SMART LIVING GP INC

9-STOREY RESIDENTIAL DEVELOPMENT, 112-134 NELSON STREET, OTTAWA, ON

SITE SERVICING REPORT

JUNE 28, 2024

9-STOREY RESIDENTIAL DEVELOPMENT, 112-134 NELSON STREET, OTTAWA, ON

SITE SERVICING REPORT

SMART LIVING GP INC.

FOR SITE PLAN APPROVAL

PROJECT NO.: 211-04788-00
DATE: JUNE 2024

WSP
2611 QUEENSVIEW DRIVE, SUITE 300
OTTAWA, ON, CANADA, K2B 8K2

WSP.COM

June 28, 2024

Smart Living GP Inc.
226 Argyle Avenue
Ottawa, ON K2P 1B9

Attention: Corey Kou

Dear Sir:

Subject: 112-134 Nelson Street, Ottawa, ON – Site Servicing and Stormwater Management Report

Please find attached our site servicing report issued for site plan approval application.

Yours sincerely,

Ishaque Jafferjee, P.Eng.
Manager

WSP ref.: 211-04788-00

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OTTAWA, ON, CANADA, K2B 8K2

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QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	Issued for Site Plan Approval Application	Reissued for Site Plan Approval Application	Reissued for Site Plan Approval Application	Reissued for Site Plan Approval Application
Date	2023-01-27	2023-01-27	2023-07-13	2024-06-28
Prepared by	Alex Sereda, P.Eng	Alex Sereda, P.Eng	Alex Sereda, P.Eng	Spencer Manoryk
Signature				
Checked by	Ishaque Jafferjee, P.Eng.	Ishaque Jafferjee, P.Eng.	Ishaque Jafferjee, P.Eng.	Ishaque Jafferjee, P.Eng.
Signature				
Authorised by				
Signature				
Project number	211-04788-00			
Report number				
File reference				

SIGNATURES

PREPARED BY

Spencer Manoryk
Designer EIT

REVIEWED BY

Ishaque Jafferjee, P.Eng.
Manager

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1 INTRODUCTION

1.1 EXECUTIVE SUMMARY

WSP was retained by Smart Living GP Inc. to provide servicing, grading and stormwater management design services in support of the site plan approval for the proposed residential development located at 112 Nelson Street, in the City of Ottawa. The development was subsequently updated to include the neighbouring lot at 134 Nelson Street. This report discusses the design of the combined 112-134 Nelson St properties and is based on the previous report for 112 Nelson Street originally dated 2021-08-26. The proposed work consists of a 9-storey residential development tower with lower 6 storey components at the ends of the "L" shaped building. This report will provide sufficient detail to demonstrate that the proposed development can be supported by the existing municipal infrastructure services (watermain, sanitary and storm sewers) and that the servicing design conforms to the applicable standards and guidelines. The report will also include measures to be taken during the construction to minimize erosion and sedimentation. A separate report (112-134 Nelson St. – Stormwater Management Report) is provided detailing the stormwater management approach and addressing the quantity control and quality measures in accordance with the applicable guidelines.

Currently, the site is developed and houses a 2 to 3 storey industrial building with several units. The total property area is 0.3 ha in size. The site sits north-east of the King Edward Ave. and Rideau St. intersection and is bounded by developed land and parking facilities with Nelson St. to the east of the site.

The subject site is a single L-shaped property with easements identified in the topographic survey. The site generally slopes inwards towards catch basins with high points along the property lines. The site is currently serviced for water (including a private hydrant), sanitary, and storm, and these existing on-site services will be demolished for the proposed works.

The City of Ottawa requires that the design of a drainage and stormwater management system in this development must be prepared in accordance with the following documents:

- Sewer Design Guidelines, City of Ottawa, October 2012;
- Stormwater Management Planning and Design Manual, Ministry of the Environment, March 2003; and
- Stormwater Management Facility Design Guidelines, City of Ottawa, April 2012

This report was prepared utilizing servicing design criteria obtained from the City of Ottawa and outlines the design for water, sanitary wastewater and stormwater facilities.

The format of this report matches that of the servicing study checklist found in Section 4 of the City of Ottawa's Servicing Study Guidelines for Development Applications, November 2009.

The following municipal services are available along Nelson St. adjacent to the development as recorded from as-built drawings received from the City and online resource GeoOttawa:

Nelson St.

- Two 203 mm watermains, 300 mm concrete sanitary sewer and 450 mm concrete stormwater sewer.

It is proposed that an on-site stormwater management system will be provided to collect and attenuate flow rates and control water quality leaving the site. Refer to stormwater management report for details.

1.2 LOCATION MAP AND PLAN

The site at 112-134 Nelson St. is shown in the centre of Figure 1-1 below as presented in the GeoOttawa website.

Figure 1-1 Site Location

The proposed development will consist of a 9-storey residential tower which lowers to 6 storeys on the north end, with a below grade parking garage. The building will have a footprint of approximately 2,000 m^2 and a gross floor area of approximately 16,500 m^2.

1.3 HIGHER LEVEL STUDIES

The review for servicing has been undertaken in conformance with, and utilizing information from, the following documents:

- Ottawa Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa including all amendments issued as part of Technical Bulletins.

- Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including all amendments issued as part of Technical Bulletins.

- 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), 1999.

1.4 AVAILABLE EXISTING AND PROPOSED INFRASTRUCTURE

As described above, all municipal mains (sanitary, storm and watermain) are available and located along Nelson Street. Valved water servicing will be provided as well as sanitary servicing with monitoring hole at or near the property line. Quantity and quality control is required to restrict the stormwater discharge leaving the site, thus the on-site storm runoff will be captured, detention storage provided, flow release restricted, treated for quality control requirements, and finally directed towards the existing storm sewer on Nelson street.

1.5 GEOTECHNICAL STUDY

Paterson Group provided a draft geotechnical investigation report of the subject property dated March 2021. Based on the report, groundwater was measured between 4.5-6.1 m below grade. The recommendations of the report have been taken into account for this design development.

2 WATER DISTRIBUTION

2.1 SYSTEM CONSTRAINTS AND BOUNDARY CONDITIONS

Boundary conditions have been provided by the City of Ottawa at the existing connection along the Nelson St. 203mm watermain (Zone 1W).

Table 2-1: Boundary Conditions (City of Ottawa)

Scenario	Nelson St. Connection
Average Day (MAX HGL)	115.0m
Peak Hour (MIN HGL)	106.5m
Max Day + Fire Flow	98.8m

2.2 CONFIRMATION OF ADEQUATE DOMESTIC SUPPLY AND PRESSURE

Water demands are based on Table 4.2 of the Ottawa Design Guidelines – Water Distribution for these residential demands based on the number of apartment units. For purpose of verification of supply. A water demand calculation sheet is included in **Appendix A**, and the total water demands are summarized as follows:

	112-134 Nelson
Average Day	2.14 L/s
Maximum Day	5.36 L/s
Peak Hour	11.79 L/s

Since the average day demand is greater than 50,000 L/d (0.58 L/s), twin 150mm services will be provided from Nelson St. to the building, as shown in the site servicing drawing in **Appendix C**.

The pressure criteria identified in the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	Maximum pressure at any point the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls may be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

The site has been analyzed as summarized below and in Table 2-2 to ensure all the City of Ottawa minimum criteria for water pressures are met for the two conditions (maximum day + fire flow and peak hour). The analysis was carried out using EPANET, hydraulic and water quality analysis based on the boundary conditions provided by the City of Ottawa. The detailed EPANET

output results are also included in the **Appendix A**.

With respect to a average day demand of 2.14 L/s, the model indicated that due to higher watermain pressures the service connection at the building will need to be controlled with a pressure control valve.

With respect to a peak hour demand of 11.79 L/s, the model indicated that the pressure drop in the pipe was also acceptable and within the City of Ottawa's minimum pressure requirements.

With respect to a max day + fire flow of 172.03 L/s, the model indicated that the pressure drop in the pipe was acceptable and within the City of Ottawa's minimum pressure requirements. Section 2.3 following details the fire flow estimation.

Refer to **Appendix A** for the detailed water distribution analysis output.

Table 2-2: Summary of Water Pressure from EPANET results

Scenario	Pressure at Building Connection	
	(psi)	(kPa)
Max Day + Fire Flow	53.67	370
Peak Hour (MIN HGL)	70.27	484
Average Day (Max HGL)	82.40	568

2.3 CONFIRMATION OF ADEQUATE FIRE FLOW PROTECTION

The fire flow rate has been calculated using the Fire Underwriters Survey (FUS) method. The method takes into account the type of building construction, the building occupancy, the use of sprinklers and the exposures to adjacent structures. For fire non-combustible construction with a fully automatic and supervised sprinkler system the calculated fire flow demand of 10,000 L/min (167 L/s). A copy of the FUS calculations are included in **Appendix A**.

The existing site hydrant will be removed pending confirmation with the adjacent property owner. There are two Class AA public fire hydrants within 75m of the proposed building's FDC connection, which can provide up to 10,400 L/min fire flow protection.

The boundary condition for Maximum Day and Fire Flow results in a pressure of 370 kPa at the building. In the guidelines, a minimum residual pressure of 140 kPa must be maintained in the distribution system for a fire flow and maximum day event; therefore, the fire flow requirement is met.

3 WASTEWATER DISPOSAL

3.1 DESIGN CRITERIA

In accordance with the City of Ottawa's Sewer Design Guidelines, the following design criteria have been utilized in order to estimate wastewater flows generated by the subject site and verify existing capacity;

- Average sanitary flow for residential use 280 L/c/d
- Infiltration & Foundation Allowance (Total) 0.33 L/ha/s

3.2 CALCULATIONS FOR SANITARY DEMAND

The criteria to determine anticipated peak flow based on site used as described in Ottawa Sewer Design Guidelines **Appendix 4-A** are as follows, refer to **Appendix B** for detailed calculation.

	Total
Average Flow	2.14 L/s
Peak Flow	7.13 L/s
Extraneous Flow	0.12 L/s
Total	**7.25 L/s**

3.3 VERIFICATION OF AVAILABLE CAPACITY IN EXISTING SEWER

The sanitary demand will be serviced by a 150mm sewer with a minimum slope of 1% to the 300mm sewer on Nelson Street. A Sanitary Sewer Design Sheet is provided in **Appendix B** confirming capacity and minimum scouring velocity is achieved. Per communication with the City provided in **Appendix E**, the existing downstream sewer capacity cannot be confirmed until the application is submitted.

4 SITE STORM SERVICING

4.1 EXISTING CONDITION

The site sits south-east of the King Edward Ave. and Rideau St. intersection and is bounded by developed land and parking facilities with Nelson St. to the east of the site. The site is currently developed and houses a 2-3 storey industrial building with several units. The site contains some storm infrastructure (pipes, maintenance holes, catch basins) that will be removed/abandoned as part of the development. Most runoff from the subject site is ultimately directed to 450 mm diameter storm sewer, which runs south to north along Nelson Street.

4.2 DRAINAGE DRAWINGS

Site drawings are included in **Appendix C** including servicing, grading, drainage area, and erosion and sediment control.

4.3 WATER QUANTITY CONTROL OBJECTIVE

Refer to the Stormwater Management Report for the water quantity objective for the site.

4.4 WATER QUALITY CONTROL OBJECTIVE

Refer to the Stormwater Management Report for the water quality objective for the site.

4.5 PROPOSED MINOR SYSTEM

The development will be serviced by 250 mm storm service connection with a proposed maintenance hole on the existing 450 mm storm sewer on Nelson Street. As described in the Stormwater Management Report, runoff from the new development area of the site will be collected by a network of roof and surface inlets (deck drains above the underground parking lot) and storm sewers that will be directed to the underground cistern located within the building footprint on the east side of the building. A flow restrictor will reduce post-development flows to the allowable rate. The sewer design sheet for the site storm system is provided in **Appendix D**.

4.6 PROPOSED MAJOR SYSTEM

For the overall small ground-level drainage areas, the major overland flow routes lead out to adjacent properties 331 King Edward Avenue for the north-west area, 100 Nelson St. for the north-east area, 134 Nelson St. for the south area and Nelson Street for the east section, with the overflow elevations at minimum 300mm below the building entrances. Additionally, the spillover points are less than 300mm from the surface inlet elevation so there will be no ponding greater than 300mm even in cases of blockage. The storm sewers are sized such that no ponding will occur during the 2-year. Due to the small drainage areas at-grade no ponding is expected during the 100-year nor 100-year + 20% stress test. The storm sewer design sheets are provided in **Appendix D**.

5 SEDIMENT AND EROSION CONTROL

5.1 GENERAL

Prior to topsoil stripping, earthworks or underground construction, erosion and sediment controls will be implemented and will be maintained throughout construction. Silt fences will be installed around the perimeter of the site and will be cleaned and maintained throughout construction. Silt fences will remain in place until the working areas have been stabilized or re-vegetated. Catch basins and manholes will have filter fabric installed under the grate during construction to protect from silt entering the storm sewer system. A mud mat will be installed at the construction access to reduce risk of mud tracking onto adjacent roads.

Erosion and sediment controls must be in place during construction. Recommendations to the contractor will be included in the erosion and sediment control plan in **Appendix C** and are summarized below:

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

Prior to start of construction:

- Install silt fence along the perimeter of the property line.
- Install mud mat (gravel mat on geotextile) at construction site entrance to reduce mud tracking from site onto road.
- Install filter fabric or silt sack filters in all the catchbasins and manholes that capture runoff from the construction area.

During construction:

- Minimize the extent of disturbed areas and the duration of exposure and impacts to existing grading.
- Perimeter vegetation to remain in place until permanent storm water management is in place otherwise, immediately install silt fence when the existing site is disturbed at the perimeter.
- Protect disturbed areas from overland flow by providing temporary swales to the satisfaction of the field engineer. Tie-in temporary swale to existing catchbasins as required.
- During demolition of existing on-site storm infrastructure, protect downstream sewers from unfiltered flow.
- Provide temporary cover such as seeding or mulching if disturbed area will not be rehabilitated within 30 days.
- Inspect silt fences, filter fabric filters and catch basin sumps weekly and within 24 hours after a storm event. Clean and repair when necessary.
- Drawing to be reviewed and revised as required during construction.
- Erosion control fencing to be also installed around the base of all stockpiles.
- Do not locate topsoil piles and excavation material closer than 2.5m from any paved surface, or one which is to be paved before the pile is removed. All topsoil piles are to be seeded if they are to remain on site long enough for seeds to grow (longer than 30 days).
- Control dust blown off-site by seeding topsoil piles and other areas temporarily (provide watering as required and to the satisfaction of the engineer).
- No alternate methods of erosion protection shall be permitted unless approved by the field engineer.
- City roadway and sidewalk to be cleaned of all sediment from vehicular tracking as required.

- During wet conditions, tires of all vehicles/equipment leaving the site are to be scrapped.
- Any mud/material tracked onto the road shall be removed immediately by hand or rubber tire loader.
- Take all necessary steps to prevent building material, construction debris or waste being spilled or tracked onto abutting properties or public streets during construction and proceed immediately to clean up any areas so affected.
- All erosion control structure to remain in place until all disturbed ground surfaces have been stabilized either by paving or restoration of vegetative ground cover.
- During the course of 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.
- The contractor shall implement best management practices, to provide for protection of the area drainage system and the receiving watercourse, during construction activities. The contractor acknowledges that failure to implement appropriate erosion and sediment control measures may be subject to penalties imposed by any applicable regulatory agency.

6 APPROVAL AND PERMIT REQUIREMENTS

6.1 GENERAL

The proposed development is subject to City of Ottawa site plan approval and criteria from the Rideau Valley Conservation Authority.

No other permits or approvals are anticipated to be required from the Ontario Ministry of the Environment, Conservation and Parks (MECP), Ontario Ministry of Transportation, National Capital Commission, Parks Canada, Public Works and Government Services Canada, or any other provincial or federal regulatory agency except those noted above.

7 CONCLUSION CHECKLIST

7.1 CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the proposed development can meet all provided servicing constraints and associated requirements, with the City to confirm the sanitary sewer capacity upon receipt of this submission. It is recommended that this report be submitted to the City of Ottawa in support of the application for site plan approval.

7.2 COMMENTS RECEIVED FROM REVIEW AGENCIES

Minutes from a pre-consultation meeting held with the City of Ottawa are provided in **Appendix E**.

A WATER DEMAND

WATER DISTRIBUTION - PROPOSED DOMESTIC DEMANDS

Demand Type		Amount	Units
Average Day Demand			
Residential	=	280	L/c/d
Light Industrial	=	35000	L/gross ha/d
Heavy Industrial	=	55000	L/gross ha/d
Shopping Centres	=	2500	L/(1000m2/d)
Hospitals	=	900	L/(bed/d)
Schools	=	70	L/(Students/d)
Trailer Parks no Hook-Ups	=	340	L/(space/d)
Trailer Parks with Hook-Ups	=	800	L/(space/d)
Campgrounds	=	225	L/(campsite/d)
Mobile Home Parks	=	1000	L/(Space/d)
Motels	=	150	L/(bed-space/d)
Hotels	=	225	L/(bed-space/d)
Tourist Commercial	=	28000	L/gross ha/d
Other Commercial	=	28000	L/gross ha/d

Unit Type	Person / Unit
Single Family	3.4
Semi-detached	2.7
Duplex	2.3
Townhouse (row)	2.7
Apartments:	
Bachelor	1.4
1 Bedroom	1.4
2 Bedroom	2.1
3 Bedroom	3.1
Average Apt.	1.8

Maximum Daily Demand:					
Residential	=	2.5	x	average day	L/c/d
Industrial	=	1.5	x	average day	L/gross ha/d
Commercial	=	1.5	x	average day	L/gross ha/d
Institutional	=	1.5	x	average day	L/gross ha/d

Population Calculator	Unit Count	Population Count
Studio	364	509.6
One Bedroom	11	15.4
Two Bedroom	6	12.6
Three Bedroom	40	124
Total Population	**421**	**661.6**

Maximum Hour Demand:					
Residential	=	2.2	x	maximum day	L/c/d
Industrial	=	1.8	x	maximum day	L/gross ha/d
Commercial	=	1.8	x	maximum day	L/gross ha/d
Institutional	=	1.8	x	maximum day	L/gross ha/d

		112 Nelson		
Demand Type	=	Residential		
Average Day Demand	=	280		L/c/d
Population	=	662		
	=	280	x	662
	=	185,248		L/day
Average Daily Flow	=	**2.14**		**L/s**
Daily Demand Type	=	Residential		
Max. Daily Factor	=	2.5		L/c/d
	=	2.5	x	Average Daily Flow
	=	2.5	x	185,248
	=	463,120		L/day
Maximum Daily Demand	=	**5.36**		**L/s**
Hour Demand Type	=	Residential		
Max. Hour Factor	=	2.2		L/c/d
	=	2.2	x	Maximum Daily Demand
	=	2.2	x	463,120
	=	1,018,864		L/day
Maximum Hour Demand	=	**11.79**		**L/s**

WATER DISTRIBUTION - PROPOSED FIRE FLOW DEMANDS

F = 220 C √ A

Type of Construction Coefficient:		Comments
Wood Frame	1.5	(all structurally combustible)
Ordinary	1.0	(brick, masonry wall, combustible floor and interior)
Non-Combustible	0.8	(unprotected metal structural component, masonry or metal walls)
Fire Resistive	0.6	(fully protected frame, floors and roof)

Combustibility:		
Non-Combustible	-25%	
Limited Combustible	-15%	
Combustible	0%	
Free Burning	15%	
Rapid Burning	25%	

Sprinkler Protection:		
Complete Sprinkler System	-50%	(max.)
NFPA 13 Conformed	-30%	(max.)
If Water Supply Standard for Both System and Fire Lines	-10%	additional (max.)
Fully Supervised System	-10%	additional (max.)
None	0%	

		112 Nelson		
Type of Construction Coefficient		Non-Combustible		
		0.8		
Gross Floor Area (m^2)		3,012	m2	
Fire Flow, F		9,659	L/min	
F(round)		10,000	L/min	
Modification 1: Occupancy Combustibility		Limited Combustible		
		-15%		
Occupancy Credit		-1,500	L/min	
F(mod1) = F(round) + Occupancy Credit		8,500	L/min	
Modification 2: Sprinkler Protection		Complete Sprinkler System		
		-50%		
Additional Credit		If Water Supply Standard for Both System and Fire Lines		
		0		
Sprinkler Credit		-4,250	L/min	
F(mod2) = F(mod1) + Sprinkler Credit		4,250	L/min	
Modification 3: Exposure Distances				
North		16	m	15%
South		10	m	20%
East		16	m	15%
West		16	m	15%
		Total %	=	65%
		8,500	x	0.65
Exposure Credit		5,525	L/min	
F(mod3) = F(mod2) + Exposure Credit		9,775	L/min	
F(final) = F(mod3) rounded to nearest 1,000L/min		**10,000**	**L/min**	
F(final)		**167**	**L/s**	

MODEL SCHEMATIC

MODEL RESULTS

Max Day + Fire Flow

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

Input File: 112 Nelson - Max+FF.net
```

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
NelsonWM1	East	SiteConnect_1	11	152.4

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
SiteConnect_1	172.03	94.79	37.74	0.00	
East	-172.03	98.80	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
NelsonWM1	172.03	9.43	364.69	Open

Peak Hour

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

Input File: 112 Nelson - Peak Hour.net
```

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
NelsonWM1	East	SiteConnect_1	11	152.4

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
SiteConnect_1	11.79	106.47	49.42	0.00	
East	-11.79	106.50	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
NelsonWM1	11.79	0.65	2.55	Open

Average Day

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

Input File: 112 Nelson - Avg Day.net
```

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
NelsonWM1	East	SiteConnect_1	11	152.4

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality	
SiteConnect_1	2.14	115.00	57.95	0.00	
East	-2.14	115.00	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
NelsonWM1	2.14	0.12	0.11	Open

B SANITARY DEMAND

SANITARY SEWAGE - PROPOSED SANITARY FLOWS

Average Wastewater Flows:		
Residential	280	L/c/d
Commercial	28,000	L/gross ha/d
Institutional	28,000	L/gross ha/d
Light Industrial	35,000	L/gross ha/d
Heavy Industrial	55,000	L/gross ha/d

Peaking Factors:	
Residential	Harmon Equation
Commercial (>20% Area)	1.5
Commercial (<20% Area)	1.0
Institutional (>20% Area)	1.5
Institutional (<20% Area)	1.0
Industrial	Per Figure in Appendix 4-B

$$P.F. = 1 + \left(\frac{14}{4 + \left(\frac{P}{1000}\right)\text{^}0.5}\right) * \text{K}$$

where P = population
K = correction factor = 0.8

Peak Extraneous Flows:	
Infiltration Allowance	0.33
Less than 10 ha:	
Foundation Drain Allowance	5.0
10 ha - 100 ha:	
Foundation Drain Allowance	3.0
Greater than 100 ha:	
Foundation Drain Allowance	2.0

Unit Type	**Person Per Unit**	Unit Count
Single Family	3.4	
Semi-detached	2.7	
Duplex	2.3	
Townhouse (row)	2.7	
Apartments:		
Studio	1.4	364
1 Bedroom	1.4	11
2 Bedroom	2.1	6
3 Bedroom	3.1	40
	Total Population:	**662**
	Total Area (ha):	**0.365**

	112-134 Nelson		
Demand Type=	**Residential**		
Average Day Demand=	280		L/c/d
Population	**662**		
Site Area (ha)	**0.365**		
	280	x	662
	185,248		L/day
Average Daily Flow=	**2.14**		**L/s**
Peaking Factor Type	Residential		
Peaking Factor	3.33		*Max=4
	3.33	x	average day
	3.33	x	185,248
	616,291		L/day
Peak Daily Flow=	**7.13**		**L/s**
Infiltration Allowance	0.33		
	0.33	x	lot area
	0.33	x	0.4
Peak Extraneous Flow=	**0.12**		**L/s**
	peak daily flow	+	extraneous flow
	7.13	+	0.12
Total Peak Design Flow=	**7.25**		**L/s**

112 Nelson St.		
Peak Design Flow =	**7.25**	**L/s**
Total Peak Design Flow =	**7.25**	**L/s**

WSP Canada

Sanitary Sewer Design Sheet

LOCATION			RESIDENTIAL AREA AND POPULATION						INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW (l/s)	PIPE						MANHOLE	
CONNECTIONS	FROM MH	TO MH	AREA (Ha)	POP.	CUMMULATIVE AREA (Ha)	CUMMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	ACCU. AREA (Ha)	PEAK FLOW (l/s)	TOTAL AREA (Ha)	ACCU. AREA (Ha)	INFILT. FLOW (l/s)		LENGTH (m)	DIA. (mm)	SLOPE (%)	CAP. (FULL) (l/s)	PIPE CAPACITY USED (%)	VEL. (FULL) (m/s)	UP INVERT (m)	DOWN INVERT (m)
Building	Building	SAMH1	0.365	662	0.365	662	3.33	7.14	0.000	0.000	0.00	0.365	0.365	0.12	**7.26**	1.0	150.00	1.0%	**15.23**	**47.7%**	0.86	56.47	56.46
	SAMH1	Road	0.000	0	0.365	662	0.0	7.14	0.000	0.000	0.00	0.000	0.365	0.12	**7.26**	6.5	150.00	0.9%	**14.63**	**49.6%**	0.83	56.45	56.39

DESIGN PARAMETERS

Residential: 280 L/cap/d
Peak Factor = 3.4
Extraneous Flow = 0.33 l/s/ha
Minimum Velocity = 0.60 m/s
Manning's n = 0.013

Designed: Spencer Manoryk

Checked: Ishaque Jafferjee, P.Eng.

Dwg. Reference:

PROJECT: 112 Nelson Residential Building

LOCATION: 112-134 Nelson St., Ottawa, ON

File Ref.:

Date: June 2024

Sheet No. 1 of 1

C SITE DRAWINGS

NOTES: GENERAL

1. ALL SERVICES, MATERIALS, CONSTRUCTION METHODS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND REGULATIONS OF THE: CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS, ONTARIO PROVINCIAL SPECIFICATION STANDARD SPECIFICATION (OPSS) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD).
2. THE POSITION OF EXISTING POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES, STRUCTURES AND APPURTENANCES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SATISFY HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM DURING THE COURSE OF CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES REQUIRED BY THE DEVELOPMENT OF SUBJECT LANDS IS TO BE UNDERTAKEN AT CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR MUST NOTIFY ALL EXISTING UTILITY COMPANY OFFICIALS FIVE (5) BUSINESS DAYS PRIOR TO START OF CONSTRUCTION AND HAVE ALL EXISTING UTILITIES AND SERVICES LOCATED IN THE FIELD OR EXPOSED PRIOR TO THE START OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO HYDRO, BELL, CABLE TV, AND CONSUMERS GAS LINES.
4. ALL TRENCHING AND EXCAVATIONS TO BE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
5. REFER TO ARCHITECTS PLANS FOR BUILDING DIMENSIONS, ELEVATIONS, LAYOUT AND DECK STRUCTURE. REFER TO LANDSCAPE PLAN FOR LANDSCAPED DETAILS AND OTHER RELEVANT INFORMATION. ALL INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. TOPOGRAPHIC SURVEYS COMPLETED AND PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. DATED JUNE 15 2021 AND DECEMBER 9 2022. CONTRACTOR TO VERIFY IN THE FIELD PRIOR TO CONSTRUCTION OF ANY WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
7. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
8. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE OR DRAIN OUTLETS ARE PROVIDED.
9. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A NEAT AND STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDTH MINIMUM.
10. ALL DISTURBED AREAS OUTSIDE PROPOSED GRADING LIMITS TO BE RESTORED TO ORIGINAL ELEVATIONS AND CONDITIONS UNLESS OTHERWISE SPECIFIED. EXISTING PARKING LOT SHALL BE RE-ASPHALTED AT EXISTING GRADES EXCEPT AS NOTED TO EVEN OUT GRADES. ALL RESTORATION SHALL BE COMPLETED WITH THE GEOTECHNICAL REQUIREMENTS FOR BACKFILL AND COMPACTION.
11. ALL MATERIAL SUPPLIED AND PLACED FOR PARKING LOT AND ACCESS ROAD CONSTRUCTION SHALL BE TO OPSS STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED. CONSTRUCTION TO OPSS 206, 310 & 314. MATERIALS TO OPSS 1001, 1003 & 1010.
12. RETAINING WALLS ARE TO BE CONSTRUCTED PER OPSD 3120.100 TYPE II.
13. ABUTTING PROPERTY GRADES TO BE MATCHED.
14. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.
15. MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
16. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE DIRECTED FROM THE ENGINEER. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS.
17. AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
18. SERVICE TRENCHES ON MUNICIPAL RIGHT OF WAY TO BE REINSTATED AS PER CITY OF OTTAWA DETAIL R10.
19. PRIOR TO CONSTRUCTION, A GEOTECHNICAL ENGINEER REGISTERED IN THE PROVINCE OF ONTARIO IS TO INSPECT ALL SUB-SURFACES FOR FOOTINGS, SERVICES AND PAVEMENT STRUCTURES.
20. FOR ANY SOILS RELATED INFORMATION, REFER TO THE GEOTECHNICAL INVESTIGATION REPORT (PGS716-1) PROVIDED BY PATERSON GROUP INC. DATED MARCH 10 2021.
21. CONTRACTOR TO OBTAIN POST-CONSTRUCTION TOPOGRAPHIC SURVEY PERFORMED BY CERTIFIED OLS OR P.ENG. CONFIRMING COMPLIANCE WITH DESIGN GRADING AND SERVICING. SURVEY IS TO INCLUDE LOCATION AND INVERTS FOR BURIED UTILITIES.
22. EXISTING STORM SEWER, SANITARY SEWER, AND WATERMAIN ALONG NELSON STREET WERE DRAWN IN BASED ON SURVEY. CONTRACTOR TO CONFIRM ON SITE PRIOR TO CONSTRUCTION. SEWERS AND SERVICE LATERALS TO BE ABANDONED AS SHOWN IN PLAN PER CITY OF OTTAWA STANDARDS S11.4 AND F.4104.
23. ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO CGVD28 GEODETIC DATUM. BENCHMARK NO.1 HAVING A PUBLISHED ELEVATION OF 60.24m AND BENCHMARK NO.2 HAVING A PUBLISHED ELEVATION OF 59.29m. TOPOGRAPHIC INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD, JUNE 15 2021 AND DECEMBER 9 2022.

NOTES: STORM SEWERS AND STRUCTURES

1. ALL STORM SEWER MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW STORM SEWERS, SERVICES AND CB LEADS.
2. STORM SEWERS 450mm DIAMETER AND SMALLER SHALL BE PVC SDR-35, WITH RUBBER GASKET PER CSA A-257.3.
3. STORM SEWER LARGER THAN 450mm SHALL BE REINFORCED CONCRETE CLASS 100.
4. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL S6.
5. ALL STORM MANHOLES TO BE AS PER STORM STRUCTURE TABLE.
6. ANY NEW OR EXISTING STORM SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR APPROVED BY THE ENGINEER.
7. STORM CATCHBASINS AS PER OPSD 705.010 AND FRAME/COVER AS PER CITY STANDARD DRAWINGS S19. STORM CBMH'S AS INDICATED IN TABLE WITH SUMP. ADJUSTMENT SECTIONS SHALL BE AS PER OPSD 704.010.
8. INSTALLATION OF FLOW CONTROL ICD'S TO BE VERIFIED BY QUALITY VERIFICATION ENGINEER RETAINED BY CONTRACTOR.
9. PROVIDE BACKWATER VALVE ON FOUNDATION DRAIN PER S14

NOTES: SANITARY SEWER AND MANHOLES

1. ALL SANITARY SEWER, SANITARY SEWER APPURTENANCES AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW SANITARY PIPING.
2. SANITARY SEWER PIPE SIZE 150mm DIAMETER AND GREATER TO BE PVC SDR-35 (UNLESS SPECIFIED OTHERWISE) WITH RUBBER GASKET TYPE JOINTS IN CONFORMANCE WITH CSA B-182.2.3.4.
3. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL S6.
4. ALL SANITARY MANHOLES 1200mm IN DIAMETER TO BE AS PER OPSD 701.01. FRAME AND COVER TO BE AS PER CITY OF OTTAWA STANDARD S25 AND S24.
5. MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES AS PER THE OPSD 701.021
6. ANY SANITARY SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR APPROVED BY THE ENGINEER.
7. PROVIDE BACKWATER VALVE PER S14.1

NOTES: WATERMAIN

1. ALL WATERMAIN AND WATERMAIN APPURTANANCES, MATERIALS, CONSTRUCTION AND TESTING METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA AND MINISTRY OF ENVIRONMENT STANDARDS AND SPECIFICATIONS.
2. ALL WATERMAIN 300mm DIAMETER AND SMALLER TO BE POLY VINYL CHLORIDE (PVC) CLASS 150 DR 18 MEETING AWWA SPECIFICATION C900.
3. ALL WATERMAIN TO BE INSTALLED AT MINIMUM COVER OF 2.4m BELOW FINISHED GRADE. WHERE WATERMAINS CROSS OVER OTHER UTILITIES, A MINIMUM 0.30m CLEARANCE SHALL BE MAINTAINED. WHERE WATERMAINS CROSS UNDER OTHER UTILITIES, A MINIMUM 0.50m CLEARANCE SHALL BE MAINTAINED. WHERE THE MINIMUM SEPARATION CANNOT BE ACHIEVED, THE WATERMAIN SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARDS W25 AND W25.2. WHERE 2.4m MINIMUM DEPTH CANNOT BE ACHIEVED, THERMAL INSULATION SHALL BE PROVIDED AS PER CITY OF OTTAWA STANDARD W22. WHERE A WATERMAIN IS IN CLOSE PROXIMITY TO AN OPEN STRUCTURE, THERMAL INSULATION SHALL BE PROVIDED AS PER CITY OF OTTAWA STANDARD W23.
4. CONCRETE THRUST BLOCKS AND MECHANICAL RESTRAINTS ARE TO BE INSTALLED AT ALL TEES, BENDS, HYDRANTS, REDUCERS, ENDS OF MAINS AND CONNECTIONS 100mm AND LARGER, IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS W25.3 & W26.4.
5. CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS AS PER CITY OF OTTAWA STANDARD W40 & W42.
6. ALL VALVES AND VALVE BOXES AND CHAMBERS, HYDRANTS, AND HYDRANT VALVES AND ASSEMBLES SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARD
7. IF WATER MAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THAT RECOMMENDED BY THE MANUFACTURER.

NOTES: REMOVALS

1. CONTRACT ADMINISTRATOR TO CONFIRM THAT ALL EXISTING WATER AND SANITARY SEWER UTILITIES TO BE ABANDONED; FILL WITH GROUT AND CAP, OR REMOVE COMPLETELY. THE BLANKING OF EXISTING WATER SERVICES BEYOND THE PROPERTY LINE SHALL BE PERFORMED BY CITY FORCES. THE CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT.

NOTES: EROSION AND SEDIMENT CONTROL

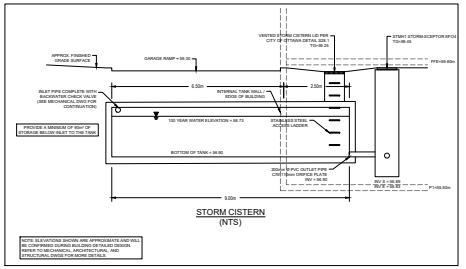
** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES. **

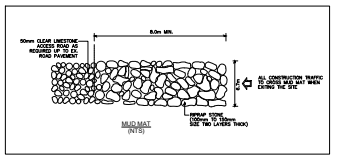
1. PRIOR TO START OF CONSTRUCTION:

1.1. INSTALL SILT FENCE IN LOCATION SHOWN.
1.2. INSTALL FILTER FABRIC OR SILT SACK FILTERS IN ALL THE CATCHBASINS AND MANHOLES TO REMAIN DURING CONSTRUCTION WITHIN THE SITE.
1.3. INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.
1.4. INSTALL MUD MAT AT CONSTRUCTION ENTRANCES.

2. DURING CONSTRUCTION:

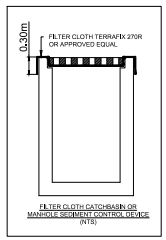
2.1. MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE AND IMPACTS TO EXISTING GRADING.
2.2. PERIMETER VEGETATION TO REMAIN IN PLACE UNTIL PERMANENT STORM WATER MANAGEMENT IS IN PLACE. OTHERWISE, IMMEDIATELY INSTALL SLT FENCE WHEN THE EXISTING SITE IS DISTURBED AT THE PERIMETER.
2.3. PROTECT DISTURBED AREAS FROM OVERLAND FLOW BY PROVIDING TEMPORARY SWALES TO THE SATISFACTION OF THE FIELD ENGINEER. TIE-IN TEMPORARY SWALE TO EXISTING CB'S AS REQUIRED.
2.4. PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
2.5. INSPECT SILT FENCES, FILTER FABRIC FILTERS AND CATCH BASIN SUMPS WEEKLY AND WITHIN 24 HOURS AFTER A STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
2.6. DOWNSTREAM STORM INFRASTRUCTURE SHALL BE PROTECTED FROM UNFILTERED RUNOFF DURING ON-SITE STORM INFRASTRUCTURE DEMOLITION.
2.7. DRAWING TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION.
2.8. EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
2.9. DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.5m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS).
2.10. CONTROL WIND-BLOWN DUST OFF SITE BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED AND TO THE SATISFACTION OF THE ENGINEER).
2.11. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE FIELD ENGINEER.
2.12. CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING AS REQUIRED.
2.13. DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
2.14. ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
2.15. TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.
2.16. ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
2.17. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.





SAN STRUCTURE TABLE										
STRUCTURE ID	TOP OF GRATE ELEVATION	INVERT IN			INVERT OUT	INSULATION REQUIRED ON OUTLET PIPE?	DESCRIPTION SIZE	OPSD	COVER	NOTES
SAMH1	59.45	56.46			56.45	N	1200mm DIA.	OPSD 701.010	S24	

STORM STRUCTURE TABLE										
STRUCTURE ID	TOP OF GRATE ELEVATION	INVERT IN			INVERT OUT	INSULATION REQUIRED ON OUTLET PIPE?	DESCRIPTION SIZE	OPSD	COVER	NOTES
AD01	59.20									AREA DRAIN
AD02	59.20									AREA DRAIN
AD03	59.15									AREA DRAIN
AD04	59.15									AREA DRAIN
AD05	59.20									AREA DRAIN
AD06	59.25									AREA DRAIN
AD07	59.20									AREA DRAIN
AD08	57.55									AREA DRAIN
AD09	57.55									AREA DRAIN
AD10	57.55									AREA DRAIN
AD11	59.20									AREA DRAIN
AD12	59.20									AREA DRAIN
AD13	59.15									AREA DRAIN
STMH1	59.45	56.89			56.83	N	1200mm DIA.	OPSD 701.010	Stormceptor	EFO4

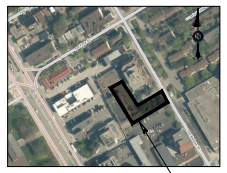


PIPE CROSSING TABLE						
		Obvert			Invert	
1	EX 300mm SAN	56.53	0.27	Clearance Under	56.80	150mm WM
2	EX 450mm STM	57.09	0.26	Clearance Under	57.35	150mm WM
3	EX 300mm SAN	56.53	0.27	Clearance Under	56.80	150mm WM
4	EX 450mm STM	57.09	0.26	Clearance Under	57.35	150mm WM
5	150mm WM	56.60	0.25	Clearance Under	56.85	EX 200mm WM
6	EX 900mm STM*	57.02	0.25	Clearance Under	57.27	150mm WM
7	EX 375mm SAN*	55.57	1.63	Clearance Under	57.20	150mm WM
8	EX 300mm SAN	56.55	0.43	Clearance Under	56.98	150mm STM
9	EX 300mm SAN	56.56	0.19	Clearance Under	56.75	250mm STM

*information provided on utilities along east side of Nelson St is approximate; contractor to confirm in field

CLIENT
SMART LIVING GP INC.
226 ARGYLE AVE. OTTAWA, ON K2P 1B9

KEY PLAN



PROJECT NORTH

TRUE NORTH

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SUBJECT TO APPROVAL

NO.	REVISION	DD/MM/YY DATE
9	ISSUED FOR CITY COMMENTS	12/09/24
8	ISSUED FOR REVIEW	06/08/24
7	REISSUED FOR SPA	28/06/24
6	REVISED PER CITY COMMENTS	25/07/23
5	REVISED AND ISSUED FOR SPA	17/07/23
4	REVISED AND ISSUED FOR SPA	26/05/23
3	REVISED AND ISSUED FOR SPA	17/02/23
2	REISSUED FOR SPA	08/25/21
1	ISSUED FOR SPA	07/16/21

wsp
303-2611 QUEENSVIEW DRIVE
OTTAWA ONTARIO CANADA K2B 8K2
TEL.: 1-613-829-2800 | FAX: 1-613-829-8299 | WWW.WSPGROUP.COM

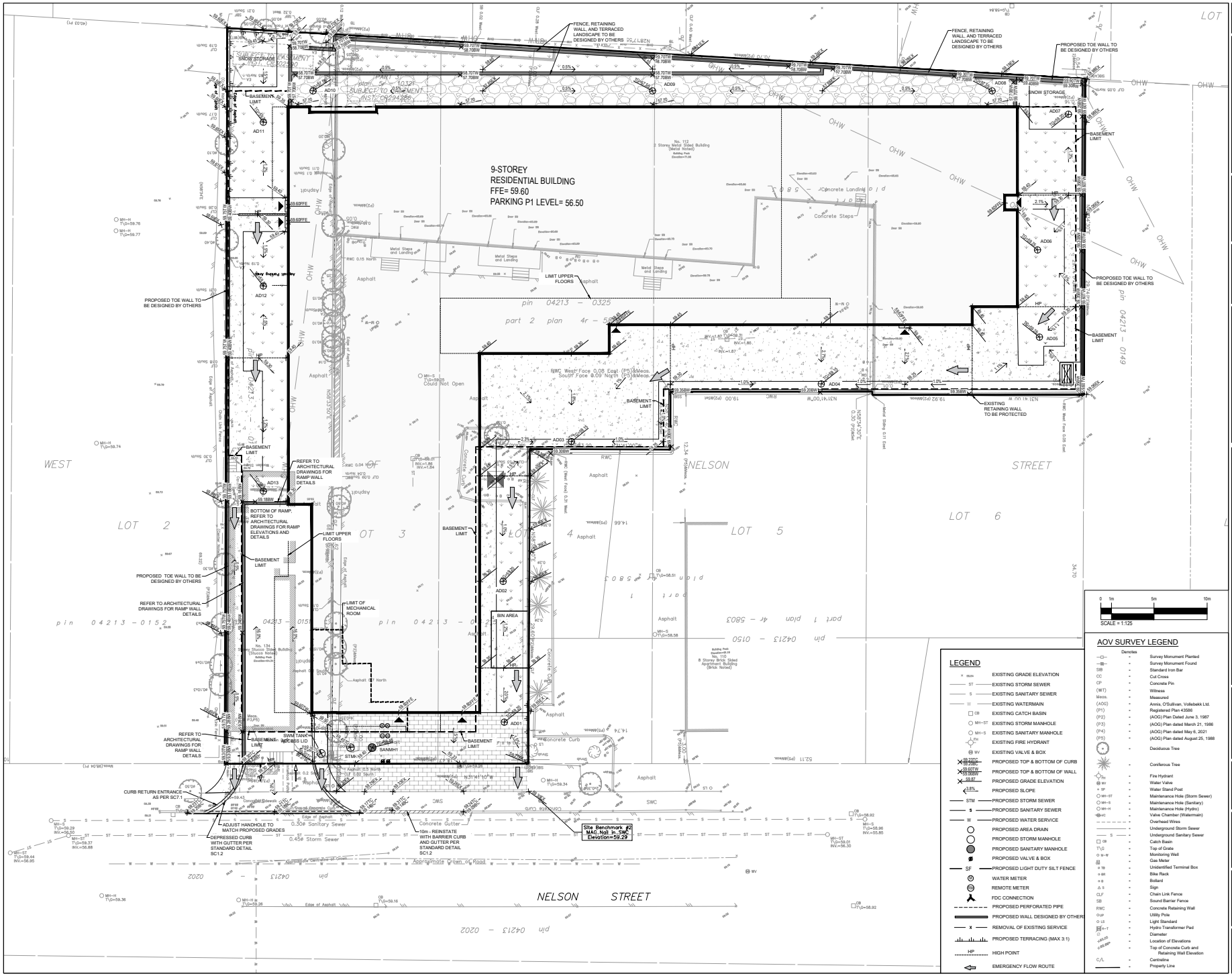
DISCIPLINE:
CIVIL

PROJECT:
112-134 NELSON ST

DRAWING:
NOTES AND DETAILS

DATE: 12/09/24	PROJECT NO: 211-04788-00
SCALE: AS NOTED	DRAWING NO: C01
DRAWN BY: S.M.	
APPROVED BY: I.J.	

#18597



SCALE = 1:125

LEGEND

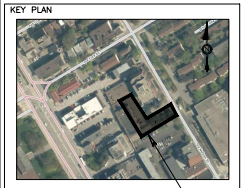
- EXISTING GRADE ELEVATION
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING VALVE & BOX
- PROPOSED TOP & BOTTOM OF CURB
- PROPOSED TOP & BOTTOM OF WALL
- PROPOSED GRADE ELEVATION
- PROPOSED SLOPE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATER SERVICE
- PROPOSED AREA DRAIN
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED VALVE & BOX
- PROPOSED LIGHT DUTY SILT FENCE
- WATER METER
- REMOTE METER
- FDC CONNECTION
- PROPOSED PERFORATED PIPE
- PROPOSED WALL DESIGNED BY OTHERS
- REMOVAL OF EXISTING SERVICE
- PROPOSED TERRACING (MAX 3:1)
- HP HIGH POINT
- EMERGENCY FLOW ROUTE

AOV SURVEY LEGEND

	Denotes	
—□—	-	Survey Monument Planted
—■—	-	Survey Monument Found
SIB	-	Standard Iron Bar
CC	-	Cut Cross
CP	-	Concrete Pin
(WIT)	-	Witness
Meas.	-	Measured
(AOG)	-	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	-	Registered Plan 43586
(P2)	-	(AOG) Plan Dated June 3, 1987
(P3)	-	(AOG) Plan dated March 21, 1986
(P4)	-	(AOG) Plan dated May 6, 2021
(P5)	-	(AOG) Plan dated August 25, 1988
	-	Deciduous Tree
	-	Coniferous Tree
FH	-	Fire Hydrant
WV	-	Water Valve
WSP	-	Water Stand Post
MH-ST	-	Maintenance Hole (Storm Sewer)
MH-S	-	Maintenance Hole (Sanitary)
MH-H	-	Maintenance Hole (Hydro)
WC	-	Valve Chamber (Watermain)
	-	Overhead Wires
	-	Underground Storm Sewer
S	-	Underground Sanitary Sewer
CB	-	Catch Basin
T\G	-	Top of Grade
M-W	-	Monitoring Well
GM	-	Gas Meter
ø TB	-	Unidentified Terminal Box
BR	-	Bike Rack
B	-	Bollard
S	-	Sign
CLF	-	Chain Link Fence
SB	-	Sound Barrier Fence
RWC	-	Concrete Retaining Wall
UP	-	Utility Pole
LS	-	Light Standard
HT	-	Hydro Transformer Pad
Ø	-	Diameter
100.00	-	Location of Elevations
100.00	-	Top of Concrete Curb and Retaining Wall Elevation
C/L	-	Centreline
	-	Property Line

CLIENT
SMART LIVING GP INC.
226 ARGYLE AVE. OTTAWA, ON K2P 1B9

KEY PLAN



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3	REVISED AND ISSUED FOR SPA	17/02/23
2	REISSUED FOR SPA	08/25/21
1	ISSUED FOR SPA	07/16/21

wsp
300-2611 QUEENSVIEW DRIVE
OTTAWA ONTARIO CANADA K2B 8K2
TEL.: 1-613-829-2800 | FAX: 1-613-829-8299 | WWW.WSPGROUP.COM

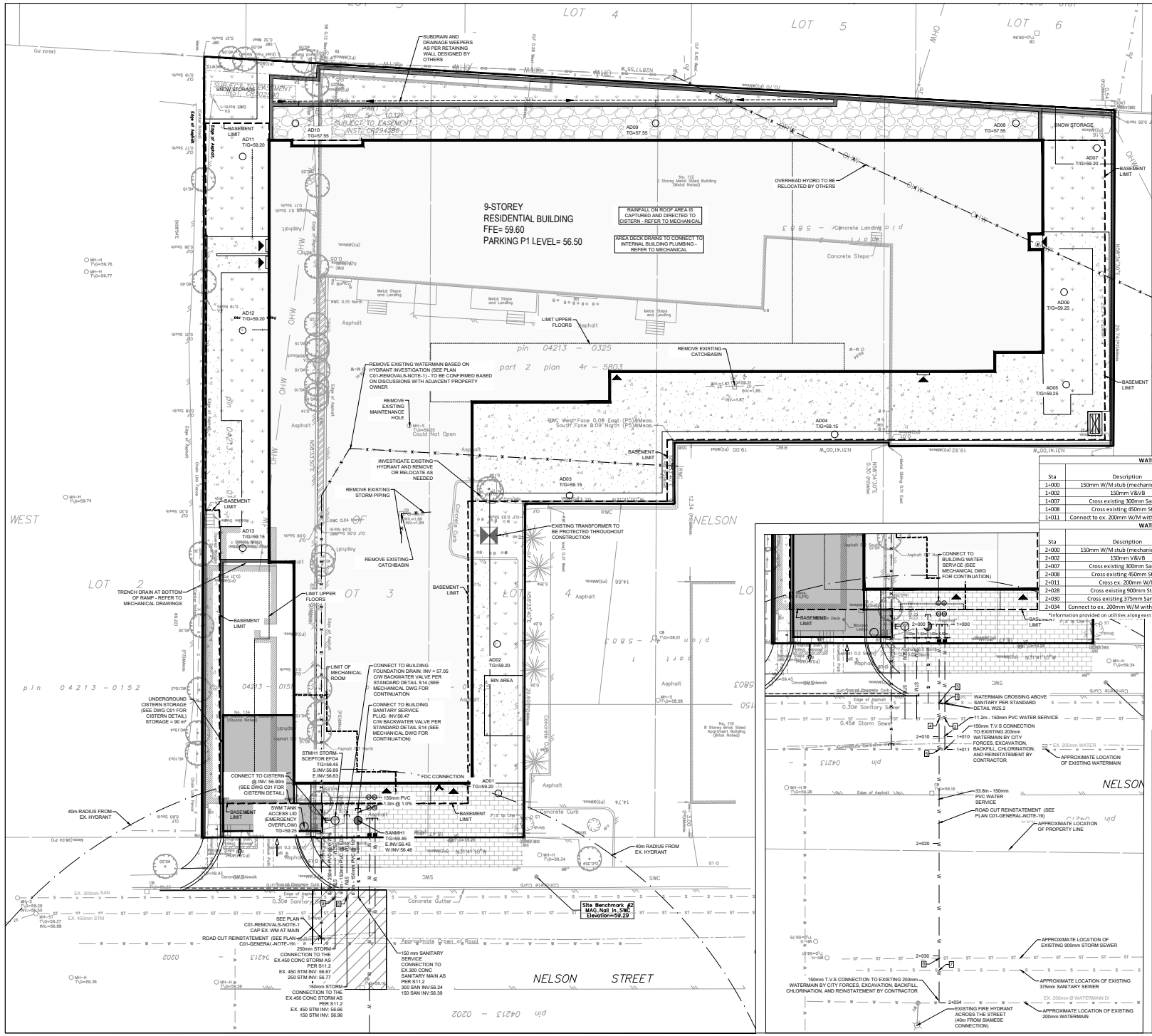
DISCIPLINE: CIVIL

PROJECT: 112-134 NELSON ST

DRAWING: **GRADING PLAN**

DATE: 12/09/24	PROJECT NO: 211-04788-00
SCALE: AS NOTED	DRAWING NO: **C02**
DRAWN BY: S.M.	
APPROVED BY: I.J.	

#18597



WATERMAIN SCHEDULE 1

Sta	Description	Finished Grade (Approx)	Top of Proposed Watermain	Top of Ex. W/M
1+000	150mm W/M stub (mechanical room)	59.45	57.05	
1+002	150mm V&VB	59.35	56.95	
1+007	Cross existing 300mm Sanitary	59.17	56.77	
1+008	Cross existing 450mm Storm	59.20	57.50	
1+011	Connect to ex. 200mm W/M with 200x150 tee	59.24		57.00

WATERMAIN SCHEDULE 2

Sta	Description	Finished Grade (Approx)	Top of Proposed Watermain	Top of Ex. W/M
2+000	150mm W/M stub (mechanical room)	59.40	57.00	
2+002	150mm V&VB	59.35	56.95	
2+007	Cross existing 300mm Sanitary	59.17	56.95	
2+008	Cross existing 450mm Storm	59.19	57.50	
2+011	Cross ex. 200mm W/M	59.23	56.60	57.00
2+028	Cross existing 900mm Storm*	59.70	57.42	
2+030	Cross existing 375mm Sanitary*	59.75	57.35	
2+034	Connect to ex. 200mm W/M with 200x150 tee*	59.80	57.40	57.40

*Information provided on utilities along east side of Nelson St is approximate; contractor to confirm in field

AOV SURVEY LEGEND

Denotes

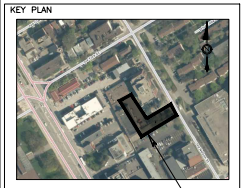
- Survey Monument Planted
- Survey Monument Found
- Standard Iron Bar
- Cut Cross
- Concrete Pin
- Witness
- Measured
- Annis, O'Sullivan, Vollebekk Ltd.
- Registered Plan 43586
- (AOG) Plan Dated June 3, 1987
- (AOG) Plan dated March 21, 1986
- (AOG) Plan dated May 6, 2021
- (AOG) Plan dated August 25, 1988
- Deciduous Tree
- Coniferous Tree
- Fire Hydrant
- Water Valve
- Water Stand Post
- Maintenance Hole (Storm Sewer)
- Maintenance Hole (Sanitary)
- Maintenance Hole (Hydro)
- Valve Chamber (Watermain)
- Overhead Wires
- Underground Storm Sewer
- Underground Sanitary Sewer
- Catch Basin
- Top of Grate
- Monitoring Well
- Gas Meter
- Unidentified Terminal Box
- Bike Rack
- Bollard
- Sign
- Chain Link Fence
- Sound Barrier Fence
- Concrete Retaining Wall
- Utility Pole
- Light Standard
- Hydro Transformer Pad
- Diameter
- Location of Elevations
- Top of Concrete Curb and Retaining Wall Elevation
- Centreline
- Property Line

LEGEND

- EXISTING GRADE ELEVATION
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING VALVE & BOX
- PROPOSED TOP & BOTTOM OF CURB
- PROPOSED TOP & BOTTOM OF WALL
- PROPOSED GRADE ELEVATION
- PROPOSED SLOPE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATER SERVICE
- PROPOSED AREA DRAIN
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED VALVE & BOX
- PROPOSED LIGHT DUTY SILT FENCE
- WATER METER
- REMOTE METER
- FDC CONNECTION
- PROPOSED PERFORATED PIPE
- PROPOSED WALL DESIGNED BY OTHERS
- REMOVAL OF EXISTING SERVICE

CLIENT
SMART LIVING GP INC.
226 ARGYLE AVE. OTTAWA, ON K2P 1B9

KEY PLAN



PROJECT NORTH | TRUE NORTH

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SUBJECT TO APPROVAL

NO.	REVISION	DD/MM/YY DATE
9	ISSUED FOR CITY COMMENTS	12/09/24
8	ISSUED FOR REVIEW	06/08/24
7	REISSUED FOR SPA	28/06/24
6	REVISED PER CITY COMMENTS	25/07/23
5	REVISED AND ISSUED FOR SPA	17/07/23
4	REVISED AND ISSUED FOR SPA	26/05/23
3	REVISED AND ISSUED FOR SPA	17/02/23
2	REISSUED FOR SPA	08/25/21
1	ISSUED FOR SPA	07/16/21

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TEL.: 1-613-829-2800 | FAX: 1-613-829-8299 | WWW.WSPGROUP.COM

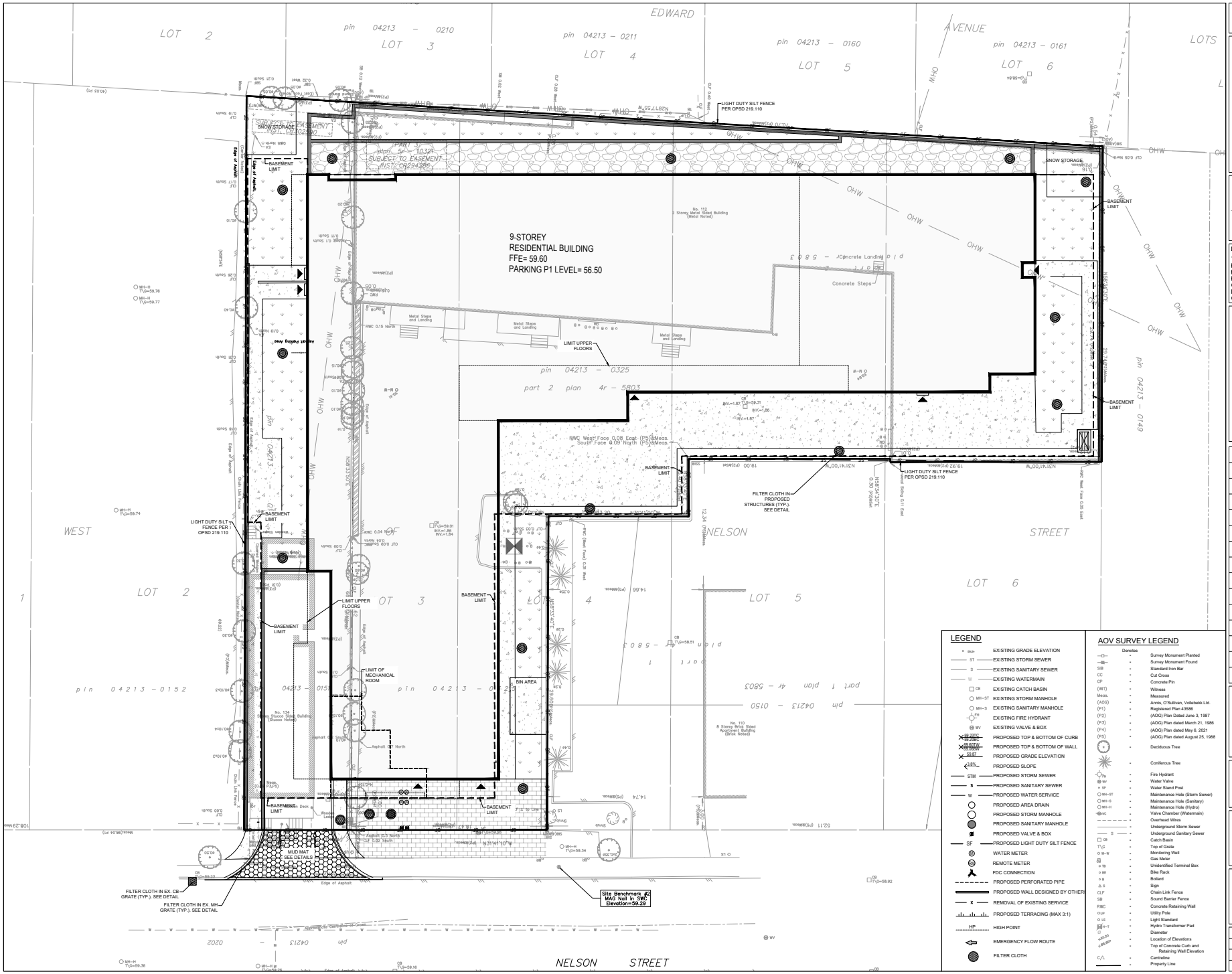
DISCIPLINE: CIVIL

PROJECT: 112-134 NELSON ST

DRAWING: **SERVICING PLAN**

DATE: 12/09/24	PROJECT NO: 211-04788-00
SCALE: AS NOTED	DRAWING NO: **C03**
DRAWN BY: S.M.	
APPROVED BY: I.J.	

#18597



LEGEND

- EXISTING GRADE ELEVATION
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING CATCH BASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING VALVE & BOX
- PROPOSED TOP & BOTTOM OF CURB
- PROPOSED TOP & BOTTOM OF WALL
- PROPOSED GRADE ELEVATION
- PROPOSED SLOPE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATER SERVICE
- PROPOSED AREA DRAIN
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED VALVE & BOX
- PROPOSED LIGHT DUTY SILT FENCE
- WATER METER
- REMOTE METER
- FDC CONNECTION
- PROPOSED PERFORATED PIPE
- PROPOSED WALL DESIGNED BY OTHERS
- REMOVAL OF EXISTING SERVICE
- PROPOSED TERRACING (MAX 3:1)
- HIGH POINT
- EMERGENCY FLOW ROUTE
- FILTER CLOTH

AOV SURVEY LEGEND

Denotes

- Survey Monument Planted
- Survey Monument Found
- Standard Iron Bar
- Cut Cross
- Concrete Pin
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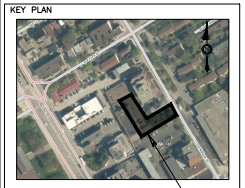
- Utility Pole
- Light Standard
- Hydro Transformer Pad
- Diameter
- Location of Elevations
- Top of Concrete Curb and Retaining Wall Elevation
- Centreline
- Property Line

CLIENT
SMART LIVING GP INC.
226 ARGYLE AVE. OTTAWA, ON K2P 1B9

KEY PLAN



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NO.	REVISION	DD/MM/YY DATE
9	ISSUED FOR CITY COMMENTS	12/09/24
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3	REVISED AND ISSUED FOR SPA	17/02/23
2	REISSUED FOR SPA	08/25/21
1	ISSUED FOR SPA	07/16/21

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DISCIPLINE: CIVIL

PROJECT: 112-134 NELSON ST

DRAWING: **EROSION AND SEDIMENT CONTROL PLAN**

DATE: 12/09/24	PROJECT NO: 211-04788-00
SCALE: AS NOTED	DRAWING NO: C04
DRAWN BY: S.M.	
APPROVED BY: I.J.	

#18597

D STORM SEWER DESIGN SHEET

2-yr Storm Sewer Design Sheet

LOCATION					FLOW							PIPE							MANHOLE	
Catchment Area	FROM MH	TO MH	Coefficient	Area (m2)	Indiv. 2.78*AC	Cum. 2.78*AC	Time of Conc. (min.)	Rainfall Intensity (mm.hr)	Indiv. Area Flow (L/s)	Cum. Flow (L/s)	Controlled Cum. Flow (L/s)	Length (m)	Dia. (mm)	Slope (%)	Cap. (Full) (L/s)	Velocity (Full) (m/s)	Time of flow (min.)	Ratio (Q/Qfull)	UP INVERT (m)	DOWN INVERT (m)
PRO1	RYCB1	RYCB2	0.9	65	0.016	0.016	10.64	74.42	1.21	1.21	1.21	32.00	250	0.47%	40.71	0.8	0.64	3%	56.55	56.40
PRO2	RYCB2	RYCB3	0.9	96	0.024	0.040	11.29	72.20	1.73	2.91	2.91	32.00	250	0.47%	40.71	0.8	0.64	7%	56.40	56.25
PRO3	RYCB3	CBMH1	0.9	54	0.014	0.054	11.40	71.81	0.97	3.86	3.86	6.00	250	0.50%	42.05	0.9	0.12	9%	56.25	56.22
PRO4	RYCB4	RYCB5	0.9	66	0.017	0.017	10.64	74.42	1.23	1.23	1.23	32.00	250	0.47%	40.71	0.8	0.64	3%	57.55	57.40
PRO5	RYCB5	CBMH1	0.9	64	0.016	0.032	10.75	74.04	1.18	2.40	2.40	7.50	250	0.93%	57.45	1.2	0.11	4%	57.40	57.33
PRO6	CBMH1	TANK**	0.9	27	0.007	0.093	11.42	71.76	0.48	6.67	6.67	1.00	250	1.00%	59.47	1.2	0.01	11%	56.16	56.15
PRO7	DD01*	TANK**	0.9	189	0.047	0.047	10.00	76.81	3.63	3.63	3.63	-	-	-	-	-	-	-	-	-
PRO8	DD02*	TANK**	0.9	182	0.046	0.046	10.00	76.81	3.50	3.50	3.50	-	-	-	-	-	-	-	-	-
PRO9	DD03*	TANK**	0.9	156	0.039	0.039	10.00	76.81	3.00	3.00	3.00	-	-	-	-	-	-	-	-	-
PRO10	DD04*	TANK**	0.9	71	0.018	0.018	10.00	76.81	1.36	1.36	1.36	-	-	-	-	-	-	-	-	-
PRO11	CB01	CB02	0.9	85	0.021	0.021	10.18	76.12	1.62	1.62	1.62	13.00	250	1.00%	59.47	1.2	0.18	3%	57.25	57.12
PRO12	CB02	TANK**	0.9	42	0.011	0.032	10.21	76.00	0.80	2.41	2.41	2.50	250	1.00%	59.47	1.2	0.03	4%	57.06	57.03
PRO13	ROOF	TANK**	0.9	2043	0.511	0.684	10.00	76.81	39.26	52.52	52.52	-	-	-	-	-	-	-	-	-
PRO14	RAMP	TANK**	0.9	169	0.042	0.726	10.00	76.81	3.25	55.77	55.77	-	-	-	-	-	-	-	-	-
PRO15	TANK**	STMH1***	0.9	0	0.000	1.684	11.43	71.72	0.00	120.79	*35.40*	1.00	250	1.00%	59.47	1.2	0.01	60%	56.90	56.89
PRO16	STMH1***	STMH2	0.9	0	0.000	1.684	11.53	71.39	0.00	120.24	*35.40*	8.00	250	1.25%	66.49	1.4	0.10	53%	56.83	56.73

DESIGN PARAMETERS

Q = 2.78CIA where,
Q = Peak flow in L/s
A = Drainage area in ha
I = Rainfall intensity (mm/hr)
C = Runoff coefficient

Ottawa IDF Curve
IDF Curve Equation (2yr storm)
I = 732.951/(T+6.199)^0.81
Min. velocity = 0.8 m/s
Manning 'n' = 0.013

Designed: Spencer Manoryk

Checked: Ishaque Jafferjee, P.Eng.

Dwg. Reference: 211-04788-00-C03

PROJECT: 112 Nelson Residential Development

LOCATION: 112-134 Nelson St., Ottawa, ON

File Ref.: 211-04788-00

Date: June 2024

Sheet No. 1 of 3

Note:
* Deck drains for drainage pipes in underground parking, precise routing by Mechanical Engineer
** Underground storage in building footprint includes roof drainage, ICD at Tank controlled to 35.4 L/s
*** Oil Grit Separator

100-yr Storm Sewer Design Sheet

LOCATION					FLOW							PIPE							MANHOLE	
Catchment Area	FROM MH	TO MH	Coefficient	Area (m2)	Indiv. 2.78*AC	Cum. 2.78*AC	Time of Conc. (min.)	Rainfall Intensity (mm.hr)	Indiv. Area Flow (L/s)	Cum. Flow (L/s)	Controlled Cum. Flow (L/s)	Length (m)	Dia. (mm)	Slope (%)	Cap. (Full) (L/s)	Velocity (Full) (m/s)	Time of flow (min.)	Ratio (Q/Qfull)	UP INVERT (m)	DOWN INVERT (m)
PRO1	RYCB1	RYCB2	0.9	65	0.016	0.016	10.64	172.89	2.81	2.81	2.81	32.00	250	0.47%	40.71	0.8	0.64	7%	56.55	56.40
PRO2	RYCB2	RYCB3	0.9	96	0.024	0.040	11.29	167.60	4.03	6.75	6.75	32.00	250	0.47%	40.71	0.8	0.64	17%	56.40	56.25
PRO3	RYCB3	CBMH1	0.9	54	0.014	0.054	11.40	166.68	2.25	8.97	8.97	6.00	250	0.50%	42.05	0.9	0.12	21%	56.25	56.22
PRO4	RYCB4	RYCB5	0.9	66	0.017	0.017	10.64	172.89	2.85	2.85	2.85	32.00	250	0.47%	40.71	0.8	0.64	7%	57.55	57.40
PRO5	RYCB5	CBMH1	0.9	64	0.016	0.032	10.75	171.98	2.73	5.57	5.57	7.50	250	0.93%	57.45	1.2	0.11	10%	57.40	57.33
PRO6	CBMH1	TANK**	0.9	27	0.007	0.093	11.42	166.57	1.13	15.48	15.48	1.00	250	1.00%	59.47	1.2	0.01	26%	56.16	56.15
PRO7	DD01*	TANK**	0.9	189	0.047	0.047	10.00	178.56	8.44	8.44	8.44	-	-	-	-	-	-	-	-	-
PRO8	DD02*	TANK**	0.9	182	0.046	0.046	10.00	178.56	8.13	8.13	8.13	-	-	-	-	-	-	-	-	-
PRO9	DD03*	TANK**	0.9	156	0.039	0.039	10.00	178.56	6.97	6.97	6.97	-	-	-	-	-	-	-	-	-
PRO10	DD04*	TANK**	0.9	71	0.018	0.018	10.00	178.56	3.17	3.17	3.17	-	-	-	-	-	-	-	-	-
PRO11	CB01	CB02	0.9	85	0.021	0.021	10.18	176.94	3.76	3.76	3.76	13.00	250	1.00%	59.47	1.2	0.18	6%	57.25	57.12
PRO12	CB02	TANK**	0.9	42	0.011	0.032	10.21	176.63	1.86	5.61	5.61	2.50	250	1.00%	59.47	1.2	0.03	9%	57.06	57.03
PRO13	ROOF	TANK**	0.9	2043	0.511	0.684	10.00	178.56	91.27	122.10	122.10	-	-	-	-	-	-	-	-	-
PRO14	RAMP	TANK**	0.9	169	0.042	0.726	10.00	178.56	7.55	129.65	129.65	-	-	-	-	-	-	-	-	-
PRO15	TANK**	STMH1***	0.9	0	0.000	1.684	11.43	166.46	0.00	280.36	*35.40*	1.00	250	1.00%	59.47	1.2	0.01	60%	56.90	56.89
PRO16	STMH1***	STMH2	0.9	0	0.000	1.684	11.53	165.70	0.00	279.07	*35.40*	8.00	250	1.25%	66.49	1.4	0.10	53%	56.83	56.73

DESIGN PARAMETERS

Q = 2.78CIA where,
Q = Peak flow in L/s
A = Drainage area in ha
I = Rainfall intensity (mm/hr)
C = Runoff coefficient

Ottawa IDF Curve
IDF Curve Equation (100yr storm)
I = 1735.688/(T+6.014)^0.82
Min. velocity = 0.8 m/s
Manning 'n' = 0.013

Designed: Spencer Manoryk

Checked: Ishaque Jafferjee, P.Eng.

Dwg. Reference: 211-04788-00-C03

PROJECT: 112 Nelson Residential Development

LOCATION: 112-134 Nelson St., Ottawa, ON

File Ref.: 211-04788-00

Date: June 2024

Sheet No. 2 of 3

Note:
* Deck drains for drainage pipes in underground parking, precise routing by Mechanical Engineer
** Underground storage in building footprint includes roof drainage, ICD at Tank controlled to 35.4 L/s
*** Oil Grit Separator

100-yr +20% Storm Sewer Design Sheet

LOCATION					FLOW							PIPE							MANHOLE	
Catchment Area	FROM MH	TO MH	Coefficient	Area (m2)	Indiv. 2.78*AC	Cum. 2.78*AC	Time of Conc. (min.)	Rainfall Intensity (mm.hr)	Indiv. Area Flow (L/s)	Cum. Flow (L/s)	Controlled Cum. Flow (L/s)	Length (m)	Dia. (mm)	Slope (%)	Cap. (Full) (L/s)	Velocity (Full) (m/s)	Time of flow (min.)	Ratio (Q/Qfull)	UP INVERT (m)	DOWN INVERT (m)
PRO1	RYCB1	RYCB2	0.9	65	0.016	0.016	10.64	207.46	3.37	3.37	3.37	32.00	250	0.47%	40.71	0.8	0.64	8%	56.55	56.40
PRO2	RYCB2	RYCB3	0.9	96	0.024	0.040	11.29	201.12	4.83	8.10	8.10	32.00	250	0.47%	40.71	0.8	0.64	20%	56.40	56.25
PRO3	RYCB3	CBMH1	0.9	54	0.014	0.054	11.40	200.01	2.70	10.76	10.76	6.00	250	0.50%	42.05	0.9	0.12	26%	56.25	56.22
PRO4	RYCB4	RYCB5	0.9	66	0.017	0.017	10.64	207.46	3.43	3.43	3.43	32.00	250	0.47%	40.71	0.8	0.64	8%	57.55	57.40
PRO5	RYCB5	CBMH1	0.9	63	0.016	0.032	10.75	206.38	3.25	6.66	6.66	7.50	250	0.93%	57.45	1.2	0.11	12%	57.40	57.33
PRO6	CBMH1	TANK**	0.9	44	0.011	0.097	11.42	199.88	2.20	19.40	19.40	1.00	250	1.00%	59.47	1.2	0.01	33%	56.16	56.15
PRO7	DD01*	TANK**	0.9	189	0.047	0.047	10.00	214.27	10.13	10.13	10.13	-	-	-	-	-	-	-	-	-
PRO8	DD02*	TANK**	0.9	182	0.046	0.046	10.00	214.27	9.76	9.76	9.76	-	-	-	-	-	-	-	-	-
PRO9	DD03*	TANK**	0.9	156	0.039	0.039	10.00	214.27	8.36	8.36	8.36	-	-	-	-	-	-	-	-	-
PRO10	DD04*	TANK**	0.9	71	0.018	0.018	10.00	214.27	3.81	3.81	3.81	-	-	-	-	-	-	-	-	-
PRO11	CB01	CB02	0.9	85	0.021	0.021	10.18	212.33	4.52	4.52	4.52	13.00	250	1.00%	59.47	1.2	0.18	8%	57.25	57.12
PRO12	CB02	TANK**	0.9	42	0.011	0.032	10.21	211.96	2.23	6.74	6.74	2.50	250	1.00%	59.47	1.2	0.03	11%	57.06	57.03
PRO13	ROOF	TANK**	0.9	2043	0.511	0.688	10.00	214.27	109.53	147.38	147.38	-	-	-	-	-	-	-	-	-
PRO14	RAMP	TANK**	0.9	169	0.042	0.042	10.00	214.27	9.06	9.06	9.06	-	-	-	-	-	-	-	-	-
PRO15	TANK**	STMH1***	0.9	0	0.000	1.009	11.43	199.75	0.00	201.46	*35.40*	1.00	250	1.00%	59.47	1.2	0.01	60%	56.90	56.89
PRO16	STMH1***	STMH2	0.9	0	0.000	1.009	11.53	198.84	0.00	200.54	*35.40*	8.00	250	1.25%	66.49	1.4	0.10	53%	56.83	56.73

DESIGN PARAMETERS	
Q = 2.78CIA where,	Ottawa IDF Curve
Q = Peak flow in L/s	IDF Curve Equation (100yr +20% storm)
A = Drainage area in ha	I = 1735.688/(T+6.014)^0.82
I = Rainfall intensity (mm/hr)	Min. velocity = 0.8 m/s
C = Runoff coefficient	Manning 'n' = 0.013

Designed: Spencer Manoryk	PROJECT: 112 Nelson Residential Development		
Checked: Ishaque Jafferjee, P.Eng.	LOCATION: 112-134 Nelson St., Ottawa, ON		
Dwg. Reference: 211-04788-00-C03	File Ref.: 211-04788-00	Date: June 2024	Sheet No. 3 of 3

Note:
* Deck drains for drainage pipes in underground parking, precise routing by Mechanical Engineer
** Underground storage in building footprint includes roof drainage, ICD at Tank controlled to 35.4 L/s
*** Oil Grit Separator

E CORRESPONDENCES

- Section 37 requirements will require re-negotiation based on the changes to the proposed development.
    - Applicant acknowledged.
- Any submission needs to provide a clear breakdown of the how the proposed GFA compares to the previous rezoning concept.
    - Planning Rationale to include a section of S. 37. See guidelines.
- The assessment and rationale that the built form and envelopment is consistent with the previous approval, except going to 10-storeys, is not accurate. Comparing this proposal to the approved Zoning Schedule highlights some concerning inconsistencies, such as the height (storeys), but also some of the stepbacks have not been incorporated.
- Staff fully expect that building heights (including storeys), setbacks and stepbacks previously established and approved through the Omnibus Report will be maintained.
- The design seems to intentionally maximize the number of units in this development and in a manner that is not desirable.
    - Floor heights seem to be squeezed to the minimum code requirement and paired with exceptionally small units
    - The concept incorporates dwelling units within the P1 garage level. This seems unnecessary and may contribute to a discussion around overdevelopment.
- Visitor parking – the zoning provision specific to minimum of 6 spaces was based on the previous concept. More visitor parking should be provided and relate the number of units.
- Waste Room access does not appear sufficient, at least for City collection. Consider the number of units proposed and design the waste/recycling room accordingly.
- Part of the business plan presentation spoke to tenants having excellent access to amenity outside of their unit. With the proposal development concept, which raises concern about the number and type of units proposed, it will be very important to see proper indoor Amenity Areas for ease of access by all tenants.
- Bicycle parking – the desire to achieve a 1:1 ratio is supported but further the design and location of bike parking for ease of use. Bicycle rooms within parking garage may work, but they need to be easy to access with a bike. Prefer to see a ground floor facility. Also look at option for visitor bicycle parking.
- More information will be required on affordable housing relative to the previous S. 37 items.
- Discuss this proposal with the Ward Councillor as he may have other ideas in mind for S. 37, and for the proposed development in general.
- Further pre-consultation is strongly recommended in response to comments received. The current proposal raises many concerns, and with the high-level issues addressed, staff can provide more detailed feedback.

Christopher – Urban Design

- Convincing business plan
    - Location
    - Quality design with efficient spaces, shared amenities, quality finishes etc.
    - Convenience
    - Shortage of rental housing, proforma, small units, amenities.
- However, while the strong business plan discussion is appreciated, but the missing piece is how the building itself contributes to the immediate community and the design of the City.

Specific Areas of Concern:

- The project is ten storeys and triggers the tall building guidelines and this proposal doesn't come close to meeting the max 750m^2 floorplate. Bringing this proposal down to nine storeys would avoid that.
- Would like further analysis of building relationship with surrounding context, especially planned function. Provide visualization.
- It might be helpful to see how this proposal relates to its surrounding properties within their planned context. Perhaps some modelling with ghosted blocks that illustrate what could be built around it to investigate side yard conditions.
- How the building presents a street scale and how the design relates to the context of Nelson.
- The massing and materiality of the design seems akin to a campus building on a green field site, so additional investigation would be valuable to recognize the diverse local context.
- No balconies which are a common way to visually break up a long facade and provide an architectural element that signifies a residential use.
- Concern about livability of below grade units. More elaboration of this approach needs to be provided (perhaps with a section).
- Quality of life of the building needs further description from a built form and design perspective. Not sure the business plan idea has translated into this form. This is not a convincing proposal.
- The P1 level units are very concerning.
- There is no landscaping plan provided yet and this will be a critical component of the success of the design and how it stitches itself into the context of the block as a whole.

Other

- This building will be highly visible in the middle of a downtown block, and although it does not sit within one of the City's Design Priority Areas we

recommend the proposal consider attending an Informal visit (prior to a full submission and is not a public meeting), with the City's UDRP to further discuss and evaluate various scenarios of development for the whole site;
- A Design Brief is a required submittal for all site plan applications. Please see the Design Brief Terms of Reference provided for details and consult the City's website for details regarding the UDRP schedule (if applicable).

John Wu - Engineering

- Major concern is to check sanitary capacity.
- Storm and water should not cause any concerns.
- Noise study will be required due to proximity of Rideau and King Edward.
- Jeremy – similar number of occupants from previous proposal, so capacity should not be an issue.

Wally - Transportation

- The remaining steps (Forecasting & Analysis) of the TIA report to be submitted during the Site Plan application. All other Transportation comments have been noted by the consultant and should be addressed on the site plan.
- Applicant
    - We will be further discussing additional transit demand strategies with staff such as car share, e-bike spaces etc.

Preliminary Comments from Community Association Representatives:

Warren is currently the only member from Lowertown Community Association who has signed the non-disclosure agreement.

- Welcome to the neighbourhood. There is an affordability emergency.
- We need more family housing.
- We do welcome student and young professions.
- You will receive concerns about this being a student bunkhouse.
- Beautiful neighbourhood and I recommend you get to know your neighbours and get to know the people who are affected by this development.
- City – don't hold up good housing projects.
- Investment with rental real estate with high turnover results in higher rents and increasement. Don't make this your business approach.
- Increase stress on infrastructure and more property taxes etc.

Note: there was a response discussion about Development Charges, and application process

Next Steps:

- Warren has signed non-disclosure agreement. If the applicant decides to go to the public, please email Warren to break this agreement. Andrew must be copied on such an e-mail if this occurs.
- Recommend consulting the Ward Councillor, as well as Lowertown Community Association.
- The plans and studies list will be provided for submission requirements.

McCaughey, Stephen

From: Wu, John <John.Wu@ottawa.ca>
Sent: Tuesday, April 27, 2021 10:56 AM
To: McCaughey, Stephen
Subject: RE: 112 Nelson St. - Design Criteria from Pre-consultation
Attachments: 112 Nelson Street April 2021.pdf

******The following information may be passed on to the consultant, but do NOT forward this e-mail directly.******

Hi, Stephen:

Please refer to Guidelines and Technical bulletin ISDTB-2014-02 concerning basic day demands greater than 0.5 L/s**.**

The following are boundary conditions, HGL, for hydraulic analysis at 112 Nelson (zone 1W) assumed to be connected to the 203mm on Nelson Street (see attached PDF for location).

Minimum HGL = 106.5m

Maximum HGL = 115.0m

Max Day + Fire Flow (200 L/s) = 98.8m

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.

We can't provide any information about sanitary sewer capacity in this area. We only provide this information after the application comes in, and circulation is done.

Thanks.

John

From: McCaughey, Stephen <Stephen.Mccaughey@wsp.com>
Sent: April 16, 2021 3:57 PM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Blanchette, Erin <Erin.Blanchette@wsp.com>
Subject: RE: 112 Nelson St. - Design Criteria from Pre-consultation

See attached draft water and sanitary demand estimates for 112 Nelson Street. The connection points will be the 200mm watermain and 300mm sanitary sewer on Nelson Street. If you can advise of sewer capacity and water boundary conditions.

Sanitary:
- Average Day Flow: 1.64 L/s
- Peak Flow: 5.63 L/s

Water:
- Average Day Flow: 1.64 L/s
- Max Day Flow: 4.09 L/s
- Peak Hour Flow: 9.00 L/s
- Fire Flow: 200 L/s
    - Max Day + Fire Flow: 204 L/s

Thank you very much and have a good weekend,

Stephen McCaughey, P.Eng.
T +1 613-690-3955 (Direct)
T +1 613-829-2800 (Office)

From: Wu, John <John.Wu@ottawa.ca>
Sent: Wednesday, April 14, 2021 11:10 AM
To: McCaughey, Stephen <Stephen.Mccaughey@wsp.com>
Subject: RE: 112 Nelson St. - Design Criteria from Pre-consultation

Please use C 0.5 , 2 year's storm to restrict up to 100 year's storm on site.

From: McCaughey, Stephen <Stephen.Mccaughey@wsp.com>
Sent: April 14, 2021 11:06 AM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Blanchette, Erin <Erin.Blanchette@wsp.com>
Subject: 112 Nelson St. - Design Criteria from Pre-consultation

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

I understand you're the engineering contact for this 112 Nelson St. proposed development and possible re-zoning.

We'll be generating the proposed water and sanitary demands shortly but what isn't clear from the pre-consultation minutes is what are the stormwater management requirements for this site development?

Thanks very much,

Stephen McCaughey, P.Eng.
Project Engineer
Municipal Infrastructure

T +1 613-690-3955 (Direct)
T +1 613-829-2800 (Office)

300-2611 Queensview Drive
Ottawa, Ontario
K2B 8K2 Canada

wsp.com

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49	All private structure must be located inside the private property. Only the two water service stop valves can be at the property line.	It is not possible to locate structures within the property limits given the building footprint - the underground parking extends to the property line - and space requirements for the structures
50	Please show all the fire hydrant near the site, all must be marked with the distance to the Siamese, and the main entrance. Two fire hydrant is at least within 90 meters (the required 200 L/S, one fire hydrant can not provide this volume)	Note added to refer to nearby existing hydrant (40m from siamese)
51	Please show the storm water storage tank, it is location with the emergency outlet on servicing and grading plan.	Cistern and outlet are shown on the plans
52	Please show the overland flow route, clearly marked, and it must end on public property, or road, show all neighboring elevation around the route.	The overland flow route is marked at the cistern overflow point
53	The grading plan is missing the neighboring property elevations, all elevation within 15 meters of the property line must be clearly shown on the grading plan.	Topo survey points for neighbouring property are shown where available
54	Please clearly show the entrance width, it is relative to the property line, the private entrance must be 30cm away from the property line.	Entrance width is shown on plans