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Block 1 & 2 Development

700 & 720 Bannermount Avenue

Servicing and Stormwater Management Report

SERVICING AND STORMWATER MANAGEMENT REPORT

BLOCK 1 & 2 DEVELOPEMENT
700 & 720 BANNERMOUNT AVENUE
CITY OF OTTAWA

Prepared By:

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

Prepared: August 1, 2024
Revised: May 15, 2025

Novatech File: 119240
Ref: R-2024-090

NOVATECH
Engineers, Planners & Landscape Architects

May 15, 2025

City of Ottawa
Planning and Growth Management Department
110 Laurier Avenue West, 4th Floor
Ottawa, Ontario
K1P 1J1

Attention: **Tracey Scaramozzino RPP/MCIP**

Dear Ms. Scaramozzino:

Reference: **Block 1 & 2, 700 & 720 Bannermount Avenue, Ottawa**
Servicing and Stormwater Management Report
Our File No.: 119240

Please find enclosed the 'Servicing and Stormwater Management Report' for the above noted project. This report has been revised as per City comments and is re-submitted for review in support of the Site Plan Application for the proposed development.

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

Sincerely,

NOVATECH

Matthew Hrehoriak, P.Eng.
Project Manager, Land Development Engineering

cc: Kelly Rhodenizer, Colonnade BridgePort

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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1.0 INTRODUCTION

Novatech has been retained by Colonnade Bridgeport to prepare a Servicing and Stormwater Management Report for the proposed residential development located at 700 & 720 Bannermount Avenue within the City of Ottawa. The proposed site is denoted as Block 1 & 2 on the proposed plan of subdivision (Formally Registered Plan No. 320 City of Ottawa). The development is part of the 25 Pickering Place redevelopment which includes the construction of a proposed public right-of-way (Bannermount Avenue) and the rehabilitation of the existing Pickering Place and Avenue K public right-of-way. The proposed subdivision design has been reviewed and approved by the City of Ottawa and registration and construction is imminent. The detailed design for the subdivision works is outlined within a separate Novatech report titled '25 Pickering Place Servicing and Stormwater management Report'. The purpose of this report is to support the site plan application for the subject development on Block 1 & 2. **Figure 1** Key Plan shows the site location.

2.0 EXISTING CONDITIONS

The two development Blocks 1 & 2 are approximately 0.42 hectares in size and are currently vacant. The site was previously occupied by the Dustbane Products Limited warehouse and office buildings which were demolished in the spring of 2024. The site is bound by Bannermount Avenue to the north, a future development (Block 3) to the east, existing parking lot to the south, and Pickering Place to the west. **Figure 2** shows the existing site conditions.

3.0 PROPOSED DEVELOPMENT

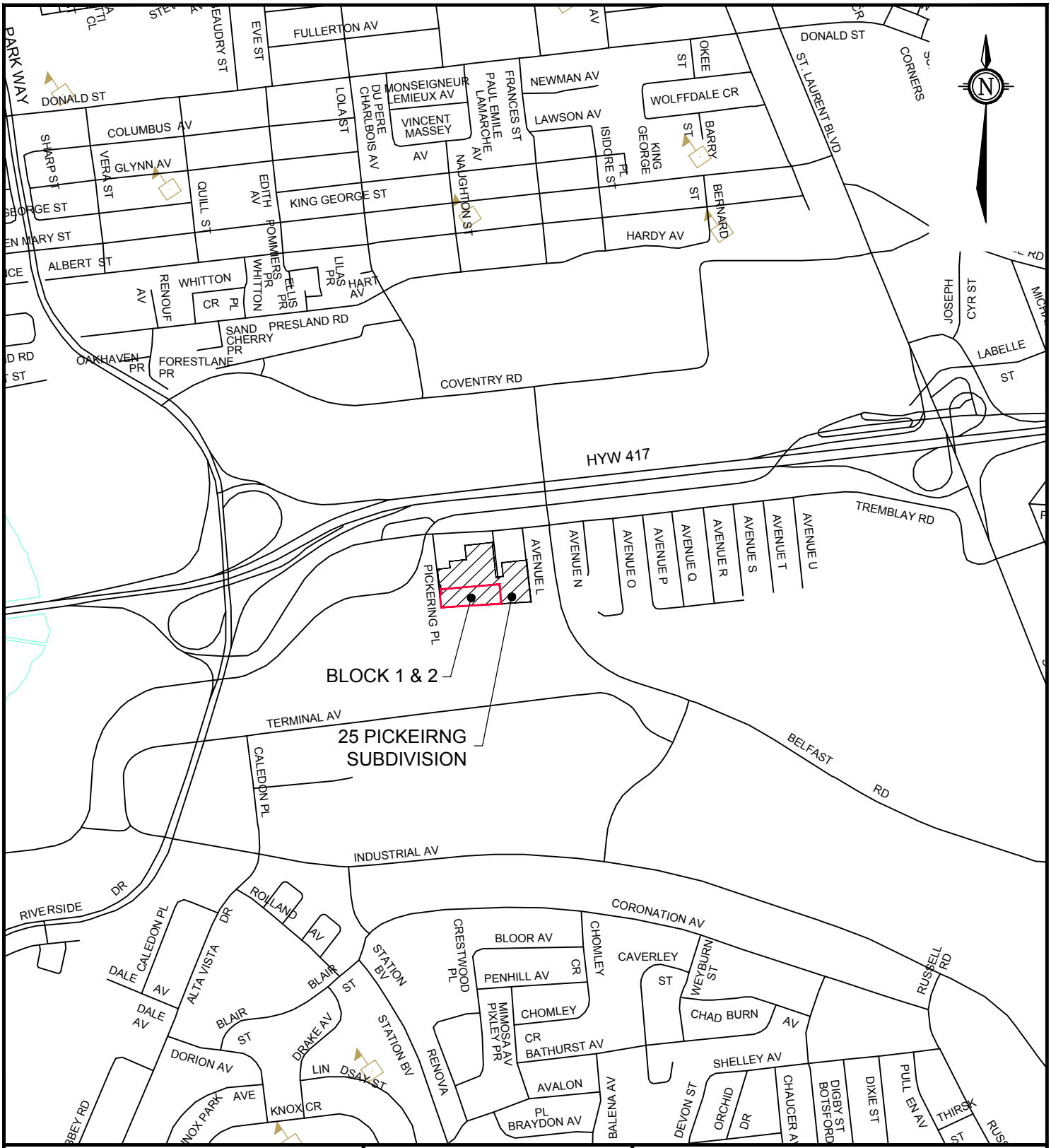
It is proposed to develop Blocks 1 & 2 with two high-rise multi-residential towers connected by an underground parking garage. Access to the parking garage will be provided from Bannermount Avenue. A movers/ garbage site access will be provided from Pickering Place for Block 1 and Bannermount Avenue for Block 2. The Block 1 development will be (28) storeys in height with a footprint of 1162m^2 and 309 units. The Block 2 development will be (14) storeys in height with a footprint of 1191m^2 and 165 units. The proposed towers will be serviced from the sewers and watermain in Bannermount Avenue and Pickering Avenue. **Figure 3** shows the proposed site plan.

It should be noted that this report should be read in conjunction with the following engineering drawings:
General Plan of Services (dwg 119240-SPGP)
Grading Plan (dwg 119240-SPGR)
Notes and Details Plan (dwg 119240-SPND)
Erosion and Sediment Control Plan (dwg 119240-SPESC)

4.0 SITE CONSTRAINTS

A geotechnical investigation was completed by Pinchin Ltd. and a report prepared entitled 'Geotechnical Investigation, Proposed Residential Development' dated March 2, 2020. The report included the following recommendations:

- It should be noted that bedrock was encountered between 6.4 to 9.1m below existing grade.
- It should be noted that ground water was observed at approximately 1.5-3.0m below existing grade.



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Website www.novatech-eng.com

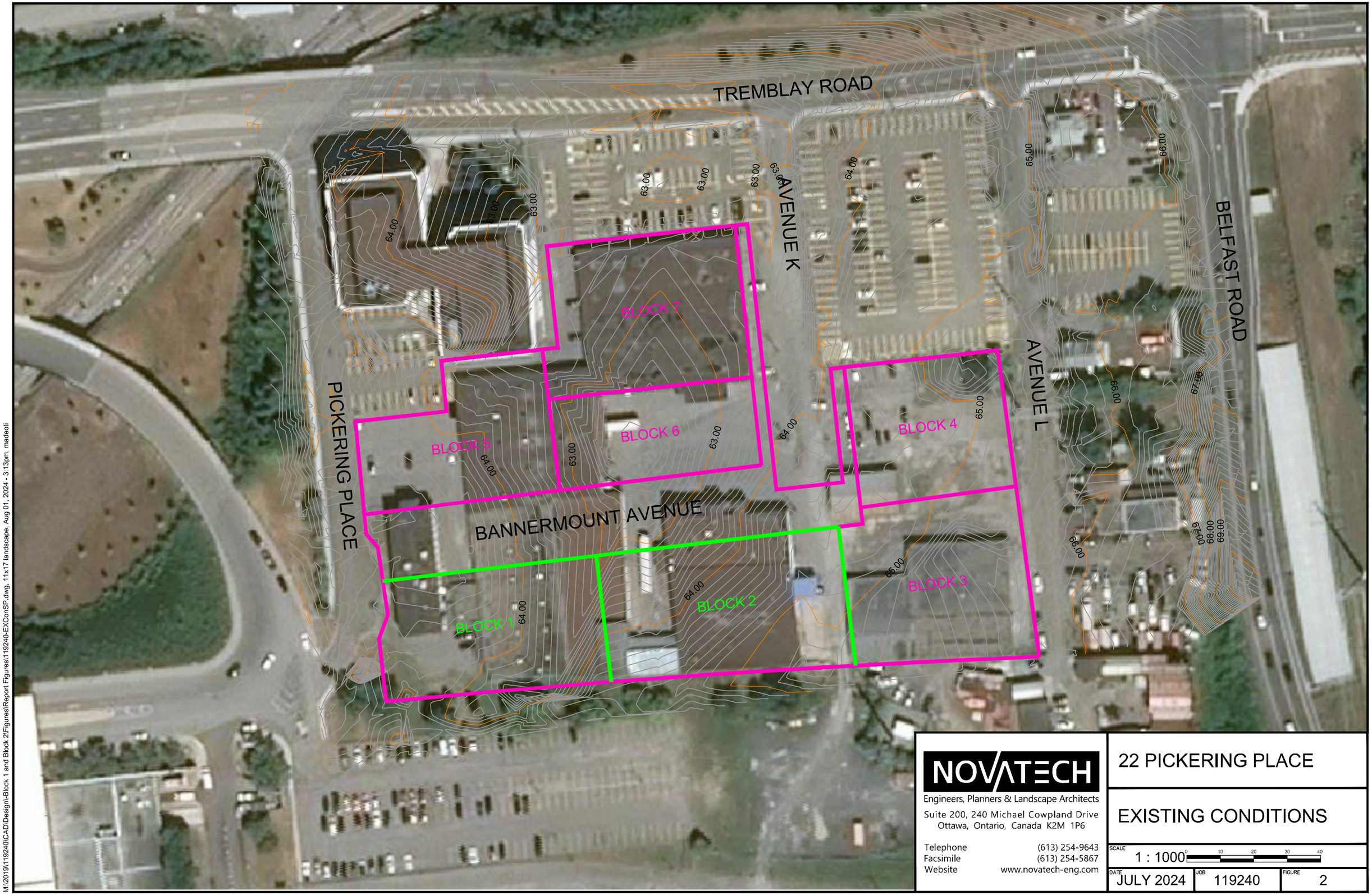
KEY PLAN

700 / 720 BANNERMOUNT AVENUE
CITY OF OTTAWA

DATE	JOB	FIGURE
MAY 2025	119240	1

M:\2019\119240\CAD\Design\-Block 1 and Block 2\Figures\Report Figures\119240-KPSP.dwg, Sheet 8x11 Keyplan, May 09, 2025 - 3:11pm, bbarkley

SHT8X11.DWG - 216mmx279mm



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Website www.novatech-eng.com

22 PICKERING PLACE

EXISTING CONDITIONS

SCALE 1 : 1000 (0 10 20 30 40)
DATE JULY 2024
JOB 119240
FIGURE 2

SHT11X17.DWG - 279mmX432mm

M:\2019\119240\CAD\Design\-Block 1 and Block 2\Figures\Report Figures\119240-EXConSP.dwg, 11x17 landscape, Aug 01, 2024 - 3:13pm, madeoli

BLOCK 5 (LOT D)

BLOCK 6 (LOT E)
PARK

BANNERMOUNT AVENUE

PICKERING PLACE

Concrete Sidewalk

CONCRETE SIDEWALK

DC

BUILDING 1 - RESIDENTIAL
28 STOREYS
F.F.E = 64.65/64.30
P1 LEVEL = 61.00
P2 LEVEL = 58.20
P3 LEVEL = 55.40

BUILDING 2 - RESIDENTIAL
14 STOREYS
F.F.E = 64.40
P1 LEVEL = 61.00
P2 LEVEL = 58.20
P3 LEVEL = 55.40

PLANTING BED

EXTENT OF UNDERGROUND PARKING PLANTING BED

INTAKE

MAIN ENTRANCE

AMENITY ENTRANCE

AIR INTAKE

COMMERCIAL ENTRANCE

GARBAGE & RECYCLING ENTRANCE

ORGANICS & PET WASH ENTRANCE

MOVE IN ENTRANCE

LEVELS 5 AND ABOVE

EXTENT OF UNDERGROUND PARKING

EXIT

UNDERGROUND PARKING ENTRANCE

BIKE ROOM ENTRANCE

PET & BIKE WASH ENTRANCE

AIR EXHAUST

1.5m CONC. SIDEWALK

GARBAGE ROOM ENTRANCE

1 Storey Building

2 Storey

Grass

0.25ø

0.45ø

0.9ø

1.0ø

0.4ø

0.5ø

VIA RAIL
PROPERTY

N

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700 / 720 BANNERMOUNT AVENUE
CITY OF OTTAWA

PROPOSED SITE PLAN
BLOCK 1 & 2

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

DATE MAY 2025 | JOB 119240 | FIGURE 3

SHT11X17.DWG - 279mmX432mm

M:\2019\119240\CAD\Design\-Block 1 and Block 2\Figures\Report Figures\119240-PRSP.dwg, PRSP, May 09, 2025 - 3:12pm, bbarkley

- During construction, groundwater volumes pumped could exceed 50,000 L/day and it would be required to register on the Environmental Activity and Sector Registry (EASR).

5.0 REFERENCE AND SUPPORTING DOCUMENT

The following documents will be referenced in conjunction with this report:

- 25 Pickering Place Ottawa, Ontario - Servicing and Stormwater Management Report R-2022-170, Prepared by Novatech revised September 20, 2023 (Novatech SWM Report)

6.0 WATER SERVICING

The subject development is located within the City of Ottawa 1E pressure zone. As previously indicated, the development blocks are part of a larger development (25 Pickering Place plan of subdivision) which includes the construction of Bannermount Avenue and the reconstruction of Pickering Plance and Avenue K. As part of the subdivision works the existing 150mm diameter watermain in Pickering Place and Avenue K will be upgraded with a new 200mm diameter watermain which will be looped through the new Bannermount right-of -way.

Block 1 will be serviced by two 200mmm diameter service laterals that connect to the new 200mm diameter watermain in Pickering Place and Bannermount Avenue. Block 2 will also be serviced by two 200mm diameter service laterals that connect to the new 200mm diameter watermain in Bannermount Avenue. Refer to the General Plan of Services drawing (119240-SPGP) for additional servicing details.

The water demand and fire flow calculations have been calculated using criteria from Section 4 of the City of Ottawa Water Distribution Guidelines. The required fire demand was calculated using the 2020 Fire Underwriters Survey (FUS) Guidelines. The water demands were calculated based on a total population of 778 people from a total of 474 units based on the following criteria:

Water Demands:

- Average Daily Demand = 280 L/capita/day
- Commercial Flow Demand = 28000 L/gross ha/day
- Studio Apartment Population = 1.4 Person/Unit
- 1-Bedroom Apartment Population = 1.4 Person/Unit
- 2-Bedroom Apartment Population = 2.1 Person/Unit
- 3 Bedroom Apartment Population =3.1 Person/Unit
- Residential Maximum Daily Demand = 2.5 x Average Daily Demand
- Residential Peak Hour Demand = 2.2 x Maximum Daily Demand
- Commercial Maximum Daily Demand = 1.5 x Average Daily Demand
- Commercial Peak Hour Demand = 1.8 x Maximum Daily Demand
- Fire Flow = Fire Underwriters Survey (FUS)

The water demands and fire flow calculations are provided in **Appendix A** for reference. A summary of the water demands, and fire flow requirements for each block are provided below in **Table 6.1.**

Table 6.1: Water Demand Summary

Area	Ave. Daily Demand (L/s)	Max. Daily Demand (L/s)	Peak Hour Demand (L/s)	Fire Flow (L/s)
Block 1	1.67	4.18	9.19	**100.0**
Block 2	0.86	2.14	4.70	
Total	**2.53**	**6.31**	**13.89**	

As per the City of Ottawa Technical Bulletin ISDTB-2014-02, the proposed development areas will require two service connections as the average day demands are greater than 50 cubic meters of water per day. The two services will be separated by an isolation valve within the municipal watermain system in the event maintenance on the system is required.

The City of Ottawa provided boundary conditions from the City's water model based on water demand information provided during the detailed subdivision design. The boundary conditions were used to determine whether the existing watermain infrastructure surrounding the development has capacity for the proposed development. The boundary conditions are provided below in **Table 6.2**.

Table 6.2: Water Boundary Conditions

Criteria	Head (m)
Connection to Existing 300mm Watermain Tremblay Road	
Minimum HGL	109.1
Maximum HGL	118.9
Max Day + Fire Flow HGL	114.6
Connection to Existing 300mm Watermain in Belfast Road	
Minimum HGL	108.9
Maximum HGL	118.9
Max Day + Fire Flow HGL	112.3

These boundary conditions were used to create a hydraulic model using EPANET for analyzing the performance of the proposed watermain system for the three revised theoretical conditions: 1) High Pressure check under Average Day conditions, 2) Peak Hour demand, 3) Maximum Day + Fire Flow Demand. The following **Table 6.3** summarizes the results from the hydraulic water analysis.

Table 6.3: Water Analysis Results Summary

Condition	Demand (L/s)	Min/Max Allowable Operating Pressures (psi)	Limits of Design Operating Pressures (psi)
High Pressure	9.87*	80psi (Max)	78.1* (Block 2)
Max Day + Fire Flow	124.67*	20psi (Min)	65.5*
Peak Hour	54.26*	40psi (Min)	61.7*

**Updated domestic demands and Limits of Design*

The above noted results from the hydraulic analysis include the proposed domestic demands from the Block 1 & 2 development and the anticipated domestic demands from the future development blocks. The fire flows are based on the Block 1 and 2 requirements. Refer to the '25 Pickering Place Servicing and Stormwater Management Report' for more details.

Based on the proceeding analysis it can be concluded that the watermain will provide adequate flow and pressures for the fire flow + maximum day demand and peak hour demand. The proposed fire hydrants surrounding the development on Pickering Place, Bannermount Avenue and Avenue K will provide the required fire protection for the proposed development. Refer to **Appendix A** for hydraulic calculations and City of Ottawa boundary conditions.

7.0 SANITARY SERVICING

As part of the subdivision works the existing 225mm diameter sanitary sewer in Pickering Place and Avenue K will be replaced with a new 250mm diameter sanitary sewer. A new 250mm diameter sanitary sewer will be constructed in Bannermount Avenue which connects to the sewer in Pickering Place. Blocks 1 & 2 will be serviced from the sanitary sewer in Bannermount Avenue with two 200mm diameter service laterals. Refer to the General Plan of Services drawing (119240-SPGP) for additional servicing details.

Sanitary flows for the proposed development are calculated from criteria in Section 4 of the *City of Ottawa Sewer Design Guidelines* (October 2012). The calculations are based on a total population of 778 people from a total of 474 units using the following design criteria:

- Average Daily Demand = 280 L/capita/day
- Commercial Flow Demand = 28000 L/gross ha/day
- Studio Apartment Population = 1.4 Person/Unit
- 1-Bedroom Apartment Population = 1.4 Person/Unit
- 2-Bedroom Apartment Population = 2.1 Person/Unit
- 3 Bedroom Apartment Population =3.1 Person/Unit
- Residential Peaking Factor = Harmon Equation (max peaking factor = 4.0)
- Commercial Peaking Factor = 1.5
- Peak Extraneous Flows (Infiltration) = 0.33L/s/ha

Detailed sanitary flow calculations and a sanitary sewer design sheet are provided in **Appendix B** for reference. The peak sanitary flows including infiltration are summarized below in **Table 7.1**.

Table 7.1: Sanitary Flow Summary

Building	Peak Residential Flows (L/s)	Peak Commercial Flows (L/s)	Extraneous Flows (L/s)	Total (L/s)
Block 1	5.30	0.01	0.06	**5.37**
Block 2	2.80	0.01	0.07	**2.88**
Total	**8.04**	**0.02**	**0.14**	**8.24**

The Block 1 & 2 developments were allocated 3.66 L/s and 4.12 L/s in the '25 Pickering Place Servicing and Stormwater Management Report'. Although the total allotted flow of 7.78L/s is marginally less than the proposed theoretical peak flow of 8.24 L/s it is our understanding that the City's system currently has capacity for the proposed development, and flow reserves are based on a 'first come first serve basis'.

8.0 STORM SERVICING & STORMWATER MANGEMENT

As part of the subdivision works the existing storm sewers in Pickering Place and Avenue K will be replaced with a new storm sewer with pipes ranging in size from 375mm to 525mm in diameter. A new storm sewer will be constructed in Bannermount Avenue with pipes ranging in size from 375mm to 525mm in diameter which connect to the sewer in Pickering Place. Blocks 1 & 2 will be serviced from the new storm sewer in Bannermount Avenue with two 250mm diameter service laterals. Refer to the General Plan of Services drawing (119240-SPGP) for servicing details.

8.1 Stormwater Management Criteria

The stormwater management strategy for the site has been developed based on criteria provided by the City of Ottawa and Rideau Valley Conservation Authority (RVCA).

8.1.1 Stormwater Quality Control

The quality control requirement for the development is enhanced level treatment or 80% removal of total suspended solids. The quality control will be provided in the downstream municipal oil and grit separator systems in Pickering Place and Avenue K. No additional quality control measures will be provided on the development blocks as the runoff is considered clean as there is generally only runoff from roof and landscape areas.

8.1.2 Stormwater Quantity Control – Allowable Release Rate

The allowable release rate for the overall development was calculated to be 288 L/s which was based on the following criteria:

- The 5-year IDF information from the MacDonald Cartier Airport.
- The pre-development runoff coefficient or a maximum 'C' of 0.50, whichever is less.
- A calculated time of concentration (Cannot be less than 10 minutes).
- Flows to the storm sewer in excess of the 5-year storm release rate, up to and including the 100-year storm event, must be detained on site.

Each block in the overall 25 Pickering Place development was allocated a portion of this total release rate. The allocated release rates for Blocks 1 and 2 are summarized below in **Table 8.1**.

Table 8.1 Allocated Release Rates

Development Area	Area (ha)	*Area %	Allowable Release Rate (L/s)
Block 1	0.196	13.7%	22
Block 2	0.224	15.7%	25

**Note: Area % is based on the percentage of the total subdivision development area.*

Refer to the '25 Pickering Place Servicing Stormwater Management Report' for detailed calculations on the allowable release rate allocation.

8.1.3 Post-Development Conditions

The post-development conditions will include both uncontrolled direct runoff and controlled site flows. Stormwater from the roof and central courtyard area above will be captured by roof

drains and area deck drains. Storm flows will be conveyed by the internal building plumbing to the underground storage tanks located north-west corner of block 1 and north-east corner of block 2. Stormwater collected within the storage tanks will be pumped to the municipal storm sewer in Bannermount Avenue. The pumps will be designed to control the release of stormwater from the Block 1 & 2 tanks to a maximum rate of 8.0 L/s (126.8 USGPM) and 15.5 L/s (245.7 USGPM) respectively. The storage tanks and pumps will be detailed during the building permit phase of the project by the Mechanical and Structural Engineer.

Table 8.2 and below summarizes the total post-development flows from Block 1 & 2 in the 5-year and 100-year event.

Table 8.2: Post-Development Stormwater Management Summary

Area ID	Area (ha)	1:5 Year Weighted Cw	5 Year Storm Event		100 Year Storm Event		
			Release (L/s)	Req'd Vol (cu.m)	Release (L/s)	Req'd Vol (cu.m)	Max. Vol. Provided (cu.m.)
DR 1	0.041	0.77	9.2	-	17.6	-	-
A1	0.156	0.87	8.0	22.4	8.0	56.5	70.0
Block 1 Release Rate			**17.2**		**25.6**		
Block 1 Flow Allotment			**22.0**		**22.0**		
DR 2	0.017	0.57	2.8	-	5.5	-	-
A2	0.216	0.78	15.5	21.3	15.5	58.6	70.0
Block 2 Release Rate			**18.3**		**21.0**		
Block 2 Flow Allotment			**25.0**		**25.0**		
Total Block 1/2 Release Rate			**35.5**		**46.6**		
Total Block 1/2 Flow Allotment			**47.0**		**47.0**		

As indicated in the **Table 8.2** above, the 100-year post development flow from Block 1 exceeds its flow allotment. To compensate for the increased flow from Block 1, Block 2 will be overcontrolled to balance the release rates and storage requirements for each block. The total post-development release rate for Blocks 1 and 2 combined will be less than the targeted allocated release rate for the site. Refer to **Appendix C** for the detailed drainage area plan, stormwater management calculations and the storm sewer design sheet.

8.2 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 Bannermount Avenue right-of-way. The major overland system is shown on the Grading Plan (119240-SPGR).

9.0 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 Grading Plan (119240-SPESC) for additional information.

10.0 CONCLUSIONS AND RECOMMENDATIONS

Watermain

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

- The new 200mm dia. municipal watermain fronting the development in Pickering Place and Bannermount Avenue will adequately service the proposed developments.
- It is anticipated that there are adequate pressures in the existing watermain infrastructure to meet the required domestic demands for the development.
- It is anticipated that 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:

- The proposed development will be adequately serviced by the new 250mm diameter municipal sanitary sewer in Bannermount Avenue.
- It is anticipated there is adequate capacity within the City system, and it is our understanding that the flow reserve is on a 'first come first serve basis'.

Stormwater Management

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

- The proposed storm service connection for block 1 & 2 is to connect to the new storm sewer in Bannermount Avenue.
- Storm sewers (minor system) have been designed to convey the uncontrolled 2-year peak flow using the Rational Method.
- Quantity control of stormwater will be provided by mechanical pumps and underground storage tanks.
- Quality control of will be provided through the installation of an Oil and Grit Separator Unit.
- A major overland flow route is provided to Bannermount Avenue

Erosion and Sediment control

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

11.0 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:

Matt Hrehoriak, P.Eng.
Project Manager
Land Development Engineering

Reviewed by:

J. Lee Sheets, C.E.T.
Director
Land Development Engineering

APPENDIX A
Water Servicing Information

NOVATECH
Engineers, Planners & Landscape Architects

700 / 720 Bannermount Avenue
Water Demands

JOB NO. 119240
DATE PREPARED: APRIL 2024
REVISED: MAY 2025

Building	Residential Demand (L/s)								Commercial Demand (L/s)				Total Demand (L/s)		
	Apartment Unit Count				Total Population	Avg Day	Max. Daily	Peak Hour	Floor Area (m^2)	Avg Day	Max. Daily	Peak Hour	Avg Day	Max. Daily	Peak Hour
	Studio	1-Bed	2-Bed	3-Bed											
Block 1	55	145	103	6	515	1.67	4.17	9.18	103.6	0.003	0.005	0.009	1.67	4.18	9.19
Block 2	38	85	39	3	263	0.85	2.13	4.69	120.7	0.004	0.006	0.011	0.86	2.14	4.70
Total	93	230	142	9	778								**2.53**	**6.31**	**13.89**

Design Parameters:

Studio Apartment	**1.4**	person/unit
1-Bedroom Apartment	**1.4**	person/unit
2-Bedroom Apartment	**2.1**	person/unit
3-Bedroom Apartment	**3.1**	person/unit

Section 4.0 Ottawa Sewer Design Guidelines

- Average Domestic Flow	280	L/person/day
- Commerical Flow	28000	L/(gross ha/day)

Peaking Factors: Table 4.2 City of Ottawa Water Distribution Guidelines

Max. Daily Demand:

- Residential	2.5	x Avg Day
- Commercial	1.5	x Avg Day

Peak Hourly Demand:

- Residential	2.2	x Max Day
- Commercial	1.8	x Max Day

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 119240
Project Name: 700 Bannermount Ave.
Date: May 15/2025
Input By: Ben Barkley
Reviewed By: Matthew Hrehoriak
Drawing Reference: Hobin Archi. Site Plan (A1.00)

Legend: Input by User
No Input Required
Reference: Fire Underwriter's Survey Guideline (2020)
Formula Method

Building Description: 28 Storey Building with Podium (Block 1)
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)	1162			
		Total Floors/Storeys (Podium)	4			
		Tower Footprint (m^2)	802			
		Total Floors/Storeys (Tower)	24			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**1,743**	
	F	**Base fire flow without reductions**				**7,000**
		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%	**5,950**
		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%	**-2,826**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	Yes	-10%	-10%	
				Cumulative Sub-Total	**-50%**	
		Area of Sprinklered Coverage (m^2)	22701	95%		
				Cumulative Total	**-47%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	**2,678**
		East Side	10.1 - 20 m		15%	
		South Side	3.1 - 10 m		20%	
		West Side	>30m		0%	
				Cumulative Total	**45%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**6,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**100**
				or	USGPM	1,585

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 119240
Project Name: 720 Bannermount Ave.
Date: May 15/2025
Input By: Ben Barkley
Reviewed By: Matthew Hrehoriak
Drawing Reference: Hobin Archi. Site Plan (A1.00)

Legend: Input by User
No Input Required
Reference: Fire Underwriter's Survey Guideline (2020)
Formula Method

Building Description: 14 Storey Building with Podium (Block 2)
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)	1191			
		Total Floors/Storeys (Podium)	4			
		Tower Footprint (m^2)	893			
		Total Floors/Storeys (Tower)	10			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**1,787**	
	F	**Base fire flow without reductions**				**7,000**
		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%	**5,950**
		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%	**-2,826**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	Yes	-10%	-10%	
				Cumulative Sub-Total	**-50%**	
		Area of Sprinklered Coverage (m^2)	13009	95%		
				Cumulative Total	**-47%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	>30m		0%	**2,975**
		East Side	10.1 - 20 m		15%	
		South Side	3.1 - 10 m		20%	
		West Side	10.1 - 20 m		15%	
				Cumulative Total	**50%**	
Results						
6	(1) + (2) + (3)	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**6,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**100**
				or	USGPM	1,585

HOBIN
ARCHITECTURE

May 15, 2025

To: Craig Hamilton, Development Review Planner
110 Laurier Avenue West
Ottawa, ON
K1P 1J1

Partners

Barry J. Hobin
OAA, FRAIC, Hon. Fellow AIA
Founding Partner

Wendy Brawley
OAA, MRAIC, Associate AIA

Douglas Brooks
Arch. Tech.

Marc Thivierge
OAA, MRAIC

Reinhard Vogel
Arch. Tech.

Rheal Labelle
M. Arch.

Dan Henhoeffer
Arch. Tech.

Melanie Lamontagne
OAA, MRAIC

Patrick Bisson
OAA, OAQ, MRAIC

Please find this letter as a formal confirmation that the drawings pertaining to the Site Plan Control Application – 25 Pickering meet the required parameters resulting in a reduction in fire flow. The development, comprised of one 28 storey building, one 14 storey building, and a three storey below grade parking garage will be constructed to ensure:

- The development is fully sprinklered, fully supervised, and designed as per NFPA 13,
- All structural elements have a minimum 2-hour fire rating,
- The development will be comprised of noncombustible materials as per the Ontario Building Code,
- The construction coefficient will equal 0.8 for Type II Noncombustible Construction

Sincerely,

Patrick Bisson
Hobin Architecture Inc.

ONTARIO ASSOCIATION OF ARCHITECTS
BARRY J. HOBIN
LICENCE
3049

Hobin Architecture Incorporated

63 Pamilla Street
Ottawa, Ontario
Canada K1S 3K7

t 613-238-7200
f 613-235-2005

hobinarc.com

Matthew Hrehoriak

From: Laura Clark <lclark@hobinarc.com>
Sent: Thursday, May 15, 2025 10:04 AM
To: Matthew Hrehoriak
Cc: Patrick Bisson; Sean O'Rourke
Subject: RE: 700 & 720 Bannermount Ave Building Construction FUS Confirmation

Hi Matt,

Thanks for your email and for our phone call this morning. All demising walls, corridor walls, and shaft walls will have a 1 hr fire rating. The stairwell walls will have a 2 hr fire rating, and the elevator core itself will have a 1.5 hr rating. Therefore, these walls on all levels of both the East and West buildings will meet the 1 hr minimum.

Please let me know if you require any additional information.

Thank you,

Laura

From: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>
Sent: May 15, 2025 9:29 AM
To: Laura Clark <lclark@hobinarc.com>
Cc: Patrick Bisson <pbisson@hobinarc.com>; Sean O'Rourke <sorourke@hobinarc.com>
Subject: RE: 700 & 720 Bannermount Ave Building Construction FUS Confirmation

Thanks Laura,

Confirmation of the protected opening is the big one for FUS, as it allows us to drastically reduce the effective protected area . Can you confirm that the vertical openings have a minimum 1 hour rating between floors? This would be stairwells, elevators, mechanical shafts, any penetrations between floors.

I will include the memo in our report appendix.

Matthew Hrehoriak, P.Eng., Project Manager | Land Development Engineering
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 273 | Cell: 613.791.0387

From: Laura Clark <lclark@hobinarc.com>
Sent: Wednesday, May 14, 2025 6:14 PM
To: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>
Cc: Patrick Bisson <pbisson@hobinarc.com>; Sean O'Rourke <sorourke@hobinarc.com>
Subject: RE: 700 & 720 Bannermount Ave Building Construction FUS Confirmation

Hi Matt,

Thanks for your email. In the past we have provided a memo to verify this. We can include this in our submission to Miranda tomorrow. Please see below:

Please find this letter as a formal confirmation that the drawings pertaining to the Site Plan Control Application – 25 Pickering meet the required parameters resulting in a reduction in fire flow. The development, comprised of one 28 storey building, one 14 storey building, and a three storey below grade parking garage will be constructed to ensure:

- The development is fully sprinklered, fully supervised, and designed as per NFPA 13,
- All structural elements have a minimum 2-hour fire rating,
- The development will be comprised of noncombustible materials as per the Ontario Building Code,
- The construction coefficient will equal 0.8 for Type II Noncombustible Construction

Please let me know if you require any additional information.

Thank you,

Laura

From: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>
Sent: May 14, 2025 4:24 PM
To: Laura Clark <lclark@hobinarc.com>
Cc: Patrick Bisson <pbisson@hobinarc.com>; Sean O'Rourke <sorourke@hobinarc.com>
Subject: 700 & 720 Bannermount Ave Building Construction FUS Confirmation

Hi Laura,

The city requires confirmation from the Architect to verify our FUS fire flow calculations. Can you confirm the following:

1. Building Construction Material: Type II – Non-Combustible Construction
2. Protected Opening (1Hr): Yes
3. Sprinkler System Design
    a. Adequately Designed System (NFPA 13): Yes
    b. Standard Water Supply: Yes
    c. Fully Supervised System: Yes

Thanks,

Matthew Hrehoriak, P.Eng., Project Manager | Land Development Engineering
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 273 | Cell: 613.791.0387

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NOVATECH
Engineers, Planners & Landscape Architects

25 Pickering Place
Overall Water Demands

JOB NO. 119240
DATE: SEPT 8, 2022
REVISED: MAY 15, 2025

	Unit Type	Total Population	Total Demand (L/s)		
Lot ID	No. of Units		Avg Day	Max. Daily	Peak Hour
Block 1	**190**	**342**	**1.67**	**4.18**	**9.19**
Block 2	**215**	**387**	**0.86**	**2.14**	**4.70**
Block 3	224	403	1.63	4.08	8.98
Block 4	243	437	1.77	4.43	9.74
Block 5	188	338	1.37	3.42	7.53
Block 6 (Park)	0	0	0.00	0.00	0.00
Block 7	352	634	2.57	6.42	14.13
Totals	1412	2541	**9.87**	**24.67**	**54.26**

Water Model Junction ID	Avg Day	Max. Daily	Peak Hour
Junction 5	**3.04**	**7.60**	**16.72**
Junction 7	**0.86**	**2.14**	**4.70**
Junction 8	**1.63**	**4.08**	**8.98**
Junction 10	**1.77**	**4.43**	**9.74**
Junction 15	**2.57**	**6.42**	**14.13**

Design Parameters:

Apartment

- Average Apartment (person/unit) = **1.8**

Design Criteria from Section 4 Ottawa Design Duidelines Water Distribution

- Average Domestic Flow 350 L/person/day

Max. Daily Demand:

- Residential Peak Factor 2.5 x Avg Day

Peak Hourly Demand:

- Residential Peak Factor 2.2 x Max Day

Note:
ISDTB-2014-02
Basic Day Demand > 50m³/day
Must supply isolation valves to create redundancy

```
**********************************************************************
*                          E P A N E T                               *
*                  Hydraulic and Water Quality                       *
*                  Analysis for Pipe Networks                        *
*                        Version 2.2                                 *
**********************************************************************
```

Input File: (AD) MAX HGL.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	RES-A	1	20	300
2	1	2	70	300
3	2	3	130	300
4	3	4	140	200
5	4	5	18	200
6	5	6	69	200
7	6	7	3	200
8	7	8	36	200
9	8	9	14.5	200
10	9	10	12	200
11	10	11	8	200
15	11	14	19.5	200
16	14	15	19	200
17	15	2	44	200
12	11	12	70	200
13	12	13	22.5	200
14	13	RES-B	52	200
18	12	1	83	150
19	RES-A	RES-B	130	300

Node Results at 0:00 Hrs:

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
5	3.04	118.88	54.88	0.00	Block 1
7	0.86	118.88	54.92	0.00	Block 2
15	2.57	118.89	55.68	0.00	
10	1.77	118.89	54.98	0.00	
8	1.63	118.88	55.01	0.00	
14	0.00	118.89	55.39	0.00	
6	0.00	118.88	54.89	0.00	
4	0.00	118.88	54.72	0.00	
9	0.00	118.88	54.92	0.00	
1	0.00	118.90	53.65	0.00	
12	0.00	118.90	53.55	0.00	
13	0.00	118.90	53.40	0.00	

Node Results at 0:00 Hrs: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
11	0.00	118.89	55.10	0.00	
2	0.00	118.90	55.73	0.00	
3	0.00	118.89	54.84	0.00	
RES-A	-7.46	118.90	0.00	0.00	Reservoir
RES-B	-2.41	118.90	0.00	0.00	Reservoir

Link Results at 0:00 Hrs:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
1	7.44	0.11	0.06	Open
2	6.59	0.09	0.05	Open
3	2.59	0.04	0.01	Open
4	2.59	0.08	0.08	Open
5	2.59	0.08	0.07	Open
6	-0.45	0.01	0.00	Open
7	-0.45	0.01	0.00	Open
8	-1.31	0.04	0.02	Open
9	-2.94	0.09	0.10	Open
10	-2.94	0.09	0.09	Open
11	-4.71	0.15	0.22	Open
15	-1.43	0.05	0.03	Open
16	-1.43	0.05	0.02	Open
17	-4.00	0.13	0.17	Open
12	-3.28	0.10	0.11	Open
13	-2.43	0.08	0.07	Open
14	-2.43	0.08	0.07	Open
18	-0.85	0.05	0.05	Open
19	0.02	0.00	0.00	Open

Node Results at 1:00 Hrs:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
5	3.04	118.88	54.88	1.00
7	0.86	118.88	54.92	0.86

```
**********************************************************************
*                          E P A N E T                               *
*                  Hydraulic and Water Quality                       *
*                  Analysis for Pipe Networks                        *
*                        Version 2.2                                 *
**********************************************************************
```

Input File: MAX DAY + FF.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	RES-A	1	20	300
2	1	2	70	300
3	2	3	130	300
5	4	5	18	200
6	5	6	69	200
7	6	7	3	200
8	7	8	36	200
9	8	9	14.5	200
10	9	10	12	200
11	10	11	8	200
15	11	14	19.5	200
16	14	15	19	200
17	15	2	44	200
12	11	12	70	200
13	12	13	22.5	200
14	13	RES-B	52	200
18	12	1	83	150
19	RES-A	RES-B	130	300
4	4	16	15	200
20	3	16	131	200
21	16	17	18	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
5	7.60	110.19	46.19	0.00	Block 1
7	2.14	110.27	46.31	0.00	Block 2
15	6.42	112.81	49.60	0.00	
10	4.43	111.93	48.02	0.00	
8	4.08	111.18	47.31	0.00	
14	0.00	112.50	49.00	0.00	
6	50.00	110.21	46.22	0.00	
4	50.00	110.20	46.04	0.00	
9	0.00	111.62	47.66	0.00	
1	0.00	114.35	49.10	0.00	

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality	
12	0.00	112.34	46.99	0.00	
13	0.00	112.33	46.83	0.00	
11	0.00	112.16	48.37	0.00	
2	0.00	113.73	50.56	0.00	
3	0.00	113.43	49.38	0.00	
16	0.00	110.48	46.03	0.00	
17	0.00	110.48	46.13	0.00	
RES-A	-288.04	114.60	0.00	0.00	Reservoir
RES-B	163.37	112.30	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
1	132.29	1.87	12.51	Open
2	107.01	1.51	8.78	Open
3	52.65	0.74	2.32	Open
5	2.65	0.08	0.08	Open
6	-4.95	0.16	0.24	Open
7	-54.95	1.75	20.82	Open
8	-57.09	1.82	25.15	Open
9	-61.17	1.95	30.72	Open
10	-61.17	1.95	25.39	Open
11	-65.60	2.09	28.90	Open
15	-47.94	1.53	17.38	Open
16	-47.94	1.53	16.17	Open
17	-54.36	1.73	21.10	Open
12	-17.66	0.56	2.59	Open
13	7.62	0.24	0.56	Open
14	7.62	0.24	0.56	Open
18	-25.28	1.43	24.19	Open
19	155.75	2.20	17.69	Open
4	-52.65	1.68	19.24	Open
20	52.65	1.68	22.51	Open
21	0.00	0.00	0.00	Open

```
**************************************************************************
*                            E P A N E T                                 *
*                     Hydraulic and Water Quality                        *
*                     Analysis for Pipe Networks                         *
*                           Version 2.2                                  *
**************************************************************************
```

Input File: (PH) MIN HGL.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
1	RES-A	1	20	300
2	1	2	70	300
3	2	3	130	300
4	3	4	140	200
5	4	5	18	200
6	5	6	69	200
7	6	7	3	200
8	7	8	36	200
9	8	9	14.5	200
10	9	10	12	200
11	10	11	8	200
15	11	14	19.5	200
16	14	15	19	200
17	15	2	44	200
12	11	12	70	200
13	12	13	22.5	200
14	13	RES-B	52	200
18	12	1	83	150
19	RES-A	RES-B	130	300

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
5	16.72	108.61	44.61	0.00	Block 1
7	4.70	108.61	44.65	0.00	Block 2
15	14.13	108.76	45.55	0.00	
10	9.74	108.68	44.77	0.00	
8	8.98	108.63	44.76	0.00	
14	0.00	108.74	45.24	0.00	
6	0.00	108.61	44.62	0.00	
4	0.00	108.64	44.48	0.00	
9	0.00	108.66	44.70	0.00	
1	0.00	109.06	43.81	0.00	
12	0.00	108.86	43.51	0.00	
13	0.00	108.87	43.37	0.00	

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
11	0.00	108.72	44.93	0.00	
2	0.00	108.97	45.80	0.00	
3	0.00	108.94	44.89	0.00	
RES-A	-88.47	109.10	0.00	0.00	Reservoir
RES-B	34.20	108.90	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
1	46.64	0.66	1.82	Open
2	39.25	0.56	1.36	Open
3	14.96	0.21	0.22	Open
4	14.96	0.48	2.12	Open
5	14.96	0.48	1.87	Open
6	-1.76	0.06	0.04	Open
7	-1.76	0.06	0.03	Open
8	-6.46	0.21	0.43	Open
9	-15.44	0.49	2.32	Open
10	-15.44	0.49	1.98	Open
11	-25.18	0.80	4.91	Open
15	-10.16	0.32	0.97	Open
16	-10.16	0.32	0.91	Open
17	-24.29	0.77	4.73	Open
12	-15.02	0.48	1.92	Open
13	-7.63	0.24	0.56	Open
14	-7.63	0.24	0.56	Open
18	-7.39	0.42	2.48	Open
19	41.83	0.59	1.54	Open

Matthew Hrehoriak

To: Paul Newcombe
Subject: RE: 25 Pickering Place - updated boundary conditions

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Monday, November 23, 2020 12:56 PM
To: Paul Newcombe <p.newcombe@novatech-eng.com>
Cc: Cara Ruddle <c.ruddle@novatech-eng.com>; Oram, Cody <Cody.Oram@ottawa.ca>
Subject: RE: 25 Pickering Place - updated boundary conditions

Good afternoon,

Please find attached and below the water boundary conditions for 25 Pickering Place.

The following are boundary conditions, HGL, for hydraulic analysis at 25 Pickering (zone 1E) assumed to be connected to the 305mm on Tremblay and the 305mm on Belfast (see attached PDF for location).

	305mm on Tremblay	305mm on Belfast
Minimum HGL	109.1m	108.9m
Maximum HGL	118.9m	118.9m
MaxDay + FireFlow (150 L/s)	114.6m	112.3m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Thanks,

Adam Baker, EIT
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South 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 26552, Adam.Baker@ottawa.ca

From: Paul Newcombe <p.newcombe@novatech-eng.com>
Sent: November 13, 2020 1:39 PM
To: Baker, Adam <adam.baker@ottawa.ca>

Cc: Cara Ruddle <c.ruddle@novatech-eng.com>; Oram, Cody <Cody.Oram@ottawa.ca>
Subject: RE: 25 Pickering Place - updated boundary conditions

Hi Adam,

We have added an additional building to the site since the email below. The updated water demands are included below. We are looking for boundary conditions at the same location described previously.

Revised Totals:
Avg day = 14.17 L/s
Max day = 35.43 L/s
Peak Hour = 77.94 L/s
Max day + Fire Flow = 218.43 L/s

Could you please send us these boundary conditions as soon as possible as we are currently preparing a resubmission package in response to City comments.

Thanks you,

Paul Newcombe, E.I.T.
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 271 | Fax: 613.254.5867

APPENDIX B
Sanitary Servicing Information

NOVATECH
Engineers, Planners & Landscape Architects

700 / 720 Bannermount Avenue
Sanitary Peak Flows

JOB NO. 119240
DATE PREPARED: APRIL 2024
REVISED: MAY 2025

Building	RESIDENTIAL							COMMERCIAL		INFILTRATION			Total Flow (l/s)
	Apartment Unit Count				Pop.	Peak Factor	Peak Flow (l/s)	Area (m^2)	Peak Flow (L/s)	Total Area (ha)	Accum. Area (ha)	Infilt. Flow (l/s)	
	Studio	1-Bed	2-Bed	2-Bed									
Building 1	55	145	103	6	515	3.2	5.30	103.6	0.01	0.197	0.197	0.06	5.37
Building 2	38	85	39	3	263	3.3	2.80	120.7	0.01	0.224	0.224	0.07	2.88
Total	**93**	**230**	**142**	**9**	**778**		**8.09**		**0.01**	**0.421**		**0.14**	**8.24**

Design Parameters:

Studio Apartment	**1.4**	person/unit
1-Bedroom Apartment	**1.4**	person/unit
2-Bedroom Apartment	**2.1**	person/unit
3-Bedroom Apartment	**3.1**	person/unit

Section 4.0 Ottawa Sewer Design Guidelines

- Average Domestic Flow	280	L/person/day
- Commercial Flow	28000	L/gross ha/day
- Extraneous Flows	0.33	l/s/ha
Residential Peaking Factor	Harmon Equation	
Commercial Peaking Factor	1.5	

NOVATECH
Engineers, Planners & Landscape Architects

700 / 720 Bannermount Avenue
Sanitary Design Sheet

JOB NO.: 119240
DATE PREPARED: MAY 2025

LOCATION			Peak Flows			Total Flow (l/s)	PIPE					
AREA	FROM	TO	RESIDENTIAL PEAK FLOW (L/S)	COMMERCIAL PEAK FLOW (L/S)	INFILTRATION FLOW (L/S)		Size (mm)	Slope (%)	Length (m)	Capacity (l/s)	Full Flow Vel. (m/s)	Q/Q_{full} (%)
Block 1	**BLDG**	**EX**	5.30	0.01	0.06	5.37	200	2.00	10.5	46.3	1.48	11.6%
Block 1	**BLDG2**	**SANMH 111**	2.80	0.01	0.07	2.88	200	2.00	9.7	46.3	1.48	6.2%
Bannermount Sewer Capacity						8.25	250	0.35	-	35.1	0.72	23.5%

Design Parameters:

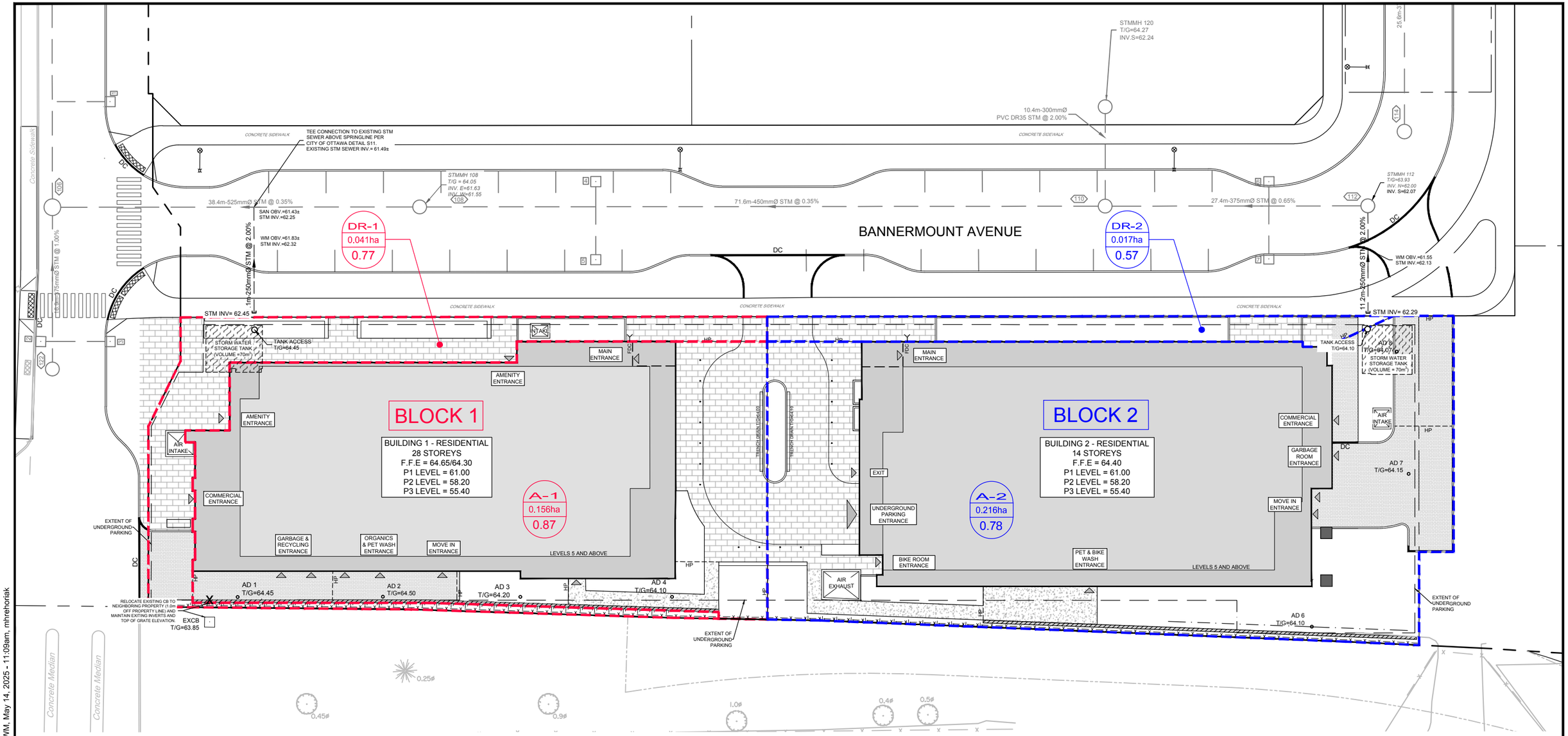
- 1 Batchelor = 1.4 persons/unit
- 1 Bed Apartment = 1.4 persons/unit
- 2 Bed Apartment = 2.1 persons/unit
- 3 Bed Apartment =3.1 persons/unit

Section 4.0 Ottawa Sewer Design Guidelines

- Average Domestic Flow 280 L/person/day
- Extraneous Flows 0.33 l/s/ha

Residential Peaking Factor Harmon Equation

APPENDIX C
Stormwater Management Calculations



LEGEND

BLOCK 1

A-1
0.156ha
0.87

DRAINAGE AREA (Ha)
DRAINAGE AREA NUMBER
RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

700 / 720 BANNERMOUNT AVENUE CITY OF OTTAWA

POST DEVELOPMENT STORMWATER MANAGEMENT PLAN

SCALE 1 : 400 (0 4 8 12 16)
DATE MAY 2025
JOB 119240
FIGURE SWM

SHT11X17.DWG - 279mmX432mm

M:\2019\119240\CADDesign\-Block 1 and Block 2\119240-SPSWM.dwg, SPSWM, May 14, 2025 - 11:09am, mhrehoriak

PROJECT #: 119240
PROJECT NAME: 22 Pickering Place (Block 1)
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2024
REVISED: May 2025

TABLE 2A: Post-Development Runoff Coefficient "C" - DR

Area	Surface	Ha	"C"	C_{avg}	$*C_{100}$
Total	Hard	0.034	0.90	0.77	0.86
0.041	Soft	0.008	0.20		

Runoff Coefficient Equation

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

* Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

TABLE 2B: Post-Development DR Flows

Outlet Options	Area (ha)	C_{avg}	Tc (min)	$Q_{2\ Year}$ (L/s)	$Q_{5\ Year}$ (L/s)	$Q_{100\ Year}$ (L/s)	$Q_{100\ Year\ +20\%}$ (L/s)
Block 1	0.041	0.77	10	**6.8**	**9.2**	**17.6**	**21.1**

Time of Concentration	Tc=	10	min
Intensity (2 Year Event)	0	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) $^{0.810}$

TABLE 3A: Post-Development Runoff Coefficient "C"

			5 Year Event		100 Year Event	
Area	Surface	ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.037	0.90	0.87	1.00	0.97
0.156	Roof	0.112	0.90		1.00	
	Soft	0.007	0.20		0.25	

TABLE 3B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT

0.156 =Area (ha)
0.87 = 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	10	76.81	28.93	8.0	20.93	12.56
	15	61.77	23.27	8.0	15.27	13.74
	20	**52.03**	**19.60**	**8.0**	**11.60**	**13.92**
	25	45.17	17.01	8.0	9.01	13.52
	30	40.04	15.08	8.0	7.08	12.75

TABLE 3C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT

0.156 =Area (ha)
0.87 = 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	15	83.56	31.48	8.0	23.48	21.13
	20	70.25	26.46	8.0	18.46	22.16
	25	**60.90**	**22.94**	**8.0**	**14.94**	**22.41**
	30	53.93	20.31	8.0	12.31	22.17
	35	48.52	18.28	8.0	10.28	21.58

TABLE 3D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT

0.156 =Area (ha)
0.97 = 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	35	82.58	34.61	8.0	26.61	55.88
	40	75.15	31.49	8.0	23.49	56.38
	45	**69.05**	**28.94**	**8.0**	**20.94**	**56.53**
	50	63.95	26.80	8.0	18.80	56.41
	55	59.62	24.99	8.0	16.99	56.06

TABLE 3D: 100+20 YEAR EVENT QUANTITY STORAGE REQUIREMENT

0.156 =Area (ha)
0.97 = 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%	45	82.86	34.73	8.0	26.73	72.16
	50	76.74	32.16	8.0	24.16	72.49
	55	71.55	**29.98**	**8.0**	**21.98**	**72.55**
	60	67.07	28.11	8.0	20.11	72.39
	65	63.18	26.48	8.0	18.48	72.06

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

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

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

PROJECT #: 119240
PROJECT NAME: 700 Bannermount Avenue (Block 1)
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2024
REVISED: May 2025

Table 4: Post-Development Stormwater Mangement Summary

Area ID	Area (ha)	1:5 Year Weighted Cw	1:100 Year Weighted Cw	Outlet Location		2 Year Storm Event			5 Year Storm Event			100 Year Storm Event			100 Year + 20% Storm Event		
					Orifice	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)	Release (L/s)	Max Ponding Depth (m)	Req'd Vol (cu.m)
DR	0.041	0.77	0.86	Block 1	N/A	6.8	N/A	N/A	9.2	N/A	N/A	17.6	N/A	N/A	21.1	N/A	N/A
A-1	0.156	0.87	0.97	Block 1	Pump	8.0	0.49	13.9	8.0	0.78	22.4	8.0	1.97	56.5	8.0	-	72.6
Total		**0.85**				**14.8**			**17.2**			**25.6**			**29.1**		
Allowable						**22.0**			**22.0**			**22.0**					

PROJECT #: 119240
PROJECT NAME: 22 Pickering Place (Block 2)
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2024

TABLE 2A: Post-Development Runoff Coefficient "C" - DR

Area	Surface	Ha	"C"	C_{avg}	*C_{100}
Total	Hard	0.009	0.90	0.57	0.65
0.017	Soft	0.008	0.20		

Runoff Coefficient Equation

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

* Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

TABLE 2B: Post-Development DR Flows

Outlet Options	Area (ha)	C_{avg}	Tc (min)	$Q_{2\ Year}$ (L/s)	$Q_{5\ Year}$ (L/s)	$Q_{100\ Year}$ (L/s)	$Q_{100\ Year\ +20\%}$ (L/s)
Block 2	0.017	0.57	10	**2.1**	**2.8**	**5.5**	**6.6**

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) $^{0.810}$

PROJECT #: 119240
PROJECT NAME: 22 Pickering Place (Block 2)
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2024

TABLE 3A: Post-Development Runoff Coefficient "C"

			5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.056	0.90	0.78	1.00	0.87
0.216	Roof	0.123	0.90		1.00	
	Soft	0.037	0.20		0.25	

TABLE 3B: 2 YEAR EVENT QUANTITY STORAGE REQUIREMENT

0.216 =Area (ha)
0.78 = 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	78.33	15.5	62.83	0.00
	5	103.57	48.52	15.5	33.02	9.90
	10	**76.81**	**35.98**	**15.5**	**20.48**	**12.29**
	15	61.77	28.93	15.5	13.43	12.09
	20	52.03	24.37	15.5	8.87	10.65

TABLE 3C: 5 YEAR EVENT QUANTITY STORAGE REQUIREMENT

0.216 =Area (ha)
0.78 = 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	66.13	15.5	50.63	15.19
	10	104.19	48.81	15.5	33.31	19.98
	15	**83.56**	**39.14**	**15.5**	**23.64**	**21.28**
	20	70.25	32.91	15.5	17.41	20.89
	25	60.90	28.53	15.5	13.03	19.54

TABLE 3D: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT

0.216 =Area (ha)
0.87 = 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	62.77	15.5	47.27	56.73
	25	103.85	54.35	15.5	38.85	58.27
	30	**91.87**	**48.08**	**15.5**	**32.58**	**58.64**
	35	82.58	43.22	15.5	27.72	58.20
	40	75.15	39.33	15.5	23.83	57.18

TABLE 3D: 100+20 YEAR EVENT QUANTITY STORAGE REQUIREMENT

0.216 =Area (ha)
0.87 = 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%	25	124.62	65.22	15.5	49.72	74.57
	30	110.24	57.69	15.5	42.19	75.95
	35	99.09	**51.86**	**15.5**	**36.36**	**76.35**
	40	90.17	47.19	15.5	31.69	76.06
	45	82.86	43.36	15.5	27.86	75.23

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

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

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

PROJECT #: 119240
PROJECT NAME: 22 Pickering Place (Block 2)
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2024

Table 4: Post-Development Stormwater Mangement Summary

Area ID	Area (ha)	1:5 Year Weighted Cw	1:100 Year Weighted Cw	Outlet Location	Orifice	2 Year Storm Event			5 Year Storm Event			100 Year Storm Event			100 Year + 20% 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)	Release (L/s)	Max Ponding Depth (m)	Req'd Vol (cu.m)
DR	0.017	0.57	0.65	Block 2	N/A	2.1	N/A	N/A	2.8	N/A	N/A	5.5	N/A	N/A	6.6	N/A	N/A
A-2	0.216	0.78	0.87	Block 2	Pump	15.5	0.47	12.3	15.5	0.81	21.3	15.5	2.22	58.6	15.5	-	76.4
Total		**0.76**				**17.6**			**18.3**			**21.0**			**22.1**		
Allowable						**25.0**			**25.0**			**25.0**					

NOVATECH
Engineers, Planners & Landscape Architects

700 / 720 Bannermount Avenue
Storm Sewer Design Sheet

JOB NO.: 119240
DATE PREPARED: MAY 2025

2-Year Storm Sewer Design Sheet

LOCATION			AREA (Ha)			FLOW					PROPOSED SEWER							
Area	FROM	TO	TOTAL AREA	R= 0.2	R= 0.9	INDIV 2.78 AR	ACCUM 2.78 AR	TIME OF CONC.	RAINFALL INTENSITY I	* PEAK FLOW Q (l/s)	PIPE SIZE (mm)	PIPE SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW (min.)	EXCESS CAPACITY (l/s)	Q/Qfull
Block 1	Tank 1	EX SEWER	0.156	0.007	0.149	0.38	0.38	10.00	76.81	28.93	250.0	2.00	11.1	84.18	1.71	0.11	55.25	34%
Block 2	Tank 2	STMMH 112	0.216	0.037	0.179	0.47	0.47	10.00	76.81	35.98	250.0	2.00	11.2	84.18	1.71	0.11	48.21	43%

***Note: Storm sewer design sheet flows are peak uncontrolled flows. Flows will be controlled by pump flow rates.**

Definitions
Q = 2.78 AIR
Q = Peak Flow, in Litres per second (L/s)
A = Area in hectares (ha)
I = 2 YEAR Rainfall Intensity (mm/h)
R = Runoff Coefficient

Notes:
1) Ottawa Rainfall-Intensity Curve
2) Min Velocity = 0.76 m/sec.
3) 2 Year intensity = 732.951 / (time +6.199)$^{0.810}$

APPENDIX D
Drawings

GENERAL NOTES:

1. DIMENSIONS AND LAYOUT INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. THE ORIGINAL TOPOGRAPHY AND GROUND ELEVATIONS, SERVICING AND SURVEY INFORMATION SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF ALL INFORMATION OBTAINED FROM THIS PLAN.
3. CO-ORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
4. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS.
5. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
6. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
7. CONNECT TO EXISTING SYSTEMS AS DETAILED, INCLUDING ALL RESTORATION WORK NECESSARY TO REINSTATE SURFACES TO EXISTING CONDITIONS OR BETTER.
8. RESTORE ALL TRENCHES AND SURFACE FEATURES TO EXISTING CONDITIONS OR BETTER AND TO THE SATISFACTION OF MUNICIPAL AUTHORITIES.
9. ASPHALT RESTORATION SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA DETAIL R-10. THICKNESS OF GRANULAR MATERIAL AND ASPHALT LAYERS TO MATCH EXISTING. BOULEVARDS SHALL BE REINSTATED WITH 100mm OF TOPSOIL, SEED AND MULCH.
10. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
11. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
12. ALL FENCING TO BE LOCATED 0.15m INSIDE PROPERTY LINE. REFER TO LANDSCAPING PLAN FOR DETAILS.
13. PERFORATED PIPE SUB-DRAINS TO BE PROVIDED AT SUBGRADE LEVEL EXTENDING FROM THE ROADSIDE CATCHBASIN FOR A DISTANCE OF 3.0m, PARALLEL TO THE CURB IN TWO DIRECTIONS.
14. REFER TO GEOTECHNICAL REPORT (File 267991.001, DATED MARCH 2, 2020), PREPARED BY PINCHIN FOR SUBSURFACE SOIL AND GROUNDWATER CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
15. REFER TO THE STORMWATER MANAGEMENT REPORT No. R-2024-090 DATED MAY 15, 2025 PREPARED BY NOVATECH.
16. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
17. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

GRADING AND PAVEMENT NOTES:

1. ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED HARD SURFACE (ie. PAVEMENT, CURB, SIDEWALK, ETC.) AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
2. EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE HEAVILY PROOF ROLLED WITH A LARGE (10 TON) VIBRATORY STEEL DRUM ROLLER UNDER DRY CONDITIONS AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
3. ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
4. THE GRANULAR BASE SHOULD BE PLACED IN MAXIMUM 300mm LIFTS AND COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE PLACED IN MAXIMUM 300mm LIFTS AND COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
5. GRADE AND/OR FILL BETWEEN BUILDINGS AND CURBS, WHERE REQUIRED, TO PROVIDE POSITIVE DRAINAGE.
6. MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
7. MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
8. ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
9. ALL CURBS SHALL BE BARRIER CURB, UNLESS OTHERWISE NOTED, AND CONSTRUCTED PER CITY OF OTTAWA STANDARD (SC1.1).
10. REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
11. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THE PLAN.

PAVEMENT STRUCTURE:

LIGHT DUTY PAVEMENT
50mm HL3 OR SP 12.5
150mm OPSS GRANULAR "A"
300mm OPSS GRANULAR "B" TYPE II

EROSION AND SEDIMENT CONTROL NOTES:

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

1) THE OWNER AGREES TO PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL SUCH AS BUT NOT LIMITED TO INSTALLING FILTER CLOTHS ACROSS MANHOLE/CATCHBASIN LIDS TO PREVENT SEDIMENTS FROM ENTERING STRUCTURES AND INSTALL AND MAINTAIN A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.

2) THE CONTRACTOR SHALL PLACE FILTER BAGS UNDER THE CATCHBASIN AND MANHOLE GRATES FOR THE DURATION OF CONSTRUCTION AND WILL REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION.

3) SILT FENCING FOR ENTIRE PERIMETER OF SITE, SHALL BE UTILIZED TO CONTROL EROSION FROM THE SITE DURING CONSTRUCTION.

4) THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

5) PROVIDE MUD MATS AT ALL CONSTRUCTION ACCESS POINTS TO MINIMIZE SEDIMENT TRANSPORT OFFSITE.

6) EROSION AND SEDIMENT CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA SITE INSPECTOR OR CONSERVATION AUTHORITY.

WATERMAIN NOTES:

1. GENERAL:

ITEM	DETAIL No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER / OVER SEWER	W25 / W25.2	CITY OF OTTAWA
WATERMAIN	PVC DR18	CITY OF OTTAWA
VALVE BOX	W24	CITY OF OTTAWA

2. THE WATERMAIN SHALL BE PVC DR 18 IN ACCORDANCE WITH MATERIAL SPECIFICATION MW-18.1, UNLESS OTHERWISE INDICATED.
3. SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
4. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
5. INSULATE ALL WATERMAIN / WATER SERVICES THAT HAVE LESS THAN 2.4m OF COVER PER CITY OF OTTAWA DETAIL W22, PROVIDE 150mm OR CLEARANCE BETWEEN PIPE AND INSULATION.
6. PROVIDE MINIMUM 0.50m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS.
7. WATER SERVICE SHALL BE CONSTRUCTED TO WITHIN 1.0mOF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

SEWER NOTES:

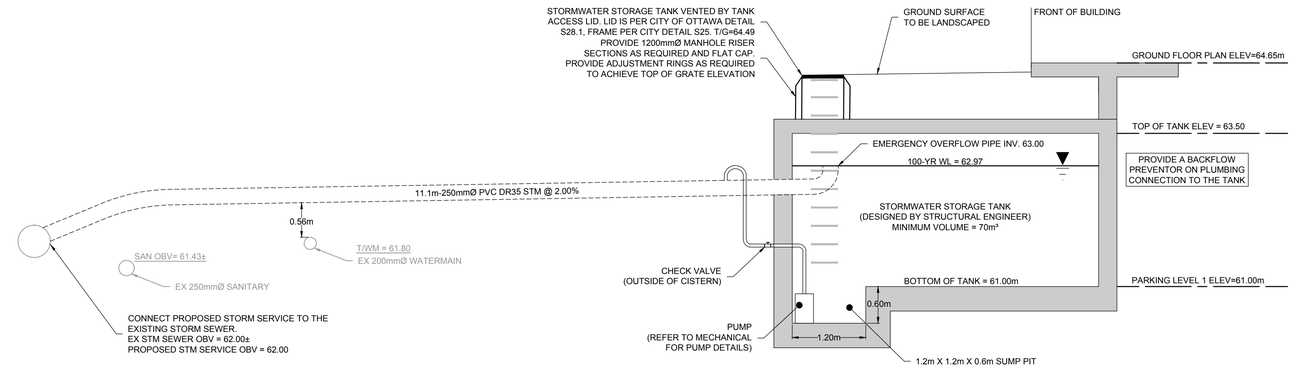
1. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
CATCHBASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200Ø)	701.010	OPSD
STORM/SANITARY MH FRAME	S25	CITY OF OTTAWA
SANITARY COVER	S24	CITY OF OTTAWA
STORM COVER (CLOSED)	S24.1	CITY OF OTTAWA
STORM COVER (OPEN)	S28.1	CITY OF OTTAWA
STORM SEWER < 450mmØ	PVC DR 35(UNLESS SPECIFIED OTHERWISE)	
STORM SEWER >= 450mmØ	CONC 65D (UNLESS SPECIFIED OTHERWISE)	
SANITARY SEWER	PVC DR 35	

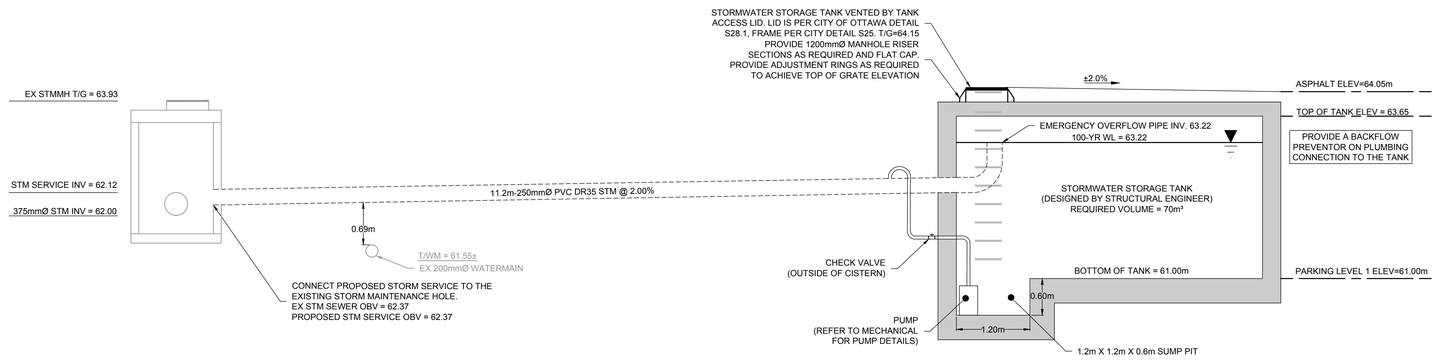
2. INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 2.0m COVER PER CITY OF OTTAWA DETAIL S35, PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
3. SERVICES ARE TO BE CONSTRUCTED TO PROPERTY LINE AT MINIMUM SLOPE OF 1.0% (2.0% IS PREFERRED).
4. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
5. SEWER SERVICE CONNECTIONS PER CITY OF OTTAWA DETAILS S11 AND S11.1.
6. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
7. THE OWNER SHALL REQUIRE THAT THE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF TEST RESULTS.
8. STORM MANHOLES AND CBMHS SHALL HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
9. ENSURE MANHOLE CHIMNEY IS ROTATED TO BEST AVOID STANDARD WHEEL PATHING.
10. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.

SWM TANK NOTES:

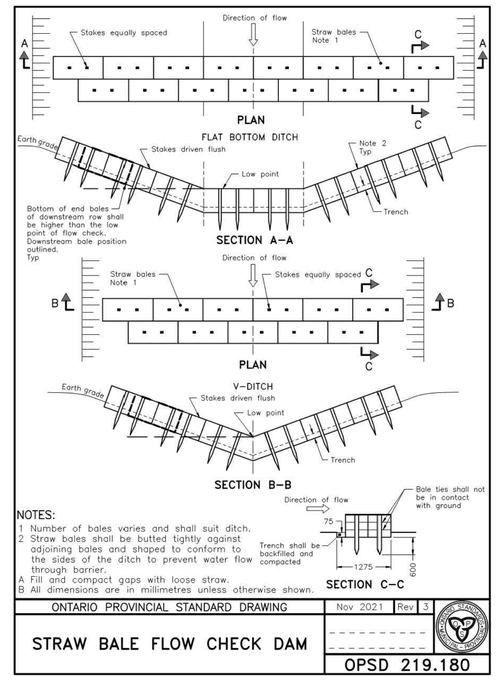
1. THE MINIMUM INTERNAL SIZE OF THE BLOCK 1 STORMWATER MANAGEMENT TANK IS TO BE 70m³. REFER TO THE CROSS SECTION DETAIL AND THE ARCHITECTS DRAWINGS FOR TANK DIMENSIONS, CONFIGURATION, MATERIALS AND WATERPROOFING DETAILS.
2. THE MINIMUM INTERNAL SIZE OF THE BLOCK 2 STORMWATER MANAGEMENT TANK IS TO BE 50m³. REFER TO THE CROSS SECTION DETAIL AND THE ARCHITECT'S DRAWINGS FOR TANK DIMENSIONS, CONFIGURATION, MATERIALS AND WATERPROOFING DETAILS.
3. THE ACCESS HATCHES ARE TO OPERATE AS THE EMERGENCY OVERFLOW FOR THE SWM TANK. PROVIDE THE FRAME AND COVERS PER S25 & S28.1 RESPECTIVELY.
4. PROVIDE CIRCULAR HOLLOW ALUMINIUM MAINTENANCE HOLE STEPS ALONG TANK WALLS AT THE ACCESS HATCHES PER OPSD 405.010.



BLOCK 1 STORMWATER STORAGE TANK CROSS SECTION
SCALE 1:50



BLOCK 2 STORMWATER STORAGE TANK CROSS SECTION
SCALE 1:50



ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2021 | Rev 3

STRAW BALE FLOW CHECK DAM

OPSD 219.180

NOTE:
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No.	REVISION	DATE	BY
3.	RE-ISSUED FOR SITE PLAN APPLICATION	MAY 15/25	MJH
2.	ISSUED FOR SITE PLAN APPLICATION	AUG 1/24	MJH
1.	ISSUED FOR SITE PLAN PHASE 2	MAY 10/24	RJK

SCALE: AS SHOWN

DESIGN MJH | CHECKED MJH | DRAWN RJK | CHECKED MJH | APPROVED MJH

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER M.J. HREHORIAK 100211256 MAY 15/25 PROVINCE OF ONTARIO

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Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
22 PICKERING PLACE - BLOCK 1 & BLOCK 2

DRAWING NAME
NOTES & DETAILS

PROJECT No. 119240
REV REV # 3
DRAWING No. 119240-SPND

D07-12-24-0077

PLAN# 18865

M:\2019\119240\CAD\Design\-Block 1 and Block 2\119240-SPND.dwg 119240-SPND, May 15, 2025 - 3:24pm, mhrehoriak

PLANA1.DWG - 841mmx594mm

LEGEND

- PROPERTY LINE
- SETBACK LIMIT
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- TERRACING 3:1 SLOPE MAX (UNLESS OTHERWISE INDICATED)
- PROPOSED RETAINING WALL
- UNDERGROUND PARKING P1 LIMIT
- V&VB — PROPOSED VALVE AND VALVE BOX
- PROPOSED AREA DECK DRAIN BY OTHERS (REFER TO MECH DRAWINGS FOR MORE INFO)
- PROPOSED FILTER BAGS AT CATCHBASINS, CATCHBASIN MANHOLES AND AREA DRAINS
- LIGHT DUTY SILT FENCE (OPSD 219.110)
- M M — PROPOSED MUD MAT
- PROPOSED STRAW BALE BARRIER
- PROPOSED SWALE

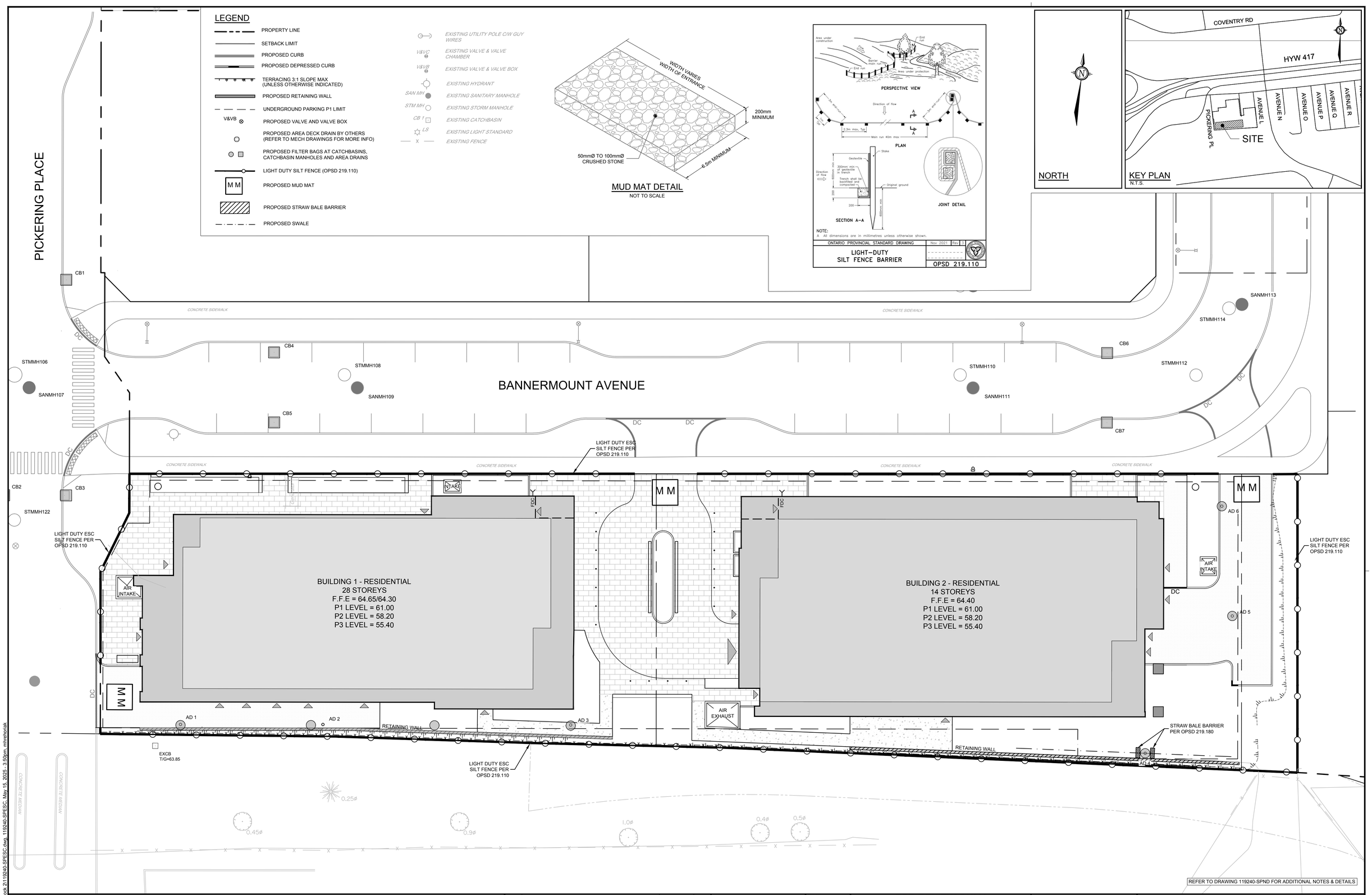
- EXISTING UTILITY POLE C/W GUY WIRES
- V&VC — EXISTING VALVE & VALVE CHAMBER
- V&VB — EXISTING VALVE & VALVE BOX
- EXISTING HYDRANT
- SAN MH — EXISTING SANITARY MANHOLE
- STM MH — EXISTING STORM MANHOLE
- CB 1 — EXISTING CATCHBASIN
- LS — EXISTING LIGHT STANDARD
- X — EXISTING FENCE

MUD MAT DETAIL
NOT TO SCALE

ONTARIO PROVINCIAL STANDARD DRAWING — Nov 2021 — Rev 3

LIGHT–DUTY SILT FENCE BARRIER

OPSD 219.110



REFER TO DRAWING 119240-SPND FOR ADDITIONAL NOTES & DETAILS

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No.	REVISION	DATE	BY
2.	RE-ISSUED FOR SITE PLAN APPLICATION	MAY 15/25	MJH
1.	ISSUED FOR SITE PLAN APPLICATION	AUG 1/24	MJH

SCALE: 1:200 (1:200 0 2 4 6 8)

DESIGN MJH
CHECKED MJH
DRAWN RJK
CHECKED MJH
APPROVED MJH

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER — M.J. HREHORIAK — 100211256 — MAY 15/25 — PROVINCE OF ONTARIO

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LOCATION
CITY OF OTTAWA
22 PICKERING PLACE - BLOCK 1 & BLOCK 2

DRAWING NAME
EROSION AND SEDIMENT CONTROL PLAN

PROJECT No. 119240
REV REV # 2
DRAWING No. 119240-SPESC

D07-12-24-0077

PLAN# 18865

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PLANA1.DWG - 841mmx594mm

200mmØ WATERMAIN TABLE (PICKERING CONNECTION A)			
STATION	ELEVATION	TOP OF WATERMAIN	DESCRIPTION
1+000.0	64.30	62.23±	CONNECTION TO EXISTING 200mmØ WATERMAIN
1+009.7	64.50	62.07	VALVE AND VALVE BOX
1+011.0	64.50	62.02	200mm X 200mm TEE CONNECTION

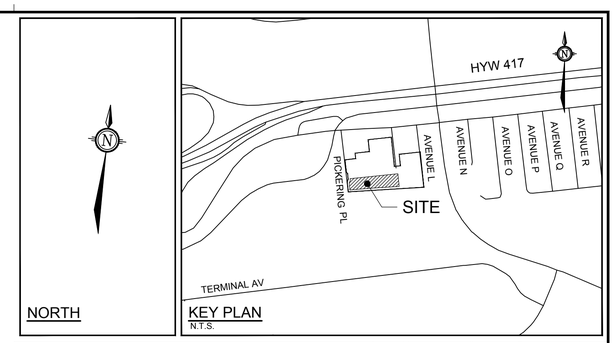
200mmØ WATERMAIN TABLE (BANNERMOUNT CONNECTION B)			
STATION	ELEVATION	TOP OF WATERMAIN	DESCRIPTION
	64.23	61.90±	CONNECTION TO EXISTING 200mmØ WATERMAIN
2+007.0	64.48	62.00	VALVE AND VALVE BOX
2+008.0	64.50	62.02	200mm X 200mm TEE CONNECTION
2+011.7	64.55	62.10	CAPPED SERVICE 1.0m FROM BUILDING FACE

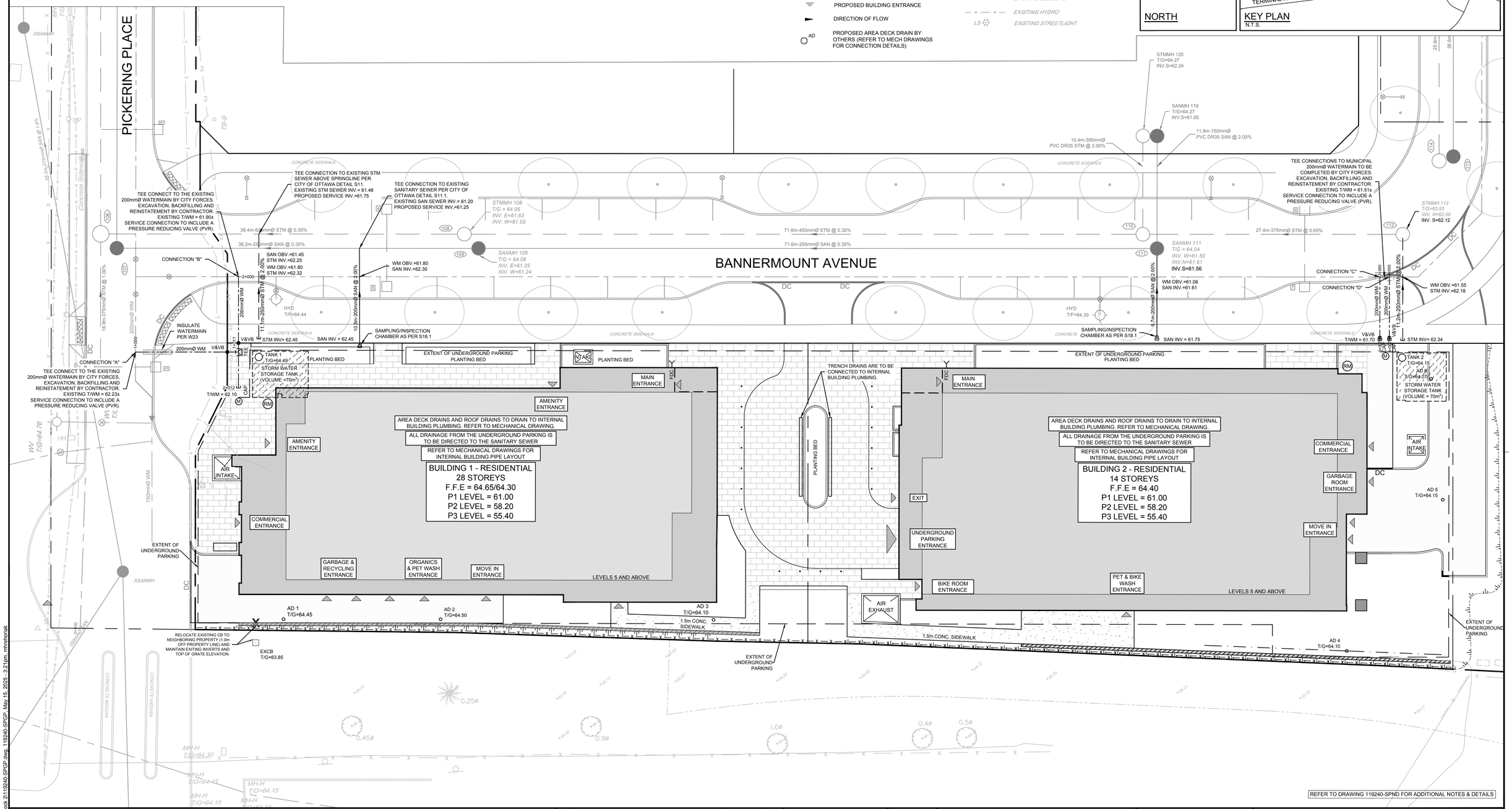
200mmØ WATERMAIN TABLE (BANNERMOUNT CONNECTION C)			
STATION	ELEVATION	TOP OF WATERMAIN	DESCRIPTION
3+000.0	63.96	61.51	CONNECTION TO EXISTING 200mmØ WATERMAIN
3+006.4	64.10	61.69	VALVE AND VALVE BOX
3+006.7	64.10	61.70	CAPPED SERVICE 1.0m FROM BUILDING FACE

200mmØ WATERMAIN TABLE (BANNERMOUNT CONNECTION D)			
STATION	ELEVATION	TOP OF WATERMAIN	DESCRIPTION
4+000.0	63.96	61.51	CONNECTION TO EXISTING 200mmØ WATERMAIN
4+006.4	64.10	61.69	VALVE AND VALVE BOX
4+006.7	64.10	61.70	CAPPED SERVICE 1.0m FROM BUILDING FACE

LEGEND

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB (DC)
- PROPOSED WATER SERVICE
- PROPOSED VALVE AND VALVE BOX (V&VB)
- PROPOSED CAP
- PROPOSED WATER METER (M)
- PROPOSED REMOTE METER (RM)
- PROPOSED SIAMESE CONNECTION
- PROPOSED SANITARY SERVICE c/w MANHOLE (SANMH)
- PROPOSED STORM SEWER AND MANHOLE (STMMH)
- PROPOSED BUILDING ENTRANCE
- DIRECTION OF FLOW
- PROPOSED AREA DECK DRAIN BY OTHERS (REFER TO MECH DRAWINGS FOR CONNECTION DETAILS) (AD)
- PROPOSED TRENCH DRAIN BY OTHERS (REFER TO MECH DRAWINGS FOR CONNECTION DETAILS)
- PROPOSED TERRACE ENTRANCE
- EXISTING UTILITY POLE C/W GUY WIRES
- EXISTING WATERMAIN C/W VALVE & VALVE CHAMBER (V&VC)
- EXISTING HYDRANT C/W VALVE & LEAD
- EXISTING SANITARY MANHOLE & SEWER (SAN MH)
- EXISTING STORM MANHOLE & SEWER (STM MH)
- EXISTING CATCHBASIN (CB 1)
- EXISTING GAS MAIN
- EXISTING OVERHEAD WIRES
- EXISTING BELL LINE
- EXISTING HYDRO
- EXISTING STREETLIGHT (LS)





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4.	RE-ISSUED FOR SITE PLAN APPLICATION	MAY 15/25	MJH
3.	ISSUED FOR SITE PLAN APPLICATION	AUG 1/24	MJH
2.	ISSUED FOR SITE PLAN PHASE 2	MAY 10/24	RJK
1.	ISSUED FOR COORDINATION	APR 17/24	MJH

SCALE 1:200

1:200
0 2 4 6 8

DESIGN MJH
CHECKED MJH
DRAWN RJK
CHECKED MJH
APPROVED MJH

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
M. J. HREHORIAK
100211256
MAY 15/25
PROVINCE OF ONTARIO

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LOCATION
CITY OF OTTAWA
22 PICKERING PLACE - BLOCK 1 & BLOCK 2

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No. 119240
REV # 4
DRAWING No. 119240-SPGP

D07-12-24-0077
PLAN# 18865

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PLAN41.DWG - 841mmx594mm

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3.	ISSUED FOR SITE PLAN APPLICATION	AUG 1/24	MJH
2.	ISSUED FOR SITE PLAN PHASE 2	MAY10/24	RJK
1.	ISSUED FOR COORDINATION	APR 17/24	MJH

SCALE 1:200

DESIGN MJH
CHECKED MJH
DRAWN RJK
CHECKED MJH
APPROVED MJH

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LICENSED PROFESSIONAL ENGINEER
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MAY 15/25
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LOCATION
CITY OF OTTAWA
22 PICKERING PLACE - BLOCK 1 & BLOCK 2

DRAWING NAME
GRADING PLAN

PROJECT No. 119240
REV # 4
DRAWING No. 119240-SPGR

D07-12-24-0077
PLAN# 18865