	0	1
LEVEL 2	1	3	0	0	0	0	0	3
LEVEL 3	1	4	0	5	1	0	0	10
LEVEL 4	1	4	0	5	1	0	0	10
LEVEL 5	1	3	0	5	2	0	0	10
LEVEL 6	1	3	0	5	2	0	0	10
LEVEL 7-8	2	6	0	10	4	0	0	20
LEVEL 9	1	4	0	0	1	0	2	7
		27	0	30	12	0	2	71

SALEABLE AREA					
		SALEABLE (RESIDENTIAL)		SALEABLE (RETAIL)	
LEVEL	NUMBER OF REPEATED FLOOR	SALEABLE	SALEABLE sf	RETAIL LEASABLE	RETAIL LEASABLE sf
LEVEL 1	1	1,205.3 m²	12,973 SF	1,423.6 m²	15,324 SF
LEVEL 2	1	1,416 m²	15,242 SF	0 m²	0 SF
LEVEL 3	1	3,364.3 m²	36,213 SF	0 m²	0 SF
LEVEL 4	1	3,622.9 m²	38,997 SF	0 m²	0 SF
LEVEL 5	1	2,838.6 m²	30,554 SF	0 m²	0 SF
LEVEL 6	1	2,867.9 m²	30,870 SF	0 m²	0 SF
LEVEL 7-8	2	5,250 m²	56,510 SF	0 m²	0 SF
LEVEL 9	1	2,458.4 m²	26,462 SF	0 m²	0 SF
MPH	1	0 m²	0 SF	0 m²	0 SF
		23,023.4 m²	247,822 SF	1,423.6 m²	15,324 SF

UNIT SIZE:

	SM	SF
STUDIO	**29**	**313**
	43	**458**
1B-1B+D	**43**	**458**
	63	**681**
2B-2B+D	**61**	**661**
	83	**893**
3B	**87**	**941**
	94	**1,013**

*GARBAGE	GARBAGE ROOM	REQUIRED sm	PROVIDED sm
	RESIDENTIAL	127.5	188.31
	RETAIL		138.58
	BULKROOM	10	41
	STAGING	44.4	55.85
	TOTAL (SM)	181.9	423.74

GARBAGE ROOM: MIN. 25 sm FOR THE FIRST 50 UNITS AND 13 sm FOR ADDITIONAL 50
STAGING: 5 sm FOR EVERY 50 UNITS
GARBAGE (1/50) RECYCLE (1/50) ORGANIC (1/100)

TOTAL RETAIL GARBAGE	
LEVEL	RETAIL GARBAGE
LEVEL 1	138.58 m²
	138.58 m²

TOTAL GARBAGE AREA	
LEVEL	GARBAGE AREA
P1	75.40 m²
LEVEL 1	285.16 m²
	360.56 m²

* MIN. CLEAR HEIGHT FOR LOADING = 7.5m

REQUIRED RESIDENTIAL BIKE		
RESIDENTIAL LONG-TERM(X0.6)	RESIDENTIAL SHORT-TERM (X0.15)	TOTAL
266.4	67	333

PROVIDED RESIDENTIAL SHORT-TERM BIKE		
LEVEL	TYPE	COUNT
Level 1	<varies>	48
		48

PROVIDED RESIDENTIAL LONG-TERM BIKE		
LEVEL	TYPE	COUNT
Level 1	RES. 1525X450 STACK BIKE	274
Level 1	RES. 1700X450 STACK BIKE	52
		326

PROVIDED TOTAL RESIDENTIAL SHORT/LONG-TERM BIKE		
LEVEL	TYPE	COUNT
Level 1	RES. 1525X450 STACK BIKE	274
Level 1	RES. 1700X450 STACK BIKE	52
Level 1	VIS. 1525X450 STACK BIKE	28
Level 1	VIS. 1700X450 STACK BIKE	20
		374

TOTAL RETAIL PARKING		
LEVEL	PARKING TYPE	COUNT
P1	RETAIL REGULAR PARKING	24
P1	RETAIL BARRIER FREE PARKING	2
		26

TOTAL VISITOR PARKING		
LEVEL	PARKING TYPE	COUNT
P1	VISITOR REGULAR PARKING	21
P1	VISITOR BARRIER FREE PARKING	1
		22

TOTAL RESIDENTIAL		
LEVEL	PARKING TYPE	COUNT
P2	RESIDENTIAL REGULAR PARKING	182
P1	RESIDENTIAL REGULAR PARKING	116
P2	RESIDENTIAL BARRIER FREE TYPE A PARKING	7
P1	RESIDENTIAL BARRIER FREE TYPE A PARKING	5
		310

TOTAL PROPOSED PARKING (TANDEM)		
LEVEL	PARKING TYPE	COUNT
P2	TANDEM REGULAR PARKING (SMALL CAR)	6
		6

TOTAL PROPOSED PARKING(INCLUDING TANDEM)		
LEVEL	PARKING TYPE	COUNT
P2	RESIDENTIAL BARRIER FREE TYPE A PARKING	7
P1	RESIDENTIAL BARRIER FREE TYPE A PARKING	5
		12
P2	RESIDENTIAL REGULAR PARKING	182
P1	RESIDENTIAL REGULAR PARKING	116
		298
P1	RETAIL BARRIER FREE PARKING	2
		2
P1	RETAIL REGULAR PARKING	24
		24
P2	TANDEM REGULAR PARKING (SMALL CAR)	6
		6
P1	VISITOR BARRIER FREE PARKING	1
		1
P1	VISITOR REGULAR PARKING	21
		21
		364

REQUIRED RETAIL BIKE		
RETAIL LONG-TERM (X0.085/100 sm)	RETAIL SHORT-TERM (X0.25)	TOTAL
1.21	3.56	4.77

PROVIDED RETAIL SHORT-TERM BIKE		
LEVEL	TYPE	COUNT
Level 1	RETAIL SHORT-TERM BIKE	4
		4

PROVIDED RETAIL LONG-TERM BIKE		
LEVEL	TYPE	COUNT
Level 1	RETAIL LONG-TERM BIKE	2
		2

PROVIDED TOTAL RETAIL SHORT/LONG-TERM BIKE		
LEVEL	TYPE	COUNT
Level 1	RETAIL LONG-TERM BIKE	2
Level 1	RETAIL SHORT-TERM BIKE	4
		6

PROVIDED RESIDENTIAL LOCKER		
LEVEL	LOCKER TYPE	COUNT
P2	RES. 1830X915 LOCKER	80
P1	RES. 1830X915 LOCKER	81
Level 1	RES. 1830X915 LOCKER	34
		195

Low Impact Design Features List

1. Development Density
   - The proposed development serves to maximize the permitted density on the land, maximizing efficient use of the lands while minimizing urban sprawl
2. Public Transportation Access
   - 21-51 Queen Street North will be located adjacent to several Mississauga Transit bus lines. Furthermore, it is a short bus ride to the GO Train, therefore encouraging mass transit and consequently reducing the carbon footprint.
3. Walkability
   - 21-51 Queen Street North will be situated within walking distance to public transit and retail, therefore encouraging mass transit. All the public and private walkways are continuous, accessible, and barrier-free. All the building entries are connected to pedestrian pathways.
4. Bicycle Storage
   - Conveniently located bicycle parking spaces for residents and visitors have been proposed to encourage bicycle use as an alternative form of transportation
5. Green Roof System
   - Where feasible, all portions of the roof will have either a high solar reflectance surface, outdoor amenity areas or a “green roof” created through the use of plant material, reducing temperature extremes inside the buildings and providing attractive views from suites. These areas will not only help to reduce energy use and the heat island effect but will also serve as outdoor amenity and recreation areas.
6. New Trees
   - New shade trees along all street frontages and public walkways will be provided in areas with sufficient soil quality and volume.
   - Previous hardscape areas will be converted to landscape areas and act as a buffer between existing residents and the proposed building.
7. Erosion And Sediment Control
   - The erosion and sediment control plan for the site will be designed in conformance with the City of Mississauga and Credit Valley Conservation Authority guidelines. Construction management will be taking erosion and sediment control measures as well as following the requirements of the grading plan to prevent loss of topsoil, while also working to contain dust within the site.
8. Green Site Maintenance
   - A comprehensive site maintenance program will be implemented.
9. Heat Island Effect (Non-Roof and Roof)
   - Of the vehicular parking provided, all will be contained within underground parking levels. This will reduce the heat island effect which results from exposed surface parking lots
10. Indoor Water Use Reduction
    - To reduce water consumption, high-efficiency toilets and water reducing fixtures will be provided.
11. Tri-Sorter Recycling
    - A tri-sorter system will be installed and made accessible to each residential floor, allowing for convenient separation and disposal of recyclables and refuse.
12. Regional Material
    - Construction materials where available will be sourced from the GTA to minimize the carbon footprint associated with the shipment of materials.
13. Pedestrian Walkways (Incorporated)
    - Private sidewalks and walkways are continuous, universally accessible, barrier-free, and clearly designated. Sidewalks within immediate site vicinity have a buffer of vegetation between traffic and the walkway.
    - New sidewalks and pathways are proposed intended for the enjoyment of residents.
    - Walkways will have various shaded, resting spots for relaxation and recreation
14. Site and Building Lighting (Incorporated)
    - Install exterior light fixtures that are properly shielded to prevent glare and/or light to trespass onto any neighbouring properties.
    - Avoid up-lighting from exterior light fixtures mounted on buildings unless they are designated as an integral component to a heritage structure.

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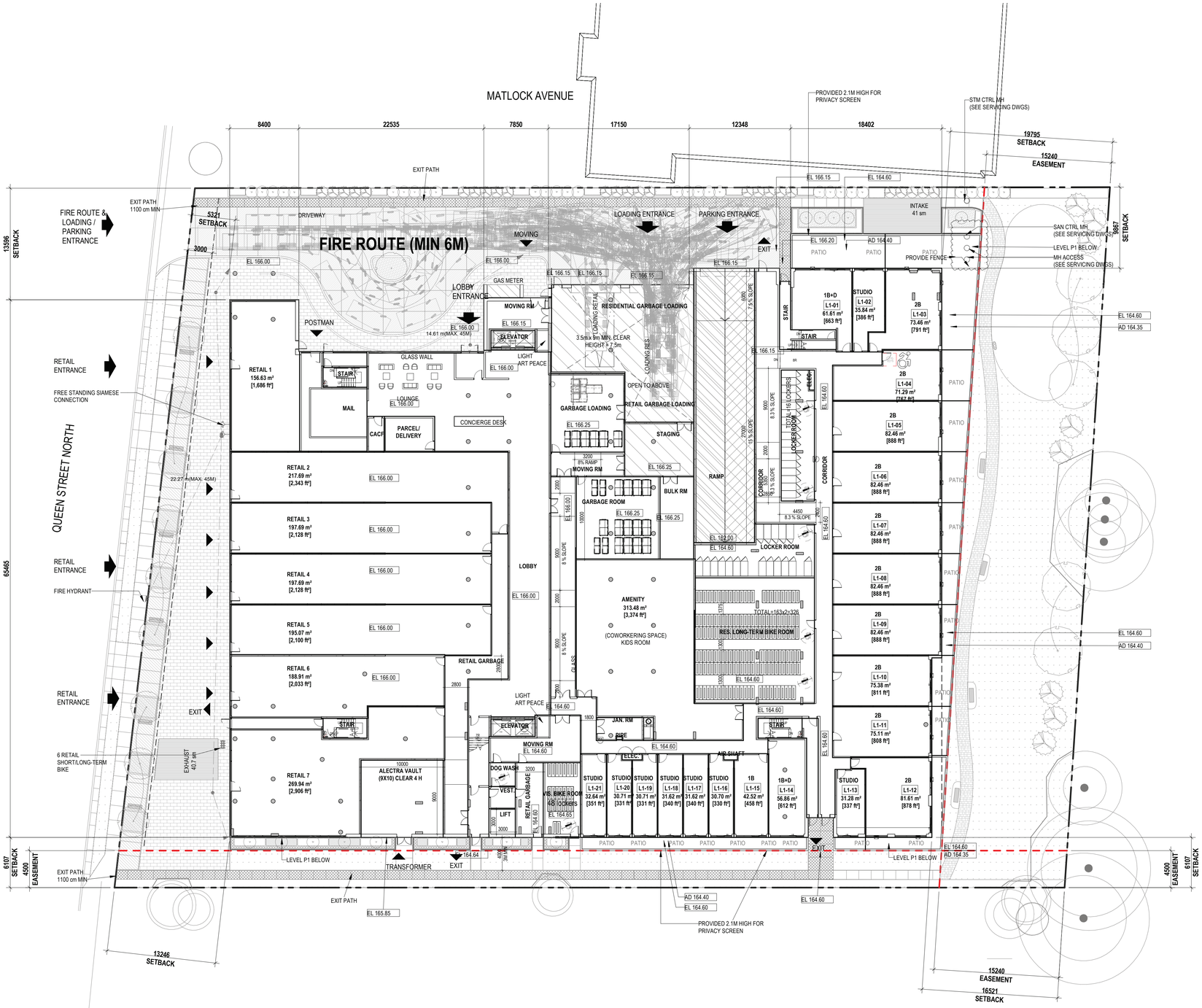
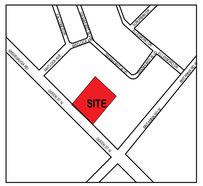
A-003





THE APPLICATION NUMBER: OZ/OPA 22-9 W11.

2	2023-06-19	RE ISSUED FOR OPA & ZBA COORDINATION
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PROJECT:

THE MISS QUEEN

21-51 QUEEN ST. N, MISSISSAUGA, ONTARIO

SCALE: As indicated

DATE:

TITLE: SITE PLAN

PROJECT NO. 20-121

A-102

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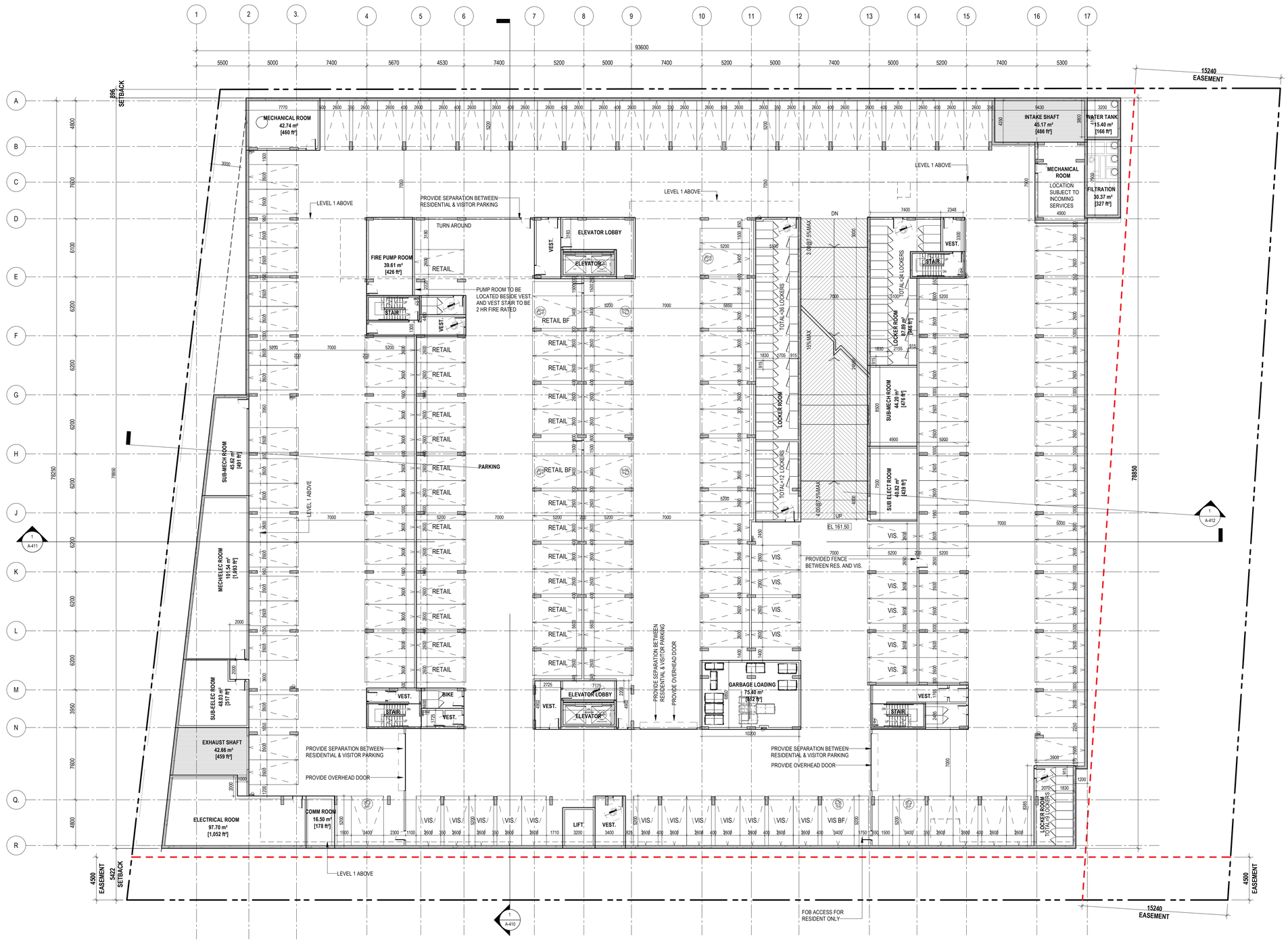
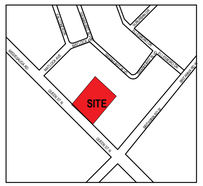
169 PARKING SPACES
NOT INCLUDED TANDEM





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LAMB DEVELOPMENTCORP

PROJECT:

THE MISS QUEEN

21-51 QUEEN ST. N, MISSISSAUGA, ONTARIO

SCALE: As indicated

DATE:

TITLE: P1

PROJECT NO. 20-121

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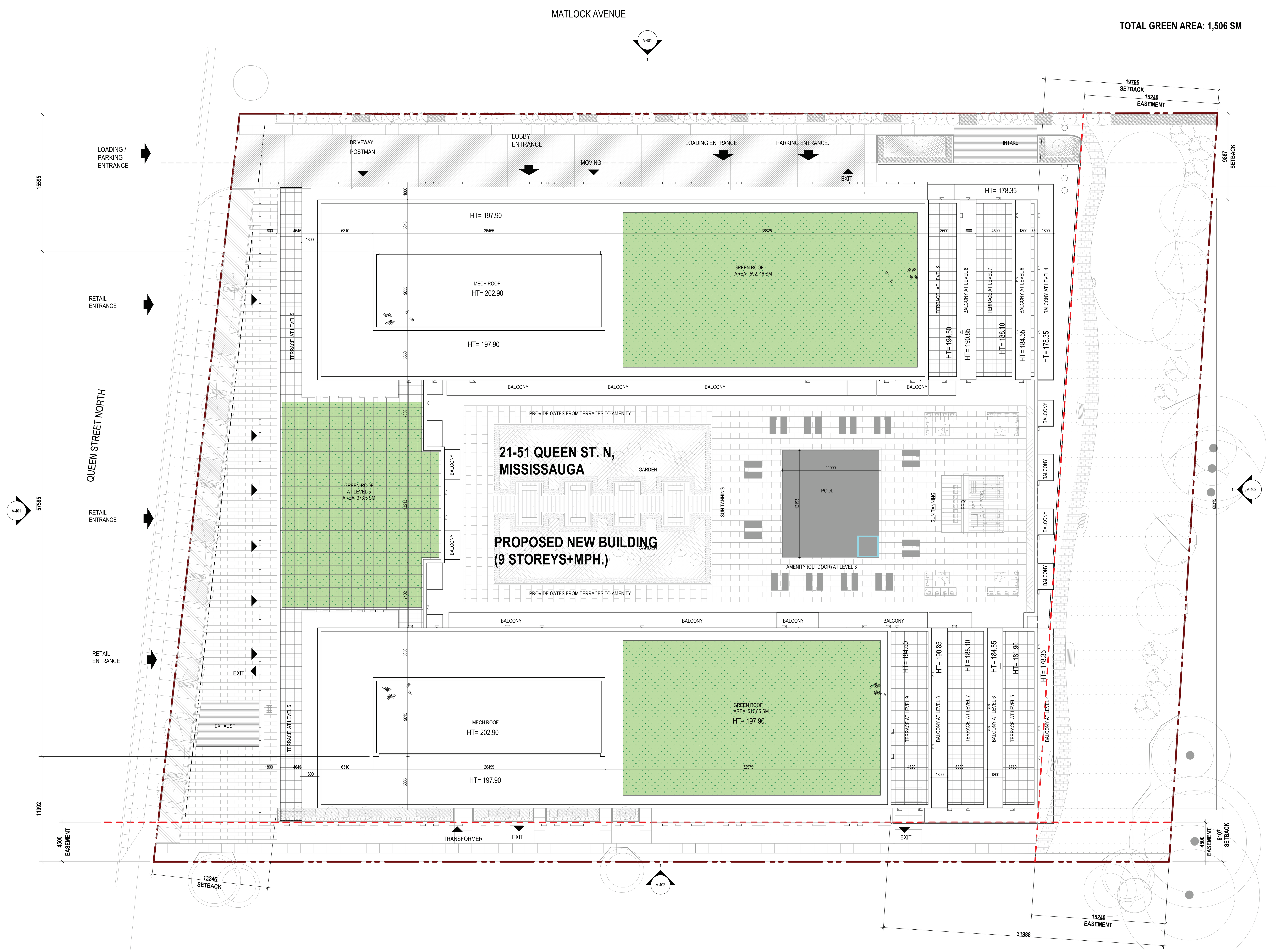
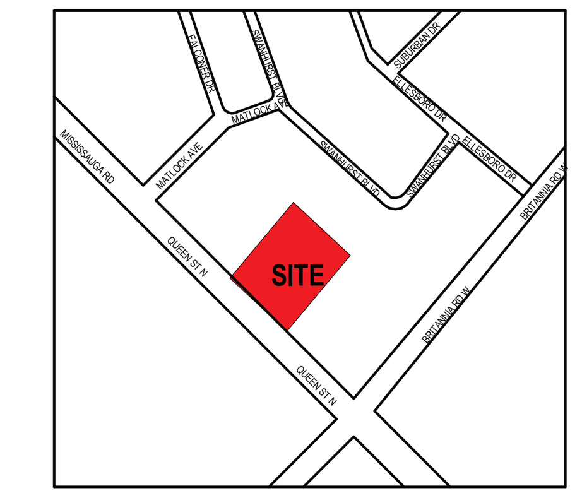
2023-06-19 11:34:47 AM



BUILDING HEIGHT

HT= 32.600

BUILDING HEIGHT HAS BEEN MEASURED FROM ESTABLISHED GRADE TO THE TOP OF THE STRUCTURAL SLAB



THE APPLICATION NUMBER: OZ/OPA 22-9 W11.

3	2023-06-19	RE ISSUED FOR OPA & ZBA COORDINATION
2	2022-01-07	ISSUED FOR OPA & ZBA COORDINATION
1	2021-03-02	ISSUED FOR PRE-APPLICATION MEETING

A& Architects Inc
130 QUEENS QUAY EAST, SUITE 1018
TORONTO, ONTARIO, M5A 0P6
(416) 466-0100
WWW.AARCHITECTS.CA

CLIENT:

LAMB DEVELOPMENT CORP

PROJECT:

THE MISS QUEEN

21-51 QUEEN ST. N, MISSISSAUGA, ONTARIO

SCALE: As indicated

DATE:

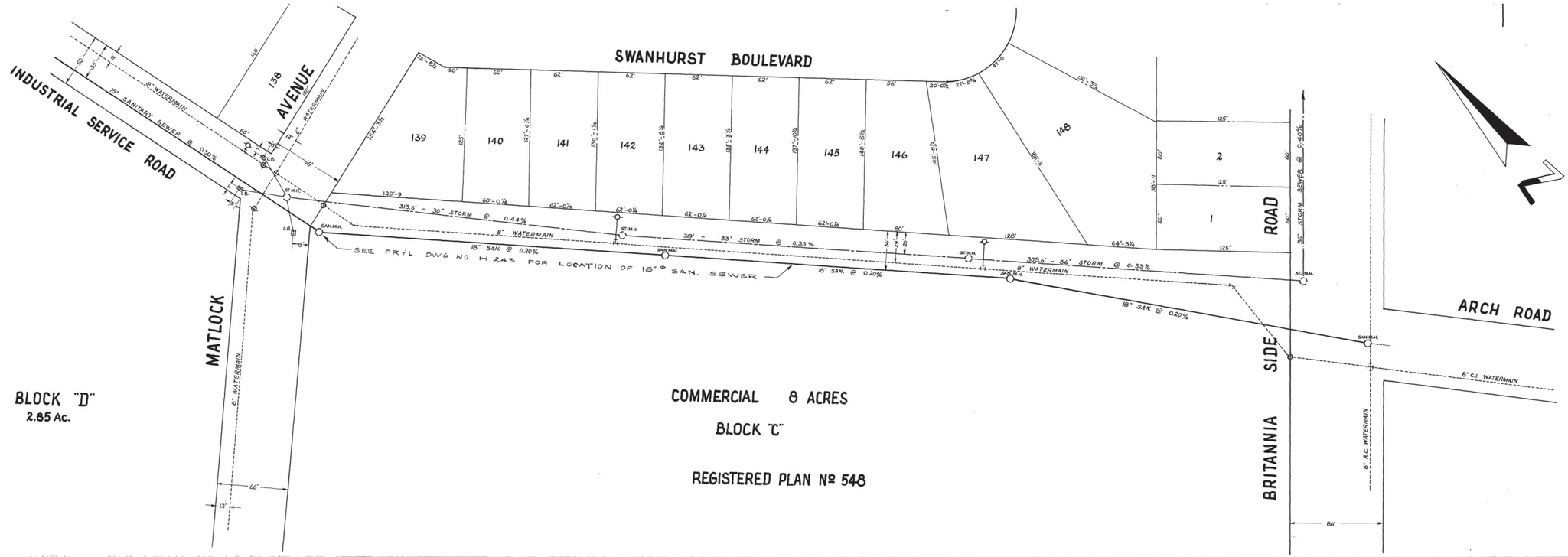
TITLE: ROOF

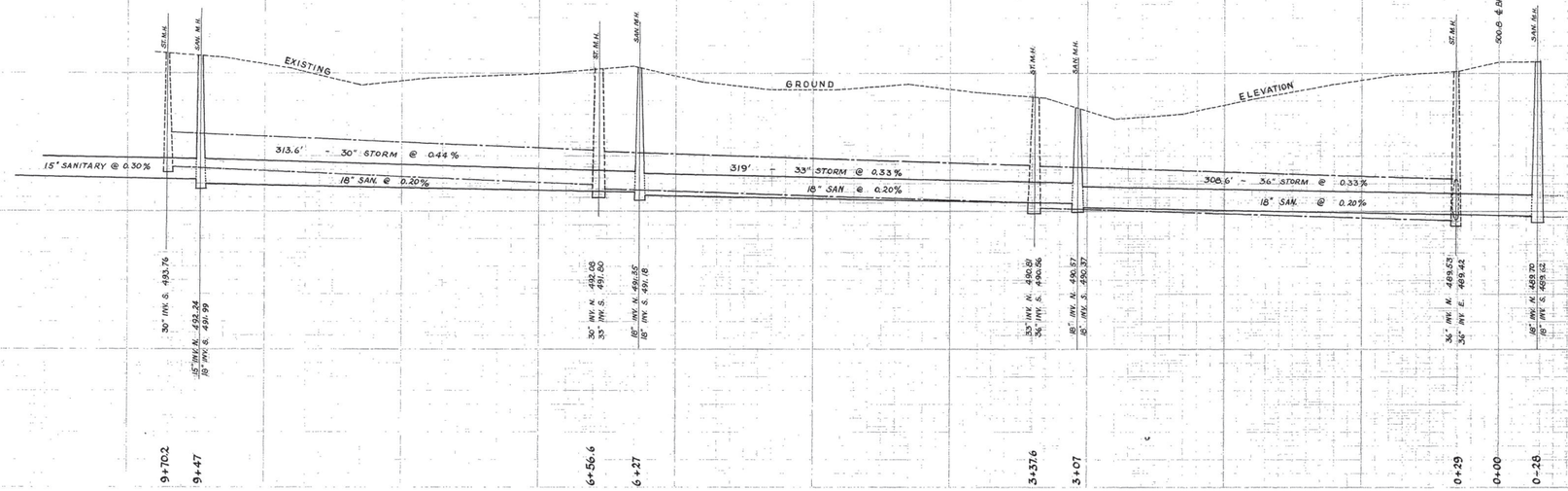
PROJECT NO. 20-121

A-209

C:\Users\sepideh\Documents\20-121_Central_R22_sepidehM2TKY.rvt

2023-06-19 11:35:21 AM





H. D. SMITH

8012111 MICROFILMED

TOWNSHIP OF VILLAGE OF STREETSVILLE

PLAN AND PROFILE OF

BLOCK "C"

STORM AND SANITARY SEWER

FROM: BRITANNIA SIDE RD. TO: MATLOCK AVE.

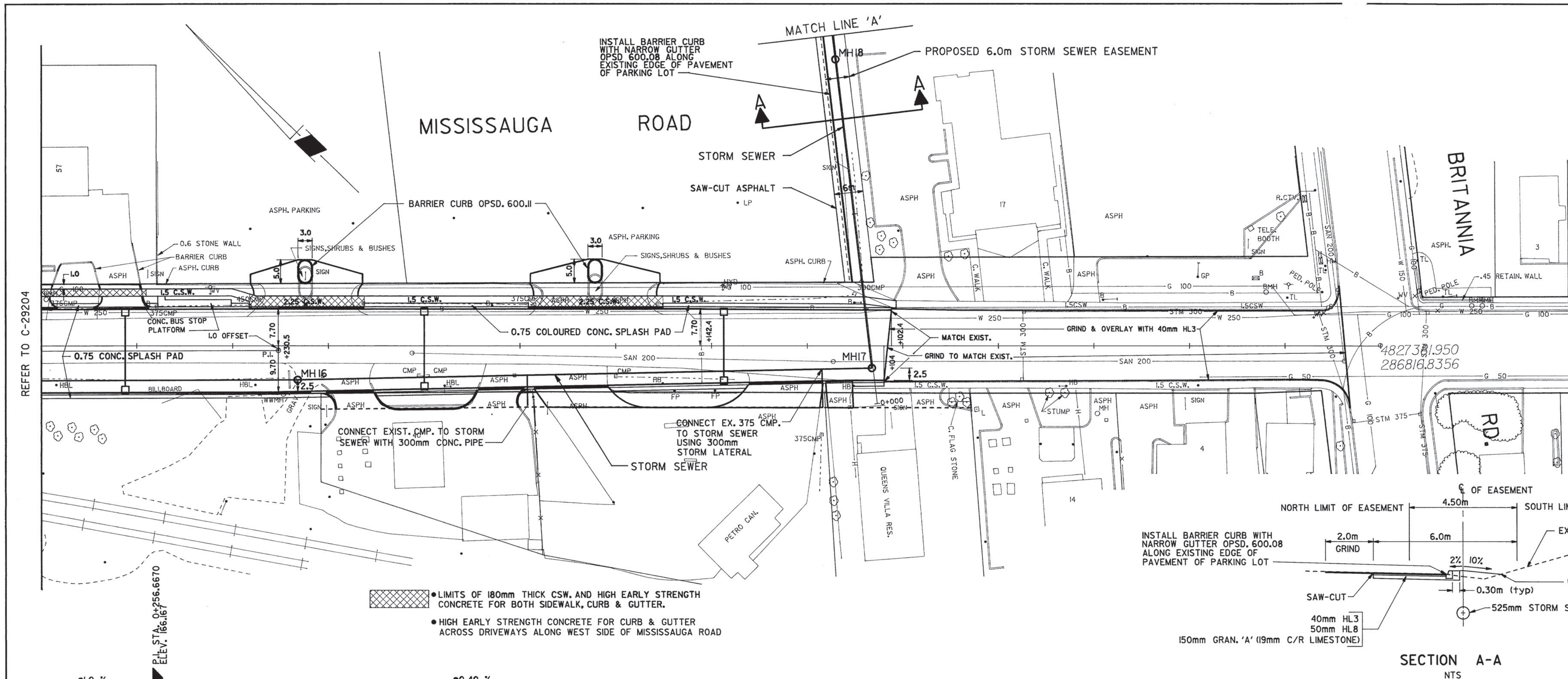
SCALE	HORIZ: 1" = 40'-0	T.W.P. DRAWING NUMBER
	VERT: 1" = 4'-0	
DATE	FEBR. 22ND, 1950	
DRAWN BY:	W.A.N.	
CHECKED BY:		SHEET No.

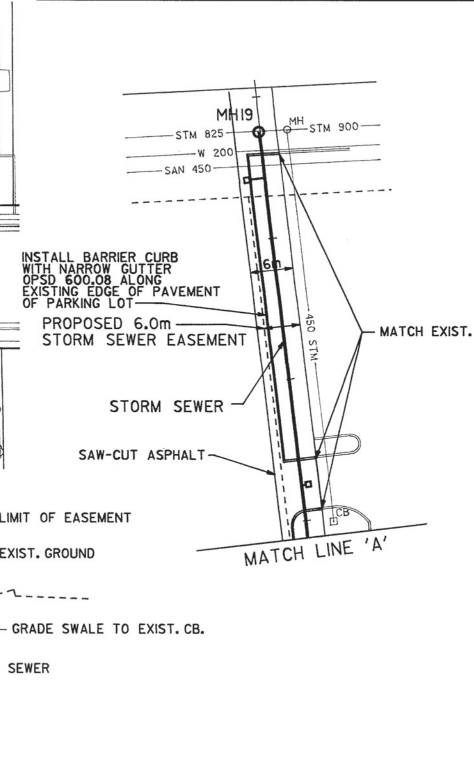
G. S. SHIPP & SON LTD.
ENGINEERING DEPT.

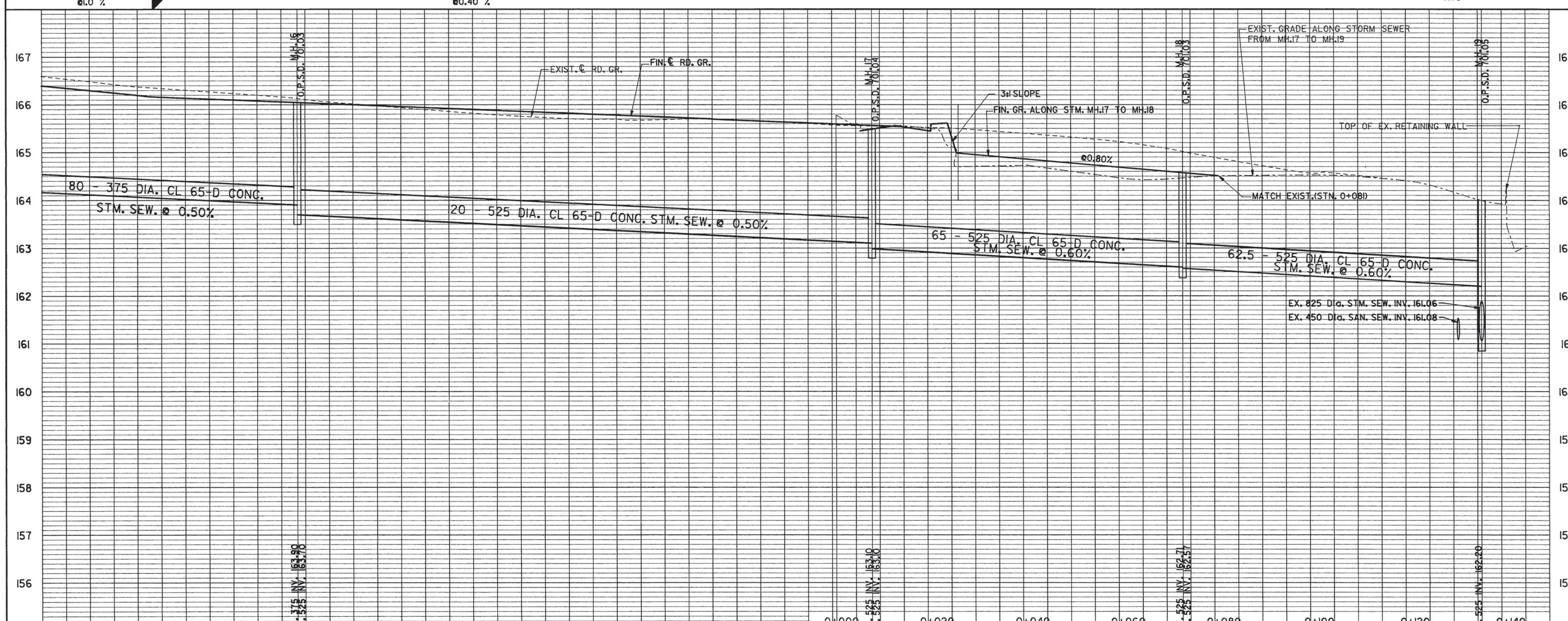
FOR: G.S. SHIPP & SON LIMITED — FILE No: S-RH-8.2

H 61

D-12885


MATCH LINE 'A'
MH18
PROPOSED 6.0m STORM SEWER EASEMENT
INSTALL BARRIER CURB WITH NARROW GUTTER OPSD 600.08 ALONG EXISTING EDGE OF PAVEMENT OF PARKING LOT
MISSISSAUGA ROAD
STORM SEWER
SAW-CUT ASPHALT
BARRIER CURB OPSD. 600.11
ASPH. PARKING
0.6 STONE WALL
BARRIER CURB
ASPH. CURB
SIGNS, SHRUBS & BUSHES
CONC. BUS STOP PLATFORM
1.0 OFFSET
0.75 CONC. SPLASH PAD
0.75 COLOURED CONC. SPLASH PAD
MH16
MH17
MATCH EXIST.
GRIND TO MATCH EXIST.
GRIND & OVERLAY WITH 40mm HL3
CONNECT EXIST. CMP. TO STORM SEWER WITH 300mm CONC. PIPE
CONNECT EX. 375 CMP. TO STORM SEWER USING 300mm STORM LATERAL
STORM SEWER
PETRO CAN.
QUEENS VILLA RES.
BRITANNIA RD.
REFER TO C-29204
P.I. STA. 0+256.6670 ELEV. 166.167
LIMITS OF 180mm THICK CSW. AND HIGH EARLY STRENGTH CONCRETE FOR BOTH SIDEWALK, CURB & GUTTER.
HIGH EARLY STRENGTH CONCRETE FOR CURB & GUTTER ACROSS DRIVEWAYS ALONG WEST SIDE OF MISSISSAUGA ROAD
@1.0 %
@0.40 %


MH19
INSTALL BARRIER CURB WITH NARROW GUTTER OPSD 600.08 ALONG EXISTING EDGE OF PAVEMENT OF PARKING LOT
PROPOSED 6.0m STORM SEWER EASEMENT
MATCH EXIST.
STORM SEWER
SAW-CUT ASPHALT
MATCH LINE 'A'
℄ OF EASEMENT
NORTH LIMIT OF EASEMENT
SOUTH LIMIT OF EASEMENT
4.50m
2.0m GRIND
6.0m
EXIST. GROUND
INSTALL BARRIER CURB WITH NARROW GUTTER OPSD. 600.08 ALONG EXISTING EDGE OF PAVEMENT OF PARKING LOT
2% 10%
GRADE SWALE TO EXIST. CB.
SAW-CUT
0.30m (typ)
525mm STORM SEWER
40mm HL3
50mm HL8
150mm GRAN. 'A' (19mm C/R LIMESTONE)
SECTION A-A
NTS


EXIST. ℄ RD. GR.
FIN. ℄ RD. GR.
3:1 SLOPE
FIN. GR. ALONG STM. MH.17 TO MH.18
TOP OF EX. RETAINING WALL
EXIST. GRADE ALONG STORM SEWER FROM MH.17 TO MH.19
MATCH EXIST. (STN. 0+081)
@0.80%
80 - 375 DIA. CL 65-D CONC. STM. SEW. @ 0.50%
20 - 525 DIA. CL 65-D CONC. STM. SEW. @ 0.50%
65 - 525 DIA. CL 65-D CONC. STM. SEW. @ 0.60%
62.5 - 525 DIA. CL 65-D CONC. STM. SEW. @ 0.60%
EX. 825 Dia. STM. SEW. INV. 161.06
EX. 450 Dia. SAN. SEW. INV. 161.08
O.P.S.D. 701.03 MH.16
O.P.S.D. 701.04 MH.17
O.P.S.D. 701.03 MH.18
O.P.S.D. 701.05 MH.19
N. 375 INV. 163.90
S. 525 INV. 163.70
N. 525 INV. 163.10
E. 525 INV. 163.0
W. 525 INV. 162.71
E. 525 INV. 162.57
W. 525 INV. 162.20
167 166 165 164 163 162 161 160 159 158 157 156
0+000 0+020 0+040 0+060 0+080 0+100 0+120 0+140

SERVICE DATA

SERVICE	DATE	INIT.	SERVICE	DATE	INIT.
SAN. SEWERS	AUG/93	JB	GAS MAINS	AUG/93	JB
STM. SEWERS	AUG/93	JB	BELL U/G CABLE	AUG/93	JB
WATERMAINS	AUG/93	JB	HYDRO U/G CABLE	AUG/93	JB
M.O.E.	AUG/93	JB			

REVISIONS

DATE	DETAILS	INIT.

GENERAL NOTES

1. ALL DRIVEWAYS ASPHALT UNLESS OTHERWISE NOTED
2. ALL SERVICE LOCATIONS ARE APPROXIMATE AND MUST BE LOCATED ACCURATELY IN FIELD
3. ALL MEASUREMENTS FOR THIS PROJECT ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE INDICATED
4. ALL SINGLE C.B. LATERALS TO BE 250mm Ø CL 65-D
ALL OTHERS TO BE 300mm Ø CL 65-D
5. ALL TREES AND SHRUBS NOT MARKED IN THE FIELD FOR REMOVAL, TO BE PROTECTED
6. ALL SEWERS AND LATERALS TO HAVE TYPE 'A' BEDDING AND TYPE 'C' BACKFILL UNLESS OTHERWISE INDICATED
7. ALL UTILITY RELOCATION BY OTHERS
8. 'X' - DENOTES REMOVALS
9. DURING SEWER CONSTRUCTION, WATERMAINS TO BE PROTECTED TO THE SATISFACTION OF THE PUBLIC WORKS DEPARTMENT OF THE REGIONAL MUNICIPALITY OF PEEL
10. COLD GRINDS TO BE MAX. 50mm IN DEPTH UNLESS OTHERWISE NOTED
11. TWO LANES OF TRAFFIC (ONE IN EACH DIRECTION) ARE TO BE MAINTAINED AT ALL TIMES
12. ALL DRIVEWAYS ARE TO BE KEPT OPEN
13. TRENCH BOX IS TO BE USED FOR SEWER MAINLINE INSTALLATION

								EXIST. GR. ALONG STM. MH.17 TO MH.19	165.79	165.50	164.73	164.46	164.51	164.53	164.40
166.40	166.20	166.10	166.02	165.94	165.86	165.78	165.70	165.62	165.54						FIN. ℄ RD. GR.
166.60	166.38	166.24	166.06	165.90	165.76	165.70	165.70	165.61	165.54	165.44	165.28	164.99	164.64	164.47	EXIST. ℄ RD. GR.
0+280	0+260	0+240	0+220	0+200	0+180	0+160	0+140	0+120	0+100	0+080	0+060	0+040	0+020	0+000	CHAINAGE

EXIST. GR. ALONG STM. MH.17 TO MH.19 at 0+140: 163.92

REGISTERED PROFESSIONAL ENGINEER D. MARCHESE PROVINCE OF ONTARIO

94/06/20

DESIGN BY D. Marchese June 16/94

APPROVED BY

MISSISSAUGA Transportation and Works

MISSISSAUGA ROAD

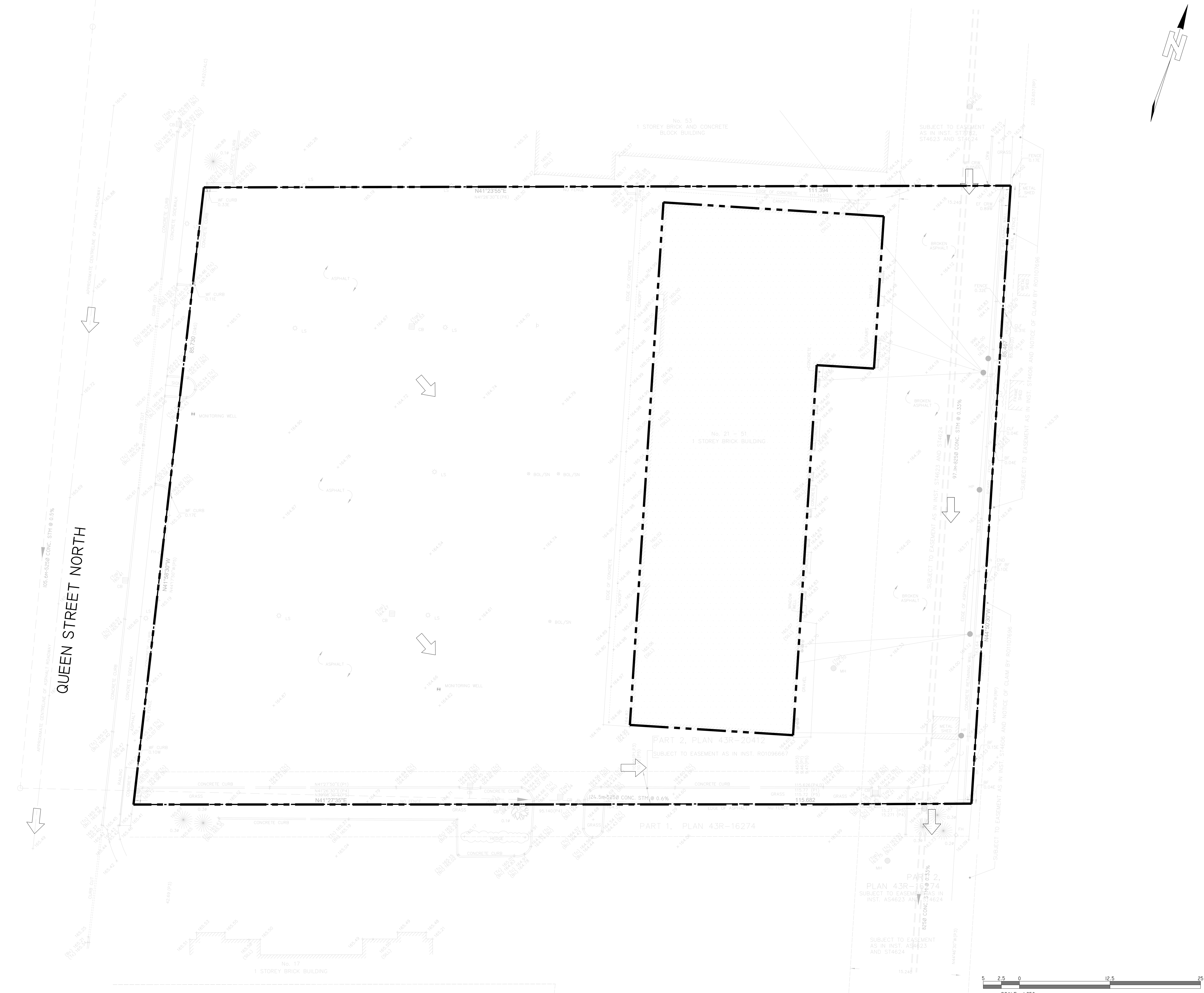
BRITANNIA RD TO ERIN MILLS PKWY

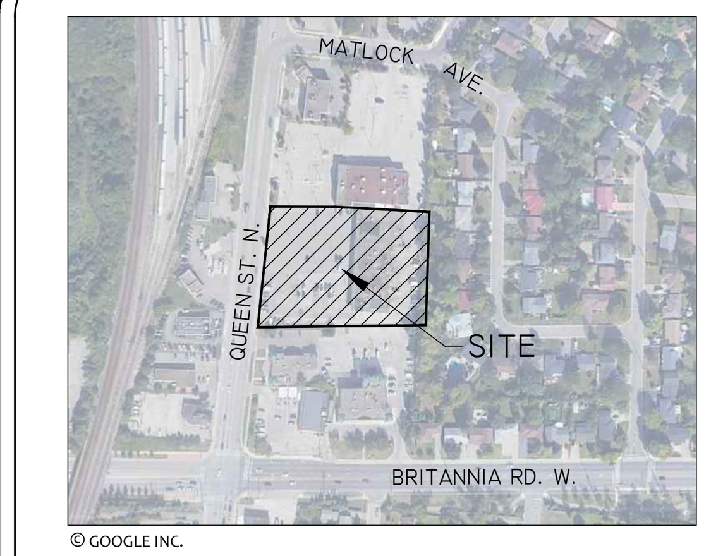
STN. 0+000 TO STN. 0+280

SCALE HOR. 1:500 VERT. 1:50	AREA Z-46	PROJECT No. 93-104
C.A.D.D. BY JB	CHECKED BY PJD	PLAN No.
DATE SEPT./93	SHEET 1 OF 9	C-29203

Appendix B

Storm Data





LOCATION PLAN
N.T.S.

LEGEND

(ASPHALT AREA) — ID 101, AREA (HA) 0.79, C 0.90

(ROOF AREA) — 102, 0.18, 0.90

EX. OVERLAND FLOW ROUTE

EX.STM	EXISTING STORM MANHOLE
EX.SAN	EXISTING SANITARY MANHOLE
EX.FH	EXISTING FIRE HYDRANT
CC	EXISTING CURB CUT
MW	EXISTING MONITORING WELL
CB	EXISTING CATCH BASIN
0.1ø	EXISTING TREE AND DIAMETER
HP	EXISTING HYDRO POLE
MH	EXISTING MANHOLE
WV	EXISTING WATER VALVE

SURVEY INFO.

KRCMAR
1137 CENTRE ST.
THORNHILL, ON L4J 3M6
PHONE: (905) 738-0053
FAX: (905) 738-9221

BENCHMARK

ELEVATIONS SHOWN HEREON ARE MISSISSAUGA DATUM AND ARE RELATED TO CITY OF MISSISSAUGA BENCH MARK NO. 075033019 HAVING A PUBLISHED ELEVATION OF 167.744M.

SITE PLAN INFO.

A& ARCHITECTS
130 QUEENS QUAY EAST
SUITE 1018
TORONTO, ON M5A 0P6
PHONE: (416) 466-0100

LIST OF DRAWINGS

001 - NOTES AND DETAILS
002 - DETAILS AND SECTIONS
101 - SERVICING PLAN
401 - GRADING PLAN
601 - ESC PLAN

NO.	ISSUE	MM/DD/YY	BY
2	ISSUED FOR SPA	07/20/23	LPM
1	ISSUED FOR REZONING APPLICATION	12/06/21	LPM

SITEPLANTECH INC.
50 ST. CLEMENTS AVENUE
TORONTO, ON M4R 1G9
PHONE: (416) 270-7515

L.P. MASSÜE-MONAT
100824283
July 20, 2023
PROVINCE OF ONTARIO

MISS BJL CORP.
21-51 QUEEN ST. N.
MISSISSAUGA, ON

PRE-DEVELOPMENT
DRAINAGE AREA PLAN

PROJECT No.:	DRAWING:
21-003	201

PRE-DEVELOPMENT
RUNOFF COEFFICIENT

Drainage Area 101

Surface Type	C	A (Ha)	A*C
Roof	0.90	0.180	0.162
Asphalt	0.90	0.788	0.709
Composite C		0.968	0.900

Summary

Drainage Area	C	A (Ha)	A*C
101	0.90	0.968	0.871
TOTAL		0.968	0.900

ALLOWABLE RELEASE
RATE CALCULATION

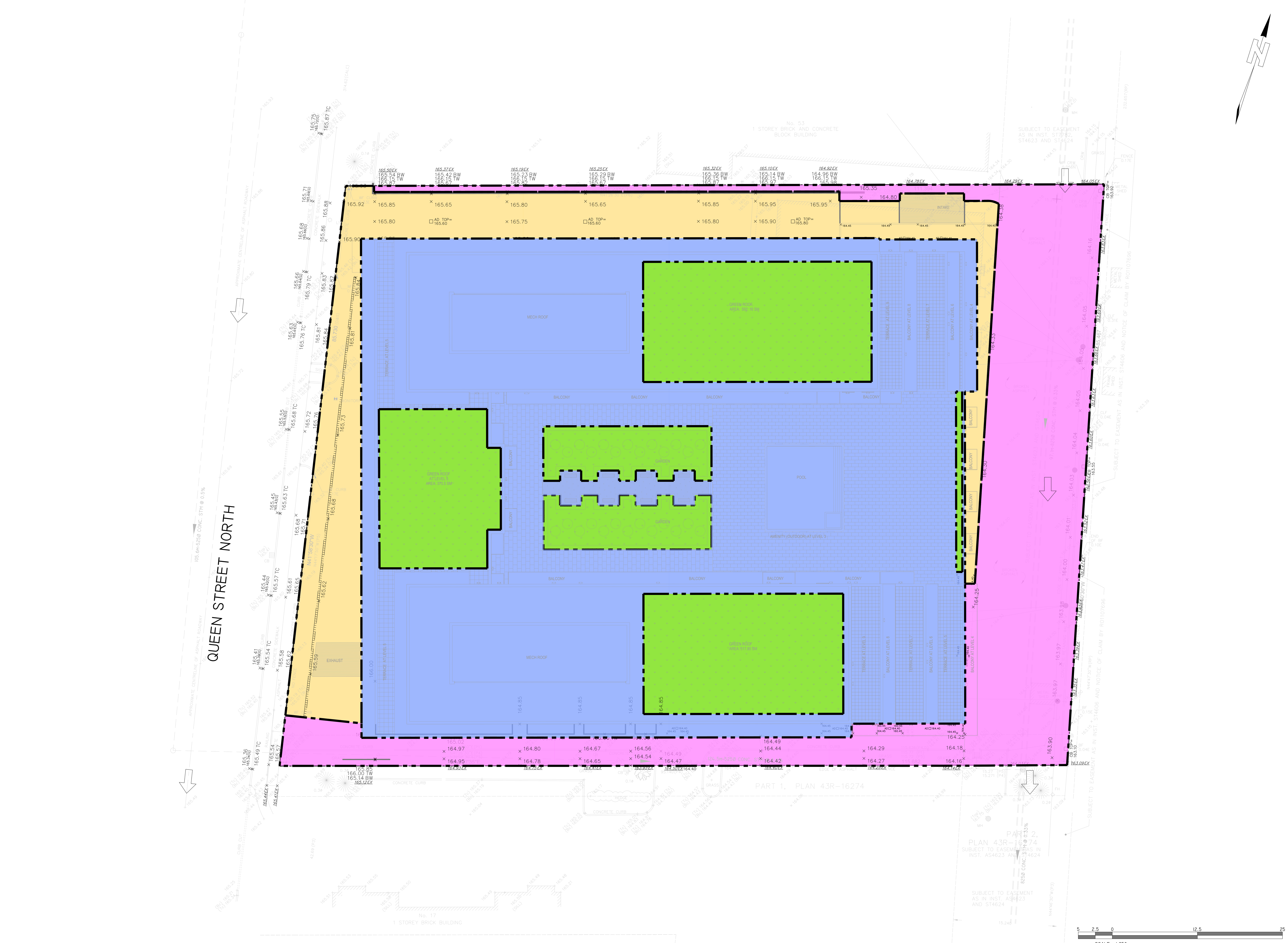
IDF set: Mississauaga

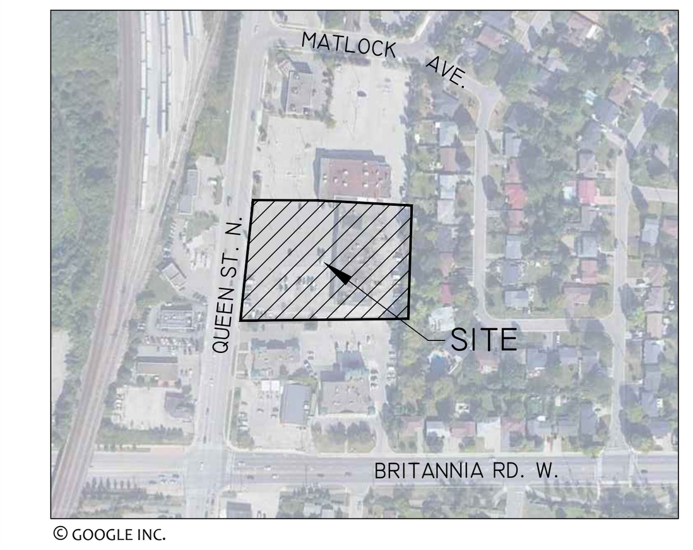
Return Period	*a*	T_c	*b*	*c*
2-year	610.0	15	4.6	0.780
5-year	820.0	15	4.6	0.780
100-year	1450.0	15	4.9	0.780

Where: $$I = \frac{a}{(t_c + b)^c}$$

Pre-Development ID 101

Return Period	Area (Ha)	Composite C	I (mm/hr)*	Q (L/s)
2-year	0.968	0.900	59.89	144.9
5-year	0.968	0.900	80.51	194.8
10-year	0.968	0.900	99.17	240.0
100-year	0.968	0.900	140.69	340.5





LOCATION PLAN
N.T.S.

LEGEND

PROPERTY BOUNDARY

Type	ID	AREA (HA)	C
ROOF (CONTROLLED)	210	0.462	0.90
GREEN ROOF (CONTROLLED)	210	0.189	0.30
ASPHALT (CONTROLLED)	210	0.127	0.90
UNCONTROLLED	210	0.191	0.90

OVERLAND FLOW ROUTE

EX.STM — EXISTING STORM MANHOLE
EX.SAN — EXISTING SANITARY MANHOLE
EX.FH — EXISTING FIRE HYDRANT
CC — EXISTING CURB CUT
MW — EXISTING MONITORING WELL
CB — EXISTING CATCH BASIN
0.1ø — EXISTING TREE AND DIAMETER
HP — EXISTING HYDRO POLE
MH — EXISTING MANHOLE
WV — EXISTING WATER VALVE

SURVEY INFO.

KRCMAR
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SITE PLAN INFO.

A& ARCHITECTS
130 QUEENS QUAY EAST
SUITE 1018
TORONTO, ON M5A 0P6
PHONE: (416) 466-0100

LIST OF DRAWINGS

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NO.	ISSUE	MM/DD/YY	BY
2	ISSUED FOR SPA	07/20/23	LPM
1	ISSUED FOR REZONING APPLICATION	12/06/21	LPM

SITEPLANTECH INC.
50 ST. CLEMENTS AVENUE
TORONTO, ON M4R 1G9
PHONE: (416) 270-7515

L.P. MASSÜE-MONAT
100824283
July 20, 2023
PROVINCE OF ONTARIO

MISS BJL CORP.
21-51 QUEEN ST. N.
MISSISSAUGA, ON

POST-DEVELOPMENT
DRAINAGE AREA PLAN

PROJECT No.: 21-003

DRAWING: 202

POST-DEVELOPMENT
RUNOFF COEFFICIENT

Drainage Area 210

Surface Type	C	A (Ha)	A*C
Hardscape	0.90	0.127	0.114
Roof	0.90	0.462	0.416
Green Roof	0.30	0.189	0.057
Composite C		0.777	0.754

Drainage Area 220

Surface Type	C	A (Ha)	A*C
Hardscape	0.90	0.191	0.172
Composite C		0.191	0.900

Summary

Drainage Area	C	A (Ha)	A*C
210	0.75	0.777	0.586
220	0.90	0.191	0.172
TOTAL		0.968	0.783

STORMWATER MANAGEMENT
QUANTITY CONTROL SUMMARY

2-year Summary Matrix

Drainage Area	ROOF	210	220	Total
Bldg ID				
C_2	0.00	0.75	0.90	-
A (Ha)	0.000	0.78	0.191	0.97
$Q_{Release\ (L/s)}$	0.0	97.6	28.6	126.2
Storage (m^3)	0.0	0.0	0.0	0.0
Vol. Avail. (m^3)	-	-	-	0.0
Orifice	Uncontrolled	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	-	-	-	-
Unctrled Q (L/s)	0.0	97.6	28.6	-
Orifice type	-	-	-	-

5-year Summary Matrix

Drainage Area	ROOF	210	220	Total
Bldg ID				
C_5	0.00	0.75	0.90	-
A (Ha)	0.000	0.78	0.191	0.97
$Q_{Release\ (L/s)}$	0.0	131.2	38.4	169.7
Storage (m^3)	0.0	0.0	0.0	0.0
Vol. Avail. (m^3)	-	-	-	0.0
Orifice	Uncontrolled	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	-	-	-	-
Unctrled Q (L/s)	0.0	131.2	38.4	-
Orifice type	-	-	-	-

STORMWATER MANAGEMENT
QUANTITY CONTROL SUMMARY

10-Year Summary Matrix

Drainage Area	EXT1	210	220	Total
Bldg ID				
C_{10}	0.00	0.75	0.90	-
A (Ha)	0.000	0.78	0.191	0.97
$Q_{Release\ (L/s)}$	6.3	168.0	47.3	215.3
Storage (m^3)	0.0	0.0	0.0	0.0
Vol. Avail. (m^3)	-	72.2	-	72.2
Orifice	Uncontrolled	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	-	-	-	-
Unctrled Q (L/s)	6.3	168.0	47.3	-
Orifice type	-	-	-	-

100-Year Summary

Drainage Area	ROOF	210	220	Total
Bldg ID				
C_{100}	0.00	0.75	0.90	-
A (Ha)	0.000	0.78	0.191	0.97
$Q_{Release\ (L/s)}$	0.0	229.3	67.2	296.5
Storage (m^3)	0.0	0.0	0.0	0.0
Vol. Avail. (m^3)	-	67.8	-	67.8
Orifice	Uncontrolled	Uncontrolled	Uncontrolled	-
$Q_{Orifice\ (L/s)}$	-	-	-	-
Unctrled Q (L/s)	0.0	229.3	67.2	-
Orifice type	-	-	-	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 210	
Area (Ha)	0.78
C_2	0.75
AC	0.59
T_c (min)	15.0
T incr. (min)	5
Q_1 (l/s)	97.6
Req. vol. (m^3)	0.0

Mississauaga	2-year
a=	610
b=	4.6
c=	0.780

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
15	59.9	97.6	87.9	0.0	87.9	-
20	50.2	81.8	98.1	0.0	117.1	-
25	43.4	70.8	106.2	0.0	146.4	-
30	38.4	62.7	112.8	0.0	175.7	-
35	34.6	56.4	118.4	0.0	205.0	-
40	31.5	51.4	123.4	0.0	234.3	-
45	29.0	47.3	127.7	0.0	263.6	-
50	26.9	43.9	131.7	0.0	292.8	-
55	25.2	41.0	135.3	0.0	322.1	-
60	23.6	38.5	138.6	0.0	351.4	-
65	22.3	36.3	141.7	0.0	380.7	-
70	21.1	34.4	144.5	0.0	410.0	-
75	20.1	32.7	147.2	0.0	439.3	-
80	19.1	31.2	149.7	0.0	468.5	-
85	18.3	29.8	152.1	0.0	497.8	-
90	17.5	28.6	154.4	0.0	527.1	-
95	16.9	27.5	156.6	0.0	556.4	-
100	16.2	26.4	158.6	0.0	585.7	-
105	15.6	25.5	160.6	0.0	615.0	-
110	15.1	24.6	162.5	0.0	644.2	-
115	14.6	23.8	164.3	0.0	673.5	-
120	14.2	23.1	166.1	0.0	702.8	-
125	13.7	22.4	167.8	0.0	732.1	-
130	13.3	21.7	169.4	0.0	761.4	-
135	13.0	21.1	171.0	0.0	790.7	-
140	12.6	20.5	172.5	0.0	819.9	-
145	12.3	20.0	174.0	0.0	849.2	-
150	12.0	19.5	175.4	0.0	878.5	-
155	11.7	19.0	176.8	0.0	907.8	-
160	11.4	18.6	178.2	0.0	937.1	-
165	11.1	18.1	179.5	0.0	966.4	-
170	10.9	17.7	180.8	0.0	995.6	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 210	
Area (Ha)	0.78
C_5	0.75
AC	0.59
T_c (min)	15.0
T incr. (min)	5
Q_1 (l/s)	131.2
Req. vol. (m^3)	0.0

Mississauaga	5-year
a=	820
b=	4.6
c=	0.780

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
15	**80.5**	**131.2**	**118.1**	**0.0**	**118.1**	**0.0**
20	67.4	109.9	131.9	0.0	157.5	-
25	58.4	95.1	142.7	0.0	196.8	-
30	51.7	84.2	151.6	0.0	236.2	-
35	46.5	75.8	159.2	0.0	275.6	-
40	42.4	69.1	165.8	0.0	314.9	-
45	39.0	63.6	171.7	0.0	354.3	-
50	36.2	59.0	177.0	0.0	393.7	-
55	33.8	55.1	181.9	0.0	433.0	-
60	31.8	51.8	186.3	0.0	472.4	-
65	30.0	48.8	190.4	0.0	511.7	-
70	28.4	46.3	194.3	0.0	551.1	-
75	27.0	44.0	197.9	0.0	590.5	-
80	25.7	41.9	201.3	0.0	629.8	-
85	24.6	40.1	204.5	0.0	669.2	-
90	23.6	38.4	207.6	0.0	708.6	-
95	22.7	36.9	210.5	0.0	747.9	-
100	21.8	35.5	213.2	0.0	787.3	-
105	21.0	34.3	215.9	0.0	826.7	-
110	20.3	33.1	218.4	0.0	866.0	-
115	19.6	32.0	220.9	0.0	905.4	-
120	19.0	31.0	223.2	0.0	944.8	-
125	18.4	30.1	225.5	0.0	984.1	-
130	17.9	29.2	227.7	0.0	1023.5	-
135	17.4	28.4	229.8	0.0	1062.9	-
140	16.9	27.6	231.9	0.0	1102.2	-
145	16.5	26.9	233.9	0.0	1141.6	-
150	16.1	26.2	235.8	0.0	1181.0	-
155	15.7	25.6	237.7	0.0	1220.3	-
160	15.3	25.0	239.6	0.0	1259.7	-
165	15.0	24.4	241.3	0.0	1299.0	-
170	14.6	23.8	243.1	0.0	1338.4	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 210	
Area (Ha)	0.78
C_{10}	0.75
AC	0.59
T_c (min)	15.0
T incr. (min)	5
Q_1 (l/s)	168.0
Req. vol. (m^3)	0.0

Mississauaga	10-year
a=	1010
b=	4.6
c=	0.780

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
15	**99.2**	**161.6**	**145.5**	**5.7**	**151.2**	**0.0**
20	83.1	135.4	162.4	5.7	201.6	-
25	71.9	117.2	175.8	5.7	251.9	-
30	63.7	103.7	186.7	5.7	302.3	-
35	57.3	93.4	196.1	5.7	352.7	-
40	52.2	85.1	204.3	5.7	403.1	-
45	48.1	78.3	211.5	5.7	453.5	-
50	44.6	72.7	218.1	5.7	503.9	-
55	41.7	67.9	224.0	5.7	554.3	-
60	39.1	63.7	229.5	5.7	604.7	-
65	36.9	60.1	234.6	5.7	655.1	-
70	35.0	57.0	239.3	5.7	705.5	-
75	33.2	54.2	243.8	5.7	755.8	-
80	31.7	51.7	247.9	5.7	806.2	-
85	30.3	49.4	251.9	5.7	856.6	-
90	29.0	47.3	255.7	5.7	907.0	-
95	27.9	45.5	259.2	5.7	957.4	-
100	26.9	43.8	262.6	5.7	1007.8	-
105	25.9	42.2	265.9	5.7	1058.2	-
110	25.0	40.8	269.1	5.7	1108.6	-
115	24.2	39.4	272.1	5.7	1159.0	-
120	23.4	38.2	275.0	5.7	1209.4	-
125	22.7	37.0	277.8	5.7	1259.7	-
130	22.1	36.0	280.5	5.7	1310.1	-
135	21.4	34.9	283.1	5.7	1360.5	-
140	20.9	34.0	285.6	5.7	1410.9	-
145	20.3	33.1	288.1	5.7	1461.3	-
150	19.8	32.3	290.5	5.7	1511.7	-
155	19.3	31.5	292.8	5.7	1562.1	-
160	18.9	30.7	295.1	5.7	1612.5	-
165	18.4	30.0	297.3	5.7	1662.9	-
170	18.0	29.4	299.4	5.7	1713.3	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area	
Area (Ha)	0.78
C_{100}	0.75
AC	0.59
T_c (min)	15.0
T incr. (min)	5
Q_1 (l/s)	229.3
Req. vol. (m^3)	0.0

Mississauaga	100-year
a=	1450
b=	4.9
c=	0.780

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
15	**140.7**	**229.3**	**206.4**	**0.0**	**206.4**	**0.0**
20	118.1	192.5	231.0	0.0	275.2	-
25	102.4	166.9	250.4	0.0	343.9	-
30	90.8	147.9	266.3	0.0	412.7	-
35	81.8	133.3	279.9	0.0	481.5	-
40	74.6	121.5	291.7	0.0	550.3	-
45	68.7	111.9	302.2	0.0	619.1	-
50	63.8	103.9	311.7	0.0	687.9	-
55	59.6	97.1	320.3	0.0	756.7	-
60	56.0	91.2	328.3	0.0	825.5	-
65	52.8	86.1	335.6	0.0	894.3	-
70	50.0	81.5	342.5	0.0	963.0	-
75	47.6	77.5	348.9	0.0	1031.8	-
80	45.4	74.0	355.0	0.0	1100.6	-
85	43.4	70.7	360.7	0.0	1169.4	-
90	41.6	67.8	366.1	0.0	1238.2	-
95	40.0	65.1	371.3	0.0	1307.0	-
100	38.5	62.7	376.2	0.0	1375.8	-
105	37.1	60.5	380.9	0.0	1444.6	-
110	35.8	58.4	385.5	0.0	1513.4	-
115	34.7	56.5	389.8	0.0	1582.1	-
120	33.6	54.7	394.0	0.0	1650.9	-
125	32.6	53.1	398.1	0.0	1719.7	-
130	31.6	51.5	402.0	0.0	1788.5	-
135	30.7	50.1	405.7	0.0	1857.3	-
140	29.9	48.7	409.4	0.0	1926.1	-
145	29.1	47.5	412.9	0.0	1994.9	-
150	28.4	46.3	416.4	0.0	2063.7	-
155	27.7	45.1	419.7	0.0	2132.5	-
160	27.0	44.1	423.0	0.0	2201.2	-
165	26.4	43.0	426.2	0.0	2270.0	-
170	25.8	42.1	429.3	0.0	2338.8	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220	
Area (Ha)	0.191
C_2	0.90
AC	0.172
T_c (min)	15.0
T incr. (min)	5
Q_1 (l/s)	28.6
Req. vol. (m^3)	0.0

Mississauaga	2-year
a=	610
b=	4.6
c=	0.780

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
15	**59.9**	**28.6**	**25.7**	**0.0**	**25.7**	**-**
20	50.2	23.9	28.7	0.0	34.3	-
25	43.4	20.7	31.1	0.0	42.9	-
30	38.4	18.4	33.0	0.0	51.5	-
35	34.6	16.5	34.7	0.0	60.0	-
40	31.5	15.1	36.1	0.0	68.6	-
45	29.0	13.9	37.4	0.0	77.2	-
50	26.9	12.9	38.6	0.0	85.8	-
55	25.2	12.0	39.6	0.0	94.4	-
60	23.6	11.3	40.6	0.0	102.9	-
65	22.3	10.6	41.5	0.0	111.5	-
70	21.1	10.1	42.3	0.0	120.1	-
75	20.1	9.6	43.1	0.0	128.7	-
80	19.1	9.1	43.9	0.0	137.2	-
85	18.3	8.7	44.6	0.0	145.8	-
90	17.5	8.4	45.2	0.0	154.4	-
95	16.9	8.0	45.9	0.0	163.0	-
100	16.2	7.7	46.5	0.0	171.5	-
105	15.6	7.5	47.0	0.0	180.1	-
110	15.1	7.2	47.6	0.0	188.7	-
115	14.6	7.0	48.1	0.0	197.3	-
120	14.2	6.8	48.6	0.0	205.9	-
125	13.7	6.6	49.1	0.0	214.4	-
130	13.3	6.4	49.6	0.0	223.0	-
135	13.0	6.2	50.1	0.0	231.6	-
140	12.6	6.0	50.5	0.0	240.2	-
145	12.3	5.9	51.0	0.0	248.7	-
150	12.0	5.7	51.4	0.0	257.3	-
155	11.7	5.6	51.8	0.0	265.9	-
160	11.4	5.4	52.2	0.0	274.5	-
165	11.1	5.3	52.6	0.0	283.1	-
170	10.9	5.2	53.0	0.0	291.6	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220	
Area (Ha)	0.191
C_5	0.90
AC	0.172
T_c (min)	15.0
T incr. (min)	5
Q_1 (l/s)	38.4
Req. vol. (m^3)	0.0

Mississauaga	5-year
a=	820
b=	4.6
c=	0.780

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
15	**80.5**	**38.4**	**34.6**	**0.0**	**34.6**	**0.0**
20	67.4	32.2	38.6	0.0	46.1	-
25	58.4	27.9	41.8	0.0	57.7	-
30	51.7	24.7	44.4	0.0	69.2	-
35	46.5	22.2	46.6	0.0	80.7	-
40	42.4	20.2	48.6	0.0	92.2	-
45	39.0	18.6	50.3	0.0	103.8	-
50	36.2	17.3	51.9	0.0	115.3	-
55	33.8	16.1	53.3	0.0	126.8	-
60	31.8	15.2	54.6	0.0	138.4	-
65	30.0	14.3	55.8	0.0	149.9	-
70	28.4	13.6	56.9	0.0	161.4	-
75	27.0	12.9	58.0	0.0	173.0	-
80	25.7	12.3	59.0	0.0	184.5	-
85	24.6	11.7	59.9	0.0	196.0	-
90	23.6	11.3	60.8	0.0	207.5	-
95	22.7	10.8	61.6	0.0	219.1	-
100	21.8	10.4	62.5	0.0	230.6	-
105	21.0	10.0	63.2	0.0	242.1	-
110	20.3	9.7	64.0	0.0	253.7	-
115	19.6	9.4	64.7	0.0	265.2	-
120	19.0	9.1	65.4	0.0	276.7	-
125	18.4	8.8	66.1	0.0	288.3	-
130	17.9	8.6	66.7	0.0	299.8	-
135	17.4	8.3	67.3	0.0	311.3	-
140	16.9	8.1	67.9	0.0	322.8	-
145	16.5	7.9	68.5	0.0	334.4	-
150	16.1	7.7	69.1	0.0	345.9	-
155	15.7	7.5	69.6	0.0	357.4	-
160	15.3	7.3	70.2	0.0	369.0	-
165	15.0	7.1	70.7	0.0	380.5	-
170	14.6	7.0	71.2	0.0	392.0	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220	
Area (Ha)	0.191
C_{10}	0.90
AC	0.172
T_c (min)	15.0
T incr. (min)	5
Q_1 (l/s)	47.3
Req. vol. (m^3)	0.0

Mississauaga	10-year
a=	1010
b=	4.6
c=	0.780

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
15	**99.2**	**47.3**	**42.6**	**0.0**	**42.6**	**-**
20	83.1	39.7	47.6	0.0	56.8	-
25	71.9	34.3	51.5	0.0	71.0	-
30	63.7	30.4	54.7	0.0	85.2	-
35	57.3	27.4	57.4	0.0	99.4	-
40	52.2	24.9	59.8	0.0	113.6	-
45	48.1	22.9	62.0	0.0	127.8	-
50	44.6	21.3	63.9	0.0	142.0	-
55	41.7	19.9	65.6	0.0	156.2	-
60	39.1	18.7	67.2	0.0	170.4	-
65	36.9	17.6	68.7	0.0	184.6	-
70	35.0	16.7	70.1	0.0	198.8	-
75	33.2	15.9	71.4	0.0	213.0	-
80	31.7	15.1	72.6	0.0	227.2	-
85	30.3	14.5	73.8	0.0	241.4	-
90	29.0	13.9	74.9	0.0	255.6	-
95	27.9	13.3	75.9	0.0	269.8	-
100	26.9	12.8	76.9	0.0	284.0	-
105	25.9	12.4	77.9	0.0	298.2	-
110	25.0	11.9	78.8	0.0	312.4	-
115	24.2	11.5	79.7	0.0	326.6	-
120	23.4	11.2	80.5	0.0	340.8	-
125	22.7	10.8	81.4	0.0	355.0	-
130	22.1	10.5	82.2	0.0	369.3	-
135	21.4	10.2	82.9	0.0	383.5	-
140	20.9	10.0	83.7	0.0	397.7	-
145	20.3	9.7	84.4	0.0	411.9	-
150	19.8	9.5	85.1	0.0	426.1	-
155	19.3	9.2	85.8	0.0	440.3	-
160	18.9	9.0	86.4	0.0	454.5	-
165	18.4	8.8	87.1	0.0	468.7	-
170	18.0	8.6	87.7	0.0	482.9	-

MODIFIED RATIONAL METHOD
STORAGE CALCULATIONS

Drainage Area 220	
Area (Ha)	0.191
C_{100}	0.90
AC	0.172
T_c (min)	15.0
T incr. (min)	5
Q_1 (l/s)	67.2
Req. vol. (m^3)	0.0

Mississauaga	100-year
a=	1450
b=	4.9
c=	0.780

Notes:

Required Storage Summary

T (min)	I (mm/hr)	Q (l/s)	Total Vol.	Ext. Vol. (m^3)	Rel. Vol. (m^3)	Storage (m^3)
15	**140.7**	**67.2**	**60.4**	**0.0**	**60.4**	**0.0**
20	118.1	56.4	67.7	0.0	80.6	-
25	102.4	48.9	73.3	0.0	100.7	-
30	90.8	43.3	78.0	0.0	120.9	-
35	81.8	39.0	82.0	0.0	141.0	-
40	74.6	35.6	85.4	0.0	161.2	-
45	68.7	32.8	88.5	0.0	181.3	-
50	63.8	30.4	91.3	0.0	201.5	-
55	59.6	28.4	93.8	0.0	221.6	-
60	56.0	26.7	96.2	0.0	241.8	-
65	52.8	25.2	98.3	0.0	261.9	-
70	50.0	23.9	100.3	0.0	282.1	-
75	47.6	22.7	102.2	0.0	302.2	-
80	45.4	21.7	104.0	0.0	322.4	-
85	43.4	20.7	105.7	0.0	342.5	-
90	41.6	19.9	107.2	0.0	362.7	-
95	40.0	19.1	108.8	0.0	382.8	-
100	38.5	18.4	110.2	0.0	403.0	-
105	37.1	17.7	111.6	0.0	423.1	-
110	35.8	17.1	112.9	0.0	443.3	-
115	34.7	16.5	114.2	0.0	463.4	-
120	33.6	16.0	115.4	0.0	483.6	-
125	32.6	15.5	116.6	0.0	503.7	-
130	31.6	15.1	117.7	0.0	523.9	-
135	30.7	14.7	118.8	0.0	544.0	-
140	29.9	14.3	119.9	0.0	564.2	-
145	29.1	13.9	121.0	0.0	584.3	-
150	28.4	13.6	122.0	0.0	604.5	-
155	27.7	13.2	122.9	0.0	624.6	-
160	27.0	12.9	123.9	0.0	644.8	-
165	26.4	12.6	124.8	0.0	664.9	-
170	25.8	12.3	125.7	0.0	685.1	-

VOLUME CONTROL
CALCULATIONS

Runoff Volume Summary

Surface type	A (Ha)	Depth (mm)	Vol. (m^3)	IA depth (mm)	IA Vol. (m^3)	Runoff Vol. (m^3)
Hardscape	0.317	5	15.9	1	3.2	12.7
Roof	0.462	5	23.1	1	4.6	18.5
Green Roof	0.189	5	9.4	5	9.4	0.0
Total	**0.968**		**48.4**		**17.2**	**31.2**

EFFECTIVE TSS REMOVAL
CALCULATIONS

TSS Pre-Treatment Summary

Drainage Area	Surface Type	A (Ha)	Removal Rate	Net for Treatment	Treatment Type	Rate	Effective Removal
210	Hardscape	0.127	0%	100%		0%	0%
	Rooftops	0.462	95%	5%	-	10%	96%
	Green roof	0.189	100%	0%	-	0%	100%
220	Hardscape	0.191	25%	75%	-	0%	25%
Total		0.968					70%

TSS Removal Summary

Drainage Area	Surface Type	A (Ha)	Removal Rate	Net for Treatment	Treatment Type	Rate	Effective Removal
210	Hardscape	0.127	0%	100%	4	81%	81%
	Rooftops	0.462	95%	5%	1	0%	95%
	Green roof	0.189	100%	0%	2	0%	100%
220	Hardscape	0.191	25%	75%	3	0%	25%
Total		0.968					80%

Treatment Type Legend:

1 - Inherently clean runoff
2 - Green roof
3 - Untreated
4 - Up-Flo Filter

100-YEAR CAPTURE
CALCULATIONS

IDF set: Mississauga

Return Period	*a*	T_c	*b*	*c*
100-year	1450.0	15	4.90	0.780

Where: $$I = \frac{a}{(t_c + b)^c}$$

Driveway Typical Flow

Drainage ID	Area (m^2)	Composite C	I (mm/hr)*	Q (L/s)
AD	284	0.90	140.69	10.0

Where: $$Q = \frac{CIA}{360}$$

$$Q_{Orifice} = C_d A (2gh)^{1/2}$$

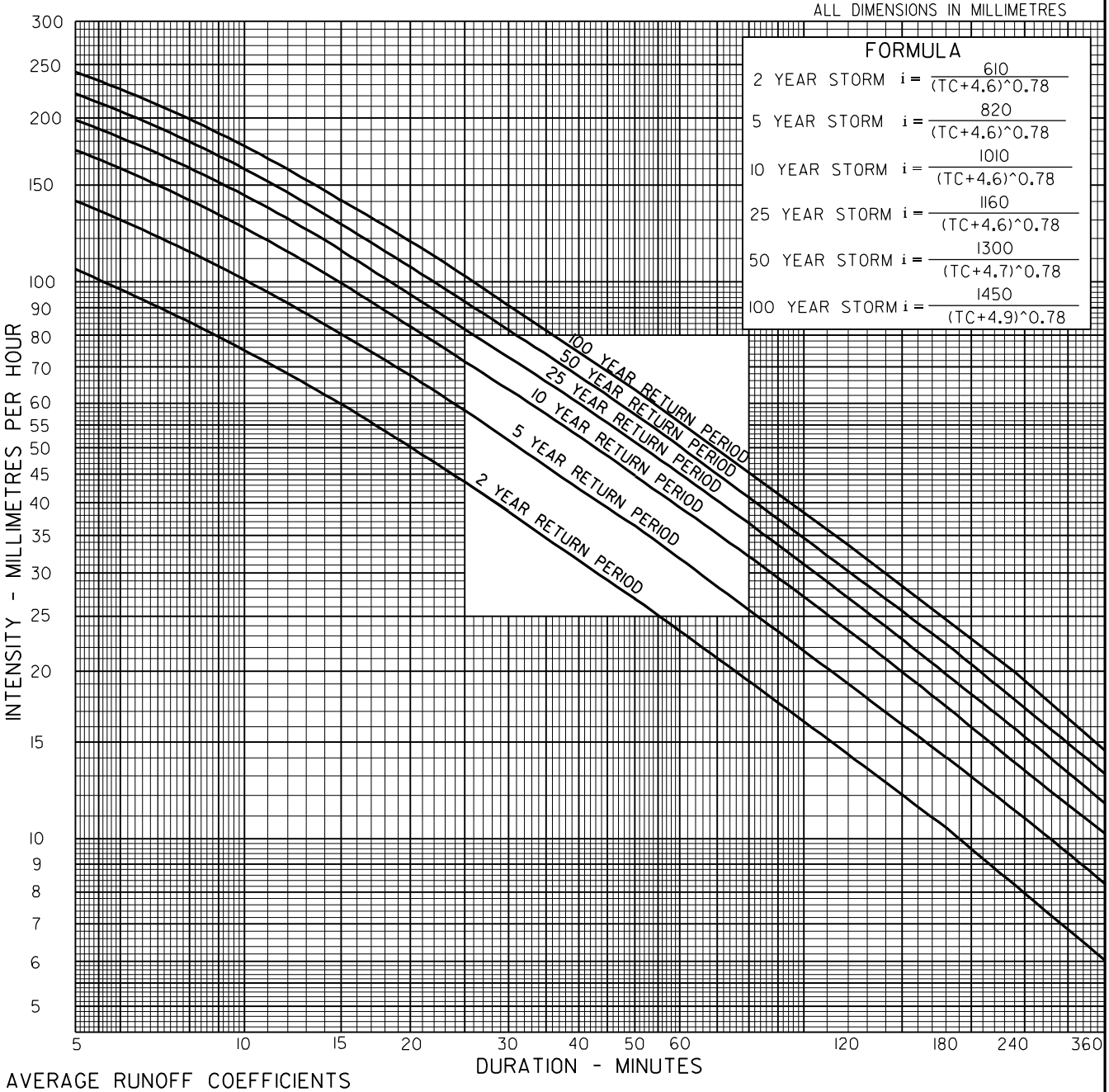
Type	PLATE
Model	Zurn Z662-HF
Grate Open Area (cm^2)	665
1/2 Area* (m^2)	0.033
C_d	0.62

Drainage ID	AD Elev. (m)	Max W.L.	h (m)	Q_{in} (L/s)
AD1 (Zurn Z662)	165.60	165.75	0.15	35.4

* Assumes 50% blockage

METRIC

ALL DIMENSIONS IN MILLIMETRES



FORMULA

2 YEAR STORM $i = \frac{610}{(TC+4.6)^{0.78}}$

5 YEAR STORM $i = \frac{820}{(TC+4.6)^{0.78}}$

10 YEAR STORM $i = \frac{1010}{(TC+4.6)^{0.78}}$

25 YEAR STORM $i = \frac{1160}{(TC+4.6)^{0.78}}$

50 YEAR STORM $i = \frac{1300}{(TC+4.7)^{0.78}}$

100 YEAR STORM $i = \frac{1450}{(TC+4.9)^{0.78}}$

AVERAGE RUNOFF COEFFICIENTS

DESCRIPTION OF AREA	COEFFICIENT
SINGLE FAMILY AND SEMI-DETACHED	0.45
COMPACT OR DENSE HOUSING AREA (INCLUDING APARTMENT DWELLING AREA)	0.60
PARKS AND CEMETERIES	0.25
PLAYGROUNDS	0.30
INDUSTRIAL AND COMMERCIAL	0.75
COMPOSITE RUNOFF COEFFICIENTS (TO BE USED WHERE SURFACE AREAS KNOWN)	
LAWNS AND GARDENS	0.25
ALL OTHER SURFACES	0.90

NOTES

1. ALL CALCULATIONS TO BE DONE ASSUMING FULL DEVELOPMENT AS SHOWN ON CITY OF MISSISSAUGA ZONING MAPS.
2. TO BE USED WITH RATIONAL FORMULA:

$Q = \frac{CIA}{360}$

Q=QUANTITY OF RUNOFF (M^3/S)
C=RUNOFF COEFFICIENT
A=AREA (ha)
I=RAINFALL INTENSITY (mm/hr)

MISSISSAUGA
Transportation and Works

STANDARD INTENSITY-DURATION-FREQUENCY RAINFALL CURVES

EFF. DATE	2002-01-01	SCALE	N.T.S
REV.		STANDARD No.	2111.010

Next Level STORMWATER MANAGEMENT
18 King Street East, Suite 1400, Toronto, ON M5C 1C4 | 416 637 5772 | info@nlsm.ca | nlsm.ca

Project:	**21-51 Queent Street North**
Location:	**21-51 Queent Street North**
Date:	2023-07-18
Contact:	Sasha Aguilera | Sasha@nlsm.ca | 647-466-5595

CALCULATIONS - LANDSCAPE IRRIGATION REQUIREMENTS FOR WATER REUSE

Methodology Estimate the landscape irrigation water needs using the landscape coefficient method with the following equations:

$WR = (ET_O * K_L - R_e) * A / IE$ *Equation 1*

where
- WR = Water Requirement (l/day)
- ET_O = Local Reference Evapotranspiration (mm/month)
- K_L = Landscape Coefficient (dimensionless)
- R_e = Effective Rainfall (mm/month), defined as 25% of average peak monthly rainfall
- A = Area (m2)
- IE = Irrigation Efficiency (dimensionless)

$K_L = K_S * K_D * K_{MC}$ *Equation 2*

where
- K_L = Landscape Coefficient (dimensionless)
- K_S = Species Factor (dimensionless)
- K_D = Density Factor (dimensionless)
- K_{MC} = Microclimate Factor (dimensionless)

Species Factor (K_S) - account for differences in species' water needs, e.g. succulents vs. turfgrass.

Water Needs	K_S
Very low	<0.1
Low	0.1 - 0.3
Moderate	0.4 - 0.6
High	0.7 - 0.9

Density Factor (K_D) - account for differences in vegetation density, e.g. pre-vegetated mat vs plant plugs.

Density	K_D	Examples
Low	0.5 - 0.9	tree with <70% canopy cover
Average	1	Groundcover with > 90% canopy cover
High	1.1 - 1.3	Mixed planting types or tiered plantings

Microclimate Factor (K_{MC}) - account for differences in microclimate, e.g. high wind on rooftop, reflected heat from claddings

Density	K_D	Examples
Low	0.5 - 0.9	shaded or protected from wind
Average	1	similar to ET_O conditions
High	1.1 - 1.4	Next to heat absorbing or reflective surfaces, exposed to windy conditions

Reference Evapotranspiration (ET_O) in July for the Greater Toronto Area is used (Source: EPA WaterSense Water Budget Data Finder)

ET_O = 144 mm

R_e = 16 mm

Irrigation Efficiency (IE) based on average values of different irrigation systems (Source: USGBC)

Water Requirement Calculations

Landscape Type	System Name	Area (m^2)	Species Factor K_S	Density Factor K_D	Microclimate Factor K_{MC}	Landscape Coefficient K_L	Landscape Evapotranspiration ET_L (mm/month)	Irrigation Type	Irrigation Efficiency IE
Landscape	Trees/Shrubs	1095.0	0.5	1	1.1	0.55	79	Drip	0.8
Landscape	Sod	315.0	0.7	1	1.2	0.84	121	Drip	0.8
Intensive/Biodiverse	Alpine Meadow	1483.5	0.6	1	1.2	0.72	103	Drip	0.8

	Trees/Shrubs		Sod		Alpine Meadow		Total
Irrigation Month	WR (m^3)	WR (l)	WR (m^3)	WR (l)	WR (m^3)	WR (l)	WR (m^3)
May	59.0	58,951	29.2	29,249	113.8	113,796	202.0
June	75.2	75,156	36.4	36,369	142.5	142,537	254.1
July	86.0	85,960	41.1	41,115	161.7	161,698	288.8
August	75.2	75,156	36.4	36,369	142.5	142,537	254.1
September	59.0	58,951	29.2	29,249	113.8	113,796	202.0
Total irrigation water use per year	**354.2**	**354,172**	**172.3**	**172,350**	**674.4**	**674,366**	**1,200.9**
Average irrigation water use per month	**70.8**	**70,834**	**34.5**	**34,470**	**134.9**	**134,873**	**240.2**
Average irrigation water use for 72 hours	**6.9**	**6,945**	**3.4**	**3,379**	**13.2**	**13,223**	**23.5**
Average irrigation water use for 48 hours	**4.6**	**4,630**	**2.3**	**2,253**	**8.8**	**8,815**	**15.7**

DISCLAIMER: Next Level Stormwater Management has used its best effort in the preparation of this calculation. Users should verify with the appropriate licensed professionals.

October 21, 2021

ADS UFF Sizing Summary

Project Name:	Mississauga Project		
Consulting Engineer:	Siteplantech Inc		
Location:	Mississauga, ON		
Sizing Completed By:	Haider Nasrullah	**Email:**	haider.nasrullah@ads-pipe.com

Recommended Unit	
Recommended Model:	UFF-3
TSS Removal Percentage:	81.1%
Total Site Volume Treated:	90.2%

Site Details	
Site Area:	0.23 ha
% Impervious:	100%
Rational C:	0.90
Rainfall Station:	Toronto, ONT
Particle Size Distribution:	ETV / NJDEP

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

Site Elevations:	
Rim Elevation:	0.00
Inlet Pipe Elevation:	0.00
Outlet Pipe Elevation:	0.00

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

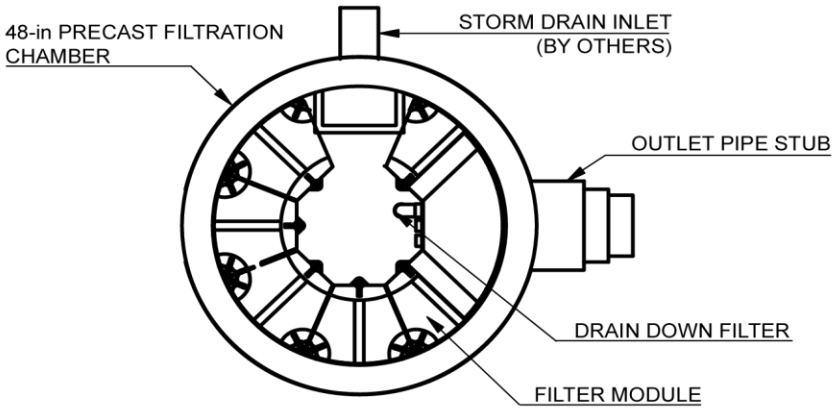
Rainfall Intensity[1]	Fraction of Rainfall[1]	Removal Efficiency[2]	Weighted Net-Annual Removal Efficiency
mm/hr	%	%	%
0.50	0.2%	92.3%	0.2%
1.00	14.8%	91.4%	13.5%
1.50	15.1%	90.4%	13.6%
2.00	13.6%	89.5%	12.2%
2.50	3.9%	88.6%	3.5%
3.00	1.3%	87.7%	1.1%
3.50	8.9%	86.7%	7.7%
4.00	5.3%	85.8%	4.5%
4.50	1.2%	84.9%	1.0%
5.00	5.2%	84.0%	4.3%
6.00	4.2%	82.1%	3.5%
7.00	4.6%	80.3%	3.7%
8.00	3.1%	78.4%	2.4%
9.00	2.3%	76.6%	1.7%
10.00	2.2%	74.7%	1.6%
20.00	9.3%	56.2%	5.2%
30.00	2.7%	37.7%	1.0%
40.00	1.1%	19.2%	0.2%
50.00	0.5%	0.7%	0.0%
100.00	0.6%	0.0%	0.0%
150.00	0.1%	0.0%	0.0%
Net Annual Treatment			**81.1%**
Total Runoff Volume Treated:			**90.2%**

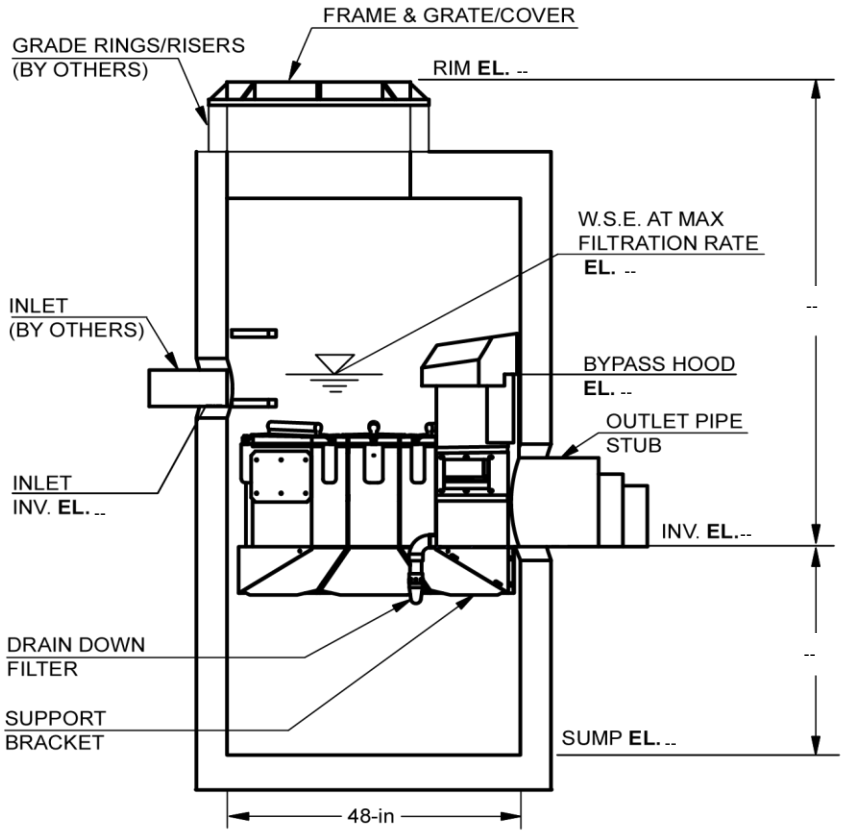
Rainfall Data: 1953:2007, HLY03, Toronto , ON, 6158350 & 6158355

Notes:

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

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





Treatment System Specifications	
Filtration Chamber Diameter (DIA)	--
No. Filter Modules	--
Max.Filtration Rate Per Filter Module	--
Peak Internal Bypass Flow Rate	--
Operating Head at Max. Filtration Rate	--
Sediment Storage	--
Oil Storage	--
Outlet Pipe Diameter (Max.15-in)	--

Specification Requirements:
CAPACITIES:
1. Minimum performance: 80% removal of Sil-Co-Sil 106 (d50=22 microns) at the max. filtration rate.
2. Maximum number of modules for vault size: 6
3. Peak treatment flow: --

ADDITIONAL DESIGN INFORMATION:
1. Normal operating W.S.E. is 29.5" (2.46') above the outlet invert at the max. filtration rate. For a given flow the head requirement can be reduced by adding additional Filter Modules.
2. Treatment flows that require more than 6 modules will require a larger vault design.
3. Drop required from inlet pipe invert to outlet pipe invert is 9".
4. Filter Media:

Detail Notes:
Outside Diameter: 10.5", 12.5" or 15.3" OD
Concrete Penetration: Pipe Boot (by Hydro)
Hook-up: Fernco-type coupling (by others)

DO NOT USE FOR CONSTRUCTION OR FABRICATION

Notes

1. THIS IS A STANDARD DETAIL AND IS NOT SITE SPECIFIC. ACTUAL INLET PIPE DIAMETER AND ANGLE MAY BE DIFFERENT THAN SHOWN.
2. REFER TO SUBMITTAL OR FABRICATION DRAWINGS FOR FINAL RIM AND INVERT ELEVATIONS.
3. CONTACT HYDRO INTERNATIONAL FOR SITE SPECIFIC DRAWINGS AND INSTALLATION REQUIREMENTS.

REVISION HISTORY			
REV	BY	DATE	DESCRIPTION
A	JL	5/23/13	PARTS LIST

Date	Scale
03/30/12	3/8" = 1'0"

Drawn	Checked	Approved
MJ		

4-FT DIAMETER
UP-FLO® FILTER

Hydro International

Stormwater Solutions
94 Hutchins Drive
Portland, Maine 04102
Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

CAD Ref: SIZING CALC DWG
Project No.
Drawing No. Rev. A

State of New Jersey

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

Division of Water Quality
Bureau of Nonpoint Pollution Control
401 East State Street
P.O. Box 420 Mail Code 401-02B
Trenton, New Jersey 08625-0420
Phone: 609-633-7021 / Fax: 609-777-0432
http://www.state.nj.us/dep/dwq/bnpc_home.htm

CATHERINE R. McCABE
Commissioner

August 15, 2018

David Scott, CPSWQ
Technical Product Manager
Hydro International
94 Hutchins Drive
Portland, ME 04102

Re: MTD Laboratory Certification
Up-Flo® Filter with 450R Filter Ribbon Media by Hydro International
Off-line Installation

TSS Removal Rate 80%

Dear Mr. Scott:

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Hydro International has requested a Laboratory Certification for the Up-Flo® Filter with 450R Filter Ribbon Media.

This project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advanced Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the afore-mentioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated June 2018) for this device is published online at http://www.njcat.org/uploads/newDocs/UPFLO450RVerificationReportFinal.pdf.

The NJDEP certifies the use of the Up-Flo® Filter with 450R Filter Ribbon Media by Hydro International at a TSS removal rate of 80%, when designed, operated and maintained in accordance with the information provided in the Verification Appendix and subject to the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5. The MTFR is calculated based on a verified loading rate of 0.533 gpm/sf of effective filtration treatment area.

2. The Up-Flo® Filter with 450R Filter Ribbon Media shall be installed using the same configuration as the unit verified by NJCAT and sized in accordance with the criteria specified in item 6 below.

3. This device cannot be used in series with another MTD or a media filter (such as a sand filter), to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.

4. Additional design criteria for MTDs can be found in Chapter 9.6 of the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual which can be found on-line at www.njstormwater.org.

5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the Up-Flo® Filter with 450R Filter Ribbon Media, which is attached to this document. However, it is recommended to review the maintenance website at https://www.hydro-int.com/sites/default/files/nj_uff_inspection_and_maintnenance.pdf for any changes to the maintenance requirements.

6. Sizing Requirements:

   The example below demonstrates the sizing procedure for an Up-Flo® Filter with 450R Filter Ribbon Media. After determining the number of filter modules necessary, the corresponding model selection must be appropriate to hold at least that minimum number of filters.

   Example: A 0.25-acre impervious site is to be treated to 80% TSS removal using an Up-Flo® Filter with 450R Filter Ribbon Media. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs or 354.58 gpm.

   The selection of configuration for use in the Up-Flo® Filter with 450R Filter Ribbon Media is based upon both the MTFR and the maximum inflow drainage area. It is necessary to select the configuration using both methods and to rely on the method that results in the larger configuration determined by the two methods.

Inflow Drainage Area Evaluation:

The drainage area to the Up-Flo® Filter with 450R Filter Ribbon Media in this example is 0.25 acres. Based upon the information in Tables 1 and 2 below, the following minimum configuration is required for an Up-Flo® Filter with 450R Filter Ribbon Media to treat the impervious area without exceeding the maximum drainage area:

Drainage area = 0.25 acres
Max Allowable Inflow Area per Filter Module = 0.0245 acres/filter (Table 2 below)
0.25/0.0245 = 10.2 Filter Modules = 11 Filter Modules

Using Table 1 below, Model size UFF-ZV-25-450R with 11 filter modules and maximum allowable inflow drainage area of 0.27 acres may be used.

Maximum Treatment Flow Rate (MTFR) Evaluation:

The site runoff (Q) was determined based on the following:

time of concentration = 10 minutes
i=3.2 in/hr (page 5-8, Fig. 5-3 of the NJ Stormwater BMP Manual)
c=0.99 (runoff coefficient for impervious)
Q=ciA=0.99x3.2x0.25=0.79 cfs=0.79x448.83 gpm/cfs=354.58 gpm

Based on a flow rate of 354.58 gpm, the following minimum configuration is required for an Up-Flo® Filter with 450R Filter Ribbon Media to treat the impervious area without exceeding the MTFR:

Flow rate = 354.58 gpm
Max. Flow Rate per Filter Module = 10 gpm/Filter Module (Table 2 below)
354.58/10 = 35.46 Filter Modules = 36 Filter Modules

Using Table 1 below, Model size UFF-MH-25-450R with 36 filter modules, which would have an MTFR of 360 gpm, may be used.

The MTFR evaluation results will be used since that method results in the higher minimum configuration determined by the two methods.

The sizing table corresponding to the available system models are noted below:

Table 1: Up-Flo® Filter with 450R Filter Ribbon Media Configurations and NJDEP Sizing Table

Configuration	Model Size	Maximum Number of Filter Modules	Max. Filtration Rate (gpm)	Minimum Sedimentation Area (sq.ft.)	Minimum Wet Volume (cu.ft.)	Total Filtration Area (sq.ft.)	Total Mass Capture (lbs)	Maximum Allowable Inflow Area (acres)
Manhole	UFF-MH-450R	6	60	12.48	48.6	112.5	88.0	0.15
Vault	UFF-ZV-25-450R	50	500	104	405	937.5	733	1.22
Vault	UFF-ZV-50-450R	100	1000	208	810	1875	1466	2.44
Vault	UFF-ZV-75-450R	150	1500	312.0	1215	2813	2199	3.67

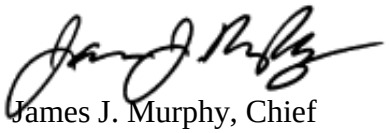
Table 2: Up-Flo® with 450R Filter Ribbon Media Design Specifications

Ribbon Model	Max. Flow per Filter Module (gpm/cfs)	Max. Allowable Inflow Area per Filter Module (acres)
450R	10/0.022	0.0245

Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8. The plan must include all of the items identified in Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance and Retrofit of Stormwater Management Measures.

If you have any questions regarding the above information, please contact Nicholas Grotts of my office at (609) 633-7021.

Sincerely,

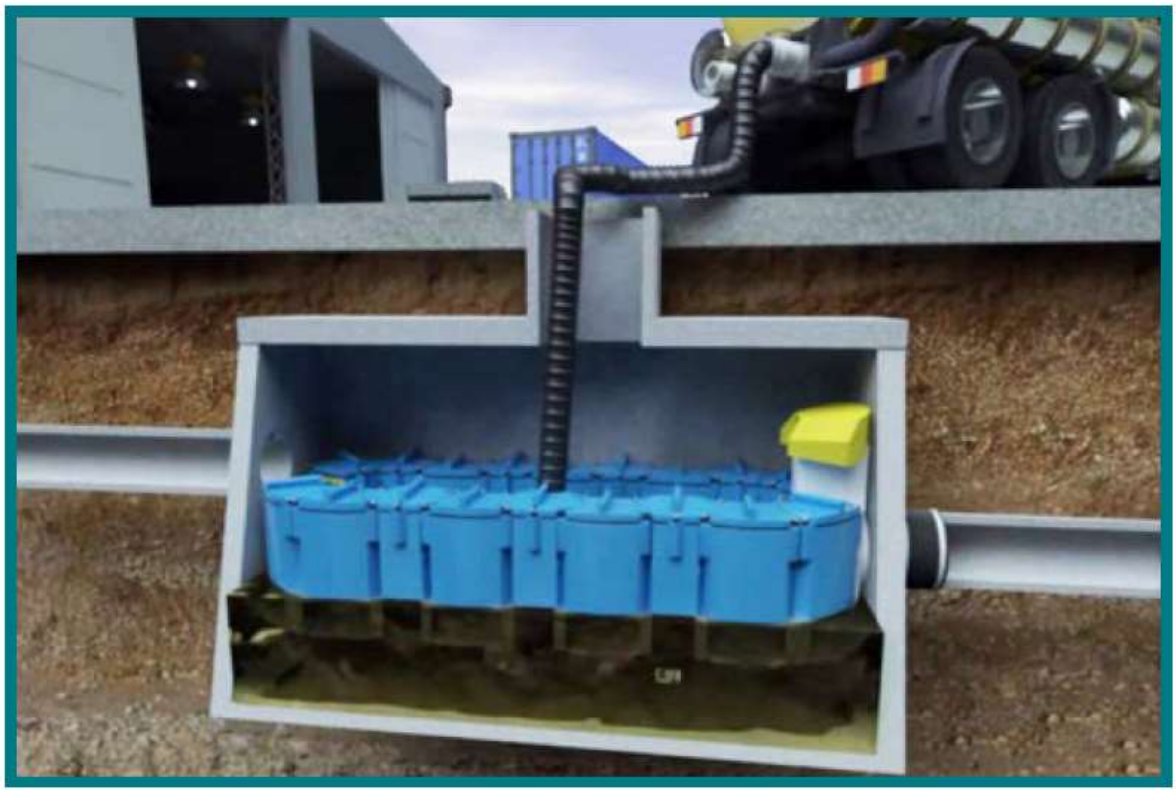


James J. Murphy, Chief
Bureau of Nonpoint Pollution Control

Attachment: Maintenance Plan

cc: Chron File
Richard Magee, NJCAT
Vince Mazzei, NJDEP - DLUR
Ravi Patraju, NJDEP - BES
Gabriel Mahon, NJDEP - BNPC
Brian Salvo NJDEP – BNPC
Nicholas X. Grotts NJDEP – BNPC

Hydro International



Operation and Maintenance Manual

Up-Flo® Filter

Filtration System for Stormwater Treatment

Stormwater Solutions

94 Hutchins Drive
Portland, ME 04102

Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

www.hydro-int.com

Overview & Product Description

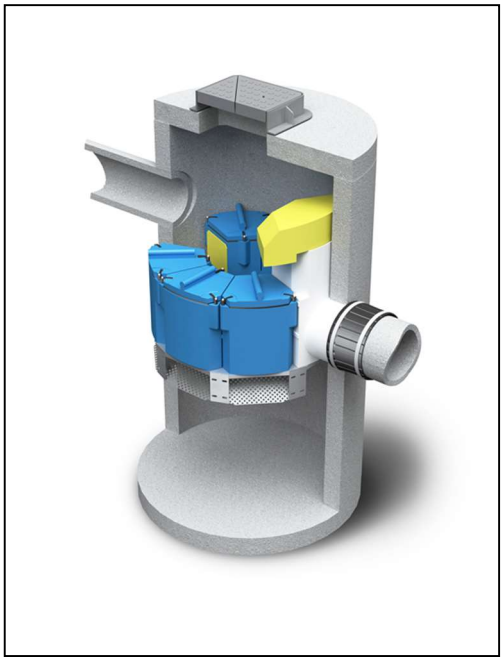
DON'T WANT TO GO IT ALONE? CALL HYDRO AND WE'LL TAKE CARE OF INSPECTION, REPLACEMENT MEDIA AND CLEANOUT.

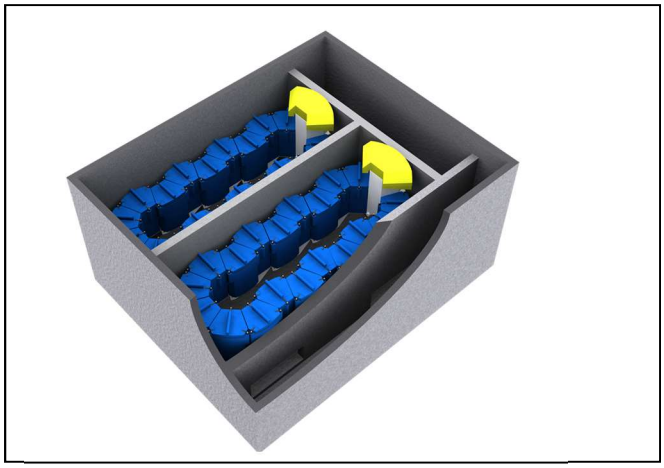
CALL 1 (888) 382-7808 FOR A QUOTE

The Up-Flo® Filter is a modular high-rate stormwater filtration device designed to capture trash, oil, sediment and remove fine pollutants such as dissolved and particulate metals and nutrients from stormwater runoff. In general, a minimum of two inspections are required per year to monitor sediment and gross pollutant accumulations.

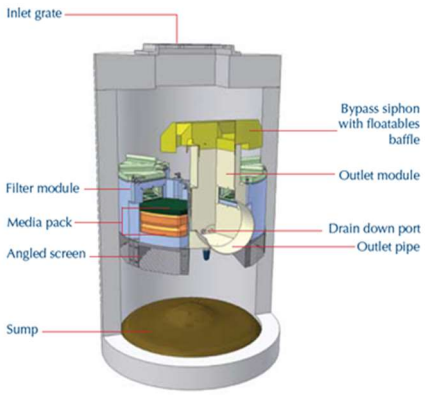
In order to sustain expected flow and removal rates for the Up-Flo® Filter, annual replacement of the Media Pack and removal of accumulated sediment from the sump is required. Depending on site use and pollutant characteristics, annual rainfall, design and functionality of the stormdrain conveyance system, annual replacement and clean out may be more or less often.

The Up-Flo Filter has modular components that connect together to form a ring of 1-6 Filter Modules or linearly to fit into rectangular precast structures with filter bays. Each filter bay can house 1-19 Filter Modules and precast structures can be constructed with multiple filter bays. Each Filter Module will have either a filtration Media Pack or filtration Ribbons.

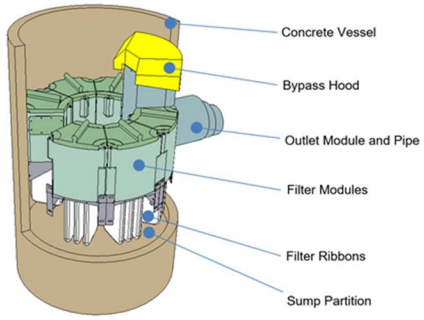




It does not matter what type of media is used, the Filter Modules house the filtration medium and the precast structure is used to suspend the Filter Modules to provide a sedimentation sump. Stainless steel support frames are used to support the Filter Modules and attach them to the precast structure. An Outlet Module (with hood) is used to connect the Filter Modules to a discharge pipe and convey filtered water away from the treatment area. A Draindown Filter and screen are provided when filtration media is used but not with filtration Ribbons.



Up-Flo with Filtration Media



Up-Flo with Filtration Ribbons

Maintenance activities can be categorized by those that can be performed from outside the Up-Flo® vessel and those that are performed inside the vessel. Maintenance performed from outside the vessel includes removal of floatables and oils that have accumulated on the water surface and removal of sediment from the sump. Maintenance performed inside the vessel includes removal and replacement of Media Packs (Filter Bags, flow Distribution Media and Draindown) or filtration Ribbons. A vactor truck is required for removal of oils, water, sediment, and to enter the vessel for performing inside maintenance. OSHA Confined Space Entry procedures need to be followed when entering the Up-Flo® vessel.

Inspection

The frequency of inspection and maintenance can be determined in the field after installation. Based on site characteristics such as contributing area, types of surfaces (e.g., paved and/or landscaped), site activities (e.g., short-term or long-term parking), and site maintenance (e.g., sanding and sweeping), inspection and maintenance should be conducted at intervals of no more than six months during the first year of operation. Typically, maintenance is recommended once per year thereafter.

By removing the manhole cover during a storm and monitoring the water level in the manhole or vault, site personnel can determine whether the filter is in bypass. A properly-sized filter that is in bypass during a storm that is producing runoff at, or below, the filter's design filtration rate needs maintenance. Otherwise, scheduled inspections will determine when one or more of the following maintenance thresholds have been reached:

- Sediment depth at sump storage capacity. Up-Flo Filter with Filtration Media - Minimum 8" should separate the Draindown filter inlet from stored sediment in the sump. Up-Flo® Filter with Ribbon 285R – Minimum 6" should separate the bottom of the filtration Ribbons and sump floor. Up-Flo® Filter with Ribbon 450R – Minimum 1" should separate the bottom of the filtration Ribbons and sump floor. A simple probe, such as the Sludge-Judge®, can be used to determine the depth of the solids in the sump.

- Clogging of the Media Bags. Minimum filtration rate is generally reached when: Up-Flo® Filter with Filtration Media have accumulated approximately 20 lbs of sediment. Up-Flo® Filter with Ribbon 285R have accumulated approximately 8 lbs of sediment. Up-Flo® Filter with Ribbon 450R have accumulated approximately 15 lbs of sediment. Determining the amount of accumulated sediment will be accomplished by removing both of the Media Bags from one of the Media Packs and weighing the bags separately or removing the filter Ribbon assembly for weighing. A spent Media Bag weighs approximately 50 lbs wet. A 285R filter Ribbon assembly from one module weighs approximately 15 lbs wet and a 450R filter Ribbon assembly from one module weighs approximately 30 lbs.

- Draindown filter clogged. With modules supplied with filtration media, the Drain Down Filter is designed to lower the water level in the Up-Flo® vessel to an elevation below the bottom of the Filter Modules between storm events. If inspection one to two days after a storm event indicates otherwise, the Drain Down Filter has likely become clogged with sediment.

- Slime and debris covering the flow distribution media, angled screens or filtration Ribbons. After removal of the Media Bags or filtration Ribbons, the bottom flow distribution media should be removed and inspected to determine if it is coated with slime or debris. Similarly, the angled screen should be inspected for blockages and ragging.

- Oil forming a measureable thickness on the surface of the water. Since water in the Up-Flo® vessel drains down to an elevation below the bottom of the Filter Modules when the system is idle, the amount of accumulated oils must be minimized so that oils are not entrained into the Media Pack when stormwater begins to fill the vessel at the start of a storm event.

- Floatables completely covering the surface of the water. Similar to oils, the amount of accumulated floatables must be minimized to prevent trash and loose debris from becoming trapped on the angled screens when stormwater begins to fill the Up-Flo® vessel at the start of a storm event.

The site-specific solids loading rate in the sump and in the Media Packs will be determined during the first year of Up-Flo® Filter operation. Starting with a clean sump, the solids loading rate in the sump will be calculated by measuring the sediment depth in the sump and dividing the depth by the correlating interval of time since it was cleaned. Similarly, starting with fresh Media Bags or Ribbons, the solids loading rate in the Media Packs and Ribbons will be calculated by weighing the Media Bags or Ribbons and dividing the weights by the respective time interval since they were installed. The wet weight of the heaviest bag or Ribbon assembly from a single module will be used to determine the loading rate.

After completion of the first year of operation, the inspection and maintenance intervals for cleaning the sump and replacing Media Bags or Ribbons will be established to keep the solids loading within the respective limits of the sump and filter medium. Replacement of the Draindown Filter, replacement of flow Distribution Media, and removal of oils and floatables will occur at the same frequency unless the first year of operation indicates otherwise. Keeping to the established maintenance intervals will keep treatment flow rates at, or above, the design flow rate.

Maintenance

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

Maintenance activities include inspection, floatables removal, oil removal, sediment removal, Media Pack and Ribbon assembly replacement, and Draindown Filter replacement. Filtration medium housed in the Filter Modules is easily accessed by loosening three latches used to secure the Filter Module Lid. Maintenance intervals are determined from monitoring the Up-Flo® Filter during its first year of operation. Depending on the site, some maintenance activities may have to be performed on a more frequent basis than others. In the case of floatables removal, a vactor truck is not required. Otherwise, a vactor truck is normally required for oil removal, removal of sediment from the sump, and to dewater the vessel for replacement of the Media Packs and Draindown Filter. All inspection and maintenance activities would be recorded in an Inspection and Maintenance Log.

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

Up-Flo Filter Inspection & Maintenance Logs

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

INSTALLATION DATE: / /

CONFIGURATION (CIRCLE ONE): MANHOLE VAULT SYSTEM

TOTAL NUMBER OF UP-FLO® FILTER MODULES: _____

Hydro International

Up-Flo® Filter Inspection Log

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

Location: _____

Owner Name: _____

Address: _____ Phone Number: _____

Site Status: _____

Date: _____ Time: _____ Site conditions*: _____

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

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

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

Inspector Comments: _____

_____

_____

_____

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

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

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

Maintenance Action Needed	Due Date

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

Inspected by: (signature) _____

Inspected by: (printed) _____

Hydro International

Up-Flo® Filter Maintenance Log

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

Location: _____

Owner Name: _____

Address: _____ Phone Number: _____

Site Status: _____

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

Estimated volume of oil/floatable trash removed: _____

Sediment depth measured in sump prior to removal: _____

Number of Filter Modules fitted with new media packs: _____

Inspector Comments: _____

_____

_____

_____

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

Maintained by: (signature) _____

Maintained by: (printed) _____

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CALL **1 (888) 382-7808** TO SCHEDULE AN INSPECTION

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Portland, ME 04102

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Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

www.hydro-int.com

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Appendix C

Sanitary Data

SANITARY FLOW
CALCULATIONS

Existing Flows

Commercial Flow Determination

Site area		0.97	Ha
Population eq.	50 PPU / Ha	48	POP
Harmon Peaking Factor		4.3	
Average flow		308.2	L/c/d
Existing Peak Flow		0.7	L/s

I/I Flow Determination

Site Area		0.97	ha
Infiltration (22,500 L/day/ha or 0.26 L/s/ha)		0.3	L/s

Total Existing Peak Flow (Pop. Eq. <1,000)	**1.0**	**L/s**

Proposed Development

Commercial Population

Commercial GFA		1,424	m^2
Population eq.	50 PPU / Ha	7	Persons

Residential Population

Unit type	No. Unit	Pop. / Unit	Population	
Studio (<750 ft^2)	175	1.6	280	
1 Bdrm (<750 ft^2)	189	1.6	302	
2 Bdrm (<750 ft^2)	76	1.6	122	
2 Bdrm (>750 ft^2)	2	3.0	6	
3 Bdrm (>750 ft^2)	2	3.0	6	
Total	444		716	Persons

Sanitary Flow Determination

Total population		723	Persons
Eq. Pop/ha		747	Pop/Ha
Harmon Peaking Factor		3.9	
Average flow		308.2	L/c/d
Proposed Residential Peak Flow		10.0	L/s

I/I Flow Determination

Site Area		0.97	ha
Infiltration (22,500 L/day/ha or 0.26 L/s/ha)		0.25	L/s
Long-term dewatering contribution		0.00	L/s

Total Proposed Peak Flow	**10.3**	**L/s**

SANITARY FLOW
CALCULATIONS

Pipe Data						
LENGTH (m)	**PIPE DIA. (mm)**	**SLOPE (%)**	**FULL FLOW CAP. (L/s)**	**FULL FLOW VEL. (m/s)**	**ACTUAL VEL. (m/s)**	**% Full**
10.0	250	2.0%	87.7	1.8	1.2	12%

Appendix D

Water Data

EXISTING DOMESTIC FLOW
CALCULATION WORKSHEET

Other Uses

Uses	GFA	Population Eq.	L/c/d	Avg. Day (L/d)
Commercial	215	48	300	14,400
Other Use Avg. Day (L/d)				14,400

Peak Flows (Per Region Standards)

Criteria	Peaking Factor	Flow
Avg. day (L/s)	1.00	0.17
Max Hr (L/hr)	3.00	1,800
Max Day (L/d)	1.40	20,160

PROPOSED DOMESTIC FLOW
CALCULATION WORKSHEET

Residential Use

Unit Type	No. of Units	PPU	L/c/d	Avg. Day (L/d)
Studio (<750 ft^2)	175	1.6	280	78,400
1 Bdrm (<750 ft^2)	189	1.6	280	84,672
2 Bdrm (<750 ft^2)	76	1.6	280	34,048
2 Bdrm (>750 ft^2)	2	3.0	280	1,680
3 Bdrm (>750 ft^2)	2	3.0	280	1,680
Residential Use Avg. Day (L/d)				200,480

Other Uses

Uses	GFA	Population Eq.	L/c/d	Avg. Day (L/d)
Commercial	1,424	7	300	2,136
Other Use Avg. Day (L/d)				2,136

Peak Flows (Per City Standards)

Criteria	Peaking Factor	Flow
Avg. day (L/s)	1.00	2.3
Max Hr (L/hr)	3.00	25,327
Max Day (L/d)	2.00	405,232

WATERMAIN SIZING
AND HEADLOSS CALCULATION WORKSHEET

Fire Watermain Sizing and Headloss Calculation

P (kPa)	EL. (m)	HGL (m)	Q (m^3/s)	D (mm)	A (m^2)	V (m/s)	Fitting	L (m)	K (unitless)	H_f (kPa)	H_L (m)	EL. (m)	HGL (m)	P (kPa)	P (PSI)
365.4	164.40	201.65	0.165	200	0.031	5.3	-	0.5			0.09	164.40	201.56	**364.5**	52.9
							Gate Valve		0.2	0.28				**364.2**	52.8
364.2	164.40	201.53	0.165	200	0.031	5.3	-	5.5			1.04	164.40	200.49	**354.0**	51.4
							In line T		0.35	0.49				**353.6**	51.3
353.6	164.40	200.44	0.165	200	0.031	5.3		1.2			0.23	164.40	200.21	**351.3**	51.0
							Gate Valve		0.2	0.28				**351.1**	50.9
351.1	164.40	200.19	0.165	200	0.031	5.3		3.0			0.57	164.40	199.62	**345.5**	50.1

Domestic Watermain Sizing

Use	$Q_{avg\ day}$ (L/s)	Q_{min} (L/s)	Q_{max} (L/s)	Q_{min} (m^3/s)	Q_{max} (m^3/s)	Dia. (mm)	A (m^2)	V_{min} (m/s)	V_{max} (m/s)
Res.	2.35	1.97	7.04	0.002	0.007				
I/C/I	-	-	-	-	-				
Total	2.35	1.97	7.04	0.00	0.01	100	0.01	0.25	0.90

Volume of Watermains

Dia (mm)	Area (m^2)	Length (m)	Volume (m^3)	Volume (L)
200	0.03	10.2	0.320	320.4
150	0.02	3.0	0.053	53.0
Total watermain volume			0.373	373.5

0.04	**Hours for water turnover**
2.65	Minutes for water turnover

FIRE FLOW
CALCULATION WORKSHEET

PROJECT INFORMATION			
Address	21-51 Queen St. N.	Notes:	Assumes properly protected
	Toronto, ON		vertical openings
			Effective area "A" calculated as:
NBC Occupancy			A= L7+1/4 L8 + 1/4 L6
Building Footprint			
No. of Storeys	9 plus mechanical penthouse		

BASE FLOW CALCULATION				CREDITS	CHARGES	Q (L/min)
A=	Effective area		8,156 m^2			
C=	Fire-resistive		0.6			
F=	Required fire flow	$F=220C\sqrt{A}$	11,921 L/min.			
"F" Rounded to nearest 1,000			12,000 L/min.			12,000

FLOW 'F' ADJUSTMENTS				CREDITS	CHARGES	Q (L/min)
Occupancy Adjustments (F')		%				
Non-combustible		-25%	-3,000	-3000		9,000
Exposure Adjustments (E)						
Exposure	Sep. (m)	Charge				
N	3	25%				
E	35	5%				
S	20	15%				
W	45	5%				
E = Total Exposure Charge		50%	4,500		4,500	13,500
Sprinkler Adjusments (S)						
Sprinklered as per NFPA 13		Yes	-2,700	-2700		10,800
Standard Water Supply		Yes	-900	-900		9,900
Fully supervised watersupply		No	0			9,900
REQUIRED FLOW (F"=F'+E+S)			**(L/min)**			**9,900**
			(USGPM)			**2,615**

MUNICIPAL SUPPLY
CALCULATION WORKSHEET

Hydrant Flow Test Input

Location	Test No.	P_s (PSI)	P_r (PSI)	Q_r (USGPM)
21-51 Queen St. N.	1	53	51	1,138
	2	53	45	1743

Theoretical Flow Calculation

Location	Test No.	P_f (PSI)	Q_f (USGPM)
21-51 Queen St. N.	1	20	5,171
	2	20	3,747

Where $Q_f = Q_r \left[\frac{P_s - P_f}{P_s - P_r}\right]^{0.54}$

Max Day + Fire Check

Max Day (USGPM)	F'' (USGPM)	Max Day + F'' (USGPM)	Q_{20} (USGPM)	Check
74	2,615	2,690	3,747	**OK**

LHS INC.

P.O. Box 712 Cobourg ON K9A 4R5
905-377-0715 / 1-866-622-4022
Email: info@lhsinc.com

Client	Siteplantech Inc. (Test #6) 336-16 Elgin St. Markham, On	**Site**	21-51 Queen St. Mississauga, On
		Site Contact **Phone**	Pascal Monat 416-270-7515

FIRE FLOW TEST

Fire Flow Date **May 12, 2021 - 12:00 pm**
Site **21-51 Queen St. Mississauga, On**
Static Hydrant **Corner Queen St. & Matlock**
Flow Hydrant **21-51 Queen St.N**

Hydrant Colours

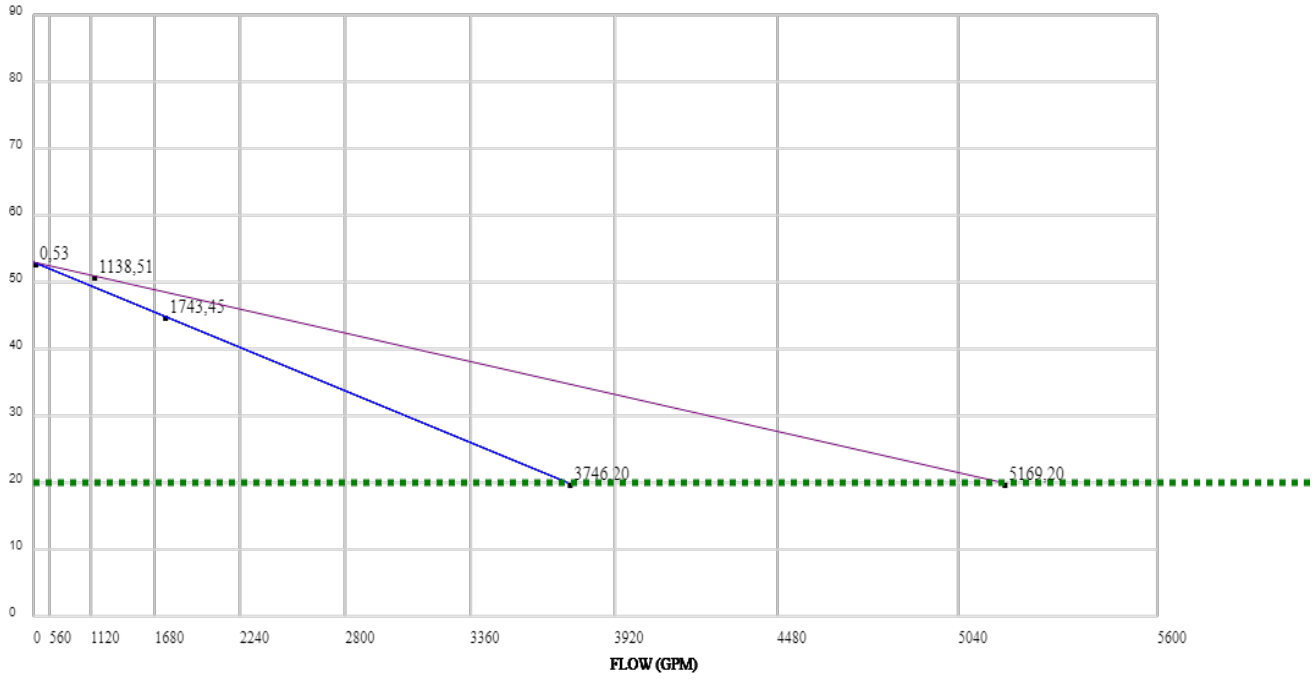
RED - C	0-500
ORANGE - B	500-1000
GREEN - A	1000-1500
BLUE - AA	>1500

Single Port

Static	53 psi
Residual 1	51 psi
Flow	46 psi
Observed	**1138 US GPM** 947 IMP GPM 4306 L / MIN
Projected @ 20psi	**5169 US GPM** 4304 IMP GPM 19567 l/min.

Two Port

Static	53 psi
Residual 2	45 psi
Flow 2 (x2)	27 psi
Observed	**1743 US GPM** 1451IMP GPM 6598 L / MIN
Projected @ 20psi	**3746 US GPM** 3119 IMP GPM 14180 l/min.



Appendix E

Engineering Drawings

GENERAL NOTES

STORM SEWERS:

1. ALL CONCRETE PIPE SMALLER THAN 450MM DIAMETER SHALL BE C-14, CLASS 2, CONCRETE PIPE 450MM DIAMETER AND LARGER SHALL BE C-76, CLASS 65-D, UNLESS OTHERWISE NOTED.
2. ALL POLYVINYL CHLORIDE (PVC.) PIPE SHALL MEET THE C.S.A. REQUIREMENTS AS NOTED WITHIN OPSS. THE PIPE MATERIAL SHALL HAVE A CELL CLASSIFICATION OF 12454-B OR 12454-C OR ASTM. STD. D-3034 & OPSS. 1841.
3. ALL CONCRETE SEWER PIPES SHALL HAVE RUBBER GASKET JOINTS.
4. CLASS "B" BEDDING IS TO BE USED AS PER CITY STANDARD 2112.08 SEWER BEDDING AND COVER MATERIAL SHALL CONFIRM WITH CITY STANDARDS 2112.09 AND 2112.10. IF WATER IS PRESENT IN THE TRENCH EXCAVATION THEN 19MM. CLEAR STONE IS TO BE USED FOR BEDDING IN ACCORDANCE WITH CITY STANDARD 2112.11 AND 2112.14 RESPECTIVELY. WHERE WET OR SOFT TRENCH SUBGRADE CONDITIONS ARE ENCOUNTERED, FURTHER ON-SITE GEOTECHNICAL ASSESSMENT MAY BE REQUIRED TO DETERMINE THE APPROPRIATE BEDDING IN ORDER TO STABILIZE THE SUBGRADE FOR SEWER CONSTRUCTION.
5. MANHOLE STEPS SHALL BE AS PER OPSD. 405.010.
6. MANHOLE COVERS AND FRAMES SHALL BE AS PER OPSD. 401.010.
7. SINGLE CATCHBASINS WITHIN ROAD ALLOWANCES SHALL BE AS PER OPSD. 705.010, WITH A 250MM DIAMETER LEAD, DOUBLE CATCHBASINS WITHIN ROAD ALLOWANCES SHALL BE AS PER OPSD. 705.020, WITH A 300MM DIAMETER LEAD.
8. ALL CATCHBASIN FRAME AND GRATES SHALL BE AS PER OPSD. 400.020.
9. THE TRENCH WIDTH AT THE TOP OF PIPE SHALL BE AS PER STD. 2112.08. IF THE MAXIMUM TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING EXTRA BEDDING AND/OR STRONGER PIPE AS REQUIRED.
10. ALL STORM SEWER AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT CITY OF MISSISSAUGA STANDARDS AND SPECIFICATIONS.
11. STORM SERVICE CONNECTION IS TO BE ON THE LEFT OF SANITARY SERVICE FACING THE HOUSE. (EXCEPT AS NOTED)
12. SERVICE CONNECTION AT THE STREET LINE IS TO BE HIGHER THAN THE SANITARY CONNECTION AT THAT POINT.
13. ALL CATCHBASINS ARE TO BE PLACED ON GRANULAR BEDDING (MINIMUM DEPTH 150MM).
14. TRENCH BACKFILLING ON PROPOSED ROADS SHALL WITH CITY'S ENGINEERING POLICY STATEMENT AS PROVIDED IN THE "DEVELOPMENT REQUIREMENTS MANUAL" (SECTION 4.02.06-TRENCH BACKFILLING ON ROADS). TRENCH BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95% S.P.D. WITHIN 2.0% OF THE OPTIMUM CONTENT.
15. SAND BACKFILLING IS REQUIRED ADJACENT TO MANHOLES, CATCHBASINS AND SERVICE CROSSING.

GENERAL:

1. ANY RELOCATION OF EXISTING UTILITIES REQUIRED BY THE DEVELOPMENT OF THE SUBJECT LANDS, IS TO BE UNDERTAKEN AT DEVELOPER'S EXPENSE.
2. ALL UNDERGROUND SERVICE CONNECTIONS WITHIN PAVED PORTION OF ANY EXISTING ROAD TO BE BACKFILLED WITH UNSHRINKABLE FILL TO THE LATEST CITY OF MISSISSAUGA OR REGION OF PEEL SPECIFICATIONS.
3. SNOW FENCE AND SEDIMENT TRAP CONTROL FENCE ARE TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE CONSTRUCTION AND SHALL REMAIN IN PLACE AND IN GOOD REPAIR THROUGHOUT THE CONSTRUCTION AND GRADING PHASES.
4. PRIOR TO THE START OF CONSTRUCTION, SNOW FENCING IS TO BE ERECTED ALONG THE PROPERTY BOUNDARIES ADJACENT TO ALL EXISTING RESIDENTIAL LOTS, PARKS AND ALL EXISTING SCHOOL BLOCKS.
5. THE LOCATION AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION TO THE REPAIR OF EXISTING UTILITIES DISTURBED DURING CONSTRUCTION.
6. ALL AREAS BEYOND THE PLAN OF SUBDIVISION WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
7. ALL CONSTRUCTION SIGNING MUST CONFORM TO THE M.T.O. MANUAL OF "UNIFORM TRAFFIC CONTROL DEVICES".
8. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.

BOREHOLES:

1. BOREHOLE LOGS SHOWN ARE FOR GENERAL INFORMATION ONLY AND LOCATIONS ARE APPROXIMATE. CONTRACTOR IS TO VERIFY AND SATISFY HIMSELF AS TO THE NATURE OF THE SUBSURFACE CONDITIONS.

ROADWORKS:

1. ALL FILL WITHIN ROAD ALLOWANCE TO BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY. THE SUITABILITY AND COMPACTION OF ALL FILL MATERIALS ARE TO BE CONFIRMED BY A RECOGNIZED SOIL CONSULTANT TO THE CITY ENGINEER PRIOR TO THE INSTALLATION OF ANY ROAD BASE MATERIALS.
2. ALL CONNECTIONS WITHIN PAVED PORTION OF ANY EXISTING ROAD TO BE BACKFILLED WITH GRANULAR MATERIAL AND/OR UNSHRINKABLE FILL AS PER THE LATEST OF CITY OF MISSISSAUGA STANDARDS AND SPECIFICATIONS.
3.
   A. TRENCH BACKFILLING ON PROPOSED ROADS SHALL COMPLY WITH THE CITY'S ENGINEERING POLICY STATEMENTS PROVIDED IN THE "DEVELOPMENT REQUIREMENTS MANUAL" (SECTION 4.02.06 - TRENCH BACKFILLING ON ROADS).
   B. ALL BACKFILL FOR SEWERS, WATERMAINS AND UTILITIES WITHIN ROAD ALLOWANCE SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT.
   C. THE TOP 1000MM OF THE SUB-GRADE IS TO BE COMPACTED TO A MINIMUM 98% STANDARD PROCTOR DENSITY WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT.
4. ALL ROADWORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF MISSISSAUGA STANDARDS AND SPECIFICATIONS.
5. ALL INTERSECTING ROADS SHALL BE PROVIDED WITH AN ADDITIONAL 150MM THICKNESS OF OPSS. GRANULAR "B". THIS EXTRA DEPTH SHALL EXTEND FOR A MINIMUM OF 15M BEYOND PROPERTY LINE OF INTERSECTING STREET , AS NOTED.
6. SUB-DRAINS ARE TO BE INSTALLED AS PER CITY STANDARD 2220.04 ALONG THE ENTIRE LENGTH OF THE ROAD.
7. PAVEMENT THICKNESS AND COMPOSITION TO BE AS SHOWN ON INDIVIDUAL PLAN AND PROFILE DRAWINGS.

ROADWORKS (CONT'D):

8. CONCRETE CURB & GUTTER OPSD. 600.070.
9. SAND BACKFILL IS TO BE USED ADJACENT TO MANHOLES, CATCHBASINS AND SERVICE CROSSINGS.

EXISTING WATERCOURSE/GREENBELT:

1. PRIOR TO COMMENCEMENT OF ANY GRADING OR CONSTRUCTION, TEMPORARY SNOW FENCE AND SILT FENCE TO BE ERECTED ALONG ALL LOTS AND BLOCKS ADJACENT TO THE EXISTING WATERCOURSE/GREENBELT, PARKS AND MAINTAINED UNTIL COMPLETION OF CONSTRUCTION.
2. NO STOCKPILES OF FILL MATERIAL ARE TO BE PLACED WITHIN 10.0M OF THE EXISTING WATERCOURSE BLOCK.

TOPSOIL STOCKPILE PROTECTION:

1. ALL TOPSOIL STOCKPILE CONTAINING MORE THAN 100M³ OF MATERIAL SHALL BE LOCATED A MINIMUM OF 10M AWAY FROM A ROADWAY, DRAINAGE CHANNEL OR AN OCCUPIED RESIDENTIAL LOT. THE MAXIMUM SIDE SLOPES FOR TOPSOIL STOCKPILES SHALL BE 1.5 HORIZONTAL TO 1.0 VERTICAL.
2. RUNOFF FROM ALL TOPSOIL STOCKPILES SHALL BE CONTROLLED BY A SEDIMENT CONTROL FENCE OR OTHER APPROVED DEVICES. IF REMAINING FOR MORE THAN 30 DAYS, TOPSOIL STOCKPILES SHALL BE STABILIZED BY VEGETATIVE COVER, OR OTHER MEANS.

REGION OF PEEL

GENERAL NOTES:

1. THE APPLICANT, APPLICANT'S REPRESENTATIVE, CONSULTANT, CONTRACTOR AND SUB CONTRACTORS ARE RESPONSIBLE TO ENSURE THAT THEIR DESIGN MATERIALS AND CONSTRUCTION PRACTICES CONFORM TO THE LATEST REGION OF PEEL'S WEBSITE (WWW.PEELREGION.CA/PW/STANDARDS). IN THE ABSENCE OF REGION SPECIFICATIONS, THE ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS) SHALL APPLY.
2. ALL WORKS SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
3. THE CONTRACTOR AT THEIR EXPENSE SHALL VERIFY THE LOCATION, DIMENSION AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES IN THE FIELD.
4. PRIOR TO EXCAVATION OR BORING CONTRACTOR AT THEIR EXPENSE SHALL EXPOSE AND VERIFY THE LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND SERVICES TO BE CROSSED AND MUST NOTIFY THE DESIGN ENGINEER AND THE AGENCY FIELD INSPECTOR AND/OR PROJECT MANAGER IMMEDIATELY, IN WRITING, OF ANY CONFLICTS OR DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING THE EXISTING UTILITIES FAR ENOUGH IN ADVANCE OF CONSTRUCTION TO MAKE NECESSARY DESIGN MODIFICATIONS FOR REVIEW AND APPROVAL, IF REQUIRED, WITHOUT DELAYING THE WORK.
5. THE CONTRACTOR, AT THEIR EXPENSE AND TO THE SATISFACTION OF THE REGION OF PEEL, SHALL BE RESPONSIBLE FOR THE RESTORATION AND THE REPAIR OF THE EXISTING UTILITIES AND ALL AREAS BEYOND THE PLAN OF SUBDIVISION DISTURBED DURING CONSTRUCTION.
6. THE SUPPORT OF ALL UTILITIES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
7. ALL BACKFILL FOR SEWERS, WATERMAINS AND UTILITIES ON THE ROAD ALLOWANCE MUST BE MECHANICALLY COMPACTED.
8. ALL BOREHOLES SHOWN ON DRAWING ARE FOR INFORMATION ONLY. REFER TO GEOTECHNICAL REPORT.
9. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.

SANITARY SEWER NOTES:

1. ALL SANITARY SEWER BEDDING AS PER STD. 2-3-1.
2. MAINLINE SANITARY SEWER PIPE SIZE SHALL BE MINIMUM 250MM DIAMETER INSTALLED AT THE APPROVED DESIGN GRADE. PIPE CLASS AND APPURTENANCES AS PER REGION'S SPECIFICATIONS.
3. ALL SEWERS CONSTRUCTED WITH GRADES 0.5% OR LESS SHALL BE APPROVED BY THE ENGINEER AND THE AGENCY PROJECT MANAGER OR DESIGNATED AND BE INSTALLED WITH LASER AND CHECKED PRIOR TO BACKFILL.
4. MINIMUM SANITARY SEWER PIPE SLOPE FOR LAST LEG SHALL BE 1% AND DESIRABLE SLOPE 2%.
5. ALL MANHOLES SHALL BE AS PER REGION STD. DWG. 2-5-2, 2-5-3, 2-5-4, 2-5-5 AND 2-5-6 AND BENCHING AS PER STD. DWG. 2-5-20.
6. FRAME AND COVERS SHALL BE AS PER REGION STD. DWG. 2-5-13, 2-6-1 TO 2-6-8.
7. MANHOLE STEPS OR LADDERS TO BE AS PER REGION STD. DWG. 2-6-9 TO 2-6-11.
8. MANHOLES DEEPER THAN 5.0M MUST BE EQUIPPED WITH SAFETY PLATFORMS, AS PER STD. 2-6-13 AND 2-6-14.
9. MANHOLE DROP STRUCTURES SHALL BE AS PER REGION STD. DWG. 2-5-26 AND 2-5-27.
10. SANITARY SERVICE LATERALS SHALL BE MINIMUM 125MM DIAMETER AND,
    A. SANITARY SERVICE SHALL BE LOWER THAN AND TO THE RIGHT OF THE STORM SERVICE AT THE PROPERTY LINE WHEN FACING THE LOT FROM THE STREET.
    B. CONNECTIONS TO SEWERS SHALL BE MADE WITH MANUFACTURED TEES OR WYES WHERE APPLICABLE AND SHALL BE COLOUR CODED AS NON-WHITE, AS PER STD. DWG. 2-4-1, TO 2-4-7.

WATERMAIN NOTES:

1. THE REGION OF PEEL SHALL CONDUCT THE OPERATION OF EXISTING VALVES AND HYDRANTS IF REQUIRED.
2. CONTRACTOR MUST USE BATTER BOARD OR ROD-AND-LEVEL METHOD FOR WATERMAIN INSTALLATION.
3. ALL WATERMAINS SHALL HAVE 1.70M MINIMUM COVER FOR URBAN ROAD DESIGN AND 2.1M MINIMUM COVER FOR RURAL ROAD DESIGN.
4. ALL WATERMAINS SHALL MAINTAIN A MINIMUM 1.5M CLEARANCE FROM ALL MANHOLES AND CATCH BASINS, WHERE APPLICABLE.
5. FOR WATERMAIN CROSSING OVER OR UNDER SEWERS A MINIMUM 0.5M VERTICAL CLEARANCE SHALL BE PROVIDED.
6. FOR WATERMAIN CROSSING A SANITARY SEWER, WATERMAIN JOINTS ARE TO BE OFFSET A MINIMUM OF 2.5M HORIZONTALLY FROM THE CENTERLINE OF THE SANITARY SEWER.
7. WATERMAIN BEDDING SHOULD BE AS PER TRENCH DETAIL ON THE PLAN AND PROFILE DRAWING AND COMPACTED TO 100% SPD.

WATERMAIN NOTES (CONT'D):

8. WATERMAINS TO BE INSTALLED TO GRADES AS SHOWN ON APPROVED PLANS, COPY OF GRADE SHEET MUST BE SUPPLIED TO THE REGION OF PEEL INSPECTOR PRIOR TO COMMENCEMENT OF WORK.
9. ANY JOINT DEFLECTION SHALL BE 50% OF MANUFACTURER'S SPECIFICATIONS. PIPE BARREL DEFLECTION IS PROHIBITED.
10. FIRE HYDRANTS TO BE INSTALLED AS PER REGION STD. DWG. 1-6-1 AND 1-6-2 WITH FLANGE SET BETWEEN 50MM AND 150MM ABOVE FINISHED GRADE.
11. ALL HYDRANTS SHALL HAVE 1.2M MINIMUM HORIZONTAL CLEARANCE FROM ALL OTHER UTILITIES AND STRUCTURES MEASURED FROM THE NEAREST POINT OF THE STRUCTURE.
12. MECHANICAL RESTRAINERS ARE REQUIRED FOR ALL FITTINGS, VALVES, DEAD ENDS, CAPS AND HYDRANTS ON ALL PVC WATERMAINS; MINIMUM RESTRAINED PIPE LENGTH AS PER REGION'S STANDARD DRAWING 1-5-9.
13. STAINLESS STEEL NUTS AND BOLTS ARE TO BE USED ON ALL METALLIC FITTINGS AND JOINT RESTRAINTS.
14. ALL METALLIC VALVES, FITTINGS, THROUGH WALL METAL PIPING AND JOINT RESTRAINTS TO BE C/W. DENSO PASTE, DENSO MASTIC & DENSO TAPE OR APPROVED EQUAL APPLIED TO MANUFACTURER'S RECOMMENDATIONS.
15. WHERE PLASTIC PIPE IS USED, INSTALL A 12 GAUGE TWU STRANDED COPPER, LIGHT COLOURED, PLASTIC COATED TRACER WIRE ATTACHED TO THE PIPE WITH APPROVED WIRE SPLICE. THE WIRE SHOULD BE BROUGHT TO THE SURFACE AT EACH SERVICE & VALVE BOX AND HYDRANT VALVES.
16. 50MM DIAMETER WATERMAIN SHALL BE TYPE K SOFT COPPER. WATERMAIN INSTALLATION IN CUL-DE-SACS TO BE INSTALLED AS PER REGION STD. DWG. 1-7-4.
17. A PHYSICAL SEPARATION MUST BE MAINTAINED AT ALL CONNECTION POINTS OF NEW WATERMAIN TO THE EXISTING SYSTEM UNTIL BACTERIOLOGICAL TESTS HAVE PASSED, AS PER STD. DWG. 1-7-7 AND 1-7-8.
18. PROVISION FOR FLUSHING OF NEW WATERMAINS PRIOR TO TESTING MUST BE PROVIDED WITH AT LEAST A 50MM OUTLET ON WATERMAINS SMALLER THAN 300MM IN DIAMETER,AND MINIMUM 100MM OUTLET ON WATERMAINS 300MM AND LARGER. COPPER WATERMAINS ARE TO HAVE FLUSHING POINTS AT THE END, THE SAME SIZE AS THE WATERMAIN, AS PER STD. DWG. 1-7-7 AND 1-7-8.
19. ALL SERVICE CONNECTIONS TO PVC PIPES ARE TO BE MADE USING APPROVED WIDE BAND SERVICE SADDLE. DIRECT TAPPING IS NOT ALLOWED.
20. ALL WATER SERVICES SHALL BE MINIMUM 25MM DIA.NOMINAL COPPER PIPE SIZE OR 32MM DIA. POLYETHYLENE PIPE. IN GENERAL, NON METALLIC SERVICES SHALL BE ONE SIZE LARGER THAN THE NOMINAL COPPER PIPE SIZE AS PER LATEST APPROVED REGIONAL PRODUCT LIST AND SIZES C/W. TRACER WIRE.
21. THE MINIMUM LATERAL DISTANCE BETWEEN WATER SERVICES AND OTHER UTILITIES SHALL BE 1.2M.
22. ALL RESIDENTIAL WATER SERVICE BOXES/CURB STOPS SHALL BE INSTALLED WITHIN SODDED AREAS WITH MINIMUM DISTANCE OF 1.0 METRES FROM THE EDGE OF THE DRIVEWAY, BE FLUSH WITH GRADE AND ACCESSIBLE AT ALL TIME.
23. VALVE AND BOXES SHALL BE CAST IRON SLIDING TYPE, COMPLETED WITH VALVE GUIDE PLATES INSTALLED AS PER REGION 1-3-8.AND BOXES SHALL BE INSTALLED AS PER REGION STD. 1-3-8. MAINLINE VALVES TO BE RESTRAINED AS PER REGION 1-3-3A. VALVES SHALL OPEN TO THE LEFT (COUNTER-CLOCKWISE).
24. ALL WATER SERVICES BOXES SHOULD BE "LEAD FREE" AS PER REGION'S MATERIAL SPECIFICATIONS.
25. THE REGION WILL COMPLETE THE NECESSARY WATER TESTING (PRESSURE TEST, FLUSHING, CHLORINATION AND SAMPLING). CONTRACTOR MAY PROCEED WITH HIS OWN PRESSURE TEST AND FLUSHING PRIOR TO REGION'S TESTING.
26. ALL METALLIC WATER PIPES INCLUDING 'K' COPPER WATER SERVICES, INSTALLED OR REPAIRED, SHALL HAVE ZINC ANODE AS PER REGION OF PEEL STANDARD 1-7-1, OPSS422 AND OPSD 1109.011 AND TO CONFORM TO ASTM B-418 TYPE.
27. WATERMAIN PIPES SHALL BE BROUGHT ON SITE WITH MANUFACTURER'S PLUGS AND STORED SO NO DEBRIS ENTER THE PIPE. THE CONTRACTOR IS NOT ALLOWED TO INSTALL ANY WATERMAIN UNTIL HE HAS A NIGHT PLUG ON SITE. THE NIGHT PLUG IS TO BE USED EVERY TIME WHEN WORK IS STOPPED.

WATERMAIN IN FILL AREA NOTES:

1. NO WATERMAIN TO BE LAID ON FILL UNTIL THE FIELD DENSITY TEST REPORTS HAVE BEEN SUBMITTED TO AND APPROVED BY THE REGION OF PEEL OR THE CONSULTING ENGINEER.
2. PIPE JOINTS DEFLECTIONS ARE NOT ALLOWED IN FILL AREA.
3. JOINTS SHALL BE MECHANICALLY RESTRAINED THE WHOLE LENGTH.
4. ALL HYDRANTS, TEE BRANCH VALVES AND HORIZONTAL BENDS ARE TO BE MECHANICALLY RESTRAINED WITH TIE RODS.
5. IN EXISTING MUNICIPAL RIGHT-OF-WAY OR EASEMENT, FILL TO BE PLACED TO 600MM MINIMUM ABOVE THE OBVERT OF THE WATERMAIN AND TO 300MM LIFTS; AND THEREAFTER, FOR EVERY 300MM LIFT ALONG THE CENTERLINE, AND 1.5M TO EITHER SIDE, OF WATERMAIN AT MAXIMUM INTERVAL OF 30.0M. TEST RESULTS MUST BE SUBMITTED TO AND APPROVED BY THE CONSULTANT OR AGENCY.

REGIONAL ROADS NOTES:

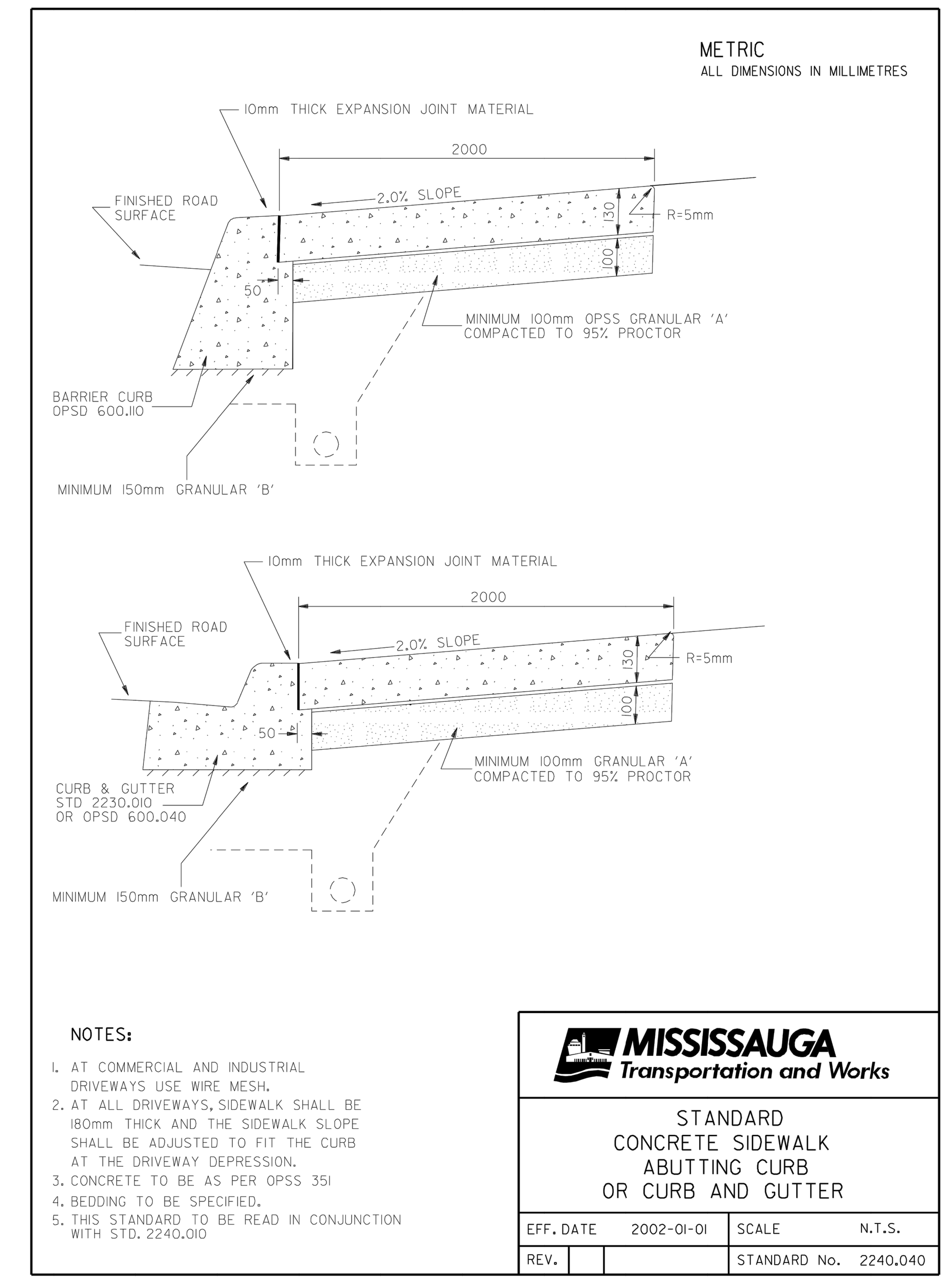
1. CONSTRUCTION AND DETOUR SIGNAGE MUST CONFORM TO "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" AND LATEST REVISION OF THE ONTARIO MINISTRY OF TRANSPORTATION "TRAFFIC CONTROL MANUAL FOR ROADWAY WORK OPERATIONS".
2. ALL TEMPORARY SIGNAGE AND TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF ONTARIO TRAFFIC MANUAL, BOOK 7 "TEMPORARY CONDITIONS" AND OPS SPECIFICATIONS AND STANDARD DRAWINGS.
3. PAVEMENT MARKINGS MUST BE IN ACCORDANCE WITH THE ONTARIO TRAFFIC MANUAL, BOOK 11 "PAVEMENT HAZARD AND DELINEATION MARKINGS".
4. THE CONTRACTOR SHALL NOTIFY IN ADVANCE, AS REQUIRED, THE APPROPRIATE AUTHORITY HAVING JURISDICTION FOR THE ROAD PRIOR TO COMMENCING ANY WORK AND SHALL ACQUIRE AND SATISFY THE REQUIREMENTS OF APPROPRIATE PERMITS (FEES, INSPECTIONS, SIGNAGE, TRAFFIC, MAINTENANCE, DIVERSION, ETC...).
5. REGIONAL ROAD CLOSURE IS NOT PERMITTED AT ANY TIME UNLESS APPROVAL FROM REGIONAL COUNCIL WAS OBTAINED FOR THE WORKS, WHERE A MINIMUM TWO MONTH LEAD TIME IS REQUIRED, AS PER REGIONAL POLICY W30-12.
6. WORK OPERATIONS THAT REQUIRE DIVERTING TRAFFIC TO ONE LANE ARE SUBJECT TO TIME RESTRICTIONS AND /OR NIGHT TIME OPERATIONS AS SPECIFIED IN ROAD OCCUPANCY PERMIT. THROUGH LANES MUST BE MINIMUM 3.5M, UNLESS OTHERWISE APPROVED.
7. FOR TEMPORARY DELINEATION OF TRAFFIC IN OPPOSITE DIRECTIONS A YELLOW CENTRE LINE ON PAVEMENT MUST BE PAINTED. TRAFFIC CONTROL BARRELS (CONES) ARE NOT PERMITTED FOR THIS USE ON REGIONAL ROADS.
8.

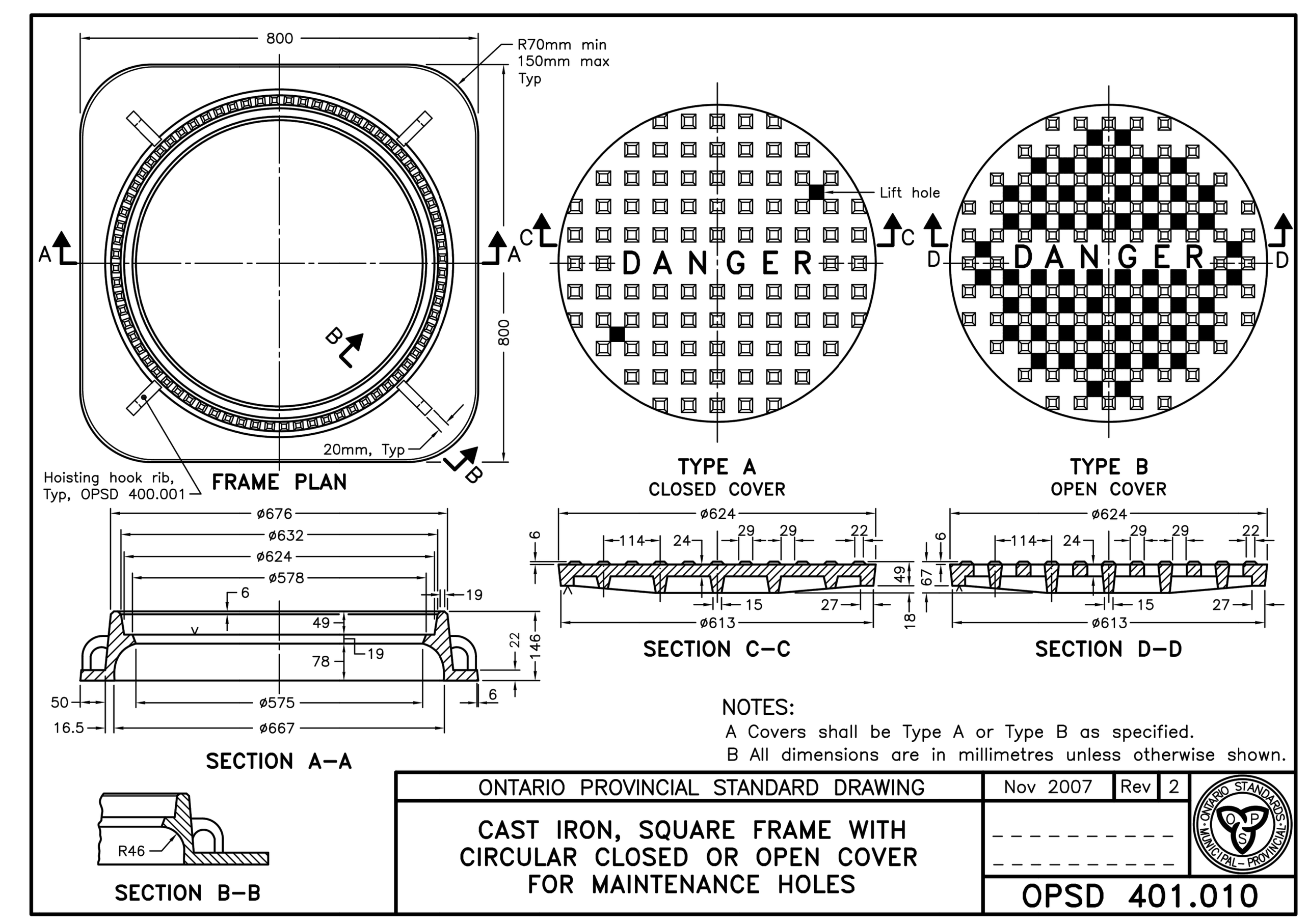
REGIONAL ROADS NOTES (CONT'D):

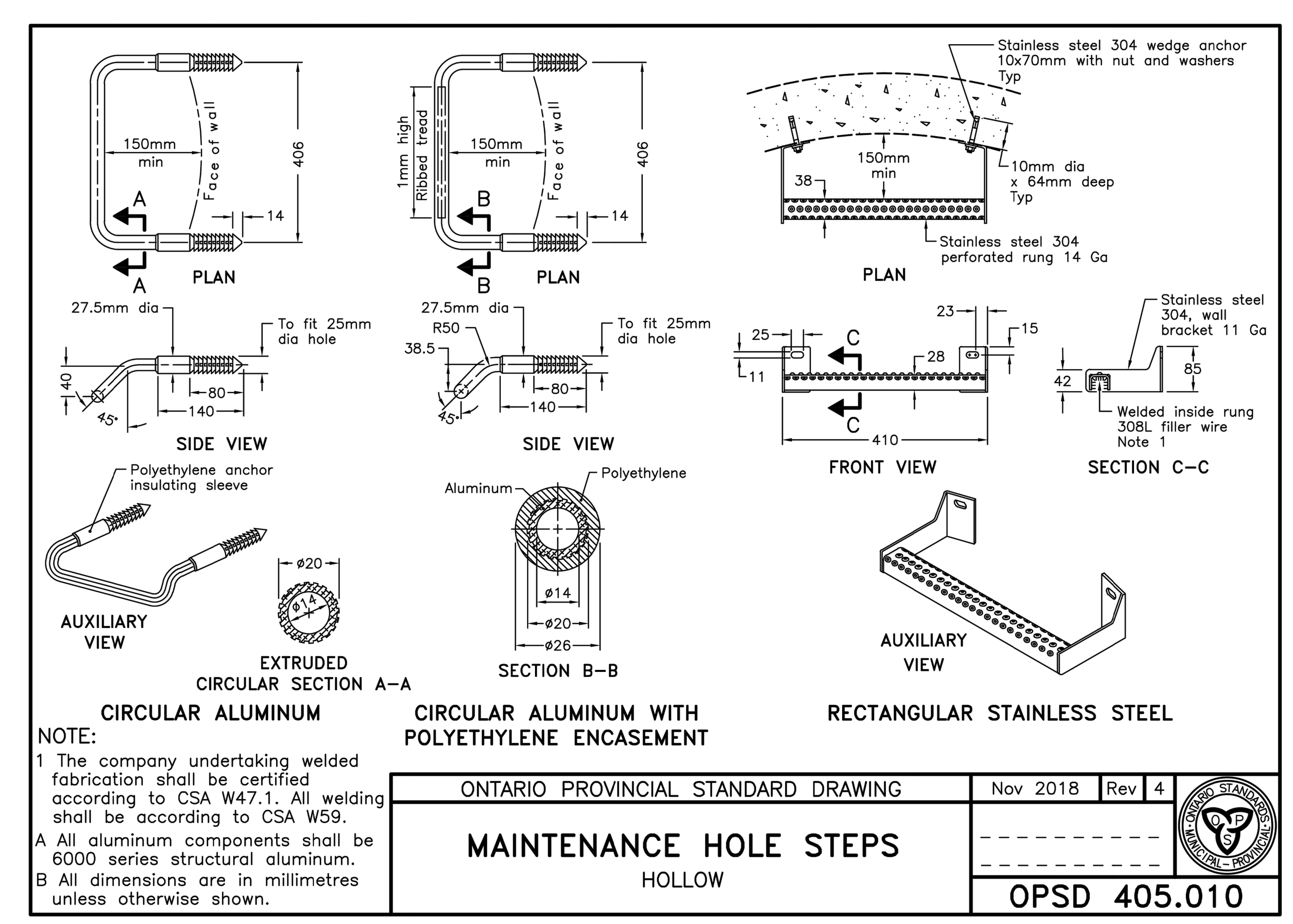
8. NEW JERSEY BARRIERS (NJB) WITH CRASH ATTENUATION DEVICES MUST BE USED ON LONG TERM PROJECTS AS OPPOSED TO TRAFFIC CONTROL DELINEATORS (BARRELS).
9. ACCESS TO EXISTING ENTRANCES AND SIDE STREETS, INCLUDING PEDESTRIAN ACCESS, SHALL BE MAINTAINED. ACCESS REQUIREMENTS MUST COMPLY WITH REGION OF PEEL CONTROLLED ACCESS BY-LAW.
10. LOCATION OF EXISTING UTILITIES TO BE ESTABLISHED BY THE CONTRACTOR. ALL EXISTING UTILITY ELEVATIONS (SANITARY AND WATERMAIN) INCLUDING CENTRE LINE OF THE ROAD ELEVATIONS HAVE TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCING ANY WORK ON SITE. ANY DISCREPANCIES SHALL BE REPORTED TO THE REGION IMMEDIATELY.
11. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATING, SUPPORTING AND PROTECTING ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF HIS WORK, WHETHER SHOWN ON THE PLANS OR NOT, AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
12. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITTEN NOTICE TO UTILITY AUTHORITY PRIOR TO CROSSING SUCH UTILITIES FOR THE PURPOSE OF INSPECTION. THIS INSPECTION WILL BE FOR THE DURATION OF CONSTRUCTION WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTIONS.
13. ALL ROAD BASE SHALL BE AS PER REGION OF PEEL STD. DWG. 5-1-1 AND 5-1-2.
14. ASPHALT PRESERVATIVE SEALER SUCH AS RE-CLIMATE OR APPROVED EQUIVALENT SHALL BE APPLIED AFTER THE ONE-YEAR MAINTENANCE PERIOD FOR THE TOP COURSE ASPHALT.
15. ALL EXISTING PAVEMENTS, CURBS, SIDEWALKS AND BOULEVARDS, AND OTHER AREAS DISTURBED BY THE WORK, TO BE REINSTATED EQUAL TO EXISTING AND TO THE SATISFACTION OF APPLICABLE AUTHORITY HAVING JURISDICTION OVER THE ROAD ALLOWANCE. EXISTING PAVEMENT AND CURBS TO BE SAW- CUT TO PROVIDE A SMOOTH JOINT.
16. EROSION CONTROL MEASURES TO BE IMPLEMENTED AS REQUIRED.
17. FOR ROAD PROJECTS THAT WILL NOT BE COMPLETED PRIOR TO THE END OF THE CONSTRUCTION SEASON, THE FOLLOWING WILL NEED TO BE CONSIDERED IN ORDER TO WINTERIZE THE CONSTRUCTION PROJECT TO ENSURE SAFE CONDITIONS DURING WINTER:
    A. WHERE APPLICABLE, CURB AND GUTTER SECTIONS ARE TO BE COMPLETED, THE BASE COURSE ASPHALT SHALL BE IN PLACE.
    B. CATCH BASINS AND MAINTENANCE HOLES SET TO EXISTING BASE GRADE.
    C. STEEL PLATING NOT PERMITTED.
    D. HOT MIX ASPHALT (HMA) ONLY.
    E. LANE DELINEATION AND PAVEMENT MARKING COMPLETED.
    F. WHERE NEW JERSEY BARRIERS USED, OFFSET NO LESS THAN 4.25M FROM EDGE OF TRAVELED LANE.
    G. ROAD AND BOULEVARD MUST BE FREE OF OBSTRUCTIONS AND ACCOMMODATE SAFE SNOW PLOW OPERATION CONSIDERING THAT A WING AND PLOW IS 6M WIDE AND 1.52M SNOW STORAGE MINIMUM REQUIRED.
    H. ALL CATCH BASIN GRATES SHALL BE SIDE INLET, OPSD 400.081 (LATEST VERSION) UNLESS OTHERWISE NOTED.
    I. WINTER SHUT-DOWN MEETINGS WITH THE REGION OF PEEL ROAD MAINTENANCE STAFF ARE REQUIRED PRIOR TO SEASONAL SHUT-DOWN AND SHALL BE ORGANIZED BY THE CONSULTANT OR PROJECT MANAGER OR DESIGNATE.

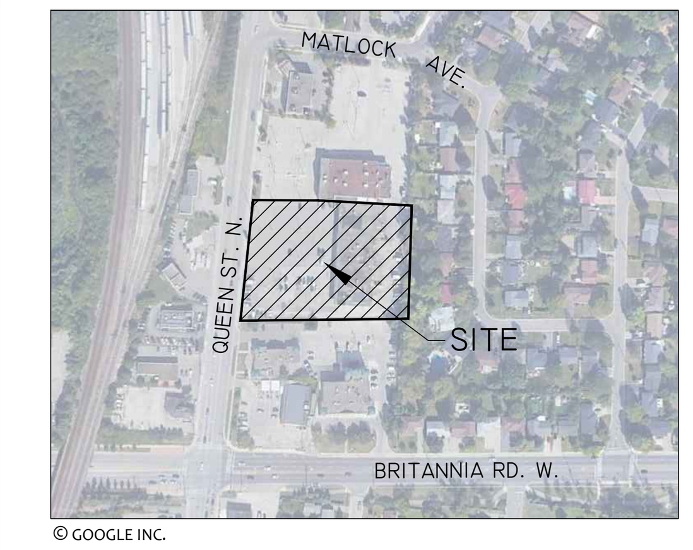
TRAFFIC SIGNS AND SIGNALS ON REGIONAL ROADS:

1. ALL REQUIRED TRAFFIC SIGNS, WHETHER REGULATORY, WARNING, TEMPORARY OR GUIDE/DIRECTIONAL IN NATURE SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS AND LEGISLATION CONTAINED IN THE OTM MANUALS, THE HTA AND REGION OF PEEL TRAFFIC BY-LAW.
2. ELECTRICAL WORKS SHALL CONFORM TO THE ONTARIO PROVINCIAL STANDARD DRAWINGS AND REGION OF PEEL STANDARD DRAWINGS AND SPECIFICATIONS.
3. TRAFFIC CONTROLLERS MUST BE INSTALLED AS PER APPROVED LOCATIONS. EQUIPMENT MUST NOT ENCROACH ON PRIVATE PROPERTY WITHOUT PERMISSION TO ENTER, EASEMENT, PERMANENT OR TEMPORARY UNDERTAKINGS.









LOCATION PLAN
N.T.S.

LEGEND

SURVEY INFO.	BENCHMARK
KRCMAR 1137 CENTRE ST. THORNHILL, ON L4J 3M6 PHONE: (905) 738-0053 FAX: (905) 738-9221	ELEVATIONS SHOWN HEREON ARE MISSISSAUGA DATUM AND ARE RELATED TO CITY OF MISSISSAUGA BENCH MARK NO. 075033019 HAVING A PUBLISHED ELEVATION OF 167.744M.

SITE PLAN INFO.	LIST OF DRAWINGS
A& ARCHITECTS 130 QUEENS QUAY EAST SUITE 1018 TORONTO, ON M5A 0P6 PHONE: (416) 466-0100	001 - NOTES AND DETAILS 002 - DETAILS AND SECTIONS 101 - SERVICING PLAN 401 - GRADING PLAN 601 - ESC PLAN

NO.	ISSUE	MM/DD/YY	BY
2	ISSUED FOR SPA	07/20/23	LPM
1	ISSUED FOR REZONING APPLICATION	12/06/21	LPM

LICENSED PROFESSIONAL ENGINEER
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July 20, 2023
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PHONE: (416) 270-7515

MISS BJL CORP.
21-51 QUEEN ST. N.
MISSISSAUGA, ON

GENERAL NOTES
AND DETAILS PLAN

PROJECT No.: 21-003

DRAWING: 001

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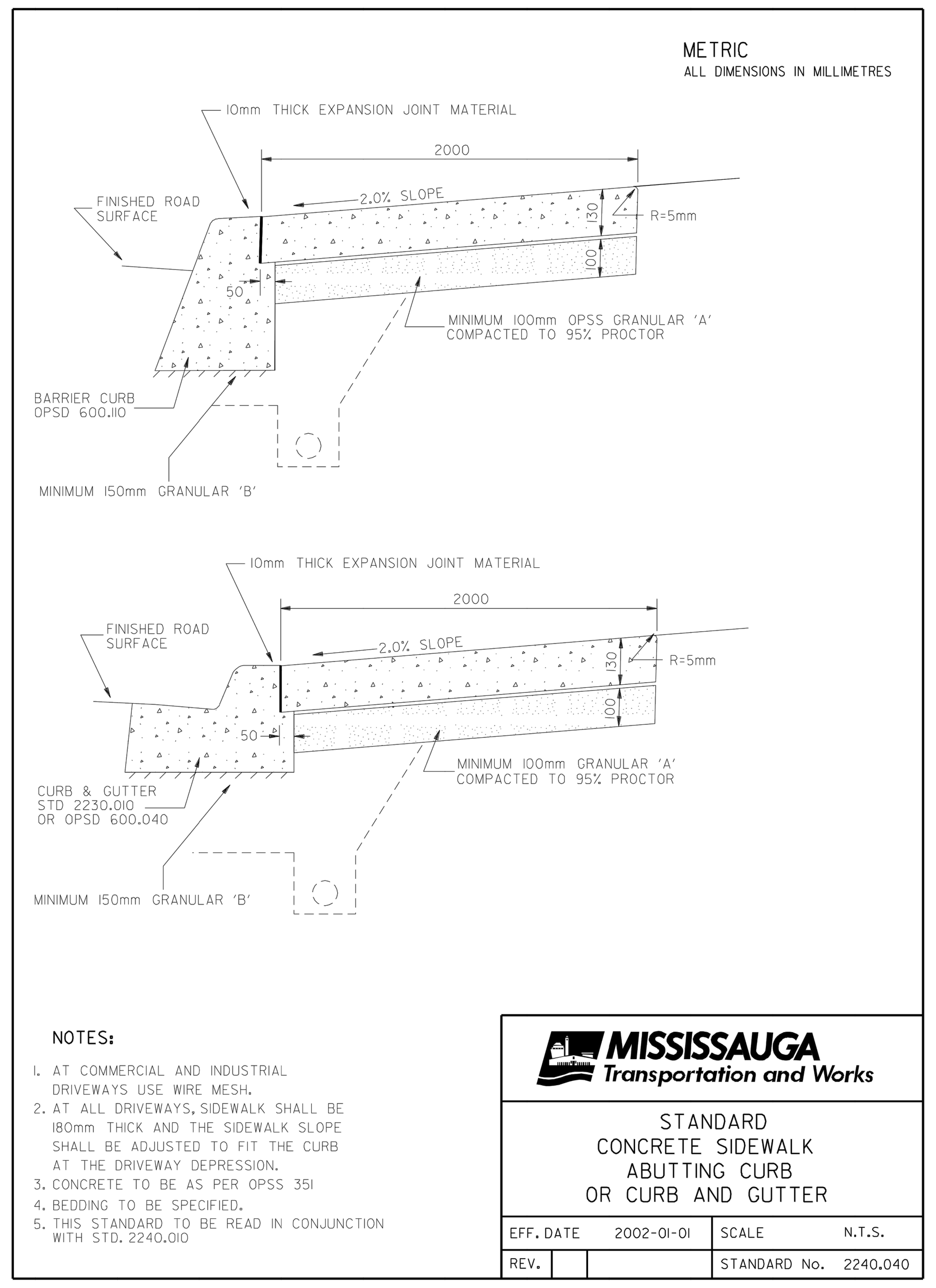

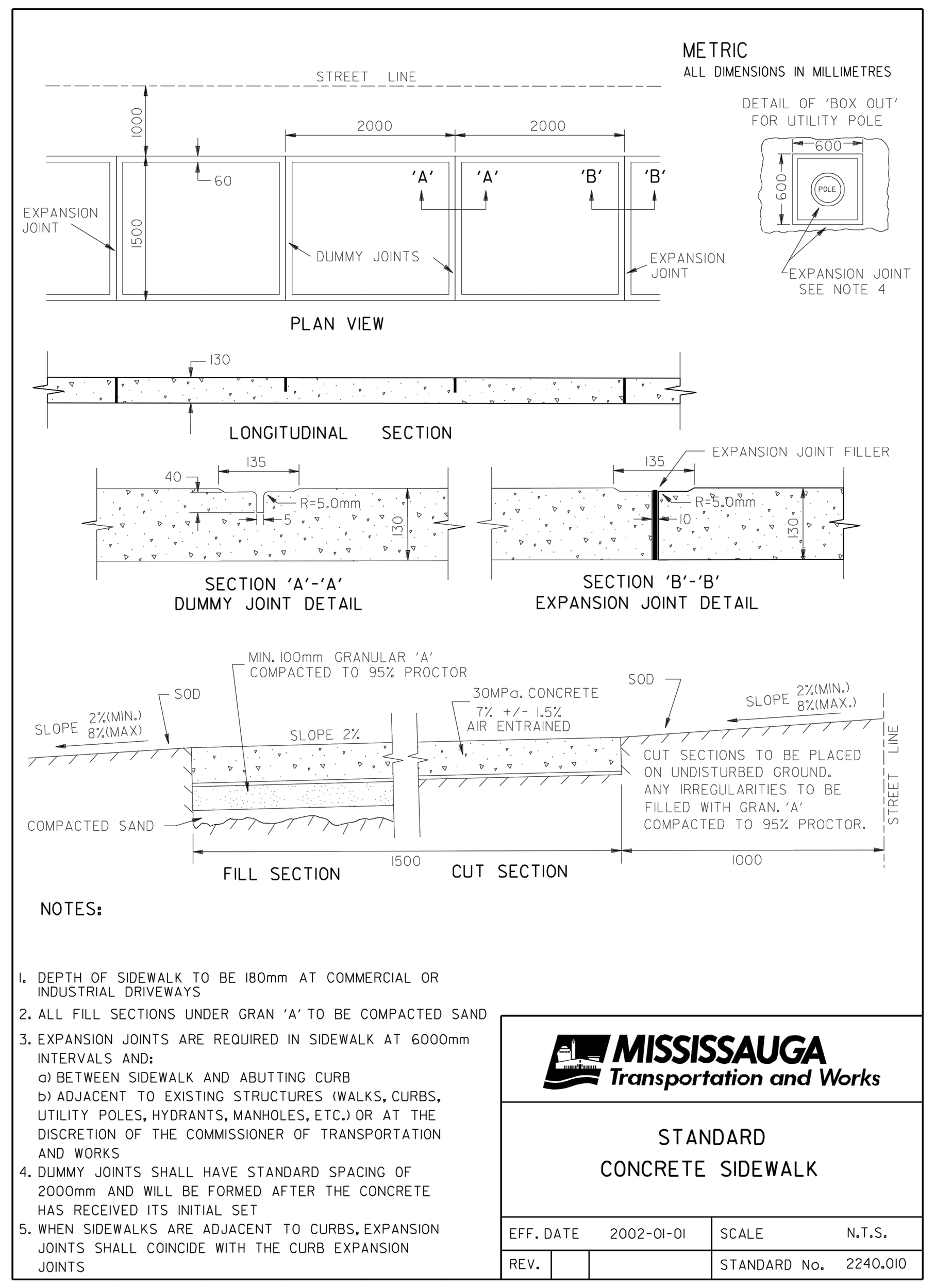

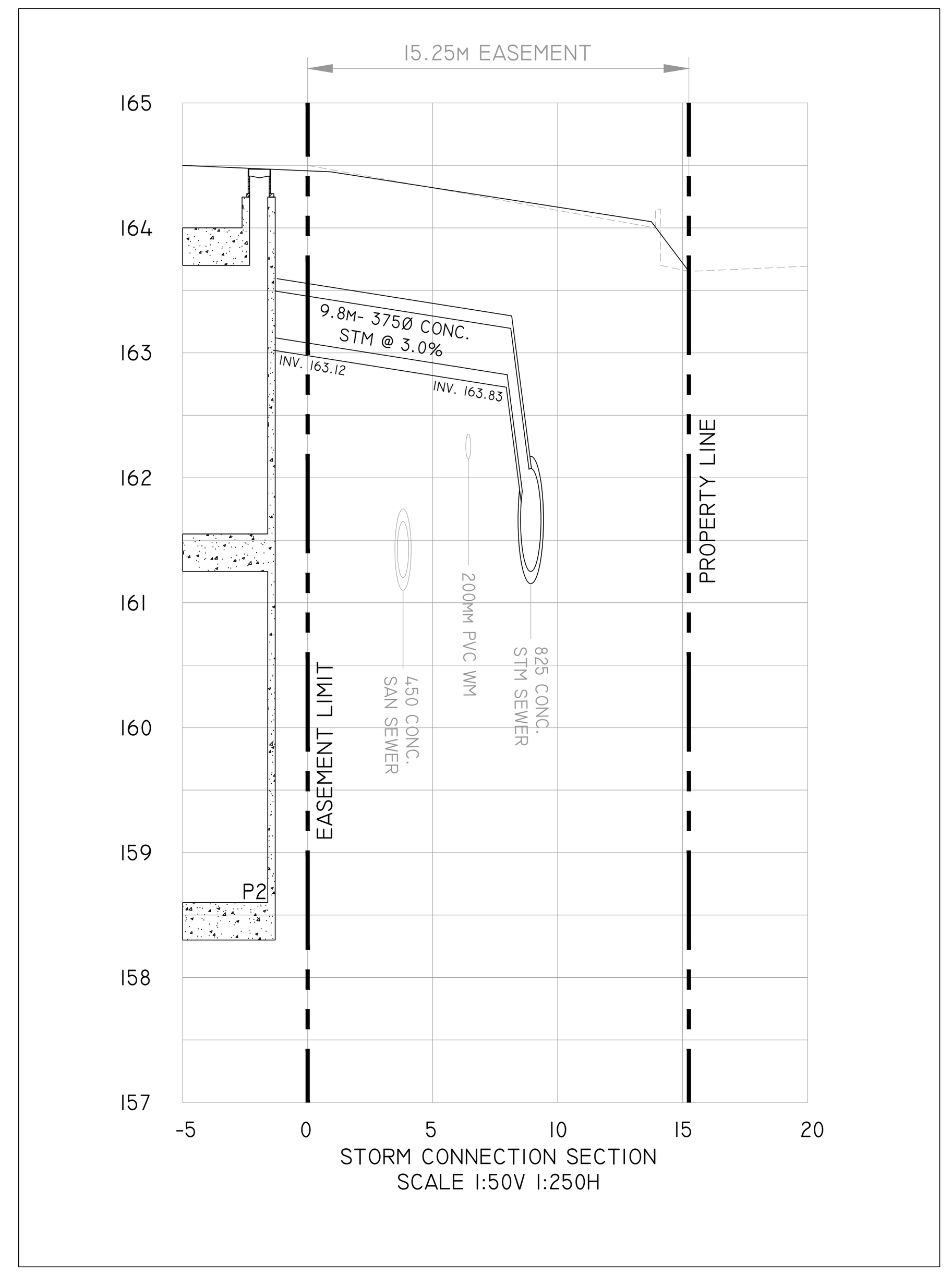

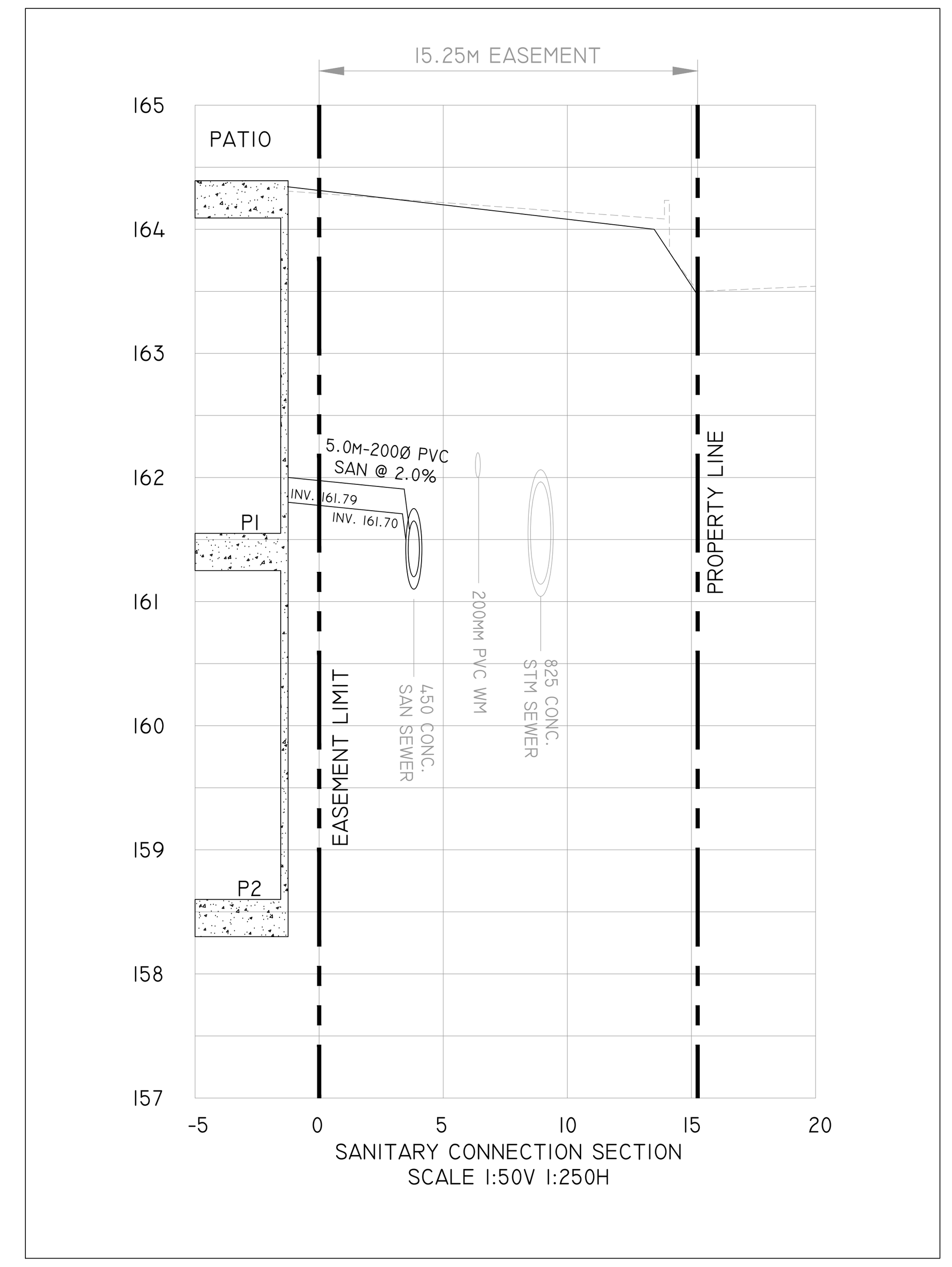

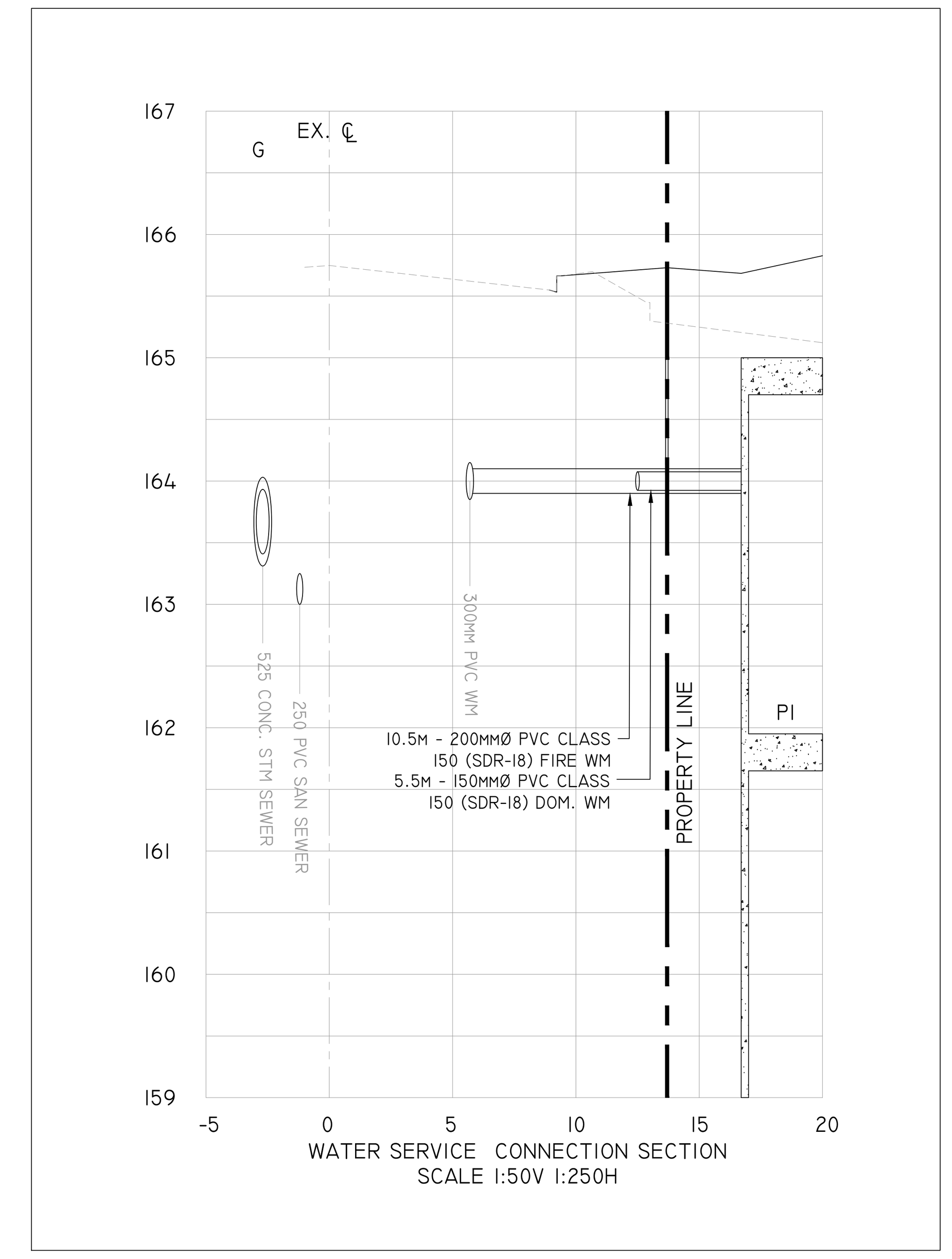

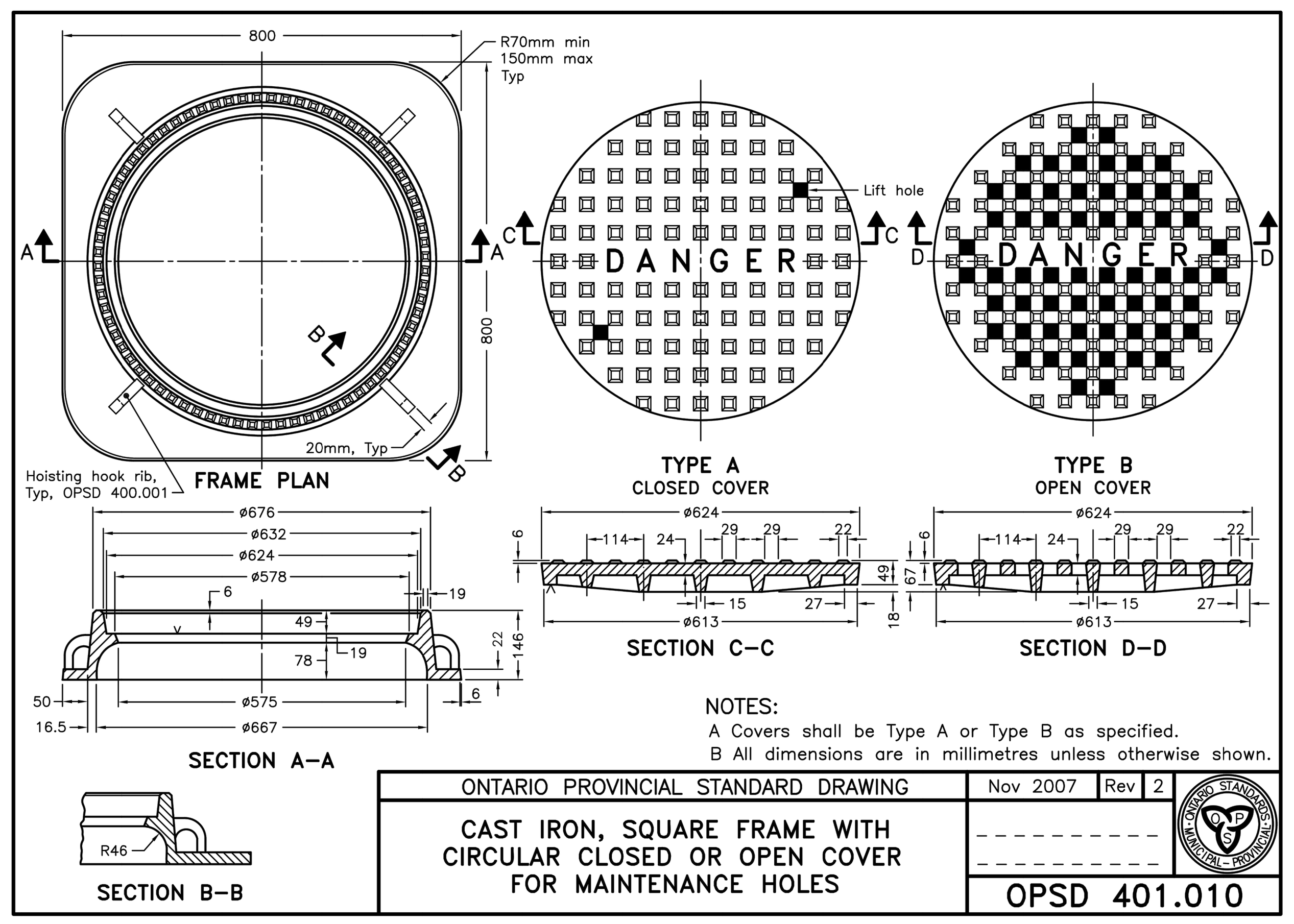

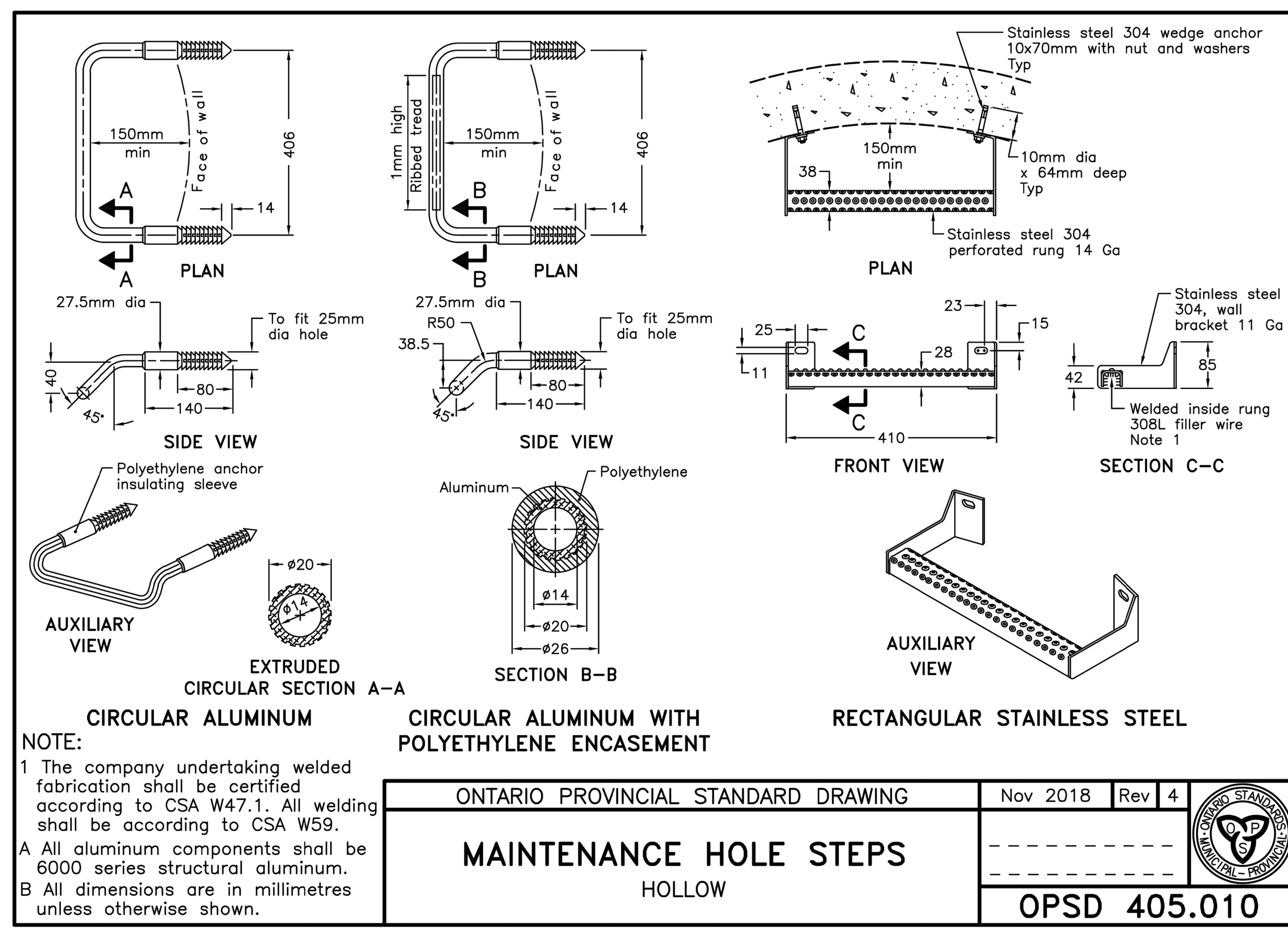

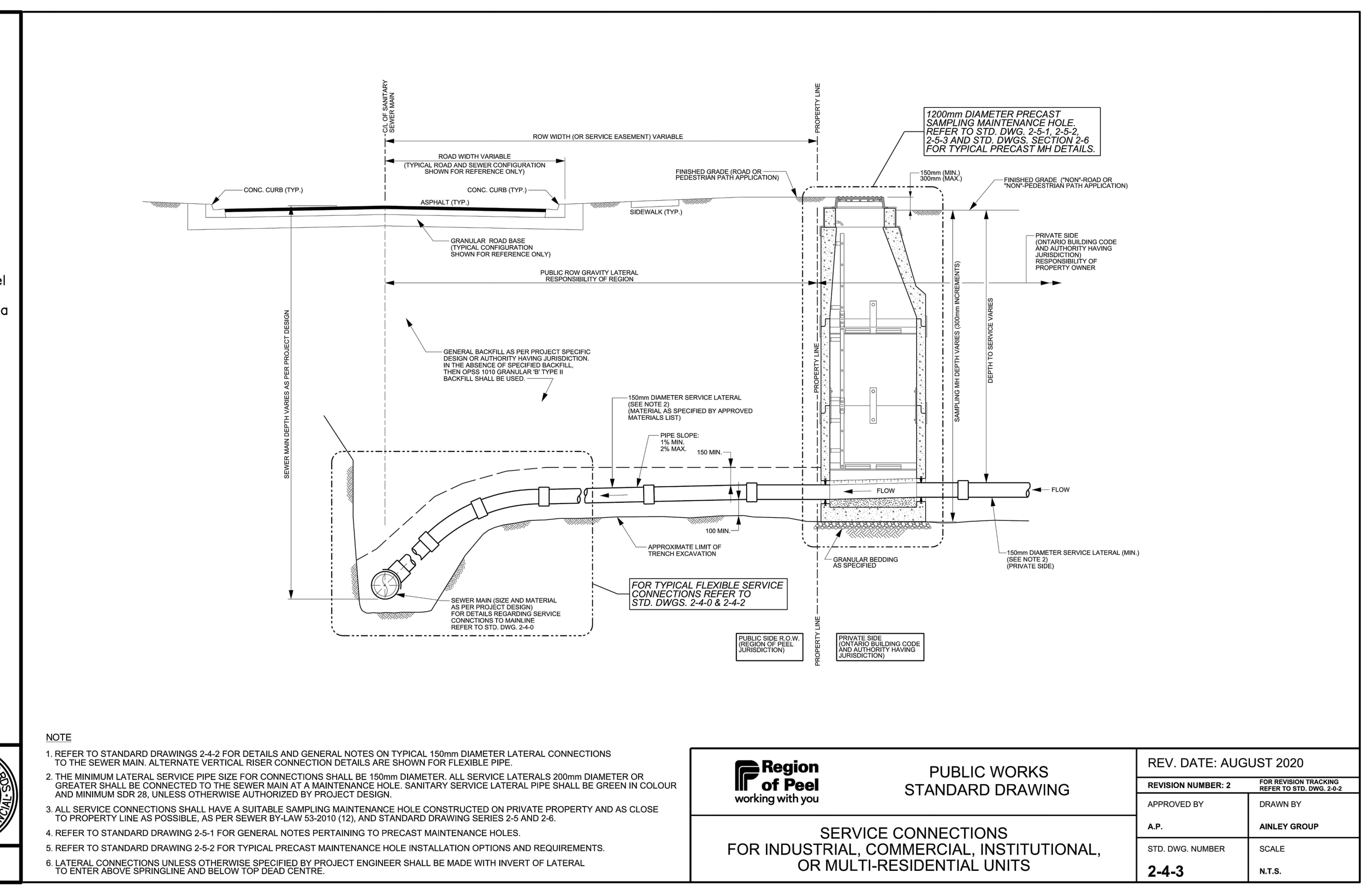

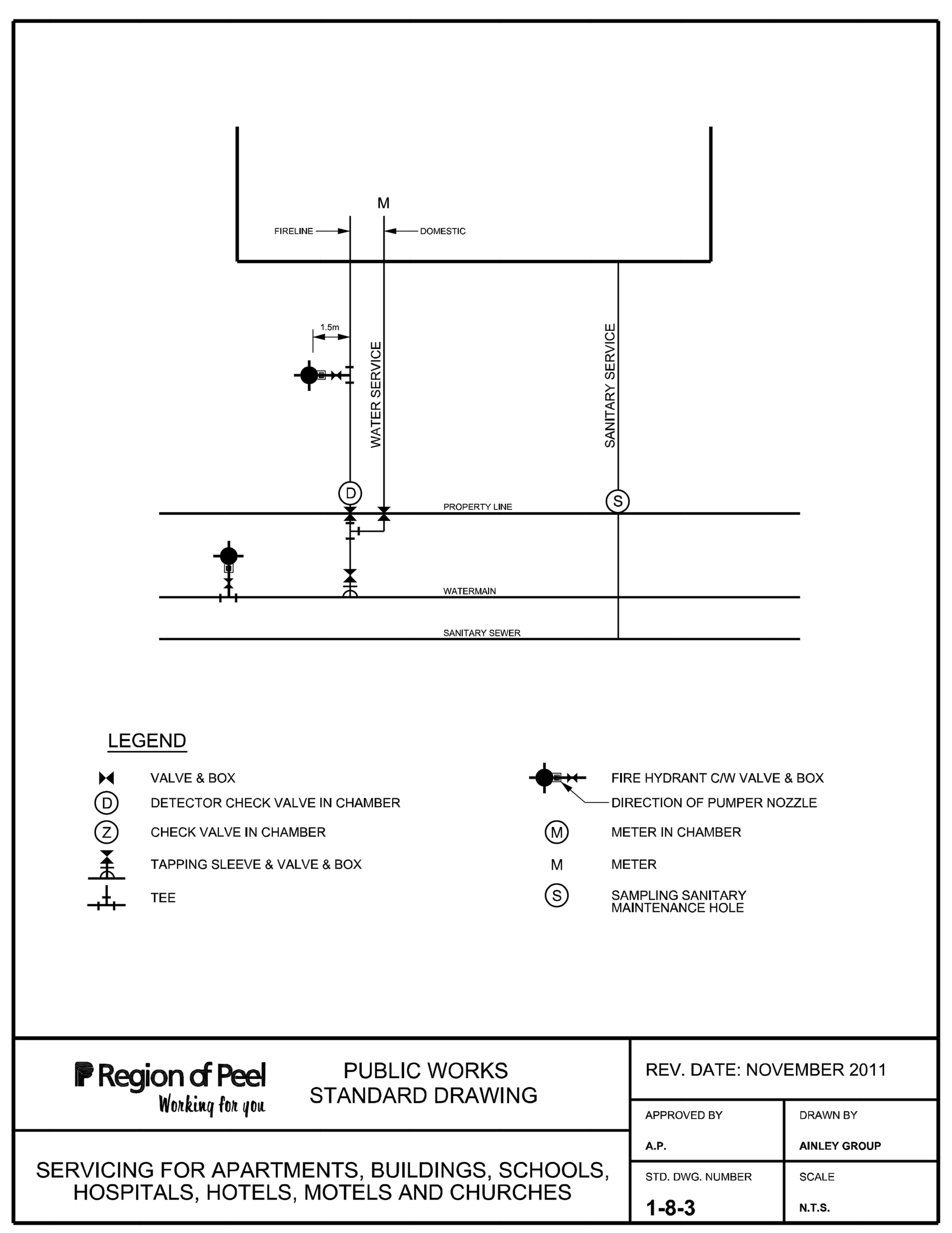

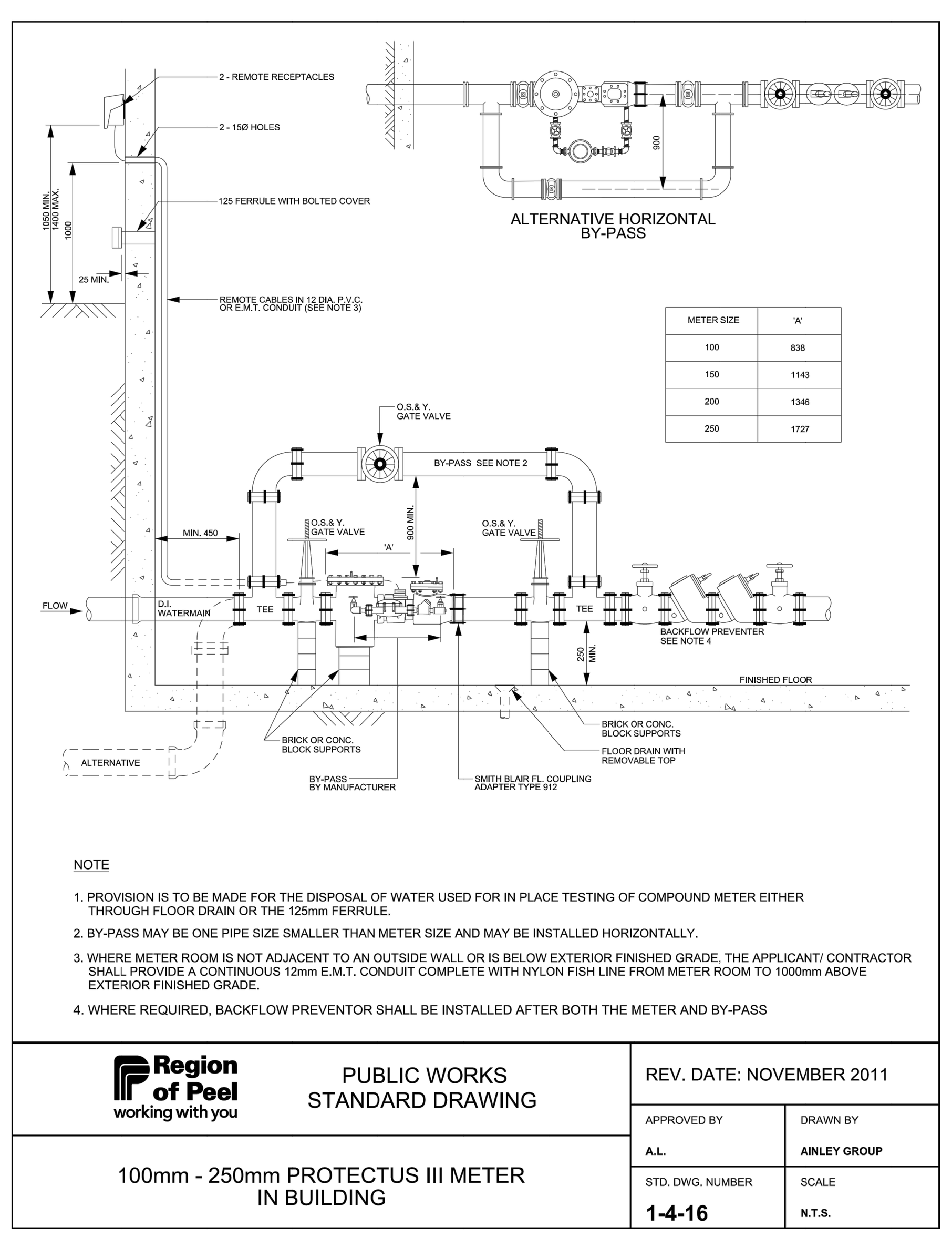

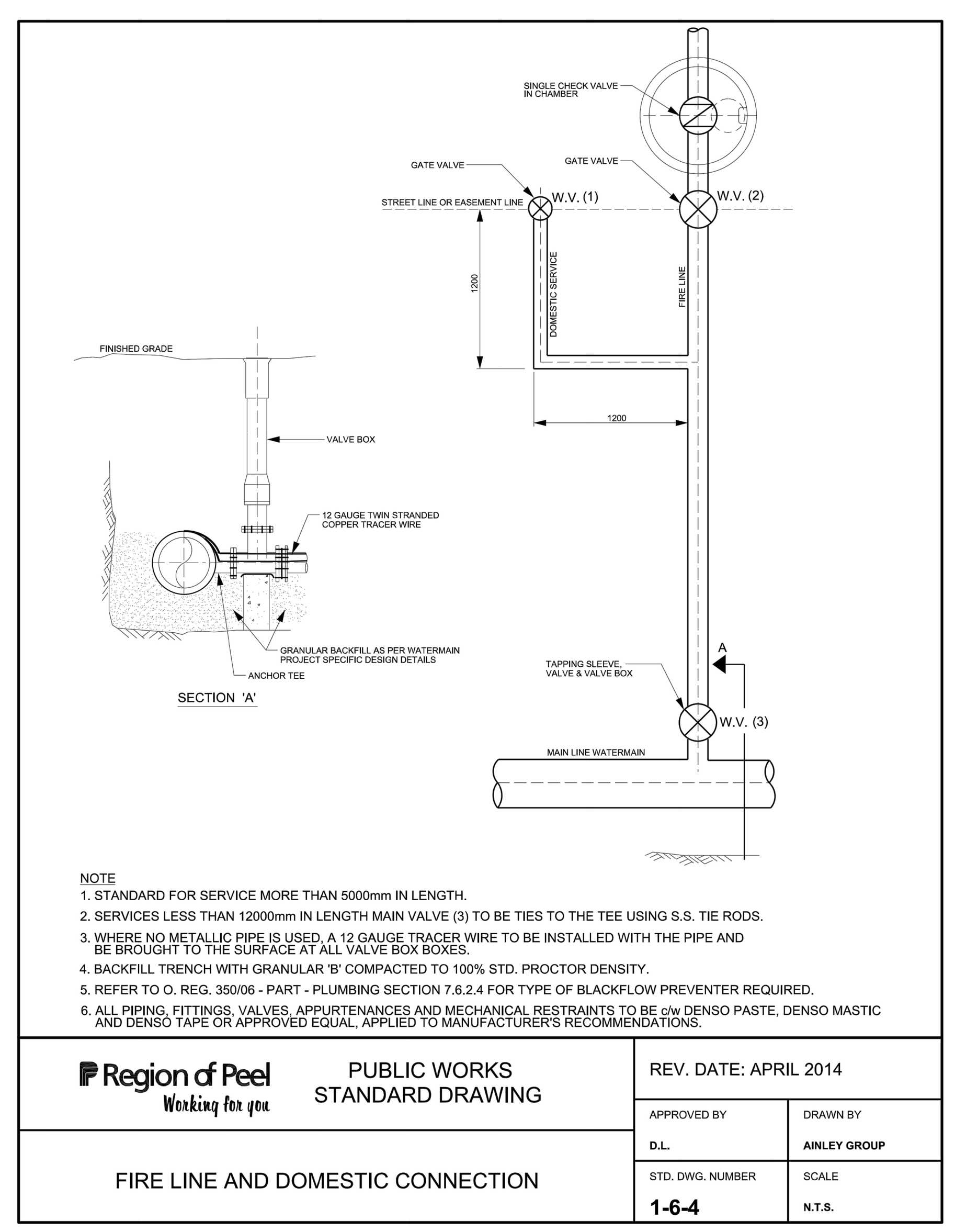

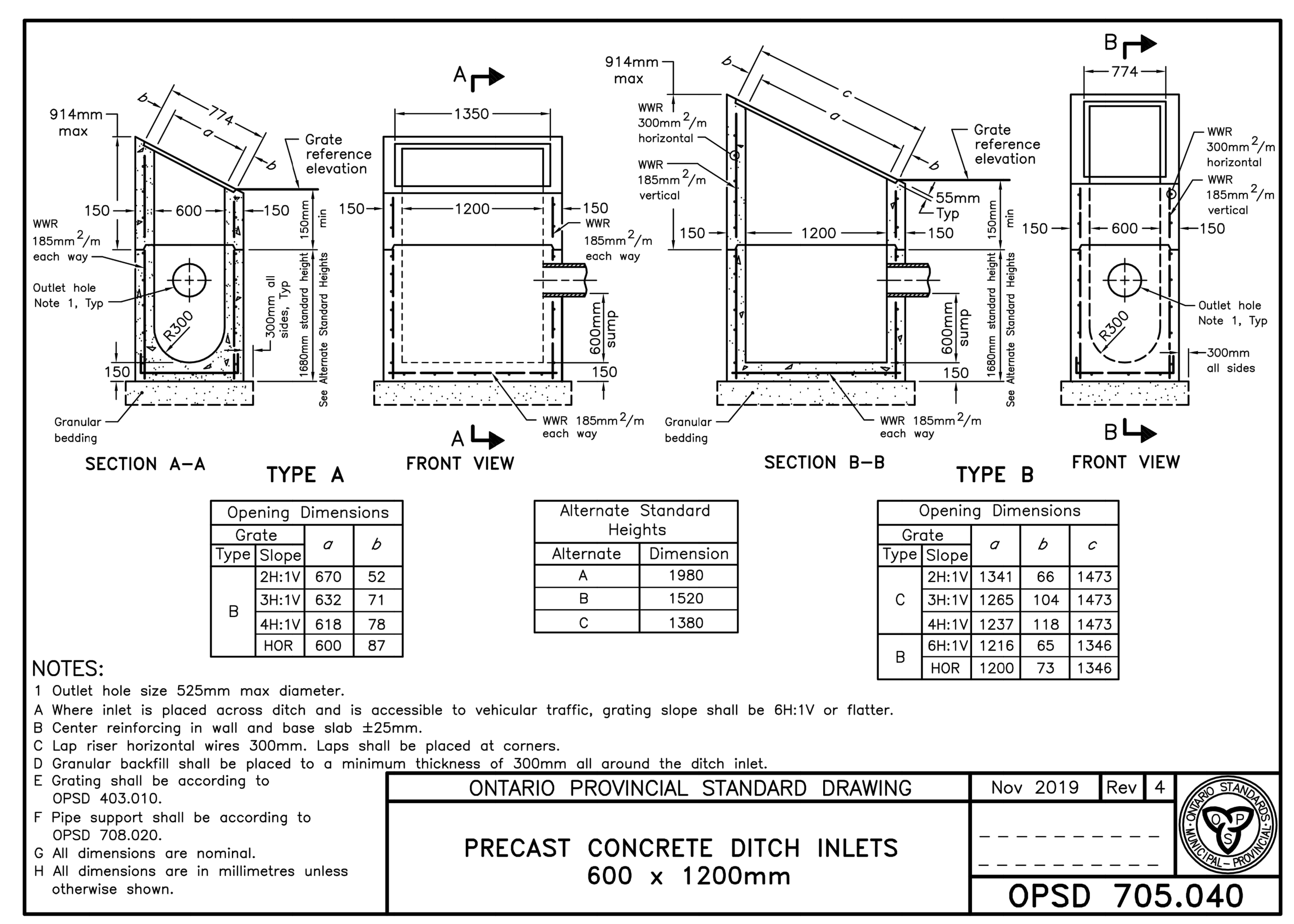

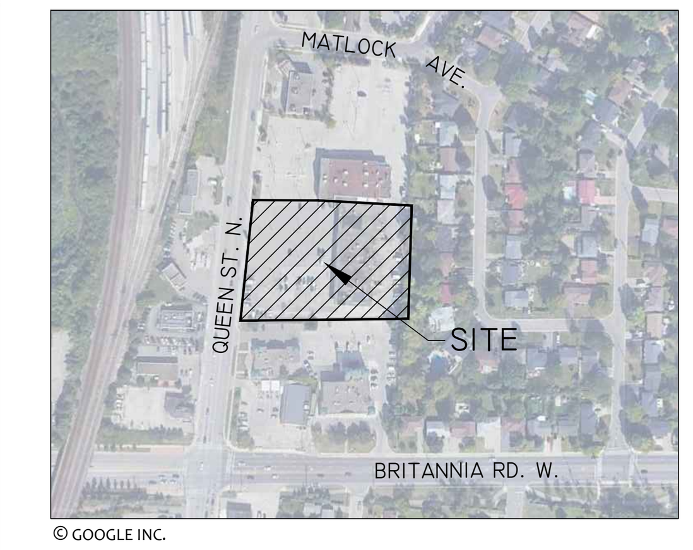

LOCATION PLAN
N.T.S.

LEGEND

SURVEY INFO.	BENCHMARK
KRCMAR 1137 CENTRE ST. THORNHILL, ON L4J 3M6 PHONE: (905) 738-0053 FAX: (905) 738-9221	ELEVATIONS SHOWN HEREON ARE MISSISSAUGA DATUM AND ARE RELATED TO CITY OF MISSISSAUGA BENCH MARK NO. 075033019 HAVING A PUBLISHED ELEVATION OF 167.744M.

SITE PLAN INFO.	LIST OF DRAWINGS
A& ARCHITECTS 130 QUEENS QUAY EAST SUITE 1018 TORONTO, ON M5A 0P6 PHONE: (416) 466-0100	001 - NOTES AND DETAILS 002 - DETAILS AND SECTIONS 101 - SERVICING PLAN 401 - GRADING PLAN 601 - ESC PLAN

NO.	ISSUE	MM/DD/YY	BY
2	ISSUED FOR SPA	07/20/23	LPM
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LICENSED PROFESSIONAL ENGINEER
L.P. MASSÜE-MOHAT
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July 20, 2023
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MISS BJL CORP.
21-51 QUEEN ST. N.
MISSISSAUGA, ON

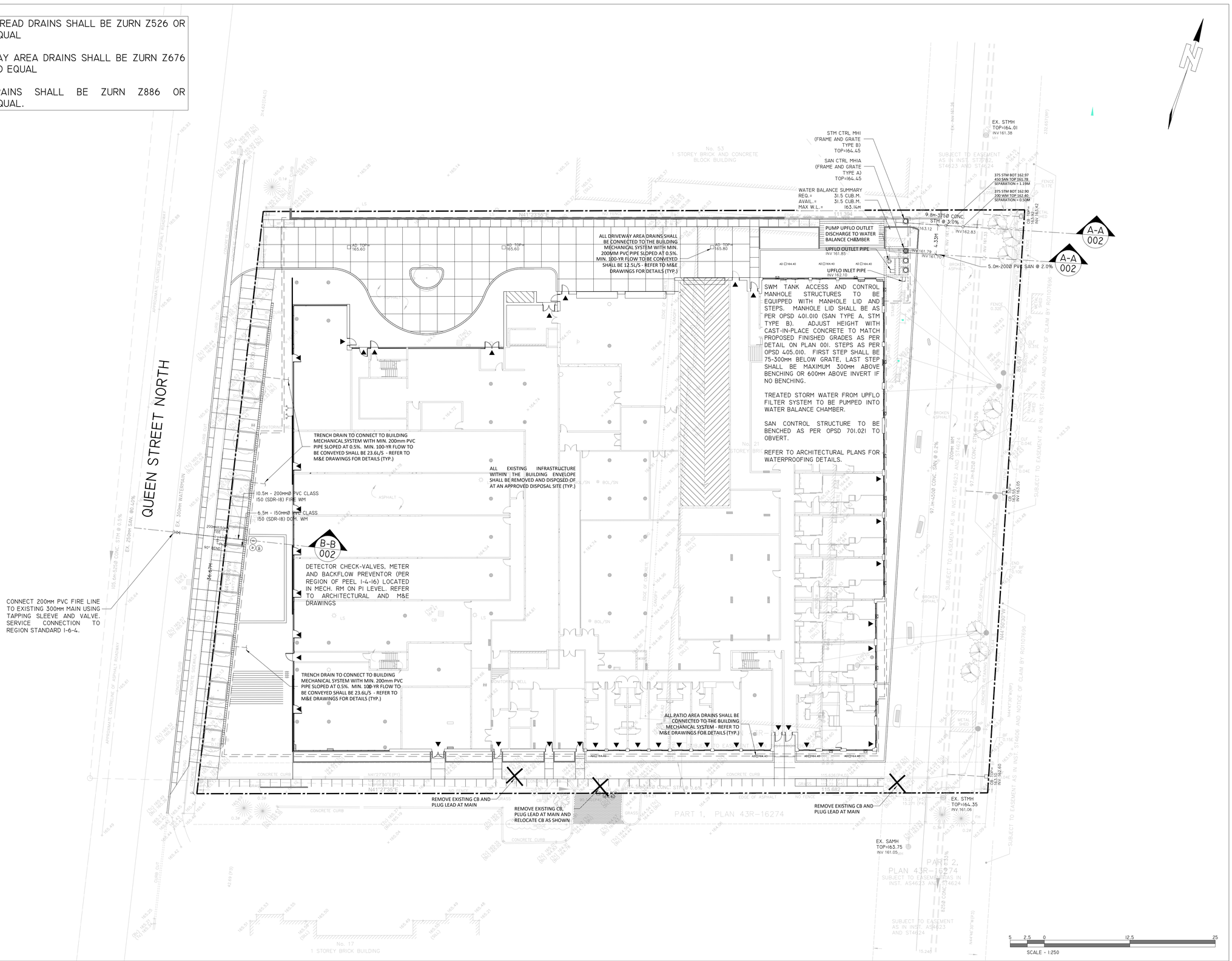
DETAILS AND SECTION PLAN

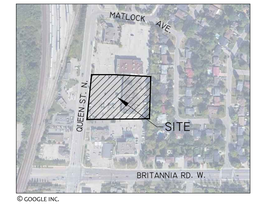
PROJECT No.:	DRAWING:
21-003	002

ALL PATIO AREAD DRAINS SHALL BE ZURN Z526 OR APPROVED EQUAL

ALL DRIVEWAY AREA DRAINS SHALL BE ZURN Z676 OR APPROVED EQUAL

TRENCH DRAINS SHALL BE ZURN Z886 OR APPROVED EQUAL.





LOCATION PLAN
N.T.S.

LEGEND

- PROPERTY BOUNDARY
- × 353.00 SURVEYED ELEVATION
- STM/SAN FRAME AND GRATE
- D PROPOSED DETECTOR CHECKVALVE
- M PROPOSED WATER METER
- BP PROPOSED BACKFLOW PREVENTER
- PROPOSED RETAINING WALL
- FFE PROPOSED FIRST FLOOR ELEVATION
- PROPOSED OVERLAND FLOW DIRECTION
- PROPOSED SANITARY PIPE / MANHOLE
- PROPOSED STORM PIPE / MANHOLE
- PROPOSED WATERMAIN
- PROPOSED AREA DRAIN/CATCH BASIN
- PROPOSED TRENCH DRAIN
- PROPOSED VALVE AND BOX
- EX.STM EXISTING MANHOLE
- EX.FH EXISTING FIRE HYDRANT
- EXISTING CURB CUT
- MW EXISTING MONITORING WELL
- CB EXISTING CATCH BASIN
- EXISTING TREE AND DIAMETER
- HP EXISTING HYDRO POLE
- MH EXISTING MANHOLE
- EXISTING WATER VALVE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN

SURVEY INFO.	BENCHMARK
KRCMAR 1137 CENTRE ST. THORNHILL, ON L4J 3M6 PHONE: (905) 738-0053 FAX: (905) 738-9221	ELEVATIONS SHOWN HEREON ARE MISSISSAUGA DATUM AND ARE RELATED TO CITY OF MISSISSAUGA BENCH MARK NO. 07503019 HAVING A PUBLISHED ELEVATION OF 167.744M.
SITE PLAN INFO.	**LIST OF DRAWINGS**
A8 ARCHITECTS 130 QUEENS QUAY EAST SUITE 1018 TORONTO, ON M5A 0P6 PHONE: (416) 466-0100	001 - NOTES AND DETAILS 002 - DETAILS AND SECTIONS 101 - SERVICING PLAN 401 - GRADING PLAN 601 - ESC PLAN

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July 20, 2023
PROVINCE OF ONTARIO

MISS BJL CORP.
21-51 QUEEN ST. N.
MISSISSAUGA, ON

SERVICING PLAN

PROJECT No.:	DRAWING:
21-003	101

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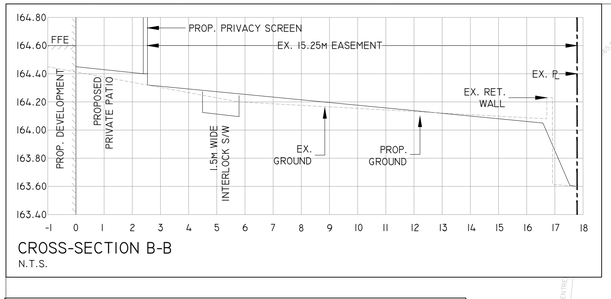

CROSS-SECTION B-B
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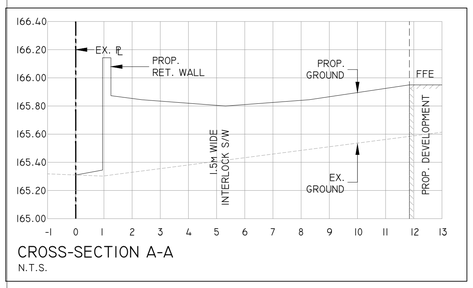

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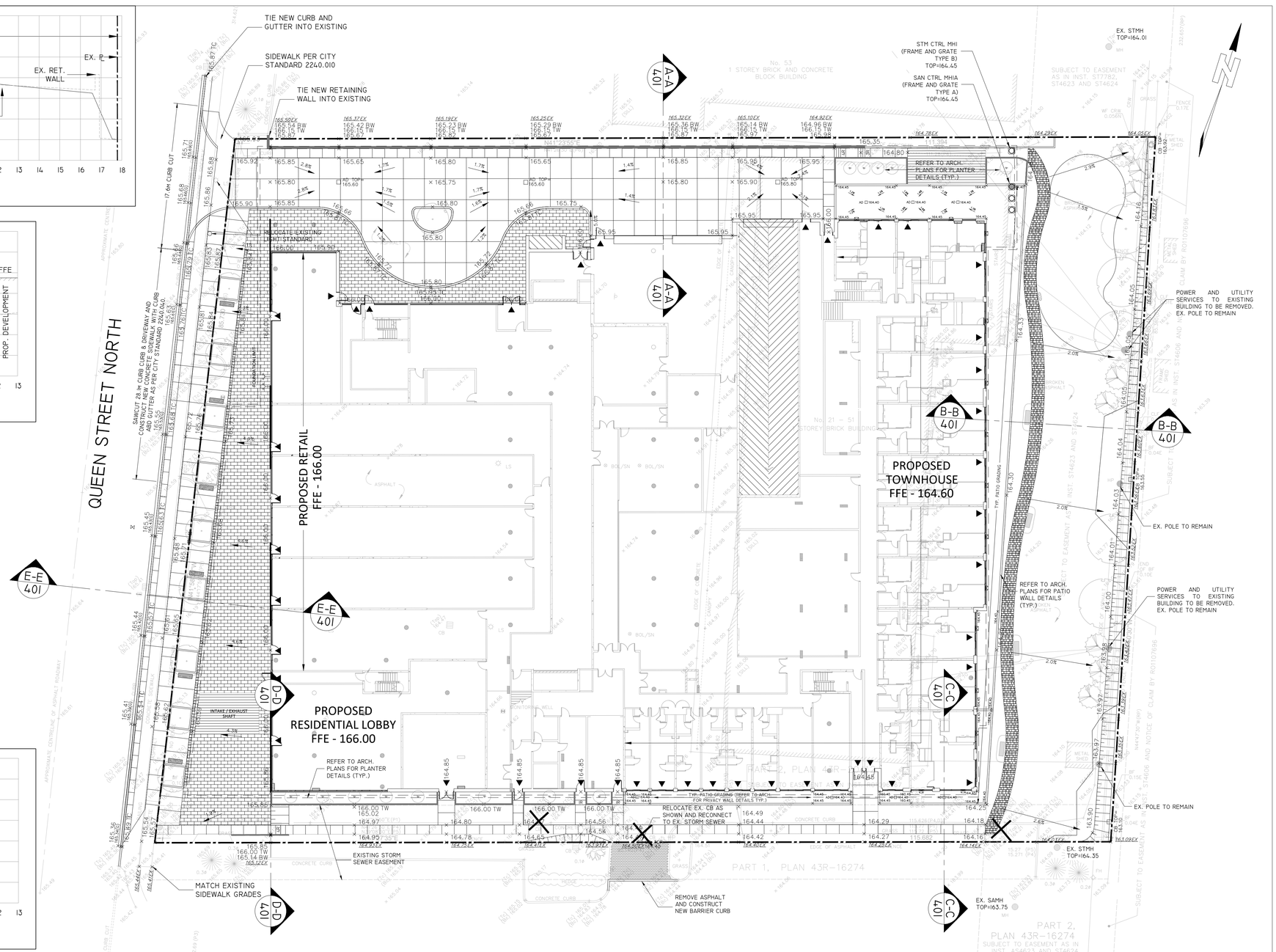

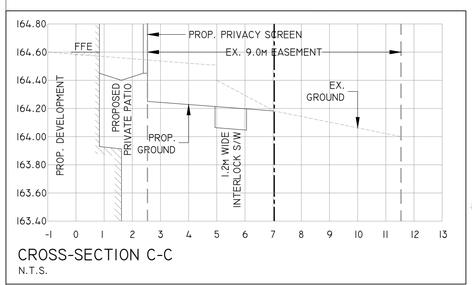

CROSS-SECTION C-C
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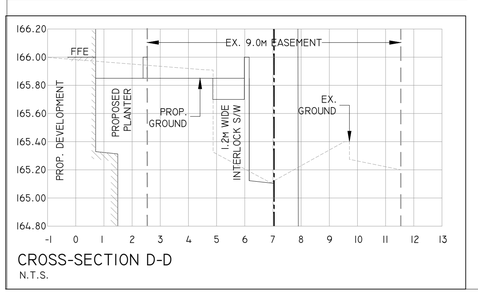

CROSS-SECTION D-D
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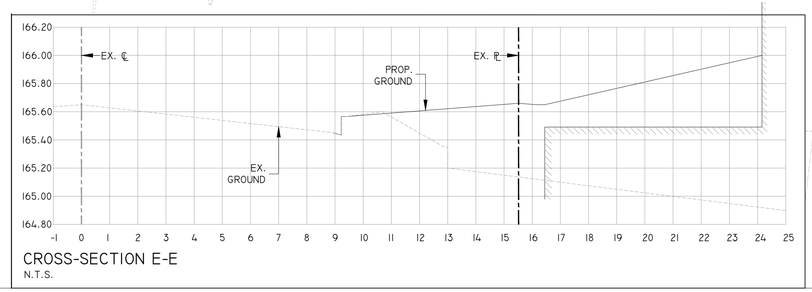


CROSS-SECTION E-E
N.T.S.

5 2.5 0 12.5 25
SCALE - 1:250

LOCATION PLAN
N.T.S.

LEGEND

- PROPERTY BOUNDARY
- × 353.00 SURVEYED ELEVATION
- × 353.00 EX. EXISTING ELEVATION
- × 353.00 PROPOSED ELEVATION
- × 353.00 TC PROPOSED TOP OF CURB ELEVATION
- × 353.00 TW PROPOSED TOP OF WALL ELEVATION
- × 353.00 BW PROPOSED BOTTOM OF WALL ELEVATION
- 2.0% PROPOSED DRAINAGE DIRECTION SLOPE
- PROPOSED 3:1 SLOPE
- PROPOSED RETAINING WALL
- PROPOSED BELOW GRADE FOUNDATION
- FFE PROPOSED FIRST FLOOR ELEVATION
- PROPOSED OVERLAND FLOW DIRECTION
- PROPOSED TRENCH DRAIN
- PROPOSED VALVE AND BOX
- EX.STM EXISTING STORM MANHOLE
- EX.SAN EXISTING SANITARY MANHOLE
- EX.FH EXISTING FIRE HYDRANT
- EXISTING CURB CUT
- MW EXISTING MONITORING WELL
- CB EXISTING CATCH BASIN
- 0.15 EXISTING TREE AND DIAMETER
- HP EXISTING HYDRO POLE
- MH EXISTING MANHOLE
- EXISTING WATER VALVE
- LIMIT OF EX. EASEMENTS
- EX. RET. WALL (LABELED ON PLAN)

SURVEY INFO.
KRCMAR
1137 CENTRE ST.
THORNHILL, ON L4J 3M6
PHONE: (905) 738-0053
FAX: (905) 738-9221

BENCHMARK
ELEVATIONS SHOWN HEREON ARE MISSISSAUGA DATUM AND ARE RELATED TO CITY OF MISSISSAUGA BENCH MARK NO. 075003019 HAVING A PUBLISHED ELEVATION OF 167.744M.

SITE PLAN INFO.
AB ARCHITECTS
130 QUEENS QUAY EAST
SUITE 1018
TORONTO, ON M5A 0P6
PHONE: (416) 466-0100

LIST OF DRAWINGS
001 - NOTES AND DETAILS
002 - DETAILS AND SECTIONS
101 - SERVICING PLAN
401 - GRADING PLAN
601 - ESC PLAN

NO.	ISSUE	MM/DD/YY	BY
2	ISSUED FOR SPA	07/20/23	LPM
1	ISSUED FOR REZONING APPLICATION	12/06/21	LPM

SITEPLANTECH INC.
50 ST. CLEMENTS AVENUE
TORONTO, ON M4R 1G9
PHONE: (416) 270-7515

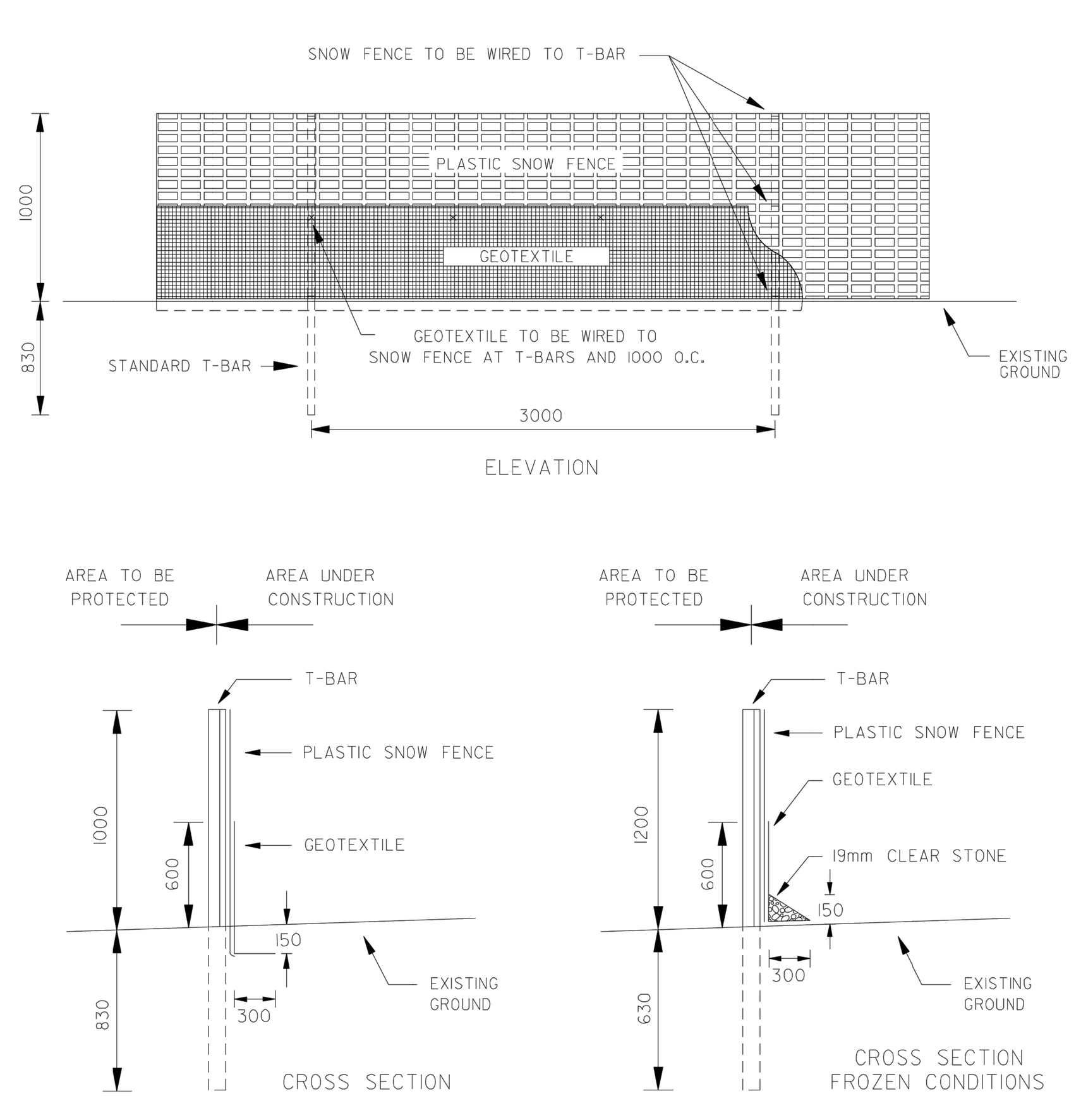
LICENSED PROFESSIONAL ENGINEER
L.P. MASSÉ-MONAT
100024253
July 20, 2023
PROVINCE OF ONTARIO

MISS BJL CORP.
21-51 QUEEN ST. N.
MISSISSAUGA, ON

GRADING PLAN

PROJECT No.: 21-003
DRAWING: 401

METRIC
ALL DIMENSIONS IN MILLIMETRES



NOTES:

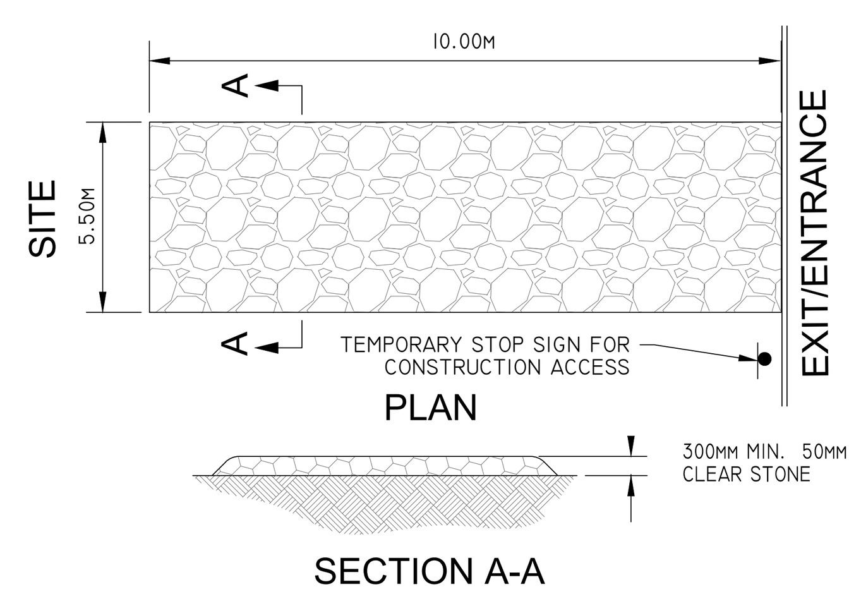
1. NON WOVEN OR WOVEN GEOTEXTILE (MAYBE CONSIDERED BASED ON SOIL PARAMETERS AND SITE CONDITION) TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm.
2. GEOTEXTILE TO HAVE A HORIZONTAL OVERLAP OF 1000mm AT JOINTS.
3. SNOW FENCE TO BE UV STABILIZED HIGH DENSITY POLYETHYLENE OR APPROVED EQUIVALENT.

MISSISSAUGA *Transportation and Works*

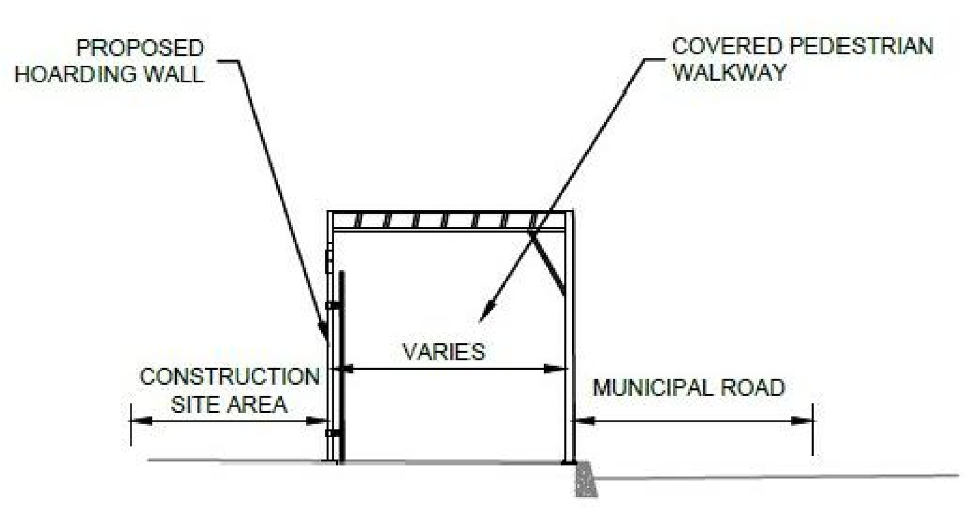
STANDARD

SEDIMENT CONTROL FENCE

EFF. DATE	2002-01-01	SCALE	N.T.S.
REV.		STANDARD No.	2940.010



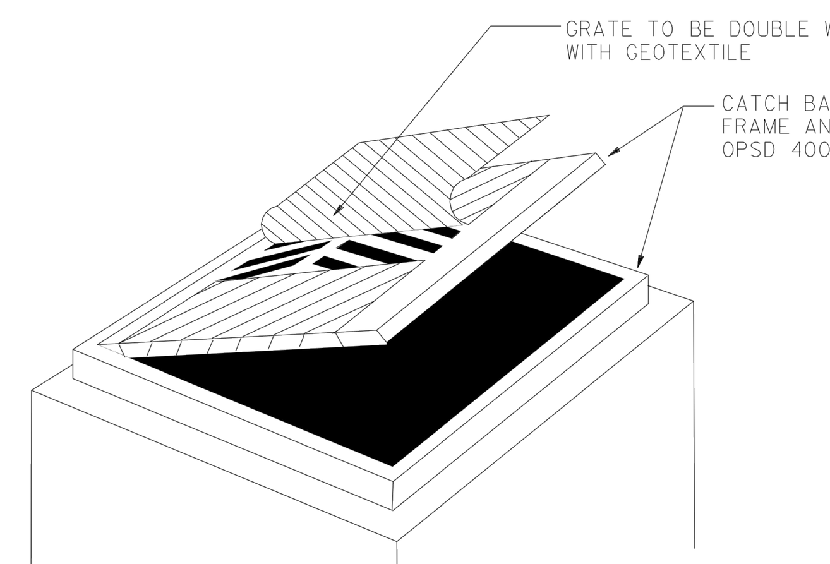
CONSTRUCTION MUD MAT DETAIL
N.T.S.



TYPICAL HOARDING DETAIL
N.T.S.

EROSION AND SEDIMENT CONTROL

1. EROSION AND SEDIMENT CONTROL (ESC) MEASURES WILL BE IMPLEMENTED PRIOR TO, AND MAINTAINED DURING CONSTRUCTION PHASES, TO PREVENT ENTRY OF SEDIMENT INTO THE WATER. ALL DAMAGED EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE REPAIRED OR REPLACED WITHIN 48 HOURS OF INSPECTION OR BOTH.
2. ALL DISTURBED AREAS WILL BE MINIMIZED TO THE EXTENT POSSIBLE, AND TEMPORARILY OR PERMANENTLY STABILIZED OR RESTORED AS THE WORK PROGRESSES.
3. THE EROSION AND SEDIMENT CONTROL STRATEGIES OUTLINED ON THE PLANS ARE NOT STATIC AND MAY NEED TO BE UPGRADED/AMENDED AS SITE CONDITIONS CHANGE TO MINIMIZE SEDIMENT LADEN RUNOFF FROM LEAVING THE WORK AREA. IF THE PRESCRIBED MEASURES ON THE PLANS ARE NOT EFFECTIVE IN PREVENTING THE RELEASE OF A DELETERIOUS SUBSTANCE, THEN ALTERNATIVE MEASURES MUST BE IMPLEMENTED IMMEDIATELY TO MINIMIZE POTENTIAL ECOLOGICAL IMPACTS AND A TORONTO REGION CONSERVATION AUTHORITY ENFORCEMENT OFFICE SHOULD BE IMMEDIATELY CONTACTED. ADDITIONAL ESC MEASURES TO BE KEPT ON SITE AND USED AS NECESSARY.
4. ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, WILL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO THE WATER. VEHICULAR REFUELING AND MAINTENANCE AND REFUELING WILL BE CONDUCTED A MINIMUM OF 30 M FROM THE WATER.
5. ALL GRADES WITHIN THE REGULATORY FLOOD PLAN WILL BE MAINTAINED OR MATCHED.



NOTES

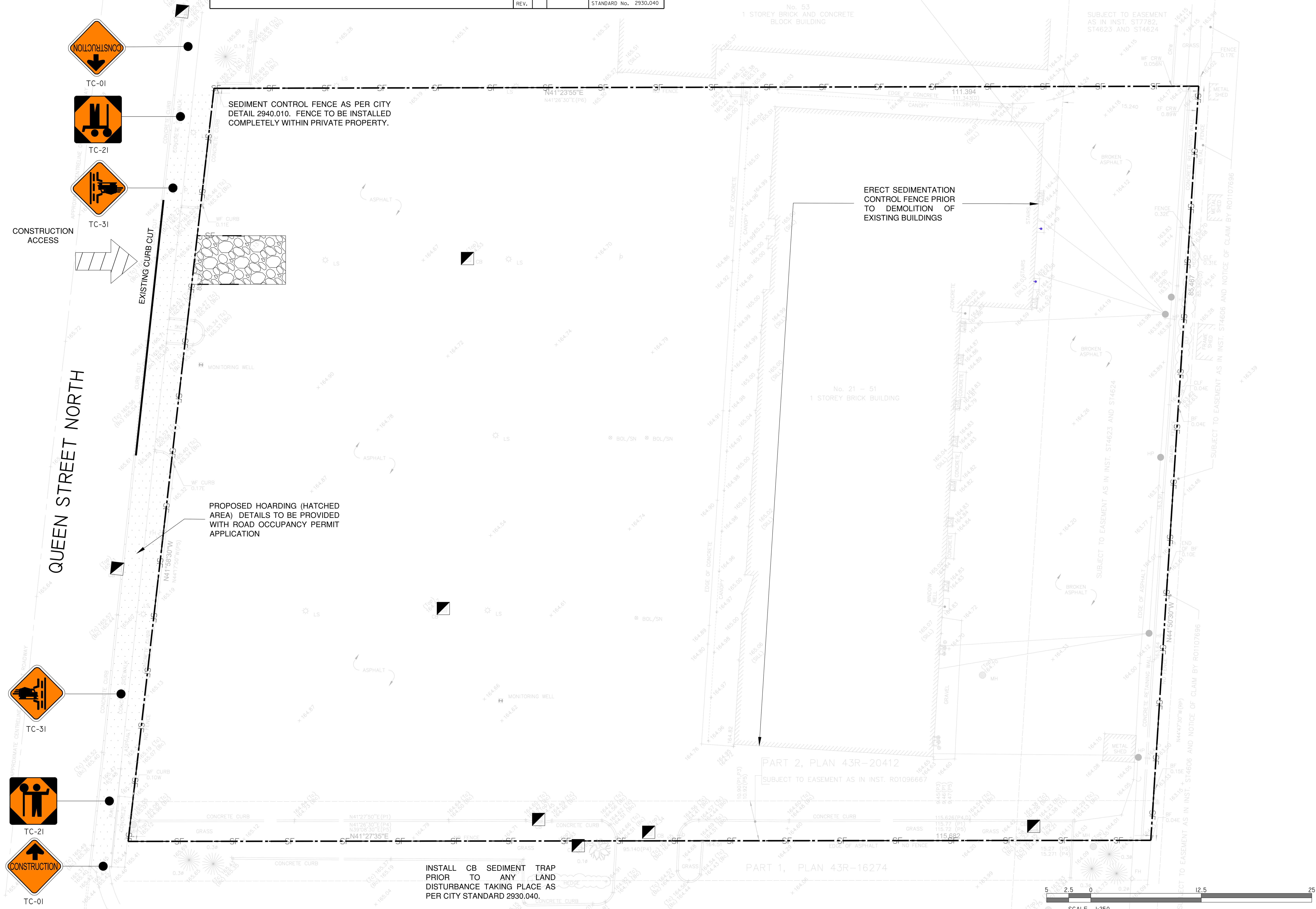
1. TO BE USED UNDER APPROPRIATE DRAINAGE CIRCUMSTANCES, BETWEEN **APRIL** AND **DECEMBER.**
2. WOVEN GEOTEXTILE TO HAVE A MINIMUM EQUIVALENT OPENING SIZE OF 0.15mm AND A MAXIMUM EQUIVALENT OPENING SIZE OF 0.25mm OR A NON WOVEN GEOTEXTILE TO BE CONSIDERED BASED ON SOIL PARAMETERS AND SITE CONDITIONS.
3. GEOTEXTILE TO BE REPLACED PERIODICALLY WHEN ACCUMULATED SEDIMENTS INTERFERES WITH DRAINAGE, OR AS DIRECTED BY THE TRANSPORTATION AND WORKS DEPARTMENT

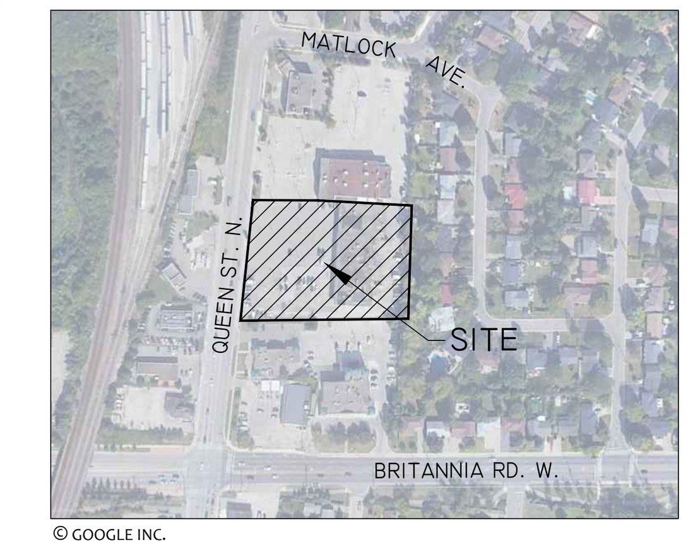
MISSISSAUGA *Transportation and Works*

STANDARD

ROADWAY CATCH BASIN SEDIMENT CONTROL DEVICE TYPE 'A'

EFF. DATE	2002-01-01	SCALE	N.T.S.
REV.		STANDARD No.	2930.040





LOCATION PLAN
N.T.S.

LEGEND

SF — SILT FENCE
CB SEDIMENT TRAP
MUD MAT

SURVEY INFO.	BENCHMARK
KRCMAR 1137 CENTRE ST. THORNHILL, ON L4J 3M6 PHONE: (905) 738-0053 FAX: (905) 738-9221	ELEVATIONS SHOWN HEREON ARE MISSISSAUGA DATUM AND ARE RELATED TO CITY OF MISSISSAUGA BENCH MARK NO. 075033019 HAVING A PUBLISHED ELEVATION OF 167.744M.

SITE PLAN INFO.	LIST OF DRAWINGS
A& ARCHITECTS 130 QUEENS QUAY EAST SUITE 1018 TORONTO, ON M5A 0P6 PHONE: (416) 466-0100	001 - NOTES AND DETAILS 002 - DETAILS AND SECTIONS 101 - SERVICING PLAN 401 - GRADING PLAN 601 - ESC PLAN

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SITEPLANTECH INC.
50 ST. CLEMENTS AVENUE
TORONTO, ON M4R 1G9
PHONE: (416) 270-7515

LICENSED PROFESSIONAL ENGINEER
L.P. MASSÜE-MONAT
100924283
July 20, 2023
PROVINCE OF ONTARIO

MISS BJL CORP.
21-51 QUEEN ST. N.
MISSISSAUGA, ON

EROSION, SEDIMENTATION CONTROL
AND
CONSTRUCTION MANAGEMENT PLAN

PROJECT No.:	DRAWING:
21-003	601