



**Structural
Environmental
Services**

STORMWATER MANAGEMENT REPORT

2940 Mer Bleue Road, Ottawa

Prepared by

EAU Structural & Environmental Services

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Revision 0

May, 2023

1. Project Description:

1. Introduction:

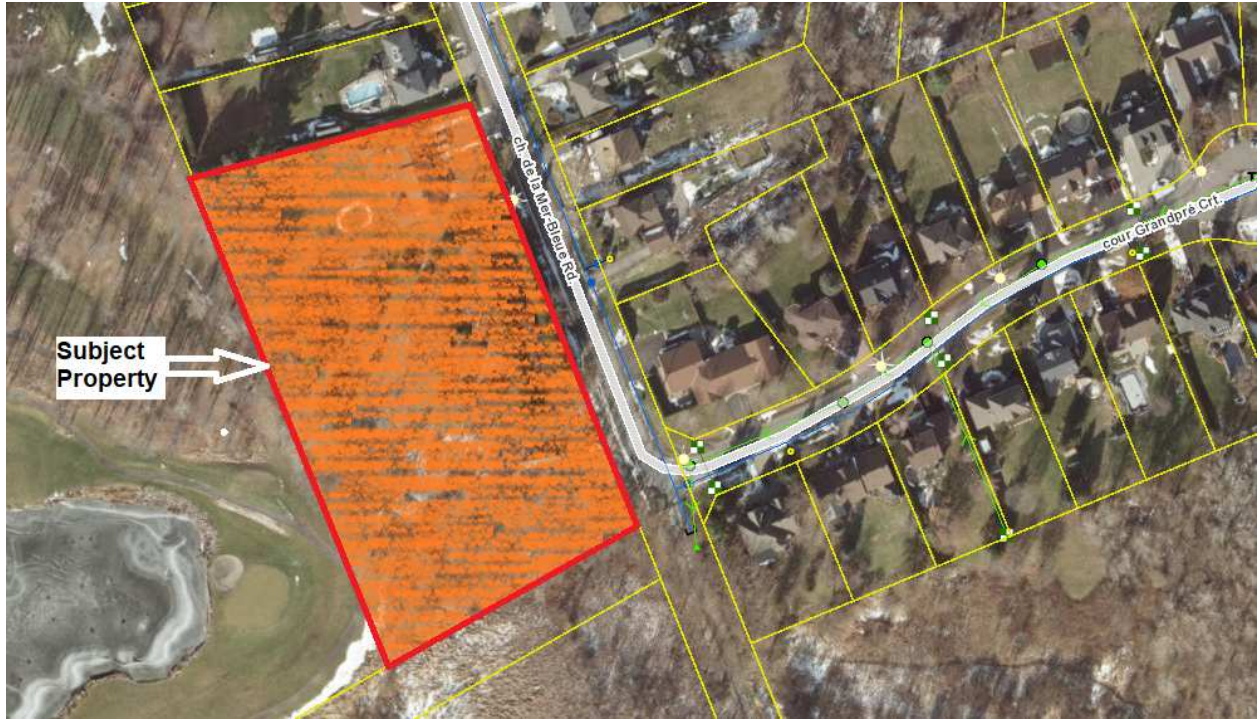
Property at 2940 Mer Bleue Road is located close to intersection of Mer Bleue Road and Grandpre Court. The existing lot is 1.55 hectare in area which is proposed to be divided into 3 severed lots.

Currently, the existing lot contains a one story buildings built in circa 1970 which will be demolished. It is proposed that in total, 3 free hold lots get created. The property at 2940 Mer Bleue is currently zoned DR (Development Reserve Zoning) i.e., low rise single dwelling. Which is the intent of this development application.

This report will address the stormwater management requirements associated with the proposed development located 2940 Mer Bleue within the City of Ottawa. This report is prepared in response to the request from City of Ottawa Planning department.

2. Existing Conditions:

The property measures a total area of approximately 1.55 hectare. The site is fronting a 203mm diameter DI water main. There is no sanitary or storm main fronting this property. The sanitary for each created lot shall be handled by septic system i.e., septic tank, septic pump and septic bed.



3. Guidelines, Previous Studies, And Reports

The following studies were utilized in the preparation of this report:

- Ottawa Sewer Design Guidelines,
City of Ottawa, SDG002, October 2012.
(City Standards)
 - Technical Bulletin ISTB-2018-01
City of Ottawa, March 21, 2018.
(ISTB-2018-01)
 - Technical Bulletin ISTB-2019
Technical Bulletin ISTB-2020
City of Ottawa,

- Ottawa Design Guidelines Water Distribution
City of Ottawa, July 2010.
(Water Supply Guidelines)
 - Technical Bulletin ISD-2010-2
City of Ottawa, December 15, 2010.
(ISD-2010-2)
 - Technical Bulletin ISDTB-2014-02
City of Ottawa, May 27, 2014.
(ISDTB-2014-02)
 - Technical Bulletin ISTB-2018-02
City of Ottawa, March 21, 2018.
(ISTB-2018-02)
 - Technical Bulletin ISTB-2019
Technical Bulletin ISTB-2020
City of Ottawa,

- Design Guidelines for Sewage Works,
Ministry of the Environment, 2008.
(MOE Design Guidelines)

- Stormwater Planning and Design Manual,
Ministry of the Environment, March 2003.
(SWMP Design Manual)

- Geotechnical Investigation

2. Stormwater Management

Pre-development Stormwater Conditions:

Stormwater runoff from the subject property is a tributary of the City of Ottawa sewer system and is located within the South Nation Conservation Authority. As such, approvals for proposed development within this area are under the approval authority of the City of Ottawa and the South Nation Conservation Authority.

The site is currently occupied by an existing family dwelling with various out-buildings i.e., shed, pool etc. Pre-development conditions will be considered as directed by the City of Ottawa Infrastructure Department for the lesser of calculated predevelopment runoff coefficient or 0.50. The time of concentration is of 20 min and will store up to the 100 years storm event as per the City of Ottawa Sewer Design Guideline.

The areas used for either pre-development or post-development conditions, was based on actual areas measured in CAD. Runoff coefficients for surfaces such as roofs, were taken as 0.90. For permeable landscape surfaces, the run-off coefficients were taken as 0.20. Refer to appendixes for further details.

It was assumed that the existing development contained no stormwater management controls for flow attenuation. The estimated combined pre-development peak flows for the 5yr storm events are calculated below:

Allowable Release Rate:

- Time of Concentration $T_c = 20$ minutes,
- Drainage Area = 1.55 ha

$$Q_{\text{allow}} = 2.78 C I A$$

Where:

Q allow	=	Allowable release rate to storm sewer (L/sec)
C	=	Runoff Coefficient (dimensionless) =0.50
I	=	Average Rainfall Intensity for return period (mm/hr)
	=	$998.071 / (T_c + 6.053)^{0.814}$ mm/hr (5-year)
T_c	=	Time of concentration (minutes) =20 min
A	=	Drainage Area (hectares) = 1.55

$$Q_{\text{Allow}} = 151 \text{ L/sec} \quad (5\text{-year})$$

Therefore the allowable release rate from the site is 151 L/sec

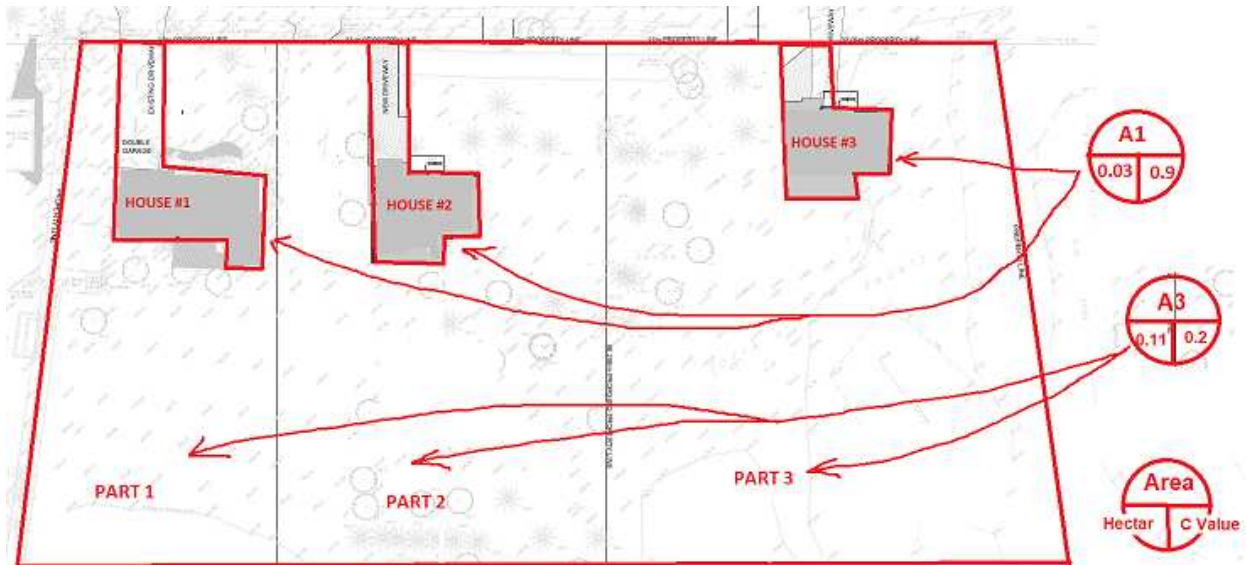
Post-development Stormwater Management Target:

Stormwater management requirements for the proposed development were generated. The following requirements for the proposed development area listed:

- Meet a total allowable release rate based on a Rational Method Coefficient of 0.50, employing the City of Ottawa IDF parameters for a 5-year storm with a time of concentration equal to or greater than 20 minutes.
- Attenuates all storms up to and including the City of Ottawa 100-year design event, on site. Post-development storm water management to include the 100-year & 5-year storm event.
- During all construction activities, erosion and sediment shall be controlled by techniques outlined in section 3 this report.

Storm Drain Area :

The post development storm water management design, for this site has been divided into 2 general areas; Grass area (C=0.20), Roofs and Driveways (C=0.90):



- House #1: Bungalow 2500 Sq.m
- House #2: 2-Storey residence 2500 Sq.m
- House #3: 2-Storey residence 2500 Sq.m

Septic systems are to be located in the front yard close to Right of Way (ROW). Pre-construction, stormwater flows via a ditch or swale, eastward along Mer Bleue. Storm water passes through a series of CSP culverts. Existing culverts can be seen north of house 1 & 2.

Storm water then follows a natural course through Part 3 to a swale shown in the south-east corner of Part 3 lot.

A site bench mark (BM) exists on Mer Bleue Road, north of house #2. The value of the BM = 82.39m. Please refer to the site plan.

C(max equiv)	I (mm/h)	Area (ha)
0.5	104.2	1.550
Q(allow)		224.48 l/s

I (mm/h)	I (100yr) mm/h					
104.2	179					
Area ID	Area (ha)	C (5yr)	A x C	C (100yr) (Max of 1.0)	A x C	Type of Flow (Controlled/Uncontrolled)
A1: Proposed Building	0.020	0.9	0.02	1.00	0.02	
A1: Driveway	0.010	0.9	0.01	1.00	0.01	
A2: Grass area	1.520	0.2	0.30	0.25	0.38	
Total Site Area (ha)	1.55	---	0.33	---	0.41	Total
C(avg) 5-year =		0.21				
C(avg) 100-year =		0.26				

Post-development Stormwater Management:

Post development storm water management design for this site includes 2 general areas; Grass area and Roofs or Driveways.

- Grass areas will sheet drain as per the natural drainage pattern. Pre and post runoff for grass areas remain the same. The natural patter of slope is 3.5% in average towards the easterly property line.
- Roofs or Driveways: runoff from the roofs and driveways will be discharged to the City right of way (ROW).

Post-developement, the stormwater is anticipated to flow in the dirch along the south side of Mer Bleue Road, past house 1, past house 2 and past house 3 by the use of 2 new 400mm dia., HDPE culverts. The ditch may need to be re-shaped and formed to achieve this flow and culverts will be installed under the driveway to house 2 and 3. ST water is to then drain in the easterly direction to a designed ditch in the east.

Two major swales will be constructed; one swale will be constructed between on lot 1 between part 1 & 2 and another swale between part 2 &3 on lot 2. Each swale will be sloping from a high point, near the house, towards the front .i.e., ROW and towards the rear of the property. See site plan for details.

3. Foundation/Footing Drain

Foundation drain or weeping tile system is expected to comprise of sump pit and sump pump. The weeping tile collects infiltration around the footing and brings it to the sump pit. When the pit is semi-full, the sump pump can pump the collected infiltration to the surface. The amount of discharged water to the surface is small and will have minimum affect to the general stormwater management of the property. Please refer to site plan for the location of sump pump and discharge line.

4. Erosion and Sediment Control

The following methods will be unutilized to control erosion and sediment:

- Silt fence will be installed around the perimeter of the site and will be cleaned and maintained throughout construction. Silt fence will remain in place until the working areas have been stabilized and re-vegetated.
- Catch basins will have SILTSACKS or an approved equivalent, installed under the grate during construction to protect silt from entering the storm sewer system.
- A mud mat will be installed at the construction access in order to prevent mud tracking onto adjacent roads.
- Erosion and sediment controls must be in place during construction. The following recommendations to the contractor will be included in contract documents:
 - Limit extent of exposed soils at any given time;
 - Re-vegetate exposed areas as soon as possible;
 - Minimize the area to be cleared and grubbed;
 - Protect exposed slopes with plastic or synthetic mulches;
 - Install silt fence to prevent sediment from entering existing ditches;
 - No refueling or cleaning of equipment near existing watercourses;
 - Provide sediment traps and basins during dewatering;
 - Install filter cloth between catch basins and frames;
 - Plan construction at proper time to avoid flooding;
 - Establish material stockpiles away from watercourses, so that barriers and filters may be installed.

- The contractor will, at every rainfall, complete inspections and guarantee proper performance. The inspection is to include:
 - Verification that water is not flowing under silt barriers;
 - Clean and change filter cloth at catch basins.
- Construction and maintenance requirements for erosion and sediment controls to comply with Ontario Provincial Standard Specification OPSS 577, and City of Ottawa specifications.
- A visual inspection shall be completed daily on sediment control barriers and any damage repaired immediately. Care will be taken to prevent damage during construction operations.

I was asked by the client to update this report as the storm water pipe and manholes in the East was subsequently revised. Referring to plan “sketch showing as-built man holes and culverts” by Farley, Smith & Denis Surveying LTD this shows the details and location of the existing structure.

However, the design of the proposed culvert and man holes was carried out by J L Richards, Engineers, Architects and Planners, here in Ottawa, in June 2025. Please refer to “Culvert Design Technical Design Memorandum 2940 Mer Blue Road Watercourse Realignment” - JLR No.: 32196-000.

This report covers the design, the layout etc., of the proposed structure. Please refer to page 22 of this report for these details.



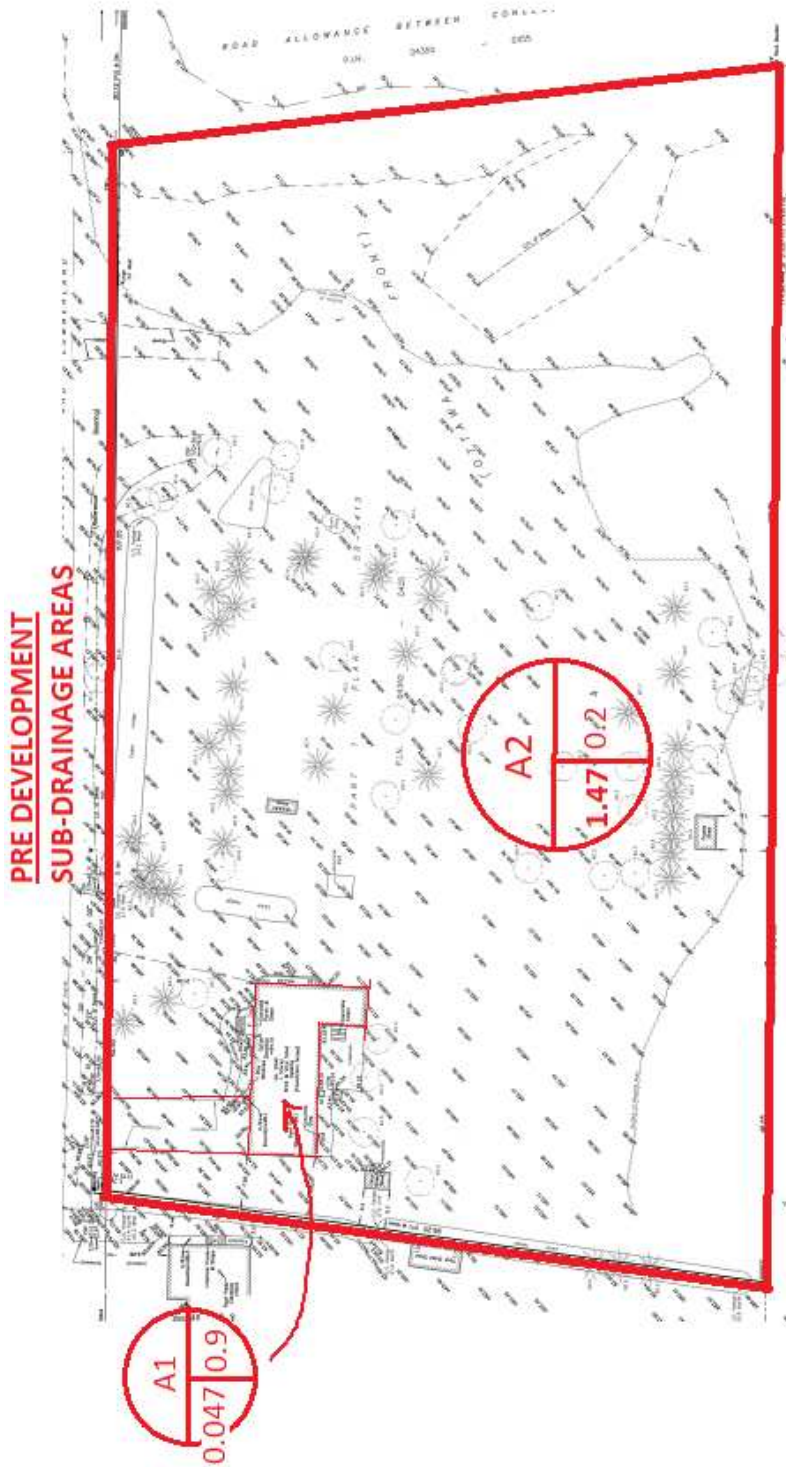
Yours truly,
Derrick R. Clark, P. Eng.

APPENDIX A:
GeoOttawa Map



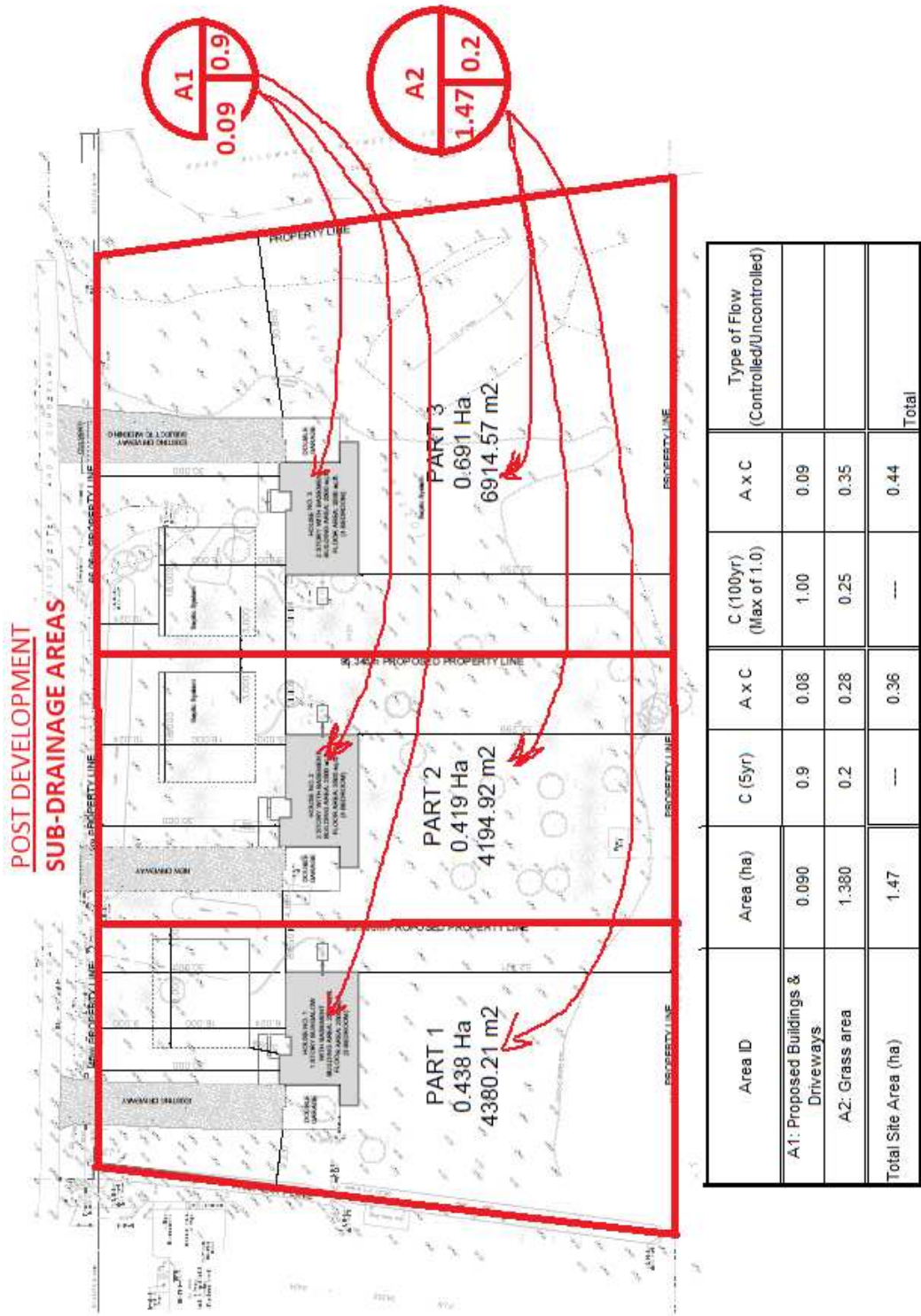
APPENDIX B:

Pre & Post Development Areas



Area ID	Area (ha)	C (5yr)	A x C	C (100yr) (Max of 1.0)	A x C	Type of Flow (Controlled/Uncontrolled)
A1: Proposed Buildings & Driveways	0.047	0.9	0.04	1.00	0.05	
A2: Vegetation area	1.430	0.2	0.29	0.25	0.36	
Total Site Area (ha)	1.477	---	0.33	---	0.40	Total

C(avg) 5-year = 0.22
 C(avg) 100-year = 0.27



APPENDIX C:

Site Plans
