

**FUNCTIONAL SERVICING AND STORMWATER
MANAGEMENT REPORT**

1995 DUNDAS STREET EAST

**CITY OF MISSISSAUGA
REGION OF PEEL**

PREPARED FOR:

LANDEAL ASSET MANAGEMENT INC.

PREPARED BY:

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Revision Number	Date	Comments
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1.0 Introduction

C.F Crozier & Associates Inc. (Crozier) was retained by Landeal Asset Management Inc. to prepare a Functional Servicing and Stormwater Management Report in support of the Zoning By-Law Amendment (ZBA), Official Plan Amendment (OPA) and Draft Plan of Subdivision (DPoS) for the proposed mixed-use development located at 1995 Dundas Street East in the City of Mississauga. This report will demonstrate that the proposed development is feasible from a functional servicing and stormwater management perspective and can meet the requirements of the City of Mississauga, Region of Peel, and Toronto and Region Conservation Authority (TRCA).

The reports and design standards referenced during the preparation of this report includes:

- Fire Underwriters Survey – Water Supply for Public Fire Protection (2020)
- Region of Peel Linear Wastewater Standards (March 2023)
- Region of Peel Public Works Design, Specifications & Procedures Manual – Linear Infrastructure – Watermain Design Criteria (June 2010)
- City of Mississauga Development Requirements Manual (November 2020)
- TRCA Stormwater Management Criteria (August 2012)

This report has been prepared to support the first submission of the ZBA, OPA, and DPoS application for the property located at 1995 Dundas Street East.

2.0 Site Description

The site encompasses an area of approximately 1.18 ha and currently consists of an existing commercial plaza and paved parking lot. Access to the existing commercial plaza is provided from one entrance on Dundas Street East and two entrances on Universal Drive. The Site, located in a mixed use commercial and industrial neighbourhood, is bounded by Dundas Street East to the south, Universal Drive to the East, commercial lands to the west, and industrial lands to the north. The northeast portion of the site lies within the Regulatory Floodplain of Etobicoke Creek; therefore, this application is subject to the review of the TRCA.

According to the Conceptual Site Plan prepared by Raw Design Inc., dated November 20, 2024, the elements envisioned for this development include:

- Building A:
 - o 25-storey and 17-storey residential towers on top of a 5-storey podium with landscaped terraces at levels 2, 3, 5, and 17.
 - o 4 levels of parking, including one level of underground parking
 - o Site access off Universal Drive and the Proposed future street with associated walkways and landscaped areas
- Building B:
 - o 24-storey residential tower on top of a 5-storey podium and 13-storey residential mid-rise building with landscaped terraces at levels 3, 5, and 13.

- o 667 m² of retail space
- o 4 levels of parking, including one level of underground parking

The existing commercial plaza, parking lot, and access points will be demolished to accommodate the proposed mixed-use development.

3.0 Water Servicing

The Region of Peel is responsible for the operation and maintenance of the public watermain system. The existing and proposed water servicing for the development are outlined in the following sections.

3.1 Existing Water Servicing

As-built drawings from the Region of Peel's External Peel Asset Locator (EPAL), and the Subsurface Utility Engineering (SUE) Level B plan complete by Telecon on August 28, 2024 (UG-1), were reviewed to determine the existing water servicing infrastructure close to the site. The existing water servicing infrastructure includes:

- An existing 300 mm diameter cast iron watermain on the northern side of Dundas Street East (Region of Peel as-constructed drawing 71952-D, December 2021)
- An existing 300 mm diameter cast iron watermain on the eastern side of Universal Drive (Region of Peel as-constructed drawing 71952-D, December 2021)
- There are four existing hydrants located in close proximity to the site. Two located to the east of the site on Universal Drive, one located to the northwest of the property within the neighbouring property and one located to the southwest of the site in front of the 1945 Dundas Street East property (Subsurface Utility Engineering Investigation, Telecon, August 28, 2024)

Based on the SUE Investigation, there are currently two water services located on the property. One 200 mm diameter water service extending from the Dundas Street East watermain and connecting to the west side of the existing building. A second water service extends from the Universal Road Watermain and connected to the east side of the existing building. All existing water servicing to the existing building will be removed or decommissioned to the satisfaction of the Region of Peel.

Based on the City of Mississauga DARC Comments, dated October 18, 2023, there is currently a capital project (18-1310) on Dundas Street East, to replace the watermain from Dixie Road to the Region of Peel Border. If the site is to be serviced by this watermain, substantial completion of this capital project will be required to connect to this main.

3.2 Design Water Demand

The water demand for the proposed development was calculated with reference to the Region of Peel Linear Infrastructure Watermain Design Criteria (June 2010). The Region of Peel design criteria requires an average daily demand of 280 L/capita/day for residential use and 300 L/employee/day for commercial use. The population equivalent was calculated based on the Region of Peel Linear Wastewater Standards (March 2023). Population equivalents of 2.7 persons/unit for residential use and 50 persons/ha for commercial use were utilized to estimate the population of the development.

Table 1 summarizes the overall water demand for the proposed development. Appendix A contains detailed water demand calculations.

Table 1: Estimated Domestic Water Demand

Standard	Land Use	Average Daily Water Demand (L/s)	Maximum Daily Water Demand (L/s)	Peak Hourly Water Demand (L/s)
Building A				
Region of Peel	Residential	3.99	7.99	11.98
	Commercial/Retail	-	-	-
	Total	3.99	7.99	11.98
Building B				
Region of Peel	Residential	4.25	8.49	12.74
	Commercial/Retail	0.01	0.02	0.04
	Total	4.26	8.51	12.78
Development Total (Building A and B)		8.25	16.50	24.76

Based on the Region of Peel design criteria for domestic water demand, the estimated average daily demand and peak hourly demand for the proposed development are 8.25 L/s and 24.76 L/s, respectively.

3.3 Fire Flow Demand

The Fire Underwriters Survey (FUS) method was used to estimate the fire flow requirements for the proposed development. Flow requirements were based on the building Gross Floor Areas (GFA) for each building from the Site Plan prepared by Raw Design Inc. (November 20, 2024). Based on email correspondence with the architect, dated September 18, 2024, the calculation assumes that the building is constructed with non-combustible materials and has an adequately designed sprinkler system that will meet NFPA requirements. Email correspondence with the architect has been provided in Appendix A.

Table 2 summarizes the estimated fire flow demand and duration necessary to meet fire protection for each building in the proposed development. Appendix A contains the Fire Underwriters Survey calculations. The building Architect and Mechanical Engineer will confirm the estimated fire flow demand at the Site Plan Approval and Building Permit stage.

Table 2: Estimated Fire Flow Demand

Method	Building	Total Effective Area (m ²)	Fire Flow (L/s)	Duration (hrs.)
Fire Underwriter Survey	Building A	3,439	183	2.5
	Building B	4,086	183	2.5

Based on the fire flow calculations and the total effective Area for Building A and B of 3,439 and 4,086 sq.m., respectively, the estimated fire flow was calculated to be 183 L/s for a duration of 2.5 hours for each of Building A and Building B.

It should be noted that the fire flows determined from the FUS method is a conservative estimate for comparison purposes only. The Mechanical Engineer for the development will complete the required analysis for the fire protection system for the buildings and the Architect will design fire separation methods per the determined fire flow rate to meet municipally available flows and pressures. Based on the estimated domestic water demands and fire flow demands for each building summarized in Table 1 and Table 2.

Hydrant flow tests will be completed as part of the design process to determine the existing available pressures and flows within the Universal Drive watermain. These results will be provided when available.

3.4 Proposed Water Servicing

The development is proposed to be serviced by two 200 mm diameter fire lines connecting to the existing 300 mm diameter watermain located within the Universal Drive right-of-way. These fire lines will be complete with 200 mm diameter valve boxes and valves, and backflow preventer at the connection point and at the property line. A detector check valve in chamber at the connection point of the two 200 mm diameter fire lines is proposed per Region of Peel standards.

The northern most fire line is proposed to split into a 100 mm diameter domestic line to services the proposed residential and retail development. The domestic line is complete with a 100 mm diameter gate box and valve at the connection point as well as a water meter per Region of Peel standards. The water meter and backflow preventer will be per the mechanical engineer design and specifications.

The Site Servicing Plan (Drawing C103) illustrates the location and design of the proposed water service.

4.0 Sanitary Servicing

The Region of Peel is responsible for the operation and maintenance of the sanitary sewer network in the City of Mississauga. The existing and proposed sanitary servicing is outlined in the following sections.

4.1 Existing Sanitary Servicing

As-built drawings from the Region of Peel's External Peel Asset Locator (EPAL), and the Subsurface Utility Engineering (SUE) Level B plan complete by Telecon on August 28, 2024 (UG-1) were reviewed to determine the existing sanitary servicing infrastructure close to the site. The existing sanitary servicing infrastructure includes:

- An existing 250 mm diameter sanitary sewer in an easement along the southern limit of the Site. The sewer runs from west to east at a slope of approximately 0.61% (Region of Peel as-constructed drawing 71952-D, December 2021).
- An existing 250 mm diameter sanitary sewer on Universal Road running from north to south at a slope of approximately 0.5% (Region of Peel as-constructed drawing 71952-D, December 2021).

All existing sanitary servicing to the existing building will be removed or decommissioned to the satisfaction of the Region of Peel.

4.2 Design Sanitary Flow

The Region of Peel Linear Wastewater standards (March 2023) was referenced to calculate the sanitary sewage design flows for the proposed development. Per the design guidelines an average design flow of 290 L/capita/day and 270 L/employee/day were utilized for the proposed residential and commercial development, respectively. The population equivalent was calculated based on the Region of Peel Linear Wastewater Standards (March 2023).

Infiltration flow into the sanitary sewer and peaking factors were applied to the average flow to obtain the total estimated design sewage flows. Table 3 summarizes the sanitary design flows for the proposed development. Detailed calculations are provided in Appendix B.

Table 3: Estimated Sanitary Design Flows

Standard	Land Use	Average Daily Flow (L/s)	Peaking Factor	Peak Flow (L/s)	Infiltration Flow (L/s)	Total Development Peak Flow (L/s)
Building A					0.31	32.48
Region of Peel	Residential	4.14	3.74	15.46		
	Commercial/Retail	-		-		
Building B					0.31	
Region of Peel	Residential	4.40	3.72	16.35		
	Commercial/Retail	0.01		0.05		

As shown in Table 3, it is estimated that the total sanitary peak flow for the proposed development is 32.48 L/s which includes the proposed residential, commercial, and infiltration sanitary flows. The proposed sanitary service was sized to convey a total peak sanitary sewage flow of 32.48 L/s for the development.

4.3 Proposed Sanitary Servicing

The development is proposed to be serviced by a 200 mm diameter sanitary service that connects to the existing 250 mm diameter sanitary sewer on Universal Drive east of the development. The proposed sanitary service will connect to the underground parking structure just north of the proposed driveway on Universal Drive, connects to a property line manhole, and will connect to an existing sanitary manhole on Universal Drive. The proposed sanitary service will be designed per the Region of Peels standards.

The Site Servicing Plan (Drawing C103) illustrates the location of the sanitary sewer and connections to the buildings. The internal sanitary system of the building will be designed per the mechanical engineer's details and specifications.

The existing sanitary service that services 1995 Dundas Street East is to be decommissioned and removed as part of the proposed sanitary servicing strategy.

5.0 Drainage Conditions

The drainage conditions for the site in both pre-development and post-development conditions are outlined in the following sections.

5.1 Existing Drainage Conditions

According to the topographic survey (J.D. Barnes Limited, December 8, 2023), the site currently consists of an existing commercial plaza, parking lot, and paved access to Dundas Street East and Universal Drive. The site generally slopes from south to north and the majority of the drainage from the site is collected by catchbasins within the existing parking areas, which outlet to the Universal Drive storm sewer (Catchment 101).

The existing emergency overland flow route for the site is divided with the majority of the overland flow being directed east towards the Universal Drive right-of-way. The southwestern portion of the Site is directed to the neighbouring property to the west.

Table 4 summarizes the pre-development drainage conditions and runoff coefficients. Figure 1 illustrates the Pre-Development Drainage Plan.

Table 4: Pre-Development Catchment Areas and Runoff Coefficients

Catchment ID	Description	Impervious Area (m ²)	Pervious Area (m ²)	Weighted Runoff Coefficient ¹	Outlet
101	Existing commercial plaza, parking lot, and landscaped areas	12,210	424	0.5	Universal Drive Storm Sewer

¹A pre-development runoff coefficient shall not exceed 0.5 for a site that is already developed as per the City of Mississauga Storm Drainage Design Criteria (November 2020)

5.2 Proposed Drainage Conditions

Based on the Site Plan prepared by Raw Design Inc. (November 20, 2024), the proposed development will consist of four residential towers atop a shared 5 storey podium rising to 25 storeys, 17 storeys, 24 storeys, and 13 storeys, associated below and above grade parking areas, and landscaped/amenity areas. Access to the site will be provided from one entrance from Universal Drive, and one entrance from the proposed future road to the north.

The proposed site grading divides the site into five post-development drainage catchment areas, as shown on the Post-Development Drainage Plan (Figure 2):

- Catchment 201 (A = 0.71 ha; RC = 0.90) consists of drainage from the proposed building footprints. Drainage will be collected in the proposed underground stormwater management storage tank within the underground parking level. The stormwater management tank will control peak flows to the Universal Drive storm sewer.

- Catchment 202 (A = 0.05 ha; RC = 0.64) consists of drainage from landscaped areas and a residential terrace along the western limits of the property. Drainage from this catchment will be collected in catchbasins and will connect to the underground stormwater management storage tank, ultimately conveyed to the Universal Drive storm sewer.
- Catchment 203 (A = 0.32 ha; RC = 0.41) consists of uncontrolled drainage from the southern regional easement, landscaped areas, sidewalks, and paved areas surrounding the proposed building footprint. All storm events from this catchment are conveyed overland via sheet flow to the Universal Drive right-of-way to mimic the pre-development drainage conditions.
- Catchment 204 (A = 0.004 ha; RC = 0.90) consists of a small area of uncontrolled drainage from the western limits of the building. Drainage from this catchment will be conveyed to the existing catch basin connected to the storm network of the neighbouring property, consistent with existing conditions.
- Catchment EXT1 (A = 0.18 ha; RC = 0.63) consist of drainage from the proposed future street to the north and associated boulevards, and will be conveyed towards the Universal Drive right-of-way, similar to existing conditions.

The proposed emergency overland flow route for the Site mimics the flow direction and patterns of the existing condition, discharging east towards the Universal Drive right-of-way. No emergency proposed overland flows are directed towards the neighbouring property to the west.

Table 5 provides details of the catchment areas and runoff coefficients for the post-development conditions.

Table 5: Post-Development Catchment Areas and Runoff Coefficients

Catchment ID	Description	Impervious Area (m2)	Pervious Area (m2)	Weighted Runoff Coefficient	Outlet
201	Proposed building footprint	7,078	0	0.90	Underground SWM tank
202	Landscaped areas and residential terrace	302	198	0.64	Underground SWM tank
203	Landscaped areas, pedestrian walkways, and paved site access	785	2,429	0.41	Universal Drive right-of-way
204	Paved area	42	0	0.90	Neighbouring storm network to the west
EXT1	Proposed future street and associated landscaped areas	1050	750	0.63	Universal Drive right-of-way

Refer to the Post-Development Drainage Plan (Figure 2) for proposed drainage conditions and the Site Grading and Site Servicing Plans (Figures C102 and C103, respectively) that illustrate the proposed site drainage and storm sewer servicing.

6.0 Stormwater Management

The stormwater management design criteria are outlined in the City of Mississauga DARC Comments (October 18, 2023). Per the pre-consultation notes, we understand that the stormwater management criteria include:

Water Quantity Control:

- According to the DARC comments, the site is within the Etobicoke Creek (main branch) watershed where no quantity control is required, therefore, to avoid any excess discharge to the storm sewer, the 2 to the 100-year storm event should be controlled to the capacity of the storm sewer (10-year storm event).

Water Quality Control:

- At least 80% removal of Total Suspended Solids will be provided with “Enhanced Protection” as outlined in the Ministry of Environment Stormwater Management Planning and Design Manual.

Water Balance:

- To preserve existing hydrologic conditions of the site, the first 5mm of runoff shall be retained on site to achieve water balance criteria.

6.1 Stormwater Quantity Control

As discussed in Section 6.0, there are no stormwater quantity control requirements within the Etobicoke Creek (main branch) watershed, however the City of Mississauga requires peak flows from the proposed development to be controlled to the capacity of the storm sewer (10-year storm event).

Using the City of Mississauga's intensity-duration-frequency (IDF) data, the Modified Rational Method was used to determine the pre-development and post-development flows for the stormwater runoff from the site. The peak flow targets for the controlled post-development catchments (201 and 202) are based on the pre-development flows for the 10-year storm event and the uncontrolled post-development (203, 204, and EXT1) flows for the 100-year storm event. The pre-development and post-development flow rates as well as the required storage are summarized below in Table 6.

Table 6: Peak Flow Summary

Storm Event (yr)	Peak Flow Rate ¹ (L/s)				Required Storage (m ³)	Total Provided Storage (m ³)
	Pre-Development	Post-Development (Uncontrolled)	Post-Development (Controlled)	Post-Development (Total)		
2	105.2	41.4	52.7	94.1	289.6	345
5	141.4	55.6		108.3		
10	174.1	68.5		121.2		
25	220.0	78.7		131.4		
50	267.9	87.8		140.5		
100	308.8	97.2		149.9		

¹ An adjustment factor has been applied to the 25-, 50-, and 100-year storm-event peak flows to account for the increase in runoff due to saturation as per the City of Mississauga Storm Drainage Design Criteria (November 2020)

Based on the results of the modified rational calculations, to control the flows to the capacity of the Universal Drive storm sewer, a total storage volume of 289.60 m³ will be required. An underground storage tank with a volume of 345 m³ has been provided within the underground parking level to provide necessary storage requirements. Upon attenuation the stormwater flows will be directed to the existing 750mm diameter storm sewer on Universal Drive.

Calculations of the stormwater peak flows and storage requirements are provided in Appendix C.

6.2 Stormwater Quality Control

Stormwater quality controls for the site must incorporate measures to provide an Enhanced Level of Protection according to the MOE (March 2003) guidelines. Normal water quality protection involves the removal of at least 80% of the Total Suspended Solids (TSS) from 90% of the annual runoff volume.

Flows from Catchments 201 and 202 will consist of roof drainage and small area of residential terrace and landscaped areas which will produce "clean" runoff and therefore, water quality measures have not been provided for this catchment. The internal storm system has been designed not to accept any drainage from driveways.

Catchments 203, 204, and EXT1 will discharge uncontrolled towards Universal Drive, consistent with the existing overland flow conditions. The uncontrolled flow from this catchment is deemed minor and primarily consists of clean runoff; therefore, quality controls have not been provided for this catchment. This catchment will mainly consist of landscaped areas which will produce "clean" runoff.

6.3 Water Balance

As stated by the City of Mississauga Development Requirements Manual (November 2020), the minimum requirement to promote water balance is retention of the first 5 mm of runoff shall be retained on site. The water balance retention volume was calculated considering initial abstraction of runoff based on impervious area. Table 7 describes the dead storage volume required below the invert of the underground storage tank to satisfy the water balance criteria.

Table 7: Water Balance Storage Requirements

Standard	Criteria	Impervious Area (m3)	Storage Required (m3)
City of Mississauga Development Requirements Manual (November 2020)	Retention of first 5mm of runoff	9,257	46.3

The water balance storage requirements have been accommodated in the storage provided by the underground storage tank to achieve both quantity controls and water balance. The 46.3 m³ will be stored below the invert of the tank outlet as dead storage. Water in dead storage can be reused throughout the development as grey water or for irrigation purposes.

7.0 Erosion and Sediment Controls During Construction

The design of the erosion and sediment controls can be referenced on the Removals, Erosion and Sediment Control Plan (Drawing C101). The erosion and sediment controls will be required prior to the beginning of any construction activities. They will be maintained until the site is stabilized or as directed by the Site Engineer and/or the City of Mississauga. Controls will be inspected after each significant rainfall event and maintained in proper working condition.

Light Duty Silt Fencing

Light duty silt fencing will be installed along the perimeter of the Site to intercept sheet flow. Additional silt fencing 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 to the construction zone to prevent mud tracking from the Site onto surrounding lands and road network. All construction traffic will be restricted to this access only.

Catchbasin Sediment Control Device

A sediment control device will be installed in each new catch basin as they are installed. This will provide sediment control and prevent silt and sediment from entering the storm water system. Sediment control devices will also be installed on the existing catchbasins on site and along Universal Drive during construction to prevent sediment from entering the existing storm sewer pipe.

8.0 Conclusion and Recommendations

The proposed development can be serviced for water, sanitary, and stormwater in accordance with the City of Mississauga and Region of Peel requirements and standards. Our conclusions and recommendations include:

1. The proposed water demand for the Site is the sum of the peak hourly demand and fire flow. These water demand flows are illustrated in Table 1 and Table 2 of this report.
2. Water demand for the proposed development will be provided through two 200 mm diameter PVC fire lines, splitting into a 100 mm diameter domestic water service connection. The water service connections will extend from the existing 300 mm diameter watermain on Universal Drive.
3. The proposed sanitary design flow for the Site is 32.48 L/s, including sanitary peak flows from Building A and B, and infiltration flow.
4. The proposed internal sanitary servicing of the residential and the commercial areas will be connected to the existing 250 mm diameter sanitary sewer within Universal Drive through a proposed 200 mm diameter PVC service connection.
5. Stormwater runoff from the building footprint (Catchment 201) and residential terrace (Catchment 202) will be captured and controlled to the capacity of the 750mm diameter storm sewer on Universal Drive.

6. Stormwater runoff from the areas surrounding the building (203 and 204), and the proposed future street to the north (EXT1) will flow uncontrolled via sheet flow towards the Universal Drive right-of-way.
7. Water quantity controls and water balance have been provided through an underground stormwater storage tank located in the underground parking level. This tank is sized to provide 345 m³ of storage with associated dead storage to meet water balance criteria.
8. Erosion and Sediment Controls will be implemented on-site during construction

Based on the above conclusions, we support the proposed development application from the perspective of water and sanitary servicing and stormwater management.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.



Cole Martin
Engineering Intern

C.F. CROZIER & ASSOCIATES INC.



Nick Constantin, P.Eng.
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APPENDIX A

Water Demand Calculations

Connection Demand Table

WATER CONNECTION

Connection point ³⁾			
Existing 300mm diameter watermain on Universal Drive ID: WND605382-WND605438			
Pressure zone of connection point		2	
Total equivalent population to be serviced ¹⁾		2546 persons	
Total lands to be serviced		1.18 ha	
Hydrant flow test			
	Hydrant flow test location	-	
	Pressure (kPa)	Flow (in l/s)	Time
Minimum water pressure	-	-	-
Maximum water pressure	-	-	-

*Hydrant Flow Test to be completed

No.	Water Demand		
	Demand type	Demand	Units
1	Average day flow	8.25	l/s
2	Maximum day flow	16.50	l/s
3	Peak hour flow	24.76	l/s
4	Fire flow ²⁾	183	l/s
Analysis			
5	Maximum day plus fire flow	199.5	l/s

WASTEWATER CONNECTION

Connection point ⁴⁾		
Existing 250mm diameter VIT sanitary sewer on Universal Drive Wastewater Main ID: SMH1789022-SMH1789021		
Total equivalent population to be serviced		2546 persons
Total lands to be serviced		1.18 ha
6	Wastewater sewer effluent (l/s)	32.48

¹⁾ Please refer to design criteria for population equivalencies

²⁾ Please reference the Fire Underwriters Survey Document

³⁾ Please specify the connection point ID

⁴⁾ Please specify the connection point (wastewater line or manhole ID)

Also, the "total equivalent population to be serviced" and the "total lands to be serviced" should reference the connection point. (the FSR should contain one copy of Site Servicing Plan)

Please include the graphs associated with the hydrant flow test information table

Please provide Professional Engineer's signature and stamp on the demand table

All required calculations must be submitted with the demand table submission.

Proposed Domestic Water Demand (Building A)

Site Area: 1.18 ha
Residential Population 1232 persons

Residential Population Equivalent

Unit	Number of Units	Persons Per Unit	Persons
Townhouse	6	3.4	20.4
1 Bedroom	223	1.7	379.1
2 Bedroom	190	3.1	589
3 Bedroom	37	3.1	114.7
Total	456	-	1103
Total with Correction	456	2.7	1232

Water Demand (Residential):

Average Demand (L/capita/d)
280

Average Daily Demand 344,960 L/day
3.99 L/s

Max Day Factor 2.00
Peak Hour Factor 3.00

Maximum Daily Flow **7.99 L/s**

Peak Hour Flow **11.98 L/s**

Use	Average Daily Water Demand (L/s)	Max Day Demand (L/s)	Peak Hourly Demand (L/s)
Residential	3.99	7.99	11.98
Amenity/Commercial	-	-	-
Total	3.99	7.99	11.98

Notes & References

Site area based on Site Plan prepared by RAW Design Inc. (November 20, 2024)

Population Equivalents from the Region of Peel Linear Wastewater Standards (March 2023)

Per Region of Peel standards, since proposed population equivalent for apartments is greater than 475 persons/ha, a population equivalent of 2.7 persons per unit is applied.

Average Demand from Section 2.3 of Region of Peel Linear Infrastructure Watermain Design Criteria (June 2010)

Peaking Factors from Section 2.3 of Region of Peel Linear Infrastructure Watermain Design Criteria (June 2010)

Max Day = Average Day Demand * Max Day

Peak Hour = Average Day Demand * Peak Hour

Proposed Domestic Water Demand (Building B)

Site Area:	1.18	ha
Retail Area:	0.07	ha
Residential Population	1310	persons
Commercial Population Equivalent:	50	persons/ha
Commercial Population:	4	persons

Residential Population Equivalent

Unit	Number of Units	Persons Per Unit	Persons
Townhouse	9	3.4	30.6
1 Bedroom	273	1.7	464.1
2 Bedroom	180	3.1	558
3 Bedroom	23	3.1	71.3
Total	485	-	1124
Total with Correction	485	2.7	1310

Water Demand (Residential):

Average Demand (L/capita/d)
280

Average Daily Demand 366,800 L/day
4.25 L/s

Max Day Factor 2.00
Peak Hour Factor 3.00

Maximum Daily Flow **8.49 L/s**

Peak Hour Flow **12.74 L/s**

Amenity/Commercial:

Average Demand (L/capita/d)
300

Average Daily Demand 1,200 L/day
0.01 L/s

Max Day Factor 1.40
Peak Hour Factor 3.00

Maximum Daily Flow = **0.02 L/s**

Peak Hour Flow = **0.04 L/s**

Use	Average Daily Water Demand (L/s)	Max Day Demand (L/s)	Peak Hourly Demand (L/s)
Residential	4.25	8.49	12.74
Amenity/Commercial	0.01	0.02	0.04
Total	4.26	8.51	12.78

Notes & References

Site area based on Site Plan prepared by RAW Design Inc. (November 20, 2024)

Population Equivalents from the Region of Peel Linear Wastewater Standards (March 2023)

Per Region of Peel standards, since proposed population equivalent for apartments is greater than 475 persons/ha, a population equivalent of 2.7 persons per unit is applied.

Average Demand from Section 2.3 of Region of Peel Linear Infrastructure Watermain Design Criteria (June 2010)

Peaking Factors from Section 2.3 of Region of Peel Linear Infrastructure Watermain Design Criteria (June 2010)

Max Day = Average Day Demand * Max Day

Peak Hour = Average Day Demand * Peak Hour

Average Demand from Section 2.3 of Region of Peel Linear Infrastructure Watermain Design Criteria (June 2010)

Peaking Factors from Section 2.3 of Region of Peel Linear Infrastructure Watermain Design Criteria (June 2010)



Building A

Water Supply for Public Fire Protection (2020)
Fire Underwriters Survey

Page 1

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)
= 0.8	for type IV-A mass timber construction
= 0.9	for type IV-B mass timber construction
= 1.0	for type IV-C mass timber construction
= 1.5	for type IV-D mass timber construction
= 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 largest floor area in square meters (plus the following percentages of the total areas of the other floors).

For Construction Coefficient from 1.0 to 1.5:
= 100% of ALL Floor Areas

For Construction Coefficient below 1.0:

- Floors With Any Unprotected Vertical Openings in the Building
= two largest adjoining floors + 50% all floors immediately above (max 8 floors)
- Floors With Any Protected Vertical Openings and Protected Exterior Vertical Communications
= 25% each of two immediately adjoining floors

Proposed Buildings

Area:

A = 3,439 sq.m

Based on Concept Site Plan provided by RAW dated November 20, 2024.

C = 0.8

Therefore RFF = 10,320 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%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0%		

Occupancy Type: Residential (C) Reduction %: 0%

- L/min surcharge
Subtotal = 10,320 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.

Automatic Sprinkler Design System	Credit to part of building with coverage
Automatic sprinkler protection designed and installed in accordance with NFPA 13.	30%
Water supply is standard for both the system and Fire Department hose lines.	10%
Fully supervised system.	10%

Reduction %: 50%

5,160 L/min reduction
Subtotal = 5,160 L/min

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 30 meters 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	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	>30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Direction	Distance (m)	Charge	Surcharge (L/min)
North	32	0%	0
South	0	25%	2,580
East	45	0%	0
West	1.6	25%	2,580
Total Surcharge			5160

Determine Required Fire Flow

No.1 10,320
No. 2 0 surcharge
No. 3 5,160 reduction
No. 4 5,160 surcharge

Required Flow: 10,320 L/min
Rounded to nearest 1000 L/min: 11,000 L/min or 183 L/s
2,904 USGPM

Note: USGPM = 0.264*(L/min)

Required Duration of Fire Flow	
Flow Required (L/min)	Duration (hours)
2,000 or less	1.00
3,000	1.25
4,000	1.50
5,000	1.75
6,000	2.00
8,000	2.00
10,000	2.00
12,000	2.50
14,000	3.00
16,000	3.50
18,000	4.00
20,000	4.50
22,000	5.00
24,000	5.50
26,000	6.00
28,000	6.50
30,000	7.00
32,000	7.50
34,000	8.00
36,000	8.50
38,000	9.00
40,000 and over	9.50



Building B

Water Supply for Public Fire Protection (2020)
Fire Underwriters Survey

Page 1

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)
= 0.8	for type IV-A mass timber construction
= 0.9	for type IV-B mass timber construction
= 1.0	for type IV-C mass timber construction
= 1.5	for type IV-D mass timber construction
= 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 largest floor area in square meters (plus the following percentages of the total areas of the other floors).

For Construction Coefficient from 1.0 to 1.5:
= 100% of ALL Floor Areas

For Construction Coefficient below 1.0:

- Floors With Any Unprotected Vertical Openings in the Building
= two largest adjoining floors + 50% all floors immediately above (max 8 floors)
- Floors With Any Protected Vertical Openings and Protected Exterior Vertical Communications
= 25% each of two immediately adjoining floors

Proposed Buildings

Area:

A = 4,086 sq.m

Based on Concept Site Plan provided by RAW dated November 20, 2024.

C = 0.8

Therefore RFF = 11,250 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%	Free Burning	15%
Limited Combustible	-15%	Rapid Burning	25%
Combustible	0%		

Occupancy Type: Residential (C) Reduction %: 0%

- L/min surcharge
Subtotal = 11,250 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.

Automatic Sprinkler Design System	Credit to part of building with coverage
Automatic sprinkler protection designed and installed in accordance with NFPA 13.	30%
Water supply is standard for both the system and Fire Department hose lines.	10%
Fully supervised system.	10%

Reduction %: 50%

5,625 L/min reduction
Subtotal = 5,625 L/min

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 30 meters 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	Separation	Charge
0 to 3 m	25%	20.1 to 30 m	10%
3.1 to 10 m	20%	>30 m	0%
10.1 to 20 m	15%		

Exposed buildings

Direction	Distance (m)	Charge	Surcharge (L/min)
North	0	25%	2,812
South	>30	0%	0
East	>30	0%	0
West	15	15%	1,687
Total Surcharge			4500

Determine Required Fire Flow

No.1 11,250
No. 2 0 surcharge
No. 3 5,625 reduction
No. 4 4,500 surcharge

Required Flow: 10,125 L/min
Rounded to nearest 1000 L/min: 11,000 L/min or 183 L/s
2,904 USGPM

Note: USGPM = 0.264*(L/min)

Required Duration of Fire Flow	
Flow Required (L/min)	Duration (hours)
2,000 or less	1.00
3,000	1.25
4,000	1.50
5,000	1.75
6,000	2.00
8,000	2.00
10,000	2.00
12,000	2.50
14,000	3.00
16,000	3.50
18,000	4.00
20,000	4.50
22,000	5.00
24,000	5.50
26,000	6.00
28,000	6.50
30,000	7.00
32,000	7.50
34,000	8.00
36,000	8.50
38,000	9.00
40,000 and over	9.50

Cole Martin

From: Suleman Khan <sk@rawdesign.ca>
Sent: September 18, 2024 2:53 PM
To: Cole Martin
Cc: Rachel Nault; Elmira Yousefi; Stephanie Kwast; Nick Constantin
Subject: RE: 22072 - 1995 Dundas Street East – Updated Plans

Categories: Filed to Sharepoint

Hi Cole,

Please see our responses below in [blue](#).

Best,

M. SULEMAN KHAN
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RAW is committed to a healthy work/life balance. Emails and voicemails will not be checked on weekends or after 6:00pm Monday - Thursday or Friday after 12pm.

From: Cole Martin <cmartin@cfcrozier.ca>
Sent: September 17, 2024 11:18 AM
To: Suleman Khan <sk@rawdesign.ca>
Cc: Rachel Nault <rnault@bousfields.ca>; Elmira Yousefi <ey@rawdesign.ca>; Stephanie Kwast <skwast@bousfields.ca>; Nick Constantin <nconstantin@cfcrozier.ca>
Subject: RE: 22072 - 1995 Dundas Street East – Updated Plans

Hi Suleman,

We seem to be missing the site statistics (i.e. GFAs and unit breakdown) for the latest site plan. Can you please provide these to us so we can finalize some of our calculations for servicing demands and fire protection requirements?

Additionally, we are using the Fire Underwriters Survey (FUS) to determine the required fire flows for the site. Please see the attached copy of the FUS Water Supply for Public Fire Protection (2020) for your reference. We are hoping you can provide answers to the following questions to guide our calculations? If not all this information is available, we can use some reasonable assumptions as a starting point and fine tune as the development process advances.

1. Type of Construction (Page 20 - 21 of FUS Guide)
Can you confirm the construction type for the proposed building? Refer to pages 20 to 21 of the attached FUS guide for a description of each construction type.
 - a. Wood Frame Construction
 - b. Mass Timber
 - a. Encapsulated Mass Timber

- b. Rated Mass Timber
- c. Ordinary Mass Timber
- d. Unrated Mass Timber
- c. Ordinary Construction
- d. Non-combustible Construction
 - a. Building to be non Combustible material
- e. Fire-Resistive Construction

2. Total Effective Area (Pages 22-23 of FUS Guide)

- a. Are there proposed vertical firewalls with a fire-resistance rating of at least 2 hours that meets the requirements of the National Building Code? If so, please mark up the site plan to clearly show where the firewalls will be present.

No vertical fire walls

Subdividing Buildings (Vertical Firewalls)

In determining Total Effective Area, a building may be subdivided if a vertical firewall with a fire-resistance rating of **not less than 2 hours**, and meeting the requirements of the National Building Code exists. If the firewall is properly constructed and all openings are properly protected in accordance with the NBC, then the boundary can be treated as protected with no exposure charge.

- b. Do the exterior wall assemblies meet the acceptance criteria of CAN/ULC-S114?

To be determined at a later stage

Wood Frame Construction (Type V)

A building is considered to be of Wood Frame construction (Type V) when structural elements, walls, arches, floors, and roofs are constructed entirely or partially of wood or other material.

Note: Includes buildings with exterior wall assemblies that are constructed with any materials that do not have a fire resistance rating that meets the acceptance criteria of **CAN/ULC-S114**. May include exterior surface brick, stone, or other masonry materials where they do not meet the acceptance criteria.

3. Occupancy and Contents Adjustment Factor (Page 25 of FUS Guide)

Can you confirm the contents of the building? Refer to page 24 of the attached FUS guide for a description of each content type.

- a. Non-combustible contents
- b. Limited Combustible contents
- c. Combustible contents
 - To be considered Combustible contents
- d. Free burning contents
- e. Rapid burning contents

4. Automatic Sprinkler Protection (Page 27 of FUS Guide)

Automatic Sprinkler Protection

The required fire flow may be reduced by up to 50 percent for complete Automatic Sprinkler Protection depending upon adequacy of the system. Where only part of a building is protected by Automatic Sprinkler Protection, credit should be interpolated by determining the percentage of the Total Floor Area being protected by the automatic sprinkler system.

To be able to apply the full 50 percent reduction, the following areas should be reviewed to determine the appropriate level of credit for having Automatic Sprinkler Protection as per the table below:

Table 4 Sprinkler Credits

Automatic Sprinkler System Design	Credit	
	With complete building coverage	With partial building coverage of X%
Automatic sprinkler protection designed and installed in accordance with NFPA 13	30%	$30\% \times \text{Percentage of Total Floor Area Served by Sprinkler System}$
Water supply is standard for both the system and Fire Department hose lines	10%	$10\% \times \text{Percentage of Total Floor Area Served by Sprinkler System}$
Fully supervised system	10%	$10\% \times \text{Percentage of Total Floor Area Served by Sprinkler System}$

- a. Can you confirm if the building will include an automatic sprinkler system in accordance with NFPA 13? If so, will it provide complete coverage of the building?

Yes.

- b. If yes, will it be fully supervised?

Yes.

Thank you in advance for your time,

Cole Martin

Engineering Intern, Land Development

Office: 289.204.8239

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From: Suleman Khan <sk@rawdesign.ca>

Sent: Thursday, September 12, 2024 9:34 AM

To: Nick Constantin <nconstantin@cfcrozier.ca>; Cole Martin <cmartin@cfcrozier.ca>

Cc: Rachel Nault <rnault@bousfields.ca>; Elmira Yousefi <ey@rawdesign.ca>; Stephanie Kwast <skwast@bousfields.ca>

Subject: FW: 22072 - 1995 Dundas Street East – Updated Plans

Hi Nick/Cole,

Apologies you were not cc'd in the chain below, but we have included you and will ensure all future correspondence do so.

Best,

M. SULEMAN KHAN

O +1 416 599 9729

APPENDIX B

Sanitary Flow Calculations



Project: 1995 Dundas Street East
Project No.: 2707-7162
Prepared By: CM
Checked By: NC
Date: 2024-08-13
Revised : 2024-11-27

Site Statistics - Equivalent Population
1995 Dundas Street East, Mississauga

SUMMARY OF UNIT BREAKDOWN

Building	Small Units	Large Units	Townhomes	Total Units	Retail Area m ²
Building A	223	227	6	456	0
Building B	273	203	9	485	667
TOTAL	496	430	15	941	667

SUMMARY OF POPULATION

Building	Residential	Retail	Total Persons
Building A	1232	0	1232
Building B	1310	4	1314
Total	2542	4	2546

Notes:

1. The project statistics have been taken from the Site Plan by RAW dated November 20, 2024.
2. Per Region of Peel standards, since proposed population equivalent for apartments is greater than 475 persons/ha, a population equivalent of 2.7 persons per unit is applied.

Unit Type	Average PPU
Small Apartments (1 bedroom)	1.7
Large Apartments (>1 bedroom)	3.1
Townhouse	3.4

3. Amenity area population and commercial space based on 50 persons/ha per Region of Peel Linear Wastewater Standards - Section 2.1.2 Equivalent Population (Revised March 3, 2023) and includes outdoor and indoor amenity areas.

Proposed Sanitary Design Flow - Building A

Site Area: 1.18 ha
 Residential Population 1232 persons

Residential Population Equivalent

Unit	Number of Units	Persons Per Unit	Persons
Townhouse	6	3.4	20.4
1 Bedroom	223	1.7	379.1
2 Bedroom	190	3.1	589
3 Bedroom	37	3.1	114.7
Total	456	-	1103
Total with Correction	456	2.7	1232

Harmon Peak Factor: $M = 3.74$

Residential

Average Demand (L/capita/d)
290

Average Daily Flow = 357,280.00 L/day
 $= 4.14$ L/s

Peak Flow = 15.46 L/s

Infiltration Flow:
 Infiltration = 0.26 L/s/ha
 Total Infiltration = 0.31 L/s

Total Flow = 15.77 L/s

Summary Table

Use	Average Daily Flow (L/s)	Peak Flow (L/s)	Infiltration Flow (L/s)	Total Peak Flow (L/s)
Residential	4.14	15.46	0.31	15.77
Amenity/Retail	-	-		

Notes & References

Site area based on Site Plan prepared by RAW Design Inc. (November 20, 2024)

Population Equivalents from the Region of Peel Linear Wastewater Standards

Per Region of Peel standards, since proposed population equivalent for apartments is greater than 475 persons/ha, a population equivalent of 2.7 persons per unit is applied.

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

Average Demand from Section 2.2 of Linear Wastewater Standards Region of Peel (March 2023)

Average Daily Flow = Average Daily Flow (L/cap./day) * population / 86400

Peak Flow = Average Daily Flow * M

Infiltration Allowance from Section 2.5.2 from Region of Peel Linear Wastewater Standards (March 2023)

Total Peak Flow = Peak Flow + Total Infiltration

Proposed Sanitary Design Flow - Building B

Site Area: 1.18 ha
Retail Area: 0.07 ha
Residential Population: 1310 persons
Commercial Population Equivalent: 50 persons/ha
Commercial Population: 4 persons

Residential Population Equivalent

Unit	Number of Units	Persons Per Unit	Persons
Townhouse	9	3.4	30.6
1 Bedroom	273	1.7	464.1
2 Bedroom	180	3.1	558
3 Bedroom	23	3.1	71.3
Total	485	-	1124
Total with Correction	485	2.7	1310

Harmon Peak Factor: $M = 3.72$

Residential

Average Demand (L/capita/d)
290

Average Daily Flow = 379,755.00 L/day
= **4.40** L/s

Peak Flow = **16.35** L/s

Retail

Average Demand (L/employee/d)
270

Average Daily Flow = 1,080.00 L/day
= **0.01** L/s

Peak Flow = **0.05** L/s

Infiltration Flow:

Infiltration = 0.26 L/s/ha
Total Infiltration = **0.31** L/s

Total Flow = **16.71** L/s

Summary Table

Use	Average Daily Flow (L/s)	Peak Flow (L/s)	Infiltration Flow (L/s)	Total Peak Flow (L/s)
Residential	4.40	16.35	0.31	16.71
Amenity/Retail	0.01	0.05		

Notes & References

Site area based on Site Plan prepared by RAW Design Inc. (November 20, 2024)

Population Equivalents from the Region of Peel Linear Wastewater Standards

Per Region of Peel standards, since proposed population equivalent for apartments is greater than 475 persons/ha, a population equivalent of 2.7 persons per unit is applied.

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

Average Demand from Section 2.2 of Linear Wastewater Standards Region of Peel (March 2023)

Average Daily Flow = Average Daily Flow (L/cap./day) * population / 86400

Peak Flow = Average Daily Flow * M

Infiltration Allowance from Section 2.5.2 from Region of Peel Linear Wastewater Standards (March 2023)

Total Peak Flow = Peak Flow + Total Infiltration

APPENDIX C

Stormwater Management Calculations



Project: 1995 Dundas Street East
Project No.: 2707-7162

Date: 2024-09-19
Revised: 2024-10-22
Designed By: CM
Checked By: AW

Target Orifice Flow

Catchment	Impervious Area (m2)	Pervious Area (m2)	Total Area (ha)	Runoff Coefficient
Pre-Development				
101	12210	424	1.26	0.50
Total Site	12210	424	1.26	0.50
Post-Development				
201	7078	0	0.71	0.90
202	302	198	0.05	0.64
203	785	2,429	0.32	0.41
204	42	0	0.00	0.90
EXT1	1050	750	0.18	0.63
Total Site	9257	3377	1.26	0.72

*Minimum RC value for pre-development areas per City of Mississauga Development Requirements Manual (November 2020)

Time of Concentration: $T_c = 15$ min

Return Period	A	B	C	I (mm/hr)
2 yr	610	0.78	4.6	59.89
5 yr	820	0.78	4.6	80.51
10 yr	1010	0.78	4.6	99.17
25 yr	1160	0.78	4.6	113.89
50 yr	1300	0.78	4.7	127.13
100 yr	1450	0.78	4.9	140.69

Pre-Development	
Storm Event	Peak Flow (L/s)
2 yr	105.2
5 yr	141.4
10 yr	174.1
25 yr	220.0
50 yr	267.9
100 yr	308.8

Post-Development (Uncontrolled)	
Storm Event	Peak Flow (L/s)
2 yr	41.4
5 yr	55.6
10 yr	68.5
25 yr	78.7
50 yr	87.8
100 yr	97.2

Target Flow Rate:	76.99 L/s
--------------------------	-----------

$$i(T_d) = A / (T + C)^{AB}$$

$$Q = 0.00278 \cdot C \cdot i(T_d) \cdot A$$

Formulas from City of Mississauga Development Requirements Manual (November 2020)



Project: 1995 Dundas Street East
Project No.: 2707-7162

Date: 2024-09-19
Revised: 2024-10-22
Designed By: CM
Checked By: AW

ORIFICE FLOW CALCULATIONS

Orifice Equation:

$$Q = C \times A \times \sqrt{2 \times g \times h}$$

Where:

Q = Flow Rate (m³/s)

C = Orifice Coefficient of Discharge

A = Orifice Opening Area (m²)

g = Gravitational Constant (m/s²)

h = Head Acting on Orifice Centroid (m)

Storm Event	Drainage Area ID	Orifice Location	Orifice Coefficient	Diameter of Orifice (mm)	Orifice Invert (m)	Headwater Elevation (m)	Total Head (m)	Area of Orifice (m ²)	Release Rate (L/s)
100-Year	202	MH1	0.80	100	115.96	119.60	3.59	0.008	52.7



Project: 1995 Dundas Street East
Project No.: 2707-7162

Date: 2024-09-19
Revised: 2024-10-22
Designed By: CM
Checked By: AW

MODIFIED RATIONAL METHOD CALCULATIONS - 100 YEAR POST TO 10 YEAR PRE

Rainfall Intensity Equation:

$$I = \frac{A}{(T+b)^c}$$

City of Mississauga IDF (100-Year)	
a=	1450
b=	4.9
c=	0.78

		CONTROLLED AREA		UNCONTROLLED AREA
		Drainage Area ID = 201, 202 Drainage Area = 0.76 ha Runoff Coefficient = 0.88		Drainage Area ID = 203, EXT1 Drainage Area = 0.51 ha Runoff Coefficient = 0.48
		Controlled Release Rate at MH1 = 52.7 L/s		Target Site Release Rate = 174.1 L/s
		Max. Storage Volume Required = 289.6 m3 Storage Volume Provided = 345.0 m3		Controlled Release Rate at MH1 = 52.7 L/s Uncontrolled Release Rate = 97.2 L/s Total Site Release Rate = 149.9 L/s
Time (minutes)	Rainfall Intensity (mm/hr)	Q _{Runoff} (L/s)	Q _{Release} (L/s)	Storage Volume Required (m ³)
5	242.5	564.0	52.7	153.4
10	176.3	410.0	52.7	214.3
15	140.7	327.1	52.7	247.0
20	118.1	274.7	52.7	266.3
25	102.4	238.1	52.7	278.1
30	90.8	211.1	52.7	285.0
35	81.8	190.1	52.7	288.6
40	74.6	173.4	52.7	289.6
45	68.7	159.7	52.7	288.8
50	63.8	148.2	52.7	286.5
55	59.6	138.5	52.7	283.0
60	56.0	130.1	52.7	278.5
65	52.8	122.8	52.7	273.2
70	50.0	116.3	52.7	267.2
75	47.6	110.6	52.7	260.5
80	45.4	105.5	52.7	253.3
85	43.4	100.9	52.7	245.7
90	41.6	96.7	52.7	237.6
95	40.0	92.9	52.7	229.2
100	38.5	89.5	52.7	220.4
105	37.1	86.3	52.7	211.3
110	35.8	83.3	52.7	201.9
115	34.7	80.6	52.7	192.3
120	33.6	78.1	52.7	182.5
125	32.6	75.7	52.7	172.4
130	31.6	73.5	52.7	162.2
135	30.7	71.5	52.7	151.8
140	29.9	69.5	52.7	141.2
145	29.1	67.7	52.7	130.4
150	28.4	66.0	52.7	119.5
155	27.7	64.4	52.7	108.5
160	27.0	62.9	52.7	97.3
165	26.4	61.4	52.7	86.0



Project: 1995 Dundas Street East
Project No.: 2707-7162

Date: 2024-09-19
Revised: 2024-10-22
Designed By: CM
Checked By: AW

MODIFIED RATIONAL METHOD CALCULATIONS - 50 YEAR POST TO 10 YEAR PRE

Rainfall Intensity Equation:

$$I = \frac{A}{(T+b)^c}$$

City of Mississauga IDF (50-Year)	
a=	1300
b=	4.7
c=	0.78

		CONTROLLED AREA		UNCONTROLLED AREA
		Drainage Area ID = 201, 202 Drainage Area = 0.76 ha Runoff Coefficient = 0.88		Drainage Area ID = 203, EXT1 Drainage Area = 0.51 ha Runoff Coefficient = 0.48
		Controlled Release Rate at MH1 = 52.7 L/s		Target Site Release Rate = 174.1 L/s
		Max. Storage Volume Required = 234.3 m3 Storage Volume Provided = 345.0 m3		Controlled Release Rate at MH1 = 52.7 L/s Uncontrolled Release Rate = 87.8 L/s Total Site Release Rate = 140.5 L/s
Time (minutes)	Rainfall Intensity (mm/hr)	Q _{Runoff} (L/s)	Q _{Release} (L/s)	Storage Volume Required (m ³)
5	220.9	493.2	52.7	132.1
10	159.7	356.6	52.7	182.3
15	127.1	283.8	52.7	208.0
20	106.6	237.9	52.7	222.2
25	92.3	206.0	52.7	230.0
30	81.7	182.5	52.7	233.6
35	73.6	164.3	52.7	234.3
40	67.1	149.8	52.7	232.9
45	61.8	137.9	52.7	229.9
50	57.3	128.0	52.7	225.7
55	53.5	119.5	52.7	220.4
60	50.3	112.3	52.7	214.3
65	47.4	105.9	52.7	207.4
70	45.0	100.3	52.7	200.0
75	42.7	95.4	52.7	192.0
80	40.8	91.0	52.7	183.6
85	39.0	87.0	52.7	174.8
90	37.4	83.4	52.7	165.6
95	35.9	80.1	52.7	156.1
100	34.5	77.1	52.7	146.3
105	33.3	74.4	52.7	136.2
110	32.2	71.8	52.7	126.0
115	31.1	69.5	52.7	115.5
120	30.1	67.3	52.7	104.8
125	29.2	65.3	52.7	93.9
130	28.4	63.4	52.7	82.9
135	27.6	61.6	52.7	71.7
140	26.8	59.9	52.7	60.3
145	26.1	58.3	52.7	48.8
150	25.5	56.9	52.7	37.2
155	24.9	55.5	52.7	25.5
160	24.3	54.2	52.7	13.7
165	23.7	52.9	52.7	1.8



Project: 1995 Dundas Street East
Project No.: 2707-7162

Date: 2024-09-19
Revised: 2024-10-22
Designed By: CM
Checked By: AW

MODIFIED RATIONAL METHOD CALCULATIONS - 25 YEAR POST TO 10 YEAR PRE

Rainfall Intensity Equation:

$$I = \frac{A}{(T+b)^c}$$

City of Mississauga IDF (25-Year)	
a=	1160
b=	4.6
c=	0.78

		CONTROLLED AREA		UNCONTROLLED AREA
		Drainage Area ID = 201, 202 Drainage Area = 0.76 ha Runoff Coefficient = 0.88		Drainage Area ID = 203, EXT1 Drainage Area = 0.51 ha Runoff Coefficient = 0.48
		Controlled Release Rate at MH1 = 52.7 L/s		Target Site Release Rate = 174.1 L/s
		Max. Storage Volume Required = 174.4 m3 Storage Volume Provided = 345.0 m3		Controlled Release Rate at MH1 = 52.7 L/s Uncontrolled Release Rate = 78.7 L/s Total Site Release Rate = 131.4 L/s
Time (minutes)	Rainfall Intensity (mm/hr)	Q _{Runoff} (L/s)	Q _{Release} (L/s)	Storage Volume Required (m ³)
5	198.7	406.7	52.7	106.2
10	143.3	293.2	52.7	144.3
15	113.9	233.1	52.7	162.3
20	95.4	195.2	52.7	171.0
25	82.6	169.0	52.7	174.4
30	73.1	149.6	52.7	174.4
35	65.8	134.7	52.7	172.0
40	60.0	122.7	52.7	168.0
45	55.2	113.0	52.7	162.6
50	51.2	104.8	52.7	156.2
55	47.8	97.9	52.7	149.0
60	44.9	91.9	52.7	141.1
65	42.4	86.7	52.7	132.6
70	40.2	82.2	52.7	123.6
75	38.2	78.1	52.7	114.2
80	36.4	74.5	52.7	104.4
85	34.8	71.2	52.7	94.3
90	33.4	68.3	52.7	83.9
95	32.0	65.6	52.7	73.2
100	30.8	63.1	52.7	62.3
105	29.7	60.9	52.7	51.2
110	28.7	58.8	52.7	39.9
115	27.8	56.9	52.7	28.5
120	26.9	55.1	52.7	16.8
125	26.1	53.4	52.7	5.1
130	25.3	51.9	51.9	0.0
135	24.6	50.4	50.4	0.0
140	24.0	49.0	49.0	0.0
145	23.3	47.7	47.7	0.0
150	22.7	46.5	46.5	0.0
155	22.2	45.4	45.4	0.0
160	21.7	44.3	44.3	0.0
165	21.2	43.3	43.3	0.0



Project: 1995 Dundas Street East
Project No.: 2707-7162

Date: 2024-09-19
Revised: 2024-10-22
Designed By: CM
Checked By: AW

MODIFIED RATIONAL METHOD CALCULATIONS - 10 YEAR POST TO 10 YEAR PRE

Rainfall Intensity Equation:

$$I = \frac{A}{(T+b)^c}$$

City of Mississauga IDF (10-Year)	
a=	1010
b=	4.6
c=	0.78

		CONTROLLED AREA		UNCONTROLLED AREA
		Drainage Area ID = 201, 202 Drainage Area = 0.76 ha Runoff Coefficient = 0.88		Drainage Area ID = 203, EXT1 Drainage Area = 0.51 ha Runoff Coefficient = 0.48
		Controlled Release Rate at MH1 = 52.7 L/s		Target Site Release Rate = 174.1 L/s
		Max. Storage Volume Required = 122.1 m3 Storage Volume Provided = 345.0 m3		Controlled Release Rate at MH1 = 52.7 L/s Uncontrolled Release Rate = 68.5 L/s Total Site Release Rate = 121.2 L/s
Time (minutes)	Rainfall Intensity (mm/hr)	Q _{Runoff} (L/s)	Q _{Release} (L/s)	Storage Volume Required (m ³)
5	173.0	321.9	52.7	80.7
10	124.8	232.1	52.7	107.6
15	99.2	184.5	52.7	118.6
20	83.1	154.5	52.7	122.1
25	71.9	133.7	52.7	121.5
30	63.7	118.4	52.7	118.2
35	57.3	106.6	52.7	113.1
40	52.2	97.1	52.7	106.6
45	48.1	89.4	52.7	99.0
50	44.6	83.0	52.7	90.7
55	41.7	77.5	52.7	81.7
60	39.1	72.8	52.7	72.1
65	36.9	68.7	52.7	62.1
70	35.0	65.0	52.7	51.7
75	33.2	61.8	52.7	40.9
80	31.7	59.0	52.7	29.9
85	30.3	56.4	52.7	18.6
90	29.0	54.0	52.7	7.0
95	27.9	51.9	51.9	0.0
100	26.9	50.0	50.0	0.0
105	25.9	48.2	48.2	0.0
110	25.0	46.5	46.5	0.0
115	24.2	45.0	45.0	0.0
120	23.4	43.6	43.6	0.0
125	22.7	42.3	42.3	0.0
130	22.1	41.0	41.0	0.0
135	21.4	39.9	39.9	0.0
140	20.9	38.8	38.8	0.0
145	20.3	37.8	37.8	0.0
150	19.8	36.8	36.8	0.0
155	19.3	35.9	35.9	0.0
160	18.9	35.1	35.1	0.0
165	18.4	34.3	34.3	0.0



Project: 1995 Dundas Street East
Project No.: 2707-7162

Date: 2024-09-19
Revised: 2024-10-22
Designed By: CM
Checked By: AW

MODIFIED RATIONAL METHOD CALCULATIONS - 5 YEAR POST TO 10 YEAR PRE

Rainfall Intensity Equation:

$$I = \frac{A}{(T+b)^c}$$

City of Mississauga IDF (5-Year)	
a=	820
b=	4.6
c=	0.78

		CONTROLLED AREA		UNCONTROLLED AREA
		Drainage Area ID = 201, 202 Drainage Area = 0.76 ha Runoff Coefficient = 0.88		Drainage Area ID = 203, EXT1 Drainage Area = 0.51 ha Runoff Coefficient = 0.48
		Controlled Release Rate at MH1 = 52.7 L/s		Target Site Release Rate = 174.1 L/s
		Max. Storage Volume Required = 87.3 m3 Storage Volume Provided = 345.0 m3		Controlled Release Rate at MH1 = 52.7 L/s Uncontrolled Release Rate = 55.6 L/s Total Site Release Rate = 108.3 L/s
Time (minutes)	Rainfall Intensity (mm/hr)	Q _{Runoff} (L/s)	Q _{Release} (L/s)	Storage Volume Required (m ³)
5	140.5	261.3	52.7	62.6
10	101.3	188.4	52.7	81.4
15	80.5	149.8	52.7	87.3
20	67.4	125.4	52.7	87.3
25	58.4	108.6	52.7	83.8
30	51.7	96.1	52.7	78.1
35	46.5	86.5	52.7	71.0
40	42.4	78.9	52.7	62.7
45	39.0	72.6	52.7	53.6
50	36.2	67.4	52.7	43.9
55	33.8	62.9	52.7	33.6
60	31.8	59.1	52.7	22.8
65	30.0	55.7	52.7	11.7
70	28.4	52.8	52.7	0.3
75	27.0	50.2	50.2	0.0
80	25.7	47.9	47.9	0.0
85	24.6	45.8	45.8	0.0
90	23.6	43.9	43.9	0.0
95	22.7	42.1	42.1	0.0
100	21.8	40.6	40.6	0.0
105	21.0	39.1	39.1	0.0
110	20.3	37.8	37.8	0.0
115	19.6	36.5	36.5	0.0
120	19.0	35.4	35.4	0.0
125	18.4	34.3	34.3	0.0
130	17.9	33.3	33.3	0.0
135	17.4	32.4	32.4	0.0
140	16.9	31.5	31.5	0.0
145	16.5	30.7	30.7	0.0
150	16.1	29.9	29.9	0.0
155	15.7	29.2	29.2	0.0
160	15.3	28.5	28.5	0.0
165	15.0	27.8	27.8	0.0



Project: 1995 Dundas Street East
Project No.: 2707-7162

Date: 2024-09-19
Revised: 2024-10-22
Designed By: CM
Checked By: AW

MODIFIED RATIONAL METHOD CALCULATIONS - 2 YEAR POST TO 10 YEAR PRE

Rainfall Intensity Equation:

$$I = \frac{A}{(T+b)^c}$$

City of Mississauga IDF (2-Year)	
a=	610
b=	4.6
c=	0.78

		CONTROLLED AREA		UNCONTROLLED AREA
		Drainage Area ID = 201, 202 Drainage Area = 0.76 ha Runoff Coefficient = 0.88		Drainage Area ID = 203, EXT1 Drainage Area = 0.51 ha Runoff Coefficient = 0.48
		Controlled Release Rate at MH1 = 52.7 L/s		Target Site Release Rate = 174.1 L/s
		Max. Storage Volume Required = 52.8 m3 Storage Volume Provided = 345.0 m3		Controlled Release Rate at MH1 = 52.7 L/s Uncontrolled Release Rate = 41.4 L/s Total Site Release Rate = 94.1 L/s
Time (minutes)	Rainfall Intensity (mm/hr)	Q _{Runoff} (L/s)	Q _{Release} (L/s)	Storage Volume Required (m ³)
5	104.5	194.4	52.7	42.5
10	75.4	140.2	52.7	52.5
15	59.9	111.4	52.7	52.8
20	50.2	93.3	52.7	48.7
25	43.4	80.8	52.7	42.1
30	38.4	71.5	52.7	33.8
35	34.6	64.4	52.7	24.4
40	31.5	58.7	52.7	14.3
45	29.0	54.0	52.7	3.4
50	26.9	50.1	50.1	0.0
55	25.2	46.8	46.8	0.0
60	23.6	43.9	43.9	0.0
65	22.3	41.5	41.5	0.0
70	21.1	39.3	39.3	0.0
75	20.1	37.3	37.3	0.0
80	19.1	35.6	35.6	0.0
85	18.3	34.0	34.0	0.0
90	17.5	32.6	32.6	0.0
95	16.9	31.4	31.4	0.0
100	16.2	30.2	30.2	0.0
105	15.6	29.1	29.1	0.0
110	15.1	28.1	28.1	0.0
115	14.6	27.2	27.2	0.0
120	14.2	26.3	26.3	0.0
125	13.7	25.5	25.5	0.0
130	13.3	24.8	24.8	0.0
135	13.0	24.1	24.1	0.0
140	12.6	23.4	23.4	0.0
145	12.3	22.8	22.8	0.0
150	12.0	22.2	22.2	0.0
155	11.7	21.7	21.7	0.0
160	11.4	21.2	21.2	0.0
165	11.1	20.7	20.7	0.0

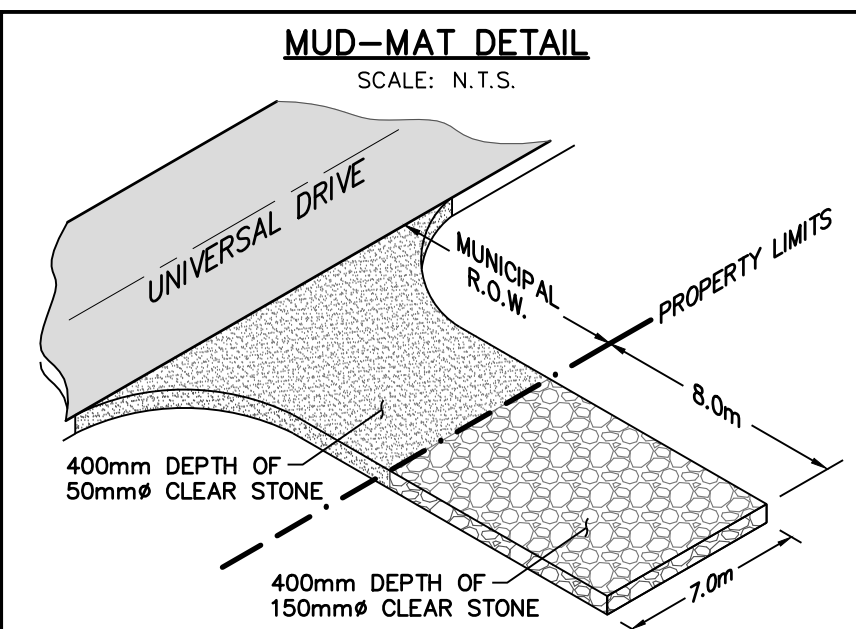
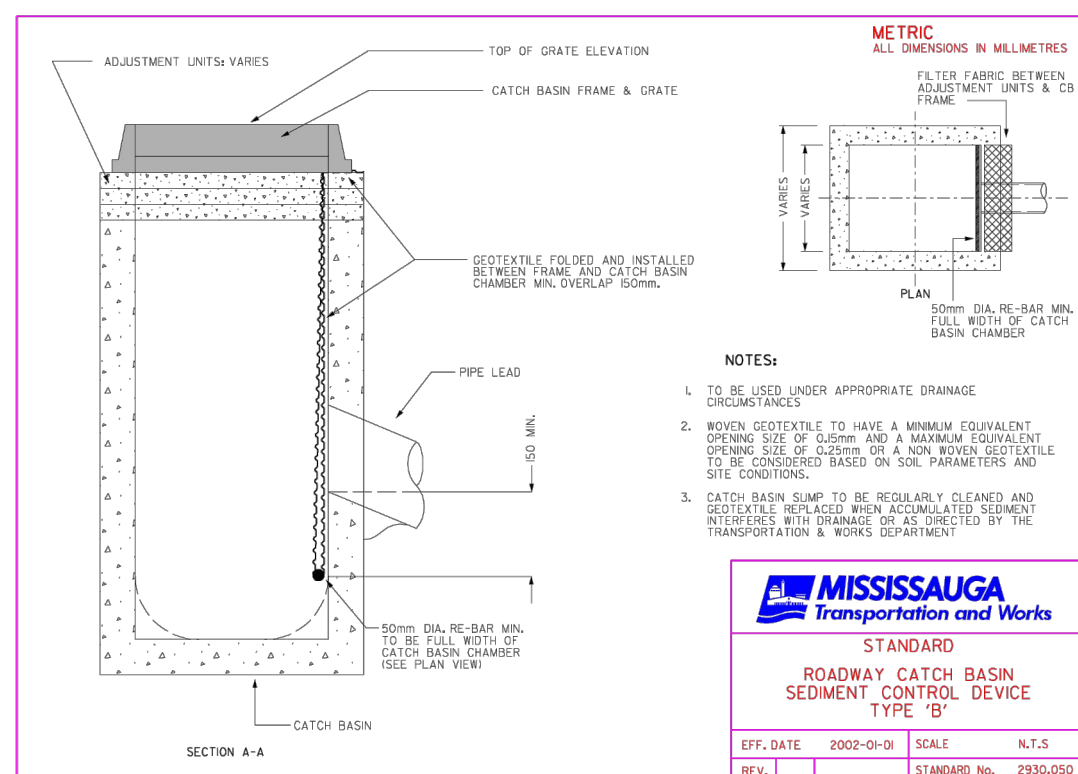
Drawings

EROSION CONTROLS

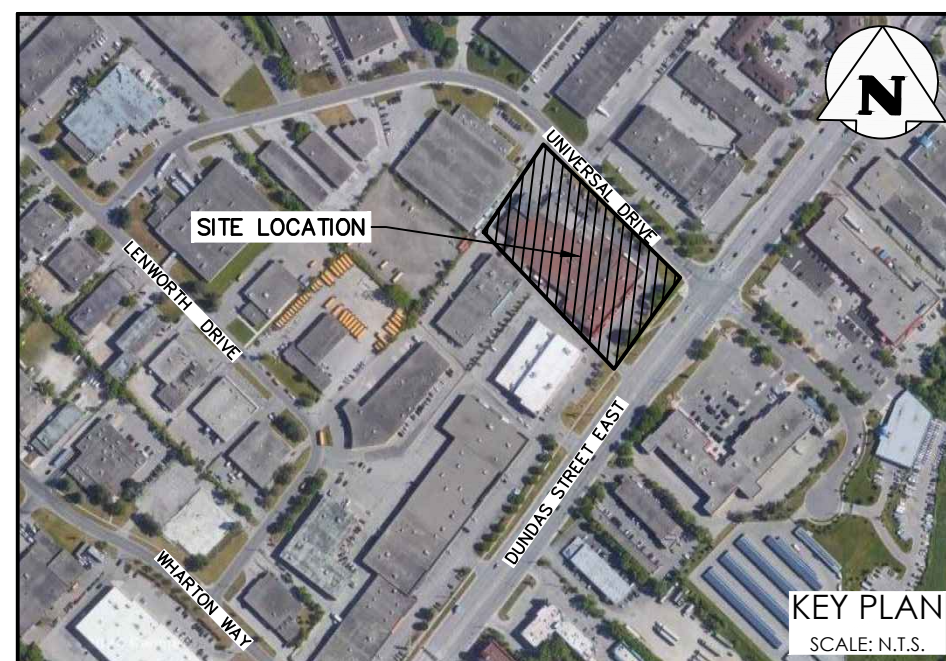
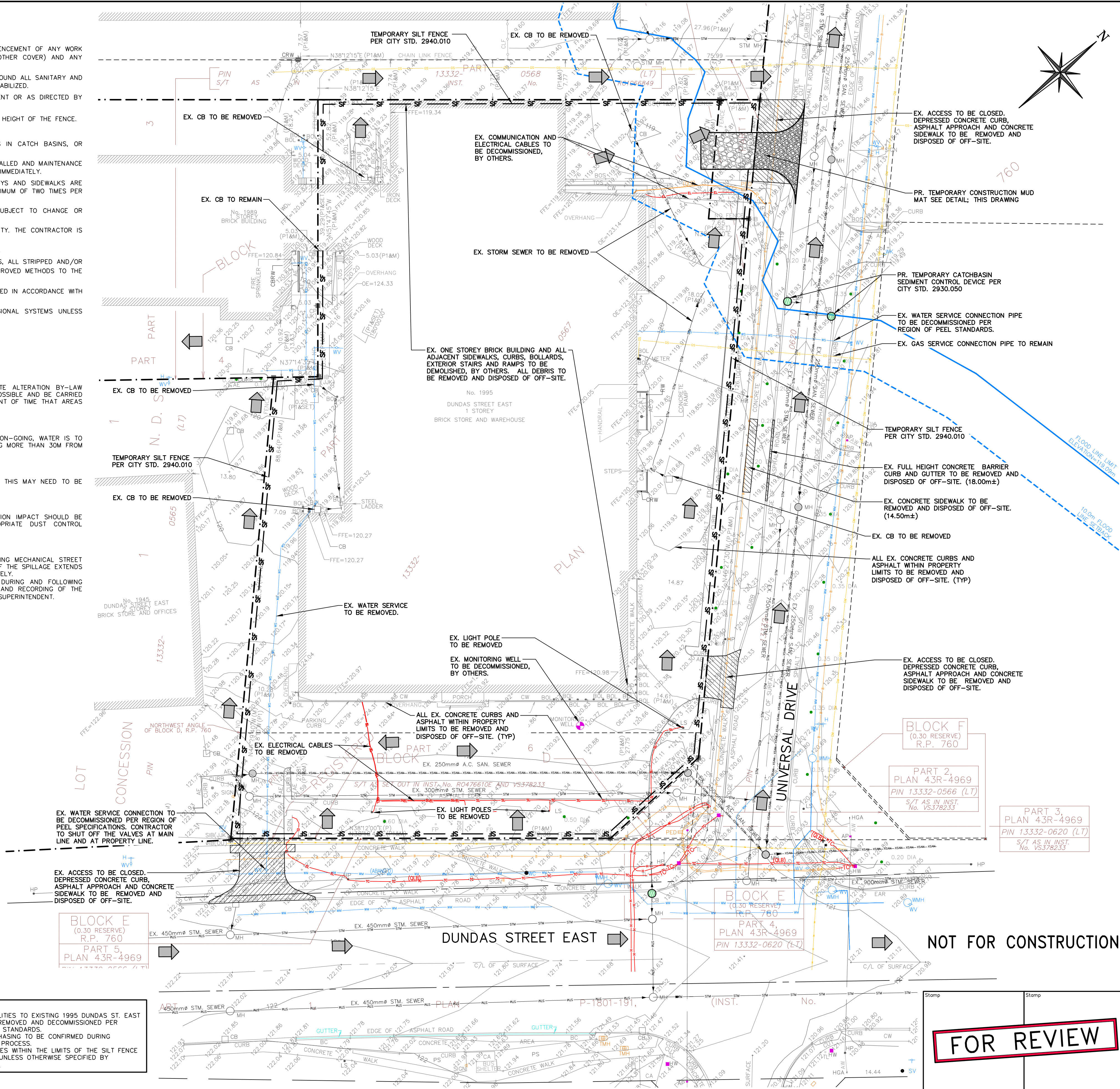
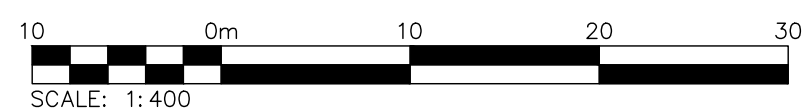
3. ALL SILT FENCING AND EROSION CONTROL MEASURES TO BE INSTALLED PRIOR TO COMMENCEMENT OF ANY WORK AND REMAIN IN PLACE UNTIL THE SITE HAS STABILIZED (I.E. PAVED, VEGETATION OR OTHER COVER) AND ANY ACCUMULATED SEDIMENT IS REMOVED.
4. SEDIMENT CONTROL PROTECTION SHALL BE PLACED AS DETAILED AND TO BE PROVIDED AROUND ALL SANITARY AND STORM MAINTENANCE HOLES AND CATCHBASINS, SHALL REMAIN IN PLACE UNTIL SITE IS STABILIZED.
5. SEDIMENT CONTROL MEASURES MUST BE INSPECTED IMMEDIATELY AFTER EVERY RAIN EVENT OR AS DIRECTED BY SITE ENGINEER.
6. SEDIMENT MUST BE REMOVED FROM SILT FENCE WHEN ACCUMULATION REACHES $\frac{1}{3}$ OF THE HEIGHT OF THE FENCE.
7. SILT REMOVAL MUST BE UNDERTAKEN WITH CARE TO MINIMIZE OFF-SITE SEDIMENTATION.
8. CONTRACTOR TO SUPPLY, PLACE AND MAINTAIN TERRAFIX SILT SACK SEDIMENT TRAPS IN CATCH BASINS, OR APPROVED EQUAL.
9. EROSION CONTROL MEASURES ARE TO BE MONITORED WEEKLY TO ENSURE FENCING IS INSTALLED AND MAINTENANCE IS PERFORMED TO CITY REQUIREMENTS AND ANY DAMAGE TO THE MEASURES IS REPAIRED IMMEDIATELY.
10. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ANY ADJACENT MUNICIPAL ROADWAYS AND SIDEWALKS ARE CLEANED OF ALL MUD, DIRT AND DEBRIS AT ALL TIMES AND MUST BE CLEANED AT A MINIMUM OF TWO TIMES PER WEEK, AS REQUIRED OR AT THE DIRECTION OF THE CITY.
11. SEDIMENT AND EROSION CONTROL PLAN IS A DYNAMIC DOCUMENT, WHICH MAY BE SUBJECT TO CHANGE OR MODIFICATIONS AS A RESULT OF SITE DEVELOPMENTS OR CHANGES ON SITE.
12. ADDITIONAL SEDIMENT CONTROL MEASURES MAY BE REQUIRED AS DETERMINED BY THE CITY. THE CONTRACTOR IS TO PROVIDE ALL ADDITIONAL EROSION CONTROL MEASURES.
13. AN AFTER HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES.
14. IF SITE CONSTRUCTION ACTIVITIES ARE INTERRUPTED AND/OR INACTIVITY EXCEEDS 30 DAYS, ALL STRIPPED AND/OR BARE SOIL AREAS ARE TO BE STABILIZED BY SODDING/SEEDING/MULCHING OR OTHER APPROVED METHODS TO THE APPROVAL OF THE SITE ENGINEER.
15. ALL EROSION AND SEDIMENTATION CONTROL DEVICES ARE TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF MISSISSAUGA.
16. EXCESS WATER FROM THE SITE SHALL NOT BE PUMPED INTO THE CITY AND/OR REGIONAL SYSTEMS UNLESS NECESSARY PERMITS AND/OR APPROVALS ARE IN PLACE.

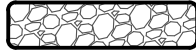
DUST CONTROL WILL BE SUPPLIED BY THE GENERAL CONTRACTOR, BY WAY OF THE FOLLOWING:

- PRE-GRADING PLANNING**
- 1.1. TOPSOIL STRIPPING AND EARTHWORKS WILL COMMENCE UPON RECEIPT OF THE SITE ALTERATION BY-LAW PERMIT FROM THE CITY OF VAUGHAN. THE SERVICING WILL COMMENCE AS SOON AS POSSIBLE AND BE CARRIED OUT IN CONJUNCTION WITH THE EARTHWORKS. THIS WILL REDUCE THE OVERALL AMOUNT OF TIME THAT AREAS ARE LEFT SUSCEPTIBLE TO WIND THAT CREATES BLOWING DUST.
- 2. WATERING (POST-GRADING)**
- 2.1. WITHIN AREAS WHERE EARTHWORKS OR UNDERGROUND MUNICIPAL SERVICING IS ON-GOING, WATER IS TO BE UTILIZED AT SUFFICIENT QUANTITY TO PREVENT VISIBLE EMISSIONS FROM EXTENDING MORE THAN 30M FROM THE POINT OF ORIGIN.
- 3. REDUCE VEHICLE SPEED**
- 3.1. THE ON-SITE SPEED LIMIT FOR CONSTRUCTION VEHICLES WILL BE 25KM/H MAXIMUM. THIS MAY NEED TO BE USED IN CONJUNCTION WITH WATERING TO PREVENT VISIBLE DUST EMISSIONS.
- 4. RESTRICT ACTIVITIES DURING HIGH WIND PERIODS**
- 4.1. THE HIGH VISIBILITY OF CERTAIN WORKS AND THE CLOSE PROXIMITY AND POPULATION IMPACT SHOULD BE TAKEN INTO CONSIDERATION WHEN SCHEDULING DUST-PRODUCING WORK. APPROPRIATE DUST CONTROL MEASURES SHALL BE IN PLACE IN SUCH SITUATIONS.
- 5. ROAD CLEANING**
- 5.1. SPILLAGE, EROSION OR MATERIALS "TRACKED OUT" ON A ROAD TO BE CLEANED USING MECHANICAL STREET SWEEPERS OR FLUSHER TRUCK AT LEAST BY THE END OF THE WORK DAY. HOWEVER, IF THE SPILLAGE EXTENDS MORE THAN 15M ALONG A PAVED PUBLIC ROADWAY IT MUST BE CLEANED UP IMMEDIATELY.
- 5.2. IMPORTING AND EXPORTING OF MATERIALS ON AND OFFSITE WILL BE SHUT DOWN DURING AND FOLLOWING INCLEMENT WEATHER UNTIL THE ROAD SURFACES HAVE BEEN CLEANED. MONITORING AND RECORDING OF THE SITE CONDITIONS WILL BE UNDERTAKEN BY FIELD STAFF AND THE CONTRACTOR'S SITE SUPERINTENDENT.



NOTE:
GEOTEXTILE (TERRAFIX 270R OR APPROVED EQUAL) TO BE PLACED AS
SEPARATION BARRIER BETWEEN EXISTING GROUND AND CLEAR STONE.



	PROPERTY LINE
	EXISTING CONTOUR (0.5m)
	EXISTING CONTOUR (1.0m)
	EXISTING DITCH
	EXISTING HYDRO POLE
	EXISTING FENCE
	EXISTING GRADE
	EXISTING OVERLAND FLOW DIRECTION
	MUD-MAT; SEE DETAIL
	SILT FENCE; SEE DETAIL
	TEMPORARY CATCHBASIN SILTATION CONTROL DEVICE.

0	ISSUED FOR SUBMISSION	2024/DEC/0
No.	ISSUE / REVISION	YYYY/MMM/D

BEARING NOTE:
BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD 83 (CSRS) (2010.0).

BENCHMARK:
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM ONTARIO BENCHMARK No. 00119653206, HAVING A PUBLISHED ELEVATION OF 121.950 METRES. (CGVD28: 78).

SURVEY NOTES:
SURVEY COMPLETED BY J.D. BARNES LIMITED, NOVEMBER 28, 2023.
REFERENCE No. 2023-21-012-00

SITE PLAN NOTES:
DESIGN ELEMENTS ARE BASED ON CONCEPTUAL SITE PLAN BY RAW.
DATED: DECEMBER 04, 2024
JOB No. 22073, SHEET NUMBER: A100

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.

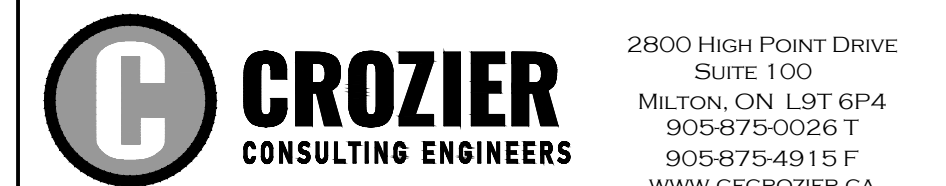
THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.

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.

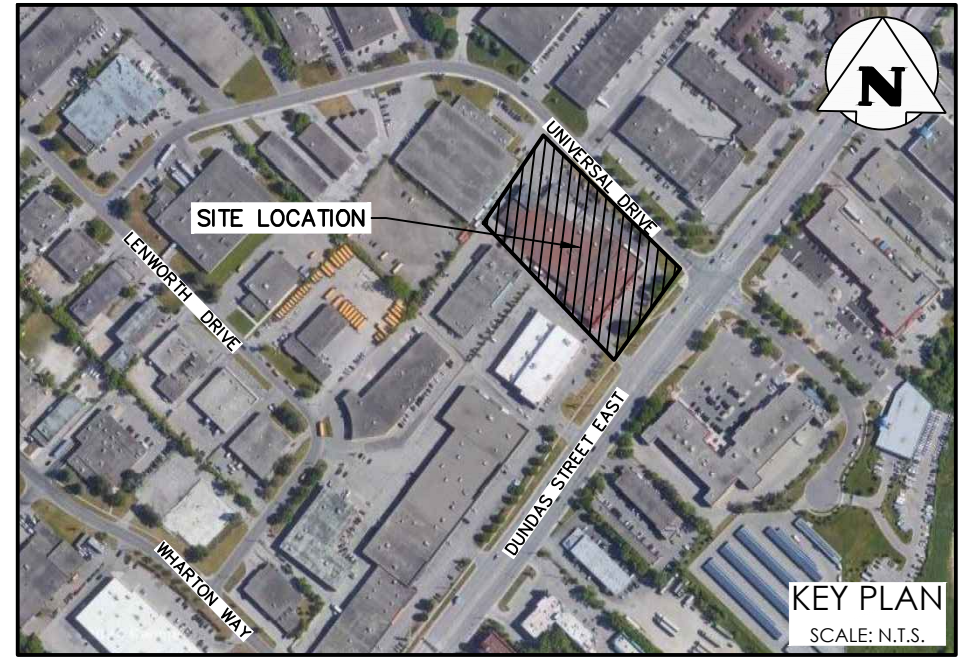
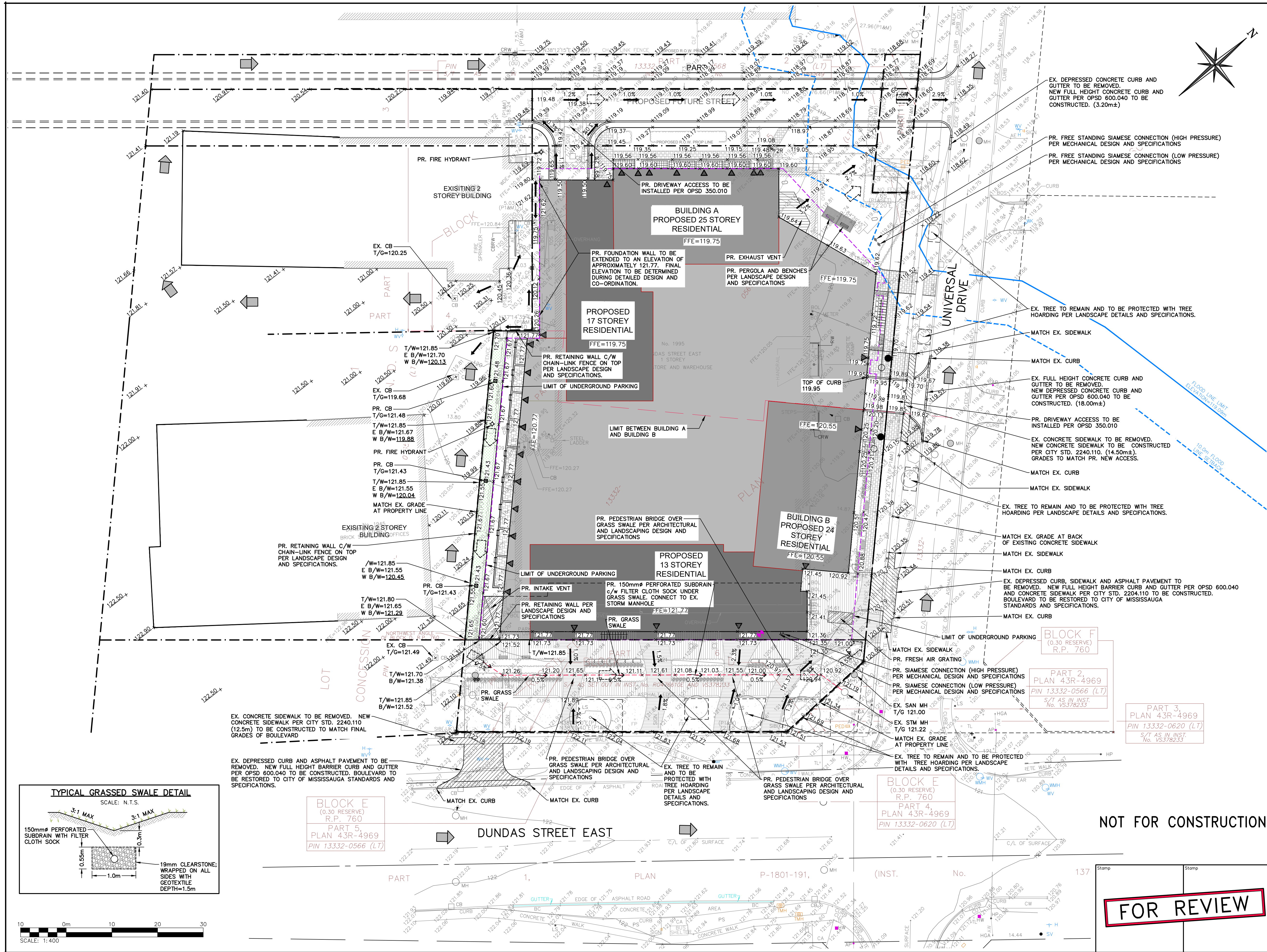
Project

1995 DUNDAS STREET EAST
CITY OF MISSISSAUGA

REMOVALS, EROSION AND
SEDIMENT CONTROL PLAN

Drawn	M.I.M	Design	M.I.M	Project No.	2707-7162
Check	N.C.	Check	N.C.	Scale	1: 400 Dwg. C 10

FOR REVIEW



LEGEND	
	PROPERTY LINE
	EXISTING CONTOUR (0.5m)
	EXISTING CONTOUR (1.0m)
	EXISTING DITCH
	EXISTING FENCE
	EXISTING GRADE
	PROPOSED GRADE
	PROPOSED GRADE (TO MATCH EXISTING)
	PROPOSED MINOR FLOW DIRECTION
	PROPOSED GRASSED SWALE
	PROPOSED RETAINING WALL
	PROPOSED SLOPE (3:1 MAX.)
	BUILDING ENTRANCE (PERSONNEL DOOR)
	BUILDING ENTRANCE (OVERHEAD DOOR)
	EXISTING OVERLAND FLOW DIRECTION
	PROPOSED MAJOR OVERLAND FLOW DIRECTION
	PROPOSED FIRE HYDRANT & GATE VALVE
	PROPOSED SIAMESE (FIRE DEPT.) CONNECTION
	PROPOSED LIMIT OF UNDERGROUND PARKING

0	ISSUED FOR SUBMISSION	2024/DEC/04
No.	ISSUE / REVISION	YYYY/MM/DD

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BENCHMARK:
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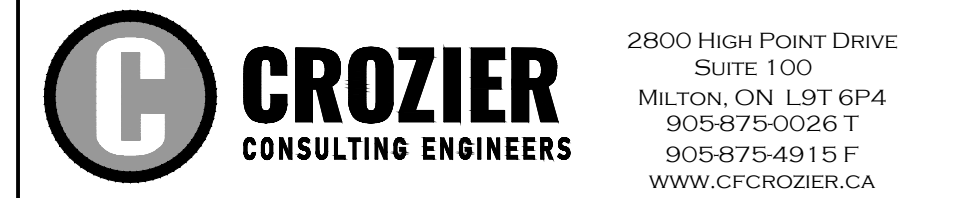
SURVEY NOTES:
SURVEY COMPLETED BY J.D. BARNES LIMITED, NOVEMBER 28, 2023.
REFERENCE No. 2023-21-012-00

SITE PLAN NOTES:
DESIGN ELEMENTS ARE BASED ON CONCEPTUAL SITE PLAN BY RAW.
DATED: DECEMBER 04, 2024
JOB No. 22073, SHEET NUMBER: A100

DRAWING NOTES:
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Project
1995 DUNDAS STREET EAST
CITY OF MISSISSAUGA

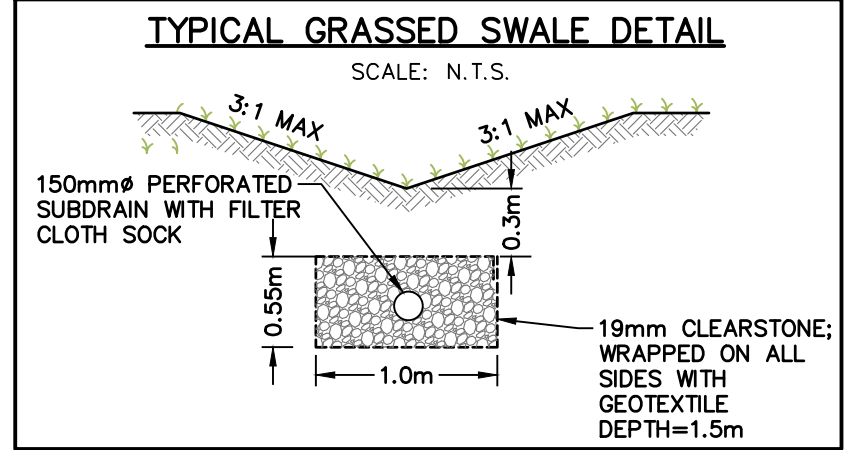
Drawing
GRADING PLAN



Drawn	M.I.M.	Design	M.I.M.	Project No.	2707-7162
Check	N.C.	Check	N.C.	Scale	1:400
				Dwg.	C 102

NOT FOR CONSTRUCTION

FOR REVIEW



- 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 (4") AND LARGER MUST BE PVC DR-18 (AWWA C900-16). SIZE 50mm ϕ (2") AND SMALLER MUST BE COPPER TYPE 'K' (ASTM-B88-49)
 3. WATERMAINS AND/OR WATER SERVICES ARE TO HAVE A MINIMUM COVER OF 1.7m (5'6") WITH A MINIMUM HORIZONTAL SPACING OF 1.2m (4') FROM THEMSELVES AND ALL OTHER UTILITIES.
 4. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC., MUST BE PROVIDED WITH AT LEAST A 50mm ϕ (2") OUTLET ON 100mm ϕ (4") AND LARGER LINES. COPPER LINES ARE TO HAVE FLUSHING POINTS AT THE END, THE SAME SIZE AS THE LINE. THEY MUST ALSO BE HOSED OR PIPED TO ALLOW WATER TO DRAIN ONTO A PARKING LOT OR DOWN A DRAIN. ON FIRE LINES, FLUSHING OUTLET TO BE 100mm ϕ (4") MINIMUM ON A HYDRANT.
 5. ALL CURB STOPS TO BE 3.0m (10') OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED.
 6. HYDRANT AND VALVE SET TO REGION STANDARD 1-6-1 DIMENSION 'A' & 'B', 0.7m (2") AND 0.9m (3") 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 (12") OVER / 0.5m (20") UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING.
 9. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND 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 AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF THEIR WORK. WHETHER SHOWN ON THE PLANS OR NOT AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
 13. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS 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 DEGREE OF HAZARD, FOR BACKFLOW PREVENTION OF THE ACTIVE DISTRIBUTION SYSTEM, CONFORMING TO REGION OF PEEL STANDARDS 1-7-7 OR 1-7-8.

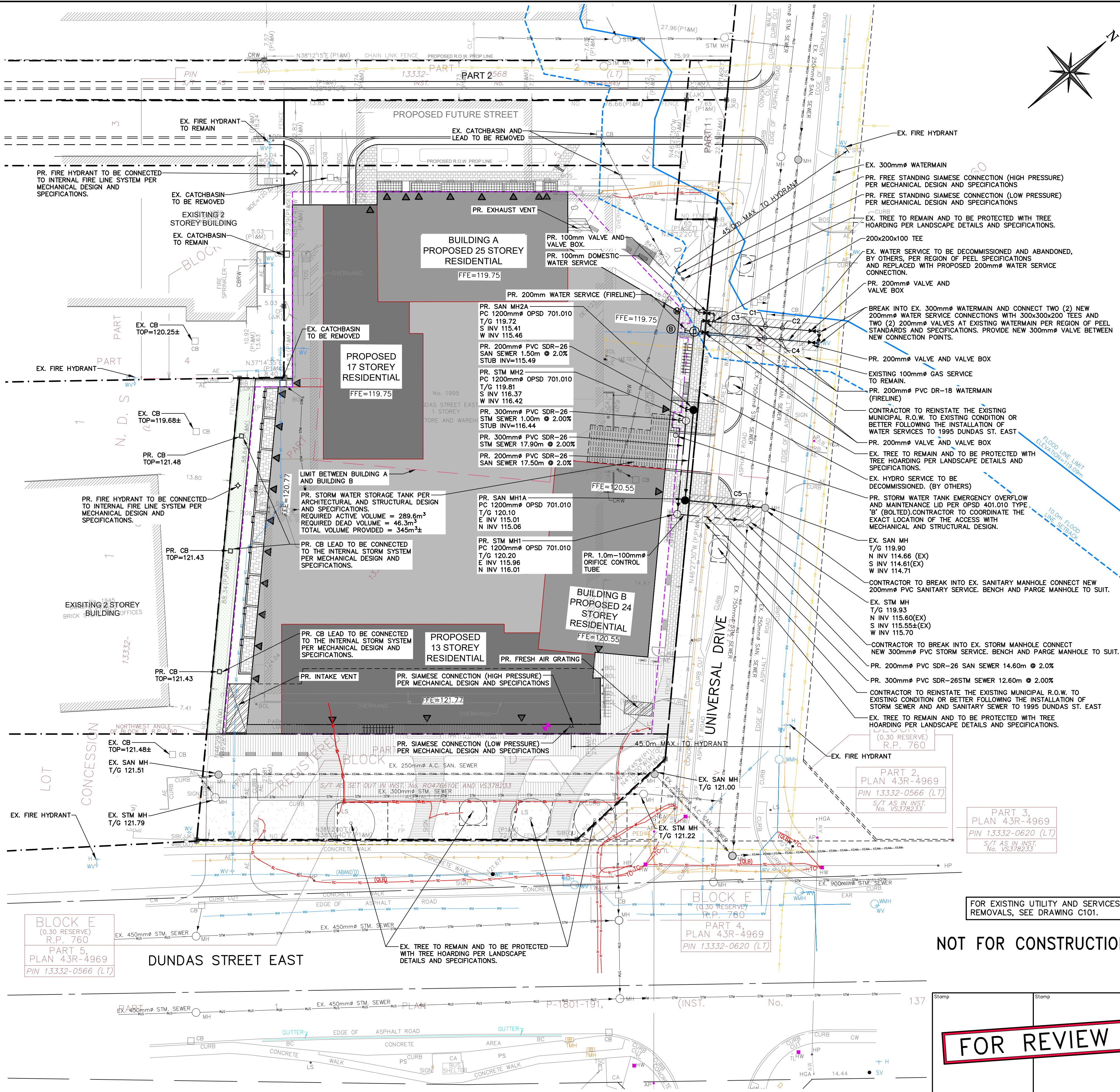
PROPOSED WATER SERVICE CONNECTION PER REGION OF PEEL STD. DWGS. 1-8-3 AND 1-6-4

PROPOSED FIRE HYDRANTS TO BE CONNECTED TO THE INTERNAL FIRE LINE PER MECHANICAL DESIGN DETAILS AND SPECIFICATIONS.

CONTRACTOR TO CONFIRM THE INVERTS OF THE EXISTING SANITARY AND STORM SEWERS PRIOR TO CONSTRUCTION START AND REPORT ANY DISCREPANCIES TO THE ENGINEER.

LOCATION OF ALL UNDERGROUND EXHAUST AND VENTILATION SYSTEMS PER MECHANICAL DESIGN AND SPECIFICATIONS.

CROSSING TABLE			
CROSSING I.D.	UPPER	LOWER	
C1	W/M INV 117.10	STM	OBV 116.50 $\pm$
C2	W/M INV 117.10	SAN	OBV 115.06 $\pm$
C3	W/M INV 117.10	STM	OBV 116.49 $\pm$
C4	W/M INV 117.10	SAN	OBV 115.05 $\pm$
C5	STM INV 115.61 $\pm$	SAN	OBV 114.96



- 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 SIAMSE CONNECTION
 - PROPOSED STORM SEWER & MANHOLE
 - PROPOSED SINGLE / DOUBLE CATCHBASIN
 - PROPOSED SANITARY SEWER & MANHOLE
 - PROPOSED LIMIT OF UNDERGROUND PARKING
 - PROPOSED WATER METER INSTALLED IN BUILDING PER MECHANICAL DESIGN AND SPECIFICATIONS. (100mm ϕ PER REGION STD. 1-4-3)
 - PROPOSED BACKFLOW PREVENTOR INSTALLED IN BUILDING PER MECHANICAL DESIGN AND SPECIFICATIONS.
 - PROPOSED DETECTOR CHECK VALVE IN CHAMBER INSTALLED PER REGION OF PEEL STD 1-3-1 FOR CHECK VALVE & 1-1-5 FOR CHAMBER
 - EXISTING GASMAIN
 - EXISTING GAS SERVICE
 - EXISTING BELL CABLES
 - EXISTING WATERMAIN
 - EXISTING WATER SERVICE
 - EXISTING STORM SEWER
 - EXISTING SANITARY SEWER
 - EXISTING HYDRO CONDUIT

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No.	ISSUE / REVISION	YYYY/MMM/DD

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REFERENCE No. 2023-21-012-00

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DATED: DECEMBER 04, 2024
JOB No. 22073, SHEET NUMBER: A100

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Project
1995 DUNDAS STREET EAST
CITY OF MISSISSAUGA

Drawing
SERVICING PLAN

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
M.I.M.

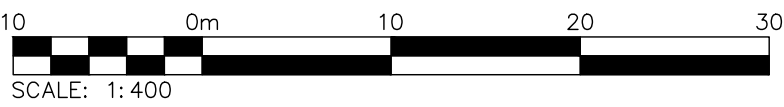
Design
M.I.M.

Project No.
2707-7162

Check
N.C.

Scale
1:400

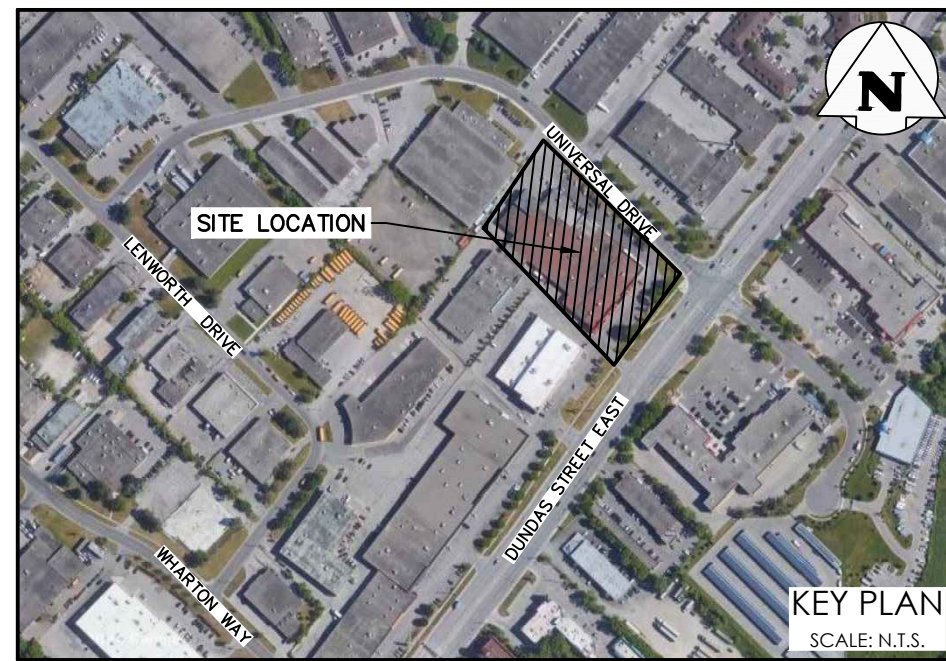
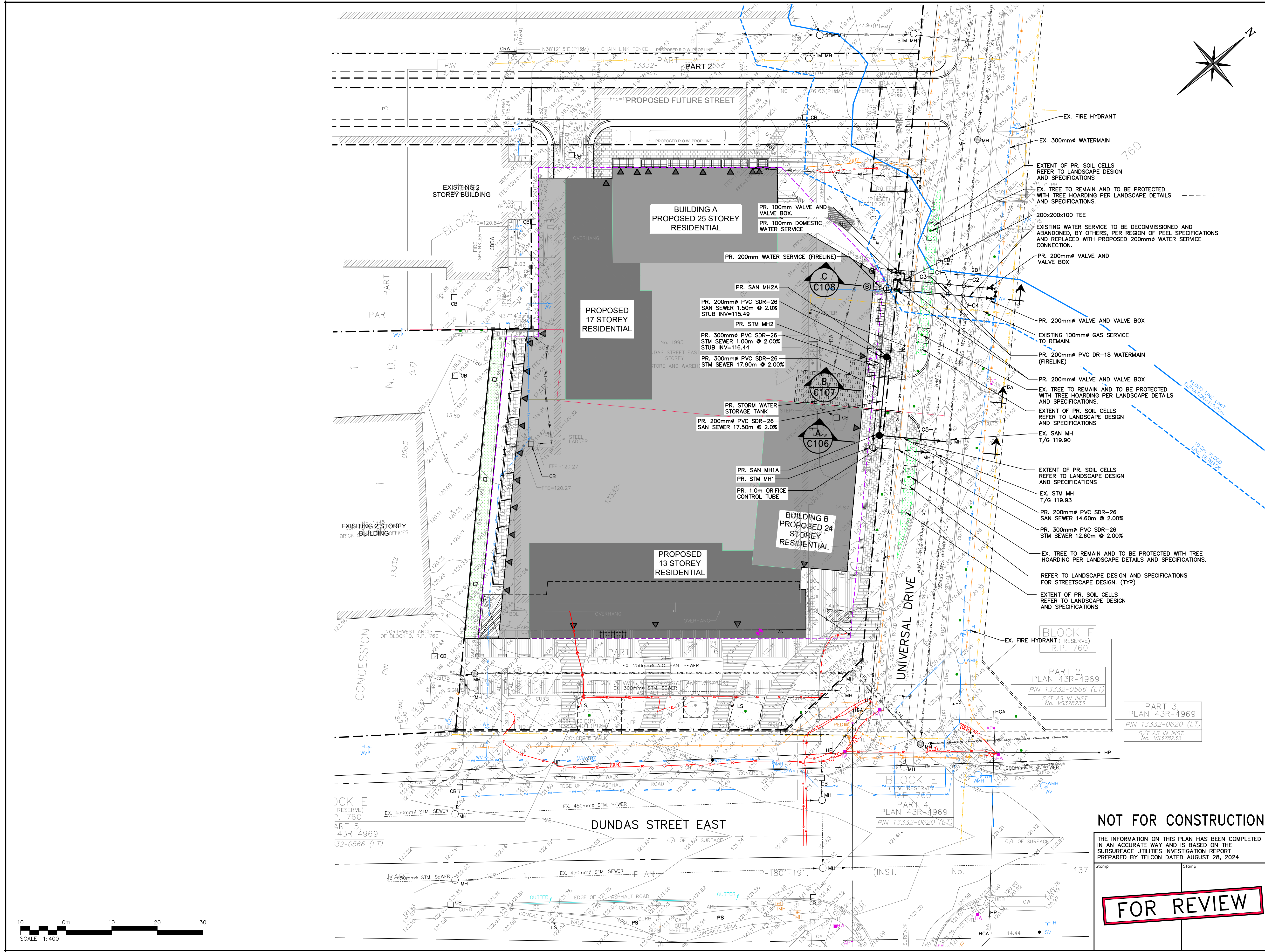
Dwg.
C 103



FOR REVIEW

NOT FOR CONSTRUCTION

FOR EXISTING UTILITY AND SERVICES REMOVALS, SEE DRAWING C101.



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
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---	EXISTING WATER SERVICE
---	EXISTING STORM SEWER
---	EXISTING SANITARY SEWER
---	EXISTING HYDRO CONDUIT

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Project
1995 DUNDAS STREET EAST
CITY OF MISSISSAUGA

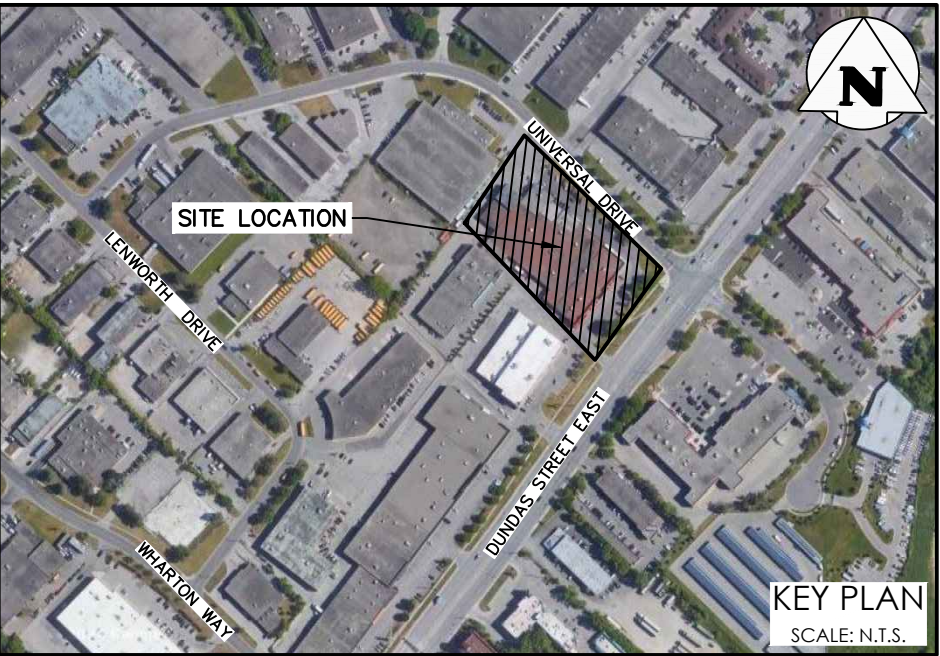
Drawing
STREETSCAPING PLAN
UNIVERSAL DRIVE

		2800 HIGH POINT DRIVE SUITE 100 MILTON, ON L9T 6P4 905-875-0026 F 905-875-4915 F WWW.CFCROZIER.CA	
Drawn	M.I.M.	Design	M.I.M.
Check	N.C.	Check	N.C.
Project No.		2707-7162	
Scale		1:400	
Dwg.		C 105	

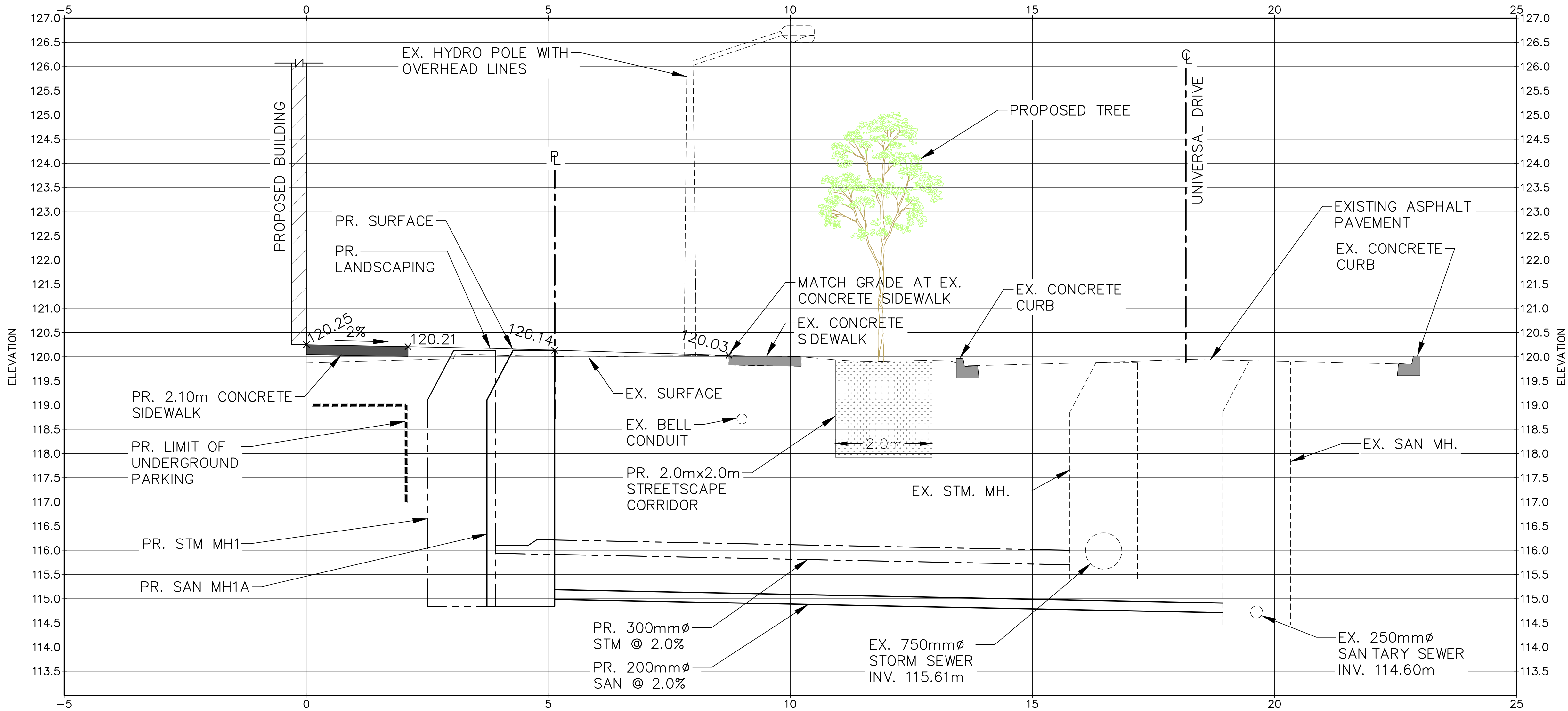
NOT FOR CONSTRUCTION

THE INFORMATION ON THIS PLAN HAS BEEN COMPLETED IN AN ACCURATE WAY AND IS BASED ON THE SUBSURFACE UTILITIES INVESTIGATION REPORT PREPARED BY TELCON DATED AUGUST 28, 2024

Stamp
Stamp
FOR REVIEW



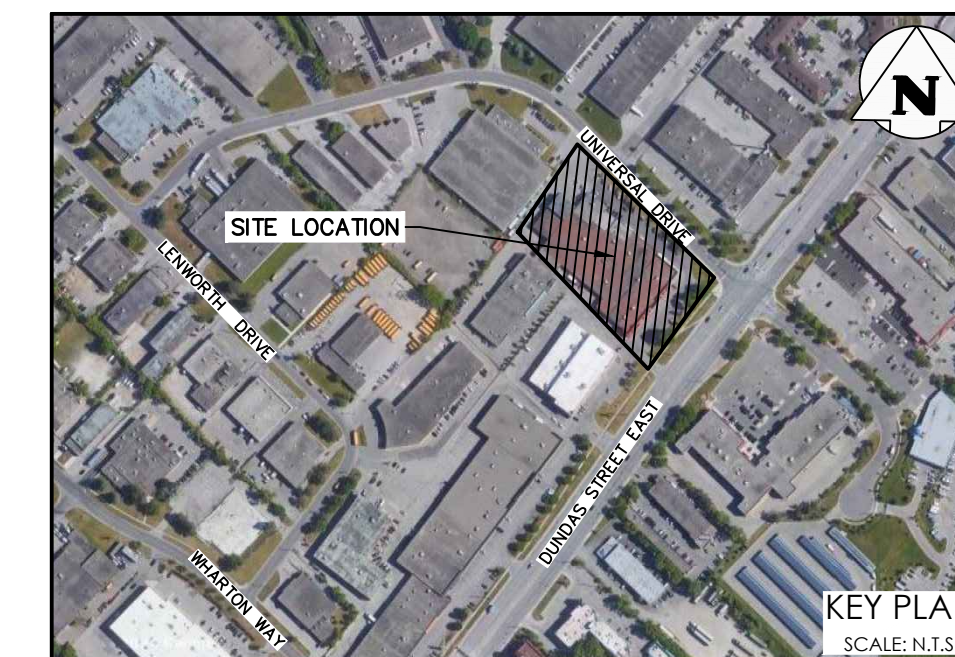
SECTION A
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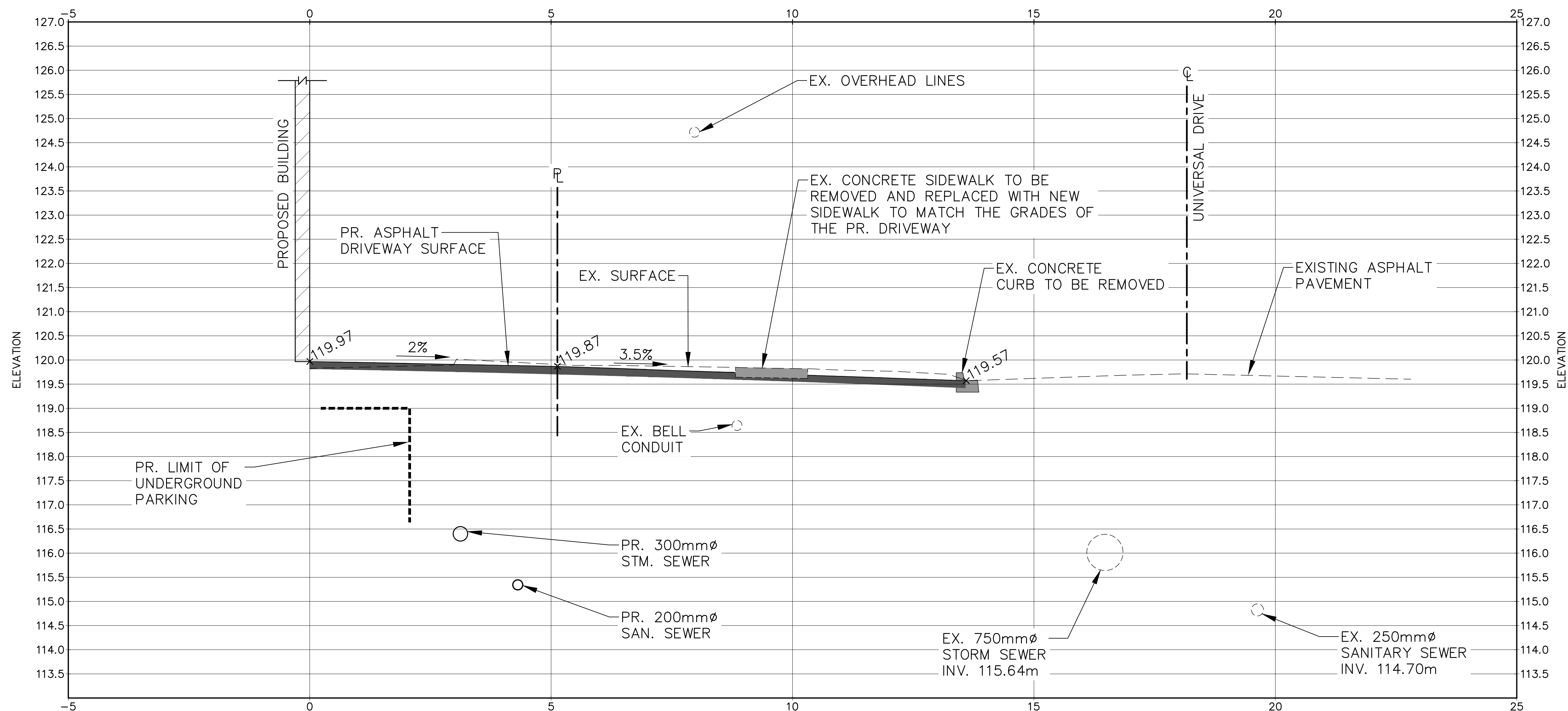
NOT FOR CONSTRUCTION

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Project		1995 DUNDAS STREET EAST CITY OF MISSISSAUGA
Drawing		STREETSCAPING SECTION A
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	M.I.M.	Design
Check	N.C.	Check
Project No.		2707-7162
Scale		Dwg. C 106



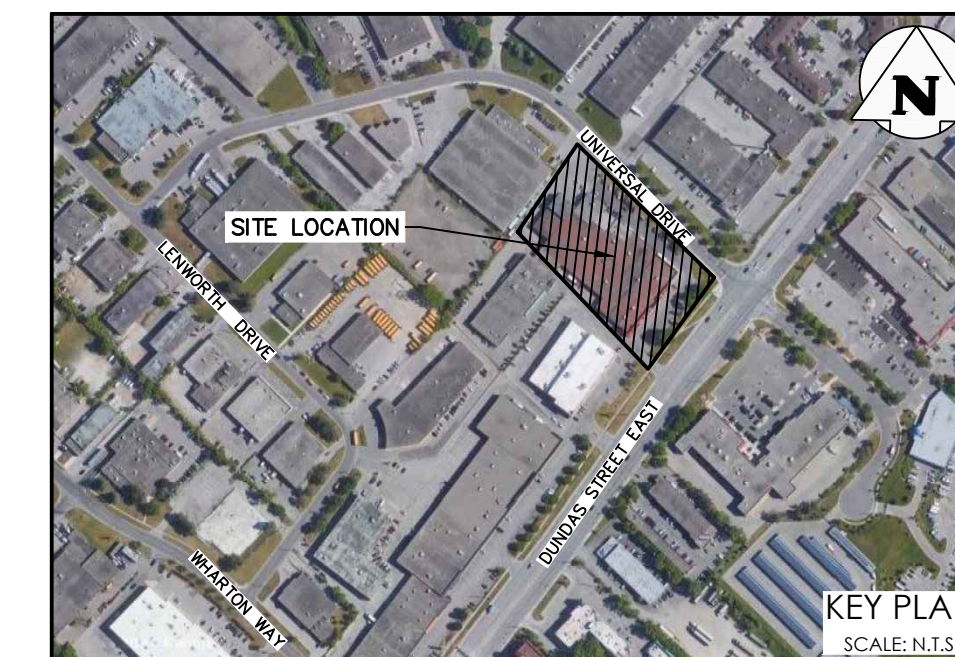
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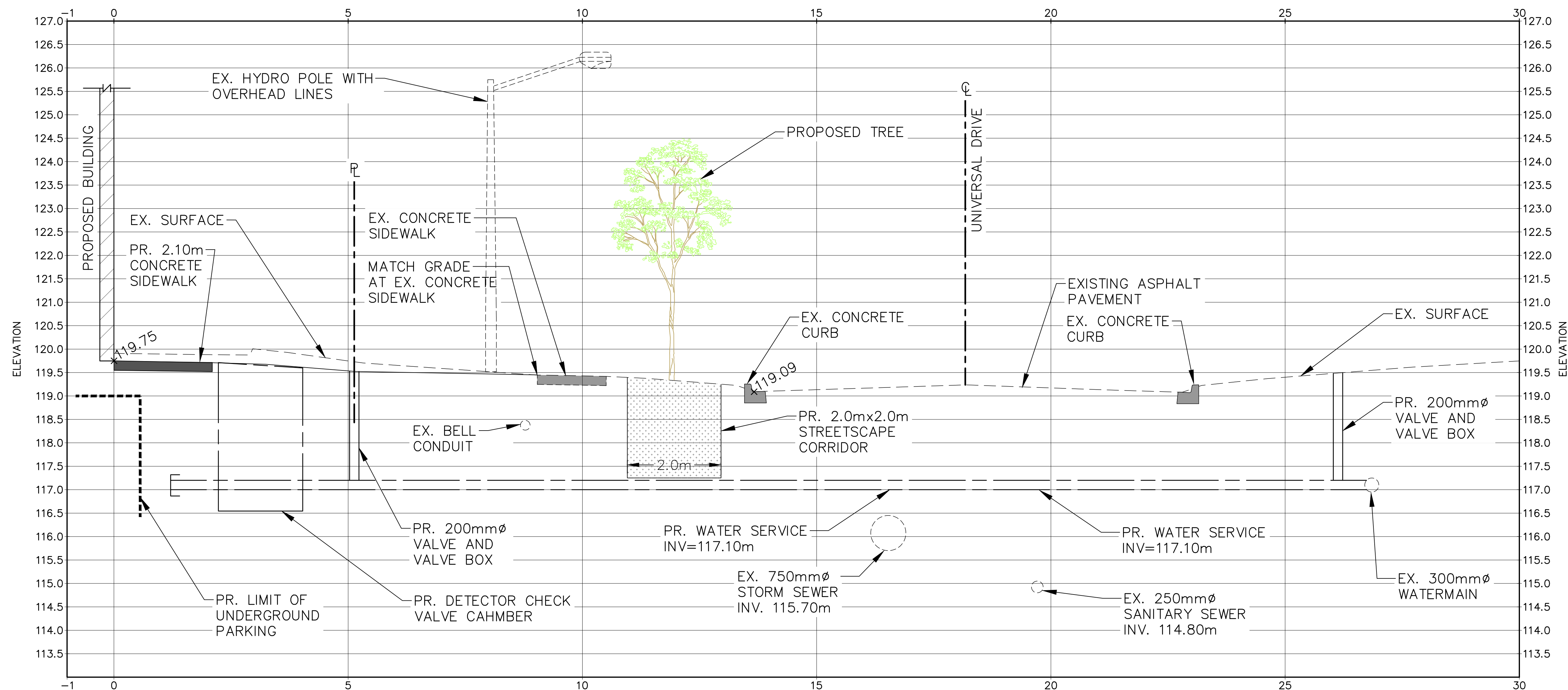
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Project					
1995 DUNDAS STREET EAST CITY OF MISSISSAUGA					
Drawing					
STREETSCAPING SECTION B					
				2800 HIGH POINT DRIVE SUITE 100 MILTON, ON L9T 6P4 905-875-0026 T 905-875-4915 F WWW.CFCROZIER.CA	
Drawn	M.I.M	Design	M.I.M	Project No.	2707-7162
Check	N.C.	Check	N.C.	Scale	1/8" = 1'-0"



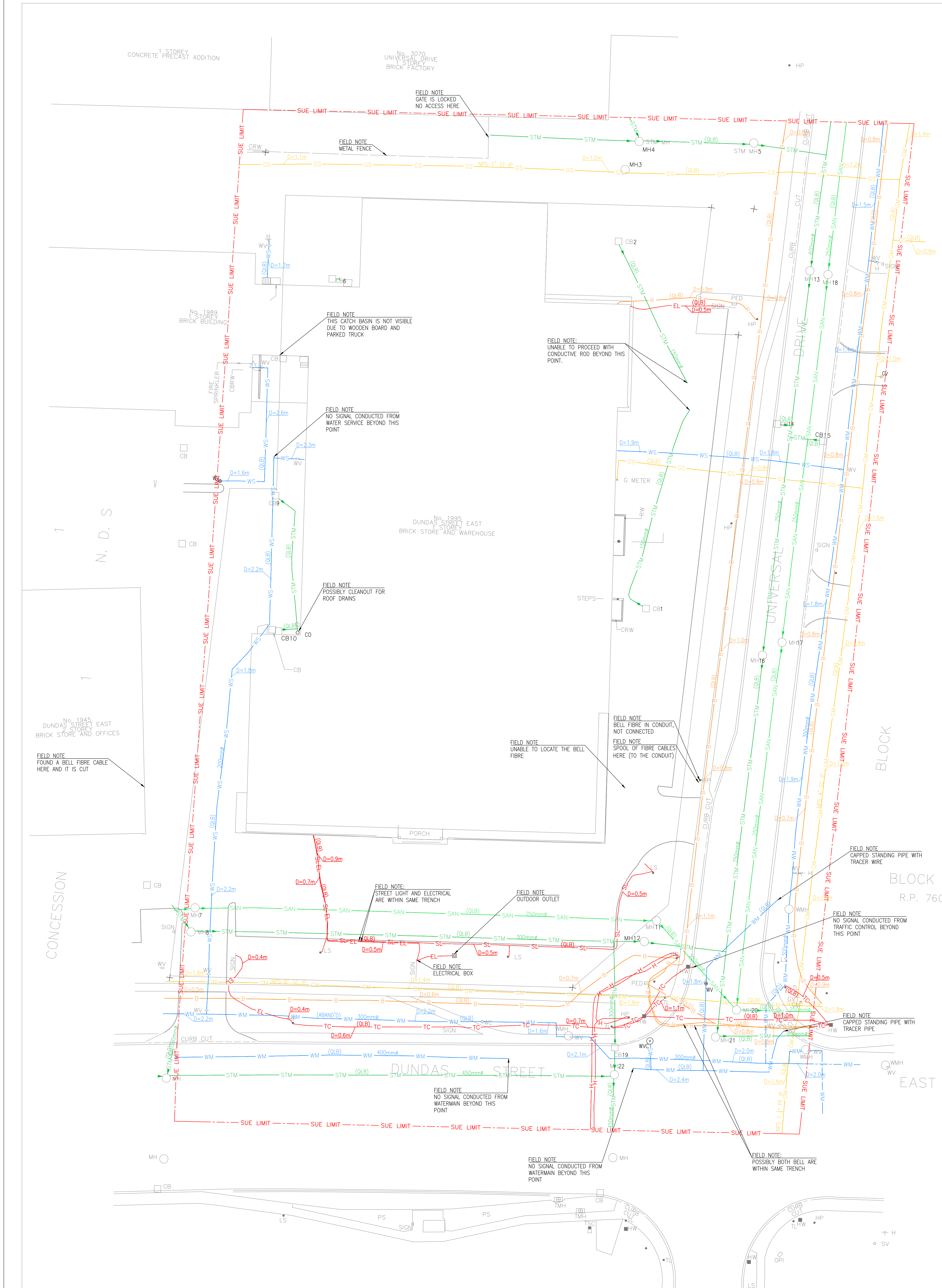
SECTION C
SCALE: 1:50 H 1:50 V



NOT FOR CONSTRUCTION

FOR REVIEW

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Project	1995 DUNDAS STREET EAST CITY OF MISSISSAUGA STREETSCAPING SECTION C		
Drawing			
 2800 HIGH POINT DRIVE SUITE 100 MILTON, ON L9T 6P4 905-875-0026 T 905-875-4915 F WWW.CFCROZIER.CA			
Drawn	M.I.M	Design	M.I.M
Check	N.C.	Check	N.C.
		Scale	Dwg.
		Project No.	2707-7162
			C 108



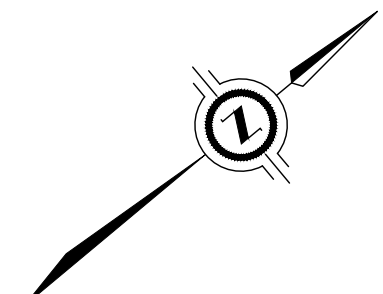
TBL SINKER INVERT TABLE - 1995 DUNDAS ST. E. MISSISSAUGA, ON

MH/CB #	Type of sewer	Grade Elevation (m)	Direction	Materials	Depth Inv (m)	Depth Obs (m)	Size (mm)	Flows to	Elevation Invert (m)	Elevation Obvert (m)	Remarks
CB 1	Storm	118.68	NW	Clay	1.10	0.95	150	NW	118.58	118.73	Blocked at the end
CB 2	Storm	118.92	SE	Clay	0.83	0.78	150	SE	117.99	118.14	Blocked at the end
MH 3	N/A	119.14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Filled with dirt / debris*, no leads found, unknown manhole, sump=1.22m
MH 4	Storm	119.16	E	Concrete	2.54	1.94	600		116.62	117.22	
		119.16	W	Concrete	2.53	1.93	600	E	116.63	117.23	
		119.16	NW	Plastic	2.21	1.96	250		116.95	117.20	
MH 5	Storm	118.51	W	Concrete	1.96	1.36	600		116.55	117.15	
		118.51	E	Plastic	2.00	1.75	250	E	116.51	116.76	
CB 6	Storm	118.64	E	N/A	N/A	N/A	N/A	E	N/A	N/A	Trap, truck parked on top, static water level=0.79m
MH 7	Sanitary	121.50	W	Clay	4.73	4.48	250	E	116.77	117.02	
MH 7	Sanitary	121.50	E	Clay	4.71	4.46	250		116.79	117.04	Ground elevation is downhill from west side.
		121.50	NW	Concrete	3.89	3.59	300	E	117.90	118.20	
MH 8	Storm	121.79	NW	Concrete	3.83	3.53	300	E	117.96	118.26	
CB 9	Storm	119.81	SE	Clay	1.13	0.98	150	SE	118.68	118.83	
CB 10	Storm	119.82	E	Plastic	1.30	1.15	150	E	118.52	118.67	Possibly goes to building
MH 11	Sanitary	121.00	W	Concrete	5.84	5.59	250		115.16	115.41	
		121.00	SE	Concrete	5.94	5.69	250	SE	115.06	115.31	
MH 12	Storm	121.22	W	Concrete	4.91	4.61	300	E	116.31	116.61	
		121.22	E	Concrete	5.41	5.11	300		115.81	116.11	
MH 13	Storm	118.56	N	Concrete	2.50	1.90	600		116.86	116.66	
		118.56	S	Concrete	2.75	2.30	750	S	115.81	116.56	Recessed lead*
CB 14	Storm	118.83	S	Concrete	1.24	0.99	250	E	117.69	117.94	
CB 15	Storm	118.95	W	Concrete	1.38	1.13	250	W	117.57	117.82	
		118.93	N	Concrete	4.33	3.58	750		115.60	116.35	Bottom of chamber=4.36m
MH 16	Storm	119.93	S	N/A	N/A	N/A	N/A	S	N/A	N/A	Recessed lead*
		119.90	N	Clay	5.24	4.99	250		114.66	114.91	
MH 17	Sanitary	119.90	S	Clay	5.29	5.04	250	S	114.61	114.86	
		118.57	N	Clay	3.56	3.31	250		115.01	115.26	
MH 18	Sanitary	118.57	S	Clay	3.61	3.36	250	S	114.96	115.21	
		121.23	N	Concrete	1.58	1.28	300	N	119.65	119.95	
CB 19	Storm	121.01	N	Concrete	6.69	6.44	250		114.32	114.57	
		121.01	NW	Concrete	6.48	6.23	250	E	114.53	114.78	
MH 20	Sanitary	121.01	E	Concrete	6.73	6.48	250		114.28	114.53	
		121.12	N	Concrete	N/A	N/A	N/A	E	N/A	N/A	Recessed lead*, size as per records=750mmØ
MH 21	Storm	121.12	E	Concrete	N/A	N/A	N/A		N/A	N/A	Approximate bottom of chamber=5.97m, recessed lead*, size as per records=800mmØ
		N/A	S	Concrete	1.62	1.17	450	S	N/A	N/A	
MH 22	Storm	N/A	W	Concrete	1.61	1.16	450		N/A	N/A	Recessed lead*

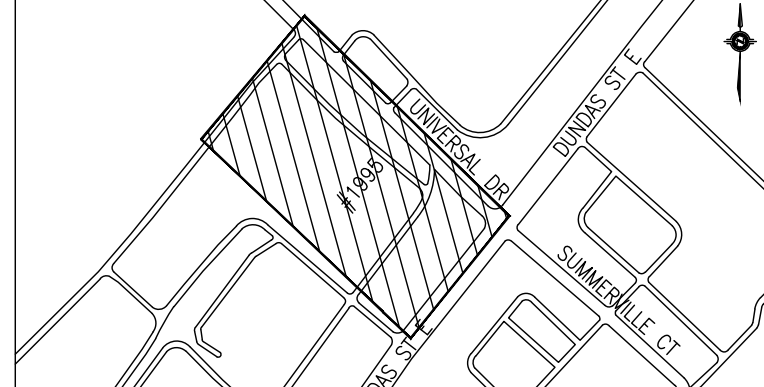
Notes & Legend:

* Where one or more leads are recessed, measurements for invert and obvert are approximate. Confined Space Entry required in order to obtain accurate measurements.

** MH/CB or pipe opening contains debris. May require flushing or clearing prior to obtaining measurements.



KEY MAP (N.T.S.)



- GENERAL NOTES:**
- THE SUE FIELD INVESTIGATION WAS COMPLETED IN JULY 2024 BY TELECON DESIGN INC. (TDI).
 - THE FIELD VERIFICATION OF UTILITIES WAS COMPLETED USING A COMBINATION OF ELECTROMAGNETIC PIPE AND CABLE LOCATOR EQUIPMENT.
 - TELECON USED AVAILABLE MEANS IN AN ATTEMPT TO DETERMINE THE LOCATION OF UNDOCUMENTED UTILITIES. TELECON IS NOT RESPONSIBLE FOR INDICATING ALL UNDOCUMENTED UTILITIES UNLESS PROVIDED, SHOWN AND/OR AVAILABLE AND RECEIVED DIGITALLY OR BY HANDCOPY.
 - THE TOPOGRAPHIC BASE PLAN PROVIDED BY OTHERS, AND IS NOT A PART OF THIS SUE INVESTIGATION COMPLETED BY TDI.
 - UTILITY, MATERIAL, SIZE AND FLOW DIRECTION SHOWN ON THIS DRAWING ARE BASED ON RECORDS, PROFESSIONAL JUDGEMENT AND FIELD INVESTIGATIONS.

- SUBSURFACE UTILITY ENGINEERING QUALITY LEVELS**
- LEVEL D:** INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL RECOLLECTIONS.
Line Style (Level D) _____
- LEVEL C:** INFORMATION ACQUIRED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO THE QUALITY LEVEL "D".
Line Style (Level C) _____
- LEVEL B:** INFORMATION ACQUIRED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL UTILITY LOCATING METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE SUBSURFACE UTILITIES WHICH IS THEN GEODETICALLY SURVEYED.
Line Style (Level B) _____
- LEVEL A:** PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT AND/OR SURVEY OF SUBSURFACE UTILITIES.
Line Style (Level A) _____

REV	DATE	DRAWN BY	APPROVED BY



THE ENGINEER (SUE DESIGN) IS TO VERIFY THAT THE UTILITIES SHOWN HAVE BEEN INVESTIGATED IN ACCORDANCE WITH STANDARD PRACTICE. ALL OTHER INFORMATION HEREON HAS BEEN PROVIDED BY OTHERS AND IS NOT A PART OF THIS CERTIFICATION.

TELECON CLIENT

LANDSCAPE ASSET MANAGEMENT INC.

SUE PROJECT

1995 DUNDAS STREET EAST, MISSISSAUGA, ON

PROJECT / WORK: 158985

SURVEYED BY: W. GARDNER DATE: JUL 31, 2024

DRAWN BY: J. KUMAR DATE: AUG 06, 2024

CHECKED BY: J. PUSHPARAJ DATE: AUG 06, 2024

APPROVED BY: W. SHAWAN DATE: AUG 28, 2024

DRAWING SCALE: 1:300 DRAWING NUMBER: UG-01 of 2

TBL SURVEY LEGEND:

WC	WATER VALVE CHAMBER
WV	WATER VALVE
JB	JUNCTION BOX

LEGEND:

CS	GAS MAIN
FS	FUEL PIPE
HS	HYDRO SERVICE
EL	ELECTRICAL
SL	STREET LIGHT
WM	WATERMAIN
WS	WATER SERVICE
CEM	CHEMICAL

LEGEND:

B	COMMUNICATION BELL
R	COMMUNICATION RISERS
COG	COMMUNICATION COGECED
AL	COMMUNICATION ALLEGRIUM
TELUS	COMMUNICATION TELUS
CI	COMMUNICATION CI
FC	FIBER OPTIC CABLE
TS	TRAFFIC SIGNAL
OH	OVERHEAD WIRES

LEGEND:

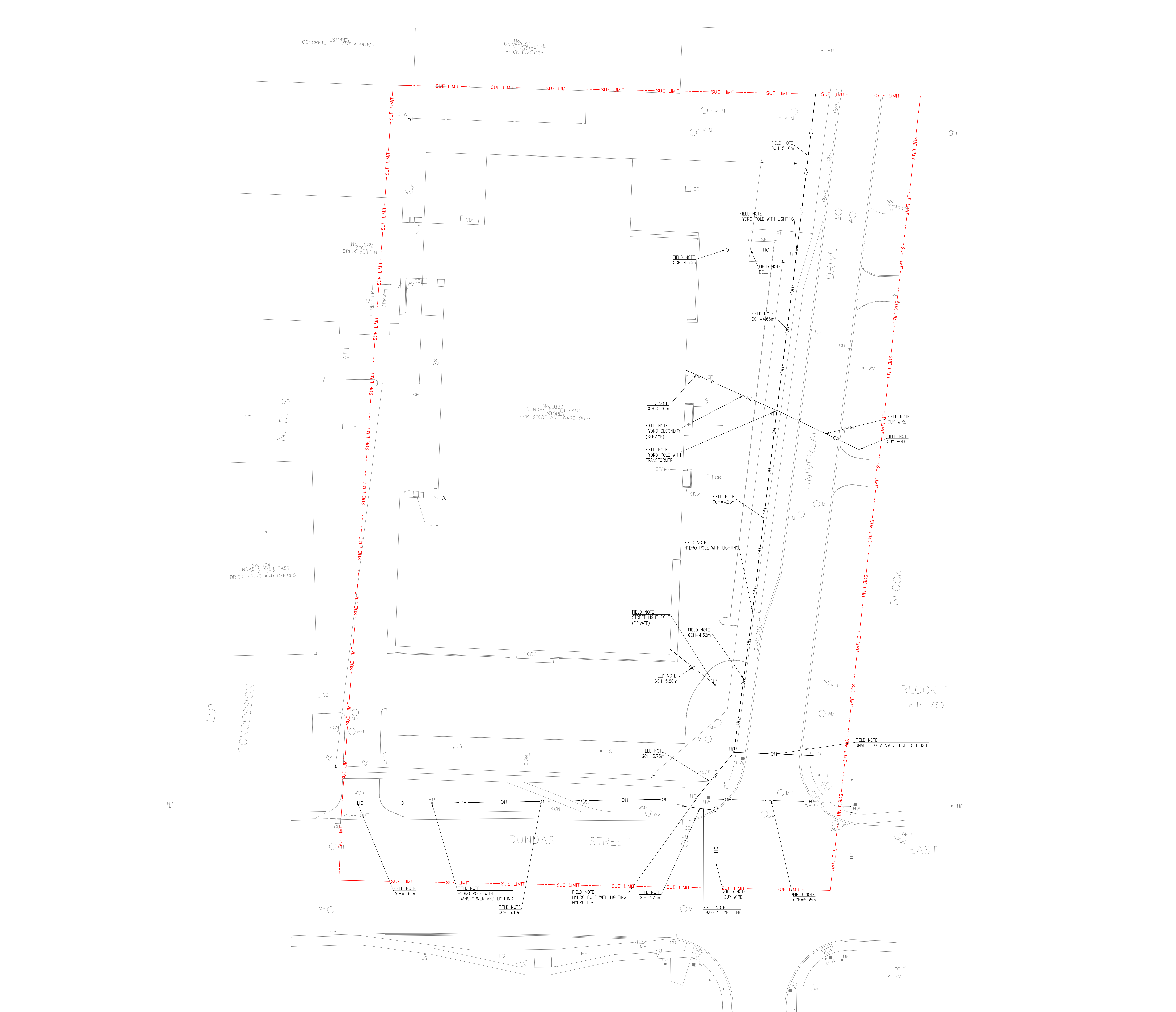
SSN	SANITARY SEWER
STM	STORM SEWER
CSN	COMBINED SEWER
UN	UNKNOWN UTILITY
END	END CAP (APPROXIMATE LOCATION)
FL	FLOW DIRECTION
DL	DROP LOAD
TL	TEST PIT LOCATION
CH	CHANCE OF SUE QUALITY LEVEL
DM	APPROXIMATE DEPTH MEASUREMENT FROM LOCATE EQUIPMENT

TBL PROJECT NOTES:

CSN - GROUND CLEARANCE HEIGHT.

DIRECT: THIS DOCUMENT HAS BEEN PREPARED FOR THE SUE FIELD INVESTIGATION AND IS NOT TO BE USED FOR ANY OTHER PURPOSES. THE DRAWING HAS BEEN PREPARED FOR THE USE OF TELECON CLIENT AND MAY NOT BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF TELECON DESIGN INC. (TDI).

DISCLAIMER: THIS DOCUMENT HAS BEEN PREPARED FOR THE SUE FIELD INVESTIGATION AND IS NOT TO BE USED FOR ANY OTHER PURPOSES. THE DRAWING HAS BEEN PREPARED FOR THE USE OF TELECON CLIENT AND MAY NOT BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF TELECON DESIGN INC. (TDI).



TIN SURVEY LEGEND		LEGEND		TIN PROJECT NOTES		SURVEY NOTES	
○ WVC	WATER VALVE CHAMBER	○ WVC	WATER VALVE CHAMBER	GOY - GROUND CLEARANCE HEIGHT		THE EXISTING UTILITY LOCATIONS ARE SHOWN ON THIS DRAWING FOR INFORMATION ONLY. THE EXISTING UTILITY LOCATIONS ARE NOT TO BE USED FOR EXCAVATION PURPOSES. THE EXISTING UTILITY LOCATIONS ARE NOT TO BE USED FOR EXCAVATION PURPOSES.	
● WV	WATER VALVE	● WV	WATER VALVE				
□ JB	JUNCTION BOX	□ JB	JUNCTION BOX				
		○ G	GAS MAIN				
		○ G	GAS SERVICE				
		○ G	FUEL PIPE				
		○ G	HYDRO				
		○ G	HYDRO SERVICE				
		○ G	ELECTRICAL				
		○ G	STREET LIGHT				
		○ G	WATERMAIN				
		○ G	WATER SERVICE				
		○ G	CHEMICAL				
		○ G	COMMUNICATION BELL				
		○ G	COMMUNICATION ROCCO				
		○ G	COMMUNICATION CODED				
		○ G	COMMUNICATION ALLSTREAM				
		○ G	COMMUNICATION TELLS				
		○ G	COMMUNICATION CT				
		○ G	FIBER OPTIC CABLE				
		○ G	TRAFFIC SIGNAL				
		○ G	OVERHEAD WIRES				
		○ G	SANITARY SEWER				
		○ G	STORM SEWER				
		○ G	COMBINED SEWER				
		○ G	UNKNOWN UTILITY				
		○ G	END OF (APPROXIMATE LOCATION)				
		○ G	FLOW DIRECTION				
		○ G	DROP LEAD				
		○ G	TEST PIT LOCATION				
		○ G	CHANGE OF SUE QUALITY LEVEL				
		○ G	APPROXIMATE DEPTH MEASUREMENT FROM LOCATE EQUIPMENT				

KEY MAP (N.T.S.)

GENERAL NOTES:

- THE SUE FIELD INVESTIGATION WAS COMPLETED IN JULY 2024 BY TELECON DESIGN INC. (TDI).
- THE FIELD VERIFICATION OF UTILITIES WAS COMPLETED USING A COMBINATION OF ELECTROMAGNETIC PIPE AND CABLE LOCATE EQUIPMENT.
- TELECON USED AVAILABLE MEANS IN AN ATTEMPT TO DETERMINE THE LOCATION OF UNDOCUMENTED UTILITIES. TELECON IS NOT RESPONSIBLE FOR INDICATING ALL UNDOCUMENTED UTILITIES UNLESS PROVIDED, SHOWN AND/OR AVAILABLE AND RECORDED DIGITALLY OR BY HANDSCOPY.
- THE TOPOGRAPHIC BASE PLAN PROVIDED BY OTHERS, AND IS NOT A PART OF THIS SUE INVESTIGATION COMPLETED BY TDI.
- UTILITY MATERIAL, SIZE AND FLOW DIRECTION SHOWN ON THIS DRAWING ARE BASED ON RECORDS, PROFESSIONAL JUDGEMENT AND FIELD INVESTIGATIONS.

SUBSURFACE UTILITY ENGINEERING QUALITY LEVELS

LEVEL D
INFORMATION DERIVED FROM EXISTING RECORDS OR VERBAL RECOLLECTIONS.
Line Style (Level D) -----

LEVEL C
INFORMATION ACQUIRED BY SURVEYING AND PLOTTING VISIBLE ABOVE GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO THE QUALITY LEVEL "D".
Line Style (Level C) -----

LEVEL B
INFORMATION ACQUIRED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL UTILITY LOCATING METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE SUBSURFACE UTILITIES WHICH IS THEN GEOTECHNICAL SURVEYED.
Line Style (Level B) -----

LEVEL A
PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE AND SUBSEQUENT MEASUREMENT AND/OR SURVEY OF SUBSURFACE UTILITIES.
Line Style (Level A) -----

REV	DATE	DRAWN BY	APPROVED BY

telecon
DESIGN INC. (TDI)
SUBSURFACE UTILITY ENGINEERING
7777 WESTON ROAD, 2ND FLOOR
VANCOUVER, BRITISH COLUMBIA V6V 1C6

SEND STAMP HERE

THE ENGINEER'S SEAL HEREIN IS TO CERTIFY THAT THE UTILITIES SHOWN HAVE BEEN INVESTIGATED IN ACCORDANCE WITH STANDARD SUE METHODOLOGY. ALL OTHER INFORMATION HEREON HAS BEEN PROVIDED BY OTHERS AND IS NOT A PART OF THIS CERTIFICATION.

TELECON CLIENT

LUNDEAL ASSET MANAGEMENT INC.

SUE PROJECT

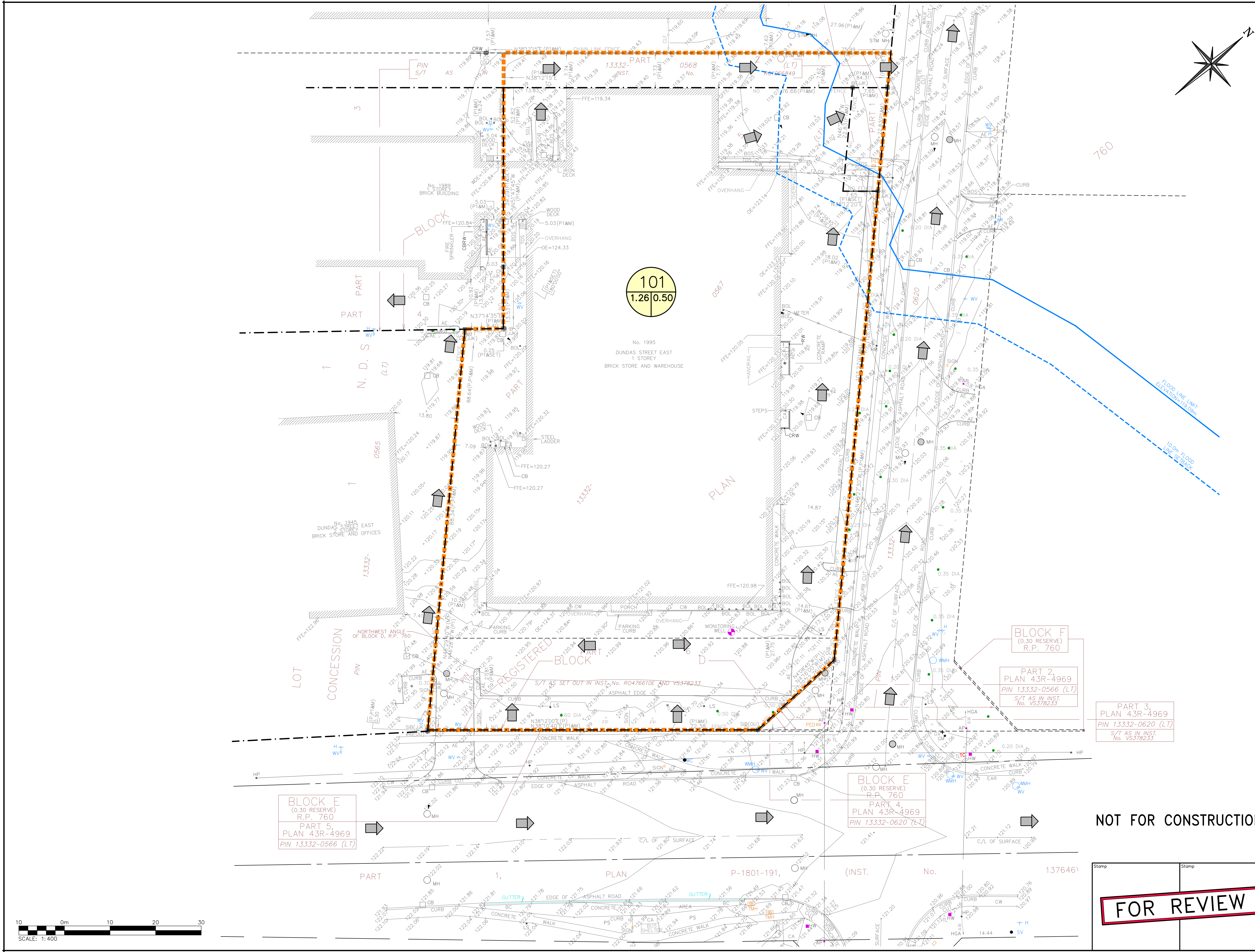
1995 DUNDAS STREET EAST, MISSISSAUGA, ON

PROJECT / WORK NO. 158885

SURVEYED BY: M. GARDNER DATE: JUL 31, 2024
DRAWN BY: V. KUMAR DATE: AUG 06, 2024
CHECKED BY: P. J. S. (P. J. S.) DATE: AUG 06, 2024
APPROVED BY: W. SHAWAN DATE: AUG 28, 2024

DRAWING SCALE: 1:300
DRAWING NUMBER: UG-2 of 2

Figures



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- EXISTING FENCE
- EXISTING GRADE
- EXISTING OVERLAND FLOW DIRECTION
- STORM DRAINAGE CATCHMENT
- CATCHMENT I.D.
- AREA (ha) | RUNOFF COEFFICIENT
- EXISTING REGIONAL FLOODPLAIN

0	ISSUED FOR SUBMISSION	2024/DEC/04
No.	ISSUE / REVISION	YYYY/MM/DD

BEARING NOTE:
BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD 83 (CSRS) (2010.0).

BENCHMARK:
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM ONTARIO BENCHMARK No. 0019653206, HAVING A PUBLISHED ELEVATION OF 121.950 METRES. (CGVD28: 78).

SURVEY NOTES:
SURVEY COMPLETED BY J.D. BARNES LIMITED, NOVEMBER 28, 2023.
REFERENCE No. 2023-21-012-00

SITE PLAN NOTES:
DESIGN ELEMENTS ARE BASED ON CONCEPTUAL SITE PLAN BY RAW.
DATED: DECEMBER 04, 2024
JOB No. 22073, SHEET NUMBER: A100

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
1995 DUNDAS STREET EAST
CITY OF MISSISSAUGA

Drawing
PRE-DEVELOPMENT
DRAINAGE PLAN

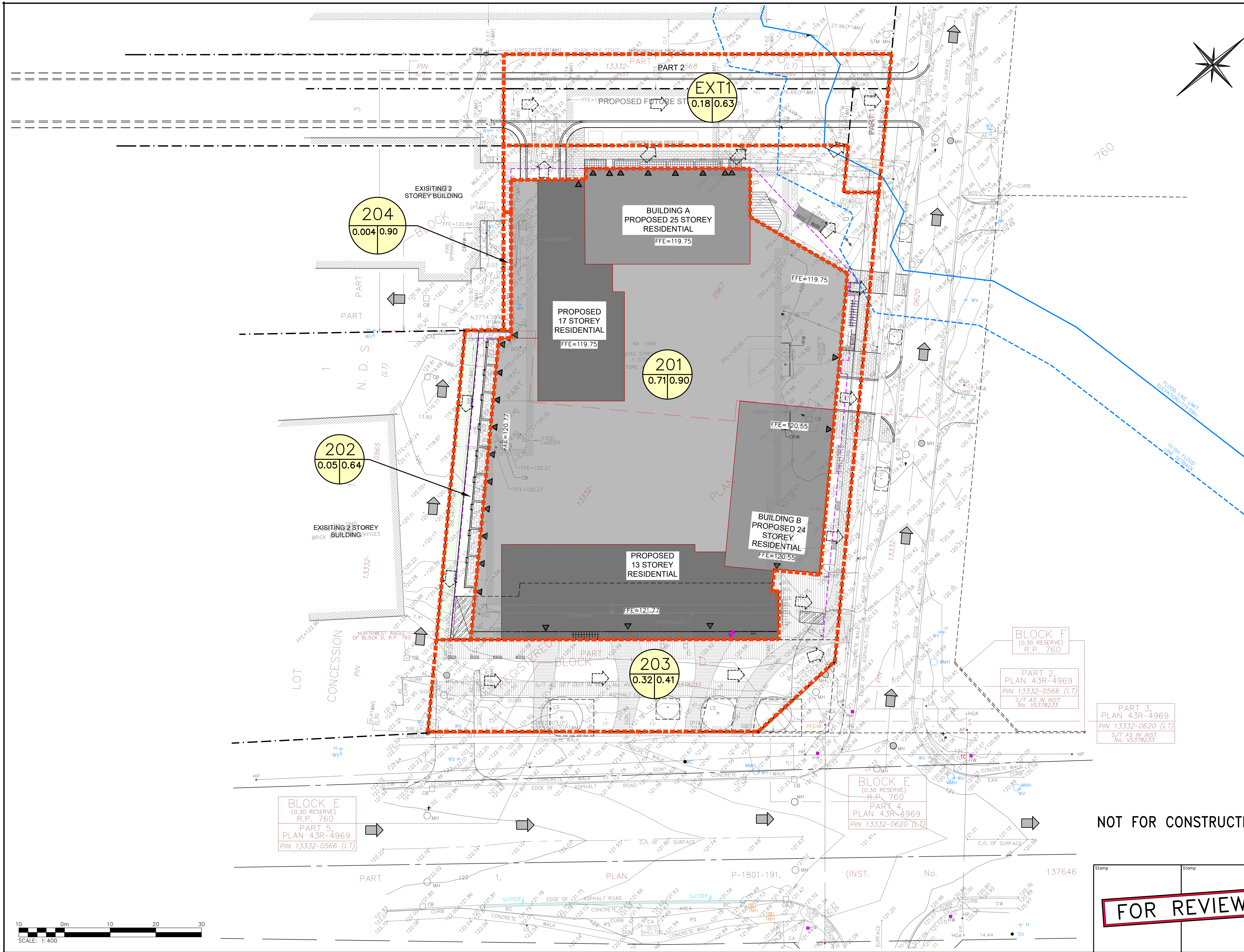
CROZIER
CONSULTING ENGINEERS

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

Drawn	M.I.M.	Design	M.I.M.	Project No.	2707-7162
Check	N.C.	Check	N.C.	Scale	1:400
				Dwg.	FIG.1

NOT FOR CONSTRUCTION

Stamp
FOR REVIEW



LEGEND

- PROPERTY LINE
- EXISTING CONTOUR (0.5m)
- EXISTING CONTOUR (1.0m)
- EXISTING FENCE
- EXISTING GRADE
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED OVERLAND FLOW DIRECTION
- STORM DRAINAGE CATCHMENT
- CATCHMENT I.D.
- AREA (ha) | RUNOFF COEFFICIENT
- EXISTING REGIONAL FLOODPLAIN

0	ISSUED FOR SUBMISSION	2024/DEC/04
No.	ISSUE / REVISION	YYYY/MM/DD
BEARING NOTE: BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD 83 (CSRS) (2010.0).		
BENCHMARK: ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM ONTARIO BENCHMARK No. 00119653206, HAVING A PUBLISHED ELEVATION OF 121.950 METRES. (CGVD28:78).		
SURVEY NOTES: SURVEY COMPLETED BY J.D. BARNES LIMITED, NOVEMBER 28, 2023. REFERENCE No. 2023-21-012-00		
SITE PLAN NOTES: DESIGN ELEMENTS ARE BASED ON CONCEPTUAL SITE PLAN BY RAW. DATED: DECEMBER 04, 2024 JOB No. 22073, SHEET NUMBER: A100		
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
1995 DUNDAS STREET EAST
CITY OF MISSISSAUGA

Drawing
POST-DEVELOPMENT
DRAINAGE PLAN

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: M.I.M. Design: M.I.M. Project No.: 2707-7162
Check: N.C. Check: N.C. Scale: 1:400 Dwg.: FIG.2

NOT FOR CONSTRUCTION

FOR REVIEW