

**FUNCTIONAL SERVICING &
STORMWATER MANAGEMENT REPORT**

**6333 HURONTARIO STREET
MULTI-STOREY COMMERCIAL SELF-
STORAGE DEVELOPMENT
CITY OF MISSISSAUGA**

**PREPARED FOR:
DYMON GROUP OF COMPANIES**

**PREPARED BY:
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OCTOBER 2020

CFCA FILE NO. 1644-5564

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Revision Number	Date	Comments
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1.0 INTRODUCTION

C.F. Crozier & Associates Inc. (Crozier) was retained by Dymon Group of Companies (Dymon) to prepare a Functional Servicing and Stormwater Management Report in support of a Zoning By-Law Amendment (ZBA) for the proposed multi-storey commercial self-storage development at 6333 Hurontario Street (Site) in the City of Mississauga (City). This report outlines the proposed functional servicing and stormwater management plan for the Site according to the requirements of the Province, Region, and the City. The following reports, design criteria, and as-constructed drawings were referenced during the preparation of this report:

- Provincial
 - Ministry of Transportation (MTO) Highway Corridor Management Controlled Areas under the Public Transportation and Highway Improvement Act.
- Regional
 - Region of Peel 2020 Water and Wastewater Master Plan for the Lake-based Systems (study completion June 2020).
 - Public Works Design, Specifications, and Procedures Manual. Linear Infrastructure. Watermain Design Criteria revised June 2010.
 - Public Works Design, Specifications, and Procedures Manual. Linear Infrastructure. Sanitary Sewer Design Criteria modified March 2017.
 - Easement Plan **43R-35347** dated June 2013.
- Municipal:
 - Transportation and Works Development Requirements Manual dated August 2020.
 - Drawing **D1: Storm Design Areas** showing our Site as part of the World Drive (formerly Beckett Drive) drainage area dated December 1997.
- As-constructed drawings:
 - **24724-D**: servicing along World Drive dated December 1997.
 - **24725-D**: servicing along World Drive including easement information dated December 1997.
 - **56841-D**: servicing along Capstone Drive including stormwater information along Hurontario Street southwest of the Site dated October 2004.
 - **CF-40758**: site plan and services for 100 World Drive (formerly Beckett Drive) dated July 1999.

1.1 Project Background

The Site covers an area of approximately 0.80 hectares (ha) and is located north of the Highway 401 and Hurontario Street intersection. Subject lands currently consist of a one-storey stucco dwelling and unpaved parking areas for trailers and shipping containers. The Site is bounded by industrial

buildings to the north, a commercial plaza to the west, additional industrial buildings to the east, and Hurontario Street to the south. The Site is currently accessed from Hurontario Street via an MTO access road (approximately 0.20 ha).

1.2 Proposed Development

The proposed development based on site plan provided by Nicholas Caragianis Architect Inc. (NCA) dated October 1, 2020 consists of one 7-storey commercial self-storage building and underground parking. The proposed building has an approximate footprint of 4,115 m², an approximate gross floor area (GFA) of 27,861 m², and approximately 211 parking spaces. The Site has one vehicular access point located at the northwest corner of the Site fronting Hurontario Street.

1.3 Easement Overview

The Site is subject to a public servicing easement based on a survey (Plan 43R-35347) prepared by David B. Searles Surveying Ltd. dated June 25, 2013. The easement is set forth in LT1952394 over Parts 2 and 3 as part of Block 8 under Registered Plan 43M-1316. The survey shows that our Site relies on Parts 2 and 3 for water and sanitary servicing in connection to World Drive. The easement width as shown in **Drawing C102** was measured to be approximately 10 m. Part 2 and 3 occupy areas of approximately 30.1 m² and 460.1 m², respectively.

2.0 WATER SERVICING

2.1 Existing Water Servicing

According to as-constructed drawings, an existing concrete pressure pipe (CPP) 400 mm watermain is located on the north side of World Drive. Existing developments near the Site along World Drive are serviced via 250 mm water leads using valve and box connections stemming from the 400 mm watermain. There are two existing fire hydrants on the north side of World Drive. The first hydrant is 60 m east of Hurontario Street, and the second is 230 m east of Hurontario Street. The existing one-storey stucco dwelling is assumed to be of commercial land use based on the surrounding trucking activities. Please refer to **Drawing C102** for existing water servicing plans.

2.2 Water Design Demand

The City's Public Works Design Criteria Manual was used to estimate the proposed water demands for the 7-storey self-storage building. A design population of 51 was estimated based on population equivalents based on land use from the City's Sanitary Sewer Design Criteria Section 2.1. Subsequently, an average daily demand of 300 L/capita/day was used for an 'Industrial, Commercial, and Institutional' (ICI)s development to determine the domestic water demand for the existing and proposed conditions. A summary of the results is presented in **Table 1**, with detailed water design demand calculations provided in **Appendix A**.

Table 1: Existing and Proposed Domestic Water Demand

	Average Daily Demand (L/s)	Maximum Daily Demand (L/s)	Peak Hourly Demand (L/s)
Existing Water Demand	0.139	0.194	0.417
Proposed Water Demand	0.177	0.248	0.531
Increase in Water Demand	0.038	0.054	0.114

As shown in **Table 1**, the peak hourly water demand for the proposed development was estimated to be 0.531 L/s, representing an increase of 0.114 L/s from existing conditions (assuming existing residential land use and occupancy).

2.3 Fire Flow Demand

The Fire Underwriters Survey (FUS) method was used to complete the fire flow demand analysis for the proposed development. Flow requirements were calculated based on fire-restrictive construction that considered the area of the largest floor plus 25% of each of the two immediately adjoining floors, which was estimated to be 6,842 m², as calculated based on Levels 2, 3, and 4 from the site plan statistics prepared by NCA.

The proposed building is assumed to be of fire-restrictive construction containing primarily non-combustible (low hazard) contents with a regular sprinkler system. Exposure charges were included in the calculations to account for various existing industrial and commercial properties in proximity to the Site.

The proposed development requires a fire flow of approximately 150.0 L/s for a duration of 2.0 hours per the FUS calculations. Fire suppression capacity will be confirmed based on a subsequent hydrant flow test on World Drive.

Note that the FUS value is a conservative estimate to assess the capacity of the municipal water supply system to provide fire protection for the Site. The Mechanical Engineer for this development will complete the required analyses for building fire protection and the Architect will design fire separation methods per the determined fire flow rate in order to meet municipally available flows and pressures.

2.4 Proposed Water Servicing

A proposed water servicing strategy for this Site was developed in consultation with the Region of Peel, which involves using the 10 m public servicing easement corridor over Parts 2 and 3 as described in **Section 1.2**. Prior to development, the public easement will be released, and a private easement will be created to accommodate water servicing infrastructure to the Site among other services and utilities.

Water is proposed to be sourced through a new 150 mm water lead from the existing 400 mm CPP watermain on the north side of World Drive with a tapping sleeve and valve and box connection. The new 150 mm water lead will split into a 150 mm fire line and a 100 mm domestic line at the

southern extents of the private easement (at the interface between the easement and Site's northwestern property boundary). A valve chamber is proposed to be installed at the property line within the Site for the domestic line that will include a water meter, detector assembly, and backflow preventor. The 100 mm domestic line will subsequently connect into the Mechanical Room of the self-storage building. Internal building water servicing will be installed per Mechanical details and specifications. For fire suppression, one new fire hydrant is proposed near the front entrance of the self-storage building fronting Hurontario Street. A Siamese Connection is proposed north of the exit of the loading bays. Please refer to **Drawing C102** for the proposed water servicing plan.

3.0 SANITARY SERVICING

3.1 Existing Sanitary Servicing

According to as-constructed drawings, an existing 250 mm sanitary sewer is located along the centreline of World Drive. This 250 mm sanitary sewer is plugged at its intersection with Hurontario Street and sanitary flows are conveyed northeast towards Edwards Boulevard at a slope of 0.50% at an approximate depth of 5 m below grade. Sanitary flows are subsequently conveyed farther northeast towards the combined trunk sewer along Etobicoke Creek and, ultimately, the G.E. Booth Wastewater Treatment Plant for treatment. Please refer to **Drawing C102** for further details on the location of the existing sanitary sewer near the Site.

3.2 Sanitary Design Flow

The City's Public Works Design Criteria Manual was used to estimate design sanitary flows for the 7-storey self-storage building. A design population of 51 was estimated based on population equivalents based on land use from the City's Sanitary Sewer Design Criteria Section 2.1. An infiltration rate of 0.26 L/s/ha was used to determine the total peak sanitary flows for the Site. A summary of the results is presented in **Table 2**, with detailed calculations provided in **Appendix B**.

Table 2: Existing and Proposed Sanitary Design Flows

	Average Flow (L/s)	Peak Flow (L/s)	Infiltration Flow (L/s)	Total Peak Flow (L/s)
Existing Sanitary Design Flow	0.125	0.542	0.208	0.749
Proposed Sanitary Design Flow	0.159	0.687	0.260	0.948
Increase in Sanitary Design Flow	0.034	0.146	0.053	0.198

As shown in **Table 2**, the total peak sanitary flow for the proposed development was estimated to be 0.948 L/s, representing an increase of approximately 0.198 L/s from existing conditions.

3.3 Proposed Sanitary Servicing

It is proposed that the Site be serviced by new 200 mm PVC sanitary lead, and a sanitary property line manhole at the northwest corner of the Site bordering the easement. From the property line

manhole, additional 200 mm PVC sanitary leads and sanitary manholes will convey wastewater through the easement towards the existing 250 mm sanitary sewer on World Drive.

The existing 250 mm sanitary sewer is sloped at approximately 0.5% downstream of the proposed connection location, which yields a capacity of approximately 44 L/s. A total peak flow of 0.948 L/s as listed in Table 2 represents approximately 2% of the pipe's total capacity. The internal building sanitary servicing will be installed per Mechanical details and specifications. The proposed sanitary sewer system is shown in **Drawing C102**.

4.0 STORM DRAINAGE

4.1 Existing Drainage

The existing minor and major system within the development lands are conveyed overland westerly towards the MTO Patrol Yard. An existing swale along the western property line conveys flows south into an existing MTO culvert, ultimately conveyed into the MTO drainage system.

An existing ditch inlet catch basin is located within the MTO Patrol Yard near the north-west limits of the site. This ditch inlet is assumed to be connected to the existing 375 mm diameter storm sewer within the Hurontario right-of-way. A small portion of the MTO Patrol Yard and the municipal daylight landscaped area sheet flows to this drainage inlet.

The major system surrounding the subject site conveys flows through the Hurontario and World Drive rights-of-way. An overland flow route conveys the adjacent commercial development's major system through the site's northern property line and ultimately travels south towards the MTO drainage system.

Site topography is generally uniform falling in a westerly direction, with an average slope of 2.0%. The majority of the site area consists of a gravel entrance, an existing dwelling and landscaped areas. A depiction of the existing drainage conditions presented in **Figure 1**.

4.2 Proposed Drainage

The proposed grading and stormwater management system for the site has been designed in accordance to the City of Mississauga's Storm Design Criteria and with reference to the overall stormwater catchment drawing (Storm Design Areas – D1) prepared by Winter Associates dated July 1998. Refer to **Appendix C** for the overall stormwater Catchment Plan provided by the City of Mississauga. Proposed drainage conditions and major drainage areas are illustrated in **Figure 2**.

The majority of the site's minor and major flows (Catchment 201) will be collected by catchbasins, catchbasin manholes and two trench drains located at the site entrances. Collected stormwater is then conveyed through an internal storm sewer system and discharged to the existing municipal storm sewers on World Drive. The proposed on-site storm sewer system will be designed to collect and convey runoff from precipitation events up to the 100-year storm. The emergency overland route will direct flow to Hurontario Street right of way and the MTO Patrol yard drainage system, as is the case under current conditions. Details of the proposed storm sewer system are provided in the Site Servicing Plan in **Drawing C102**.

Uncontrolled runoff from the landscaped areas fronting Hurontario Street (Catchment 202) will drain overland toward the existing ditch inlet catch basin and the existing MTO drainage system. Refer to **Figure 2** for the site under post-development drainage conditions.

5.0 STORMWATER MANAGEMENT

Stormwater management design criteria was established through a detailed review of the City of Mississauga Development Requirements Manual. The stormwater management criteria include:

Quantity Control

City of Mississauga: Control 100-year post-development peak flows to the 10-year storm sewer design capacity as per the overall Stormwater Drainage Plan (Storm Drainage Areas – D1) dated 1998, prepared by Winter Associates.

MTO: The MTO will review the Stormwater Management Design and provide site specific comments. These comments will be incorporated once received.

Quality Control

Quality Control: 80% Total Suspended Solids (TSS) removal on an annual loading basis of the stormwater runoff leaving the development per the MECP Enhanced Water Quality Control Criteria.

Water Balance

Retain first 5 mm of rainfall across the site.

5.1 Design Flows

An estimate of the total impervious and pervious areas for pre- and post-development conditions was undertaken to determine a weighted site runoff coefficient. As previously mentioned, the pre-development target release rate is based on the overall stormwater Catchment Plan for the World Drive Storm Sewer design. A runoff coefficient of 0.75 was used to establish the site's pre-development target release rate. **Table 3** summarizes the pre- and post-development imperviousness of the site.

Table 3: Land Area Comparison

Condition	Impervious Area (m ²)	Pervious Area (m ²)	Total Area (m ²)	Percent Impervious (%)	Weighted Runoff Coefficient
Pre-Development	5,991	4,020	10,011	60	0.75*
Post-Development	8,167	1,844	10,011	85	0.77

*Design value according to the City of Mississauga's Stormwater Catchment (Storm Drainage Areas – D1) dated 1998, prepared by Winter Associates.

5.2 Stormwater Quantity Control

The Rational Method was used to calculate pre- and post-development flow rates where the Modified Rational Method was used to determine the storage requirements necessary to meet the design objective. City of Mississauga Intensity-Duration-Frequency (IDF) Parameters and a pre-

development runoff coefficient of 0.75 were used in the calculation, in accordance with the City of Mississauga's Stormwater Catchment (Storm Drainage Areas – D1) dated 1998, prepared by Winter Associates. In order to account for the increase in runoff due to of the saturation of the soils, runoff coefficient adjustment factors were used for the lower frequency design storms (25-,50-, and 100-storms) according to the City of Mississauga criteria. **Table 4** summarizes the parameters used and the resulting site target release rate.

Table 4: Target Release Rate

Storm	Total Area (m ²)	Weighted Runoff Coefficient	Time of Concentration (min.)	Intensity (mm/hr)	Target Release Rate (L/s)
10-year	10,011	0.75*	15	99.2	207.0

The proposed stormwater quantity control will be achieved by a 250 mm diameter orifice tube and oversized storm sewers to provide the required 100-year storage volume. The proposed oversized storm sewers and associated manholes are sized to provide a total of 105.0 m³ of storage within the system. Refer to **Table 5** for a summary of the 100-year post-development peak flows and required storage volume, with detailed calculations included in **Appendix C**.

Table 5: 100-year Post-Development Flow Rates and Required Storage Volumes

Storm	Target Release Rate (L/s)	Post-Development Controlled Flow Rate (Catchment 201) (L/s)	Post-Development Uncontrolled Flow Rate (Catchment 202) (L/s)	Storage Volume Required (m ³)	Storage Volume Provided (m ³)
100-year	207.0	202.1	3.9	94.7	105.0

Based on the Modified Rational Method, a total of 94.7 m³ of storage is required for the 100-year storm event; therefore, the stormwater quantity volume requirement is achieved. Detailed oversized storm sewer storage calculations will be provided during the detailed design stage.

The post-development stormwater management design directs the flows from the minor and major event storms to World Drive instead of the MTO right-of-way, as in pre-development conditions. This results in a decrease in flows to the MTO right-of-way, improving the pre to post-development conditions. **Appendix C** summarizes the adjustment factors and the adjusted runoff coefficients, including the corresponding calculations.

5.3 Water Balance

A Hydrogeotechnical investigation (Hydrogeotechnical Investigation, Fisher Engineer dated September 25, 2020) determined the underlying soils having low infiltration rates and the site experiences high groundwater fluctuations. The remaining water balance objective after the reduction of retention volume through initial abstraction of the various surface types results is a retention volume requirement of 32.7 m³. Volume retention will be achieved by an underground concrete water re-use chamber. Retained rainwater is proposed to be re-used for irrigation purposes. A total dead storage volume of 33.0 m³ is provided below the outlet of the chamber. The supporting water balance design calculations can be found in **Appendix C**.

5.4 Stormwater Quality Control

Stormwater quality control for the subject site will be accomplished by a Hydro International Up-Flo Filtre treatment unit. The Up-Flo filter has been sized to provide a net annual water quality TSS removal rate of 81%. Controlled drainage from Catchment 201 will discharge through the proposed stormwater treatment unit located downstream of the flow control manhole. Uncontrolled drainage for Catch 202 is considered inherently clean as it only consists of landscape area. Refer to **Appendix C** for the stormwater quality control detailed calculations.

6.0 EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION

Erosion and sediment controls will be installed prior to the commencement of any construction activities and will be maintained until the site is stabilized or as directed by the Site Engineer and/or the City of Mississauga. The Erosion & Sediment Control Plan (**Drawing C101**) identifies the location of the recommended control features. Controls will be inspected after each significant rainfall event and maintained in proper working condition. The following erosion and sediment controls will be provided during construction:

Silt Fencing

Silt fencing will be installed on the perimeter of the site to intercept sheet flow. Additional silt fence may be added based on field decisions by the Site Engineer and Owner, prior to, during and following construction.

Rock Mud Mat

A rock mud mat will be installed at the entrance of the construction zone in order to prevent mud tracking from the site onto the surrounding lands and perimeter roadway network. All construction traffic will be restricted to this access only.

Sediment Control Devices

A silt sack will be installed in all existing nearby storm sewer catch basins within the Right-of-Way. The silt sack will provide sediment control to prevent silt and sediment from entering the stormwater system.

7.0 CONCLUSIONS & RECOMMENDATIONS

Based on the information contained within this summary report, we offer the following conclusions:

1. Water servicing is proposed via a 150 mm water lead tying into the existing 400 mm diameter watermain on World Drive through a proposed private (abandoned and released public) easement. The 150 mm water lead will split into a 100 mm domestic line and a 150 mm fire line at the northeast boundary of the Site. The domestic line will provide an average daily flow of 0.177 L/s, a maximum day flow of 0.248 L/s, and a peak hourly flow of 0.531 L/s.

2. A fire flow demand of 150 L/s for 2.0 hours is required. Fire suppression capacity will be confirmed based on a subsequent hydrant flow test on World Drive.
3. The Site will be serviced by a proposed sanitary property line manhole at the northeast corner and 200 mm diameter sanitary sewers, which will connect to the existing 250 mm diameter sanitary sewer on World Drive through the proposed private easement.
4. Peak flow control for the 100-year post-development to 10-year sewer design capacity will be achieved through a 250 mm orifice tube and will provide approximately 95.0 m³ of active storage through oversized storm sewers and storm appurtenances.
5. Approximately 33.0 m³ of "dead storage" is provided within the underground concrete water re-use chamber for irrigation purposes.
6. The water quality requirement of 80% TSS removal from the site is achieved through the use of a Hydro International Up-Flo filtration system.

Based on the previously presented information and conclusions, we request consideration for approval of the Zoning By-Law Amendment from the perspective of servicing and stormwater management.

Respectfully submitted,

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APPENDIX A

Water Demand Calculations

Existing Water Demand Calculations - 6333 Hurontario Street Commerical Development

Site Statistics:

Land Use	Number of Units	Area (ha)	Population Density	Units	Population
Assumed Commercial	1	0.80	50	capita/ha	39.9

Total Commercial Population: **40**

Design Parameters

Average Demand (L/capita/d)
300

Water Demand:

Average Commercial Daily Demand = 12,000 L/day
0.14 L/s

Peaking Factors

Max Day = 1.4
Peak Hour = 3.0

Average Day = 0.14 L/s
Max Day = **0.19** L/s
Peak Hour = **0.42** L/s

Summary Table:

Municipality	Building	Average Daily Water Demand (L/s)	Max Day Demand (L/s)	Peak Hourly Demand (L/s)
Region of Peel	1-Storey Residential	0.139	0.194	0.417

Notes & References

Region of Peel Public Works Design, Specifications & Procedures Manual - Linear Infrastructure Sanitary Sewer Design Criteria (July, 2009) - 2.1 - Modified March 2017 REV 0.9 (CS)

Region of Peel Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June, 2010) - 2.3 Table #1

Region of Peel Public Works Design, Specifications & Procedures Manual - Linear Infrastructure - Watermain Design Criteria (June, 2010) - 2.3 Table #1

Max Day = Average Day Demand * Max Day
Peak Hour = Average Day Demand * Peak Hour



PROJECT: 2507 Dundas Street West
PROJECT NO.: 1644-5476

CREATED BY: JL
CHECKED BY: AS

DATE: 2019-12-10
UPDATED: 2020-10-30

Water Demand - Proposed Conditions

Site Statistics:

Land Use	Units	Area (ha)	Equivalent Population Density	Units	Population
Light Commercial Area	1 Self-Storage Building 1 Heritage Building	0.75	90.0	Persons/Hectare	67.2

Total Residential Population: **68**

Design Parameters:

Type of Development	Unit Water Demand	Units
Light Commercial Area	275	L/capita/day

Water Demand:

Average Residential Daily Demand = 18,700 L/day
0.216 L/s

Peaking Factors

Maximum Daily Demand Peaking Factor = 2.25
Maximum Hourly Demand Peaking Factor = 2.25

Average Day = **0.22** L/s
Max Day = **0.49** L/s
Peak Hour = **0.49** L/s

Summary Table:

Land Use	Units	Average Daily Water Demand (L/s)	Max Day Demand (L/s)	Peak Hourly Demand (L/s)
Light Commercial Area	1 Self-Storage Building 1 Heritage Building	0.216	0.487	0.487

Notes & References

Site statistics are per site plan provided by Nicholas Caragianis Architect Inc. dated October 26, 2020.

Per Halton Region Water and Wastewater Linear Design Manual dated October 2019. Table 3-1.

Per Halton Region Water and Wastewater Linear Design Manual dated October 2019. Table 2-2.

Assume designing for a watermain connection of 300 mm or less. Peaking factors are provided in Section 2.4.2 in the Region of Halton Water and Wastewater Linear Design Manual dated April 2019.

Max Day = Average Day Demand * Max Day
Peak Hour = Average Day Demand * Peak Hour

Water Supply for Public Fire Protection - 1999
Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

1. An estimate of fire flow required for a given area may be determined by the formula:

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

where

F = the required fire flow in litres per minute

C = coefficient related to the type of construction:

=	1.5	for wood frame construction (structure essentially all combustible)
=	1.0	for ordinary construction (brick or other masonry walls, combustible floor and interior)
=	0.8	for non-combustible construction (unprotected metal structural components)
=	0.6	for fire-resistive construction (fully protected frame, floors, roof)

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

For fire-resistive buildings, consider the two largest adjoining floors plus 50 percent of each of any floors immediately above them up to eight, when the vertical openings are inadequately protected.

If the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25 percent of each of the two immediately adjoining floors.

Proposed structure: Building 1 One (1) Seven-storey self-storage building

Total floor area in square metres = 6,842 sq.m.

C = 0.6 for fire-resistive construction (fully protected frame, floors, roof)

Therefore, F = 10,918 L/min

Fire flow determined above shall not exceed:

30,000 L/min for wood frame construction
30,000 L/min for ordinary construction
25,000 L/min for non-combustible construction
25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

Non-Combustible	-25% Reduction
Limited Combustible	-15% Reduction
Combustible	0% No change
Free Burning	15% Surcharge
Rapid Burning	25% Surcharge

Assume Non-Combustible -25% Reduction

Reduction = -2,730 L/min
Revised F = 8,189 L/min

Note: Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above may be reduced by up to 50% for complete automatic sprinkler protection. The credit for the system will be a maximum of 30% for an adequately designed system conforming to NFPA 13 and other NFPA sprinkler standards.

Assume 30% for adequately designed system conforming to NFPA 13

Reduction = 2,457 L/min
Revised F = 5,732 L/min

Water Supply for Public Fire Protection - 1999
 Fire Underwriters Survey

Part II - Guide for Determination of Required Fire Flow

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) exposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

Separation	Charge
0 to 3 m	25%
3.1 to 10 m	20%
10.1 to 20 m	15%
20.1 to 30 m	10%
30.1 to 45 m	5%

Exposed buildings

Name	Description	Distance (m)	Charge (%)	Surcharge (L/min)
Building 1 (Northwest)	Commercial Plaza	15.0	15%	1,228
Building 2 (Northeast)	Warehouse	32.0	10%	819
Building 3 (Southeast)	Warehouse	22	10%	819
Total Surcharge				2,866 L/min

NOTE:

Separation distances and names of exposed buildings are based on the Site Plan provided by Nicholas Caragianis Architect Inc. dated October 01, 2020 (Issued for ZBA).

Note that all exposure surcharges have been assigned to zero as the other buildings will be serviced by a separate series of fire tanks.

Determine Required Fire Flow

Construction Type & Base Fire Flow	No. 1	10,918 base
Contents Fire Hazard	No. 2	-2,730 reduction
Sprinkler System	No. 3	-2,457 reduction
Exposure	No. 4	2,866 surcharge

Required Flow: 8,598 L/min
 Rounded to nearest 1000 L/min: 9,000 L/min or 150.0 L/s
 2,378 USGPM

Required Duration of Fire Flow

Flow Required L/min	Duration (hours)
2,000 or less	1.0
3,000	1.25
4,000	1.5
5,000	1.75
6,000	2.0
8,000	2.0
10,000	2.0
12,000	2.5
14,000	3.0
16,000	3.5
18,000	4.0
20,000	4.5
22,000	5.0
24,000	5.5
26,000	6.0
28,000	6.5
30,000	7.0
32,000	7.5
34,000	8.0
36,000	8.5
38,000	9.0
40,000 and over	9.5

APPENDIX B

Sanitary Flow Calculations

Existing Sanitary Design Flow - 6333 Hurontario Street Commerical Development

Site Statistics:

Land Use	Number of Units	Area (ha)	Population Density	Units	Population
Existing Commercial	1	0.80	50	capita/ha	39.9

Total Commerical Population: **40**

Sanitary Design Flow:

Type of Development	Unit Sewage Flow	Units
Institutional, Commercial, Industrial	270	L/cap/day

Sanitary Design Flow:

Average Daily Flow = **10,800** L/d
Average Daily Flow = **0.125** L/s

Harmon Peak Factor:

M = 4.33

Peak Flow = **0.54** L/s

Infiltration Flow:

Infiltration = 0.26 L/ha/s
Total Infiltration = **0.208** L/s

Total Peak Flow:

Total Peak Flow = **0.749** L/s

Summary Table:

Municipality	Building	Average Daily Flow (L/s)	Peaking Factor	Peak Flow (L/s)	Infiltration Flow (L/s)	Total Peak Flow (L/s)
Region of Peel	Existing Commercial	0.125	4.33	0.542	0.208	0.749

Notes & References

Site statistics sourced from the site plan provided by Nicholas Caragianis Architect Inc. dated October 19, 2020

Region of Peel Public Works Design, Specifications & Procedures Manual - Linear Infrastructure Sanitary Sewer Design Criteria (July, 2009) - 2.1 - Modified March 2017 REV 0.9 (CS)

Per Figure 2 of the Region of Peel 2020 Water and Wastewater Master Plan

Average Daily Flow = Unit Sewage Flow * Population
Average Daily Flow = Unit Sewage Flow * Population / 86,400

$M = 1 + 14 / (4 + (p/1000)^{.5})$

Peak Flow = Average Daily Flow * M

Per Figure 2 of the Region of Peel 2020 Water and Wastewater Master Plan

Total Peak Flow = Peak Flows + Total Infiltration

Existing Sanitary Design Flow - 6333 Hurontario Street Commerical Development

Site Statistics:

Land Use	Number of Units	Area (ha)	Population Density	Units	Population
Self-Storage Building	1	1.00	50	capita/ha	50.1

Total Commerical Population: 51

Sanitary Design Flow:

Type of Development	Unit Sewage Flow	Units
Institutional, Commercial, Industrial	270	L/cap/day

Sanitary Design Flow:

Average Daily Flow = 13,770 L/d
Average Daily Flow = 0.159 L/s

Harmon Peak Factor:

M = 4.31

Peak Flow = 0.69 L/s

Infiltration Flow:

Infiltration = 0.26 L/ha/s
Total Infiltration = 0.260 L/s

Total Peak Flow:

Total Peak Flow = 0.948 L/s

Summary Table:

Municipality	Building	Average Daily Flow (L/s)	Peaking Factor	Peak Flow (L/s)	Infiltration Flow (L/s)	Total Peak Flow (L/s)
Region of Peel	Self-Storage Building	0.159	4.31	0.687	0.260	0.948

Notes & References

Site statistics sourced from the site plan provided by Nicholas Caragianis Architect Inc. dated October 19, 2020

Region of Peel Public Works Design, Specifications & Procedures Manual - Linear Infrastructure Sanitary Sewer Design Criteria (July, 2009) - 2.1 - Modified March 2017 REV 0.9 (CS)

Per Figure 2 of the Region of Peel 2020 Water and Wastewater Master Plan

Average Daily Flow = Unit Sewage Flow * Population
Average Daily Flow = Unit Sewage Flow * Population / 86,400

$M = 1 + 14 / (4 + (p/1000)^{.5})$

Peak Flow = Average Daily Flow * M

Per Figure 2 of the Region of Peel 2020 Water and Wastewater Master Plan

Total Peak Flow = Peak Flows + Total Infiltration

APPENDIX C

Stormwater Management Calculations

Modified Rational Calculations - Input Parameters

Storm Data: City of Mississauga

Time of Concentration: $T_c = 15.00$ mins

Return Period	A	B	C	I (mm/hr)
10 yr	1010.0	4.60	0.78	99.2
100 yr	1450.0	4.90	0.78	140.7

External Conditions

Land Use	Area (ha)	Area (m ²)	C	Weighted Average C
Catchment EXT-1				
Pervious	0.04	351	0.25	0.25
Impervious	0.00	0	0.90	0.00
Total Sub catchment	0.04	351	-	0.25

Pre-Development Conditions

Land Use	Area (ha)	Area (m ²)	C	Weighted Average C
Catchment 101 - 6333 Hurontario				
Pervious	0.33	3250	0.25	0.10
Impervious	0.47	4733	0.90	0.53
Total Sub catchment	0.80	7983	-	0.64

Catchment 102 - MTO Patrol Yard				
Pervious	0.93	1301	0.25	0.23
Impervious	0.07	726	0.90	0.07
Total Sub catchment	0.20	2027	-	0.30
Total Site	1.00	10011	-	0.75

*Pre-development runoff coefficient for Catchment 101 is based on Drawing D1 - Storm Design Areas prepared by Winter Associates dated July 1998 that accounted for the entire site area to discharge to World Drive

Post-Development Conditions

Land Use	Area (ha)	Area (m ²)	C	Weighted Average C
Catchment 201 - Controlled to World Drive				
Pervious	0.15	1529	0.25	0.04
Impervious	0.82	8167	0.90	0.73
Total Sub catchment	1.00	9696	-	0.77

Catchment 202 - Uncontrolled to Hurontario Street				
Pervious	0.03	315	0.25	0.25
Impervious	0.00	0	0.90	0.00
Total Sub catchment	0.03	315	-	0.25

Equations:

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

References

City of Mississauga Development Manual (January 2020). Section 8 - Storm Drainage Design Requirements

Rational Calculations - Peak Flow Summary

Peak Flows

External Flows

Catchment 101					
Storm Event	C	i (mm/hr)	A (ha)	Q (m³/s)	Q (L/s)
10 yr	0.25	99.17	0.04	0.002	2.42
100 yr	0.31	140.69		0.004	4.29

Pre-Development

Catchment 101					
Storm Event	C	i (mm/hr)	A (ha)	Q (m³/s)	Q (L/s)
10 yr	0.75	99.17	0.80	0.165	165.06
100 yr	0.94	140.69		0.293	292.72

Catchment 102					
Storm Event	C	i (mm/hr)	A (ha)	Q (m³/s)	Q (L/s)
10 yr	0.75	99.17	0.20	0.042	41.92
100 yr	0.94	140.69		0.074	74.34

Post-Development

Catchment 201 - Controlled Flow					
Storm Event	C	i (mm/hr)	A (ha)	Q (m³/s)	Q (L/s)
10 yr	0.77	99.17	1.00	0.213	213.16
100 yr	0.97	140.69		0.378	378.02

Catchment 202 - Uncontrolled Flow					
Storm Event	C	i (mm/hr)	A (ha)	Q (m³/s)	Q (L/s)
10 yr	0.25	99.17	0.03	0.002	2.17
100 yr	0.31	140.69		0.004	3.85

Storm Event (years)	Peak Flows (L/s)							Required Storage (m³)
	Q _{EXT}	Q _{pre}	Post-Development					
			Q _{post-201}	Q _{post-202}	Catchment 201		Q _{total}	
					Q _{target} *	Q _{design}		
10 yr	2.42	206.98	213.16	2.17	206.98	202.10	205.95	94.67
100 yr	4.29	367.06	378.02	3.85				

Equations:

$$Q_{\text{post}} = 0.0028 \cdot C_{\text{post}} \cdot i(T_d) \cdot A \cdot f$$

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

Adjustment Factor (f) for storms larger than a 10-Year Return Period

f₂₅: 1.1

f₅₀: 1.2

f₁₀₀: 1.25

*According to Handbook of Engineering Hydrology (2014)

Modified Rational Calculations - 100-Year Storm Event

Control Criteria

100 yr: Control Post-Development Peak Flows to the 10YR Pre-Development at a Maximum RC = 0.75

100 yr: Uncontrolled Post-Development Flow:

$$Q_{\text{post}} = 0.004 \text{ m}^3/\text{s}$$

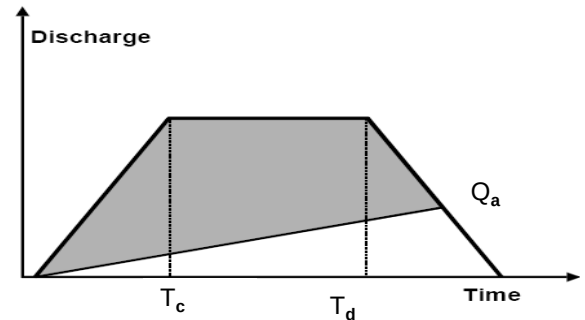
100 yr: Post-Development Flow Target:

$$Q_{\text{target}} = 0.207$$

100 yr: Post-Development Flow Controlled:

$$Q_{\text{controlled}} = 0.202 \text{ m}^3/\text{s}$$

Storage Volume Determination				
T_d (min)	i (mm/hr)	T_d (sec)	Q_{Uncont} (m^3/s)	S_d (m^3)
5	242.53	300	0.525	36.3
10	176.31	600	0.382	77.5
15	140.69	900	0.305	92.2
20	118.12	1200	0.256	94.7
25	102.41	1500	0.222	90.1
30	90.77	1800	0.197	80.9
35	81.77	2100	0.177	68.6
40	74.58	2400	0.161	54.0
45	68.68	2700	0.149	37.7
50	63.75	3000	0.138	20.0
55	59.56	3300	0.129	1.1
60	55.95	3600	0.121	-18.6
65	52.81	3900	0.114	-39.2
70	50.03	4200	0.108	-60.4
75	47.58	4500	0.103	-82.2
80	45.38	4800	0.098	-104.5
85	43.39	5100	0.094	-127.2
Required Storage Volume:				94.7



Peak Flow

$$Q_{\text{post}} = 0.0028 \cdot C_{\text{post}} \cdot i(T_d) \cdot A$$

Storage

$$S_d = Q_{\text{post}} \cdot T_d - Q_{\text{target}} (T_d + T_c) / 2$$



PROJECT: 6333 Hurontario
PROJECT No.: 1164-5564

DESIGN: ADF
CHECK: AS

DATE: 2020-10-01
UPDATED: 2020-10-27

WATER BALANCE CALCULATIONS

Catchment	Land Use	Controlled?	Area (m ²)	Required Abstraction (mm)	Initial Abstraction (mm)	Abstraction Deficit (mm)	Water Balance Deficit (m ³)
Catchment 201 & 202	Impervious	Yes	8,167	5	1	4	32.7
	Pervious	Yes	1,844		5	0	0.0
Site Total			10,011	50.1	-	-	32.7



PROJECT: 6333 Hurontario
PROJECT No.: 1164-5564

ADF
AS

2020-10-01
2020-10-27

WATER QUALITY CALCULATIONS

Catchment	Land Use	Area (m ²)	Treatment Process	Water Quality Target (%)	% of Total Development Area	TSS Removal Credit (%)	Total TSS Removal (%)
201	Pervious	1,529	Up-Flo Filter	80.0%	15.3%	81.0%	12.4%
	Impervious	8,167			81.6%		66.1%
202	Impervious	315	Landscape		3.1%	80.0%	2.5%
TOTAL		10,011			100.0%	-	81.0%



**CROZIER
& ASSOCIATES**
Consulting Engineers

Project: 6333 Hurontario
Project No.: 1164-5564
Designed By: ADF
Checked By: AS
Date: 2020-10-01
Date Updated: 2020-10-27

Orifice Design

Orifice: $Q=CA(2gH)^{0.5}$	Orifice
Discharge Coef., Cd=	0.80
Orifice Diameter (mm) =	250
Area of Orifice (m ²) =	0.0491
Orifice (Side/Bottom) =	Side
Orifice Invert (m) =	195.58
Max Head (m) =	1.35
100YR Orifice Release Rate (L/s) =	202.10

Hydro Up-Flo® Filter

Net Annual Water Quality Worksheet



Project Name: 6333 Hurontario **Report Date:** 2020.10.15 [Paste](#)
Street: Hurontario **City:** Mississauga
Province: Ontario **Country:** Canada
Designer: Andrew Farina **email:** afarina@cfcrozier.ca

Treatment Parameters:

Site ID:
Area: 1 ha
Percent Impervious: 85%
Rational C value: 0.77 [Calc. Cn](#)
Rainfall Station: Toronto Pearson Intl AP, ONT [MAP](#)
Peak Storm Flow: 202 L/s
Peak Storm Flow Return: - yrs
Number of Filter Modules 11

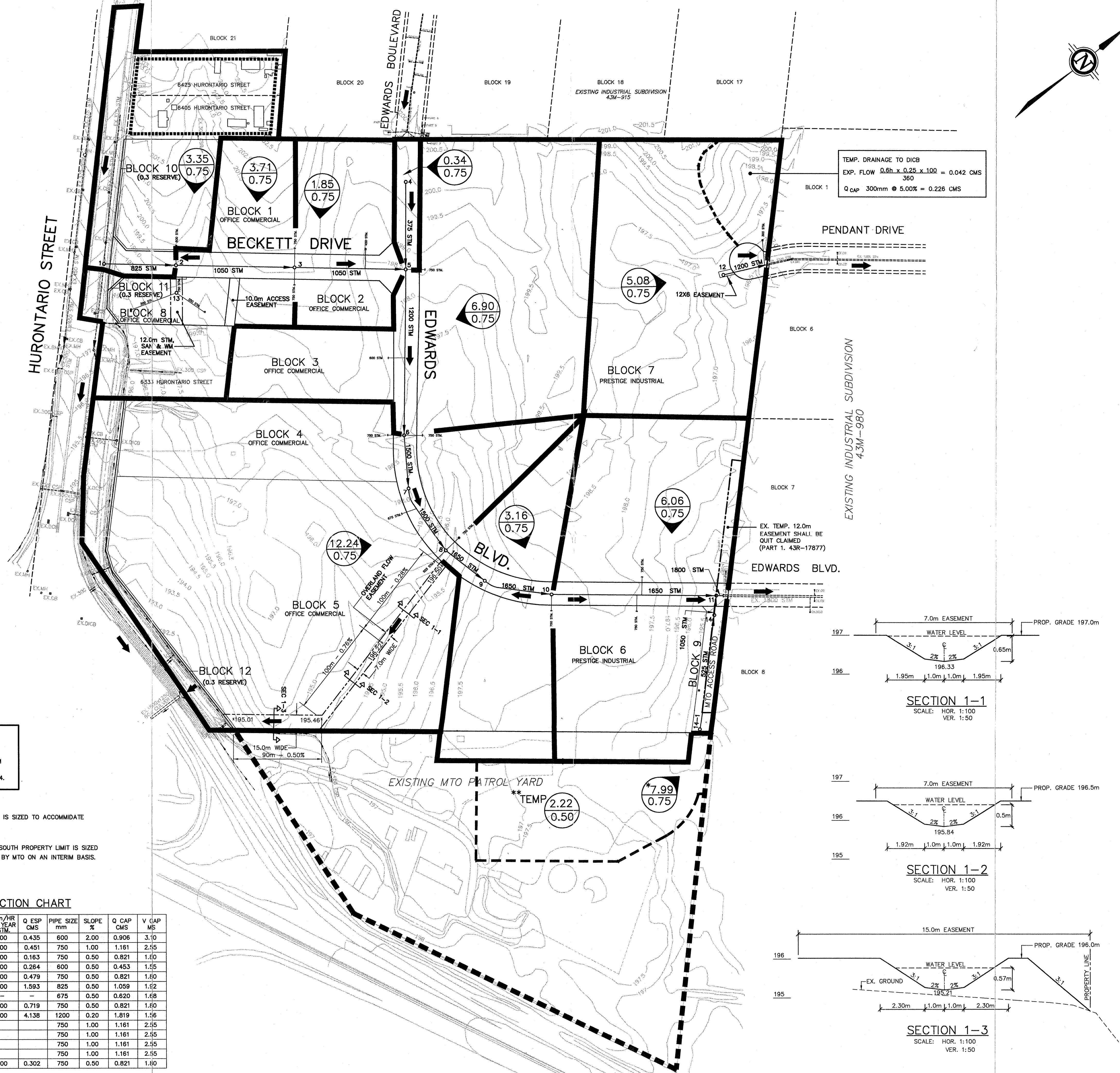
Installation Configuration:

Outlet Pipe Size: - mm
Inlet Pipe 1 Size: - mm
Inlet Pipe 2 Size: - mm
Inlet Pipe 3 Size: - mm

Rim Level: - m
Outlet Pipe Invert: - m 0
Invert Pipe 1: - m 0
Invert Pipe 2: - m 0
Invert Pipe 3: - m 0

Intensity*	Fraction of Annual Distribution*	Filter Removal Efficiency	Weighted Net Annual Efficiency
(mm/hr)	(%)	(%)	(%)
0.50	0.2%	92.3%	0.2%
1.00	15.0%	91.3%	13.7%
1.50	17.3%	90.4%	15.6%
2.00	14.5%	89.4%	13.0%
2.50	3.1%	88.5%	2.7%
3.00	2.6%	87.6%	2.3%
3.50	6.2%	86.6%	5.4%
4.00	4.6%	85.7%	4.0%
4.50	1.6%	84.8%	1.4%
5.00	4.9%	83.8%	4.1%
6.00	4.1%	81.9%	3.3%
7.00	4.4%	80.1%	3.6%
8.00	3.2%	78.2%	2.5%
9.00	2.2%	76.3%	1.7%
10.00	2.4%	74.4%	1.8%
20.00	9.4%	55.7%	5.2%
30.00	2.4%	36.9%	0.9%
40.00	0.9%	18.1%	0.2%
50.00	0.5%	0.0%	0.0%
100.00	0.4%	0.0%	0.0%
150.00	0.0%	0.0%	0.0%
Net Annual Treatment			81.5%
Total Net Annual Removal Efficiency:			81.5%
Total Runoff Volume Treated:			90.5%
1. Rainfall Data: 1960:2013, HLY03, Toronto Pearson Intl AP , ON, 6158733. 2. Based on NJDEP test protocols post 2015 independently verified.			

DRAWINGS



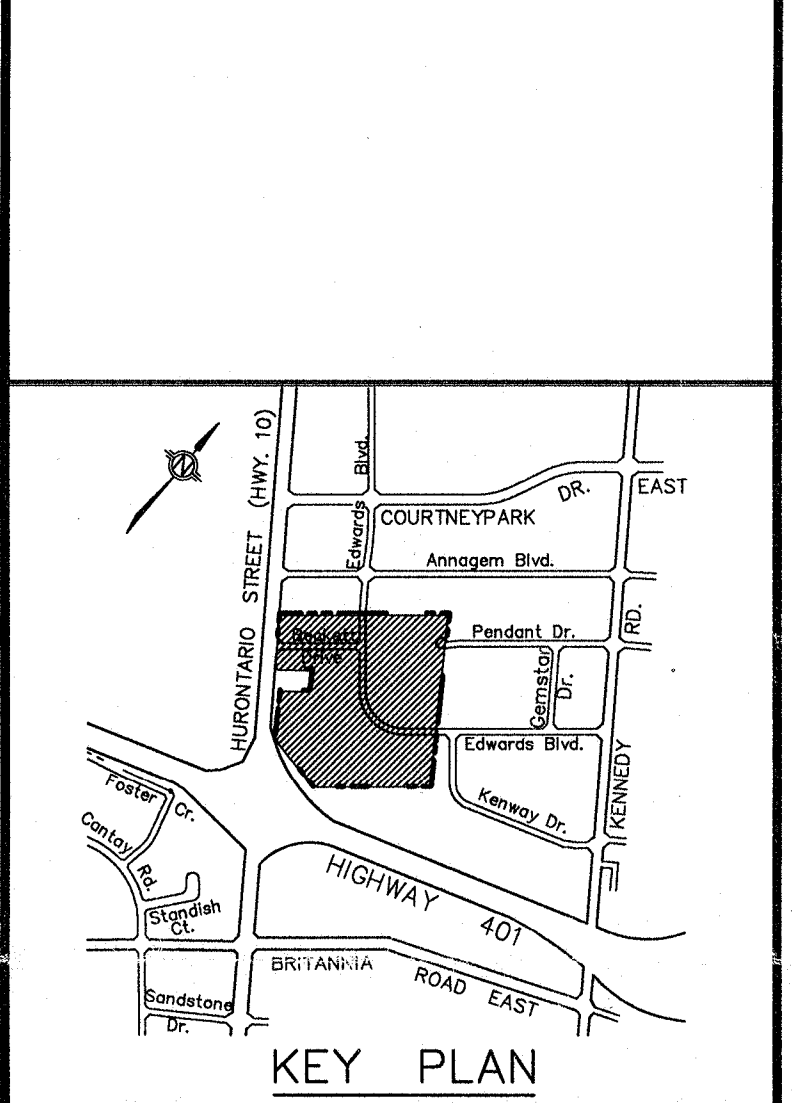
DATE	REVISIONS	INIT.

BENCH MARK (CITY OF MISSISSAUGA)
B.M. NO. 221 ELEV. 202.730m
221: ON THE W. FACE, 80m N. OF THE S. CORNER OF A RED BRICK HOUSE, No. 6405, ON THE E. SIDE OF HURONTARIO ST. (HWY #10), 1250m N. OF BRITANNIA RD. E.

FOR GENERAL NOTES SEE DWG. N1

LEGEND

- DRAINAGE AREA (HECTARES)
- RUN-OFF COEFFICIENT
- DRAINAGE AREA BOUNDARY
- OVERLAND FLOW ROUTE



ISSUES

yr.	m.	d.

SUBMISSIONS

1st.	✓	Date JAN/98	Interim		Date
2nd.	✓	Date MAR/98	Final	✓	Date JULY/98
Pre-Serv.	✓	Date JUNE/98			

DESIGNED
CHK'D

APPROVED

Winter Associates
Consulting Engineers, Architects, Planners and Landscape Architects
200 Midland Boulevard West, Mississauga, Ontario L5E 3T7
Tel. (905) 890 0110 Fax: (905) 890 0319

CANTAY HOLDINGS INC.
HEARTLAND
PHASE 6
CITY AND REGION FILE NO. 21T - 87081

CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

STORM DESIGN AREAS

METRIC SCALE 1:2000	AREA 2-43	REVAL 9405X1
DRAWN GR	CHK'D CFC	DWG. NO. D1
DATE DEC/97	SHEET 1 OF 1	

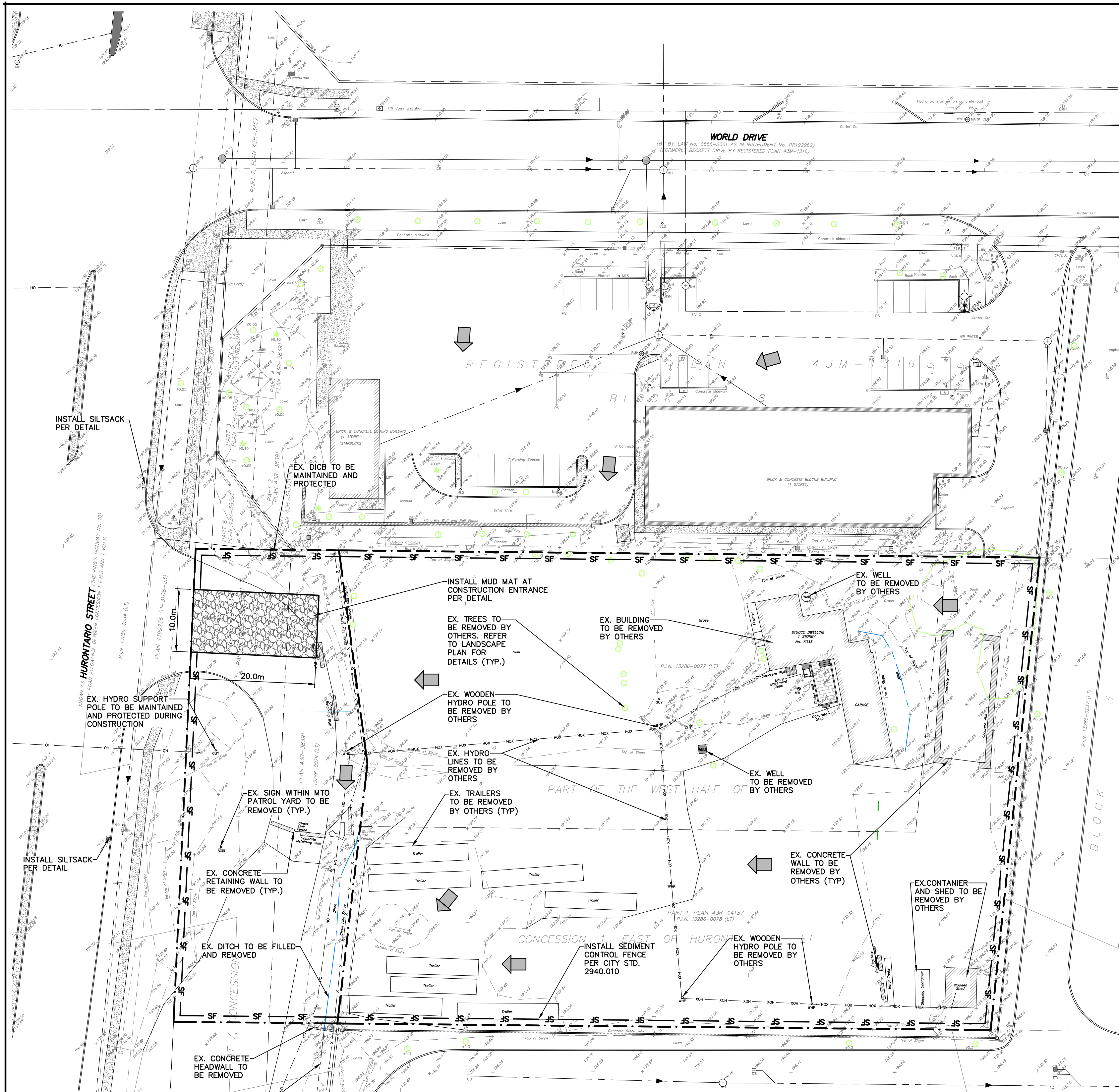
NOTE
IF THE MTO PATROL YARD IS FULLY DEVELOPED IN THE FUTURE, THE STORM SEWER, SIZED FOR DEVELOPED FLOWS, WILL HAVE TO BE EXTENDED FROM MH14.

- 1050mm STM SEWER BETWEEN MH 14 & 11 IS SIZED TO ACCOMMODATE THE ENTIRE MTO PATROL YARD.
- 525mm STM SEWER BETWEEN MH 14 AND SOUTH PROPERTY LIMIT IS SIZED TO ACCOMMODATE AN AREA RECOMMENDED BY MTO ON AN INTERIM BASIS.

STORM CONNECTION CHART

BLOCK No.	AREA (Ha)	C.	A x C	mm/HR 10 YEAR STM.	Q ESP CMS	PIPE SIZE mm	SLOPE %	Q CAP CMS	V CAP MS
EX. RES. & PART OF 1	2.09	0.75	1.568	100	0.435	600	2.00	0.906	3.10
PART OF 1	2.165	0.75	1.624	100	0.451	750	1.00	1.161	2.95
2	0.78	0.75	0.585	100	0.163	750	0.50	0.821	1.40
3	1.22	0.75	0.953	100	0.264	600	0.50	0.453	1.55
4	2.30	0.75	1.725	100	0.479	750	0.50	0.821	1.40
5	7.65	0.75	5.738	100	1.593	825	0.50	1.059	1.82
5	-	-	-	-	-	675	0.50	0.620	1.68
6	3.45	0.75	2.588	100	0.719	750	0.50	0.821	1.80
7	15.28	0.75	11.46	100	4.138	1200	0.20	1.819	1.56
7	-	-	-	-	-	750	1.00	1.161	2.95
7	-	-	-	-	-	750	1.00	1.161	2.95
7	-	-	-	-	-	750	1.00	1.161	2.95
7	-	-	-	-	-	750	1.00	1.161	2.95
EX. RES. & BLK B	1.451	0.75	1.088	100	0.302	750	0.50	0.821	1.80

Elbinder 23



EXISTING UTILITIES AND SERVICES

CONTRACTOR SHALL NOTE THAT THE CONSTRUCTION ZONE HAS NUMEROUS EXISTING UNDERGROUND UTILITIES INCLUDING ELECTRONIC METHODS, VACUUM EXCAVATIONS, SURVEYING MANHOLES AND CHAMBERS ETC.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL RETAIN THE SERVICES OF A COMPANY, WHICH SPECIALIZES IN SUBSURFACE UTILITY ENGINEERING FOR THE PURPOSES OF LOCATING, MARKING AND SURVEYING ALL UNDERGROUND UTILITIES AND SERVICES. ALL CURRENT METHODS SHALL BE USED FOR THESE LOCATIONS INCLUDING ELECTRONIC METHODS, VACUUM EXCAVATIONS, SURVEYING MANHOLES AND CHAMBERS ETC.

THE UTILITIES AND SERVICES SHALL BE SURVEYED AND TIED INTO THE PROJECT COORDINATE SYSTEM. A COPY OF THE SURVEY SHALL BE PROVIDED TO THE ENGINEER FOR RECORD PURPOSES.

ANY CONFLICT WITH THE PROPOSED WORKS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

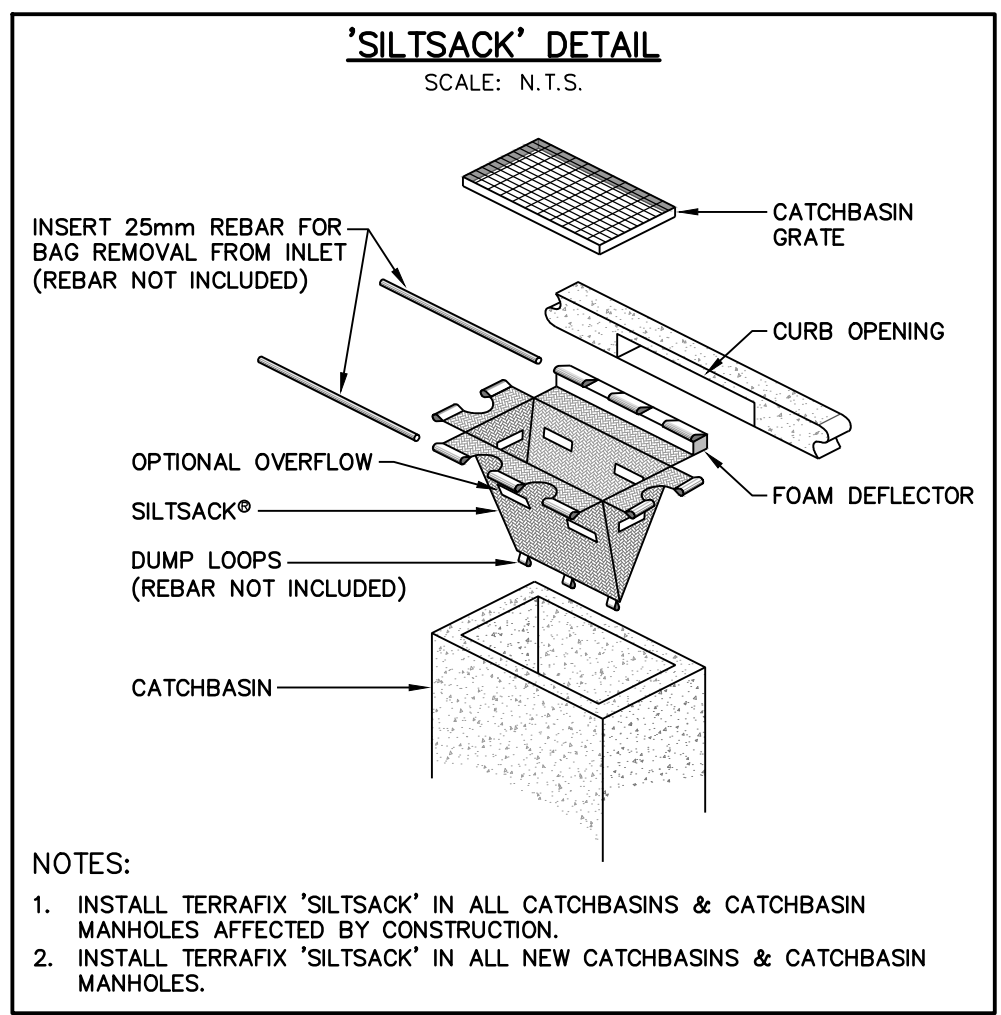
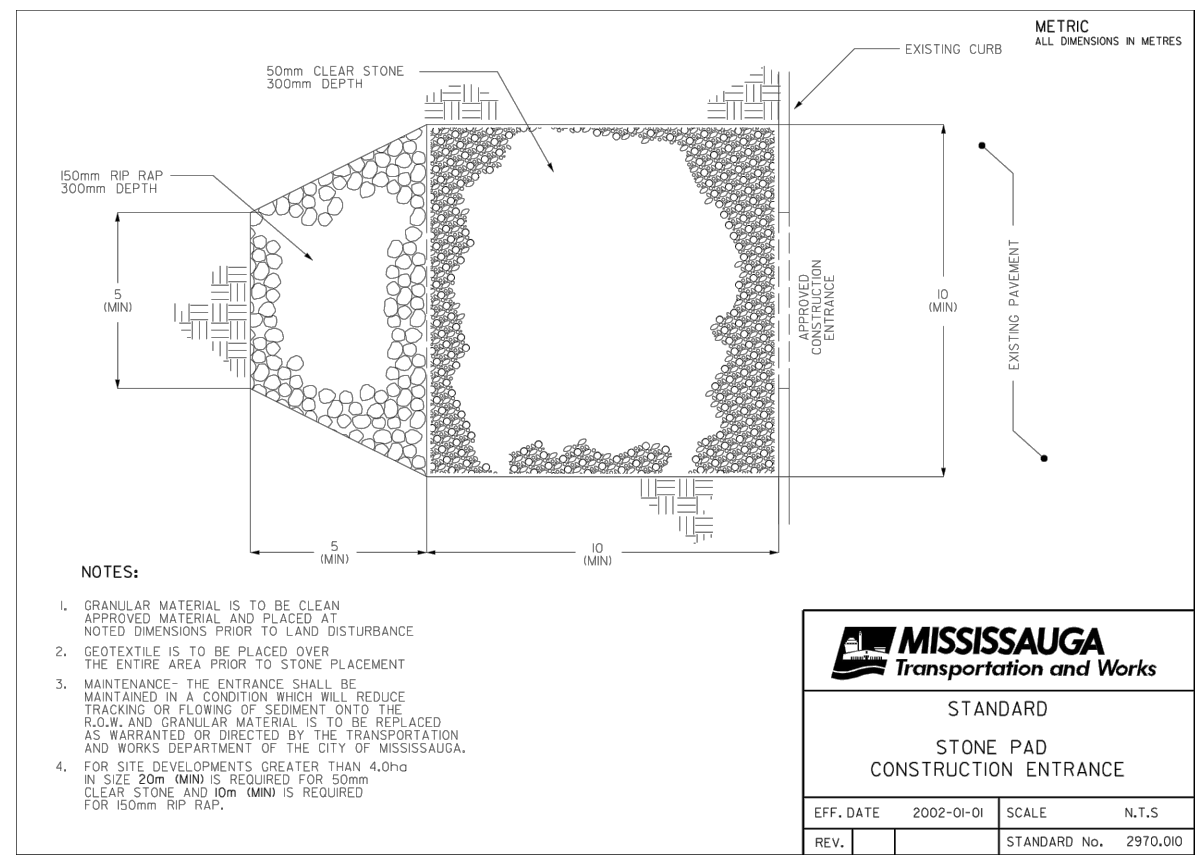
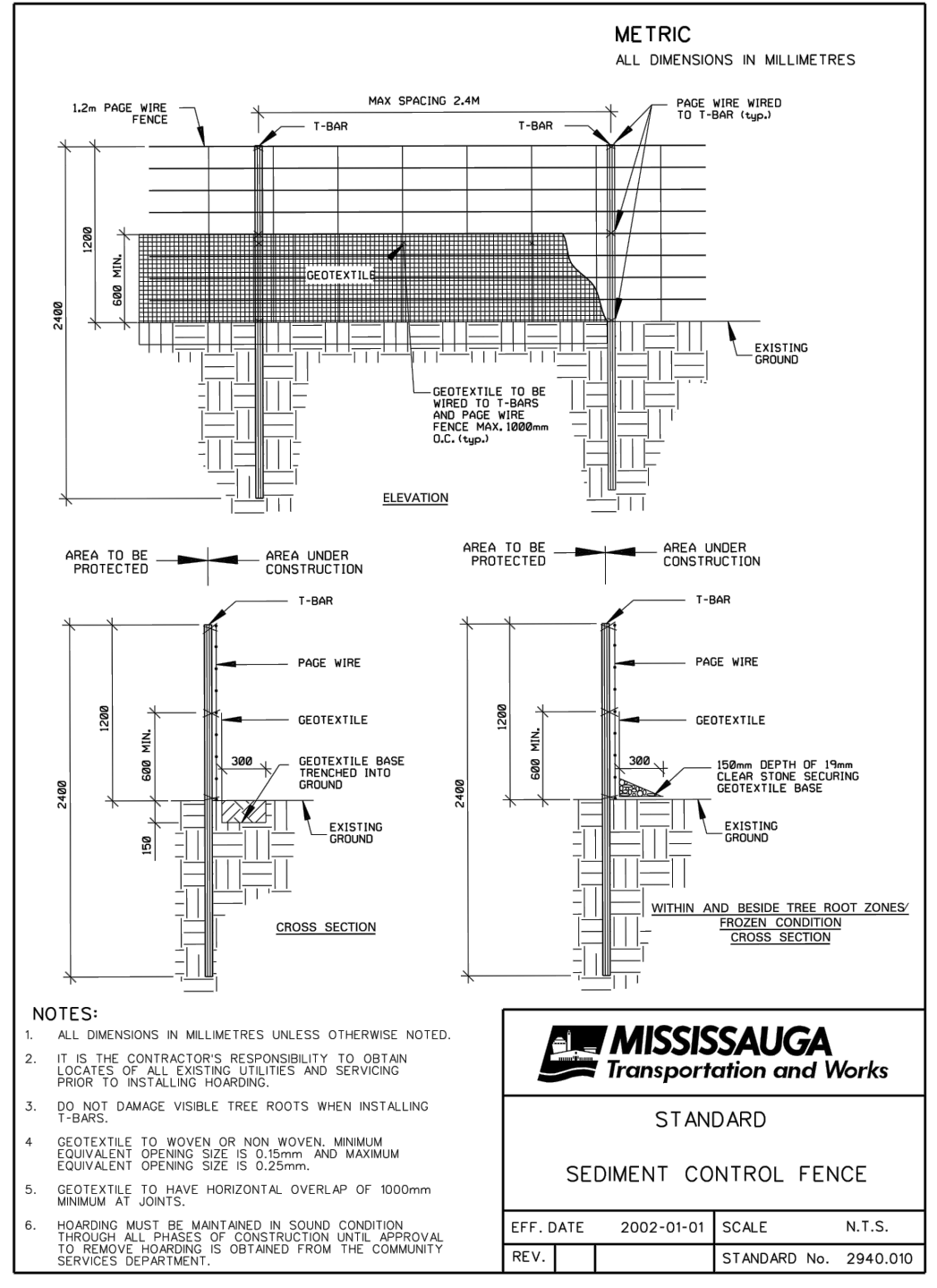
THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOCATIONS FOR PROTECTION AND TEMPORARY RELOCATION OF UNDERGROUND UTILITIES AND SERVICES AS REQUIRED FOR THE COMPLETE INSTALLATION OF THE PROPOSED WORKS.

EROSION & SEDIMENT CONTROL NOTES:

1. EROSION & SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO THE COMMENCEMENT OF SITE WORKS.
2. EROSION & SEDIMENT CONTROLS MUST BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY RAIN FALL EVENT, AND MUST BE MAINTAINED AND REPAIRED IN A TIMELY MANNER TO PREVENT SEDIMENT FROM LEAVING THE SITE.
3. EXISTING AND PROPOSED CATCHBASINS ARE TO BE PROTECTED WITH FILTER CLOTH AND 150mm OF 50mm STONE COVER DURING CONSTRUCTION.
4. IT IS REQUIRED TO STABILIZE ALL AREAS THAT WILL REMAIN DISTURBED FOR MORE THAN 30 DAYS.
5. MUD MAT, SILT FENCE, AND CATCHBASIN PROTECTION ARE NOT TO BE REMOVED UNTIL COMPLETION OF CONSTRUCTION.

NOTE:

ALL DISTURBED AREAS WITHIN MUNICIPAL RIGHT-OF-WAYS ARE TO BE REINSTATED TO EXISTING CONDITIONS OR BETTER



ALL DISTURBED AREAS TO BE RESTORED TO THE SATISFACTION OF THE CITY OF MISSISSAUGA AND REGION OF PEE.

ALL REMOVED MATERIALS TO BE DISPOSED OF OFF-SITE.

THE REMOVAL/RELOCATION OF ELECTRICAL AND COMMUNICATION DUCTS, CABLES, ELECTRICAL POLES, LIGHT STANDARDS, GAS PIPES AND OTHER EX. UTILITIES TO BE COMPLETED PER ELECTRICAL DESIGN AND UTILITIES COMPANIES DESIGN.

NOT FOR CONSTRUCTION

Stamp

Stamp

Stamp



LEGEND

---	PROPERTY LINE
---	EXISTING DITCH
---	EXISTING HYDRO POLE
---	EXISTING FENCE
---	EXISTING GRADE
---	EXISTING OVERLAND FLOW DIRECTION
---	MUD-MAT; SEE DETAIL
---	SILT FENCE; SEE DETAIL

0	ISSUED FOR FIRST SUBMISSION	2020/OCT/30
No.	ISSUE / REVISION	YYYY/MM/DD

ELEVATION NOTE:

ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM THE CITY OF MISSISSAUGA BENCHMARK No. 1015.

TABLET SET HORIZONTALLY AT BASE OF A 0.75m DIAMETER CONCRETE TRAFFIC POLE AT THE NORTHEAST CORNER OF CORTNEYPARK DRIVE EAST AND HURONTARIO STREET.

PUBLISHED ELEVATION = 200.113 METERS

BEARING NOTE:

BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE EASTERLY LIMIT OF HURONTARIO STREET AS SHOWN ON PLAN 43R-38391, HAVING A BEARING OF N43°44'10"W.

SURVEY NOTES:

SURVEY COMPLETED BY COMPANY SPEIGHT, VAN NOSTRAND AND GIBSON LIMITED (2020/JUL/13)

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

SITE PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON SITE PLAN BY NICHOLAS CARAGIANIS ARCHITECT DRAWING No.: 200007-A-100 SP, REV.9 (2020/OCT/18)

PROJECT No.: 2020-00007

DRAWING NOTES:

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.

ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project

DYMON GROUP OF COMPANIES

6333 HURONTARIO STREET

CITY OF MISSISSAUGA

Drawing

REMOVALS PLAN

EROSION & SEDIMENT CONTROL PLAN

Drawn

Design

Check

Scale

Dwg.

1644-5564

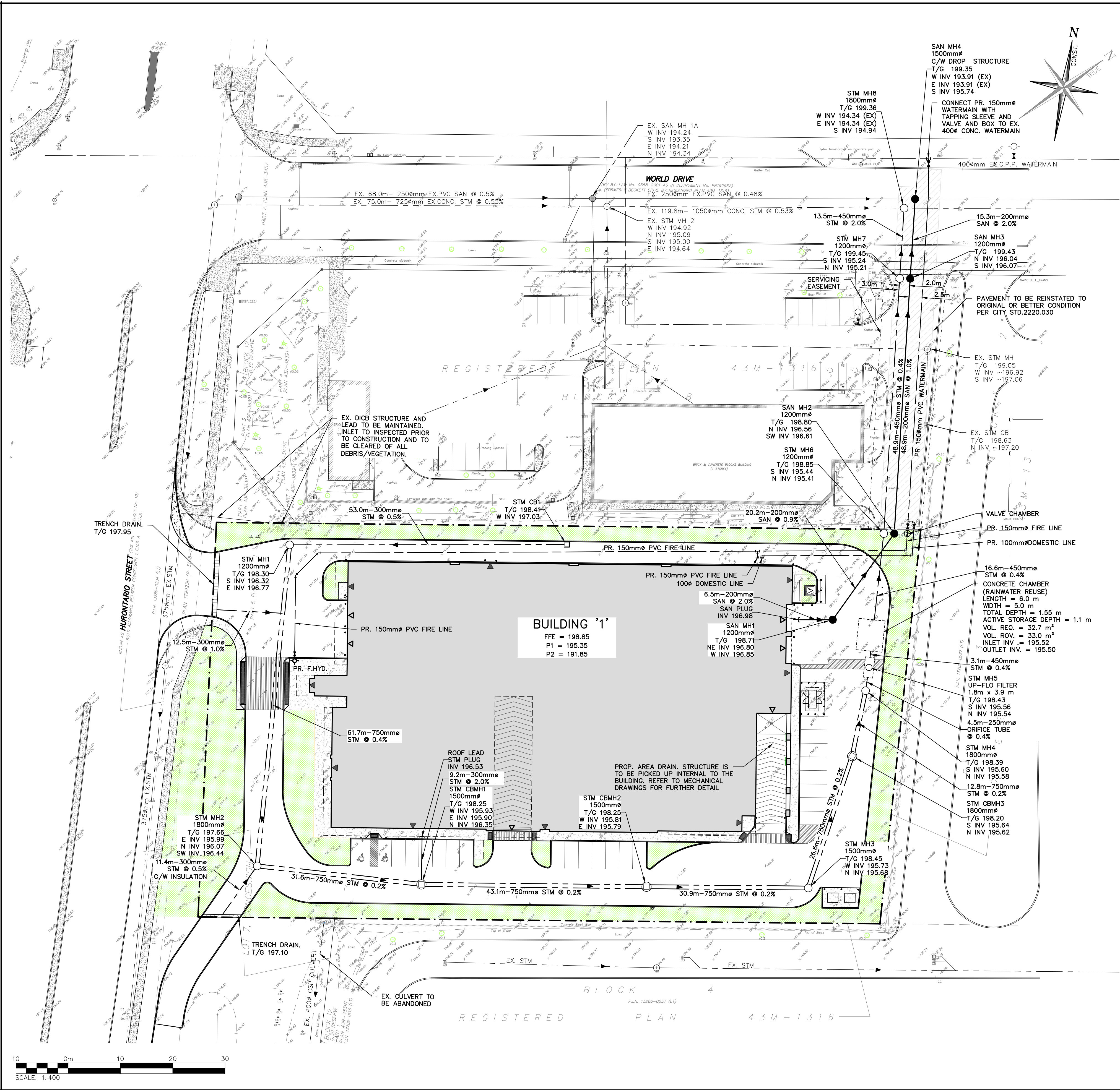
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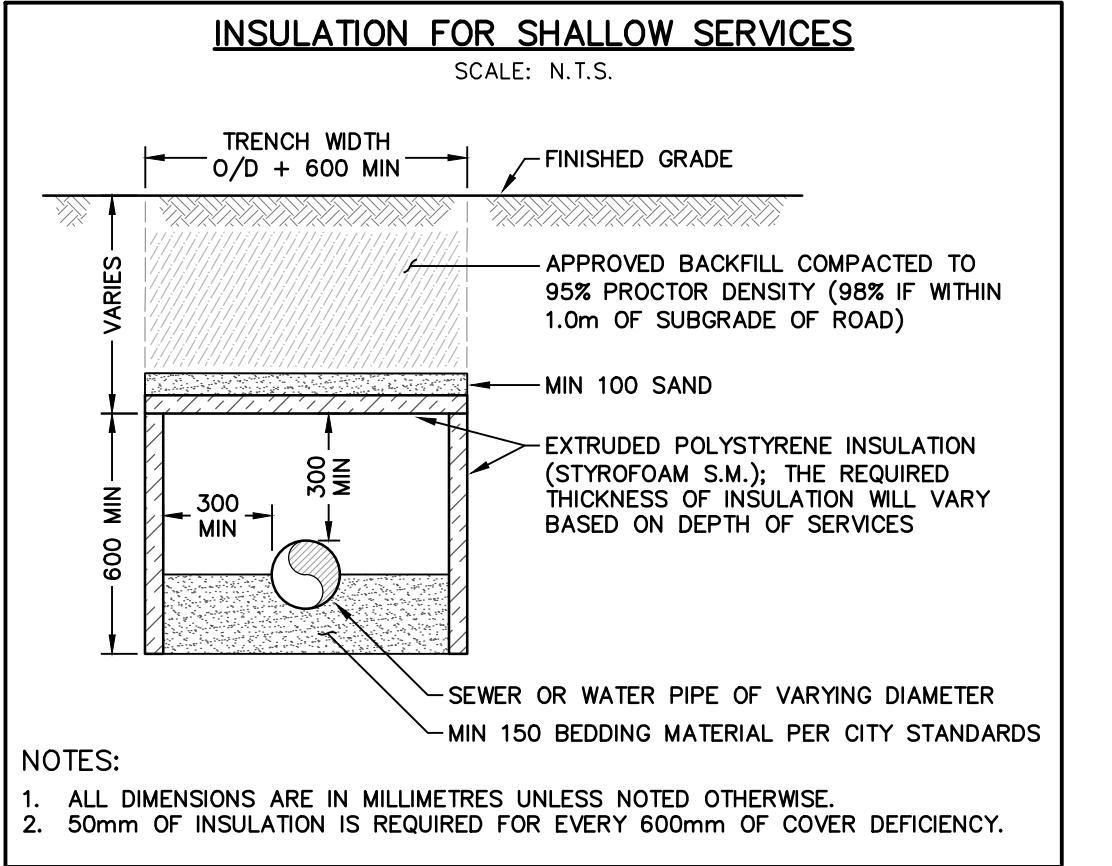
CROZIER

CONSULTING ENGINEERS

211 YONGE STREET
SUITE 301
TORONTO, ON M5B 1M4
416-477-3392 T
WWW.CFCROZIER.CA



- REGION OF PEEL NOTES:**
1. ALL MATERIALS AND CONSTRUCTION METHODS MUST CORRESPOND TO THE CURRENT PEEL PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
 2. WATERMAIN AND/OR WATER SERVICE MATERIALS 100mm ϕ AND LARGER MUST BE PVC DR-18 AWWA C900-16, SIZE 50mm ϕ AND SMALLER MUST BE COPPER TYPE 'K' ASTM B88-49 STD. DWG 1-7-1.
 3. WATERMAINS AND/OR SERVICES ARE TO HAVE A MINIMUM COVER OF 1.7m WITH A MINIMUM HORIZONTAL SPACING OF 1.2m FROM THEMSELVES AND ALL OTHER SERVICES.
 4. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC., MUST BE PROVIDED WITH AT LEAST A 50mm ϕ OUTLET ON 100mm ϕ AND LARGER LINES. COPPER LINES ARE TO HAVE FLUSHING POINTS AT THE END, THE SAME SIZE AS THE LINE. THEY MUST ALSO BE HOSED OR PIPES TO ALLOW WATER TO DRAIN ONTO A PARKING LOT OR DOWN A DRAIN. ON FIRE LINES, FLUSHING OUTLET TO BE 100mm ϕ MINIMUM ON A HYDRANT.
 5. ALL CURB STOPS TO BE 3.0m OFF THE FACE OF THE BUILDING UNLESS NOTED OTHERWISE.
 6. HYDRANT AND VALVE SET TO REGION STANDARD 1-6-1 DIMENSION 'A' (0.7m) & 'B' (0.9m) AND TO HAVE PUMPER NOZZLE.
 7. WATERMAINS TO BE INSTALLED TO GRADES SHOWN ON APPROVED SITE PLAN. COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR PRIOR TO COMMENCEMENT OF WORK, WHERE REQUESTED BY INSPECTOR.
 8. WATERMAINS MUST HAVE A VERTICAL CLEARANCE OF 0.3m OVER AND 0.5m UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING.
 9. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATING FROM EXISTING SYSTEMS.
 10. ALL LIVE TAPPING AND OPERATION OF REGION WATER VALVES SHALL BE ARRANGED THROUGH THE REGIONAL INSPECTOR ASSIGNED, OR BY CONTACTING THE OPERATIONS AND MAINTENANCE DIVISION.
 11. LOCATION OF ALL EXISTING UTILITIES IN THE FIELD TO BE ESTABLISHED BY THE CONTRACTOR.
 12. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATES, EXPOSING, SUPPORTING AND PROTECTING OF ALL UNDERGROUND/OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF THEIR WORK, WHETHER SHOWN ON THE PLANS OR NOT, AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
 13. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HRS WRITTEN NOTICE TO UTILITIES PRIOR TO CROSSING SUCH UTILITIES, FOR THE PURPOSE OF INSPECTION BY THE CONCERNED UTILITY. THIS INSPECTION WILL BE FOR THE DURATION OF THE CONSTRUCTION, WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTION.
 14. ALL PROPOSED WATER PIPING MUST BE ISOLATED THROUGH A TEMPORARY CONNECTION THAT SHALL INCLUDE AN APPROPRIATE CROSS-CONNECTION CONTROL DEVICE, CONSISTENT WITH THE DEGREE OF HAZARD, FOR BACKFLOW PREVENTION OF THE ACTIVE DISTRIBUTION SYSTEM, CONFORMING TO REGION OF PEEL STANDARDS 1-7-7 OR 1-7-8.
- WATERMAIN NOTES:**
1. MECHANICAL ENGINEER SHALL ENSURE DESIGN OF INTERNAL WATERMAIN LOADING & LOOPING WITHIN U/G PARKING STRUCTURE.
 2. CONTRACTOR TO COORDINATE THE EXACT LOCATION OF WATER CONNECTION TO THE INTERNAL WATER SYSTEM PER MECHANICAL DESIGN.
 3. PROPOSED WATER METER AND BACKFLOW PREVENTER TO BE INSTALLED INSIDE OF MECHANICAL ROOM PER MECHANICAL DESIGN AND SPECIFICATIONS AND IN ACCORDANCE WITH REGION STANDARDS.
 4. PROPOSED HYDRANTS TO BE CONNECTED TO THE INTERNAL WATER SYSTEM, LOCATED IN THE UNDERGROUND PARKING GARAGE STRUCTURE, PER MECHANICAL DESIGN AND SPECIFICATIONS.
- ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAYS ARE TO BE REINSTATED TO EXISTING CONDITIONS OR BETTER.**
- ALL SANITARY SEWER LATERALS ARE TO AVE MINIMUM COVER OF 2.50M AT THE PROPERTY LINE.**
- ALL SANITARY SEWER TEST FITTINGS ARE TO BE LOCATED AS PER REGIONAL STANDARD 2-4-4.**
- PROPOSED WATER METER TO BE INSTALLED IN A HEATED AND ACCESSIBLE SPACE.**
- NOTE:**
I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF ONE 7-STORY COMMERCIAL BUILDING LOCATED AT 6333 HURONTARIO STREET AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF THE MUNICIPAL SERVICES WITHOUT ANY DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES.
- WATER REUSE NOTE:**
WATER REUSE CHAMBER TO BE FITTED WITH PUMP FOR LANDSCAPE IRRIGATION. REFER TO LANDSCAPE DRAWINGS FOR FURTHER DETAIL.



- LEGEND**
- PROPERTY LINE
 - - - - - EXISTING WATERMAIN & GATE VALVE
 - - - - - EXISTING STORM SEWER & MANHOLE
 - - - - - EXISTING SINGLE / DOUBLE CATCHBASIN
 - - - - - EXISTING SANITARY SEWER & MANHOLE
 - - - - - PROPOSED WATERMAIN & GATE VALVE
 - - - - - PROPOSED FIRE HYDRANT & GATE VALVE
 - - - - - PROPOSED SIAMESE CONNECTION
 - - - - - PROPOSED STORM SEWER & MANHOLE
 - - - - - PROPOSED SINGLE / DOUBLE CATCHBASIN
 - - - - - PROPOSED OVERSIZED STORM SEWER & MANHOLE
 - - - - - PROPOSED SANITARY SEWER & MANHOLE
 - - - - - PROPOSED ELECTRICAL TRANSFORMER
 - - - - - BUILDING ENTRANCE (PERSONNEL DOOR)
 - - - - - BUILDING ENTRANCE (OVERHEAD DOOR)

No.	ISSUE / REVISION	DATE
0	ISSUED FOR FIRST SUBMISSION	2020/OCT/30
No.	ISSUE / REVISION	YYYY/MM/DD

ELEVATION NOTE:
ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM THE CITY OF MISSISSAUGA BENCHMARK No. 1015.
TABLET SET HORIZONTALLY AT BASE OF A 0.75m DIAMETER CONCRETE TRAFFIC POLE AT THE NORTHEAST CORNER OF CORNEYPARK DRIVE EAST AND HURONTARIO STREET.
PUBLISHED ELEVATION = 200.113 METERS

BEARING NOTE:
BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE EASTERLY LIMIT OF HURONTARIO STREET AS SHOWN ON PLAN 43R-38391, HAVING A BEARING OF N43°44'10"W.

SURVEY NOTES:
SURVEY COMPLETED BY COMPANY SPEIGHT, VAN NOSTRAND AND GIBSON LIMITED (2020/JUL/13)
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SITE PLAN NOTES:
DESIGN ELEMENTS ARE BASED ON SITE PLAN BY NICHOLAS CARAGIANIS ARCHITECT DRAWING No.: 200007-A-100 SP, REV.9 (2020/OCT/18)
PROJECT No.: 2020-00007

DRAWING NOTES:
THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE REPRODUCTION OF ANY PART OF IT WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.
THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR DISCREPANCIES TO THIS OFFICE PRIOR TO CONSTRUCTION.
THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT. DO NOT SCALE THIS DRAWING.
ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

Project
DYMON GROUP OF COMPANIES
6333 HURONTARIO STREET
CITY OF MISSISSAUGA

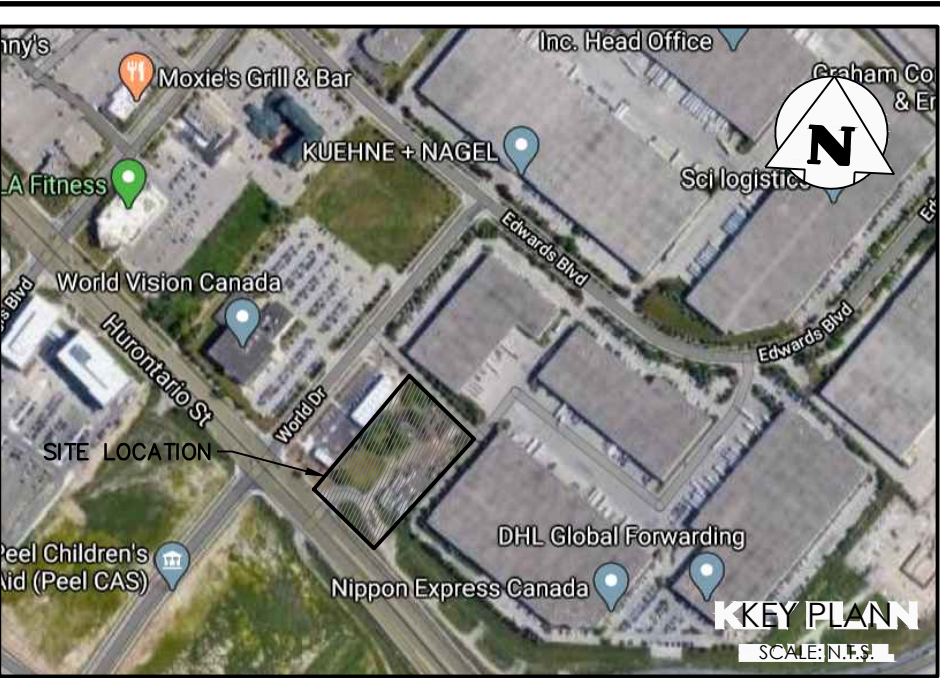
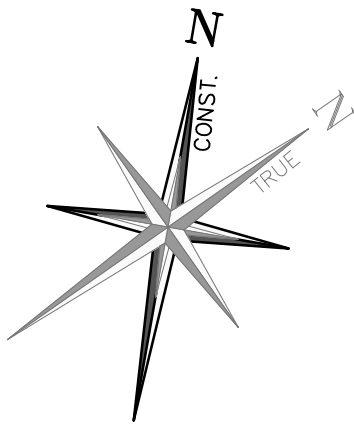
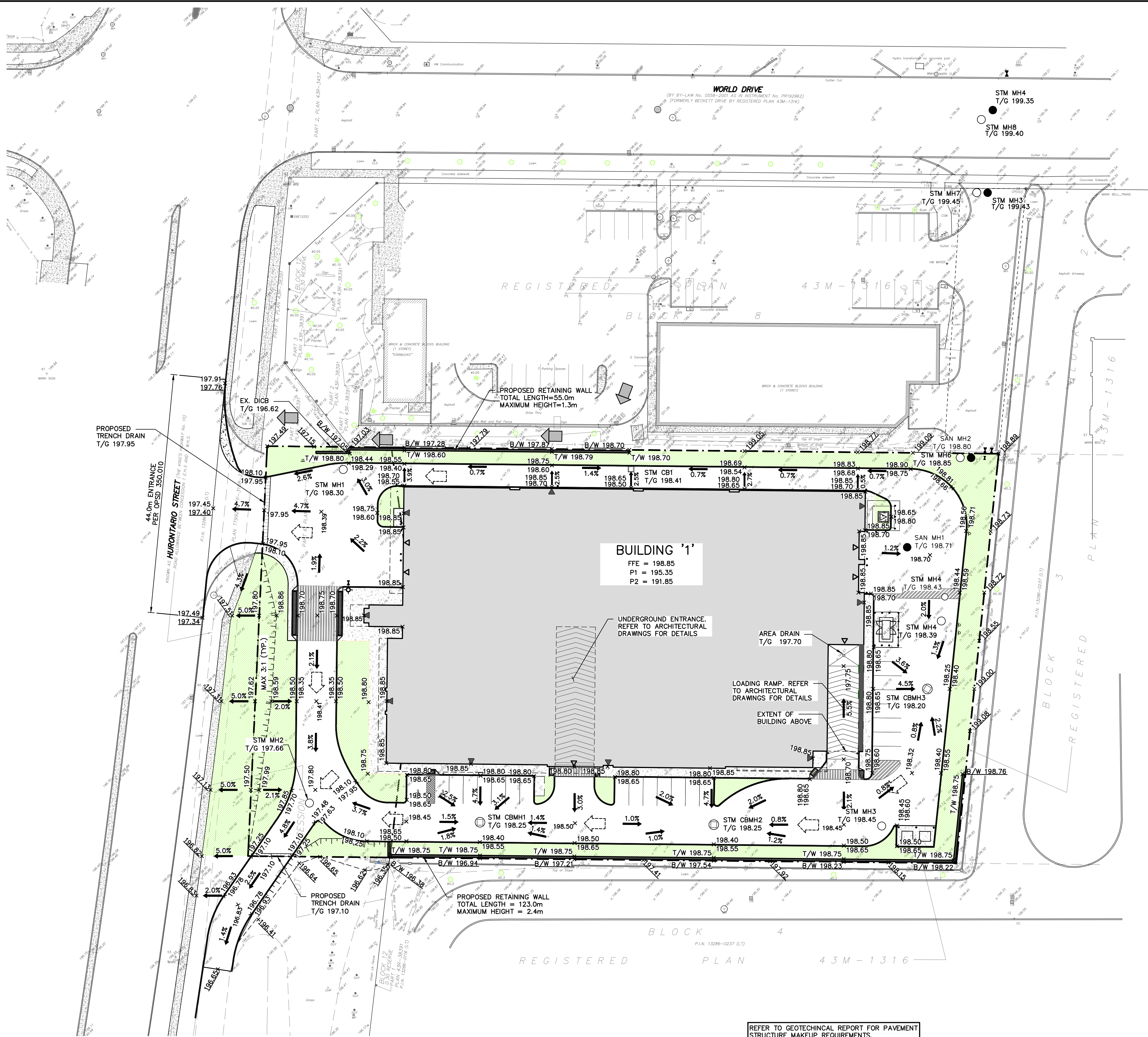
Drawing
SITE SERVICING PLAN

NOT FOR CONSTRUCTION

Stamp

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn D.B. Design A.F. Project No. **1644-5564**
Check A.S. Check A.S. Scale 1:400 Dwg. **C 102**



LEGEND	
	PROPERTY LINE
	EXISTING DITCH
	EXISTING FENCE
	EXISTING GRADE
	PROPOSED GRADE
	PROPOSED GRADE (TO MATCH EXISTING)
	PROPOSED MINOR FLOW DIRECTION
	PROPOSED RETAINING WALL
	PROPOSED SLOPE (3:1 MAX.)
	BUILDING ENTRANCE (PERSONNEL DOOR)
	BUILDING ENTRANCE (OVERHEAD DOOR)
	PROPOSED MAJOR OVERLAND FLOW DIRECTION
	EXISTING OVERLAND FLOW DIRECTION
	PROPOSED ELECTRICAL TRANSFORMER
	PROPOSED FIRE HYDRANT & GATE VALVE
	PROPOSED SIAMESE (FIRE DEPT.) CONNECTION
	EXISTING STORM MANHOLE
	EXISTING SANITARY MANHOLE
	PROPOSED SANITARY MANHOLE
	PROPOSED STORM MANHOLE
	EXISTING SINGLE / DOUBLE CATCHBASIN
	PROPOSED SINGLE CATCHBASIN
	PROPOSED CATCHBASIN MANHOLE

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Project
DYMON GROUP OF COMPANIES
6333 HURONTARIO STREET
CITY OF MISSISSAUGA

Drawing
SITE GRADING PLAN

NOT FOR CONSTRUCTION

Stamp

Stamp

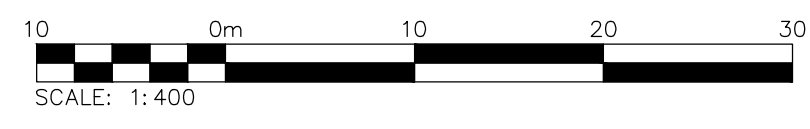
REFER TO GEOTECHNICAL REPORT FOR PAVEMENT STRUCTURE MAKEUP REQUIREMENTS.

ALL RETAINING WALLS GREATER THAN 0.6m IN HEIGHT TO BE DESIGNED AND APPROVED BY A STRUCTURAL ENGINEER.

ALL RETAINING WALLS GREATER THAN 0.6m IN HEIGHT REQUIRE RAILING OR FENCE, TO BE DESIGNED BY OTHERS.

CONTRACTOR TO REINSTATE THE BOULEVARD TO EXISTING CONDITION OR BETTER.

NOTE: I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF ONE 7-STORY COMMERCIAL BUILDING LOCATED AT 6333 HURONTARIO STREET AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF THE MUNICIPAL SERVICES WITHOUT ANY DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES.



CROZIER
CONSULTING ENGINEERS

2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn	D.B.	Design	A.D.F.	Project No.	1644-5564
Check	J.M.S.	Check	A.S.	Scale	1:400
				Dwg.	C 103

CONSTRUCTION NOTES:

1.0 GENERAL CONSTRUCTION

- 1.1 ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH CURRENT CITY OF MISSISSAUGA STANDARDS, REGION OF PEEL STANDARDS, OPSS & OPSS, WHERE CONFLICT OCCURS, CITY OF MISSISSAUGA STANDARDS TO GOVERN FOR STORMWATER, ROADWORKS & INTERNAL GRADING, REGION OF PEEL STANDARDS TO GOVERN FOR SANITARY & WATERMAIN INSTALLATION.
- 1.2 ALL TOPSOIL & EARTH EXCAVATION TO BE STOCK PILED ON-SITE OR REMOVED TO AN APPROVED SITE AS DIRECTED BY ENGINEER.
- 1.3 THE DEVELOPER'S CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED LAYOUT OF THE WORK. THE DEVELOPER'S ENGINEER WILL CONFIRM ALL BENCH MARK ELEVATIONS AND HORIZONTAL ALIGNMENT FOR THE DEVELOPER'S CONTRACTOR.
- 1.4 ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY O.L.S. AT DEVELOPER'S CONTRACTOR'S EXPENSE IF REMOVED DURING CONSTRUCTION.
- 1.5 THE DEVELOPER'S CONTRACTOR IS RESPONSIBLE TO NOTIFY ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK & CO-ORDINATE CONSTRUCTION ACCORDINGLY.
- 1.6 THE LOCATION AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES ARE TO BE VERIFIED IN THE FIELD BY THE DEVELOPER'S CONTRACTOR. THE DEVELOPER'S CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION OF EXISTING UTILITIES DISTURBED DURING CONSTRUCTION.
- 1.7 ALL AREAS BEYOND THE SITE PLAN AND APPROVED DEVELOPMENT & SERVICING LIMITS WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE DEVELOPER'S EXPENSE.
- 1.8 ALL CONSTRUCTION SIGNING MUST CONFORM TO THE M.T.O. MANUAL OF "UNIFORM TRAFFIC CONTROL DEVICES".
- 1.9 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.
- 1.10 ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE DEVELOPER'S CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
- 1.11 ROAD AND BOULEVARD RESTORATION AS PER CITY OF MISSISSAUGA ROAD CUT PERMIT, DETAIL 2220.030.

2.0 OPEN CUT INSTALLATION & RESTORATION PER CITY OF MISSISSAUGA STANDARD NO. 2220.030

- 2.1 BACKFILL MATERIALS SHALL BE OPSS GRANULAR 'A', GRANULAR 'B' & UNSHRINKABLE FILL PLACED AT THE SPECIFIED DEPTHS AS PER STANDARD 2220.030. ALL GRANULAR MATERIAL SHALL CONFORM WITH OPSS 1010 & THE UNSHRINKABLE FILL SHALL CONFORM TO OPSS 1359. STEEL PLATES SHALL BE SECURED OVER THE EXCAVATION FOR A MINIMUM OF 24 HOURS AFTER WHICH THE GRANULAR MATERIALS CAN BE PLACED. ALL GRANULAR MATERIAL SHALL BE PLACED IN 150mm LIFTS AND COMPACTED TO 100% STANDARD PROCTOR DENSITY.
- 2.2 AFTER BACKFILLING THE UTILITY TRENCH, A MIN. 300mm WIDE TOTAL ASPHALT REMOVAL SHALL BE CUT ON ALL SIDES OF THE TRENCH INTO THE EXISTING PAVEMENT STRUCTURE. THE PAVEMENT STRUCTURE MATERIALS SHALL MATCH THE EXISTING PAVEMENT MATERIAL TYPES.
- 2.3 ASPHALT RESTORATION SHALL BE A MINIMUM OF 40mm HL-3 & 100mm MIN. DEPTH HL-8 & SHALL MATCH THE EXISTING PAVEMENT STRUCTURE. ALL ASPHALT RESTORATION SHALL BE IN COMPLIANCE WITH OPSS 310. ALL HOT-MIX MATERIAL SHALL CONFORM TO OPSS 1149, 1150 AND/OR 1154. EXPOSED ASPHALT AND CONCRETE FACES SHALL BE CLEANED AND COATED WITH AN RS-1 (OR EQUIVALENT) ASPHALT EMULSION & ALLOW TO 'BREAK' PRIOR TO COMMENCING ASPHALT PLACEMENT.
- 2.4 WHEN THE REMAINING ASPHALT, FROM THE EDGE OF PAVEMENT TO THE SAWCUT IS 1.3m OR LESS, THE EXISTING ASPHALT WILL BE REMOVED FULL DEPTH & REPAVED AS PER NOTE 3. WHEN TWO OR MORE ROAD CUTS ARE REQUIRED AT A GIVEN SITE AND THE CUTS ARE LESS THAN 2.5m APART THE ENTIRE AREA MUST HAVE FULL DEPTH ASPHALT RESTORATION FROM THE OUTER LIMITS OF ALL REPAIRS.
- 2.5 SIDEWALK RESTORATION SHALL BE A MINIMUM OF 1 FULL BAY INCLUDING EXPANSION JOINT MATERIAL. ALL CONCRETE SHALL BE AS PER OPSS 351. ALL SIDEWALKS SHALL BE 130mm THICK.
- 2.6 SUB-DRAINS UNDER THE CURB SHALL BE RESTORED TO ENSURE THEIR OPERATION AND SHALL BE PLACED AS PER CITY OF MISSISSAUGA STANDARD DRAWING NUMBER 2220.040)
- 2.7 WHERE THE CURB HAS BEEN UNDERMINED TO FACILITATE SANITARY AND WATER SERVICE & STORM SEWER INSTALLATION THE CURB SHALL BE REMOVED AND REPLACED. CURB RESTORATION SHALL BE MINIMUM OF 2.0m OR SHALL EXTEND 0.5m BEYOND THE OUTER TRENCH EDGES WHICH EVER IS GREATER. ALL CONCRETE SHALL BE AS PER OPSS 353.
- 2.8 ALL GRASSED BOULEVARDS SHALL BE RE-INSTATED WITH NUMBER 1 NURSERY SOD PLACED ON TOP OF 100mm OF TOPSOIL. ALL SOD SHALL BE PLACED WITH STAGGERED JOINTS, BE ROLLED, AND WHERE APPLICABLE, STAKED INTO THE GROUND.

3.0 DRIVEWAYS

- 3.1 GRANULAR 'A' & 'B' BASE TO BE COMPACTED TO 98% OF THE MATERIAL'S RESPECTIVE SPMD OR AS APPROVED BY GEOTECHNICAL ENGINEER.
- 3.2 THE TOP 1.0m OF THE SUB-BASE SHALL BE COMPACTED TO A MINIMUM OF 98% OF STANDARD PROCTOR DENSITY WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
- 3.3 SUBGRADE TO BE PROOF ROLLED & CERTIFIED BY GEOTECHNICAL ENGINEER PRIOR TO PLACING GRANULAR MATERIAL.
- 3.4 DRIVEWAYS & PARKING LOT TO BE CONSTRUCTED AS PER RECOMMENDATIONS OF GEOTECHNICAL ENGINEER.
- 3.5 ALL GRANULAR AND ASPHALT MATERIAL PLACEMENT TO BE IN ACCORDANCE WITH OPSS 314 & OPSS 310.
- 3.6 ALL GRANULAR TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF MISSISSAUGA STANDARD 2220.050.
- 3.7 ALL CONCRETE SIDEWALKS TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF MISSISSAUGA STANDARD 2240.010.
- 3.8 ALL PEDESTRIAN SIDEWALK ENTRANCES AT INTERSECTIONS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSS 350.010.

4.0 SANITARY SERVICES

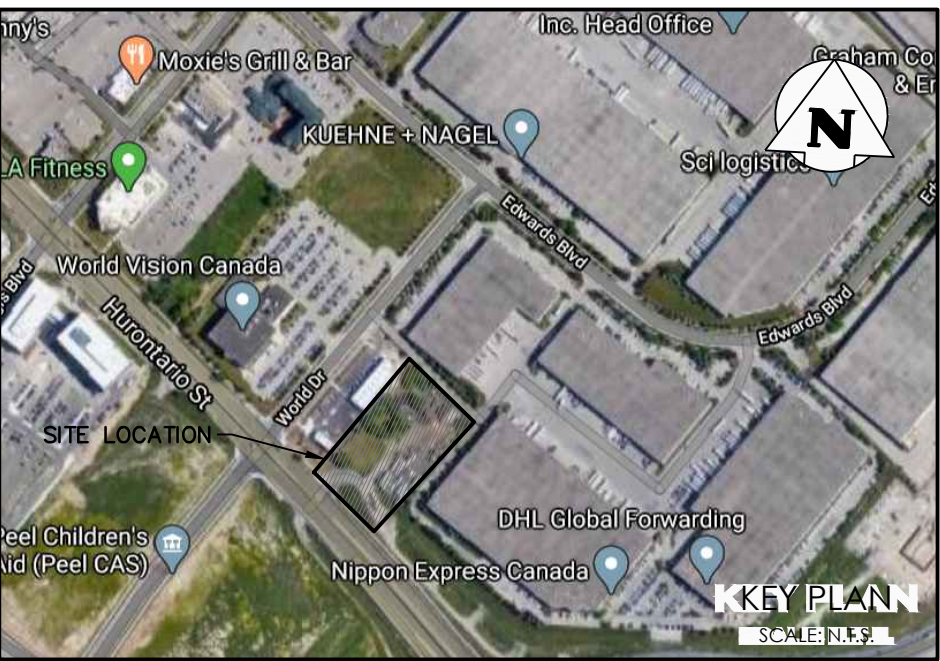
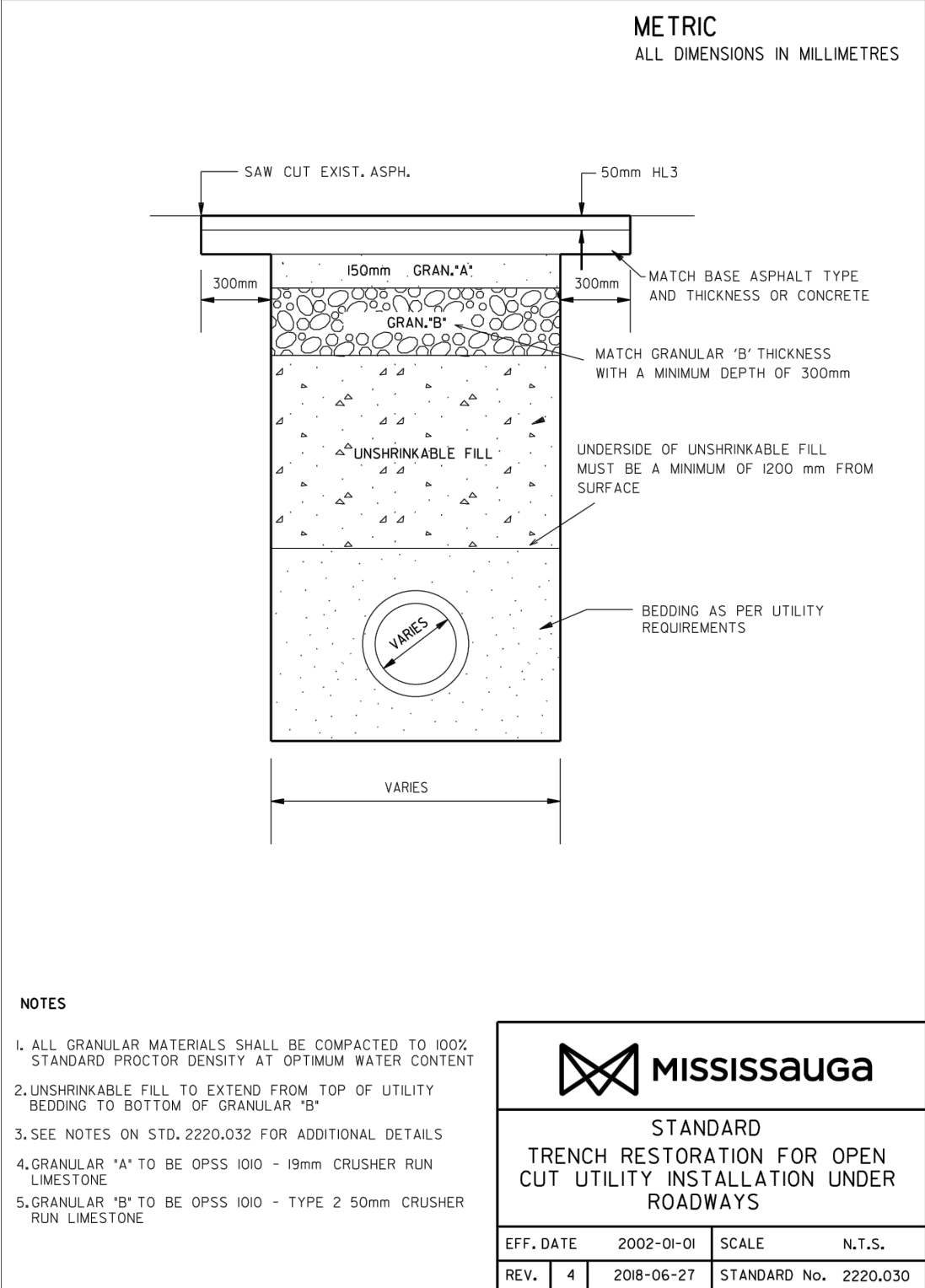
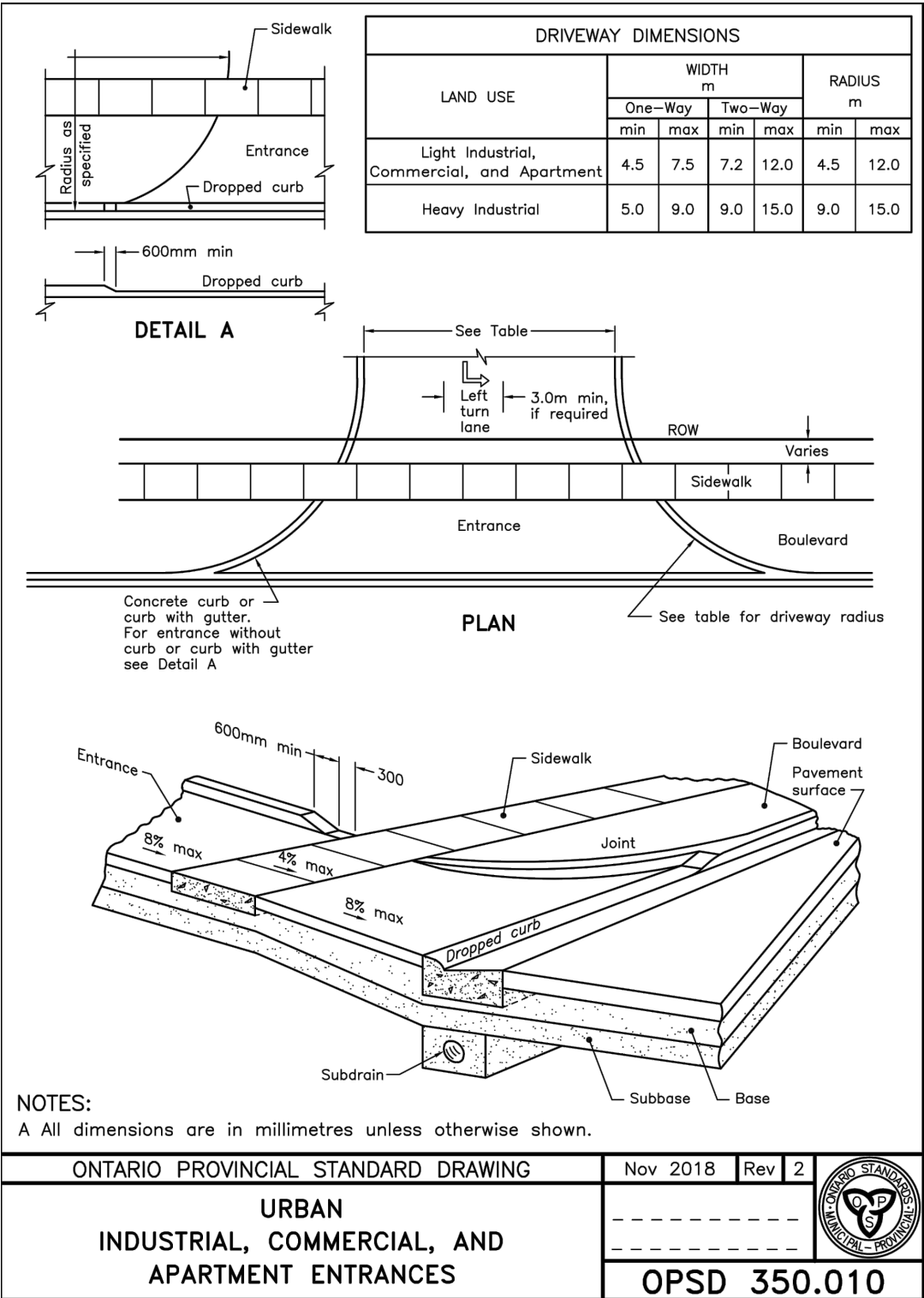
- 4.1 BEDDING AND EMBEDMENT TO REGION OF PEEL STANDARD 2-3-1, CLASS 'B' BEDDING.
- 4.2 TRENCH BACKFILL TO SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.
- 4.3 BEDDING & EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).
- 4.4 CLEAR STONE WRAPPED WITH FILTER FABRIC CAN BE SUBSTITUTED FOR EMBEDMENT MATERIAL IF APPROVED BY THE GEOTECHNICAL ENGINEER.
- 4.5 SANITARY SERVICE - SDR 28 PVC WITH MINIMUM PIPE STIFFNESS OF 320kPa - MANUFACTURED TO C.S.A. STANDARD B182.2 (J.R.S./A.S.T.M. SPECIFICATION D 3034) WITH RUBBER GASKETTED BELL AND SPIGOT JOINTS. SANITARY SERVICE TO BE INSTALLED PER CITY OF MISSISSAUGA STANDARD DWG 2115.050.
- 4.6 SERVICE CONNECTIONS TO REGION OF PEEL 2-4-2 AND 2-4-3.

6.0 STORM SERVICES

- 6.1 BEDDING & EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S SPMD.
- 6.2 BEDDING & EMBEDMENT TO OPSS 802.010 (FLEXIBLE PIPE) GRANULAR 'A' EMBEDMENT.
- 6.3 SUMP PUMP SYSTEM TO BE INSTALLED PER OBC PART 7 AND DISCHARGED ABOVE GRADE TO GRASS.

ADDITIONAL NOTES:

- 1.1. ALL SURFACE DRAINAGE WILL BE SELF-CONTAINED, COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
- 1.2. THE PORTIONS OF THE DRIVEWAY WITHIN THE MUNICIPAL BOULEVARD WILL BE PAVED BY THE APPLICANT.
- 1.3. AT THE ENTRANCES TO THE SITE, THE MUNICIPAL CURB AND SIDEWALK WILL BE CONTINUOUS THROUGH THE DRIVEWAY AND A CURB DEPRESSION WILL BE PROVIDED FOR EACH ENTRANCE.
- 1.4. ALL PROPOSED CURBING WITHIN THE MUNICIPAL BOULEVARD AREA FOR THE SITE IS TO SUIT AS FOLLOWS: A) FOR ALL SINGLE FAMILY RESIDENTIAL PROPERTIES INCLUDING ON STREET TOWNHOUSES, ALL CURBING IS TO STOP AT THE PROPERTY LIMIT OR THE BACK OF THE MUNICIPAL SIDEWALK, WHICHEVER IS APPLICABLE, OR, B) FOR ALL OTHER PROPOSALS INCLUDING INDUSTRIAL, COMMERCIAL AND CONDOMINIUM DEVELOPMENTS, ALL ENTRANCES TO THE SITE ARE TO BE IN ACCORDANCE WITH O.P.S.D. 350.010.
- 1.5. ALL EXCESS EXCAVATED MATERIAL WILL BE REMOVED FROM THE SITE.
- 1.6. THE EXISTING DRAINAGE PATTERN WILL BE MAINTAINED EXCEPT WHERE NOTED.
- 1.7. THE APPLICANT WILL BE REQUIRED TO CONTACT ALL UTILITY COMPANIES TO OBTAIN ALL REQUIRED LOCATED PRIOR TO THE INSTALLATION OF BOARDING WITHIN THE [...] CUT OFF [...] NECESSITATED BY THE SITE PLAN.
- 1.8. PRIOR TO CONSTRUCTION TAKING PLACE, ALL REQUIRED HOARDING IN ACCORDANCE WITH THE ONTARIO OCCUPATIONAL HEALTH & SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS MUST BE ERECTED AND THEN MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION.
- 1.9. SHOULD ANY WORKS BE REQUIRED WITHIN THE MUNICIPAL RIGHT OF WAY, A ROAD OCCUPANCY PERMIT WILL BE REQUIRED. PUCC APPROVAL WILL BE REQUIRED.* FOR FURTHER INFORMATION, PLEASE CONTACT THE PUCC/PERMIT TECHNOLOGIST, LOCATED AT 3185 MAVIS ROAD.
- 1.10. WORKS IN THE MUNICIPAL RIGHT-OF-WAY BEING PERFORMED BY THE CITY'S CONTRACTOR WILL REQUIRE 4 TO 6 WEEKS' NOTICE PRIOR TO COMMENCEMENT OF CONSTRUCTION AFTER ALL DRAWINGS HAVE BEEN APPROVED AND SECURITIES HAVE BEEN RECEIVED, THE APPLICANT IS TO INDICATE IN THEIR SUBMISSION PACKAGE FOR THE RIGHT-OF-WAY WORKS THE IDEAL TIMING FOR THESE WORKS TO BE CONSTRUCTED.
- 1.11. ALL DAMAGED OR DISTURBED AREAS WITHIN THE MUNICIPAL RIGHT-OF-WAY ARE TO BE REINSTATED AT THE APPLICANT'S EXPENSE. * ALL LANDSCAPING AND GRADING WITHIN CLOSE PROXIMITY TO THE PROPOSED ACCESS POINTS IS TO BE DESIGNED TO ENSURE THAT ADEQUATE SIGHT DISTANCES ARE AVAILABLE FOR ALL APPROACHING AND EXISTING MOTORISTS AND PEDESTRIANS. * THE PORTION OF THE DRIVEWAY WITHIN THE MUNICIPAL BOULEVARD IS TO BE PAVED BY THE APPLICANT. * DRIVEWAY ACCESSSES SHALL MAINTAIN A 1.5 M SETBACK FROM ABOVEGROUND FEATURES SUCH AS UTILITIES AND TREES. ANY ABOVE GROUND UTILITIES LOCATED WITHIN 1.5 M OF A PROPOSED ACCESS ARE TO BE RELOCATED AT THE APPLICANT'S EXPENSE.



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PUBLISHED ELEVATION = 200.113 METERS

BEARING NOTE:

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SURVEY NOTES:

SURVEY COMPLETED BY COMPANY SPEIGHT, VAN NOSTRAND AND GIBSON LIMITED (2020/JUL/13)

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

SITE PLAN NOTES:

DESIGN ELEMENTS ARE BASED ON SITE PLAN BY NICHOLAS CARAGIANIS ARCHITECT

DRAWING No.: 200007-A-100 SP, REV.9 (2020/OCT/18)

PROJECT No.: 2020-00007

DRAWING NOTES:

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Project

DYMON GROUP OF COMPANIES

6333 HURONTARIO STREET

CITY OF MISSISSAUGA

Drawing

NOTES AND STANDARD DETAILS

NOT FOR CONSTRUCTION

Stamp

Stamp

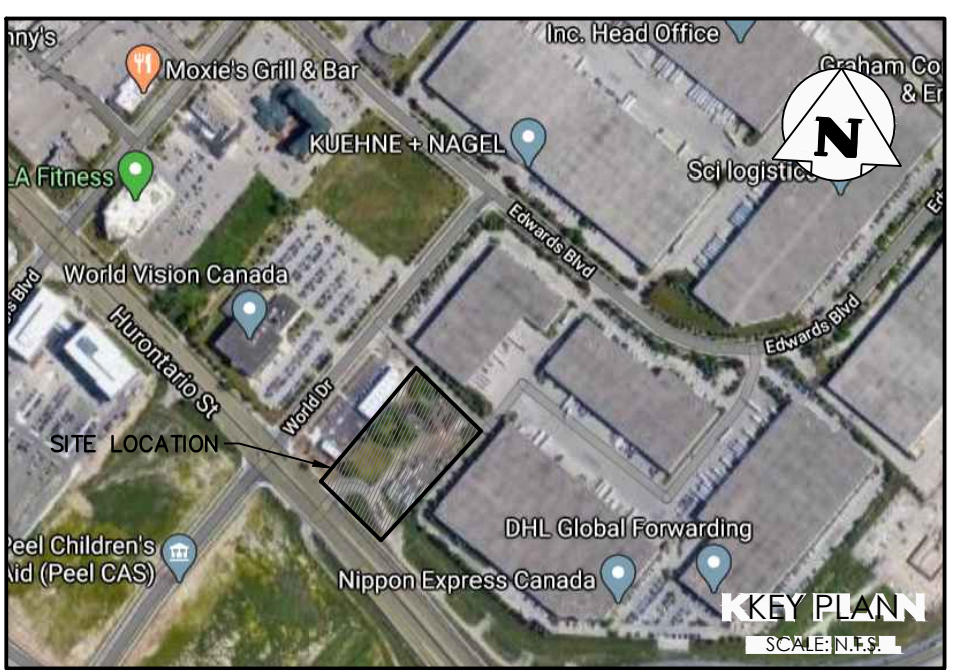
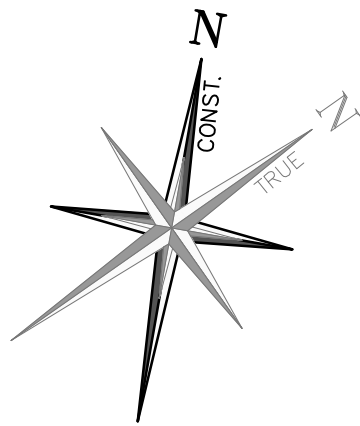
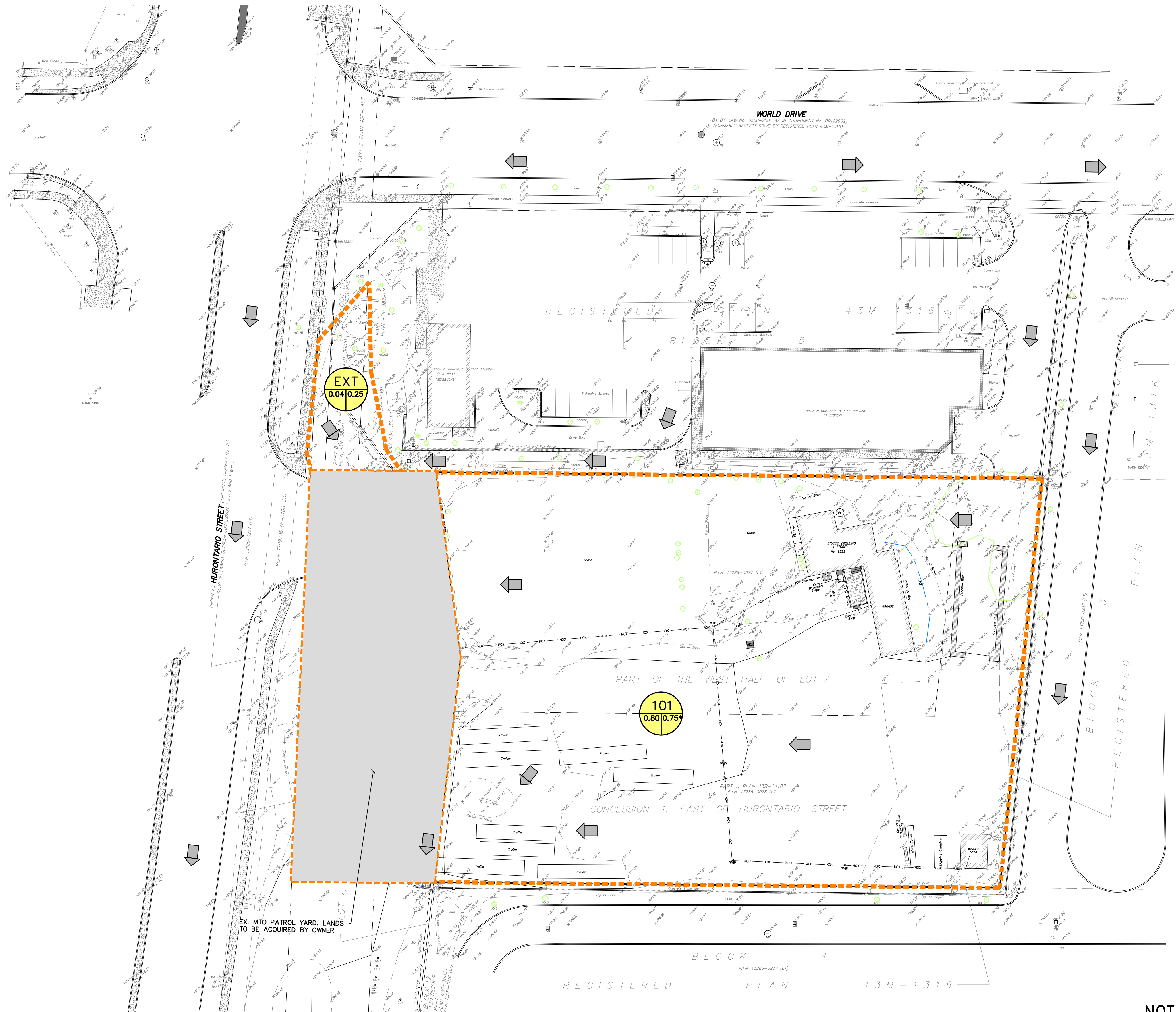
CROZIER CONSULTING ENGINEERS

211 YONGE STREET
SUITE 301
TORONTO, ON M5B 1M4
416-477-3392 T
WWW.CFCROZIER.CA

Drawn D.B. Design A.F. Project No. **1644-5564**

Check A.S. Check A.S. Scale 1:400 Dwg. **C 104**

FIGURES



LEGEND

- PROPERTY LINE
- EXISTING DITCH
- EXISTING GRADE
- EXISTING OVERLAND FLOW DIRECTION
- STORM DRAINAGE CATCHMENT
- CATCHMENT I.D.
- AREA (ha) | RUNOFF COEFFICIENT

*PRE-DEVELOPMENT RUNOFF COEFFICIENT IS AS PER THE DRAINAGE AREA PLAN PREPARED BY WINTER ASSOCIATES DATED JULY 1998. CITY AND REGION FILE NO. 21T-87081

0	ISSUED FOR FIRST SUBMISSION	2020/OCT/30
No.	ISSUE / REVISION	YYYY/MMM/DD

ELEVATION NOTE:
ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM THE CITY OF MISSISSAUGA BENCHMARK No. 1015.
TABLET SET HORIZONTALLY AT BASE OF A 0.75m DIAMETER CONCRETE TRAFFIC POLE AT THE NORTHEAST CORNER OF CORTNEYPARK DRIVE EAST AND HURONTARIO STREET.
PUBLISHED ELEVATION = 200.113 METERS

BEARING NOTE:
BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE EASTERLY LIMIT OF HURONTARIO STREET AS SHOWN ON PLAN 43R-38391, HAVING A BEARING OF N43°44'10"W.

SURVEY NOTES:
SURVEY COMPLETED BY COMPANY SPEIGHT, VAN NOSTRAND AND GIBSON LIMITED (2020/JUL/13)
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

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DRAWING No.: 200007-A-100 SP, REV.9 (2020/OCT/18)
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Project
DYMON GROUP OF COMPANIES
6333 HURONTARIO STREET
CITY OF MISSISSAUGA

Drawing
PRE-DEVELOPMENT DRAINAGE PLAN

NOT FOR CONSTRUCTION

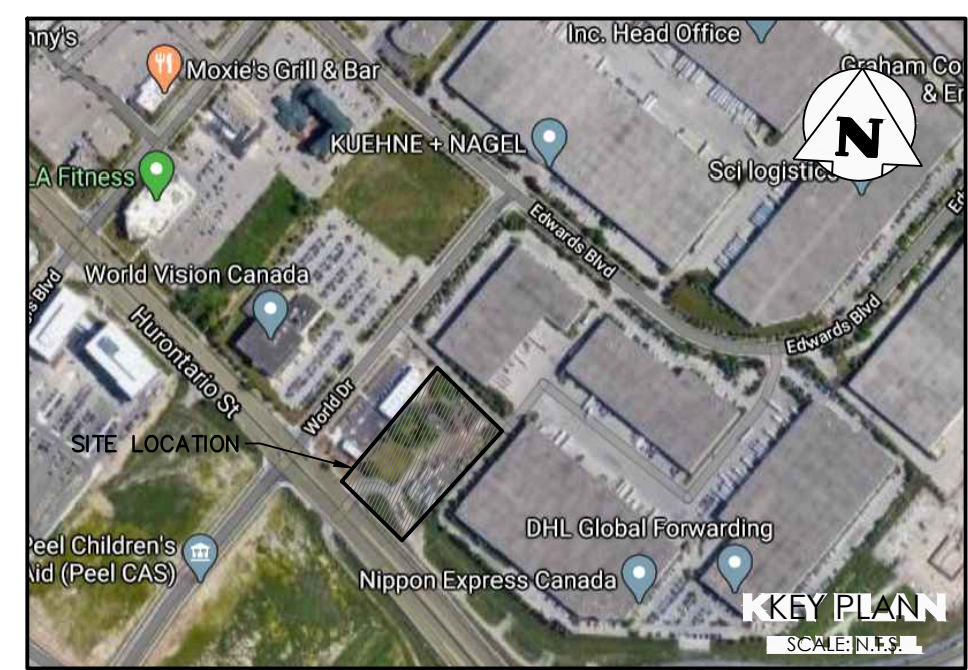
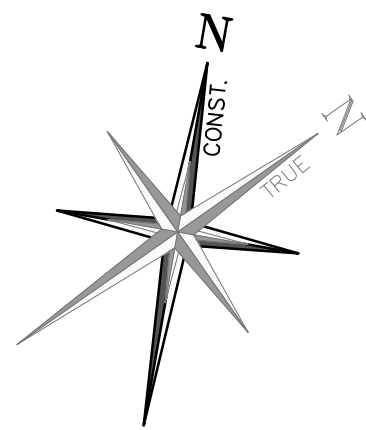
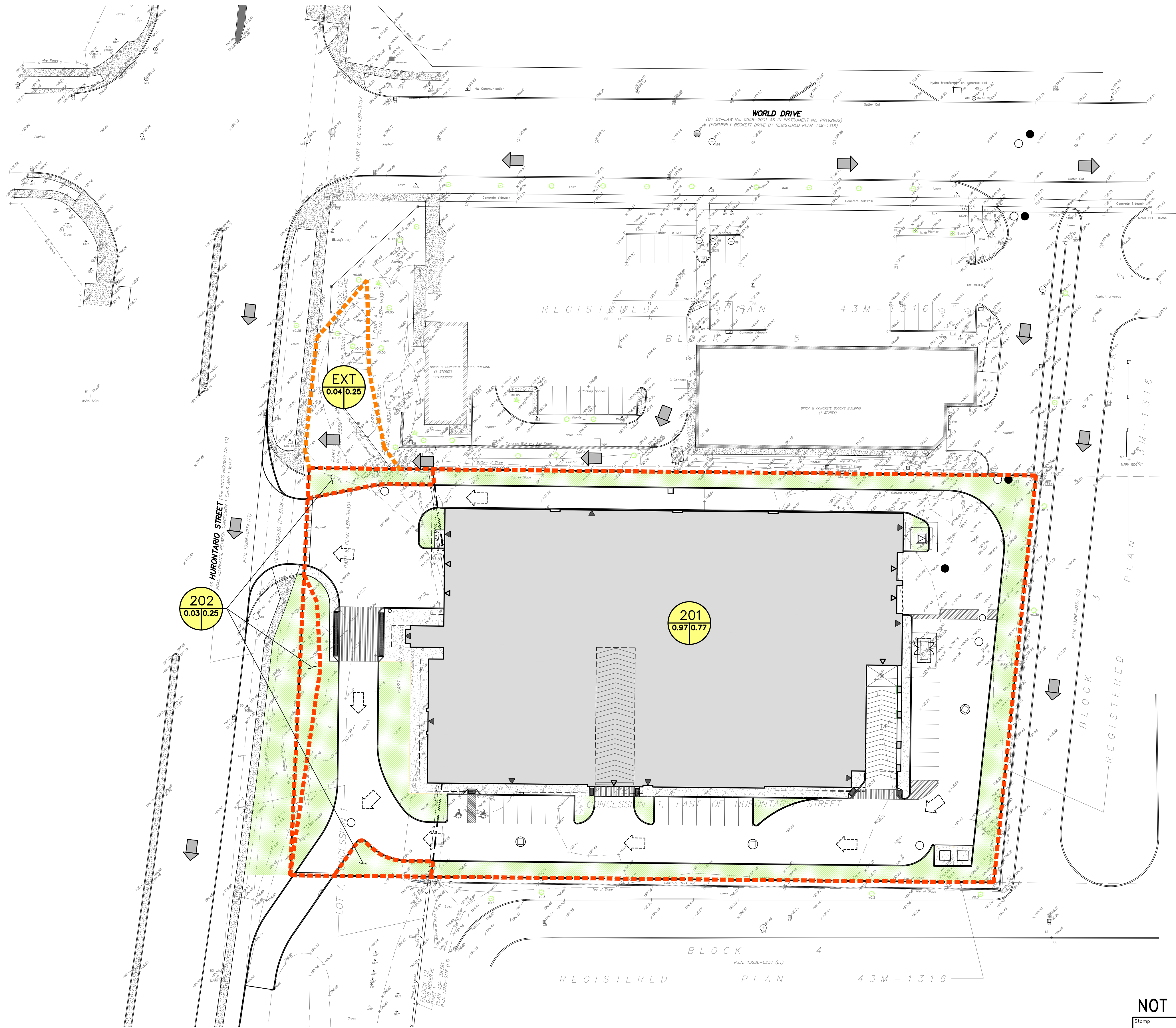
Stamp

Stamp

CROZIER CONSULTING ENGINEERS

2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn	D.B.	Design	J.L.	Project No.	1644-5564
Check	A.S.	Check	A.S.	Scale	1:400
				Dwg.	FIG 1



LEGEND	
	PROPERTY LINE
	EXISTING DITCH
	EXISTING GRADE
	PROPOSED OVERLAND FLOW DIRECTION
	EXISTING OVERLAND FLOW DIRECTION
	STORM DRAINAGE CATCHMENT
	CATCHMENT I.D.
	AREA (ha) RUNOFF COEFFICIENT

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CITY OF MISSISSAUGA

Drawing
POST-DEVELOPMENT DRAINAGE PLAN

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Stamp

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CROZIER
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2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn	D.B.	Design	A.F.	Project No.	1644-5564
Check	A.S.	Check	A.S.	Scale	1:400
				Dwg.	FIG 2

