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254 Argyle Avenue

Servicing and Stormwater Management Report

254 Argyle Avenue

City of Ottawa

Servicing and Stormwater Management Report

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

Issued: May 17, 2024
Revised: September 06, 2024
Revised: December 13, 2024

Novatech File: 123062
Ref: R-2024-031

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Engineers, Planners & Landscape Architects

December 13, 2024

City of Ottawa
Planning, Infrastructure and Economic Development Department
Planning and Infrastructure Approvals Branch
110 Laurier Avenue West, 4th Floor
Ottawa ON, K1P 1J1

Attention: **Eric Forhan, Planner, Development Review**

Reference: **254 Argyle Avenue**
Servicing and Stormwater Management Report
Our File No.: 123062

Please find enclosed the 'Servicing and Stormwater Management Report' for the above-noted development located in the City of Ottawa. This report is being submitted in support of the site plan application for the proposed development.

Should you have any questions or require additional information, please contact the undersigned.

Yours truly,

NOVATECH

Greg MacDonald, P. Eng.
Director, Land Development and Public Sector Infrastructure

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

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Appendices

Tables

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1.0 INTRODUCTION

Novatech has been retained to prepare a Servicing and Stormwater Management Report for the proposed site plan located at 254 Argyle Avenue within the City of Ottawa. The site is denoted as Lot 16 (South Argyle Avenue) on Registered Plan 30, a copy of the Legal Plan is included in **Appendix A** for reference. **Figure 1** Key Plan shows the site location.

1.1 Existing Conditions

The subject site is approximately 0.09 hectares (ha.) and presently contains the Holy Korean Martyrs Parish. The existing brick church has been noted as a site of historical significance by the City of Ottawa. Presently the site contains the existing building with an approximate footprint of 331m^2, a small gravel parking area along the Argle Avenue frontage, with the remainer of the site composed of grassed, asphalt, concrete and unit pavers. The site is primarily flat and drainage splits near the middle of the lot directing flows to the north and south property lines. **Figure 2** shows the existing site conditions.

1.2 Proposed Development

It is proposed to develop the site with a nine (9) storey apartment building with two (2) levels of underground parking. As the existing church on the property is of historical significance the existing building is to be incorporated into the ground level of the proposed structure as a wine bar, which will be open to the public. The proposed building will have a ground floor footprint of 556.9m^2, a total of 84 residential units, a gym, bike workshop, and a pet wash station. Vehicular and pedestrian access to the site will be provided from Argle Street. **Figure 3** shows the concept plan for the proposed development. Correspondence from the City pre-consultation meeting for the proposed development is also included in **Appendix B** for reference.

2.0 SITE CONDITIONS

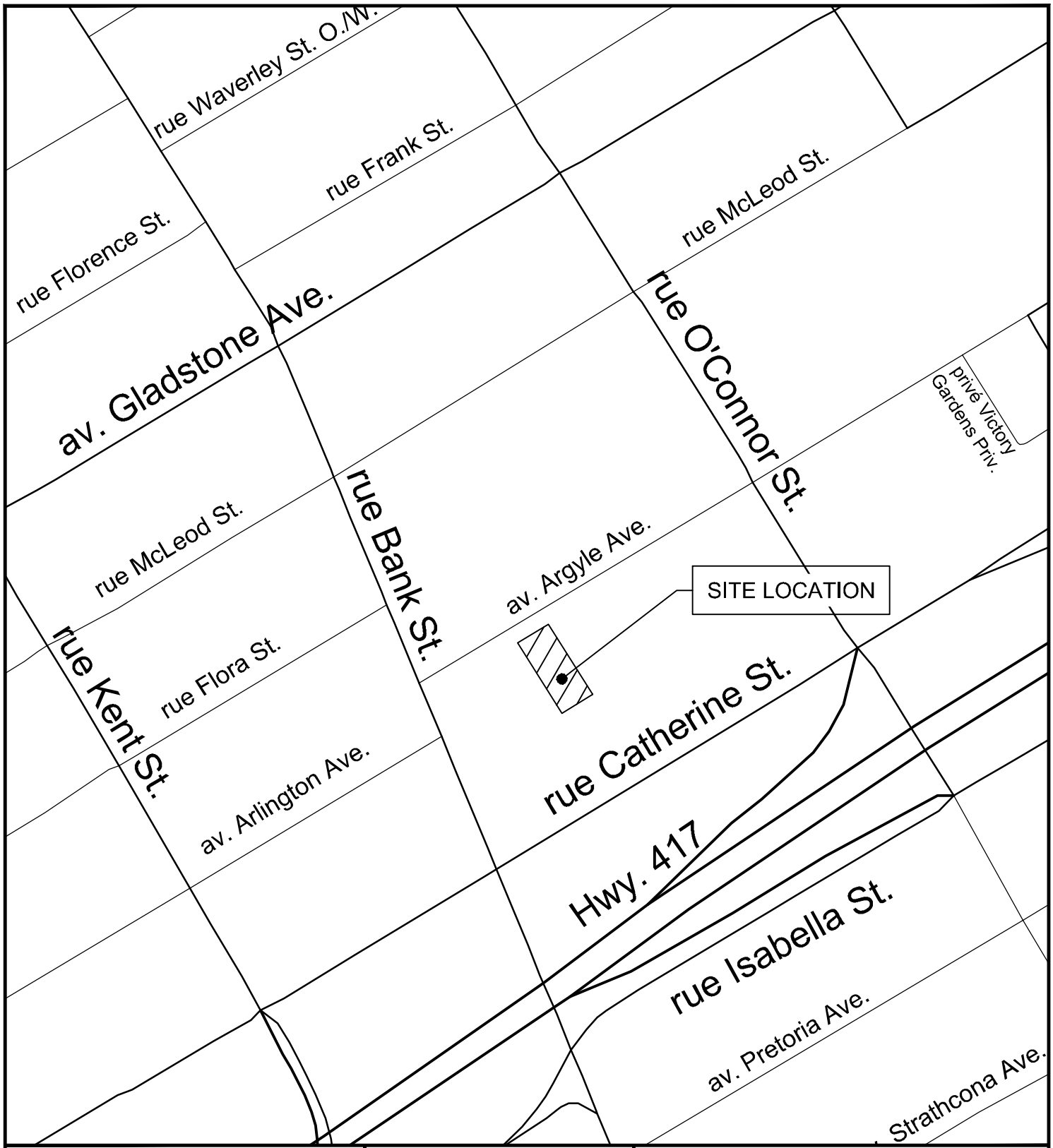
As noted above the existing building on the site is considered historically significant and as such the façade of the building shall be maintained. As a result, the existing building is proposed to be incorporated into the proposed structure.

A Phase 1 Environmental Site Assessment was competed for the subject site and a report prepared entitled ‘ Phase 1- Environmental Site Assessment, 254 Argyle Avenue, Ottawa, Ontario’ prepared by Paterson Group Inc. dated July 31,2024 (PE6429-1R). The Following is a summary of findings of the report:

- The Phase I Property first developed for institutional use with the exiting church building circa 1930, and has not changed since that time. No potentially contaminating activities were identified with respect to the historical use of the Phase I Property.

- No potentially contaminating activities were identified with respect to the current use of the Phase I Property.

- Paterson Group assessed the Hazardous Building Material assessment and identified asbestos containing drywall joint compound in the basement bathroom and lead based



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Facsimile (613) 254-5867
Website www.novatech-eng.com

CITY OF OTTAWA
254 ARGYLE AVENUE

KEY PLAN

SCALE: N.T.S

DATE: MAR 2024 | JOB: 123062 | FIGURE: FIGURE 1

M:\2023\123062\CAD\Civil\123062-KP.dwg, KP, Feb 28, 2024 - 1:13pm, rgood

SHT8X11.DWG - 216mmx279mm

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254 ARGYLE AVENUE

EXISTING CONDITIONS

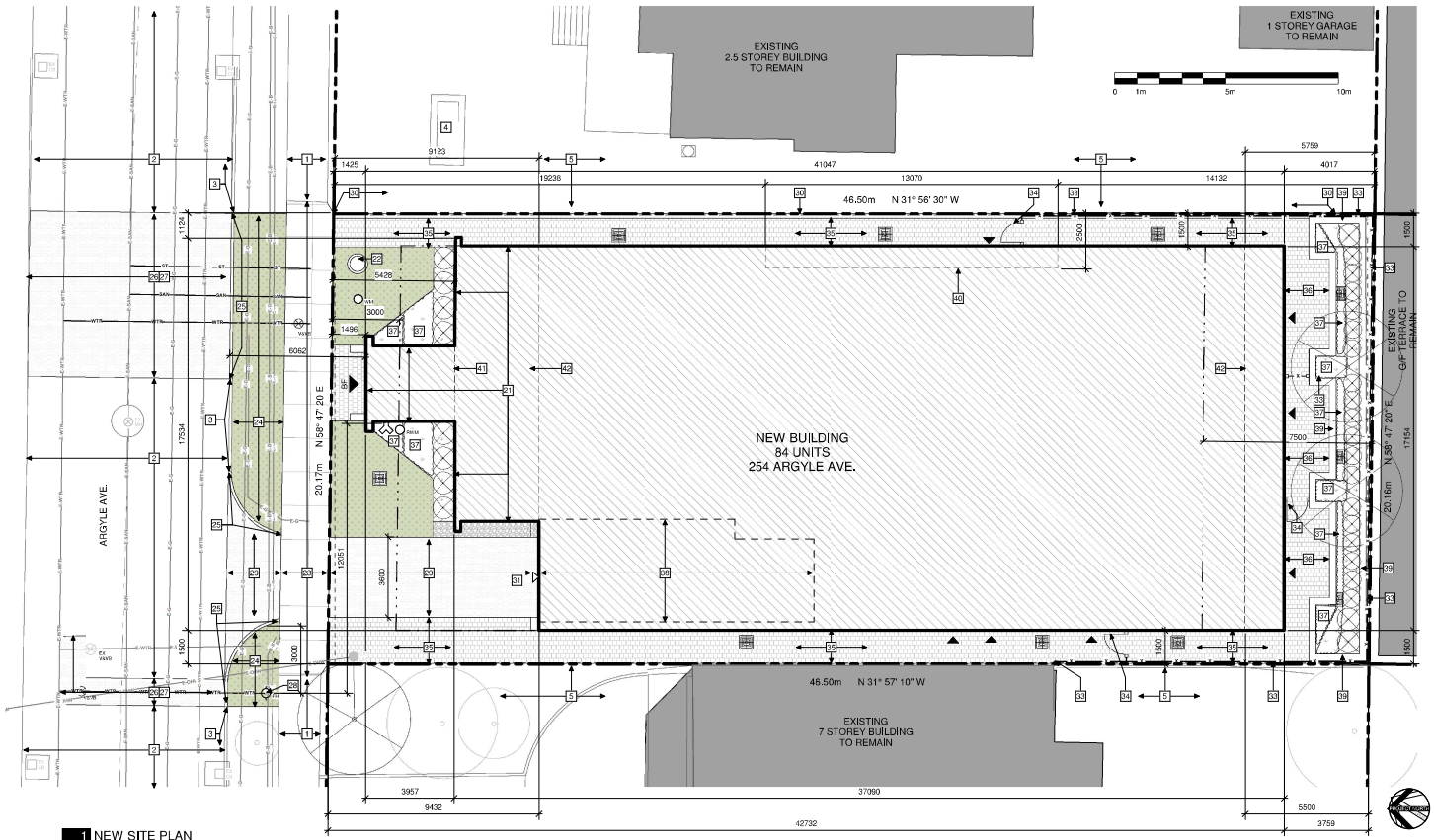
SCALE 1 : 400 (0, 4, 8, 12, 16)

DATE MAR 2024 | JOB 123062 | FIGURE FIGURE 2

FIGURE 3 - SITEPLAN

SITE PLAN KEYNOTES:

1. EXISTING SIDEWALK TO REMAIN
2. EXISTING ASPHALT PAVING TO REMAIN
3. EXISTING CURB TO REMAIN
4. EXISTING SIGN TO REMAIN
5. EXISTING LANDSCAPING TO REMAIN.
21. RELOCATE EXISTING CHURCH FACADE TO NEW LOCATION
22. VENTED CISTERN LID
23. NEW CONCRETE SIDEWALK PER CIVIL
24. REINSTATE TOP SOIL AND GRASS IN BETWEEN ROAD AND SIDEWALK AT AREAS EFFECTED BY CONSTRUCTION
25. NEW CURB PER CIVIL
26. REINSTATE EXISTING ROAD ASSEMBLY PER CIVIL AT AREAS EFFECTED BY DEMOLITION AND CONSTRUCTIONS. PROVIDE SMOOTH TRANSITION TO EXISTING PAVING.
27. BACKFILL TRENCHES AS REQUIRED PER CIVIL AND GEOTECHNICAL.
28. RELOCATE EXISTING FIRE HYDRANT PER CIVIL.
29. NEW DRIVEWAY PER CIVIL
30. NEW CURB WALL PER CIVIL
31. OVERHEAD DOOR TO UNDERGROUND PARKING
32. WOOD PRIVACY FENCE PER LANDSCAPING
33. TERMINATE WOOD PRIVACY FENCE FLUSH TO THE RETAINING WALL PER LANDSCAPING
34. PEDESTRIAN GATE
35. WALKWAY PER LANDSCAPING
36. PATIO PER LANDSCAPING
37. PLANTS PER LANDSCAPING
38. VAULT
39. RAISED PLANTER WALL PER LANDSCAPING
40. STEPBACK AT LEVELS 2 TO ROOF
41. SETBACK AT LEVEL 1B
42. SETBACK AT LEVELS 1C TO ROOF



1 NEW SITE PLAN
A100 1 : 100

LEGAL DESCRIPTION
LOT 16 (SOUTH ARGYLE AVENUE)
REGISTERED PLAN 30
CITY OF OTTAWA

REFERENCE SURVEY
DRAFT OF TOPOGRAPHIC PLAN OF SURVEY OF
LOT 16 (SOUTH ARGYLE AVENUE)
REGISTERED PLAN 30
CITY OF OTTAWA
PREPARED BY SURVEYED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.

MUNICIPAL ADDRESS
254 ARGYLE AVE, OTTAWA, ON

SITE AREA	937.6m²
BUILDING AREA	633.56m²
GROSS FLOOR AREA	3,810.12m²
BUILDING HEIGHT	35m 9 STOREYS
ZONE:	R5B H(19)
SCHEDULE 1:	AREA B
SCHEDULE 1A:	AREA X

ZONING PROVISION	REQUIRED	PROVIDED
MIN. LOT WIDTH	22.5m	20.17m
MIN. LOT AREA	675m²	937.05m²
MIN. FRONT YARD SETBACK	3m	1.42m
MIN. REAR YARD SETBACK	7.5m	3.759m
MIN. INTERIOR YARD SETBACK	1.5m (6m past 21m)	1.5m
MAX. HEIGHT	19m	34.5m
AMENITY AREA	504m² (6m²/unit)	582.5m²
LANDSCAPED AREA	281.12m²	270.94m²

PARKING QUEUING + LOADING	REQUIRED	PROVIDED
RESIDENTIAL SPACES	42	27
VISITOR SPACES	8	8
ACCESSIBLE PARKING	0	1
BICYCLE PARKING	42 (.5/UNIT)	84

UNIT TYPES	PROVIDED
STUDIO	41
1 BEDROOM	32
2 BEDROOM	9
3 BEDROOM	2
TOTAL	84

GFA BREAKDOWN	PROVIDED
RESIDENTIAL	3718.81m²
WINE BAR	91.31m²
TOTAL	3810.12m²

SITE PLAN GENERAL NOTES:

1. ALL GENERAL SITE INFORMATION AND CONDITIONS COMPILED FROM EXISTING PLANS AND SURVEYS
2. DO NOT SCALE THIS DRAWING
3. REPORT ANY DISCREPANCIES PRIOR TO COMMENCING WORK. NO RESPONSIBILITY IS BORN BY THE CONSULTANT FOR UNKNOWN SUBSURFACE CONDITIONS
4. CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY ERRORS AND/OR OMISSIONS TO THE CONSULTANT
5. REINSTATE ALL AREAS AND ITEMS DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES TO THE SATISFACTION OF THE CONSULTANT
6. CONTRACTOR TO LAYOUT PLANTING BEDS, PATHWAYS ETC. TO APPROVAL OF CONSULTANT PRIOR TO ANY JOB EXCAVATION
7. THE ACCURACY OF THE POSITION OF UTILITIES IS NOT GUARANTEED - CONTRACTOR TO VERIFY PRIOR TO EXCAVATION
8. INDIVIDUAL UTILITY COMPANY MUST BE CONTACTED FOR CONFIRMATION OF UTILITY EXISTENCE AND LOCATION PRIOR TO DIGGING
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE NOTED

SITE PLAN LEGEND:

- EXISTING BUILDING & SITE ELEMENTS
- NEW BUILDING
- NEW ASPHALT PAVING
- NEW GRASS
- NEW PLANTING BEDS / PLANTS PER LANDSCAPING
- NEW CONCRETE SIDEWALK
- NEW CONCRETE PAD
- NEW RIVER STONE PER LANDSCAPING
- NEW PAVER PER LANDSCAPING
- PROPERTY LINE
- SET BACK LINE
- EXTENT OF PARKING BELOW GRADE
- NEW FENCE PER LANDSCAPE
- EXISTING WATER MAIN TO REMAIN
- NEW WATER MAIN PER CIVIL
- EXISTING SANITARY SEWAGE TO REMAIN
- NEW SANITARY SEWAGE PER CIVIL
- EXISTING STORM SEWAGE TO REMAIN
- NEW STORM SEWAGE PER CIVIL
- EXISTING ELECTRICAL OVERHEAD SERVICE TO REMAIN
- NEW ELECTRICAL OVERHEAD SERVICE PER ELECTRICAL
- EXISTING GAS LINE TO REMAIN
- NEW GAS LINE PER CIVIL
- EXISTING BELL LINE TO REMAIN
- EXISTING ROGER LINE TO REMAIN
- ENTRANCE/ BARRIER-FREE ENTRANCE
- MAIN ENTRANCE
- VEHICLE ACCESS
- NEW AREA DRAIN PER CIVIL
- CATCH BASIN: EXISTING TO REMAIN / NEW PER CIVIL
- MAINTENANCE HOLE: EXISTING TO REMAIN / NEW PER CIVIL
- UTILITY POLE: EXISTING TO REMAIN / NEW PER CIVIL
- VALVE AND VALVE BOX : EXISTING TO REMAIN / NEW PER CIVIL
- LIGHT STANDARD
- NEW FIRE HYDRANT PER CIVIL
- NEW WATER METER PER CIVIL
- NEW REMOTE WATER METER PER CIVIL
- NEW SIAMESE CONNECTION
- NEW DROPPED CURB
- NEW TREE PER LANDSCAPING
- EXISTING TREE TO REMAIN
- SHRUB: EXISTING TO REMAIN / NEW PER LANDSCAPING

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ONTARIO ASSOCIATION OF ARCHITECTS
DARRYL E. HOOD
LICENCE
6165

STAMP

REV	DATE	ISSUE
3	2024-10.25	REISSUED FOR SPC AND REZONING
2	2024.06.25	ISSUED FOR SPC AND REZONING
1	2024.05.08	ISSUED FOR PHASE 2 PRECONSULT.

NOTES
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4. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY DIMENSIONS ON SITE.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND ALL SUPPLEMENTS AND APPLICABLE MUNICIPAL REGULATIONS.

CLIENT
AZURE URBAN DEVELOPMENTS

OTTAWA
ONTARIO, CANADA

PROJECT
254 ARGYLE

254 Argyle Avenue, Ottawa, Ontario

TITLE
SITE PLAN

PROJECT NO:	2023-0250
DRAWN:	EF / IK
APPROVED:	DH
SCALE:	As indicated
DATE PRINTED:	10/25/2024 11:51:53 AM

REV	DRAWING NO.
3	A100

paints on the surfaces throughout the building. If these materials need to be removed or disturbed, the applicable Regulation and Safety Acts must be adhered to.

- A search of the MECPs website for all drilled well records within a 250 m radius of the Phase I Property According to the well records, the overburden stratigraphy in the general area of the Phase I Property generally consists entirely of brown silty sand over top of grey clay. The water table was encountered within the overburden at depths ranging between approximately 3 m to 5 m below ground surface. Bedrock was not reported to be encountered according to the well records.

A Geotechnical investigation was competed for the subject site and a report prepared entitled ' Geotechnical Investigation, Proposed High-Rise development, 254 Argyle Avenue, Ottawa, Ontario' prepared by Paterson Group Inc. dated April 15,2024, Revision 1 (PG7026-1). The Following is a summary of findings of the report:

- Based on these observations, the long-term groundwater table can be expected to be at a depth of approximately 2 to 3 m throughout the subject site. It should be noted that groundwater levels are subject to seasonal fluctuations. Therefore, the groundwater levels could vary at the time of construction.

- Based on available geological mapping, the site is located in an area where the bedrock consists of shale of the Billings formation with a drift thickness of 15 to 25 m.

- A temporary Ministry of the Environment, Conservation and Parks (MECP) permit to take water (PTTW) may be required for this project if more than 400,000 L/day of ground and/or surface water is to be pumped during the construction phase. A minimum 4 to 5 months should be allowed for completion of the PTTW application package and issuance of the permit by the MECP.

- For typical ground or surface water volumes being pumped during the construction phase, typically between 50,000 to 400,000 L/day, it is required to register on the Environmental Activity and Sector Registry (EASR). A minimum of two to four weeks should be allotted for completion of the EASR registration and the Water Taking and Discharge Plan to be prepared by a Qualified Person as stipulated under O.Reg. 63/16.

3.0 WATER SERVICING

There is an existing 200mm diameter (dia.) PVC watermain, and an abandoned 125mm watermain within Argyle Avenue fronting the development site. It is proposed to service the subject development by connecting to the existing 200mm watermain.

3.1 Watermain Design Parameters

Water Demands have been calculated using criteria for Section 4 of the City of Ottawa Water Distribution Guidelines, and ISTB-2021-03 as follows:

Table 3.1: Watermain Design Parameters and Criteria

Domestic Demand Design Parameters	**Design Parameters**
Unit Population: 1-Bed Apartments 2-bed Apartments 3 Bed Apartments	1.4 people/unit 2.1 people/unit 3.1 people/unit
Basic Day Residential Demand (BSDY)	280 L/c/d
Maximum Day Demand (MXDY)	Residential: 2.5 x Basic Day (> 500 Persons) MOE Table 3-3 (<500 Persons)
Peak Hour Demand (PKHR)	Residential: 2.2 x Max Day (> 500 Persons) MOE Table 3-3 (<500 Persons)
Commercial Demand Design	**Design Parameters**
OBC Table 3.1.17.1 – Occupancy Loading for Alcohol Serving Establishments City of Ottawa Sewer Design Guidelines , 2012	1.0 person/1.1m^2 125 L/person/day
Fire Demand (FF) Design	**Design Flows**
Apartment Building Hydrant spacing	per FUS 2020 Within 45m of the building Siamese
System Pressure Criteria Design Parameters	**Criteria**
Maximum Pressure (BSDY) Condition	< 80 psi occupied areas
Minimum Pressure (PKHR) Condition	> 40 psi
Minimum Pressure (MXDY+FF) Condition	> 20 psi

3.2 Fire Demand

The required fire demand was calculated using the Fire Underwriters Survey 2020 (FUS) Guidelines and City of Ottawa ITSB-2014-02. Through correspondence with the Architect, it is understood that the proposed building is residential occupancy (Limited Combustible) and is composed of non-combustible construction, complete with 1-hour protected openings. The building will have an adequately designed fire system as per NFPA 13, complete with a standard water supply, a fully supervised system and 100% sprinkler coverage. Correspondence with the Architect is included in **Appendix C** for reference.

3.3 Water Demand

The water demand and fire flow calculations are provided in **Appendix C** for reference. A summary of the water demand and required fire flow is provided in **Table 3.2**.

Table 3.2: Domestic Water Demand Summary

Population	Commercial Area (m^2)	Basic Day Demand (m^3/day)	Ave. Daily Demand (L/s)	Max. Daily Demand (L/s)	Peak Hour Demand (L/s)	Fire Flow (L/s)
128	82.27	36.8	0.52	2.55	3.89	83

As per **ITSB 2018-02** the proposed development demand is below **50m^3/day**, and thus can be serviced with a single water main feed. Therefore, it is proposed to service the proposed development with a single 150mm diameter water service connected to the existing 200mm PVC watermain within the Argyle Avenue right-of-way.

Additionally, the required site fire flow will be provided by the existing City owned fire hydrants within the Argle Avenue right-of-way. All existing hydrants within the vicinity of the development are blue top Hydrants indicating a rating of Class AA. As per **ITSB 2018-02** the fire flow allowance from the existing hydrants was assumed to be as outlined in **Table 3.3**.

Table 3.3: Maximum Flow to be considered from a given hydrant.

Hydrant Class	Distance to building (m)	Contribution to Fire Flow	
		(L/min)	(L/s)
AA	≤75	5700	95
	>75and ≥150	3800	63.33
A	≤75	3800	63.33
	>75and ≥150	2850	47.50
B	≤75	1900	31.67
	>75and ≥150	1500	25.00
C	≤75	800	13.33
	>75and ≥150	800	13.33

As the required fire demand is **83L/s** the site fire flows can be provided by a single Class AA hydrant. There is an existing hydrant located at the northwest corner of the property within **75m** of the building that can be utilized for the fire flow. Additionally, the noted hydrant will also be within **45m** of the proposed Siamese connection. Refer to **Appendix C** for the Hydrant Coverage figure which depicts the existing hydrants and distances to the proposed building.

The water demand information was submitted to the City of Ottawa for boundary conditions from the City's water model based on a previous site plan iteration (unit count of 77). The unit increase will have a negligible impact on the available pressures from the city main. The provided City Boundary conditions are as follows:

Minimum HGL: 106.4 m
Maximum HGL: 115.3 m
Max Day + Fire Flow (83 L/s): 108.1 m

These boundary conditions were used for analyzing the performance of the proposed and existing watermain systems for three theoretical conditions:

1) High Pressure check under Average Day conditions
2) Peak Hour Demand
3) Maximum Day + Fire Flow Demand

Refer to **Table 3.4** for a summary of the proposed boundary conditions and hydraulic analysis.

Table 3.4: Water Boundary Conditions and Hydraulic Analysis Summary

Criteria	Demand (l/s)	Head (m)	Pressure* (psi)	Pressure Requirements (psi)
Connection (200mm dia. Argyle Avenue)				
Max HGL (Avg Day)	0.52	115.3	65.3	<80psi
Min HGL (Peak hour)	3.89	106.4	52.6	>40psi
Max Day + Fire Flow	85.55	108.1	55.0	>20psi

*Pressure based on Finished Floor Elevation of 69.40m

Based on the above system pressures the existing City infrastructure has capacity to service the proposed development. Booster pumps will be utilized by the internal mechanical system to ensure adequate pressures to the upper floors. Refer to **Appendix C** for detailed water demand calculations, and excerpts from the Water Master Plan.

4.0 SANITARY SERVICING

There is an existing 525mm diameter concrete 100D combined sewer built in the year 2000 running along the frontage of the site within the Argyle Avenue right-of-way. There are no other sewers within the vicinity that would facilitate a connection. As such it is proposed to service the development with a 200mm sanitary connection to the existing combined sewer.

Sanitary flows for the proposed development were calculated using criteria from Section 4 of the City of Ottawa Sewer Design Guidelines, ITSB-2018-01, and the Ontario Building Code as follows:

Table 4.1: Sanitary Sewer Design Parameters

Design Component	Design Parameter
Unit Population: 1-Bed Apartments 2-bed Apartments 3-bed Apartments	 1.4 people/unit 2.1 people/unit 3.1 people/unit
Residential Flow Rate	Design = 280 L/cap/day Annual / Rare = 200 L/cap/day
Residential Peaking Factor	Harmon Equation (min=2.0, max=4.0) Harmon Correction Factor = 0.8m (Design)
Commercial Flow Rate	1.0 person/1.1m^2 (OBC Table 3.1.17.1) 125 L/cap/day
Commercial Peaking Factor	Commercial Contribution < 20% Flow = 1.0
Extraneous Flow Rate	Design = 0.33 L/s/ha
Minimum Pipe Size	200mm (Res)
Minimum Velocity[1]	0.6 m/s
Maximum Velocity	3.0 m/s
Minimum Pipe Cover	2.0 m (Unless frost protection provided)

[1]A minimum gradient of 0.65% is required for any initial sewer run with less than 10 residential connections.

The peak sanitary flow including infiltration for the development was calculated to be **1.61 L/s.** Through correspondence with the City, it is understood that there is capacity for the proposed development, refer to **Appendix B** for details. Detailed sanitary flow calculations are provided in **Appendix D** for reference.

5.0 STORM SERVICING

There is an existing 525mm diameter concrete 100D combined sewer built in the year 2000 running along the frontage of the site within the Argyle Avenue right-of-way. There are no other sewers within the vicinity that would facilitate a connection. As such it is proposed to service the development with a 250mm storm connection to the existing combined sewer.

The design criteria used in sizing the storm sewers are summarized below in **Table 5.1.**

Table 5.1: Storm Sewer Design Parameters

Parameter	Design Criteria
Local Roads	2 Year Return Period
Storm Sewer Design	Rational Method
IDF Rainfall Data	Ottawa Sewer Design Guidelines
Initial Time of Concentration (Tc)	10 min
Minimum Velocity	0.8 m/s
Maximum Velocity	3.0 m/s
Minimum Diameter	250 mm

Refer to **Appendix E** for detailed storm drainage area plans and storm sewer design sheets.

6.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

The stormwater management strategy for the site is based on the established criteria from the City of Ottawa.

6.1 Design Criteria

Through correspondence with the City of Ottawa, and our knowledge of development requirements in the area, the following criteria have been adopted to control post-development stormwater discharge from the site:

- Control proposed development flows, up to and including the 100-year storm event, to a 2-year pre-development level. The pre-development run-off coefficient shall be as per existing but no more that 0.4. The time of concentration shall be calculated but shall not be less that 10.0min.
- Provide source controls which are in conformity with the City of Ottawa requirements, where possible.
- Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.
- Limit ponding to 0.15 m for all rooftop storage areas and 0.30 m for all parking storage areas;
- Ensure no surface ponding during the 2-year Storm event; and
- Provide guidelines to ensure that site preparation and construction is in accordance with the current Best Management Practices for Erosion and Sediment Control.

The approach to the stormwater management design is to determine the allowable release rate for the site, calculate the uncontrolled flow, and ensure that the remaining flow, in combination with the uncontrolled flow, does not exceed the allowable release rate. All proposed

development runoff in excess of the allowable release rate, will be attenuated on-site prior to being released into the combined sewers within Argyle Avenue.

6.2 Foundation Flows

Flows from the proposed buildings foundation drainage system will be pumped to the proposed storm service from the buildings sump pit. The foundation drain connection will be made downstream of any proposed stormwater controls. The exact details of the foundation drain connection will be provided by the mechanical consultant.

6.3 Quantity Control

The predevelopment site coefficient was determined to be **0.68,** as the site was primarily covered by the building and existing walkways. The existing time of concentration was calculated to be under 10min. As such a coefficient of 0.4, and a time of concentration of 10.0min was utilized to determine the allowable release rate for the site. Refer to **Appendix E** for the pre-development stormwater management plan.

Utilizing the above the allowable release rate for the **0.094 ha** site was calculated to be **8.0 L/s**. Through correspondence with the City, it is understood that there is capacity for the proposed development, refer to **Appendix B** for details.

Design Storms

The design storms are based on City of Ottawa design storms. Design storms were used for the 2, 5, 100-year (i.e. storm events).

Calculation Parameters

Post-development catchments were analysed utilizing the rational method based on the proposed site plan and grading as shown on **Drawing 123062-SWM2** within **Appendix E**. The building roofs were assumed to have no depression storage.

The site has been divided into two (2) drainage areas for the post development condition. The drainage areas are as follows:

Area A-01

- Flows from the proposed garage access, and outdoor amenity areas will be conveyed to the cistern within the proposed parking structure. These flows will be captured by area drains, and the vented cistern lid which will be conveyed to the proposed cistern by the internal mechanical system.

Area R-01:

- Stormwater from the building roof will be captured by free-flowing roof drains and conveyed to the proposed cistern by the internal mechanical system.

Cistern Design

Flows from the cistern to the existing sewer in Argyle Avenue will be controlled by pump which will convey flows to the proposed storm service which will drain by gravity to the existing combined sewer system. The storm service will be equipped with a backflow prevention device to protect the building from any potential sewer back-ups. Storage will be provided for storms up to and including the 100-year event within the cistern. A 150mm internal overflow is provided at the 100-yr water elevation, and a vented lid is proposed on the tank for maintenance access and emergencies which will convey flows directly to the Argyle Avenue right-of-way. The proposed pump and back-up power system will be designed by the mechanical consultant. The pump will be designed to convey flows at a constant rate of **8.0L/s.**

Table **6.1 on the following page** summarizes the flow, storage required, and storage provided for each of the site drainage areas.

Table 6.1: Stormwater Management Summary

	Area (ha)	1:5 Year Weighted Cw	1:100 Year Weighted Cw	Control Device	Outlet Location	2 Year Storm Event			5 Year Storm Event			100 Year Storm Event			
						Release (L/s)	Ponding Depth (m)	Req'd Vol (cu.m)	Release (L/s)	Ponding Depth (m)	Req'd Vol (cu.m)	Release (L/s)	Ponding Depth (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)
	0.094	0.90	1.00	Pump	Argyle Avenue	8.0	0.45	6.0	8.0	0.79	10.43	8.0	2.17	28.68	35.72
Post-Development Flow						8.0	-	6.0	8.0	-	10.43	8.0	-	28.68	35.72
Total Allowable Release Rate						8.0			8.0			8.0			

Refer to **Appendix D** for Rational Method calculations and Drawing **123062 SWM2**-Stormwater Management Plan.

6.4 Major Overland Flow Route

A major overland flow route will be provided for storms greater than the 100-year storm event. Stormwater will be directed to the Argyle Avenue right-of-way. The major overland system is shown on the Grading Plan (drawing 123062-GR).

6.5 Cistern Operation and Maintenance

The cistern will need to undergo regular inspections (yearly) for maintenance verification. Access will be from the clean-out lid located on the south-east portion of the cistern. Below is suggested list of items to inspect during yearly maintenance verification.

Table 6.2: Cistern Routine Inspection List

Parameter	Inspection
Roof Drains	Remove any natural debris blocking flow to drains.
Sump	Remove all debris and sediment.
Inlet	Check for obstructions and remove debris and sediment.
Access Lid	Inspect for damage, obstruction, and accessibility
Cistern Structure	Inspect for damage or leaking.
Overflow Outlet	Check for obstructions and remove debris and sediment.

7.0 EROSION AND SEDIMENT CONTROL

Temporary erosion and sediment control measures will be implemented on-site during construction in accordance with the Best Management Practices for Erosion and Sediment Control. This includes the following temporary measures:

- Filter socks (catchbasin inserts) will be placed in existing and proposed catchbasins and catchbasin manholes, and will remain in place until vegetation has been established and construction is completed;
- Silt fencing will be placed along the surrounding construction limits;
- Mud mats will be installed at the site entrances;
- Strawbale or rock check dams will be installed in swales and ditches;
- The contractor will be required to perform regular street sweeping and cleaning as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site;

Erosion and sediment control measures should be inspected daily and after every rain event to determine maintenance, repair or replacement requirements. Sediments or granulars that enter site sewers shall be removed immediately by the contractor. These measures will be implemented prior to the commencement of construction and maintained in good order until vegetation has been established. Refer to the Erosion and Sediment Control Plan (drawing 123062-ESC) for additional information.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Watermain

The analysis of the existing and proposed watermain network confirms the following:

- The proposed 150mm dia. watermain service which connects to the existing 200mm watermain within Argyle Avenue can service the proposed development.
- There are adequate pressures in the existing watermain infrastructure to meet the required domestic demands for the development.
- There is adequate flow to service the proposed fire protections system.

Sanitary Servicing

The analysis of the existing and proposed sanitary system confirms the following:

- It is proposed to service the development with a proposed 200mm Sanitary service which will connect to the existing combined sewers within the Argyle Avenue right-of-way.
- There is adequate capacity within the existing infrastructure to service the development.

Stormwater Management

The following provides a summary of the storm sewer and stormwater management system:

- The proposed storm sewer system is to connect to the combined sewers within in the Argyle Avenue right-of-way.
- Stormwater control is to be provided by a cistern within the P1 parking level.
- Storm flows will be attenuated through the implementation of a pump within the cistern
- As per existing conditions a major overland flow routes have been provided to the Argyle right-of-way.

Erosion and Sediment control

- Erosion and sediment control measures (i.e. filter fabric, catch basin inserts, silt fences, etc.) will be implemented prior to construction and are to remain in place until vegetation is established.

9.0 CLOSURE

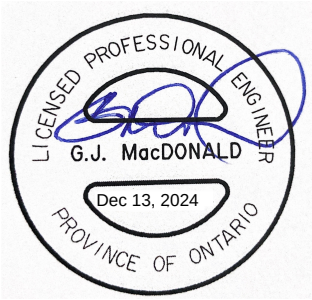
The preceding report is respectfully submitted for review and approval. Please contact the undersigned should you have questions or require additional information.

NOVATECH

Prepared by:

Anthony Mestwarp, P.Eng
Project Manager
Land Development Engineering

Reviewed by:



Greg MacDonald, P.Eng
Director, Land Development and Public Sector Infrastructure

Appendix A

Legal Plan

TOPOGRAPHIC PLAN OF SURVEY OF

LOT 16 (South Argyle Avenue)
REGISTERED PLAN 30
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

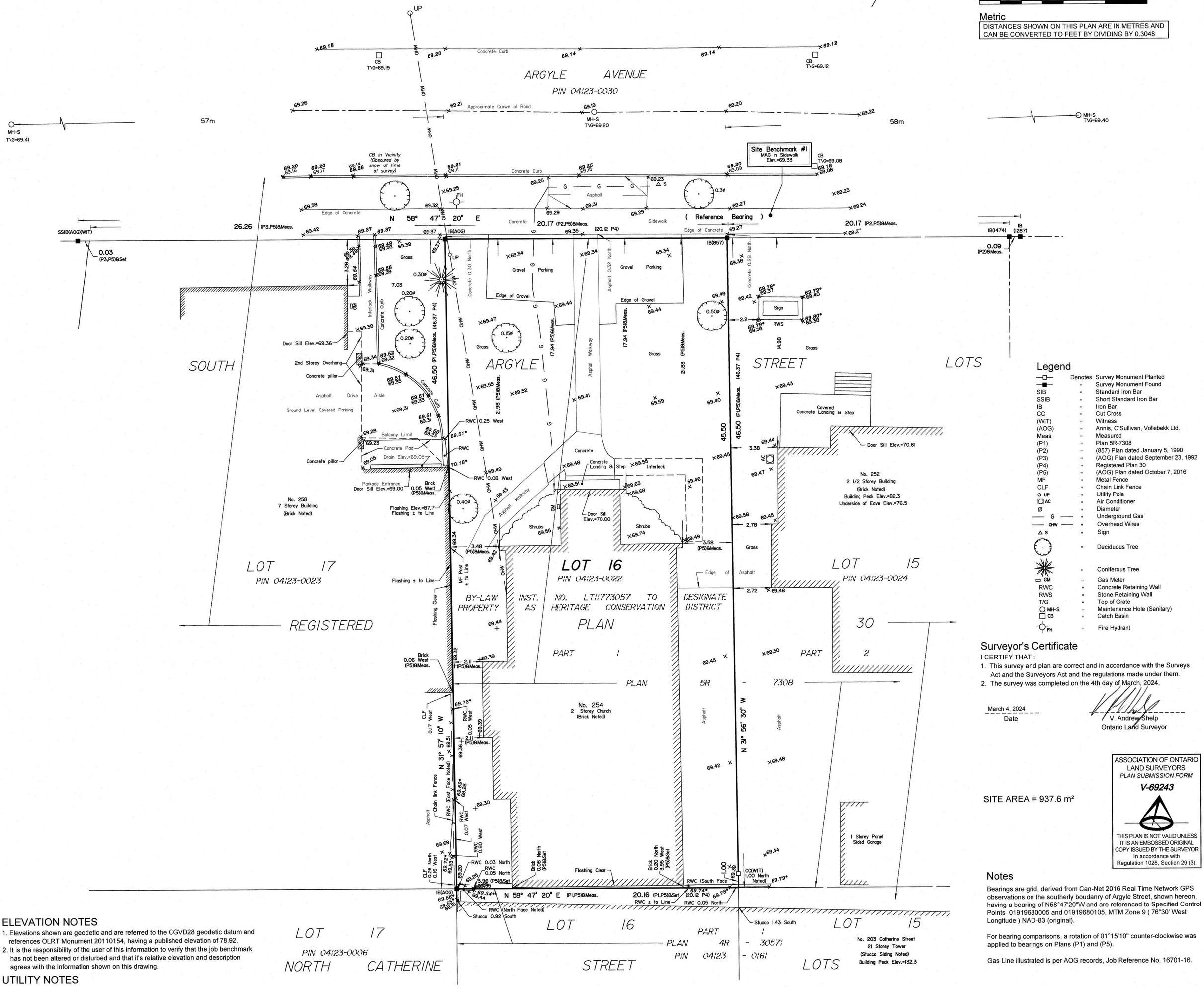
AMENDED November 15, 2024 to illustrate benchmark MAG in sidewalk.

Scale 1 : 150

6 4.5 3.0 1.5 0 3 6 Metres

Metric

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



Legend

—□—	Denotes	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
CC	"	Cut Cross
(WIT)	"	Witness
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
Meas.	"	Measured
(P1)	"	Plan 5R-7308
(P2)	"	(857) Plan dated January 5, 1990
(P3)	"	(AOG) Plan dated September 23, 1992
(P4)	"	Registered Plan 30
(P5)	"	(AOG) Plan dated October 7, 2016
MF	"	Metal Fence
CLF	"	Chain Link Fence
o UP	"	Utility Pole
AC	"	Air Conditioner
Ø	"	Diameter
—— G ——	"	Underground Gas
—— OHW ——	"	Overhead Wires
△ S	"	Sign
	"	Deciduous Tree
	"	Coniferous Tree
GM	"	Gas Meter
RWC	"	Concrete Retaining Wall
RWS	"	Stone Retaining Wall
T/G	"	Top of Grate
MH-S	"	Maintenance Hole (Sanitary)
CB	"	Catch Basin
FH	"	Fire Hydrant

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act and the Surveyors Act and the regulations made under them.
2. The survey was completed on the 4th day of March, 2024.

March 4, 2024
Date

V. Andrew Shelp
Ontario Land Surveyor

SITE AREA = 937.6 m²

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-69243

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

Notes

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations on the southerly boudanry of Argyle Street, shown hereon, having a bearing of N58°47'20"W and are referenced to Specified Control Points 01919680005 and 01919680105, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 01°15'10" counter-clockwise was applied to bearings on Plans (P1) and (P5).

Gas Line illustrated is per AOG records, Job Reference No. 16701-16.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum and references OLRT Monument 20110154, having a published elevation of 78.92.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Topographic data was collected under Winter Conditions. Snow cover and ice preclude determining location and elevation of some topographical data that is otherwise visible.

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. 24710-24 Azure Urban Dev. Lt16 P30 O FI NS

Appendix B
Pre - Consultation Meeting Minutes, and City Correspondence

Pre-Application Consultation Meeting Minutes & Preliminary Comments

Property Address: 254 Argyle Avenue
PC2023-0135: Phase 1 Pre-application Consultation Meeting (multi-phased approach)

Wednesday, June 14th, 2023, between 1:00PM to 2:00PM via Microsoft Teams

Attendees: Christopher Moise, Architect (Urban Design) – City of Ottawa
Greg MacPherson, Planner (Heritage) – City of Ottawa
Taylor Quibell, Planner (Heritage) – City of Ottawa
Vincent Duquette, Infrastructure Project Manager – City of Ottawa
Wally Dubyk, Transportation Project Manager – City of Ottawa
Mike Russett, Parks Planner – City of Ottawa
Mark Richardson, Forestry Planner – City of Ottawa
Eric Forhan, Development Review Planner (File Lead) – City of Ottawa
Adrian Van Wyk, Development Review Planner (Filed Lead) – City of Ottawa

Murray Chown, Novatech
Simran Soor – Novatech
Karen Cook – Spice Design
Team Azure (John Thomas, Cindy Mar et al)

Alice Nakanishi, resident – Centretown Community Association

Regrets: Mark Elliot, Environmental Planner – City of Ottawa
Sami Rehman, Environmental Planner – City of Ottawa

Subject Site: 254 Argyle Avenue

Meeting notes & Preliminary Comments:

1. Discussion Minutes

- The applicant presented their conceptual design package for a 12-storey residential building with a significant heritage component, 2 levels of underground parking (40 total parking spaces) and potential amenity spaces on the rooftop and in the rear yard.
- An Official Plan Amendment and a Zoning By-Law Amendment are the required planning applications (SPC later). The applicant is proposing to amend the Secondary Plan and to introduce new site-specific zoning standards that would address various zoning deficiencies, such as lot width (for a high-rise), rear yard setback, interior side yard setback, drive aisle widths and potentially the required amenity space.
- City staff provided their comments, which have been refined and provided within this letter. The Centretown Community Association (CCA) was also in attendance and their formal comments are included in this letter.

2. Planning

General:

- Staff appreciate the uniqueness of the proposal and the design approach. The retention of the existing church building is supported and viewed as a positive move.
- Staff have significant concerns with the proposed height and massing of the building. In our opinion, the proposal currently represents a departure from the existing policy direction of the Official Plan and the Central and East Downtown Core Secondary Plan:
    - Within this policy context, the mid-rise built form (between 5-9 storeys) is considered the most desirable and appropriate built form to provide transition between high-rise and low-rise sites and areas.
- In Staff's opinion, a mid-rise building would be more appropriate for the subject property based on the applicable policies, the surrounding context, and the physical site constraints (e.g. lot size). The site's physical constraints evidently limit the proposal's general compliance to the applicable zoning provisions and consistency with the applicable high-rise design guidelines.

Policy:

- As per the City's Official Plan, the subject property is located within the Downtown Core Transect policy area and is designated Neighbourhood, subject to the Evolving Neighbourhood Overlay. The neighbourhood designation is primarily intended for low-rise development.
- The subject property is subject to the Central and East Downtown Core Secondary Plan area and falls within the Centretown policy area (Central Character Area). The subject property is further designated Local Mixed-Use, and the maximum allowable height is 9-storeys (mid-rise), as per Schedule 'C'.
- The policies of the Local Mixed-Use designation and the built form guidelines of the Centretown Community Design Plan (CDP) are applicable to development within this area. In particular:
    - **Policy 4.4.9(47)**: *Proposals for development in the Centretown Central Character Area shall be guided by the Built Form Guidelines in the Centretown CDP*.

Preliminary Zoning and Site Plan Comments:

- Please clarify all zoning deficiencies, and, particularly, the proposed rear yard setback.
- The proposed rear yard and interior side yard setbacks should be sufficient to ensure that appropriate separation distances are being provided between the proposed building and existing and future buildings. Setbacks and separation distances should be consistent with the built form guidelines of the CDP.

- Staff recommend that the proposed parking be reconsidered due to the physical constraints of the site and its context. There also appear to be some zoning deficiencies in the underground parking garage (e.g. drive aisle width).
- Please consider alternatives to traditional vehicular parking, if proposed, including electric vehicle (EV) charges spaces and car share.
- Within the Downtown Core, bicycle parking is expected to be provided at a ratio of at least one space per unit.
- Please aim to maximize the number of large-household dwellings (3-bedroom units) through the redevelopment of this site.
- Please maximize site and building area to provide amenity space as required by the Zoning By-Law.
- Please confirm the proposed design approach to the rear yard and rooftop amenity areas.
- Please consider more vertical stepping/ built-form transition, consistent with the built-form guidelines of the CDP.

Planning Requirements

- **Multi-phase pre-application consultation process:** Please note that Council has approved a new pre-application consultation by-law which requires a multi-phased approach. All pre-applications consultations conducted prior to July 1st will be recorded as “Phase 1” in this new process. We are expecting UDRP attendance and a full response to Staff and community comments (next design submission) prior to and including the Phase 2 meeting.
- **Planning Application Requirements:** Official Plan Amendment and Zoning By-Law Amendment. The City will no longer be accepting concurrent applications for OPA, ZBA and Site Plan. A separate pre-consultation application process will be required for the Site Plan Control (complex) application.
- **Required Planning Plans and Studies:**
  - A Planning Rationale is required given the proposed applications for Official Plan Amendment and Zoning By-Law Amendment.
  - Please ensure that the Planning Rationale includes a detailed zoning analysis table, demonstrating compliance and non-compliance.
  - Please see the attached required plans and studies list.
- **Community Benefit Charges (CBC)** in accordance with By-law No. 2022-307, as amended.
- **High performance development standards (HPDS)** may apply at the time of Site Plan Control. We recommend these be considered earlier on through the rezoning process.

3. **Urban Design**

- The site is within a Design Priority Area and the proposal is subject to review by the City's Urban Design Review Panel prior to the application being deemed complete. Please contact udrp@ottawa.ca for details on submission requirements and scheduling.
- Thank-you for the material provided at pre-consultation. We have the following comments/questions relating to the material presented:
    - **High-rise guidelines**: These guidelines provide direction for the application and review of high-rise proposals and include criteria which should be analysed including (but not limited to) providing tower separation of 11.5m to side and rear property lines, minimum site size and floorplate maximum of 750m2.
        - **Rear yard separation**: High-rise not anticipated on this site so a reduced tower separation was created to the south. We recommend the project provides the full rear yard setback to allow for maximum natural light and increase the facing distance to the existing high-rise to the south.
        - How sure are we that the east and west neighbouring properties will not redevelop in a similar mid-rise or high-rise fashion? Have any **agreements** been proposed with Argyle neighbours to protect for future development?
    - **Mid-rise**: If the proposed building is nine storeys the above does not apply and the following issues shall be considered:
        - **Side yard separation**: We recommend consideration of replicability on the adjacent property at 252 Argyle and the impacts to this design configuration.
        - **Units with primary spaces facing the side yard**: Perhaps having larger units that only have secondary spaces adjacent to the side yard.
        - We note your precedent 'Carmel Place' in New York on page 24 of 27, which clearly reflects a more suitable approach to this site placing primary spaces and windows facing the front and back of the site and secondary spaces/windows facing side yards.
- A scoped Design Brief is a required submittal (and separate from any UDRP submission) for all Site Plan/Re-zoning applications and can be combined with the Planning Rationale. Please see the Design Brief Terms of Reference provided and consult the City's website for details regarding the UDRP schedule.
    - It is important to study the broader existing and future contexts.
    - It is important to explore and analyze alternative site planning and massing options. Alternative options explored and the analysis should be documented in the Design Brief.
    - Both wind and shadow studies are required. Please refer to the Terms of Reference for the wind analysis and shadow analysis to conduct the studies and evaluate the impacts.

- ***Note. The Design Brief submittal should have a section which addresses these pre-consultation comments.***

If you have any questions, please contact Christopher Moise: christopher.moise@ottawa.ca

4. Heritage

Background:

- The subject property is located in the Centretown Heritage Conservation District and designated under Part V of the Ontario Heritage Act. A heritage permit is required for the proposed demolition and new construction, to be approved by City Council after consultation with the Built Heritage Committee. The heritage permit application and Planning Act applications should be submitted concurrently.
- The property is located in the Centretown HCD. The guidelines and policies of the Centretown and Minto Park HCD Plan are applicable.

Heritage Permit Requirements:

- The following will be required as part of the heritage permit submission:
  - Application form + applicable fees
  - A Heritage Impact Assessment (HIA) completed by a CAHP member
  - A structural engineering report completed by an engineer with experience working with heritage strucures.
  - Coloured elevations, measured, labelled with materials and clearly demonstrating the relationship between the proposed development and neighbouring properties on Gilmour and James.
  - Site Plan
  - Landscape Plan
  - Renderings
- The applicant is encouraged to schedule a heritage specific pre-application consultation meeting with heritage staff to discuss the specifics of their heritage permit application.
- Application fees to be confirmed.

Comments on the proposal:

1. Retention of existing church:

- Staff strongly support the retention of the existing church on site.
- The consideration of ground level designs which reveal more of the retained portions of the existing church to the exterior of the building are encouraged.

- The applicant is encouraged to consider designs with a more gradual transition between the low-scale form of the existing church and the proposed residential tower.
- The HIA should articulate how the cultural heritage value of the church is retained through the proposal and speak to the relevant policies of the Centretown and Minto Park HCD Plan.

2. Materiality:

- Heritage staff are generally supportive of the materials proposed, particularly the use of brick which is characteristic of the Centretown HCD.
- The proposed decorative glazing is not a typical material in the Centretown HCD. Heritage staff request additional details on this material when available.

Heritage Impact Assessment Requirements:

- Given the scale and siting of the proposed residential tower, and the potential impacts to the existing Grade I church, the Heritage Impact Assessment submitted in support of this application should consider both the impacts to the existing church on site and to the adjacent properties located within the Centretown Heritage Conservation District.

5. Engineering

- Note: the information is considered **preliminary,** and the assigned Development Review Project Manager may modify and/or add additional requirements and conditions upon review of an application if deemed necessary.

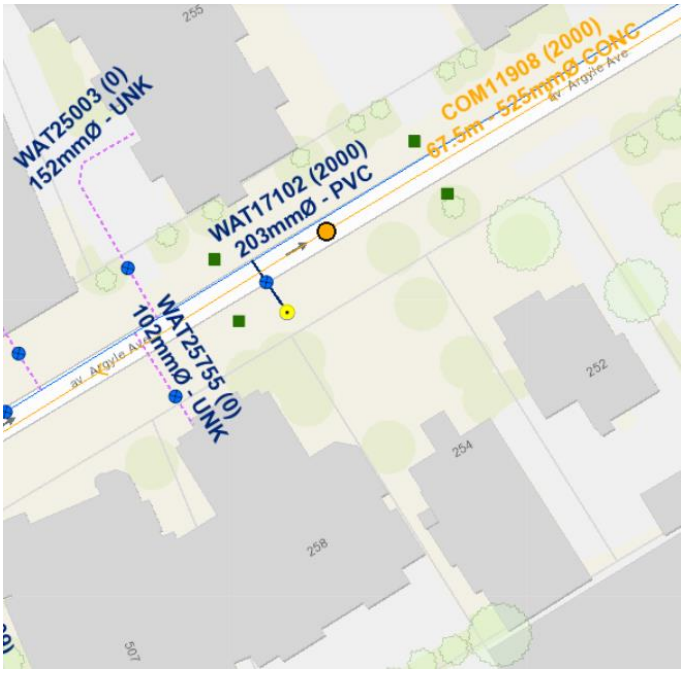
General:

- Please note that this project will be **subject to an Environmental Compliance Approval** (ECA) for Private Sewage Works. (Any connection to a combined Sewer system requires the Ministry (MECP) approval)
- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided, and all easements shall be shown on the engineering plans.
- **Concern** about the combined sewer capacity, please provide the new sanitary and storm sewer discharge and we'll confirm if combined sewer main has the capacity. Also provide the size of the proposed combined service.
- A deep excavation and dewatering operations have the potential to cause damages to the neighboring adjacent buildings/ City infrastructure. Document that construction activities (excavation, dewatering, vibrations associated with construction, etc.) will not have an impact on any adjacent buildings and infrastructure.

- Existing buildings require a CCTV inspection and report to ensure existing services to be re-used are in good working order and meet current minimum size requirements. Located services to be placed on site servicing plans.
- All underground and above ground building footprints and permanent walls need to be shown on the plans to confirm that any permanent structure does not extend either above or below into the existing property lines and sight triangles.

- Reference documents for information purposes :
  - Ottawa Sewer Design Guidelines (October 2012)
  - Technical Bulletin PIEDTB-2016-01
  - Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
  - Ottawa Design Guidelines - Water Distribution (2010)
  - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
  - City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
  - City of Ottawa Environmental Noise Control Guidelines (January 2016)
  - City of Ottawa Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
  - Ottawa Standard Tender Documents (latest version)
  - Ontario Provincial Standards for Roads & Public Works (2013)
  - Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-424 x.44455).

Please note that this is the applicant responsibility to refer to the latest applicable guidelines while preparing reports and studies.



Disclaimer:

The City of Ottawa does not guarantee the accuracy or completeness of the data and information contained on the above image(s) and does not assume any responsibility or liability with respect to any damage or loss arising from the use or interpretation of the image(s) provided. This image is for schematic purposes only.

Stormwater Management Criteria and Information:

Control Entire Site

- **Water Quantity Control:** In the absence of area specific SWM criteria please control post-development runoff from the subject site, up to and including the **100-year storm event**, to **a 2-year pre-development level.** The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.4. [**If 0.4 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.4**]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations*].
- Any storm events greater than the established **2-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on-site. The SWM measures required to avoid impact on downstream sewer system will be subject to review.
- Document how any foundation drainage system will be integrated into the servicing design and show the positive outlet on the plan. Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. **It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.**
- Please note that as per *Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14)* **there shall be no surface ponding on private parking areas during the 5-year storm rainfall event**.
- **Underground Storage:** Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.
  When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. **We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.**

In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.

Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc. UG storage to provide actual 2- and 100-year event storage requirements.

In regard to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, through PM and upon request.

- Please note that the minimum orifice dia. for a plug style **ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s** in order to reduce the likelihood of plugging.
- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.
- Please provide a **Pre-Development Drainage Area Plan** to define the pre-development drainage areas/patterns. **Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution**.
- **If rooftop control** and storage is proposed as part of the SWM solutions, sufficient details (Cl. 8.3.8.4) shall be discussed and documented in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.
- If **Window wells** are proposed, they are to be indirectly connected to the footing drains. A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.
- There must be at least **15cm of vertical clearance** between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception to this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.

- Rear yard on grade parking to be permeable pavement. Refer to City Standard Detail Drawings SC26 (maintenance/temp parking areas), SC27 or permeable asphalt materials. No gravel or stone dust parking areas permitted.
- Argyle Avenue is currently a combined sewer area, which means that most basements weeping tiles are not connected to the combined/storm system and that ICDs are not used to control the flow into the combined system. We do not have this part of the combined system modelled, but due to the uncontrolled nature of the combined sewers it is safe to assume that the HGL becomes elevated during extreme condition. Please keep this situation in mind should you use underground storage for SWM. Modeling is required! City Dept. to provide capacity information to applicant.

Combined Sewer:

- A 525/600mm diameter combined sewer (2000) is available within Argyle Avenue**.**
- A storm sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.
- Please provide the new storm and sanitary discharge and we will confirm if combine sewer main has the capacity.
- Please apply the wastewater design flow parameters *in Technical Bulletin PIEDTB-2018-01.*
- Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.
- A backwater valve is required on the sanitary service for protection.
- Include correspondence from the Architect within the Appendix of the report confirming the number of residential units per building **and a unit type breakdown for each of the buildings** to support the calculated building populations.

Water :

- A 200 mm dia. PVC watermain (2000) is available within Argyle Avenue**.**
- Existing residential service to be blanked at the main.
- **Water Supply Redundancy:** Residential buildings with a basic day demand greater than 50m^3/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the *Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration.* The basic day demand for this site not expected to exceed 50m^3/day.

- Please **review Technical Bulletin ISTB-2018-02**, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A **hydrant coverage figure** shall be provided and **demonstrate there is adequate fire protection for the proposal**. Two or more public hydrants are anticipated to be required to handle fire flow.
- Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.
    - Type of Development and Units
    - Site Address
    - A plan showing the proposed water service connection location.
    - **Average Daily Demand** (L/s)
    - **Maximum Daily Demand** (L/s)
    - **Peak Hour Demand** (L/s)
    - **Fire Flow** (L/min)

[*Fire flow demand requirements shall be based on **ISTB-2021-03***]

Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).

- **Hydrant capacity shall be assessed to demonstrate the RFF can be achieved**. Please identify which hydrants are being considered to meet the RFF on a fire hydrant coverage plan as part of the boundary conditions request.

Snow Storage:

- Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy

driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site, please indicate this on the plan(s).

Trees:

Please note that a new Tree By-law is now in effect.

General Bulletin_New Tree Protection Bylaw

Sensitive marine clay-

If Sensitive marine clay soils are present in this area that are susceptible to soil shrinkage that can lead to foundation and building damages. All six (6) conditions listed in the Tree Planting in Sensitive Marine Clay Soils-2017 Guidelines are required to be satisfied. Note that if the plasticity index of the soil is determined to be less than 40% a minimum separation between a street tree and the proposed building foundations of 4.5m will need to be achieved. A memorandum addressing the Tree in Clay Soil Guidelines prepared by a geotechnical engineer is required to be provided to the City.

Tree Planting in Sensitive Marine Clay Soils - 2017 Guidelines (ottawa.ca)

Gas pressure regulating station

A gas pressure regulating station may be required depending on HVAC needs (typically for 12+ units). Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans. This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product.

Gas Pressure Regulating Station.pd

Regarding Quantity Estimates:

Please note that external Garbage and/or bicycle storage structures are to be added to QE under Landscaping as it is subject to securities. In addition, sump pumps for

Sanitary and Storm laterals and/or cisterns are to be added to QE under Hard items as it is subject to securities, even though it is internal and is spoken to under SWM and Site Servicing Report and Plan.

CCTV sewer inspection

CCTV sewer inspection required for pre and post construction conditions to ensure no damage to City Assets surrounding site.

Pre-Construction Survey

Pre-Construction (Piling/Hoe Ramming or close proximity to City Assets) and/or Pre-Blasting (if applicable) Survey required for any buildings/dwellings in proximity of 75m of site and circulation of notice of vibration/noise to residents within 150 m of site. Conditions for Pre-Construction/ Pre-Blast Survey & Use of Explosives will be applied to agreements. Refer to City's Standard S.P. No. F-1201 entitled Use of Explosives, as amended.

Road Reinstatement

Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

Permits and Approvals:

- Please note that this project will be subject to an Environmental Compliance Approval (ECA) for Private Sewage Works. (Any connection to a combined Sewer system requires the Ministry (MECP) approval)

Required Engineering Plans and Studies:

PLANS:

- Existing Conditions and Removals Plan
- Site Servicing Plan
- Grade Control and Drainage Plan
- Road Reinstatement Plan
- Erosion and Sediment Control Plan
- Roof Drainage Plan
- Foundation Drainage System Detail (if applicable)
- Topographical survey

REPORTS:

- Site Servicing and Stormwater Management Report

- Geotechnical Study/Investigation
- Slope Stability Assessment Reports (if required, please see requirements below)
- Noise Control Study
- Phase I ESA
- Phase II ESA (Depending on recommendations of Phase I ESA)
- ECA (for the SWM system discharging to combined sewer)
- Site lighting certificate
- Wind analysis
- Shadow Study

PLEASE NOTE THAT ONLY THE PLANS/REPORT HIGHLIGHTED IN YELLOW WILL BE REQUIRED FOR A ZONNING BY-LAW AMENDEMENT.

Please refer to the **City of Ottawa Guide to Preparing Studies and Plans [Engineering]:**

Specific information has been incorporated into both the Guide to preparing studies and plans | City of Ottawa for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.

Added to the general information for servicing and grading plans is a note that an O.L.S. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an O.L.S. for development projects is emphasized.

Phase One Environmental Site Assessment:

- A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.
- The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.
- Official Plan Section 10.1.6

Official Plan: Section 10. Protection of Health and Safety (ottawa.ca)

ECA application

- The consultant shall determine if this project will be subject to an Environmental Compliance Approval (ECA) for Private Sewage Works. It shall be determined if the exemptions set out under Ontario Regulation 525/98: *Approval Exemptions* are satisfied. All regulatory approvals shall be documented and discussed in the report. If the SWM works and lateral are servicing one parcel of land under one ownership an ECA would not be required. Environmental Compliance Approval (ECA) is required for stormwater works servicing more than one parcel of land or discharging to a combined sewer.

Environmental Compliance Approval | Ontario.ca

Geotechnical Investigation:

- A Geotechnical Study/Investigation shall be prepared in support of this development proposal.
- Rreducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long term damages associated with lowering the groundwater in this area.
- Geotechnical Study shall be consistent with the **Geotechnical Investigation and Reporting Guidelines for Development Applications**.

Geotechnical Investigation and Reporting (ottawa.ca)

Slope Stability Assessment Reports

- A report addressing the stability of slopes, prepared by a qualified geotechnical engineer licensed in the Province of Ontario, should be provided wherever a site has slopes (existing or proposed) steeper than 5 horizontal to 1 vertical (i.e., 11 degree inclination from horizontal) and/or more than 2 metres in height.
- A report is also required for sites having retaining walls greater than 1 metre high, that addresses the global stability of the proposed retaining walls.

Slope Stability Guidelines for Development Applications (ottawa.ca)

Noise Study:

- A **Transportation Noise Assessment** is required as the subject development is located within 100m proximity of Bank Street and Catherine Street and within 500 m of Hwy #417.
- A **Stationary Noise Assessment** is required in order to assess the noise impact of the proposed sources of stationary noise (mechanical HVAC system/equipment) of the development onto the surrounding residential area to ensure the noise levels do not exceed allowable limits specified in the City Environmental Noise Control Guidelines.

https://documents.ottawa.ca/sites/default/files/documents/enviro_noise_guide_en.pdf

Wind analysis:

When greater than 9 storey in height Wind Study for all buildings/dwellings.

- A wind analysis must be prepared, signed and stamped by an engineer who specializes in pedestrian level wind evaluation. Where a wind analysis is prepared by a company which do not have extensive experience in pedestrian level wind evaluation, an independent peer review may be required at the expense of the proponent.

Terms of Reference: Wind Analysis (ottawa.ca)

Shadow Study

When greater than 9 storey in height, a Shadow Study required for all buildings/dwellings.

Terms of Reference: Shadow Analysis (ottawa.ca)

Exterior Site Lighting:

- Any proposed light fixtures (both pole-mounted and wall mounted) must be part of the approved Site Plan. All external light fixtures must meet the criteria for Full Cut-off Classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES), and must result in minimal light spillage onto adjacent properties (as a guideline, 0.5 fc is normally the maximum allowable spillage). In order to satisfy these criteria, the please provide the City with a **Certification (Statement) Letter** from an acceptable professional engineer stating that the design is compliant.

Fourth (4th) Review Charge:

Please be advised that additional charges for each review, after the 3rd review, will be applicable to each file. There will be no exceptions.

Construction approach – Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the Site Plan process to determine the ability to construct site and copy File Lead on this request.

Please note that these comments are considered preliminary based on the information available to date and therefore maybe amended as additional details become available and presented to the City. It is the responsibility of the applicant to verify the above information. The applicant may contact me for follow-up questions related to engineering/infrastructure prior to submission of an application if necessary.

If you have any questions, please contact Infrastructure Project Manager (IPM), Vincent Duquette: vincent.duquette@ottawa.ca

6. Transportation Engineering

TIA Screening Form, Received May 26, 2023
Conceptual Plan. Dated May 12, 2023

General Comments

- Argyle Street is classified as a Local Road. There are no additional protected ROW limits identified in the OP.

- This development would generate less than 60 peak hour person trips. The TIA Safety Trigger has been met a limited scope TIA is to be submitted during the Site Plan application.

- The consultant is to address how they plan to enable and encourage travel by sustainable modes (i.e. to make walking, cycling, transit, carpooling and telework more convenient, accessible, safe and comfortable). Please complete the City of Ottawa's TDM Measures Checklist.

- The purchaser, tenant or sub-lessee acknowledges the unit being rented/sold is not provided with any on-site parking and should a tenant/purchaser have a vehicle for which they wish to have parking that alternative and lawful arrangements will need to be made to accommodate their parking need at an alternative location. The Purchaser/Tenant also acknowledges that the availability and regulations governing on-street parking vary; that access to on-street parking, including through residential on-street parking permits issued by the City cannot be guaranteed now or in the future; and that a purchaser, tenant, or sub-lessee intending to rely on on-street parking for their vehicle or vehicles does so at their own risk.

- The Owner acknowledges and agrees that all private accesses to Roads shall comply with the City's Private Approach By-Law being By-Law No. 2003-447 as amended https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/law-z/private-approach-law-no-2003-447 or as approved through the Site Plan control process.

- No private approach shall be constructed within 0.3 metres of any adjacent property measured at the highway line, and at the curb line or roadway edge.

- The proponent is to provide an access grade that does not exceed 2% within the private property for a minimum distance of 6.0 metres from the ROW limits. This is a critical safe distance to allow a driver to stop at the top of the ramp and have a good sight angle of pedestrians.

- The concrete sidewalk should be 2.0 metres in width and be continuous and depressed through the proposed access.

- The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb, and boulevard to City standards.

- The Owner shall be required to enter into maintenance and liability agreement for all pavers, plant and landscaping material placed in the City right-of-way and the Owner shall assume all maintenance and replacement responsibilities in perpetuity.

- Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be in safe, secure places near main entrances and preferably protected from the weather.

If you have any questions, please contact Transportation Project Manager (TPM), Wally Dubyk: Wally.Dubyk@ottawa.ca

7. Parks

- Parks will be requesting cash-in-lieu of parkland for the proposed development.

8. Environment

- I don't anticipate any major environmental concerns with this proposal. I would advise the applicant that for the Site Plan Control application, any development over 4-storeys requires reviewing and incorporating design elements from the City's Bird-Safe Design Guidelines.

- I would also encourage them to plant as many locally appropriate native trees/shrubs/plants as possible.

9. Forestry

Planning Forester TCR requirements:

- Please note that all process for reviewing and approving TCRs are changing at the City – in order to effectively review your submission in a timely manner the Planning Forester will need to ensure that all TCR requirements have been addressed
- a Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    - an approved TCR is a requirement of Site Plan approval.
- Any removal of privately-owned trees 10cm or larger in diameter, or city-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
- The TCR must contain 2 separate plans:
    - Plan/Map 1 - show existing conditions with tree cover information
    - Plan/Map 2 - show proposed development with tree cover information
    - Please ensure retained trees are shown on the landscape plan
- the TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
- please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
    - Compensation may be required for the removal of city owned trees.

    - The removal of trees on adjoining properties will require the permission of the landowner
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
- All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
    - the location of tree protection fencing must be shown on the plan
    - show the critical root zone of the retained trees
- the City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa

Planning Forester LP tree planting requirements:

- Please note that all process for reviewing and approving LP tree planting has changed at the City – in order to effectively review your submission in a timely manner the Planning Forester will need to ensure that all the bullets listed below have been addressed

1) Minimum Setbacks
    - Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
    - Maintain 2.5m from curb
    - Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
    - Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.
2) Tree specifications
    - Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
    - Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
    - Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
    - Plant native trees whenever possible

- No root barriers, dead-man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

3) Hard surface planting
   - Curb style planter is highly recommended
   - No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
   - Trees are to be planted at grade
4) Soil Volume
   - Please document on the LP that adequate soil volumes can be met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.
Sensitive Marine Clay

- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

If you have any questions, please contact Mark Richardson: mark.richardson@ottawa.ca

10. City Surveyor

- The determination of property boundaries, minimum setbacks and other regulatory constraints are a critical component of development. An Ontario Land Surveyor (O.L.S.) needs to be consulted at the outset of a project to ensure properties are properly defined and can be used as the geospatial framework for the development.

- Topographic details may also be required for a project and should be either carried out by the O.L.S. that has provided the Legal Survey or done in consultation with the O.L.S. to ensure that the project is integrated to the appropriate control network.

Questions regarding the above requirements can be directed to the City's Surveyor, Bill Harper, at Bill.Harper@ottawa.ca

11. Centretown Community Association Representatives

- Overall, we/CCA supported the City's comments regarding the need for larger units, high bicycle ratio, providing EV parking and alternative transportation options such as rideshare.
- The developer is encouraged to go above the minimum required percentage of barrier-free units and/or units that can be adapted into barrier-free units. With the Glashan Public Elementary School a block away more family sized units are needed.
- With the proposal for the church to be moved forward toward the street, what would be the nature of the public space at grade level? Will the church and/or the green space around the church be publicly accessible?
- Indoor bicycle storage is recommended instead of or in addition to outdoor bicycle storage.
- Replace the two trees that were recently removed.
- The developer needs to respect the Centretown Community Design Plan and build accordingly.
- The fritted glass that was mentioned as part of the design of the building would add visual interest and meet the required bird-safety design guidelines.

12. Submission requirements and fees

- Outline the submission requirements and fees.
- Additional information regarding fees related to planning applications can be found here.
- Plans are to be standard A1 size (594 mm x 841 mm) or Arch D size (609.6 mm x 914.4 mm) sheets, dimensioned in metric and utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400 or 1:500).
- All PDF submitted documents are to be unlocked and flattened.

13. Next steps

Notes for the file:

- Please review the attached required list of plans and studies and terms of references.
- We anticipate the applicant team to return for a Phase 2 pre-application consultation meeting, following attendance at the UDRP. We encourage the applicant to consider and respond (in the next submission) to the City's and the CA's comments.

- City Staff encourage the applicant to discuss the proposal with the Ward Councillor, community groups and neighbours.

All in all, City Staff have several concerns with the proposal and are happy to have follow-up discussions at your request.

Please let us know if you have any questions, comments or concerns.

Thank you,

Eric Forhan, Development Review Planner
Adrian van Wyk, Development Review Planner

From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Tuesday, April 2, 2024 8:37 AM
To: Ryan Good <r.good@novatech-eng.com>
Cc: Anthony Mestwarp <a.mestwarp@novatech-eng.com>; Greg MacDonald <g.Macdonald@novatech-eng.com>
Subject: RE: 254 Argyle Avenue - Sewer Capacity - (123062)

Hi Ryan,

We checked in July last year for capacity within this combined pipe segment and there was no concern. The proposed flows we checked for were very similar (1.38L/s for sanitary and 7.7L/s for storm), so it's safe to say there is no capacity concern with the slight increase proposed.

Best Regards,

Vincent Duquette, E.I.T
Project Manager, Infrastructure Approvals | Gestionnaire de projet, Projets d'infrastructure
Development Review – All Ward | Direction de l'examen des projets d'aménagement - Tous les quartiers
Planning, Real Estate and Economic Development Department | Direction général de la planification, des biens immobilier et du développement économique
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West | 110 avenue Laurier Ouest
Ottawa, ON K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Ryan Good <r.good@novatech-eng.com>
Sent: April 02, 2024 7:30 AM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Anthony Mestwarp <a.mestwarp@novatech-eng.com>; Greg MacDonald <g.Macdonald@novatech-eng.com>
Subject: 254 Argyle Avenue - Sewer Capacity - (123062)

Good morning Vincent,

We are completing our design documents for the 254 Argyle Avenue development Site Plan Application Submission. One City comment, at the Pre-Consultation Meeting, was for us to provide the site's sanitary and stormwater flows so the capacity of the Combined Sewer in Argyle Avenue can be confirmed. Please see below for the proposed development's Sanitary and Stormwater flows. If you can please confirm if the existing Combined 525mm Concrete sewer has capacity for the development we would appreciate it:

Peak Sanitary Flow = 1.39L/s
Storm Flow = 8.0L/s

Let me know if you require anything further from us for this confirmation.

Thanks,

Ryan Good, C.E.T., Design Technologist | Land Development and Public Sector Infrastructure
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 284 | Cell: 343-364-2246

From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Tuesday, July 25, 2023 5:09 PM
To: Curtis Ferguson <c.ferguson@novatech-eng.com>
Cc: Anthony Mestwarp <a.mestwarp@novatech-eng.com>; Greg MacDonald <g.Macdonald@novatech-eng.com>
Subject: RE: 254 Argyle - Comment Response Update - 2220GJM

Hi Curtis,

There is no sewer capacity concerns with respect to the proposed demand for this project.
As for the HGL, it may take 3-4 weeks before I can get back to you seeing as our asset management is backed up and there are couple of their team members currently on vacation.

Likewise, boundary conditions have also been taking 3-4 weeks to obtain, so it's best to submit them as early as possible.

Best Regards,

Vincent Duquette, E.I.T
Project Manager, Infrastructure Approvals
Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique
Development Review – Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Duquette, Vincent
Sent: July 19, 2023 6:23 PM
To: Curtis Ferguson <c.ferguson@novatech-eng.com>
Cc: Anthony Mestwarp <a.mestwarp@novatech-eng.com>; Greg MacDonald <g.Macdonald@novatech-eng.com>
Subject: RE: 254 Argyle - Comment Response Update - 2220GJM

Hi Curtis,

The anticipated flows from the proposed development have been submitted to our Asset Management to confirm capacity as well as the existing sewer HGL.

I will keep you posted on their response.

Best Regards,

Vincent Duquette, E.I.T
Project Manager, Infrastructure Approvals
Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique
Development Review – Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Curtis Ferguson <c.ferguson@novatech-eng.com>
Sent: July 19, 2023 12:39 PM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Anthony Mestwarp <a.mestwarp@novatech-eng.com>; Greg MacDonald <g.Macdonald@novatech-eng.com>
Subject: 254 Argyle - Comment Response Update - 2220GJM

Hi Vincent,

I'm working on 254 Argyle Avenue site. In the pre-con minutes it was noted that we were to request confirmation of the capacity in the combined sewer.

Currently the site is proposed to have a 9-storey condo with 76 units.

Based on this, the sanitary flows from the site will be 1.38 L/s.

Based on the pre-con minutes the storm criteria is;

- Pre-development runoff coefficient = 0.4
- TC = 10 minutes
- 2-Year Storm Event

Based on this, the allowable storm flow from the site will be 7.7 L/s.

Thus, the total discharge from the site to the combined sewer will be 9.08 L/s.

Please advise if the combined sewer within Argyle Avenue has capacity for the site.

Additionally, can you please confirm the existing HGL within the 525mm concrete combined sewer within Argyle Avenue between manholes MHCH14620 and MHCH11867 / MHCH11867 and MHCH11866 as highlighted on the attached PDF.

Curtis Ferguson, B.A.Sc., E.I.T. | Land Development
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 EXT: 331

Appendix C
Water Servicing

From: Elizabeth Farrell <farrell@csv.ca>
Sent: Wednesday, August 21, 2024 8:07 AM
To: Ryan Good <r.good@novatech-eng.com>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Anthony Mestwarp <a.mestwarp@novatech-eng.com>; cmar@azureurban.com; Arjan Soor <a.soor@novatech-eng.com>; Rick Kellner <kellner@csv.ca>; Darryl Hood <hood@csv.ca>
Subject: RE: 230251 254 Argyle - City Comments - (123062)

Good morning Ryan,

The information requested follows. I will follow up with the strategy for the wine bar occupancy count once we have received confirmation from Azure concerning its expected operation.

Gross Floor Area (OBC: measured to exterior of exterior walls)
Level 1A: 556.9 m^2
Level 1B: 619.9 m^2
Level 1C: 590.0 m^2
Levels 2-9: 528.5 m^2
Penthouse: 80.2 m^2

Unit Counts:
1 Bedroom (including studios): 73
2 Bedroom: 9
3 Bedroom: 2

Regards,

Elizabeth Farrell
Intern Architect | M.Arch

CSV ARCHITECTS
190 O'Connor Street, Suite 100
Ottawa, ON K2P 2R3

T 613-564-8118 x159

www.csv.ca | sustainable design | conception écologique

From: Ryan Good <r.good@novatech-eng.com>
Sent: Tuesday, August 20, 2024 4:02 PM
To: Elizabeth Farrell <farrell@csv.ca>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Anthony Mestwarp <a.mestwarp@novatech-eng.com>; cmar@azureurban.com; Arjan Soor <a.soor@novatech-eng.com>; Rick Kellner <kellner@csv.ca>; Darryl Hood <hood@csv.ca>
Subject: RE: 230251 254 Argyle - City Comments - (123062)

HI Elizabeth,

Further to my email below, can you please confirm if the architectural design has revised the unit count numbers or overall floor plan areas for each floor? These details are required for our water, sanitary, and fire flow demand calculations.

We received the attached updated plans from Arjan but it was noted only the Parking Levels, Ground Floor, and Roof Plans were finalized.

Thanks,

The current information we have for our calculations is 64 1 Bedroom Apartments and 13 2 Bedroom Apartments. The floor areas for each level were previously shared by Rick in the attached email. Can you please confirm if these are still accurate?

Thanks,

Ryan Good, C.E.T., Design Technologist | Land Development and Public Sector Infrastructure
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 284 | Cell: 343-364-2246

From: Rick Kellner <kellner@csv.ca>
Sent: Wednesday, March 6, 2024 12:09 PM
To: Ryan Good <r.good@novatech-eng.com>; Cindy Mar <cmar@azureurban.com>
Cc: Elizabeth Farrell <farrell@csv.ca>; Darryl Hood <hood@csv.ca>; Greg MacDonald <g.Macdonald@novatech-eng.com>; Anthony Mestwarp <a.mestwarp@novatech-eng.com>
Subject: RE: 230251 Azure 254 Argyle - Interior Scan

Hi Ryan and Cindy,

We were trying to assemble answers to all your questions prior to responding, but see below.

- Provide the ground floor area for each level. CSV: Requested floor areas to be provided by Spice Design, based on updated design.
- Confirm the building Construction Type (e.g. Non-Combustible, Modified Fire Resistive (2hrs), Fire Resistive (>3hrs)) CSV: Non-combustible.
- Confirm if the vertical openings are considered Protected or Non-Protected (minimum 1 hour fire rating between floors for protected) CSV: Protected.
- Confirm the building's sprinkler details:
    - Is the system adequately designed (NFPA13) CSV: The System has not been designed yet, but would be required to meet NFPA13. Unsure if it would be NFPA13R.
    - Is the system "Fully Supervised (e.g on site control panel, direct fire department connection) CSV: TBD, design would meet all requirements for tall building.
    - Does the sprinkler system provide coverage to 100% of the buildings floor areas (if not what percentage is covered) CSV: 100%.
- Confirm the location of the buildings external Siamese Connection CSV: TBD. As the building has the heritage church fronting it, we'll need to devise a strategy and location to provide this. The design was reworked yesterday, so this will need to be resolved.
- Are there any hazardous or combustible occupancies/uses for the ground floor commercial areas (these can impact our calculation) CSV: No.

Please keep Darryl Hood on all project correspondence.
Regards,

Rick Kellner
Director | M.Arch, OAA

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190 O'Connor Street, Suite 100
Ottawa, ON K2P 2R3

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From: Ryan Good <r.good@novatech-eng.com>
Sent: Monday, March 4, 2024 1:04 PM
To: Elizabeth Farrell <farrell@csv.ca>
Cc: Greg MacDonald <g.Macdonald@novatech-eng.com>; Anthony Mestwarp <a.mestwarp@novatech-eng.com>; Cindy Mar <cmar@azureurban.com>; Darryl Hood <hood@csv.ca>; Richard Gurnham <gurnham@csv.ca>
Subject: RE: 230251 Azure 254 Argyle - Interior Scan

Hi Elizabeth,

I am putting together our Servicing Report for 254 Argyle Avenue and there are some architectural details we require for our water demand calculations. To prepare the Fire Flow calculations can you please provide the following:

- Provide the ground floor area for each level.
- Confirm the building Construction Type (e.g. Non-Combustible, Modified Fire Resistive (2hrs), Fire Resistive (>3hrs))
- Confirm if the vertical openings are considered Protected or Non-Protected (minimum 1 hour fire rating between floors for protected)
- Confirm the building's sprinkler details:
    - Is the system adequately designed (NFPA13)
    - Is the system "Fully Supervised (e.g on site control panel, direct fire department connection)
    - Does the sprinkler system provide coverage to 100% of the buildings floor areas (if not what percentage is covered)
- Confirm the location of the buildings external Siamese Connection
- Are there any hazardous or combustible occupancies/uses for the ground floor commercial areas (these can impact our calculation)

Thank you and please let me know if you require any further details for this requested information.

Regards,

Ryan Good, C.E.T., Design Technologist | Land Development and Public Sector Infrastructure
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 284 | Cell: 343-364-2246

Water Demand Design Sheet

NOVATECH
Engineers, Planners & Landscape Architects

Boundary Condition Request

Novatech Project #: 123062
Project Name: 254 Argyle Avenue
Date: 4/4/2024
Revised: 8/23/2024
Input By: Anthony Mestwarp
Reviewed By: Greg MacDonald
Drawing Reference: 123062-GP

Legend: Input by User | No Input Required | Calculated Cells →

Reference: Ottawa Design Guidelines - Water Distribution (2010 and TBs)
MOE Design Guidelines for Drinking-Water Systems (2008)
Fire Underwriter's Survey Guideline (2020)
Ontario Building Code, Part 3 (2012)

Small System = YES

	# of Dwellings	Area (ha.)	Pop. Equiv.	Average Day Demand (L/s)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)	Basic Day Demand (m^3/day)
Residential Input							
Singles			0.00	0.00	0.00	0.00	0.0
Semis / Townhomes			0.00	0.00	0.00	0.00	0.0
Apartments (3-BR)	2		6.20	0.02	0.12	0.18	1.2
Apartments (2-BR)	9		18.90	0.06	0.35	0.53	3.8
Apartments (1-BR)	73		102.20	0.33	1.91	2.89	20.4
Apartments (Avg)			0.00	0.00	0.00	0.00	0.0
Industrial / Commercial / Institutional (ICI) Input							
Industrial Area - Light				0.00	0.00	0.00	0.0
Industrial Area - Heavy				0.00	0.00	0.00	0.0
Commercial Area		0.0082		0.11	0.16	0.29	11.3
Institutional Area				0.00	0.00	0.00	0.0
Other Area				0.00	0.00	0.00	0.0
Totals	**84**	**0.01**	**127.30**	**0.52**	**2.55**	**3.89**	**36.8**

Summary

i. Type of Development and Units:	Apartment (84 Units)		
ii. Site Address:	254 Argyle Avenue		
iii. Proposed Water Service Connection Location(s):	150mm service connection to 200mm PVC within Argyle Avenue		
iv. Average Day Flow Demand:		0.52	L/s
v. Peak Hour Flow Demand:		3.89	L/s
vi. Maximum Day Flow Demand:		2.55	L/s
vii. Required Fire Flow #1:		5000	L/min
viii. Required Fire Flow #2:			L/min
ix. Required Fire Flow #3:			L/min

Water Demand Design Sheet

NOVATECH
Engineers, Planners & Landscape Architects

Design Parameters

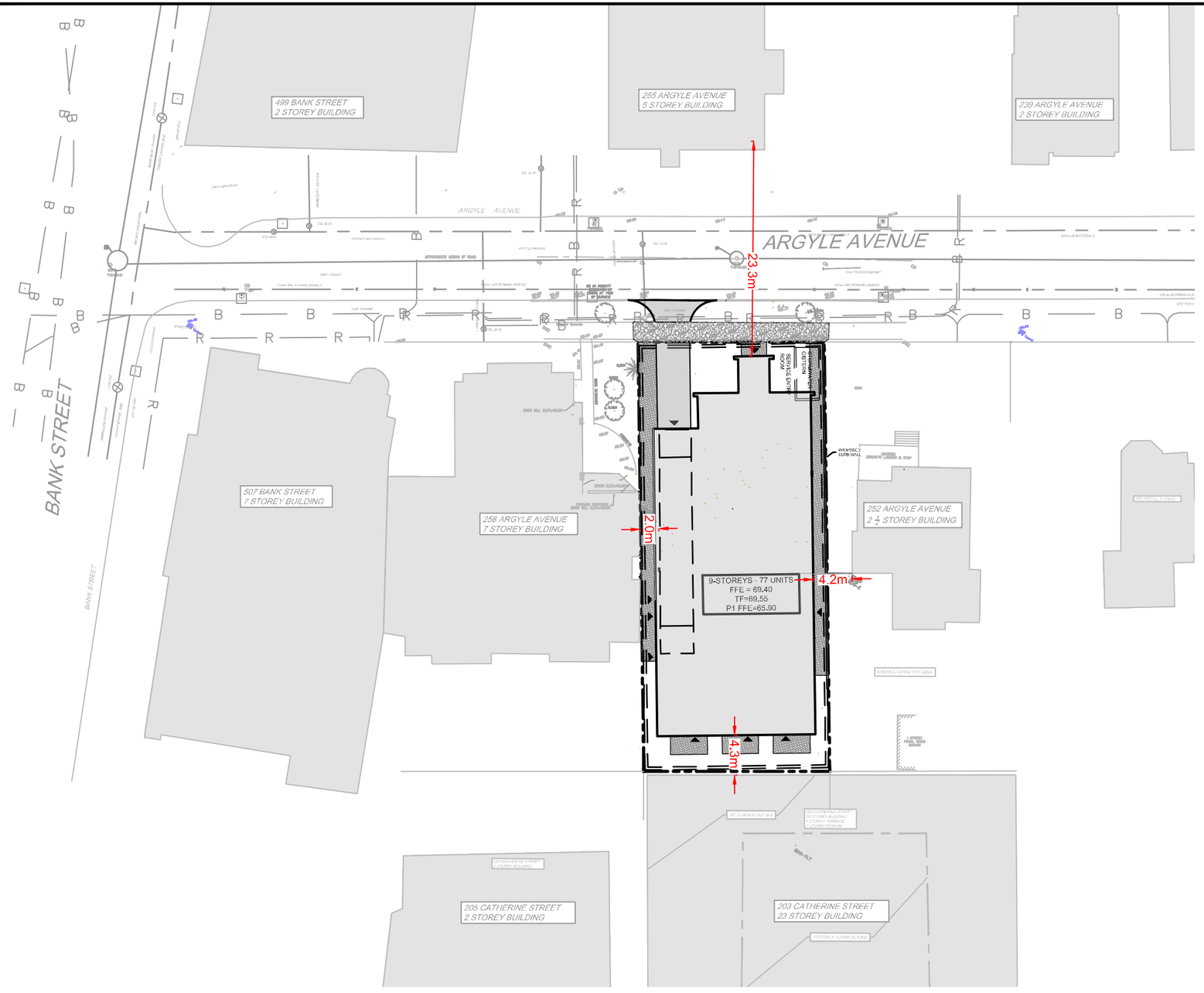
Residential						
Unit Type	**Singles**	**Semis/ Towns**	**Apts (3-BR)**	**Apts (2-BR)**	**Apts (1-BR)**	**Apts (Avg)**
Population Equiv.	3.4	2.7	3.1	2.1	1.4	1.8
Dailly Demand	L/per person/day					
Average Demand	280					
Basic Demand	200					

Vulnerable Service Area (VSA)
50
< 50 m³/day
> 50 m³/day

Residential Peaking Factors		**Max Day (x Avg Day)**	**Peak Hour (x Avg Day)**
	Pop.		
Small System (If Applicable)	0	9.50	14.30
	30	9.50	14.30
	150	4.90	7.40
Modified	300	3.60	*5.50*
	450	3.00	*5.50*
	500	2.90	*5.50*
Large System (Default)	> 500	2.50	5.50

Commercial				
Use	**Area (m^2)**	***Person/m^2**	****L/Person/day**	***OBC Table 3.1.17.1 - Occupancy Loading for Alcoholic Serving Establishments ****City of Ottawa Sewer Design Guidelines, 2012**
Wine Bar (Cocktail Lounge)	82.27	1.1	125	

ICI Peaking Factors	**Max Day (x Avg Day)**	**Peak Hour (x Avg Day)**
	1.50	2.70



LEGEND

PROPERTY LINE

PROPOSED ENTRANCE

18.3m BUILDING SEPARATION DIMENSION

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CITY OF OTTAWA
254 ARGYLE AVENUE

SEPARATION PLAN

SCALE 1 : 500 (0, 5m, 10m, 20m)
DATE MARCH 2024
JOB 123062
FIGURE SEP

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SHT11X17.DWG - 279mmX432mm

FUS - Fire Flow Calculations

As per 2020 Fire Underwriter's Survey Guidelines

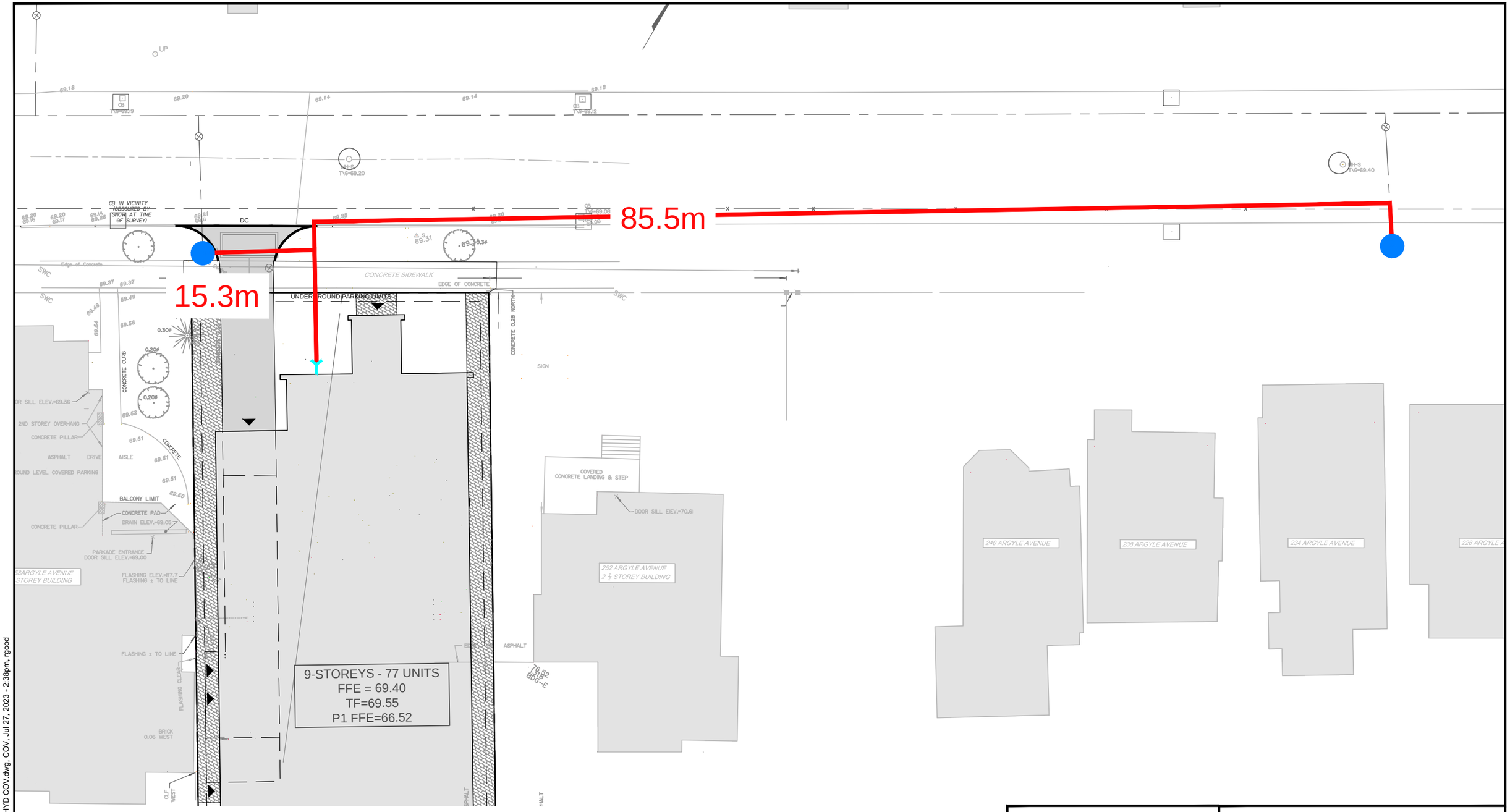
NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 123062
Project Name: 254 Argyle Avenue
Date: 3/27/2024
Revised: 12/10/2024
Input By: Ryan Good C.E.T
Reviewed By: Anthony Mestwarp, P.Eng

Legend: Input by User; No Information or Input Required

Building Description: 9 Storey Multifamily Residential Apartment
Type II - Non-combustible construction

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction **C**	Type V - Wood frame		1.5	0.8	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction	Yes	0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	631.7			
		Total Floors/Storeys (Podium)	2			
		Tower Footprint (m^2)	523.2			
		Total Floors/Storeys (Tower)	7			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**920**	
	F	**Base fire flow without reductions**				**5,000**
		$F = 220\ C\ (A)^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**4,250**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-2,125**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	Yes	-10%	-10%	
				Cumulative Sub-Total	**-50%**	
		Area of Sprinklered Coverage (m^2)	4925.8	100%		
				Cumulative Total	**-50%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	**3,188**
		East Side	3.1 - 10 m		20%	
		South Side	3.1 - 10 m		20%	
		West Side	0 - 3 m		25%	
				Cumulative Total	**75%**	
Results						
6	(1) + (2) + (3)	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**5,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**83.33**
				or	USGPM	1,321
7	**Storage Volume**	Required Duration of Fire Flow (hours)			Hours	1.75
		Required Volume of Fire Flow (m^3)			m^3	525



LEGEND

- PROPERTY LINE
- PROPOSED SIAMESE CONNECTION
- EXISTING CLASS AA HYDRANT
- DISTANCE FROM HYDRANT TO SIAMESE CONNECTION/ BUILDING ENTRANCE

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Website www.novatech-eng.com

CITY OF OTTAWA
254 ARGYLE AVENUE

COVERAGE PLAN

SCALE 1 : 250 (0 2 4 6 8 10)

DATE	JOB	FIGURE
MARCH 2024	123062	COV

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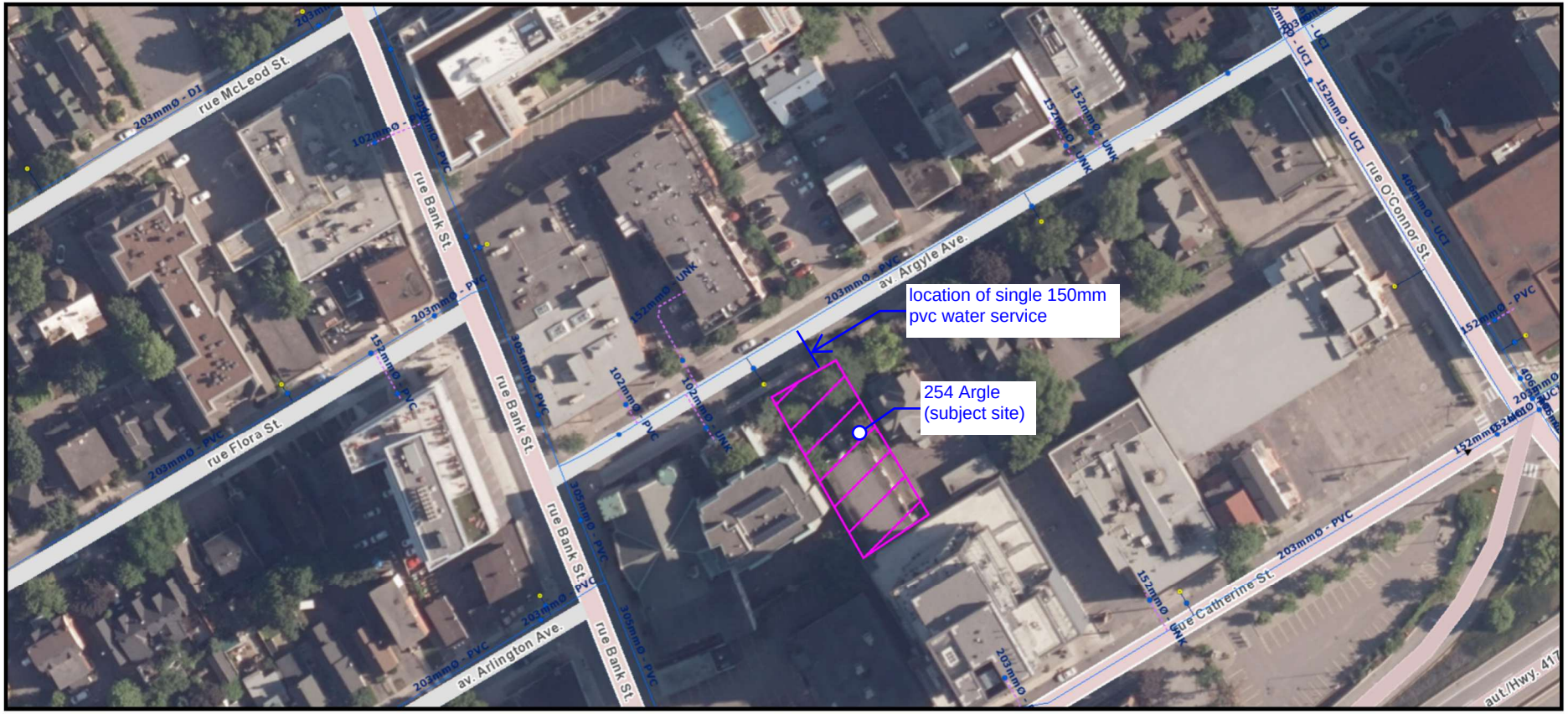
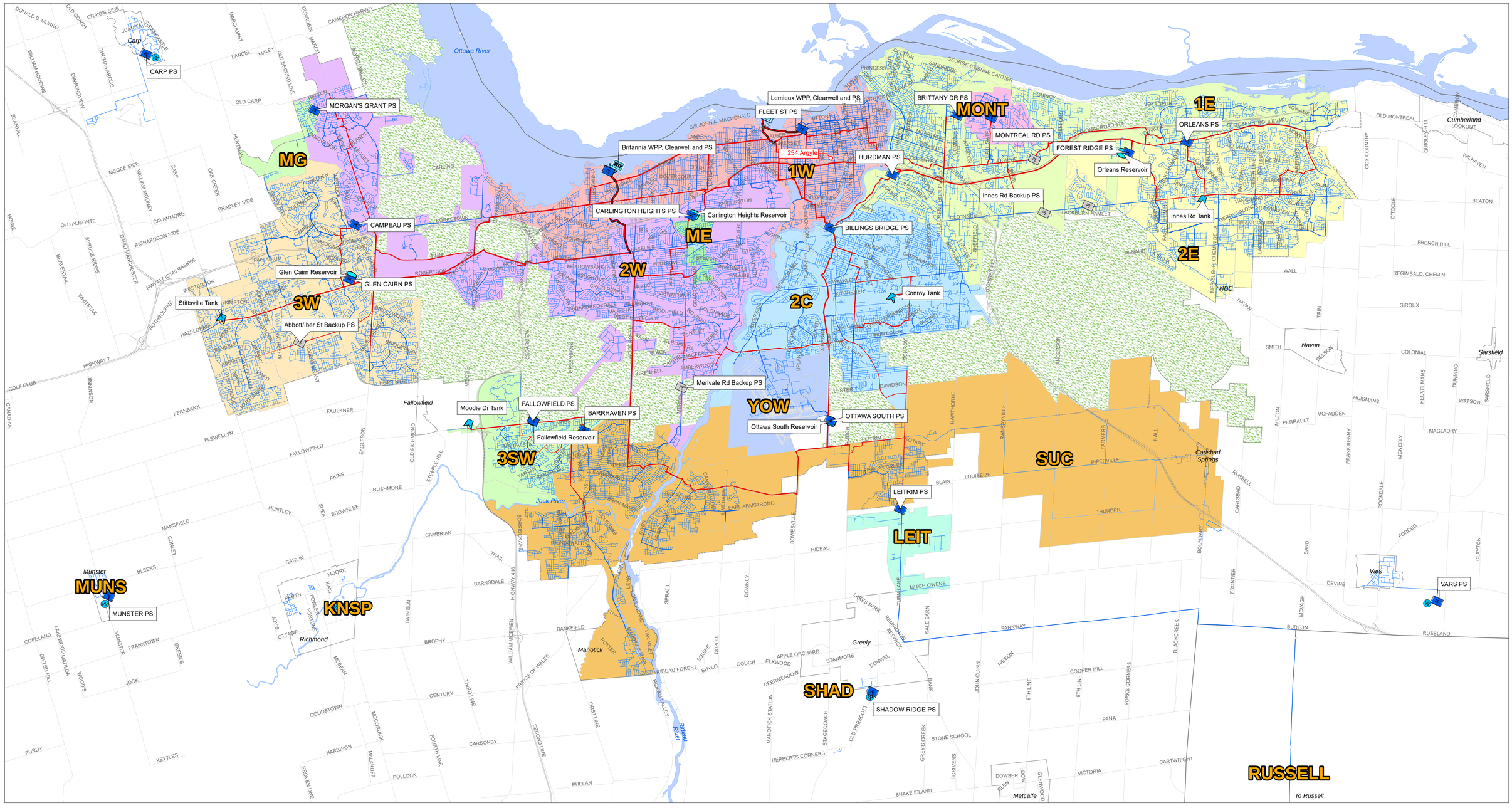
SHT11X17.DWG - 279mmX432mm

254 Argyle Avenue - Water Connection Location Figure





Infrastructure Master Plan - Figure 1-1

Water Distribution System Backbone Infrastructure

Legend

- Water Purification Plant
- Well
- Clearwell
- Elevated Tank
- Reservoir
- Pump Station (Active)
- Pump Station (Backup)

Backbone Watermain Diameter

- 152 mm - 305 mm
- 406 mm - 508 mm
- 610 mm - 914 mm
- 1067 mm - 1372 mm
- 1524 mm - 1981 mm
- 2550 mm

Distribution Watermain Diameter

- ≤ 102 mm
- 152 mm - 305 mm
- 356 mm - 508 mm
- 610 mm - 914 mm
- 1372 mm

Pressure Zones

- 1E
- 1W
- 2C
- 2E
- 2W
- 3SW
- 3W
- EMR
- LEIT
- ME
- MG
- MONT
- SHADOW RIDGE
- SUC
- YOW
- Greenbelt

Notes

1. Coordinate System: NAD 1983 CSRS MTM 9

2. Data Sources: Original shapefiles provided by the City of Ottawa; hydraulic model exports.

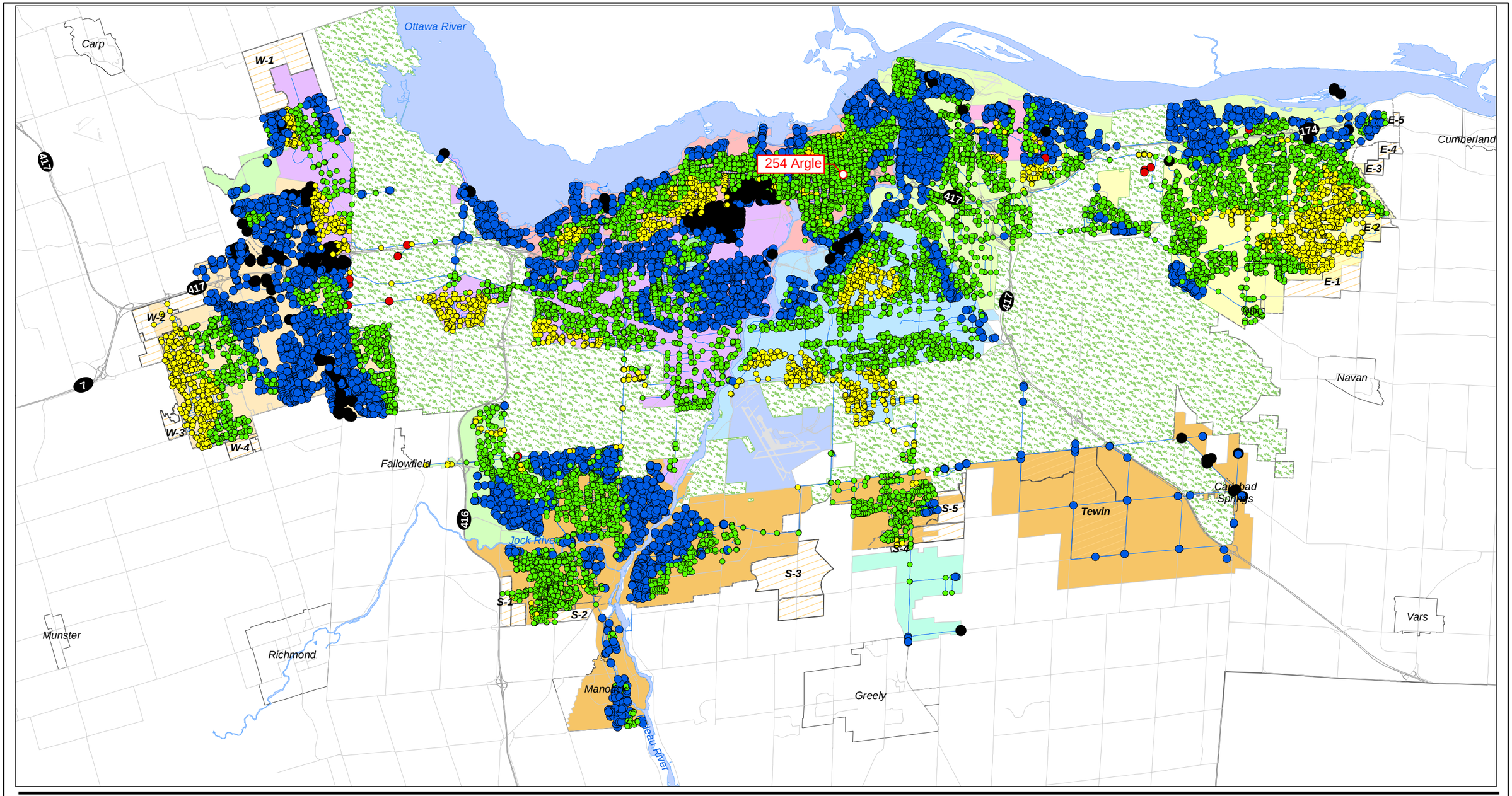
N

0 5 Kilometers

(At original document size of 24x36)

1:70,000

Ottawa



Infrastructure Master Plan - Figure 1-14

Model Results: Existing Conditions - BSDY

Maximum Pressures (psi)

Legend

Maximum Pressure (psi)

- Max. Pressure ≤ 40 psi
- 40 psi < Max. Pressure ≤ 60 psi
- 60 psi < Max. Pressure ≤ 80 psi
- 80 psi < Max. Pressure ≤ 100 psi
- Max. Pressure > 100 psi

- Watermains
- Urban Expansion Area
- Greenbelt

Pressure Zones

- 1E
- 1W
- 2C
- 2E
- 2W
- 3SW
- 3W
- EMR
- LEIT
- ME
- MG
- MONT
- SHADOW RIDGE
- SUC
- YOW

Notes

1. Coordinate System: NAD 1983 CSRS MTM 9

2. Data Sources: Background layers and growth projections provided by the City of Ottawa; hydraulic modelling results

N

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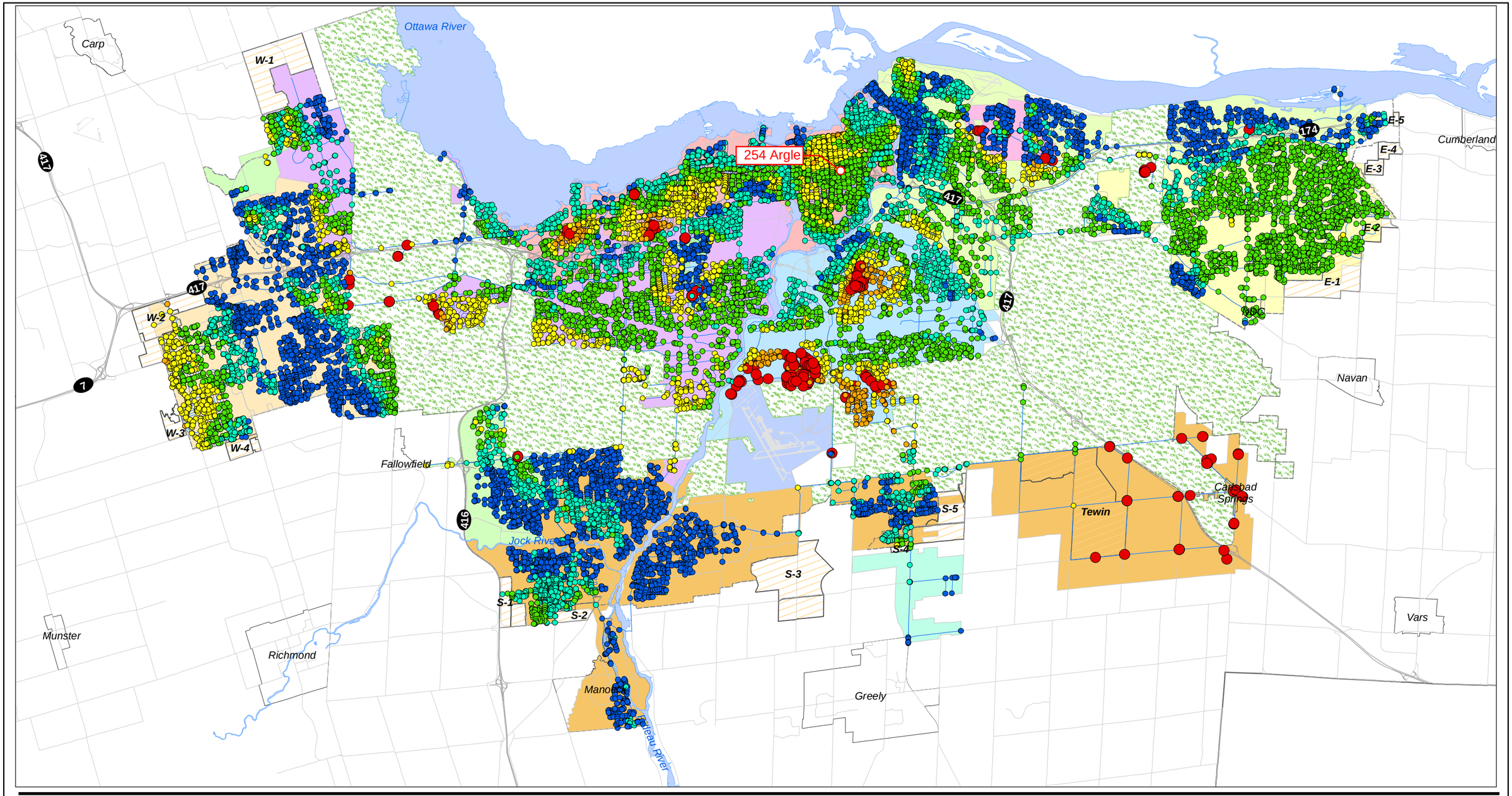
(At original document size of 11x17)

1:140,000

Ottawa



Legend

Infrastructure Master Plan - Figure 1-15
Model Results: Existing Conditions - MXDY
Minimum Pressures (psi)

Minimum Pressure (psi)

- Min. Pressure ≤ 35 psi
- 35 psi < Min. Pressure ≤ 40 psi
- 40 psi < Min. Pressure ≤ 50 psi
- 50 psi < Min. Pressure ≤ 60 psi
- 60 psi < Min. Pressure ≤ 70 psi
- 70 psi < Min. Pressure

- Watermains
- Urban Expansion Area
- Greenbelt

Pressure Zones

- 1E
- 1W
- 2C
- 2E
- 2W
- 3SW
- 3W
- EMR
- LEIT
- ME
- MG
- MONT
- SHADOW RIDGE
- SUC
- YOW

Notes

1. Coordinate System: NAD 1983 CSRS MTM 9
2. Data Sources: Background layers and growth projections provided by the City of Ottawa; hydraulic modelling results

N

0 5 Kilometers

(At original document size of 11x17)
1:140,000

Ottawa

CALCULATED WATER DEMNADS:

Water Demands

Average Day (Maximum HGL)=	0.52	L/s
Maximum Day =	2.55	L/s
Peak Hour (Minimum HGL) =	3.89	L/s
Fire Flow (FUS) =	83.00	L/s

City of Ottawa Boundary Conditions:

Average Day (Maximum HGL)=	115.3	m
Peak Hour (Minimum HGL) =	106.4	m
Max Day + Fire =	108.1	m

Watermain Analysis

Finished Floor Elevation = 69.40 m

High Pressure Test = Max. HGL -Finished Floor Elevation x 1.42197 PSI/m < 80 PSI

High Pressure = 65.3 PSI

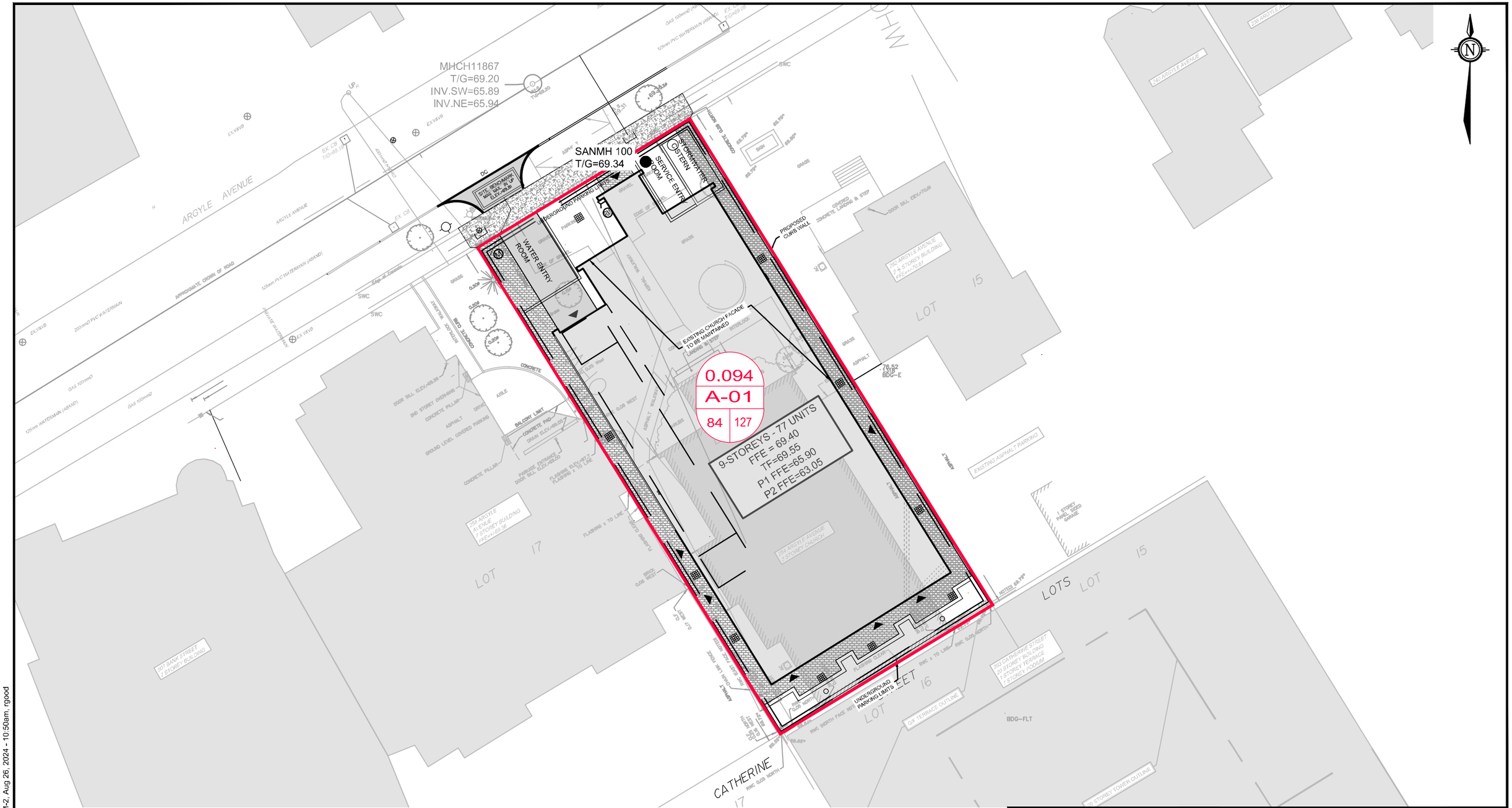
Low Pressure Test = Min. HGL - Finished Floor Elevation x 1.42197 PSI/m > 40 PSI

Low Pressure = 52.6 PSI

Max Day + Fire Test = Max Day + Fire Flow - Finished Floor Elevation x 1.42197 PSI/m > 20 PSI

Max Day + Fire (Connection #1) = 55.0 PSI

Appendix D
Sanitary Servicing



LEGEND

- SANITARY SEWER DRAINAGE AREA BOUNDARY
- 0.47 / 20A-19A / 71 | 128 — DRAINAGE AREA (ha) / SAN SEWER PIPE RUN / NO. UNITS/POPULATION
- PROPERTY LINE
- PROPOSED CURB
- DC — PROPOSED DEPRESSED CURB
- PROPOSED CAP
- PROPOSED SANITARY SEWER
- PROPOSED BUILDING ENTRANCE

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CITY OF OTTAWA

254 ARGYLE AVENUE

SANITARY DRAINAGE AREA PLAN

SCALE 1 : 300 (0 3 6 9 12)

DATE SEP 2024 | JOB 123062 | FIGURE SAN

SHT11X17.DWG - 279mmX432mm

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NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #:	123062
Project Name:	254 Argyle Avenue
Date Prepared:	3/28/2024
Date Revised:	8/23/2024
Input By:	Ryan Good, C.E.T
Reviewed By:	Greg MacDonald, P.Eng
Drawing Reference:	123062-SAN

Legend:
- PROJECT SPECIFIC INFO
- USER DESIGN INPUT
- CUMULATIVE CELL
- CALCULATED DESIGN CELL OUTPUT

LOCATION			DEMAND																DESIGN CAPACITY							
			RESIDENTIAL FLOW								COMMERCIAL FLOW							EXTRANEOUS FLOW		PROPOSED SEWER PIPE SIZING / DESIGN						
AREA	FROM MH	TO MH	1 Bed Apartment	2 Bed Apartment	3 Bed Apartment	POPULATION (in 1000's)	CUMULATIVE POPULATION (in 1000's)	PEAK FACTOR M	AVG POPULATION FLOW (L/s)	PEAKED DESIGN POP FLOW (L/s)	AREA (m^2)	CUMULATIVE AREA (m^2)	DESIGN COMMERICAL FLOW (L/s)	COMMERICAL PEAK FACTOR	PEAKED COMMERCIAL FLOW	Total Area (ha.)	Accum. Area (ha.)	DESIGN EXTRAN. FLOW (L/s)	TOTAL DESIGN FLOW (L/s)	PIPE LENGTH (m)	PIPE SIZE (mm) AND MATERIAL	PIPE ID ACTUAL (m)	ROUGH. (n)	DESIGN GRADE (%)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	Qpeak Design / Qcap
A-01	BLDG	MAIN	73	9	2	0.127	0.127	3.57	0.41	1.47	82.270	82.270	0.11	1.00	0.11	0.09	0.09	0.03	1.61		200 PVC	0.203	0.013	1.00	34.2	1.06	4.7%

Design Parameters:

1. Residential Flows

-1 Bed Apartment	1.4	Person/ Unit	As per City of Ottawa Sewer Design Guidelines, 2012
-2 Bed Apartment	2.1	Person/ Unit	
-3 Bed Apartment	3.1	Person/ Unit	
Q Avg Capita Flow	280	L/cap/day	As per City of Ottawa - Technical Bulletin ISTB-2018-01

2. Commercial Flow

Use	Area (m^2)	*=m^3/person	**L/Person/day		
Wine Bar (Cocktail Lounge)	82.27	1.1	125		*OBC Table 3.1.17.1 - Occupancy Loading for Alcohol Serving Establishments **City of Ottawa Sewer Design Guidelines, 2012

- Area of Wine bar is excluding the proposed vestibule and walkway Area

4. M = Harmon Formula (maximum of 4.0)			As per Harmon Formula
5. K =	0.8		
6. Commercial Peak Factor	1.0		As per City of Ottawa - Technical Bulletin ISTB-2018-01
7. Peak Extraneous Flow =	0.33	L/sec/ha	

CAPACITY EQUATION

Q full= (1/n) A $R^{(2/3)}S_o^{(1/2)}$

Where : Q full = Capacity (L/s)

n = Manning coefficient of roughness (0.013)
A = Flow area (m^2)
R = Wetter perimenter (m)
So = Pipe Slope/gradient

Appendix E

Storm Servicing

PREDEVELOPMENT - WEIGHTED C VALUE CALCULATION:

SITE AREA = 0.094 HECTARES
IMPERVIOUS AREA = 0.020 HECTARES
PERVIOUS AREA = 0.074
WEIGHTED RUNOFF COEFFICIENT (C) = ((0.054*0.9)+(0.040*0.20))/0.094
= 0.68

LEGEND

- PROPOSED PROPERTY LINE
- PROPOSED STORM DRAINAGE AREA
- EXISTING STORM MANHOLE AND SEWER
- EXISTING CATCHBASIN AND SEWER
- 0.11 — DRAINAGE AREA (HECTARES)
- A-1 — DRAINAGE AREA ID
- 0.80 — RUNOFF COEFFICIENT
- DIRECTION OF EXISTING MAJOR OVERLAND FLOW ROUTE
- IMPERVIOUS AREA
- PERVIOUS AREA

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Website www.novatech-eng.com

CITY OF OTTAWA
254 ARGYLE AVENUE

STORMWATER MANAGEMENT PLAN (PRE-DEVELOPMENT)

SCALE	DATE	JOB	FIGURE
1 : 250	MAR 2024	123062	SWM-1

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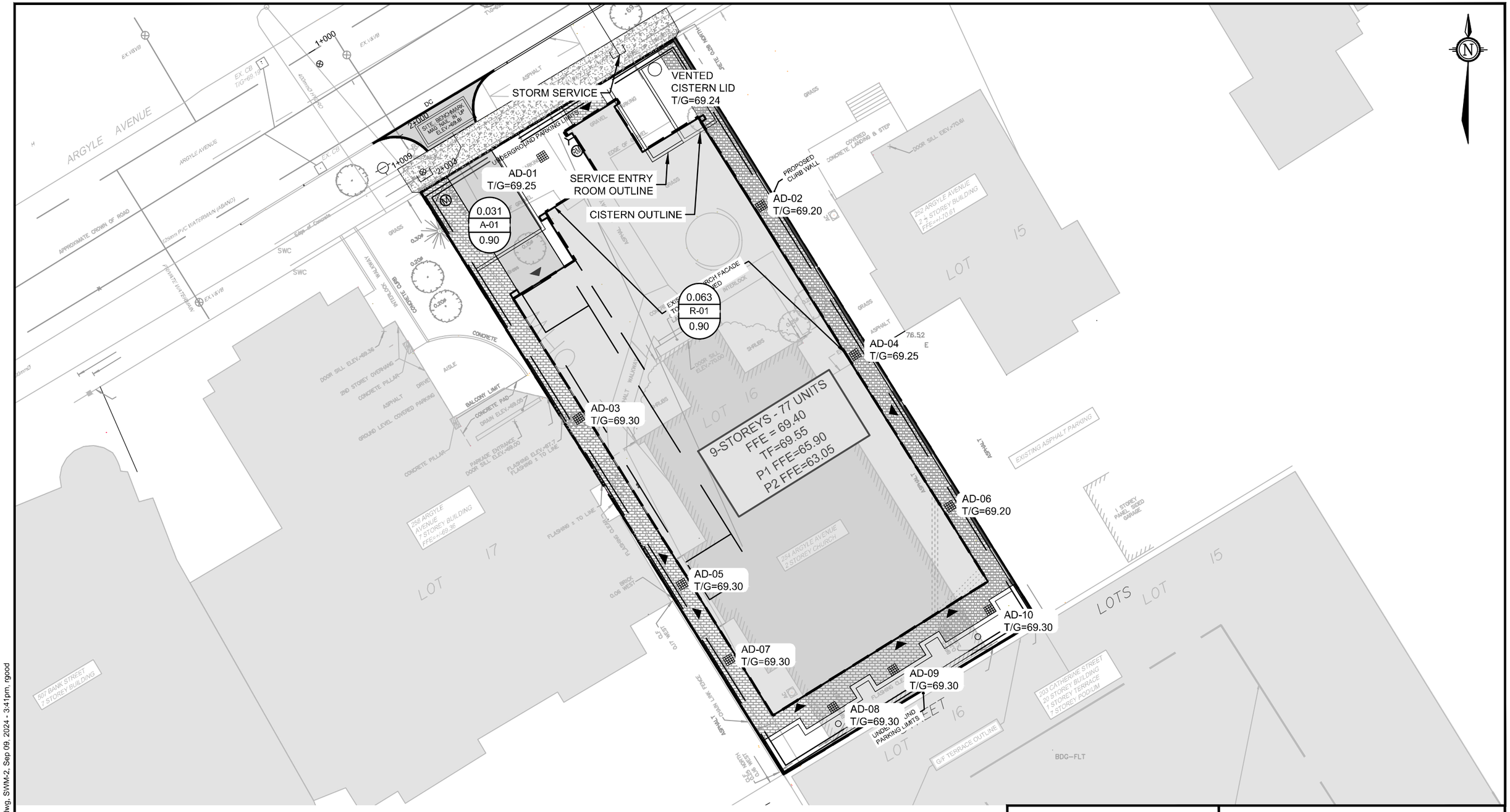

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Facsimile (613) 254-5867
Website www.novatech-eng.com

CITY OF OTTAWA

254 ARGYLE AVENUE

STORMWATER MANAGEMENT PLAN (POST-DEVELOPMENT)

SCALE 1 : 250 (0 2 4 6 8 10)
DATE SEP 2024
JOB 123062
FIGURE SWM-2

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SHT11X17.DWG - 279mmX432mm

Time of Concentration - Existing Conditions

Uplands Overland Flow Method

Table: 1

Area ID	Overland Flow						Mannings Pipe Flow							Overall
	Length (m)	Elevation U/S (m)	Elevation D/S (m)	Slope (%)	Velocity (m/s)	Travel Time (min)	Pipe Size (mm)	Length (m)	Elevation U/S (m)	Elevation D/S (m)	Slope (%)	Velocity (m/s)	Travel Time (min)	Time of Concentration (min)
EX 1 A	24.8	69.55	69.27	1.1%	0.60	0.69								1

Uplands Velocity Chart

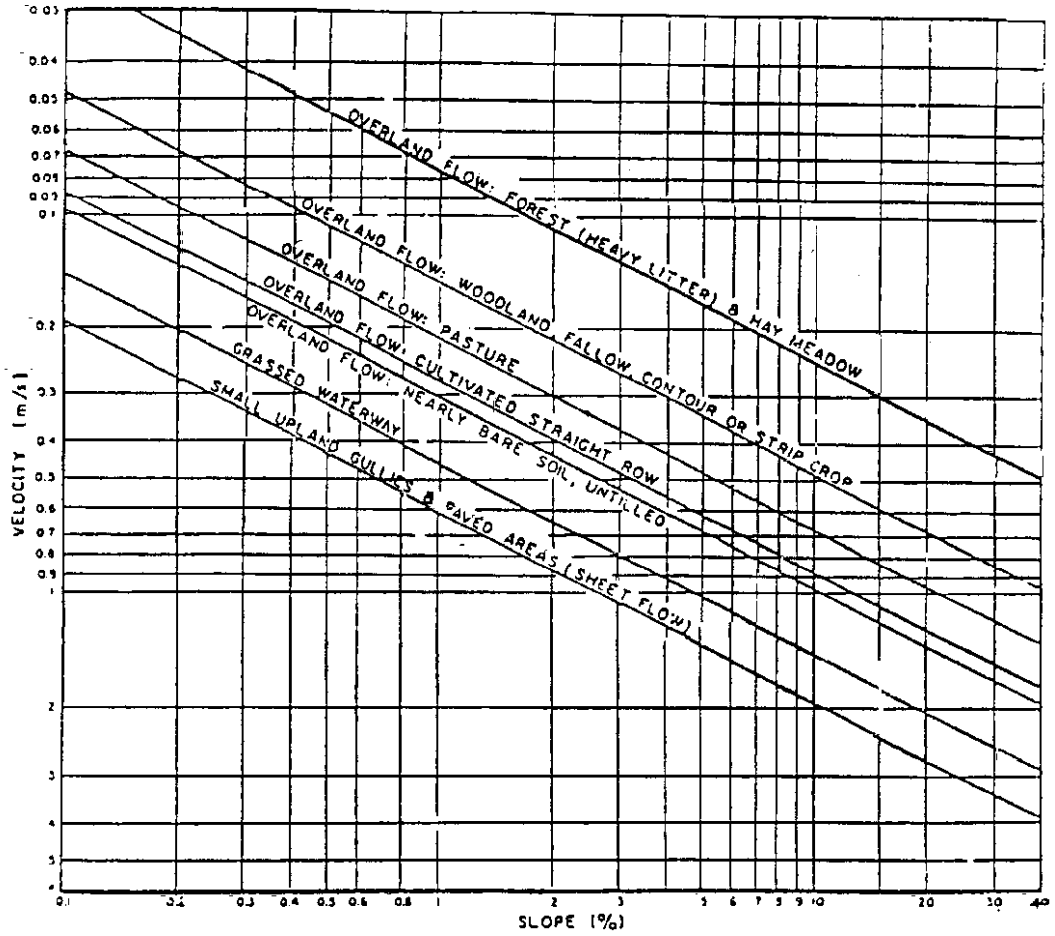

Figure A.5.2: Upland Method for Estimating Time of Concentration
(SCS National Engineering Handbook, 1971)

TABLE 2A: Existing Runoff Coefficient "C"

Area	"C"
Total	0.68
0.094	

TABLE 2B: Exisitng Flows

Outlet Options	Area (ha)	"C"	Tc (min)	$Q_{2\ Year}$ (L/s)	Q_{ALLOW} (L/s)
Argyle Avenue Combined	0.094	0.68	10	**13.6**	**13.6**

Time of Concentration	Tc=	10	min
Intensity (2 Year Event)	I_2=	76.81	mm/hr
Intensity (5 Year Event)	I_5=	104.19	mm/hr
Intensity (100 Year Event)	I_{100}=	178.56	mm/hr

100 year Intensity = 1735.688 / (Time in min + 6.014) $^{0.820}$
5 year Intensity = 998.071 / (Time in min + 6.053) $^{0.814}$
2 year Intensity = 732.951 / (Time in min + 6.199) $^{0.810}$

Equations:
Flow Equation
Q = 2.78 x C x I x A
Where:
C is the runoff coefficient
I is the rainfall intensity, City of Ottawa IDF
A is the total drainage area

TABLE 3A: Allowable Runoff Coefficient "C"

Area	"C"
Total	0.40
0.094	

TABLE 3B: Allowable Flows

Outlet Options	Area (ha)	"C"	Tc (min)	$Q_{2\ Year}$ (L/s)	Q_{ALLOW} (L/s)
Argyle Avenue Combined	0.094	0.40	10	**8.0**	**8.0**

Time of Concentration	Tc=	10	min
Intensity (2 Year Event)	I_2=	76.81	mm/hr
Intensity (5 Year Event)	I_5=	104.19	mm/hr
Intensity (100 Year Event)	I_{100}=	178.56	mm/hr

100 year Intensity = 1735.688 / (Time in min + 6.014) $^{0.820}$
5 year Intensity = 998.071 / (Time in min + 6.053) $^{0.814}$
2 year Intensity = 732.951 / (Time in min + 6.199) $^{0.810}$

Equations:
Flow Equation
Q = 2.78 x C x I x A
Where:
C is the runoff coefficient
I is the rainfall intensity, City of Ottawa IDF
A is the total drainage area

TABLE 4A: Post-Development Runoff Coefficient "C" - A-01,R-01

			5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.031	0.90	0.90	1.00	1.00
0.094	Roof	0.063	0.90		1.00	
	Soft	0.000	0.20		0.25	

TABLE 4B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-01,R-01

0.094 =Area (ha)
0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
2 YEAR	0	167.22	39.21	8.0	31.21	0.00
	5	103.57	24.28	8.0	16.28	4.88
	10	76.81	**18.01**	**8.0**	**10.01**	**6.00**
	15	61.77	14.48	8.0	6.48	5.83
	20	52.03	12.20	8.0	4.20	5.04

TABLE 4C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-01,R-01

0.094 =Area (ha)
0.90 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
5 YEAR	5	141.18	33.10	8.0	25.10	7.53
	10	104.19	24.43	8.0	16.43	9.86
	15	**83.56**	**19.59**	**8.0**	**11.59**	**10.43**
	20	70.25	16.47	8.0	8.47	10.16
	25	60.90	14.28	8.0	6.28	9.42

TABLE 4D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - A-01,R-01

0.094 =Area (ha)
1.00 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m^3)
100 YEAR	20	119.95	31.25	8.0	23.25	27.90
	25	103.85	27.05	8.0	19.05	28.58
	30	**91.87**	**23.93**	**8.0**	**15.93**	**28.68**
	35	82.58	21.51	8.0	13.51	28.37
	40	75.15	19.58	8.0	11.58	27.78

Equations:

Flow Equation

$Q = 2.78 \times C \times I \times A$

Where:

C is the runoff coefficient
I is the rainfall intensity, City of Ottawa IDF
A is the total drainage area

Runoff Coefficient Equation

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

$C_{100} = (A_{hard} \times 1.0 + A_{soft} \times 0.25)/A_{Tot}$

TABLE 4E: Structure information - A-01,R-01

Structures	Size Dia.(mm)	Area (m^2)	T/G	Bottom of Tank
Tank	-	13.23	69.24	65.90

TABLE 4F: Storage Provided - A-01,R-01

Storage Table			
Elevation (m)	System Depth (m)	Tank Volume (m^3)	
65.90	0.00	0.00	
66.000	0.10	1.32	
66.100	0.20	2.65	
66.200	0.30	3.97	
66.300	0.40	5.29	
66.400	0.50	6.61	
66.500	0.60	7.94	
66.600	0.70	9.26	
66.700	0.80	10.58	
66.800	0.90	11.91	
66.900	1.00	13.23	
67.000	1.10	14.55	
67.100	1.20	15.88	
67.200	1.30	17.20	
67.300	1.40	18.52	
67.400	1.50	19.84	
67.500	1.60	21.17	
67.600	1.70	22.49	
67.700	1.80	23.81	
67.800	1.90	25.14	
67.900	2.00	26.46	
68.000	2.10	27.78	
68.100	2.20	29.11	
68.200	2.30	30.43	
68.300	2.40	31.75	
68.400	2.50	33.07	
68.500	2.60	34.40	
68.600	**2.70**	**35.72**	**Top of Tank**
68.700	2.80	35.75	
68.800	2.90	35.78	
68.900	3.00	35.81	
69.000	3.10	35.83	
69.100	3.20	35.86	
69.200	3.30	35.89	
69.240	3.34	35.90	**Top of Grate**

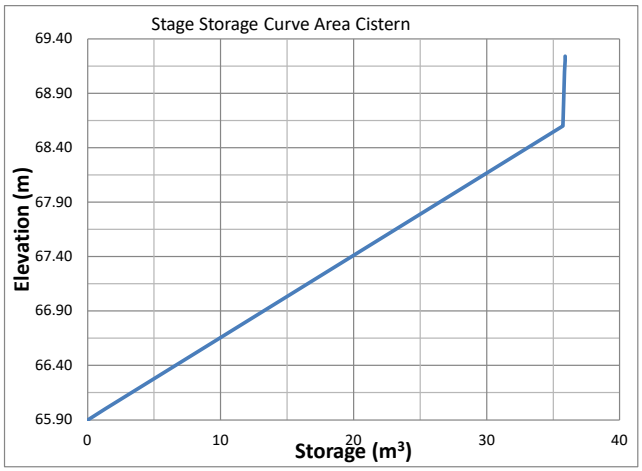

TABLE 4G: Cistern Sizing Information - A-01,R-01

Control Device					
		Pump			
Design Event	**Flow**	**Volume Required**	**Depth**	**Elevation**	**Outlet Dia. (mm)**
1:2 year	8.00	6.00	0.45	66.35	250
1:5 Year	8.00	10.43	0.79	66.69	250
1:100 Year	8.00	28.68	2.17	68.07	250

Table 5: Post-Development Stormwater Management Summary

Area ID	Area (ha)	1:5 Year Weighted Cw	1:100 Year Weighted Cw	Control Device	Outlet Location	2 Year Storm Event			5 Year Storm Event			100 Year Storm Event			
						Release (L/s)	Ponding Depth (m)	Req'd Vol (cu.m)	Release (L/s)	Ponding Depth (m)	Req'd Vol (cu.m)	Release (L/s)	Ponding Depth (m)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)
A-01,R-01	0.094	0.90	1.00	Pump	Argyle Avenue	8.0	0.450	6.00	8.0	0.790	10.43	8.0	2.170	28.68	35.72
Post-Development Flow						**8.0**	**-**	**6.0**	**8.0**	**-**	**10.4**	**8.0**	**-**	**28.7**	**35.7**
Total Allowable Release Rate						**8.0**			**8.0**			**8.0**			