

2024 ANNUAL SEWAGE REPORT

SHELBURNE WASTEWATER
TREATMENT PLANT &
COLLECTION SYSTEM

For the period of
January 1st, 2024 to December 31st, 2024

Prepared for the Corporation of the Town of Shelburne by the Ontario Clean Water Agency



A People Place, A Change of Pace
SHELBURNE
ONTARIO, CANADA



ONTARIO CLEAN WATER AGENCY
AGENCE ONTARIENNE DES EAUX

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Appendix A: 2024 Performance Assessment Report

Appendix B: 2024 Sludge Haulage Summary, Sludge Quality Analysis, & Septage Receiving

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Appendix F: 2024 ECA Limit Exceedance Email/Written Notifications

1. System Description

The Shelburne Wastewater Treatment Plant (WWTP) is an extended aeration sewage treatment plant (STP) with tertiary treatment and is located at 300 Centennial Road in the Town of Shelburne, Ontario. The WWTP is owned by the Town of Shelburne and the Operating Authority is the Ontario Clean Water Agency. The WWTP is operated under amended ECA #6413-ABLQQS as a municipal sewage works for the collection, transmission, treatment and disposal of sewage, under a plant rated capacity of 3,420 m³/d. The WWTP serves a community of approximately 9,384 persons. The community first obtained a waste disposal system in 1968 with the construction of a 5.5 ha lagoon and associated gravity collection and pumping system. Consistent growth over the years lead to the construction in 1981, of the current wastewater treatment system. The expansion consisted of a new trunk sewer, pumping facilities, secondary and tertiary treatment and modifications to the existing lagoons, which now provide storm and effluent holding during excess storm flows, plant upsets and maintenance.

The facility consisted of a wet well, a manual screen, grit channels, an oxidation ditch, one secondary clarifier, four effluent sand filters and a chlorine contact chamber. The oxidation ditch used two brush rotors. The facility operated as an extended aeration plant in this configuration from 1981 until December 1999.

A major expansion (Phase 1) took place at the Shelburne WWTP in 1999, changing the configuration of the plant and the method of treating wastewater. The plant underwent construction starting in April 1999 with the start-up of the new process in December of 1999. The Shelburne WWTP is still an extended aeration plant. As an extended aeration plant it is designed to remove suspended solids, CBOD₅ and phosphorus from the wastewater. Major improvements included two aeration tanks constructed with fine bubble diffusers. The sludge treatment system consists of a two stage aerobic sludge digestion system with a total storage volume of 580m³, equipped with coarse bubble aeration system and supernatant decanting. The former oxidation ditch was converted to a sludge storage facility with approximately six months storage.

Sludge loading facilities provide for transfer of digested aerobic sludge to trucks. Digested sludge is land-applied as farm fertilizer.

The major process units consist of: equalization and influent works, aeration tanks, secondary clarifiers, disk filtration, UV disinfection, and aerobic biosolids digesters and sludge holding tank, chemical dosing (Aluminum Sulfate) and plant air (blowers). This facility receives residential, commercial, institutional and industrial wastewater and provides a level of treatment to meet the requirements of Amended Environmental Compliance Approval - #6413-ABLQQS with discharge into the Besley Drain, a minor tributary of the Boyne River. The Boyne River empties into the Nottawasaga River, ultimately meeting Georgian Bay.

A "Process Flow Schematic" is included in **Appendix D** of this report.

An overview of Shelburne Wastewater Treatment Plant can be found in Table 1:

Table 1. Shelburne Wastewater Treatment Plant Overview

Facility Name	Shelburne Wastewater Treatment Plant
Facility Type	Extended Air STP with Tertiary Treatment
Plant Classification	WWT III, WWC II
Works Number	110000659
Design Capacity	3,420 m ³ /day
Designed Peak	8,921 m ³ /day
Receiving Water	Besley Drain to Boyne River to Nottawasaga River
Environmental Compliance Approval	6413-ABLQQS , issued July 19, 2016

2. Monitoring Data and Comparison to Effluent Limits

As per Section 10(6)(a) of ECA 6413-ABLQQS, a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Effluent Limits of Condition 7, including an overview of the success and adequacy of the Works is required.

2.1 ECA Monitoring Program

The following tables outlines the hauled sewage, influent and effluent monitoring program at the Shelburne WWTP as required by the most current ECA for the reporting period. There are additional in-house samples taken and analyzed throughout the year in order to help with process performance monitoring, adjustment, and optimization. These parameters were analyzed by an accredited analytical laboratory (SGS Canada Inc., Lakefield, Ontario). The sampling frequencies meet the requirements set out in Section 9 of ECA 6413-ABLQQS.

Table 2. Hauled Sewage Water Quality Monitoring Program and Sampling Points - as per ECA 6413-ABLQQS Section 9(3)

Parameter	Sample Type	Minimum Frequency
BOD ₅ ^{2A}	Grab	Monthly
Total Suspended Solids ^{2A}	Grab	Monthly
Total Phosphorus ^{2A}	Grab	Monthly
Total Kjeldahl Nitrogen ^{2A}	Grab	Monthly

^{2A}Refer to Appendix A for monthly sample results.

Table 3. Raw Sewage (Influent) Water Quality Monitoring Program and Sampling Points - as per ECA 6413-ABLQQS Section 9(3)

Parameter	Sample Type	Minimum Frequency
BOD ₅ ^{3A}	Composite	Monthly
Total Suspended Solids ^{3A}	Composite	Monthly
Total Phosphorous ^{3A}	Composite	Monthly
Total Kjeldahl Nitrogen ^{3A}	Composite	Monthly

^{3A}Refer to Appendix A for monthly sample results.

Table 4. Final Effluent Water Quality Monitoring Program and Sampling Points- *as per ECA 6413-ABLQQS Section 9(3)*

Parameter	Sample Type	Minimum Frequency
CBOD ₅ ^{4A}	Composite	Weekly
Total Suspended Solids ^{4A}	Composite	Weekly
Total Phosphorous ^{4A}	Composite	Weekly
Total Ammonia Nitrogen ^{4A}	Composite	Weekly
<i>E. Coli</i> ^{4A}	Grab	Weekly
pH	Grab/Probe	Weekly
Temperature	Grab/Probe	Weekly

^{4A}Refer to Appendix A for monthly sample results.

2.2 Effluent Objectives and Effluent Limits

The following tables outline the final effluent objectives, limits and loadings at the Shelburne WWTP as per its ECA. The applicable effluent parameters are either “concentrations” expressed as milligrams per litre or “loadings” expressed as kilograms per day. As per Section 7, concentration Limits for CBOD₅, TSS, TP, and TAN are reportable based on a monthly average effluent concentration, *E.Coli* based on a monthly Geometric Mean Density, pH based on a Single Sample Result, and the Loading Limits are reportable based on a Monthly Average Waste Loading.

Table 5. Final Effluent Design Objectives - *as per Section 6(1) of ECA 6413-ABLQQS*

Effluent Parameter	Concentration Objective (mg/L)
CBOD ₅	4.0
Total Suspended Solids	4.0
Total Phosphorous	0.12
Total Ammonia Nitrogen	
June 01 to Sept 30	0.5
Oct 01 to May 31	2.0
<i>E.coli</i>	150 CFU /100 mL (monthly Geometric Mean Density)
pH	maintained between 6.5 to 8.5, inclusive, at all times

Table 6. Final Effluent Design Limits - *as per Section 7(1) of ECA 6413-ABLQQS*

Effluent Parameter	Average Concentration Limit (mg/L)	Average Waste Loading Limit (kg/day)
CBOD ₅	5.0	17.1
Total Suspended Solids	5.0	17.1
Total Phosphorous	0.25	0.86
Total Ammonia Nitrogen		
Jun 01 to Sep 30	0.8	2.7
Oct 01 to May 31	2.4	8.2
<i>E.coli</i>	200 CFU /100 mL (monthly Geometric Mean Density)	n/a

Effluent Parameter	Average Concentration Limit (mg/L)	Average Waste Loading Limit (kg/day)
pH	maintained between 6.0 to 9.5, inclusive, at all times	

2.3 Effluent Monitoring Data: Comparison to Objectives and Limits

Analytical and monitoring data for the Shelburne Wastewater Treatment Facility is stored in OCWA’s data management system (WISKI). Annual and monthly averages for flows, CBOD₅, Suspended Solids, Total Phosphorous, Nitrogen-series and *E.coli* can be found in Appendix A. A comparison of analytical data from effluent samples to the effluent objectives and effluent limits shown in the below tables.

Table 7. Effluent Sampling Results: CBOD₅ and CBOD₅ Loading Concentrations^{7A}

	CBOD ₅					
	Monthly Average Concentration (mg/L)	Within Objectives (4.00 mg/L)	Within Limits (5.00 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (kg/d)	Within Limits (17.10 kg/d)
January	<2.20	Yes	Yes	<5.85	n/a	Yes
February	<2.00	Yes	Yes	<5.39	n/a	Yes
March	4.25	No	Yes	12.03	n/a	Yes
April	<2.00	Yes	Yes	<6.31	n/a	Yes
May	<2.25	Yes	Yes	<6.69	n/a	Yes
June	<2.00	Yes	Yes	<5.43	n/a	Yes
July	<2.00	Yes	Yes	<5.66	n/a	Yes
August	<2.00	Yes	Yes	<4.56	n/a	Yes
September	<2.50	Yes	Yes	<5.25	n/a	Yes
October	<2.00	Yes	Yes	<4.29	n/a	Yes
November	<2.50	Yes	Yes	<5.52	n/a	Yes
December	<2.00	Yes	Yes	<4.78	n/a	Yes

^{7A}As per the ECA, CBOD₅ Concentration Averaging Calculator is a Monthly Average Effluent Concentration

^{7A}As per the ECA, CBOD₅ Loading Limits Concentration Averaging Calculator is a Monthly Average Daily Effluent Loading

Table 8: Effluent Sampling Results: TSS and TSS Loading Concentrations^{8A}

	Total Suspended Solids					
	Monthly Average Concentration (mg/L)	Within Objectives (4.00 mg/L)	Within Limits (5.00 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (kg/d)	Within Limits (17.10 kg/d)
January	<3.40	Yes	Yes	<9.05	n/a	Yes
February	2.50	Yes	Yes	6.73	n/a	Yes
March	6.00	No	No^{8B}	16.98	n/a	Yes
April	4.40	No	Yes	13.88	n/a	Yes
May	3.50	Yes	Yes	10.40	n/a	Yes

	Total Suspended Solids					
	Monthly Average Concentration (mg/L)	Within Objectives (4.00 mg/L)	Within Limits (5.00 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (kg/d)	Within Limits (17.10 kg/d)
June	<4.73	No	Yes	<12.85	n/a	Yes
July	2.60	Yes	Yes	7.36	n/a	Yes
August	2.75	Yes	Yes	6.26	n/a	Yes
September	<2.25	Yes	Yes	<4.73	n/a	Yes
October	<2.60	Yes	Yes	<5.58	n/a	Yes
November	2.50	Yes	Yes	5.52	n/a	Yes
December	<3.00	Yes	Yes	<7.18	n/a	Yes

^{8A}As per the ECA, TSS Concentration Averaging Calculator is a Monthly Average Effluent Concentration

^{8A}As per the ECA, TSS Loading Limits Concentration Averaging Calculator is a Monthly Average Daily Effluent Loading

^{8B}Notification of non-compliances was made for the TSS limit exceedance in March, 2024. Further details can be found in Appendix F

Table 9: Effluent Sampling Results: TP and TP Loading Concentrations^{9A}

	Total Phosphorus					
	Monthly Average Concentration (mg/L)	Within Objectives (0.12 mg/L)	Within Limits (0.25 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (kg/d)	Within Limits (0.86 kg/d)
January	0.06	Yes	Yes	0.17	n/a	Yes
February	0.08	Yes	Yes	0.20	n/a	Yes
March	0.13	No	Yes	0.36	n/a	Yes
April	0.07	Yes	Yes	0.22	n/a	Yes
May	0.07	Yes	Yes	0.21	n/a	Yes
June	0.08	Yes	Yes	0.21	n/a	Yes
July	0.05	Yes	Yes	0.14	n/a	Yes
August	0.05	Yes	Yes	0.10	n/a	Yes
September	0.03	Yes	Yes	0.07	n/a	Yes
October	0.05	Yes	Yes	0.10	n/a	Yes
November	0.06	Yes	Yes	0.14	n/a	Yes
December	0.05	Yes	Yes	0.13	n/a	Yes

^{9A}As per the ECA, TP Concentration Averaging Calculator is a Monthly Average Effluent Concentration

^{9A}As per the ECA, TP Loading Limits Concentration Averaging Calculator is a Monthly Average Daily Effluent Loading

Table 10: Effluent Sampling Results: TAN and TAN Loading Concentrations^{10A}

	Total Ammonia Nitrogen (Ammonia Nitrogen + Ammonium Nitrogen)									
	Monthly Average Concentration (mg/L)	Within Objectives (Jun 01-Sept 30 0.50 mg/L)	Within Objectives (Oct 01-May 31 2.00 mg/L)	Within Limits (Jun 01-Sept 30 0.80 mg/L)	Within Limits (Oct 01-May 31 2.4 mg/L)	Monthly Average Loading (kg/d)	Within Objectives (Dec 01-Apr 30 kg/d)	Within Objectives (May 01-Nov 30 kg/d)	Within Limits (June 01-Sept 30 2.70 kg/d)	Within Limits (Oct 01-May 31 8.20 kg/d)
January	<0.10	n/a	Yes	n/a	Yes	<0.27	n/a	n/a	n/a	Yes
February	<0.53	n/a	Yes	n/a	Yes	<1.41	n/a	n/a	n/a	Yes
March	0.40	n/a	Yes	n/a	Yes	1.13	n/a	n/a	n/a	Yes
April	<0.40	n/a	Yes	n/a	Yes	<1.26	n/a	n/a	n/a	Yes
May	<0.10	n/a	Yes	n/a	Yes	<0.30	n/a	n/a	n/a	Yes
June	<0.13	Yes	n/a	Yes	n/a	<0.34	n/a	n/a	Yes	n/a
July	<0.10	Yes	n/a	Yes	n/a	<0.28	n/a	n/a	Yes	n/a
August	<0.10	Yes	n/a	Yes	n/a	<0.23	n/a	n/a	Yes	n/a
September	<0.10	Yes	n/a	Yes	n/a	<0.21	n/a	n/a	Yes	n/a
October	<0.14	n/a	Yes	n/a	Yes	<0.30	n/a	n/a	n/a	Yes
November	<0.10	n/a	Yes	n/a	Yes	<0.22	n/a	n/a	n/a	Yes
December	<0.12	n/a	Yes	n/a	Yes	<0.29	n/a	n/a	n/a	Yes

^{10A}As per the ECA, TAN Concentration Averaging Calculator is a Monthly Average Effluent Concentration

^{10A}As per the ECA, TAN Loading Limits Concentration Averaging Calculator is a Monthly Average Daily Effluent Loading

Table 11: Effluent Sampling Results: E.coli Concentrations

	E.coli		
	Monthly Geometric Mean Density (CFU/100mL)	Within Objectives (150 CFU/100mL)	Within Limits (200 CFU/100mL)
January	1.89	Yes	Yes
February	2.00	Yes	Yes
March	2.00	Yes	Yes
April	1.68	Yes	Yes
May	1.68	Yes	Yes
June	1.68	Yes	Yes
July	2.00	Yes	Yes
August	2.00	Yes	Yes
September	1.68	Yes	Yes
October	2.00	Yes	Yes

	<i>E.coli</i>		
	Monthly Geometric Mean Density (CFU/100mL)	Within Objectives (150 CFU/100mL)	Within Limits (200 CFU/100mL)
November	2.00	Yes	Yes
December	2.00	Yes	Yes

Table 12: Effluent Sampling Results: pH

	pH			
	pH Monthly Minimum	pH Monthly Maximum	Within Objectives (6.5-8.5)	Within Limits (6.0-9.5)
January	7.36	7.45	Yes	Yes
February	7.38	7.57	Yes	Yes
March	7.51	7.56	Yes	Yes
April	7.47	7.61	Yes	Yes
May	7.56	7.63	Yes	Yes
June	7.48	7.61	Yes	Yes
July	7.44	7.66	Yes	Yes
August	7.06	7.74	Yes	Yes
September	7.57	7.80	Yes	Yes
October	7.54	7.71	Yes	Yes
November	7.56	7.72	Yes	Yes
December	7.47	7.66	Yes	Yes

Table13: Effluent Sampling Results: Temperature

	Temperature	
	Monthly Minimum (°C)	Monthly Maximum (°C)
January	12.4	14.2
February	12.2	13.7
March	12.9	14.7
April	14.1	15.4
May	16.5	17.8
June	17.3	20.3
July	18.7	22.0
August	19.8	23.0
September	20.5	22.4
October	18.0	22.0
November	16.1	18.7
December	13.0	15.8

A review of the effluent monitoring data shows that the following parameters were within the objectives (as applicable) and limits set out in the most current ECA for the duration of the 2024 reporting period:

- CBOD5 monthly average daily effluent loading
- TSS monthly average daily effluent loading
- TP monthly average daily effluent loading
- TAN monthly average effluent concentration
- TAN monthly average daily effluent loading
- *E.coli* monthly geometric mean density
- pH single sample results

A review of the effluent monitoring data shows that the following parameters were within the limits set out in the most current ECA for the duration of reporting period but were unable to meet the objectives in the following instances:

- CBOD₅ monthly average effluent concentration – March 2024
- TSS monthly average effluent concentration – April and June 2024
- TP monthly average effluent concentration – March 2024

It should be noted that as per the ECA, the objectives are non-enforceable design objectives to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs. Exceedances of objectives is not reportable.

A review of the effluent monitoring data shows that the following parameters were within the limits set out in the most current ECA for some of the reporting period with the exception of:

- TSS monthly effluent concentration - for March 2024

The TSS monthly average concentrations exceeded the limit of 5.0 mg/L in March 2024. See *Section 4.0 Operational Issues and Corrective Actions* for more details.

2.4 Effluent Flow: Summary and Interpretation of Reporting Year

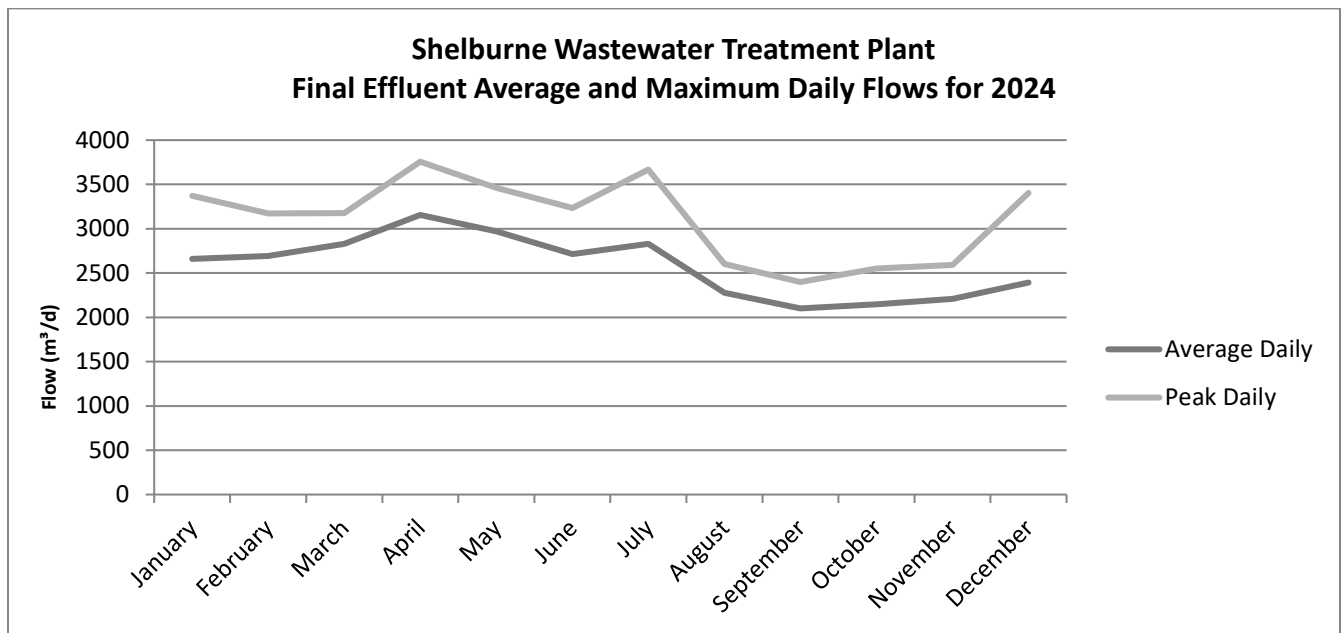
The following table (Table 14) outlines the final effluent average daily flow data in 2024 and the graph shows the final effluent daily and peak final effluent flow by month for the reporting period.

Table 14: Final Effluent Average Daily Flow and Peak Flow Data by Month for 2024

Month	Average Daily (m ³ /day)	Peak Daily (m ³ /day)	Total (m ³ /day)
January	2661.03	3371.70	82491.80
February	2693.41	3171.80	78109.00
March	2829.77	3177.00	87722.80
April	3155.41	3756.40	94662.20
May	2972.02	3462.90	92132.70
June	2714.82	3235.60	81444.70
July	2830.51	3667.20	87745.80

Month	Average Daily (m ³ /day)	Peak Daily (m ³ /day)	Total (m ³ /day)
August	2277.35	2600.80	70597.80
September	2100.75	2398.60	63022.62
October	2145.30	2550.90	66504.30
November	2209.52	2589.80	66285.70
December	2391.53	3403.30	74137.40
2024 Average	2581.58	3756.40	944856.82

Graph 1: Average Daily and Peak Daily Final Effluent Flow by Month for 2024



2.5 Additional Monitoring Parameters

The following parameters in Table 15 are not reportable as they do not have limits or objectives but are monitored on a regular basis (see Section 2.1 for sampling frequency) as required by Amended ECA #6413-ABLQQS and used to characterize the contents of incoming sewage flow. A summary of the influent laboratory results can be seen in Table 15 for samples taken and analyzed during the reporting period. Sample results are based on monthly 24 hour composite samples and analyzed by an accredited external laboratory. A total of 12 influent samples were analyzed for the reporting period.

A review of the information for the reporting year compared to 2023 shows:

- Overall, in 2024 raw sewage quality for the parameters listed below show half of the parameter results were higher and half were lower when compared to 2023.
- BOD₅ – annual average was 406.33 mg/L in 2023 and was higher this year at 560.25 mg/L.
- TSS – annual average was 582.33 mg/L in 2023 and was higher this year at 1150.67 mg/L.
- TP – annual average was 6.40 mg/L in 2023 and lower this year at 6.31 mg/L.

- TKN – annual average was 69.33 mg/L in 2023 and was lower this year at 51.23 mg/L.

Table 15: Raw Sewage (Influent) Quality Analysis for 2024

Parameter	Average (mg/L)	Minimum (mg/L)	Maximum (mg/L)
BOD ₅ ^{15A}	560.25	229.00	1720.00
Total Suspended Solids ^{15A}	1150.67	272.00	6550.00
Total Phosphorous ^{15A}	6.31	4.16	10.20
Total Kjeldahl Nitrogen ^{15A}	51.23	36.00	118.00

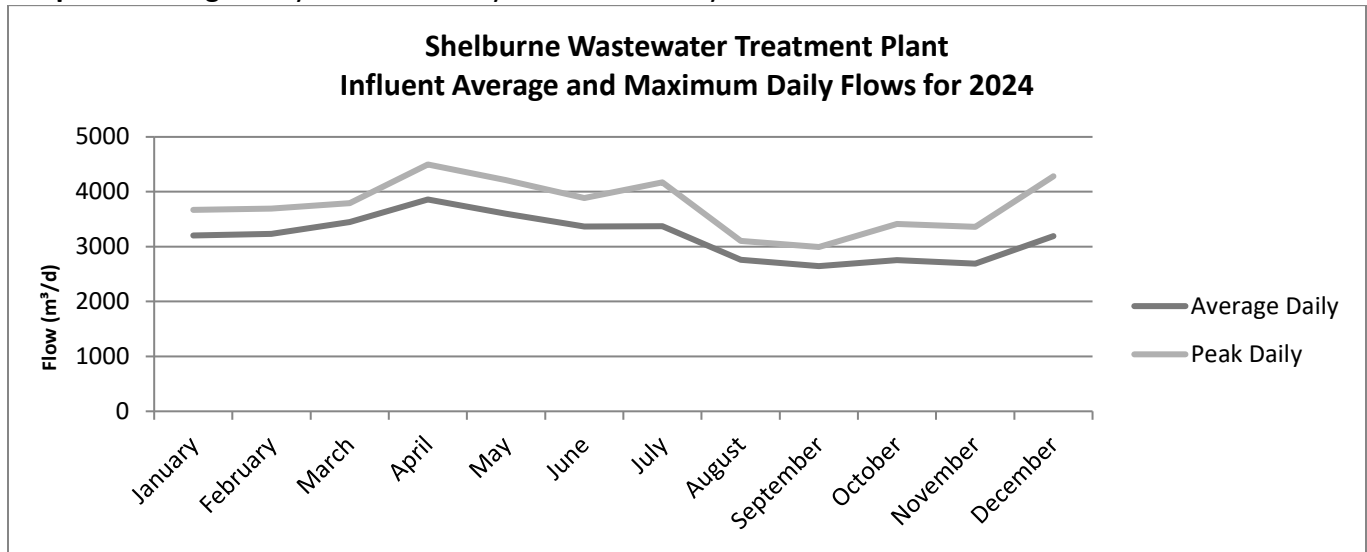
^{15A}Refer to Appendix A for monthly sample results.

The following table (Table 16) outlines the influent average daily flow data in 2024 and the graph shows the final effluent daily and peak final effluent flow by month for the reporting period.

Table 16: Influent Average Daily Flow and Peak Flow Data by Month for 2024

Month	Average Daily (m ³ /day)	Peak Daily (m ³ /day)	Total (m ³ /day)
January	3202.70	3671.00	99283.60
February	3231.87	3690.90	93724.20
March	3448.74	3795.30	106910.90
April	3859.63	4497.40	115788.80
May	3597.45	4212.00	111520.80
June	3366.10	3887.10	100983.10
July	3371.18	4173.10	104506.60
August	2761.67	3102.10	85611.90
September	2645.55	2993.60	79366.60
October	2753.10	3412.20	85346.00
November	2691.14	3362.10	80734.10
December	3193.98	4281.00	99013.50
2024 Average	3177.02	4497.40	1162790.10

Graph 2: Average Daily and Peak Daily Influent Flow by Month for 2024



The following parameters do not have limits or objectives but are monitored, as needed, when septage is received at the facility. Table 17 summarizes the monitoring data for the reporting period.

Table 17: Hauled Sewage Quality Analysis for 2024^{17A}

Parameter	Average (mg/L)	Minimum (mg/L)	Maximum (mg/L)
BOD ₅	4563.00	2500.00	7640.00
Total Suspended Solids	11547.00	7000.00	14400.00
Total Phosphorous	72.63	39.60	108.00
Total Kjeldahl Nitrogen	465.10	256.00	715.00

^{17A}Refer to Appendix B for sample results.

2.6 Success and Adequacy of the Works

In 2024, the Shelburne WWTP produced effluent with the following removal rates:

Parameter	Average Removal Rate for 2024
Carbonaceous Biochemical Oxygen Demand	99.26%
Total Suspended Solids	99.21%
Total Phosphorus	98.86%

During the reporting period, Shelburne WWTP provided effective wastewater treatment, producing effluent with removal rates for CBOD₅ at 99.26%, 99.21% for Total Suspended Solids, and 98.86% for Total Phosphorus.

For the reporting period, the annual average effluent CBOD₅ concentration was <2.28 mg/L. The annual average effluent TSS concentration was <3.65 mg/L. The annual average effluent Total Phosphorus concentration was 0.06 mg/L.

The bacteriological quality of the effluent complied with the ECA requirement of <200 Colony Forming Units (CFU) per 100 mL sample. The maximum geometric mean density for 2024 was 2.00 CFU per 100 mL, indicating adequate effluent disinfection for the year.

The total raw sewage volume of wastewater treated in 2024 was 1,162,790.10 m³. The annual average daily flow of raw sewage was 3,177.02 m³/day was 92.90% of the design flow (3,420 m³/day). The maximum peak flow of 4,497.40 m³/day occurred on April 17, 2024 due to higher precipitation and snowmelt. This represents a peak flow of 1.3 times the rated capacity. The wastewater treatment plant operated within the rated capacity 72.95% of the time (267 out of 366 days of the year). The average daily flow has approached 80% of the rated capacity and the Town of Shelburne has been made aware. With future upgrades proposed for the Works this will increase design capacity to accommodate the growth.

3. Operating Issues and Corrective Actions

As per Section 10(6)(b) of ECA 6413-ABLQQS, *a description of any operating problems encountered and corrective actions taken* is required.

During the reporting period there was one (1) operating problems/situations encountered that affected the quality of the effluent leaving the plant.

March 2024 - the TSS monthly average concentration limit was exceeded due to multiple circumstances within the waste plant including:

- Biosolids Tank had reached its capacity at the end of February 2024
- No supernatant available in the tank when trying to decant from start of 4th week of February until some space freed up after Lystek started Biosolids haulage from March 12, 2024.
- Seasonal snow melt and at times heavy precipitation
- Possibility of Filter #1 being compromised as effluent appeared cloudy.

In response to the event, the following corrective actions were taken:

- Inspect and clean final effluent auto sampler
- Blower #1 intake filter cartridge changed
- Lystek hauled from biosolids tank
- Drained and cleaned filter
- UV channel cleaned

The ECA limit exceedance written/email notification, which includes full details of this occurrence is included in **Appendix F**. All major repairs/maintenance can be found in Section 4 of this report.

4. Maintenance Activities

As per Section 10(6)(c) of ECA 6413-ABLQQS, *a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanisms or thing forming part of the works* is required.

4.1 Work Management System

Planned maintenance, including scheduled and non-scheduled maintenance activities are scheduled using a computerized Work Management System (WMS) that allows user to:

- Enter detailed asset information
- Generate and process work orders
- Access maintenance and inspection procedures
- Plan, schedule, and document all asset related tasks and activities
- Access maintenance records and asset histories

Work Orders are automatically generated by the WMS program and are assigned to the applicable Operations staff accordingly.

4.2 Preventative Maintenance Activities

There were a number of preventative maintenance tasks completed throughout the reporting period. They are as follows:

- Monthly panel alarm and generator testing
- Monthly UV inspection and servicing
- Annual generator inspections and load testing
- Annual calibrations (flow meters, gas detectors, pH meters, D.O. meter etc.)
- Annual lifting device inspection
- Annual pump inspections and servicing
- Annual blower inspections

4.3 Major Maintenance, Repairs and Improvements

There were a number of major maintenance, repairs and/or improvements completed throughout the reporting period. They are as follows:

- Wet Well Low Level Float Replacement
- Yard Hydrant Pump & Piping Replacement
- Filter Feed Pump 3 VFD Replacement
- Filter 1 Back Wash Valve Repair
- Gas Detection Power Supply Replacement

5. Effluent Quality Assurance and Control

As per Section 10(6)(d) of ECA 6413-ABLQQS, *a summary of any effluent quality assurance or control measures undertaken in the reporting period* is required:

Quality assurance and control measures undertaken during the reporting period include adherence to provincial regulations, use of accredited laboratories, and operation of the system by licensed operators, scheduled sampling and analysis, in-house laboratory analysis, and calibration and preventative maintenance of equipment. The sections below provide further details of these measures.

5.1 Adherence to Provincial Regulations

The Ontario Clean Water Agency operates the WWTP in accordance with provincial regulations and the Environmental Compliance Approval.

5.2 Use of Accredited Laboratories

Analytical tests to monitor the effluent quality are conducted by a laboratory audited by the Canadian Association for Laboratory Accreditation Inc. (CALA) and accredited by the Standards Council of Canada (SCC). Accreditation ensures that the laboratory has acceptable laboratory protocols and test methods in place. It also requires the laboratory to provide evidence and assurances of the proficiency of the analysts performing the test methods. During the reporting period, all chemical sample analyses were conducted by SGS (Lakefield) Canada Inc.

5.3 Operation by Licensed Operators

The Shelburne WWTP was operated and maintained by licensed Operators. The mandatory licensing program for operators of sewage treatment facilities in Ontario is regulated under the Ontario Water Resources Act (OWRA) Regulation 435/93 and Ontario Regulation 129/04. A Licensed individual has successfully passed the licensing exam and meets the education and experience requirements set out in the regulation.

5.4 Sampling and Analysis

The Ontario Clean Water Agency followed a sampling and analysis schedule that meets the requirements of the ECA.

5.5 In-house Analysis

In-house analysis were conducted by Licensed Operators for monitoring purposes using standard methods. The data generated from these tests is used to determine the treatment efficiency while effectively maintaining process control. All in-house monitoring equipment is calibrated based on the manufacturer's recommendations. Using their expertise, Operators of the facility make best efforts to stay within the ECA Effluent Objectives and Limits.

5.6 Calibrations

Third-party and in-house calibrations were completed on various equipment and monitoring and analysis items as required based on manufacturer's recommendations. Refer to Section 6 for more information regarding calibration of monitoring equipment.

6. Calibration and Maintenance Procedures

As per Section 10(6)(e) of ECA 6413-ABLQQS, *a summary of the calibration and maintenance carried out on all effluent monitoring equipment* is required.

All in-house monitoring equipment is calibrated/verified as per manufacturer's recommendations. Monitoring and metering equipment is also calibrated by a third party on an annual basis. Preventative maintenance is scheduled for all equipment at the sewage treatment plant and pumping stations at regular frequency (frequency depends on the equipment and type of maintenance). Maintenance activities are scheduled within the work management system (Maximo), upon completion, Operators set the work order to complete. On a monthly basis, preventative work orders are reviewed for completion.

SPD Sales Limited successfully calibrated the flow-measuring equipment on August 12, 2024. The calibration reports can be found in **Appendix C**.

7. Efforts and Results Achieved in Meeting Effluent Objectives

As per Section 10(6)(f) of ECA 6413-ABLQQS, *a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6* is required.

Condition 6 is imposed *"to establish non-enforceable effluent quality objectives which the Owner is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliances limits of Condition 7 are exceeded."*

OCWA as the Operating Authority (on behalf of the Owner) has made best efforts to stay within the Effluent Objectives in the ECA. These efforts are supported through:

- Continuous monitoring equipment
- Regular plant inspections/checks
- In-house sampling and testing
- Laboratory (3rd party) analysis of influent and effluent samples
- Data review
- Process optimization and adjustments (as required)
- Scheduled/preventative maintenance
- Repairs as necessary

A summary of the effluent quality in comparison to the effluent objectives can be found in Tables 7-13 of section 2.3 of this report. These results show that sewage treatment operations for 2024 provided effluent quality that were within most of the effluent objectives outlined in the ECA and minimized environmental impairment, with the exception of CBOD₅ (February 2024), Total Suspended Solids (March, April and June 2024) and Total Phosphorus (March 2024). Higher than normal seasonal

temperatures, increased rainfall, an at capacity biosolids tank and possible filter #1 being compromised could account for these effluent objective exceedances. Corrective actions were implemented by the Operating Authority and included minor operational changes, increasing biosolids haulage and filter #1 repairs. Once corrective actions were implemented, final effluent quality improved and all ECA effluent objectives were met for the remainder of the reporting year.

8. Sludge Production and Disposal

As per Section 10(6)(g) of ECA 6413-ABLQQS, a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed is required.

Digested sludge produced at the Shelburne WWTP is land-applied in accordance with the Nutrient Management Act 2002 and Ontario Regulation 267/03 by Saugeen Agri. Service under Certificate of Approval - Waste Management System #9566-6HYKC3.

Grab samples of digested (aerobic) sludge are collected and tested as required. In 2024, sludge sample analysis was carried out by SGS Lakefield Research Limited. Sludge analysis showed that the sludge met the quality criteria specified in the Ontario Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Land (Guidelines). A summary of sludge sample results is provided in **Appendix B** of this report, along with septage data for the reporting period.

The Town of Shelburne has an arrangement/agreement for the haulage, acceptance and processing of liquid biosolids material from the Shelburne Wastewater Treatment Plant with Lystek International Corp. Volumes of biosolids hauled from the Shelburne Wastewater Treatment Plant to Lystek are noted in table 18 below.

The following NASM approved sites were utilized in 2024:

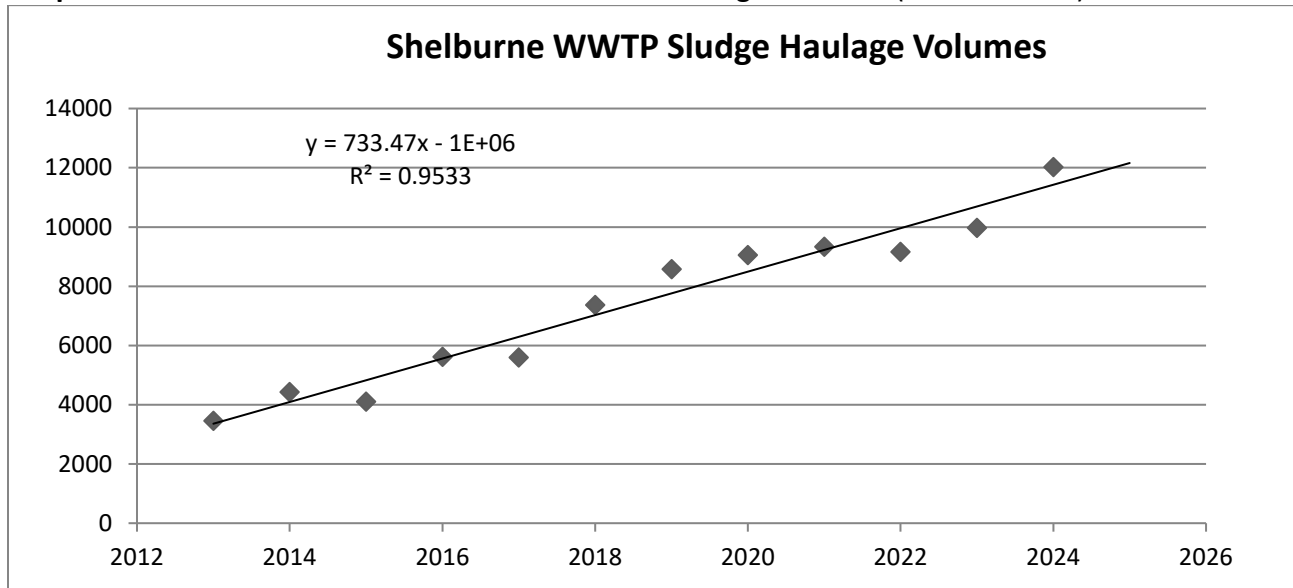
Table 18. Volume of Sludge Generated from Shelburne Wastewater Treatment Plant in 2024

Site	Site Location	Volume of Biosolids (m ³)	Hauler
NASM Submission ID: 25079	Leroy May	1825.00	Saugeen Agri.
NASM Submission ID: 25247	Gary Horst	5766.00	Saugeen Agri.
NASM Submission ID: 61320	Denco Farms	3581.00	Saugeen Agri.
NASM Submission ID: 25247	BCM – Deb’s Farm	853.00	Saugeen Agri.
Lystek International Corp.	Dundalk, On	1067.00	Saugeen Agri.

For 2024, a total volume of 13,092 m³ of biosolids was hauled from the Shelburne WWTP. 1067.0 m³ was hauled to Lystek international Corp. and a total volume of 12,025 m³ of sludge was land applied to the above fields.

Based on the design flow, average wastewater quantity and a linear regression with an R² value of 95.33%, the anticipated volume of sludge generated for 2025 will be approximately 12,000 m³.

Graph 3. Shelburne Wastewater Treatment Plant Haulage Volumes (2013 to 2024)



9. Community Complaints

As per Section 10(6)(h) of ECA 6413-ABLQQS, a summary of any complaints received during the reporting period and any steps taken to address the complaints is required.

A standard operating procedure (SOP) is in place for addressing complaints received from the community. All complaints are addressed and documented in the facility logbook. Community complaint information is entered in OCWA’s electronic work management system (Maximo). This system contains all the required information and history of all complaints.

There was no community complaints received by OCWA for the reporting period.

10. By-pass, Spill or Abnormal Discharge Events

As per Section 10(6)(i) of ECA 6413-ABLQQS, a summary of all By-pass, spill or abnormal discharge events (additionally events outside of Normal Operating Conditions) is required.

During the reporting period for the Shelburne WWTP, there were no by-pass events, no spill events, no abnormal discharge events or overflows events that occurred. In addition, ECA #6413-ABLQQS requires that quarterly bypass/overflow event reports be submitted to the Water Supervisor. All 2024 quarterly reports were submitted to the Water Supervisor by the deadlines specified in the ECA.

10.1 By-pass Events

There were no by-pass events that occurred during the reporting period.

10.2 Spill and/or Abnormal Discharge Events

There was no reportable spill event that occurred during the reporting period

10.3 Events Outside of Normal Operating Conditions

For the reporting period, there was one (1) event that occurred outside of the normal operating conditions that affected the quality of the effluent leaving the plant. As previously reported, in March, 2024 higher than normal seasonal temperatures caused increased snowmelt combined with increased precipitation, an at capacity biosolids tank and the possibility of filter #1 being compromised resulted in the TSS monthly average concentration (6.0 mg/L) to exceed the ECA limit (5.0 mg/L). More information on the non-compliance incident and corrective actions taken can be found in section 3.0 of this report.

11. Notice of Modifications

As per Section 10(6)(j) of ECA 6413-ABLQQS, *a copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification* is required.

There was one (1) notice of modification submitted to the Water Supervisor during the reporting period. See **Appendix E** for Notice of Modification to Sewage Works form.

- Two Jar Testing Bench Scale Experiments – to assess the required doses of chemical for a proposed high-rate clarification (HRC) system coupled with an advanced oxidation process (AOP) and to assess the required doses of chemicals for sludge dewatering using cement kiln dust (CKD), PAM and geotextile bags. Jar Testing completed as intended and engineers will evaluate results.

In addition to the above Notice of Modification, OCWA continues to use one (1) product from a Notice of Modification signed on March 29, 2022 in order to improve operations:

- AQUABACxt- is a highly effective, US EPA-registered biological larvicide. It contains a species of bacteria called bacillus thuringiensis, an approved pesticide for controlling red worms and midge flies in wastewater treatment plants. On a weekly basis from spring to fall operations will dose the incoming raw sewage and aeration tank to eliminate midge flies at the plant during the summer months. The addition of AQUABACxt commenced on May 29, 2023 and has been extremely beneficial as there has been a major reduction of midge flies in the clarifiers and filter/UV rooms when this product is in use compared to previous years when no product was used. This product will continue to be used on a weekly basis from spring to fall.

12. Summary of Completed Modifications

As per Section 10(6)(k) of ECA 6413-ABLQQS, *a report summarizing all modifications completed as a result of Schedule B, Section 3* is required.

Where: Schedule B, Section 3 is the *“Limited Operational Flexibility Criteria for Modifications to Municipal Sewage Works”* that allows for pre-approved normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment, provided that the modification is made with Equivalent Equipment.

Refer to Section 4 of this report for a list of normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment.

13. Additional Information

As per Section 10(6)(l) of ECA 6413-ABLQQS, *any other information the Water Supervisor requires from time to time* is required.

There were no requests from the Water Supervisor for any other information during the reporting period.

14. Municipal Sewage Collection System- Annual Performance Report

This report was prepared in accordance with the requirements of the Environmental Compliance Approval for a Municipal Sewage Collection Systems, Schedule E, Section 4.6.1.

Municipal Sewage Collection System ECA #	109-W601, Issue 1
Sewage Works	Town of Shelburne Wastewater Collection and Treatment System
Collection System Owner	The Corporation of the Town of Shelburne
Reporting Period	January 1, 2024 to December 31, 2024

Is the Annual Report available to the public at no charge on a website on the Internet?

Yes

Note: As per Schedule E, Section 4.7.1 of CLI-ECA #109-W601, the annual performance report must be made available, on request and without charge, to members of the public who are served by the Authorized System; and 4.7.2 must be made available, by June 1st of the same reporting year, to members of the public without charge by publishing the report on the Internet, if the Owner maintains a website on the Internet.

Location where Annual Performance Report required under CLI-ECA #109-W601 Schedule E will be available for inspection. (CLI-ECA #109-W601, Schedule E, Section 4.6.1 & 4.7.1):

- Town of Shelburne Office, 203 Main Street Shelburne, Ontario, L9V 3K7
- <https://www.shelburne.ca/en/town-hall/water-and-sewer.aspx>

Pursuant to Schedule E, sections 4.6.3 to 4.6.9, this Annual Performance Report shall:

- a) If applicable, includes a summary of all required monitoring data along with an interpretation of the data and any conclusion drawn from the data evaluation about the need for future modifications to the Authorized System or system operations.
- b) If applicable, include a summary of any operating problems encountered and corrective actions taken.
- c) Includes a summary of all calibration, maintenance, and repairs carried out on any major structure, Equipment, apparatus, mechanism, or thing forming part of the Municipal Sewage Collection System.

- d) Include a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.
- e) Include a summary of all Alterations to the Authorized System within the reporting period that are authorized by this Approval including a list of Alterations that pose a Significant Drinking Water Threat.
- f) Include a summary of all Collection System Overflow(s) and Spill(s) of Sewage.
 - i. Dates;
 - ii. Volumes and durations;
 - iii. If applicable, loadings for total suspended solids, BOD, total phosphorus, and total kjeldahl nitrogen and sampling results for E.Coli;
 - iv. Disinfection, if any; and
 - v. Any adverse impacts(s) and any corrective actions, if applicable
- g) Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable:
 - i. A description of projects undertaken and completed in the Authorized System that result in overall overflow reduction or elimination including expenditures and proposed projects to eliminate overflows with estimated budget forecast for the year following that for which the report is submitted.
 - ii. Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines.
 - iii. An assessment of the effectiveness of each action taken.
 - iv. An assessment of the ability to meet Procedure F-5-1 or Procedure F-5-5 objectives (as applicable) and if able to meet the objectives, an overview of next steps and estimated timelines to meet the objectives.
 - v. Public reporting approach including proactive efforts.

14.1 Description of the Works

The Town of Shelburne Wastewater Collection and Treatment System is Owned by the Town of Shelburne and operated by the Town of Shelburne (Collection) and Ontario Clean Water Agency (OCWA) (Treatment). The Shelburne Wastewater Collection and Treatment system consists of works for the collection and transmission of sewage, consisting of trunk sewer collection mains, sewage pumping stations and forcemains that discharge into the west and east system collection mains, and to the Shelburne Sewage Treatment Plant. The sewage pumping stations in the Authorized system include:

- Fiddler's Glen Pumping Station (PS) – located at 901 Greenwood Cres, Shelburne. Consists of a concrete wet well, two submersible grinder pumps and connected to a forcemain discharging to the Shelburne STP. The PS is equipped with emergency storage, SCADA control system and a stand-by diesel generator in case of power failure.

- Hyland Village Pumping Station (PS) – located at 363 Stewart Street, Shelburne. Consists of a concrete wet well, two submersible grinder pumps and connected to a forcemain discharging to the collection system at the most northern manhole in the west end of Shelburne, and then eventually to the Shelburne STP. The PS is equipped with emergency storage, SCADA control system and a stand-by diesel generator in case of power failure.
- Fieldgate Pumping Station (PS) – located at 600 Red Elm Road, Shelburne. Consists of a concrete wet well, three submersible grinder pumps and connected to a forcemain discharging to the sanitary collection system at the most easterly manhole on Industrial Road on the east side of Shelburne, and then eventually to the Shelburne STP. The PS is equipped with emergency storage, SCADA control system and a stand-by diesel generator in case of power failure.

The Shelburne Wastewater Collection and Treatment System contains no combined sewage pumping stations, no combined sewage storage structures or combined storage tanks. The authorized collection system also contains no authorized combined sewer collection system overflow points and three authorized sanitary sewer overflow points (one at each of the pumping stations listed above).

Prior to July 27, 2022, Fiddler’s Glen Pumping Station was captured under ECA #0160-8P2QV6, Hyland’s Village Pumping Station was captured under ECA #2719-B62QMQQ and Fieldgate Pumping Station was captured under ECA #0116-8P2QV6. On July 27, 2022, Municipal Sewage Collection System ECA Number 109-W601, Issue 1, was issued to the Shelburne Wastewater Collection and Treatment System incorporating all Pumping Stations, sewers, separate sewers and forcemains into one Consolidated Linear Infrastructure ECA. As such, all prior ECAs, issued by the Director for Sewage Works are considered revoked and replaced by ECA Number 109-W601.

14.2 Summary of Monitoring Data and Interpretation

No monitoring data was required to be collected within the municipal sewage collection system for the reporting year.

14.3 Summary of Operating Problems Encountered and Corrective Actions Taken

There were no operating problems encountered within the municipal sewage collection system for the reporting year.

14.4 Summary of Calibration, Maintenance, and Repairs

The following is a list of maintenance, repairs or calibrations completed during the reporting period.

Fiddler’s Glenn SPS

- Monthly generator inspection and load testing
- Cleaned floats and valve exercising in wet well
- Low level float replacement
- Annual wet well inspection and clean out
- Annual 3rd party generator inspection and maintenance

Hyland Development SPS

- Cleaned floats
- Pump ground water from valve chamber
- Monthly generator inspection and load testing
- Annual wet well inspection and clean out
- Annual 3rd party generator inspection and maintenance

Fieldgate SPS

- Cleaned floats
- Pump ground water from valve chamber
- Monthly generator inspection and load testing
- Annual wet well inspection and clean out
- Annual 3rd party generator inspection and maintenance

14.5 Community Complaints Received in Relation to the Sewage Works

All complaints are addressed and documented in the facility logbook. Community complaint information is entered in OCWA's WMS database system "Maximo". This system contains all the required information and history of all complaints.

There were no complaints received by OCWA during the reporting period.

14.6 Alterations to the Authorized System

There were no alterations to the authorized system that occurred during the reporting period.

14.7 Summary of Collection System Overflow(s) and Spill(s) of Sewage

There were no collection system overflow(s) or spill(s) events that occurred during the reporting period

14.8 Efforts Made to Reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses

The sewage pump stations are equipped with alarm monitoring for high flow events. Preventative maintenance procedures are in place to ensure the sewage pump stations are operating as designed and include:

- 3rd Party generator inspection and load testing
- Annual Wet Well Inspection and Clean outs

**2024 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS**

Appendix A

Performance Assessment Report

2024

5773 SHELBURNE WASTEWATER TREATMENT FACILITY 110000659

	1/ 2024	2/ 2024	3/ 2024	4/ 2024	5/ 2024	6/ 2024	7/ 2024	8/ 2024	9/ 2024	10/ 2024	11/ 2024	12/ 2024	<--Total-->	<--Avg-->	<--Max-->	<-Criteria-->
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Flows

Raw Flow: Total - Raw Sewage m³/d	99,283.60	93,724.20	106,910.90	115,788.80	111,520.80	100,983.10	104,506.60	85,611.90	79,366.60	85,346.00	80,734.10	99,013.50	1,162,790.10			0.00
Raw Flow: Avg - Raw Sewage m³/d	3,202.70	3,231.87	3,448.74	3,859.63	3,597.45	3,366.10	3,371.18	2,761.67	2,645.55	2,753.10	2,691.14	3,193.98		3,177.02		3,420.00
Raw Flow: Max - Raw Sewage m³/d	3,671.00	3,690.90	3,795.30	4,497.40	4,212.00	3,887.10	4,173.10	3,102.10	2,993.60	3,412.20	3,362.10	4,281.00			4,497.40	0.00
Raw Flow: Count - Raw Sewage m³/d	31.00	29.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	366.00			0.00
Eff. Flow: Total - Final Effluent m³/d	82,491.80	78,109.00	87,722.80	94,662.20	92,132.70	81,444.70	87,745.80	70,597.80	63,022.62	66,504.30	66,285.70	74,137.40	944,856.82			0.00
Eff. Flow: Avg - Final Effluent m³/d	2,661.03	2,693.41	2,829.77	3,155.41	2,972.02	2,714.82	2,830.51	2,277.35	2,100.75	2,145.30	2,209.52	2,391.53		2,581.58		
Eff. Flow: Max - Final Effluent m³/d	3,371.70	3,171.80	3,177.00	3,756.40	3,462.90	3,235.60	3,667.20	2,600.80	2,398.60	2,550.90	2,589.80	3,403.30			3,756.40	0.00
Eff Flow: Count - Final Effluent m³/d	31.00	29.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	366.00			0.00

Carbonaceous Biochemical Oxygen Demand: CBOD

Raw: Avg cBOD5 - Raw Sewage mg/L	383.00	782.00	292.00	336.00	344.00	342.00	417.00	267.00	329.00	1,070.00	124.00	350.00		419.67	1,070.00	0.00
Raw: # of samples of cBOD5 - Raw Sewage	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg cBOD5 - Final Effluent mg/L	< 2.20	< 2.00	4.25	< 2.00	< 2.25	< 2.00	< 2.00	< 2.00	< 2.50	< 2.00	< 2.50	< 2.00		< 2.28	< 4.25	5.00
Eff: # of samples of cBOD5 - Final Effluent	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			0.00
Loading: cBOD5 - Final Effluent kg/d	< 5.854	< 5.387	12.027	< 6.311	< 6.687	< 5.430	< 5.661	< 4.555	< 5.252	< 4.291	< 5.524	< 4.783		< 5.89	< 12.03	17.100
Percent Removal: cBOD5 - Final Effluent %	99.43	99.74	98.54	99.40	99.35	99.42	99.52	99.25	99.24	99.81	97.98	99.43			99.81	0.00

Biochemical Oxygen Demand: BOD5

Raw: Avg BOD5 - Raw Sewage mg/L	442.00	1,260.00	452.00	353.00	329.00	477.00	469.00	229.00	346.00	1,720.00	275.00	371.00		560.25	1,720.00	0.00
Raw: # of samples of BOD5 - Raw Sewage	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg BOD5 - Final Effluent mg/L	3.00	< 2.00	2.00	4.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	< 2.00	2.00	3.00		2.31	4.00	
Loading: BOD5 - Final Effluent kg/d	7.983	< 5.387	5.660	12.622	< 5.944	< 5.430	< 5.661	< 4.555	< 4.202	< 4.291	4.419	7.175		5.96	12.62	
Percent Removal: BOD5 - Final Effluent %	99.32	99.84	99.56	98.87	99.39	99.58	99.57	99.13	99.42	99.88	99.27	99.19			99.88	0.00

Total Suspended Solids: TSS

Raw: Avg TSS - Raw Sewage mg/L	497.00	2,100.00	170.00	505.00	474.00	571.00	665.00	1,020.00	507.00	6,550.00	477.00	272.00		1,150.67	6,550.00	0.00
Raw: # of samples of TSS - Raw Sewage	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TSS - Final Effluent mg/L	< 3.40	2.50	6.00	4.40	3.50	< 4.73	2.60	2.75	< 2.25	< 2.60	2.50	< 3.00		< 3.65	< 6.00	5.00
Eff: # of samples of TSS - Final Effluent	5.00	4.00	6.00	5.00	4.00	15.00	5.00	4.00	4.00	5.00	4.00	5.00	66.00			0.00
Loading: TSS - Final Effluent kg/d	< 9.047	6.734	16.979	13.884	10.402	< 12.850	7.359	6.263	< 4.727	< 5.578	5.524	< 7.175		< 9.43	< 16.98	17.100
Percent Removal: TSS - Final Effluent %	99.32	99.88	96.47	99.13	99.26	99.17	99.61	99.73	99.56	99.96	99.48	98.90			99.96	0.00

Total Phosphorus: TP

Raw: Avg TP - Raw Sewage mg/L	4.33	9.63	5.22	5.86	4.16	5.59	4.93	10.20	9.01	5.14	6.19	5.47		6.31	10.20	0.00
Raw: # of samples of TP - Raw Sewage	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TP - Final Effluent mg/L	0.06	0.08	0.13	0.07	0.07	0.08	0.05	0.05	0.03	0.05	0.06	0.05		0.06	0.13	0.25
Eff: # of samples of TP - Final Effluent	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			0.00
Loading: TP - Final Effluent kg/d	0.167	0.204	0.364	0.218	0.214	0.207	0.139	0.104	0.068	0.097	0.143	0.128		0.16	0.36	0.860
Percent Removal: TP - Final Effluent %	98.55	99.21	97.54	98.82	98.27	98.64	99.01	99.55	99.64	99.12	98.96	99.02			99.64	0.00

Nitrogen Series

Raw: Avg TKN - Raw Sewage mg/L	36.30	48.80	43.60	47.90	38.50	45.70	36.00	42.00	57.00	118.00	48.00	53.00		51.23	118.00	0.00
Raw: # of samples of TKN - Raw Sewage	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TAN - Final Effluent mg/L	< 0.10	< 0.53	0.40	< 0.40	< 0.10	< 0.13	< 0.10	< 0.10	< 0.10	< 0.14	< 0.10	< 0.12		< 0.19	< 0.53	2.40
Eff: # of samples of TAN - Final Effluent	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			0.00
Loading: TAN - Final Effluent kg/d	< 0.266	< 1.414	1.132	< 1.262	< 0.297	< 0.339	< 0.283	< 0.228	< 0.210	< 0.300	< 0.221	< 0.287		< 0.49	< 1.41	8.200
Eff: Avg NO3-N - Final Effluent mg/L	21.36	19.53	9.12	7.74	12.53	12.24	18.16	26.03	22.65	< 20.96	24.50	22.64		18.12	26.03	0.00
Eff: # of samples of NO3-N - Final Effluent	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			0.00
Eff: Avg NO2-N - Final Effluent mg/L	0.16	0.69	1.50	0.79	< 0.54	< 0.08	< 0.46	< 0.03	< 0.04	< 0.09	< 0.03	< 0.05		0.37	1.50	0.00
Eff: # of samples of NO2-N - Final Effluent	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	53.00			0.00

Disinfection

Eff: GMD E. Coli - Final Effluent cfu/100mL	1.89	2.00	2.00	1.68	1.68	1.68	2.00	2.00	1.68	2.00	2.00	2.00				200.00
Eff: # of samples of E. Coli - Final Effluent	5.00	4.00	4.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	52.00			0.00

**2024 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS**

Appendix B

Sludge Haulage Summary, Sludge Quality, and
Septage Receiving

2024

Shelburne WWTP - Daily Haulage Summary			
Date	Site	NASM #	Sludge Hauled (m ³)
April			
10-Apr-24	Denco Farms	61320	470.00
16-Apr-24	BCM - Deb's Farm	61330	853.00
26-Apr-24	Denco Farms	61320	997.00
May			
2-May-24	Denco Farms	61320	1085.00
3-May-24	Denco Farms	61320	1029.00
June			
20-Jun-24	Leroy May	25079	503.00
21-Jun-24	Leroy May	25079	1062.00
24-Jun-24	Leroy May	25079	260.00
August			
2-Aug-24	Gary Horst	25247	631.00
8-Aug-24	Gary Horst	25247	685.00
9-Aug-24	Gary Horst	25247	298.00
10-Aug-24	Gary Horst	25247	335.00
12-Aug-24	Gary Horst	25247	470.00
October			
11-Oct-24	Gary Horst	25247	369.00
15-Oct-24	Gary Horst	25247	345.00
16-Oct-24	Gary Horst	25247	686.00
17-Oct-24	Gary Horst	25247	510.00
November			
18-Nov-24	Gary Horst	25247	309.00
19-Nov-24	Gary Horst	25247	475.00
25-Nov-24	Gary Horst	25247	653.00
Total			12025.00

Biosolids Quality Report

Facility: SHELBURNE WASTEWATER TREATMENT FACILITY



Solids & Nutrients

Period: 01/01/2024 to 12/31/2024

Works: 5773 / Digester Type: Aerobic

Solids & Nutrients	Metals & Criteria	Last 4 Samples
-------------------------------	------------------------------	-----------------------

Facility Works Number: 110000659 Receiver: Besley Drain to Boyne Creek
 Facility Owner: Corporation/Company: The Corporation of the Town of Shelburne Service Population: 8994
 Facility Classification: Class 3 Wastewater Treatment Total Design Capacity: 3420 m3/day

Note: all parameters in this report are derived from the Bslq Station

Month	Hauled Vol. (m³)	Total Solids (mg/L)	Total Phosphorus (mg/L)	Total Ammonia Nitrogen (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Ammonia + Nitrate (mg/L)	Potassium (mg/L)
Parameter Short Name	HauledVol	TS	TP	NH3p_NH4p_N	NO3-N	NO2-N	TKN	Calculation in Report	K
T/S	IH Month.Total	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	- no T/S	Lab Published Month Mean
Jan		26,700.00	450.00	165.00	3.00	3.00	1,210.00	84.00	72.00
Feb		22,800.00	390.00	164.00	3.00	3.00	1,300.00	83.50	78.00
Mar	555.00	20,400.00	330.00	150.00	3.00	3.00	1,120.00	76.50	69.00
Apr	2,714.00	22,000.00	370.00	168.00	3.00	3.00	1,160.00	85.50	82.00
May	2,114.00	33,300.00	460.00	214.00	3.00	3.00	1,670.00	108.50	90.00
Jun	1,825.00	28,100.00	390.00	340.00	3.00	3.00	1,390.00	171.50	81.00
Jul		27,900.00	390.00	488.00	3.00	3.00	1,450.00	245.50	79.00
Aug	2,419.00	22,000.00	350.00	456.00	3.00	3.00	1,180.00	229.50	72.00
Sep		35,550.00	650.00	340.00	3.00	3.00	1,670.00	171.50	81.00
Oct	1,910.00	31,100.00	560.00	375.00	3.00	3.00	1,320.00	189.00	72.00
Nov	1,437.00	21,250.00	410.00	146.00	3.00	3.00	958.00	74.50	65.00
Dec	118.00	8,110.00	109.00	55.10	3.00	3.00	436.00	29.05	44.00
Average	1,636.50	24,934.17	404.92	255.09	3.00	3.00	1,238.67	129.05	73.75
Total	13,092.00	299,210.00	4,859.00	3,061.10	36.00	36.00	14,864.00	1,548.55	885.00

Solids & Nutrients

Metals & Criteria

Last 4 Samples

Note: all parameters in this report are derived from the Bslq Station

Month	Arsenic (mg/L)	Cadmium (mg/L)	Cobalt (mg/L)	Chromium (mg/L)	Copper (mg/L)	Mercury (mg/L)	Molybdenum (mg/L)	Nickel (mg/L)	Lead (mg/L)	Selenium (mg/L)	Zinc (mg/L)
Parameter Short Name	As	Cd	Co	Cr	Cu	Hg	Mo	Ni	Pb	Se	Zn
T/S	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean
Jan	0.30	0.01	0.06	0.59	6.50	0.01	0.22	0.34	0.80	0.10	8.00
Feb	0.30	0.01	0.06	0.46	6.30	0.01	0.20	0.29	0.60	0.10	8.00
Mar	0.20	0.01	0.05	0.43	5.50	0.01	0.17	0.25	0.50	0.10	7.00
Apr	0.20	0.01	0.05	0.48	6.10	0.01	0.18	0.29	0.60	0.10	8.00
May	0.30	0.01	0.08	0.72	7.90	0.02	0.24	0.40	0.90	0.10	11.00
Jun	0.20	0.01	0.07	0.70	5.90	0.03	0.19	0.38	0.90	0.10	9.00
Jul	0.20	0.02	0.08	0.85	6.90	0.01	0.26	0.46	1.10	0.10	11.00
Aug	0.20	0.01	0.07	0.74	6.00	0.01	0.23	0.41	0.80	0.10	9.00
Sep	0.50	0.02	0.13	1.40	12.00	0.02	0.50	0.77	2.10	0.10	19.00
Oct	0.40	0.02	0.11	1.30	10.00	0.01	0.35	0.71	2.10	0.10	16.00
Nov	0.30	0.02	0.09	1.00	7.00	0.01	0.25	0.57	2.00	0.10	11.00
Dec	0.10	0.01	0.02	0.25	1.70	0.00	0.06	0.16	0.60	0.10	3.00
Average	0.27	0.01	0.07	0.74	6.82	0.01	0.24	0.42	1.08	0.10	10.00
Max. Permissible Metal Concentrations (mg/kg of Solids)	170.00	34.00	340.00	2,800.00	1,700.00	11.00	94.00	420.00	1,100.00	34.00	4,200.00
Metal Concentrations in Sludge (mg/kg)	10.69	0.54	2.91	29.81	273.39	0.50	9.53	16.81	43.45	4.01	401.06

Solids & Nutrients

Metals & Criteria

Last 4 Samples

Note: all parameters in this report are derived from the Bslq Station

Parameter Short Name	Time Series	09/03/2024	10/01/2024	11/05/2024	12/10/2024	Average	Metal Concentrations in Sludge (mg/kg)	Max. Permissible Metal Concentrations (mg/kg of Solids)
As (mg/L)	Lab Published	0.50	0.40	0.30	0.10	0.33	13.54	170
Cd (mg/L)	Lab Published	0.02	0.02	0.02	0.01	0.02	0.67	34
Co (mg/L)	Lab Published	0.13	0.11	0.09	0.02	0.09	3.65	340
Cr (mg/L)	Lab Published	1.40	1.30	1.00	0.25	0.99	41.14	2800
Cu (mg/L)	Lab Published	12.00	10.00	7.00	1.70	7.68	319.76	1700
Hg (mg/L)	Lab Published	0.02	0.01	0.01	0.00	0.01	0.47	11
Mo (mg/L)	Lab Published	0.50	0.35	0.25	0.06	0.29	12.08	94
Ni (mg/L)	Lab Published	0.77	0.71	0.57	0.16	0.55	23.02	420
Pb (mg/L)	Lab Published	2.10	2.10	2.00	0.60	1.70	70.83	1100
Se (mg/L)	Lab Published	0.10	0.10	0.10	0.10	0.10	4.17	34
Zn (mg/L)	Lab Published	19.00	16.00	11.00	3.00	12.25	510.36	4200
E.Coli Dry Wt (cfu/g)	Lab Published	70,225.00	38,585.00	66,667.00	135,635.00	70,355.53	E. Coli average is the GMD	
TS (mg/L)	Lab Published	35,550.00	31,100.00	21,250.00	8,110.00	24,002.50		
TP (mg/L)	Lab Published	650.00	560.00	410.00	109.00	432.25		
NO2-N (mg/L)	Lab Published	3.00	3.00	3.00	3.00	3.00		
TKN (mg/L)	Lab Published	1,670.00	1,320.00	958.00	436.00	1,096.00		
K (mg/L)	Lab Published	81.00	72.00	65.00	44.00	65.50		
NH3p_NH4p_N (mg/L)	Lab Published	340.00	375.00	146.00	55.10	229.03		
NO3-N (mg/L)	Lab Published	3.00	3.00	3.00	3.00	3.00		

Customized Monthly Report

From 01/01/2024 to 12/31/2024

Facility Name: SHELBURNE WASTEWATER TREATMENT FACILITY
Receiver: Besley Drain to Boyne Creek

Facility Org Number: 5773
Facility Owner: Corporation/Company: The Corporation of the Town of Shelburne
Service Population: 8994

Works: 110000659
Facility Classification: Class 3 Wastewater Treatment
Total Design Capacity: 3420 m3/day



										2024			
Septage	Jan 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min		
Biochemical Oxygen Demand: BOD5 - mg/L													
Lab Count	2.00	2.00	1.00	1.00	2.00	1.00	1.00	10.00					
Lab Month.Max	7640.00	6260.00	3550.00	3300.00	3190.00	5190.00	5700.00			7640.00			
Lab Month.Mean	5505.00	5595.00	3550.00	3300.00	2845.00	5190.00	5700.00		4563.00				
Lab Month.Min	3370.00	4930.00	3550.00	3300.00	2500.00	5190.00	5700.00				2500.00		
Carbonaceous Biochemical Oxygen Demand: CBOD5 - mg/L													
Lab Count	2.00	2.00	1.00	1.00	2.00	1.00	1.00	10.00					
Lab Month.Max	7650.00	3780.00	3490.00	3600.00	3040.00	4120.00	4500.00			7650.00			
Lab Month.Mean	5430.00	3505.00	3490.00	3600.00	2890.00	4120.00	4500.00		3936.00				
Lab Month.Min	3210.00	3230.00	3490.00	3600.00	2740.00	4120.00	4500.00				2740.00		
Septage Received - m ³													
IH Edited Count	2.00	2.00	1.00	1.00	1.00	1.00	1.00	9.00					
IH Month.Max	5.46	9.09	5.46	5.46	5.45	5.45	4.50			9.09			
IH Month.Mean	5.00	6.82	5.46	5.46	5.45	5.45	4.50		5.55				
IH Month.Min	4.55	4.55	5.46	5.46	5.45	5.45	4.50				4.50		
Total Kjeldahl Nitrogen: TKN - mg/L													
Lab Count	2.00	2.00	1.00	1.00	2.00	1.00	1.00	10.00					
Lab Month.Max	506.00	549.00	308.00	715.00	670.00	380.00	483.00			715.00			
Lab Month.Mean	493.00	402.50	308.00	715.00	487.00	380.00	483.00		465.10				
Lab Month.Min	480.00	256.00	308.00	715.00	304.00	380.00	483.00				256.00		
Total Phosphorus: TP - mg/L													
Lab Count	2.00	2.00	1.00	1.00	2.00	1.00	1.00	10.00					
Lab Month.Max	91.90	108.00	52.00	64.00	96.60	79.20	74.00			108.00			
Lab Month.Mean	84.95	75.50	52.00	64.00	68.10	79.20	74.00		72.63				
Lab Month.Min	78.00	43.00	52.00	64.00	39.60	79.20	74.00				39.60		

Customized Monthly Report

From 01/01/2024 to 12/31/2024

Facility Name: SHELBURNE WASTEWATER
TREATMENT FACILITY
Receiver: Besley Drain to Boyne Creek

Facility Org Number: 5773
Facility Owner: Corporation/Company: The
Corporation of the Town of Shelburne
Service Population: 8994

Works: 110000659
Facility Classification: Class 3 Wastewater Treatment
Total Design Capacity: 3420 m3/day



		2024										
Septage		Jan 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Nov 2024	Dec 2024	Total	Avg	Max	Min
	Total Suspended Solids: TSS - mg/L											
	Lab Count	2.00	2.00	1.00	1.00	2.00	1.00	1.00	10.00			
	Lab Month.Max	14200.00	14400.00	11100.00	13800.00	9510.00	10400.00	8960.00			14400.00	
	Lab Month.Mean	13950.00	13400.00	11100.00	13800.00	8255.00	10400.00	8960.00		11547.00		
	Lab Month.Min	13700.00	12400.00	11100.00	13800.00	7000.00	10400.00	8960.00				7000.00

**2024 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS**

Appendix C

Calibration Reports

2024



CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	NA
Due Date:	12-Aug-25	Manufacturer:	ABB				
Follow-Up Required:	No	Model:	Transmitter:	MagMaster	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	3K620000015302	Sensor:	-	
Instrument Visual Inspection:		Range:	0-80 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-09				
Electrical Inspection:	OK	Description:	Biosolid Tank				
As found Display information:	OK	Process/Location Description:					

Instrument Information:	
Calibration Factor:	-
Zero Point:	-
Flow Tube Diameter in mm:	150
Flow rate at 20 mA/100%:	80
Flow Unit:	l/s

Input	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	3.98	-0.50%	3.98	-0.50%
25	25.00%	20.00	8.00	7.98	-0.25%	7.98	-0.25%
50	50.00%	40.00	12.00	11.99	-0.08%	11.99	-0.08%
75	75.00%	60.00	16.00	15.98	-0.12%	15.98	-0.12%
100	100.00%	80.00	20.00	19.99	-0.05%	19.99	-0.05%

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Internal verification was done using internal simulation.			
Analog output tested during internal verification.	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	
Loop Check Performed:	Not tested	Vaibhav P	
Witness Name	Suhail		
Within Specification:	No	Date:	12-Aug-24
		Date:	12-Aug-24



CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	NA
Due Date:	12-Aug-25	Manufacturer:	ABB				
Follow-Up Required:	No	Model:	Transmitter:	MagMaster	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	3K620000015305	Sensor:	-	
Instrument Visual Inspection:		Range:	0-100 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-08				
Electrical Inspection:	OK	Description:	Storm Return Flow				
As found Display information:	OK	Process/Location Description:					

Instrument Information:	
Calibration Factor:	-
Zero Point:	-
Flow Tube Diameter in mm:	150
Flow rate at 20 mA/100%:	100
Flow Unit:	l/s

Input	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	3.99	-0.25%	3.99	-0.25%
25	25.00%	25.00	8.00	7.99	-0.12%	7.99	-0.12%
50	50.00%	50.00	12.00	12.01	0.08%	12.01	0.08%
75	75.00%	75.00	16.00	15.96	-0.25%	15.96	-0.25%
100	100.00%	100.00	20.00	19.95	-0.25%	19.95	-0.25%

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Internal verification was done using internal simulation.			
Analog output tested during internal verification.	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	
Loop Check Performed:	Not tested	Vaibhav P	
Witness Name	Suhail		
Within Specification:	No	Date:	12-Aug-24
		Date:	12-Aug-24



CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	NA
Due Date:	12-Aug-25	Manufacturer:	ABB				
Follow-Up Required:	No	Model:	Transmitter:	MagMaster	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	3K620000015306	Sensor:	-	
Instrument Visual Inspection:		Range:	0-200 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-07				
Electrical Inspection:	OK	Description:	Storm Flow				
As found Display information:	OK	Process/Location Description:					

Instrument Information:	
Calibration Factor:	-
Zero Point:	-
Flow Tube Diameter in mm:	150
Flow rate at 20 mA/100%:	200
Flow Unit:	l/s

Input	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	3.99	-0.25%	3.99	-0.25%
25	25.00%	50.00	8.00	7.94	-0.75%	7.94	-0.75%
50	50.00%	100.00	12.00	11.96	-0.33%	11.96	-0.33%
75	75.00%	150.00	16.00	15.95	-0.31%	15.95	-0.31%
100	100.00%	200.00	20.00	19.90	-0.50%	19.90	-0.50%

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Internal verification was done using internal simulation.			
Analog output tested during internal verification.	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	
Loop Check Performed:	Not tested	Vaibhav P	
Within Specification:	No	Date:	12-Aug-24
		Date:	12-Aug-24



CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. **Tel:** (905) 678-2882
Email: service@spdsales.com
Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	NA
Due Date:	12-Aug-25	Manufacturer:	Rosemount				
Follow-Up Required:	No	Model:	Transmitter:	8712	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	860188157	Sensor:	-	
Instrument Visual Inspection:		Range:	0-150 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-06				
Electrical Inspection:	OK	Description:	Raw Sewage Water				
As found Display information:	OK	Process/Location Description:					

Instrument Information:	
Pipe Size:	8"
Cal Tube Number:	See Comment
Flow Unit:	l/s
Flow rate at 20 mA/100%:	150
Pulse rate at 100%:	NA

Input	Input %	Flow rate Ft/s	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	3.99	-0.25%	3.99	-0.25%
3	10.00%	3.00	5.60	5.57	-0.54%	5.57	-0.54%
10	33.33%	10.00	9.33	9.30	-0.32%	9.30	-0.32%
30	100.00%	30.00	20.00	19.89	-0.55%	19.89	-0.55%

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Cal Number: 1025505911000011	Rosemount Simulator		
Verified Successfully with rosemount simulator.	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	
Loop Check Performed:	Not tested	Vaibhav P	
Witness Name	Suhail		
Within Specification:	No	Date:	12-Aug-24
		Date:	12-Aug-24



CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	62506
Due Date:	12-Aug-25	Manufacturer:	Miltronics				
Follow-Up Required:	No	Model:	Transmitter:	OCM III	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	-	Sensor:	-	
Instrument Visual Inspection:		Range:	0-105 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	LIT-001				
Electrical Inspection:	OK	Description:	Effluent flow				
As found Display information:	OK	Process/Location Description:					

Instrument Information:	
Span:	0.344
Empty Distance:	0.8567
Flow Eponent:	1.53
Max Head: (20 mA)	0.344
Max Flow: (20 mA)	105
Height Unit:	m
Flow Unit:	l/s

Input Level	Calculated Flow	Measured Flow	mA Out	As Found	Deviation	As Left	Deviation
0.000	0.000	0.000	4.00	3.99	-0.25%	3.99	-0.25%
0.086	12.590	12.110	5.92	5.84	-1.33%	5.84	-1.33%
0.172	36.359	36.125	9.54	9.50	-0.42%	9.50	-0.42%
0.258	67.613	67.425	14.30	14.27	-0.23%	14.27	-0.23%
0.344	105.000	104.890	20.00	19.98	-0.10%	19.98	-0.10%

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Internal verification was done using level simulation.			
Analog output tested during internal verification.	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	
Loop Check Performed:	Not tested	Vaibhav P	
Within Specification:	No	Date:	12-Aug-24
		Date:	12-Aug-24



CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	62618
Due Date:	12-Aug-25	Manufacturer:	Krohne				
Follow-Up Required:	No	Model:	Transmitter:	IFC 010D	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	A9915979	Sensor:	-	
Instrument Visual Inspection:		Range:	0-75 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-04				
Electrical Inspection:	OK	Description:	Truck Fill				
As found Display information:	OK	Process/Location Description:					

Instrument Information:	
GK/GKL Value:	5.045
GK=1 or GKL=2	2
Flow Tube Diameter in mm:	100
Flow rate at 20 mA/100%:	75
Select Volume Fow Unit below:	
l/s, use 4177.3	4177.3
mA at 0% flow:	4
mA at 100% flow:	20
Coil Resistance:	

Input m/s	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	4.00	0.00%	4.00	0.00%
0.5	4.00%	3.00	4.64	4.65	0.22%	4.65	0.22%
1	8.06%	6.05	5.29	5.30	0.19%	5.30	0.19%
2	16.13%	12.09	6.58	6.59	0.15%	6.59	0.15%
3	24.13%	18.09	7.86	7.85	-0.13%	7.85	-0.13%
5	40.25%	30.19	10.44	10.43	-0.10%	10.43	-0.10%
10	80.50%	60.38	16.88	16.85	-0.18%	16.85	-0.18%
20							
30							

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Verified successfully using krohne GS8 simulator	Krohne GS 8 Simulator		
	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	
Loop Check Performed:	Not tested	Witness Name	
		Vaibhav P	Suhail

Within Specification:	No	Date:	12-Aug-24	Date:	12-Aug-24
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CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	NA
Due Date:	12-Aug-25	Manufacturer:	Krohne				
Follow-Up Required:	No	Model:	Transmitter:	IFC 100W	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	C16501544	Sensor:	-	
Instrument Visual Inspection:		Range:	0-200 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-014 Lower				
Electrical Inspection:	OK	Description:	Lower filter				
As found Display information:	OK	Process/Location Description:	Main Floor				

Instrument Information:	
GK/GKL Value:	8.2852
GK=1 or GKL=2	2
Flow Tube Diameter in mm:	250
Flow rate at 20 mA/100%:	200
Select Volume Fow Unit below:	l/s
l/s, use 4177.3	4177.3
mA at 0% flow:	4
mA at 100% flow:	20
Coil Resistance:	

Input m/s	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	3.99	-0.25%	3.99	-0.25%
0.5	15.50%	31.00	6.48	6.47	-0.15%	6.47	-0.15%
1	31.00%	62.00	8.96	8.95	-0.11%	8.95	-0.11%
2	62.00%	124.00	13.92	13.90	-0.14%	13.90	-0.14%
3	93.00%	186.00	18.88	18.86	-0.11%	18.86	-0.11%
5							
10							
20							
30							

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Verified successfully using krohne GS8 simulator	Krohne GS 8 Simulator		
	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	Witness Name
Loop Check Performed:	Not tested	Vaibhav P	Suhail

Within Specification:	No	Date:	12-Aug-24	Date:	12-Aug-24
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CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
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 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	NA
Due Date:	12-Aug-25	Manufacturer:	Krohne				
Follow-Up Required:	No	Model:	Transmitter:	IFC 100 W	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	C16501184	Sensor:	-	
Instrument Visual Inspection:		Range:	0-200 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-014 Upper				
Electrical Inspection:	OK	Description:	Upper Filter				
As found Display information:	OK	Process/Location Description:	Main Floor				

Instrument Information:	
GK/GKL Value:	8.6872
GK=1 or GKL=2	2
Flow Tube Diameter in mm:	250
Flow rate at 20 mA/100%:	200
Select Volume Fow Unit below:	
l/s, use 4177.3	4177.3
mA at 0% flow:	4
mA at 100% flow:	20
Coil Resistance:	

Input m/s	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	4.00	0.00%	4.00	0.00%
0.5	16.25%	32.50	6.60	6.61	0.15%	6.61	0.15%
1	32.50%	65.00	9.20	9.19	-0.11%	9.19	-0.11%
2	65.00%	130.00	14.40	14.37	-0.21%	14.37	-0.21%
3	97.50%	195.00	19.60	19.52	-0.41%	19.52	-0.41%
5							
10							
20							
30							

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Verified successfully using krohne GS8 simulator	Krohne GS 8 Simulator		
	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	
Loop Check Performed:	Not tested	Witness Name	
		Vaibhav P	
		Suhail	

Within Specification:	No	Date:	12-Aug-24	Date:	12-Aug-24
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CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	62478
Due Date:	12-Aug-25	Manufacturer:	Krohne				
Follow-Up Required:	No	Model:	Transmitter:	IFC 010D	Sensor:	-	
As Left Status:	Initial Condt	Serial #:	Transmitter:	A9915693	Sensor:	-	
Instrument Visual Inspection:		Range:	0-27.8 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-01				
Electrical Inspection:	OK	Description:	WAS Flow				
As found Display information:	OK	Process/Location Description:	Basement				

Instrument Information:	
GK/GKL Value:	5.167
GK=1 or GKL=2	2
Flow Tube Diameter in mm:	75
Flow rate at 20 mA/100%:	27.8
Select Volume Fow Unit below:	
l/s, use 4177.3	4177.3
mA at 0% flow:	4
mA at 100% flow:	20
Coil Resistance:	

Input m/s	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	3.98	-0.50%	3.98	-0.50%
0.5	6.25%	1.74	5.00	5.10	2.00%	5.10	2.00%
1	12.50%	3.48	6.00	6.15	2.50%	6.15	2.50%
2	25.00%	6.95	8.00	8.19	2.37%	8.19	2.37%
3	37.56%	10.44	10.01	9.81	-2.00%	9.81	-2.00%
5	62.56%	17.39	14.01	13.70	-2.21%	13.70	-2.21%
10							
20							
30							

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Verified successfully using krohne GS8 simulator	Krohne GS 8 Simulator		
The meter was showing +/-2.0 to +/-2.50% deviation.	Fluke Digital Multimeter	53600167	May-24
The meter is very old.			
Other Outputs Tested:	Not tested	Technician Name	Witness Name
Loop Check Performed:	Not tested	Vaibhav P	Suhail

Within Specification:	No	Date:	12-Aug-24	Date:	12-Aug-24
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CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:	FIT	W.O. Number:	240741-0001	Asset#:	62479
Due Date:	12-Aug-25	Manufacturer:	Krohne				
Follow-Up Required:	No	Model:	Transmitter:	IFC 010D	Sensor:		
As Left Status:	Initial Condt	Serial #:	Transmitter:	A9915978	Sensor:		
Instrument Visual Inspection:		Range:	0-66.7 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-02				
Electrical Inspection:	OK	Description:	Tank 1 RAS Flow				
As found Display information:	OK	Process/Location Description:	Basement				

Instrument Information:	
GK/GKL Value:	5.318
GK=1 or GKL=2	2
Flow Tube Diameter in mm:	100
Flow rate at 20 mA/100%:	66.7
Select Volume Fow Unit below:	
l/s, use 4177.3	4177.3
mA at 0% flow:	4
mA at 100% flow:	20
Coil Resistance:	

Input m/s	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00	3.99	-0.25%	3.99	-0.25%
0.5	4.75%	3.17	4.76	4.74	-0.42%	4.74	-0.42%
1	9.56%	6.38	5.53	5.48	-0.90%	5.48	-0.90%
2	19.06%	12.71	7.05	6.99	-0.85%	6.99	-0.85%
3	28.63%	19.09	8.58	8.52	-0.70%	8.52	-0.70%
5	47.69%	31.81	11.63	11.57	-0.52%	11.57	-0.52%
10	95.44%	63.66	19.27	19.08	-0.99%	19.08	-0.99%
20							
30							

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
Verified successfully using krohne GS8 simulator	Krohne GS 8 Simulator		
	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	
Loop Check Performed:	Not tested	Witness Name	
		Vaibhav P	Suhail

Within Specification:	No	Date:	12-Aug-24	Date:	12-Aug-24
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CALIBRATION / VERIFICATION

6470 Viscount Rd., Mississauga, Ontario
 L4V 1H3. Tel: (905) 678-2882
 Email: service@spdsales.com
 Web Site: www.spdsales.com

Customer Name:		OCWA - Highlands Hub					
Plant Name and address:		Shelburne WWTP - 300 Cennetenial Road, Shelburne					
Service Date:	12-Aug-24	Instrument Type:		W.O. Number:	240741-0001	Asset#:	62480
Due Date:	12-Aug-25	Manufacturer:	Krohne				
Follow-Up Required:	No	Model:	Transmitter:	IFC 010D	Sensor:		
As Left Status:	Initial Condt	Serial #:	Transmitter:	A9915977	Sensor:		
Instrument Visual Inspection:		Range:	0-66.7 l/s		Output:	4-20 mA	
Mechanical Inspection:	OK	Tag Information:	FIT-03				
Electrical Inspection:	OK	Description:	Tank 2 RAS Flow				
As found Display information:	OK	Process/Location Description:	Basement				

Instrument Information:	
GK/GKL Value:	5.045
GK=1 or GKL=2	2
Flow Tube Diameter in mm:	100
Flow rate at 20 mA/100%:	66.7
Select Volume Fow Unit below:	
l/s, use 4177.3	4177.3
mA at 0% flow:	4
mA at 100% flow:	20
Coil Resistance:	

Input m/s	Input %	Flow rate	mA Out	As Found	Deviation	As Left	Deviation
0	0.00%	0.00	4.00		-100.00%		-100.00%
0.5	4.50%	3.00	4.72		-100.00%		-100.00%
1	9.06%	6.04	5.45		-100.00%		-100.00%
2	18.13%	12.09	6.90		-100.00%		-100.00%
3	27.19%	18.13	8.35		-100.00%		-100.00%
5	45.25%	30.18	11.24		-100.00%		-100.00%
10	90.56%	60.41	18.49		-100.00%		-100.00%
20					-100.00%		-100.00%
30					-100.00%		-100.00%

Comments	Test Equipment Used		
	Name / Type	Serial No.	Due Date
The meter was not responding to simulator.	Krohne GS 8 Simulator		
Transmitter need to be replaced.	Fluke Digital Multimeter	53600167	May-24
Other Outputs Tested:	Not tested	Technician Name	Witness Name
Loop Check Performed:	Not tested	Vaibhav P	Suhail

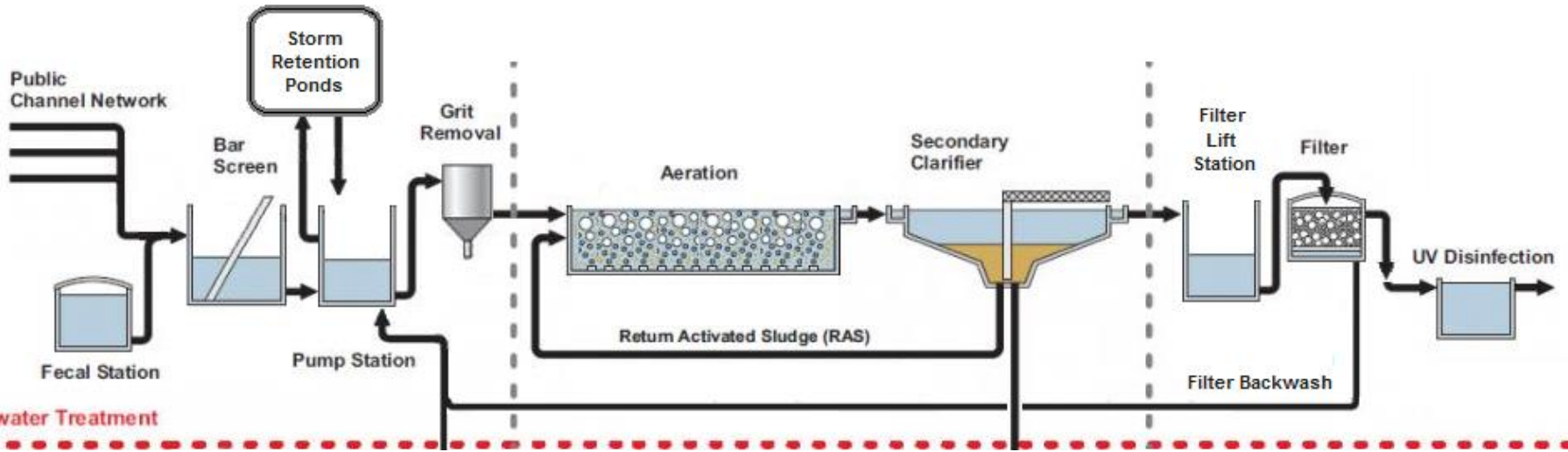
Within Specification:	Yes	Date:	12-Aug-24	Date:	12-Aug-24
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**2024 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS**

Appendix D

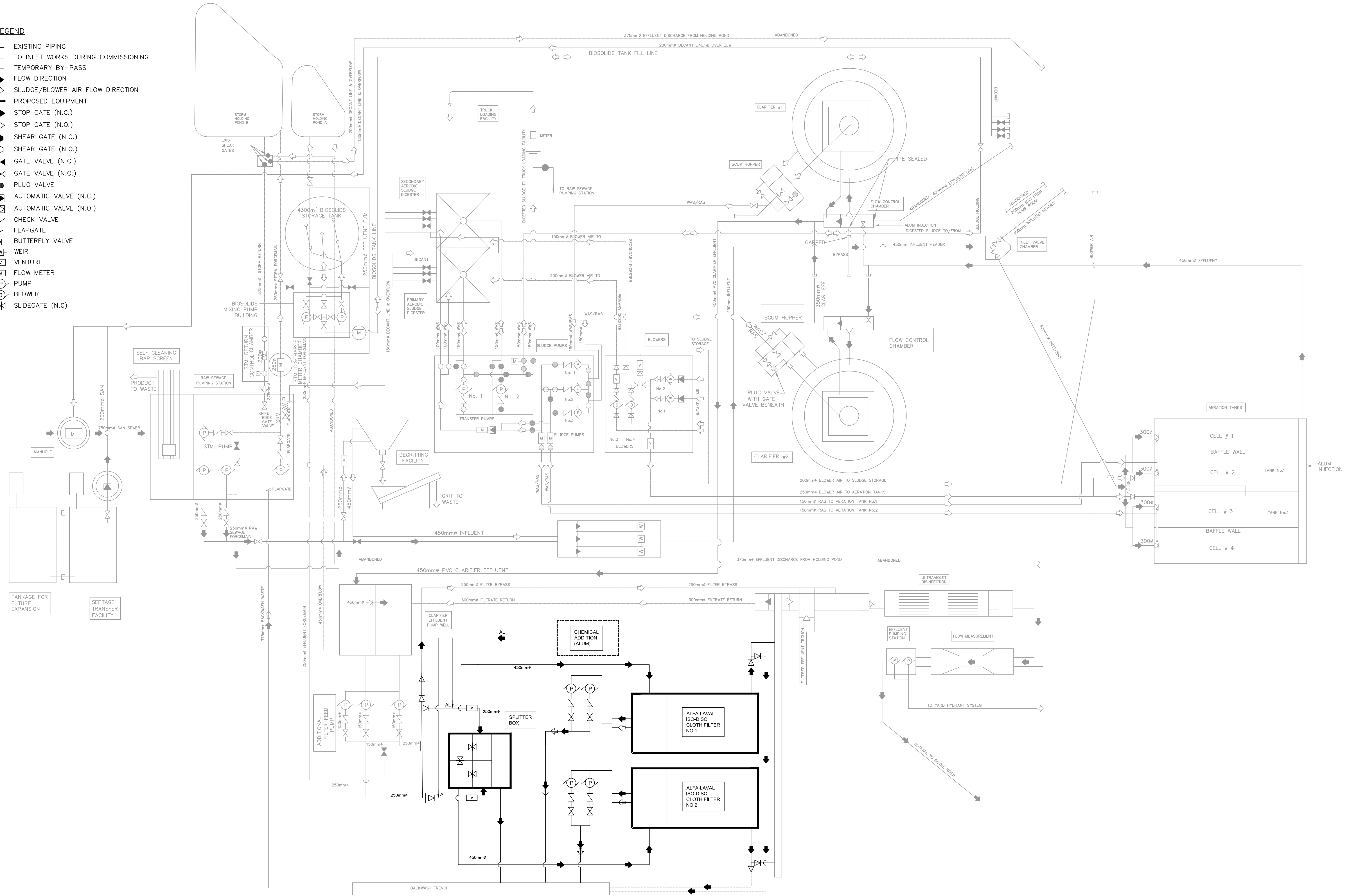
Process Flow Schematic

Process Diagram



LEGEND

- EXISTING PIPING
- - - - TO INLET WORKS DURING COMMISSIONING
- - - - TEMPORARY BY-PASS
- FLOW DIRECTION
- ↻ SLUDGE/BLOWER AIR FLOW DIRECTION
- ▭ PROPOSED EQUIPMENT
- ▭ STOP GATE (N.C.)
- ▭ STOP GATE (N.O.)
- SHEAR GATE (N.C.)
- SHEAR GATE (N.O.)
- ⊗ GATE VALVE (N.C.)
- ⊘ GATE VALVE (N.O.)
- ⊙ PLUG VALVE
- ⊙ AUTOMATIC VALVE (N.C.)
- ⊙ AUTOMATIC VALVE (N.O.)
- ∨ CHECK VALVE
- ∨ FLAPGATE
- ∨ BUTTERFLY VALVE
- ∨ WEIR
- ∨ VENTURI
- ∨ FLOW METER
- ⊙ PUMP
- ⊙ BLOWER
- ⊙ SLIDEGATE (N.O.)



1. THIS DRAWING IS THE EXCLUSIVE PROPERTY OF S. BURNETT & ASSOCIATES LIMITED AND THE REPRODUCTION OF ANY PART WITHOUT PRIOR WRITTEN CONSENT OF THIS OFFICE IS STRICTLY PROHIBITED.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO THIS OFFICE PRIOR TO CONSTRUCTION.
3. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
4. DO NOT SCALE THE DRAWINGS.

No.	DATE	ISSUE / REVISION	No.	DATE	ISSUE / REVISION
1.	05/04/2016	33% SUBMISSION	6.	14/06/2016	ISSUED REQUEST FOR PROPOSAL
2.	20/04/2016	66% SUBMISSION	7.	08/08/2016	ISSUED FOR CONSTRUCTION
3.	25/04/2016	ISSUED FOR MOE REVIEW	8.	26/01/2018	AS-BUILT
4.	26/04/2016	ISSUED FOR NVCA REVIEW			
5.	30/05/2016	REVISED AS PER NVCA COMMENTS			

CLIENT
TOWN OF SHELBURNE

PROJECT
**WATER POLLUTION CONTROL PLANT
TERTIARY FILTER REPLACEMENT UPGRADES**

TITLE
**GENERAL PROCESS FLOW SCHEMATIC
TEMPORARY BY-PASS & UPGRADES**

		S. BURNETT & ASSOCIATES LIMITED ENGINEERING AND ENVIRONMENTAL SERVICES 230 BROADWAY, UNIT 203 ORANGEVILLE, ONTARIO L9W 5G4 TELEPHONE: 519-941-2949 FAX: 519-941-2036	
		DESIGNED BY D.D.	DRAWN BY B.U.
SCALE NTS	PROJECT No. M15003		

PROF. STAMP

**2024 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS**

Appendix E

Notice of Modification to the Sewage Works



RETAIN COPY OF COMPLETED FORM AS PART OF THE ECA ON-SITE PRIOR TO THE SCHEDULED IMPLEMENTATION DATE.

Part 1 – Environmental Compliance Approval (ECA) with Limited Operational Flexibility

(Insert the ECA's owner, number and issuance date and notice number, which should start with "01" and consecutive numbers thereafter)

ECA Number 6413-ABLQQS	Issuance Date (mm/dd/yy) 07/19/2016	Notice number (if applicable)
ECA Owner The Corporation of the Town of Shelburne		Municipality Town of Shelburne

Part 2: Description of the modifications as part of the Limited Operational Flexibility

(Attach a detailed description of the sewage works)

- This notice of modifications is for two jar testing bench scale experiments to 1) assess the required doses of chemicals for a proposed high-rate clarification (HRC) system coupled with an advanced oxidation process (AOP) and 2) assess the required doses of chemicals for sludge dewatering using cement kiln dust (CKD), PAM and geotextile bags. The testing will take place at the water pollution control plant (WPCP) located at 300 Centennial Road, Shelburne L0N 1S4.
- Chemicals for the HRC and AOP jar testing include coagulants (i.e. alum), Microsand, lime, sodium persulfate, hydrogen peroxide, and polyacrylamide (PAM). Chemicals for the sludge dewatering jar testing include PAM and CKD.
- It is estimated that about 10 L/d of HRC/AOP effluent and 10 L/d of sludge will be produced. Some of the effluent will be analyzed for nitrate, ammonia, TKN, COD, phosphorus, sulfide and suspended solids using HACH analyzers. Hazardous waste that is produced from some of the HACH methods will be collected separately and disposed of according to the regulations. The remainder of the jar testing waste will be discharged directly to the inlet raw sewage wet well. The experiments will last for approximately two (2) weeks.
- We do not anticipate that the effluent discharged will significantly alter the composition/concentration of the influent sewage to be treated in the downstream process since it is a very small fraction of the flows received at the plant and the jar testing chemicals that will be used are typical municipal wastewater and sludge treatment chemicals.

Description shall include:

1. A detailed description of the modifications and/or operations to the sewage works (e.g. sewage work component, location, size, equipment type/model, material, process name, etc.)
2. Confirmation that the anticipated environmental effects are negligible.
3. List of updated versions of, or amendments to, all relevant technical documents that are affected by the modifications as applicable, i.e. submission of documentation is not required, but the listing of updated documents is (design brief, drawings, emergency plan, etc.)

Part 3 – Declaration by Professional Engineer

I hereby declare that I have verified the scope and technical aspects of this modification and confirm that the design:

1. Has been prepared or reviewed by a Professional Engineer who is licensed to practice in the Province of Ontario;
2. Has been designed in accordance with the Limited Operational Flexibility as described in the ECA;
3. Has been designed consistent with Ministry's Design Guidelines, adhering to engineering standards, industry's best management practices, and demonstrating ongoing compliance with s.53 of the Ontario Water Resources Act; and other appropriate regulations.

I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate

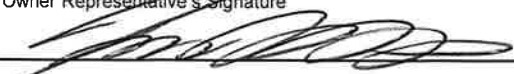
Name (Print) Bulent Uslu	PEO License Number 100189865
Signature 	Date (mm/dd/yy) 08/28/24
Name of Employer S. Burnett & Associates Ltd.	

Part 4 – Declaration by Owner

I hereby declare that:

1. I am authorized by the Owner to complete this Declaration.
2. The Owner consents to the modification; and
3. This modifications to the sewage works are proposed in accordance with the Limited Operational Flexibility as described in the ECA.
4. The Owner has fulfilled all applicable requirements of the *Environmental Assessment Act*.

I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate

Name of Owner Representative (Print) <i>Jim Moss</i>	Owner representative's title (Print) <i>DIRECTOR OF DEVELOPMENT & OPERATIONS</i>
Owner Representative's Signature 	Date (mm/dd/yy) <i>08/28/2024</i>



Notice of Modification to Sewage Works

RETAIN COPY OF COMPLETED FORM AS PART OF THE ECA ON-SITE PRIOR TO THE SCHEDULED IMPLEMENTATION DATE.

Part 1 – Environmental Compliance Approval (ECA) with Limited Operational Flexibility <i>(insert the ECA's owner, number and issuance date and notice number, which should start with "01" and consecutive numbers thereafter)</i>		
ECA Number 6413-ABLQQS	Issuance Date (mm/dd/yy) 07/19/16	Notice number (if applicable) 01
ECA Owner Town of Shelburne	Municipality Town of Shelburne	

Part 2: Description of the modifications as part of the Limited Operational Flexibility <i>(Attach a detailed description of the sewage works)</i>
<p>AQUABACxt is a highly effective, US EPA-registered biological larvicide. It contains a species of bacteria called bacillus thuringiensis, an approved pesticide for controlling red worms and midge flies in wastewater treatment plants.</p> <p>On a weekly basis from spring to fall operator will dose the incoming raw sewage and aeration tank to eliminate midge flies at the plant during the summer months.</p> <p>Description shall include:</p> <ol style="list-style-type: none"> 1. A detail description of the modifications and/or operations to the sewage works (e.g. sewage work component, location, size, equipment type/model, material, process name, etc.) 2. Confirmation that the anticipated environmental effects are negligible. 3. List of updated versions of, or amendments to, all relevant technical documents that are affected by the modifications as applicable. I.e. submission of documentation is not required, but the listing of updated documents is (design brief, drawings, emergency plan, etc.)

Part 3 – Declaration by Professional Engineer								
<p>I hereby declare that I have verified the scope and technical aspects of this modification and confirm that the design:</p> <ol style="list-style-type: none"> 1. Has been prepared or reviewed by a Professional Engineer who is licensed to practice in the Province of Ontario; 2. Has been designed in accordance with the Limited Operational Flexibility as described in the ECA; 3. Has been designed consistent with Ministry's Design Guidelines, adhering to engineering standards, industry's best management practices, and demonstrating ongoing compliance with s.53 of the Ontario Water Resources Act; and other appropriate regulations. <p>I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate</p>								
<table border="1"> <tr> <td>Name (Print) Jose A. Casal, P.Eng. PMP</td> <td>PEO License Number 100133268</td> </tr> <tr> <td>Signature </td> <td>Date (mm/dd/yy) March 29, 2022</td> </tr> <tr> <td colspan="2">Digitally signed by Jose Casal Date: 2022.03.29 10:46:11 -04'00'</td> </tr> <tr> <td colspan="2">Name of Employer Ontario Clean Water Agency (OCWA)</td> </tr> </table>	Name (Print) Jose A. Casal, P.Eng. PMP	PEO License Number 100133268	Signature 	Date (mm/dd/yy) March 29, 2022	Digitally signed by Jose Casal Date: 2022.03.29 10:46:11 -04'00'		Name of Employer Ontario Clean Water Agency (OCWA)	
Name (Print) Jose A. Casal, P.Eng. PMP	PEO License Number 100133268							
Signature 	Date (mm/dd/yy) March 29, 2022							
Digitally signed by Jose Casal Date: 2022.03.29 10:46:11 -04'00'								
Name of Employer Ontario Clean Water Agency (OCWA)								

Part 4 – Declaration by Owner				
<p>I hereby declare that:</p> <ol style="list-style-type: none"> 1. I am authorized by the Owner to complete this Declaration; 2. The Owner consents to the modification; and 3. This modifications to the sewage works are proposed in accordance with the Limited Operational Flexibility as described in the ECA. 4. The Owner has fulfilled all applicable requirements of the <i>Environmental Assessment Act</i>. <p>I hereby declare that to the best of my knowledge, information and belief the information contained in this form is complete and accurate</p>				
<table border="1"> <tr> <td>Name of Owner Representative (Print) Jim Moss</td> <td>Owner representative's title (Print) Director, Development and Operations</td> </tr> <tr> <td>Owner Representative's Signature </td> <td>Date (mm/dd/yy) 03/22/2022</td> </tr> </table>	Name of Owner Representative (Print) Jim Moss	Owner representative's title (Print) Director, Development and Operations	Owner Representative's Signature 	Date (mm/dd/yy) 03/22/2022
Name of Owner Representative (Print) Jim Moss	Owner representative's title (Print) Director, Development and Operations			
Owner Representative's Signature 	Date (mm/dd/yy) 03/22/2022			

AQUABACxt & BugJuice

Eliminates Red Worms and Midge Flies In Wastewater



AQUABACxt

AQUABACxt is a highly effective, US EPA-registered biological larvicide. It contains a species of bacteria called *bacillus thuringiensis* (BT), an approved larvicide for controlling red worms and midge flies in wastewater treatment plants.

Red worms find wastewater plants to be a perfect home. They survive by eating your MLSS, then hatch into midge flies, and the cycle repeats. The active ingredient in AQUABACxt kills the red worms and breaks the cycle.

Common symptoms of red worm infestations include: disappearing MLSS (the red worms are eating it), stringy or clumpy return activated sludge, and nuisance flies that attract pests. AQUABACxt is safe to use and will only kill a very narrow set of target species; larvae of the mosquito, midge flies, and black flies. It will not cause effluent toxicity issues.

BugJuice

BugJuice degrades the cocoons red worms build around themselves, exposing more red worms to the AQUABACxt treatment. You can often find these cocoons on the walls of clarifier rings, or the sides of basins. This technique increases the effectiveness of AQUABACxt dramatically.

We recommend using BugJuice for the first 20 to 40 days of any treatment. After the initial treatment, an annual or biannual 20 day treatment is helpful for restoring the benefits.



Figure 1:

Isolated midge fly and an isolated red worm



Red Worm



Midge Fly



P.O. Box 8682
Madison, WI
53708-8682

P: 888.757.9577
F: 866.636.1864

info@teamaquafix.com
www.teamaquafix.com

Dose Rates

AQUABACxt & BugJuice



AQUABACxt: Wastewater Plant Dosing

Flow Rate Gallons per day	Super Dose Twice per week for 1-2 weeks	Initial Dose Twice per week for 2 weeks	Maintenance Dose Once per week
10,000 GPD	0.5 pt or 8 oz	4 oz	2 oz
50,000 GPD	1 qt or 2 pt	1 pt	8 oz
100,000 GPD	0.5 gal	1 qt	1 pt
200,000 GPD	1 gal	2 qt	2 pt
300,000 GPD	1.5 gal	3 qt	3 pt
400,000 GPD	2 gal	4 qt	4 pt
500,000 GPD	2.5 gal	5 qt	5 pt
600,000 GPD	3 gal	6 qt	6 pt
700,000 GPD	3.5 gal	7 qt	7 pt
800,000 GPD	4 gal	8 qt	8 pt
900,000 GPD	4.5 gal	9 qt	9 pt
1,000,000 GPD	5 gal	10 qt	10 pt

AQUABACxt: Wastewater Lagoon Dosing

Lagoon Size	Initial Dose Once per week for 4 weeks	Maintenance Dose Once per week
1 Acres	2.5 gal	1 gal
4 Acres	10 gal	4 gal
8 Acres	20 gal	8 gal

BugJuice Dose Rate

Flow Rate Gallons per day	Dose: Add Daily at the head of treatment plant
100,000 GPD	1 pt
200,000 GPD	2 pt
300,000 GPD	3 pt
400,000 GPD	4 pt
500,000 GPD	5 pt
600,000 GPD	6 pt
700,000 GPD	7 pt
800,000 GPD	8 pt
900,000 GPD	9 pt
1,000,000 GPD	10 pt

AQUABACxt:

- Add directly to areas with red worms, often secondary clarifiers and tertiary processes
- Can be metered instead of weekly slug dose, if desired
- Continue to use throughout your climate's active midge fly season

BugJuice:

- Add daily at headworks of plant
- Use for at least the first 20-40 days of any AQUABACxt treatment

Available Sizes:

- 5 gal case
- 135 gal pallet
- 250 gal tote (AQUABACxt)
- 275 gal tote (BugJuice)

From: [Weber, Martha \(MECP\)](#)
To: [Melissa Cortes](#)
Cc: [Don Irvine](#); [Monika Kowalska](#); [Jenna Porter](#)
Subject: RE: Shelburne WWTP - Midge Fly Control
Date: March-21-22 7:57:13 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Melissa,

I double-checked with Approvals, and they agree this item would fall within the LOF provisions as proposed.

Thanks for reaching out!

Martha Weber

Water Inspector/Provincial Officer
Ministry of the Environment, Conservation and Parks
Guelph District Office
Cell (519) 830-5977

NOTE: This message is confidential and may be privileged and exempt from disclosure under applicable law. If you are not the intended recipient or an agent of that individual or organization, any use, copying, or distribution of this message by you is strictly prohibited. If you received this communication in error, please contact me by return e-mail and delete this message.

- We want to hear from you. How was my service? You can provide feedback at 1-888-745-8888 or ontario.ca/inspectionfeedback
- Nous attendons vos commentaires. Qu'avez-vous pensé de mon service? Vous pouvez nous faire part de vos commentaires au 1-888-745-8888 ou à ontario.ca/retroactioninspection

From: Melissa Cortes <MCortes@ocwa.com>
Sent: Wednesday, March 16, 2022 12:01 PM
To: Weber, Martha (MECP) <Martha.Weber@ontario.ca>
Cc: Donald Irvine <dirvine@ocwa.com>; Monika Kowalska <MKowalska@ocwa.com>; Jenna Porter <JPorter2@ocwa.com>
Subject: Shelburne WWTP - Midge Fly Control

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Martha,

I wanted to reach out to you to start a discussion on the use of a products called AQUABACxt and Bug Juice at the Shelburne WWTP to control midge flies. Our operator reached out and provided documentation/research on this product and how effective it is in controlling midge flies and wanted to try it at the Shelburne WWTP. Attached is some information on the product as well as dosing calculations that our operator has completed with a schedule of dosing.

If you could provide your feedback and directions we can take to start using these products I would greatly appreciate it. I believe it would fall under LOF and a notice of modification form will be

completed before using this product.

Thanks Melissa

Melissa Cortes

Process & Compliance Technician
Highlands Hub, Georgian Highlands Region
300 Centennial Road
Shelburne ON, L9V 2Z4
519-938-6909



From: Monika Kowalska <MKowalska@ocwa.com>

Sent: March-11-22 9:48 AM

To: Don Irvine <DIrvine@ocwa.com>

Cc: Jose Casal <JCasal@ocwa.com>; Jenna Porter <JPorter2@ocwa.com>; Melissa Cortes <MCortes@ocwa.com>

Subject: RE: Shelburne WWTP

Hi

I initially found out about this product through the email correspondence attached by Don. Another OCWA facility used this product last year and had great success.

Looking at the website, <https://teamaquafix.com/products/midge-flies/aquabac-xt-midge-flies/> It is a product specifically designed for use at WWTP to eliminate red worms which develop into midge flies. These flies in turn attract spiders into the plant.

“It contains a species of bacteria called *bacillus thuringiensis*, an approved larvicide for controlling red worms and midge flies in wastewater treatment plants and waterways. Highly effective against red worms but safe for fish, birds, mammals, and other lifeforms. AQUABACxt is safe to use and will only kill a very narrow set of target species; larvae of the mosquito, midge flies, and black flies. It will not cause effluent toxicity issues.”

I am also a member of a wastewater operator group, and within this group, there have been many post about how other operators around the world manage the flies at their facilities, and the operators that have used this product highly recommend it.

Only other way to reduce/eliminate these flies at the source is through chlorination (which can negatively impact the microorganisms in the RAS). All other methods (bug zappers, etc,) are only treating the symptoms and are not effective.

Attached is the product sheet which can be found on the AQUAFIX website, and states the recommended doses.

Attached is the calculations I performed to determine how much product is required this year based off of the plant's flow per day.

There are 2 products that will be used.

Bug Juice draws out the red worms that are hiding in rags/grit and degrades their protective cocoons. The AQUABACxt is fed upon by these red worms which kills them, thereby eliminating the midge flies.

Bug Juice also carries the added benefit of improving digester settling and denser sludge (similar to XLR8 product used at the plant a couple of years ago). <https://teamaquafix.com/products/aerobic-digester-sludge-storage-tank/bug-juice-sludge-reduction/>

Attached is the SDS for both Bug Juice and AQUABACxt.

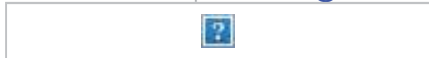
Attached is email correspondence with Landon from AQUAFIX, with some answers to questions I had earlier this year.

Let me know if there's any other info required.

Thanks,

Monika Kowalska, C.Tech.

*Water & Wastewater Operator | Ontario Clean Water Agency
Highlands Hub | Georgian Highlands Region
300 Centennial Rd, Shelburne, Ontario L9V 2Z4
Cell 519-940-6057 | mkowalska@ocwa.com*



**2024 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS**

Appendix F

ECA Limit Exceedance Email/Written Notifications

2024

From: [Melissa Cortes](#)
To: martha.weber@ontario.ca
Cc: [Don Irvine](#); "[Stephen Burnett - S. Burnett & Associates Limited \(stephen.burnett@sbaengineering.com\)](#)"; jmoss@shelburne.ca; -GHRH-SPCM@ocwa.com (Mailing List); [Caralynn McRae](#); [Monika Kowalska](#); [Suhail Auzam](#); [Alex Solomonov](#); [Jenna Porter](#)
Subject: Shelburne Wastewater Treatment Plant (WWTP) ECA Compliance Limit Exceedance Total Suspended Solids - March 2024
Date: April-19-24 11:24:00 AM
Attachments: [image001.jpg](#)

Good morning Martha,

This is a notification that the Shelburne Wastewater Treatment Plant (WWTP) has met all but one of its ECA compliance limits (**Total Suspended Solids**) for the month of **March 2024**.

Facility: Shelburne WWTP

ECA # 6413-ABLQOS

ECA Issued: July 19, 2016

March 2024

Shelburne WWTP			5 th	12 th	19 th	22 nd	26 th	28 th	MONTHLY AVERAGE	Reportable
PARAMETER	LIMIT	OBJECTIVE								
TSS	5.0mg/L	4.0mg/L	7.0	9.0	6.0	5.0	4.0	5.0	6.0	Monthly

Results Summary

- **TSS (Total Suspended Solids)** – the monthly average concentration of **6.0** mg/L was **above** the ECA Compliance Limit.

- Reporting Actions

Notified Martha Weber, Provincial Office/Water Inspector with the MECP Guelph District Office of the exceedance on Friday April 12, 2023 at 9:25 via email from Don Irvine (OCWA).

- Process Observations

Biosolids Tank had reached its capacity at the end of 3rd week of February. No supernatant available in the tank when trying to decant from start of 4th week of February until some space freed up after Lystek started Biosolids haulage from March 12. MLSS in Aeration Cells started to increase beginning of March from approximately 5500 mg/l gradually each week and by end of 2nd week was up to 8000 mg/l as a result of low DO, high RAS TSS and not able to waste from Secondary Clarifiers into Digesters which in turn not able to sludge transfer from Digesters to Biosolids tank. With seasonal snow melt and at times heavy precipitation, was trying to bring pond level down and had set pond return to 5 L/s on March 1. Also suspect there could be possibility of Filter#1 being compromised as effluent coming out looks cloudy.

Corrective Actions taken

- March 11 - Inspected and cleaned Final Effluent auto sampler strainer, jar. Set Filter Feed Pump#3 from Auto to Manual off as the rpm to flow was not comparable and/or matching to what Filter Feed Pumps 1&2 were running. Flow reduced to Filter#1.
- March 12 – Blower #1 intake filter cartridge changed.
- March 15 – Week of March 11-15, Lystek hauled 123 m3 from Biosolids Tank.
- March 15 – Increased pond return to 8 L/s
- March 16 – Increased pond return to 10 L/s
- March 17 - Decreased pond return to 1 L/s and closed flow to Filter#1.
- March 20 - Drained Filter#1 and hose down solids into backwash channel. Introduced full flow back to Filter#1, half flow to Filter#2 and later in the day flow stopped to Filter#2.
- March 22 - Week of March 11-15, Lystek hauled 217 m3 from Biosolids Tank. Isolated Filter#1 and put back in service Filter#2.

-March 28 –Week of March 25-28, Lystek hauled 215 m3 from Biosolids Tank. UV channel cleaned.

If there are any questions or comments concerning this matter, please let us know.

Thank you,

Melissa Cortes

Process & Compliance Technician
Highlands Hub, Georgian Highlands Region
300 Centennial Road
Shelburne ON, L9V 2Z4
519-938-6909

