



FUNCTIONAL SERVICING REPORT

Water, Sanitary, and Stormwater Management

PROPOSED MIXED USE DEVELOPMENT

217-227 CROSS AVENUE AND 571-587 ARGUS ROAD
TOWN OF OAKVILLE

OUR FILE: 1729

PREPARED FOR DISTRIKT DEVELOPMENTS INC.

May 11, 2022

Functional Servicing Report
Proposed Mixed Use Development
217-227 Cross Ave & 571-587 Argus Rd

Our File: 1729

REVISION HISTORY

DATE	REVISION	SUBMISSION
May 11, 2022	1	OPA and ZBA Submission

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1.0 INTRODUCTION

1.1 Scope of Functional Servicing Report

This report has been prepared in support of the Rezoning and Official Plan Amendment (OPA) to permit the construction of a three-tower mixed-use condominium located at 217-227 Cross Avenue, and 571-587 Argus Road, Oakville. A copy of the Site Plan and site statistics are included in Appendix A. This report discusses how the proposed site can be serviced by the existing and future infrastructure for water, wastewater and storm drainage/stormwater management. This report also discusses site grading and erosion and sediment control. This report may be updated and refined as the project moves through the planning process to support the Site Plan Application and Building Permit Stages.

Information provided in the report is based on our general knowledge of the area as well as information/drawings obtained from the Town of Oakville and the Region of Halton. The following documents have been reviewed in support of this application:

- Water and Wastewater Area Servicing Plan for Midtown Oakville, Final Report, Blue Plan Engineering, September 28, 2017 (ASP);
- Stormwater Management Report, Oakville Part III Midtown EA, Town of Oakville, Cole Engineering, June 2014 (Midtown Oakville EA);
- Addendum to the Water and Wastewater Area Servicing Plan (ASP) for Midtown Oakville, Blue Pan Engineering, December 2020 (ASP Addendum).

1.2 Site Location and Description

The subject property is 1.26 ha and consists of 5 properties located at 217-227 Cross Avenue, and 571-587 Argus Road in the Town of Oakville. The subject property is within the Oakville Midtown area and is identified as part of Block 9 in the Area Servicing Plan (ASP).

The subject property is bounded by Argus Road to the north and west, and Cross Avenue to the south. To the east of the property are private lands consisting of a 2 storey medical building at 603 Argus Road, and a car dealership (Oakland Ford) at 570 Trafalgar Road. The neighbouring properties are also within the Oakville Midtown area with future redevelopment potential. The subject property does not include 207 Cross Ave, which is the parcel of land at the North-East corner of the intersection of Argus and Cross.

The subject property is currently occupied by fast food restaurants fronting Cross Ave (Swiss Chalet, Harvey's, McDonalds), and 1- and 2-storey medical buildings. The abutting roads are typical urban roads with an array of shallow and deep underground services/utilities.

Within the property, along the south property line of 581 Argus Road and 603 Argus Road there is a 675 mm diameter municipal storm sewer approximately 3.5 m deep within a 6 m wide easement in favour of the Town. The storm sewer collects runoff from a drainage area of approximately 2.5 ha, consisting of a portion of South Service Road, Argus Road and the adjacent properties (323, 324 South Service Road, 570 Trafalgar Road (Oakland Ford), 603 Argus Road). The sewer drains east to west and outlets to the existing 750mm storm sewer on Argus Road. The flows then travel south to Cross Ave to a 1050 mm diameter storm sewer. The 1050 mm diameter storm sewer on Cross Ave flows west and outlets to Sixteen Mile Creek.

1.3 Proposed Development

In general, the proposed development consists of three high-rise towers with a central outdoor park space. The towers are denoted as follows:

Tower 'A'	-	58 storey residential with at grade retail
Tower 'B'	-	49 storey residential with at grade retail
Tower 'C'	-	44 storey residential with at grade retail and office space

There are six levels of below-grade parking proposed extending over the entire site. Vehicle access to the site will be from Argus Road through Tower A, and from Street 'A' (see Section 2.3 below) through Tower C. The central park space is accessible through all 4 sides and provides public pedestrian access through the site. Private outdoor amenity space is also provided on some of the towers.

As part of the proposed development the existing 675 mm diameter storm sewer through the middle of the property will be relocated to the adjacent municipal roads, and the internal easement removed.

Site statistics are included in Appendix 'A' for reference purposes.

2.0 ROAD NETWORK

The Midtown Oakville EA identifies the local roads to be realigned and the location of new roads to facilitate the development of the area. This development is impacted by the realignment of Cross Ave at the south of the property, and a new local road proposed along the east boundary of the property.

2.1 Argus Road

The Midtown Oakville EA identifies a realignment to the existing bend along Argus Road. Through consultation with the Town of Oakville, the realigned bend is no longer proposed. Analysis and justification is provided in the Traffic Impact Study prepared by BA Group (under separate cover). No further right-of-way realignments or widenings are required.

2.2 Cross Avenue

As per the Midtown Oakville EA, Cross Avenue will be realigned slightly north and upgraded to a larger urban road cross-section (28 m right-of-way). A portion of the new alignment is within the subject property, and the required lands will be conveyed to the Town through the appropriate planning process. Along with the road realignment, all infrastructure will have to be realigned. A preliminary road alignment and profile was prepared by Cole Engineering (dated June 2014). The preliminary elevations were used to establish property line grades for the proposed development. Refer to Section 6.0 below for further information pertaining to the grading.

The new alignment of Cross Ave does not affect the servicing or grading feasibility of the subject property. Any servicing laterals connected to infrastructure on Cross Ave in its current configuration must be reconnected to the future infrastructure in the new Cross Ave alignment.

The design and construction of Cross Ave will be completed by the Town of Oakville. At the time of writing this report, the Town has communicated that a consultant is being hired to complete the detailed design of Cross Ave and the construction of Cross Ave is estimated to commence in 2023. We have assumed that Cross Ave will be completed prior to the completion of this proposed development. In the event timing does not work out, we have shown how the proposed development is still feasible with the current configuration of Cross Ave.

Any required stormwater management controls for the Cross Ave road allowance will be designed and constructed by the Town of Oakville.

2.3 Street 'A'

The Midtown Oakville EA identifies a 19 m wide local road along the east boundary of the subject property, connecting Argus Road at the north end with Cross Ave at the south end. Through preliminary discussions with Town staff, it is understood that there is flexibility in the exact location of the road, but the intent of the EA must be maintained.

In coordination with BA Traffic Consultants, we have completed a preliminary design of Street 'A' per Town STD. 7-23. The centerline of the road is proposed 1 m east of the existing site property line. This lines up the current site property boundary with the centre of the travel lanes on the

cross-section. This road alignment is in a similar location as identified in the EA and meets the intent of the local road location. The profile of the road was constrained by matching into the existing grades on Argus Road and the proposed future grades at Cross Ave. The proposed profile also considers Cross Ave in its current configuration and demonstrates the road can tie into the existing elevations of Cross Ave on an interim condition.

Storm sewer infrastructure is proposed within the road to accommodate the realigned 675 mm diameter storm sewer that was within the subject property. The location of the storm sewer within the road cross-section is in the standard location of the sanitary sewer. This location allows for the storm sewer to be constructed with this development application. It is understood that if required, a sanitary sewer could go in the typical location of the storm sewer within the road cross-section. This is a slight modification to typical Oakville road cross-section.

The portion of the road within the subject property will be constructed to an interim condition until the full road can be built, with a modified boulevard width and curb locations. The interim road will be privately owned and maintained until the full road cross-section is built. The timing of the full road build out will be dependent on the redevelopment of the surrounding properties.

As discussed in the Midtown Oakville EA, future development, or transportation improvements within the study area, are to meet the required stormwater management criteria. Therefore, stormwater quantity, quality and water balance requirements apply to Street 'A'. This will be further designed in consultation with the Town of Oakville during the Draft Plan of Subdivision Stage. It may be beneficial to consider a combined stormwater management approach for all the proposed transportation improvements in the area.

3.0 MUNICIPAL WATER

The subject property will be serviced for water through the local water infrastructure on the adjacent roads. The ASP notes there is sufficient water supply for the 2031 growth scenario, no major infrastructure is required to support development in this timeframe.

All proposed services must be in accordance with the Ontario Building Code, Town of Oakville, and Region of Halton standards and requirements. A copy of the Preliminary Servicing Plan is included with this submission and should be read in conjunction with this report. Existing and proposed servicing is discussed in further detail in the following sections.

3.1 Existing Municipal Water

3.1.1 Existing Linear Infrastructure

Based on record drawings from Halton Region, there are existing 300mm local watermains on Cross Ave and Argus Road, as well as a 900 mm feeder trunk watermain along Argus Road. The subject site is within the Zone 2 pressure boundary. Four existing hydrants are available along Argus Road, and one existing hydrant along Cross Ave.

The existing 581 and 587 Argus Road properties connect to the local watermain on Argus Road and the 217 and 227 Cross Avenue properties connect to the existing local main on Cross Avenue.

The watermain that currently exists along Cross Ave may be realigned to the future Cross Ave alignment.

At this time, water infrastructure is not proposed within Street 'A' as the redevelopment of the surrounding properties can be serviced by the existing infrastructure on Argus and Cross.

3.1.2 Existing Municipal Water Demands

Using the site area and Region of Halton Linear Design Manual, the domestic water usage for the existing buildings (light commercial) was calculated and summarized below (see Appendix 'B' for supporting calculations).

Table 1: Estimated Existing Water Demands (L/min)

Average Daily Demand	18
Minimum Hourly Demand	18
Maximum Hourly Demand	39
Maximum Daily Demand	39

3.2 Proposed Municipal Water

3.2.1 Proposed Linear Infrastructure

Each Tower will have separate water connections for domestic and fire protection. This will allow for the development to be phased, and for each tower to be independent from the others. Towers A and B will be serviced from the existing 300 mm diameter watermain on Argus Road. Tower C will be serviced from the existing 300 mm diameter watermain on Cross Ave.

Proposed water services consist of a 200 mm diameter fire, 150 mm diameter domestic for the residential units, and 100 mm diameter domestic for the at-grade retail for each tower. Based on the heights of the buildings, a second fire service is provided as required by the OBC.

There are existing municipal hydrants within 90m of each tower. The proposed location of the fire department connection (Siamese connection) for each tower will need to be located within 45 m of a fire hydrant.

3.2.2 Proposed Municipal Water Demands

Using the development area and Region of Halton design criteria, the domestic water usage is estimated and summarized below (see Appendix 'B' for supporting calculations). The fire flow is estimated for demand purposes only using the Fire Underwriter's Survey methodology and should be confirmed by a sprinkler consultant at the building permit stage.

Table 2: Estimated Proposed Water Demands (L/min)

Average Daily Demand	56
Minimum Hourly Demand	56
Maximum Hourly Demand	222
Maximum Daily Demand	152
Estimated Fire Demand (FUS 1999)	7,000
Maximum Daily Plus Fire Demand	7,125

A fire hydrant flow test has been arranged and this report will be updated with the results when they are made available. In conjunction with the fire safety design of the building, adequate capacity should be verified again at the building permit stage.

The Site Servicing Plan shows the proposed water servicing for the site.

4.0 MUNICIPAL WASTEWATER

The subject property will be serviced for wastewater through the local wastewater infrastructure on the adjacent roads. The ASP notes capacity concerns for the 2031 growth scenario, and potentially some required infrastructure upgrades. A review of the area servicing is being undertaken by Urbantech and a report will be provided under a separate cover.

All proposed services must be in accordance with the Ontario Building Code, Town of Oakville, and Region of Halton standards and requirements. A copy of the Preliminary Servicing Plan is included in Appendix 'B' and should be read in conjunction with this report. Existing and proposed servicing is discussed in further detail in the following sections.

4.1 Existing Wastewater Infrastructure

4.1.1 Existing Linear Infrastructure

There is an existing 750 mm diameter sewer located on the east-west leg of Argus Road which drains to an existing 600mm diameter trunk sanitary sewer located on the north-south leg of Argus Road. Along Cross Ave, adjacent to the subject site, there is a 300 mm diameter local sanitary sewer and a 525 mm diameter trunk sanitary sewer. Near the eastern side of the subject lands the 525 mm diameter trunk sewer turns south and crosses through the GO Station lands to Trafalgar Road, just north of Cornwall Road. The 300 mm diameter sanitary sewer flows east and drains south via the sanitary sewer on Trafalgar Road.

The building at 581 Argus Road is connected to the sewer along the north-south leg on Argus Road and the building at 587 is connected to the sewer along the east-west leg. Presumably, the 217 and 227 Cross Ave sites are connected to the local sanitary sewer along Cross Ave. Locates must be obtained to confirm the discharge location of all sites prior to detailed design.

4.1.2 Existing Wastewater Demands

Using the development area and Region of Halton design criteria for light commercial areas (90 persons per hectare), the estimated existing sanitary discharge is determined. The table below provides a summary of the estimated wastewater flows. See Appendix 'D' for supporting calculations.

Table 3: Estimated Existing Wastewater Flow (L/s)

Average Daily Dry Weather Flow	0.29
Modified Harmon Peaking Factor	4.23
Infiltration Allowance (0.26 L/s-ha)	0.30
Peak Flow	1.54

4.2 Proposed Wastewater Infrastructure

4.2.1 Proposed Linear Infrastructure

A new 300 mm dia. PVC sanitary service lateral complete with property line inspection manhole is proposed to service the development. The lateral will connect to the 600 mm dia. sanitary sewer on Argus Road and drain south to Cross Ave.

The service lateral connection is sized in accordance with Region of Halton standards. Based on 157 residential units and 20 FU per unit, approximately 3140 FU are generated. From Table 3-5 of the Region's Linear Design Manual, a 300 mm dia. service lateral with a minimum slope of 2% is required.

The sanitary sewers that currently exist along Cross Ave may be realigned to the future Cross Ave alignment. The proposed sanitary service lateral for the development connects to the sanitary sewer on Argus Road and is not impacted by the realignment of the sanitary sewer on Cross Ave.

At this time, wastewater infrastructure is not proposed within Street 'A' as the redevelopment of the surrounding properties can be serviced by the existing infrastructure on Argus and Cross.

4.2.2 Proposed Wastewater Demands

Using the development area and Region of Halton design criteria for high-rise residential (apartments exceeding six-storeys, 285 persons per hectare), the estimated proposed sanitary discharge is determined. The table below provides a summary of the estimated proposed wastewater flows. See Appendix 'D' for supporting calculations.

Table 4: Estimated Proposed Wastewater Flow (L/s)

Average Daily Dry Weather Flow	0.93
Modified Harmon Peaking Factor	4.08
Infiltration Allowance (0.26 L/s-ha)	0.30
Peak Flow	4.1

5.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

5.1 Existing Drainage Condition

The existing site slopes from north to south, at an average slope of 2%. As mentioned, the site is currently occupied by restaurants and 1- and 2- storey medical buildings and paved parking lots, all of which will be removed as part of this development. The properties at 571 and 587 Argus Road collect stormwater through a series of catchbasins in their parking lot and outlet to the existing 675 mm storm sewer that runs through the middle of the property. The properties at 217-227 Cross Ave collect stormwater through a series of catchbasins in their parking lots and outlet to the storm sewer on Cross Ave. The storm sewer along Argus Road and minor sewer on Cross Ave drain west and outlet to 16 Mile Creek.

5.2 Stormwater Management

The Town of Oakville requirements for stormwater management are set out in the Midtown Oakville EA Study (June 2014).

The applicable criteria are as follows:

1. Stormwater Quantity Control (Peak Flow Control)

Utilize the Midtown Oakville EA Study hydrology model to demonstrate that the target flows are met for each subwatershed. Per the Midtown EA, the proposed development is to drain to Sixteen Mile Creek (Figure DAP-2). As there are no existing flood concerns for Sixteen Mile Creek in the study area, peak runoff rates from the development are to be controlled to existing rates. In addition to meeting the flows, a minimum storage requirement is 68.2 m³/ha.

2. Stormwater Runoff Volume Reduction (Water Balance)

Provide retention of 5 mm over the entire area of the proposed development as per the City of Toronto's Wet Weather Flow Management Guidelines (November 2006); or,

Retain stormwater onsite to achieve an equivalent annual volume of infiltration as per-development conditions, as per Section 3.2 of the MOE Stormwater Management Planning and Design Manual (March 2003).

3. Stormwater Quality Control

Achieve Enhanced Level 1 Protection, as per the Ministry of Environment's Stormwater Management Planning and Design Manual (March 2003).

5.2.1 Stormwater Quantity Control (Peak Flow Control)

Pre-development flow rates are calculated using the Town of Oakville IDF curves, a runoff coefficient of 0.9, and a development area of 1.021 ha. Post-development flow rates are calculated using the same IDF data, runoff coefficient of 0.9 and the same area. In the determination of the runoff coefficient, we have not accounted for any landscaping in the interior courtyard, or rooftop amenity space to remain conservative. A conservative value of post-development runoff coefficient ensures adequate sizing of the stormwater management tank during the preliminary design stage.

Below is a breakdown of the site area

Table 5: Site Area Breakdown

Development Site Area:	1.021 ha
Street 'A' Area:	0.069 ha
Future Cross Ave Area:	0.17 ha
Total Site Area:	1.26 ha

Runoff from the entire site is proposed to outlet to the existing 750 mm diameter storm sewer on Argus Road. Therefore, post-development peak flows must be controlled to the 5-year pre-development peak flow to match municipal storm sewer flows.

To control stormwater runoff from the site, an underground stormwater tank is proposed. The proposed stormwater management tank will pump stormwater to the existing 750 mm diameter storm sewer on Argus Road. The pump release rate is set to the 5-year pre-development peak flow. A comparison of pre- and post-development flow is provided in the table below.

Table 6: Stormwater Flows

Return	Pre-Dev Total (L/s)	Post-Dev Release (L/s)	Storage Required (m ³)
5-yr	291	291	0
10-yr	344	291	32
25-yr	455	291	105
50-yr	516	291	148
100-yr	569	291	185

The minimum storage requirement per the Midtown Oakville EA is 69.6 m³. The post- to pre-development storage requirements yield a higher storage requirement so the post- to pre-development criteria governs.

The runoff coefficient and associated tank sizing may be refined as detailed design progresses.

Runoff from the site will be collected through the roof drains and surface catchbasins. Plumbing interior to the building and underground parking structure (designed by the mechanical engineer) will direct runoff to the stormwater tank located on level 1 of the underground parking structure. The roof drains and surface catchbasins must be sized to capture runoff from the 100-yr storm event. An "emergency" overland flow route is provided through the site to Cross Ave. An emergency overflow from the tank must be designed in coordination with the mechanical consultant at the detailed design stage.

The stormwater tank will serve the entire site, and if a phased approach to construction is pursued, the stormwater tank must be constructed in the first phase. The tank is located midway through the site, along the west property line, below Tower B.

Appendix 'C' contains the detailed calculations.

5.2.2 Stormwater Runoff Volume Reduction

As outlined in the Midtown Oakville EA retention of 5 mm is required. However, in discussions with the Town, staff have recommended utilizing a retention of 25mm (refer to correspondence in Appendix C).

The 25 mm retention volume is 255 m³.

The stormwater management tank has been sized to store this volume in addition to the volume required for peak flow control. There are limited opportunities for infiltration, so the re-use water will be used for onsite irrigation or other acceptable best efforts. Additional details will be provided through detailed design.

5.2.3 Stormwater Quality Control

Runoff from the site will consist of runoff from the roof, landscape and pedestrian areas. The runoff will be generally clean. A membrane filtration system, such as a Jellyfish Filter by Imbrium, will be placed upstream of the stormwater management tank to remove debris and sediments from the stormwater prior to discharging to the municipal stormwater system. The unit will be sized to provide 80% TSS removal to achieve Enhanced Level 1 protection.

6.0 SITE GRADING

The proposed grading must ensure that drainage from the 100-year event is collected by the buildings mechanical system and conveyed to the stormwater management tank. All building openings, including air intake and exhaust shafts, must be protected from overland flow by being set a minimum of 0.2 m above the spill elevation.

The proposed property line elevations adjacent to Street 'A' have been set in conjunction with a preliminary road design prepared as part of this submission. Temporary curbs will need to be constructed in an alternate location to support the development. When the adjacent lands develop, the full road cross-section can be constructed to its ultimate condition. Temporary

working easements will be required on the adjacent properties to facilitate the construction of the road.

The proposed property line elevations adjacent to Cross Ave have been set considering the preliminary future road centerline elevations as set out in the Midtown Oakville EA. These property line elevations provide positive drainage to the existing Cross Ave alignment if the proposed development proceeds in advance of the Cross Ave realignment.

A copy of the Preliminary Grading Plan is provided and should be read in conjunction with this report.

7.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls must be installed prior to the commencement of any construction. The erosion and sediment control devices should follow the Erosion and Sediment Control Guidelines for Urban Construction as set out by the Greater Golden Horseshoe Conservation Authority. Erosion and sediment control measures may be implemented as follows:

- **Double Wrapped Catchbasins:** The proposed storm sewer catchbasins and catchbasin manholes located within the subject site and adjacent municipal roads shall be double wrapped in a woven geotextile material. Woven geotextile material is to be replaced periodically when accumulated sediments interfere with drainage. The abutting streets should be monitored and if required, swept to mitigate the accumulation of tracked material on the roads on a routine basis in keeping with good construction housekeeping practices.
- **Gravel Access Pad:** A gravel access mat will be installed at the entrance to the construction zone to prevent mud tracking from the site to the municipal roads.
- **Silt Fencing:** Silt fence will be installed along the property line to intercept sheet flow.

A detailed erosion and sediment control plan and phasing plan (if applicable) will be developed through detailed design.

8.0 CONCLUSION

The information presented in this Functional Servicing Report demonstrates that the proposed development can be serviced by the existing and future adjacent infrastructure for water, wastewater, stormwater and can meet the Town of Oakville stormwater management criteria. The following is a summary of the report findings:

- The site is 1.26 ha with a site development area of 1.021 ha. The site is within the Midtown Oakville Growth area.
- The proposed development consists of 3 residential towers, with retail and office on the bottom 2 floors. Tower A is 58 storeys, Tower B is 49 storeys, and Tower C is 44 storeys.
- The Town of Oakville is in the process to widen and realign Cross Ave along the south property line of the subject development. A new local road, Street 'A' is proposed along the east property line. Street 'A' will be constructed to a temporary condition, until the adjacent lands develop.
- There is existing municipal water infrastructure adjacent to the site that can readily service the site. There are no capacity constraints. The proposed average daily water demand for the site is 56 L/min and an estimated fire demand of 7,000 L/min.
- There is existing municipal wastewater infrastructure adjacent to the site. The estimated average daily wastewater flow based on Region of Halton criteria for the entire site is 0.93 L/s.
- Stormwater quantity controls will be provided by controlling post development peak flows to the 5-year pre-development peak flow. Storage will be provided in a stormwater tank provided on Level 1 of the underground parking structure. Stormwater will be pumped to a maximum release rate of 291 L/s to the adjacent 750 mm diameter storm sewer on Argus Road. The required storage volume is 185 m³.
- The water balance criteria of 25 mm is equivalent to 255 m³. This water will also be stored in the underground stormwater tank and will be used for irrigation.
- Water quality criteria is met by means of a stormwater filtration system (Jellyfish unit), placed upstream of the stormwater tank.
- Grading of the site is designed to ensure runoff from the 100-year event is captured, and there is an emergency overland flow route.
- Erosion and sediment controls will be implemented during construction in accordance with the Erosion and Sediment Control Guidelines for Urban Construction as set out by the Greater Golden Horseshoe Conservation Authority.

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Proposed Mixed Use Development
217-227 Cross Ave & 571-587 Argus Rd

Our File: 1729

Based on the above, we support the proposed development from a civil engineering perspective for rezoning and Official Plan Amendment.

PREPARED BY TRAFALGAR ENGINEERING LTD.

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Project Manager



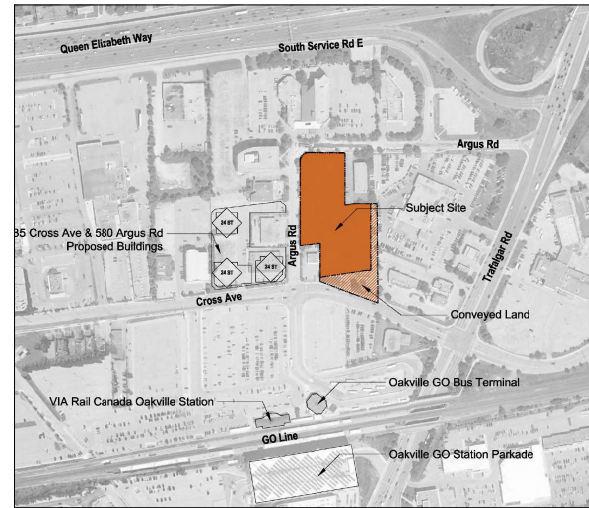
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APPENDIX 'A'



3 CONTEXT PLAN
A101.S



2 KEY PLAN
A101.S

217-227 Cross Ave and 571-587 Argus Rd Distrikt Developments											
Zoning		Height Limit:		Lot Size		Proposed Residential					
		12:317 sm		1:35805.168 sf							
Floor	Floor Area/Typ. Floor (sm)	No. Typ. Floors	Floor Area		Floor Area, Net (sm)*	Net Residential (sm)	Interior Amenity (sm)	Exterior Amenity (sm)	Net Rentable Retail (sm)	Net Office Space (sm)	No. of Units
			By-Law 2(C14-014)*	sm							
Building A	MPH	743	1	743	7,398	0	0	0	0	0	0
	Level 3-58	743	25	18,575	196,941	16,775	0	0	0	0	250
	Level 8-33	810	26	21,060	226,690	19,188	0	0	0	0	260
Building B	MPH	741	1	741	7,376	0	0	0	0	0	0
	Level 3-49	741	20	14,320	156,522	13,380	0	0	0	0	240
	Level 8-29	801	22	17,622	186,682	16,038	0	0	0	0	264
Building A & B	Level 1	825	1	825	8,380	753	0	783	1,457	0	0
	Level 3-6	2817	4	11,268	121,286	10,420	0	0	0	0	152
	Level 2	2817	1	2,617	30,322	2,605	510	116.58	0	0	30
Building A & B Total	Ground	3223	1	3,223	35,769	2,180	590	0	0	1,570	0
				82,904	996,786	82,057	73,485	2,001	1,574	1,570	0

Floor	Floor Area/Typ. Floor (sm)	No. Typ. Floors	Floor Area		Floor Area, Net (sm)*	Net Residential (sm)	Interior Amenity (sm)	Exterior Amenity (sm)	Net Rentable Retail (sm)	Net Office Space (sm)	No. of Units
			By-Law 2(C14-014)*	sm							
MPH	736	1	736	7,322	0	0	0	0	0	0	0
Level 26-44	736	19	13,984	151,524	12,835	0	0	0	0	0	228
Level 8-25	796	18	14,328	154,227	13,050	0	0	0	0	0	216
Level 1	1297	1	1,297	13,961	1,159	0	1,139	1,013	0	0	0
Level 3-6	2208	4	8,632	95,068	6,220	0	0	0	0	0	108
Level 2	2308	1	2,308	24,843	2,190	0	0	0	0	2,190	0
Ground	2629	1	2,629	28,299	1,492	187	0	0	1,248	79	0
Building C Total			44,114	474,845	38,748	34,072	1,139	1,813	1,248	2,299	552
											100%

Total Floor Area	136,718 sm	± 1,471,633 sf
Total Floor Area, Net	120,903 sm	± 1,300,233 sf
Total No. of Units		± 1,748

Proposed Height:	58 Storeys, ±179 m (excl. mech penthouses)
FSI:	9.6

		Parking (5.1:6.4)			
Resident			374		
Visitor			409		
TOTAL REQUIRED			783		
Visitor (P1)			190		
Visitor (P2)			220		
Resident (P3)			220		
Resident (P4)			220		
Resident (P5)			220		
Resident (P6)			216		
TOTAL PROVIDED			286		
			Total Visitor		410
			Total Resident		878

		Residential Amenity	
Interior Amenity			3160
Exterior Amenity			2587
TOTALS (sm)			5747

Bicycle Requirements (5.7.1): Maximum of 200 spaces required			
Long Term		Required	Provided
Short Term		1315	1315
TOTALS		437	437
		1752	1752

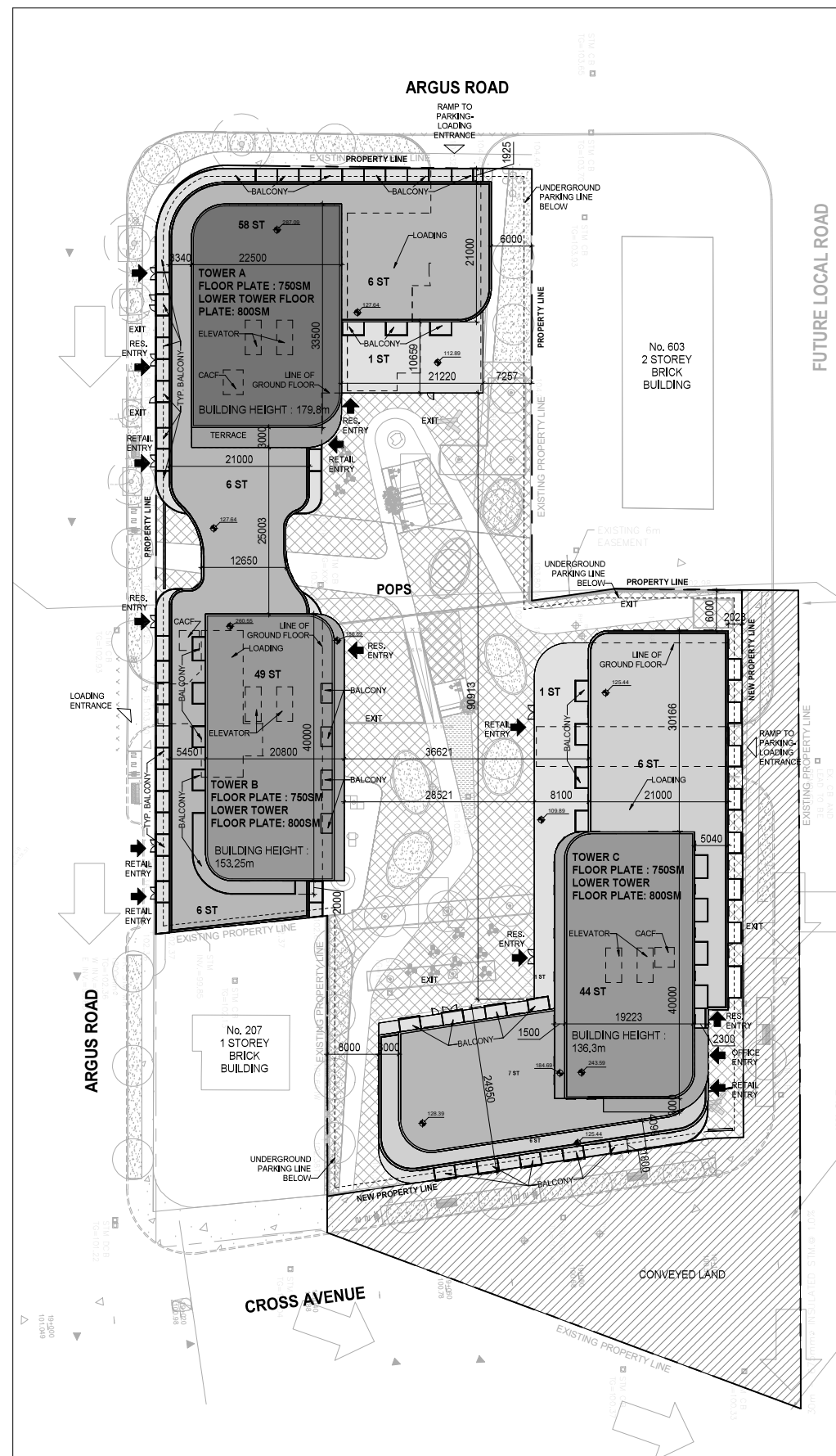
All calculations are preliminary

Total Lot Area		12,617	ST
± Usable Lot Area with Road Conveyances		10,357	ST
± FSI		9.57	

Approx. Unit Mix				
No. of Units	1B (675-600 sf)	2B (700-725 sf)	3B (975-990 sf)	
1,748	1,223	455	70	
100%	70%	26%	4%	

* Floor Area Definition By-Law 2014-014: Means the aggregate area of a building contained within the exterior walls, but does not include attic or basement space unless otherwise specified by this By-law.
 ** Floor Area, Net Definition By-Law 2015-018: Means the total area of all floors of a building measured from the interior faces of the exterior walls or demising walls, but does not include the area of stair walls, elevators, escalators, ventilating shafts, attics, concourses, washrooms, attached enclosed and covered loading docks and related enclosed corridors used for loading purposes, above and below grade parking structures, storage rooms, rooms for garbage containment, and mechanical rooms.

STATISTIC



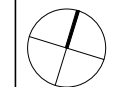
1 SITE PLAN
SCALE: 1:300
A101.S

SITE PLAN LEGEND	
[Symbol]	PROPERTY LINE
[Symbol]	LINE OF UNDERGROUND GARAGE BELOW
[Symbol]	MAIN BUILDING ENTRANCE
[Symbol]	RETAIL ENTRANCE
[Symbol]	EXIT
[Symbol]	VEHICLE/LOADING ENTRANCE/EXIT
[Symbol]	FIRE HYDRANT
[Symbol]	MANHOLE CONNECTION
[Symbol]	MANHOLE COVER
[Symbol]	AREA DRAIN
[Symbol]	CATCH BASIN
[Symbol]	FLOOR DRAIN (PARKING SLAB)
[Symbol]	FLOOR DRAIN (TERMINUS)
[Symbol]	EXISTING LIGHT
[Symbol]	TYPICAL PARKING SPACE
[Symbol]	TYPICAL BAL PARKING SPACE
[Symbol]	F.F.E. FINISH FLOOR ELEVATION
[Symbol]	EXISTING ELEVATION
[Symbol]	PROPOSED ELEVATION
[Symbol]	TOP OF ROOF
[Symbol]	BUILDING ENVELOPE
[Symbol]	FIRE ACCESS ROUTE HEAVY DUTY PARKING ASSEMBLY TO BE REMOVED TO MEET THE LOADS IMPOSED BY FIRE FIGHTING EQUIPMENT
[Symbol]	GREEN ROOF
[Symbol]	TERRACE PAVERS

REVISION RECORD

2022-04-19 Issued for Rezoning

ISSUE RECORD



BDP. Quadrangle

Quadrangle Architects Limited
300 King Street West, Suite 101 Toronto, ON M5V 3K5
T 416 598 1240 www.bdpquadrangle.com

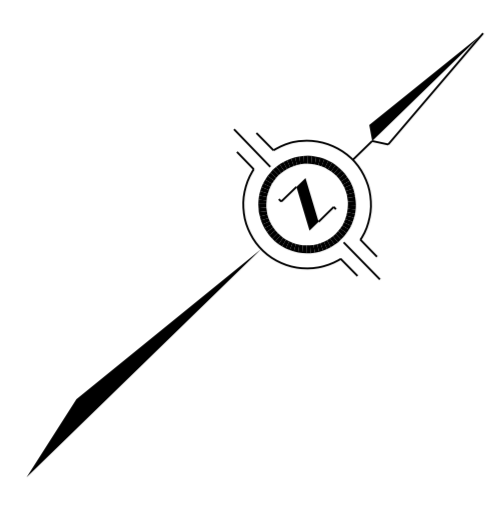
217-227 Cross Avenue and 571-587 Argus Road
2022-04-19 Issued for Rezoning
for
Distrikt Developments

19072 1:300 AR KVE
PROJECT SCALE DRAWN REVIEWED

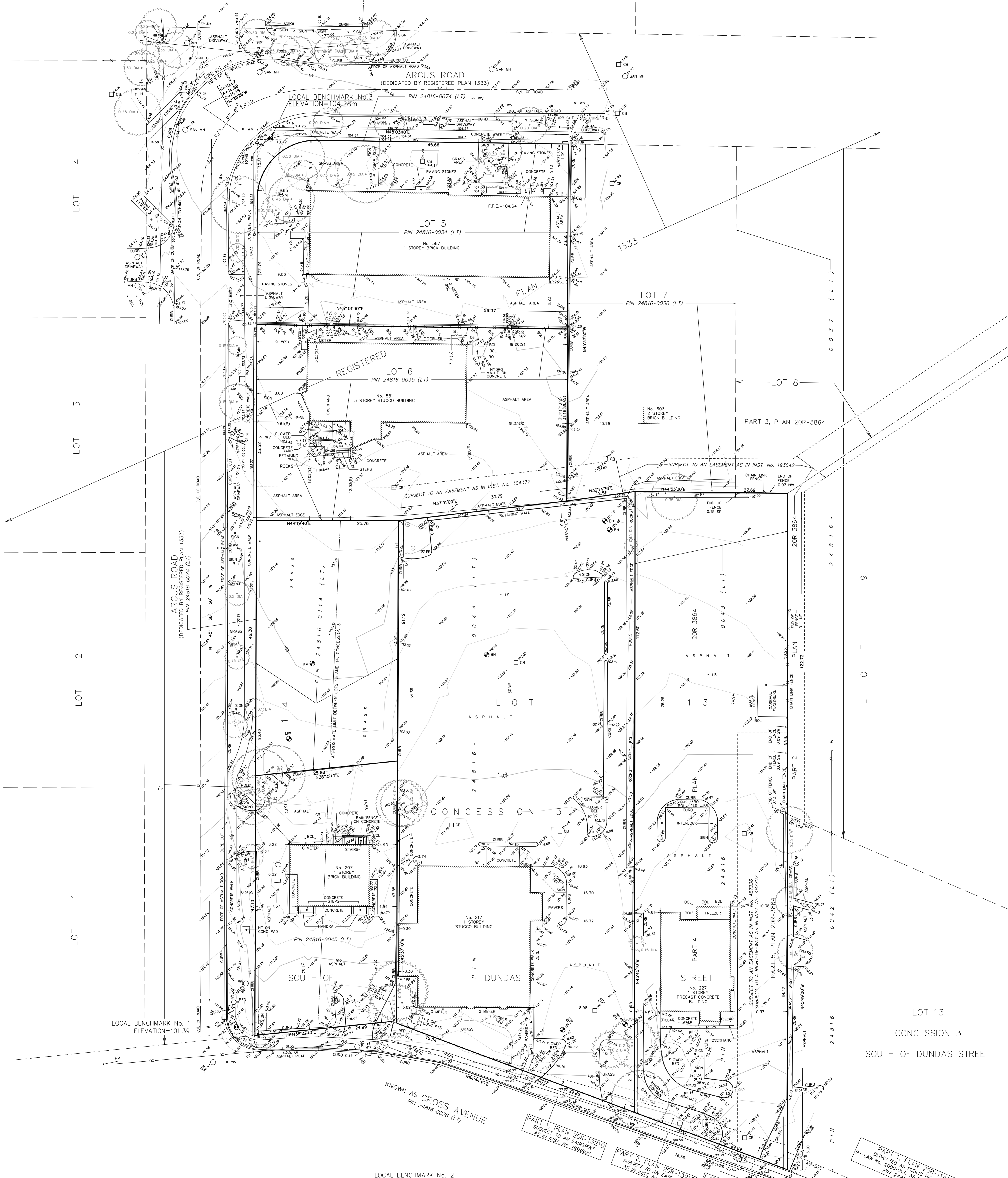
Site plan and Statistics

A101.S

Note: This drawing is the property of the Architect and may not be reproduced or used without the express written consent of the Architect. The Contractor is responsible for checking the existing conditions and dimensions and shall report all discrepancies to the Architect and obtain clarification prior to commencing work.



LOT 13
 CONCESSION 3, SOUTH OF DUNDAS STREET



LOCAL BENCHMARK No. 1
 ELEVATION=101.39

LOCAL BENCHMARK No. 2
 ELEVATION=100.98

PART 1, PLAN 20R-13210
 SUBJECT TO AN EASEMENT
 AS IN INST. NO. 487521

PART 2, PLAN 20R-13210
 SUBJECT TO AN EASEMENT
 AS IN INST. NO. 487522

PART 3, PLAN 20R-13210
 SUBJECT TO EASEMENTS AS IN
 INST. NO. 487518 AND INST. NO. 487519
 AS IN INST. NO. 487520

PART 1, PLAN 20R-11413
 DEDICATED AS PUBLIC HIGHWAY BY
 BY-LAW NO. 2000-013, AS IN INST. NO. 4850965
 PIN 24816-0078 (L.T.)

Functional Servicing Report
Proposed Mixed Use Development
217-227 Cross Ave & 571-587 Argus Rd

Our File: 1729

APPENDIX 'B'

TRAFALGAR ENGINEERING LTD.

ESTIMATED EXISTING SANITARY FLOW

Project: Cross and Argus
Desc: Rezoning/OPA

Project No.: 1729
Prepared By: NAS
Checked By: JN

Residential

Land Use / Occupancy Type	Site Area (ha)	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
			0		
TOTAL	0.00		0		0.0

Industrial / Commercial / Institutional

Land Use / Occupancy Type	Site Area (ha)	Population Density (pers/ha)	Eq. Population (cap.)	Unit Sewage Flow (L/Ha. Day)	Average Daily Dry Weather Flow (L/s)
Light Commerical	1.02	90.0	92	24750	0.3
TOTAL	1.02		92		0.2922

Residential Peaking Factor:	4.50
ICI Peaking Factor:	4.25
Include ICI Peaking?	Yes
Tributary Area:	1.02 (ha)
Infiltration Allowance:	0.286 (L/s ha)
Foundation Drain Allowance:	0.00 (L/s ha)

Infiltration Avg Flow:	0.29 (L/s)
ICI Average Flow:	0.29 (L/s)
Groundwater Discharge:	(L/s)
Total Average Flow:	0.58 (L/s)

Infiltration Flow:	0.30 (L/s)
ICI Peak Flow:	1.24 (L/s)
Groundwater Discharge:	(L/s)
Total Peak Flow:	1.54 (L/s)

TRAFALGAR ENGINEERING LTD.

ESTIMATED EXISTING WATER DEMAND

Project: Cross and Argus
Desc: Rezoning/OPA

Project No.: 1729
Prepared By: NAS
Checked By: JN

Land Use / Occupancy Type	Occupancy Data					Peaking Factors			Demand Flow		
	Unit Count / GFA	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Demand (L/min)	Min. Hour	Peak Hour	Max. Daily	Min. Hour Demand (L/min)	Max. Hour Demand (L/min)	Max. Daily Demand (L/min)
Light Commercial	1.02	90	92	275	18	1.00	2.25	2.25	18	39	39
TOTAL	1	92	92	275	18				18	39	39

Average Daily Demand: 18 (L/min)
Minimum Hourly Demand: 18 (L/min)
Maximum Hourly Demand: 39 (L/min)
Maximum Daily Demand: 39 (L/min)

TRAFALGAR ENGINEERING LTD.

ESTIMATED PROPOSED SANITARY FLOW

Project: Cross and Argus
Desc: Rezoning/OPA

Project No.: 1729
Prepared By: NAS
Checked By: JN

Residential

Land Use / Occupancy Type	Site Area (ha)	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
Apartments (Over 6 Stories)	1.02	285.0	291	275	0.93
TOTAL	1.02		291		0.93

Industrial / Commercial / Institutional

Land Use / Occupancy Type	Site Area (ha)	Population Density (pers/ha)	Eq. Population (cap.)	Unit Sewage Flow (L/Ha. Day)	Average Daily Dry Weather Flow (L/s)
TOTAL	0.00		0		0.00

Residential Peaking Factor: 4.08
 ICI Peaking Factor: 4.50
 Include ICI Peaking? **No**
 Tributary Area: **1.02** (ha)
 Infiltration Allowance: **0.286** (L/s ha)
 Foundation Drain Allowance: **0.00** (L/s ha)

Residential + Infiltration Avg Flow: 1.2 (L/s)
 ICI Average Flow: 0.0 (L/s)
 Groundwater Discharge: (L/s)
Total Average Flow: 1.2 (L/s)

Residential Peak Flow: 4.1 (L/s)
 ICI Peak Flow: 0.0 (L/s)
 Groundwater Discharge: (L/s)
Total Peak Flow: 4.10 (L/s)

TRAFALGAR ENGINEERING LTD.

ESTIMATED PROPOSED WATER DEMAND

Project: Cross and Argus
Desc: Rezoning/OPA

Project No.: 1729
Prepared By: NAS
Checked By: JN

Land Use / Occupancy Type	Occupancy Data					Peaking Factors			Demand Flow		
	Unit Count / GFA	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Demand (L/min)	Min. Hour	Peak Hour	Max. Daily	Min. Hour Demand (L/min)	Max. Hour Demand (L/min)	Max. Daily Demand (L/min)
Apartments	1.02	285	291	275	56	1.00	4.00	2.25	56	222	125
TOTAL	1		291		56				56	222	125

Fire Flow

Using Fire Underwriters Survey Methodology:

Average Daily Demand: 56 (L/min)
Minimum Hourly Demand: 56 (L/min)
Maximum Hourly Demand: 222 (L/min)
Maximum Daily Demand: 125 (L/min)
Max. Daily Plus Fire: 7125 (L/min)

1. An estimate of the fire flow is given by the formula $F = 220C\sqrt{A}$

Where:

F = The required fire flow in litres per minute

C = Coefficient related to the type of construction

A = The total floor area in square metres (including all storeys but excluding basements at least 50% below grade)

Type of Construction: **Fire-Resistive** Coefficient: 0.60 Total Floor Area: **3102** (m²)

F = **7000** (L/min)

Adequately Protected Vertical Openings: **Yes**

Area Note: For adequately protected vertical openings consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.

2. Adjust the value in No. 1 for occupancy surcharge/reduction

Occupancy Contents: **Combustible** Factor: 0%

F = **7000** (L/min)

3. Adjust the value in No. 2 for sprinkler

NFPA 13 Sprinkler:	Yes	Reduction:	20%
Standard Water Supply:	Yes	Reduction:	10%
Fully Supervised:	Yes	Reduction:	10%

Total Reduction: 40%
Sprinkler Reduction: 2800 (L/min)

4. Adjust the value in No. 2 for exposure

	Separation (m)	Charge
North	23	10%
East	22	10%
South	11	15%
West	26	10%

Total Charge: 45%
Exposure Charge: 3150 (L/min)

5. Estimated Fire Flow is value in No. 2 less *Sprinkler Reduction* plus *Exposure Charge*, rounded to the nearest 1000

F = **7000** (L/min)

Functional Servicing Report
Proposed Mixed Use Development
217-227 Cross Ave & 571-587 Argus Rd

Our File: 1729

APPENDIX 'C'

TRAFALGAR ENGINEERING LTD.

COMPOSITE RUNOFF COEFFICIENT

Project: Cross and Argus
Desc: First Submission OPA/RZA

Project No.: 1729
Prepared By: NAS
Checked By: NAS

Pre-Development Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
Existing building and parking	12600	0.90	11340	100%	12600
Existing landscaping	0	0.25	-	0%	-
Minus Argus Road Dedication	-691	0.90	-622	100%	-691
Minus Cross Road Dedication	-1701	0.90	-1531	100%	-1701
			-		-
Totals	10208		9187		10208

C = 'AC'/'A' = 0.90 %I = 'AI'/'A' = 100%

External Drainage Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
			-		-
			-		-
			-		-
			-		-
			-		-
Totals	-		-		-

C = 'AC'/'A' = - %I = 'AI'/'A' = -

Post-Development Controlled Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
Development Site	10208	0.90	9187	100%	10208
			-		-
			-		-
			-		-
			-		-
Totals	10208		9187		10208

C = 'AC'/'A' = 0.90 %I = 'AI'/'A' = 100%

Post-Development Uncontrolled Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
			-		-
			-		-
			-		-
			-		-
			-		-
Totals	-		-		-

C = 'AC'/'A' = - %I = 'AI'/'A' = -

TRAFALGAR ENGINEERING LTD.

MODIFIED RATIONAL METHOD STORAGE

Based on Town of Oakville IDF Data

Project: Cross and Argus
Desc: First Submission OPA/RZA

Project No.: 1729
Prepared By: NAS
Checked By: NAS

Pre-Development

Catchment Area (ha) 1.0208
 Runoff Coefficient 0.90
 TC (min) 10
 Control Level 5-Yr

Pre-Development Peak Intensity: 114.2 mm/hr
Pre-Development Peak Discharge: 0.291 (cms)

Post-Development Uncontrolled

Catchment Area (ha) 0.0000
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level 100-Yr

Uncontrolled Peak Discharge: 0 (cms)

External Drainage

Catchment Area (ha) 0
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level **100-Yr**

External Peak Discharge: 0 (cms)

Post-Development Controlled

Catchment Area (ha) 1.0208
 Runoff Coefficient 1.00 (1.25 Adj. Factor)
 Time of Concentration 10
 Control Level 100-Yr

Post-Development Peak Intensity: 200.8 mm/hr
Post-Development Peak Discharge: 0.569 (cms)

Allowable Release Rate: 0.291 (cms)

Storm Duration T_D (min)	Intensity $i = A \times T_D^{-C}$ (mm/hr)	Inflow Rate $Q_P = C_i A / 360$ (m ³ /s)	Average Roof Discharge (m ³ /s)	Max. Release Rate $Q_A = C_{i2YR} A$ (m ³ /s)	Inflow Volume $V_I = 60 Q_P T_D$ (m ³)	Outflow Volume $V_O = 30 Q_A (T_D + T_C)$ (m ³)	Storage $S = V_I - V_O$ (m ³)
10	200.80	0.569	0.000	0.291	341.6	174.9	166.7
15	158.27	0.449	0.000	0.291	403.9	218.6	185.3
20	131.37	0.372	0.000	0.291	447.0	262.3	184.7
25	112.72	0.320	0.000	0.291	479.4	306.0	173.4
30	98.99	0.281	0.000	0.291	505.2	349.8	155.5
35	88.43	0.251	0.000	0.291	526.5	393.5	133.1
40	80.03	0.227	0.000	0.291	544.6	437.2	107.4
45	73.19	0.208	0.000	0.291	560.3	480.9	79.4
50	67.49	0.191	0.000	0.291	574.1	524.7	49.5
55	62.68	0.178	0.000	0.291	586.5	568.4	18.1
60	58.55	0.166	0.000	0.291	597.7	612.1	0

TRAFALGAR ENGINEERING LTD.

MODIFIED RATIONAL METHOD STORAGE

Based on Town of Oakville IDF Data

Project: Cross and Argus
Desc: First Submission OPA/RZA

Project No.: 1729
Prepared By: NAS
Checked By: NAS

Pre-Development

Catchment Area (ha) 1.0208
 Runoff Coefficient 0.90
 TC (min) 10
 Control Level 5-Yr

Pre-Development Peak Intensity: 114.2 mm/hr
Pre-Development Peak Discharge: 0.291 (cms)

Post-Development Uncontrolled

Catchment Area (ha) 0.0000
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level 100-Yr

Uncontrolled Peak Discharge: 0 (cms)

External Drainage

Catchment Area (ha) 0
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level **100-Yr**

External Peak Discharge: 0 (cms)

Post-Development Controlled

Catchment Area (ha) 1.0208
 Runoff Coefficient 0.90 (1.00 Adj. Factor)
 Time of Concentration 10
 Control Level 10-Yr

Post-Development Peak Intensity: 134.8 mm/hr
Post-Development Peak Discharge: 0.344 (cms)
Allowable Release Rate: 0.291 (cms)

Storm Duration T_D (min)	Intensity $i = A \times T_D^{-C}$ (mm/hr)	Inflow Rate $Q_P = C_i A / 360$ (m ³ /s)	Average Roof Discharge (m ³ /s)	Max. Release Rate $Q_A = C_{i2YR} A$ (m ³ /s)	Inflow Volume $V_I = 60 Q_P T_D$ (m ³)	Outflow Volume $V_O = 30 Q_A (T_D + T_C)$ (m ³)	Storage $S = V_I - V_O$ (m ³)
10	134.79	0.344	0.000	0.291	206.4	174.9	31.5
15	106.76	0.272	0.000	0.291	245.2	218.6	26.6
20	88.94	0.227	0.000	0.291	272.4	262.3	10.0
25	76.53	0.195	0.000	0.291	293.0	306.0	0

TRAFALGAR ENGINEERING LTD.

MODIFIED RATIONAL METHOD STORAGE

Based on Town of Oakville IDF Data

Project: Cross and Argus
Desc: First Submission OPA/RZA

Project No.: 1729
Prepared By: NAS
Checked By: NAS

Pre-Development

Catchment Area (ha) 1.0208
 Runoff Coefficient 0.90
 TC (min) 10
 Control Level 5-Yr

Pre-Development Peak Intensity: 114.2 mm/hr
Pre-Development Peak Discharge: 0.291 (cms)

Post-Development Uncontrolled

Catchment Area (ha) 0.0000
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level 100-Yr

Uncontrolled Peak Discharge: 0 (cms)

External Drainage

Catchment Area (ha) 0
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level **100-Yr**

External Peak Discharge: 0 (cms)

Post-Development Controlled

Catchment Area (ha) 1.0208
 Runoff Coefficient 0.99 (1.10 Adj. Factor)
 Time of Concentration 10
 Control Level 25-Yr

Post-Development Peak Intensity: 162.2 mm/hr
Post-Development Peak Discharge: 0.455 (cms)

Allowable Release Rate: 0.291 (cms)

Storm Duration T_D (min)	Intensity $i = A \times T_D^{-C}$ (mm/hr)	Inflow Rate $Q_P = C_i A / 360$ (m ³ /s)	Average Roof Discharge (m ³ /s)	Max. Release Rate $Q_A = C_{i2YR} A$ (m ³ /s)	Inflow Volume $V_I = 60 Q_P T_D$ (m ³)	Outflow Volume $V_O = 30 Q_A (T_D + T_C)$ (m ³)	Storage $S = V_I - V_O$ (m ³)
10	162.17	0.455	0.000	0.291	273.1	174.9	98.3
15	128.00	0.359	0.000	0.291	323.4	218.6	104.8
20	106.39	0.299	0.000	0.291	358.4	262.3	96.1
25	91.40	0.257	0.000	0.291	384.9	306.0	78.8
30	80.36	0.226	0.000	0.291	406.0	349.8	56.3
35	71.85	0.202	0.000	0.291	423.6	393.5	30.1
40	65.09	0.183	0.000	0.291	438.5	437.2	1.3
45	59.58	0.167	0.000	0.291	451.6	480.9	0

TRAFALGAR ENGINEERING LTD.

MODIFIED RATIONAL METHOD STORAGE

Based on Town of Oakville IDF Data

Project: Cross and Argus
Desc: First Submission OPA/RZA

Project No.: 1729
Prepared By: NAS
Checked By: NAS

Pre-Development

Catchment Area (ha) 1.0208
 Runoff Coefficient 0.90
 TC (min) 10
 Control Level 5-Yr

Pre-Development Peak Intensity: 114.2 mm/hr
Pre-Development Peak Discharge: 0.291 (cms)

Post-Development Uncontrolled

Catchment Area (ha) 0.0000
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level 100-Yr

Uncontrolled Peak Discharge: 0 (cms)

External Drainage

Catchment Area (ha) 0
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level **100-Yr**

External Peak Discharge: 0 (cms)

Post-Development Controlled

Catchment Area (ha) 1.0208
 Runoff Coefficient 1.00 (1.20 Adj. Factor)
 Time of Concentration 10
 Control Level 50-Yr

Post-Development Peak Intensity: 182.1 mm/hr
Post-Development Peak Discharge: 0.516 (cms)

Allowable Release Rate: 0.291 (cms)

Storm Duration T_D (min)	Intensity $i = A \times T_D^{-C}$ (mm/hr)	Inflow Rate $Q_P = C_i A / 360$ (m ³ /s)	Average Roof Discharge (m ³ /s)	Max. Release Rate $Q_A = C_{i2YR} A$ (m ³ /s)	Inflow Volume $V_I = 60 Q_P T_D$ (m ³)	Outflow Volume $V_O = 30 Q_A (T_D + T_C)$ (m ³)	Storage $S = V_I - V_O$ (m ³)
10	182.06	0.516	0.000	0.291	309.7	174.9	134.9
15	143.68	0.407	0.000	0.291	366.7	218.6	148.1
20	119.36	0.338	0.000	0.291	406.1	262.3	143.8
25	102.47	0.291	0.000	0.291	435.9	306.0	129.8
30	90.02	0.255	0.000	0.291	459.5	349.8	109.7
35	80.44	0.228	0.000	0.291	479.0	393.5	85.5
40	72.82	0.206	0.000	0.291	495.6	437.2	58.4
45	66.61	0.189	0.000	0.291	509.9	480.9	29.0
50	61.43	0.174	0.000	0.291	522.6	524.7	0

TRAFALGAR ENGINEERING LTD.

WATER BALANCE AND WATER QUALITY

Project: Cross and Argus
Desc: First Submission OPA/RZA

Project No.: 1729
Prepared By: NAS
Checked By: NAS

Water Balance

Surface	'A' (m ²)	%Total A	IA (mm)	%Total x IA
Site	10208	100%	0.0	0.0

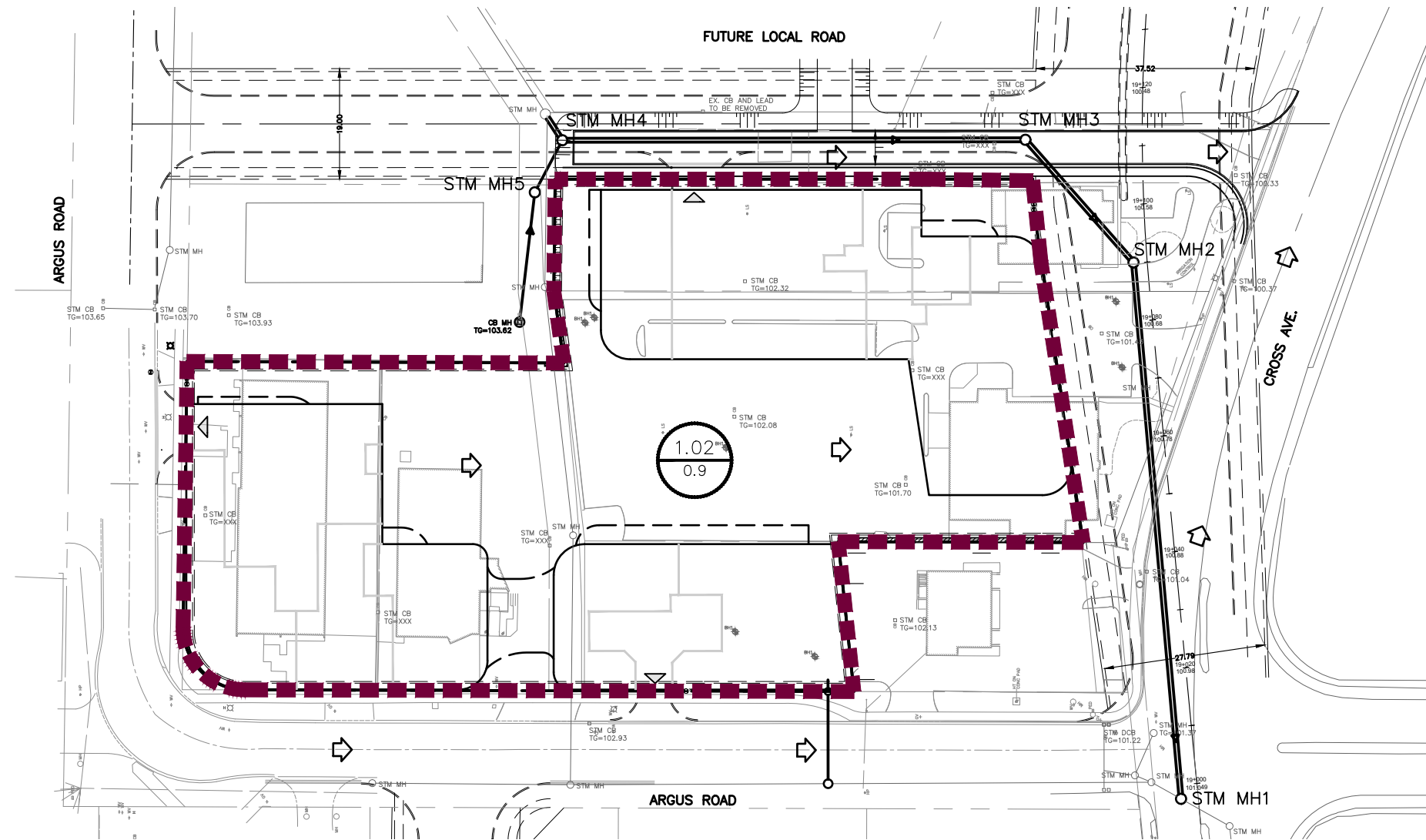
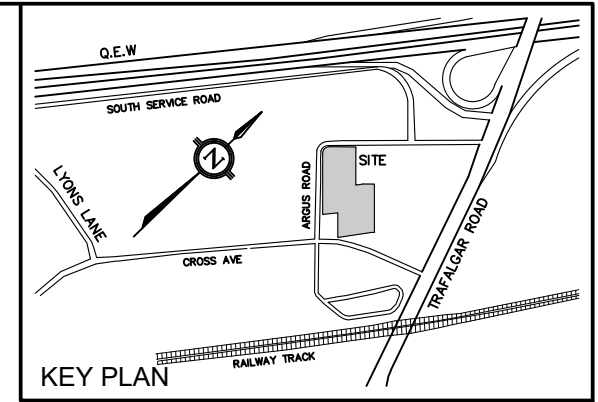
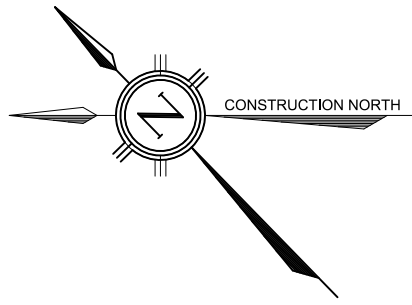
Totals	10208	Total Retention:	0.0 (mm)
		Target Retention:	25.0 (mm)
		Balance:	25.0 (mm)
		Volume Required:	255.2 (m³)

Total Suspended Solids


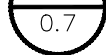


Surface	'A' (m ²)	Removal Rate, 'R'	A x R
Jellyfish	10208	80%	8166

Totals	10208	Effective Removal:	80%
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FIGURES



LEGEND

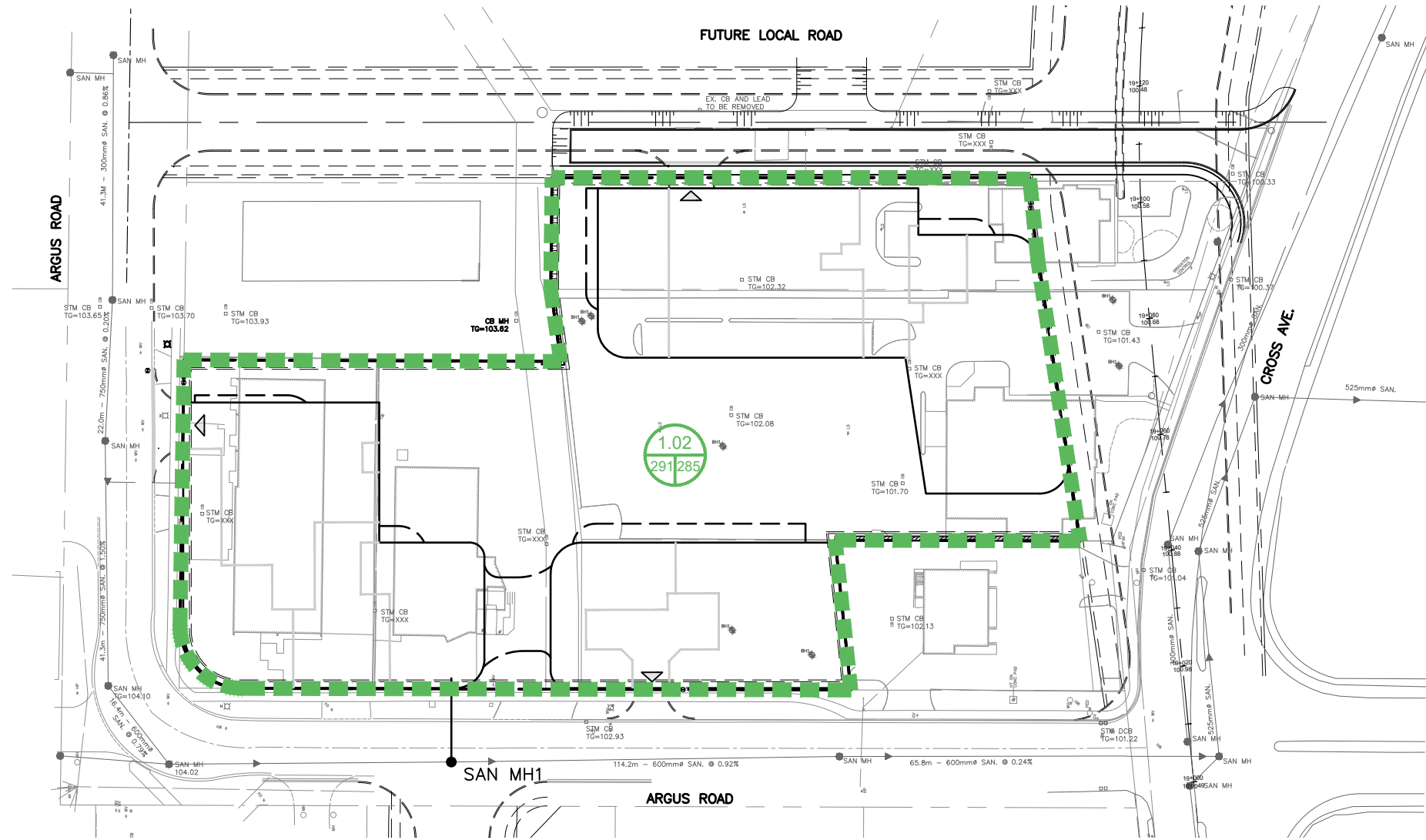
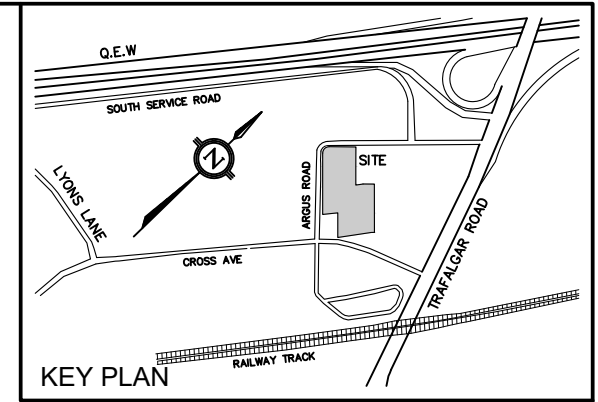
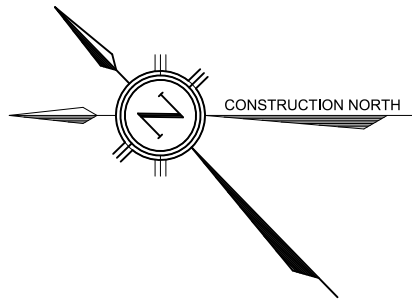
-  STORM AREA IN HECTARES
-  STORM RUN-OFF COEFFICIENT
-  MAJOR OVERLAND FLOW
-  STORM DRAINAGE AREA BOUNDARY

PROJECT TITLE	ARGUS CROSS PROPOSED RESIDENTIAL CONDOMINIUM DEVELOPMENT DISTRIKT DEVELOPMENTS		
DRAWING TITLE	POST DEVELOPMENT DRAINAGE PLAN		



DESIGN BY	NAS	SCALE	1:1000	DRAWING No.	FIG. 1
DRAWN BY	ZI	DATE	2022/05/06		
CAD FILE:	0	PLOT SCALE:	0	PLOT DATE: May 11, 2022	

FILENAME: P:\1729 Cross and Argus\Drawings\DWG\1729GS.dwg
 PLOTDATE: May 11, 2022 - 3:51pm



LEGEND

- SANITARY DRAINAGE AREA BOUNDARY
- SANITARY AREA IN HECTARES
EQUIVALENT POPULATION
- POPULATION DENSITY (PP/HA)

PROJECT TITLE	ARGUS CROSS PROPOSED RESIDENTIAL CONDOMINIUM DEVELOPMENT DISTRIKT DEVELOPMENTS		
DRAWING TITLE	SANITARY DRAINAGE PLAN		



DESIGN BY	NAS	SCALE	1:1000	DRAWING No.	FIG. 2
DRAWN BY	ZI	DATE	2022/05/06		
CAD FILE:	0	PLOT SCALE:	0	PLOT DATE: May 11, 2022	

Functional Servicing Report
Proposed Mixed Use Development
217-227 Cross Ave & 571-587 Argus Rd

Our File: 1729

DRAWINGS