

Uniform Urban Developments

320 Bren-Maur Road

Design Brief

July 22, 2026



320 Bren Maur Road

Design Brief

City of Ottawa

Development Application File: D07-12-25-0142

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1 Introduction

1.1 Scope

Arcadis has been retained by Uniform Urban Developments to prepare the necessary engineering plans, specifications and documents to support the proposed Site Plan Application for the subject lands in accordance with the policies set out by the Planning and Development Branch of the City of Ottawa. This Brief will present a detailed grading and servicing scheme to support the development of the property and will include sections on-site grading, water supply, wastewater management, minor and major stormwater management, and erosion and sediment control.

1.2 Subject Site

The proposed low-rise apartment development is located at 320 Bren-Maur Drive within ward 24 Barrhaven East, fronted by Longfields Drive. It is described as Plan 4R-11524, Part of Lots 12 and 13, Concession 2 (Rideau Front), Geographic township of Nepean, City of Ottawa. The land in question covers approximately 0.51 ha and is bounded by Bren-Maur Road to the northwest, Longfields Drive to the west, the Jock River to the South, and the Chapman Mills Stormwater Management Facility to the north and east.

Please refer to **Figure 1**, below, for more information regarding the site location.



Figure 1 Subject Site Location

The existing site is currently developed as a residential property with two single-family homes and is zoned as a Development Reserve Zone.

The proposed development consists of a three-storey low-rise apartment building with underground parking and a new traffic turnaround located within the Bren-Maur right-of-way (ROW). Primary vehicular access for the development will be from Bren-Maur Road with a drive aisle extending from the ROW towards the underground parking entrance. The site will also feature six dedicated visitor parking spaces and landscaping throughout. A site plan of the proposed development is included in **Appendix A**.

1.3 Previous Studies

Design of this project has been undertaken in accordance with the following reports:

- Jock River Reach 1 Subwatershed Study – City of Ottawa prepared by Stantec Consulting Ltd., June 2007
- Nepean South Champman Mills Stormwater Management Servicing Report Fourth Addendum – IBI Group, February 2018.

An engineering pre-consultation with the City of Ottawa was held in November 2024 regarding the proposed development. Notes from this meeting is included in **Appendix A**.

1.4 Geotechnical Considerations

Paterson Group Inc. was retained to prepare a geotechnical investigation for the site. The objectives of the investigation were to prepare a report to:

- Determine the subsoil and groundwater conditions at the site by means of test pits and boreholes
- To provide geotechnical recommendations pertaining to the design of the proposed development including construction considerations

The geotechnical investigation report PG7253-1 Dated September 16, 2024, confirmed that the site consists of topsoil and fill underlain by deposit of silty clay and/or glacial till. Based on the undrained shear strength testing results, a varying permissible grade raise restriction of 1.5m is recommended at the subject site where silty clay is present.

The report contains recommendations which include but are not limited to the following:

- Fill used for grading beneath the proposed development to meet OPSS Granular 'A' or Granular 'B' Type II placed in lifts no greater than 300 mm compacted to 98% SPMDD
- Pavement Structures as identified below

Table 1-1 Pavement Structure – Car Only Parking Areas

Local Road – Parking Areas	Thickness
12.5 Asphaltic Concrete	50 mm
OPSS Granular A Base	150 mm
OPSS Granular B Type II Subbase	300 mm

Table 1-2 Pavement Structure – Access Lanes, Fire Routes and Heavy Truck Parking Areas

Local Road	Thickness
12.5 Asphaltic Concrete	40 mm
19.0 Asphaltic Concrete	50 mm
OPSS Granular A Base	150 mm
OPSS Granular B Type II Subbase	450 mm

The report contains recommendations which include but are not limited to the following:

- Pipe bedding and cover: The pipe bedding for water and pipes placed on a relatively dry, undisturbed subgrade surface should consist of at least 150 mm of OPSS Granular A material over material, from the spring line to at least 300 mm above the obvert of the pipe, should consist of OPSS Granular A or Granular B Type II with a maximum size of 25 mm. The bedding and cover materials should be placed in a maximum of 225 mm thick lifts compacted to 99% of the material's standard Proctor maximum dry density
- The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be cut back at 1H:1V or flatter. The flatter slope is required for excavation below groundwater level.

1.5 Approvals

The proposed development is subject to the City of Ottawa site plan control process. Site plan control requires the City to review, provided concurrence and approve the engineering design package. Permits to construct can be requested once the City has issued a site plan agreement.

Prior to construction, the MECP will be consulted to determine the applicable approval requirements for the proposed stormwater works, including whether an Environmental Compliance Approval (ECA) or Environmental Activity and Sector Registry (EASR) registration is required.

A permit from the RVCA may be required for proposed works within the Natural Hazard Lands and associated setback. Any required permits and approvals will be obtained prior to construction.

The existing septic system and private well servicing the property will be decommissioned and abandoned as part of the proposed development. All works will be completed in accordance with applicable provincial regulations and municipal requirements, and any necessary permits or notifications required for the abandonment of the existing systems will be obtained prior to construction.

2 Water Supply

2.1 Existing Conditions

As previously noted, the 0.51 ha low-rise apartment building is straddled by Bren-Maur Road to the northwest and Longfields Drive to the west. An existing PVC 305-406 mm diameter watermain is located within the Bren-Maur Road right of way and a Concrete 406 mm diameter watermain within Longfields Drive. Both watermain fall within the City of Ottawa’s pressure district Pressure Zone BARR which will provide the water supply to the site.

It has been assumed that the two existing dwellings on site are serviced by private wells. As part of the demolition works for the homes, the private wells are to be located and decommissioned by a licensed well contractor in accordance with applicable MECP standards. A permit from the MECP will be necessary to complete the decommissioning works.

2.2 Design Criteria

2.2.1 Water Demands

Water demands have been calculated for the full development. The apartment consists of eight 1-bedroom units and twenty-seven 2-bedroom units. Consumption rates are taken from Tables 4.1 and 4.2 at the Ottawa Design Guidelines – Water Distribution and are summarized as follows:

- ICI Average Day Demand 28,000 l/gross ha/day
- ICI peak Daily Demand 42,000 l/gross ha/day
- ICI Peak Hour Demand 75,600 l/gross ha/day

A watermain demand calculation sheet is included in **Appendix B** and the total water demands are summarized as follows:

- Average Day 0.22 l/s
- Maximum Day 0.55 l/s
- Peak Hour 1.21 l/s

2.2.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 480 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of 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	In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.
Water Age	A total travel time of 5 days or less during basic day demand is reasonable. A residence time of 8 days should not be exceeded.

2.2.3 Fire Flow Rates

For the purposes of fire flow evaluation, the low-rise apartment development consists of three buildings separated by 2-hour fire rated walls. The buildings are to be Type III ordinary construction with limited combustible occupancy.

Calculations using the Fire Underwriting Survey (FUS version 2020) were conducted to determine the fire flow requirement for the site. Results of the analysis provides a maximum fire flow rate of 9,000 l/min or 150 l/s. A copy of the FUS calculations is included in **Appendix B**.

2.2.4 Boundary Conditions

The City of Ottawa has provided the hydraulic boundary conditions for the watermain at Bren Maur Road for current pressures and anticipated future pressures for future works to be completed undertaken on the Municipal water supply. A copy of the boundary conditions is included in **Appendix B** and summarized as follows:

Table 2-1 Hydraulic Boundary Conditions

Criteria	Hydraulic Head – Bren Maur		Pressure	
	Existing Pressures	Future SUC	Existing Pressures	Future SUC
Scenario				
Max HGL (Basic Day)	154.6 m	146.9 m	614.3 kPa	539.2 kPa
Peak Hour	141.4 m	142.5 m	484.7 kPa	495.0 kPa
Max Day + Fireflow (9,000 L/m)	141.4 m	142.5 m	484.7 kPa	495.0 kPa

Ground elevation: 91.9 m

2.2.5 Hydraulic Model

A hydraulic model for the proposed watermain has been developed with the InfoWater Pro program. Boundary conditions from Section 2.2.4 have been incorporated to the model. A schematic of the water model has been included in **Appendix B** and the results have been summarized below:

Scenario

Average Day (Max HGL) Pressure Range Existing	605.6 to 612.9 kPa
Average Day (Max HGL) Pressure Range Future	530.1 to 537.5 kPa

Peak Hour Pressure Range Existing	476.2 to 483.6 kPa
Peak Hour Pressure Range Future	487.0 to 494.4 kPa
Max Day + Fire Design Flow Available (@138kPa) Current	241 l/s
Max Day + Fire Design Flow Available (@138kPa) Future	245 l/s

The normal operating pressure range for existing and future conditions is anticipated to be 70 psi to 89 psi and 72 psi to 78 psi, respectively and will not be less than 40 psi or exceed 100 psi. Based on building elevations, the resultant pressures during the basic day scenario is expected to exceed 80 psi at the basement level, first level, and second level. A pressure control system will be required and will be designed by the Mechanical Engineer prior to construction. Please note pressures at the third level are not expected to exceed 80 psi.

The proposed watermain will meet the minimum required minimum pressure of 20 psi during maximum daily and fire flow demand.

2.3 Proposed Water Plan

2.3.1 Proposed Water Plan

To provide water servicing to the development, a 200mm watermain will be extended from the 406mm watermain within the Bren Maur Drive ROW. A metered 150mm service will extend from the 200mm watermain to the building. Two proposed public hydrants will branch from the new 200mm watermain, providing fire coverage for the development.

Refer to the general plan of services **Drawing C-001** in **Appendix A** for detailed watermain layout for the subject site.

3 Wastewater Disposal

3.1 Existing Conditions

There is an existing 1050 mm diameter sanitary sewer (South Nepean Collector) which extends through the Bren-Maur Road ROW from Longfields Drive. The City has confirmed that this sewer has adequate capacity to accommodate the proposed development, correspondence from City Staff has been provided in **Appendix C**.

It has been assumed that the two existing dwellings on site are serviced by private septic systems. As part of the demolition works for the homes, the septic fields are to be located and decommissioned in accordance with applicable standards and a permit shall be obtained from the RVCA.

3.2 Design Criteria

The sanitary sewers for the subject site will be based on the City of Ottawa design criteria. It should be noted that the sanitary sewer design for this study incorporates the latest City of Ottawa design parameters identified in Technical Bulletin ISTB-2018-01. Some of the key criteria will include the following:

- Residential Flow
 - 1 Bed = 1.4 p/p/u
 - 2 Bed = 2.1 p/p/u
- Inflow and Infiltration Rate = 0.33 l/s/ha
- Minimum Full Flow Velocity = 0.60 m/s
- Maximum Full Flow Velocity = 3.0 m/s
- Minimum Pipe Size = 200 mm diameter

3.3 Recommended Wastewater Plan

The on-site sanitary system will consist of 200mm PVC sewer installed at normal depth and slope and will provide a 200mm service connection to the building. The sewers have been designed using the criteria noted above in section 3.2 and outlet via a connection to MHSA71056 within the Bren Maur Drive right of way west of the site. A drop structure has been provided at MH3A prior to a benched connection within the existing MHSA71056. A monitoring maintenance structure (MH1A) has been provided at the property line. The anticipated peak flows from the development are 0.8l L/s

A copy of the sanitary sewer design sheet can be found in **Appendix C**. Please refer to the General Plan of Services **Drawing C-001** in **Appendix A** for further details.

4 Site Stormwater Management

4.1 Existing Conditions

The subject site is located within the Jock River Sub-watershed and consists of low-density rural estate dwellings. It has been assumed that there are no stormwater servicing or controls on the existing site. Based on grading patterns observed on the site survey, the majority of runoff from the existing development drains overland towards the Jock River. A small section of land at the northwest of the site flows overland towards the Champman-Mills Stormwater Management Facility, ultimately tributary to the Jock River.

4.2 Design Criteria

Arcadis has coordinated the proposed stormwater management plan with the City and RVCA. Three potential stormwater outlets were identified for the subject site, and they are as follows:

- Outlet to Longfields Drive
- Outlet to Champan-Mills SWM Facility outlet pipe
- Outlet direct to Jock River

The Jock River outlet was identified as the preferred stormwater outlet for the site.

RVCA staff have confirmed that the development is not subject to specific quantity control measures for stormwater runoff but have advised to follow Best Management Practices (BMP). In keeping with the RVCA's recommendations, Arcadis has developed the following criteria: In areas where attenuation and storage is feasible, restrict flows to the 5-year post-development release rate and attenuate flows up to the 100-year storm event. Runoff from areas where attenuation is unfeasible (flat roof areas, landscape area along north and east facades, and parking garage access ramp) flows will be directed without restriction to the Jock River. For these areas the minor system level of service has been designed for the 100-year storm.

In accordance with the City of Ottawa Sewer Design Guideline the following parameters were implemented in developing the stormwater management design:

- | | |
|---------------------------------|--------------------------------------|
| • Design Storm | 1:5year return (Ottawa) |
| • Rational Method Sewer Sizing | |
| • Initial Time of Concentration | 10 minutes |
| • Runoff Coefficients | |
| – Landscaped Areas | C = 0.25 |
| – Asphalt/Concrete | C = 0.90 |
| – Roof | C = 0.90 |
| • Pipe Velocities | 0.80 m/s to 6.0 m/s |
| • Minimum Pipe Size | 250 mm diameter
(200 mm CB Leads) |

4.3 Proposed Minor System

The minor system storm sewers for the subject site will be sized based on the rational method and the City of Ottawa design storm events. The storm sewers have been size to convey 5-year storm events for areas with restriction, and 100-year storm events for areas collected without restriction. An Inlet Control Device (ICD) will be used to restrict flow in areas where storage is proposed (see section 4.4 for Stormwater Management Criteria and Design).

The system concept includes five primary stormwater management areas all discharging from the site via a proposed headwall flowing to the Jock River at the east of the site. Drainage areas A1 and A4 consist of runoff from part of the pitched roof, landscape areas and the parking garage access ramp. Runoff from the roof in Area A1 will discharge via roof leaders to permeable landscaped areas prior to flowing into conveyance structures. Drainage will be collected by surface level drains and discharged to the Jock River without attenuation.

Runoff from areas A2 & A3 consisting of part of the pitched roof, landscape areas and hardscaped area, will be collected by surface drains and attenuated prior to discharging to the Jock River via the site outlet.

Area A5 consists of runoff from the flat portion of the roof. Flow from A5 will be conveyed to the site outlet without attenuation.

Foundation drainage collected by a perimeter drain will discharge from the site via the proposed storm sewer system downstream of any controls.

A detailed storm sewer design sheet and the associated storm sewer drainage area plan is included in **Appendix D**. The General Plan of Services, depicting all on-site storm sewers can be found in **Appendix A**.

4.4 Stormwater Management

As noted above, portions of the subject site will be limited to a release rate established using the criteria described in section 4. This will be achieved by implementing an inlet control device (ICD) and providing surface storage in proposed raingardens to the east of the site.

As discussed previously, flow from areas A2 & A3, where attenuation is feasible, storms up to an including the 100-year storm event will be restricted to the 5-Year storm event by providing flow restriction and storage within the proposed rain gardens east of the proposed building.

The maximum surface retention depth located within the accessible developed areas will be limited to 350 mm during a 100-year event. Overland flow routes will be provided in the grading to permit emergency overland flow towards the Jock River.

Refer to the SWM calculations in **Appendix D**.

4.5 Inlet Control

The allowable 5-year post-development release rate for the 0.10 Ha controlled area (areas A2 & A3) can be calculated as follows:

$$Q_{\text{Target}} = 2.78 C_{\text{5-Year}} i_{\text{5-year}} A_{\text{2\&3}} \quad \text{where:}$$

$$C_{\text{A2\&A3}} = \text{Average runoff coefficient of controlled area} = 0.67$$

$$i_{\text{5-yr}} = \text{Intensity of 5year storm event (mm/hr)} = 998.071 / (T_c + 6.053)^{0.18} = 104.19 \text{ mm/hr; where } T_c = 10 \text{ minutes}$$

$$A = \text{Controlled Area} = 0.10 \text{ Ha}$$

$$Q_{\text{Target}} = 19.41 \text{ L/s}$$

Areas A1, A4 and A5 (development area of 0.20 Ha) will be captured by surface level catch basins and conveyed to the site outlet without restriction. Based on a 100-year event, the flow from the 0.20 Ha uncontrolled runoff can be determined as:

$$Q_{\text{uncontrolled}} = 2.78 \times C \times i_{100\text{yr}} \times A \quad \text{where:}$$

$$C_{\text{A1, A4 \& A5}} = \text{Average runoff coefficient of uncontrolled area} = 0.77$$

$$i_{100\text{-yr}} = \text{Intensity of 100-year storm event (mm/hr)} = 1735.688 / (T_c + 6.014)^{0.820} = 178.56 \text{ mm/hr; where } T_c = 10 \text{ minutes}$$

$$A = \text{Uncontrolled Area} = 0.20 \text{ Ha}$$

$$Q_{\text{uncontrolled}} = 93.96 \text{ L/s}$$

The total release rate from the site can then be determined as:

$$Q_{\text{Total}} = Q_{\text{Target}} + Q_{\text{uncontrolled}}$$

$$= 19.41 \text{ L/s} + 93.96 \text{ L/s}$$

$$= 108.96 \text{ L/s}$$

Based on the flow target for restricted areas A2 and A3, an ICD was selected to attenuate runoff collected to the target release rate. The specification of the ICD has been determined based on various factors, including hydraulic head and allowable release rate. The inlet control device was sized according to the manufacturer's design charts. The restrictions will cause surcharge to facilitate use of the Surface ponding within the rain gardens. Ponding locations and elevations are summarized on the Ponding Plan **Drawing C-600**, and ICD orifice sizing has been included in **Appendix D**.

4.6 On-Site Detention Summary

For areas where on-site detention is feasible, runoff is designed to be limited to the 5-year post-development storm event. Flows exceeding the target release rate will be contained on-site via surface storage within the rain gardens. An orifice is proposed to control runoff from the site. The modified rational method determined the resulting storage volumes during a 2-year, 5-year and 100-year storm event. Available surface ponding within the rain gardens were determined using CAD surface volume tools.

Major flow beyond the 100-year storm event will spill from the rain garden and surface drain east towards the Jock River.

The site's stormwater management plan has ensured that surface ponding will not occur in parking areas and drive aisles during the 2-year storm event.

Stormwater management and on-site storage volume calculations, and manufacturers' spec sheets are included in **Appendix D**.

A summary of the ICD type corresponding storage details is provided in Table 4.1 below.

Table 4-1 Post-Development Storage Summary Table

Drainage Area	ICD Type	ICD Restricted Flow (L/s)	Design Head (m)	100 Year Storage Required (m ³)	Storage Provided (m ³)
A2, A3	IPEX MHF	15.00	1.53	16.44	16.94

The overland flow from the raingarden has been design spill at an elevation of 91.00 m and will flow overland towards the Jock River.

4.7 100-Year + 20% Stress Test

A cursory review of the 100-year event + 20% has been performed using the modified rational method. The Peak flow from each area during a 100-year event has been increased by 20%. The calculations have been included in **Appendix D**.

A summary of the require storage volumes, and overflow balances is provided below.

Table 4-2 Post-Development 100yr+20% Stress Test Storage Summary Table

Drainage Area	ICD Type	ICD Restricted Flow (L/s)	Design Head (m)	100 Year + 20% Storage Required (m ³)	Storage Provided (m ³)
A2, A3	IPEX MHF	15.00	1.58	22.43	24.42

The overland flow will discharge from the raingardens and surface drain towards the Jock River. Based on the storage provided the 100-Year + 20% stress test will be stored within the rain gardens.

4.8 Quality Control

City staff have identified that an “enhanced” level of quality control (80% TSS removal) is required for site runoff. Captured runoff is to be treated by an oil grit separator unit (OGS). A Stormceptor EFO4 (or approved equivalent) has been recommended by the manufacturer based on site characteristics and the enhanced level quality control requirement. The OGS will runoff to an enhanced level prior to discharging to the Jock River. Information regarding the unit sizing is available in **Appendix D**.

4.9 Storm Outlet Erosion Control

Runoff collected from the on-site storm sewer system is proposed to discharge to the Jock River through a new headwall outlet located at the eastern corner of the site. The proposed outlet provides a controlled discharge point for post-development stormwater runoff. City staff have identified the proposed outlet configuration as the preferred outlet for the site. The RVCA has indicated that the outlet must incorporate appropriate erosion protection measures to ensure the long-term stability of the outlet and adjacent riverbank.

The Geotechnical Engineer has assessed the subsurface and slope stability conditions associated with the site. The findings and recommendations of the geotechnical report should be referenced in conjunction with this Servicing and Stormwater Management Report.

Rip-rap stone is to be placed at the storm outlet to control localized erosion. As per the recommendation by the Geotechnical Engineer, the outlet erosion protection should consist of angular, durable rip-rap generally ranging from 150 mm to 600 mm, with approximately half of the stone between 200 mm and 400 mm. The material should contain minimal fines and be specified as “rock protection” in accordance with OPSS MUNI 1004.

A nominal rip-rap thickness of 0.45 m is recommended, placed on a slope of 1.5H:1V or flatter. A non-woven geotextile filter should be installed below the rip-rap and secured to the slope to prevent migration of fine-grained soils and maintain stability of the armour layer.

The rip-rap should be installed over the prepared subgrade starting from the base of the outlet channel and progressing upward to provide a stable, interlocked structure.

Please refer to the Geotechnical Investigation.

5 Grading and Roads

5.1 Site Grading

The proposed site grading balances various requirements, including but not limited to geotechnical constraints, minimum/maximum slopes, overland routing of stormwater, all to ensure the site is graded in accordance with municipal and accessibility standards.

Refer to the grading plan provided in **Appendix E**.

Two retaining walls are anticipated to be required at the garage entrance. Both walls will require a detailed design by a structural engineer prior to municipal approval. Existing overland drainage patterns have been respected in the proposed grading with the majority of post-development runoff still tributary to the Jock River. In landscape areas where typical 2-7% grading cannot be met, 3:1 maximum terracing has been utilized to tie the proposed grading into the existing.

5.2 Road Network

Some minor re-working of Bren-Maur Road is proposed as part of the development to provide site access, a new traffic turnaround circle and fire lane access. Please refer to Site Plan in **Appendix A**

There are 6 surface parking stalls provided on the site, with a further 41 within the garage.

Pedestrian access facilities are provided extending from the Bren-Maur Road ROW.

6 Source Controls

6.1 General

Since an end of pipe treatment facility is already provided for the development lands, stormwater site management for the subject lands will focus on site level or source control management of runoff. Such controls or mitigative measures are proposed for this development not only for final development but also during construction and build out. Some of these measures are:

- Flat site grading where possible
- Vegetation planting
- Groundwater recharge in landscaped areas

6.2 Lot Grading

Where possible, all of the proposed blocks within the development will make use of gentle surface slopes on hard surfaces such as asphalt and concrete. In accordance with local municipal standards, all grading will be between 0.5 and 5.0 percent for hard surfaces and 2.0 and 7.0 percent for all landscaped areas. Significant grade changes will be accomplished through the use of terracing (3:1 max slope), ramps and/or retaining walls. All surface catchbasins shall be equipped with 3.0m subdrains on opposite sides of a curbside catchbasin running parallel to the curb, and with 3.0m subdrains extending out from all 4 sides of parking lot catchbasins.

6.3 Vegetation

As with most site plans, the developer will be required to complete a vegetation and planting program. Vegetation throughout the development including planting along roadsides and within the individual blocks provides opportunities to re-create lost vegetation.

6.4 Groundwater Recharge

Groundwater recharge targets have not been identified for this site. Perforated sub-drain systems will be implemented at capture within the proposed Raingardens. This will promote increased infiltration during low flow events before water is collected by the storm sewer system.

7 Conveyance Controls

7.1 Generals

Besides source controls, the development also proposes to use several conveyance control measures to improve runoff quality. These will include:

- Raingardens
- Catchbasin sumps and manhole sumps
- Roof leaders directed to landscaped areas

7.2 Catchbasins and Maintenance Hole Sumps

All catchbasins within the development, either rear yard or street, will be constructed with minimum 600 mm deep sumps. These sumps trap pollutants, sand, grit and debris which can be mechanically removed prior to being flushed into the minor pipe system. Both rear yard and street catchbasins will be to OPSD 705.02. All storm sewer maintenance holes serving local sewers less than 900 mm diameter shall be constructed with a 300 mm sump as per City standards.

8 Sediment and Erosion Control Plan

8.1 General

During construction, existing drainage features and the Jock River corridor may be exposed to increased sediment loading. Temporary erosion and sediment control measures will be implemented throughout construction to minimize sediment transport from the site and protect downstream receiving systems. At project inception, heavy duty silt fence barriers will be installed along the site perimeter and adjacent to sensitive areas to provide sediment control during demolition and earthworks activities.

Additional erosion and sediment control measures will be implemented during construction of the proposed storm outlet works. A construction phasing and sequencing plan has been incorporated into the ESC drawings to identify the timing and implementation of erosion and sediment control measures throughout the various stages of construction. A multi-barrier approach will be utilized consistent with accepted erosion and sediment control practices.

Proposed temporary measures will include:

- Heavy duty silt fence barriers along the site perimeter and adjacent to the storm outlet construction area;
- Sediment capture filter socks on open maintenance holes and catch basins until the drainage system is commissioned;
- Temporary straw bale check dams, silt fence barriers, and sediment control measures at the proposed outlet location until permanent stabilization measures are installed;
- Dewatering controls for pumped groundwater and surface water;
- Temporary in-water sediment curtains during outlet construction, where required; and
- Progressive stabilization and restoration of disturbed areas as construction proceeds.

8.2 Trench Dewatering

Any trench dewatering using pumps will be discharged through a geotextile dewatering bag, dewatering trap, or equivalent filtration device prior to release. Discharge from the storm outlet work area will be directed to the municipal storm sewer system within Longfields Drive following filtration and treatment. The contractor will inspect and maintain all dewatering facilities as required, including sediment removal and replacement of filter materials where necessary.

8.3 Temporary Controls at Storm Outlet

Additional temporary erosion and sediment control measures will be implemented during construction of the proposed storm outlet. Prior to excavation works adjacent to the Jock River, an in-water sediment curtain will be installed to contain suspended sediments generated during construction. Temporary straw bale check dams and silt fence barriers will be installed at the outlet location and maintained until the permanent outlet protection system, including rip rap erosion protection, has been constructed.

The temporary sediment control measures shall remain in place until disturbed areas have been stabilized and the permanent outlet protection works are operational. Temporary check dams and silt fence barriers at the outlet shall be removed prior to any flows being directed through the completed headwall and outlet structure.

8.4 Site Restoration and Stabilization

Disturbed areas associated with construction of the storm outlet works shall be stabilized immediately following completion of backfilling activities. Excavated areas along the outlet slope shall be reinstated with a minimum of 150 mm of topsoil and hydroseed utilizing an approved riverbank seed mix. Disturbed slopes shall be protected using a Terrafix SC200B erosion control blanket or approved equivalent to promote vegetation establishment and provide temporary erosion protection until permanent stabilization has been achieved.

8.5 Surface Structure Filters

All catch basins, and to a lesser degree maintenance holes, convey surface water to the storm sewer system. Until streets are asphalted and curbed, all catch basins and maintenance holes will be protected using sediment capture inserts or equivalent devices installed between the structure frame and cover. These measures will remain in place throughout construction and will be maintained as required until it is appropriate to remove them.

9 Conclusion

This report has illustrated that the proposed Bren-Maur Road residential apartment development can be serviced via existing municipal services. The water network will be extended to provide necessary service. All sanitary and storm sewer designs for this development will be completed in conformance with City of Ottawa standards while acknowledging downstream constraints. By limiting flow into the minor storm sewer system as per the applicable local stormwater management criteria and allowing for excess surface storage on-site, all stormwater management requirements will be met. Adherence to the Sediment and Erosion Control Plan during construction will minimize harmful impacts on surface water.

Based on the information provided within this report, the plans prepared for the subject development can be serviced to meet City of Ottawa requirements.

Appendix A

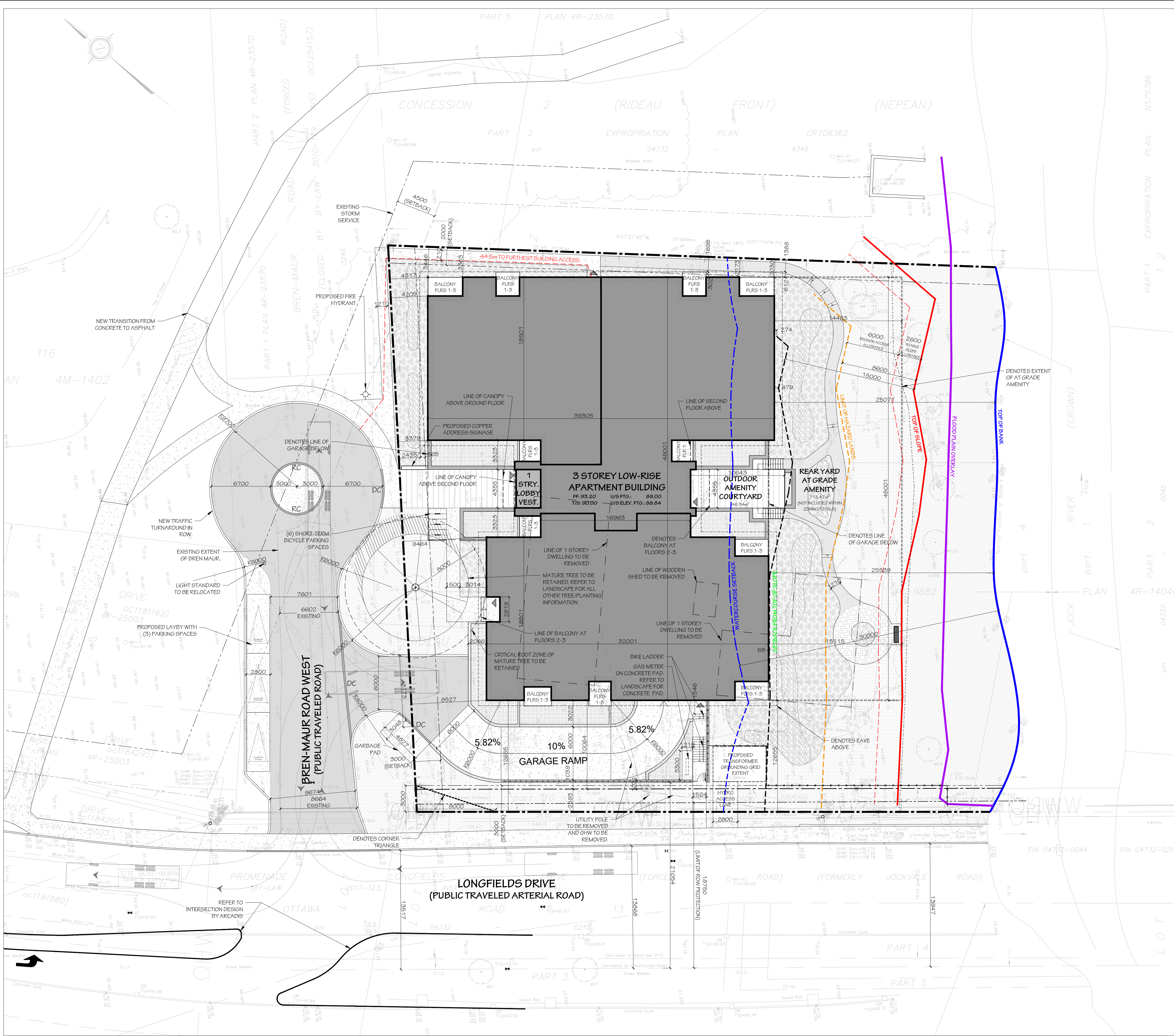
Site Plan

Site Servicing Plan 30277358-C-001

AOV Legal Plan – 2024-12-19

Pre-Consultation City Comments

RVCA Outlet Correspondence



SURVEY INFORMATION TAKEN FROM:

ANNE'S OSULLIVAN VOLLEBERG LTD. 2024

ZONING SUMMARY (ZONING BY-LAW 2008-250)

	REQUIRED	PROVIDED
MINIMUM LOT WIDTH (m)	15 m MIN.	61.9 m
MINIMUM LOT AREA (m²)	450 m² MIN.	4,283.9 m²
MINIMUM FRONT YARD (m)	3.0 m MIN.	3.3 m
MINIMUM CORNER SIDE YARD (m)	3.0 m MIN.	12.6 m
MINIMUM INTERIOR SIDE YARD (m)	9 m MIN. (NOT APPLICABLE)	3 m
MINIMUM REAR YARD (m)	15 m MIN.	25 m
MINIMUM BUILDING HEIGHT (m)	15 m MAX.	13.56 m

PERMITTED PROJECTIONS INTO YARDS (SECTION 60, TABLE 60)		
FRONT YARD	0.5m (MAX. PROJ.)	0.0m
IN. SIDE YARD	0.5m (MAX. PROJ.)	0.7m
IN. SIDE YARD	0.5m (MAX. PROJ.)	1.3m
IN. SIDE YARD	1m (MAX. PROJ.)	1.6m

PARKING, QUEUING AND LOADING PROVISIONS (SECTION 100-114)		
MINIMUM VISITOR PARKING SPACE RATES (TABLE 101)	42 SPACES	43 SPACES
MINIMUM VISITOR PARKING SPACE RATES (TABLE 102)	7 SPACES	3 SPACES
MINIMUM VISITOR PARKING SPACE RATES (TABLE 111)	18 SPACES	28 SPACES

RESIDENTIAL PROVISIONS (SECTION 100-148)		
AMENITY AREA (TABLE 137) (3) LOW-RISE APARTMENT DWELLING	334.4m²	334.4m²
TOTAL AMENITY AREA	334.4m²	334.4m²
TOTAL COMMUNAL AMENITY AREA	334.4m²	334.4m²
TOTAL PRIVATE AMENITY AREA	0m²	0m²

SITE STATISTICS		
TOTAL LOT AREA (m²)	4,283.9 m²	
BUILDING AREA (m²) (% LOT COVERAGE)	1,639 m² / 38.3%	
VEHICULAR SURFACE AREA (m²) (% LOT COVERAGE)	254 m² / 5.9%	
TOTAL HARD LANDSCAPING AREA (m²) (% LOT COVERAGE)	315.9 m² / 7.3%	
TOTAL SOFT LANDSCAPING AREA (m²) (% LOT COVERAGE)	1,810 m² / 44.6%	
TOTAL ARCHITECTURAL ELEMENTS (m²) (% LOT COVERAGE)	1.05 m² / 0.02%	
TOTAL OPEN LANDSCAPE SPACE (m²) (% LOT COVERAGE)	2,390.9 m² / 55.8%	

SOLID WASTE STORAGE AND DISPOSAL		
TYPE	REQUIRED	PROVIDED
GARAGE	(35 UNITS X 0.231) 8 YARDS	8 YARDS (2x4yard)
FIBRE	(35 UNITS X 0.0621) 3 YARDS	3 YARDS (1x2yard)
5 MP	(35 UNITS X 0.0112) 1 YARD	2 YARDS (1x2yard)
ORGANICS	1 X 240L CART	1 X 240L CART

BUILDING STATISTICS		
BUILDING AREAS		
GROUND FLOOR AREA	4,354.0 m²	
LEASABLE FLOOR AREA	3,741.0 m²	
BUILDING AREA	1,639 m²	
BELOW GRADE AREA (PARKING GARAGE)	1,743.5 m²	
TOTAL AMENITY AREA	1,072.0 m²	

UNIT BREAKDOWN		
1 - BED	7 (20%)	
1 - BED + DEN	1 (3%)	
2 - BED	3 (8%)	
2 - BED	24 (69%)	
TOTAL	35 (100%)	

PARKING AND LOCKERS		
VEHICLE PARKING	47 (41 RESIDENT - 6 VISITOR)	
BIKE PARKING	20	
STORAGE LOCKERS	26	

DRAWING LEGEND		
PROPERTY LINE	PRECAST PAVERS	FLAGSTONE
DEPRESSED CURB	LARGE FORMAT PRECAST PAVERS	ESCAPMENT (EXISTING VEGETATION)
ROLL CURB	RIVER STONE	ASPHALT
UTILITY POLE	PLANTING REFER TO LANDSCAPE	2.4M TALL PRIVACY FENCE
ENTRY/EXIT POINT	STONE DUST PATH	1.1M TALL PICKET GUARD
CONCRETE RETAINING WALL / UPSTAND	CONCRETE PATH / RAMP / STEP	WILLURE EXCLUSION FENCE
CONCRETE PLANTER	GRASS	
DRYSTACK PLANTER		

ZONING SUMMARY (ZONING BY-LAW 2026-250)

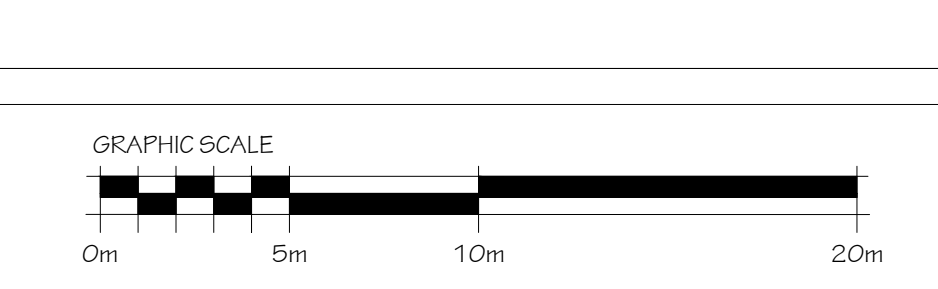
	REQUIRED	PROVIDED
MINIMUM LOT WIDTH (m)	7.5 m MIN.	61.9 m
MIN. LOT WIDTH PER PRONIPAL VERT. ATTACHED UNIT (m²)	4.5 m MIN.	61.9 m
MINIMUM FRONT YARD (m)	3.0 m MIN.	3.3 m
MINIMUM EXTERIOR SIDE YARD (m)	3.0 m MIN.	12.6 m
MINIMUM TOTAL INTERIOR SIDE YARD (m)	1.8 m MIN.	2 m
MINIMUM BUILDING WIDTH (m)	N/A	48.001m
MINIMUM REAR YARD (m)	6 m MIN.	25 m
MINIMUM BUILDING HEIGHT (m)	14.5 m MAX.	13.56 m
MINIMUM NUMBER OF DWELLING UNITS	N/A	35

PERMITTED PROJECTIONS INTO YARDS (SECTION 204)		
FRONT YARD	1m (MAX. PROJ.)	0.0m
IN. SIDE YARD	0.5m (MAX. PROJ.)	2.4 m
IN. SIDE YARD	2m (MAX. PROJ.)	0.51m
IN. SIDE YARD	1m (MAX. PROJ.)	1.6 m

MAXIMUM PARKING SPACE RATES (SECTION 602, TABLE 602)		
(3) DWELLING UNIT IN BUILDING WITH 1 OR MORE DWELLING UNITS (AREA E)	53 SPACES MAX.	43 SPACES
MINIMUM VISITOR PARKING SPACE RATES (SECTION 603)		
AREA D	2 SPACES	2 SPACES
MINIMUM BICYCLE SPACE RATES (SECTION 613)		
SHORT TERM	INTERIOR: 2 SPACES	0
LONG TERM	INTERIOR: 4 SPACES	0
	EXTERIOR: 26 SPACES	0

AMENITY AREA (SECTION 208)		
TOTAL AMENITY AREA	210m²	334.4m²
TOTAL COMMUNAL AMENITY AREA	INTERIOR: 210m²	334.4m²
TOTAL PRIVATE AMENITY AREA	EXTERIOR: 0m²	0m²

GENERAL NOTES		
1. SNOW TO BE REMOVED FROM SITE.		



PROJECT CONSULTANTS

DEVELOPER / OWNER	UNIFORM DEVELOPMENT INC. 117 GERRARD STREET EAST, SUITE 300 OTTAWA, ON K1G 1G5 CONTACT: JAMON DUFF PHONE: (613) 226-7770
ARCHITECT	NOVA ARCHITECTURE INC. 435 PAMILLA STREET OTTAWA, ON K1G 1G5 CONTACT: JAMON DUFF PHONE: (613) 226-7770
PLANNING	ROBIN 240 MICHEL COMPTON DRIVE SUITE 200 OTTAWA, ON K1G 1G5 CONTACT: ROBIN DUFF PHONE: (613) 226-7770
LANDSCAPE	LANDSCAPE 240 MICHEL COMPTON DRIVE SUITE 200 OTTAWA, ON K1G 1G5 CONTACT: ROBIN DUFF PHONE: (613) 226-7770
TRAFFIC	ARCADIS 333 PRESTON ST. SUITE 500 OTTAWA, ON K1G 1G5 CONTACT: RYAN MANDRYK PHONE: (613) 705-5610
CIVIL	ARCADIS 333 PRESTON ST. SUITE 500 OTTAWA, ON K1G 1G5 CONTACT: RYAN MANDRYK PHONE: (613) 705-5610
SURVEYOR	ANNE'S OSULLIVAN VOLLEBERG LTD. 14 CONSUMERS GATE, SUITE 500 OTTAWA, ON K1G 1G5 CONTACT: ANDREW WELSH PHONE: (613) 226-7770
GEOTECHNICAL	PATTON GROUP INC. 8 BAYVIEW DRIVE OTTAWA, ON K2E 7P9 CONTACT: PAMELA ARSENAULT PHONE: (613) 226-7881
ENVIRONMENTAL	MANACSTER ENVIRONMENTAL PLANNING INC. 481 BUCKINGHAM STREET OTTAWA, ON K1G 1G5 CONTACT: DENISE MANACSTER PHONE: (613) 226-7881

15	2026-07-20	HAZARD LANDS GRADING COORDINATION
14	2026-06-26	ISSUED FOR SPA
13	2026-06-22	ISSUED FOR SPA COORDINATION
12	2026-06-12	ISSUED TO PLANNER FOR REVIEW
11	2026-06-08	ISSUED FOR SPA COORDINATION
10	2026-02-27	ISSUED FOR RAMP GRADING COORDINATION
9	2026-02-06	ISSUED FOR SPA
8	2026-01-20	ISSUED FOR SPA COORDINATION
7	2026-01-09	ISSUED FOR CLIENT REVIEW
6	2025-10-10	ISSUED FOR SPA
5	2025-10-09	ISSUED FOR COORDINATION
4	2025-10-06	ISSUED FOR COORDINATION
3	2025-09-26	ISSUED FOR COORDINATION
2	2025-09-02	ISSUED FOR COORDINATION
1	2025-07-21	ISSUED FOR REVIEW
NO.	DATE	REVISION

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

DO NOT SCALE DRAWINGS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED.

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Ottawa, Ontario
Canada K1G 1K7
T: 613-238-7200
F: 613-235-2005
E: mail@hobinarc.com
hobinarc.com

HOBIN ARCHITECTURE

PROJECT LOCATION:
320 BREN MAUR
LOW-RISE APARTMENT
320 BREN MAUR, OTTAWA, ONTARIO

DRAWING TITLE:
SITE PLAN

DRAWN BY:
JD

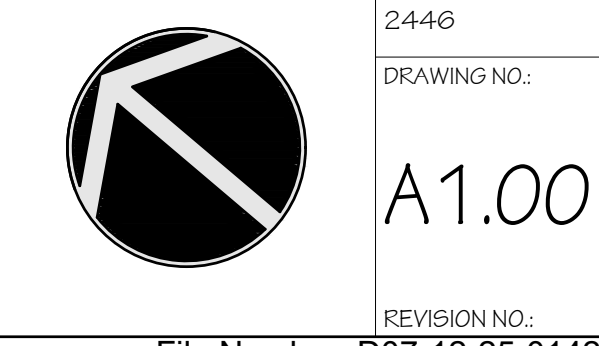
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24/05/19

SCALE:
1:200

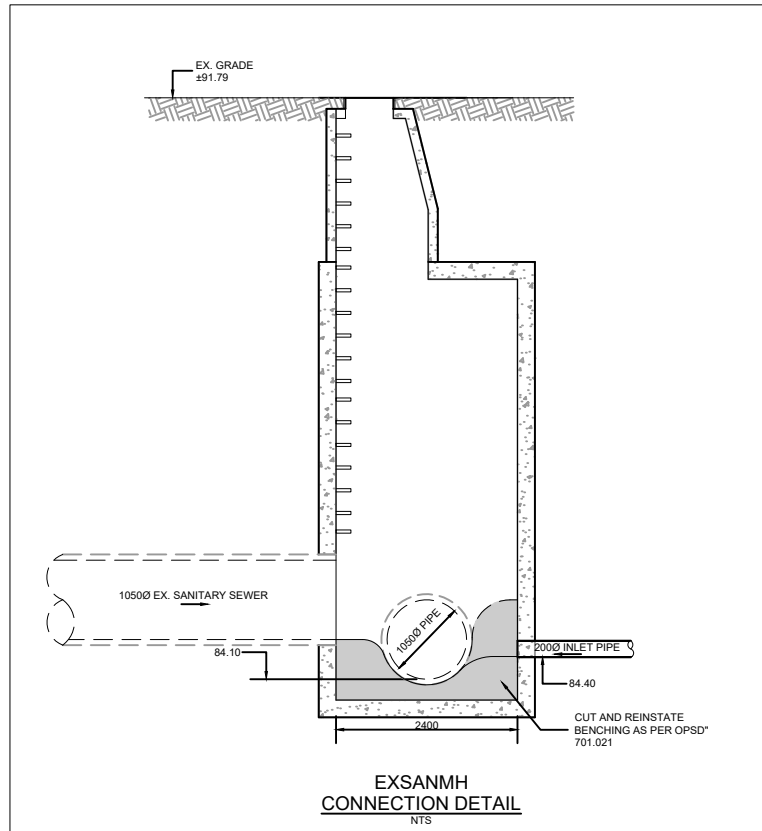
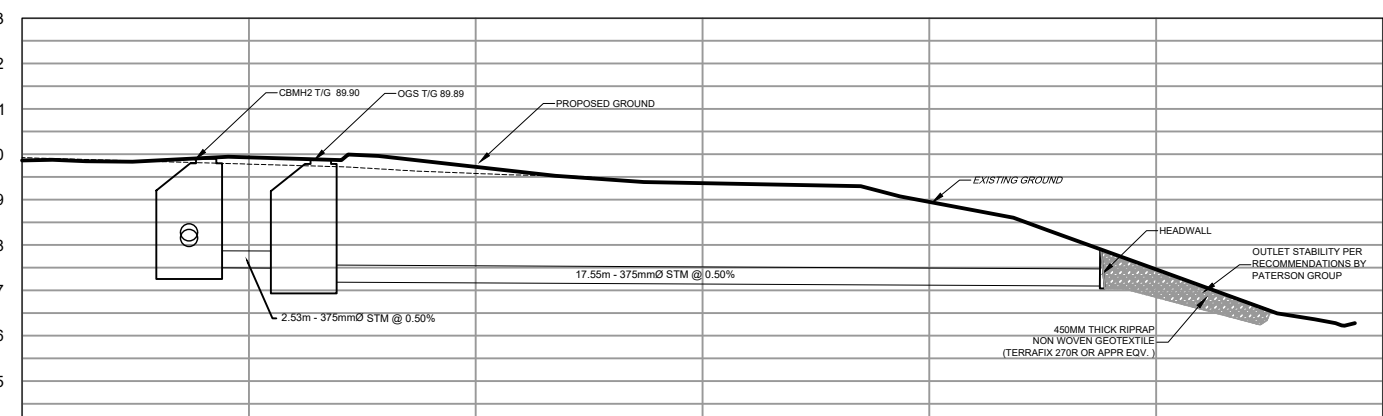
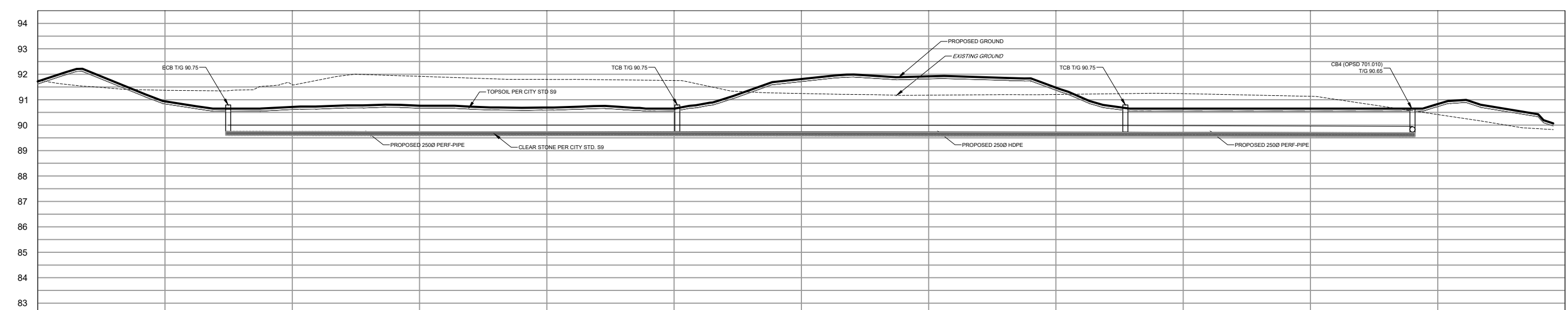
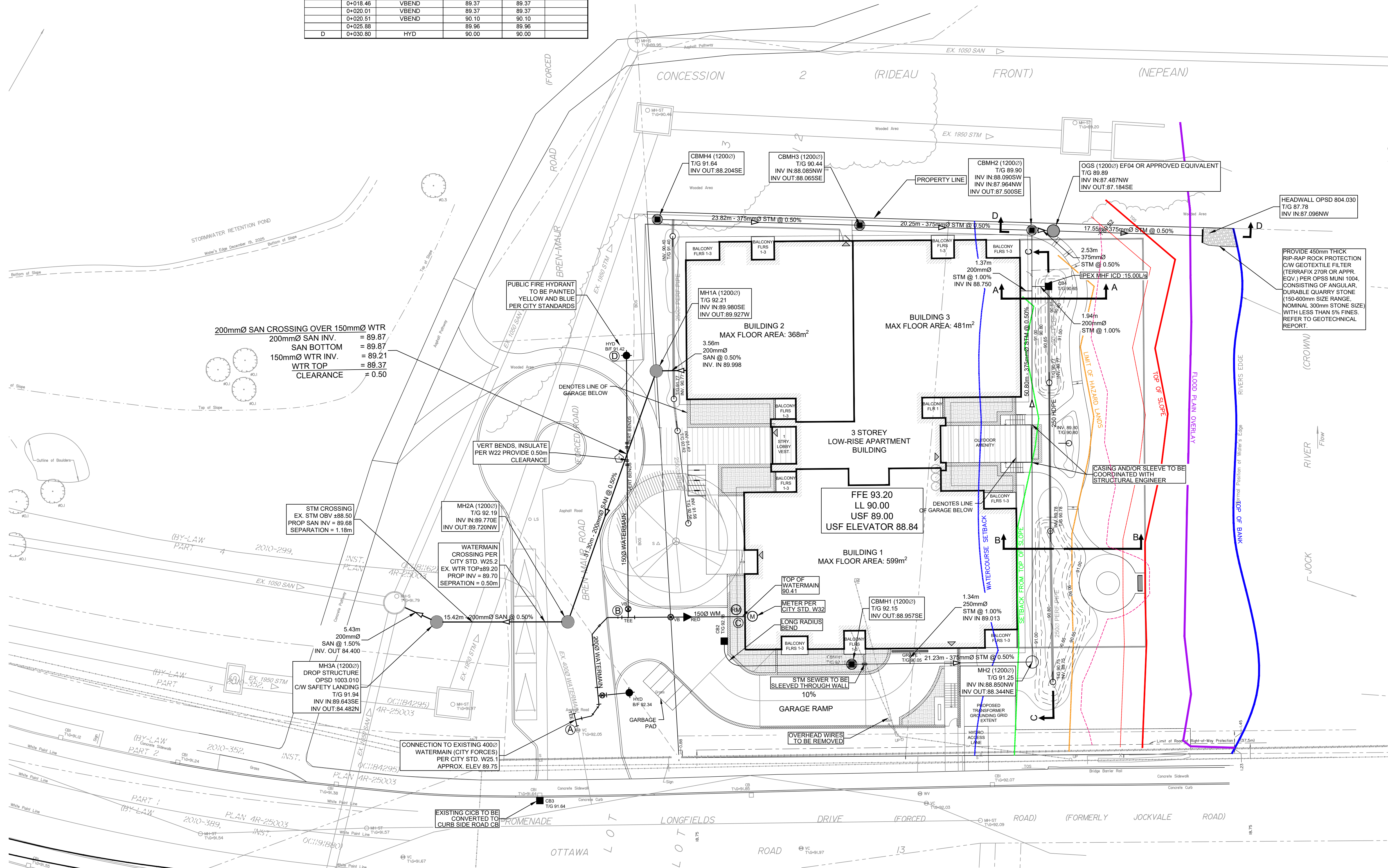
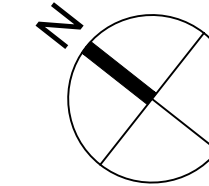
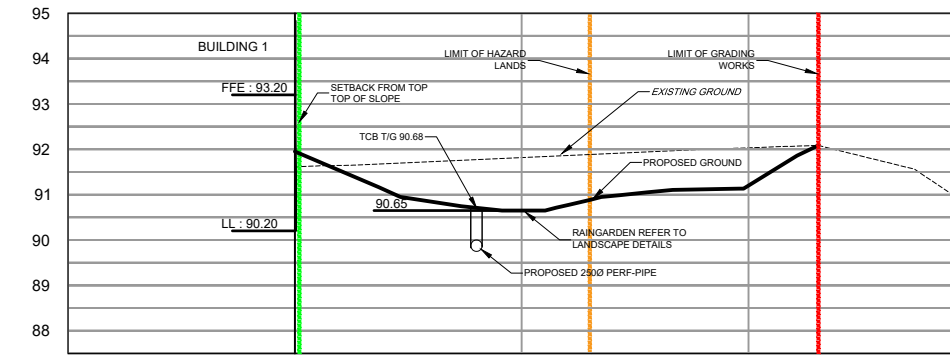
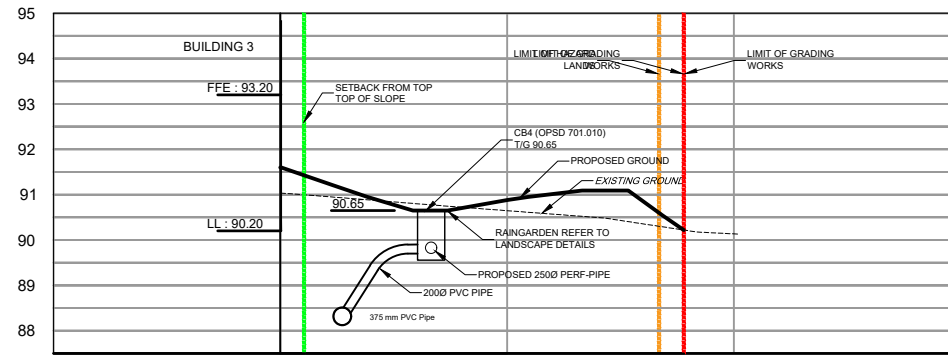
PROJECT:
2446

DRAWING NO.:
A1.00

REVISION NO.:
1



WATERMAIN SCHEDULE				
	Station	Description	Finished Grade	Top of Watermain / As Built Watermain
A	0+000.00	TEE	92.01	89.61
	0+001.95	BEND	92.04	89.64
	0+003.45	BEND	92.08	89.68
	0+004.61	HYD TEE	92.11	89.71
	0+011.86	BEND	92.21	89.81
B	0+014.53	BEND	92.34	89.94
	0+016.99	TEE	92.29	89.89
	0+021.99	VB	92.28	89.88
	0+024.45	REDUCER	92.25	89.85
	0+030.73	BLDG	92.81	90.41
C	0+000.00	TEE	92.29	89.29
	0+001.00	VB	89.25	89.25
	0+014.53	BEND	90.08	90.08
	0+017.95	VBEND	90.13	90.13
	0+018.46	VBEND	89.37	89.37
D	0+020.01	VBEND	89.37	89.37
	0+020.51	VBEND	90.10	90.10
	0+025.38	VB	89.95	89.95
	0+030.80	HYD	90.00	90.00



CLIENT
UNIFORM URBAN DEVELOPMENTS
117 CENTREPOINT DRIVE, SUITE 300,
OTTAWA

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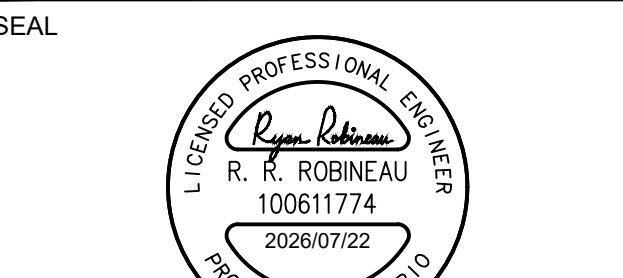
Arcadis Professional Services (Canada) Inc.
formerly (B) Group Professional Services (Canada) Inc.

No.	DESCRIPTION	DATE
1	SUBMISSION 1 ISSUED FOR SPA	2025-10-23
2	SUBMISSION 2 ISSUED FOR SPA	2026-07-22

SEE 010 FOR NOTES, LEGEND, CB TABLE AND DETAILS



CONSULTANTS



PRIME CONSULTANT
ARCADIS
333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT
320 BREN MAUR

PROJECT NO:
30277358
DRAWN BY:
M.M.
PROJECT MGR:
R.M.
CHECKED BY:
R.M.
APPROVED BY:
D.G.Y.

SHEET TITLE
SERVICING PLAN

SHEET NUMBER
C-001
ISSUE
2

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the **CGVD28** geodetic datum, derived from National Capital Commission Monument No. 01919680071 having an elevation of 99.724 metres.

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 its 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.

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.999981.

Bearings are grid, derived from the easterly limit of Jockvale Road (Forced Road) as shown on Plan 4R-9882 and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

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

SHORELINE RADIAL TIE TABLE			
FROM POINT	TO POINT	BEARING	DISTANCE
401	402	N37°21'40"W	±33.5
403	402	N29°54'30"W	±34.8
404	402	N13°10'30"W	±37.3
405	402	N3°10'50"W	±41.7
409	408	N39°25'30"W	±12.7
407	408	N71°14'50"W	±18.8
406	408	N83°31'40"E	±25.6



SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of

PART OF LOTS 12 AND 13

CONCESSION 2 (RIDEAU FRONT)

Geographic Township of Nepean

CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebakk Ltd.

Scale 1 : 200

8.0 6.0 4.0 2.0 0 4 8 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 and the Surveyors Act and the regulations made under them.

2. The survey was completed on the 9th day of December, 2024.

Date _____ E. H. Herweyer
Ontario Land Surveyor

PART 2

THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: December 19, 2024

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to Uniform Urban Developments Inc., ("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**
- Denotes
- Survey Monument Planted
 - Survey Monument Found
 - SIB Standard Iron Bar
 - SSIB Short Standard Iron Bar
 - IB Iron Bar
 - (WT) Witness
 - Meas. Measured
 - (ADC) Annis, O'Sullivan, Vollebakk Ltd.
 - (P1) Plan 4R-9882
 - (P2) Plan 4R-28886
 - (P3) Expropriation Plan CR708362
 - (P4) Plan 4R-23570
 - OH-ST Maintenance Hole (Storm Sewer)
 - OH-S Maintenance Hole (Sanitary)
 - VC Valve Chamber (Watermain)
 - CHW Overhead Wires
 - U/P Utility Pole
 - AN Anchor
 - LS Light Standard
 - CB Catch Basin
 - CB Catch Basin Inlet
 - DI Ditch Inlet
 - WV Water Valve
 - T/G Top of Grate
 - GM Gas Meter
 - HM Hydro Meter
 - S Sign
 - CLF Chain Link Fence
 - RWT Timber Retaining Wall
 - RWC Concrete Block Retaining Wall
 - TOS Top of Slope
 - BOS Bottom of Slope
 - MB Mail Box
 - AC Air Conditioner
 - D Diameter
 - + 65.00 Location of Elevations
 - + 65.00 Top of Concrete Curb Elevation
 - + 65.00 Top of Retaining Wall
 - Deciduous Tree
 - Coniferous Tree

ASSOCIATION OF ONTARIO LAND SURVEYORS PLAN SUBMISSION FORM V-90575

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14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
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Email: Nepean@aosvll.com

Ontario Land Surveyors Job No. 25106-24 Uniform P/L112813 Con2 (R) NP D.F. - client

November 15, 2024

Jacob Bolduc
Fotenn Consultants Inc.
Via email: bolduc@fotenn.com

**Subject: Pre-Consultation: Meeting Feedback
Proposed Zoning By-law Amendment and
Site Plan Control Applications – 320 Bren-Maur Road**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on November 8, 2024.

Pre-Consultation Preliminary Assessment

1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
---------------------------------------	----------------------------	----------------------------	----------------------------	----------------------------

One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

1. In your subsequent submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

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](https://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.

Proposal Overview

1. To construct a 38-unit, 3-storey low-rise apartment building, as shown in **Figure 1**. Six surface visitor parking spaces are proposed with up to two levels of underground parking.
2. The proposal includes road modifications to the existing Bren Maur Road Right-of-Way with the creation of either a cul-de-sac or a hammerhead at the eastern terminus of the road.
3. The proposed Zoning By-law Amendment would rezone the property from DR to R4 with the specific subzone to be determined prior to submission.

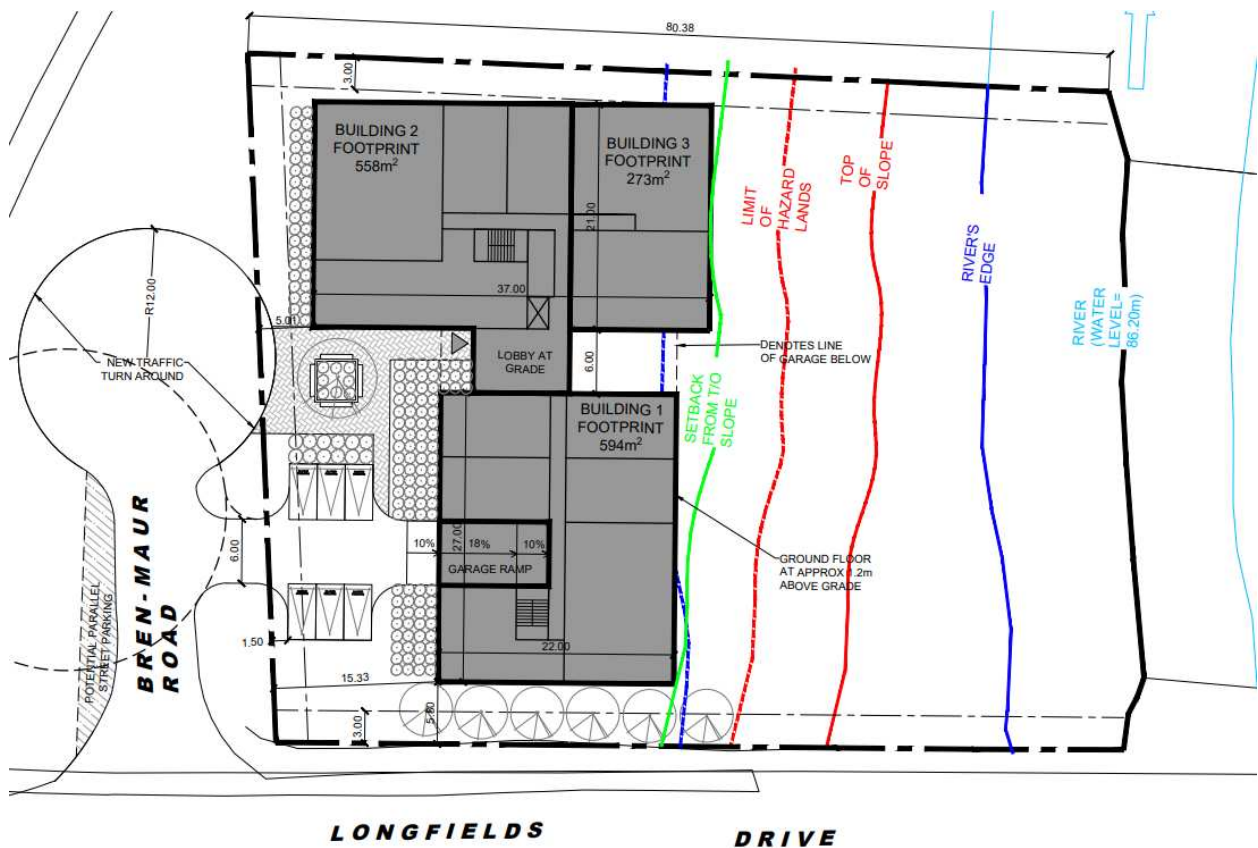


Figure 1 Concept Site Plan (dated October 2024, prepared by Hobin Architecture)

Planning

Comments:

1. Policies and Provisions, OP and Zoning By-law
 - a. The property is designated as Neighbourhood within the Suburban Transect and the Evolving Neighbourhood Overlay applies, as shown on Schedule B6. Low-rise development is supported up to supported up a maximum building height of 4-storeys.
 - b. Proposed development within the watercourse setback will be required to meet the criteria contained in Subsection 4.9.3, Policy 7) of the Official Plan.
 - c. The site is zoned DR (Development Reserve Zone), which does not list apartment, low-rise as a use.
2. Required Development Applications
 - a. A Zoning By-law Amendment (Major) application will be required to rezone the site to allow for the proposed low-rise apartment use. A site-specific exception may also be required to address any additional zoning relief.
 - b. A Site Plan Control (Complex) application will be required to permit the proposed development.
 - c. It is recommended that the Zoning By-law Amendment and Site Plan Control applications concurrently be submitted concurrently so that the new zoning can accommodate the ultimate design. If concurrent submission is not preferred, the site plan design should be significantly advanced prior to submission of the Zoning By-law Amendment.
3. Site Plan
 - a. Ensure that the following information is included on the site plan:
 - i. Compliance with minimum resident and visitor parking space requirements;
 - ii. Location and number of bicycle parking spaces;
 - iii. Location and size of private and communal amenity areas; and
 - iv. Location of waste storage area.

Feel free to contact Samantha Gatchene, Planner, for follow-up questions.

Urban Design

Comments:

4. Submission Requirements:

- a. Urban Design Brief is required. Please see attached customized Terms of Reference to guide the preparation.
 - i. The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 – Contents of these Terms of Reference.
 - ii. The proposal is not subject to the Urban Design Review Panel.
- b. 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](#)) for the preparation of these drawings and studies, this includes:
 - i. Design Brief
 - ii. Site Plan
 - iii. Landscape Plan (conceptual for rezoning)
 - iv. Elevations (site plan only)
 - v. Floor plans (conceptual)

5. Comments on Preliminary Design

- a. The site is situated in an exceptional natural setting, the landscape program and architecture of the building should reflect this.
- b. Landscaping and street trees should be provided along public roadway frontages and onsite. Please keep in mind that there are overhead wires on Longfields.
- c. Look for opportunity to retain mature vegetation on the site.
- d. Please provide a walkway connection from the new cul-de-sac to existing pathways in the open space. This will be a desire line for residents.
- e. The Longfields frontage should have glazing at grade.
- f. Please consider balcony locations. Projecting balconies may not be appropriate on the south and east facades from an environmental perspective.

- g. Please remove the 3 parking spaces fronting Longfields to allow for additional landscaping.

Feel free to contact Lisa Stern, Urban Designer, for follow-up questions.

Engineering

Comments:

- 6. The Stormwater Management Criteria, for the subject site, is to be based on the following:
 - a. Application of the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
 - b. 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).
 - c. A calculated time of concentration (cannot be less than 10 minutes).
 - d. 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.
 - e. Storm sewer outlets should not be submerged.
 - f. The quantity control criteria is to control post-development peak flows to the 5-year pre-development flow rate, with a maximum runoff coefficient of $C=0.5$.
 - g. A seasonal water budget analysis will be required with this application, due to the proximity of the Jock River. RVCA can provide guidance on water balance requirements.
 - h. Quality control level of service is "enhanced" (80% TSS Removal). Quality control is provided by the Chapman Mills Stormwater Management Facility. It should be noted that best-management practices and a treatment train approach to quality control is recommended for this application.
- 7. Deep Services (Storm, Sanitary and/or Water Supply)

Storm

- a. 525 mm dia. Conc. Storm sewer on Longfields Drive.

Sanitary

- b. The South Nepean Trunk Collector Sewer is adjacent to the development site. Note that a connection to the trunk *sewer* will not be permitted. A connection to MHS71056 will be permitted. A stamped shop drawing will be required for the connection details, and will be circulated for comment to our Linear Infrastructure and Operations departments. It must be a sewer (not a building lateral) connection to MHS71056.
- c. A sanitary monitoring maintenance hole will be required, placed as close to the property line as possible.

Water

- d. 406 mm dia. PVC watermain is available on Bren-Maur Road. A connection to the feeder mains on Longfields Drive will not be permitted.
8. Sewer connections to be made above the springline of the sewer main as per:
- i. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.
 - ii. Std Dwg S11 (For rigid main sewers) – lateral must be less than 50% the diameter of the sewer main,
 - iii. 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 than 50% the diameter of the sewer main,
 - iv. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewer main. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.
9. An MECP Environmental Compliance Approval **Municipal/Private Sewage Works** may be required for the proposed development. A Ministry contact has been provided below but please work with City staff on the need (or not) of an application.
- a. Patrick Lalonde at (613) 521-3450 or Patrick.Lalonde@ontario.ca

10. Water

- a. One water meter will be permitted for each building. The developer is responsible for any submetering that they require. A Water Data Card will be requested post-approval to determine water meter size for each building.

- b. 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:
 - i. Location of service
 - ii. Type of development
 - iii. The amount of fire flow required (per OBC or FUS).
 - iv. Average daily demand: ____ l/s.
 - v. Maximum daily demand: ____ l/s.
 - vi. Maximum hourly daily demand: ____ l/s.
- c. Looping of the watermain will be required if average day demand exceeds 50m³/day.

11. Fire-fighting flow rate(s) are to be calculated using the FUS2020 methodology.

12. A Slope Stability Study is to be included in the Geotechnical Investigation Report. The Natural Hazard will have to be assessed to determine any setback limits. The report will need to make a conclusion on the governing setback limit (watercourse setback, natural hazard setback, etc.).

Feel free to contact Tyler Cassidy, P.Eng., Project Manager, for follow-up questions.

Noise

Comments:

13. Noise study required due to proximity to Longfields Dr.

Feel free to contact Reed Adams, Transportation Project Manager, for follow-up questions.

Transportation

Comments:

14. TIA:

- a. A TIA is not required.

15. ROW:

- a. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16.
 - i. 37.5m is required for this section of Longfields
- b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

16. RMA:

- a. An RMA is required for this development.
 - i. The functional plan and/or RMA plans must be submitted with the formal submission to deem complete. Request base mapping of RMA, contact Engineering Services

17. Site Plan:

- a. Clear throat requirement for a residential development with less than 100 units on an arterial road is 15m. Ensure this length is provided. The clear throat length is measured from the ends of the driveway curb return radii at the roadway and the point of first conflict on-site. Note the minimum throat length provided must be maintained with the future ROW protection.
- b. Turn around centreline radius will be reviewed by emergency services and maintenance staff
 - i. May need to be greater than 12 m.
- c. As the site proposed is residential, AODA legislation applies for all areas accessible to the public (i.e. outdoor pathways, parking, etc.).
- d. Ensure site access meets the City's Private Approach Bylaw.
- e. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.
- f. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
- g. Turning movement diagrams required for internal movements (loading areas, garbage).
- h. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).

- i. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)
- j. Show slope of garage ramp on site plan. Note that underground ramps should be limited to a 12% grade and must contain a subsurface melting device when exceeding 6%. Ramp grades greater than 15% can be psychological barriers to some drivers. When the underground parking ramp's break over slope exceeds 8%, a vertical-curve transition or a transition slope of half the ramp slope should be used. Without this transition, bottoming out of vehicles may occur.

Feel free to contact Reed Adams, Transportation Project Manager, for follow-up questions.

Environment

Comments:

18. The watercourse setback policies at the City of Ottawa are determined through section 4.9.3 of the Official Plan, which states that:

"1) The minimum setback from surface water features shall be the development limits as established by a Council-approved watershed, subwatershed or environmental management plan."

This site is located in the Jock River Reach 1 Subwatershed Study (SWS) area. The SWS states on page E.11 that the setbacks for the Jock River are:

"Development setback for the Jock River will be the greater of: floodplain, meander belt width, geotechnical, 15 metre top of defined bank or 30 metres from normal high water mark, whichever is greater. Further erosion and migration rate analysis required along Reach 1 and 2 of the Jock River to confirm meander belt width."

The following diagram, Figure 5.2.1 of the SWS displays the meander belt width of the Jock River near the subject site:

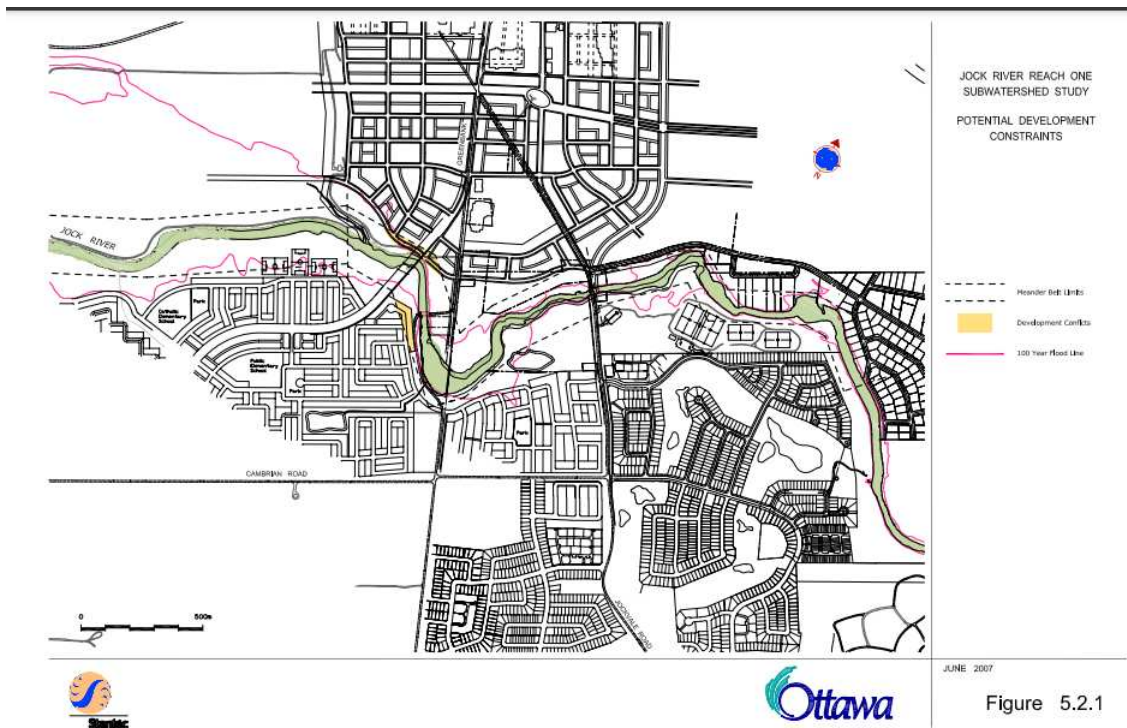
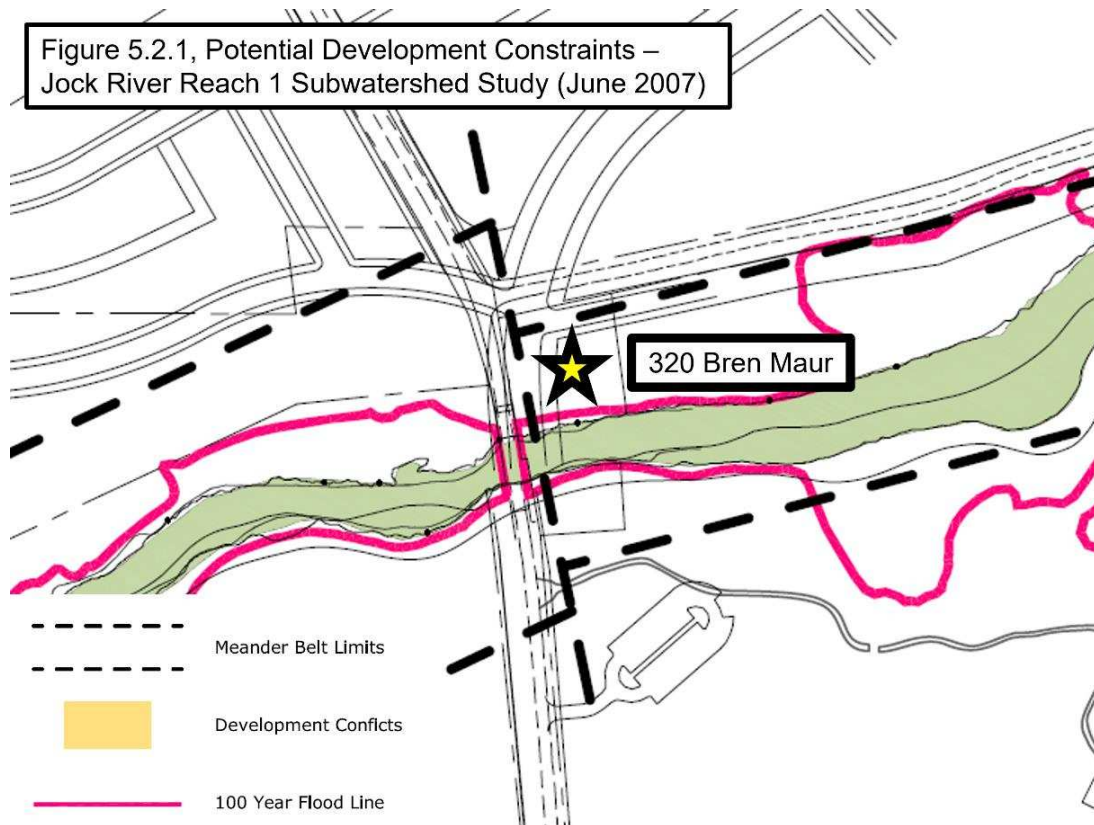


Figure 5.2.1

Figure 5.2.1, Potential Development Constraints –
Jock River Reach 1 Subwatershed Study (June 2007)



The subject site is entirely within the meander belt width, meaning that the watercourse setback provisions effectively make the site undevelopable.

The City tries to avoid having sites rendered entirely undevelopable due to watercourse setbacks, however the standard setback exemption provisions would not be the appropriate mechanism for reduction in this case.

The setback exemptions and reduction clauses in policy 4.9.3 require an Environmental Impact Statement (EIS) to determine that no negative impact will occur to the ecological function of the protected watercourses.

However, the meander belt limit is explicitly a hazard limit with regard to flooding, per following quote from the SWS:

“The Jock River has migrated its course over time. It is reasonable to expect a similar change in its course over the time in future. To ensure that the future developments are not at risk due to channel migration and meandering, a setback has been established to allow for potential channel migration and meandering, known as meander belt width. The conservative meander belt widths have been established for the Jock River (See Section 3.5.4). As illustrated in Figure 5.2.1 ...”

An EIS is not the correct tool to analyze flood risk.

To that end, the City looks to the Rideau Valley Conservation Authority for guidance on flood risk and hazard with regard to permitting development on this site.

19. An Environmental Impact Statement (EIS) will be required for this application. While the binding watercourse setback is the meander belt width, the proposed development is still within the 30m top of bank setback to the watercourse and therefore runs the risk of incurring environmental damages.

The EIS must address potential harms to the ecological function of the watercourse. This will include a species-at-risk survey and a renaturalization plan for the area between the development and the watercourse.

Note, that while Blanding's Turtles are not noted in the NHIC database as existing nearby, they are known to exist in the Jock River and an investigation into their presence, and the development's impacts as it encroaches into the Category II habitat is required as part of the EIS.

20. The City does not currently have 1-350 year flood mapping available for this reach of the Jock River. However, it is strongly recommended (but not required) that the applicant consider implementing more rigorous floodproofing measures as directed by section 10.3 of the Official Plan.

Feel free to contact Mark Elliott, Environmental Planner, for follow-up questions.

Forestry

21. Tree Conservation Report Requirements - - for more information on these requirements please contact mark.richardson@ottawa.ca

- a. A Tree Conservation Report (TCR) must be supplied for review
 - i. An approved TCR is a requirement of Site Plan approval.
 - ii. The TCR may be combined with the EIS
- 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.
- 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.

22. **Landscape Plan tree planting requirements** - - for more information on these requirements please contact mark.richardson@ottawa.ca

- a. Please ensure all retained trees are shown on the LP
- b. 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 where ever 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.

Parkland

Comments:

23. Parkland Dedication

- a. The amount of parkland dedication that will be required will be calculated as per the City of Ottawa Parkland Dedication By-law in effect at the time of application submission. For reference, the current by-law in effect is #2022-280, as amended by Planning Act.

For reference purposes, the following preliminary information and calculations are provided:

- b. The parkland requirement, for residential uses and under the current by-law, is calculated as 1 hectare for every 600 dwelling units for land conveyance, and 1 hectare for every 1000 dwelling units for cash-in-lieu of parkland (CILP). The Planning Act places a maximum conveyance requirement of 10% of the land proposed for development where the land

is 5 hectares or less in area, and 15% of the land where the land is greater than 5 hectares in area. The current by-law further restricts dedication for low-rise apartments at 10% of the gross land area (development parcel minus hazard lands).

- c. Therefore, with a net gain of 36 units being developed (38 new minus 2 existing), in both the instances of land conveyance, and cash-in-lieu of parkland, the maximum dedication limit is reached. Under the currently by-law, a preliminary estimate of 301 sq.m. of parkland would be required. However, please be aware that this estimate is subject to change according to the by-law in effect at the time of submission.
- d. To be included in the future submission, please provide the City with a surveyor's area certificate/memo which specifies the exact gross land area of the property parcel being developed as well as the land area of the constraint lands.

24. Form of Parkland Dedication:

- a. Parks & Facilities Planning anticipates requesting Cash-in-Lieu of Parkland for this proposal.

25. Design Brief

- a. In a separate section of the Design Brief, include a discussion on parkland dedication. Please demonstrate how the proposal meets the requirements under the Parkland Dedication Bylaw. Provide details regarding the provision of new parks, or the extension of existing parks. Describe how the proposal meets the policies in Subsection 4.4. of the Official Plan and responds to the needs assessments outlined in the Parks and Recreation Facilities Master Plan.

Please note that the park comments are preliminary and will be finalized, and subject to change, upon receipt of the development application and the requested supporting documentation.

Feel free to contact Jeannette Krabicka, Parks Planner, for follow-up questions.

Rideau Valley Conservation Authority

Comments:

- 26. As a part of a future zoning by-law amendment and site plan control application for the subject site, RVCA would be looking to review a copy of the following materials:
 - a. Confirmation of the limit of the regulatory flood plain on the property. RVCA staff can provide current flood elevation information to the applicant, which

- can be plotted on a site-specific topographic survey to determine an accurate extent of potential flood waters.
- b. Slope stability/erosion hazard assessment - to delineate the Long-Term Stable Top of Slope (LTSTOS) associated with the river valley on the southern end of the property.
 - c. It is the expectation of RVCA staff that all development will be appropriately setback from the further of the erosion hazard or flood plain. RVCA policies and provincial guidelines require a 6 metre setback from the erosion and flooding hazard as determined through the applicable technical studies in order to provide for an access allowance (i.e., an unencumbered area free and clear of any structures, both above and below ground, established to provide space for machinery/equipment/workers to access areas impacted by hazards to undertake repairs/maintenance in the event that there is erosion or instability issues).
 - d. Stormwater management report – Outlining how the proposed stormwater management design conforms with requirements for water quantity (i.e., controls to protect downstream properties from flood increases due to upstream development) and water balance (i.e., matching the pre-development proportions of infiltration, runoff, and evapotranspiration in the post development condition) per the Ministry of Environment, Conservation and Parks' Stormwater Management Planning and Design Manual.
 - e. Shoring and foundation plans - Details for the proposed excavation and shoring methods to be utilized for any proposed excavation. Details regarding proposed mitigation measures/foundation treatments for reducing risks associated with undertaking site alteration and construction adjacent to a river valley.
 - f. Dewater plans - If dewatering is required as a component of the development, a plan/report should be submitted that identifies the applicable details (e.g., how long will dewatering occur, what are the anticipated volumes, where will water be discharged to and what method/set up will be used to discharge the water).
 - g. Civil engineering drawings/plans – Including site plan, grading plan, site servicing plan, erosion and sediment control plan, cross-sections and associated details.
 - h. Current topographic survey of the property prepared by an Ontario Land Surveyor.
 - i. Landscape restoration plans – Outlining how disturbed areas around regulated natural features will be protected/stabilized/naturalized.



Feel free to contact Stephen Bohan, Rideau Valley Conservation Authority, for follow-up questions.

Other

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

Submission Requirements and Fees

- 1. 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.
- 2. 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,
Samantha Gatchene, MCIP, RPP

Encl. Study and Plan Identification List (SPIL)
Pre-con Supplementary Development Information
HPDS Overview for Applicants
HPDS Example Checklist
Urban Design Brief Terms of Reference

c.c.
Lisa Stern, Urban Design



Tyler Cassidy, IPM
Reed Adams, TPM
Mark Richardson, Forestry
Mark Elliot, Environmental
Jeanette Krabicka, Parks
Stephen Bohan, RVCA
Melanie Gervais, Planning
Nathan Li, Planning

Appendix B

Watermain Boundary Conditions

Water Demand Calculations

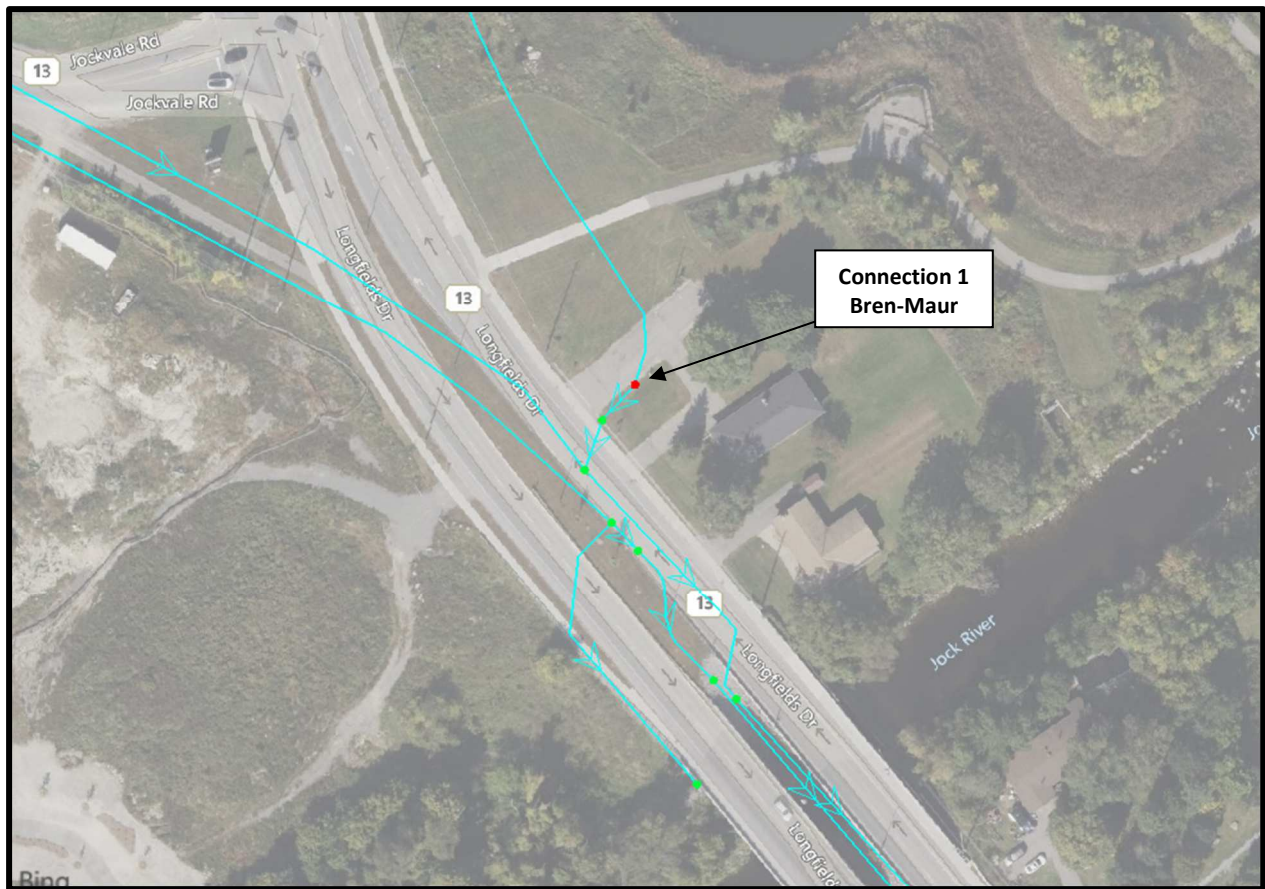
FUS Calculations

Boundary Conditions 320 Bren-Maur

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	13	0.22
Maximum Daily Demand	33	0.55
Peak Hour	73	1.21
Fire Flow #1	9,000	150.00

Location



Results

Existing Conditions

Connection 1 – Bren-Maur

Demand Scenario	Head (m)	Pressure¹ (psi)
Maximum HGL	154.6	89.1
Peak Hour	141.4	70.3
Max Day plus Fire Flow #1	141.4	70.3

¹ Ground Elevation = 91.9 m

Future SUC

Connection 1 – Bren-Maur

Demand Scenario	Head (m)	Pressure¹ (psi)
Maximum HGL	146.9	78.2
Peak Hour	142.5	71.8
Max Day plus Fire Flow #1	142.5	71.8

¹ Ground Elevation = 91.9 m

Notes

1. The IWSD has recently updated their water modelling software. Any significant difference between previously received BC results and newly received BC results could be attributed to this update.
2. Any connection to a watermain 400 mm or larger should be approved by DWS as per the Water Design Guidelines Section 2.4 Review by Drinking Water Services.
3. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
 - a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
 - b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

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. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.



NODE	RESIDENTIAL				NON-RESIDENTIAL (ICI)			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND (l/min)
	1 Bedroom	2 bedroom	3 bedroom	POPULATION	INDUST. (ha)	COMM. (ha)	INSTIT. (ha)	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	RESIDENTIAL	ICI	TOTAL	
	UNITS	UNITS	UNITS														
<u>Site</u>	8	27		67.90				0.22		0.22	0.55		0.55	1.21		1.21	9,000
<u>TOTAL</u>	8	27		67.90						0.22			0.55			1.21	

ASSUMPTIONS									
POPULATION DENSITY		WATER DEMAND RATES		PEAKING FACTORS			FIRE DEMANDS		
1 Bedroom Units	1.4 persons/unit	Residential	280 l/cap/day	Maximum Daily	Residential	2.5 x avg. day	Single Family	10,000 l/min (166.7 l/s)	
2 Bedroom Units	2.1 persons/unit	Commercial Shopping Center	2,500 L/(1000m2)/day	Maximum Hourly	Commercial	1.5 x avg. day	Semi Detached & Townhouse	10,000 l/min (166.7 l/s)	
3 Bedroom Units	3.1 persons/unit				Residential	2.2 x max. day	Medium Density	15,000 l/min (250 l/s)	
					Commercial	1.8 x max. day			

STEP	Contents	Description	Adjustment Factor	Result
1	Building 1 (3-storey)	1st Floor Area	595	Height 3.2m 1 595 m2
		2nd Floor Area	595	Height 3.2m 1 595 m2
		3rd Floor Area	595	Height 3.2m 1 595 m2
	Total Effective Floor Area	(Storage space exceeding 3m in height, floor area X 3)		1785 m2
2	Type of Construction	Type V Wood Frame	1.5	Type III Ordinary Construction 1.0
		Type III Ordinary Construction	1.0	
		Type II Noncombustible Construction	0.8	
		Type I Fire Resistive Construction	0.6	
3	Required Fire Flow	RFF = 220C√A, rounded to nearest 1000 L/min		9000 L/min
4	Occupancy and Contents	Noncombustible Contents	-25%	Limited Combustible Contents -15%
		Limited Combustible Contents	-15%	
		Combustible Contents	0%	
		Free Burning Contents	15%	
		Rapid Burning Contents	25%	
Fire Flow			7650 L/min	
5	Automatic Sprinkler Protection	Automatic Sprinkler Conforming to NFPA 13	-30%	No 0% 0 L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	No 0% 0 L/min
		Fully Supervised System	-10%	No
	Total Sprinkler Adjustment			0 L/min
6	Exposure Adjustment	Based on Table 6 Exposure Adjustment Charges for Subject Building		
	North	Separation (m)	>30	With unprotected opening 0%
		Length X Height Factor (m.storeys)	60	
		Construction Type	Type III	
	South	Separation (m)	>30	With unprotected opening 0%
		Length X Height Factor (m.storeys)	81	
		Construction Type	Type III	
	East (Building 2)	Separation (m)	10	With protected opening 5%
		Length X Height Factor (m.storeys)	45	
Construction Type		Type III		
East (Building 3)	Separation (m)	0	With protected opening 10%	
	Length X Height Factor (m.storeys)	147		
	Construction Type	Type III		
West	Separation (m)	>30	With unprotected opening 0%	
	Length X Height Factor (m.storeys)	60		
	Construction Type	Type III		
Total Exposure Adjustment			1148 L/min	
7	Total Required Fire Flow			8798 L/min
		Rounded to Nearest 1000 L/min		9000 L/min

150 L/s

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

2. If any vertical opening in the building are unprotected (e.g. interconnected floor spaces, elevators etc.), consider the two largest adjoining floor area plus 50% of all floors immediately above them up to a maximum of eight.

STEP	Contents	Description	Adjustment Factor	Result
1	Building 2 (3-storey)	1st Floor Area 368	Height 3.2m 1	368 m2
		2nd Floor Area 368	Height 3.2m 1	368 m2
		3rd Floor Area 368	Height 3.2m 1	368 m2
	Total Effective Floor Area	(Storage space exceeding 3m in height, floor area X 3)		1104 m2
2	Type of Construction	Type V Wood Frame 1.5 Type III Ordinary Construction 1.0 Type II Noncombustible Construction 0.8 Type I Fire Resistive Construction 0.6	Type III Ordinary Construction 1.0	
3	Required Fire Flow	RFF = 220C√A, rounded to nearest 1000 L/min		7000 L/min
4	Occupancy and Contents	Noncombustible Contents -25%	Limited Combustible Contents -15%	-1050 L/min
		Limited Combustible Contents -15%		
		Combustible Contents 0%		
		Free Burning Contents 15%		
	Fire Flow	Rapid Burning Contents 25%		5950 L/min
5	Automatic Sprinkler Protection	Automatic Sprinkler Conforming to NFPA 13 -30%	No 0%	0 L/min
		Standard Water Supply for both the system and Fire Department Hose Lines -10%	No 0%	0 L/min
		Fully Supervised System -10%	No	0 L/min
	Total Sprinkler Adjustment			0 L/min
6	Exposure Adjustment	Based on Table 6 Exposure Adjustment Charges for Subject Building		
	North	Separation (m) >30	With unprotected opening 0%	0 L/min
		Length X Height Factor (m.storeys) 60		
		Construction Type Type III		
	South (Building 3)	Separation (m) 0	With protected opening 8%	476 L/min
		Length X Height Factor (m.storeys) 63		
		Construction Type Type III		
	East	Separation (m) >30	With unprotected opening 0%	0 L/min
		Length X Height Factor (m.storeys) 50		
		Construction Type Type III		
	West (Building 1)	Separation (m) 10	With protected opening 7%	417 L/min
		Length X Height Factor (m.storeys) 93		
		Construction Type Type III		
	Total Exposure Adjustment			893 L/min
7	Total Required Fire Flow			6843 L/min
		Rounded to Nearest 1000 L/min		7000 L/min
				117 L/s

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

2. If any vertical opening in the building are unprotected (e.g. interconnected floor spaces, elevators etc.), consider the two largest adjoining floor area plus 50% of all floors immediately above them up to a maximum of eight.

STEP	Contents	Description	Adjustment Factor	Result
1	Building 3 (3-storey)	1st Floor Area	481	Height 3.2m 1 481 m2
		2nd Floor Area	481	Height 3.2m 1 481 m2
		3rd Floor Area	481	Height 3.2m 1 481 m2
	Total Effective Floor Area	(Storage space exceeding 3m in height, floor area X 3)		1443 m2
2	Type of Construction	Type V Wood Frame	1.5	Type III Ordinary Construction 1.0
		Type III Ordinary Construction	1.0	
		Type II Noncombustible Construction	0.8	
		Type I Fire Resistive Construction	0.6	
3	Required Fire Flow	RFF = 220C√A, rounded to nearest 1000 L/min		8000 L/min
4	Occupancy and Contents	Noncombustible Contents	-25%	Limited Combustible Contents -15%
		Limited Combustible Contents	-15%	
		Combustible Contents	0%	
		Free Burning Contents	15%	
		Rapid Burning Contents	25%	
	Fire Flow			6800 L/min
5	Automatic Sprinkler Protection	Automatic Sprinkler Conforming to NFPA 13	-30%	No 0% 0 L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	No 0% 0 L/min
		Fully Supervised System	-10%	No
		Total Sprinkler Adjustment		
6	Exposure Adjustment	Based on Table 6 Exposure Adjustment Charges for Subject Building		
	North (Building 2)	Separation (m)	0	With protected opening 8%
		Length X Height Factor (m.storeys)	63	
		Construction Type	Type III	
	South	Separation (m)	>30	With unprotected opening 0%
		Length X Height Factor (m.storeys)	81	
		Construction Type	Type III	
	East	Separation (m)	>30	With unprotected opening 0%
		Length X Height Factor (m.storeys)	50	
		Construction Type	Type III	
West (Building 1)	Separation (m)	0	With protected opening 10%	
	Length X Height Factor (m.storeys)	123		
	Construction Type	Type III		
	Total Exposure Adjustment			1224 L/min
7	Total Required Fire Flow			8024 L/min
		Rounded to Nearest 1000 L/min		8000 L/min

133 L/s

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

2. If any vertical opening in the building are unprotected (e.g. interconnected floor spaces, elevators etc.), consider the two largest adjoining floor area plus 50% of all floors immediately above them up to a maximum of eight.

Appendix C

Sanitary Capacity Correspondence Sanitary Sewer Design Sheet

From: Magladry, Ryan
Sent: October 16, 2025 3:00 PM
To: Robineau, Ryan
Subject: Fw: 320 Bren Maur - Servicing Concept

Ryan Magladry CET

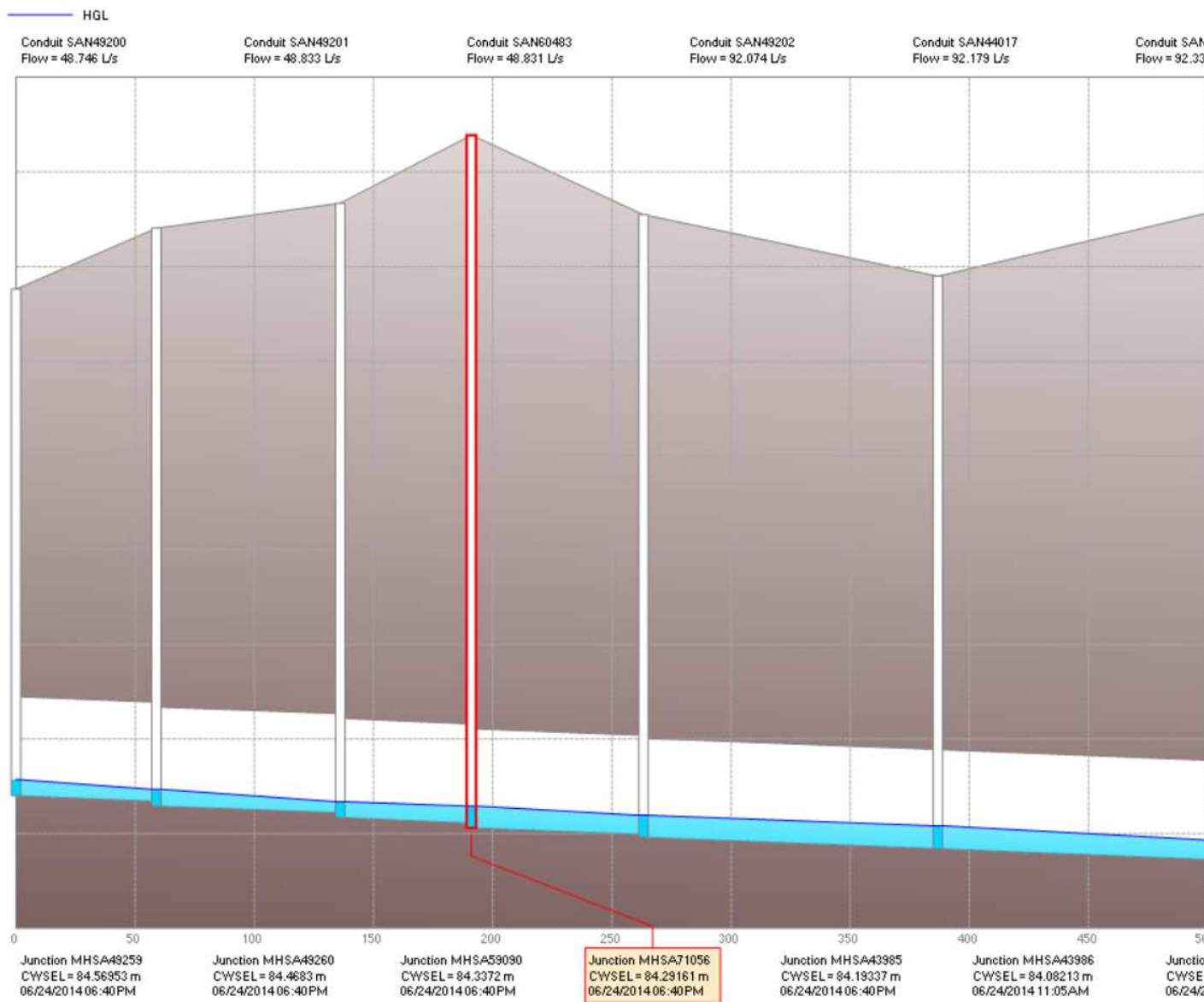
Associate Principal - Practice Lead, Land Engineering
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
T: +1 613 795 5610
www.arcadis.com

From: Cassidy, Tyler <tyler.cassidy@ottawa.ca>
Sent: Tuesday, March 25, 2025 12:06 PM
To: Magladry, Ryan <ryan.magladry@arcadis.com>
Cc: Zhuang, Amy <amy.zhuang@arcadis.com>
Subject: RE: 320 Bren Maur - Servicing Concept

Arcadis Warning: Exercise caution with email messages from external sources such as this message. Always verify the sender and avoid clicking on links or scanning QR codes unless certain of their authenticity.

Hi Ryan & Amy,

I had our modelling team review the information they provided regarding the HGL in the sanitary trunk sewer. I don't have all the details, but I can confirm they checked a different model and provided the information below. Flows are slightly higher than what was previously provided, but there is ample capacity. Please note this model is based on existing conditions and you should anticipate the HGL increasing over time based on future conditions.



Thank you,

Tyler Cassidy, P.Eng

Infrastructure Project Manager,

Planning, Development and Building Services department (PDBS)/ Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB) - South Branch

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 12977, Tyler.Cassidy@ottawa.ca

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

[illegible]

Appendix D

Storm Sewer Design Sheet

Storm Water Management Sheet

Storm Drainage Area Plan 30277358-C-500

Ponding Plan 30277358-C-600

OGS Details



ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

STORM SEWER DESIGN SHEET

320 Bren Maur
Uniform Developments
City of Ottawa

[illegible]



ARCADIS PROFESSIONAL SERVICES (CANADA) INC.

500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

STORMWATER MANAGEMENT

320 Bren Maur | Uniform Urban Developments
30277358 | Rev #0 | 2025-10-21
Prepared By: RR | Checked By: RM

Formulas and Descriptions

$i_{2yr} = 1:2 \text{ year Intensity} = 732.951 / (T_c + 6.199)^{0.810}$
 $i_{5yr} = 1:5 \text{ year Intensity} = 998.071 / (T_c + 6.053)^{0.814}$
 $i_{100yr} = 1:100 \text{ year Intensity} = 1735.688 / (T_c + 6.014)^{0.820}$
 T_c = Time of Concentration (min)
 C = Average Runoff Coefficient
 A = Area (Ha)
 Q = Flow = $2.78CI_A$ (L/s)

Maximum Allowable Release Rate

Note: Development lands are tributary to the Jock River Reach 1 Subwatershed. RCVA Staff have noted that the specific quantity controls are not required for the site but advised that Best Managmenet Practices are to be implemented where possible. Flow attenuation and storage is to be provide where feasible. Storage and attenuation will be provided in drainge areas A2&A3, restricting the release rate to the post development 5-year storm. Runoff from areas A1, A4 & A5 will discharge from the site via the proposed storm sewer network without attenuation.

Target Restricted Release Rate Areas 1-4 ($Q_{T_{\text{target}}} = 2.78 \times C \times i_{5yr} \times A_{\text{site}}$ based on $C=0.55$, $T_c=10min$)

$C = 0.67$
 $T_c = 10 \text{ min}$
 $i_{5yr} = 104.19 \text{ mm/hr}$
 $A_{2\&3} = 0.10 \text{ Ha}$

$Q_{T_{\text{target}}} =$	19.41 L/s
---------------------------	-----------

Uncontrolled Release ($Q_{\text{uncontrolled}} = 2.78 \times 1.25 \times C \times i_{100yr} \times A_{\text{uncontrolled}}$)

$C = 0.77$
 $T_c = 10 \text{ min}$
 $i_{100yr} = 178.56 \text{ mm/hr}$
 $A_{\text{uncontrolled}} = 0.20 \text{ Ha}$

$Q_{\text{uncontrolled}} =$	93.96 L/s
-----------------------------	-----------

SWM Statistics of Modified Site Areas		
Controlled	Area	ICD Flow
A2 & A3	0.10	15.00
Sum	0.10	15.00
Uncontrolled	Area	Flow
A1	0.10	47.78
A4	0.06	26.28
A5	0.04	19.91
Sum	0.20	93.96
Total Sum	0.30	108.96

MODIFIED RATIONAL METHOD (100-Year, 5-Year & 2-Year Ponding)

Drainage Area		A2, A3						
Area (Ha)	0.10	Restricted Flow ICD Actual (L/s)=	15.00					
C =	0.84	Restricted Flow Q_r for swm calc (L/s)=	15.00					
50% reduction if sub-surface storage								
100-Year Ponding						100-Year +20% Ponding		
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times C i_{100yr} A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)	100YR Q_p 20% (L/s)	$Q_p - Q_r$ (L/s)	Volume 100+20 (m^3)
5	242.70	56.51	15.00	41.51	12.45			
10	178.56	41.57	15.00	26.57	15.94			
15	142.89	33.27	15.00	18.27	16.44	39.92	24.92	22.43
20	119.95	27.93	15.00	12.93	15.51			
25	103.85	24.18	15.00	9.18	13.77			

Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	16.44	30.35	0	0.00	0.00	22.43	0.00
					convert to flow with peak T_c (L/s)		
					0.00		

overflows to: Offsite

Drainage Area		A2, A3			
Area (Ha)	0.10				
C =	0.67				
Restricted Flow Q_r (L/s)=		12.00			
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times C i_{5yr} A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 5yr (m^3)
5	141.18	26.30	12.00	14.30	4.29
7	123.30	22.97	12.00	10.97	4.61
9	109.79	20.45	12.00	8.45	4.56
11	99.19	18.48	12.00	6.48	4.27
13	90.63	16.88	12.00	4.88	3.81

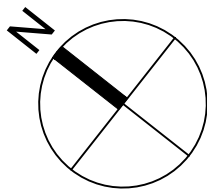
Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	4.56	30.35	0	0.00	0.00	22.43	0.00
					convert to flow with peak T_c (L/s)		
					0.00		

overflows to: Offsite

Drainage Area		A2, A3			
Area (Ha)	0.10				
C =	0.67	Restricted Flow Q_r (L/s)=	10.00		
2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78 \times C i_{2yr} A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
5	103.57	19.29	10.00	9.29	2.79
6	96.64	18.00	10.00	8.00	2.88
7	90.66	16.89	10.00	6.89	2.89
8	85.46	15.92	10.00	5.92	2.84
9	80.87	15.06	10.00	5.06	2.73

Storage (m^3)					100+20		
Overflow	Required	Surface	Sub-surface	Balance	Overflow	Required	Balance
0.00	2.89	30.35	0	0.00	0.00	22.43	0.00
					convert to flow with peak T_c (L/s)		
					0.00		

overflows to: Offsite



LEGEND :

CB9

0.24 0.78

AREA NUMBER

RUNOFF COEFFICIENT

AREA IN HECTARES

CLIENT

UNIFORM URBAN DEVELOPMENTS

117 CENTREPOINTE DRIVE, SUITE 300, OTTAWA

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No.	DESCRIPTION	DATE
1	SUBMISSION 1 ISSUED FOR SPA	2025-10-23
2	SUBMISSION 2 ISSUED FOR SPA	2026-07-22

SEE 010 FOR NOTES, LEGEND, CB TABLE AND DETAILS

KEY PLAN

CONSULTANTS

1:250 0 2.5 7.5 12.5m

SEAL

PRIME CONSULTANT

333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT

320 BREN MAUR

PROJECT NO:

30277358

DRAWN BY:

M.M.

PROJECT MGR:

R.M.

CHECKED BY:

R.M.

APPROVED BY:

D.G.Y.

SHEET TITLE

STORM DRAINAGE AREA PLAN

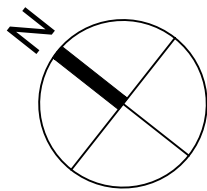
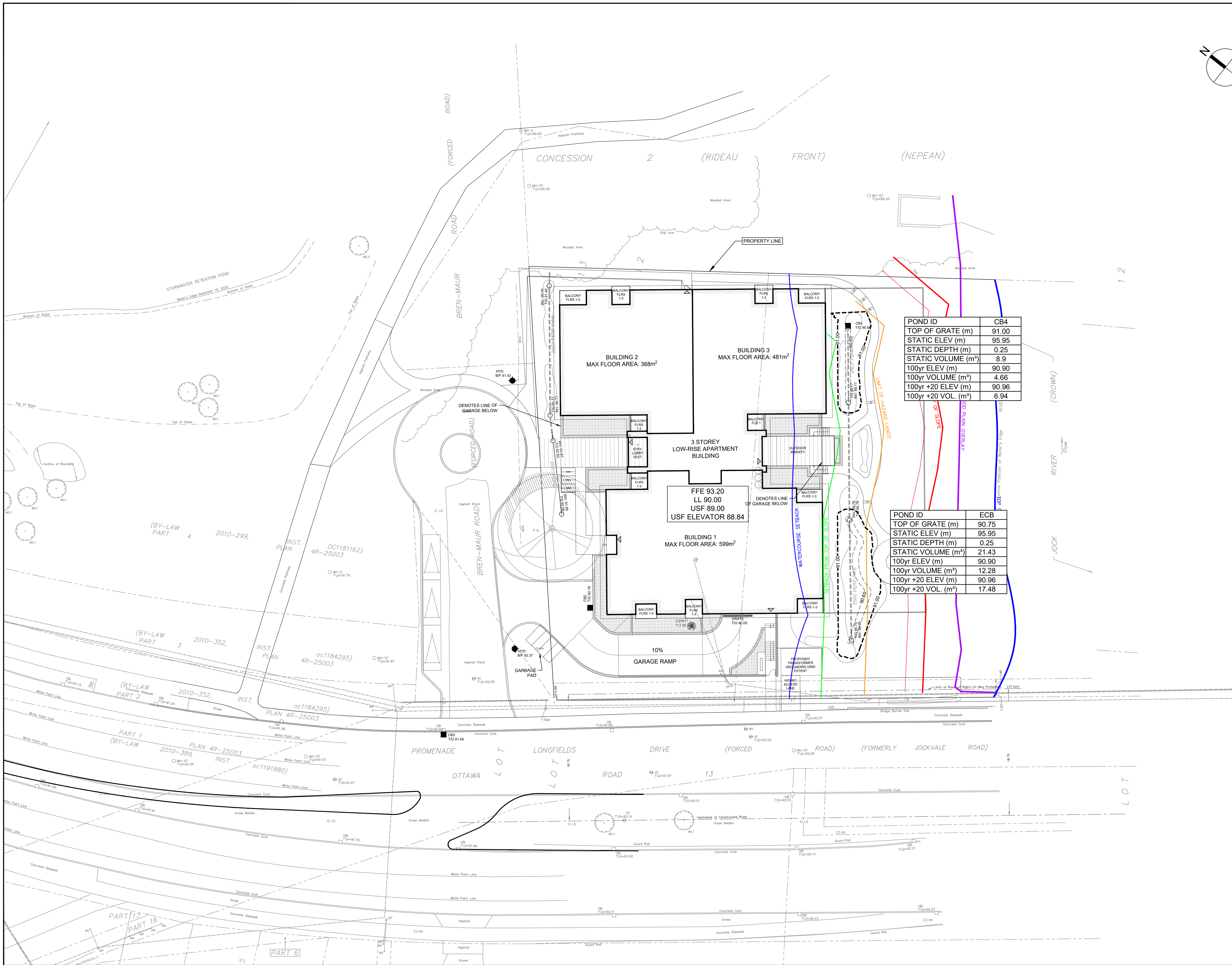
SHEET NUMBER

C-500

ISSUE

2

File Location: C:\Users\minim428\OneDrive\Arcadis\ACC CAVACA-30277358-320 BREN MAUR\Project Files\10_WIP\04_CIVIL\Sheet\500_STORM DRAINAGE AREA PLAN.dwg Plotter: July 29, 2026 3:43:21 PM by Minnie, Marian 19390



CLIENT

UNIFORM URBAN DEVELOPMENTS

117 CENTREPOINTE DRIVE, SUITE 300,
OTTAWA

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No.	DESCRIPTION	DATE
1	SUBMISSION 1 ISSUED FOR SPA	2025-10-23
2	SUBMISSION 2 ISSUED FOR SPA	2026-07-17

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PROJECT

320 BREN MAUR

PROJECT NO: 30277358	
DRAWN BY: M.M.	CHECKED BY: R.M.
PROJECT MGR: R.M.	APPROVED BY: D.G.Y.

SHEET TITLE

PONDING PLAN

SHEET NUMBER	ISSUE
C-600	2

From: Jessica Steffler <jessica.steffler@RinkerPipe.com>
Sent: October 20, 2025 10:07 AM
To: Robineau, Ryan
Cc: Brandon O'Leary
Subject: FW: [EXTERNAL] OGS Sizing - 320 Bren Maur
Attachments: Stormceptor EFO4 Sizing Report-320 Bren-Maur Rd - Ottawa.pdf; EFO4-DETAIL (2).pdf; Stormceptor EF Owner's Manual_7-26-18 (1).pdf; Stormceptor EFO - Oil Grit Separator Specification (rev 12-23).pdf; QAP PROGRAM FOR STC Rinker Materials 080224 V3.png

You don't often get email from jessica.steffler@rinkerpipe.com. [Learn why this is important](#)

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Hi Ryan,

I have sized the unit based on the site parameters. The Stormceptor EFO4 is the recommended unit. I have attached the sizing report for your review. The standard drawing and specifications, the owner's manual, and the information on the Quality Assurance Program (QAP) is attached.

The budgetary price of the Stormceptor EFO4 is \$22,600. The price includes the unit, delivery to the site, and the QAP program.

Stormceptor EFO4 Capacities:

Maximum Treatment Flow Rate: 10.4 L/s

Maintenance Sediment Volume: 270 L

Maximum Sediment Capacity: 1,190 L

Maximum Hydrocarbon Storage Capacity: 265 L

Total Storage Volume: 1,780 L

Please do not hesitate to contact me if you have any questions.

Regards,

Jessica Steffler

Technical Resource Manager

☎ 519 622 7574 ☎ 519 239 6958

2099 Roseville Rd N1R 5S3

Cambridge, ON

RinkerPipe.com





From: Brandon O'Leary <brandon.oleary@rinkerpipe.com>
Sent: Friday, October 17, 2025 4:02 PM
To: Jessica Steffler <jessica.steffler@RinkerPipe.com>
Cc: Miriam Epp <Miriam.Epp@rinkerpipe.com>
Subject: FW: [EXTERNAL] OGS Sizing - 320 Bren Maur

Hello Jessica,

Can you get this EFO sizing for 80% FINE?

Project Name: 320 Bren-Maur Rd.
Project Number: -
City: Ottawa
Rainfall: Ottawa
Consultant: Ryan Robineau
Company: ARCADIS Canada Inc.

Site Name: 320 Bren-Maur Rd.
A=0.30 ha
C=0.74

Thanks,

Brandon O'Leary, P.Eng., B.A.Sc.
Stormwater Specialist
Bowmanville/Cambridge Plant
Cell: (905) 630-0359



We are excited to announce that Forterra is now Rinker Materials

Stormceptor

Protecting the water for future generations

Our Online Sizing Tool for the Stormceptor EFO:

<https://www.imbriumsystems.com/login?returnurl=%2flaunch-pcswmm-for-stormceptor>

From: Robineau, Ryan <ryan.robineau@arcadis.com>
Sent: Friday, October 17, 2025 8:54 AM
To: Brandon O'Leary <brandon.oleary@rinkerpipe.com>
Subject: [EXTERNAL] OGS Sizing - 320 Bren Maur

CAUTION: This email originated from outside of the organization. Exercise caution when opening attachments or clicking links, especially from *UNKNOWN* senders.

Hello Brandon,

I hope you are doing well!

Could you kindly assist me in sizing an OGS for a project located at 320 Bren-Maur Road within the City of Ottawa?

The design parameters area as follows:

- 80% Target Tss
- 0.30 Ha treatment area
- Runoff Coefficient: 0.74
- Controlled flow rate to unit: 108.96 L/s

If you have any questions please let me know.

Best,

Ryan Robineau

Project Coordinator, Land Engineering
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
www.arcadis.com

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Imbrium®Systems

ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

10/20/2025

Province:	Ontario
City:	Ottawa
Nearest Rainfall Station:	OTTAWA CDA RCS
Climate Station Id:	6105978
Years of Rainfall Data:	20
Site Name:	OGS
Drainage Area (ha):	0.30
Runoff Coefficient 'c':	0.74
Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0
Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	7.17
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	108.96
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	275
Estimated Average Annual Sediment Volume (L/yr):	224

Project Name:	320 Bren-Maur Rd.
Project Number:	-
Designer Name:	Jessica Steffler
Designer Company:	Rinker Materials
Designer Email:	jessica.steffler@RinkerPipe.com
Designer Phone:	519-239-6958
EOR Name:	Ryan Robineau
EOR Company:	Arcadis Canada Inc.
EOR Email:	ryan.robineau@arcadis.com
EOR Phone:	613-721-0555

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	92
EFO5	95
EFO6	97
EFO8	99
EFO10	100
EFO12	100

Recommended Stormceptor EFO Model:

Estimated Net Annual Sediment (TSS) Load Reduction (%):

Water Quality Runoff Volume Capture (%):

EFO4

92

> 90



THIRD-PARTY TESTING AND VERIFICATION

► Stormceptor®EF and Stormceptor®EFO are the latest evolutions in the Stormceptor®oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators and performance has been third-party verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol.

PERFORMANCE

► Stormceptor®EF and EFO remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

PARTICLE SIZE DISTRIBUTION (PSD)

► The Canadian ETV PSD shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

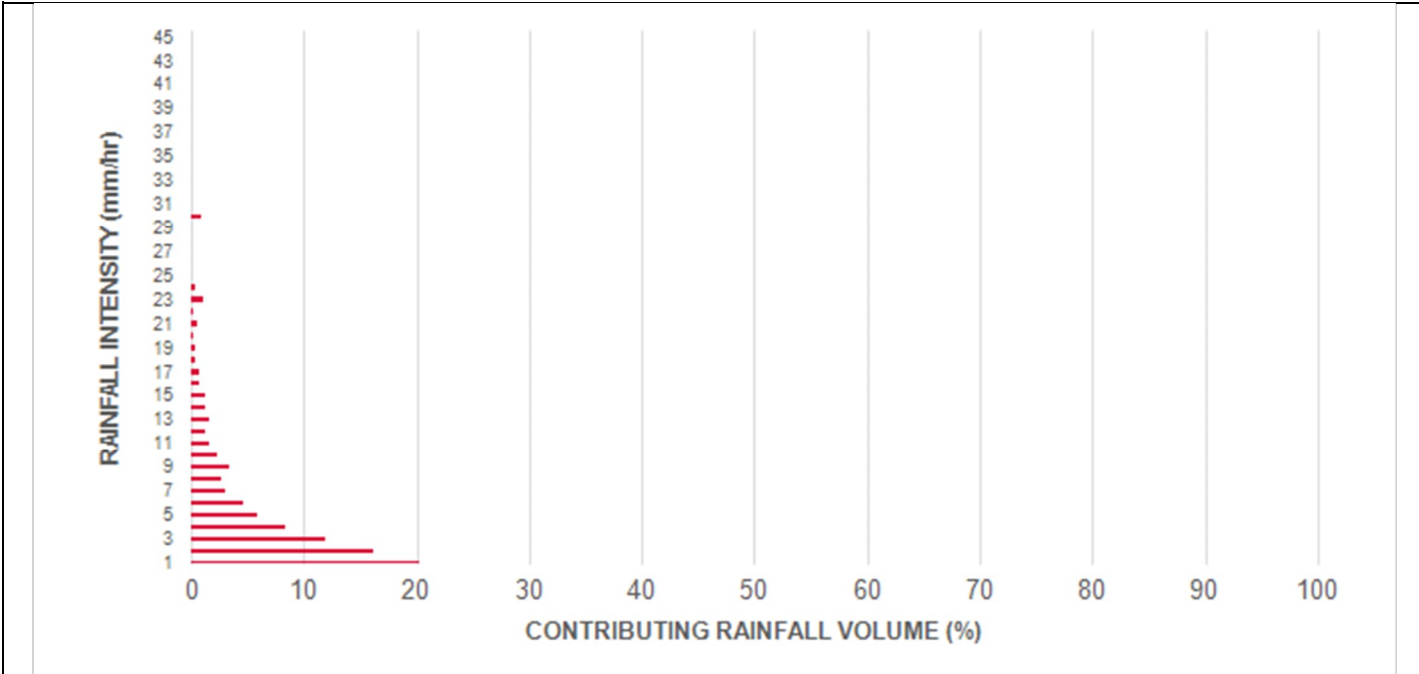


Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/ m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	0.31	19.0	15.0	100	8.6	8.6
1.00	20.3	29.0	0.62	37.0	31.0	100	20.3	29.0
2.00	16.2	45.2	1.23	74.0	62.0	100	16.2	45.2
3.00	12.0	57.2	1.85	111.0	93.0	97	11.7	56.8
4.00	8.4	65.6	2.47	148.0	123.0	93	7.9	64.7
5.00	5.9	71.6	3.09	185.0	154.0	89	5.3	70.0
6.00	4.6	76.2	3.70	222.0	185.0	86	4.0	74.0
7.00	3.1	79.3	4.32	259.0	216.0	83	2.5	76.5
8.00	2.7	82.0	4.94	296.0	247.0	81	2.2	78.8
9.00	3.3	85.3	5.55	333.0	278.0	80	2.7	81.4
10.00	2.3	87.6	6.17	370.0	309.0	78	1.8	83.2
11.00	1.6	89.2	6.79	407.0	339.0	77	1.2	84.4
12.00	1.3	90.5	7.41	444.0	370.0	75	1.0	85.4
13.00	1.7	92.2	8.02	481.0	401.0	74	1.3	86.7
14.00	1.2	93.5	8.64	518.0	432.0	72	0.9	87.6
15.00	1.2	94.6	9.26	555.0	463.0	71	0.8	88.4
16.00	0.7	95.3	9.87	592.0	494.0	70	0.5	88.9
17.00	0.7	96.1	10.49	630.0	525.0	68	0.5	89.4
18.00	0.4	96.5	11.11	667.0	555.0	67	0.3	89.7
19.00	0.4	96.9	11.73	704.0	586.0	66	0.3	89.9
20.00	0.2	97.1	12.34	741.0	617.0	65	0.1	90.1
21.00	0.5	97.5	12.96	778.0	648.0	64	0.3	90.4
22.00	0.2	97.8	13.58	815.0	679.0	64	0.2	90.5
23.00	1.0	98.8	14.19	852.0	710.0	64	0.6	91.2
24.00	0.3	99.1	14.81	889.0	741.0	64	0.2	91.3
25.00	0.0	99.1	15.43	926.0	771.0	63	0.0	91.3
30.00	0.9	100.0	18.51	1111.0	926.0	62	0.6	91.9
35.00	0.0	100.0	21.60	1296.0	1080.0	60	0.0	91.9
40.00	0.0	100.0	24.69	1481.0	1234.0	56	0.0	91.9
45.00	0.0	100.0	27.77	1666.0	1389.0	53	0.0	91.9
Estimated Net Annual Sediment (TSS) Load Reduction =								92 %

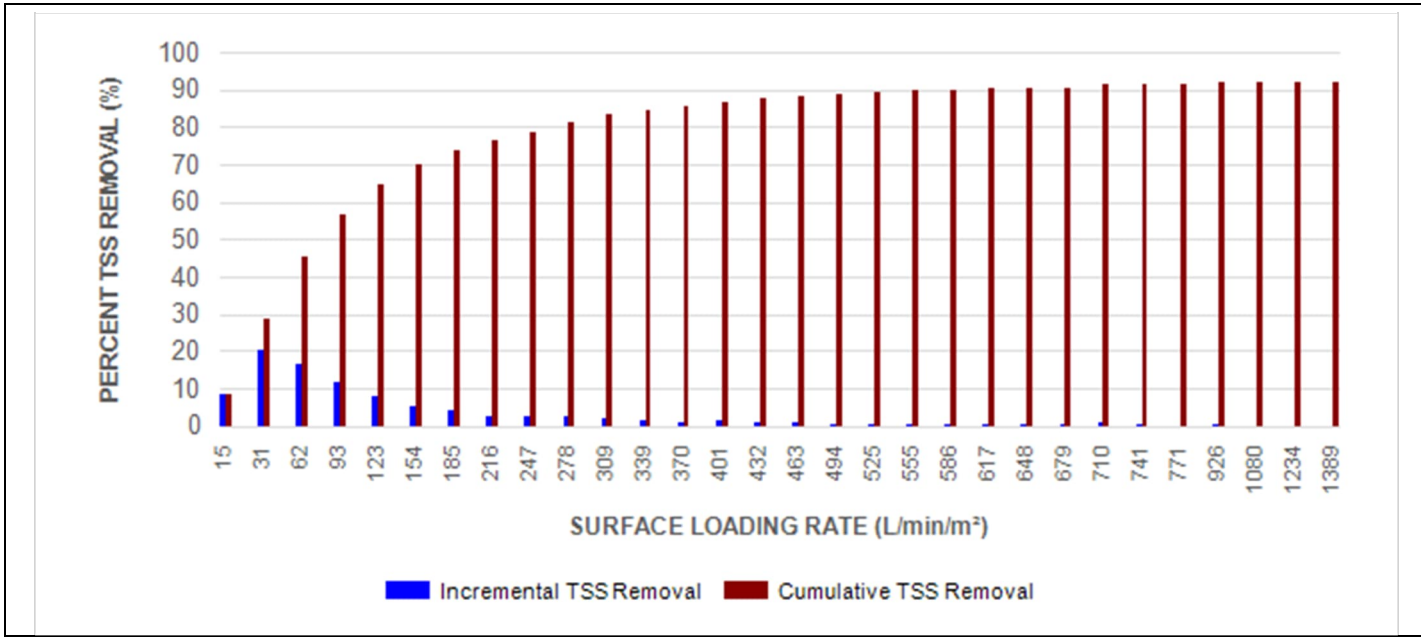
Climate Station ID: 6105978 Years of Rainfall Data: 20



RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL
FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

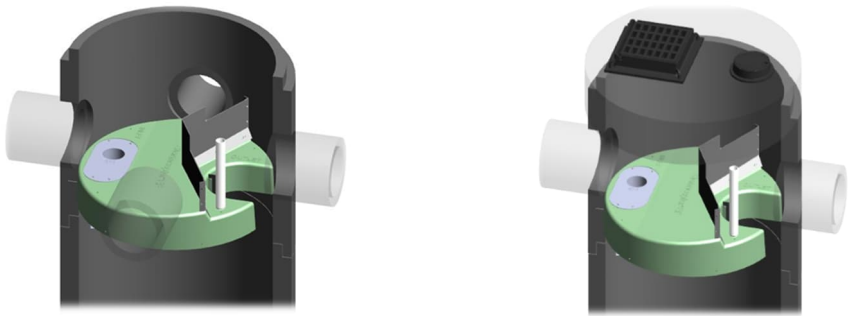
► Stormceptor®EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

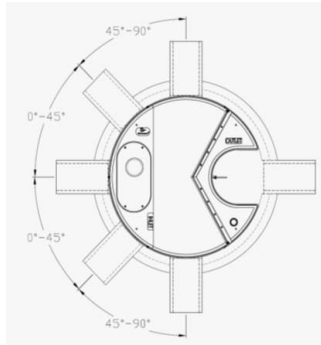
DESIGN FLEXIBILITY

► Stormceptor®EF and EFO offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor®EF will capture and retain oil from dry weather spills and low intensity runoff, Stormceptor®EFO has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.



**INLET-TO-OUTLET DROP**

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF/ EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

* Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/ EFO DRAWINGS

For standard details, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD STORMCEPTOR EF/ EFO SPECIFICATION

For specifications, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD PERFORMANCE SPECIFICATION FOR “OIL GRIT SEPARATOR” (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program’s **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m ³ sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m ³ sediment / 420 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m ³ sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m ³ sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m ³ sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m ³ sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m² to 1400 L/min/m², and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m² and 1400 L/min/m² shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m² shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m². No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m².

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m².

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m².

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators**, with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

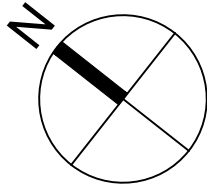
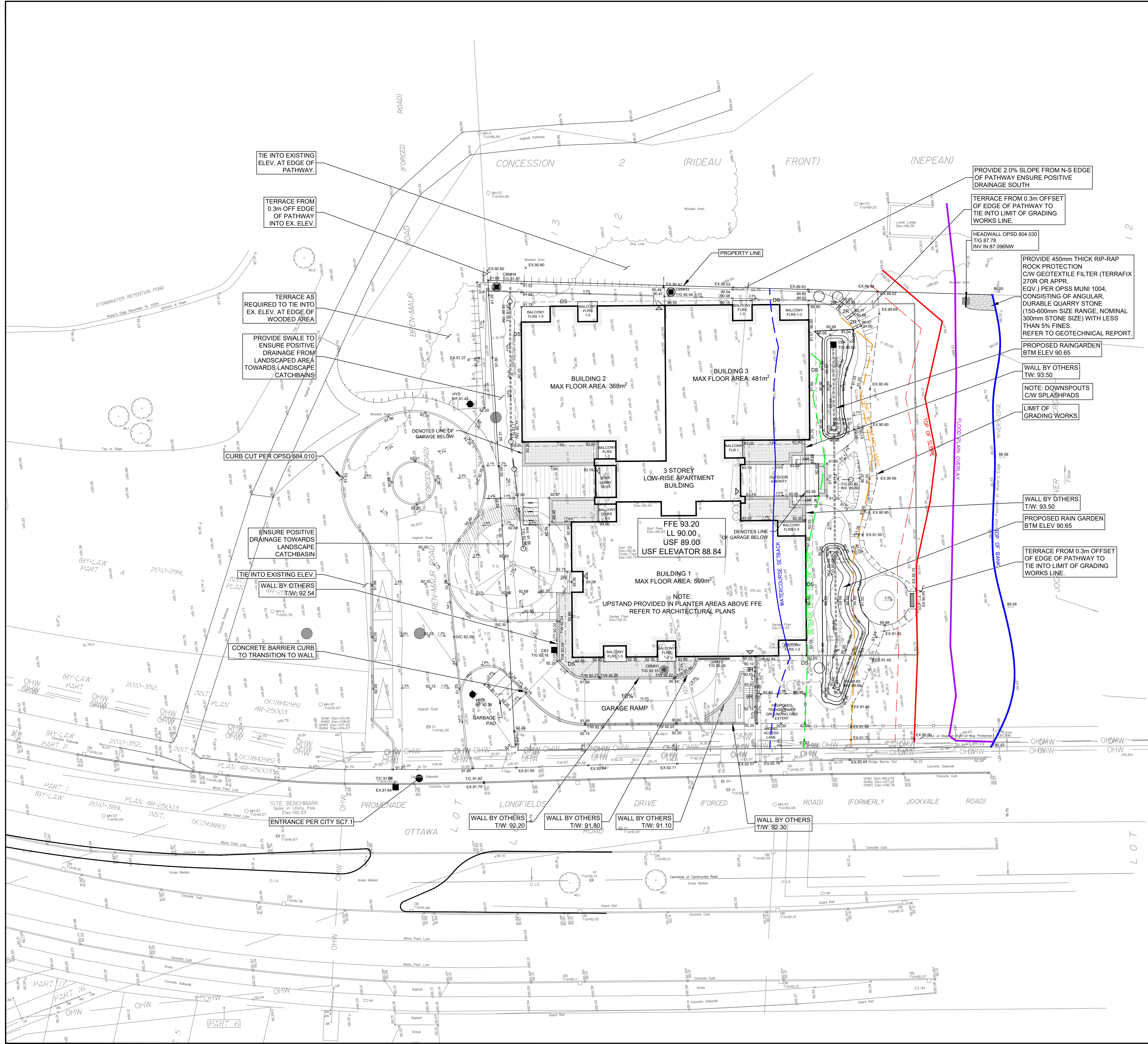
3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance

results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m² to 2600 L/min/m²) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Appendix E

Grading Plan 30277358-C-200

Erosion and Sediment Control Plan 30277358-C-900



CLIENT

UNIFORM URBAN DEVELOPMENTS

117 CENTREPOINTE DRIVE, SUITE 300,
OTTAWA

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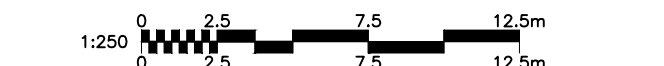
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ISSUES		
No.	DESCRIPTION	DATE
1	SUBMISSION 1 ISSUED FOR SPA	2025-10-23
2	SUBMISSION 2 ISSUED FOR SPA	2026-07-22

SEE 010 FOR NOTES, LEGEND, CB TABLE AND DETAILS



CONSULTANTS



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PROJECT NO:
30277358

DRAWN BY:
M.M.

PROJECT MGR:
R.M.

CHECKED BY:
R.M.

APPROVED BY:
D.G.Y.

SHEET TITLE

GRADING PLAN

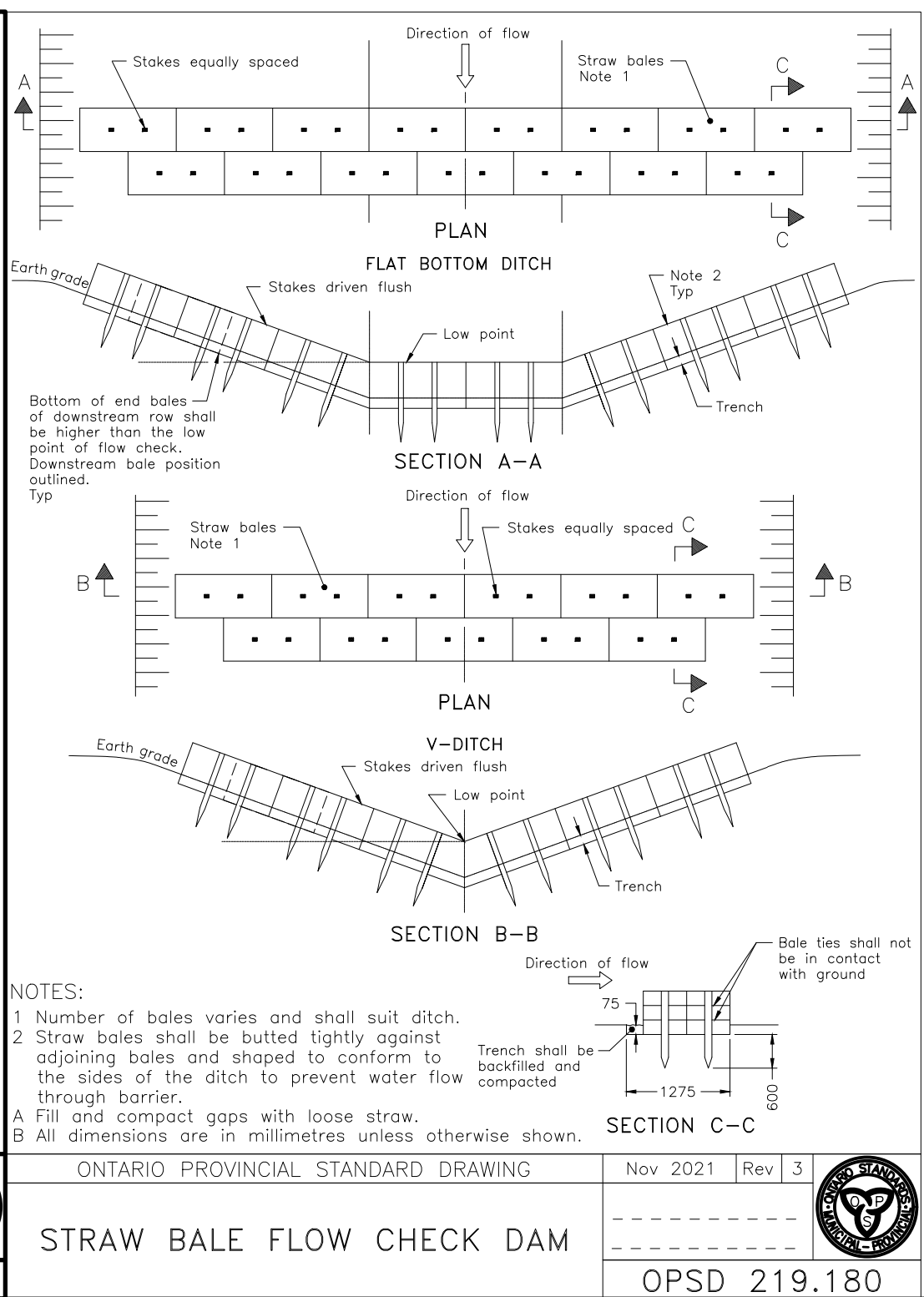
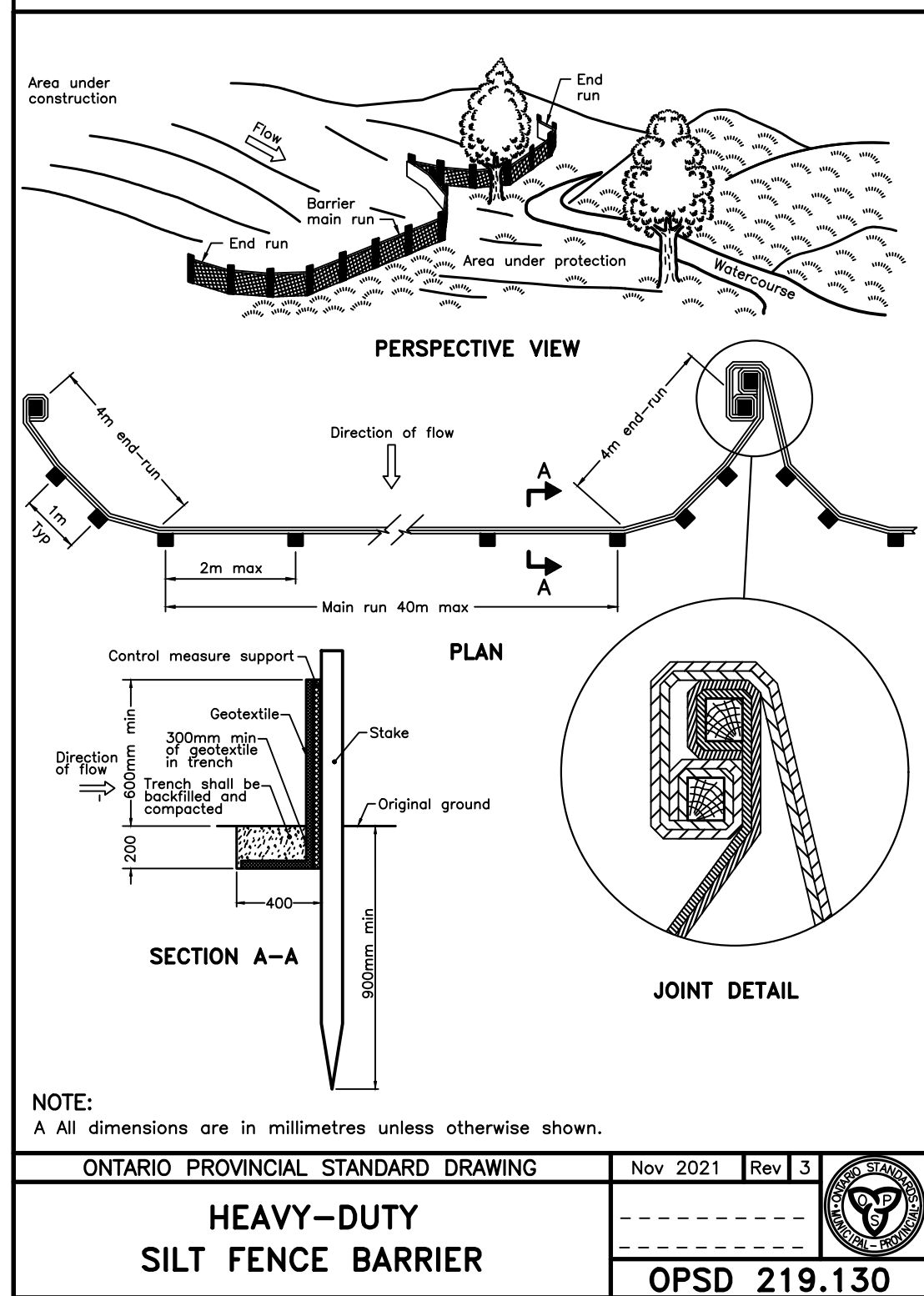
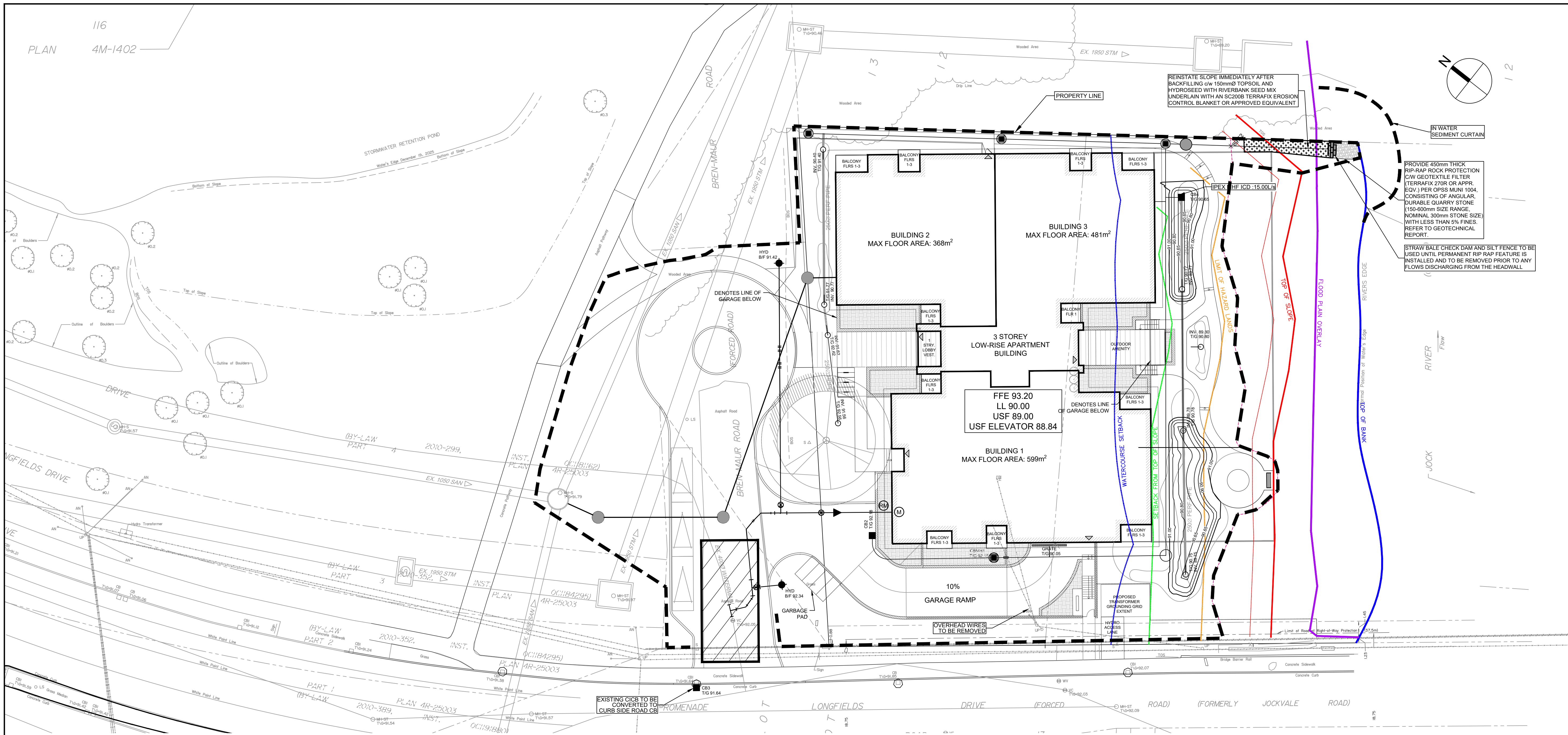
SHEET NUMBER

C-200

ISSUE

2

GRADING LEGEND	
	PROPOSED DITCH C/W FLOW DIRECTION AND SLOPE
	SLOPE C/W FLOW DIRECTION
	MAJOR OVERLAND FLOW ROUTE
	PROPOSED SPOT GRADE
	PROPOSED SWALE GRADE
	PROPOSED SWALE HIGH POINT GRADE
	LOT CORNER GRADE C/W EXISTING GRADE
	FULL STATIC PONDING GRADE
	RETAINING WALL C/W TOP OF WALL AND GRASS GRADE
	TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE
	PRESSURE REDUCING VALVE
	FINISHED FLOOR ELEVATION
	TOP OF FOUNDATION ELEVATION
	UNDERSIDE OF FOOTING ELEVATION
	MINIMUM UNDERSIDE OF FOOTING
	MINIMUM GARAGE GRADE
	WALKUP UNIT
	NON-STANDARD FOUNDATION
	HIGHBACK UNIT (1.5m frost cover on footings)
	NOISE BARRIER LOCATION
	NOISE BARRIER GATE
	RIP-RAP
	TOWN HOUSE SPLITS
	2hr FIRE WALL



- NOTES:**
- THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
 - SILT FENCE TO BE ERRECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
 - STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
 - FILTER CLOTH TO BE PLACED AND MAINTAINED UNDER COVER OF ALL PROPOSED CATCHBASINS AFTER BASE COURSE, AND EXISTING CATCHBASINS IDENTIFIED OUTSIDE OF CONSTRUCTION LIMIT. FILTER CLOTH IN STREET C/S TO REMAIN UNTIL ALL CURBS ARE CONSTRUCTED. FILTER CLOTH IN RYCB'S TO REMAIN UNTIL VEGETATION IS ESTABLISHED. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
 - CONTRACTOR TO PROVIDE DETAILS ON LOCATION(S) AND DESIGN OF DEWATERING TRAP(S) PRIOR TO COMMENCING WORK. CONTRACTOR ALSO RESPONSIBLE FOR MAINTAINING TRAP(S) AND ADJUSTING SIZE(S) IF DEEMED REQUIRED BY THE ENGINEER DURING CONSTRUCTION.
 - WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
 - THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT.
 - CONTRACTOR TO MONITOR AND REMOVE ANY TRANSPORTED DEBRIS ON JOCKVALE ROAD TO THE SATISFACTION OF THE ENGINEER AND CITY.
 - ANY WATER PUMPED DURING EXCAVATION PRACTICES ON SITE SHALL BE PUMPED THROUGH A NON WOVEN DEWATERING GEOTEXTILE BAG OR APPROVED EQUIVALENT AND DISCHARGED TO THE MUNICIPAL STORM SEWER SYSTEM ON LONGFIELDS DRIVE.

- LEGEND:**
- HEAVY DUTY SILT FENCE AS PER OPSD-219.130
 - SNOW FENCE
 - STRAW BALE CHECK DAM AS PER OPSD-219.180
 - FILTER CLOTH PLACED UNDER EXISTING CB COVER
 - TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH
 - REINSTATE SLOPE IMMEDIATELY AFTER BACKFILLING c/w 150mm TOPSOIL AND HYDROSEED WITH RIVERBANK SEED MIX UNDERLAIN WITH AN SC200B TERRAFIX EROSION CONTROL BLANKET OR APPROVED EQUIVALENT

CLIENT

UNIFORM URBAN DEVELOPMENTS

117 CENTREPOINTE DRIVE, SUITE 300, OTTAWA

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SEE 010 FOR NOTES, LEGEND, CB TABLE AND DETAILS

KEY PLAN

CONSULTANTS

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PROJECT

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PROJECT NO:

30277358

DRAWN BY:

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CHECKED BY:

R.M.

PROJECT MGR:

R.M.

APPROVED BY:

D.G.Y.

SHEET TITLE

EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER

C-900

ISSUE

2

116

PLAN

4M-1402

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PLAN

4M-1402

118

PLAN

4M-1402

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PLAN

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