THE CORPORATION OF THE TOWN OF

GANANOQUE

Canadian Gateway to the 1000 Islands

2025 Annual Wastewater Performance Report

Manager of Public Works, David Armstrong
Utilities Compliance Coordinator, Christine Brennan

February 2, 2026

EXECUTIVE SUMMARY

The Corporation of the Town of Gananoque's Public Utilities Division is pleased to provide the 2025 Annual Wastewater Performance Report. The purpose of this report is to keep the public and Council informed regarding the quality of the Town's Wastewater Treatment and Collection System.

The employees of the Town of Gananoque are committed to and share in the responsibilities for implementing, maintaining, and contributing to the continual improvement of the wastewater system.

This Annual Wastewater Performance Report is prepared in accordance with the Certificate of Approval # 0999-7X8QL3. Included with this report is the analytical data, plant flows, process flow schematic and the overall performance of parameter removals.

David Armstrong
Manager of Public Works

Christine Brennan
Utilities Compliance Coordinator

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LIST OF ACRONYMS & DEFINITIONS

Annual Average Concentration	The arithmetic mean of all daily or weekly concentrations, of a contaminant measured during a calendar year.
Annual Average Loading	The value obtained by multiplying the *Annual Average Concentration* of a contaminant by the *Average Daily Flow*.
Average Daily Flow	The cumulative total sewage flow to the sewage works during a calendar year, divided by the number of days during which sewage was flowing to the sewage works that year.
C of A	Certificate of Approval
CFU	Colony Forming Units
L/s	litres per second
m3/d	cubic meters per day
mg/L	milligrams per litre
mL	Milliliter
ML/d	Mega (million) litres per day
MECP	Ministry of the Environment, Conservation and Parks (Ontario)
MOH	Medical Officer of Health
Monthly Average Concentration	The arithmetic mean of all daily or weekly concentrations of a contaminant by the *Average Daily Flow* over the calendar month.
Monthly Average Loading	The value obtained by multiplying the *Monthly Average Concentration* of a contaminate by the *Average Daily Flow.*
O. Reg.	Ontario Regulation

1. Introduction

The following 2025 Annual Wastewater Performance Report is submitted in accordance with Condition 8(4) (a) through (i) of the Certificate of Approval (CofA) # 0999-7X8QL3 for the Gananoque Sewage Lagoons. This report has been prepared by the Town of Gananoque's Public Utilities.

2. Facility Description

The Gananoque Sewage Lagoons have been in operation for over 50 years. The facility is located north of Highway 401, occupying approximately a 1.5 sq. km (150 ha) parcel of land consisting of 3 Cells.

Raw sewage is received in Cell 1 from the East End Pumping Station (EEPS) through a 400mm diameter forcemain. At the EEPS, alum is added to assist in the reduction of Total Phosphorus and Total Suspended Solids. Once the sewage enters the first cell it flows from one cell to the next allowing the settling of solids and reduction of dissolved nutrients. The final effluent of the Lagoon then discharges to the St Lawrence River.

Refer to "**Appendix A"** to review the systematic drawing.

3. Monitoring Raw Influent and Treated Effluent Data

Refer to **"Appendix B"** to review the 2025 Summary Performance Report.

3.1 Influent and Effluent Lab Results, Limits and Objectives

Table 1: Raw Influent Results

Raw Influent Parameter	Annual Average Concentration in mg/l
$CBOD_5$	101.21
Total Suspended Solids	232.71
Total Phosphorous	5.00

Table 2: Effluent CBOD5 and Total Suspended Solids

The *Annual Average Concentrations* and *Annual Average Loading of* $CBOD_5$ and Total Suspended Solids shall not exceed the corresponding average and loading concentrations in the below table.

Effluent Parameter	Annual Average Concentration in mg/l	CofA Concentration Objective in mg/l	CofA Concentration Limit in mg/l	Annual Average Loading in kg/day	CofA Loading Objective in kg/day	CofA Loading Limit in kg/day
$CBOD_5$	9.06	25.0	30.0	31.06	133	159
Total Suspended Solids	39.42	25.0	30.0	122.90	133	159

On January 14th, 2026 the MECP was notified of the 2025 Total Suspended Solids exceedance. The letter stated "the Certificate of Approval requires Total Suspended Solids to have an annual average concentration below 30mg/L.

Table 3: Effluent Total Phosphorous

The *Monthly Average Concentration* and *Monthly Average Loading* of Total Phosphorous shall not exceed the corresponding average and loading concentrations in the below table.

Effluent Parameter	Monthly Average Concentration in mg/l	CofA Concentration Objective in mg/l	CofA Concentration Limit in mg/l	Annual Average Loading in kg/day	CofA Loading Objective in kg/day	CofA Loading Limit in kg/day
Total Phosphorous	0.57	1.0	1.0	1.92	5.30	5.30

Table 4: Effluent pH

The effluent pH must be maintained within the range of 5.5 to 9.5 at all times.

Effluent Parameter	**Annual Minimum**	**CofA Minimum Objective**	**CofA Minimum Limit**	**Annual Maximum**	**CofA Maximum Objective**	**CofA Maximum Limit**
pH	6.0	6.0	5.5	8.4	9.0	9.5

Table 5: Effluent E. Coli

The E.Coli *Annual Average Geometric Mean Density* shall stay below 200 organisms/100ml. Geometric Mean Density is the nth root of the product of multiplication of the results of n number of samples over the year.

Effluent Parameter	Annual Average (Geometric Mean Density) Count organisms/100ml	Annual Average Geometric Mean Density Objective Count organisms/100ml
E. Coli	315.52	200

On February 2nd, 2026 the MECP was notified of the 2025 E. coli objective exceedance.

3.2 Flow Data

The annual average daily treated effluent flow in 2025 was 3,434 m3 and the annual average daily raw influent flow was 2,805 m3. Weather conditions account for variations in flow differentials throughout the year. The table below provides the average monthly raw influent and treated effluent flow.

Table 6: Average Monthly Flows

Month	Raw Influent	Treated Effluent
January	81,349	109,662
February	56,249	103,859
March	166,033	137,115
April	120,102	168,116
May	108,759	164,894
June	90,073	101,193
July	65,420	76,012
August	50,008	67,669
September	47,903	56,433
October	53,476	59,416
November	53,062	110,682
December	88,614	141,005

3.3 Bypass / Spill / Overflows

There were eight spill events during 2025 which occurring due to heavy precipitation / snow melt and equipment failure. All events were reported to the Spills Action Centre, the Ministry of Health and a letter was sent to the Ministry of the Environment, Conservation and Parks Inspector.

Table 7: 2025 Bypass / Spill / Overflow Events

Date	Location	Volume	Duration	Cause
March 16, 2025	East End Pumping Station – Manhole #18	831 m3	3 hours and 18 minutes	Heavy Precipitation / Snow Melt
March 16, 2025	East End Pumping Station – Manhole #18	1895 m3	11 hours 44 minutes	Heavy Precipitation / Snow Melt
June 22, 2025	East End Pumping Station – Manhole #18	203 m3	57 minutes	Heavy Precipitation
November 6, 2025	East End Pumping Station – Manhole #18	258 m3	2 hours and 43 minutes	Equipment Failure
November 17, 2025	East End Pumping Station – Manhole #18	450 m3	46 minutes	Equipment Failure
November 20, 2025	East End Pumping Station – Manhole #18	196 L	3 hours and 16 minutes	Equipment Failure
November 24, 2025	East End Pumping Station – Manhole #18	136 m3	12 hours and 17 minutes	Equipment Failure
November 28, 2025	East End Pumping Station – Manhole #18	Less than 1 m3	18 seconds	Equipment Failure

4.0 Operating Challenges and Corrective Action

In 2025, the wastewater treatment lagoon experienced two regulatory issues that required notification to the Ministry of the Environment, Conservation and Parks (MECP). These included a Total Suspended Solids annual average exceedance and an E. coli objective exceedance.

Acti-Zyme was still being added to the Lagoon and sewage collection system in early 2025, but was discontinued in April 2025. Since it was discontinued, the Total Suspended Solids results have shown improvement.

Higher E. coli levels were observed due to Cell 1 being out of service to investigate berm breaches. During this time, wastewater is treated using only Cells 2 and 3, which reduced the overall treatment retention time. Repairs to Cell 1 are in the planning process and the cell is expected to return to service in 2026. Once operational, the Lagoon will return to full treatment capacity, which is expected to improve effluent quality.

4.1 Maintenance on Major Structures and Equipment

All works are subject to the annual budget process and approval by Council. A 10 Year Capital Equipment Replacement Plan has been developed which includes an extensive breakdown of all capital equipment that requires allocated funds for refurbishment or replacement.

Refer to **"Appendix C"** to review the 2025Capital Projects Summary.

4.2 Effluent Quality Assurances/ Control Measure

The Corporation of the Town of Gananoque is committed to comply with all applicable legislation and regulatory requirements as it pertains to wastewater effluent quality, environmental protection, and customer satisfaction.

The implementation of the Wastewater Quality Management System which consists of policies, procedures, and forms, helps maintain system compliance. These documents demonstrate risk-based treatment process evaluation, Operating Authority competency, open communications, appropriate contingency/incident response measures and response to consumers' concerns in a timely manner.

The employees involved within the Wastewater System share responsibilities of implementing, maintaining and contributing to the continual improvement of the Wastewater QMS.

5.0 Calibrations/Maintenance of Effluent Monitoring Equipment

The influent, effluent and pump station flow meters are calibrated annually for accuracy to within plus or minus 10 percent (+/- 10%) of actual flowrate. The last annual calibration was completed on September 23rd, 2025.

6.0 Key Contacts

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Appendix A

CELL 2

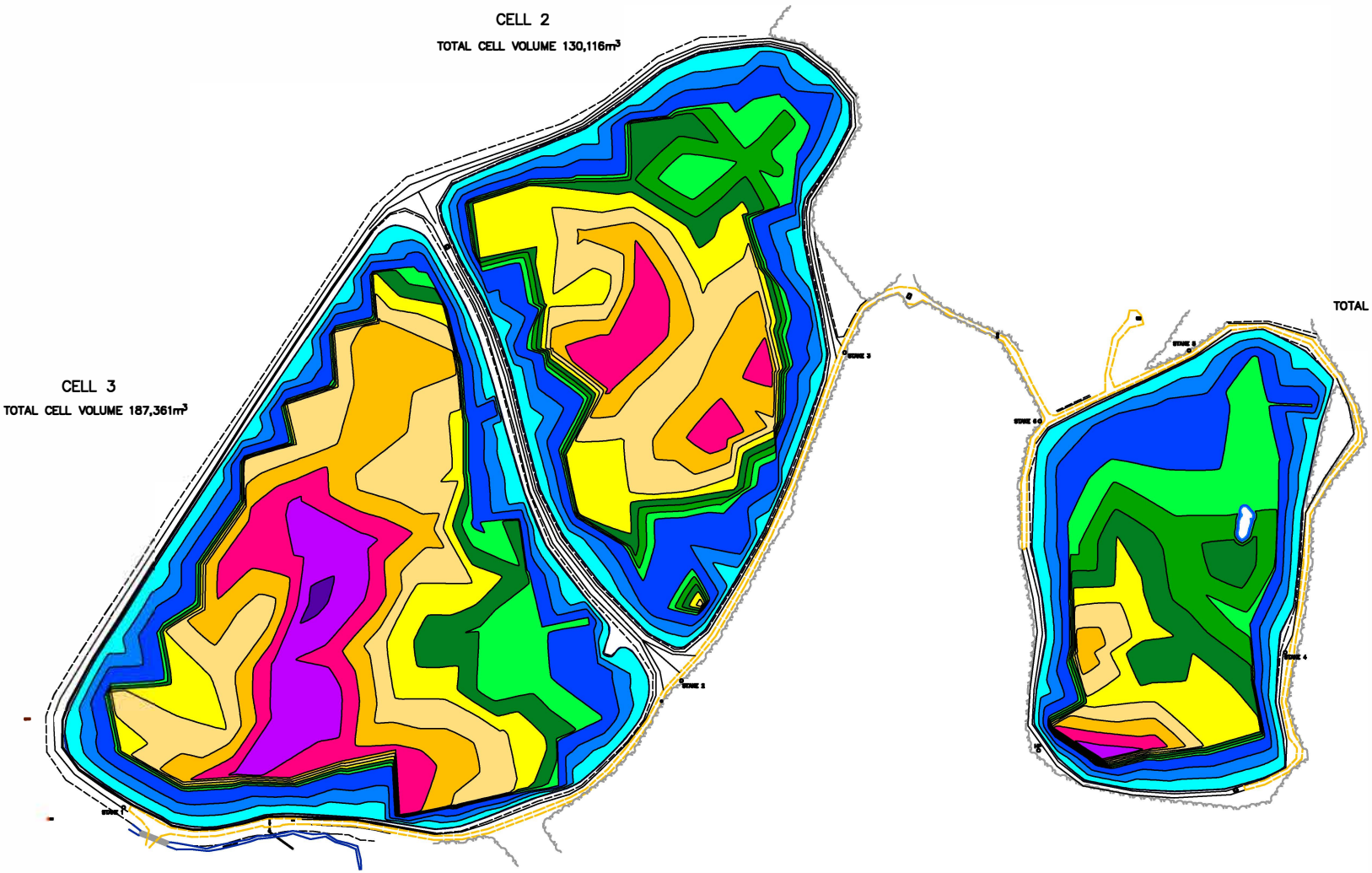
TOTAL CELL VOLUME 130,116m³

CELL 1

TOTAL CELL VOLUME 82,536m³

CELL 3

TOTAL CELL VOLUME 187,361m³



LEGEND
DEPTH OF CELL (METRES)

0.0 – 0.5	
0.5 – 1.0	
1.0 – 1.5	
1.5 – 1.6	
1.6 – 1.7	
1.7 – 1.8	
1.8 – 1.9	
1.9 – 2.0	
2.0 – 2.1	
2.1 – 2.2	
2.2 – 2.3	
>2.3	

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No.	DATE	BY	ISSUES / REVISIONS
1			

CLIENT: TOWN OF GANANOQUE

DRAWN BY: CTP | CHECKED BY: SAS
DESIGNED BY: SAS | APPROVED BY: GNL
SCALE: 1:1,000 | DATE: SEPTEMBER 2007

PROJECT: GANANOQUE LAGOON SEWAGE TREATMENT SYSTEM

DRAWING: DEPTH OF CELL

PROJECT No.: 52-27908

DRAWING No.: 1

Appendix B

2025 Summary Performance Report

		Flows				Raw			Treated				Performance		
Month	Days	Raw m3	Average Raw Day m3	Treated m3	Average Treated Day m3	Raw CBOD5 mg/L	Raw TSS mg/L	Raw TP mg/L	Treated CBOD5 mg/L	Treated TSS mg/L	Treated TP mg/L	E.Coli (Monthly Geometric Mean) cfu/100mL	Removals %CBOD5	%TSS	%TP
January	31	81,349	2,624	109,662	3,537	104.75	192.25	5.01	6.25	38.50	0.4	1017.78	94.03	79.97	92.02
February	28	56,249	2,009	103,859	3,709	118.75	278.75	5.92	15.00	29.50	0.98	10343.96	87.37	89.42	83.45
March	31	166,033	5,356	137,115	4,423	48.25	123.25	2.86	12.00	23.25	0.66	894.01	75.13	81.14	76.92
April	30	120,102	4,003	168,116	5,604	64.20	141.80	3.27	8.20	25.40	0.34	20.95	87.23	82.09	89.60
May	31	108,759	3,508	164,894	5,319	80.25	182.50	4.74	4.75	11.00	0.28	7.74	94.08	93.97	94.09
June	30	90,073	3,002	101,193	3,373	63.50	141.75	3.62	4.50	9.00	0.33	6.32	92.91	93.65	90.88
July	31	65,420	2,110	76,012	2,452	120.80	177.40	5.55	9.20	41.60	0.62	118.50	92.38	76.55	88.83
August	31	50,008	1,613	67,669	2,183	189.75	321.50	6.59	10.75	73.75	0.72	343.66	94.33	77.06	89.07
September	30	47,903	1,597	56,433	1,881	128.50	266.25	5.50	8.75	81.25	0.83	826.97	93.19	69.48	84.91
October	31	53,476	1,725	59,416	1,917	144.40	606.00	8.56	11.80	43.60	0.54	442.62	91.83	92.81	93.69
November	30	53,062	1,769	110,682	3,689	76.0	155.00	3.59	7.50	53.50	0.62	1418.56	90.13	65.48	82.73
December	31	88,614	2,859	141,005	4,549	75.40	166.00	4.34	9.40	43.60	0.57	5415.01	87.53	73.73	86.87

Appendix C

2025 Capital Projects Summary – Wastewater

This 2025 Capital Projects Summary identifies the wastewater infrastructure projects undertaken during the 2025 reporting year.

Project Summary

Project	Status
Utilities Fleet Renewal	Completed in 2025
WWT Lagoon Cell 1 Remediation	In Progress – Completion Expected 2026
WWT EEPS Upgrade Project	In Progress – Completion Expected 2026
WWC Sewage Pumping Station 3 Renewal	In Progress – Completion Expected 2026

Project Details

Utilities Fleet Renewal

Status: Completed in 2025

Description: Required repairs and replacements were completed on a utility vehicle to ensure it remained operational and capable of supporting day-to-day operational activities and emergency alarms.

WWT Lagoon Cell 1 Remediation

Status: In Progress – Completion Expected 2026

Description: In 2025, the Town completed subsurface investigations for Lagoon Cell 1 as part of ongoing remediation of the Cell 1 berm. A third-party contractor conducted borehole sampling to assess the integrity of the Lagoon berm. The field work included borehole drilling, groundwater observations and laboratory testing to characterize the subsurface soil and conditions at the site. The berm remediation is planned to be completed in 2026.

WWT EEPS Upgrade Project

Status: In Progress – Completion Expected 2026

Description: Upgrades to the East End Pumping Station (EEPS) and forcemain were continued in 2025 to support reliable wastewater conveyance to the Lagoon. The project included the installation of a new chemical building and construction of new wet wells. Both the existing and new wet wells will be equipped with venting systems to manage odour and improve operational performance.

WWC Sewage Pumping Station 3 Renewal

Status: In Progress – Completion Expected 2026

Description: In 2025, a Sewage Pumping Station 3 pump was removed to be rebuilt. The rebuilt pump is scheduled to be returned and installed in 2026.