ANNUAL REPORT

SHELBURNE
WASTEWATER TREATMENT SYSTEM

FOR THE PERIOD:
JANUARY 1, 2021 – DECEMBER 31, 2021

Prepared for 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

Table of Contents

1. System Description

The Town of Shelburne is a community of approximately 9,993 people located approximately 100 kilometers northwest of Toronto. 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. The Town grew consistently over the years and eventually overloaded the lagoon system. In July 1981 construction was completed on a wastewater treatment system located at the present location. This 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 and 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 went under 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, $CBOD_5$ and phosphorus from the wastewater. Major improvements were 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 580m^3, 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.

Works:

Trunk Sanitary Sewers

- 82 m of 750 mm diameter, 594 m of 600 mm diameter and 14.5 m of 300 mm diameter trunk

sanitary sewers complete with emergency overflow to adjacent creek and all necessary manholes, appurtenances and inter-connections to the sanitary collection system, commencing at a point approximately 100 m south and 13 m west of the intersection of Ella Street and Highway Nos. 10 and 89 following an easement 60 m east and then north across Highway Nos. 10 and 89 and then generally along the creek bank to a point approximately 40 m south, 15 m west of the pumping station then due north to the centre of Centennial Street (unopened extension) and then north and west 82 m to the Inlet Works at the sewage treatment plant;

Hauled Sewage Receiving Station

- one (l) hauled sewage transfer tank with a capacity of 24,000 L, located adjacent to the inlet works building;

Inlet Works

- one (l) automatic mechanical bar screen having a Peak Flow Rate of 13,000 m /d, one (l) manually cleaned bar racks for emergency or maintenance bypass and one (1) bypass channel overflow weir; - one (l) 7.50 m x 2.93 m x 5.40 m benched wet well equipped with two (2) submersible pumps, each with VFD and rated at 34.4 to 103.3 Lis at 10.2 to 12.0 m TDH; - one (l) wet weather flow pump rated at 81.0 Vs, 8.53 m TDH, discharging to the wet weather flow holding ponds; - one (l) additional wet weather flow pump rated at 152 Vs, 1 6 m TDH., discharging through the storm forcemain to the wet weather flow holding ponds; - one (I) 2.1 m diameter vortex grit separator having a Peak Flow Rate of 9,504 m /d and a grit classifier; - three (3) 5.7 m x 0.6 x 1.0 m SWD grit channels having a Peak Flow Rate of9,130 m /d for back up to the vortex grit separator;

Wet Weather Flow Holding Ponds

- one (l) 19,900 m Wet Weather Flow Holding Pond A and one (l) 16,800 m Wet Weather Flow Holding Pond B, to be used under emergency situations for temporary storage of wet weather flow to be returned later to the Inlet Works for further treatment;

Aeration Tanks

- two (2) 40 m x 10 m x 4.6 m SWD aeration tanks, each with two longitudinal cells with the inlet pipes to distribute flows into each cell of each tank, equipped with fine bubble diffused aeration system and two (2) centrifugal air blowers (one duty and one standby), rated at 500 Vs and 250 L/S respecti vely;

Secondary Clarifiers

- one (l) 14.0 m diameter x 2.8 m SWD secondary clarifiers equipped with sludge and scum removal mechanisms and cold weather cover;
- -one (l) 14.0 m diameter x 3.65 m SWD secondary clarifiers equipped with sludge and scum removal mechanisms and cold weather cover;

Clarifier Effluent Pump System

- two (2) 2.9 m x 2.1 m x 2.0 m S WD clarified effluent tanks; - three (3) VFD controlled dry pit filter feed pumps each rated at 17.2 to 51.7 L/S at 9.9 to I I .3 m T.D.H. discharging to either the filters or to the wet weather flow holding ponds;

Filtration

- two (2) cloth-filter treatment units (one standby) each having a Peak Flow Rate of 558 m /h via one (1) 450 mm diameter inlet piping to a splitter box, 250 mm process pipings to the units and overflow over a weir;

Ultraviolet (UV) Disinfection

- a 8.0 m x 0.61 m x I .067 m deep channel equipped with a low pressure mercury vapour ultraviolet irradiation lamp system having a Peak Flow Rate of 8,921 m /d and with a weighted lever gate on the outlet to the Parshall flume to maintain the liquid level in the channel at a depth of 460 mm;

Outfall Sewer

- approximately 60 m of 450 mm x 740 mm effluent outfall pipe discharging from the Parshall flume to a minor tributary of Boyne River;

Activated Sludge Pumping System

- three (3) VFD controlled sludge pumps, each rated at 8.6 to 34.4 Vs at 3.2 to 7.6 m T.D.H., complete with valving and piping to permit withdrawal from either the secondary clarifier sludge sump or the scum hopper and returning to either the aeration tanks or to wasting to the sludge digesters;

Phosphorus Removal

- one (I) 24.1 m capacity chemical storage tank and four (4) chemical metering pumps (two with capacity of 23 Uh to the secondary clarifiers and two with capacity of 108 LAI to the tertiary filters) for phosphorus removal;

Sludge Digestion

- a two stage aerobic sludge digestion system with one (l) 450 m stage I digester and one (l) 170 m stage 2 digester, both equipped with coarse bubble aeration system and supernatant decanting facility;
- two (2) air blowers (one standby shared with the aeration tanks) rated at I m fh supplying air to the digesters; two (2) replacement digested sludge transfer pumps (one standby) each rated at 20 Vs at 19 m TDH;

Biosolids Storage Tank

- one (1) 4,300 m biosolids storage tank with mixing nozzles and two (2) mixing pumps;

Effluent Flow Measurement

- one (l) 305 mm Parshall flume measuring quantity of effluent discharged from the plant located downstream of the UV disinfection system;

Standby Power

- one (l) 650 kW standby power diesel generator and 9000 L diesel tank with double-walled containment

This facility receives residential, commercial, institutional and industrial wastewater and provides a level of treatment to meet the amended "Environmental Compliance Approval - # 6413-ABLQQS" for discharging into the Beasley Drain a minor tributary of the Boyne River. The Boyne Creek 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
Works Number	110000659
Design Capacity	3,420 m^3/day
Receiving Water	Besley Drain to Boyne Creek to Nottawasaga River
Environmental Compliance Approval	6413-ABLQQS

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 Sampling Frequency

Hauled sewage, raw sewage, and final effluent are sampled on a regular basis. The sampling types and frequencies are summarized in Tables 2, 3 and Table 4. The sampling frequencies meet the requirements set out in Section 9 of ECA 6413-ABLQQS.

Table 2. Hauled Sewage Monitoring (Hauled Sewage receiving Station) – Sampling Frequencies

Parameter	Sample Type	Frequency
BOD5	Grab	Monthly
Total Suspended Solids	Grab	Monthly
Total Phophorus	Grab	Monthly
Total Kjeldahl Nitrogen	Grab	Monthly

Table 3. Raw Sewage Monitoring – Sampling Frequencies

Parameter	Sample Type	Frequency
BOD_5*	Composite	Monthly
Total Suspended Solids*	Composite	Monthly
Total Phosphorous*	Composite	Monthly
Total Kjeldahl Nitrogen*	Composite	Monthly

*Refer to Appendix A for monthly sample results.

Table 4. Effluent Sampling Monitoring – Sampling Frequencies

Parameters	Sample Type	Frequency
$CBOD_{5*}$	Composite	Weekly
Total Suspended Solids*	Composite	Weekly
Total Phosphorous*	Composite	Weekly
Total Ammonia Nitrogen*	Composite	Weekly
E. Coli*	Grab	Weekly
pH	Grab/Probe	Weekly
Temperature	Grab/Probe	Weekly

*Refer to Appendix A for monthly sample results.

2.2 Effluent Objectives and Effluent Limits

The effluent objectives as per Section 6 of ECA 6413-ABLQQS for the Shelburne Wastewater Treatment Plant are:

Table 5. Effluent Objectives as per Section 6 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 Oct 01 to May 31	 0.5 2.0
E-coli	150 CFU /100 mL (monthly Geometric Mean Density)
pH	maintained between 6.5 to 8.5, inclusive, at all times

The effluent limits that are to be met as per Section 7 of ECA 6413-ABLQQS for the Shelburne Wastewater Treatment Plant are found in Table 6. Any exceedance with the limits found in Table 6 constitutes a non-compliance with ECA 6413-ABLQQS.

Table 6. Effluent Limits as per Section 7 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 Oct 01 to May 31	 0.8 2.4	 2.7 8.2
E-coli	200 CFU /100 mL (monthly Geometric Mean Density)	n/a
pH	maintained between 6.0 to 9.5, inclusive, at all times	

2.3 Comparison of Data to Effluent Objectives and Effluent Limits

Analytical and monitoring data for the Shelburne Wastewater Treatment Facility is stored in OCWAs data management system (WISKI). Annual and monthly averages for flows, $CBOD_5$, BOD_5, 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 7-11:

Table 7.

	$CBOD_5$					
	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	2.00	Yes	Yes	4.50	n/a	Yes
February	2.25	Yes	Yes	4.78	n/a	Yes
March	3.33	Yes	Yes	9.00	n/a	Yes
April	2.50	Yes	Yes	5.63	n/a	Yes
May	3.00	Yes	Yes	7.07	n/a	Yes
June	11.60	**No**	**No**	23.94	n/a	**No**
July	6.31	**No**	**No**	13.38	n/a	Yes
August	3.20	Yes	Yes	5.63	n/a	Yes
September	2.75	Yes	Yes	5.49	n/a	Yes
October	2.75	Yes	Yes	5.70	n/a	Yes
November	4.20	**No**	Yes	10.19	n/a	Yes
December	3.00	Yes	Yes	7.90	n/a	Yes

***Required notification of non-compliances were made for the limit exceedances in June and July 2021**

Table 8.

	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	3.00	Yes	Yes	6.75	n/a	Yes
February	2.50	Yes	Yes	5.31	n/a	Yes
March	2.67	Yes	Yes	7.20	n/a	Yes
April	2.25	Yes	Yes	5.07	n/a	Yes
May	3.50	Yes	Yes	8.25	n/a	Yes
June	3.80	Yes	Yes	7.84	n/a	Yes
July	3.25	Yes	Yes	6.89	n/a	Yes
August	3.20	Yes	Yes	5.63	n/a	Yes
September	3.25	Yes	Yes	6.49	n/a	Yes
October	3.25	Yes	Yes	6.73	n/a	Yes
November	3.80	Yes	Yes	9.22	n/a	Yes
December	4.00	Yes	Yes	10.54	n/a	Yes

Table 9.

	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	0.07	Yes	Yes	0.16	n/a	Yes
February	0.07	Yes	Yes	0.14	n/a	Yes
March	0.08	Yes	Yes	0.22	n/a	Yes
April	0.07	Yes	Yes	0.15	n/a	Yes
May	0.07	Yes	Yes	0.16	n/a	Yes
June	0.06	Yes	Yes	0.12	n/a	Yes
July	0.05	Yes	Yes	0.10	n/a	Yes
August	0.10	Yes	Yes	0.17	n/a	Yes
September	0.08	Yes	Yes	0.15	n/a	Yes
October	0.07	Yes	Yes	0.14	n/a	Yes
November	0.07	Yes	Yes	0.16	n/a	Yes
December	0.06	Yes	Yes	0.15	n/a	Yes

Table 10.

	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	0.23	n/a	n/a	n/a	Yes
February	0.10	n/a	Yes	n/a	Yes	0.21	n/a	n/a	n/a	Yes
March	0.57	n/a	Yes	n/a	Yes	1.53	n/a	n/a	n/a	Yes
April	0.10	n/a	Yes	n/a	Yes	0.23	n/a	n/a	n/a	Yes
May	0.13	n/a	Yes	n/a	Yes	0.30	n/a	n/a	n/a	Yes
June	0.12	Yes	n/a	Yes	n/a	0.25	n/a	n/a	Yes	n/a
July	0.13	Yes	n/a	Yes	n/a	0.27	n/a	n/a	Yes	n/a
August	0.14	Yes	n/a	Yes	n/a	0.25	n/a	n/a	Yes	n/a
September	0.13	Yes	n/a	Yes	n/a	0.25	n/a	n/a	Yes	n/a
October	0.10	n/a	Yes	n/a	Yes	0.21	n/a	n/a	n/a	Yes
November	0.10	n/a	Yes	n/a	Yes	0.24	n/a	n/a	n/a	Yes
December	0.10	n/a	Yes	n/a	Yes	0.26	n/a	n/a	n/a	Yes

Table 11.

	E.coli		
	Monthly Geometric Mean Density (CFU/100mL)	Within Objectives (150 CFU/100mL)	Within Limits (200 CFU/100mL)
January	1.68	Yes	Yes
February	1.41	Yes	Yes
March	2.00	Yes	Yes
April	2.00	Yes	Yes
May	2.00	Yes	Yes
June	1.74	Yes	Yes
July	2.00	Yes	Yes
August	2.00	Yes	Yes
September	2.00	Yes	Yes
October	1.68	Yes	Yes
November	1.52	Yes	Yes
December	1.68	Yes	Yes

Table 12. Effluent Monitoring Parameter Summary as required by ECA 6413-ABLQQS for Shelburne Treatment Plant, 2021

Parameters	Average	Minimum	Maximum	Average Annual Loading
$CBOD_5$	3.91	2.00	11.60	8.60
Total Suspended Solids	3.21	2.25	4.00	7.16
Total Phosphorus	0.07	0.05	0.10	0.15
Total Ammonia Nitrogen	0.15	0.10	0.57	0.35
E.Coli	1.81	1.41	2.00	n/a
pH	8.13	7.85	8.37	n/a
Temperature	17.20	9.00	23.00	n/a

2.4 Additional Monitoring Parameters

The following parameters in Table 13 do not have limits or objectives but are monitored on a regular basis (see Section 2.1 for sampling frequency) as required by ECA 6413-ABLQQS. Table 13 summarizes the monitoring data for the reporting period.

Raw Sewage Quality:

Table 13. Raw Sewage Monitoring Parameters as required by ECA 6413-ABLQQS for Shelburne Wastewater Treatment Plant, 2021

Parameter	Average	Minimum	Maximum
BOD_5* (mg/L)	478.54	253.00	1200.00
Total Suspended Solids* (mg/L)	1349.08	330.00	7860.00
Total Phosphorous* (mg/L)	9.24	2.20	34.60
Total Kjeldahl Nitrogen* (mg/L)	56.28	28.00	144.00

*Refer to Appendix A for monthly sample results.

The following parameters in Table 14 do not have limits or objectives but are monitored as needed when septage is received at the facility. Table 14 summarizes the monitoring data for the reporting period.

Table 14. Hauled Sewage Monitoring

Parameter	Average	Minimum	Maximum
BOD_5 (mg/L)	3643.90	888.00	8780.00
Total Suspended Solids (mg/L)	12499.50	2990.00	43200.00
Total Phosphorous (mg/L)	87.74	22.70	250.00
Total Kjeldahl Nitrogen (mg/L)	500.10	177.00	976.00

2.5 Overview of Success and Adequacy of the Works;

The annual average effluent $CBOD_5$ concentration was 3.91 mg/L with a removal efficiency of >95.32%. The annual average effluent TSS concentration was 3.21 mg/L with a removal efficiency of >98.85%. The annual average effluent Total Phosphorus concentration was 0.07 mg/L with a removal efficiency of >96.49%.

The bacteriological quality of the effluent complied with the certificate of approval requirement of <200 Colony Forming Units (CFU) per 100 mL sample. The annual geometric mean density for 2021 was 1.81 CFU per 100 mL, indicating adequate effluent disinfection for the majority of the year.

The total raw sewage volume of wastewater treated in 2021 was 963,995.80 m^3. The annual average daily flow of raw sewage was 2,639.58 m^3/day was 77.18 % of the design flow (3,420 m^3/day). The maximum peak flow of 3,891.60 m^3/day occurred in March due to higher precipitation and snow melt. This represents a peak flow of 1.1 times the rated capacity. The wastewater treatment plant operated within the rated capacity 98.6% of the time (360 out of 365 days of the year). The average daily flow is approaching 80% of the rated capacity and the Town of Shelburne is well aware of this. With future upgrades proposed for the Works this will increase design capacity to accommodate the growth of the Town.

3. Operating Problems 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.

There was an operating problem encountered and corrective actions taken during the months of June and July 2021 Shelburne Wastewater Pollution Control Plant. This resulted in limit exceedances for CBOD5 monthly average and loading in June and monthly average in July. The whole carriage unit for the bar screen required to be refabricated and realigned inside the bar screen mechanism. Along with this the sprockets and chain required minor maintenance.

Apart from the above noted issue no other operating problems were encountered or corrective actions required at the Shelburne Wastewater Pollution Control Plant during 2021 that affected the quality of the effluent leaving the plant.

All repairs/maintenance can be found in Section 4 of this report.

4. Major 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.

Plant maintenance, including non-scheduled maintenance is monitored using Maximo Workplace Management System. All routine and preventative maintenance was conducted as scheduled in 2021.

For 2021, major maintenance activities that occurred include:

- Blower room fan repair
- Building security alarm repairs
- Digester clean out
- Digester diffusers replacements
- Final effluent sample replacement
- Grit vortex air blower repair
- MBR Pilot Project
- Ras pump #2 repairs
- Clarifier sweeper arm repair
- Mechanical bar screen repair
- Blower air filter replacements
- Auger repair, installed new relay
- Grit vortex system cleanout
- Annual Backflow Prevention inspection
- UV Lamp and Sleeve replacements
- Annual Gas Sensor calibrations
- Annual Flow Meter calibrations
- Headworks Wet Well cleanout

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:

All laboratory analyzed raw sewage and effluent samples (Section 2.1) are analyzed by SGS Canada Inc., which is an ISO 17025 accredited laboratory. In-house tests are conducted for monitoring purposes by licensed operators using standardized methods. The results from in-house tests are used to determine treatment efficiency and to effectively maintain process control. Calibrations and preventative maintenance are performed on facility equipment and monitoring equipment, see Section 4 for more details. In addition to sample analysis, preventative maintenance is scheduled for 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 in the work management system Maximo.

Operation by Licensed Operators: This sewage system is operated and maintained by the OCWA's licensed staff. The mandatory licensing program for operators of sewage treatment facilities in Ontario is regulated under the Ontario Water Resources Act (OWRA) Ontario Regulation 129/04. A licensed individual meets the education and experience requirements and has successfully passed the licensing exam.

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.

Indus Controls was contracted to calibrate flow measuring equipment on September 14, 2021. Copies of these calibration reports can be found in Appendix C of this report.

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 7-11 of section 2.3 of this report. These results show that sewage treatment operations for 2021 provided effluent quality that was within all effluent objectives outlined in the ECA and minimized environmental impairment with the exception of $CBOD_5$ for the months of June, July and November 2021. There was an operational problem encountered. The whole carriage unit for the bar screen required to be refabricated and realigned inside the bar screen mechanism. Along with this the sprockets and chain required minor maintenance.

8. Sludge Generation

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.

Grab samples of digested (aerobic) sludge are collected and tested as per these requirements. In 2021, sludge sample analysis was carried out by SGS Lakefield Research Limited. A summary of sludge sample results is provided in Appendix B of this report, along with septage data for the reporting period.

Wessuc Environmental Services Inc. was contracted to haul and spread sludge from the Shelburne plant in 2021. (Certificate of Approval - Waste Management System # 1603-4LGJBN)

The Town of Shelburne has an arrangement/agreement for the hauling, acceptance and processing of liquid biosolids material from the Shelburne Wastewater Treatment Plant with Lystek Internation Corp. Volumes of biosolids hauled from the Shelburne Wastewater Treatment Plant to Lystek are noted in below table 15.

The following certified sites were utilized in 2021:

Table 15. Volume of Sludge Generated from Shelburne Wastewater Treatment Plant in 2021

Site	Site Location	Volume of Biosolids (m^3)	Hauler
NASM Submission ID: 24574	S6008	2838.00	Wessuc
NASM Submission ID: 24592	S6009	1754.00	Wessuc
NASM Submission ID: 23730	W1007	175.00	Wessuc
NASM Submission ID: 24583	W2003	531.00	Wessuc
NASM Submission ID: 23344	D2003	4042.00	Wessuc
Lystek International Corp.	Dundalk, On	1704.00	Saugeen Agri.

A total volume of 9,340.00 m^3 of sludge was applied to the above fields from the Shelburne WWTP in 2021.

Based on the design flow, average wastewater quantity and a linear regression with an R^2 value of 95.37%, the anticipated volume of sludge generated for 2022 will be approximately 10,200 m^3.

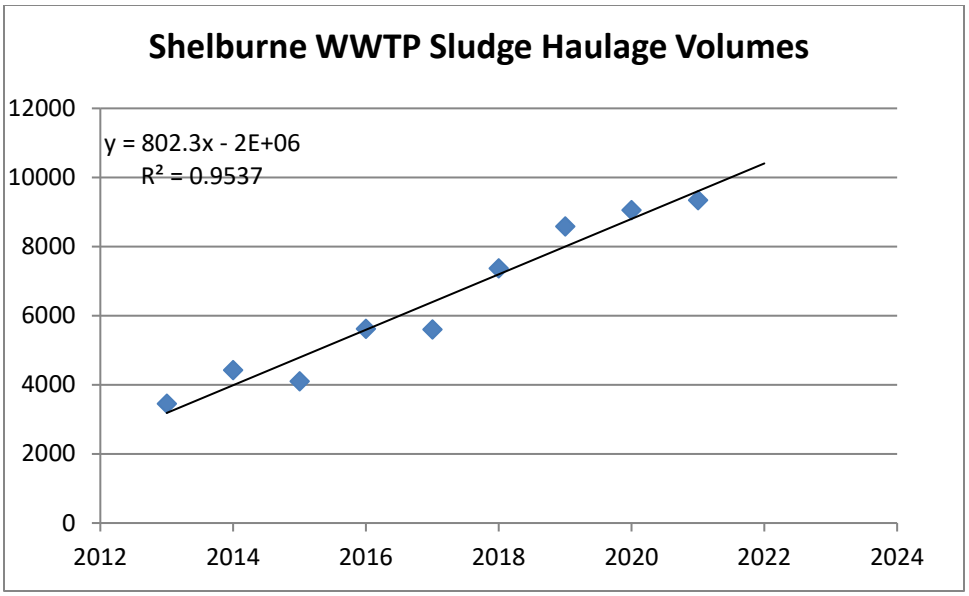

Figure 1. Shelburne Wastewater Treatment Plant Haulage Volumes (2013 to 2021)

9. 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 database system "WMS Maximo". This system contains all the required information and history of all complaints.

There were no complaint registered in 2021 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* is required.

There were no by-passes, spills, abnormal discharge events, over flows or other situations outside Normal Operating Conditions that occurred during this reporting period with regard to the Shelburne Wastewater Treatment Plant.

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 were no modifications at the Shelburne Wastewater Treatment Plant during the reporting period.

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.

There were no modifications at the Shelburne Wastewater Treatment Plant during the reporting period.

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.

2021 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS

Appendix A

Performance Assessment Report

2021

Ontario Clean Water Agency
Performance Assessment Report Wastewater/Lagoon

Report extracted 02/23/2022 11:23 **From: 01/01/2021 to 31/12/2021**

Facility: [5773] SHELBURNE WASTEWATER TREATMENT FACILITY

Works: [110000659]

		01/2021		02/2021		03/2021		04/2021		05/2021		06/2021		07/2021		08/2021		09/2021		10/2021		11/2021		12/2021		<--Total-->		<--Avg.-->		<--Max.-->		<--Criteria-->
Flows:																														
Raw Flow: Total - Raw Sewage (m³)		81582.20		70034.90		97767.60		81817.70		85810.30		72916.60		76722.10		64836.00		72143.40		77800.20		85894.40		96670.40		963995.80						
Raw Flow: Avg - Raw Sewage (m³/d)		2631.68		2501.25		3153.79		2727.26		2768.07		2430.55		2474.91		2091.48		2404.78		2509.68		2863.15		3118.40				2639.58				3420.0
Raw Flow: Max - Raw Sewage (m³/d)		2978.90		2995.80		3891.60		3312.10		3129.30		2773.50		2707.60		2450.00		2689.10		2716.40		3228.40		3410.30						3891.60		
Eff. Flow: Total - Final Effluent (m³)		69706.20		59480.10		83666.30		67597.80		73137.50		61920.10		65740.60		54527.10		59865.20		64229.00		72777.80		81664.00		814311.70						
Eff. Flow: Avg - Final Effluent (m³/d)		2248.59		2124.29		2698.91		2253.26		2359.27		2064.00		2120.66		1758.94		1995.51		2071.90		2425.93		2634.32				2229.63				
Eff. Flow: Max - Final Effluent (m³/d)		2588.30		2479.30		3483.50		2809.90		2679.00		2370.40		2361.10		2035.10		2286.10		2308.90		2847.20		2983.50						3483.50		
Carbonaceous Biochemical Oxygen Demand: CBOD:																														
Raw: Avg cBOD5 - Raw Sewage (mg/L)		311.000		268.000		304.000		395.000		378.000		248.000		1410.000		743.000		393.000		349.500		249.000		267.000				442.958		1410.000		
Raw: # of samples of cBOD5 - Raw Sewage (mg/L)		1		1		1		1		1		1		1		1		1		2		1		1		13						
Eff: Avg cBOD5 - Final Effluent (mg/L)	<	2.000	<	2.250	<	3.333		2.500	<	3.000		11.600	<	6.308		3.200	<	2.750	<	2.750		4.200		3.000			<	3.908		11.600		5.0
Eff: # of samples of cBOD5 - Final Effluent (mg/L)		4		4		6		4		4		5		13		5		4		4		5		4		62						
Loading: cBOD5 - Final Effluent (kg/d)	<	4.497	<	4.780	<	8.996		5.633	<	7.078		23.942	<	13.376		5.629	<	5.488	<	5.698		10.189		7.903			<	8.601		23.942		
Percent Removal: cBOD5 - Final Effluent (mg/L)		99.357		99.160		98.904		99.367		99.206		95.323		99.553		99.569		99.300		99.213		98.313		98.876						99.569		
Biochemical Oxygen Demand: BOD5:																														
Raw: Avg BOD5 - Raw Sewage (mg/L)		345.000		349.000		350.000		343.000		362.000		294.000		1200.000		1150.000		467.000		354.500		253.000		275.000				478.542		1200.000		
Raw: # of samples of BOD5 - Raw Sewage (mg/L)		1		1		1		1		1		1		1		1		1		2		1		1		13						
Eff: Avg BOD5 - Final Effluent (mg/L)		2.000	<	2.000		2.000	<	2.000		2.000		6.000		23.000		4.000	<	2.000		6.000		5.000		2.000			<	4.833		23.000		
Loading: BOD5 - Final Effluent (kg/d)		4.497	<	4.249		5.398	<	4.507		4.719		12.384		48.775		7.036	<	3.991		12.431		12.130		5.269			<	10.449		48.775		
Percent Removal: BOD5 - Final Effluent (mg/L)		99.420		99.427		99.429		99.417		99.448		97.959		98.083		99.652		99.572		98.307		98.024		99.273						99.652		
Total Suspended Solids: TSS:																														
Raw: Avg TSS - Raw Sewage (mg/L)		537.000		411.000		468.000		972.000		509.000		480.000		2530.000		7860.000		990.000		669.000		330.000		433.000				1349.083		7860.000		
Raw: # of samples of TSS - Raw Sewage (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12						
Eff: Avg TSS - Final Effluent (mg/L)	<	3.000	<	2.500	<	2.667	<	2.250		3.500		3.800		3.250		3.200		3.250		3.250		3.800		4.000			<	3.206		4.000		5.0
Eff: # of samples of TSS - Final Effluent (mg/L)		4		4		6		4		4		5		4		5		4		4		5		4		53						
Loading: TSS - Final Effluent (kg/d)	<	6.746	<	5.311	<	7.197	<	5.070		8.257		7.843		6.892		5.629		6.485		6.734		9.219		10.537			<	7.160		10.537		
Percent Removal: TSS - Final Effluent (mg/L)		99.441		99.392		99.430		99.769		99.312		99.208		99.872		99.959		99.672		99.514		98.848		99.076						99.959		
Total Phosphorus: TP:																														
Raw: Avg TP - Raw Sewage (mg/L)		5.510		9.200		5.180		11.800		5.320		4.330		18.400		34.600		2.200		5.520		4.250		4.610				9.243		34.600		
Raw: # of samples of TP - Raw Sewage (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12						
Eff: Avg TP - Final Effluent (mg/L)		0.073		0.065		0.082		0.066		0.066		0.058		0.046		0.096		0.077		0.067		0.067		0.055				0.068		0.096		0.25
Eff: # of samples of TP - Final Effluent (mg/L)		4		4		6		4		4		5		4		5		4		4		5		4		53						
Loading: TP - Final Effluent (kg/d)		0.164		0.138		0.220		0.149		0.156		0.121		0.098		0.169		0.154		0.138		0.162		0.145				0.151		0.220		
Percent Removal: TP - Final Effluent (mg/L)		98.680		99.293		98.423		99.439		98.755		98.651		99.750		99.722		96.489		98.791		98.428		98.807						99.750		
Nitrogen Series:																														
Raw: Avg TKN - Raw Sewage (mg/L)		32.300		62.200		32.200		60.600		39.200		47.900		98.700		144.000		52.400		45.600		28.000		32.200				56.275		144.000		
Raw: # of samples of TKN - Raw Sewage (mg/L)		1		1		1		1		1		1		1		1		1		1		1		1		12						
Eff: Avg TAN - Final Effluent (mg/L)	<	0.100	<	0.100	<	0.567	<	0.100	<	0.125	<	0.120	<	0.125	<	0.140	<	0.125	<	0.100	<	0.100	<	0.100			<	0.150	<	0.567	- 2.4 - 0.8 - 0.8 - 0.8 - 0.8 - 2.4 - 2.4 - 2.4
Eff: # of samples of TAN - Final Effluent (mg/L)		4		4		6		4		4		5		4		5		4		4		5		4		53						
Loading: TAN - Final Effluent (kg/d)	<	0.225	<	0.212	<	1.529	<	0.225	<	0.295	<	0.248	<	0.265	<	0.246	<	0.249	<	0.207	<	0.243	<	0.263			<	0.351	<	1.529		
Eff: Avg NO3-N - Final Effluent (mg/L)		5.788		12.875		8.495		10.333		12.495		19.220		17.000		27.540		28.325		26.100		23.300		24.200				17.973		28.325		
Eff: # of samples of NO3-N - Final Effluent (mg/L)		4		4		6		4		4		5		4		5		4		4		5		4		53						
Eff: Avg NO2-N - Final Effluent (mg/L)	<	0.030	<	0.033	<	0.057	<	0.033	<	0.033	<	0.064		0.090		0.052	<	0.063		0.050	<	0.102		0.070			<	0.056		0.102		
Eff: # of samples of NO2-N - Final Effluent (mg/L)		4		4		6		4		4		5		4		5		4		4		5		4		53						
Disinfection:																														
Eff: GMD E. Coli - Final Effluent (cfu/100mL)		1.682		1.414		2.000		2.000		2.000		1.741		2.000		2.000		2.000		1.682		1.516		1.682				1.810		2.000		200.0
Eff: # of samples of E. Coli - Final Effluent (cfu/100mL)		4		4		5		4		4		5		4		5		4		4		5		4		52						

2021 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS

Appendix B

Sludge Haulage Summary, Sludge Quality, and Septage Receiving

2021

Shelburne WWTP - Daily Haulage Summary			
Date	**Site**	**NASM #**	**Sludge Hauled (m^3)**
April			
22-Apr-21	S6008	24574	131.00
23-Apr-21	S6008	24574	742.00
26-Apr-21	S6008	24574	556.00
27-Apr-21	S6008	24574	613.00
May			
12-May-21	S6008	24574	796.00
13-May-21	S6009	24592	877.00
14-May-21	S6009	24592	877.00
17-May-21	W1007	23730	88.00
18-May-21	W1007	23730	87.00
August			
25-Aug-21	W2003	24583	132.00
26-Aug-21	W2003	24583	133.00
27-Aug-21	W2003	24583	132.00
30-Aug-21	W2003	24583	134.00
October			
12-Oct-21	D2003	23344	1222.00
13-Oct-21	D2003	23344	1211.00
14-Oct-21	D2003	23344	1166.00
15-Oct-21	D2003	23344	443.00
		Total	**9340.00**

SHELBURNE WASTEWATER TREATMENT PLANT
SLUDGE QUALITY DATA

2021

		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVERAGE
Nutrients														
TS	(mg/L)	23400	24300	36700	30800	27000	24900	22100	21300	23300	37000	22400	22300	26292
Ammonia+Ammonium	(mg/L)	211.0	221.0	250.0	269.0	223.0	284.0	408.0	437.0	451.0	483.0	15.1	129.0	281.8
Nitrate	(mg/L)	0.30	0.30	0.30	3.00	0.30	0.30	0.30	0.30	0.30	0.30	2.60	0.30	0.72
Ammonia + Nitrate	(mg/L)	211.3	221.3	250.3	272.0	223.3	284.3	408.3	437.3	451.3	483.3	17.7	129.3	282.5
TKN	(mg/L)	916	1300	2040	1920	1530	1250	1230	1330	1260	1780	1020	1130	1392
Phosphorus	(mg/L)	290	290	450	450	430	410	270	330	410	740	340	450	405
Metal Concentrations														
Arsenic	(mg/L)	0.20	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.30	0.50	0.30	0.40	0.30
Cadmium	(mg/L)	0.011	0.013	0.018	0.019	0.013	0.014	0.009	0.010	0.013	0.028	0.009	0.017	0.01
Cobalt	(mg/L)	0.07	0.08	0.11	0.11	0.080	0.08	0.05	0.07	0.08	0.14	0.05	0.07	0.08
Chromium	(mg/L)	0.84	1.10	1.20	1.10	0.94	1.00	0.63	0.78	0.90	1.60	0.63	0.88	0.97
Copper	(mg/L)	4.50	6.40	7.00	6.90	5.50	5.60	4.00	5.30	5.80	11.00	5.50	7.90	6.28
Mercury	(mg/L)	0.011	0.010	0.014	0.013	0.0100	0.0130	0.010	0.011	0.0120	0.021	0.007	0.008	0.012
Potassium	(mg/L)	55	69.0	81.0	68.0	63.0	70.0	45.0	53.0	60.0	84.0	51.0	73.0	64
Molybdenum	(mg/L)	0.20	0.20	0.31	0.31	0.27	0.25	0.16	0.21	0.26	0.44	0.19	0.20	0.25
Nickel	(mg/L)	0.41	0.44	0.59	0.57	0.44	0.47	0.29	0.38	0.40	0.78	0.32	0.44	0.46
Lead	(mg/L)	0.50	0.60	0.80	0.90	0.60	0.60	0.40	0.50	0.60	1.10	0.40	0.50	0.63
Selenium	(mg/L)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Zinc	(mg/L)	7.00	8.00	11.00	11.00	8.00	8.00	6.00	8.00	10.00	18.00	7.00	10.00	9.33
Bacti														
E. coli (cfu/1g dried wgt)		132,479	98,765	122,616	142,857	55,556	60,241	13,575	14,554	19,313	14,054	75,893	116,592	72,208
E. coli (cfu/100mL)		310,000	240,000	450,000	440,000	150,000		30,000	31,000	45,000	52,000	170,000	170,000	189,818
Metal/Solids Concentration														
Arsenic [170]	(mg/kg)	9	12	8	10	11	12	9	9	13	14	13	18	12
Cadmium [34]	(mg/kg)	0	1	0	1	0	1	0	0	1	1	0	1	1
Cobalt [340]	(mg/kg)	3	3	3	4	3	3	2	3	3	4	2	3	3
Chromium [2800]	(mg/kg)	36	45	33	36	35	40	29	37	39	43	28	39	37
Copper [1700]	(mg/kg)	192	263	191	224	204	225	181	249	249	297	246	354	240
Mercury [11]	(mg/kg)	0	0	0	0	0	1	0	1	1	1	0	0	0
Molybdenum [94]	(mg/kg)	9	8	8	10	10	10	7	10	11	12	8	9	9
Nickel [420]	(mg/kg)	18	18	16	19	16	19	13	18	17	21	14	20	17
Lead [1100]	(mg/kg)	21	25	22	29	22	24	18	23	26	30	18	22	23
Selenium [34]	(mg/kg)	4	4	3	3	4	4	5	5	4	3	4	4	4
Zinc [4200]	(mg/kg)	299	329	300	357	296	321	271	376	429	486	313	448	352

Ontario Clean Water Agency
Time Series Info Report

Report extracted 03/01/2022 15:26

From: **01/01/2021 to 31/12/2021**

Facility Org Number: 5773
Facility Works Number: 110000659
Facility Name: SHELBURNE WASTEWATER TREATMENT FACILITY
Facility Owner: Corporation/Company: The Corporation of the Town of Shelburne
Facility Classification: Class 3 Wastewater Treatment
Receiver: Besley Drain to Boyne Creek
Service Population: 7900.0
Total Design Capacity: 3420.0 m3/day

	01/2021	02/2021	03/2021	04/2021	05/2021	06/2021	07/2021	08/2021	09/2021	10/2021	11/2021	12/2021	Total	Avg	Max	Min
Septage / Biochemical Oxygen Demand: BOD5 - mg/L																
Count Lab	1	0	3	4	2	1	1	1	1	3	3	0	20			
Max Lab	2880		4890	5500	4010	3030	4640	1610	2820	3740	8780				8780	
Mean Lab	2880		2419.333	4082.5	3470	3030	4640	1610	2820	2723.333	6400			3643.9		
Min Lab	2880		888	3240	2930	3030	4640	1610	2820	2110	4190					888
Septage / Carbonaceous Biochemical Oxygen Demand: CBOD5 - mg/L																
Count Lab	1	0	3	4	2	1	1	1	1	3	3	0	20			
Max Lab	2360		2720	4070	4620	3010	1710	1540	2380	3100	6750				6750	
Mean Lab	2360		1656.667	3427.5	3850	3010	1710	1540	2380	2696.667	4920			3011.5		
Min Lab	2360		820	2190	3080	3010	1710	1540	2380	2140	3270					820
Septage / Septage Received - m³																
Count IH	1	0	3	4	2	1	1	1	1	3	3	0	20			
Total IH	4.546		12.869	28.185	18.18	4.546	9.092	4.546	4.546	16.365	18.184		121.059			
Max IH	4.546		4.542	9.092	9.09	4.546	9.092	4.546	4.546	5.455	9.092				9.092	
Mean IH	4.546		4.29	7.046	9.09	4.546	9.092	4.546	4.546	5.455	6.061			6.053		
Min IH	4.546		3.785	4.546	9.09	4.546	9.092	4.546	4.546	5.455	4.546					3.785
Septage / Total Kjeldahl Nitrogen: TKN - mg/L																
Count Lab	1	0	3	4	2	1	1	1	1	3	3	0	20			
Max Lab	177		324	641	557	520	788	340	632	884	976				976	
Mean Lab	177		260.333	483.75	550	520	788	340	632	629.667	613.333			500.1		
Min Lab	177		215	237	543	520	788	340	632	417	234					177
Septage / Total Phosphorus: TP - mg/L																
Count Lab	1	0	3	4	2	1	1	1	1	3	3	0	20			
Max Lab	42.5		53.8	102	89.8	96	128	60.8	88.5	140	250				250	
Mean Lab	42.5		36.667	67.15	83.25	96	128	60.8	88.5	105.6	159			87.735		
Min Lab	42.5		22.7	44.6	76.7	96	128	60.8	88.5	76.8	103					22.7
Septage / Total Suspended Solids: TSS - mg/L																
Count Lab	1	0	3	4	2	1	1	1	1	3	3	0	20			
Max Lab	6840		3520	16000	9920	16200	10400	7600	6280	17800	43200				43200	
Mean Lab	6840		3286.667	10522.5	9760	16200	10400	7600	6280	16400	27333.33			12499.5		
Min Lab	6840		2990	6880	9600	16200	10400	7600	6280	13800	18000					2990

2021 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS

Appendix C

Calibration Reports

2021

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT
PRESSURE MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Magnehelic	Date:	September 14, 2021
Model:	2000 Series	Report No:	CO1264-2108-52
Order No:	NA	Job No:	CO1264-2108
Serial No:	NA		
Tag:	NA	**Details**	
Job Location:	To digester	Unit:	psi
Asset ID	0000062546	Range:	0-15
		Current Output:	NA
		4 mA Set Point	0
		20 mA Set Point	15

Inst. Reading	AS FOUND	AS LEFT
Pressure(psi)	0	0

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Input (%)	Calculated Pressure (psi)	Calculated Flow(l/sec)	Measure Pressure (psi)	Display flow(l/sec)	Deviation (psi)
0.00	0.00	0.00	0.01	0.00	0.01
100.00	15.00	1,000.00	14.90	1000.00	-0.10

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 2
Device Description:	Digital Pressure Gauge	N/A	N/A
Manufacturer:	Martel Electronics	N/A	N/A
Model No:	BG-PI-PRO-500G	N/A	N/A

Overall Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification. Limited verification

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT
PRESSURE MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Magnehelic	Date:	September 14, 2021
Model:	2000 Series	Report No:	CO1264-2108-53
Order No:	NA	Job No:	CO1264-2108
Serial No:	NA		
Tag:	NA	**Details**	
Job Location:	Aeration flow	Unit:	psi
Asset ID	0000062544	Range:	0-15
		Current Output:	NA
		4 mA Set Point	0
		20 mA Set Point	15

Inst. Reading	AS FOUND	AS LEFT
Pressure(psi)	0	0

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Input (%)	Calculated Pressure (psi)	Calculated Flow(l/sec)	Measure Pressure (psi)	Display flow(l/sec)	Deviation (psi)
0.00	0.00	0.00	0.00	0.00	0.00
100.00	15.00	1,000.00	14.85	1000.00	-0.15

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 2
Device Description:	Digital Pressure Gauge	N/A	N/A
Manufacturer:	Martel Electronics	N/A	N/A
Model No:	BG-PI-PRO-500G	N/A	N/A

Overall Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification. Limited verification

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Khrone	Date:	September 14, 2021
Model:	IFC 010D	Report No:	CO1264-2108-54
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	A9915693		
Tag:	FIT01	**Flow Details**	
Job Location:	WAS Flow	Unit:	l/sec
Asset ID:	0000062478	Flow Range:	0-27.8
		Current Output:	4-20 mA
Sensor Details		4 mA Set Point	0
Line size:	3"	20 mA Set Point	27.8
GKL:	5.1670		
Mounting:	Remote		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	576237	576239
FLOW (l/sec)	4.005	5.129

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.020	3.98	0.02
A	1.98	5.14	1.966	5.10	-0.01
B	3.96	6.28	3.958	6.28	0.00
C	7.92	8.56	7.930	8.49	0.01
D	19.79	15.39	19.804	15.25	0.01

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Khrone	Date:	September 14, 2021
Model:	IFC 010D	Report No:	CO1264-2108-55
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	A9915978		
Tag:	FIT02		
Job Location:	Tank 1 RAS Flow		
Asset ID:	0000062479		

Sensor Details		Flow Details	
Line size:	4"	Unit:	l/sec
GKL:	5.243	Flow Range:	0-66.7
Mounting:	Remote	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	66.7

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	9091230	9091232
FLOW (l/sec)	11.05	11.02

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.20	4.00	0.20
A	3.14	4.75	3.18	4.77	0.04
B	6.28	5.51	6.40	5.53	0.12
C	12.55	7.01	12.57	7.03	0.02
D	31.38	11.53	31.39	11.39	0.01
E	62.76	19.05	62.76	19.01	0.00

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE** ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Khrone	Date:	September 14, 2021
Model:	IFC 010D	Report No:	CO1264-2108-56
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	A9915977		
Tag:	FIT03		
Job Location:	Tank 2 RAS Flow		
Asset ID:	0000062480		

Sensor Details		Flow Details	
Line size:	4"	Unit:	l/sec
GKL:	5.318	Flow Range:	0-66.7
Mounting:	Remote	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	66.7

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	9489197	948920
FLOW (l/sec)	9.17	9.23

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.18	4.00	0.18
A	3.18	4.76	3.24	4.81	0.06
B	6.37	5.53	6.40	5.57	0.03
C	12.73	7.05	12.78	7.03	0.05
D	31.83	11.63	31.89	11.66	0.06
E	63.65	19.27	63.75	19.30	0.10

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Khrone	Date:	September 14, 2021
Model:	IFC 010D	Report No:	CO1264-2108-57
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	A9915979		
Tag:	FIT04		
Job Location:	Truck Fill Flow		
Asset ID:	NA		

Sensor Details		Flow Details	
Line size:	4"	Unit:	l/sec
GKL:	5.045	Flow Range:	0-75
Mounting:	Remote	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	75

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	74041	74042
FLOW (l/sec)	0.02	0.02

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	4.00	0.01
A	3.02	4.64	2.98	4.55	-0.04
B	6.04	5.29	6.09	5.30	0.05
C	12.08	6.58	12.09	6.58	0.01
D	30.19	10.44	30.07	10.37	-0.12
E	60.39	16.88	60.17	16.81	-0.22

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **OCM III**
OPEN CHANNEL FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Milltronics	Date:	September 14, 2021
Model:	OCM III	Report No:	CO1264-2108-58
Tag:	FIT05	Job No:	CO1264-2108
Job Location:	Effluent Flow		

Flow Details	
Unit:	l/sec
Flow Range:	0-105
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	105

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	17933613 X 1000	17933630 X 1000
FLOW (l/sec)	2.7	35.04

Maintenance Checklist				Remarks
Visual Inspection:	☑	OK	☐ NOT OK	
Electrical Inspection:	☑	OK	☐ NOT OK	

Programming Parameter of Instrument

Parameter	Discription	Value	Parameter	Discription	Value
F0	Access Code	2.71828	P7	Height of Max. Head	34.4829
P1	Dimension Unit (cm)	0	P32	Totalizer Multiplier	6*1000
P3	Exponential Device	0	P42	Head by OCM III	0
P4	Cal. Method -Ratiometric	1	P45	Low Flow Cut-off	0
P5	Flow Unit - l/sec	0	P46	Range at Zero Head	85.6670 cm
P6	Max Flow rate	105	P47	Blanking Distance	30.4858 cm

Test Point Report

Reference Distance (cm)	Measured Distance (cm)	Calculated Flow (l/sec)	UUT Flow Display (l/sec)	Calculated (mA)	Measured (mA)	Deviaiton Full Scale (l/sec)
21.00	21.08	49.16	49.45	11.49	11.53	0.29
19.00	19.48	42.18	43.83	10.43	10.68	1.64

Calculations

Flow Calculations

$Q = q_{cal} (h/h_{cal})^{Exp}$ Where, Q= Discharge Flow, qcal = max flow, h = head, hcal = max head

Exp = 1.53 , Hence,

$Q = 105 (21.00/34.48)^{1.53}$

Q = 49.16

Instrument Test Information and Results

Input (%)	Calculated Flow(l/sec)	Calculated Input (mA)	Flow on UUT (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	3.99	0.01
25	26.25	8.00	26.21	8.00	-0.04
50	52.50	12.00	51.97	11.93	-0.53
75	78.75	16.00	78.63	15.97	-0.12
100	105.00	20.00	104.85	19.99	-0.15

Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model
Electrical Multimeter	Fluke	179

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Program parameters verified. Single point verification done

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **ROSEMOUNT** ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Rosemount	Date:	September 14, 2021
Model:	8712	Report No:	CO1264-2108-59
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	860188157		
Tag:	FIT06		
Job Location:	Raw sewage flow		
Asset ID:	NA		

Sensor Details		Flow Details	
Line size:	8"	Unit:	l/sec
Flow Cal Tube No.:	1025505911000011	Flow Range:	0-150
Mounting:	Remote	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	150

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	1907388544	1907400458
FLOW (L/SEC)	30.0	27.8

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Test-Point as Per Calibration KIT	Calculated Flow (FPS)	Calculated O/P (mA)	UUT Display (FPS)	UUT Measured Output (mA)	Deviation (FPS)
0.00	0.00	4.00	0.01	4.00	0.01
3.00	3.00	5.60	2.99	5.59	-0.01
10.00	10.00	9.33	10.00	9.35	0.00
30.00	30.00	20.00	29.99	19.97	-0.01

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Rosemount	Fluke	N/A
Model No:	8714D	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks: Measurement Works within Specification.

Service Technician : Pavan Patel

Printed Date: September 14, 2021

Stamp/Signature

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Khrone	Date:	September 14, 2021
Model:	IFC 100W	Report No:	CO1264-2108-60
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	C16501184		
Tag:	FIT014(UPPER)		
Job Location:	upper filter		
Asset ID:	NA		

Sensor Details		Flow Details	
Line size:	10"	Unit:	l/sec
GKL:	8.6872	Flow Range:	0-200
Mounting:	Remote	Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	200

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	2533959.115	2533960.210
FLOW (l/sec)	0.00	30.65

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.02	4.00	0.02
A	32.49	6.60	32.51	6.63	0.02
B	64.99	9.20	65.09	9.21	0.10
C	129.98	14.40	130.11	14.43	0.13

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **KHRONE**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	Khrone	Date:	September 14, 2021
Model:	IFC 100W	Report No:	CO1264-2108-61
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	C16501544		
Tag:	FIT014(LOWER)	**Flow Details**	
Job Location:	Lower filter	Unit:	l/sec
Asset ID:	NA	Flow Range:	0-200
		Current Output:	4-20 mA
Sensor Details		4 mA Set Point	0
Line size:	10"	20 mA Set Point	200
GKL:	8.2852		
Mounting:	Remote		

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	261925.671	2619276.545
FLOW (l/sec)	28.83	0.00

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Set-Point as Per Calibration KIT	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0	0.00	4.00	0.01	4.00	0.01
A	30.99	6.48	31.21	6.51	0.22
B	61.98	8.96	62.11	8.99	0.13
C	123.96	13.92	124.14	13.97	0.18

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Calibrator	Electrical Multimeter	N/A
Manufacturer:	Khrone	Fluke	N/A
Model No:	GS8B	179	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **ABB**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region
Plant Name:	Shelburne WWTP
Site/Plant Address:	300 Centennial Rd, Shelburne,ON L0N 1S4

Device Information	
Make:	ABB
Model:	MagMaster
Order Code:	NA
Serial No.:	3K620000015306
Tag:	FIT07
Job Location:	Storm Flow
Asset ID:	NA

Service Information	
Date:	September 14, 2021
Report No:	CO1264-2108-62
Job No:	CO1264-2108

Sensor Details	
Line size:	10"
Mounting:	Remote

Flow Details	
Unit:	l/sec
Flow Range:	0-200
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	200

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	726144	726156
FLOW (l/sec)	0.00	0.00

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Flow Input (%)	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0.00	0.00	4.00	0.01	4.00	0.01
25.00	50.00	8.00	49.97	7.97	-0.03
50.00	100.00	12.00	100.01	12.00	0.01
75.00	150.00	16.00	149.99	15.99	-0.01
100.00	200.00	20.00	199.95	19.99	-0.05

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Electrical Multimeter	N/A	N/A
Manufacturer:	Fluke	N/A	N/A
Model No:	179	N/A	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.
Service Technician :	Pavan Patel
Printed Date:	September 14,2021
Stamp/Signature	

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **ABB**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region
Plant Name:	Shelburne WWTP
Site/Plant Address:	300 Centennial Rd, Shelburne,ON L0N 1S4

Device Information	
Make:	ABB
Model:	MagMaster
Order Code:	NA
Serial No.:	3K620000015305
Tag:	FIT08
Job Location:	Storm return Flow
Asset ID:	NA

Service Information	
Date:	September 14, 2021
Report No:	CO1264-2108-63
Job No:	CO1264-2108

Sensor Details	
Line size:	8"
Mounting:	Remote

Flow Details	
Unit:	l/sec
Flow Range:	0-100
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	100

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	756927	756932
FLOW (l/sec)	4.01	3.25

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Flow Input (%)	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0.00	0.00	0.25	0.01	4.00	0.01
25.00	25.00	24.54	24.99	8.01	-0.01
50.00	50.00	49.85	49.98	11.99	-0.02
75.00	75.00	74.99	74.93	15.97	-0.07
100.00	100.00	100.00	100.00	19.99	0.00

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Electrical Multimeter	N/A	N/A
Manufacturer:	Fluke	N/A	N/A
Model No:	179	N/A	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.
Service Technician :	Pavan Patel
Printed Date:	September 14, 2021
Stamp/Signature	

End of Report

Version: 19-12

IndusControl Inc.
151 Superior Blvd, Unit #13
Mississauga, ON, L5T 2L1.

VERIFICATION REPORT - **ABB**
ELECTRO-MAGNETIC FLOW MEASUREMENT

Customer Name:	OCWA-Georgian Highlands Region	Site/Plant Address:	300 Centennial Rd,
Plant Name:	Shelburne WWTP		Shelburne,ON L0N 1S4

Device Information		Service Information	
Make:	ABB	Date:	September 14, 2021
Model:	MagMaster	Report No:	CO1264-2108-64
Order Code:	NA	Job No:	CO1264-2108
Serial No.:	3K620000015302		
Tag:	FIT09		
Job Location:	Sludge transfer Flow		
Asset ID:	NA		

Sensor Details		Flow Details	
Line size:	8"	Unit:	l/sec
Mounting:	Remote	Flow Range:	0-80
		Current Output:	4-20 mA
		4 mA Set Point	0
		20 mA Set Point	80

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	347568	37572
FLOW (l/sec)	0.00	0.00

Maintenance Checklist			Remarks
Visual Inspection:	☑ OK	☐ NOT OK	
Electrical Inspection:	☑ OK	☐ NOT OK	
Sensor Installation:	☑ OK	☐ NOT OK	
Transmitter Installation:	☑ OK	☐ NOT OK	

Instrument Test Information and Results

Flow Input (%)	Calculated Flow (l/sec)	Calculated O/P (mA)	UUT Display (l/sec)	UUT Measured Output (mA)	Deviation (l/sec)
0.00	0.00	4.00	0.00	4.00	0.00
25.00	20.00	8.00	20.00	7.99	0.00
50.00	40.00	12.00	40.01	12.03	-0.01
75.00	60.00	16.00	59.99	16.00	0.01
100.00	80.00	20.00	79.99	19.99	0.01

Information of Tools used for Verification of the Instruments

Details	Tool/Kit 1	Tool/Kit 2	Tool/Kit 3
Device Description:	Electrical Multimeter	N/A	N/A
Manufacturer:	Fluke	N/A	N/A
Model No:	179	N/A	N/A

* Refer Calibration Tools Certificates submittal for more Information

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Measurement Works within Specification.

Service Technician :	Pavan Patel	Stamp/Signature	
Printed Date:	September 14, 2021		

End of Report

Version: 19-12

2021 Annual Performance Report
Shelburne Wastewater Treatment Plant
Amended Environmental Compliance Approval No. 6413-ABLQQS

Appendix D

Process Flow Schematic

2021

1. This drawing is the exclusive property of R. J. Burnside & 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.

No.	Issue / Revision	Date
1	ISSUED FOR MOE APPROVAL	MAY 2008
2	SUPPLEMENTAL INFORMATION FOR MOE APPROVAL	JULY 2008
3	ISSUED FOR TENDER	SEPTEMBER 2008
4	TENDER ADDENDA ADDED / ISSUED FOR CONSTRUCTION	DECEMBER 2008
5	AS BUILT	DECEMBER 2010

BURNSIDE
R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120
web www.rjburnside.com

TOWN OF SHELBURNE

203 MAIN STREET EAST
SHELBURNE, ON
L0N 1S0

Drawing Title

EXPANSION OF WATER POLLUTION CONTROL FACILITIES – PHASE 3
GENERAL PLANS
GENERAL PLAN

Rev 5

Drawn	Checked	Designed	Checked	Drawing No.
K.R.K.	P.G.M	R.C.	R.D.C.	G1
Scale 1:250		Project No. MS0128710		

File Name: 12871–G1.DWG
Date Plotted: Jan 05, 2011 – 10:46am