

EDENSHAW QUEEN DEVELOPMENTS LIMITED

30 QUEEN STREET EAST FUNCTIONAL SERVICING REPORT

JANUARY 28, 2022





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FUNCTIONAL SERVICING REPORT

PROJECT NO.: 211-12423
DATE: JANUARY 28, 2022

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1 INTRODUCTION

1.1 INTRODUCTION

WSP Canada Inc. (herein called WSP) has been retained to prepare a Functional Servicing Report to assess the servicing requirements relating to the proposed development at 30 Queen Street East in the City of Mississauga (herein referred to as the Site). This report provides the conceptual framework for water distribution, sanitary sewage, and storm drainage for the development of the Site. A Stormwater Management Report outlining the proposed stormwater quality and quantity controls on the Site has been prepared under a separate cover, also by WSP.

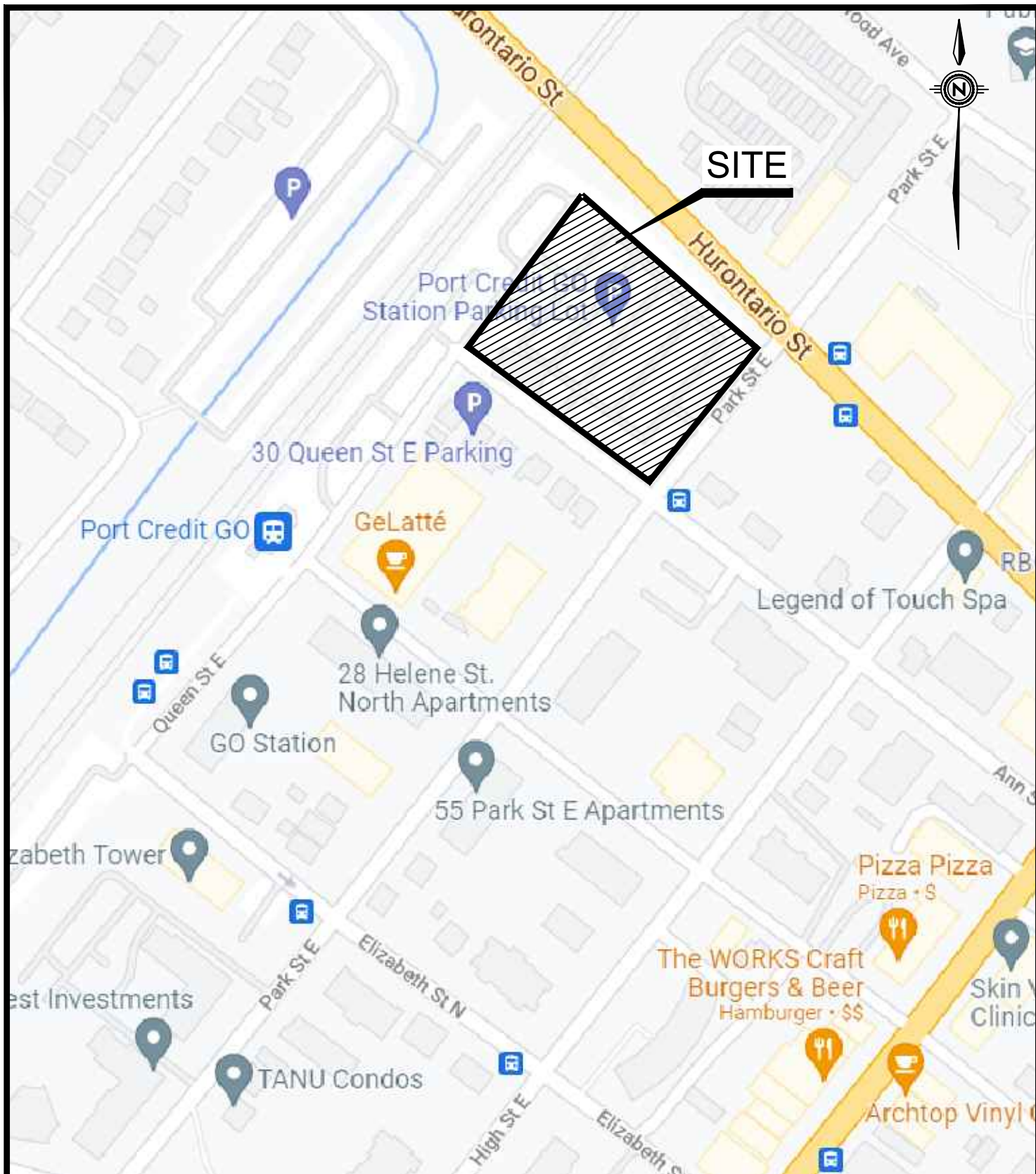
In preparing this report, WSP staff have reviewed and secured available City of Mississauga and Region of Peel Plan and Profile Drawings, as well as the architectural site plans prepared by Core Architects and a survey prepared by R. Avis Surveying Inc.

1.2 SITE DESCRIPTION

The Site is a 0.59 ha parcel of land located on the North side of Park Street, between Ann Street and Hurontario Street. In the predevelopment condition, the Site is occupied by a parking lot. Immediately East of the Site is an LRT station, fronting onto Hurontario Street, which is currently under construction.

The proposed site development includes one 40-storey residential condominium building with an estimated 551 residential units and commercial space on the ground floor and one 42-storey residential condominium building with an estimated 588 residential units and commercial space on the ground floor and second floor. The proposed development also includes 4 floors of below grade parking, covering the entire site.

The Site will be serviced by existing local municipal sewers and watermain within the adjoining municipal right-of-ways. Any existing service connections within the Site will be decommissioned per Region of Peel and City of Mississauga Standards at the owner's cost. The proposed service connections will be extended to the underground parking foundation wall and coordinated with the building design team during detailed design. Refer to Figure 1.1 for the Location Map, Figure 1.2 for the Pre-development Site Condition and Figure 1.3 for an illustration of the Proposed Development Plan.



CLIENT

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TITLE

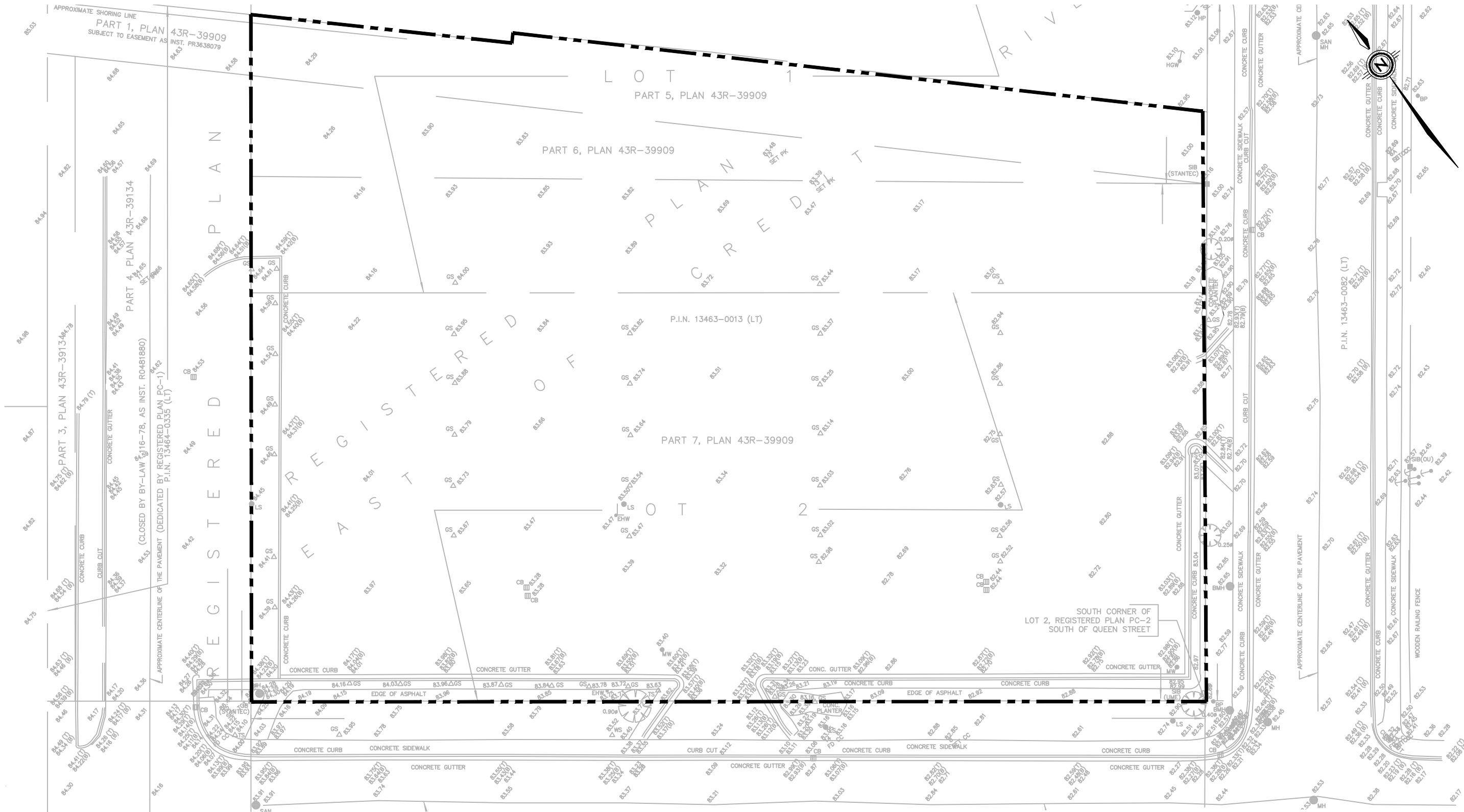
30 QUEEN STREET EAST

LOCATION PLAN



701 Rossland Rd. E, Suite 201 Whitby, ON Canada L1N 8Y9
t: 905.668.3022 www.wsp.ca

Checked	A.K.	Drawn	10/12 Cad
Date	JAN 2022	Proj. No.	211-12423
Scale	NTS	Figure No.	1.1



LEGEND

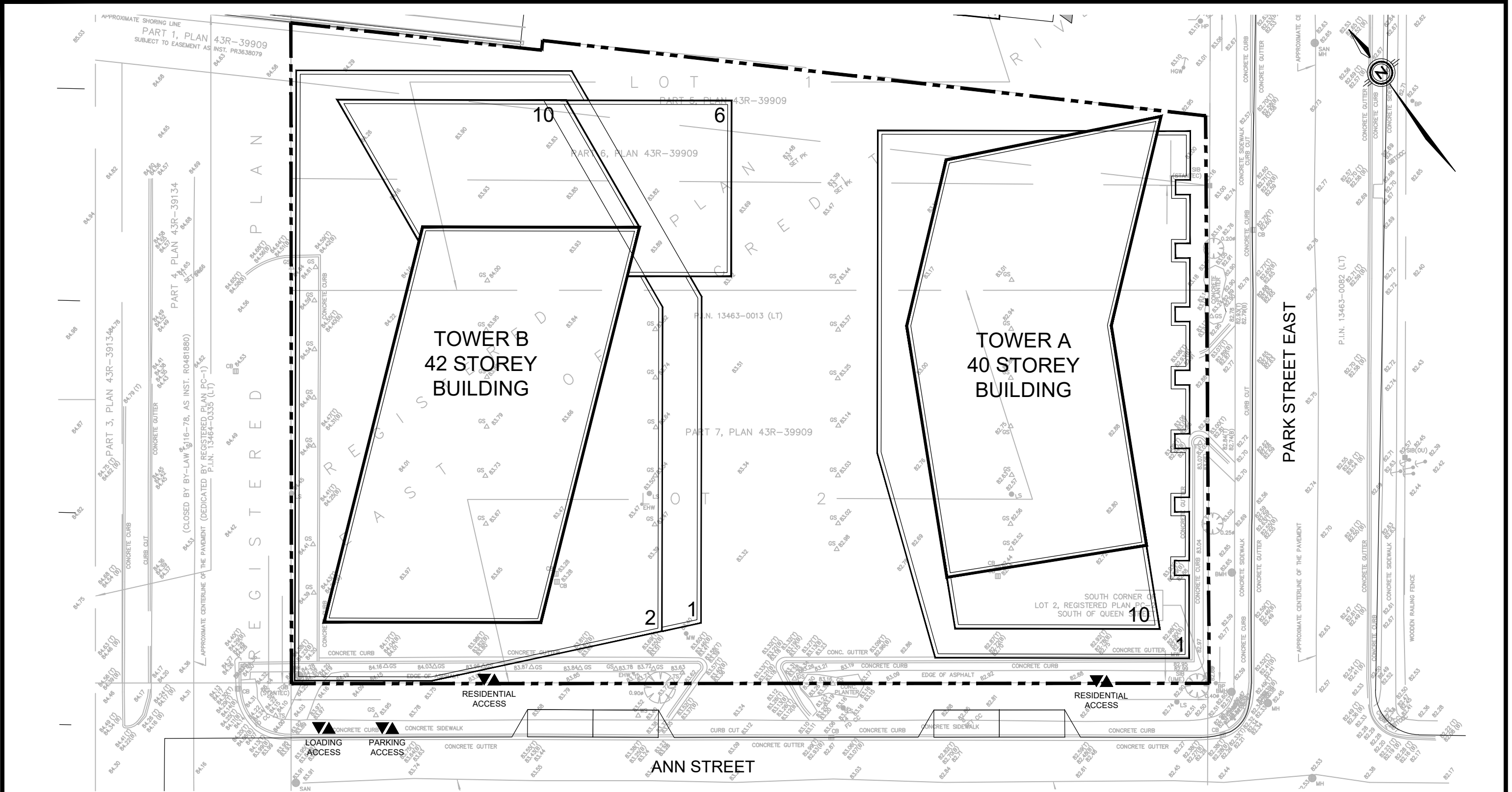
--- PROPERTY LINE

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30 QUEEN STREET EAST
PRE-DEVELOPMENT PLAN



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LEGEND

--- PROPERTY LINE

CLIENT
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TITLE
30 QUEEN STREET EAST
**PROPOSED
DEVELOPMENT PLAN**



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Date	JAN 2022	Proj. No.	211-12423
Scale	1:400	Figure No.	1.3

2 WATER SUPPLY AND APPURTENANCES

2.1 EXISTING CONDITIONS

Locally, there is a 200 mm diameter watermain on Ann Street, and a 300 mm diameter watermain on Park Street East.

2.2 WATER SUPPLY

In accordance with Region of Peel Standards, a 300 mm diameter watermain is required to service high density residential. Therefore, the proposed development will be serviced from the 300 mm diameter watermain on Park Street East. It is proposed to provide one 150 mm diameter domestic connection to service the entire development (including both towers). The domestic connection is proposed to branch off a proposed 200 mm diameter fire service connection. Due to the height of the proposed buildings (over 84 m), two fire protection services are proposed for the site. The proposed connections will include valves and boxes at the property line. In addition, a water meter and a backflow preventer will be installed on the domestic line in the mechanical room within the building, in accordance with the Region of Peel standards. The mechanical room will need to be accessible by the Region and provide remote read-out locations for the Region's use in reading the meters. In addition, a check valve in a chamber, per Region of Peel standards, will be provided on the fire lines immediately outside the foundation wall and inside the property line. Refer to Appendix C for proposed water servicing layout.

The estimated domestic water demand has been calculated using the Region of Peel Watermain Design Criteria and the site statistics provided by the architect. The Region of Peel Watermain Design Criteria also note that some new developments can generate higher water demands during the first years of occupancy. Therefore, domestic water demands have been calculated for both the long term and the short term. For detailed calculations, as well as the Region's Connection Multi Use Demand Table, see Appendix B.

	Long Term	Short Term
Average Water Consumption Rate	280 litres/person/day	409 litres/person/day
Residential Apartment Units	1139 units	1139 units
Office/Retail GFA	1765m ²	1765m ²
Total Residential Equivalent Population	2204 people	2204 people
Average Water Demand	7.11 L/s	10.39 L/s
Max Day Water Demand	14.23 L/s	20.78 L/s
Peak Hour Water Demand	21.34 L/s	31.17 L/s

The estimated fire flow has been calculated using the recommendations of the Fire Underwriters Survey. Two sets of calculations were completed: one for Tower A and one for Tower B. The FUS requirement for Tower A is ~1,420 USGPM and the FUS requirement for Tower B is ~1,620 USGPM. The overall site requirement is taken as the greater of the two buildings and is therefore ~1,620 USGPM. The results of these calculations are included in Appendix A.

The Site is located within the vicinity of three (3) fire hydrants. One is located near the Southwest corner of Ann Street and Queen Street East intersection, one is located near the Northwest corner of Ann Street and Park Street East intersection, and one is located near the Southwest corner of Park Street East and Hurontario Street intersection. The proposed water servicing and hydrant locations are shown in Appendix C.

2.3 HYDRANT FLOW TEST

The maximum estimated fire flow demand for the proposed development is 1,620 USGPM. A hydrant flow test for the Site was completed on Park Street East. The hydrant flow test conducted shows a flow of ~9,700 USGPM could be achieved while maintaining a water pressure of 20psi. The test shows that fire flow available exceeds the fire demand calculated above. Therefore, we can conclude that the existing watermains adjacent to the site are adequate to support the domestic and fire water demand of the proposed development and no watermain upgrades are required to support the proposed development. Please refer to Appendix A for hydrant flow test results and fire flow calculations.

3 SANITARY SEWAGE SYSTEM

3.1 EXISTING CONDITIONS

Locally, there is a 250 mm diameter sanitary sewer on Ann Street and a 250 mm diameter sanitary sewer on Park Street East. The Ann Street sewer flows Southeast to the Park Street East sewer, the Park Street East sewer flows Southwest to the Helene Street North sewer, which flows Southeast along Helene Street to the trunk sewer on Lakeshore Road East.

3.2 DESIGN PARAMETERS

The theoretical peak sanitary flows have been calculated using the following factors based on direction from the Region of Peel for the 22 Ann Street development and Region of Peel Sanitary Sewer Design Criteria, July 2009, Modified March 2017 Rev 0.9 (CS).

- ▶ 50 ppl/ha (Single Family > 10m frontage)
 - ▶ 70 ppl/ha (Single Family < 10m frontage)
 - ▶ 70 ppl/ha (Semi-Detached)
 - ▶ 175 ppl/ha (Row Dwellings)
 - ▶ 475 ppl/ha (Apartments)
 - ▶ 1.68 people per apartment (1 bedroom)
 - ▶ 2.54 people per apartment (2 bedrooms or more)
 - ▶ 302.8 L/cap/day average day flow generation rate
 - ▶ Peaking Factor – Harmon Peaking Factor
 - ▶ Infiltration = 0.0002m³/s/ha
-

3.3 EXISTING FLOW TO SANITARY SEWER

Based on the design criteria noted above, it is estimated that in the pre-development condition, the site discharged an average of 0.12 L/s to the sanitary sewer system in the form of infiltration. There are no existing sanitary connections to the sewer from the Site. Refer to Appendix B for detailed pre-development sanitary flow rate calculations.

3.4 POST DEVELOPMENT SANITARY SEWER FLOW

An estimate of the post-development sanitary sewage flows to the downstream sanitary sewer system has been calculated based on the Region of Peel Sanitary Sewer Design Criteria and the preliminary site statistics provided by the architect. A summary of the calculations can be found below;

Sanitary Demand Rate	302.8 litres/person/day
Total Population (Residential + Office/Retail)	2204 people
Avg. Residential Flow	7.72 L/s
Infiltration	No infiltration (Entire site UG Parking)
Average Sanitary Flow from Site	7.72 L/s
Peaking Factor	Residential: Harmon Peaking Factor (3.90)
Peak Sanitary Flow from Site	27.44 L/s
Net Sanitary Flow Increase in Peak Sanitary Flow from Site to Sanitary Sewer System	27.32L/s (27.44L/s-0.12L/s)

Refer to Appendix B for site statistics and detailed pre- and post-development flow calculations as well as the Region's Connection Multi Use Demand Table.

3.5 SANITARY SERVICE

It is proposed to service the site with a 250 mm diameter PVC sanitary service to the existing 250 mm sanitary sewer on Park Street East with the addition of a manhole at the point of connection. A control manhole will also be placed immediately inside the property line and outside the underground parking structure.

The internal sanitary sewer system within the parking structure will be designed by the mechanical engineer. Proposed sanitary sewers within the private site will be designed to meet the Ontario Building Code. The sanitary service connection

to the Site within the existing municipal road allowance will conform to the Region of Peel Standards. Refer to Appendix C for proposed sanitary servicing layout.

4 STORM DRAINAGE

4.1 STORMWATER MANAGEMENT REPORT

A Stormwater Management Report for this development has been prepared under a separate cover. It identifies the stormwater quantity and quality controls under which the Site will operate. The Low Impact Development practice that will be implemented is currently under review and may include a water reuse system (flushing toilets) and other non-potable water reuse methods in the non-residential areas of the building, as detailed in the Stormwater Management Report.

4.2 EXISTING CONDITIONS

The existing storm sewer in the vicinity of the site is a 300mm diameter storm sewer on Ann Street. There is no existing storm sewer on Park St. fronting the site.

4.3 PROPOSED DEVELOPMENT

The proposed development covers the majority of the Site and as noted, includes a 40-storey residential building, a 42-storey residential building and below grade parking. All storm flows from the Site will be captured and directed to a stormwater storage tank. The tank will be sized to reduce the 100-year post-development flows to the 2-year pre-development levels. The tank will have an access hatch which is accessible from the surface which will also double as an emergency overflow. In addition, the development will provide an OGS unit to treat the site storm runoff to meet the City of Mississauga sewer-use by-law. For detailed stormwater management calculations, refer to Appendix A in the separate Stormwater Management Report prepared by WSP.

4.4 GRADING

4.4.1 EXISTING CONDITIONS

WSP reviewed the topographical survey prepared by R. Avis Surveying Inc. to determine the existing drainage patterns. Our review indicated that the site primarily drains Southwest to existing catch basins within the site. Overland flows at the parking lot entrances and the boulevards drain towards Ann St. to the West and Park St E to the South. Table 3.3 in the Stormwater Management Report demonstrates that the site meets the allowable release rates in post-development conditions. See Section 3.1 of the Stormwater Management Report for more details.

4.4.2 PROPOSED CONDITIONS

The Ann Street and Park Street East boulevards, adjacent to the proposed development, will be regraded to a 2.0% cross fall towards the roads, while maintaining the existing bottom of curb elevations. The existing elevations along the Northwest and Northeast property lines promote the overland drainage away from the proposed development and, therefore, will not require any changes to the grading design. Refer to Appendix D for the preliminary proposed grading plan.

4.5 MINOR STORM DRAINAGE SYSTEM

All storm flows, up to a 100-year event, will be captured on-site and directed to the stormwater cistern. The stormwater management cistern has been designed to control the 100-year storm event to the 2-year predevelopment release rate. By implementing these stormwater management controls, the development of the Site will ensure that all storm events greater than the 2-year storm event will reduce the storm flows from the site to the existing municipal sewer system.

It is proposed to provide a new 250 mm diameter storm connection that will connect to the existing 300 mm diameter storm sewer on Ann Street. The pipes will be connected springline to springline. A control manhole is proposed to be placed immediately inside the property line. The control manhole and cistern will be accessible at grade outside the building. The water in the cistern and groundwater from the sump pit will be pumped to the control manhole where it will travel through the proposed gravity sewer to the existing municipal storm sewer. The total rate of the pumped groundwater and cistern will be less than the allowable rate, as outlined in the Stormwater Management Report.

The new storm connection within the Ann Street right-of-way will be designed to the standards and specifications of the City of Mississauga. The new on-site storm sewers, which will be located within the parking garage, will be designed by a mechanical engineer to meet the standards of the Ontario Building Code. Refer to Appendix C for the proposed storm sewer layout.

4.6 MAJOR STORM DRAINAGE SYSTEM

The storm flows will be collected by on site area drains connected to an internal storm drainage system and directed into the stormwater storage tank. The flow will be controlled by a flow control device and released to the City's storm sewer at the controlled release rate. In case of system failure, the system has been designed to have an emergency overflow access to the surface. Since all storm flows up to 100-year storm events will be reduced to the 2-year pre-development levels, the existing storm sewer system will not be adversely affected by the post-development condition.

5 CONCLUSIONS

5.1 WATER

The proposed water servicing for the Site will include a 150 mm diameter domestic water connection branching off a 200 mm diameter fire water connection as well as a second 200 mm fire water connection. The water service connections will be made to the existing 300 mm watermain on Park Street East. A hydrant flow test has been conducted to verify that the existing watermain has adequate capacity to support the domestic and fire protection water demands of the proposed development.

5.2 SANITARY

The proposed sanitary servicing for the site will include a 250 mm diameter sanitary service connecting to the existing 250 mm diameter sanitary sewer on Park Street East, including a control manhole inside the property line and a new manhole on the municipal sewer. The estimated average sanitary flow generation from the site is 7.72 L/s and the estimated peak sanitary flow generation from the site is 27.44L/s.

5.3 STORM

The proposed storm servicing for the site will include a 250 mm diameter storm service connecting to the existing 300 mm diameter storm sewer on Park Street East. On-site, there is a proposed stormwater cistern which will provide quantity control and a proposed OGS unit to provide quality control. The proposed development will capture and control all storm runoff from the Site (up to the 100-year storm event) and control the runoff to the 2-year predevelopment flow rate. By implementing these stormwater management controls, the development of the site will ensure that all storm events greater than the 2-year storm event will reduce the storm flows from the site to the existing municipal sewer system. Further details of the Site's stormwater management are provided in the Stormwater Management Report, also prepared by WSP.

APPENDIX

A

FUS CALCULATIONS & HYDRANT FLOW TEST RESULTS

APPENDIX A

FIRE FLOW CALCULATIONS

TOWER A

Project: 30 Queen St. E Mississauga
Job No.: 211-12423

Fire flow required for a given area based on Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection (1999)

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

where

F = Fire flow in Litres per minute (Lpm)
 C = coefficient related to the type of construction
 A = total floor area in square metres

Calculations per FUS

1. *Estimate of Fire Flow*
 C = 0.6 for fire resistive construction
 A = 1473 m² (largest GFA plus 25% of GFA for two immediately adjoining floors)

$$F = 5,066 \text{ Lpm}$$

2. *Occupancy Reduction*
 15% reduction for "Non-Combustible" Occupancy

$$\begin{aligned} 15\% \text{ reduction of } 5066 \text{ Lpm} &= 760 \text{ Lpm} \\ F = 5066 - 760 &= 4,306 \text{ Lpm} \end{aligned}$$

3. *Sprinkler Reduction*
 30% reduction for NFPA Sprinkler System

$$\begin{aligned} 30\% \text{ reduction of } 4306 \text{ Lpm} &= 1,292 \text{ Lpm} \\ F = 4306 - 1292 &= 3,014 \text{ Lpm} \end{aligned}$$

4. *Separation Charge*

Face	Distance (m)	Charge
West Side	21	10%
East Side	8	20%
North Side	18	15%
South Side	25	10%
Total		55% of 4,306 = 2,368 Lpm

$$\begin{aligned} F &= 3014 + 2368 \\ F &= 5,382 \text{ Lpm} & (2,000 \text{ Lpm} < F < 45,000 \text{ Lpm}; \text{ OK}) \\ F &= 1,420 \text{ US GPM} \\ F &= 90 \text{ L/s} \end{aligned}$$

Notes

APPENDIX A

FIRE FLOW CALCULATIONS

TOWER B

Project: 30 Queen St. E Mississauga
Job No.: 211-12423

Fire flow required for a given area based on Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection (1999)

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

where

F = Fire flow in Litres per minute (Lpm)
 C = coefficient related to the type of construction
 A = total floor area in square metres

Calculations per FUS

1. *Estimate of Fire Flow*
 C = 0.6 for fire resistive construction
 A = 2079.25 m² (largest GFA plus 25% of GFA for two immediately adjoining floors)

$$F = 6,019 \text{ Lpm}$$

2. *Occupancy Reduction*
 15% reduction for "Non-Combustible" Occupancy

$$\begin{aligned} 15\% \text{ reduction of } 6019 \text{ Lpm} &= 903 \text{ Lpm} \\ F = 6019 - 903 &= 5,116 \text{ Lpm} \end{aligned}$$

3. *Sprinkler Reduction*
 30% reduction for NFPA Sprinkler System

$$\begin{aligned} 30\% \text{ reduction of } 5116 \text{ Lpm} &= 1,535 \text{ Lpm} \\ F = 5116 - 1535 &= 3,581 \text{ Lpm} \end{aligned}$$

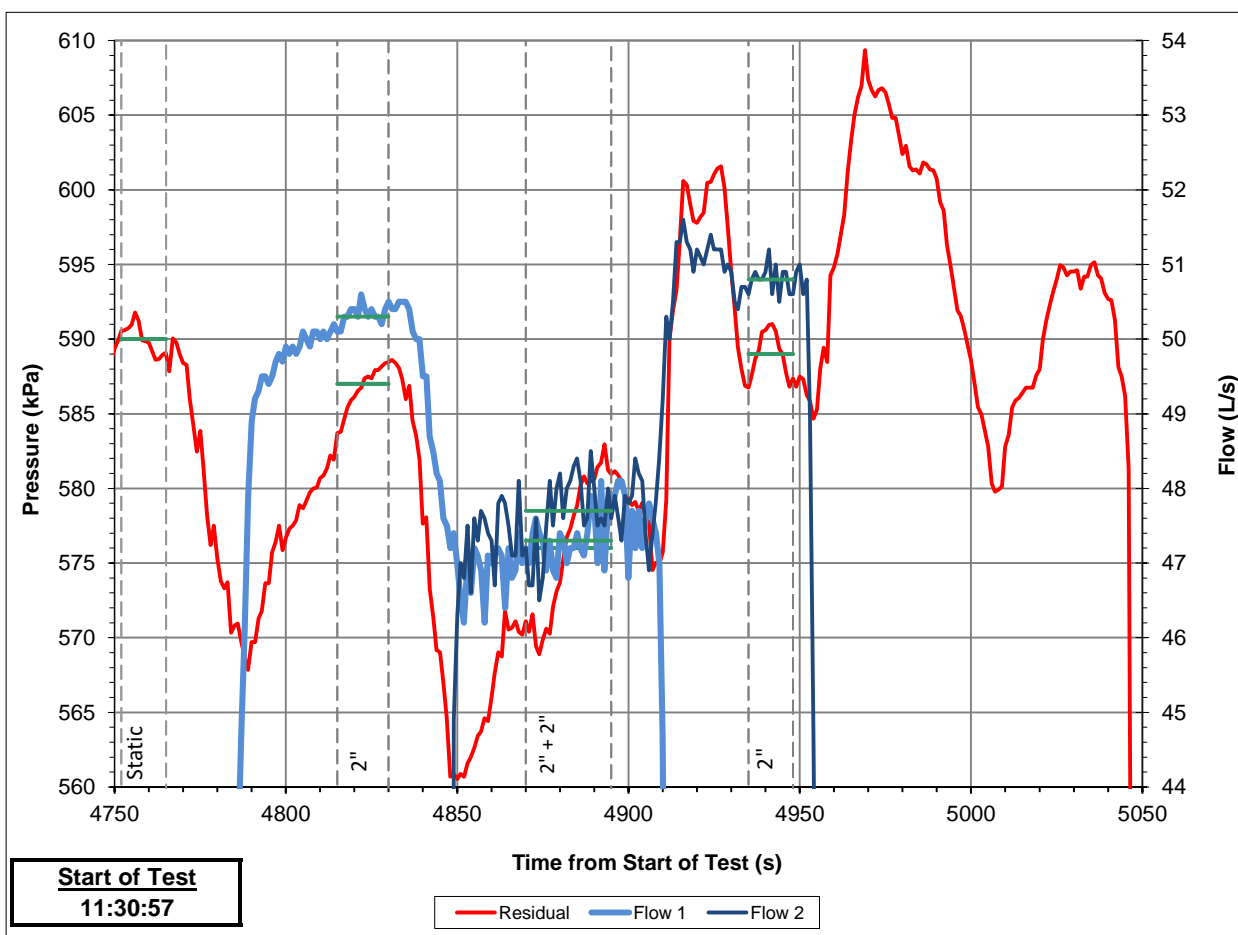
4. *Separation Charge*

Face	Distance (m)	Charge
West Side	19	15%
East Side	10	20%
North Side	138	0%
South Side	18	15%
Total		50% of 5,116 = 2,558 Lpm

$$\begin{aligned} F &= 3581 + 2558 \\ F &= 6,139 \text{ Lpm} \\ F &= 1,620 \text{ US GPM} \\ F &= 102 \text{ L/s} \end{aligned} \quad (2,000 \text{ Lpm} < F < 45,000 \text{ Lpm; OK})$$

Notes

Test 1 - 78 Park Street



Subject Watermain Details

Diameter: 300 mm Material: PVC
Area: 0.071 m²

Subject Hydrant & Valve Details

Residual: R1
Flow Hydrant: F1

TABLE A: TESTED PRESSURES AND FLOWS

Point	Time		Residual		Flow Hydrant (F1)				Total Flow		Velocity
			S3 on Residual:		Port 1 (S1)		Port 2 (S2)				
	Start	Finish	(kPa)	(psi)	(L/s)	(GPM)	(L/s)	(GPM)	(L/s)	(GPM)	
Static	4752	4765	590	85.6	0.0	0	0.0	0	0.0	0	0.0
2"	4815	4830	587	85.1	50.3	797	0.0	0	50.3	797	0.7
2"	4935	4948	589	85.4	0.0	0	50.8	805	50.8	805	0.7
1" + 2"			0	0.0	0.0	0	0.0	0	0.0	0	0.0
2" + 2"	4870	4895	576	83.5	47.3	750	47.7	756	95.0	1506	1.3

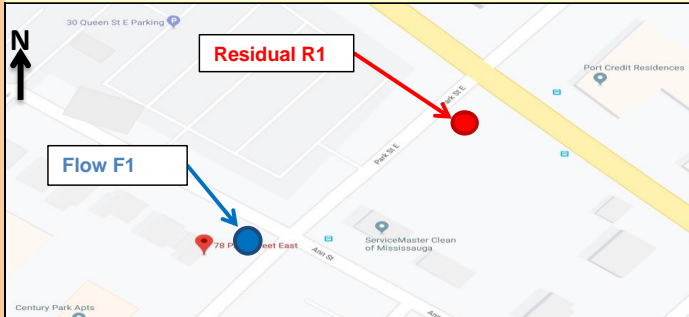


78 Park Street HYDRANT FLOW TEST RESULTS

Date: 13-Jun-19
Tested By: Jovan, Sen

Time: 11:30
(hh/mm)

Municipality: City of Mississauga
Operator: n.a
Test No: 1



Conditions before Test (STATIC)

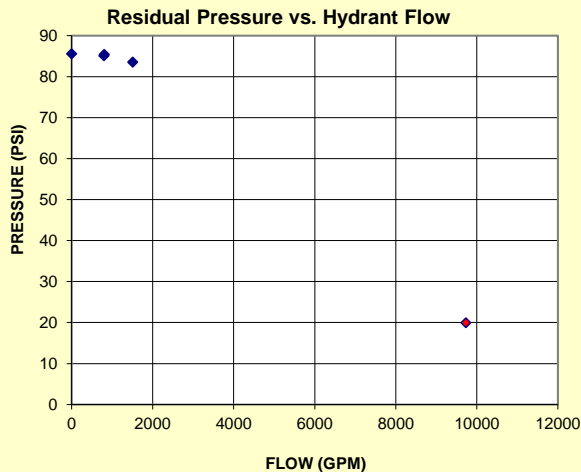
Residual Hydrant:	85.6 psi	590 kPa
Hydrant that will Flow:	85.6 psi	590 kPa
Δ pressure:	0.0 psi	0 kPa
Elevation Difference:	0.0 ft	0.0 m

(Flow El. - Residual El.)

Test Notes:

TEST		TEST FLOW		RESIDUAL PRESSURE (psi)		Minimum Residual P _r (psi)	Fire Flow at Minimum Residual, Q _r (USGPM)	Fire Flow at Minimum Residual, Q _r (L/s)	2% Pressure Drop Achieved?
Port Size (in)	Nozzle Pressure (psi)	(USGPM)	(L/s)	Monitoring Hydrant	Flow Hydrant (Corrected) *				
STATIC	n/a	0	0	85.6	85.6				
Single Port Tests									
2	26.1	797.0	50.3	85.1	85.1	20	11440	722	NO
2	26.6	805.0	50.8	85.4	85.4	20	19919	1257	NO
Two Port Test									
1						20			
2									
Two Port Test									
2	23.1	750.0	47.3	83.5	83.5	20	9727	614	YES
2	23.5	756.0	47.7						

* Pressure correction is equal to the elevation difference. Column 2 (and Table A) show the nozzle pressure while flowing.



Results			
Static Pressure		Flow at 20 psi (140kPa)*	
(psi)	(kPa)	(gpm)	(L/s)
85.6	590	9700	612

* Results carried to nearest 50 gpm or 100 gpm if over 1000 gpm

Hydrant Classification as per NFPA 291			
Class	AA	Color	BLUE

Water Discharged During Test:	11700 L
-------------------------------	---------

Rounded up to closest 100L

DISCLAIMER FOR FIRE FLOW TESTS

While WSP makes every effort to ensure that the information contained herein is accurate and up to date, WSP is not responsible for unintended or incorrect use of the data and information described and/or contained herein. The user must make his/her own determination as to its accuracy and suitability. The information is representative for a dynamic water system that may change over time.

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APPENDIX

B

DOMESTIC WATER DEMAND AND SANITARY FLOW CALCULATIONS

APPENDIX B
30 Queen St. E
Pre-Development Site Statistics

Residential Units

Unit Type	Area (ha)	Pop Density (ppl/ha)	Population
Parking Lot	0.59	0	0

Note: Population calculated per Region of Peel Sanitary Sewer Design Criteria Section 2.1. The pre-development site consists of 3 single family homes on a combined 0.26ha of land. The population was based on a population density of 50 ppl/ha for SF homes.

Pre-Development Sanitary Flow

Res Population =	0
Avg Res Flow =	0.00 L/s (assumes 302.8L/cap/d)
Res Peak Factor =	4.50 (Harmon Formula)
Peak Res Flow =	0.00 L/s
Infiltration =	0.12 L/s
Total Avg San Flow =	0.12 L/s
Total Peak San Flow =	0.12 L/s

Pre-Development Water Demand

Res Population =	0
Avg Res Demand =	0.00 L/s (assumes 280L/cap/d)
Max Day Factor =	2.00
Max Day Flow =	0.00 L/s
Peak Hour Factor =	3.00
Peak Hour Flow =	0.00 L/s

APPENDIX B

30 Queen St. E

Post-Development Statistics- Tower A

Residential Units

Unit Type	Quantity	Pop Density**	Population
1 Bedroom*	394	1.68	662
2 Bedrooms or more	157	2.54	399
Total	551		1061

*including 1 bedroom plus den

**as per direction from Region of Peel on 22 Ann Street development

Office/Retail Units

Total Retail/Office Area =	545 m ²
	0.0545 ha
Comm. Population Density =	50 persons/ha (R.O.P. Sani Design Criteria)
Total Comm. Population =	3 persons

Post-Development Sanitary Flow

Total Population =	1064 (Residential + Commercial)
Avg Flow =	3.73 L/s (assumes 302.8L/cap/d)
Peak Factor =	3.78 (Harmon Formula)
Peak Flow =	14.10 L/s
 Total Avg San Flow =	 3.73 L/s
Total Peak San Flow =	14.10 L/s

Post-Development Water Demand - Short Term

	Residential	Commercial	Total	
Population =	1061	3	1064	
Consumption Rate =	409	300	---	
Avg Demand =	5.02	0.01	5.03	L/s
Max Day Factor =	2.00	2.00	---	
Max Day Flow =	10.05	0.02	10.07	L/s
Peak Hour Factor =	3.00	3.00	---	
Peak Hour Flow =	15.07	0.03	15.10	L/s
Fire Flow =	90	90	90	L/s
Maximum Day + Fire Flow =	100.05	90.02	100.07	L/s

Post-Development Water Demand - Long Term

	Residential	Commercial	Total	
Population =	1061	3	1064	
Consumption Rate =	280	300	---	
Avg Demand =	3.44	0.01	3.45	L/s
Max Day Factor =	2.00	1.40	---	
Max Day Flow =	6.88	0.01	6.89	L/s
Peak Hour Factor =	3.00	3.00	---	
Peak Hour Flow =	10.32	0.03	10.35	L/s
Fire Flow =	90	90	90	L/s
Maximum Day + Fire Flow =	96.88	90.01	96.89	L/s

APPENDIX B

30 Queen St. E

Post-Development Statistics- Tower B

Residential Units

Unit Type	Quantity	Pop Density**	Population
1 Bedroom*	419	1.68	704
2 Bedroom	169	2.54	430
Total	588		1134

*including 1 bedroom plus den

**as per direction from Region of Peel on 22 Ann Street development

Office/Retail Units

Total Retail/Office Area = 1220 m²
0.1220 ha

Comm. Population Density = 50 persons/ha (R.O.P. Sani Design Criteria)
Total Comm. Population = 7 persons

Post-Development Sanitary Flow

Total Population = 1141 (Residential + Commercial)
Avg Flow = 4.00 L/s (assumes 302.8L/cap/d)
Peak Factor = 3.76 (Harmon Formula)
Peak Flow = 15.04 L/s

Total Avg San Flow = **4.00 L/s**
Total Peak San Flow = **15.04 L/s**

Post-Development Water Demand - Short Term

	Residential	Commercial	Total	
Population =	1134	7	1141	
Consumption Rate =	409	300	---	
Avg Demand =	5.37	0.02	5.39	L/s
Max Day Factor =	2.00	2.00	---	
Max Day Flow =	10.74	0.05	10.78	L/s
Peak Hour Factor =	3.00	3.00	---	
Peak Hour Flow =	16.10	0.07	16.18	L/s
Fire Flow =	102	102	102	L/s
Maximum Day + Fire Flow =	112.74	102.05	112.78	L/s

Post-Development Water Demand - Long Term

	Residential	Commercial	Total	
Population =	1134	7	1141	
Consumption Rate =	280	300	---	
Avg Demand =	3.68	0.02	3.70	L/s
Max Day Factor =	2.00	1.40	---	
Max Day Flow =	7.35	0.03	7.38	L/s
Peak Hour Factor =	3.00	3.00	---	
Peak Hour Flow =	11.03	0.07	11.10	L/s
Fire Flow =	102	102	102	L/s
Maximum Day + Fire Flow =	109.35	102.03	109.38	L/s

APPENDIX B

30 Queen St. E

Post-Development Site Statistics

Residential Units

Unit Type	Quantity	Pop Density**	Population
1 Bedroom*	813	1.68	1366
2 Bedroom	326	2.54	829
Total	1139		2195

*including 1 bedroom plus den

**as per direction from Region of Peel on 22 Ann Street development

Office/Retail Units

Total Retail/Office Area = 1765 m²
0.1765 ha

Comm. Population Density = 50 persons/ha (R.O.P. Sani Design Criteria)
Total Comm. Population = 9 persons

Post-Development Sanitary Flow

Total Population = 2204 (Residential + Commercial)
Avg Flow = 7.72 L/s (assumes 302.8L/cap/d)
Peak Factor = 3.55 (Harmon Formula)
Peak Flow = 27.44 L/s

Total Avg San Flow = **7.72 L/s**
Total Peak San Flow = **27.44 L/s**

Post-Development Water Demand - Short Term

	Residential	Commercial	Total	
Population =	2195	9	2204	
Consumption Rate =	409	300	---	
Avg Demand =	10.39	0.03	10.42	L/s
Max Day Factor =	2.00	2.00	---	
Max Day Flow =	20.78	0.06	20.84	L/s
Peak Hour Factor =	3.00	3.00	---	
Peak Hour Flow =	31.17	0.09	31.27	L/s
Fire Flow =	102	102	102	L/s
Maximum Day + Fire Flow =	122.78	102.06	122.84	L/s

Post-Development Water Demand - Long Term

	Residential	Commercial	Total	
Population =	2195	9	2204	
Consumption Rate =	280	300	---	
Avg Demand =	7.11	0.03	7.14	L/s
Max Day Factor =	2.00	1.40	---	
Max Day Flow =	14.23	0.04	14.27	L/s
Peak Hour Factor =	3.00	3.00	---	
Peak Hour Flow =	21.34	0.09	21.43	L/s
Fire Flow =	102	102	102	L/s
Maximum Day + Fire Flow =	116.23	102.04	116.27	L/s

Connection Multi Use Demand Table

WATER CONNECTION

Connection point ³⁾			
300mm Watermain on Park Street East between Ann Street and Hurontario Street			
Pressure zone of connection point		1	
Total equivalent population to be serviced ¹⁾		2204 persons	
Total lands to be serviced		0.59ha	
Hydrant flow test			
	Hydrant flow test location		
78 Park Street East, Mississauga			
	Pressure (kPa)	Flow (in l/s)	Time
Minimum water pressure	140	612	
Maximum water pressure	590	0	

No.	Water demands			
	Demand type	Demand (in l/s)		
		Use 1 ⁵⁾	Use 2 ⁵⁾	Total
1	Average day flow	10.39	0.03	10.42
2	Maximum day flow	20.78	0.06	20.84
3	Peak hour flow	31.17	0.09	31.27
4	Fire flow ²⁾	102	102	102
Analysis		Residential	Office/Retail	
5	Maximum day plus fire flow	122.78	102.06	122.84

WASTEWATER CONNECTION

			Total
	Residential	Office/Retail	
Total equivalent population to be serviced ¹⁾	2195	9	2204
Total lands to be serviced	N/A	N/A	0.59ha
6 Wastewater sewer effluent (in l/s)	N/A	N/A	7.72

Connection point ⁴⁾ 250mm Sanitary Sewer on Park Street East between MH to the East and MH170

¹⁾ The calculations should be based on the development estimated population (employment and/or residential).

²⁾ Please reference the Fire Underwriters Survey Document

³⁾ Please specify the connection point ID

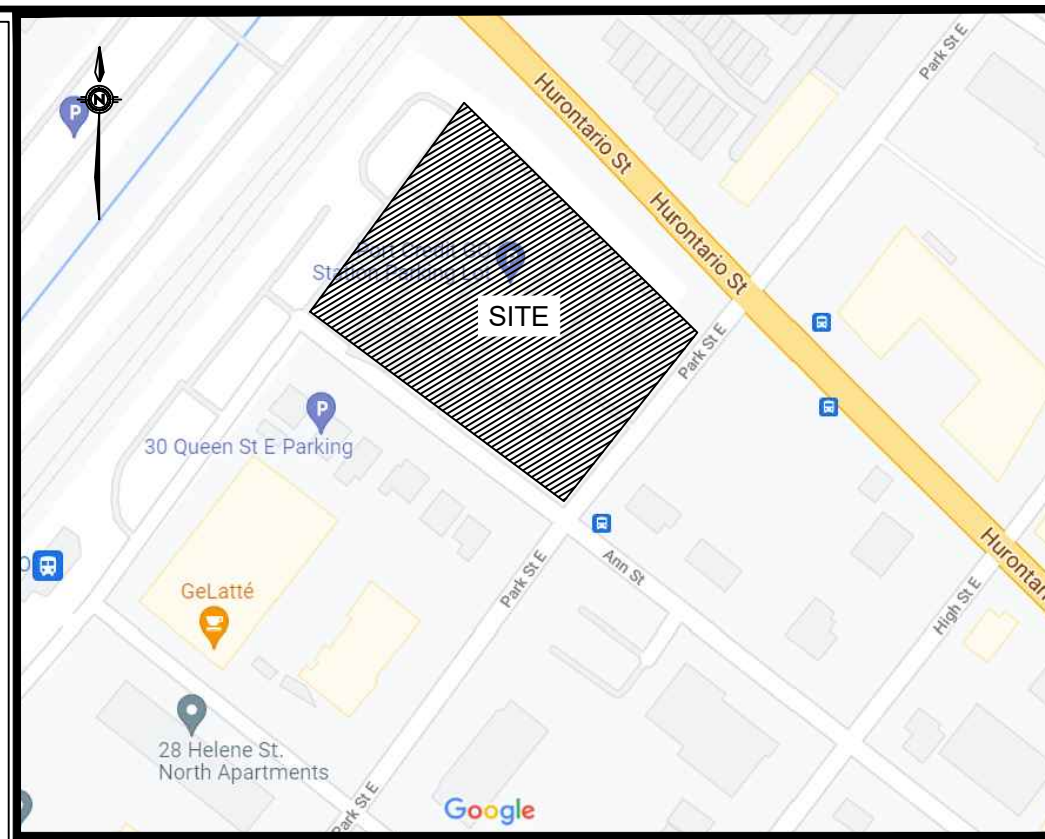
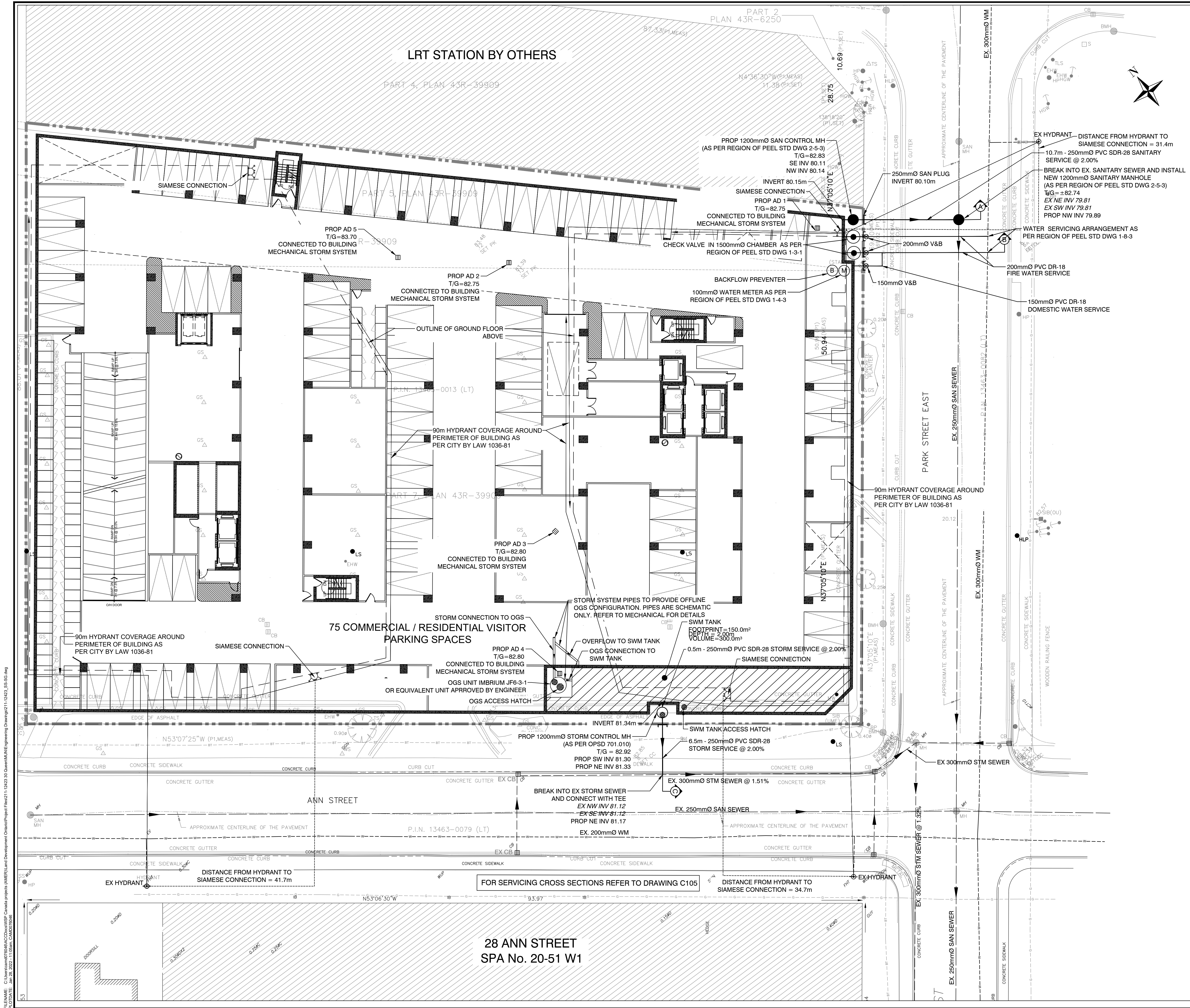
⁴⁾ Please specify the connection point (wastewater line or manhole ID)
Also, the "total equivalent population to be serviced" and the "total lands to be serviced" should reference the connection point. (The FSR should contain one copy of Site Servicing Plan)

⁵⁾ Please complete as many uses are necessary for the development.
(Please specify the use)

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.

APPENDIX

C PRELIMINARY SITE SERVICING PLAN



KEY PLAN NTS

LEGEND

- PROPOSED SANITARY SEWER AND MANHOLE
- PROPOSED STORM SEWER AND MANHOLE
- PROPOSED WATERMAIN PIPE
- PROPOSED SHUT OFF VALVE
- DETECTOR CHECK VALVE AND CHAMBER
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING STORM SEWER AND MANHOLE
- EXISTING WATERMAIN
- EXISTING GAS MAIN
- EXISTING BELL LINE
- PROPERTY LINE

ELEVATION NOTE:
ELEVATION ARE REFERRED TO CANADIAN GEODETIC
VERTICAL DATUM-1928, AND WERE DERIVED FROM
THE CITY OF MISSISSAUGA BENCHMARK NO. 379,
HAVING A PUBLISHED ELEVATION OF 82.771 METRES.
ALL DIMENSIONS AND ELEVATIONS ARE IN METRES
UNLESS OTHERWISE NOTED.

PIPE SIZES ARE IN MILLIMETRES.

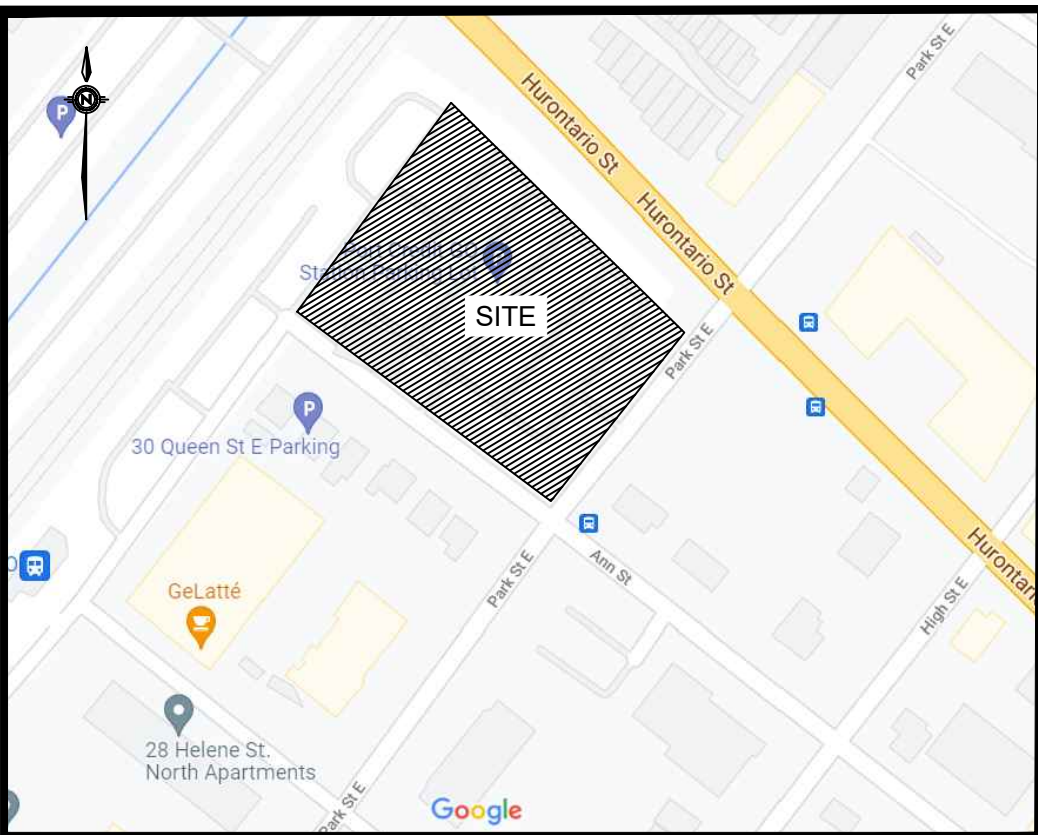
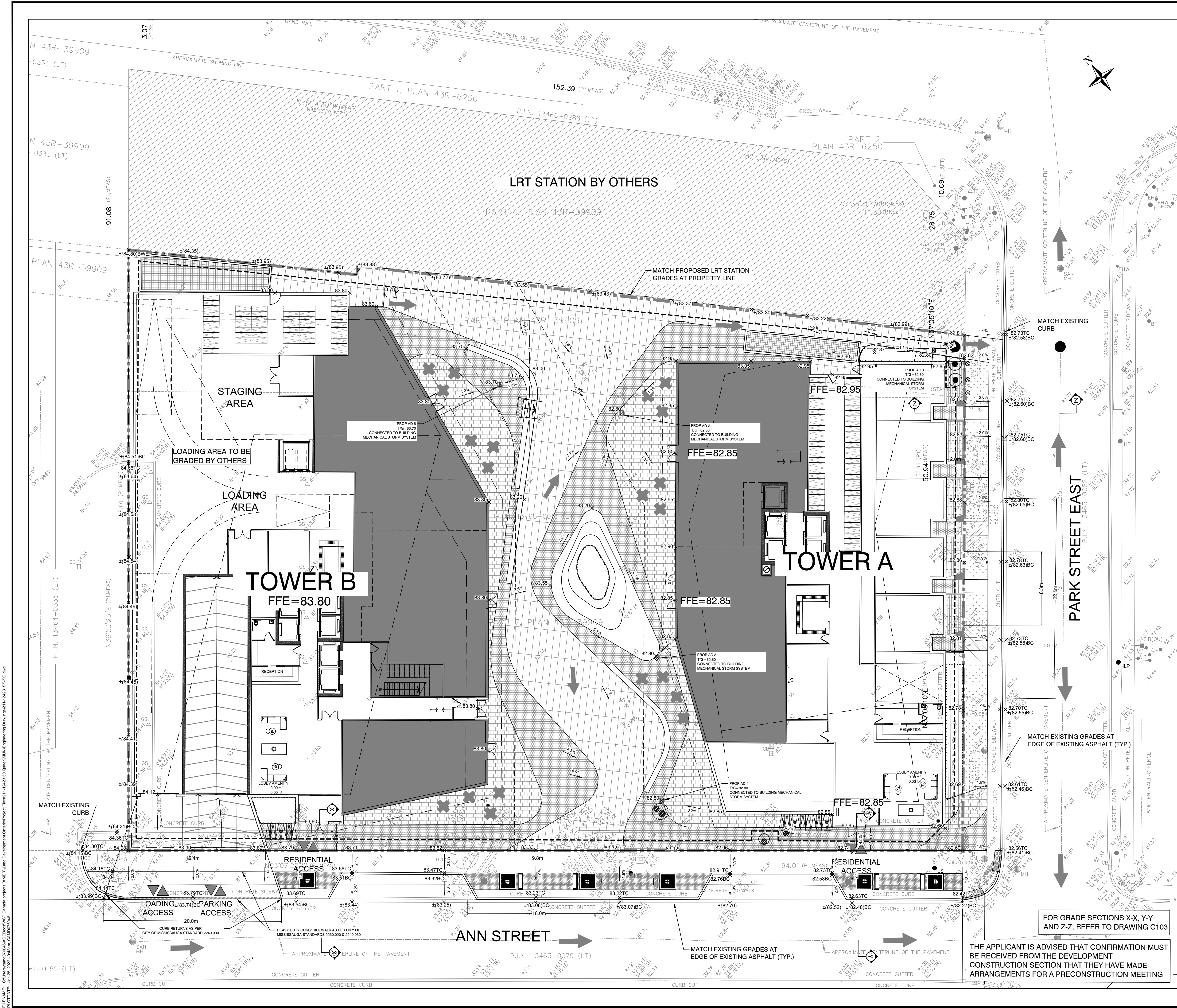
1	ISSUED FOR ZBA, OPA & SPA	A.K.	JAN 28, 2022
No.	REVISIONS	BY	DATE
ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED			
CLIENT	EDENSHAW QUEEN DEVELOPMENTS LIMITED		
MUNICIPALITY	MISSISSAUGA Transportation and Works		
PROJECT TITLE	30 QUEEN STREET EAST PORT CREDIT, ON		
SHEET TITLE	SITE SERVICING PLAN		
CONSULTANT	wsp		
DESIGNED M.D.	DRAWN M.D.	CHECKED A.K.	
SCALE 1:200	DATE JAN 2022		DWG. NUMBER
PROJECT NUMBER 211-12423	C104		

APPENDIX

D

PRELIMINARY SITE GRADING PLAN

FILENAME: C:\Users\andrew\OneDrive\Documents\WSP\Canada projects\AMER\Land Development\Chino\Paper\Plan 211-12423-30 Queen\SiteGrading\Drawings\211-12423_SIS-SG.dwg
PLOTDATE: Jan 28, 2022 9:45am C:\Users\andrew\OneDrive\Documents\WSP\Canada projects\AMER\Land Development\Chino\Paper\Plan 211-12423-30 Queen\SiteGrading\Drawings\211-12423_SIS-SG.dwg



KEY PLAN NTS

- LEGEND**
- ±(82.73) EXISTING GRADE TO MATCH
 - 82.78 PROPOSED GRADE
 - 82.81 TC PROPOSED GRADE AT TOP OF CURB
 - 82.77 BC PROPOSED GRADE AT BOTTOM OF CURB
 - 82.75 EXISTING GRADE
 - AD 1 AREA DRAIN
 - OVERLAND FLOW
 - ROOF ABOVE
 - UNDERGROUND PARKING
 - PROPERTY LINE

ELEVATION NOTE:
ELEVATION ARE REFERRED TO CANADIAN GEODETIC VERTICAL DATUM-1928, AND WERE DERIVED FROM THE CITY OF MISSISSAUGA BENCHMARK NO. 379, HAVING A PUBLISHED ELEVATION OF 82.771 METRES. ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.
PIPE SIZES ARE IN MILLIMETRES.

1	ISSUED FOR ZBA, OPA & SPA	A.K.	JAN 28, 2022
No.	REVISIONS	BY	DATE
ALL PREVIOUS ISSUES OF THIS DRAWING ARE SUPERSEDED			
CLIENT			
EDENSHAW QUEEN DEVELOPMENTS LIMITED			
MUNICIPALITY			
MISSISSAUGA Transportation and Works			
PROJECT TITLE			
30 QUEEN STREET EAST PORT CREDIT, ON			
SHEET TITLE			
SITE GRADING PLAN			
CONSULTANT			
wsp			
DESIGNED M.D.		DRAWN M.D.	
SCALE 1:200		DATE JAN 2022	
PROJECT NUMBER 211-12423		DWG. NUMBER C102	

THE APPLICANT IS ADVISED THAT CONFIRMATION MUST BE RECEIVED FROM THE DEVELOPMENT CONSTRUCTION SECTION THAT THEY HAVE MADE ARRANGEMENTS FOR A PRECONSTRUCTION MEETING