133 Forward Avenue, Ottawa, ON

Client:
133 FWD Ltd.

Project Number:
OTT-25012024-A0

Application Stage:
Site Plan Control

EXP Services Inc.
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Ottawa, ON K2B 8H6

Date Submitted:

November 27, 2025
December 19, 2025

133 Forward Avenue, Ottawa, ON

Type of Document:
Stormwater Management & Site Servicing Report

Client:
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OTT-25012024-A0

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Site Plan Control

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Date Submitted:

November 27, 2025

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Legal Notification

This report was prepared by **EXP** Services Inc. for the account of the Client (133 FWD LTD.). Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **EXP** Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

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List of Appendices

1 Introduction

EXP Services Inc. (EXP) was retained by 133 FWD Ltd. to provide site grading, servicing and Stormwater Management report for the proposed four (4) storey, eighteen (18) unit residential apartment building located at 133 Forward Avenue in the City of Ottawa.

The property is approximately 0.05 hectare in area and is bound by forward Avenue along the southwest property line, a parking structure and surface parking along the northwest and northeast property lines respectively, and mixed commercial and residential parking on the southeast property line. Refer to **Figure A1** in **Appendix A** for the site location.

This Stormwater Management & Site Servicing Report will address the Servicing requirements for the proposed development including the domestic and fire water, sanitary and storm servicing. The report will also cover the stormwater management requirements and the proposed methods to meet those requirements.

2 Existing Conditions

The subject property is currently occupied by a two (2) storey residential dwelling and a standalone garage structure. The northwest property line is adjacent to a concrete parking structure for the neighbouring apartment building. The northeast and southeast property lines each have concrete retaining walls with the surface parking of the adjacent properties on the retained side. The topography of the site slopes from the rear towards Forward Avenue which drains to the northwest towards Burnside Avenue.

- Existing infrastructure within the Forward Avenue right of way:
  - Storm:
    - 375mm diameter storm sewer as noted in the legal and topographical plan of survey prepared by Annis, O'sullivan, Vollebekk Ltd. and dated September 9, 2019 (See **Appendix F**).
  - Sanitary
    - 250mm diameter sanitary sewer
  - Water
    - 203mm diameter watermain
  - Other
    - Gas
    - Bell
    - Hydro

3 References

Various documents were referred to in preparing the current report including:

Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa (Guidelines) including:

- Technical Bulletin ISDTB-2012-4 (20 June 2012)
- Technical Bulletin ISDTB-2014-01 (05 February 2014)
- Technical Bulletin PIEDTB-2016-01 (September 6, 2016)
- Technical Bulletin ISDTB-2018-01 (21 March 2018)
- Technical Bulletin ISDTB-2018-04 (27 June 2018)
- Technical Bulletin ISDTB-2019-02 (08 July 2019)

Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including:

- Technical Bulletin ISDTB-2014-02 (May 27, 2014)
- Technical Bulletin ISTB-2018-02 (21 March 2018)
- Technical Bulletin ISTB-2021-03 (18 August 2021)

Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM).

Design Guidelines for Drinking-Water Systems, Ontario Ministry of the Environment and Climate Change, 2008 (GDWS).

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

Ontario Building Code 2012, Ministry of Municipal Affairs and Housing

Geotechnical Investigation Report prepared by EXP Services Inc, Dated October 6, 2025

4 Watermain Design

4.1 Required Fire Flow

The fire flow demand calculations were prepared based on the Fire Underwriters Survey (FUS, 2020) criteria. The following inputs were considered based on the response and documentation received from the Architect (Included in **Appendix B**).

- Wood Frame Construction
- Limited Combustible Building Contents
- Adequate Sprinkler Conforms to NFPA13
- Standard Water Supply for Fire Department Hose Line and for Sprinkler System
- Fully Supervised Sprinkler System
- Exposures Measured from satellite imagery

The required fire flow calculated per FUS-2020 was 116.7 L/s (7,000 L/min). Refer to **Table B2** in **Appendix B** for detailed fire flow demand calculations.

4.2 Water Service Design

The domestic water demands for the proposed apartment building were calculated per the City of Ottawa Water Design Guidelines (July 2010).

The following inputs were used for water demand calculations:

- Residential demands = 280 L/person/day
- 1.4 persons per 1-bedroom apartment
- 2.1 persons per 2-bedroom apartment
- Max. Day Peaking Factor (Residential) = 9.39
- Peak Hour Peaking Factor (Residential) = 14.13

Residential peaking factors were taken from MOECC Table 3-3. Refer to **Table B1** in **Appendix B** for detailed calculations. The proposed building's domestic demands were calculated as follows.

Water Demands:

Average daily demand = 0.11 L/s

Maximum daily demand = 1.00 L/s

Maximum hourly daily demand = 1.51 L/s

The estimated average daily demand of the proposed development is less than 50 m^3/day. Therefore, one - 100mm diameter PVC water service is proposed for domestic and sprinkler demands. The proposed water service is to be connected to the existing 203mm diameter municipal watermain on Forward Avenue. Refer to Site Servicing Drawing (C100) – included in **Appendix F**.

4.3 Pressure Check

The City of Ottawa provided boundary conditions based on the domestic and fire flow demands as shown in the table below:

Scenario	Demand	
	L/min	L/s
Average Daily Demand	6.40	0.11
Maximum Daily Demand	60.06	1.00
Peak Hour	90.41	1.51
Fire Flow Demand	7,000	116.70

The boundary conditions provided by the City are as follows:

203mm Municipal Watermain on Forward Ave.		
Demand Scenario	**Head (m)**	**Pressure[1] (psi)**
Min HGL	107.7	65.3
Max HGL	114.8	75.4
Max Day plus Fire Flow	106.3	63.3
[1] Ground Elevation =	61.79	m

Based on the above noted boundary conditions, estimated residual pressure at the building FFE during domestic demands will range between 65.4 psi to 75.6 psi. The residual pressures at building FFE will be between 50 psi and 80 psi. Therefore, pressure boosting measures will not be required. Mechanical engineer will confirm adequate system pressure within the building and propose pressure boosting measures if necessary.

Typical sprinkler demands for a building of this size is ±30 L/sec. Proposed 100mm dia. Water service can supply the sprinkler demands with ±3.3 psi pressure loss. Anticipated residual pressure at the building FFE during sprinkler demands will be ±60 psi. Mechanical engineer will have to propose pressure boosting measures for the sprinkler system, as necessary.

The residual pressure in the municipal watermain along Forward Avenue during max Day + Fire Flow demand was noted as 63.3 which is more than the minimum required pressure of 20 psi.

Based on the above noted analysis, the existing water supply system and the proposed services will have adequate capacity to meet the domestic, and fire demands for the proposed building. Refer to **Table B3** in **Appendix B** for detailed pressure calculations and correspondence with the City of Ottawa indicating boundary conditions.

4.4 Review of Hydrant Spacing

A review of the hydrant spacing was completed to ensure compliance with Appendix I of Technical Bulletin ISTB-2018-02. As per Section 3 of Appendix I, hydrants within 150 meters were reviewed to assess the total possible contribution of flow from these contributing hydrants. For each hydrant, the distance along a fire route was measured and assigned contributing flows. A review of the available fire hydrants within 150m distance along the fire route from the building was carried out which is summarized in the table below.

Table 4-1: Summary of Nearby Municipal Hydrants

Hydrant #	Location	City / Private	Color Code	Distance from the Building (m)	Fire Flow Contribution for Class AA Hydrant (L/min)
364029H168	Burnside Ave.	City	Blue	45	5,700
364029H037	Forward Ave.	City	Blue	58	5,700
				Total:	11,400

As noted in the table above, there are two (2) existing municipal fire hydrants along a fire route providing accessible fire flow of 11,400 L/min. This is well above the required fire flow of 7,000 L/min. Refer to **Figure A2** in **Appendix A** for the hydrant location plan.

Based on the boundary conditions received from the city and review of the available municipal hydrants as noted above, the proposed development can be serviced for the required fire flow.

5 Sanitary Sewer Design

5.1 Peak Design Flow

The anticipated peak sanitary flows from the site have been calculated as per the City of Ottawa Sewer Design Guidelines (October 2012).

The following inputs were used for sanitary demand calculations:

- Residential Avg. Daily Sewage Flow = 280 L/person/day
- 1.4 persons per 1-bedroom apartment
- 2.1 persons per 2-bedroom apartment
- Peaking Factor (Residential) per Harmon equation (K=0.8) = 3.68
- Peak Extraneous flow =0.33 l/s/ha
- Site area = 0.05 ha

The anticipated peak sanitary flows (including infiltration) for the proposed development were calculated to be **0.409 L/s**. The proposed 135mm diameter PVC sanitary service at 2.0% slope having a full flow capacity of 15.6 L/sec will be connected to the municipal 200mm dia. sanitary sewer on Forward Avenue. A monitoring hole will be provided at the property line on the proposed building sanitary service. Refer to drawing C100 - Site Servicing plan in **Appendix F** and the sanitary sewer design sheet **Table C1** in **Appendix C** for further details.

6 Stormwater Management

6.1 Storm Design Criteria

The storm sewer system and stormwater management for the proposed development were designed in conformance with the City of Ottawa Sewer Design Guidelines (October 2012). The stormwater servicing design criteria stipulated in the Pre-Consultation meeting feedback form provided by the City of Ottawa for the proposed development are as follows:

- Control stormwater runoff from building roof to min. 5-year pre-development levels. Direct stormwater runoff from rest of the site uncontrolled towards the municipal ROW.
- Time of concentration of min 10mins.
- No drainage towards the neighboring properties.
- Foundation drainage (weeping tile system) shall have its own separate STM lateral independent from all other STM drains.
- Water Quality Control is not required if there will be no surface drainage capture/control infrastructure such as a catch basin, catch basin with ICD.

See the Pre-Consultation meeting feedback form provided by the City of Ottawa in **Appendix E.**

6.2 Pre-Development Conditions

The 0.05-hectare site at 133 Forward Avenue is currently developed and occupied by a two (2) storey residential dwelling and a standalone garage structure which are to be demolished prior to construction of the proposed development. The topography of the site slopes from the rear towards Forward Avenue which drains to the northwest towards Burnside Avenue. The calculated time of concentration under pre-development conditions was 1.76 minutes, therefore, a standard minimum time of concentration of 10 minutes was used.

Runoff coefficient for hard surfaces such as building roof, asphalt, concrete were taken as 0.90, for semi-pervious surfaces such as gravel were considered as 0.70 and for soft landscaped surfaces were considered as 0.20. The average runoff coefficient for the site was calculated using the area weighted method in excel. The existing land cover areas were taken from the topographical plan of survey. The pre-development weighted average runoff coefficient was calculated as **0.78**.

The pre-development peak runoff rates for the site were calculated for the 2, 5, and 100-year storm events to be **8.4 L/s**, **11.4 L/s**, and **24.3 L/s,** respectively.

In accordance with the criteria provided by the city, a predevelopment weighted average runoff coefficient of **0.5** should be used as it is less than the calculated coefficient of **0.78**. Therefore, pre-development peak runoff rates for the site with average runoff coefficient of 0.5 were calculated for the 2, 5, and 100-year storm events to be **5.4 L/s**, **7.3 L/s**, and **15.7 L/s** respectively.

See **Table D1-D4** in **Appendix D**.

6.3 Allowable Release Rate

Per the stormwater management criteria noted above, the allowable release rates for the proposed buildings roof drains will be governed by the 5-year pre-development peak flowrate for the site with a maximum runoff coefficient of 0.50.

The allowable peak post development flowrate for the proposed buildings roof drains is summarized as follows:

- 2-year: 5.4 L/s
- 5-year: 7.3 L/s
- 100-year: 7.3 L/s

See **Table D4** in **Appendix D**.

6.4 Post-Development Conditions

Under post-development conditions the site is considered as three catchments. Catchments PR-1, and PR-2 correspond to the rear and front portions of the roof of the proposed building, respectively. Roof catchments are controlled to the allowable release rates governed by the 5-year peak pre-development flow rate for the site with a weighted runoff coefficient of 0.50 as noted above. Runoff generated on the rooftops will be attenuated by flow control weirs mounted on the roof drains with adequate storage provided for the 100-year storm event. Scuppers are provided that will discharge to the ground surface if roof drains are plugged or overwhelmed by exceptional rainfall events in excess of the 100-year storm.

Catchment P-0 corresponds to the remainder of the site which will flow un-controlled to the Forward Avenue Right of Way. The post-development weighted average runoff coefficient is calculated as **0.73** which is

slightly less than the pre-development average runoff coefficient due to additional soft landscaped areas added to the site as part of the proposed development.

Therefore, in post-development conditions, controlled runoff from the building roof during 2-year, 5-year and 100-year storm events is calculated as 1.52 L/sec, 1.66 L/sec and 1.85 L/sec, respectively. These rates are less than the allowable release rate of 7.3 L/sec as noted in **Section 6.3** above.

Uncontrolled release rate from rest of the site under post-development conditions are calculated as 2.36 L/sec, 3.20 L/sec and 6.85 L/sec during 2-year, 5-year and 100-year storm events, respectively.

Therefore, the total post development stormwater release rates from the proposed development during 2-year, 5-year and 100-year storm events are calculated as 3.9 L/sec, 4.9 L/sec and 8.7 L/sec, respectively.

Refer to **Table D5** and **Table D6** in **Appendix D** for post-development average runoff coefficient calculations and post-development stormwater discharge rates calculations.

6.4.1 Storage Requirements

Storage is provided in roof catchments PR-1, and PR-2 such that the combined roof discharge is less than the allowable discharge rates noted in section 6.3.

Surface ponding volumes over roof drains were determined by the conic volume method. Roof ponding depths must be less than or equal to 150mm during a 100-year storm event.

Maximum calculated ponding depth during 100-year storm event in roof area PR-1 is 148mm and in roof area PR-2 is 138mm.

No ground surface storage is provided.

Refer to **Table D7, Table D8 and Table D9** in **Appendix D** for detailed roof drain control and storage calculations.

6.4.2 Flow Controlled Roof Drains Sizing

Roof catchments PR-1, and PR-2 corresponds to the rear and front roof portions, respectively. Roof drains in each roof area will be equipped with WATTS Accutrol single weir RD1 roof drain with flow control weir set at the one-quarter open position. The drains were specified based on the required storage volume and associated head of water during 100-year storm event.

See the discharge characteristics published by the manufacturer in **Appendix D.** Detailed drain sizing calculations are shown in **Tables D7-D9** in **Appendix D.** For 5-year and 100-year ponding limits refer to drawing C500 in **Appendix F.** Flow rates, storage requirements, and ponding depths are summarize below in **Section 6.4.3**.

6.4.3 Summary of SWM Storage Requirements

The proposed flow-controlled roof drains are summarized in the table below. The specified controls result in post development peak flowrates from the roof catchments that are less than the peak pre-development runoff for the site with a runoff coefficient of 0.5 under the 5-year storm event.

Area No	Area (ha)	C_{AVG100}	100-Year Release Rate (Controlled) (L/s)	100-Year Ponding Depth (mm)	100-Year Storage Requirement (m3)	Max Storage Provided (m3)	ICD Control
PR-1	0.0176	1.00	**0.94**	148	6.42	6.7	RD1 Watts Roof Drains - 1/4 open position
PR-2	0.0114	1.00	**0.91**	138	3.62	4.7	RD1 Watts Roof Drains - 1/4 open position

*__Bold__ flows are controlled.

6.5 Storm Sewer Design

The proposed roof and foundation drain will be serviced by two separate 150mm dia. Storm service laterals at 2.5% slope, connected to STMH 1 which will be connected to the existing 375mm diameter municipal storm sewer on Forward Avenue by a 150mm diameter PVC pipe at 2.5% slope. The uncontrolled peak runoff rate from the roof area will be 7.48 L/s for the 5-year storm event. The 150mm diameter pipe at 2.5% slope has a full flow capacity of 24.2 L/s. Therefore, the proposed 150mm diameter storm pipe connecting the building to the municipal storm sewer has ample capacity.

Drains from the proposed window wells will be indirectly connected to the building foundation drain service lateral, downstream of the backflow preventer.

6.6 Emergency Flow routes

Roof catchments PR-1 and PR-2 are proposed with scuppers at an elevation of 150mm that will spill to ground surface in an overflow event. No ground surface storage is provided. All uncontrolled flows will discharge to the Forward Avenue Right of Way by meant of surface drainage.

7 Erosion and Sediment Control

During all construction activities, erosion and sedimentation shall be controlled by the following techniques:

- Extent of exposed soils shall be limited at any given time;
- Exposed areas shall be re-vegetated as soon as possible;
- Minimize the area to be cleared and disruption of adjacent areas;

- Siltsack or approved equivalent shall be installed inside all catch basins, catch basin manholes, and storm manholes as identified on the erosion and sediment control plan;
- Visual inspection shall be completed daily on sediment control barriers and any damage will be repaired immediately. Care will be taken to prevent damage during construction operations;
- In some cases, barriers may be removed temporarily to accommodate the construction operations. The affected barriers will be reinstated at night when construction is completed;
- Sediment control devices will be cleaned of accumulated silt as required. The deposits will be disposed of as per the requirements of the contract;
- During construction, if the engineer believes that additional prevention methods are required to control erosion and sedimentation, the contractor will install additional silt fences or other methods as required to the satisfaction of the engineer; and,
- Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification (OPSS) 805.

8 Conclusions

This report addresses the site servicing and stormwater management requirements for the site plan control application for the proposed development. Based on the analysis provided in this report, the conclusions are as follows:

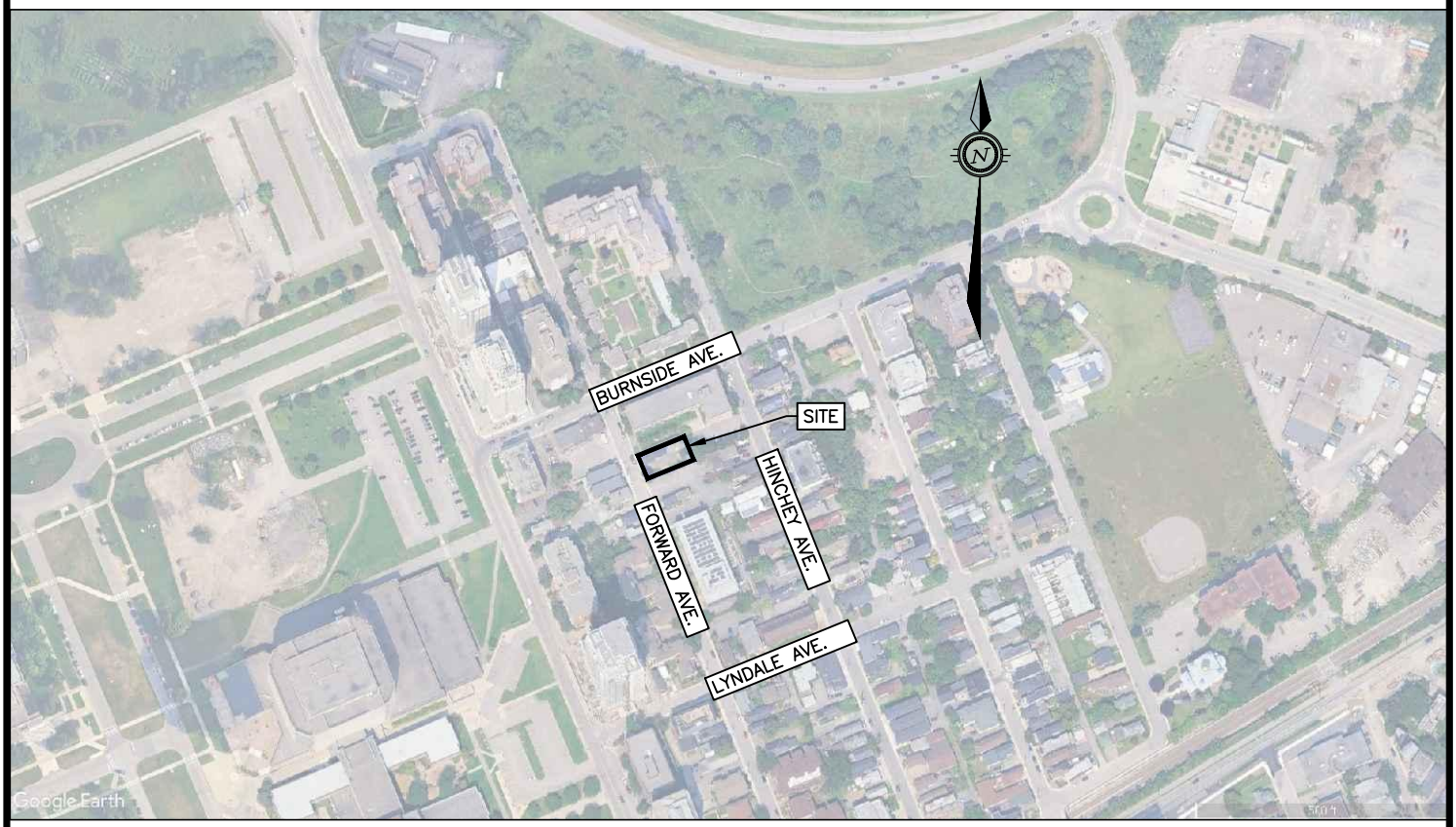
- The proposed apartment building will be serviced by a 100mm diameter water service connection, which will adequately service the proposed development for the domestic and fire flow demands. Additionally, water boundary conditions from the City suggests sufficient flow and pressure availability in the 203mm diameter municipal watermain on Forward Avenue for domestic and fire demands.
- The proposed buildings sanitary demand will be serviced by a 135mm diameter sanitary pipe. No capacity constraints were noted in the existing 250mm diameter municipal sanitary sewer on Forward Avenue by the City. A monitoring manhole is provided within the property. Sanitary service will be complete with backflow prevention.
- Stormwater Management criteria for the proposed development will be achieved by restricting the post-development stormwater discharge rates from the roof only to the 5-year pre-development flowrate for the site with a runoff coefficient of 0.5.
- Required on-site SWM storage volumes will be achieved using surface storage in roof areas using the specified flow-controlled roof drains. Overflow scuppers are provided and will discharge to ground surface.
- Building roof drains and foundation drains will be serviced by two separate 150mm diameter storm service laterals discharging into proposed storm manhole STMMH 1. Window wells will be indirectly connected to foundation drains. Foundation drain will be fitted with backflow prevention.
- No stormwater quality controls are proposed.
- Temporary erosion and sediment control measures for the subject site have been identified.

EXP Services Inc.
133 Forward Avenue
133 Forward Avenue, Ottawa, ON
OTT-25012024-A0
December 19, 2025

Appendix A – Figures

Figure A1 – Site Location Plan

Figure A2 – Hydrant Location Plan



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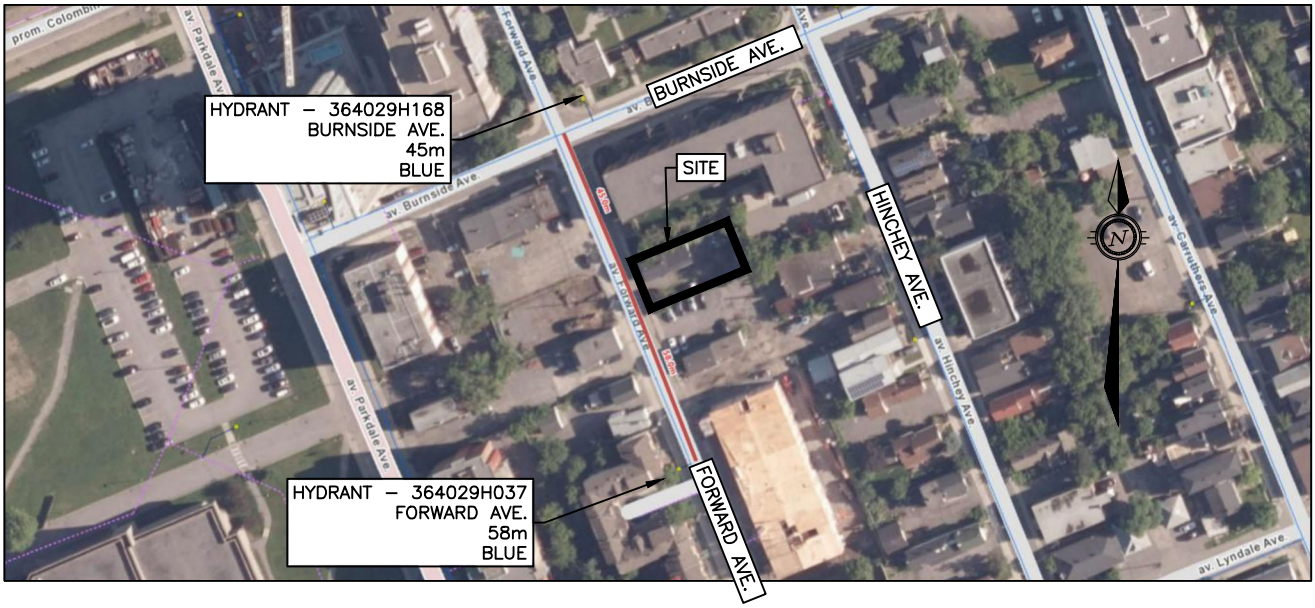
DESIGN	N/A
DRAWN	AGJ
DATE	25/11/20
FILE NO	OTT-25012024-A0

133 FORWARD AVENUE

SITE LOCATION PLAN

SCALE	N.T.S
SKETCH NO	FIG A1

References: Keyplan-MTM-NAD83.dwg



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DESIGN	N/A
DRAWN	AGJ
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133 FORWARD AVENUE

HYDRANT LOCATION PLAN

SCALE	N.T.S
SKETCH NO	FIG A2

EXP Services Inc.
133 Forward Avenue
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Appendix B – Water Servicing

Table B1 - Water Demand Chart

Table B2 - FUS Fire Flow Demand Calculations

Table B3 - Estimated Water Pressure at Proposed Building FFE

Correspondence from Architect Re Fire Flow Requirements

Water Boundary Conditions from the City

TABLE B-1: Water Demand Chart

Location: 133 Forward Ave.
Project No: OTT-25012024-A0
Designed by: A. Johnson
Checked By: A. Jariwala
Date Revised: November 2025

Water Consumption
Residential = **280** L/cap/day

Population Densities

Single Family	person/unit	3.4
Semi-Detahced	person/unit	2.7
Duplex	person/unit	2.3
Townhome (Row)	person/unit	2.7
Bachelor Apartment	person/unit	1.4
1 Bedroom Apartment	person/unit	1.4
2 Bedroom Apartment	person/unit	2.1
3 Bedroom Apartment	person/unit	3.1
4 Bedroom Apartment	person/unit	4.1
Avg. Apartment	person/unit	1.8

Proposed Buildings	No. of Residential Units										Total Persons (pop)	Residential Demands in (L/sec)					Total Demands (L/sec)		
	Singles/Semis/Towns				Apartments								Peaking Factors (x Avg Day)						
	Single Family	Semi-Detached	Duplex	Townhome	Studio	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom	Avg Apt.		Avg. Day Demand (L/day)	Max Day	Peak Hour	Max Day Demand (L/day)	Peak Hour Demand (L/day)	Avg Day (L/s)	Max Day (L/s)	Max Hour (L/s)
Appartment Building						7	11				32.9	9,212	9.39	14.13	86,490	130,195	0.107	1.001	1.507
Total =						7	11				32.9	9,212			86,490	130,195	0.11	1.00	1.51

PEAKING FACTORS FROM MOECC TABLE 3-3 (Peaking Factors for Water Systems Servicing Fewer Than 500 persons)

Dwelling Units Serviced	Equiv Pop	Night Min Factor	Maximum Day Factor	Peak Hour Factor
10	30	0.10	9.50	14.30
50	150	0.10	4.90	7.40
100	300	0.20	3.60	5.40
150	450	0.30	3.00	4.50
167	500	0.40	2.90	4.30

TABLE B2: FIRE FLOW REQURIEMENTS BASED ON FIRE UNDERWRITERS SURVEY(FUS) 2020
PROJECT: OTT-25012024-A0
Building: **113 Forward Ave.**

An estimate of the Fire Flow required for a given fire area may be estimated by:

F = 220 * C * SQRT(A)

where: F = required fire flow in litres per minute
A = total floor area in m^2 (including all storeys, but excluding basements at least 50% below grade)
C = coefficient related to the type of construction

Task	Options	Multiplier	Input	Value Used	Fire Flow Total (L/min)
Choose Building Frame (C)	Wood Frame	1.5	Wood Frame	1.5	
	Ordinary Construction	1			
	Non-combustible Construction	0.8			
	Fire Resistive Construction	0.6			
	Fourth Floor		287	1148.4 m²	
	Third Floor		287		
	Second Floor		287		
	First Floor		287		
	Basement (At least 50% below grade, not included)		276		
Fire Flow (F)	F = 220 * C * SQRT(A)				11,183
Fire Flow (F)	Rounded to nearest 1,000				**11,000**

Reductions/Increases Due to Factors Effecting Burning

Task	Options	Multiplier	Input	Value Used	Fire Flow Change (L/min)	Fire Flow Total (L/min)
Choose Combustibility of Building Contents	Non-combustible	-25%	Limited Combustible	-15%	-1,650	9,350
	Limited Combustible	-15%				
	Combustible	0%				
	Free Burning	15%				
	Rapid Burning	25%				
Choose Reduction Due to Sprinkler System	**Adequate** Sprinkler Conforms to NFPA13	-30%	Adequate Sprinkler Conforms to NFPA13	-30%	-2,805	6,545
	No Sprinkler	0%				
	Standard Water Supply for Fire Department Hose Line and for Sprinkler System	-10%	Standard Water Supply for Fire Department Hose Line and for Sprinkler System	-10%	-935	5,610
	Not Standard Water Supply or Unavailable	0%				
	Fully Supervised Sprinkler System	-10%	Fully Supervised Sprinkler System	-10%	-935	4,675
	Not Fully Supervised or N/A	0%				

Choose Structure Exposure Distance	Exposures	Separ-ation Dist (m)	Cond	Separation Conditon	Exposed Wall type	Exposed Wall Length: Length (m)	No of Storeys	Length-Height Factor	Sub-Conditon	Charge (%)	Total Charge (%)	Total Exposure Charge (L/min)	
	West	5.39	2	3.1 to 10	Type II-I (U)	23.15	1	23.15	2B	7%			
	East	15.95	3	10.1 to 20	Type V	17.95	2	35.9	3B	11%	30%	2,805	7,480
	South	17.5	3	10.1 to 20	Type V	22.06	2	44.12	3C	12%			
	North	15	3	10.1 to 20	Type II-I (P)	11.35	1	11.35	3A	0%			

Obtain Required Fire Flow	Total Required Fire Flow, Rounded to the Nearest 1,000 L/min =	**7,000**
	Total Required Fire Flow, L/s =	**116.7**

Exposure Charges for Exposing Walls of Wood Frame Construciton (from Table G5)

Type V	Wood Frame
Type IV-III (U)	Mass Timber or Ordinary with Unprotected Openings
Type IV-III (P)	Mass Timber or Ordinary with Protected Openings
Type II-I (U)	Noncombustible or Fire Resistive with Unprotected Openings
Type II-I (P)	Noncombustible or Fire Resistive with Protected Openings

Conditons for Separation

Separation Dist	Condition
0m to 3m	1
3.1m to 10m	2
10.1m to 20m	3
20.1m to 30m	4
> 30.1m	5

TABLE B3

ESTIMATED WATER PRESSURE AT PROPOSED BUILDING FFE

Description	From	To	Demand (L/sec)	Pipe Length (m)	Pipe Dia (mm)	Dia (m)	Q (m3/sec)	Area (m2)	C	Vel (m/s)	Slope of HGL (m/m)	Head Loss (m)	Elev From (m)	Elev To (m)	*Elev Diff (m)	Pressure From kPa	(psi)	Pressure To kPa	(psi)	Pressure Drop (psi)
Avg Day Conditons																				
Single 150mm water service	Main	Building	0.11	12 m	100	0.100	0.0001	0.007854	110	0.014	6.1E-06	7E-05	61.79	61.70	0.1	520.0	(75.4)	520.9	(75.6)	-0.1
Max Day Conditons																				
Single 150mm watermain	Main	Building	1.00	12 m	100	0.100	0.0010	0.007854	110	0.1273	0.00036	0.0042	61.79	61.70	0.1	450.4	(65.3)	451.2	(65.4)	-0.1
Peak Hour Conditons																				
Single 150mm watermain	Main	Building	1.51	12 m	100	0.100	0.0015	0.007854	110	0.1923	0.00078	0.009	61.79	61.70	0.1	450.4	(65.3)	451.2	(65.4)	-0.1
Max Day plus Sprinkler Demands																				
Single 150mm watermain	Main	Building	31.00	12 m	100	0.100	0.0310	0.007854	110	3.947	0.21056	2.4214	61.79	61.70	0.1	436.6	(63.3)	413.8	(60.0)	3.3

Water Demand Info

Average Demand =	0.11	L/sec
Max Day Demand =	1.00	L/sec
Peak Hr Demand =	1.51	L/sec
Fireflow Requriement =	116.7	L/sec
Max Day Plus FF Demand =	117.7	L/sec
Assumed Sprinkler Demands =	30.0	L/sec

Pipe Lengths

From watermain to building = 12 m

Hazen Williams C Factor for Friction Loss in Pipe, C= 110

Boundary Conditon

	Min HGL	Max HGL	Max Day + Fireflow	
HGL (m)	107.7	114.8	106.3	(From City of Ottawa)
Approx Ground Elev (m) =	61.79	61.79	61.79	
Approx Bldg FF Elev (m) =	61.70	61.70	61.70	(basement FFE)
Pressure (m) =	45.91	53.01	44.51	
Pressure (Pa) =	450,377	520,028	436,643	
Pressure (psi) =	65.3	75.4	63.3	

Alexander Johnson

From: Thanh Do <tdo@sdsarch.ca>
Sent: Tuesday, November 11, 2025 1:35 PM
To: Aaditya Jariwala
Cc: Susan Smith; Alexander Johnson; Luis Josué
Subject: Re: 133 FWD - Final Site Plan Information

Hi Aaditya,

We are still working with the trades to determine the building construction type but for now, to avoid the delay, we should use the building at 138 Forward to answer your questions for 133 Forward. @Luis, please provide your input.

1. What will be the building construction type per FUS 2020:
   - Wood Frame with hardie siding
   - Fire resistive construction (all structural elements have min. 1hour fire rating) as per OBC. 3.2.2.52
2. Will the internal and external openings (horizontal and vertical) be protected per NBC? Yes, as per OBC. table 3.2.3.1.D
3. Provide GFA of each floor and floor heights. basement: 2974.2sq.ft. . Each floor above: 3090.4 sq.ft. 9' ceiling height in all floors.
4. Confirm the building occupancy group and division per OBC. Group C Division B part 3 of OBC
5. Confirm any internal fire walls with min. 2-hour fire rating. No
6. Confirm if the building will be equipped with a fully automatic and supervised sprinkler system. yes
7. Based on the floor plans, we assumed there will be 7 x 1-bedroom apartments and 11x 2-bedroom apartments. Please confirm. That's right
8. Basement of the building will be considered to be min. 50% below ground. This will be confirmed once we coordinate the FFE and basement floor levels. Yes, it is.

Let me know if you have any questions.

Thanks
Thanh.

On Tue, Nov 11, 2025 at 11:50 AM Aaditya Jariwala <Aaditya.Jariwala@exp.com> wrote:

Thanks Thanh,

As discussed in the meeting. Below are a few questions for you to answer. With these answers we will be able to calculate the domestic water, fire water and sanitary demands.

1. What will be the building construction type per FUS 2020:
    - Wood Frame (where all structural elements are made of wood)
    - Ordinary construction (structural elements are wood but the exterior walls are masonry)
    - Non-combustible construction (all structural elements are constructed with non-combustible material with min. 1-hour fire rating)
    - Fire resistive construction (all structural elements have min. 2-hour fire rating)
2. Will the internal and external openings (horizontal and vertical) be protected per NBC?
3. Provide GFA of each floor and floor heights.
4. Confirm the building occupancy group and division per OBC.
5. Confirm any internal fire walls with min. 2-hour fire rating.
6. Confirm if the building will be equipped with a fully automatic and supervised sprinkler system.
7. Based on the floor plans, we assumed there will be 7 x 1-bedroom apartments and 11x 2-bedroom apartments. Please confirm.
8. Basement of the building will be considered to be min. 50% below ground. This will be confirmed once we coordinate the FFE and basement floor levels.

Please let me know at your earliest convenience.

Thanks,

Aaditya Jariwala, M.Eng, P.Eng.
EXP | Project Manager
t : +1.613.688.1899, 63240 | m : +1.613.816.5961 | e : aaditya.jariwala@exp.com

---

From: Thanh Do <tdo@sdsarch.ca>
Sent: Thursday, October 30, 2025 4:38 PM
To: Aaditya Jariwala <Aaditya.Jariwala@exp.com>; James Lennox <lennox@jbla.ca>
Cc: Susan Smith <s.smith@sdsarch.ca>
Subject: Re: 133 FWD - Final Site Plan Information

Hi team,

Please find attached Cad drawings of the site plan and the Pdf of the floor plans for your reference.

Let me know if you have any questions.

Thank you.

Thanh.

On Thu, Oct 30, 2025 at 9:22 AM Luis Josué <luis.josue@inharmony-dev.com> wrote:

> Hi Thanh,
>
> As discussed, please proceed to send the final site plan information so we can move forward with the civil and landscape coordination. It's important that we have the confirmed package to align all related disciplines and avoid delays on our end.
>
> If possible, please share it **before noon today**, so the team copied here has time to review and provide any final comments if needed.
>
> Let me know once it's been shared or if there's any pending item we should address before release.
>
> Best regards,
>
> Yours Truly / Sincèrement,
>
> Luis Josue
>
> Project Manager

In Harmony Developments Inc.

Direct: (343) 574 - 4812

187 Chemin Old Chelsea, Suite 101, Chelsea

Québec, J9B 1J3

Inharmonydevelopments.com

Alexander Johnson

From: Rohan, Fayaz <fayaz.rohan@ottawa.ca>
Sent: Monday, November 24, 2025 10:27 AM
To: Alexander Johnson
Cc: Aaditya Jariwala; Hughes, Brett
Subject: RE: Water Boundary Conditions Request - 133 Forward Avenue
Attachments: 133 Forward Avenue November 2025.pdf

Hello Alexander,

The following are boundary conditions, HGL, for hydraulic analysis at 133 Forward Avenue (zone 1W) assumed to be connected via the 203 mm watermain on Forward Avenue. (see attached PDF for location).

Minimum HGL = 107.7 m
Maximum HGL = 114.8 m
Max Day + Fire Flow (116.7 L/s) = 106.3 m

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,
Fayaz Rohan, Engineering Graduate
Development Review – Central Branch | Examen du développement - Branche centrale
Planning, Development and Building Services Department
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest. Ottawa (Ontario) K1P 1J1
613-580-2424 ext. 16967, fayaz.rohan@ottawa.ca

From: Alexander Johnson <Alexander.Johnson@exp.com>
Sent: November 14, 2025 4:52 PM
To: Hughes, Brett <brett.hughes@ottawa.ca>; Rohan, Fayaz <fayaz.rohan@ottawa.ca>
Cc: Aaditya Jariwala <aaditya.jariwala@exp.com>
Subject: RE: Water Boundary Conditions Request - 133 Forward Avenue

Hi guys,

Following up on this email. We would like to complete and submit our Site servicing and stormwater management report end of next week. Would appreciate if we could get these results early next week.

Thanks,
Alex

Alexander Johnson, E.I.T.
EXP | Engineering Designer
t : +1.613.688.1899, 63222 | e : alexander.johnson@exp.com
exp.com | legal disclaimer
keep it green, read from the screen

From: Alexander Johnson
Sent: Tuesday, November 11, 2025 4:51 PM
To: 'brett.hughes@ottawa.ca' <brett.hughes@ottawa.ca>; 'Fayaz.rohan@ottawa.ca' <Fayaz.rohan@ottawa.ca>
Cc: Aaditya Jariwala <Aaditya.Jariwala@exp.com>
Subject: Water Boundary Conditions Request - 133 Forward Avenue

Hello Brett and Fayaz,

EXP has been retained by the proponent of a 4-storey, 18-unit apartment building located at 133 Forward Avenue.

I kindly request that you provide water boundary conditions based on the estimated demands summarized below:

Water Demands:
Avg. Day: **0.11** L/sec
Max. Day Demands: **1.00** L/sec
Peak Hourly Demands: **1.51** L/sec
RFF per FUS (2020): **116.70** L/sec

Additionally requesting confirmation of capacity in the existing 250mm diameter sanitary sewer on Forward Ave. adjacent to the subject property.

Sanitary Demands:
Sanitary Demands (incl. Infiltration): **0.41** L/sec

Supporting calculations and boundary condition request location plan are attached to this email.

Thank you,
Alex

Alexander Johnson, E.I.T.
EXP | Engineering Designer
t : +1.613.688.1899, 63222 | e : alexander.johnson@exp.com
2650 Queensview Drive
Suite 100
Ottawa, ON K2B 8H6
CANADA

'

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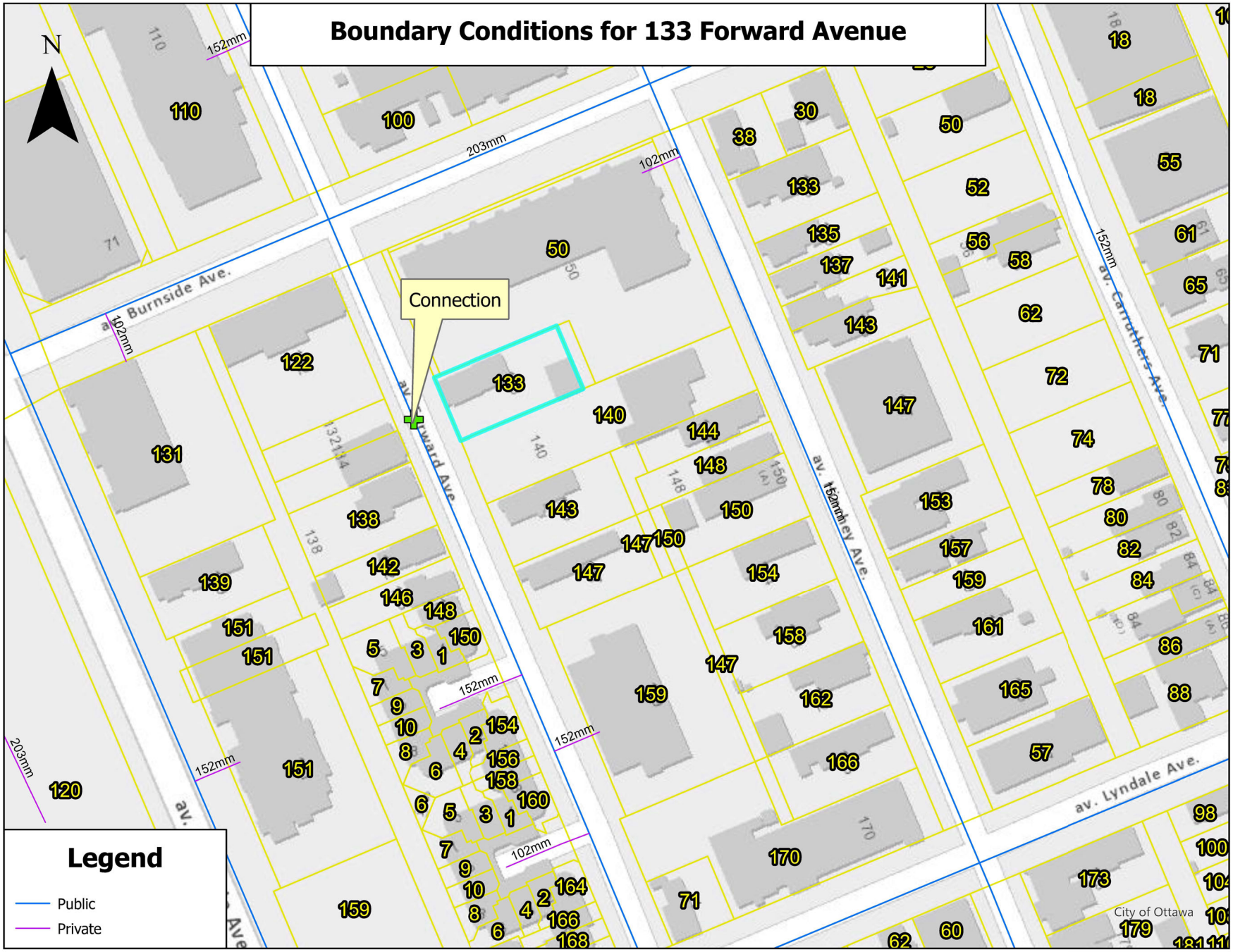

Boundary Conditions for 133 Forward Avenue
N
Connection
Legend
Public
Private
av. Burnside Ave.
av. Forward Ave
av. Carruthers Ave.
av. Lyndale Ave.
av. Rothney Ave.
152mm
203mm
102mm
City of Ottawa

EXP Services Inc.
133 Forward Avenue
133 Forward Avenue, Ottawa, ON
OTT-25012024-A0
December 19, 2025

Appendix C – Sanitary Sewer Design Sheet

C1 - Sanitary Sewer Design Sheet

TABLE C1 : SANITARY DEMAND CHART

LOCATION				RESEDENTIAL AREAS AND POPULAITONS												INFILTRATION			TOTAL FLOW (L/s)	SEWER DATA						
Street	U/S MH	D/S MH	Desc	Area (ha)	NUMBER OF UNITS							POPULATION		Peak Factor	Peak Flow (L/sec)	AREA (ha)		INFILT FLOW (L/s)		Nom Dia (mm)	Actual Dia (mm)	Slope (%)	Length (m)	Capacity (L/sec)	Q/Q_{CAP} (%)	Full Velocity (m/s)
					Singles	Semis	Towns	1-Bed Apt.	2-Bed Apt.	3-Bed Apt.	4-Bed Apt.	INDIV	ACCU			INDIV	ACCU									
Forward	BLDG	Forward		0.05				7	11			32.9	32.9	3.68	0.392	0.050	0.050	0.017	***0.409***	135	133.02	2.00	9.90	15.6	2.6%	1.7
				0.050				**7**				**33**				**0.050**										

Residential Avg. Daily Flow, q (L/p/day) = 280
Residential Correction Factor, K = 0.80
Manning N = 0.013
Peak extraneous flow, I (L/s/ha) = 0.33

Peak Population Flow, (L/sec) = P*q*M/86.4
Peak Extraneous Flow, (L/sec) = I*Ac
Residential Peaking Factor, M = 1 + (14/(4+P^0.5)) * K
A_c = Cumulative Area (hectares)
P = Population (thousands)
Sewer Capacity, Qcap (L/sec) = 1/N $S^{1/2}$ $R^{2/3}$ A_c
(Manning's Equation)

Unti Type	Persons/Unit
Singles	3.0
Semi-Detached	2.7
Townhomes	2.7
Single Apt. Unit	1.4
2-bed Apt. Unit	2.1
3-bed Apt. Unit	3.1
4-bed Apt. Unit	3.8

Designed:	Project:
A. Johnson B.Eng, E.I.T.	OTT-25012024-A0
Checked:	Location:
A. Jariwala, P.Eng.	133 Forward Ave., Ottawa, ON
File Reference:	Page No:
OTT-25012024-A0 - Sanitary - SAN Design Sheet.xlsx	**1 of 1**

EXP Services Inc.
133 Forward Avenue
133 Forward Avenue, Ottawa, ON
OTT-25012024-A0
December 19, 2025

Appendix D – Stormwater Management Design Sheet

Table D1 - Calculation of Average Runoff Coefficients for Pre-Development Conditions

Table D2 - Calculation of Catchment Time of Concentration for Pre-Development Conditions

Table D3 - Calculation of Peak Runoff for Pre-Development Conditions

Table D4 - Calculation of Allowable Release Rate With C=0.5

Table D5 - Average Runoff Coefficients for Post-Development Conditions

Table D6 - Summary of Post-Development Peak Flows (Uncontrolled and Controlled)

Table D7 - 2-Year, 5-Year & 100-Year Roof Drains Design Sheet - Using Flow Controlled Roof Drains

Table D8 - Storage Volumes Roof Area #Pr-1 (2 Year, 5 Year And 100 Year Storms) (MRM)

Table D9 - Storage Volumes Roof Area #Pr-2 (2 Year, 5 Year And 100 Year Storms) (MRM)

Table D10 - 5-Year Storm Sewer Calculation Sheet

Watts Adjustable Flow Control for Roof Dains

TABLE D1

CALCULATION OF AVERAGE RUNOFF COEFFICIENTS FOR PRE-DEVELOPMENT CONDITIONS

Area No.	Roof Areas		Mixed Gravel Concrete & Broken Asphalt		Grass		Reserved		Reserved		Sum AC	Total Area (m^2)	C_{AVG}
	C=0.90		C=0.80		C=0.20								
	Area (m^2)	A * C	Area (m^2)	A * C	Area (m^2)	A * C	Area (m^2)	A * C	Area (m^2)	A * C			
E1 (SITE)	138.84	125.0	323.26	258.6	42.35	8.5					**392.0**	**504.45**	**0.78**

TABLE D2

CALCULATION OF CATCHMENT TIME OF CONCENTRATION FOR PRE-DEVELOPMENT CONDITIONS

Catchment No.	Area (ha)	High Elev (m)	Low Elev (m)	Flow Path Length (m)	Indiv Slope	Avg. C	Time of Conc. Tc (mins)	Description
E1 (SITE)	0.0504	64.25	62.04	33.4	6.6	0.78	1.76	10 minutes

Notes

1) For Catchments with Runoff Coefficient less than C=0.40, Time of Concentration Based on Federal Aviation Formula (Airport Method), from MTO Drainage Manual Equation 8.16, where: $T_C = 3.26 * (1.1-C) * L^{0.5} / S_W^{0.33}$

2) For Catchments with Runoff Coefficient greater than C=0.40, Time of Concentration Based on Bransby Williams Equation, from MTO Drainage Manual Equation 8.15, where: $T_C = 0.057 * L / (S_W^{0.2} * A^{0.1})$

3) The standard minimium Time of Concentraion of 10 minutes was used, rather then the calaculted time, since calcualted time was less than 10 minutes.

TABLE D3

CALCULATION OF PEAK RUNOFF FOR PRE-DEVELOPMENT CONDITIONS

Area No	Outlet Location	Area (ha)	Time of Conc, Tc (min)	Storm = 2 yr			Storm = 5 yr			Storm = 100 yr		
				I_2 (mm/hr)	Cavg	Q_2 (L/sec)	I_5 (mm/hr)	Cavg	Q_5 (L/sec)	I_{100} (mm/hr)	Cavg	Q_{100} (L/sec)
E1 (SITE)	OFFSITE	0.0504	10	76.81	0.78	**8.4**	104.19	0.78	**11.4**	178.56	0.97	**24.3**

Notes

1) Intensity, $I = 732.951/(Tc+6.199)^{0.810}$ (2-year)

2) Intensity, $I = 998.071/(Tc+6.053)^{0.814}$ (5-year)

3) Intensity, $I = 1735.688/(Tc+6.014)^{0.820}$ (100-year)

4) Cavg for 100-year is increased by 25% to a maximum of 1.0

5) The standard minimium Time of Concentraion of 10 minutes was used, rather then the calaculted time, since calcualted time was less than 10 minutes.

TABLE D4

CALCULATION OF ALLOWABLE RELEASE RATE WITH C=0.5

Area No	Outlet Location	Area (ha)	Time of Conc, Tc (min)	Storm = 2 yr			Storm = 5 yr			Storm = 100 yr		
				I_2 (mm/hr)	Cavg	Q_2 (L/sec)	I_5 (mm/hr)	Cavg	Q_5 (L/sec)	I_{100} (mm/hr)	Cavg	Q_{100} (L/sec)
E1 (SITE)	OFFSITE	0.0504	10	76.81	0.50	**5.4**	104.19	0.50	**7.3**	178.56	0.63	**15.7**

Notes

1) Intensity, $I = 732.951/(Tc+6.199)^{0.810}$ (2-year)

2) Intensity, $I = 998.071/(Tc+6.053)^{0.814}$ (5-year)

3) Intensity, $I = 1735.688/(Tc+6.014)^{0.820}$ (100-year)

4) Cavg for 100-year is increased by 25% to a maximum of 1.0

5) The standard minimium Time of Concentraion of 10 minutes was used, rather then the calaculted time, since calcualted time was less than 10 minutes.

TABLE D5
AVERAGE RUNOFF COEFFICIENTS FOR POST-DEVELOPMENT CONDITIONS

Area No.	Roof Areas C=0.90		Concrete/Asphalt C=0.90		Grass C=0.20		River Stone C=0.20		Pavers C=0.70		Sum AC	Total Area (m^2)	C_{AVG}	Comment
	Area (m^2)	A * C	Area (m^2)	A * C	Area (m^2)	A * C	Area (m^2)	A * C	Area (m^2)	A * C				
P-0			51.61	46.4	84.00	16.8	20.01	4.0	61.74	43.2	110.5	217.35	0.51	Ground surface
PR-1	172.90	155.6									155.6	172.90	0.90	Rear Roof
PR-2	114.21	102.8									102.8	114.21	0.90	Front Roof
											368.9	**504.46**	**0.73**	

TABLE D6
SUMMARY OF POST-DEVELOPMENT PEAK FLOWS (Uncontrolled and controlled)

Area No	Area (ha)	Time of Conc, Tc (min)	Storm = 2 yr				Storm = 5 yr				Storm = 100 yr				ICD
			C_{AVG}	I_2 (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	C_{AVG}	I_5 (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	C_{AVG}	I_{100} (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	
P-0	0.0217	10	0.51	76.81	2.36	2.36	0.51	104.19	3.20	3.20	0.64	178.56	6.85	6.85	
PR-1	0.0173	10	0.90	76.81	3.32	**(0.78)**	0.90	104.19	4.51	**(0.84)**	1.00	178.56	8.58	**(0.94)**	**WATTS ACCUTROL RD1 WEIR - 1/4 OPEN**
PR-2	0.0114	10	0.90	76.81	2.19	**(0.75)**	0.90	104.19	2.98	**(0.81)**	1.00	178.56	5.67	**(0.91)**	**WATTS ACCUTROL RD1 WEIR - 1/4 OPEN**
Post-Dev Site	**0.0504**				7.88	**(3.9)**			10.68	**(4.9)**			21.11	**(8.7)**	
Pre-Dev Site (C=0.5)						5.4				7.3				7.3	

Notes

1) Intensity, I = 732.951/(Tc+6.199) $^{0.810}$ (2-year)

2) Intensity, I = 998.071/(Tc+6.053) $^{0.814}$ (5-year)

3) Intensity, I = 1735.688/(Tc+6.014) $^{0.820}$ (100-year)

4) Cavg for 100-year is increased by 25% to a maximum of 1.0

5) Time of Concentration, Tc = ***10 mins***

5) Controlled release rate (Q_{CAP}) is denoted by **(1.03)**

Table D7: 2-year, 5-year & 100-year Roof Drains Design Sheet - Using Flow Controlled Roof Drains

Project: OTT-25002871-A0
Location: 133 Forward Avenue
Date: November 2025

Area #	Roof Drain Type	No Drains per Area	No of Weirs per Drain	Weir Position	Runoff Coeff (Cavg)		Drainage Area		2-year Event						5-year Event						100-year Event						Storage Required *(MRM)*			Maximum Storage Provided at Spill Elevation					
					2-year & 5-year	100-year	m^2	ha	Runoff Rate (L/sec)	2yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	Runoff Rate (L/sec)	5yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	Runoff Rate (L/sec)	100yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	2-year (m^3)	5-year (m^3)	100-year (m^3)	Area Available for Storage (m^2)	Max Prism Depth (mm)	Max Prisim Volume (m^3)	% Volume Used for Ponding		
																																	2-year	5-year	100-year
PR-1	RD1	1	1	3-1/4 open	0.90	1.00	172.90	0.0173	3.323	96	12.3	12.3	0.776	0.776	4.507	117	13.4	13.4	0.842	0.842	8.583	148	14.9	14.9	0.940	0.940	1.77	3.15	6.42	134.3	150	6.7	26%	47%	96%
PR-2	RD1	1	1	3-1/4 open	0.90	1.00	114.21	0.0114	2.195	87	11.9	11.9	0.748	0.748	2.977	108	12.9	12.9	0.814	0.814	5.669	138	14.4	14.4	0.908	0.908	0.92	1.70	3.62	93.5	150	4.7	20%	36%	77%
Totals							**287.1**	**0.0287**	**5.52**		**24.15**		**1.52**	**1.52**	**0.00**		**26.25**		**1.66**	**1.66**	**14.25**		**29.30**		**1.85**	**1.85**	**2.69**	**4.85**	**10.04**	**228**		**11.4**			
Min										**87**						**108**						**138**													
Max										**96**						**117**						**148**													

Runoff Based on the Following:

Storm Frequency (years) =	2	5	100
Time of Conc (mins) =	10	10	10
Storm Intensity (mm/hr) =	76.8	104.2	178.6

Roof Drains have Following Flow Rates per weir: WATTS Flow Controlled Drain

Weir Position	Flow (gpm) per depth							Max Flow Rate per Weir @150mm (L/s)
	0	25	50	75	100	125	150	
	0	0.025	0.05	0.075	0.1	0.125	0.15	
1-None	0	0	0	0	0	0	0	0.000
2-Closed	0	5	5	5	5	5	5	0.315
3-1/4 open	0	5	10	11	13	14	15	0.946
4-1/2 open	0	5	10	12	15	18	20	1.262
5-3/4 open	0	5	10	14	18	21	25	1.577
6-Full	0	5	10	15	20	25	30	1.890

Roof Drain Types

Drain Type =	RD1	RD2	RD3
Max Overflow Depth (mm)	150 mm	150 mm	150 mm
Flow Controlled (Yes/No)	Yes	Yes	Yes
Ponding	Yes	Yes	Yes
Weir Desc	Accutrol	Accutrol	Accutrol
No. Weirs	1	2	3

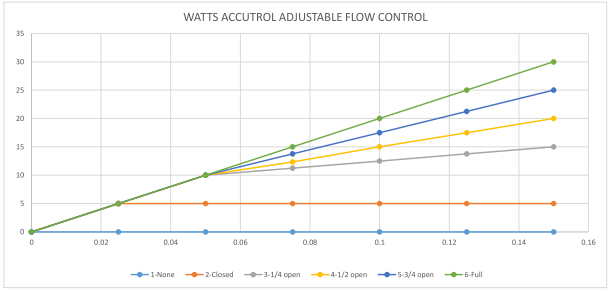


Table D8 Storage Volumes Roof Area #PR-1 (2 Year, 5 Year and 100 Year Storms) (MRM)

C_{AVG} = 0.90 (dimmensionless)
C_{100} = 1.00
Time Interval = 5 (mins)
Drainage Area = 0.01729 (hectares)

	Release Rate = 0.776 (L/sec) Return Period = 2 (years) IDF Parameters, A = 732.951 , B = 0.810 (I = A/(T_c+C) , C = 6.199					Release Rate = 0.8423 (L/sec) Return Period = 5 (years) IDF Parameters, A = 998.071 , B = 0.814 (I = A/(T_c+C) , C = 6.053					Release Rate = 0.9400 (L/sec) Return Period = 100 (years) IDF Parameters, A = 1735.69 , B = 0.820 (I = A/(T_c+C) , C = 6.014				
Duration (min)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)
0	167.2	7.2	0.78	6.5	0.00	230.5	11.1	0.842	10.2	0.00	398.6	19.2	0.9	18.2	0.00
5	103.6	4.5	0.78	3.7	1.11	141.2	6.8	0.842	5.9	1.78	242.7	11.7	0.9	10.7	3.22
10	76.8	3.3	0.78	2.5	1.53	104.2	5.0	0.842	4.2	2.50	178.6	8.6	0.9	7.6	4.59
15	61.8	2.7	0.78	1.9	1.71	83.6	4.0	0.842	3.2	2.86	142.9	6.9	0.9	5.9	5.34
20	52.0	2.3	0.78	1.5	1.77	70.3	3.4	0.842	2.5	3.04	120.0	5.8	0.9	4.8	5.79
25	45.2	2.0	0.78	1.2	1.77	60.9	2.9	0.842	2.1	3.13	103.8	5.0	0.9	4.1	6.08
30	40.0	1.7	0.78	1.0	1.72	53.9	2.6	0.842	1.7	3.15	91.9	4.4	0.9	3.5	6.26
35	36.1	1.6	0.78	0.8	1.65	48.5	2.3	0.842	1.5	3.13	82.6	4.0	0.9	3.0	6.36
40	32.9	1.4	0.78	0.6	1.55	44.2	2.1	0.842	1.3	3.08	75.1	3.6	0.9	2.7	6.41
45	30.2	1.3	0.78	0.5	1.44	40.6	2.0	0.842	1.1	3.00	69.1	3.3	0.9	2.4	6.42
50	28.0	1.2	0.78	0.4	1.31	37.7	1.8	0.842	1.0	2.90	64.0	3.1	0.9	2.1	6.40
55	26.2	1.1	0.78	0.4	1.18	35.1	1.7	0.842	0.8	2.79	59.6	2.9	0.9	1.9	6.36
60	24.6	1.1	0.78	0.3	1.03	32.9	1.6	0.842	0.7	2.67	55.9	2.7	0.9	1.7	6.29
65	23.2	1.0	0.78	0.2	0.88	31.0	1.5	0.842	0.6	2.53	52.6	2.5	0.9	1.6	6.20
70	21.9	0.9	0.78	0.2	0.72	29.4	1.4	0.842	0.6	2.39	49.8	2.4	0.9	1.5	6.10
75	20.8	0.9	0.78	0.1	0.56	27.9	1.3	0.842	0.5	2.24	47.3	2.3	0.9	1.3	5.99
80	19.8	0.9	0.78	0.1	0.39	26.6	1.3	0.842	0.4	2.09	45.0	2.2	0.9	1.2	5.87
85	18.9	0.8	0.78	0.0	0.22	25.4	1.2	0.842	0.4	1.92	43.0	2.1	0.9	1.1	5.74
90	18.1	0.8	0.78	0.0	0.05	24.3	1.2	0.842	0.3	1.76	41.1	2.0	0.9	1.0	5.59
95	17.4	0.8	0.78	0.0	-0.13	23.3	1.1	0.842	0.3	1.58	39.4	1.9	0.9	1.0	5.45
100	16.7	0.7	0.78	-0.1	-0.31	22.4	1.1	0.842	0.2	1.41	37.9	1.8	0.9	0.9	5.29
105	16.1	0.7	0.78	-0.1	-0.49	21.6	1.0	0.842	0.2	1.23	36.5	1.8	0.9	0.8	5.13
110	15.6	0.7	0.78	-0.1	-0.68	20.8	1.0	0.842	0.2	1.05	35.2	1.7	0.9	0.8	4.96
115	15.0	0.7	0.78	-0.1	-0.86	20.1	1.0	0.842	0.1	0.86	34.0	1.6	0.9	0.7	4.79
120	14.6	0.6	0.78	-0.1	-1.05	19.5	0.9	0.842	0.1	0.67	32.9	1.6	0.9	0.6	4.62
Max =					**1.77**					**3.15**					**6.42**

Notes

1) Peak flow is equal to the product of 2.78 x C x I x A
2) Rainfall Intensity, $I = A/(Tc+C)^B$
3) Release Rate = Min (Release Rate, Peak Flow)
4) Storage Rate = Peak Flow - Release Rate
5) Storage = Duration x Storage Rate
6) Maximium Storage = Max Storage Over Duration

Table D9 Storage Volumes Roof Area #PR-2 (2 Year, 5 Year and 100 Year Storms) (MRM)

C_{AVG} = 0.90 (dimmensionless)
C_{100} = 1.00
Time Interval = 5 (mins)
Drainage Area = 0.01142 (hectares)

	Release Rate = 0.748 (L/sec) Return Period = 2 (years) IDF Parameters, A = 732.951, B = 0.810, C = 6.199 (I = A/(T_c+C))					Release Rate = 0.8139 (L/sec) Return Period = 5 (years) IDF Parameters, A = 998.071, B = 0.814, C = 6.053 (I = A/(T_c+C))					Release Rate = 0.9085 (L/sec) Return Period = 100 (years) IDF Parameters, A = 1735.69, B = 0.820, C = 6.014 (I = A/(T_c+C))				
Duration (min)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)
0	167.2	4.8	0.75	4.0	0.00	230.5	7.3	0.814	6.5	0.00	398.6	12.7	0.9	11.7	0.00
5	103.6	3.0	0.75	2.2	0.66	141.2	4.5	0.814	3.7	1.10	242.7	7.7	0.9	6.8	2.04
10	76.8	2.2	0.75	1.4	0.87	104.2	3.3	0.814	2.5	1.50	178.6	5.7	0.9	4.8	2.86
15	61.8	1.8	0.75	1.0	0.92	83.6	2.7	0.814	1.8	1.66	142.9	4.5	0.9	3.6	3.27
20	52.0	1.5	0.75	0.7	0.89	70.3	2.2	0.814	1.4	1.70	120.0	3.8	0.9	2.9	3.48
25	45.2	1.3	0.75	0.5	0.81	60.9	1.9	0.814	1.1	1.68	103.8	3.3	0.9	2.4	3.58
30	40.0	1.1	0.75	0.4	0.71	53.9	1.7	0.814	0.9	1.62	91.9	2.9	0.9	2.0	3.62
35	36.1	1.0	0.75	0.3	0.59	48.5	1.5	0.814	0.7	1.53	82.6	2.6	0.9	1.7	3.60
40	32.9	0.9	0.75	0.2	0.46	44.2	1.4	0.814	0.6	1.41	75.1	2.4	0.9	1.5	3.55
45	30.2	0.9	0.75	0.1	0.31	40.6	1.3	0.814	0.5	1.29	69.1	2.2	0.9	1.3	3.47
50	28.0	0.8	0.75	0.1	0.16	37.7	1.2	0.814	0.4	1.14	64.0	2.0	0.9	1.1	3.37
55	26.2	0.7	0.75	0.0	0.00	35.1	1.1	0.814	0.3	0.99	59.6	1.9	0.9	1.0	3.25
60	24.6	0.7	0.75	0.0	-0.17	32.9	1.0	0.814	0.2	0.84	55.9	1.8	0.9	0.9	3.12
65	23.2	0.7	0.75	-0.1	-0.34	31.0	1.0	0.814	0.2	0.67	52.6	1.7	0.9	0.8	2.98
70	21.9	0.6	0.75	-0.1	-0.51	29.4	0.9	0.814	0.1	0.50	49.8	1.6	0.9	0.7	2.82
75	20.8	0.6	0.75	-0.2	-0.69	27.9	0.9	0.814	0.1	0.32	47.3	1.5	0.9	0.6	2.66
80	19.8	0.6	0.75	-0.2	-0.87	26.6	0.8	0.814	0.0	0.14	45.0	1.4	0.9	0.5	2.50
85	18.9	0.5	0.75	-0.2	-1.05	25.4	0.8	0.814	0.0	-0.04	43.0	1.4	0.9	0.5	2.32
90	18.1	0.5	0.75	-0.2	-1.24	24.3	0.8	0.814	0.0	-0.23	41.1	1.3	0.9	0.4	2.14
95	17.4	0.5	0.75	-0.3	-1.43	23.3	0.7	0.814	-0.1	-0.42	39.4	1.3	0.9	0.3	1.96
100	16.7	0.5	0.75	-0.3	-1.61	22.4	0.7	0.814	-0.1	-0.61	37.9	1.2	0.9	0.3	1.77
105	16.1	0.5	0.75	-0.3	-1.81	21.6	0.7	0.814	-0.1	-0.81	36.5	1.2	0.9	0.3	1.58
110	15.6	0.4	0.75	-0.3	-2.00	20.8	0.7	0.814	-0.2	-1.01	35.2	1.1	0.9	0.2	1.38
115	15.0	0.4	0.75	-0.3	-2.19	20.1	0.6	0.814	-0.2	-1.21	34.0	1.1	0.9	0.2	1.18
120	14.6	0.4	0.75	-0.3	-2.39	19.5	0.6	0.814	-0.2	-1.41	32.9	1.0	0.9	0.1	0.98
Max =					**0.92**					**1.70**					**3.62**

Notes

1) Peak flow is equal to the product of 2.78 x C x I x A
2) Rainfall Intensity, $I = A/(Tc+C)^B$
3) Release Rate = Min (Release Rate, Peak Flow)
4) Storage Rate = Peak Flow - Release Rate
5) Storage = Duration x Storage Rate
6) Maximium Storage = Max Storage Over Duration

Table D10 5-YEAR STORM SEWER CALCULATION SHEET

Return Period Storm = **5** (5-years, 100-years)
Default Inlet Time= 10 (minutes)
Manning Coefficient = 0.013 (dimensionless)

LOCATION			AREA (hectares)				FLOW (UNRESTRICTED - RATIONAL METHOD)							SEWER DATA									
Location	From Node	To Node	Area No.	Area (ha)	∑ Area (ha)	Average R	Indiv. 2.78*A*R	Accum. 2.78*A*R	Tc (mins)	I (mm/h)	Indiv. Flow (L/sec)	Return Period	Q (L/sec)	Dia (mm) Actual	Dia (mm) Nominal	Type	Slope (%)	Length (m)	Capacity (L/sec)	Velocity (m/s) Vf	Velocity (m/s) Va	Time in Pipe, Tt (min)	Hydraulic Ratios Qa/Qf	Hydraulic Ratios Va/Vf
Roof	Roof	STMH1	PR-1,PR-2	0.0287	0.029	0.90	0.07	0.07	10.00	104.19	7.48	5.00	7.48	150.29	150	PVC	2.50	1.46	24.2	1.36	0.95	0.03	0.31	0.70
Forward Ave.	STMH1	375 MUNI. STM											7.5	150.29	150	PVC	2.50	9.50	24.2	1.36	0.95	0.17	0.31	0.70

Definitions:
Q = 2.78*AIR, where
Q = Peak Flow in Litres per second (L/s)
A = Watershed Area (hectares)
I = Rainfall Intensity (mm/h)
R = Runoff Coefficients (dimensionless)

Notes:

Ottawa Rainfall Intensity Values: From Sewer Desing Guidelines, 2004		5yr	100yr
	a =	998.071	1735.688
	b=	0.814	0.820
	c =	6.053	6.014

Designed: **A. Johnson B.Eng, E.I.T.**
Project: **133 Forward Ave., Ottawa, ON**
Checked: **Aaditya Jariwala, M.Eng, P.Eng.**
Location: **Ottawa, Ontario**
Dwg Reference: **C100**
File Ref: OTT-25012024-A0 - STM - Storm Design Sheet
Sheet No: **1 of 1**

WATTS®	Adjustable Accutrol Weir Tag: _____	Adjustable Flow Control for Roof Drains

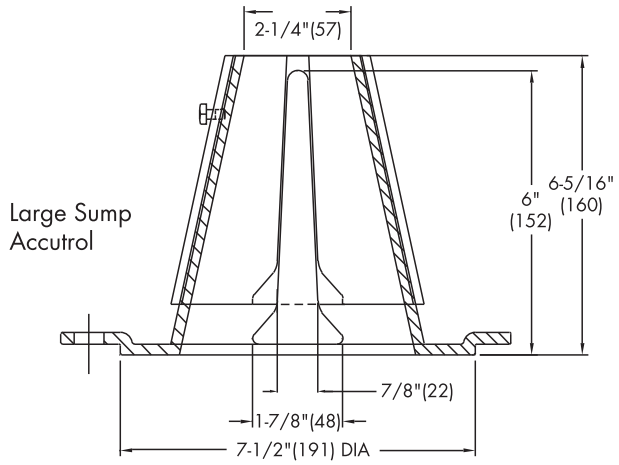
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

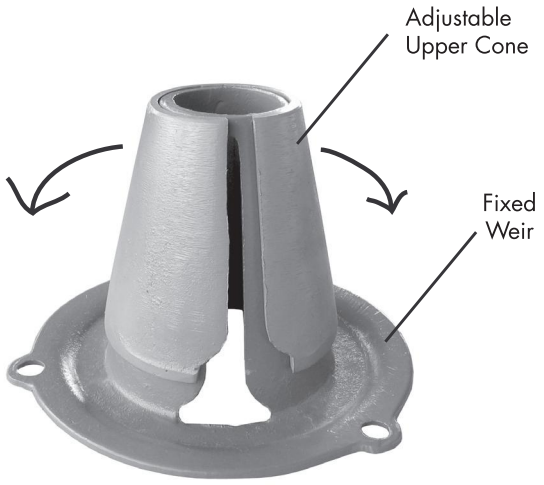
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.
Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2"of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3"of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____ Contractor _____

Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

USA: Tel: (800) 338-2581 • Fax: (828) 248-3929 • Watts.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • Watts.ca
Latin America: Tel: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • Watts.com

WATTS®
A Watts Water Technologies Company

EXP Services Inc.
133 Forward Avenue
133 Forward Avenue, Ottawa, ON
OTT-25012024-A0
December 19, 2025

Appendix E – Additional Information

Pre-Consultation: Meeting Feedback

File No.: PC2025-0200

August 8, 2025

Peter Hume/Alison Clarke
HP Urban Inc./ The Stirling Group
Via email: alison@tsgdi.ca

Subject: **Pre-Consultation: Meeting Feedback**
Proposed Site Plan Control Application – 133 Forward Avenue

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on July 28, 2025.

Pre-Consultation Preliminary Assessment

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. For your next submission, please submit the required Application Form, together with the necessary studies and/or plans to planningcirculations@ottawa.ca, copy (cc:) to the file lead and planning support.

2. In your subsequent pre-consultation or application submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed is requested with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

3. Please note, if your development proposal changes significantly in scope, design, or density it is recommended that a subsequent pre-consultation application be submitted.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

1. Policies and Guidelines

    - The property is located within the Inner Urban Transect Policy Area under the Official Plan, is designated neighbourhood and is within the evolving neighbourhood overlay.

    - The property is located within the Scott Street Secondary Plan, and is designated Low-Rise Residential Neighbourhood under Schedule A. Low rise residential buildings up to 4 storeys are permitted in the area under Schedule B.

    - The property is currently zoned R4UD (Residential Fourth Density, Subzone UD)

    - Please consider the Urban Design Guidelines for Low-rise Infill Housing in your submission.

2. Staff appreciate the consideration of a low-rise infill proposal on an underutilized lot.

3. We also appreciate the inclusion of 1:1 bicycle parking spaces per dwelling unit, which improve and promote alternative means of transportation within the neighbourhood.

4. Please note that the rear lane access which the site would rely on for the proposed rear yard parking is closed, and a land locked parcel.

    - As such, visitor parking would not be able to be provided within the rear yard as it is inaccessible.

    - We ask that you investigate other means of parking on the site or seek relief for the required visitor space. Please ensure you review the Inner Urban Transect policies which pertain to parking requirements, which note that it must be provided behind or within the building or located underground. Parking spaces cannot be located in front of the building. Staff's preference would be the provision of zero vehicular parking spaces on-site, as we are supportive of relief in this context through a minor variance or minor rezoning application.

- It may be worth investigating if the landlocked municipal parcel is something you can obtain as part of the development proposal moving forward.

5. Please consider how a greater number of trees, including possible street trees, can be provided on the site to improve the urban tree canopy within the neighbourhood.

6. Please ensure that the proposed development adheres to the requirements of the zoning by-law. Of note:

    - Bicycle Parking space requirements need to be adhered to, including space dimensions, access aisle widths, and storage requirements contained within Section 111 of the Zoning By-law.

        i. Investigate opportunities to internalize the rear yard bicycle spaces.

        ii. It appears that the 7 bike spaces in the rear yard are approximately the same size as the internal bike storage room, is there sufficient space within this room to move bikes in an out?

7. Please ensure the proposed development adheres to the provisions of Sections 161 and 162 as it pertains to the R4UD requirements. Please note the subject property is also subject to the Residential Provisions contained within Sections 139, 140, and 144 as it pertains to the mature neighbourhood overlay and development standards within the greenbelt.

    - A 4.5 metre front yard setback is required.

    - The southern interior side yard setback does not appear to meet the required 1.5 metre setback.

    - The rear yard setback is required to be 25% of the lot depth. The current proposal does not meet this requirement. Staff have concerns with a reduced rear yard setback, which will impact landscaped area requirements, functionality and usability of the space for residents.

    - 30% of the lot area must be landscaped area.

    - 40% of the front yard is required to be soft landscaping. Please consider adding front yard trees as a part of this requirement.

    - 50% of the rear yard is required to have soft landscaping.

    - A Zoning Confirmation Report, submitted in support of the Site Plan Control application, will be required to demonstrate that the proposal

adheres to the requirements of the zoning by-law, and where required, relief requested.

8. Staff encourage the implementation of large-household dwelling units, being a three-bedroom or equivalent sized unit, such as a two-bedroom + den unit as per the requirements of table 3B of the Official Plan, which seek a target of 50% for low-rise buildings within the Neighbourhood Designation located in the Inner Urban Transect.

    - The minimum requirement of two-bedroom units within the zoning by-law is 25% of the dwelling units.

9. The rear yard does not appear accessible. Please consider how residents with mobility issues or those moving their bicycles can utilize the path. Please investigate opportunities to provide a ramp or graded pathway to the rear yard as opposed to stairs to improve the functionality of the site.

10. Please ensure the character of the neighbourhood, including front yards, are maintained in the design of the building.

11. Waste management should meet the requirements of Section 143 of the zoning by-law. Please coordinate with Waste Collection Services to review their requirements for municipal pick-up.

Feel free to contact Jack Smith, Planner II and Leah Dykstra, Planner I for follow-up questions.

Urban Design

Comments:

12. An Urban Design Brief is required. Please see attached customized Terms of Reference to guide the preparation of the submission.

    - The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 – Contents of these Terms of Reference.

13. Additional drawings and studies are required as shown on the SPIL. Please follow the terms of reference (Planning application submission information and materials | City of Ottawa) to prepare these drawings and studies. These include:

    - Site Plan.
    - Landscape Plan.
    - Elevations.

14. The following elements of the preliminary design are appreciated:

    - Main entrance at grade.
    - Step back above the second storey.
    - Use of masonry for the first two storeys.

15. The following elements of the preliminary design are of concern:

    - Is there suitable rear yard setback?
    - Is the amenity space in the rear yard accessible (ie wheelchairs)?
    - What is the future of the north property line? There is a one storey structure on the property line, will there be enough residual space to allow passage? Or is it possible to build this development on that property line affording more space to the south for accessibility and garbage removal?
    - There are mature trees in the rear yard, can these be preserved during construction? If not, new trees can be planted to provide tree canopy.

Feel free to contact Christopher Moise, Urban Design for follow-up questions.

Engineering

Comments:

16. The Stormwater Management Criteria, for the subject site, is to be based on the following:

    - Application of the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
    - For separated sewer systems built up until 2016, the design of the storm sewers were based on a 5-year storm; storm systems after such time are, generally, based on a 2-year level-of-service.
    - In separated areas, the pre-development runoff shall be the lower of the existing coefficient or a maximum equivalent ‘C’ of 0.5, whichever is less (§ 8.3.7.3).
    - 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.

- Storm sewer outlets should not be submerged.

17. Quantity Control Design Criteria

- A common approach for similar “smaller scale” developments where the proposed flat roof areas occupy more a significant portion of the developed parcel is to control the storm water collected on the roof to the 5-year (site specific) pre-development discharge rate. Typically, this will allow the rest of the site outside the building footprint to remain uncontrolled (same as existing) assuming discharge can be directed towards the ROW.

- If rooftop control and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains shall not connect directly to the weeping tile / foundation drainage system. Provide a Roof Drain Plan as part of the submission.

- 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.

- 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.

18. Quality Control Design Criteria

- Water Quality Control: Not required if there will be no surface drainage capture/control infrastructure such as a catch basin, catch basin with ICD.

- Foundation drainage (weeping tile system) shall have its own separate STM lateral independent from all other STM drains.

19. Sewers and Available Services:

- 203mm dia. PVC Watermain (2002) available on Forward Ave.

- 250mm dia. PVC Sanitary Sewer (2000) available on Forward Ave.

- 300mm dia. PVC Storm Sewer (2000) available on Forward Ave.

a. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.

b. Blank existing water services at the main and cap SAN and STM laterals at the property limit as per City Standards.

c. Connections to trunk sewers and easement sewers are typically not permitted.

d. Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on private property) as per City of Ottawa Sewer-Use By-Law 2003-514.

e. Sewer connections to be made above the springline of the sewermain as per:

- Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.
- Std Dwg S11 (For rigid main sewers) – lateral must be less that 50% the diameter of the sewermain,
- Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,
- Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

20. Water

a. Residential facilities with a basic day demand greater than 50 m3/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area.

b. Water Data Card will need to be completed and returned for meter sizing for any water service lateral larger than 19mm

c. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:

- Location of service

- Type of development
- The amount of fire flow required (per OBC or FUS).
- Average daily demand: ___ l/s.
- Maximum daily demand: ___l/s.
- Maximum hourly daily demand: ___ l/s.

21. Grading Plan

- Post-development site grading shall match existing property line grades to minimize disruption to the adjacent residential properties.
- No alteration of existing drainage patterns is permitted.
- No adverse impacts on adjacent properties shall result from final site conditions

22. Fire-fighting flow rate(s)

- The requirements for levels of fire protection on private property in urban areas are covered in Section A-3.2.5.7 of the OBC. If this approach yields a fire flow of 9,000 L/min then the FUS method, as amended, and NFPA 1142 may be used to determine these requirements instead.
- 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.
- Exposure separation distances shall be defined on a figure to support the FUS calculation and required fire 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 submitted as part of the required boundary conditions request.

23. Geotechnical Study/Investigation

- A Geotechnical Study/Investigation shall be prepared in support of this development proposal.
- Reducing 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. See the Studies Plans and Identification List for more information.

- 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.

24. 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).

25. 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.

26. Noise

- A Transportation Noise Assessment is required as the subject development is located within 100m of an existing Arterial Road.

Feel free to contact Brett Hughes, Project Manager or Fayaz Rohan, Engineering Graduate for follow-up questions.

Transportation

Comments:

27. Right-of-way protection.
    - See Schedule C16 of the Official Plan.
    - Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.
28. Forward Avenue is classified as a Local Road. There is no additional protected ROW limits identified in the OP.
29. The Screening Form has indicated that no TIA Triggers have been met. This development would not generate sufficient traffic to warrant a TIA report. 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*.
30. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb, and boulevard to City standards.
31. All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any permanent structure does not extend either above or below into the right-of-way protection limits.
32. Permanent structures such as curbing, stairs, retaining walls, and underground parking foundation also bicycle parking racks are not to extend into the City's right-of-way limits.
33. 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.
34. 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.

35. 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.

Feel free to contact Wally Dubyk, Transportation Project Manager, for follow-up questions.

Forestry

Comments:

36. Tree preservation / tree removal

    a. A Tree Conservation Report (TCR) must be supplied for review
        i. An approved TCR is a requirement of Site Plan approval.
    b. 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.
    c. The TCR must contain 2 separate plans:
        i. Plan/Map 1 - show existing conditions with tree cover information
        ii. Plan/Map 2 - show proposed development with tree cover information.
    d. The TCR must list all trees on site, as well as off-site trees if the CRZ (critical root zone) extends into the developed area, by species, diameter and health condition.
        i. For ease of review, the Planning Forester suggests that all trees be numbered and referenced in an inventory table.
        ii. If there are stands of similar trees, please contact the planning forester to determine the most appropriate way of documenting the information
    e. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
    f. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.
        i. Compensation may be required for the removal of city owned trees.
    g. The removal of trees on a property line will require the permission of both property owners.
    h. 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

   i. The location of tree protection fencing must be shown on the plan.
   ii. Show the critical root zone of the retained trees.

i. 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.

37. Landscape Plan tree planting specifications

   a. Please ensure trees are planted along Forward
   b. Any retained trees are to be shown on the landscape plan.
   c. Minimum Setbacks
      i. Maintain 1.5m from sidewalk, MUP/cycle track, water service laterals.
      ii. Maintain 2.5m from curb.
      iii. Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.
   b. 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.
   c. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.
   d. Tree specifications
      i. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
      ii. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.
   e. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; if possible, include watering and warranty as described in the specification.
   f. No root barriers, dead-man anchor systems, or planters are permitted.
   g. No tree stakes unless necessary
   h. Hard surface planting
      i. If there are hard surface plantings, a planting detail must be provided.
      ii. Curb style planter is highly recommended.
      iii. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.

iv. Trees are to be planted at grade.

i. Soil Volume - Please demonstrate as per the **Landscape Plan Terms of Reference** that the available soil volumes for new plantings will meet or exceed the following:

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

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

k. The city requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.

l. Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. Please provide a projection of the future canopy cover for the site to 40 years.

m. Page 7 of the Landscape Plan Terms of Reference requires applicants to submit a digital, georeferenced CAD or GIS file of the final approved LP. Please follow this link to review the submission requirements: https://documents.ottawa.ca/sites/documents/files/landscape_tor_en.pdf . The file can be sent to the Planning Forester or Planning File Lead.

Feel free to contact Mark Richardson, Forester, for follow-up questions.

Parkland

Comments:

38. Cash-in-lieu of parkland (CILP) will be required, at the rate specified in the Parkland Dedication By-law No. 2022-280, as amended.

a. CILP rate for residential uses > 18 units/net ha = one hectare per 1,000 net residential units but shall not exceed a maximum of 10% of the gross land area where the land is less than or equal to five hectares

39. CILP payment, plus applicable appraisal fee(s), will be due prior to registration of a Site Plan Agreement.

40. Please note, if the proposed unit count or the land use changes then the parkland dedication and conveyance requirement will be re-evaluated accordingly.

Feel free to contact Mike Russett, Parks Planner, for follow-up questions.

Community issues

Comments:

41. The MCA is pleased to see the development of family-friendly housing in Mechanicsville.

42. The Mechanicsville Community Association has a long record of endorsing the construction of quality housing units that provide housing for families with children in 3 bedroom units. We endorse the standard as you described for family sized units (50% three bedrooms, 25% two bedrooms) provided the units are sufficiently large to encourage families to remain in the community.

43. We endorse the requirement for the provision of affordable housing.

44. The proposed front set back of 1.5 meters is too narrow. It is neither consistent with the depth of setbacks of 3 closest buildings on this block, nor with the broader context which extends northward to next block of Forward. A larger setback should, as a minimum, be not less than the average of the three closest buildings on the east side of Forward or preferably 6 meters. Larger setbacks would allow for a virtually unbroken tree canopy stretching from Emmerson in the north to Carruthers in the south.

    - It is worth noting that just south of this site the Centertown Citizens Ottawa Corporation (CCOC) is providing 100% affordable housing with many family sized units, plus a tree-lined streetscape and green amenities at the rear. This is a standard that will greatly benefit both the residents of 133 Forward and the larger community.

45. In this unique circumstance of a “stranded” section of the City owned lane at the rear of the property, I endorse the sale of the land to the developer or an equivalent zoning variance, but only if the sale or rezoning of this publicly owned land is used to provide public benefits including preserving and enhancing the tree canopy on the site. This must include the preservation of the red leafed

maple on the southwest corner of the lot and as many of the canopy trees at the rear of the property as possible.

46. The lack of vehicle access to the rear of the building makes the proposed visitor parking space impossible. The rear yard should be, to the maximum extent possible, soft landscaping with canopy trees which will among other things help to fight Mechanicsville's heat island

47. If, as requested, the developer is given relief from providing 1 visitor parking space it should be conditional on the provision of adequate secure bike parking spaces for residents and their guests. We note that for those who adopt active transportation their bikes are often expensive and targets for theft. Also, for families their bikes are often larger to support the carrying of children or groceries, etc. Consideration must be given to securely accommodating these lager bikes.

48. The alley along the south side of the building appears to be a critical passage for bicycle and garbage passage to and from Forward. It is evidently too narrow to function efficiently.

49. There is no entry or exit door at the rear of the building which will limit its use as an amenity space.

50. The purpose of the entry door on the north side is not evident. It provides access between a 1.5 meters wide landscape area and the building. If it is intended as the regular entry point for an apartment, the proposed design needs to be carefully evaluated.

51. Effective garbage management will be critical. I am aware of a situation in Mechanicsville where a developer is disappointed that the city has, to date, refused to provide multi-unit garbage pickup services. Given the number of units proposed for 133 Forward, if multi-unit garbage service is not guaranteed then the design of the site must provide suitable storage of garbage bins on pickup day on the property, not on the sidewalk.

52. The management of snow is a serious challenge in Mechanicsville. I recommend that the developer have a snow management plan including storage. If, as suggested, heated walkway(s) are part of the planned solution then adequate winter drainage is required to avoid the pooling and freezing of meltwater on roads and sidewalks.

53. The step back of the building as presented at 138 Forward is a preferred architectural feature as opposed to a flat-faced building.

Feel free to contact Roy Atkinson, Mechanicsville Community Association, for follow-up questions.

Other

54. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design and will be applicable to Site Plan Control and Plan of Subdivision applications.

    - The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. The timing of an updated report to Committee is unknown at this time, and updates will be shared when they are available.

    - Please refer to the HPDS information at ottawa.ca/HPDS for more information.

55. Under the Affordable Housing Community Improvement Plan, a Tax Increment Equivalent Grant (TIEG) program was created to incentivize the development of affordable rental units. It provides a yearly fixed grant for 20 years. The grant helps offset the revenue loss housing providers experience when incorporating affordable units in their developments.

    - To be eligible for the TIEG program you must meet the following criteria:

        i. the greater of five units OR 15 per cent of the total number of units within the development must be made affordable

        ii. provide a minimum of 15 per cent of each unit type in the development as affordable

        iii. enter into an agreement with the city to ensure the units maintain affordable for a minimum period of 20 years at or below the city-wide average market rent for the entire housing stock based on building form and unit type, as defined by the Canada Mortgage and Housing Corporation

        iv. must apply after a formal Site Plan Control submission, or Building Permit submission for projects not requiring Site Plan Control, and prior to Occupancy Permit issuance

    - Please refer to the TIEG information *at Affordable housing community improvement plan / Plan d'améliorations communautaires pour le logement abordable for more details or contact the TIEG coordinator via email at affordablehousingcip@ottawa.ca.*

Submission Requirements and Fees

1. Outlines the application type/subtype required and the associated fees

a. Additional information regarding fees related to planning applications can be found here.

2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.

    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Yours Truly,

Leah Dykstra

Encl. Study and Plan Identification List
Urban Design Brief Terms of Reference

c.c. Jack Smith, Planner II
Jean-Charles Renaud, Planner III
Christopher Moise, Urban Design
Brett Hughes, Infrastructure Project Manager
Fayaz Rohan, Engineering Graduate
Wally Dubyk, Transportation Project Manager
Mark Richardson, Forester
Mike Russett, Parks Planner
Roy Atkinson, Mechanicsville Community Association

EXP Services Inc.
133 Forward Avenue
133 Forward Avenue, Ottawa, ON
OTT-25012024-A0
December 19, 2025

Appendix F – Drawings

Topographical Survey

Architectural Plans

C000 - Notes & Details

C001 - Existing Conditions and Removals Plan

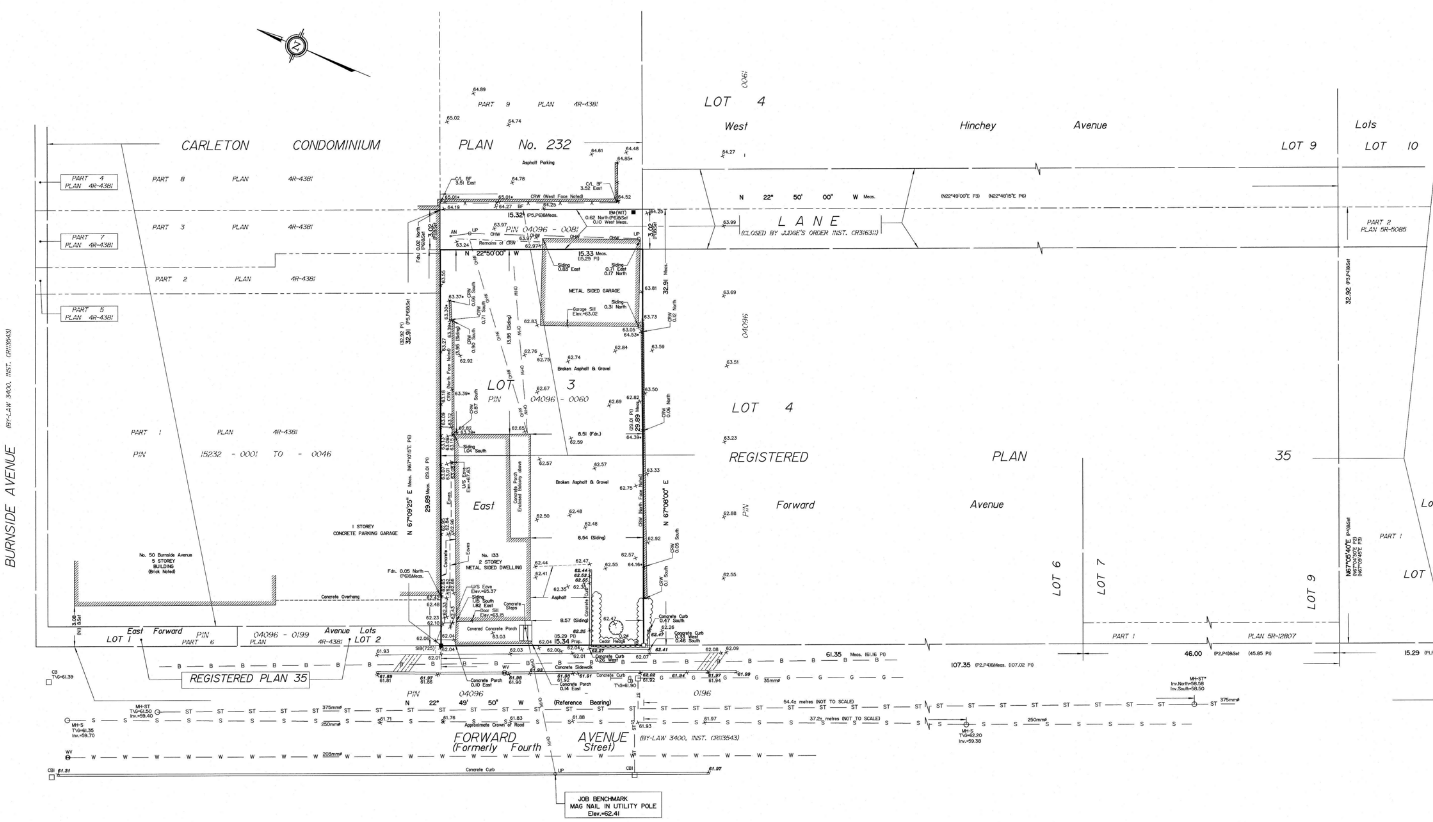
C100 - Site Servicing Plan

C200-1 - Site Grading Plan

C300 - Erosion and Sediment Control Plan

C400 – Pre-Development Site Catchments

C500 - Post-Development Site Catchments



ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
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.
4. MH-ST marked by *, Underground services and Inverts are taken from the City of Ottawa Engineering Drawings D-08-11, D-08-16 and Plan No. 3317 (Sheets 5 of 10 and 6 of 10).

SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of
LOT 3
East Forward Avenue
REGISTERED PLAN 35
CITY OF OTTAWA
Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

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

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Land Titles Act and the regulations made under them.
2. The survey was completed on the 4th day of September, 2019.

September 9, 2019 — Date

A.S. Broxham — Andrew J. Broxham, Ontario Land Surveyor

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: SEPTEMBER 9, 2019

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to P. Bellefeuille ("The Client"), their solicitors, mortgagees, and other related parties, permission to use original, signed, sealed copies of the Surveyor's Real Property Report in transactions involving The Client.

Notes & Legend

Symbol	Denotes	
—□—	=	Survey Monument Planted
—■—	=	Survey Monument Found
SIB	=	Standard Iron Bar
SSIB	=	Short Standard Iron Bar
IB	=	Iron Bar
IBø	=	Round Iron Bar
(WIT)	=	Witness
Meas.	=	Measured
(AOG)	=	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	=	Registered Plan 35
(P2)	=	(647) Plan December 19, 1984
(P3)	=	Plan 5R-5085
(P4)	=	Plan 5R-12807
(P5)	=	Plan 4R-4381
(P6)	=	Carleton Condominium Plan No. 232
(NI)	=	(AOG) Records
WV	=	Water Valve
MH	=	Maintenance Hole (Unidentified)
MH-ST	=	Maintenance Hole (Storm Sewer)
MH-S	=	Maintenance Hole (Sanitary)
— OHW —	=	Overhead Wires
CB	=	Catch Basin
CBI	=	Catch Basin Inlet
CRW	=	Concrete Retaining Wall
BF	=	Board Fence
UP	=	Utility Pole
AN	=	Anchor
Ø	=	Diameter
+65.00	=	Location of Elevations
+65.00	=	Top of Concrete Curb Elevation
+65.00*	=	Top of Wall Elevations
C/L	=	Centreline
——	=	Property Line
— ST —	=	Underground Storm Sewer
— S —	=	Underground Sanitary Sewer
— W —	=	Underground Water
— B —	=	Underground Bell
— G —	=	Underground Gas
Fdn.	=	Foundation
U/S	=	Underside
T/G	=	Top of Grate

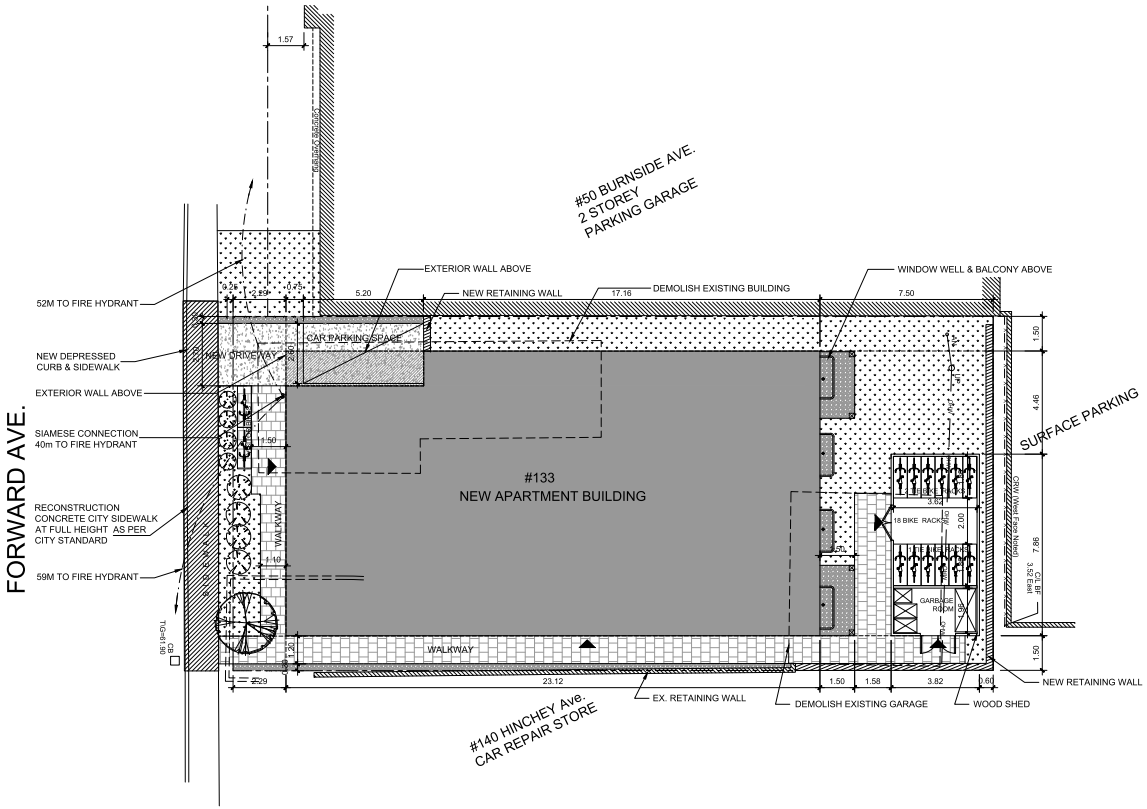
Bearings are grid, derived from the easterly limit of Forward Avenue shown to be N22°49'50"W on Plan 5R-12807 and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2094128

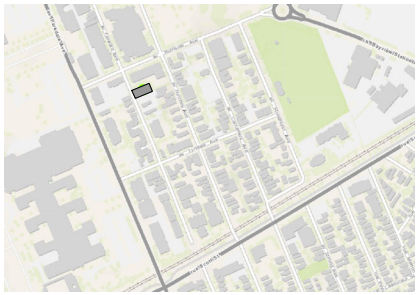
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

Ontario Land Surveyors
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

Job No. 19956-19Theory Lt 3 PL 35 T F



1 SP SITE PLAN
Scale: 1/100



PROPERTY DESCRIPTION:
Legal Description: PART 1 - PLAN OF OF LOT 3
EAST FORWARD AVE.
REGISTERED PLAN 35
CITY OF OTTAWA
Base on survey prepared by Annis, O'Sullivan, Vollebekk Ltd.

DEVELOPMENT DATA:

Site Zoning Designation: R4UD
Site area: 504.46 m²
Frontage as per survey: 15.34 m.
Depth as per survey: 32.91 m.
Building Area (Footprint): 285.31 m² (57% lot coverage)
Gross Floor Area : 1070.96 m²

City of Ottawa Zoning By-law No. 2008-250 and Revised By-law No. 2015-228			
R4UD			
LOW RISE APARTMENT 4 STOREY, 18 UNIT		REQUIRED	PROPOSED
MINIMUM LOT WIDTH		15m	15.34m
MINIMUM LOT AREA		450m²	504.46m²
MAXIMUM BUILDING HEIGHT		14.5m	13.93m
MINIMUM FRONT YARD SETBACK		1.5m	1.5m
MINIMUM CORNER SIDE YARD SETBACK		(1.57+3)/2=2.285m	2.29m
MINIMUM REAR YARD SETBACK		7.5m	7.5m
MINIMUM INTERIOR SIDE YARD SETBACK		1.5m	1.5m
LANDSCAPE AREA		30%	43%
SOFT LANDSCAPE AT FRONT YARD		20% OF FRONT YARD	23% OF FRONT YARD
SOFT LANDSCAPE AT REAR YARD		50% OF REAR YARD REAR YARD AREA: 79.8 m²	51% OF REAR YARD
FENESTRATION ON FRONT WALL		25%	30%
BALCONIES AT FRONT YARD		1/UNIT (FACING STREET)	1/UNIT (FACING STREET)
Bicycle Parking (0.5/unit)		18 UNIT @0.5=9	18
Vehicle Parking	Visitor	18 -12 =6@0.1=0.6	1
	Tenant	0	0

LEGEND:
- ENTRANCE
- PROPERTY LINE
- SETBACK LINE
- REMOVE EXISTING WALL
- NEW BUILDING
- LANDSCAPE AREA
- INTERLOCKING WALKWAY
- RIVER ROCK

0 1 2 3 4 5 6 7 8 9 10 12
M 0.5

PROJECT NORTH
TRUE NORTH

CLIENT:
IN HARMONY DEVELOPMENTS
IN+HARMONY

SURVEYOR:
ANNIS, O'SULLIVAN, VOLLEBEKK Ltd.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850
Fax: (613) 727-1079

PLANNING:
HP URBAN inc.

CIVIL:
exp.

ARCHITECT:
SUSAN D. SMITH ARCHITECT
941 MERIVALE RD
Ottawa, Ontario
613-722-5327
S.SMITH@SDSARCH.CA

No.	REVISION	DATE
1		
0	ISSUED FOR SPC	DEC. 10/25

NOTE:
1. All dimensions are to be checked on site. Discrepancies or ambiguities should be reported prior to work on site or ordering materials.
2. All work to comply with Ontario building code.
3. All dimensions include thickness of gypsum board on stud walls.

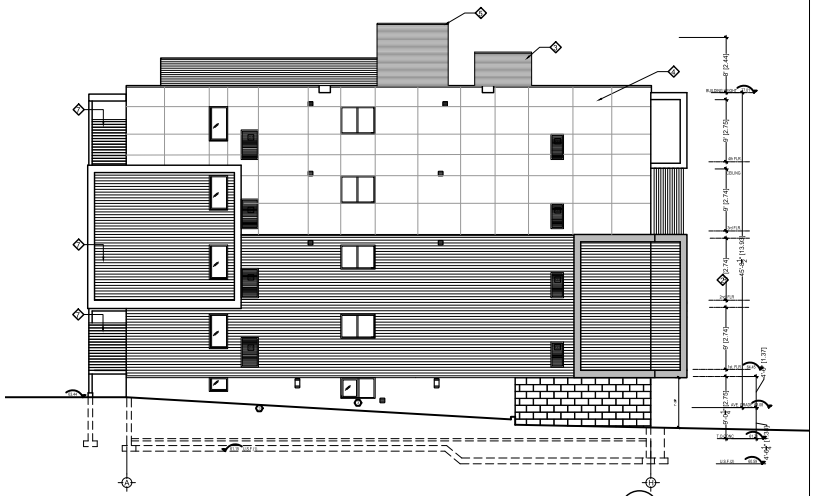
NEW APARTMENT BUILDING
133 FORWARD AVE.
OTTAWA, ONT.
K1Y 1L4

SITE PLAN

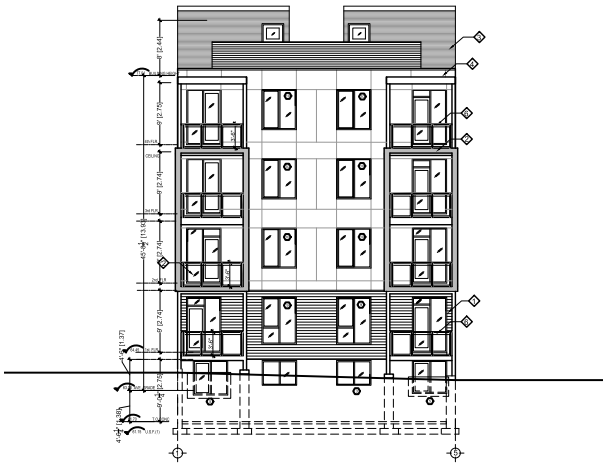
Scale	AS NOTES
Drawn	TD
Checked	SDS
Date	OCT/2025
Job #	2561

SP

1 / A7 WEST ELEVATION
SCALE: 1/8" = 1'-0"



2 / A7 NORTH ELEVATION
SCALE: 1/8" = 1'-0"



3 / A7 EAST ELEVATION
SCALE: 1/8" = 1'-0"

4 / A7 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

CLIENT:
IN HARMONY DEVELOPMENTS

IN HARMONY

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No.	REVISION	DATE
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0	ISSUED FOR SPC	OCT. 30/25

NOTE:
1. All dimensions are to be checked on site. Discrepancies or ambiguities should be reported prior to work on site or ordering materials.
2. All work to comply with Ontario building code.
3. All dimensions include thickness of gypsum board on stud walls.

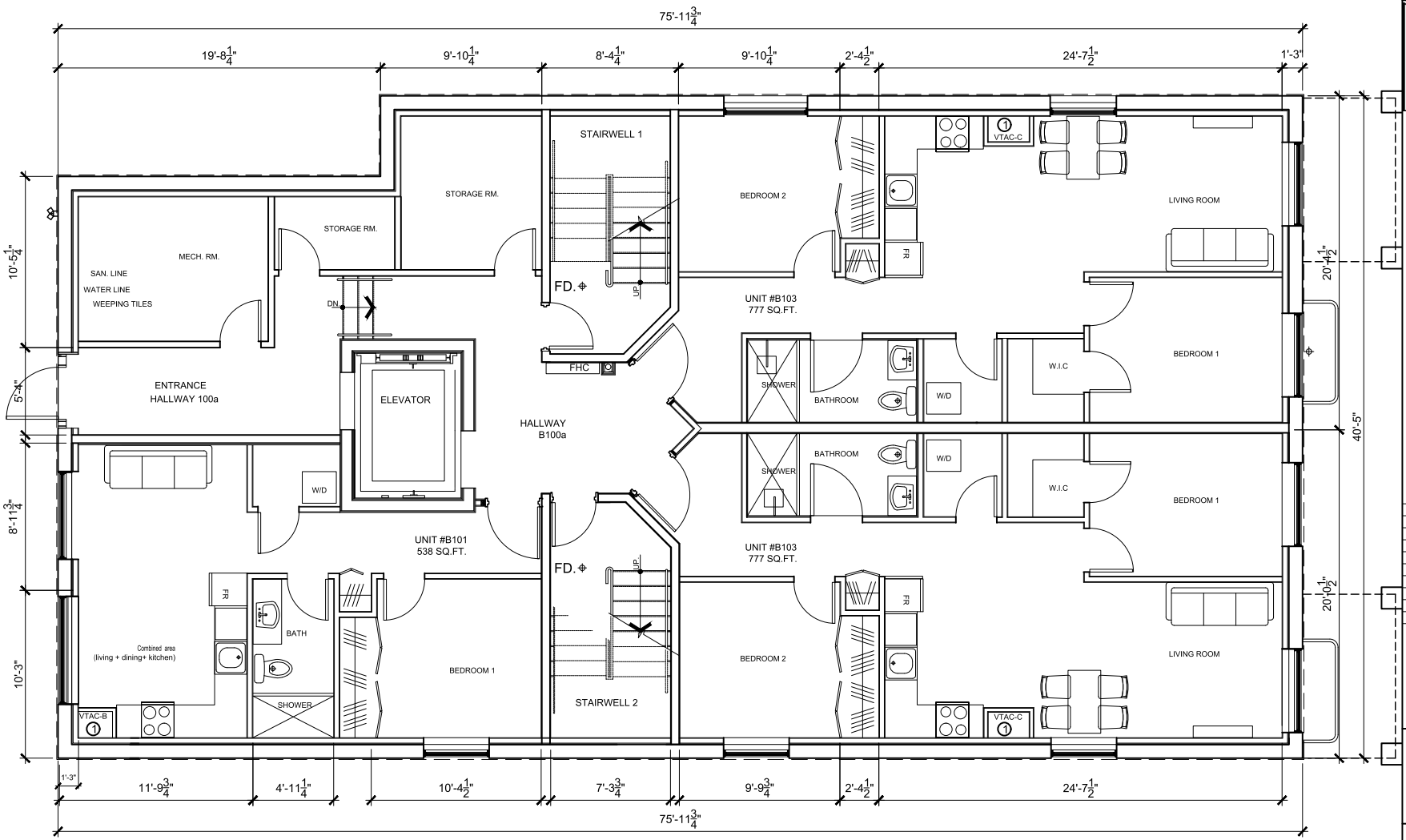
NEW APARTMENT BUILDING
133 FORWARD AVE.

OTTAWA, ONT.
K1Y 1L4

ELEVATIONS

Scale	AS NOTES
Drawn	TD
Checked	SDS
Date	MAR/2020
Job #	2017

EL



CLIENT:
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IN-HARMONY

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PROJECT NORTH
TRUE NORTH

No.	REVISION	DATE
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0	ISSUED FOR CONSTRUCTION	MAY 02/25

NOTE:
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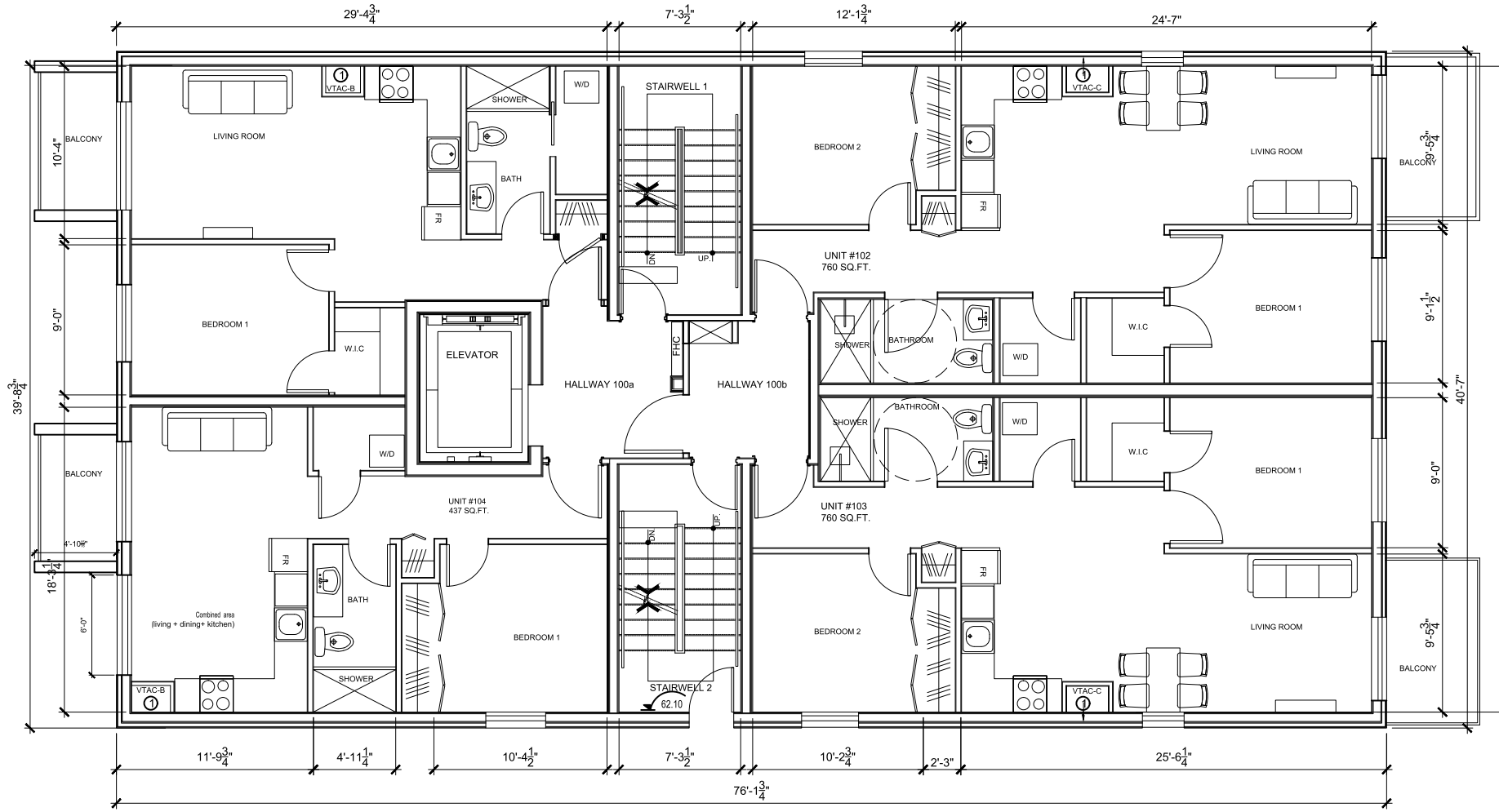
NEW APARTMENT BUILDING
133 FORWARD AVE.
OTTAWA, ONT.
K1Y 1L4

BASEMENT PLAN

Scale	1/4" = 1'-0"
Drawn	TD
Checked	SDS
Date	Aug./2023
Job #	2333

Ask1



CLIENT:
IN HARMONY DEVELOPMENTS

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PROJECT NORTH
TRUE NORTH

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0	ISSUED FOR CONSTRUCTION	MAY 02/25

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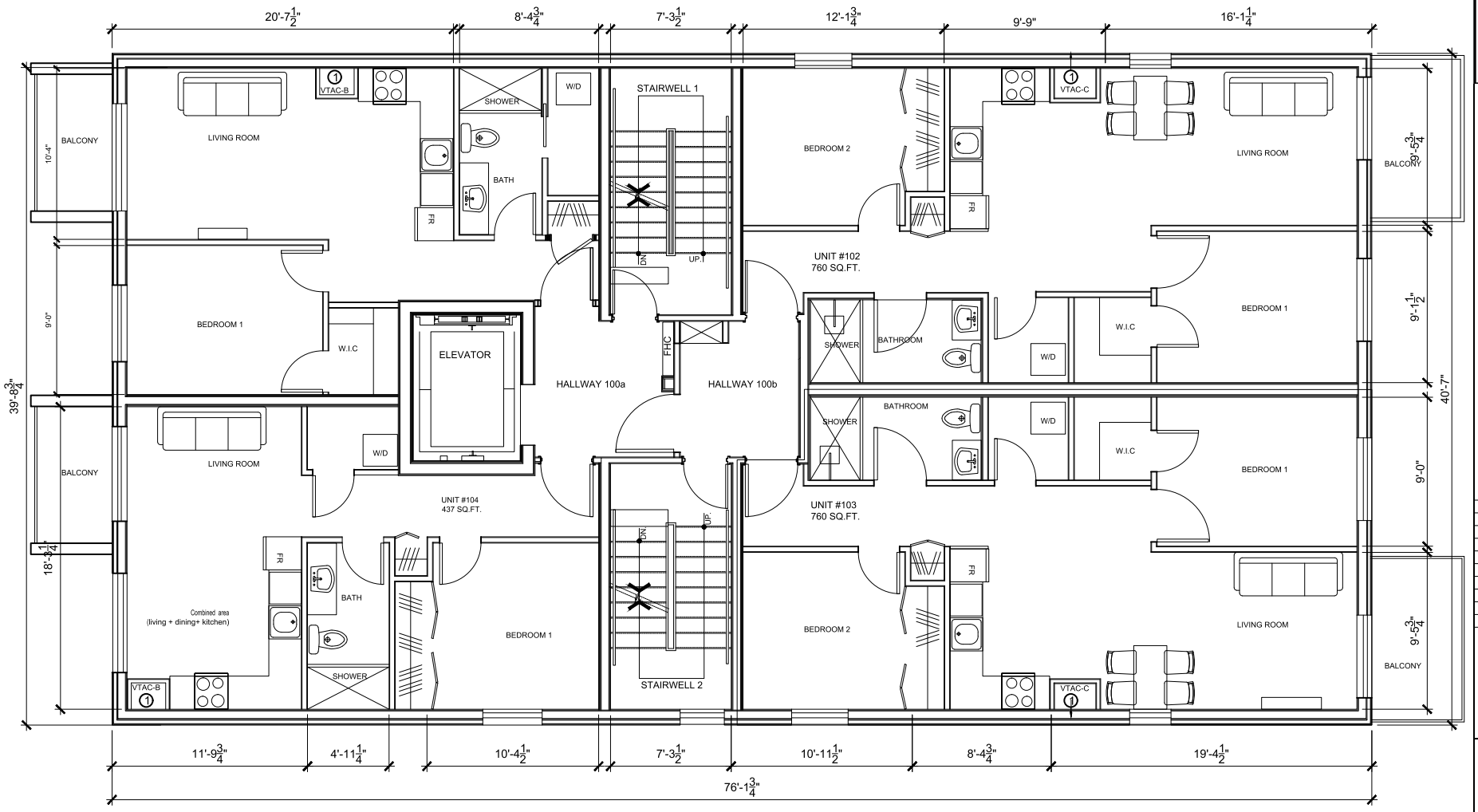
NEW APARTMENT BUILDING
133 FORWARD AVE.
OTTAWA, ONT.
K1Y 1L4

1st. FLOOR PLAN

Scale	1/4" = 1'-0"
Drawn	TD
Checked	SDS
Date	Aug./2023
Job #	2333

Ask2



CLIENT:
IN HARMONY DEVELOPMENTS

IN HARMONY

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PROJECT NORTH
TRUE NORTH

No.	REVISION	DATE
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0	ISSUED FOR CONSTRUCTION	Aug. 21/25

NOTE:
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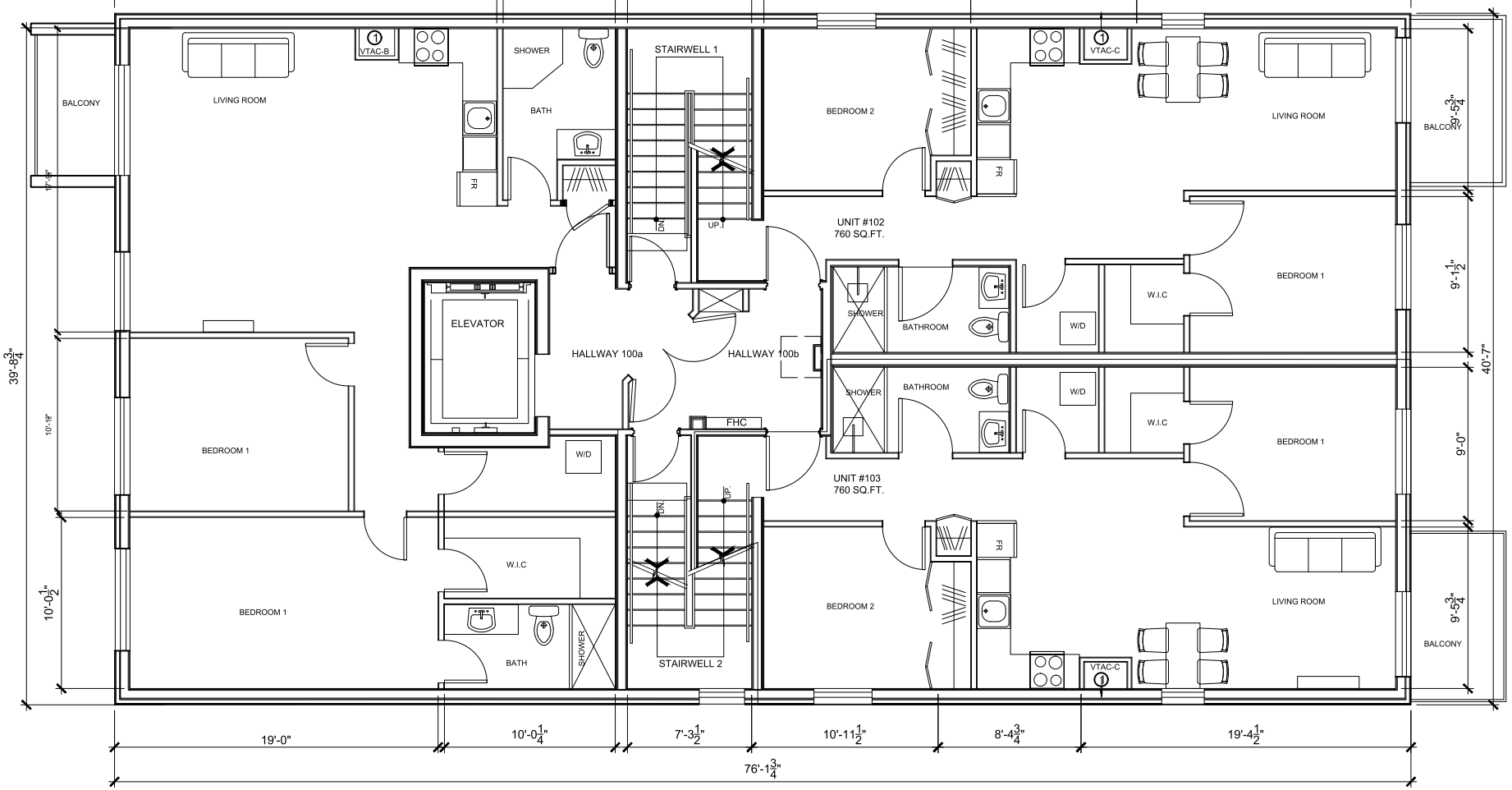
NEW APARTMENT BUILDING
133 FORWARD AVE.
OTTAWA, ONT.
K1Y 1E7

2ND& 3RD FLR. PLAN

Scale	NTS
Drawn	TD
Checked	SDS
Date	Aug./2023
Job #	2333

Ask 4



CLIENT:
IN HARMONY DEVELOPMENTS
IN HARMONY

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PROJECT NORTH
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0	ISSUED FOR CONSTRUCTION	Aug. 21/25

NOTE:
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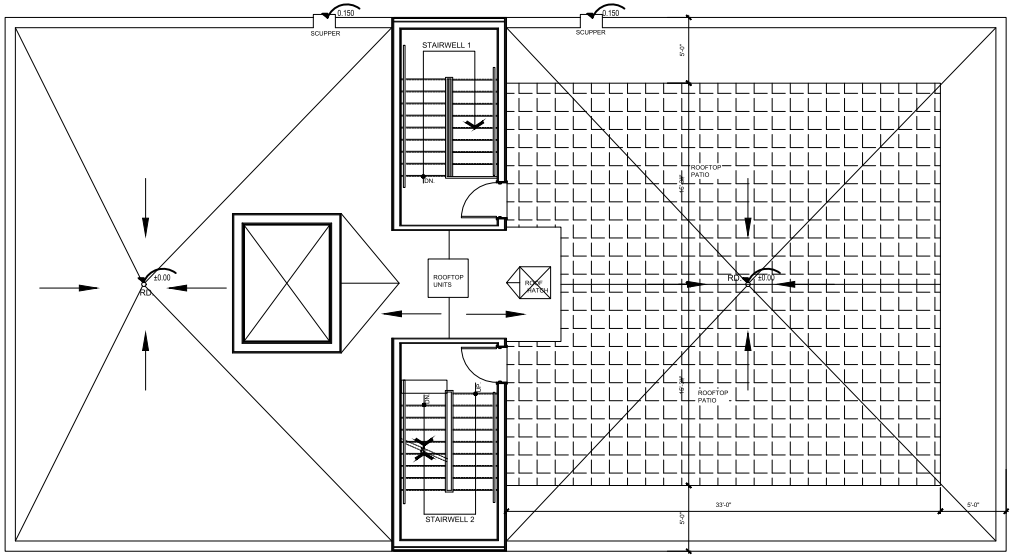
NEW APARTMENT BUILDING
133 FORWARD AVE.
OTTAWA, ONT.
K1Y 1E7

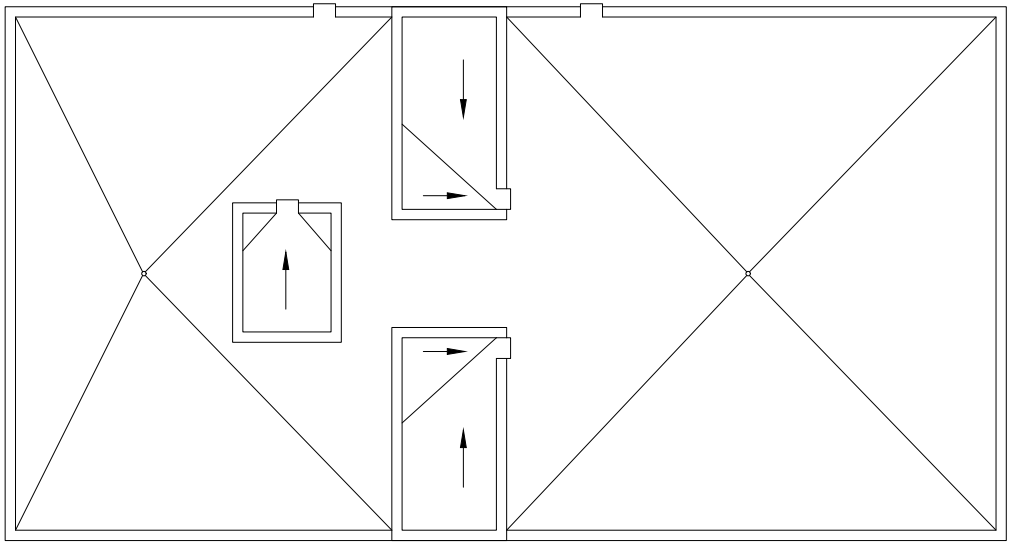
4th. FLR. PLAN

Scale	NTS
Drawn	TD
Checked	SDS
Date	Aug./2023
Job #	2333

Ask 4



1 A5 ROOFTOP PATIO PLAN



2 A5 UPPER ROOF PLAN

CLIENT:
IN HARMONY DEVELOPMENTS

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0	ISSUED FOR CONSTRUCTION	Aug. 21/25

NOTE:
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2. All work to comply with Ontario building code.

NEW APARTMENT BUILDING
133 FORWARD AVE.
OTTAWA, ONT.
K1Y 1E7

4th. FLR. PLAN

Scale	NTS
Drawn	TD
Checked	SDS
Date	Aug./2023
Job #	2333

Ask 5

GENERAL NOTES:

1. ALL WORKS AND MATERIALS SHALL CONFORM TO THE LATEST REVISIONS OF THE STANDARDS AND SPECIFICATIONS OF THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), WHERE APPLICABLE.
2. THE LOCATION OF UTILITIES IS APPROXIMATE ONLY, AND THE EXACT LOCATION SHOULD BE DETERMINED BY CONSULTING THE MUNICIPAL AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE LOCATION AND STATUS OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION OF PLANT AND EQUIPMENT FROM DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING SERVICES PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL CONFIRM LOCATIONS AND ELEVATIONS OF EXISTING SERVICES AND STRUCTURES TO BE CONNECTED TO AND EXISTING SERVICES THAT MAY BE DAMAGED OR CAUSE CONFLICTS PRIOR TO CONSTRUCTION OF ANY NEW SEWER, WATER AND/OR STORM WATER WORKS. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES, INTERPRETATIONS, CHANGES AND ADDITIONS TO THESE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER, WHEN NOTED AND BEFORE PROCEEDING WITH CONSTRUCTION WORKS. DO NOT CONTINUE CONSTRUCTION IN AREAS WHERE DISCREPANCIES APPEAR UNTIL SUCH DISCREPANCIES HAVE BEEN RESOLVED.
4. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED. ALL DRAWINGS SHOULD NOT BE SCALED BY THE CONTRACTOR. ANY MISSING OR QUESTIONABLE DIMENSIONS ARE TO BE CONFIRMED WITH THE ENGINEER IN WRITING.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION RELATED PERMITS REQUIRED AND BEAR COST OF THE SAME.
6. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS", THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION, BACKFILL AND REINSTATEMENT OF ALL AREAS DISTURBED DURING CONSTRUCTION TO THE SATISFACTION OF THE ENGINEER, THE CITY OF OTTAWA AND THE AUTHORITY HAVING JURISDICTION.
8. ANY AREAS BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
9. THE CONTRACTOR SHALL COMPLY WITH THE CITY OF OTTAWA REQUIREMENTS FOR TRAFFIC CONTROL WHEN WORKING ON CITY STREETS. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE M.T.O. BOOK 7 AND T.A.C MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST AMENDMENT).
10. THE SUPPORT OF ALL UTILITIES WITHIN THE CONSTRUCTION AREA SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
11. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS WRITTEN APPROVAL BY THE ENGINEER HAS BEEN OBTAINED.
12. EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.
13. THE SITE LAYOUT IS THE RESPONSIBILITY OF THE CONTRACTOR. AS-BUILT SITE SERVICING & GRADING DRAWINGS SHALL BE MAINTAINED ON SITE BY THE CONTRACTOR.
14. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL BEDDING OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH, AS SPECIFIED BY OPSD, IS EXCEEDED.
15. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED AY THE CONTRACTOR. REVIEW WITH ENGINEER AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING.
16. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A NEAT AND STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT.
17. FOR GEOTECHNICAL INFORMATION REFER TO GEOTECHNICAL INVESTIGATION REPORT PREPARED BY EXP. SERVICES INC, DATED OCTOBER 06, 2025 [DRAFT].
18. THE CONTRACTOR SHALL APPRAISE HIS/HER SELF OF ALL SURFACE AND SUBSURFACE CONDITIONS TO BE ENCOUNTERED AND SHALL CARRY OUT THEIR OWN TEST PITS AS REQUIRED TO MAKE THEIR OWN INDEPENDENT ASSESSMENT OF GROUND CONDITIONS. THE CONTRACTOR SHALL NOT MAKE ANY CLAIM FOR ANY EXTRA COST DUE TO ANY SUCH GROUND CONDITIONS VARYING FROM THOSE ANTICIPATED BY THE CONTRACTOR.
19. DO NOT CONSTRUCT USING DRAWINGS THAT ARE NOT MARKED "ISSUED FOR CONSTRUCTION".
20. FOR TOPOGRAPHICAL INFORMATION REFER TO PLAN PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. SURVEY DATED SEPTEMBER 9, 2019.
21. CIVIL DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, LANDSCAPE AND LEGAL DRAWINGS.

SANITARY SEWER NOTES

1. ALL SANITARY SEWER MATERIALS AND INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE STANDARDS AND SPECIFICATIONS OF THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
2. ALL SANITARY SEWERS SHALL BE PVC SDR 35, IPEX "RING-TITE" (OR EQUIVALENT), AS PER CSA STANDARD 8182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE NOTED.
3. SANITARY SEWER TRENCH AND BEDDING SHALL BE AS PER CITY OF OTTAWA STD. S6 AND S7, CLASS 'B BEDDING UNLESS OTHERWISE NOTED.
4. ALL SANITARY LATERALS ARE TO BE PVC SDR 28, IPEX "RING-TITE" (OR EQUIVALENT), ANY COLOR EXCEPT WHITE AND MARKED WITH A 5OMM X 100MM WOODEN MARKER, EXTENDING FROM THE INVERT TO 1.0 M ABOVE GRADE PAINTED RED.
5. SEWER BEDDING AS PER CITY STANDARD S6 & S7. GRANULAR 'A' BEDDING TO BE INCREASED TO 300MM WHERE SEWERS ARE BELOW THE GROUNDWATER TABLE.
6. SANITARY SEWER MANHOLES SHALL BE BENCHED AS PER OPSD 701.021. SANITARY MANHOLE FRAME AND COVERS SHALL BE AS PER CITY OF OTTAWA STD. S24 AND S25. SAFETY PLATFORMS SHALL BE AS PER OPSD 404.02. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA SPECIFICATIONS AND OPSD 1003.01.
7. THE CONTRACTOR SHALL CONDUCT INFILTRATION/EXFILTRATION (AS PER CURRENT OPSS) TESTING ON ALL NEWLY INSTALLED SANITARY SEWERS. THE TEST SHALL BE PERFORMED IMMEDIATELY AFTER SEWER INSTALLATION AND VIEWED BY THE ENGINEER.
8. THE CONTRACTOR SHALL CONDUCT CCTV INSPECTION OF ALL NEWLY INSTALLED SANITARY SEWERS AND EXISTING SEWERS CONNECTED TO. THE TEST SHALL BE PERFORMED IMMEDIATELY AFTER SEWERS INSTALLED.
9. ALL SERVICE CONNECTIONS TO BE CONSTRUCTED AS PER CITY STANDARD S11 & S11.1.
10. THE CONTRACTOR SHALL CONSTRUCT FLEXIBLE SANITARY SEWERS IN ACCORDANCE WITH OPSD 802.010 AND 802.013. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROTECT THE PIPES FROM HEAVY CONSTRUCTION EQUIPMENT. BEDDING AND BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95% SPMDD.
11. ALL SANITARY BUILDING DRAINS TO BE EQUIPPED WITH SANITARY BACKWATER VALVES INSTALLED PER CITY OF OTTAWA STANDARD DRAWING S14.1.
12. WITHIN THE FROST ZONE, THE BACKFILL IN THE SERVICE TRENCHES SHOULD MATCH THE SOIL ON SIDES TO MINIMIZE DIFFERENTIAL FROST HEAVING IN THE SUBGRADE.
13. MINIMUM SOIL COVER TO BE 2.1m TO PROTECT SEWERS FROM FROST DAMAGE. IN AREAS WHERE ADEQUATE FROST COVER CANNOT BE ACHIEVED, EQUIVALENT THERMAL INSULATION TO BE INSTALLED ON ALL THREE SIDES AS PER CITY OF OTTAWA STD. S35.

STORM SEWER NOTES

1. ALL STORM SEWER MATERIALS AND INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE STANDARDS AND SPECIFICATIONS OF THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
2. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2 (LATEST AMENDMENT). ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.L (LATEST AMENDMENT). PIPE SHALL BE JOINTED WITH STD. RUBBER GASKETS AS PER CSA A257.3 (LATEST AMENDMENT).
3. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. 8182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
4. THE CONTRACTOR SHALL CONSTRUCT FLEXIBLE STORM SEWERS IN ACCORDANCE WITH OPSD 802.010 AND 802.013. RIGID STORM PIPE SHALL BE CONSTRUCTED IN ACCORDANCE WITH OPSD 802.030. DURING CONSTRUCTION THE CONTRACTOR SHALL PROTECT THE PIPES FROM HEAVY CONSTRUCTION EQUIPMENT. BEDDING AND BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95% SPMDD.
5. SEWER BEDDING AS PER CITY STANDARD S6 & S7.
6. ALL STORM LATERALS SHALL BE PVC SDR 28, WHITE IN COLOR AND MARKED WITH A 50mm X l00mm WOODEN MARKER EXTENDING FROM THE INVERT TO 1.0M ABOVE GRADE PAINTED GREEN.
7. ALL SERVICE CONNECTIONS TO BE CONSTRUCTED AS PER CITY STANDARD S11 & S11.1.
8. WITHIN THE FROST ZONE, THE BACKFILL IN THE SERVICE TRENCHES SHOULD MATCH THE SOIL ON SIDES TO MINIMIZE DIFFERENTIAL FROST HEAVING IN THE SUBGRADE.
9. MINIMUM SOIL COVER TO BE 2.1m TO PROTECT SEWERS FROM FROST DAMAGE. IN AREAS WHERE ADEQUATE FROST COVER CANNOT BE ACHIEVED, EQUIVALENT THERMAL INSULATION TO BE INSTALLED ON ALL THREE SIDES AS PER CITY OF OTTAWA STD. S35.
10. FOUNDATION DRAIN SERVICE LATERAL TO BE EQUIPPED WITH APPROVED BACKWATER VALVE AS PER CITY OF OTTAWA STD.S14.
11. STORM MANHOLE FRAME AND COVERS SHALL BE AS PER CITY OF OTTAWA STD. S24, S24.1 AND S25.
12. SAFETY PLATFORMS SHALL BE IN ACCORDANCE WITH OPSD 404.02.
13. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA SPECIFICATIONS AND OPSD 1003.01.
14. STORM SEWER MANHOLES SERVING LOCAL SEWERS LESS THAN 900mm SHALL BE CONSTRUCTED WITH A 300mm SUMP. FOR STORM SEWERS 900mm AND OVER USE BENCHING IN ACCORDANCE WITH OPSD 701 .021.
15. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADDITIONAL BEDDING, A DIFFERENT TYPE OF BEDDING OR A HIGHER PIPE STRENGTH AT HIS OWN EXPENSE AND SHALL ALSO BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
16. THE CONTRACTOR SHALL CONDUCT CCTV INSPECTION OF ALL NEWLY INSTALLED STORM SEWERS AND EXISTING SEWERS CONNECTED TO. THE TEST SHALL BE PERFORMED IMMEDIATELY AFTER THE SEWERS ARE INSTALLED.

WATERMAIN NOTES

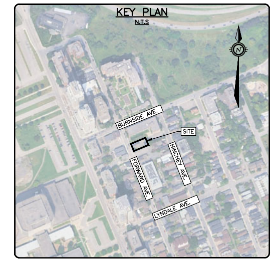
1. ALL WATERMAIN MATERIALS AND INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE STANDARDS AND SPECIFICATIONS OF THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
2. NO WORK SHALL COMMENCE UNLESS A CITY WATER WORKS INSPECTOR IS ON SITE. WATERMAIN CONNECTIONS BY CITY OF OTTAWA FORCES WITH ALL EXCAVATION BACKFILL AND ROAD REINSTATEMENT BY CONTRACTOR.
3. ALL PVC WATERMAINS SHALL BE EQUAL TO AWWA C-900 CLASS 150, SDR 18, OR APPROVED EQUAL.
4. WATERMAINS TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17, UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
5. ALL PVC WATERMAINS SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W36.
6. WATER SERVICES SHALL BE MARKED WITH A "50mm X l00mm", EXTENDING FROM THE INVERT T0 1.0m ABOVE GRADE PAINTED BLUE. STAND POSTS/SHUT-OFFS SHALL BE INSTALLED AT THE PROPERTY LINE.
7. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS AS PER CITY OF OTTAWA STD. W40 AND W42.
8. VALVE BOXES SHALL BE INSTALLED AS PER CITY OF OTTAWA DETAIL W24.
9. ALL WATERMAINS TO BE INSTALLED AT MINIMUM COVER OF 2.4m. WHERE MINIMUM FROST COVER CAN NOT BE ACHIEVED, PROVIDE RIGID INSULATION ON ALL THREE SIDES AS PER CITY OF OTTAWA STD. W22.
10. THRUST BLOCKS AND RESTRAINT AS PER CITY OF OTTAWA DWGS: W25.3 AND W25.4, W25.5 AND W25.6.
11. IF WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THAT RECOMMENDED BY THE MANUFACTURER.
12. DISINFECTION AND TESTING OF WATERMAIN TO BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS.
13. WATER METERS TO BE INSTALLED AS PER W30 FOR WATER SERVICES.
14. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS AND BLOW-OFFS AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAN.
15. WATERMAINS CROSSING ABOVE OR BELOW SEWERS TO BE INSTALLED AS PER CITY STED. W25 AND W25.2.
16. WHERE THE SEPARATION BETWEEN SERVICES AND MANHOLES IS LESS THAN 1.2m, WATER SERVICES ARE TO BE INSULATED AS PER CITY OF OTTAWA STD. W23.
17. AS PER CITY GUIDELINE, THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER / UTILITY IS 0.25M FOR CROSSING OVER THE SEWER, AS PER CITY STD W25.2. FOR CROSSING UNDER SEWER, THE MINIMUM VERTICAL CLEARANCE IS 0.50M AS PER CITY STD. W25. FOR CROSSING UNDER SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWERS IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.

ROADWAY SPECIFICATIONS

1. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
2. CONCRETE CURB SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. SCI.1.1(BARRIER CURB) AND SC1.3 (MOUNTABLE CURB), AS NOTED. PROVISION SHALL BE MADE FOR CURB DEPRESSIONS AT SIDEWALKS AND DRIVEWAYS.
3. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. R10 AND OPSD 509.010, OPSS 310.
4. GRANULAR "A" SHALL BE PLACED TO A MINIMUM THICKNESS OF 300mm AROUND ALL STRUCTURES WITHIN PAVEMENT AREA.
5. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
6. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS & NECESSARY REPAIRS HAVE BEEN CARRIED OUT TO THE SATISFACTION OF THE ENGINEER.
7. SUB- EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 300mm LIFTS.

GENERAL NOTES FOR GRADING

1. IT SHALL BE THE BUILDER'S RESPONSIBILITY TO ENSURE THAT GRADING AROUND HYDRANTS, TRANSFORMERS, AND UTILITY PEDESTALS, ETC., MEET CURRENT CITY OF OTTAWA, HYDRO AND UTILITY COMPANY REQUIREMENTS.
2. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE OR CATCH BASIN OUTLETS ARE PROVIDED.
3. CONTRACTOR TO ADJUST EXISTING CATCH BASINS, MANHOLES, FIRE HYDRANTS, VALVE CHAMBERS AND VALVE BOXES TO FINAL GRADE AS REQUIRED.
4. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING FOUNDATIONS OF ADJACENT BUILDINGS DURING EXCAVATION AND CONSTRUCTION PERIOD.
5. GRADING IN GRASSED AREAS WILL BE BETWEEN 2% TO 7%. GRADES IN EXCESS OF 7% WILL REQUIRE A MAXIMUM 3:1 TERRACING.



CAUTION
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JOB BENCH MARK
MAG NAIL IN UTILITY POLE ELEVATION = 62.41
TOPOGRAPHIC INFORMATION
PART 1 PLAN OF LOT 3 EAST FORWARD AVENUE REGISTERED PLAN 35 CITY OF OTTAWA
TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. SURVEY DATED SEPTEMBER 9, 2019.

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REV	REVISION DESCRIPTION	DATE	BY	APPD
2	REVISED PER UPDATED SITE PLAN	18/12/25	NP	AKJ
1	ISSUED FOR SPA	27/11/25	AGJ	AKJ

SCALE
NORTH
DESIGNED BY
REVIEWED BY
LICENSED PROFESSIONAL ENGINEER
A. K. JARIWALA
100562090
2025/12/19
PROVINCE OF ONTARIO

CLIENT
133 FWD LTD
187 CHEMIN OLD CHELSEA, SUITE 101,
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BASEPLAN	DESIGN	CHECKED	CAD	PROJECT MANAGER	APPROVED
AGJ	AGJ	AKJ	AGJ	AKJ	AKJ

PROJECT
133 FORWARD AVENUE
133 FORWARD AVENUE
OTTAWA, ONTARIO.

TITLE
NOTES

PROJECT No. OTT-25012024-A0
SURVEY AOV LTD.
DATE 2019-09-09
DRAWING No. C000

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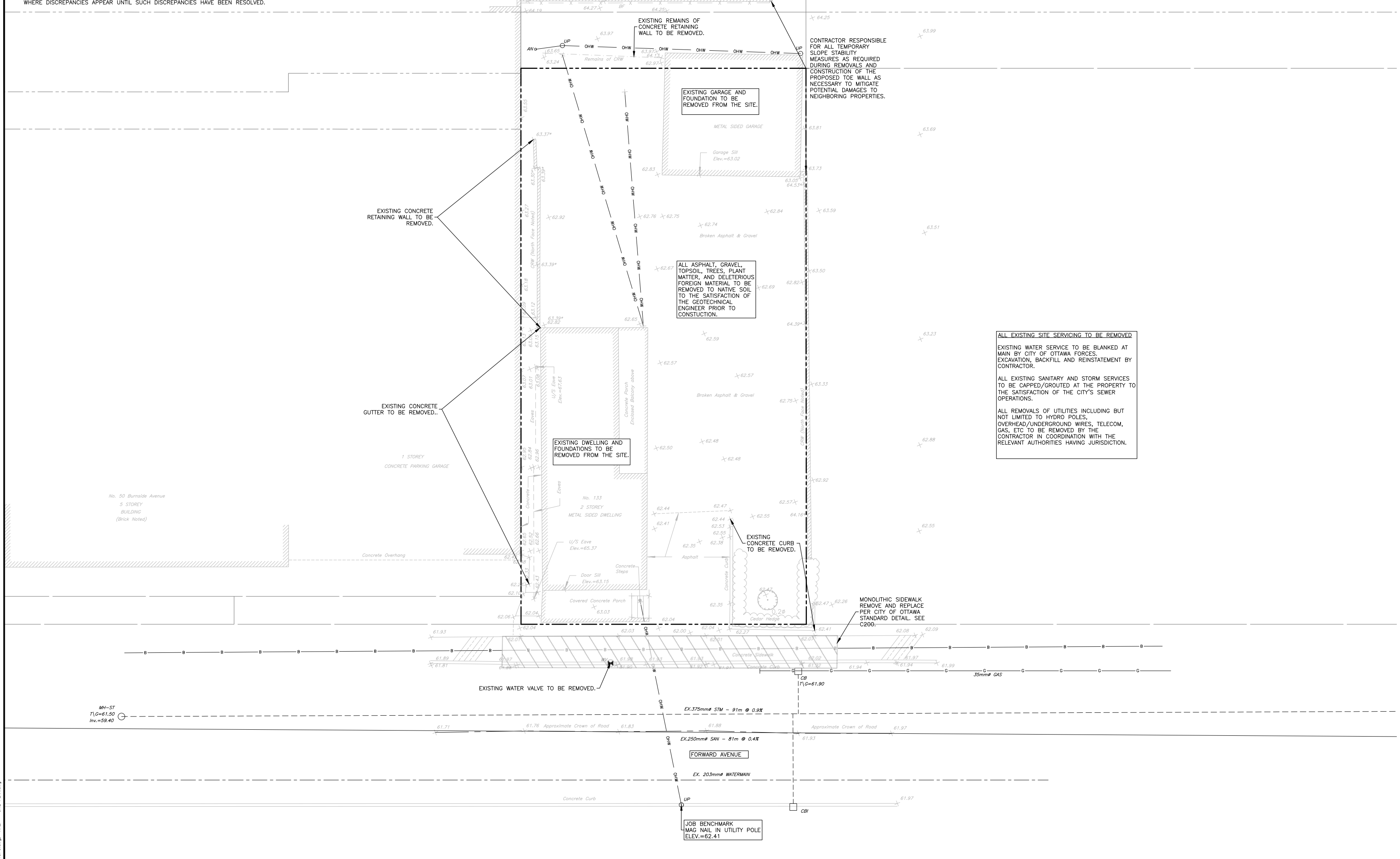
References: Keyplan-MTM-NAD83.dwg; XREF - TOPO.dwg; XREF - SITE PLAN.dwg

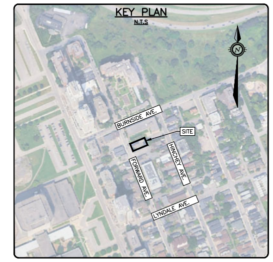
NOTES:

1. THE LOCATION OF UTILITIES IS APPROXIMATE ONLY, AND THE EXACT LOCATION SHOULD BE DETERMINED BY CONSULTING THE MUNICIPAL AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE LOCATION AND STATUS OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION OF PLANT AND EQUIPMENT FROM DAMAGE UNTIL SUCH TIME AS THE SERVICE PROVIDER HAS CONFIRMED IN WRITING THE SERVICE IS ABANDONED AND CAN BE REMOVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING SERVICES PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL CONFIRM LOCATIONS AND ELEVATIONS OF EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES, INTERPRETATIONS, CHANGES AND ADDITIONS TO THESE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER, WHEN NOTED AND BEFORE PROCEEDING WITH CONSTRUCTION WORKS. DO NOT CONTINUE CONSTRUCTION IN AREAS WHERE DISCREPANCIES APPEAR UNTIL SUCH DISCREPANCIES HAVE BEEN RESOLVED.



KEY PLAN

N.T.S.



LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EX. ℄ OF ROAD
- EX. CURB
- EX. RETAINING WALL
- EX. REMAINS OF RETAINING WALL
- EX. FENCE
- EX. EAVES
- EX. ELEVATION
- EX. TOP OF WALL ELEVATION
- EX. OVERHEAD WIRE
- EX. UTILITY POLE AND ANCHOR
- EX. BELL
- EX. GAS
- EX. CATCHBASIN
- EX. CURB INLET CATCHBASIN
- EX. STORM MANHOLE
- EX. SANITARY MANHOLE
- EX. WATER VALVE
- EX. STORM SEWER
- EX. SANITARY SEWER
- EX. WATER MAIN
- PROP. MONOLITHIC SIDEWALK REMOVE AND REPLACE

CAUTION
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JOB BENCH MARK
MAG NAIL IN UTILITY POLE ELEVATION = 62.41

TOPOGRAPHIC INFORMATION
PART 1 PLAN OF LOT 3 EAST FORWARD AVENUE REGISTERED PLAN 35 CITY OF OTTAWA
TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. SURVEY DATED SEPTEMBER 9, 2019.

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REV	REVISION DESCRIPTION	DATE	BY	APPD
2	REVISED PER UPDATED SITE PLAN	18/12/25	NP	AKJ
1	ISSUED FOR SPA	27/11/25	AGJ	AKJ

SCALE: HORIZONTAL 1:100 (0, 1m, 2m, 4m)

NORTH

DESIGNED BY

REVIEWED BY: LICENSED PROFESSIONAL ENGINEER, A. K. JARIWALA, 100562090, 2025/12/19, PROVINCE OF ONTARIO

CLIENT: 133 FWD LTD
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BASEPLAN	AGJ
DESIGN	AGJ
CHECKED	AKJ
CAD	AGJ
PROJECT MANAGER	AKJ
APPROVED	AKJ

PROJECT: 133 FORWARD AVENUE
133 FORWARD AVENUE
OTTAWA, ONTARIO.

TITLE: EXISTING CONDITIONS AND REMOVALS PLAN

PROJECT No.	OTT-25012024-A0
SURVEY	AOV LTD.
DATE	2019-09-09
DRAWING No.	C001

D07-??-??-????

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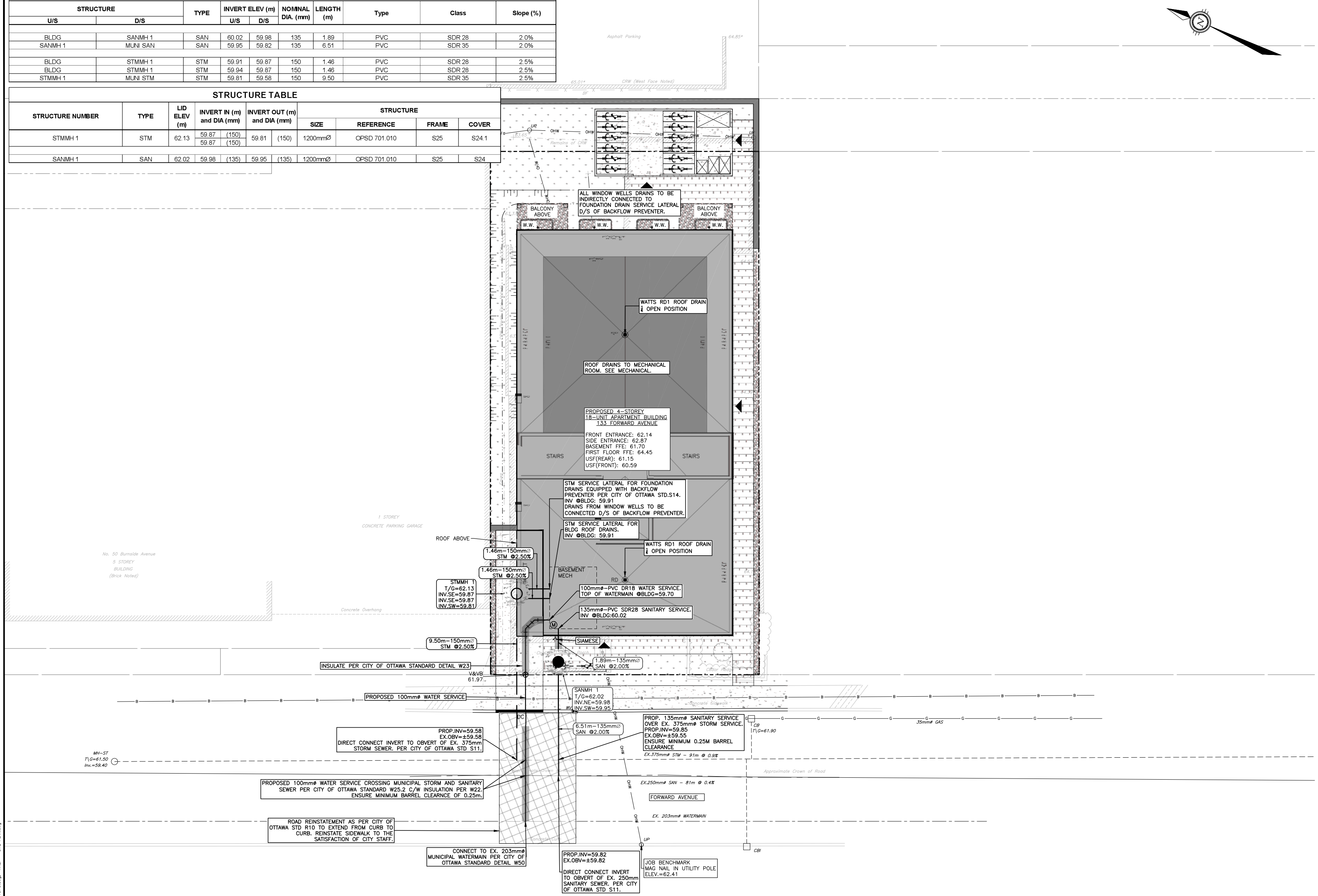
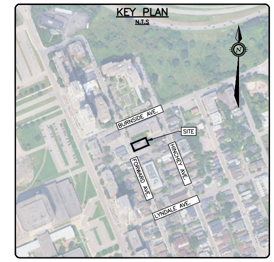
PROPOSED SEWER TABLE

STRUCTURE		TYPE	INVERT ELEV (m)		NOMINAL DIA. (mm)	LENGTH (m)	Type	Class	Slope (%)
U/S	D/S		U/S	D/S					
BLDG	SANMH 1	SAN	60.02	59.98	135	1.89	PVC	SDR 28	2.0%
SANMH 1	MUNI SAN	SAN	59.95	59.82	135	6.51	PVC	SDR 35	2.0%
BLDG	STMMH 1	STM	59.91	59.87	150	1.46	PVC	SDR 28	2.5%
BLDG	STMMH 1	STM	59.94	59.87	150	1.46	PVC	SDR 28	2.5%
STMMH 1	MUNI STM	STM	59.81	59.58	150	9.50	PVC	SDR 35	2.5%

STRUCTURE TABLE

STRUCTURE NUMBER	TYPE	LID ELEV (m)	INVERT IN (m) and DIA (mm)		INVERT OUT (m) and DIA (mm)		STRUCTURE			
							SIZE	REFERENCE	FRAME	COVER
STMMH 1	STM	62.13	59.87 59.87	(150) (150)	59.81	(150)	1200mmØ	OPSD 701.010	S25	S24.1
SANMH 1	SAN	62.02	59.98	(135)	59.95	(135)	1200mmØ	OPSD 701.010	S25	S24





LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EX. ℄ OF ROAD
- EX. CURB
- EX. RETAINING WALL
- EX. REMAINS OF RETAINING WALL
- EX. FENCE
- EX. EAVES
- EX. ELEVATION
- EX. TOP OF WALL ELEVATION
- EX. OVERHEAD WIRE
- EX. UTILITY POLE AND ANCHOR
- EX. BELL
- EX. GAS
- EX. CATCHBASIN
- EX. CURB INLET CATCHBASIN
- EX. STORM MANHOLE
- EX. SANITARY MANHOLE
- EX. WATER VALVE
- EX. STORM SEWER
- EX. SANITARY SEWER
- EX. WATER MAIN
- PROP. STORM
- PROP. SANITARY
- PROP. WATER
- PROP. STORM/SANITARY MANHOLE
- PROP. VALVE AND VALVEBOX
- PROP. WINDOW WELL
- PROPOSED ROAD REINSTATEMENT FOR SERVICE TRENCH
- PROPOSED ROOF DRAIN
- PROPOSED SCUPPER
- PROPOSED INSULATION AS NOTED
- PROPOSED WATER METER
- PROPOSED SIAMESE CONNECTION

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1	ISSUED FOR SPA	27/11/25	AGJ	AKJ

SCALE: 0 1m 2m 4m HORIZONTAL 1:100
NORTH
DESIGNED BY
REVIEWED BY
LICENSED PROFESSIONAL ENGINEER A. K. JARIWALA 100562090 2025/12/19 PROVINCE OF ONTARIO

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BASEPLAN	AGJ
DESIGN	AGJ
CHECKED	AKJ
CAD	AGJ
PROJECT MANAGER	AKJ
APPROVED	AKJ

PROJECT
133 FORWARD AVENUE
133 FORWARD AVENUE
OTTAWA, ONTARIO.

TITLE
SITE SERVICING PLAN

PROJECT No.	OTT-25012024-A0
SURVEY	AOV LTD.
DATE	2019-09-09
DRAWING No.	C100

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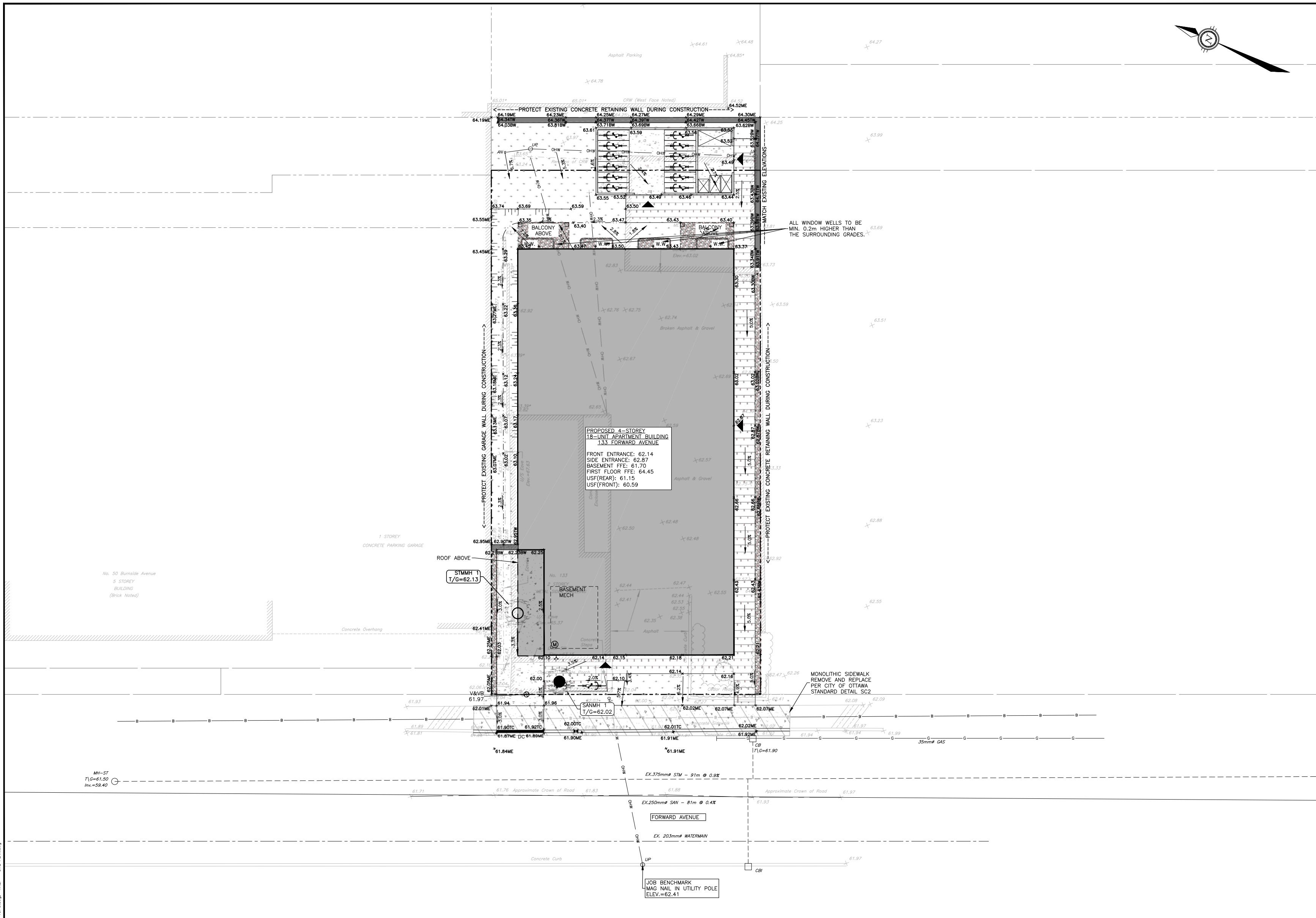
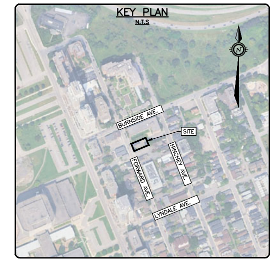


KEY PLAN

N.T.S



LEGEND

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- EX. ℄ OF ROAD
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- EX. RETAINING WALL
- EX. REMAINS OF RETAINING WALL
- EX. FENCE
- EX. EAVES
- 62.00 — EX. ELEVATION
- 62.00* — EX. TOP OF WALL ELEVATION
- OHW — EX. OVERHEAD WIRE
- AN, UP — EX. UTILITY POLE AND ANCHOR
- EX. BELL
- EX. GAS
- CB — EX. CATCHBASIN
- CBI — EX. CURB INLET CATCHBASIN
- MH-ST — EX. STORM MANHOLE
- MH-S — EX. SANITARY MANHOLE
- WV — EX. WATER VALVE
- EX.375mmø STM — EX. STORM SEWER
- EX.250mmø SAN — EX. SANITARY SEWER
- EX. 203mmø WATERMAIN — EX. WATER MAIN
- 2.0% — PROP. GRADE (%)
- 92.39 — PROP. ELEVATION
- 92.39TC — PROP. ELEVATION (TOP OF CURB)
- 92.39BC — PROP. ELEVATION (BOTTOM OF CURB)
- 92.39ME — PROP. ELEVATION (MATCH EX. ELEV.)
- 92.10FFE — PROP. FINISHED FLOOR ELEVATION
- 92.10TW — PROP. TOP OF WALL
- 92.10BW — PROP. BOTTOM OF WALL
- PROP. BUILDING AT GRADE
- DC — PROP. DEPRESSED CURB
- PROP. OPSD 3120.100 TOE WALL
- PROP. GRASS/SOFT LANDSCAPING AS PER LANDSCAPE PLANS
- PROP. CONCRETE SURFACE
- PROP. INTERLOCK
- PROP. RIVER ROCK
- PROP. STORM/SANITARY MANHOLE
- W.W. — PROP. WINDOW WELL
- PROP. MONOLITHIC SIDEWALK REMOVE AND REPLACE PER CITY OF OTTAWA SC2
- PROP. VALVE AND VALVEBOX
- PROP. SWALE/FLOW PATH
- PROP. TERRACING @3:1 MAX.

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References: Keyplan-MTM-NAD83.dwg; XREF - TOPO.dwg; XREF - SITE PLAN.dwg

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JOB BENCH MARK

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3	REVISED PER UPDATED SITE PLAN	18/12/25	NP	AKJ
2	ISSUED FOR SPA	27/11/25	AGJ	AKJ
1	COORDINATION	25/11/17	AGJ	AKJ

SCALE: 0 1m 2m 4m HORIZONTAL 1:100

NORTH

DESIGNED BY

REVIEWED BY: LICENSED PROFESSIONAL ENGINEER A. K. JARIWALA 100562090 2025/12/19 PROVINCE OF ONTARIO

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BASEPLAN: AGJ
DESIGN: AGJ
CHECKED: AKJ
CAD: AGJ
PROJECT MANAGER: AKJ
APPROVED: AKJ

PROJECT: 133 FORWARD AVENUE
133 FORWARD AVENUE
OTTAWA, ONTARIO.

TITLE: SITE GRADING PLAN

PROJECT No.: OTT-25012024-A0
SURVEY: AOV LTD.
DATE: 2019-09-09
DRAWING No.: C200

D07-??-??-????

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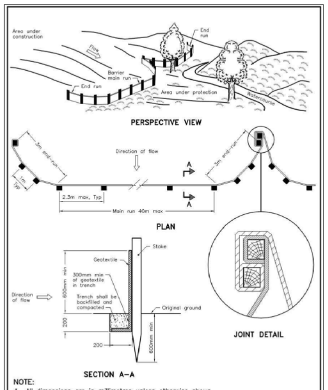
EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION.

DURING ALL CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION SHALL BE CONTROLLED BY THE FOLLOWING TECHNIQUES:

1. LIMITING THE EXTENT OF EXPOSED SOILS AT ANY GIVEN TIME.
2. REVEGETATION OF EXPOSED AREAS AS SOON AS POSSIBLE.
3. MINIMIZATION OF AREA TO BE CLEARED AND DISRUPTION TO ADJACENT AREAS.
4. INSTALLATION OF FILTER CLOTH BETWEEN FRAME AND COVER ON ALL PROPOSED CATCH BASINS AND CATCH BASIN MANHOLES.
5. A SILT FENCE TO BE INSTALLED 0.3m INSIDE THE SITE PROPERTY LINE TO LOCATIONS SHOWN ON THIS DRAWING.
6. A VISUAL INSPECTION SHALL BE COMPLETED DAILY ON SEDIMENT CONTROL BARRIERS AND ANY DAMAGE REPAIRED IMMEDIATELY. CARE WILL BE TAKEN TO PREVENT DAMAGE DURING CONSTRUCTION OPERATIONS.
7. IN SOME CASES SOME BARRIERS MAY BE REMOVED TEMPORARILY TO ACCOMODATE THE CONSTRUCTION OPERATIONS. THE AFFECTED BARRIERS WILL BE REINSTATED AT NIGHT WHEN CONSTRUCTION IS COMPLETED.
8. THE SEDIMENT CONTROL DEVICES WILL BE CLEANED OF ACCUMULATED SILT AS REQUIRED. THE DEPOSITS WILL BE DISPOSED OF AS PER THE REQUIREMENTS OF THE CONTRACT.
9. DURING THE COURSE OF CONSTRUCTION IF THE ENGINEER BELIEVES THAT ADDITIONAL PREVENTION METHODS ARE REQUIRED TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR WILL INSTALL ADDITONAL SILT FENCES OR OTHER METHODS AS REQUIRED TO THE SATISFACTION OF THE ENGINEER.
10. CONSTRUCTION AND MAINTENANCE REQUIRMENTS FOR EROSION AND SEDIMENT CONTROLS TO COMPLY WITH ONTARIO PROVINCIAL STANDARD SPECIFICATION (OPSS) OPSS 805, AND CITY OF OTTAWA SPECIFICATIONS.
11. SEDIMENT AND EROSION CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA SITE INSPECTOR OR CONSERVATION AUTHORITY.

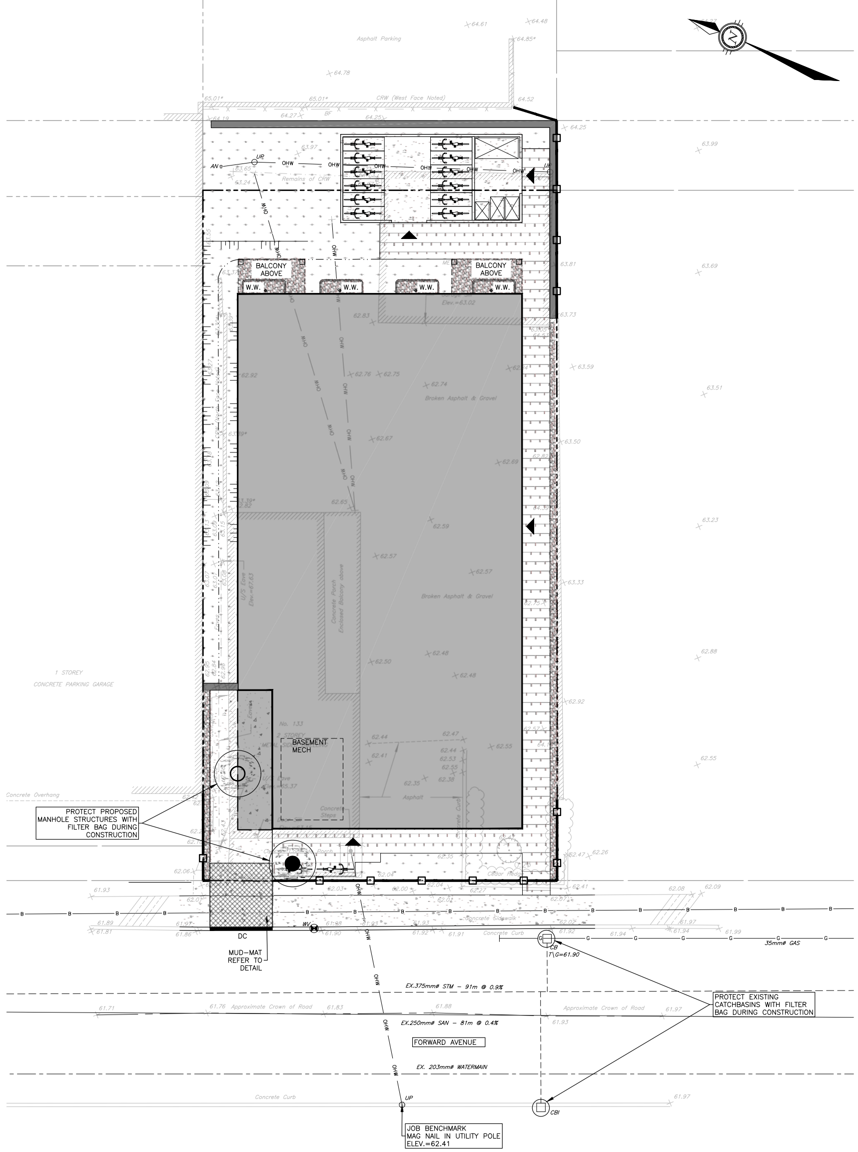


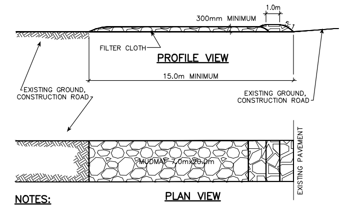
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT-DUTY SILT FENCE BARRIER	OPSD 219.110	

NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO WOOD POSTS WITH WIRE TIES OR STAPLES.
2. POSTS TO BE SPACED AT 2.3 METRES CENTRE TO CENTRE.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY A MINIMUM OF 500mm.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. WOOD POSTS TO BE HARDWOOD TYPE (50mm x 50mm).
6. GEOTEXTILE TO BE EMBEDDED 200mm INTO GROUND.
7. GEOTEXTILE TO CONFORM TO OPSS 805 STANDARDS.
8. SILT FENCE MUST BE INSTALLED BEFORE COMMENCEMENT OF CONSTRUCTION AND IN ACCORDANCE WITH DETAIL. SILT FENCE CAN BE REMOVED AFTER LANDSCAPING IS COMPLETE.
9. SEDIMENTS MUST BE CLEARED AWAY WHEN THEY REACH HALF THE HEIGHT OF THE FENCE.

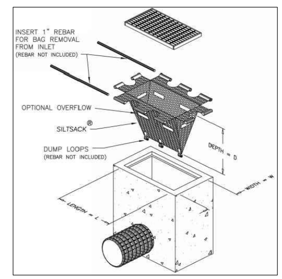




NOTES:

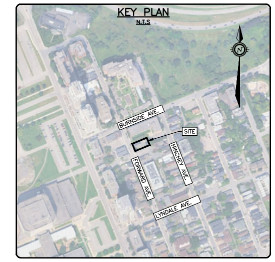
1. STONE – USE CLEAR CRUSHED 100mm STONE.
2. LENGTH – AS REQUIRED BUT NOT LESS THAN 15.0m.
3. THICKNESS – NOT LESS THAN 300mm.
4. WIDTH – 7.0m MINIMUM, NOT LESS THAN THE WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING STONE.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRED PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
7. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

MUD MAT DETAIL
N.T.S



PROVIDE FILTER BAGS AS SHOWN (GEO-SYNTHETICS MANUFACTURER OR APPROVED EQUIVALENT)

FILTER BAG DETAIL
N.T.S



LEGEND

- PROPERTY LINE
- ABUTTING PROPERTY LINE
- EX. ℄ OF ROAD
- EX. CURB
- EX. RETAINING WALL
- EX. REMAINS OF RETAINING WALL
- EX. FENCE
- EX. EAVES
- EX. ELEVATION
- EX. TOP OF WALL ELEVATION
- EX. OVERHEAD WIRE
- EX. UTILITY POLE AND ANCHOR
- EX. BELL
- EX. GAS
- EX. CATCHBASIN
- EX. CURB INLET CATCHBASIN
- EX. STORM MANHOLE
- EX. SANITARY MANHOLE
- EX. WATER VALVE
- EX. STORM SEWER
- EX. SANITARY SEWER
- EX. WATER MAIN
- MUD MAT
- PROP. STORM/SANITARY MANHOLE

CAUTION
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JOB BENCH MARK
MAG NAIL IN UTILITY POLE ELEVATION = 62.41
TOPOGRAPHIC INFORMATION
PART 1 PLAN OF LOT 3 EAST FORWARD AVENUE REGISTERED PLAN 35 CITY OF OTTAWA
TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. SURVEY DATED SEPTEMBER 9, 2019.

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REV	REVISION DESCRIPTION	DATE	BY	APPD
2	REVISED PER UPDATED SITE PLAN	18/12/25	NP	AKJ
1	ISSUED FOR SPA	27/11/25	AGJ	AKJ

SCALE: 0 1m 2m 4m HORIZONTAL 1:100
NORTH
DESIGNED BY
REVIEWED BY: LICENSED PROFESSIONAL ENGINEER A. K. JARIWALA 100562090 2025/12/19 PROVINCE OF ONTARIO

CLIENT
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187 CHEMIN OLD CHELSEA, SUITE 101,
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BASEPLAN	AGJ
DESIGN	AGJ
CHECKED	AKJ
CAD	AGJ
PROJECT MANAGER	AKJ
APPROVED	AKJ

PROJECT
133 FORWARD AVENUE
133 FORWARD AVENUE
OTTAWA, ONTARIO.

TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT No.	OTT-25012024-A0
SURVEY	AOV LTD.
DATE	2019-09-09
DRAWING No.	C300

DO7-??-??-????
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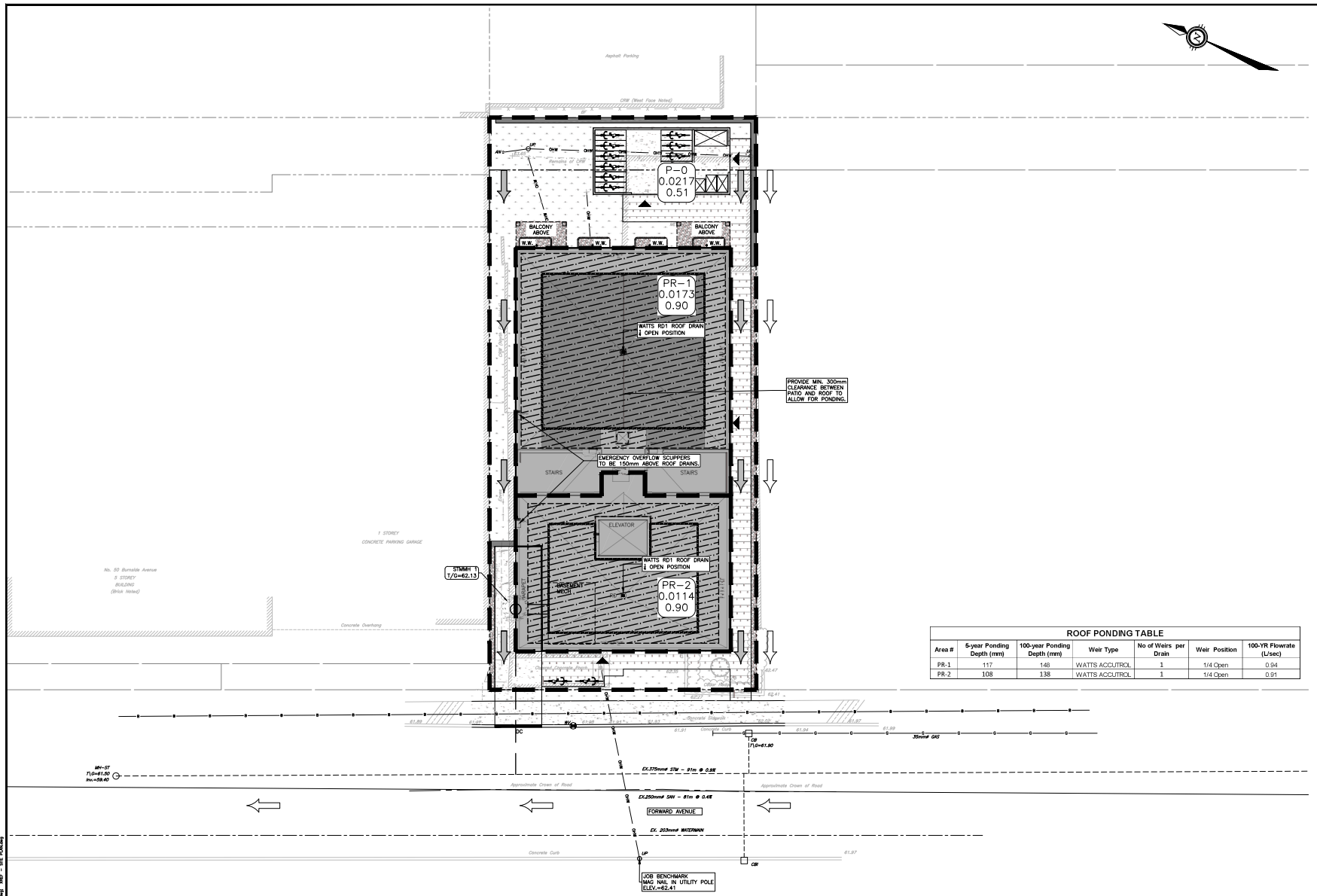
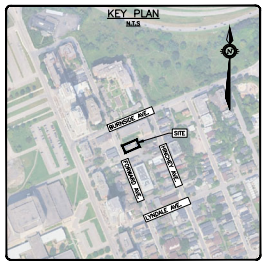


ROOF PONDING TABLE

Area #	5-year Ponding Depth (mm)	100-year Ponding Depth (mm)	Weir Type	No of Weirs per Drain	Weir Position	100-YR Flowrate (L/sec)
PR-1	117	148	WATTS ACCUTROL	1	1/4 Open	0.94
PR-2	108	138	WATTS ACCUTROL	1	1/4 Open	0.91



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- EX. SANITARY MANHOLE
- EX. WATER VALVE
- EX. STORM SEWER
- EX. SANITARY SEWER
- EX. WATER MAIN
- ON-SITE OVERLAND FLOW ROUTE
- OFF-SITE OVERLAND FLOW ROUTE
- POST-DEVELOPMENT CATCHMENTS
- ID AREA "C" — CATCHMENTS LABEL
- PROP. GRASS
- PROP. CONCRETE
- PROP. INTERLOCK
- PROP. RIVER ROCK
- PROP. STORM MANHOLE
- PROP. STORM
- PROP. ROOF DRAINS
- PROP. SCUPPERS
- W.W. — PROP. WINDOW WELL
- 5 YEAR PONDING
- 100 YEAR PONDING

CAUTION
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1	ISSUED FOR SPA	27/11/25	AGJ	AKJ

SCALE: 0 1m 2m 4m HORIZONTAL 1:100
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A.K. JARIWALA 100562090 2025/12/19 LICENSED PROFESSIONAL ENGINEER PROVINCE OF ONTARIO

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DESIGN-LAN	AGJ
DESIGN	AGJ
CHECKED	AKJ
CAD	AGJ
PROJECT MANAGER	AKJ
APPROVED	AKJ

PROJECT: 133 FORWARD AVENUE
133 FORWARD AVENUE
OTTAWA, ONTARIO.

TITLE: POST-DEVELOPMENT CATCHMENTS

PROJECT No.	OTT-2501024-A0
SURVEY	AOV LTD.
DATE	2019-09-09
DRAWING No.	C500

DO?-??-??-????

#?????