



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

April 2, 2026

Aaron Todd
District Manager
Guelph District Office
Ministry of the Environment, Conservation and Parks
4th Floor, One Stone Road West
Guelph, ON N1G 4Y2

Re: 2025 Annual Performance Report for the Cainsville Lagoons System

Dear Mr. Todd;

Attached is the 2025 Annual Performance Report for the Cainsville Lagoons located at 30 Shaver St. in the County of Brant. This report has been completed in accordance with:

- Condition No. 10(6)(a)-(k) cited in Environmental Compliance Approval 2829-D5VNWT dated November 19, 2024 and issued to the Corporation of the County of Brant.

This report was prepared by the Ontario Clean Water Agency on behalf of the County of Brant based on the information we have in our records. The report covers the period from January 1, 2025 to December 31, 2025.

Sincerely,

A handwritten signature in blue ink, appearing to read "Raisa Blitterswyk".

Raisa Blitterswyk
Process and Compliance Technician
Ontario Clean Water Agency

Cc.

Andrea Bazzard – Director of Environmental Services, County of Brant
Matthew D'Hondt – Solid Waste/Wastewater Operations Manager – County of Brant
Ivanna Okroukh – Water Compliance Officer – MECP
Lisa Williamson – Water Supervisor – MECP
Stephanie Simpson – Safety, Process and Compliance Manager, OCWA
Sam Sianas – Regional Hub Manager, OCWA
Ben Madill – Senior Operations Manager, OCWA



2025

ANNUAL PERFORMANCE REPORT

CAINSVILLE LAGOON SYSTEM

38 GREENS ROAD, BRANT COUNTY

MECP ENVIRONMENTAL COMPLIANCE APPROVAL #2829D5VNWT



BY THE OPERATING AUTHORITY: ONTARIO CLEAN WATER AGENCY

PREPARED FOR: THE MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS

ON BEHALF OF: THE COUNTY OF BRANT

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EXECUTIVE SUMMARY

The County of Brant is committed to providing a high level of service in the collection, treatment and management of wastewater. The Ontario Clean Water Agency (OCWA) is currently contracted by the County of Brant to operate the County's wastewater treatment facilities, pumping stations and provide Overall Responsible Operator and Operator in Charge services for the wastewater collection systems.

The Cainsville Lagoons System (Lagoons) provides treatment of industrial, commercial, and residential wastewater from the Cainsville settlement area. The Cainsville Lagoons System is located at 30 Shaver Street in Cainsville, Ontario and consists of two primary sewage stabilization treatment lagoon cells and one polishing cell. This report documents the performance of the Cainsville Lagoons System in 2025, as required by the Environmental Compliance Approval (ECA) 2829-D5VNWT.

The Cainsville Lagoons is a facultative lagoon system and has a daily influent capacity of 250 m³. Influent is collected year-round and then discharged on a semi-annual basis in spring and fall. The average daily influent wastewater flow for this reporting period was 231 m³, which is up 2% from 2024 and is 92% of the rated capacity. As shown in Table 10 to 15 of this report, the effluent quality data demonstrates that the Cainsville Lagoons system satisfied the compliance conditions of the ECA throughout the reporting period.

Final effluent is discharged semi-annually with a Spring discharge period of March 15 to April 30 and a Fall discharge period of October 15 to December 15 to Fairchild Creek.

The Spring 2025 discharge event occurred from April 3, 2025 to April 30, 2025 and a total of 30,115 m³ was discharged during this time. As per the ECA an acute lethality sample was collected on April 26, 2025 and was determined to not be acutely lethal. During this discharge, there were no ECA limit exceedances, and three (3) ECA objective exceedances for Unionized Ammonia.

The Fall 2025 discharge event occurred from October 17, 2025 to December 15, 2025 with a total of 27,722 m³ discharged. As per the ECA an acute lethality sample was collected on October 31, 2025 and was determined to not be acutely lethal. During this discharge, there were no ECA limit exceedances, and two (2) ECA objective exceedances for Unionized Ammonia.

The Lagoons system has provision to complete emergency discharge events, or extended discharge events, provided additional sampling is completed as per the ECA. There were no emergency discharges or extended discharges during this reporting period.

Solids generated during treatment settle throughout the Lagoons system and are more apparent around the inlet and outlets of each cell. Build-up of solids in the Lagoons is removed as needed, via dredging. No solids were removed from the Lagoons during this reporting period.

INTRODUCTION

Wastewater treatment and collection systems in Ontario are governed by the Ministry of the Environment, Conservation and Parks (MECP) and are also subject to federal legislation. The purpose of a wastewater treatment system is to remove solids and nutrients in order to minimize the impact of the effluent on the receiving waterbody. The Environmental Compliance Approval's (ECAs), issued under the Environmental Protection Act, are facility or system-specific documents through which the MECP sets discharge quality limits for that facility based on the sensitivity of the receiving natural environment. To comply with the ECA, OCWA, on Behalf of the County of Brant (the County) prepares an Annual Performance Report covering the operation and overall performance of the Cainsville Lagoon System.

This Annual Performance Report, for the period of January 1 to December 31, 2025, is a legislative requirement under Condition 10 (6) of ECA number 2829-D5VNWT. This report must be forwarded to the MECP no later than March 31.

FACILITY AND SYSTEM OVERVIEW

Environmental Compliance Approval: 2829-D5VNWT (Dated November 19, 2024)

Rated Capacity: 250 m³/day

Receiving Water: Fairchild Creek (semi-annually)

The Cainsville Lagoon System (Lagoons) located in the County of Brant at 30 Shaver Road is a surface level facultative lagoon system. The Cainsville Lagoons are classified as a Class I plant (OWWCO Certificate # 908), dated March 27, 2013 and has a capacity of 250 m³/day. The Cainsville Lagoons consists of:

- One chamber/manhole with outlet 450 mm diameter concrete sewer
- One Inlet distribution chamber with;
 - Two 300mm diameter concrete sewers distributing flow to primary lagoons
- One Treatment Control building with two Clar+Ion Storage tanks and;
- One Chemical dosing pump and Motor Control Centre (MCC) panel for aerators #1 and #2
- Two Primary Sewage Stabilization lagoons (Cells #1 and #2)
- One Effluent Polishing lagoon (Cell #3)
- Two 5hp subsurface aerator units, one in each primary cell
- One discharge valve
- Effluent Outfall (One 300 mm diameter concrete sewer, one effluent flow measuring chamber with 250 mm Parshall flume)
- One 450 mm Corrugated Steel Pipe (C.S.P) pipe discharging into Fairchild Creek

Raw sewage enters the site through a manhole containing a Palmer-Bowlus Flume with flow recording and a continuous chemical addition system. The chemical addition system includes two (2) Clar+Ion storage tanks and one dosing pump for chemical addition. Clar+Ion acts as a coagulant and aids in the reduction of Phosphorous and Total Suspended Solids (TSS). The inlet wastewater then flows to a distribution manhole which can be subdivided to feed cell 1, cell 2 or both. Stabilization lagoon cell 1 (northwest lagoon) has a maximum holding capacity of 7,050 m³ and stabilization lagoon cell 2 (southwest lagoon) has a maximum holding capacity of 6,772 m³. Flow entering either primary cell progressively fills and overflows into the effluent polishing lagoon cell 3 which has a maximum holding capacity of 37,155 m³.

The treatment process consists of a facultative lagoon system with the addition of coagulant (Clar+Ion) to aid in phosphorous removal and solids settling. Two (2) 5 horsepower subsurface aerator units are installed with one unit per primary cell. These aerators provide adequate dissolved oxygen to help facilitate the biological treatment process.

Effluent is discharged to Fairchild creek on a bi-annual basis. To initiate a discharge event, the discharge valve must be opened and throttled to control effluent flows from polishing lagoon cell 3. Effluent travels through the outfall, a 300mm diameter concrete sewer with an effluent flow measuring chamber containing a 250 mm Parshall flume. Subsequently a 450 mm C.S.P pipe discharges effluent into Fairchild Creek.

The following report is presented such that it corresponds with ECA 2829-D5VNWT Section 10(6)(a) through (k).

PART 1- CAINSVILLE LAGOONS (ECA 2829-D5VNWT) REQUIREMENTS

As per ECA 2829-D5VNWT Section 10(6)(a) samples are to be collected from the Cainsville Lagoons in accordance with Tables 1, 2, and 3 below, utilizing a grab sampling procedure. Analysis for these parameters is conducted at SGS Lakefield Analytical (SGS) in Lakefield, Ontario. SGS is a member of the Canadian Association for Laboratory Accreditation Incorporated, certificate # 1999.

Table 1 – Influent Sampling Requirements (from the Inlet Manhole)

Parameters	Sample Type	Frequency
BOD ₅	Grab	Monthly
Total Suspended Solids	Grab	Monthly
Total Phosphorus	Grab	Monthly
Total Kjeldahl Nitrogen	Grab	Monthly
pH	Grab	Monthly
Temperature	Grab	Monthly

Table 2 - Effluent Sampling Requirements (prior to the receiving stream, in normal discharge situations)

Parameters	Sample Type	Frequency
Flow Rate	Flume Flow Meter	Daily during discharge
CBOD ₅	Grab	5 times during discharge
Total Suspended Solids	Grab	5 times during discharge
Total Phosphorus	Grab	5 times during discharge
Total Ammonia Nitrogen	Grab	5 times during discharge
Hydrogen Sulphide	Grab	Once prior to discharge
E-coli	Grab	5 times during discharge
Dissolved Oxygen	Grab	5 times during discharge
pH	Grab	5 times during discharge
Temperature	Grab	5 times during discharge

Table 3 - Additional Effluent Monitoring for contingency (extended spring) discharges

Parameters	Sample Type	Frequency
Flow Rate	Flume Flow Meter	Daily During Discharge
CBOD ₅	(Grab)	(2 times per week)
Total Suspended Solids	(Grab)	(2 times per week)
Total Ammonia Nitrogen	(Grab)	(2 times per week)
Total Phosphorus	(Grab)	(2 times per week)
Acute Toxicity (AT)	(Grab)	(1 times per week)
Hydrogen Sulphide	(Grab)	(2 times/week, prior to discharge)
E. coli	(Grab)	(2 times/week, prior to discharge)

(i) SUMMARY AND INTERPRETATION OF ALL MONITORING DATA AND COMPARISON TO THE EFFLUENT LIMITS

As outlined in ECA 2829-D5VNWT Section 10(6)(a), the following is a summary and interpretation of all monitoring data and a comparison to the effluent limits and objectives outlined in Tables 6 and 7, including an overview of the success and adequacy of the Cainsville Lagoons.

Table 4 below summarizes the raw influent monthly concentrations for 2025.

Table 4 –Influent Monthly Concentrations

Month	CBOD ₅ (mg/L)	BOD ₅ (mg/L)	Total Suspended Solids (mg/L)	Total Phosphorus (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Field pH	Field Temp (°C)
January	95	98	76	2.08	27.6	8.02	5.2
February	79	105	108	3.59	20.8	7.76	11.4
March	82	153	96	2.85	36.8	8.28	10.9
April	706	816	76	1.72	16.3	7.65	11.8
May	311	280	422	9.00	58.0	7.91	13.7
June	169	221	67	3.95	40.0	8.06	19.4
July	367	437	247	6.76	64.8	7.15	20.9
August	316	407	445	12.70	99.0	7.70	20.4
September	384	427	375	3.0	27.1	7.65	21.1
October	126	128	55	1.71	22.8	7.66	22.0
November	138	246	100	5.05	58.7	8.29	15.6
December	402	416	175	4.48	42.4	7.80	16.2
Average	265	311	187	4.75	42.9	7.83	15.7

-The sampling program requires a grab sample therefore the samples collected are only representative of what is entering the facility at that moment.

Table 5 below compares the 2024 influent concentrations to the 2025 influent concentrations. The raw sewage strength entering the Lagoons in 2025 was higher than 2024 with the most noticeable increase in the CBOD₅, and BOD₅ concentrations. Given the increase in influent strength, the treatment at the Cainsville Lagoons was not negatively impacted. Operations staff will continue to monitor the influent strength throughout the 2026 reporting period.

Table 5 –Comparison of Influent Data 2024 to 2025

Parameter	2024	2025	% Difference
CBOD ₅	190	265	+36%
BOD ₅	245	311	+25%
Total Suspended Solids	279	187	-34%
Total Phosphorus	4.85	4.75	-5%
Total Kjeldahl Nitrogen	45.1	42.9	-2%

As specified in the ECA, Section 8A, Special Operations – Seasonal Discharge, the spring discharge will not commence earlier than March 15 and terminate no later than April 30, however, incorporates a contingency measure if discharge cannot be completed within the normal discharge window. The Fall discharge will not commence earlier than October 15 and terminate no later than December 15. Additional monitoring and sampling is required should the extended spring contingency discharge be utilized, as per Table 3 above. An extended Spring contingency discharge was not required in 2025.

Table 6 – Effluent Limits

Final Effluent Parameter	Maximum Concentration (mg/L)	Maximum Waste Loading* (kg/d)
CBOD ₅	30.0	Spring: 152.1 kg/day (March 15-April 30) Fall: 12.3 kg/day (Oct 15-Nov 30)
Total Suspended Solids	40.0	-
Total Phosphorus	0.80	-
pH of the effluent maintained between 6.0 and 9.5, inclusive at all times		

*Maximum waste loading includes loading from the contingency discharge as well

Table 7 – Effluent Objectives

Effluent Parameter	Concentration Objective (mg/L)
CBOD ₅	25.0
Suspended Solids	30.0
Total Phosphorus	0.50
Unionized Ammonia (UA)	0.10
Acute Toxicity (AT)	Non-lethal to rainbow trout and daphnia magna

Table 8 and 9 below show the effluent limits maximum concentrations, and maximum waste loadings comparisons for the spring and fall discharge events. The average concentrations and loadings from both events in 2025 were well below the limits set in ECA 2829-D5VNWT (dated November 19, 2024) Section (7)(1) Table 2.

Table 8 – Effluent Limits Maximum Concentration Comparisons

	Max. Concentration (mg/L)	Spring Discharge Event (avg)	Fall Discharge Event (avg)
CBOD₅	30	5.13	4.50
TSS	40	6.13	6.70
TP	0.8	0.03	0.03
pH	6.0-9.5	6.87-8.14	7.27-8.39

Table 9 – Effluent Limits of CBOD5 Waste Loadings Comparisons

	Max. Waste Loading (kg/d)	Average Waste Loadings Spring Discharge Event (kg/d)	Average Waste Loadings Fall Discharge Event (kg/d)
Spring Discharge	152.1	6.072	--
Fall Discharge	12.3	--	2.589

(A) SPRING DISCHARGE EVENT

ECA 2829-D5VNWT states that the spring discharge of the Lagoons is to commence no earlier than March 15 and terminate no later than April 30. The Spring discharge event began on April 3, 2025 with an estimated total volume of 40,000 m³ in the three cells at the beginning of the discharge. The discharge event was terminated on April 30, 2025. A total volume of 30,155 m³ was discharged from the Lagoons during this time period.

Please note that due to the design and limitations of the existing infrastructure, precise automated measurement of lagoon levels is not feasible. To ensure safe and continuous operation, the reported levels are estimated based on informed inference, practical knowledge, and direct daily observations of experienced operational staff.

At the end of the discharge event on April 30, 2025, given the Lagoon continued to receive influent, it is estimated that there was approximately 17,000 m³ remaining in the three cells of the Lagoons. With a total available capacity of 50,977 m³, it was estimated that after the Spring discharge event there remained 136 days of storage capacity in the Lagoons (assuming annual average daily capacity of 250 m³/day of influent and not accounting for precipitation or summer evaporation). Summer evaporation can account for up to 100m³/day over the 3 cells. This storage capacity was determined to be adequate until the commencement of the Fall discharge period which is permitted on October 15.

The Tables below outline the data collected from the 2025 Spring discharge event. There were no ECA limit exceedances during the event. However, there were three (3) objective exceedance for unionized ammonia that occurred due to prolonged ice cover and unusual fluctuations in weather conditions resulting in high pH, temperature and ammonia results. This caused the unionized ammonia calculation to exceed the objective of 0.1 mg/L. Refer to *Section (VIII) - Meeting the Effluent Objectives of Condition 6* for a discussion on objectives.

Additionally, as required by the ECA, an acute lethality sample was collected on April 26, 2025 and it was determined to not be acutely lethal.

Table 10 –Spring 2025 Pre-Discharge Results

	Date	CBOD5 mg/L	TSS mg/L	TP mg/L	TAN mg/L	H2S mg/L	E. coli cfu/100mL	pH	Temp °C
Cell 1	21-Mar	4.0	7.0	0.08	12.6	<0.02	1414	7.36	11.6
Cell 2	21-Mar	5.0	9.0	0.08	7.7	<0.02	49	7.53	10.7
Cell 3	21-Mar	4.0	3.0	0.04	12.3	<0.02	3	7.48	11.1

Table 11 –Spring 2025 Discharge Results

Percent (%) Draw-down	Date	Flow m ³ /d	Vol. Remain m ³	CBOD ₅ mg/L	CBOD ₅ kg/d	TSS mg/L	TSS kg/d	TP mg/L	TP kg/d	TAN mg/L	TAN kg/d	E. coli cfu/100mL
Discharge Limits						30			40		0.8	
Discharge Objectives						25			30		0.5	
Start Discharge	03-Apr	887.33	40000	8.0	7.10	12.0	10.65	<0.03	0.027	11.7	10.38	8.0
Sample #2 (12.3%)	10-Apr	956.45	35080	8.0	7.65	2.0	1.91	<0.03	0.029	11.3	10.81	0.0
Sample #3 (33.3%)	15-Apr	1298.60	26683	<4.0	5.19	4.0	5.19	<0.03	0.039	10.8	14.02	2.0
Sample #4 (45.6%)	17-Apr	2357.90	21742	<4.0	9.43	2.0	4.72	<0.03	0.071	10.8	25.46	0.0
Sample #5 (52.1%)	19-Apr	1355.60	19160	<4.0	5.42	9.0	12.20	<0.03	0.041	10.4	14.10	0.0
Sample #6 (62.2%)	22-Apr	912.38	15123	5.0	4.56	5.0	4.56	<0.03	0.027	9.7	8.85	1.0
Sample #7 (68.4%)	25-Apr	1305.50	12657	<4.0	5.22	11.0	14.36	<0.03	0.039	8.8	11.49	0.0
End Discharge (73.3%)	30-Apr	405.22	10692	4.0	1.62	4.0	1.62	0.03	0.012	7.7	3.12	8.0

Table 12 –Spring 2025 Discharge Results (continued)

% Draw-down	Date	pH	Dissolved Oxygen (mg/L)	Temp (°C)	Unionized Ammonia (mg/L)
Discharge Limits		6.0-9.5			
Discharge Objectives		6.0-8.5			0.1
Start Discharge	03-Apr	8.14	10.95	11.5	0.33
Sample #2 (12.3%)	10-Apr	6.87	10.58	10.3	0.02
Sample #3 (33.3%)	15-Apr	7.37	7.44	11.3	0.05
Sample #4 (45.6%)	17-Apr	7.72	10.15	9.0	0.10
Sample #5 (52.1%)	19-Apr	7.66	9.10	15.9	0.14
Sample #6 (62.2%)	22-Apr	7.61	10.31	15.9	0.11
Sample #7 (68.4%)	25-Apr	7.70	18.60	10.0	0.08
End Discharge (73.3%)	30-Apr	7.65	8.97	15.8	0.10

(B) FALL DISCHARGE EVENT

ECA 2829-D5VNWT states that the Fall discharge of the Cainsville Lagoons is to commence no earlier than October 15 and terminate no later than December 15. The Fall discharge event commenced on October 17, 2025 with an estimated total volume of 32,500 m³ in the three cells to be discharged. The discharge event was terminated on December 15, 2025. A total volume of 27,722 m³ was discharged from the Lagoons during this period.

Please note that due to the design and limitations of the existing infrastructure, precise automated measurement of lagoon levels is not feasible. To ensure safe and continuous operation, the reported levels are estimated based on informed inference, practical knowledge, and direct daily observations of experienced operational staff.

At the end of the discharge event, given the Cainsville Lagoons continued to receive influent during the event, it is estimated that there was approximately 12,778 m³ remaining in the three cells of the Lagoons. With a total available capacity of 50,977 m³, it was estimated that after the Fall discharge event there remained 184 days of storage capacity (assuming annual average daily capacity of 250 m³/day of influent and not accounting for precipitation or winter evaporation).

Tables 13 to 15 show the data collected from the 2025 fall discharge event. There were no ECA limit exceedances and two ECA objective exceedances during the event. Refer to *Section (VIII) – Meeting the Effluent Objectives of Condition 6* for a discussion on objectives.

Additionally, as required by the ECA, an acute lethality sample was collected on October 31, 2025 and was determined to not be acutely lethal.

Table 13 – Fall 2025 Pre-Discharge

	Date	CBOD ₅ mg/L	TSS mg/L	TP mg/L	TAN mg/L	H ₂ S mg/L	E. coli cfu/100mL	pH	Temp °C
Cell 1	29-Sept	<4.0	3.0	<0.03	5.9	<0.02	17	7.94	8.19
Cell 2	29-Sept	8.0	4.0	0.03	11.8	<0.02	11,199	7.71	7.43
Cell 2	08-Oct	-	-	-	-	-	697	-	-
Cell 3	29-Sept	4.0	3.0	0.04	0.7	<0.02	24	8.39	8.63

Table 14 – Fall 2025 Discharge Results

Sample (% Draw-down)	Date	Flow m ³ /d	CBOD ₅ mg/L	CBOD ₅ kg/d	TSS mg/L	TSS kg/d	TP mg/L	TP kg/d	TAN mg/L	TAN kg/d
Discharge Limits			30	152.1	40		0.8			
Discharge Objectives			25		30		0.5			
Start Discharge	17-Oct-25	1297.7	<4	5.19	7.0	9.08	<0.03	0.039	1.9	2.47
Sample #2 (23.2%)	24-Oct-25	679.1	2	1.36	3.0	2.04	<0.03	0.020	3.2	2.17
Sample #3 (39.0%)	31-Oct-25	757.73	5	3.79	5.0	3.79	<0.03	0.023	4.9	3.71
Sample #4 (49.1%)	07-Nov-25	266.11	<4.0	1.06	12.0	3.19	0.04	0.011	6.3	1.68
Sample #5 (51.8%)	14-Nov-25	83.81	<4.0	0.34	7.0	0.59	0.03	0.003	8.1	0.68
Sample #6 (53.0%)	21-Nov-25	9.50	<4.0	0.04	4.0	0.04	0.06	0.001	9.2	0.09
Sample #7 (55.7%)	28-Nov-25	104.54	<4.0	0.42	16.0	1.67	0.03	0.003	10.8	1.13
Sample #8 (71.5%)	08-Dec-25	1045.4	4	4.18	2.0	2.09	0.03	0.031	12.0	12.55
Sample#9 (84.5%)	11-Dec-25	1503.4	5	7.52	6.0	9.02	0.10	0.150	12.3	18.49
End Discharge (94.5%)	15-Dec-25	5.18	9	0.05	5.0	0.03	0.31	0.002	18.1	0.09

Table 15 – Fall 2025 Discharge Results Cont.

Sample (%Draw-down)	Date	<i>E. coli</i> 100mL/cfu	pH	Dissolved Oxygen mg/L	Temp °C	Unionized Ammonia mg/L
Discharge Limits			6.0-9.5			
Discharge Objectives			6.0-8.5			0.1
Start Discharge	17-Oct-25	158	8.20	8.49	15.4	0.08
Sample #2 (23.2%)	24-Oct-25	185	7.40	8.18	13.2	0.02
Sample #3 (39.0%)	31-Oct-25	579	7.27	7.88	10.5	0.02
Sample #4 (49.1%)	07-Nov-25	980	7.95	7.57	11.9	0.12
Sample #5 (51.8%)	14-Nov-25	66	7.66	8.59	6.6	0.05
Sample #6 (53.0%)	21-Nov-25	20	7.74	6.81	11.0	0.10
Sample #7 (55.7%)	28-Nov-25	82	8.13	10.86	5.0	0.17
Sample #8 (71.5%)	08-Dec-25	55	7.69	6.76	4.2	0.06
Sample#9 (84.5%)	11-Dec-25	42	7.46	4.81	3.3	0.03
End Discharge (94.5%)	15-Dec-25	162	7.62	7.85	5.5	0.09

(III) FLOW DATA

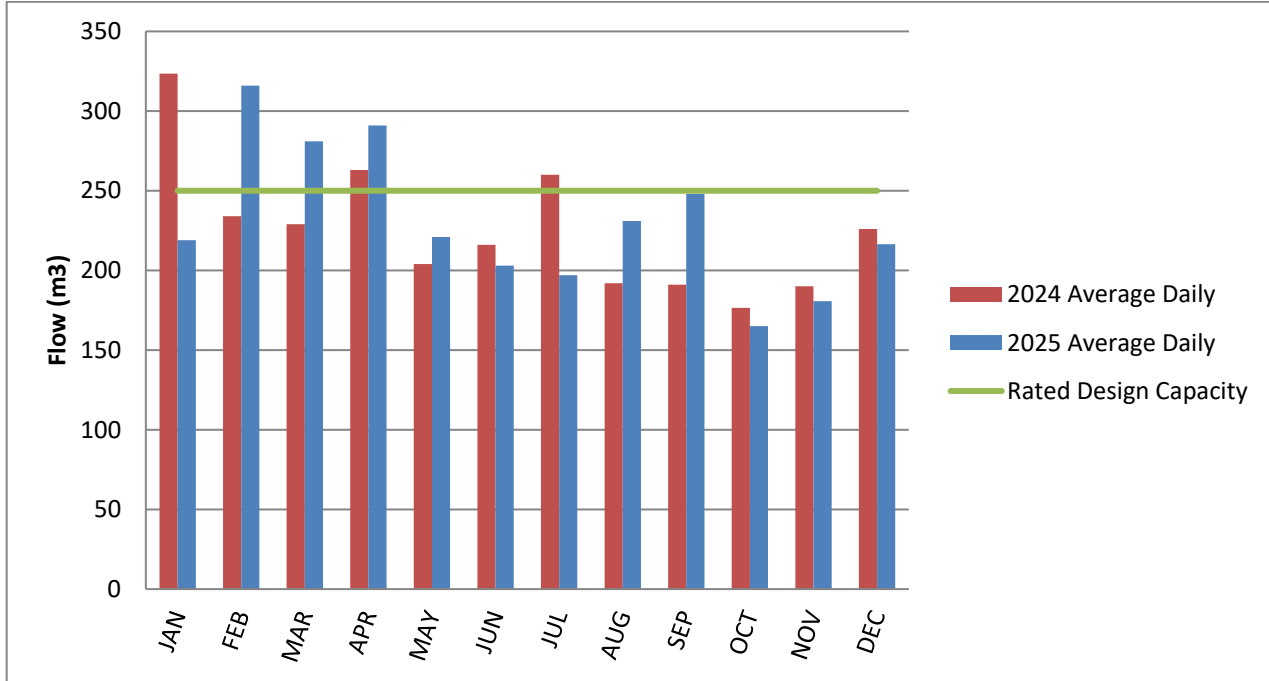
This section summarizes the influent characteristics of the Cainsville Lagoons. Influent flow data for the 2025 reporting period is listed in Table 16 below. The annual daily average flow for 2025 was 230.6 m³/day which is 92% of the approved annual daily flow.

Graph 1 shows the 2024 and 2025 average influent flow in comparison to the design capacity. Graph 2 shows the comparison from 2024 to 2025 for monthly peak day influent flows. Graph 3 shows a comparison of the 2024 and 2025 total monthly flows. The influent average daily flow increased 2% compared to 2024 and the total monthly flows have decreased 1% from 2024.

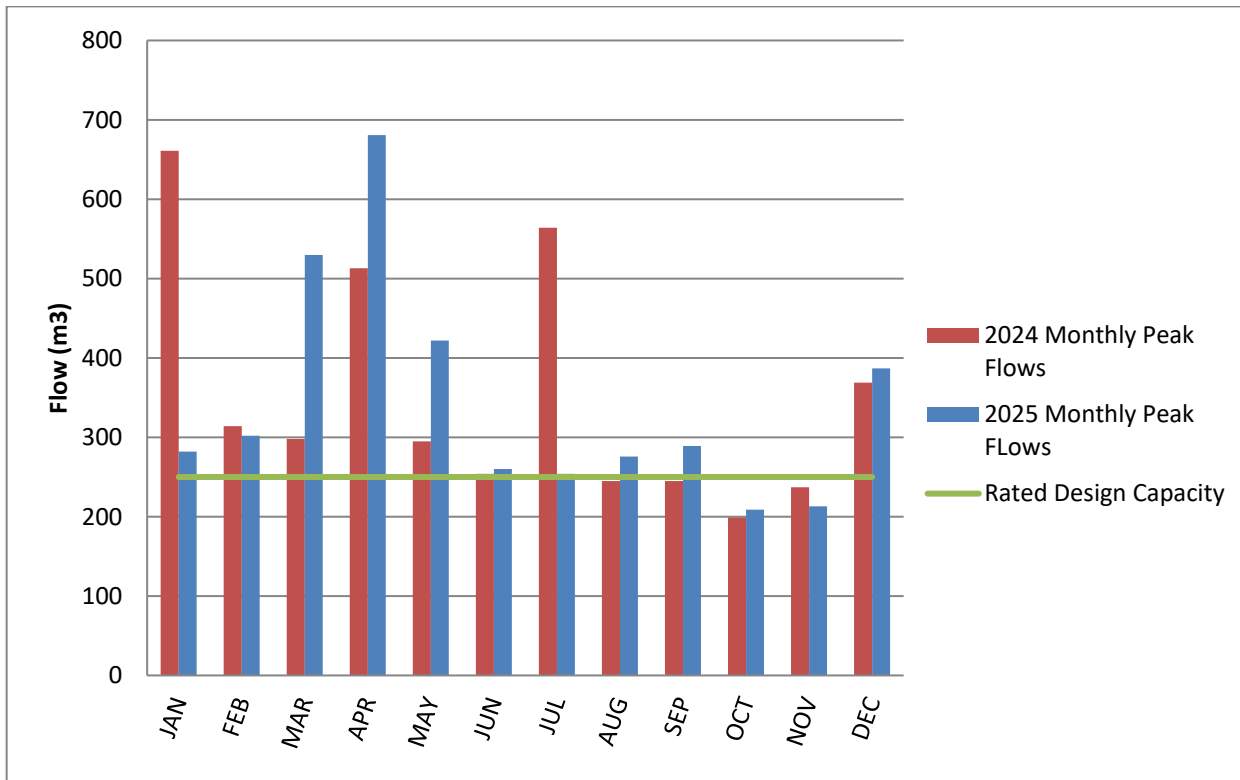
Table 16– Influent Flow Data

	Average Daily Flow (m³/d)	Peak Monthly Flow (m³/d)	Total Month Flow (m³)
January	219	282	6,780
February	316	302	6,053
March	281	530	8,718
April	291	681	8,731
May	221	422	6,843
June	203	260	6,082
July	197	254	6,113
August	231	276	7,168
September	248	289	7,440
October	165	209	5,121
November	181	213	5,421
December	216	387	6,709
TOTAL	--	--	81,178
Average	231	--	--

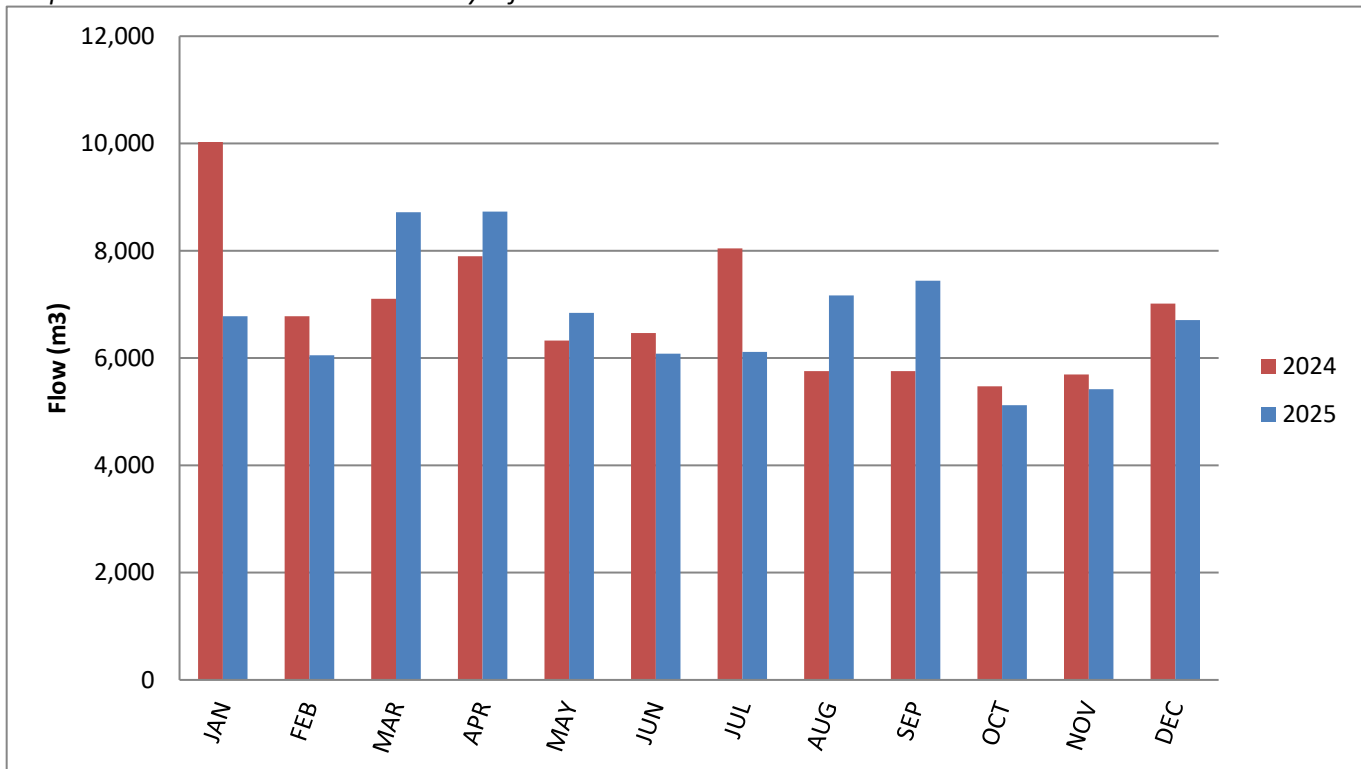
Graph 1 – 2024 and 2025 Average Daily Influent Flow



Graph 2 – 2024 and 2025 Monthly Peak Day Influent Flows



Graph 3 – 2024 and 2025 Total Monthly Influent Flows



(IV) - OPERATING PROBLEMS ENCOUNTERED

There were two operational problems encountered in 2025. The first occurred when the aerator in cell 1 was out of service until May 2025. The second was with the aerator in cell #2 failing in October 2025.

Aerator 1 was taken out of service in October 2024 for repairs. The aerator was repaired by a third-party contractor and sent back. Due to winter conditions the aerator was not able to be installed until May 2025. The removal of the aerator may have contributed towards the (3) objective exceedances for Unionized ammonia during the 2025 Spring discharge. Without sufficient Dissolved oxygen, the denitrification process is less efficient resulting in the observed high Ammonia in-house results.

In October 2025, the aerator in cell 2 was pulled for inspection when there were acoustic concerns. The shaft of the aerator was not rotating smoothly so operations staff disassembled it and attempted to place back into service. Shortly after reinstallation the unit failed again and the shaft was sent to a third-party contractor for repair. Having The removal of the aerator may have contributed towards the removed affected the treatment process as there were three (3) objective exceedances for Unionized ammonia during the 2025 fall discharge. Without sufficient Dissolved oxygen, the denitrification process is less efficient resulting in the observed high Ammonia in-house results.

The Aerator in cell 2 is currently still out for repair and operations are looking into alternative aeration methods in the meantime. It is likely there will be an impact on the Cainsville Lagoons and further discharges until the issue is resolved.

(V) - MAINTENANCE

Upgrades

There were no upgrades completed at the Cainsville Lagoons in 2025.

Maintenance

The following maintenance was performed at the Cainsville Lagoons in 2025:

Table 17– Maintenance

Date	Maintenance	Status
11-March	Contractors on site and replaced a portion of the inlet sewer to lagoon to address infiltration issues	Completed
19-March	Third party contractor on site to calibrate inlet and discharge flow meters	Completed
26-May	Contractor on site reinstalling aerator in cell #2 after repair	Completed
16-July	Contractor calibrated the portable analyzers, the Dissolved Oxygen probe on the analyzer was replaced due to failing the calibration.	Completed
October 9 – December 5	Completed Sediment Survey of all 3 lagoon cells, minor accumulation in all 3 cells as expected. Noted Cell 2 has significant accumulation around cell inlet, contractor scheduled for removal. Sediment removal completed around cell 2 inlet and contractor flushed inlet laterals on December 5.	Completed
October 15- Present	Aerator in cell 2 found to be making abnormal noises. Taken out of service for inspection. Inspection on October 20th indicated impeller was difficult to turn. Pulled apart and greased aerator back in service until November 18th.	Completed
17-October	Third party contractor on site calibrating effluent flow meter	Completed
28-October	Contractors removed phragmites from site	Completed
18-November	Removed Aerator shaft from Cell 2, shaft has failed. Sent for repair and should be back in service by middle of April 2026.	Pending

(VI) - EFFLUENT QUALITY ASSURANCE AND CONTROL MEASURES

Considerable effort goes into monitoring the characteristics of the Cainsville Lagoons influent and effluent streams. This monitoring provides essential data for process optimization by operational staff and is required to meet the ECA monitoring and reporting conditions. Grab samples are routinely collected and analyzed through in-house analysis.

Three (3) control measures have been incorporated at the Cainsville Lagoons in order to assist with effluent quality assurance for the discharge events. These control measures are discussed below.

In-House Testing

In-house laboratory testing is conducted on the effluent for Total Suspended Solids on a daily basis. Total Phosphorous, pH, temperature and Dissolved Oxygen are recorded to determine the effluent quality during the discharge periods.

Chemical Dosing System

A continuous Clar+Ion A505P dosing system is utilized at the Cainsville Lagoons to assist with phosphorus removal and promote solids settling. The chemical phosphorus removal is achieved through the settling of the metal phosphate precipitate with the sludge thus reducing the total phosphorus concentrations and promoting sludge settling to reduce total suspended solids concentrations.

The chemical dosing system is installed in a building that includes two chemical storage tanks, one chemical delivery pump, associated piping and appurtenances. Chemical is dosed into the manhole immediately upstream of the metering chamber and the distribution manhole. The chemical injection is flow paced based on feedback from the Lagoons influent flow meter.

Subsurface Aerator System

Two (2) 5 horsepower Subsurface Aerator Units were installed in 2015, one in each of the primary cells. The system was commissioned on July 30, 2015. Historically, the Lagoon cells required batch dosing of Alum to increase settling and in turn, decrease CBOD₅. Since the installation of the aerators, it is evident that the CBOD₅ concentrations have decreased and there has not been a necessity to batch dose the Lagoons prior to the discharge events. Having one aerator removed does impact the Lagoons treatment, however one aerator is sufficient to maintain treatment limits and

batch dosing alum is not required. Compared to 2024, CBOD₅ removal was lower due to the aerator in cell 2 being removed. Additionally, several objective exceedances for unionized ammonia occurred due to the aerator in cell 2 being removed, in conjunction with the ice lasting longer into the spring.

(VII) - CALIBRATIONS

Bi-annual calibrations of the influent and effluent flow meters are required at the Lagoons. Calibrations are scheduled prior to each discharge event. Calibrations were completed in 2025 on March 19th and October 17, 2025; on the influent and effluent discharge meters. Calibration records can be found in *Appendix A*. All other instrumentation at the facility (pH, DO meters) is verified and/or calibrated by OCWA operators as per manufacturer's instructions.

(VIII) - EFFLUENT OBJECTIVES

Effluent Objectives are specified in ECA 2829-D5VNWT Section 6.

There were three (3) objective exceedances during the 2025 Spring discharge event for unionized ammonia that occurred due to prolonged ice coverage, sudden fluctuations in weather conditions, and equipment malfunction. The prolonged ice coverage of the lagoons prevented timely pre-discharge sampling and delayed the 2025 Spring discharge by 18 days. The delayed discharge also challenged operators to adequately discharge the lagoons in a shorter timeframe than anticipated. Due to the circumstances, higher flows were needed to be discharged in less time than anticipated, which leaves less treatment time for the influent wastewater. Additionally, the aerator in cell 2 was not performing adequately in Fall 2024 and was removed for maintenance. Due to the prolonged ice coverage, operations were not able to reinstall it until after the discharge event. These challenges resulted in elevated ammonia results throughout the discharge event, which caused the unionized ammonia calculations to exceed the objective of 0.1 mg/L with results of 0.33 mg/L, 0.14 mg/L, and 0.11 mg/L respectively.

There were two (2) objective exceedances during the 2025 Fall discharge for unionized ammonia. October was unseasonably warm at times causing temperatures to fluctuate at the beginning of the discharge, leading to the unionized ammonia objective exceedances. An additional factor was equipment malfunction which resulted in varied pH, ammonia, and DO concentrations. Prior to the Fall discharge, the aerator in cell 2 was not performing adequately and required maintenance attention. Removing the aerator for maintenance resulted in lower DO values compared to the Spring 2025 discharge. DO, pH, and temperature are all factors that affect the unionized ammonia calculation and may have contributed to these exceedances.

All other Effluent Objectives were achieved.

(IX) - SOLIDS/SLUDGE HANDLING AND DISPOSAL

The sludge in the Cainsville Lagoons is allowed to settle out within the cells and remains on the bottom of the Lagoons until dredging. Based on incoming flows and total suspended solids concentrations, the estimated sludge generated during the reporting period was 15,840 kg. The 2026 sludge production is estimated to be the same.

Cell 1 was dredged in 2012 and Cell 2 was dredged in 2017. Cell 3 has not required dredging. The last sediment survey was completed in October 2025 which found that cell 1 had sediment accumulation near the inlet and that will require some minor sediment removal. This work was completed in December 2025. Sediment was removed from the area around inlet of Cell 1 and was deposited back into the cell near the South East corner.

Cell 2 and cell 3 noted overall minor accumulation in most areas, with the occasional peaks throughout which is not concerning at this time. The cells have a higher accumulation of sediment around their inlets and outlets, which correlates with the direction and velocity of flow through the system.

The survey estimates that cell 1 may require dredging within the next 1-3 years; cell 2 may require dredging in 4-6 years; cell 3 may require dredging in 8-10 years. The next sediment surveys will be completed in 2026.

(X) - SUMMARY OF COMPLAINTS RECEIVED

The Cainsville Lagoons did not receive any complaints during 2025

(XI) - SUMMARY OF BY-PASS, SPILL, OR ABNORMAL DISCHARGE EVENTS

The Cainsville Lagoons were not involved in any extended contingency discharges, spills, by-passes or emergency discharge events during the 2025 reporting period.

(XII) – OTHER INFORMATION

There is no additional information to report for the Cainsville Lagoons for 2025.

APPENDIX A
CALIBRATION RECORDS

Certificate of Calibration

Open Channel Flow Meter



595758 Hwy 59 North RR6
 Woodstock, ON. N4S 7W1
 Ph#: 519-535-9835
 Email: Jfranssen@jbfcontrols.com

Verification
 Calibration

Calibration Date: March 19, 2025
 Due Date: **March 19, 2026**

Client Information

Ontario Clean Water Agency - Southwest Region / Paris Cluster
 120 Race Street,
 Paris, Ontario, N3L 3X2

SCADA Reading Confirmation		
Instrument	SCADA	% Deviation
17.395	17.395	0.000%

Project: OCWA202201	Manufacturer: Siemens	As Found:	17.395 m3/hr
Client: OCWA	Transmitter Model: OCM III	As Left:	17.395 m3/hr
Client Contact: Ben Madill	Transmitter S/N: PBD/BN280037	Totalizer Reading:	519644 m3
Location: Cainsville	Transducer Model: XRS-5C	K-Factor:	N/A
Facility: Cainsville Lagoon	Transducer S/N: N/A	Current Output (mA):	4 to 20
Technician: Jeremy Franssen	OCM Device Type: Palmer Bowlus Flume	Flow Range:	0 to 30.0811
Meter Purpose: Influent Flow	OCM Device Size: 6"	Units:	m3/hr
Application: Waste Water	Tag Number: FIT 062122	Accuracy:	5.00% Reading

mA Output

Reference: mA	As Found: mA	% Deviation	As Left: mA	% Deviation	PASS/FAIL
4.000	3.976	0.150%	3.976	0.150%	PASS
8.000	7.976	0.150%	7.976	0.150%	PASS
12.000	11.975	0.156%	11.975	0.156%	PASS
16.000	15.975	0.156%	15.975	0.156%	PASS
20.000	19.974	0.162%	19.974	0.162%	PASS

Flow Rate Output

Reference:	Measured:	Calc. Flow	Display Reading	Calculated:	Measured:	% Deviation	Result
cm	cm	m3/hr	m3/hr	mA	mA		
8.030	8.050	17.513	17.395	13.345	13.105	0.187%	PASS

Parameters			Parameters		
P1	Dimensional units	cm	P45	Low Flow Cut-off	0
P2	Temperature Units	Celcius	P46	Range at Zero Head	63.79999
P3	Primary Element	Palmer Bowlus Flume	P47	Blanking Distance	45
P4	Method of Calculation	Ratiometric			
P5	Flow Rate Units	m3/hr			
P6	Flow at Max Head	30.0811			
P7	Height of Max Head	10.668			
U0	Exponent	15.23999			
P24	mA Assignment	Flow rate			
P26	mA Span	4-20mA			
P32	Totalizer Multiplier	x1			
P42	Head Determination	OCM III			

Remarks: Verification of Level Transmitter Parameters. Confirm, OK.
 Verification of 4-20 mA Output, only used for output to chemical pump
 Verification of Instrument to SCADA Readings, No SCADA Setup
 Cleaned and Certified

Ratiometric Calculation
 $Q = KH^n$
 $Q = 2112.6(0.0803)^{1.5}$
 $Q = 17.513 \text{ m3/hr}$

Calibration Standards Used

Description	Serial n°	Certificate n°	Calibration Date	Due Date
Fluke 705 Loop Calibrator	4624185	57113-B	March 2024	March 2025

Calibration standards used in the certificate are traceable to the National Institute of Standards and Technology (NIST).

Service Technician: Jeremy Franssen
 Signature

This certificate shall not be reproduced except in full.

Version 1.0

Certificate of Calibration

Open Channel Flow Meter



595758 Hwy 59 North RR6
 Woodstock, ON. N4S 7W1
 Ph#: 519-535-9835
 Email: Jfranssen@jbfcontrols.com

Verification
 Calibration

Calibration Date: March 19, 2025
 Due Date: **March 19, 2026**

Client Information

Ontario Clean Water Agency - Southwest Region / Paris Cluster
 120 Race Street,
 Paris, Ontario, N3L 3X2

SCADA Reading Confirmation		
Instrument	SCADA	% Deviation
0.000	0.000	0.000%

Project: OCWA202201	Manufacturer: Siemens	As Found: 0.000 L/s
Client: OCWA	Transmitter Model: OCM III	As Left: 0.000 L/s
Client Contact: Ben Madill	Transmitter S/N: PBD/BD80594 XV	Totalizer Reading: 47505246 m3
Location: Cainsville	Transducer Model: XRS-5C	K-Factor: N/A
Facility: Cainsville Lagoon	Transducer S/N: N/A	Current Output (mA): 4 to 20
Technician: Jeremy Franssen	OCM Device Type: Parshall Flume	Flow Range: 0 to 50.0000
Meter Purpose: Effluent Flow	OCM Device Size: 6"	Units: L/s
Application: Waste Water	Tag Number: FIT 386839	Accuracy: 5.00% Reading

mA Output

Reference: mA	As Found: mA	% Deviation	As Left: mA	% Deviation	PASS/FAIL
4.000	4.028	0.175%	4.028	0.175%	PASS
8.000	8.030	0.187%	8.030	0.187%	PASS
12.000	12.032	0.200%	12.032	0.200%	PASS
16.000	16.035	0.219%	16.035	0.219%	PASS
20.000	20.038	0.238%	20.038	0.238%	PASS

Flow Rate Output


Reference:	Measured:	Calc. Flow	Display Reading	Calculated:	Measured:	% Deviation	Result
cm	cm	L/s	L/s	mA	mA		
0.000	0.000	0.000	0.000	4.000	4.024	0.000%	PASS

Parameters			Parameters		
P1	Dimensional units	cm	P45	Low Flow Cut-off	0
P2	Temperature Units	Celcius	P46	Range at Zero Head	69.36129
P3	Primary Element	Exponential Device	P47	Blanking Distance	39.86
P4	Method of Calculation	Ratiometric			
P5	Flow Rate Units	L/s			
P6	Flow at Max Head	50			
P7	Height of Max Head	27.6399			
U0	Exponent	1.58			
P24	mA Assignment	Flow rate			
P26	mA Span	4-20mA			
P32	Totalizer Multiplier	x10			
P42	Head Determination	OCM III			

Remarks:	Verification of Level Transmitter Parameters. Confirm, OK. Verification of 4-20 mA Output, Not in Use. Verification of Instrument to SCADA Readings, No SCADA Setup Cleaned and Certified	Ratiometric Calculation $Q=KH^n$ $Q=381.2(0)^{1.58}$ $Q=0$ L/s
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Calibration Standards Used				
Description	Serial n°	Certificate n°	Calibration Date	Due Date
Fluke 705 Loop Calibrator	4624185	57113-B	March 2024	March 2025

Calibration standards used in the certificate are traceable to the National Institute of Standards and Technology (NIST).


 Service Technician: Jeremy Franssen

Certificate of Calibration



595758 Hwy 59 North RR6
 Woodstock, ON. N4S 7W1
 Ph#: 519-535-9835
 Email: Jfranssen@jbfcontrols.com

Open Channel Flow Meter

Verification
 Calibration

Calibration Date: October 17, 2025

Due Date: **October 17, 2028**

Client Information

Ontario Clean Water Agency - Southwest Region / Paris Cluster
 120 Race Street,
 Paris, Ontario, N3L 3X2

SCADA Reading Confirmation		
Instrument	SCADA	% Deviation
0.000	0.000	0.000%

Project: OCWA202201	Manufacturer: Siemens	As Found: 0.000 L/s
Client: OCWA	Transmitter Model: OCM III	As Left: 0.000 L/s
Client Contact: Ben Madill	Transmitter S/N: PBD/BD80594 XV	Totalizer Reading: 50521752 m3
Location: Cainsville	Transducer Model: XRS-5C	K-Factor: N/A
Facility: Cainsville Lagoon	Transducer S/N: N/A	Current Output (mA): 4 to 20
Technician: Jeremy Franssen	OCM Device Type: Parshall Flume	Flow Range: 0 to 50.0000
Meter Purpose: Effluent Flow	OCM Device Size: 6"	Units: L/s
Application: Waste Water	Tag Number: FIT 386839	Accuracy: 5.00% Reading

mA Output

Reference: mA	As Found: mA	% Deviation	As Left: mA	% Deviation	PASS/FAIL
4.000	4.028	0.175%	4.028	0.175%	PASS
8.000	8.030	0.187%	8.030	0.187%	PASS
12.000	12.032	0.200%	12.032	0.200%	PASS
16.000	16.035	0.219%	16.035	0.219%	PASS
20.000	20.038	0.238%	20.038	0.238%	PASS

Flow Rate Output

Reference:	Measured:	Calc. Flow	Display Reading	Calculated:	Measured:	% Deviation	Result
cm	cm	L/s	L/s	mA	mA		
0.020	0.000	0.000	0.000	4.000	4.024	0.072%	PASS
15.960	16.000	20.960	20.810	10.707	10.737	0.145%	PASS

Parameters			Parameters		
P1	Dimensional units	cm	P45	Low Flow Cut-off	0
P2	Temperature Units	Celcius	P46	Range at Zero Head	69.36129
P3	Primary Element	Exponential Device	P47	Blanking Distance	39.86
P4	Method of Calculation	Ratiometric			
P5	Flow Rate Units	L/s			
P6	Flow at Max Head	50			
P7	Height of Max Head	27.6399	Parameter	<u>Relays</u>	
U0	Exponent	1.58	Relay 1	P15	P17
P24	mA Assignment	Flow rate	Parameter	P18	P19
P26	mA Span	4-20mA	Relay 2	0	-
P32	Totalizer Multiplier	x10	Parameter	P21	P22
P42	Head Determination	OCM III	Relay 3	0	-

Remarks:	Verification of Level Transmitter Parameters. Confirm, OK. Verification of 4-20 mA Output, Not in Use. Verification of Instrument to SCADA Readings, No SCADA Setup Cleaned and Certified	Ratiometric Calculation $Q=KH^n$ $Q=381.2(0.1596)^{1.58}$ $Q=20.96$ L/s
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Calibration Standards Used				
Description	Serial n°	Certificate n°	Calibration Date	Due Date
Fluke 705 Loop Calibrator	4624185	59234-B	April 2025	April 2026

Calibration standards used in the certificate are traceable to the National Institute of Standards and Technology (NIST).

Service Technician: Jeremy Franssen
 Signature

APPENDIX B
SITE PLAN

