



1000989284 Ontario Inc. c/o R.W. Tomlinson Limited  
**Elmwood Subdivision**  
**Sanitary Servicing Report**

**Prepared by:**

**FOREFRONT Engineering Inc.**  
1329 Gardiners Road, Suite 210  
Kingston, ON, Canada K7P 0L8

**613.634.9009 tel**

**Date: August 2025**

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3. may be based on information provided to Consultant which has not been independently verified;
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August 7, 2025

1000989284 Ontario Inc  
c/o R.W. Tomlinson Limited  
Jennifer Ailey, Land Development Manager  
100 CitiGate Drive  
Nepean ON K2J 6K7

**Regarding: Elmwood Subdivision  
Sanitary Servicing Report**

Dear Ms. Ailey,

The enclosed report details the existing sanitary infrastructure and our recommendations for sanitary services for the proposed Elmwood Subdivision located in the Town of Gananoque.

The proposed Elmwood Subdivision is located in the east end of Gananoque, south of Elizabeth Drive, Churchill Drive and Arthur Street and north of the St. Lawrence River. The site is approximately 11.58 ha and consists of approximately 77 single-detached lots. The subdivision will include the extension of Elmwood Drive, John Street, two new streets, and a proposed parkland.

It is recommended that sanitary sewers and sanitary sewer services be installed along the proposed streets with connections to Elmwood Drive and Arthur Street.

Two sanitary sewer connections are proposed, one connection to the existing sanitary trunk sewer on Elmwood Drive and one connection to the existing sanitary trunk sewer on Arthur Street.

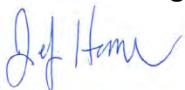
Preliminary calculations find that existing downstream sanitary sewers and proposed sanitary sewers are capable of and will effectively service the proposed subdivision.

This Report demonstrates that adequate sanitary sewer servicing is available for the proposed subdivision.

If you have any enquiries or wish to discuss further, please contact this office.

Sincerely,

**FOREFRONT Engineering Inc.**



Jeff Homer, P.Eng.  
[Jeff.Homer@Forefronteng.ca](mailto:Jeff.Homer@Forefronteng.ca)

## FOREFRONT Signatures

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Jeff Homer, P.Eng.



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Kyle Nielissen, P.Eng.



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- Proposed Sanitary Sewer Design Sheet

# 1. Introduction

Forefront has assembled relevant supporting information for the proposed residential subdivision at Part of Lot 16, Concession 1, in the Town of Gananoque in the County of Leeds.

The proposed Elmwood Subdivision is located in the Town of Gananoque north of the St. Lawrence River, east of William Street South, and south of Arthur Street. The land to the east is undeveloped, zoned Residential and identified as Significant Woodlands in the Official Plan. The property is bounded by existing residential dwellings to the north and west. Refer to Figure 1: Site Location for reference.



**Figure 1: Site Location**

The subject site is currently zoned Residential within the Town of Gananoque. The property is currently vacant with no existing structures.

The proposed Elmwood Subdivision is approximately 11.58 ha. and consists of approximately 77 single-detached lots. The subdivision will include the extension of Elmwood Drive, John Street, two new streets, and a proposed parkland.

It is recommended that sanitary sewers and sanitary sewer services be installed along the proposed streets with two connections to the Arthur Street sanitary trunk sewer.

Development of the Elmwood Subdivision will result in an increase in sewerage discharge. This Sanitary Servicing Report proposes a plan to provide sanitary sewer services for the proposed subdivision.

Refer to **Appendix A, Concept Plan** for the proposed subdivision plan.

## 2. Sanitary Sewer

### 2.1 Existing Conditions

The existing subject site is currently vacant and is not serviced by a sanitary sewer.

Existing nearby sanitary infrastructure includes a 600 mm diameter trunk sanitary sewer located within an easement on the site, which continues along Arthur Street.

Sewage from the east end of Gananoque flows by gravity through a 600 mm diameter trunk sanitary sewer along Arthur Street toward the East End Pumping Station, where it is then pumped to the Gananoque Sewage Lagoons located north of Highway 401.

### 2.2 Proposed Development

The proposed Elmwood Subdivision is approximately 11.58 ha. and consists of approximately 77 single-detached lots. The subdivision will include the extension of Elmwood Drive, John Street, two new streets, and a proposed parkland.

Below are the proposed design parameters.

#### Design Flow Parameters

Average Residential Flow	350 L/cap/day
Peak Residential Factor	Harmon Formula
Infiltration Allowance	0.14 L/s/ha
Minimum Pipe Size Diameter	200mm Diameter

#### Population Density

Single Family	4.00 people/unit
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The proposed Elmwood Subdivision will generate an additional peak sanitary flow of 6.2 L/s, including inflow and infiltration. Refer to **Appendix B** for the **Sanitary Sewerage Design Sheet** for further details.

Preliminary calculations find that the proposed sanitary sewers are capable of and will effectively service the proposed Elmwood Subdivision.

The Town of Gananoque is to confirm that there is adequate downstream capacity available, including at the East End pumping station.

Residential lots are proposed with 125 mm diameter services and manufactured wye connections. It is proposed that all areas will be drained by gravity sewer. The sanitary sewers are proposed to extend along the centreline of the proposed road.

It is recommended that the proposed 200 mm diameter sanitary sewers connect to the existing 600 mm diameter sanitary trunk sewer on Elmwood Drive and Arthur Street. The Arthur Street connection requires a servicing block to be conveyed to the municipality.

A Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) from the Town of Gananoque for the sanitary sewer system is required prior to construction.

Refer to **Appendix A: Figure 2 Proposed Sanitary Catchment Areas** for further details.

### **3. Conclusions**

Preliminary calculations find that existing downstream sanitary sewers and proposed sanitary sewers are capable of and will effectively service the proposed subdivision.

Two sanitary sewer connections are proposed, one connection to the existing sanitary trunk sewer on Elmwood Drive and one connection to the existing sanitary trunk sewer on Arthur Street.

Sanitary sewers shall be designed in accordance with the Ministry of the Environment, Conservation, and Parks Guidelines.

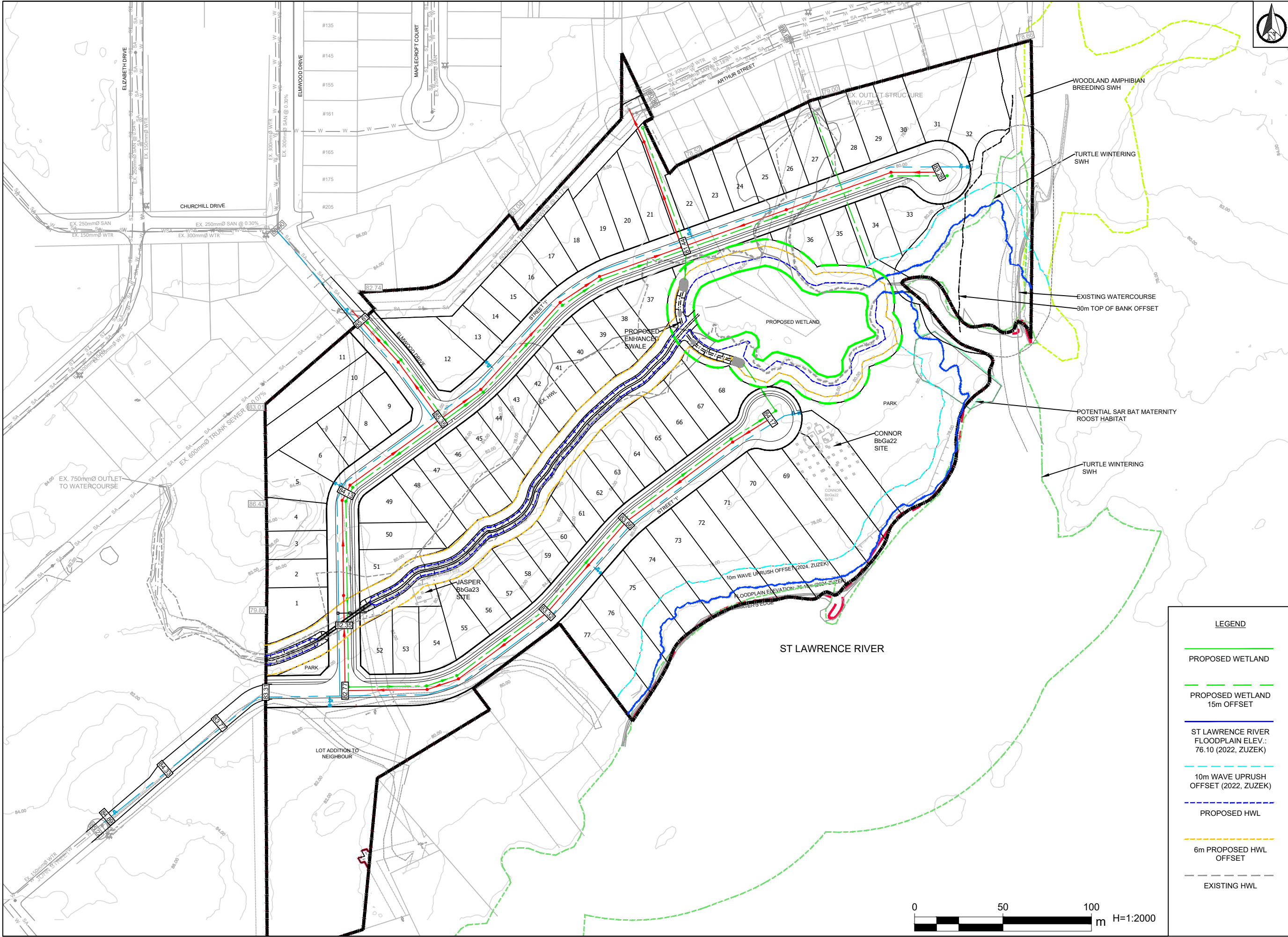
A Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) from the Town of Gananoque for the sanitary sewer system is required prior to construction.




# Appendix A

Concept Plan

FIG.2 – Sanitary Catchment Areas



Benchmark		
No.	Revision/Issue	Date



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Kingston, ON, Canada K7P 0L8  
613.634.9009 tel.  
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Client

1000989284 ONTARIO INC.

Project

ELMWOOD SUBDIVISION

Drawing

CONCEPT PLAN

Drawn by:	Checked by:	Project No.
EP	JH	
Designed by:	Approved by:	Drawing No.
KMN	KMN	

Date:

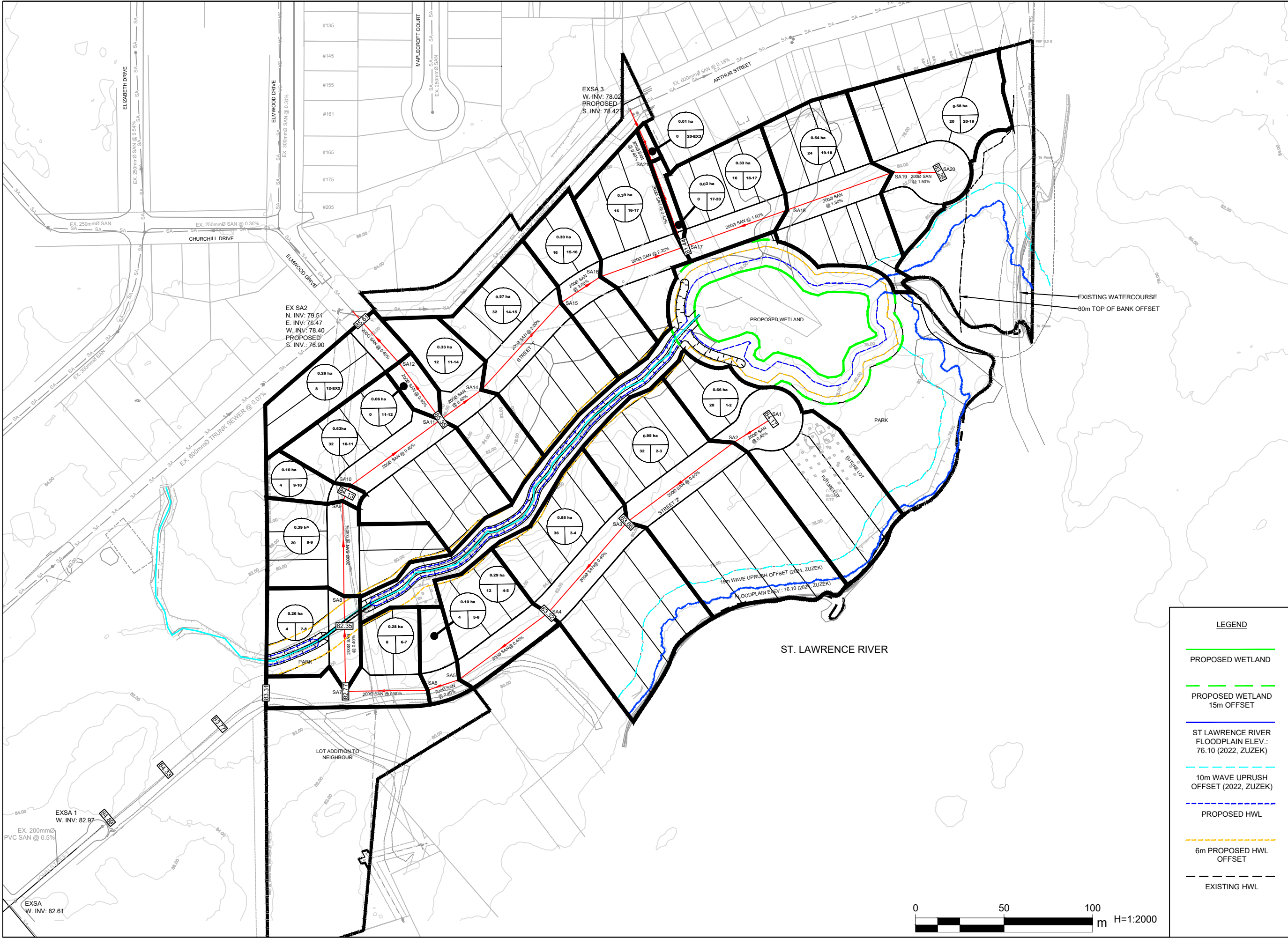
AUGUST 2025

Scale:

1:2000  
ANSI B (11x17)

CP





CATCHMENT AREA IN HECTARES

POPULATION

CATCHMENT AREA ID

Benchmark		
No.	Revision/Issue	Date

**LEGEND**

PROPOSED WETLAND

PROPOSED WETLAND 15m OFFSET

ST LAWRENCE RIVER FLOODPLAIN ELEV.: 76.10 (2022, ZUZEK)

10m WAVE UPRUSH OFFSET (2022, ZUZEK)

PROPOSED HWL

6m PROPOSED HWL OFFSET

EXISTING HWL

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Client  
1000989284 ONTARIO INC.

Project  
ELMWOOD SUBDIVISION

Drawing  
PROPOSED SANITARY CATCHMENT AREAS

Drawn by: EP	Checked by: JH	Project No.
Designed by: KMN	Approved by: KMN	Drawing No.

Date:  
AUGUST 2025

Scale:  
1:2000  
ANSI B (11x17)

**FIG.2**

# Appendix B

Proposed Sanitary Sewer Design Sheet



SANITARY SEWER DESIGN SHEET  
ELMWOOD SUBDIVISION

Date: July 2025  
Project: Elmwood Subdivision

Municipality: Gananoque

Subdivision Catchment Area                      7.91 ha.

q=average daily per capita flow (L/cap. d)                      350  
Maximum Pipe Capacity                      85%  
I=unit of peak extraneous flow (L/ha. s)                      0.14  
M=peaking factor    1+14/(4+(P/1000)^0.5) 4.0 MAX  
Q(p)=peak population flow (L/s)  
Q(i)=peak extraneous flow (L/s)  
Q(d)=peak design flow  
capita per dwelling unit  
- Single Family detached                      4.00 pop/unit  
-Semi-detached and Townhouse                      2.38 pop/unit

PROPOSED SANITARY DRAINAGE PLAN																				
LOCATION			INDIVIDUAL				CUMULATIVE		Peaking factor M	Pop. flow Q(p) (L/s)	Peak Extraneous flow Q(i) (L/s)	Peak design flow Q(d) (L/s)	PIPE DATA							%Capacity
Description	FROM	TO	Dwelling Units		Pop.	Area A (hectares)	Pop.	Area A (hectares)					Length (m)	Pipe size (mm)	Type of Pipe	Grade %	Capacity (L/s) n=0.013	Full flow velocity (m/s)	Actual velocity at Q(d)	
			Single	Semi / Townhouse																
Street '2'	SA1	SA2	5		20	0.66	20	0.66	4.00	0.32	0.09	0.42	25.00	200	PVC	0.40	20.7	0.66	0.25	2%
Street '2'	SA2	SA3	8		32	0.95	52	1.61	4.00	0.84	0.23	1.07	75.06	200	PVC	0.40	20.7	0.66	0.34	5%
Street '2'	SA3	SA4	9		36	0.85	88	2.46	4.00	1.43	0.34	1.77	68.19	200	PVC	0.40	20.7	0.66	0.35	9%
Street '2'	SA4	SA5	3		12	0.29	100	2.75	4.00	1.62	0.39	2.01	62.60	200	PVC	0.40	20.7	0.66	0.35	10%
Street '2'	SA5	SA6	1		4	0.10	104	2.85	4.00	1.69	0.40	2.08	18.67	200	PVC	0.40	20.7	0.66	0.35	10%
Street '2'	SA6	SA7	2		8	0.28	112	3.13	4.00	1.81	0.44	2.25	46.45	200	PVC	0.40	20.7	0.66	0.35	11%
Street '1'	SA7	SA8	1		4	0.26	116	3.39	4.00	1.88	0.47	2.35	53.77	200	PVC	0.40	20.7	0.66	0.35	11%
Street '1'	SA8	SA9	5		20	0.39	136	3.78	4.00	2.20	0.53	2.73	53.77	200	PVC	0.40	20.7	0.66	0.35	13%
Street '1'	SA9	SA10	1		4	0.10	140	3.88	4.00	2.27	0.54	2.81	9.72	200	PVC	0.40	20.7	0.66	0.35	14%
Street '1'	SA10	SA11	8		32	0.63	172	4.51	4.00	2.79	0.63	3.42	63.10	200	PVC	0.40	20.7	0.66	0.35	16%
Elmwood Drive	SA11	SA12			0	0.06	172	4.57	4.00	2.79	0.64	3.43	40.03	200	PVC	0.40	20.7	0.66	0.35	17%
Elmwood Drive	SA12	EX SA2	2		8	0.26	180	4.83	4.00	2.92	0.68	3.59	38.87	200	PVC	0.40	20.7	0.66	0.35	17%
Street '1'	SA11	SA14	3		12	0.33	12	0.33	4.00	0.19	0.05	0.24	28.54	200	PVC	0.40	20.7	0.66	0.21	1%
Street '1'	SA14	SA15	8		32	0.57	44	0.90	4.00	0.71	0.13	0.84	66.51	200	PVC	3.00	56.8	1.81	0.63	1%
Street '1'	SA15	SA16	4		16	0.30	60	1.20	4.00	0.97	0.17	1.14	26.72	200	PVC	3.00	56.8	1.81	0.68	2%
Street '1'	SA16	SA17	4		16	0.39	76	1.59	4.00	1.23	0.22	1.45	53.53	200	PVC	2.25	49.2	1.57	0.67	3%
Street '1'	SA20	SA19	5		20	0.58	20	0.58	4.00	0.32	0.08	0.41	27.00	200	PVC	1.50	40.2	1.28	0.41	1%
Street '1'	SA19	SA18	6		24	0.54	44	1.12	4.00	0.71	0.16	0.87	62.83	200	PVC	1.50	40.2	1.28	0.51	2%
Street '1'	SA18	SA17	4		16	0.33	60	1.45	4.00	0.97	0.20	1.18	62.83	200	PVC	1.50	40.2	1.28	0.54	3%
Service BLOCK	SA17	SA21			0	0.03	136	3.07	4.00	2.20	0.43	2.63	63.16	200	PVC	0.40	20.7	0.66	0.35	13%
Service BLOCK	SA21	EX SA3			0	0.01	136	3.08	4.00	2.20	0.43	2.63	20.00	200	PVC	0.40	20.7	0.66	0.35	13%

Note: SA1 to SA2 includes two future lots bring the total number of lots to 79 lots up from the 77 lots being proposed.