KINCARDINE WASTEWATER TREATMENT AND COLLECTION SYSTEM

Annual Performance Report 2024

Municipality of Kincardine, Environmental Services

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Appendices

1.0 Introduction

The Kincardine Wastewater Treatment System has an Environmental Compliance Approval (ECA) #A-500-1121679176 that was issued on February 11, 2022. Section 11 (4) of the ECA requires that an Annual Performance Report is prepared and outlines the information that must be contained within it.

The Kincardine Wastewater Collection system falls within the Municipal Sewage Collection System ECA 088-W601 issued on November 10, 2022. Schedule E Section 4.6 of the ECA required that an Annual Performance Report is prepared and outlines the information that must be contained within it.

This report covers the requirements of both the treatment system and the collection system ECA's. A copy of both ECA's are available in Appendix A.

The Kincardine Wastewater Treatment Plant is classified as a class II Treatment facility and is located at 520 Bruce Avenue in Kincardine. The plant consists of an aerated lagoon cell with a hybrid coarse/fine bubble submerged air diffuser system, and two conventional stabilization ponds. Alum is added to the aerated cell discharge before the stabilization ponds to aid in phosphorous removal. Treated sewage leaving the lagoon ponds flows by gravity over to the Effluent station located at 169 Mahood Johnston Drive in Kincardine. The effluent is disinfected year-round by ultraviolet radiation before being discharged to Lake Huron. A schematic of the overall treatment system is available in Appendix B.

The Kincardine sewage collection system is a class II Wastewater collection system that services the town of Kincardine including the West Ridge on the Lake Development north of the Huron Ridge subdivision and the Huronville subdivision in Huron Kinloss south of Saratoga Road. The system consists of approximately 61 kilometers of gravity sewermain, 12 kilometers of pressurized sewermains, 11 pumping stations and services approximately 3939 properties. The collection system leads to the Kincardine Lagoons located at 520 Bruce Ave, Kincardine. A map of the collection system is available in Appendix B.

2.0 Monitoring Data

Operations staff collected biweekly grab samples of raw sewage, final effluent sewage, as well as semi-annual samples as required by the ECA. All samples were submitted to SGS Environmental Services for analysis. The analytical results of the biweekly sampling are tracked in monthly spreadsheets and then summarized in an annual spreadsheet. Most of the semi-annual chemical results were within the Provincial Water Quality Objectives. Aluminum exceeded the limit in April and October, while Iron and Phosphorous were elevated in April but below the limit in October.

On May 21, July 18, and July 31 extra TSS samples were taken to lower the monthly average results. Exceedances for TSS were reported in June, July, August and September.

Acute Lethality testing is performed on an annual basis to ensure compliance with the federal regulations for Effluent Regulatory Reporting. These samples are sent to Nautilus Environmental Company Inc. for the analysis of fish mortality. The system had a 0% mortality rate using the pH stabilization method of testing.

Monitoring results are included in Appendix C along with the full monitoring schedule for 2024 and 2025.

2.1 Influent Data

The raw flows coming into the plant are recorded with an Influent Flow meter. Influent flows from the Groundwater and Leachate pumping stations at the neighbouring decommissioned Valentine Avenue Landfill site are added manually to the total influent flow for the plant as the flows do not pass through the Influent flow meter. The influent flows are suspected to be under the influence of inflow and infiltration which is discussed further in section 2.3 Design Objectives. Charts comparing Influent flows for the past 5 years as well as the 2024 Influent Flows vs precipitation are available in Appendix D.

Table 1 summarizes the influent flows at the lagoon as well as the contributing collection system flows. There are 11 pumping stations in total, but the smaller stations direct the sewage through the larger ones. Only the pump stations with direct forcemains to the

lagoons are listed. The Huron Terrace pump station has a new flowmeter installed to capture flows. The other pumping stations do not have flow meters. The flows are measured using the liquid pumped with a reference to the material level on the milltronics units. Debris floating around may cause false reading levels. The milltronics units were verified for accuracy in June 2024. The Influent flow meter at the Kincardine Wastewater Treatment Plant has been calibrated by a third party on an annual basis however could still have varying accuracy ranging from 0.1% to 5%.

Table 1 KWW Lagoon and Collection System Flows

	Average Flow (m^3/d)	**Maximum Flow (m^3/d)**	**Total Flow (m^3)**
Huron Terrace Pump Station	2,276	4,291	832,965
Goderich St Pump Station	344	530	125,935
Park St Pump Station	889	2586	325,483
Kincardine Ave Pump Station	335	850	122,844
Leachate 140 Valentine Ave	15	245	5,620
Groundwater 140 Valentine Ave	5	7	1,881
Total metered sewage from collection system			1,414,728
Influent Flow			1,332,221
Effluent Flow			929,124

2.2 Groundwater, Leachate and Imported Septage

The current ECA has a Design Objective (Section 6) which outlines groundwater and leachate flow limits from the decommissioned Valentine Avenue Landfill. A flow of approximately 200 m3/d of Groundwater and 63 m3/d of combined Leachate flow (approximately 30m3/d from the valentine Avenue Landfill and approximately 33 m3/d from the Kincardine Waste Management Center) is permitted. Both the groundwater and leachate are pumped via a 75mm forcemain from the Valentine Ave site directly into the aerated cell. There were 8 daily exceedances in March and April with the combined leachate flow of more than 63m3/d. Table 2 below shows a listing of the days with leachate exceedances and the amounts. The March dates correlate with days that Leachate was transferred from the Kincardine Waste Management Center. April 12-14 correlates with heavy precipitation days.

Table 2 Leachate Exceedances

Date of Exceedance	Leachate Flow m3
Mar 18	245.4
Mar 19	245.4
Mar 20	84.7
Mar 21	84.7
Mar 25	80.6
April 12	69.5
April 13	69.5
April 14	69.5

Table 3 on the following page gives a monthly summary of the groundwater and leachate flows as well as imported septage from 3rd party contractors for porta potty waste. On April 13, 122.74m3 of sewage was hauled from the Goderich St PS directly to the aerated cell during a power outage, and November 12, 3m3 of sewage from the Durham Street PS was hauled directly to the aerated cell during construction.

Table 3 Groundwater, Leachate and Imported Septage

Month	Groundwater Total m3	Leachate Total Valentine Ave m3	Leachate Total KWMC m3	Imported Septage m3
January	167	818	0	13.63
February	153	681	90	27.27
March	159	1446	375	40.91
April	168	1140	225	122.74
May	186	499	0	95.46
June	161	193	0	0
July	163	137	0	0
August	171	99	0	0
September	161	74	0	0
October	145	66	0	8
November	130	58	0	3
December	143	429	0	0
Totals	1906	5640	690	311.01

Table 4 below shows the groundwater and leachate flows for the past 5 years.

Table 4 Groundwater and Leachate Flows

		2020	**2021**	**2022**	**2023**	**2024**
Groundwater (max = 200 m^3/d)	Annual average flow (m^3/d)	2.1	2.6	3.4	4.0	5.1
	Total Annual flow (m^3)	783	931	1,241	1,473	1906
Leachate (Valentine Ave max = 30 m^3/d) (KWMC max = 33 m^3/d)	Annual average flow (m^3/d)	14.2	11.9	29.7	9.2	15.4
	Total Annual flow (m^3)	5,178	4,329	1,040	3,348	5640

Municipal staff in conjunction with GEI Consultants, collected leachate and groundwater samples so that leachate testing was completed four times per year and groundwater testing twice per year. Appendix E contains the results for the leachate samples that were collected by the Municipality of Kincardine. GEI Consultants has been contracted

by the municipality to monitor the Valentine landfill site and prepare a separate annual report on their findings. Please refer to the Ward 1 Valentine Avenue report for detailed information on the landfill's collection system.

2.3 Design Objectives

The design capacity for the plant is 5910 m3/day. Table 5 shows precipitation and flow data monthly for 2024. The months with design exceedances correlate with snow melt and heavy precipitation events.

Table 5 Design Capacity

Month	Influent Flow Total m3	Precipitation mm	Design Capacity 5910 m3/day	Design exceedances (# of days)	Effluent Flow Total m3
January	141,964	73.70	77%	4	104,997
February	118,901	28.60	69%	0	94,553
March	129,275	51.70	71%	1	97,226
April	141,917	92.60	80%	4	103,776
May	120,439	65.80	66%	0	104,362
June	103,096	39.74	58%	0	66,560
July	105,124	91.80	57%	0	60,559
August	92,906	28.50	51%	0	53,037
September	83,020	20.80	47%	0	51,100
October	81,472	29.10	44%	0	45,762
November	81,381	39.90	46%	0	53,005
December	132,726	100.80	72%	4	94,187
Totals	1,332,221	663.04	62%	13	929,124

Table 6 compares the precipitation and flow data over the past 5 years. The lagoon system is at approximately 62% capacity and is under the influence of inflow and infiltration.

Table 6 Flow vs Precipitation

	2020	2021	2022	2023	2024
Annual Influent Flow (m^3)	1,372,688	1,441,167	1,350,495	1,402,103	1,332,221
Overall Percentage of Influent Design Capacity	63%	67%	63%	65%	62%
Design Capacity Exceedances (days)	12	22	13	17	13
Annual Effluent Flow (m3)	1,108,680	1,136,733	998,846	1,073,681	929,124
Precipitation (mm)	444	375	582	765	663
Kincardine Drinking Water Produced (m^3) (*Adjusted)	1,130,119	1,410,221	1,205,253*	1,090,896	1,105,931
% Increase- KWTP water produced vs KWWTP Influent Flow	23%	7%	11%	23%	17%

Note: Removed average volumes for Routes 30, 32 (area north of Huron Ridge) and Inverhuron Park for drinking water produced as they are not serviced by the Kincardine Wastewater System.

2.4 Effluent Data

Tables 7 and 8 compare the Final Effluent average quality to the effluent criteria limits in the ECA. The CBOD exceeded the objective in April but not the monthly average limit. The Total Suspended Solids exceeded the objective from May to October but only exceeded the ECA limits from June to September. All exceedances were reported to the Ministry.

Table 7 Final Effluent Waste Loading

Monthly Averages	CBOD5	Total Suspended Solids	Total Phosphorus
Limits	177.0 kg/D	236.0 kg/D	5.9 kg/D
January	37	80	2.1
February	57	62	1.6
March	36	61	1.8
April	96	104	2.0
May	81	122	1.4
June	38	92	1.4
July	31	124	1.1
August	19	90	0.9
September	21	116	0.8
October	15	47	0.7
November	13	41	0.8
December	24	50	1.6

Table 8 Final Effluent Quality

	CBOD5 (mg/L)	Total Suspended Solids (mg/L)	Total Phosphor-ous (mg/L)	E. coli CFU/100 mL	pH (Single Sample Result)
ECA Objectives (mg/L) Monthly Average	**25**	**30**	**1.0**	**150**	**6.5-9.0**
ECA Limits (mg/L) Monthly Average	**30**	**40**	**1.0**	**200**	**6.0-9.5**
January	11.0	23.5	0.61	10	7.90
February	17.5	19.0	0.48	3	8.00
March	11.5	19.5	0.59	12	8.30
April	27.7	30.0	0.58	5	8.23
May	24.0	36.3	0.43	30	8.25
June	17.0	**41.5**	0.64	14	7.95
July	16.0	**63.5**	0.59	112	8.43
August	11.0	**52.5**	0.53	6	8.40
September	12.5	**68.0**	0.48	2	9.10
October	10.0	32.0	0.45	2	8.03
November	7.5	23.0	0.45	3	8.15
December	8.0	16.5	0.51	5	8.10

Exceedance Reported to MECP

2.5 Effluent Quality Control Measures

The ability of the Kincardine lagoon system to treat and remove waste in 2024 was comparable to previous years. The UV system provides disinfection of the effluent year-round during normal operations. In 2024 the average UV dosage was 125.62mj/cm2 with the range spanning from 0 to 837.6mj/cm2. The 0 was reported on June 13 during a power outage before the standby generator was placed online. A bypass was reported for this event. Bypass information can be found in Section 6.0.

Alum dosage adjustments were made to maintain final effluent Total Phosphorous levels below 1.0 mg/L. The pH of the effluent was maintained within the range of 6.0 to 9.5, was essentially free of floating and settleable solids and did not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam or discolouration on the receiving waters.

Table 9 below, summarizes and compares the alum dosages and the percent removals achieved over the last 5 years. There is no BOD percent Removal since we test for BOD on the raw influent and CBOD is tested on the final effluent.

A chart showing the influent flow vs the Alum usage is also available in Appendix D.

Table 9 Comparison of Alum Dosage and Percent Removal

		2020	2021	2022	2023	2024
Alum Dosage (Average)	mg/L	14.8	14.8	17.42	19.37	27.21
	kg/day	53.4	55.4	61.90	72.28	89.53
Percent Removal	TSS	81%	73%	80%	83%	71%
	TP	92%	89%	91%	86%	82%
	TKN	35%	21%	40%	19%	53%

3.0 Operating Issues and Corrective Actions

The new hybrid coarse/fine bubble submerged air diffuser system was commissioned in April 2023. There have been issues with the blowers and trying to keep the dissolved oxygen (D.O.) above the minimum required 2mg/L. Sludge was not removed from the aerated cell prior to the installation of the units and may be contributing to the lower

D.O. readings. The average D.O. reading for 2024 was 1.68mg/L. There was a maximum D.O. reading of 8.88mg/L on January 22, 2024, but the system struggled through the summer months with D.O. readings below 1mg/L. The minimum D.O. recorded was 0.01mg/L on August 18, 2024. The low D.O. caused odour complaints from nearby residents in June 2024. One aerator was found to be floating and was re-adjusted, another aerator was coated with rags and removed. Water from a nearby hydrant was added to the aerated cell on multiple days to try and alleviate the odours. A sludge survey was also completed for the aerated cell and both lagoon cells in June. Sludge removal is scheduled for early 2025 to try and alleviate the D.O and odour issues.

Problems with sewage pumps plugging occurred at the Harbour Street and Hunter Street pumping stations. These two pumping stations do not have bar screens so any debris entering the wet wells can get clogged in the pumps and needs to be manually removed.

There were 11 UV alarms in 2024. Two of the alarms were due to power flickers or interruptions. Both Bank A and Bank B had Major UV alarms and required maintenance to be performed. During the maintenance one of the banks would be in service while the second bank was being worked on.

4.0 Maintenance and calibration summaries

The Kincardine Wastewater system follows a preventative maintenance schedule set out by the Environmental Services Staff. This schedule includes inspections and maintenance for KWWTP blowers, alum pumps, aeration system cleaning, UV system maintenance, pump station inspections, bar screen cleaning, monthly generator maintenance, as well as sewermain flushing and inspections. All maintenance and repairs are recorded in the corresponding site logbook.

The gravity sewermains on the Kincardine Ave and Goderich St Pumping station catchment areas were flushed by an outside contractor from July 22 to 29, 2024. A number of areas were identified to either have issues such as heavy buildup or there

was no access due to buried manholes. Staff will be following up on the remainder of these problem areas identified in 2025.

The gravity sewermains on the Park Street Pumping Station Catchment area were inspected using Rapid Assessment Technology Services Inc, which uses an acoustic sounding device to inspect pipes and manholes. There were 8 areas identified that may need to be flushed or inspected using CCTV. There were 5 areas which couldn't be inspected likely due to buried manholes. There were 0 areas identified that needed immediate attention. Staff will be following up on these problem areas identified in 2025.

Other planned maintenance included:

-KWWTP Splitter box cleaned out

-KWWTP Alum panel cleaned up

-KWWTP Quarterly aerator blowout procedure (February)

-Effluent station cleaned and scraped weirs

-Effluent Station rebuilt Rack A with new parts

-Wet well cleaned at the Hunter St PS

-Annual pump station inspections for all site components were completed

-Annual sewer flushing program

-2 new sanitary lateral installations

-21 air relief valves inspected

Emergency repairs and maintenance in 2024 included:

-KWWTP carrier water line for alum replaced 5ft section

-KWWTP Alum pump replaced with spare

-Effluent Station UV Card replaced

-Effluent Station UV Cleaning arm repairs

-Effluent Station UV Bank B fan replaced

-Manhole after effluent station; roots removed

-Goderich St PS Pump #1 repair

-Harbour St PS Pumps unplugged (3 times)

-Hunter St PS Pumps unplugged (4 times)

-Kincardine Ave PS Generator transfer switch (relay replaced)

-20 sanitary laterals cameraed for backup issues

-1 sewermain cameraed for sinkhole investigation (no issue found)

-3 Sanitary manholes flushed for backup issues

-1 Sanitary manhole repaired

-2 Sanitary Lateral Repairs

-1 Sanitary Cleanout Repair

A copy of the preventative maintenance schedules are available in Appendix F.

4.1 Sludge Depths

A lagoon sludge survey was performed in June 2024 by Hydrasurvey using a Single Beam Echosounder, or Infrared Sludge Interface Detector and verified using manual checks. The survey report provided heat maps which indicated areas of sludge buildup. In previous years the sludge depths were measured in the Aerated Cell and Lagoon Cells 2 and 3 using a Sludge Judge. No sludge was removed from any of the cells in 2024. Sludge removal has been scheduled for early 2025.

Table 10 Estimated Sludge Volumes

	2020	**2021**	**2022**	**2023**	**2024**	**Cell Capacity used 2024**
Aerated Cell (m^3)	4,665	6,047	6,306	6,219	5,785	24%
East Cell (#2) (m^3)	20,721	19,426	24,671	29,139	32,283	32%
West Cell (#3) (m^3)	21,277	23,211	24,501	31,593	36,410	35%

Average sludge depths from 2020-2023 were calculated by adding up all the depths (ft) in a cell and dividing it by the number of readings then converting ft to metres.

4.2 Calibrations

Routine calibration and maintenance procedures are conducted on all the monitoring equipment used on the Wastewater Treatment System. The Alum metering pumps discharge volumes are measured minimally once/day to ensure proper dosage rates. Monitoring equipment for pH, dissolved oxygen, phosphorous and conductivity measurements are calibrated according to the manufacturer's instruction prior to use.

Influent and effluent flow miltronics equipment is calibrated yearly to check that accuracy is within +/- 5% of full scale. Refer to Appendix G to review the 2024 Calibration Certificates.

5.0 Complaints

There were 27 complaints related to the Kincardine Wastewater Treatment System Odour in June of 2024. All of the complaints came from the Stonehaven Subdivision north of the lagoon site. Aeration issues were the cause of the odours, staff added water from a nearby hydrant to try and dilute the aerated cell, sludge removal has been scheduled for early 2025 and aeration maintenance will be scheduled afterwards to ensure the system is operating at optimum levels for the 2025 season.

There were 20 complaints for the Kincardine Wastewater Collection System. Most of the complaints received were for wastewater backups that ended up being a homeowner issue on private property. A full listing of the complaints is available in Appendix H.

6.0 Bypasses, Overflows and Spills

The Kincardine Wastewater Treatment System had two bypasses, and one spill reported in 2024. The bypasses occurred at the effluent station and were both due to power outages. The effluent station did not have a backup generator on site in early 2024 so during power outages when the UV disinfection system was down all flows going through the station were reported as bypasses. A backup generator has been installed as of mid 2024.

The spill on the Treatment system was located at a manhole directly after the Effluent station and UV treatment but before the wastewater reached its final destination

receiving waters of Lake Huron. Two boards were removed at the lagoon site to lower the liquid level in the cells. The manhole after the effluent station was full of roots and the wastewater came up to ground level through the manhole. The boards were placed back in at the lagoons to reduce the flows. The roots were removed from the manhole the following week. Manhole repairs have been budgeted for 2025.

The wastewater collection system had one spill reported in June 2024. The spill occurred from a manhole on the collection system that overflowed. The sewage was removed from the manhole and the lines rodded afterwards to remove any blockages. Business owners in the area were sent a letter regarding the issue.

All bypasses, overflows and spill events were reported to the Spills Action Center for the Ministry of the Environment, Conservation and Parks, The Ministry of Health through the Grey Bruce Health Unit and Environment Canada. Downstream users identified such as Bruce Power and the Inverhuron Provincial Park were also notified if the bypass or spill went into Lake Huron. A summary of bypasses, overflows and spills are available to the public on the municipal website.

Details including dates, volumes, durations, and sampling results are available in Appendix I.

6.1 Efforts to Reduce Bypasses, overflows and spills

Treatment System

A 55kW diesel generator was installed at the wastewater effluent station located at 169 Mahood Johnston Drive in 2024. The generator will assist with keeping a constant power supply to the UV disinfection system and eliminate wastewater bypasses during power outages in the area. The generator was tendered in 2023 the installation was delayed until 2024 because of backordered electrical components. Engineering costs in 2022 and 2023 were $10,173. The 2024 installation cost for the project was $126,002.

Collection System

The existing Huron Terrace pumping station was replaced in 2022. The new pumping station was commissioned in January 2023 and has 2 submersible pumps, and one standby pump with variable frequency drives each rated at 150 L/s. The increased size of the pumps and the upsizing of the forcemain to the lagoons from the pump station

should eliminate the possibility of an overflow as it is designed for an initial period peak flow and a 20-year period peak flow of 190 L/s and 300 L/s respectively. Expenditures for the pump station project in 2022 were $4,473,300.63, in 2023 was $443,740.44, and the final cost for the remainder of the project was $297,991.18 in 2024.

Engineering commenced in 2023, and construction was completed in 2024 for upgrades to the Durham Street pumping station. The upgrades included 2 new Flyght submersible centrifugal non-clog pumps to increase the capacity at the station from 27L/s to 83L/s. Also included in the upgrades was replacement of station piping, a new valve/meter chamber, replacement of the existing indoor standby diesel generator with a new outdoor stand-by diesel generator set and associated electrical and mechanical work. This will assist with eliminating the possibility of overflow during wet weather events. Expenditures on Engineering in 2023 was $121,497.45. Engineering and construction costs in 2024 totaled $1,444,116.

Engineering has commenced for upgrades to the Park Street pumping station. The upgrades will include larger pumps to assist with eliminating the possibility of overflow during wet weather events. A total of $9,766.98 was spent on engineering in 2023 and another $164,697 had been budgeted for works in 2024. The upgrades are now on hold until new developments in the catchment area warrants the required upgrades to go ahead. Development is expected to go ahead within the next 3-5 years.

The stand-by diesel generator at the Goderich Street pumping station was replaced in 2024. The existing generator was past its useful life and failed to operate in early 2024 prompting the emergency purchase of a new one. Without a standby generator on site there would be the possibility of an overflow if there were an extended power outage in the area. During the period of time the existing generator was not functioning, a power outage did occur, and staff were able to coordinate with a contractor to pump sewage from the station and have it transferred to the lagoons, avoiding an overflow. The new generator is a Sommers Genset model DGPW100St. The unit was installed by Phoenixx Electric and was commissioned on May 2, 2024, for a total cost of $46,739.

The Acoustic testing performed by Rapid Assessment Technology Services Inc. on the Park Street catchment area in 2024 assisted in the reduction of overflows and spills on

the collection system by identifying potential problem areas. The acoustic testing report gives a rating on the piping to show whether the sewermains are clean and flowing or if there are areas with potential buildup or deficiencies that would need to be flushed or followed up on. A total of $8,522 was spent on the testing.

The sewermain flushing program in 2024 also assisted in the reduction of overflows and spills on the collection system. The Kincardine Ave and Goderich Street catchment areas were completed in 2024, and staff are aiming to have all areas of the collection system flushed on a rotating 3-5 year period. This should ensure that any buildup is being flushed from the system before any potential problems arise. A total of $16,489 was spent on flushing in 2024.

6.2 Conformance with Procedure F-5-1

All of the projects listed in section 6.1 above assist in achieving conformance with procedure F-5-1 by reducing the likelihood of a bypass, overflow or spill occurring.

Wastewater Effluent Station UV Disinfection System upgrades took place in 2024. A total re-build of Bank A took place for a cost of $27,939. This project will assist the system in meeting the effluent objective criteria by ensuring the equipment is functioning at peak performance.

7.0 Modifications to Sewage Works

The addition of the Standby Generator at the Wastewater Effluent station required a Notice of Modification to Sewage Works in 2024. A copy of the form is available in Appendix J.

There were no alterations to the system in 2024 that posed a significant drinking water threat as noted in the report provided by B. M. Ross and Associates.

8.0 Completion of Construction Works

The Durham Street pumping station upgrades completed in 2024 require the current Sanitary Sewer Collection System ECA 088-W601 to be revised. The upgrades increased the capacity of the pumping station requiring approvals from the ministry for the project. The director’s notification and associated documentation have been submitted to the ministry, but the updated ECA has not yet been received.

APPENDIX A

ENVIRONMENTAL COMPLIANCE APPROVAL
NUMBER A-500-1121679176
Version: 1.0
Issue Date: February 11, 2022

Pursuant to section 20.3 of the Environmental Protection Act, Revised Statutes of Ontario (R.S.O.) 1990, c. E. 19 and subject to all other applicable Acts or regulations this Environmental Compliance Approval is issued to:

CORPORATION OF THE MUNICIPALITY OF KINCARDINE

1475 CONCESSION 5 CONCESSION
KINCARDINE ONTARIO
N2Z 2X6

For the following site:

520 Bruce Avenue , Kincardine, KINCARDINE, ONTARIO, CANADA, N2Z 2X6

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s) 4648-8DVSSR, issued on March 12, 2021.

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

upgrade, usage and operation of existing municipal sewage works, for the treatment of sanitary sewage and disposal of effluent to Lake Huron via a Sewage Treatment Plant (Kincardine Wastewater Treatment Plant) continuous discharge Lagoon and Final Effluent disposal facilities as follows:

Classification of Collection System: Separate Sewer System

Classification of Sewage Treatment Plant: Secondary Equivalent

Design Capacity of Sewage Treatment Plant

Design Capacity with All Treatment Trains in Operation	**Existing Works**
Rated Capacity	**5,910 m^3/d**

Influent and Imported Sewage

Receiving Location	Types
In Collection System	Sanitary Sewage/Septage/Leachate

Proposed Works:

Kincardine Wastewater Treatment Plant (WWTP)

Aerated Lagoon

- installation of new hybrid coarse/fine bubble type submerged air diffusers along the floor of aerated cell, equipped with two (2) positive displacement blowers (one duty, one standby), each with design air flow rate of 425 L/s at design pressure of 60 kPa;

- decommissioning and removal the existing surface aerators from the Aerated lagoon;

Existing Works:

Kincardine WWTP

Influent Structure

- forcemains to an inlet structure with a 760 mm diameter pipe to Aerated Lagoon;
- inlet pipes to Aerated Lagoon;

Influent Flow Measurement and Sampling Point

- Parshall flume and sampling point at the inlet structure;

Aerated Lagoon

- one (1) aerated lagoon cell with a design volume of approximately 24,000 m^3 and 0.85 ha surface area, equipped with four (4) 11 kW (15 hp) aerators;
- one (1) distribution chamber to discharge from the aerated lagoon cell to two (2) conventional stabilization ponds;

Conventional Stabilization Ponds

- two (2) conventional stabilization ponds, each with a design storage volume of approximately 118,000 m^3 (a total combined volume of 236,000 m^3);

Supplementary Treatment Systems

- Phosphorus Removal
    - one (1) 27 m^3 capacity chemical storage tank equipped with two (2) chemical metering pumps (one standby), associated valves, piping and control system enclosed in a 6.2 m x 6.2 m storage building;

Disinfection System

- one (1) ultraviolet irradiation (UV) disinfection channel equipped with two banks of UV lamp modules, each with a treatment capacity of 12,000 m^3/d;
- piping, flow measurement weir, low liquid level sensor, automatic level controller, electrical system, submersible ultraviolet intensity monitoring probe;

Final Effluent Flow Measurement and Sampling Point

- flow measurement device and sampling point at outlet of disinfection channel;

Final Effluent Disposal Facilities

- effluent sewer from the UV disinfection channel discharging to Lake Huron;

including all other mechanical system, electrical system, instrumentation and control system, standby power system, piping, pumps, valves and appurtenances essential for the proper, safe and reliable operation of the Works in accordance with this Approval, in the context of process performance and general principles of wastewater engineering only;
all in accordance with the submitted supporting documents listed in Schedule A.

DEFINITIONS

For the purpose of this environmental compliance approval, the following definitions apply:

1. "Annual Average Daily Influent Flow" means the cumulative total sewage flow of Influent to the Sewage Treatment Plant during a calendar year divided by the number of days during which sewage was flowing to the Sewage Treatment Plant that year;
2. "Approval" means this environmental compliance approval and any schedules attached to it, and the application;
3. "BOD5" (also known as TBOD5) means five day biochemical oxygen demand measured in an unfiltered sample and includes carbonaceous and nitrogenous oxygen demands;
4. "Bypass" means diversion of sewage around one or more treatment processes, excluding Preliminary Treatment System, within the Sewage Treatment Plant with the diverted sewage flows being returned to the Sewage Treatment Plant treatment train upstream of the Final Effluent sampling point(s) and discharged via the approved effluent disposal facilities;
5. "CBOD5" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;
6. "Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of the EPA;
7. "District Manager" means the District Manager of the appropriate local district office of the Ministry where the Works is geographically located;
8. " *E. coli*" refers to coliform bacteria that possess the enzyme beta-glucuronidase and are capable of cleaving a fluorogenic or chromogenic substrate with the corresponding release of a fluorogen or chromogen, that produces fluorescence under long wavelength (366 nm) UV light, or color development, respectively. Enumeration methods include tube, membrane filter, or multi-well procedures. Depending on the method selected, incubation temperatures include 35.5 + 0.5 °C or 44.5 + 0.2 °C (to enumerate thermotolerant species). Depending on the procedure used, data are

reported as either colony forming units (CFU) per 100 mL (for membrane filtration methods) or as most probable number (MPN) per 100 mL (for tube or multi-well methods);

9. "EPA" means the *Environmental Protection Act,* R.S.O. 1990, c.E.19, as amended;
10. "Equivalent Equipment" means alternate piece(s) of equipment that meets the design requirements and performance specifications of the piece(s) of equipment to be substituted;
11. "Event" means an action or occurrence, at a given location within the Works that causes a Bypass or Overflow. An Event ends when there is no recurrence of Bypass or Overflow in the 12-hour period following the last Bypass or Overflow. Overflows and Bypasses are separate Events even when they occur concurrently;
12. "Existing Works" means those portions of the Works included in the Approval that have been constructed previously;
13. "Final Effluent" means effluent that is discharged to the environment through the approved effluent disposal facilities, including all Bypasses, that are required to meet the compliance limits stipulated in the Approval for the Sewage Treatment Plant at the Final Effluent sampling point(s);
14. "Imported Sewage" means sewage hauled to the Sewage Treatment Plant by licensed waste management system operators of the types and quantities approved for co-treatment in the Sewage Treatment Plant, including hauled sewage and leachate within the meaning of R.R.O. 1990, Regulation 347: General – Waste Management, as amended;
15. "Influent" means flows to the Sewage Treatment Plant from the collection system and Imported Sewage;
16. "Limited Operational Flexibility" (LOF) means the conditions that the Owner shall follow in order to undertake any modification that is pre-authorized as part of this Approval;
17. "Ministry" means the ministry of the government of Ontario responsible for the EPA and OWRA and includes all officials, employees or other persons acting on its behalf;
18. "Monthly Average Effluent Concentration" is the mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month, calculated and reported as per the methodology specified in Schedule F;
19. Monthly Average Daily Effluent Flow" means the cumulative total Final Effluent discharged during a calendar month divided by the number of days during which Final Effluent was discharged that month;
20. "Monthly Average Daily Effluent Loading" means the value obtained by multiplying the Monthly Average Effluent Concentration of a contaminant by the Monthly Average Daily Effluent Flow over the same calendar month;
21. "Monthly Geometric Mean Density" is the mean of all Single Sample Results of E. coli measurement in the samples taken during a calendar month, calculated and reported as per the methodology specified in Schedule F;
22. "Normal Operating Condition" means the condition when all unit process(es), excluding Preliminary Treatment System, in a treatment train is operating within its design capacity;
23. "Operating Agency" means the Owner or the entity that is authorized by the Owner for the management, operation, maintenance, or alteration of the Works in accordance with this Approval;
24. "Overflow" means a discharge to the environment from the Works at designed location(s) other than the approved effluent disposal facilities or via the effluent disposal facilities downstream of the Final Effluent sampling point;
25. "Owner" means The Corporation of the Municipality of Kincardine and its successors and assignees;
26. "OWRA" means the *Ontario Water Resources Act,* R.S.O. 1990, c. O.40, as amended;
27. "Professional Engineer" means a person entitled to practice as a Professional Engineer in the Province of Ontario under a license issued under the Professional Engineers Act;
28. "Proposed Works" means those portions of the Works included in the Approval that are under construction or to be constructed;
29. "Rated Capacity" means the Annual Average Daily Influent Flow for which the Sewage Treatment Plant is designed to handle;

30. "Sanitary Sewers" means pipes that collect and convey wastewater from residential, commercial, institutional and industrial buildings, and some infiltration and inflow from extraneous sources such as groundwater and surface runoff through means other than stormwater catch basins;

31. "Separate Sewer Systems" means wastewater collection systems that comprised of Sanitary Sewers while runoff from precipitation and snowmelt are separately collected in Storm Sewers;

32. "Sewage Treatment Plant" means all the facilities related to sewage treatment within the sewage treatment plant site excluding the Final Effluent disposal facilities;

33. "Single Sample Result" means the test result of a parameter in the effluent discharged on any day, as measured by a probe, analyzer or in a composite or grab sample, as required;

34. "Storm Sewers" means pipes that collect and convey runoff resulting from precipitation and snowmelt (including infiltration and inflow);

35. "Works" means the approved sewage works, and includes Proposed Works, Existing Works and modifications made under Limited Operational Flexibility.

TERMS AND CONDITIONS

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

1. **GENERAL PROVISIONS**
    1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
    2. Except as otherwise provided by these conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.
    3. Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence.

2. **CHANGE OF OWNER AND OPERATING AGENCY**
    1. The Owner shall, within thirty (30) calendar days of issuance of this Approval, prepare/update and submit to the District Manager the Municipal and Local Services Board Wastewater System Profile Information Form, as amended (Schedule G) under any of the following situations:
        1. the form has not been previously submitted for the Works;
        2. this Approval is issued for extension, re-rating or process treatment upgrade of the Works;
        3. when a notification is provided to the District Manager in compliance with requirements of change of Owner or Operating Agency under this condition.
    2. The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:
    change of address of Owner;
        1. change of Owner, including address of new owner;
        2. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c. B.17, as amended, shall be included in the notification;
        3. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C.39, as

amended, shall be included in the notification.

3. The Owner shall notify the District Manager, in writing, of any of the following changes within thirty (30) days of the change occurring:
    1. change of address of Operating Agency;
    2. change of Operating Agency, including address of new Operating Agency.
4. In the event of any change in ownership of the Works, the Owner shall notify the succeeding owner in writing, of the existence of this Approval, and forward a copy of the notice to the District Manager.
5. The Owner shall ensure that all communications made pursuant to this condition refer to the environmental compliance approval number.

3. **CONSTRUCTION OF PROPOSED WORKS**

1. All Proposed Works in this Approval shall be constructed and installed and must commence operation within five (5) years of issuance of this Approval, after which time the Approval ceases to apply in respect of any portions of the Works not in operation. In the event that the construction, installation and/or operation of any portion of the Proposed Works is anticipated to be delayed beyond the time period stipulated, the Owner shall submit to the Director an application to amend the Approval to extend this time period, at least six (6) months prior to the end of the period. The amendment application shall include the reason(s) for the delay and whether there is any design change(s).
2. Within thirty (30) days of commencement of construction, the Owner shall prepare and submit to the District Manager a schedule for the completion of construction and commissioning operation of the Proposed Works. The Owner shall notify the District Manager within thirty (30) days of the commissioning operation of any Proposed Works. Upon completion of construction of the Proposed Works, the Owner shall prepare and submit a statement to the District Manager, certified by a Licensed Engineering Practioner, that the Proposed Works is constructed in accordance with this Approval.
3. Within one (1) year of completion of construction of the Proposed Works, a set of record drawings of the Works shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be readily accessible for reference at the Works.

4. **BYPASSES**

1. Any Bypass is prohibited, except:
    a. an emergency Bypass when a structural, mechanical or electrical failure causes a temporary reduction in the capacity of a treatment process or when an unforeseen flow condition exceeds the design capacity of a treatment process that is likely to result in personal injury, loss of life, health hazard, basement flooding, severe property damage, equipment damage or treatment process upset, if a portion of the flow is not bypassed;
    b. a planned Bypass that is a direct and unavoidable result of a planned repair and maintenance procedure or other circumstance(s), the Owner having notified the District Manager in writing at least fifteen (15) days prior to the occurrence of Bypass, including an estimated quantity and duration of the Bypass, an assessment of the impact on the quality of the Final Effluent and the mitigation measures if necessary, and the District Manager has given written consent of the Bypass.
2. Notwithstanding the exceptions given in Paragraph 1, the Operating Agency shall undertake everything practicable to maximize the flow through the downstream treatment process(es) prior to bypassing.
3. At the beginning of a Bypass Event, the Owner shall immediately notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information:
    a. the type of the Bypass as indicated in Paragraph 1 and the reason(s) for the Bypass;
    b. the date and time of the beginning of the Bypass;

c. the treatment process(es) gone through prior to the Bypass and the treatment process(es) bypassed;

d. the effort(s) done to maximize the flow through the downstream treatment process(es) and the reason(s) why the Bypass was not avoided.

4. Upon confirmation of the end of a Bypass Event, the Owner shall immediately notify the SAC and the local Medical Officer of Health. This notice shall include, at a minimum, the following information:

a. the date and time of the end of the Bypass;

b. the estimated or measured volume of Bypass.

5. For any Bypass Event, the Owner shall collect daily sample(s) of the Final Effluent, inclusive of the Event and analyze for all effluent parameters outlined in Compliance Limits condition that require composite samples, following the same protocol specified in the Monitoring and Recording condition for the regular samples. The sample(s) shall be in addition to the regular Final Effluent samples required under the monitoring and recording condition. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.

6. The Owner shall submit a summary report of the Bypass Event(s) to the District Manager on a quarterly basis, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary reports shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5) and either a statement of compliance or a summary of the non-compliance notifications submitted as required under Paragraph 1 of Condition 11. If there is no Bypass Event during a quarter, a statement of no occurrence of Bypass is deemed sufficient.

7. The Owner shall develop a notification procedure in consultation with the District Manager and SAC and notify the public and downstream water users that may be adversely impacted by any Bypass Event.

5. **OVERFLOWS**

1. Any Overflow is prohibited, except:

a. an emergency Overflow in an emergency situation when a structural, mechanical or electrical failure causes a temporary reduction in the capacity of the Works or when an unforeseen flow condition exceeds the design capacity of the Works that is likely to result in personal injury, loss of life, health hazard, basement flooding, severe property damage, equipment damage or treatment process upset, if a portion of the flow is not overflowed;

b. a planned Overflow that is a direct and unavoidable result of a planned repair and maintenance procedure or other circumstance(s), the Owner having notified the District Manager in writing at least fifteen (15) days prior to the occurrence of Overflow, including an estimated quantity and duration of the Overflow, an assessment of the impact on the environment and the mitigation measures if necessary, and the District Manager has given written consent of the Overflow.

2. Notwithstanding the exceptions given in Paragraph 1, the Operating Agency shall undertake everything practicable to maximize the flow through the downstream treatment process(es) and Bypass(es) prior to overflowing.

3. At the beginning of an Overflow Event, the Owner shall immediately notify the SAC and the local Medical Officer of Health. This notice shall include, at a minimum, the following information:

a. the type of the Overflow as indicated in Paragraph 1 and the reason(s) for the Overflow;

b. the date and time of the beginning of the Overflow;

c. the point of the Overflow from the Works, the treatment process(es) gone through prior to the Overflow, the disinfection status of the Overflow and whether the Overflow is discharged through the effluent disposal facilities or an alternate location;

d. the effort(s) done to maximize the flow through the downstream treatment process(es) and Bypass(es) and the reason(s) why the Overflow was not avoided.

4. Upon confirmation of the end of an Overflow Event, the Owner shall immediately notify the SAC and the local Medical Officer of Health. This notice shall include, at a minimum, the following information:

   a. the date and time of the end of the Overflow;

   b. the estimated or measured volume of the Overflow.

5. For any Overflow Event

   a. in the Sewage Treatment Plant, the Owner shall collect grab sample(s) of the Overflow, one near the beginning of the Event and one every eight (8) hours for the duration of the Event, and have them analyzed at least for CBOD5, total suspended solids, total phosphorus, total ammonia nitrogen, nitrate as N, nitrite as N, total Kjeldahl nitrogen, *E. coli.,* except that raw sewage and primary treated effluent Overflow shall be analyzed for BOD5, total suspended solids, total phosphorus and total Kjeldahl nitrogen only.

6. The Owner shall submit a summary report of the Overflow Event(s) to the District Manager on a quarterly basis, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary report shall contain, at a minimum, the types of information set out in Paragraphs (3), (4) and (5). If there is no Overflow Event during a quarter, a statement of no occurrence of Overflow is deemed sufficient.

7. The Owner shall develop a notification procedure in consultation with the District Manager and SAC and notify the public and downstream water users that may be adversely impacted by any Overflow Event.

6. **DESIGN OBJECTIVES**

1. The Owner shall operate and maintain the Works such that the design monthly average landfill leachate flow of 63 m^3/d (approximately 30 m^3/d from Valentine Avenue Landfill and approximately 33 m^3/d from Kincardine Waste Management Centre) and groundwater (contaminated) flow of approximately 200 m^3/d from Valentine Avenue Landfill for co-treatment at the Works is not exceeded.

2. The Owner shall design and undertake everything practicable to operate the Sewage Treatment Plant in accordance with the following objectives:

   a. Final Effluent parameters design objectives listed in the table(s) included in Schedule B.

   b. Final Effluent is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

   c. Annual Average Daily Influent Flow is within the Rated Capacity of the Sewage Treatment Plant.

7. **COMPLIANCE LIMITS**

1. The Owner shall operate and maintain the Sewage Treatment Plant such that compliance limits for the Final Effluent parameters listed in the table(s) included in Schedule C are met.

2. The Owner shall operate and maintain the Sewage Treatment Plant such that the Final Effluent is disinfected continuously year-round.

8. **OPERATION AND MAINTENANCE**

1. The Owner shall ensure that, at all times, the Works and the related equipment and appurtenances used to achieve compliance with this Approval are properly operated and maintained. Proper operation and maintenance shall include effective performance, adequate funding, adequate staffing and training, including training in all procedures and other requirements of this Approval and the OWRA and regulations, adequate laboratory facilities, process controls and alarms and the use of process chemicals and other substances used in the Works.

2. The Owner shall prepare/update the operations manual for the Works within six (6) months of completion of

construction of the Proposed Works, that includes, but not necessarily limited to, the following information:

a. operating procedures for the Works under Normal Operating Conditions;

b. inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;

c. repair and maintenance programs, including the frequency of repair and maintenance for the Works;

d. procedures for the inspection and calibration of monitoring equipment;

e. operating procedures for the Works to handle situations outside Normal Operating Conditions and emergency situations such as a structural, mechanical or electrical failure, or an unforeseen flow condition, including procedures to minimize Bypasses and Overflows;

f. a spill prevention and contingency plan, consisting of procedures and contingency plans, including notification to the District Manager, to reduce the risk of spills of pollutants and prevent, eliminate or ameliorate any adverse effects that result or may result from spills of pollutants;

g. procedures for receiving, responding and recording public complaints, including recording any followup actions taken.

3. The Owner shall maintain the operations manual up-to-date and make the manual readily accessible for reference at the Works.

4. The Owner shall ensure that the Operating Agency fulfills the requirements under O. Reg. 129/04, as amended for the Works, including the classification of facilities, licensing of operators and operating standards.

9. **MONITORING AND RECORDING**

1. The Owner shall, upon commencement of operation of the Works, carry out a scheduled monitoring program of collecting samples at the required sampling points, at the frequency specified or higher, by means of the specified sample type and analyzed for each parameter listed in the tables under the monitoring program included in Schedule D and record all results, as follows:

a. all samples and measurements are to be taken at a time and in a location characteristic of the quality and quantity of the sewage stream over the time period being monitored.

b. definitions and preparation requirements for each sample type are included in document referenced in Paragraph 3.b.

c. definitions for frequency:

i. Bi-weekly means once every two weeks;

ii. Semi-annually means once every six months;

d. a schedule of the day of the week/month for the scheduled sampling shall be created. The sampling schedule shall be revised and updated every year through rotation of the day of the week/month for the scheduled sampling program, except when the actual scheduled monitoring frequency is three (3) or more times per week.

2. In addition to the scheduled monitoring program required in Paragraph 1, the Owner shall collect daily sample(s) of the Final Effluent, on any day when there is any situation outside Normal Operating Conditions, and analyze for all effluent parameters outlined in Compliance Limits condition that require composite samples, following the same protocol specified in this condition for the regular samples. If the Event occurs on a scheduled monitoring day, the regular sampling requirements prevail. If representative sample for the effluent parameter(s) that require grab sample cannot be obtained, they shall be collected after the Event at the earliest time when situation returns to normal.

3. The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following documents and all analysis shall be conducted by a laboratory accredited to the ISO/IEC:17025 standard or as directed by the District Manager :

a. the Ministry's Procedure F-10-1, “Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended;

b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02, as amended; and

c. the publication "Standard Methods for the Examination of Water and Wastewater", as amended.

4. The Owner shall monitor and record the flow rate and daily quantity using flow measuring devices or other methods of measurement as approved below calibrated to an accuracy within plus or minus 15 per cent (+/- 15%) of the actual flowrate of the following:

   a. Influent flow to the Sewage Treatment Plant by continuous flow measuring devices and instrumentations, or in lieu of an actual installation of equipment, adopt the flow measurements of the Final Effluent for the purpose of estimating Influent flows if the Influent and Final Effluent streams are considered not significantly different in flow rates and quantities;

   b. Final Effluent discharged from the Sewage Treatment Plant by continuous flow measuring devices and instrumentations, or in lieu of an actual installation of equipment, adopt the flow measurements of the Influent for the purpose of estimating Final Effluent flows if the Influent and Final Effluent streams are considered not significantly different in flow rates and quantities;

   c. leachate and groundwater (contaminated) received for co-treatment at the Sewage Treatment by flow measuring devices/pumping rate;

   d. blended hauled sewage received for co-treatment at the Sewage Treatment Plant by flow measuring devices/pumping rates.

5. The Owner shall retain for a minimum of five (5) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this Approval.

10. **LIMITED OPERATIONAL FLEXIBILITY**

1. The Owner may make pre-authorized modifications to the Sewage Treatment Plant in Works in accordance with the document "Limited Operational Flexibility - Protocol for Pre-Authorized Modifications to Municipal Sewage Works" (Schedule E), as amended, subject to the following:

   a. the modifications will not involve the addition of any new treatment process or the removal of an existing treatment process, including chemical systems, from the liquid or solids treatment trains as originally designed and approved.

   b. the scope and technical aspects of the modifications are in line with those delineated in Schedule E and conform with the Ministry’s publication “Design Guidelines for Sewage Works 2008”, as amended, Ministry’s regulations, policies, guidelines, and industry engineering standards;

   c. the modifications shall not negatively impact on the performance of any process or equipment in the Works or result in deterioration in the Final Effluent quality;

   d. where the pre-authorized modification requires notification, a "Notice of Modifications to Sewage Works" (Schedule E), as amended shall be completed with declarations from a Licensed Engineering Practitioner and the Owner and retained on-site prior to the scheduled implementation date. All supporting information including technical memorandum, engineering plans and specifications, as applicable and appropriate to support the declarations that the modifications conform with LOF shall remain on-site for future inspection.

2. The following modifications are not pre-authorized under Limited Operational Flexibility:

   a. Modifications that involve addition or extension of process structures, tankages or channels;

   b. Modifications that involve relocation of the Final Effluent outfall or any other discharge location or that may require reassessment of the impact to the receiver or environment;

c. Modifications that involve addition of or change in technology of a treatment process or that may involve reassessment of the treatment train process design;

d. Modifications that require changes to be made to the emergency response, spill prevention and contingency plan; or

e. Modifications that are required pursuant to an order issued by the Ministry.

11. **REPORTING**

1. The Owner shall report to the District Manager orally as soon as possible any non-compliance with the compliance limits, and in writing within seven (7) days of non-compliance.

2. The Owner shall, within fifteen (15) days of occurrence of a spill within the meaning of Part X of the EPA, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation, in addition to fulfilling the requirements under the EPA and O. Reg. 675/98 "Classification and Exemption of Spills and Reporting of Discharges".

3. The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

4. The Owner shall prepare performance reports on a calendar year basis and submit to the District Manager by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information pertaining to the reporting period:

    a. a summary and interpretation of all Influent, Imported Sewage monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;

    b. a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;

    c. a summary of all operating issues encountered and corrective actions taken;

    d. a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;

    e. a summary of any effluent quality assurance or control measures undertaken;

    f. a summary of the calibration and maintenance carried out on all Influent, Imported Sewage and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;

    g. a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:

        a. when any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality;

        b. when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;

    h. a tabulation of the measured volume of sludge accumulated in the lagoon cells in five year intervals and the estimated volume in the interim years and when sludge was disposed of during the reporting period, a summary of disposal locations and volumes of sludge disposed at each location;

    i. a summary of any complaints received and any steps taken to address the complaints;

    j. a summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;

    k. a summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition

10, including a report on status of implementation of all modification;

l. a summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted;

m. any changes or updates to the schedule for the completion of construction and commissioning operation of major process(es) / equipment groups in the Proposed Works;

n. a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year.

REASONS

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 regarding general provisions is imposed to ensure that the Works are constructed and operated in the manner in which they were described and upon which approval was granted.

2. Condition 2 regarding change of Owner and Operating Agency is included to ensure that the Ministry records are kept accurate and current with respect to ownership and Operating Agency of the Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.

3. Condition 3 regarding construction of Proposed Works is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction to ensure the ongoing protection of the environment, and also ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.

4. Condition 4 regarding Bypasses is included to indicate that Bypass is prohibited, except in circumstances where the failure to Bypass could result in greater damage to the environment than the Bypass itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Bypass Events.

5. Condition 5 regarding Overflows is included to indicate that Overflow of untreated or partially treated sewage to the receiver is prohibited, except in circumstances where the failure to Overflow could result in greater damage to the environment than the Overflow itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Overflow Events.

6. Condition 6 regarding design objectives is imposed to establish non-enforceable design objectives to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.

7. Condition 7 regarding compliance limits is imposed to ensure that the Final Effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements.

8. Condition 8 regarding operation and maintenance is included to require that the Works be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works.

9. Condition 9 regarding monitoring and recording is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and compliance limits.

10. Condition 10 regarding Limited Operational Flexibility is included to ensure that the Works are constructed, maintained and operated in accordance with the Approval, and that any pre-approved modification will not negatively impact on the performance of the Works.

11. Condition 11 regarding reporting is included to provide a performance record for future references, to ensure that the Ministry is made aware of problems as they arise, and to provide a compliance record for this Approval.

APPEAL PROVISIONS

In accordance with Section 139 of the *Environmental Protection Act*, you may by written notice served upon me and the Ontario Land Tribunal within 15 days after receipt of this notice, require a hearing by the Tribunal. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("the Notice") shall state:

I. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;

II. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the *Environmental Protection Act*, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.
The Notice should also include:

I. The name of the appellant;

II. The address of the appellant;

III. The environmental compliance approval number;

IV. The date of the environmental compliance approval;

V. The name of the Director, and;

VI. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

Registrar* Ontario Land Tribunal 655 Bay Street, Suite 1500 Toronto, Ontario M5G 1E5 OLT.Registrar@ontario.ca	and	The Director appointed for the purposes of Part II.1 of the *Environmental Protection Act* Ministry of the Environment, Conservation and Parks 135 St. Clair Avenue West, 1st Floor Toronto, Ontario M4V 1P5

*** Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca**
The above noted activity is approved under s.20.3 of Part II.1 of the *Environmental Protection Act*.

Dated at Toronto this 11th day of February, 2022

A. Ahmed

Aziz Ahmed

Director

appointed for the purposes of Part II.1 of the Environmental Protection Act

c: Andrew Garland, B. M. Ross and Associates Ltd.
Adam Weishar, Municipality of Kincardine

The following schedules are a part of this environmental compliance approval:

SCHEDULE 1

Schedule A

Application for Environmental Compliance Approval submitted by Adam Weishar of The Corporation of the Municipality of Kincardine received on March 16, 2021 for the proposed upgrade of the lagoon aeration system, including all supporting information and documentation, final plans and specifications provided by B.M. Ross and Associates Limited.

SCHEDULE 2

Schedule B

Final Effluent Design Objectives

Concentration Objectives

Final Effluent Parameter	**Averaging Calculator**	**Objective** (milligrams per litre unless otherwise indicated)
CBOD5	Monthly Average Effluent Concentration	25 mg/L
Total Suspended Solids	Monthly Average Effluent Concentration	30 mg/L
Total Phosphorus	Monthly Average Effluent Concentration	1.0 mg/L
E. coli	Monthly Geometric Mean Density	*150 CFU/100 mL
pH	Single Sample Result	6.5 - 9.0 inclusive

*If the MPN method is utilized for *E.coli* analysis the objective shall be 150 MPN/100 mL

SCHEDULE 3

Schedule C

Final Effluent Compliance Limits

Concentration Limits

Effluent Parameter	**Averaging Calculator**	**Limit** (maximum unless otherwise indicated)
CBOD5	Monthly Average Effluent Concentration	30 mg/L
Total Suspended Solids	Monthly Average Effluent Concentration	40 mg/L
Total Phosphorus	Monthly Average Effluent Concentration	1.0 mg/L
E. coli	Monthly Geometric Mean Density	*200 CFU/100 mL
pH	Single Sample Result	between 6.0 - 9.5 inclusive

*If the MPN method is utilized for *E.coli* analysis the limit shall be 200 MPN/100 mL

Loading Limits

Final Effluent Parameter	**Averaging Calculator**	**Limit** (maximum unless otherwise indicated)
CBOD5	Monthly Average Daily Effluent Loading	177.0 kg/d
Total Suspended Solids	Monthly Average Daily Effluent Loading	236.0 kg/d
Total Phosphorus	Monthly Average Daily Effluent Loading	5.9 kg/d

SCHEDULE 4

Schedule D

Monitoring Program

Influent - Influent sampling point

Parameters	Sample Type	Minimum Frequency
BOD5	Grab	Bi-weekly
Total Suspended Solids	Grab	Bi-weekly
Total Phosphorus	Grab	Bi-weekly
Total Kjeldahl Nitrogen	Grab	Bi-weekly
Alkalinity	Grab	Bi-weekly

Final Effluent - Final Effluent sampling point

Parameters	Sample Type	Minimum Frequency
CBOD5	Grab	Bi-weekly
Total Suspended Solids	Grab	Bi-weekly
Total Phosphorus	Grab	Bi-weekly
Total Ammonia	Grab	Bi-weekly
Total Kjeldahl Nitrogen	Grab	Bi-weekly
Nitrate as Nitrogen	Grab	Bi-weekly
Nitrite as Nitrogen	Grab	Bi-weekly
Alkalinity	Grab	Bi-weekly
E. coli	Grab	Bi-weekly
pH	Grab	Bi-weekly
Temperature	Grab	Bi-weekly
Chloride	Grab	Semi-annually
COD	Grab	Semi-annually
DOC	Grab	Semi-annually
Hardness	Grab	Semi-annually
Phenols	Grab	Semi-annually
Metals (total): ICP Metal Scan	Grab	Semi-annually
Volatile Organic Compounds (VOC) US EPA 624 Parameters	Grab	Semi-annually
Conductivity	Grab	Semi-annually

Landfill Leachate*

Parameters	Sample Type	Minimum Frequency
Alkalinity	Grab	Semi-annually
BOD5	Grab	Semi-annually
Chloride	Grab	Semi-annually
COD	Grab	Semi-annually
DOC	Grab	Semi-annually
Hardness	Grab	Semi-annually
Nitrate as Nitrogen	Grab	Semi-annually
Nitrite as Nitrogen	Grab	Semi-annually
Total Kjeldahl Nitrogen	Grab	Semi-annually
Ammonia	Grab	Semi-annually
Metals (Total): ICP 24 Metal Scan	Grab	Semi-annually
Volatile Organic Compounds (VOC): US EPA 624 Parameters	Grab	Semi-annually
pH	Grab	Semi-annually
Conductivity	Grab	Semi-annually
Temperature	Grab	Semi-annually

*Note

1. Samples of the leachate and groundwater contaminated with leachate to be collected from Valentine Avenue Landfill and Kincardine Waste Management Centre leachate pumping station, the discharge end of leachate forcemain, or at the point of addition to the sewer system or to the Works.

2. Representative samples of landfill leachate shall be collected for analysis on a semi-annually basis, subject to availability of the leachate requiring co-treatment at the Sewage Treatment Plant.

3. The Owner can use applicable existing samples collected from Valentine Avenue Landfill site of groundwater (contaminated) as required by Environmental Compliance Approval No. 3-0408-93-006 and of leachate as required by Environmental Compliance Approval No. 3-0354-94-006 and analyze for parameters as specified.

SCHEDULE 5

Schedule E

Limited Operational Flexibility

Protocol for Pre-Authorized Modifications to Municipal Sewage Works

1. **General**
    1. Pre-authorized modifications are permitted only where Limited Operational Flexibility has already been granted in the Approval and only permitted to be made at the pumping stations and sewage treatment plant in the Works, subject to the conditions of the Approval.
    2. Where there is a conflict between the types and scope of pre-authorized modifications listed in this document, and the Approval where Limited Operational Flexibility has been granted, the Approval shall take precedence.
    3. The Owner shall consult the District Manager on any proposed modifications that may fall within the scope and intention of the Limited Operational Flexibility but is not listed explicitly or included as an example in this document.
    4. The Owner shall ensure that any pre-authorized modifications will not:
        a. adversely affect the hydraulic profile of the Sewage Treatment Plant or the performance of any upstream or downstream processes, both in terms of hydraulics and treatment performance;
        b. result in new Overflow or Bypass locations, or any potential increase in frequency or quantity of Overflow(s) or Bypass(es).
        c. result in a reduction in the required Peak Flow Rate of the treatment process or equipment as originally designed.

2. **Modifications that do not require pre-authorization:**
    1. Sewage works that are exempt from Ministry approval requirements;
    2. Modifications to the electrical system, instrumentation and control system.

3. **Pre-authorized modifications that do not require preparation of "Notice of Modification to Sewage Works"**
    1. Normal or emergency maintenance activities, such as repairs, renovations, refurbishments and replacements with Equivalent Equipment, or other improvements to an existing approved piece of equipment of a treatment process do not require pre-authorization. Examples of these activities are:
        a. Repairing a piece of equipment and putting it back into operation, including replacement of minor components such as belts, gear boxes, seals, bearings;
        b. Repairing a piece of equipment by replacing a major component of the equipment such as motor, with the same make and model or another with the same or very close power rating but the capacity of the pump or blower will still be essentially the same as originally designed and approved;
        c. Replacing the entire piece of equipment with Equivalent Equipment.
    2. Improvements to equipment efficiency or treatment process control do not require pre-authorization. Examples of these activities are:
        a. Adding variable frequency drive to pumps;
        b. Adding on-line analyzer, dissolved oxygen probe, ORP probe, flow measurement or other process control device.

4. **Pre-Authorized Modifications that require preparation of "Notice of Modification to Sewage Works"**

1. Pumping Stations
    a. Replacement, realignment of existing sewers including manholes, valves, gates, weirs and associated appurtenances provided that the modifications will not add new influent source(s) or result in an increase in flow from existing sources as originally approved.
    b. Extension or partition of wetwell to increase retention time for emergency response and improve station maintenance and pump operation;
    c. Replacement or installation of inlet screens to the wetwell;
    d. Replacement or installation of flowmeters, construction of station bypass;
    e. Replacement, reconfiguration or addition of pumps and modifications to pump suctions and discharge pipings including valve, gates, motors, variable frequency drives and associated appurtenances to maintain firm pumping capacity or modulate the pump rate provided that the modifications will not result in a reduction in the firm pumping capacity or discharge head or an increase in the peak pumping rate of the pumping station as originally designed;
    f. Replacement, realignment of existing forcemain(s) including valves, gates, and associated appurtenances provided that the modifications will not reduce the flow capacity or increase the total dynamic head and transient in the forcemain.

2. Sewage Treatment Plant
    1. Sewers and appurtenances
        a. Replacement, realignment of existing sewers (including pipes and channels) or construction of new sewers, including manholes, valves, gates, weirs and associated appurtenances within the a sewage treatment plant, provided that the modifications will not add new influent source(s) or result in an increase in flow from existing sources as originally approved and that the modifications will remove hydraulic bottlenecks or improve the conveyance of sewage into and through the Works.
    2. Flow Distribution Chambers/Splitters
        a. Replacement or modification of existing flow distribution chamber/splitters or construction of new flow distribution chamber/splitters, including replacements or installation of sluice gates, weirs, valves for distribution of flows to the downstream process trains, provided that the modifications will not result in a change in flow distribution ratio to the downstream process trains as originally designed.
    3. Imported Sewage Receiving Facility
        a. Replacement, relocation or installation of loading bays, connect/disconnect hook-up systems and unloading/transferring systems;
        b. Replacement, relocation or installation of screens, grit removal units and compactors;
        c. Replacement, relocation or installation of pumps, such as dosing pumps and transfer pumps, valves, piping and appurtenances;
        d. Replacement, relocation or installation of storage tanks/chambers and spill containment systems;
        e. Replacement, relocation or installation of flow measurement and sampling equipment;
        f. Changes to the source(s) or quantity from each source, provided that changes will not result in an increase in the total quantity and waste loading of each type of Imported Sewage already approved for co-treatment.
    4. Preliminary Treatment System

a. Replacement of existing screens and grit removal units with equipment of the same or higher process performance technology, including where necessary replacement or upgrading of existing screenings dewatering washing compactors, hydrocyclones, grit classifiers, grit pumps, air blowers conveyor system, disposal bins and other ancillary equipment to the screening and grit removal processes.

b. Replacement or installation of channel aeration systems, including air blowers, air supply main, air headers, air laterals, air distribution grids and diffusers.

5. Primary Treatment System

a. Replacement of existing sludge removal mechanism, including sludge chamber;

b. Replacement or installation of scum removal mechanism, including scum chamber;

c. Replacement or installation of primary sludge pumps, scum pumps, provided that:the modifications will not result in a reduction in the firm pumping capacity or discharge head that the primary sludge pump(s) and scum pump(s) are originally designed to handle.

6. Secondary Treatment System

1. Biological Treatment

a. Conversion of complete mix aeration tank to plug-flow multi-pass aeration tank, including modifications to internal structural configuration;

b. Addition of inlet gates in multi-pass aeration tank for step-feed operation mode;

c. Partitioning of an anoxic/flip zone in the inlet of the aeration tank, including installation of submersible mixer(s);

d. Replacement of aeration system including air blowers, air supply main, air headers, air laterals, air distribution grids and diffusers, provided that the modifications will not result in a reduction in the firm capacity or discharge pressure that the blowers are originally designed to supply or in the net oxygen transferred to the wastewater required for biological treatment as originally required.

2. Secondary Sedimentation

a. Replacement of sludge removal mechanism, including sludge chamber;

b. Replacement or installation of scum removal mechanism, including scum chamber;

c. Replacement or installation of return activated sludge pump(s), waste activated sludge pump(s), scum pump(s), provided that the modifications will not result in a reduction in the firm pumping capacity or discharge head that the activated sludge pump(s) and scum pump(s) are originally designed to handle.

7. Post-Secondary Treatment System

a. Replacement of filtration system with equipment of the same filtration technology, including feed pumps, backwash pumps, filter reject pumps, filtrate extract pumps, holding tanks associated with the pumping system, provided that the modifications will not result in a reduction in the capacity of the filtration system as originally designed.

8. Disinfection System

1. UV Irradiation

a. Replacement of UV irradiation system, provided that the modifications will not result in a reduction in the design capacity of the disinfection system or the radiation level as originally

designed.

2. Chlorination/Dechlorination and Ozonation Systems
    a. Extension and reconfiguration of contact tank to increase retention time for effective disinfection and reduce dead zones and minimize short-circuiting;
    b. Replacement or installation of chemical storage tanks, provided that the tanks are provided with effective spill containment.

9. Supplementary Treatment Systems
    1. Chemical systems
        a. Replacement, relocation or installation of chemical storage tanks for existing chemical systems only, provided that the tanks are sited with effective spill containment;
        b. Replacement or installation of chemical dosing pumps provided that the modifications will not result in a reduction in the firm capacity that the dosing pumps are originally designed to handle.
        c. Relocation and addition of chemical dosing point(s) including chemical feed pipes and valves and controls, to improve phosphorus removal efficiency;
        d. Use of an alternate chemical provided that it is a non-proprietary product and is a commonly used alternative to the chemical approved in the Works, provided that the chemical storage tanks, chemical dosing pumps, feed pipes and controls are also upgraded, as necessary.

10. Sludge Management System
    1. Sludge Holding and Thickening
        a. Replacement or installation of sludge holding tanks, sludge handling pumps, such as transfer pumps, feed pumps, recirculation pumps, provided that modifications will not result in reduction in the solids storage or handling capacities;
    2. Sludge Digestion
        a. Replacement or installation of digesters, sludge handling pumps, such as transfer pumps, feed pumps, recirculation pumps, provided that modifications will not result in reduction in the solids storage or handling capacities;
        b. replacement of sludge digester covers.
    3. Sludge Dewatering and Disposal
        a. Replacement of sludge dewatering equipment, sludge handling pumps, such as transfer pumps, feed pumps, cake pumps, loading pumps, provided that modifications will not result in reduction in solids storage or handling capacities.
    4. Processed Organic Waste
        a. Changes to the source(s) or quantity from each source, provided that changes will not result in an increase in the total quantity already approved for co-processing.

11. Standby Power System
    a. Replacement or installation of standby power system, including feed from alternate power grid, emergency power generator, fuel supply and storage systems, provided that the existing standby power generation capacity is not reduced.

12. Pilot Study
    1. Small side-stream pilot study for existing or new technologies, alternative treatment process or chemical, provided:
        a. all effluent from the pilot system is hauled off-site for proper disposal or returned back to the sewage treatment plant for at a point no further than immediately downstream of the location from where the side-stream is drawn;
        b. no proprietary treatment process or propriety chemical is involved in the pilot study;
        c. the effluent from the pilot system returned to the sewage treatment plant does not significantly alter the composition/concentration of or add any new contaminant/inhibiting substances to the sewage to be treated in the downstream process;
        d. the pilot study will not have any negative impacts on the operation of the sewage treatment plant or cause a deterioration of effluent quality;
        e. the pilot study does not exceed a maximum of two years and a notification of completion shall be submitted to the District Manager within one month of completion of the pilot project.

13. Lagoons
    a. installing baffles in lagoon provided that the operating capacity of the lagoon system is not reduced;
    b. raise top elevation of lagoon berms to increase free-board;
    c. replace or install interconnecting pipes and chambers between cells, provided that the process design operating sequence is not changed;
    d. replace or install mechanical aerators, or replace mechanical aerators with diffused aeration system provided that the mixing and aeration capacity are not reduced;
    e. removal of accumulated sludge and disposal to an approved location offsite.

3. Final Effluent Disposal Facilities
    a. Replacement or realignment of the Final Effluent channel, sewer or forcemain, including manholes, valves and appurtenances from the end of the treatment train to the discharge outfall section, provided that the sewer conveys only effluent discharged from the Sewage Treatment Plant and that the replacement or re-aligned sewer has similar dimensions and performance criteria and is in the same or approximately the same location and that the hydraulic capacity will not be reduced.

Please contact the District Manager for a copy of the form entitled "Notice of Modification to Sewage Works".

SCHEDULE 6

Schedule F
Methodology for Calculating and Reporting Monthly Average Effluent Concentration, Annual Average Effluent Concentration and Monthly Geometric Mean Density

1. Monthly Average Effluent Concentration

Step 1: Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month and proceed as follows depending on the result of the calculation:

a. Group No Bypass Days (NBPD) data and Bypass Days (BPD) data during a calendar month separately;

b. If the arithmetic mean does not exceed the compliance limit for the contaminant, then report and use this arithmetic mean as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval;

c. If the arithmetic mean exceeds the compliance limit for the contaminant and there was no Bypass Event during the calendar month, then report and use this arithmetic mean as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval;

d. If the arithmetic mean exceeds the compliance limit for the contaminant and there was Bypass Event(s) during the calendar month, then proceed to Step 2;

e. If the arithmetic mean does not exceed the compliance limit for the contaminant and there was Bypass Event(s) during the calendar month, the Owner may still elect to proceed to Step 2 calculation of the flow-weighted arithmetic mean.

Step 2: Calculate the flow-weighted arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month and proceed depending on the result of the calculation:

a. Group No Bypass Days (NBPD) data and Bypass Days (BPD) data during a calendar month separately

b. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all NBPD during a calendar month and record it as Monthly Average NBPD Effluent Concentration;

c. Obtain the “Total Monthly NBPD Flow” which is the total amount of Final Effluent discharged on all NBPD during the calendar month;

d. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all BPD during a calendar month and record it as Monthly Average BPD Effluent Concentration;

e. Obtain the “Total Monthly BPD Flow” which is the total amount of Final Effluent discharged on all BPD during the calendar month;

f. Calculate the flow-weighted arithmetic mean using the following formula:
[(Monthly Average NBPD Effluent Concentration × Total Monthly NBPD Flow) + (Monthly Average BPD Effluent Concentration × Total Monthly BPD Flow)] ÷ (Total Monthly NBPD Flow + Total Monthly BPD Flow)
It should be noted that in this method, if there are no Bypass Event for the month, the calculated result would be the same as the non-flow-weighted arithmetic mean method;

g. Report and use the lesser of the flow-weighted arithmetic mean obtained in Step 2 and the arithmetic mean obtained in Step 1 as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval.

2. Annual Average Effluent Concentration

Step 1: Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar year and proceed as follows depending on the result of the calculation:

a. If the arithmetic mean does not exceed the compliance limit for the contaminant, then report and use this arithmetic mean as the Annual Average Effluent Concentration for this parameter where applicable in this Approval;

b. If the arithmetic mean exceeds the compliance limit for the contaminant and there was no Bypass Event during the calendar year, then report and use this arithmetic mean as the Annual Average Effluent Concentration for this parameter where applicable in this Approval;

c. If the arithmetic mean exceeds the compliance limit for the contaminant and there was Bypass Event(s) during the calendar year, then proceed to Step 2;

d. If the arithmetic mean does not exceed the compliance limit for the contaminant and there was Bypass Event(s) during the calendar year, the Owner may still elect to proceed to Step 2 calculation of the flow-weighted arithmetic mean.

Step 2: Calculate the flow-weighted arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar year and proceed depending on the result of the calculation:

a. Group No Bypass Days (NBPD) data and Bypass Days (BPD) data during a calendar year separately;

b. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all NBPD during a calendar year and record it as Annual Average NBPD Effluent Concentration;

c. Obtain the “Total Annual NBPD Flow” which is the total amount of Final Effluent discharged on all NBPD during the calendar year;

d. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all BPD during a calendar year and record it as Annual Average BPD Effluent Concentration;

e. Obtain the “Total Annual BPD Flow” which is the total amount of Final Effluent discharged on all BPD during the calendar year;

f. Calculate the flow-weighted arithmetic mean using the following formula:
[(Annual Average NBPD Effluent Concentration × Total Annual NBPD Flow) + (Annual Average BPD Effluent Concentration × Total Annual BPD Flow)] ÷ (Total Annual NBPD Flow + Total Annual BPD Flow)
It should be noted that in this method, if there are no Bypass Event for the calendar year, the calculated result would be the same as the non-flow-weighted arithmetic mean method;

g. Report and use the lesser of the flow-weighted arithmetic mean obtained in Step 2 and the arithmetic mean obtained in Step 1 as the Annual Average Effluent Concentration for this parameter where applicable in this Approval.

3. Monthly Geometric Mean Density

Geometric mean is defined as the nth root of the product of n numbers. In the context of calculating Monthly Geometric Mean Density for E. coli, the following formula shall be used:

$$\sqrt[n]{(x_1 x_x x_3 \ldots x_n)}$$

(nth root of left-parenthesis x_1 multiplied by x_2 multiplied by x_3 multiplied by x_n right-parenthesis)

in which,
"n" is the number of samples collected during the calendar month; and
"x" is the value of each Single Sample Result.
For example, four weekly grab samples were collected and tested for E. coli during the calendar month. The E. coli densities in the Final Effluent were found below:

Sample Number	*E. coli* Densities* (CFU /100 mL)
1	10
2	100
3	300
4	50

The Geometric Mean Density for these data:

$$\sqrt[4]{(10 \times 100 \times 300 \times 50)} = 62$$

*If a particular result is zero (0), then a value of one (1) will be substituted into the calculation of the Monthly Geometric Mean Density. If the MPN method is utilized for E. coli analysis, values in the table shall be MPN/100 mL.

SCHEDULE 7

Schedule G

Municipal and Local Services Board Wastewater System Profile Information Form

Please contact the District Manager for a copy of the form entitled "Municipal and Local Services Board Wastewater System Profile Information Form".

Ontario

ENVIRONMENTAL COMPLIANCE APPROVAL
For a Municipal Sewage Collection System

ECA Number: 088-W601
Issue Number: 1

Pursuant to the *Environmental Protection Act*, R.S.O 1990, c. E. 19 (EPA*),* and the regulations made thereunder and subject to the limitations thereof, this environmental compliance approval is issued under section 20.3 of Part II.1 of the EPA to:

Kincardine, The Corporation of the Municipality of

1475 Concession #5 Conc R.R. 5
Kincardine, ON N2Z 2X6

For the following Sewage Works:

Kincardine and BEC Wastewater Collection System

This Environmental Compliance Approval (ECA) includes the following:

Schedule	Description
Schedule A	System Information
Schedule B	Municipal Sewage Collection System Description
Schedule C	List of Notices of Amendment to this ECA: Additional Approved Works
Schedule D	General
Schedule E	Operating Conditions
Schedule F	Residue Management

All prior ECAs, or portions thereof, issued by the Director for Sewage Works described in section 1 of Schedule B are revoked and replaced by this Approval.

DATED at TORONTO this 10th day of November, 2022

Signature

Aziz Ahmed, P.Eng.
Director, Part II.1, *Environmental Protection Act*

Schedule A: System Information

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-W601**
System Name	**Kincardine and BEC Wastewater Collection System**
ECA Issue Date	**November 10th, 2022**

1.0 ECA Information and Mandatory Review Date

ECA Issue Date	November 10th, 2022
Application for ECA Review Due Date	June 15, 2028

1.1 Pursuant to section 20.12 of the EPA, the Owner shall submit an application for review of the Approval no later than the Application for ECA Review Date indicated above.

2.0 Related Documents

2.1 STPs, Satellite Treatment Facilities, and Pumping Stations connected to the Authorized System that are not part of the Authorized System:

System/Facility Name	Wastewater System Number	Location	ECA Number	Issue Date
Kincardine Wastewater Treatment Facility	110000864	520 Bruce Avenue, Kincardine	A-500-1121679176	February 11, 2022
Kincardine Wastewater Treatment -Effluent Station	110000864	169 Mahood-Johnston Drive	A-500-1121679176	February 11, 2022
Bruce Energy Center Wastewater Treatment Facility	110002700	1842 Concession 2, Tiverton	2362-BXVTJS	February 26, 2021

2.2 Other Documents

Document Title	Version
Design Criteria for Sanitary Sewers, Storm Sewers, and Forcemains for future Alterations Authorized under ECA	v.1.1 (Jul.28, 2022)

3.0 Asset Management Plan

Document Title	Version
The 2022 Asset Management Plan for the Municipality of Kincardine	June 2022

4.0 Pollution Prevention and Control Plan (if applicable)

Document Title	Version
N/A	

5.0 Operating Authority

System	Operating Authority
Kincardine and BEC Wastewater Collection System	The Municipality of Kincardine

Schedule B: Municipal Sewage Collection System Description

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-W601**
System Name	**Kincardine and BEC Wastewater Collection System**
ECA Issue Date	**November 10th, 2022**

1.0 System Description

1.1 The following is a summary description of the Sewage Works comprising the Municipal Sewage Collection System:

Overview

The Kincardine and BEC Wastewater Collection System consists of works for the collection and transmission of sewage.

The Kincardine Wastewater Collection System consists of trunk sewers, separate sewers, 0 Kms of combined sewers, 11 sewage pumping stations, and forcemains, with discharge into the Kincardine Wastewater Treatment Plant. Treated wastewater then flows over to the Kincardine Wastewater Treatment Effluent Station before discharging to Lake Huron

The Bruce Energy Center (BEC) Wastewater Collection System consists of trunk sewers, separate sewers, 0 KM of combined sewers, 4 sewage pumping stations, and forcemains, with discharge into the Bruce Energy Center Wastewater Treatment Plant. Treated wastewater flows from the BEC Wastewater Treatment Plant to Lake Huron.

Sewage Collection System

1.2 The Authorized System comprises:

1.2.1 The Sewage Works described and depicted in each document or file identified in column 1 of Table B1.

Table B1: Infrastructure Map

Column 1 Document or File Name	Column 2 Date
Kincardine Wastewater Collection System	2022-02-07
BEC Wastewater Collection System	2022-02-04

1.2.2 Sewers, forcemains, pumping stations and other Sewage Works that have been added, modified, replaced, or extended through authorization provided in a Schedule C Notice respecting this Approval, where Completion occurs on or after the date identified in column 2 of Table B1 for each document or file identified in column 1.

1.2.3 Sewers, forcemains, pumping stations and other Sewage Works that have been added, modified, replaced, or extended through authorization provided in Schedule D of this Approval, where Completion occurs on or after the date identified in column 2 of Table B1 for each document or file identified in column 1.

1.2.4 Any Sewage Works described in conditions 1.3, through 1.7 below.

Sewage Pumping Stations

1.3 The following are Sewage pumping stations in the Authorized System:

[Kincardine Wastewater Collection-Connaught Park Sewage Pumping Station]

Asset ID and Name	S-CPPS Kincardine Wastewater Collection-Connaught Park Sewage Pumping Station
Site Location	141 Broadway Street, Kincardine
Latitude and Longitude	Lat: 44.18412 Lon: 81.63664
Coordinates (optional)	N 4892519.0259 E449116.1074 NAD1983 Zone 17N
Description	A wet well sewage pumping station located in Connaught Park, adjacent to the southeast portion of the former horse racing track, consisting of a two (2) cell wet well having a dimension of 8m by 4m with associated building
Pumping Station Capacity	88.5L/s
Equipment	Three (3) variable speed submersible pumps, two (2) duty, one (1) standby, having a firm design capacity of 88.5L/s at 25.2m Total Dynamic Head (TDH), one (1) space for future pump, complete with electrical and electronic control systems, a radar level transmitter with back-up float switches for each cell, discharge piping, ventilation system, air release valves and flow meter
Emergency Storage	
Equipment: Associated controls and appurtenances	Equipped with an automated rake bar screen; complete with electrical and electronic control systems, a radar level transmitter with back-up float switches for each cell, discharge piping, ventilation system, air release valves and flow meter, and all other appurtenances necessary to have a complete and operable pumping station
Sewage Pumping Station – Collection System Overflow	A 375mm overflow pipe discharges to Lake Huron via the stormwater system on Broadway Street. The emergency storage volume is 284.8m^3, the response time prior to overflow at peak flow is 53.6 minutes.
Receiving Stations (if applicable)	None
Odour Control Units	None

Standby Power	A 150 kW standby diesel generator set with a 1265L fuel tank.
Notes	Pumps sewage via a 250mm forcemain to Broadway and Huron Terrace, sewage then flows through the gravity sewers over to the Huron Terrace Pumping Station.

[Kincardine Wastewater Collection-Durham Street Sewage Pumping Station]

Asset ID and Name	S-DSPS Kincardine Wastewater Collection-Durham Street Sewage Pumping Station
Site Location	867 Olde Victoria Street, Kincardine
Latitude and Longitude	Lat: 44.17738 Lon: 81.63061
Coordinates (optional)	N 4891766.5085 E 449594.5897 NAD83 Zone 17N
Description	A submersible sewage pumping station with building located on part of Lot "A" south of Durham Street, east of Olde Victoria Street, in the town of Kincardine
Pumping Station Capacity	26.7L/s
Equipment	Two (2) submersible centrifugal non-clog sewage pumps, (one as standby), each rated to deliver 26.7 L/s against a total dynamic head of 14.6m, the 2.7m diameter wet well has 8.7 m^3 capacity. The station is connected to a 150mm forcemain discharging to the gravity sewer on Durham Street at Princes St.
Emergency Storage	
Equipment: Associated controls and appurtenances	
Sewage Pumping Station – Collection System Overflow	Overflow provided from the bypass sewage chamber to the Penetangore River. The emergency storage volume is approximately 5.7m^3, the response time prior to overflow at peak flow is 1.6 minutes.
Receiving Stations Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	A 25kW standby Diesel generator set with a 450L fuel tank
Notes	Discharges to a 150mm forcemain on Durham street, sewage flows through the gravity sewers on Princes Street and over to the Huron Terrace Sewage Pumping Station.

[Kincardine Wastewater Collection-Goderich Street Sewage Pumping Station]

Asset ID and Name	S-GSPS Kincardine Wastewater Collection-Goderich Street Sewage Pumping Station

Site Location	7 Goderich Street, Kincardine
Latitude and Longitude	Lat: 44.16045 Lon: 81.65676
Coordinates (optional)	N 4889900.1874 E 447486.4265 NAD1983 Zone 17N
Description	A wet well-dry well type sewage pumping station with building located on Goderich approximately 290 meters west of Bruce Avenue
Pumping Station Capacity	38.7 L/s
Equipment	Two (2) raw sewage pumps each capable of 38.7 L/s against a total dynamic head of 30.1m, one (1) bar screen, 4.9m by 3.2m wet well of 38.1 m^3 capacity. The station is connected to one 250mm diameter forcemain on Goderich Street discharging to the Kincardine Lagoon system.
Emergency Storage	
Equipment: Associated controls and appurtenances	Interconnecting piping between the wet well and dry well, associated valves, appurtenances and electrical controls, high level alarm system
Sewage Pumping Station – Collection System Overflow	One 375mm valved overflow pipe discharging to Lake Huron The emergency storage volume is 37.2 m^3, the response time prior to overflow at peak flow is 10.7 minutes.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	One 75 kW Diesel generator set with a 910L fuel tank
Notes	Discharging to the Wastewater Treatment Plant located at 520 Bruce Avenue via a 250mm forcemain.

[Kincardine Wastewater Collection-Harbour Lift Sewage Pumping Station]

Asset ID and Name	S-HLPS Kincardine Wastewater Collection-Harbour Lift Sewage Pumping Station
Site Location	249 Station Beach Road, Kincardine
Latitude and Longitude	Lat: 44.17618 Lon: 81.63871
Coordinates (optional)	N 4891638.9009 E 448945.3474 NAD1983 Zone 17N
Description	A sewage pumping station serving the Kincardine Marina Area, located on the west side of Huron Terrace in the Municipality of Kincardine; consisting of a 1.8m diameter wetwell with above ground weatherproof pump control panel (no building)
Pumping Station Capacity	5.7L/s
Equipment	Consisting of a 1.8m diameter wetwell with two (2) submersible pumps (one standby), each rated at approx. 5.7L/s at 6.4 Total Dynamic Head, complete with an air vent pipe and approx. 5m of 100mm diameter forcemain to

	connect to existing 100mm forcemain discharging to the Huron Terrace Sewage Pumping Station
Emergency Storage	
Equipment: Associated controls and appurtenances	
Sewage Pumping Station – Collection System Overflow	No overflow location. Sewage would backup into gravity sewer system on Station Beach Road.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	None
Notes	Discharging to the Huron Terrace Pumping Station via a 100mm diameter forcemain.

[Kincardine Wastewater Collection-Hunter's Ridge Sewage Pumping Station]

Asset ID and Name	S-HRPS Kincardine Wastewater Collection-Hunter's Ridge Sewage Pumping Station
Site Location	540 Hunter Street, Kincardine
Latitude and Longitude	Lat: 44.16621 Lon: 81.62666
Coordinates (optional)	N 4890522.6538 E 449898.9295 NAD1983 Zone 17N
Description	A Sanitary sewage pumping station construction in the centre of Hunter Street Cul-de-Sac consisting of an inground wet well, adjacent above ground weatherproof pump control panel, with adjacent inground chamber housing piping and valves and gravity drain pipe back to sewage pumping station wet well.
Pumping Station Capacity	3.53 L/s
Equipment	Two (2) submersible sewage pumps, each with a rated capacity of 3.53 L/s at a Total Dynamic Head of 12.2m, the 3.0m diameter wet well has approximately 12.7 m^3 of capacity. The station is connected to a 75mm diameter forcemain discharging to the gravity sewers on Hunter Street located approximately 45m south of Palmateer Drive.
Emergency Storage	
Equipment: Associated controls and appurtenances	Above ground weatherproof pump control panel with connection for portable generator; liquid level and alarm level float control system
Sewage Pumping Station – Collection System Overflow	Valved gravity overflow pipe connected to storm piping that discharges to the Penetengore River with the final receiving body being Lake Huron. The emergency storage volume is

	approximately 25m^3, the response time prior to overflow at peak flow is approximately 145.5 minutes.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	None
Notes	Discharges via a 75mm forcemain on Hunter Street to the gravity sewers approx. 45m south of Palmateer, sewage flows to the Park Street Pumping Station.

[Kincardine Wastewater Collection-Huron Terrace Sewage Pumping Station]

Asset ID and Name	S-HTPS Kincardine Wastewater Collection-Huron Terrace Sewage Pumping Station
Site Location	733 Huron Terrace, Kincardine
Latitude and Longitude	Lat: 44.17616 Lon: 81.63819
Coordinates (optional)	N 4891635.7805 E 448984.051 NAD1983 Zone 17N
Description	The main sewage pumping station consisting of a wet well and screen building; valve chamber and electrical building located on Huron Terrace
Pumping Station Capacity	300L/s
Equipment	A submersible type sewage pumping station equipped with three (3) submersible pumps (two (2) duty + one (1) standby) with variable frequency drives, each rated at 150 L/s at a total Dynamic Head of 45.6m, 1 automated bar screen, the 2 cell (5.2m by 3.25m and 5.5m by 3.6m) wet well of 155.6 m^3 capacity. The station is connected to a 450mm forcemain discharging to the Kincardine Wastewater Treatment Facility.
Emergency Storage	
Equipment: Associated controls and appurtenances	All mechanical, electrical, instrumentation and control systems, standby power, piping, pumps, valves, automated bar screen and appurtenances essential for the proper, safe and reliable operation of the works.
Sewage Pumping Station – Collection System Overflow	A 400mm emergency overflow pipe from the wet well to the Penetangore River, with the final received being Lake Huron. The emergency storage volume is 47.4m^3, the response time prior to overflow at peak flow is 2.6 minutes.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	One 450 kW Diesel generator set with a 3218 L fuel tank
Notes	Discharging to a 450mm diameter forcemain on Huron

	Terrace, sewage flows through approx. 2.6km of forcemain over to the Kincardine Wastewater Treatment Plant. New pumping station under ECA 2627-BRRGZQ to be constructed in 2022 Former C of A 3-1077-80-006

[Kincardine Wastewater Collection-Kincardine Avenue Pumping Station]

Asset ID and Name	S-KAPS Kincardine Wastewater Collection-Kincardine Avenue Pumping Station
Site Location	570 Kincardine Avenue, Kincardine
Latitude and Longitude	Lat: 44.16191 Lon: 81.63509
Coordinates (optional)	N 4890051.3422 E 449223.6042 NAD1983 Zone 17N
Description	A wet well-dry well type sewage pumping station with building located on Kincardine Avenue approximately 220m east of Park Street.
Pumping Station Capacity	39.3L/s
Equipment	A wet well/dry well with two (2) sewage pumps each capable of 39.3 L/s against a total dynamic head of 19.9m, one(1) bar screen, 4.9m by 2.7m wet well of 30.9 m^3 capacity. The station is connected to a 250mm diameter forcemain discharging to Kincardine Avenue then over to the Kincardine Wastewater Treatment Facility
Emergency Storage	
Equipment: Associated controls and appurtenances	Interconnecting piping between the wet well and dry well, associated valves, appurtenances and electrical controls, high level alarm system
Sewage Pumping Station – Collection System Overflow	One 375mm overflow pipe located approximately 95m west of the pumping station flowing to the Stewart Drain, then over to the Penetangore River which flows to Lake Huron. The emergency storage volume is approx. 1.32m^3, the response time prior to overflow at peak flow is 34 secs.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	One 40kW diesel generator set with a 910L fuel tank
Notes	Discharges to a 250mm diameter forcemain which connects to the Kincardine Wastewater Treatment Plant.

[Kincardine Wastewater Collection-Park Street Sewage Pumping Station]

Asset ID and Name	S-PSPS Kincardine Wastewater Collection-Park Street Sewage Pumping Station
Site Location	494 Scott Street, Kincardine

Latitude and Longitude	Lat: 44.16852 Lon: 81.63334
Coordinates (optional)	N 4890783.5448 E 449368.6488 NAD1983 Zone 17N
Description	Sewage Pumping Station with building located on the unopened Park Street Road allowance approximately 40m south of Scott Street.
Pumping Station Capacity	99.2 L/s
Equipment	Three (3) 66.3 L/s sewage pumps (two of which having a capacity of pumping 99.2 L/s when operated in parallel, one pump as standby, one bar screen, 2.44m by 6.3 wet well of 38.4 m^3 capacity. The station is connected to a 300mm diameter forcemain discharging to the Kincardine Wastewater Treatment Plant.
Emergency Storage	
Equipment: Associated controls and appurtenances	
Sewage Pumping Station – Collection System Overflow	A 300mm diameter emergency overflow pipe from the wet well discharges to the Stewart Drain which flows into the Penetangore River with the final receiving body being Lake Huron. The emergency storage volume is 55.5m^3, the response time prior to overflow at peak flow is 17.2 minutes.
Receiving Stations (if applicable)	Septage receiving station for hauled sewage, deposited directly into wet well via a manhole.
Odour Control Units	None
Standby Power	One 75 kW Diesel Generator set with a 910L fuel tank
Notes	Discharging via a 300mm diameter forcemain to the Kincardine Wastewater Treatment Facility.

[Kincardine Wastewater Collection-Queen Street Sewage Pumping Station]

Asset ID and Name	S-QSPS Kincardine Wastewater Collection-Queen Street Sewage Pumping Station
Site Location	601 Queen Street, Kincardine
Latitude and Longitude	Lat: 44.17221 Lon: 81.63831
Coordinates (optional)	N 4891192.4408 E 448976.9324 NAD1983 Zone 17N
Description	A sewage pumping station consisting of a 1.3m diameter wet well located on the unopened road allowance north of 601 Queen Street with an aboveground weatherproof pump control panel (no building) and an overflow pipe.
Pumping Station Capacity	1.6L/s
Equipment	One 2 HP submersible pump with an estimated pump capacity of 1.6 L/s, (presumed) grinder and a 1.2m wet well of approx. 1.7m^3 capacity. The station is connected to

	50mm diameter forcemain discharging to Queen Street then over to the Kincardine Wastewater Treatment Facility.
Emergency Storage	
Equipment: Associated controls and appurtenances	
Sewage Pumping Station – Collection System Overflow	A 150 diameter overflow pipe discharges to the Penetangore River and flows to Lake Huron.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	None
Notes	Discharges to a forcemain on Queen Street which leads to the Gravity sewer system which then flows over to the Huron Terrace Sewage Pumping Station.

[Kincardine Wastewater Collection-Groundwater Pumping Station]

Asset ID and Name	S-GWPS Kincardine Wastewater Collection-Groundwater Pumping Station
Site Location	139 Valentine Avenue, Kincardine
Latitude and Longitude	Lat: 44.15435 Lon: 81.64148
Coordinates (optional)	N 4889214.6691 E 448704.1416 NAD1983 Zone 17N
Description	A 1.5m diameter precast concrete pumping station with aboveground pump control panel (no building), located at 139 Valentine Avenue, the former landfill site.
Pumping Station Capacity	3.0 L/s
Equipment	One (1) 3.0 L/s submersible pump. The Station is connected to a 75mm forcemain discharging to the Kincardine Wastewater Treatment Plant Aeration Pond.
Emergency Storage	
Equipment: Associated controls and appurtenances	Above ground pump control panel with valve chamber, piping, and electrical
Sewage Pumping Station – Collection System Overflow	No Overflow chamber or piping.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	None

Notes	Discharges to a 75mm forcemain into the aeration pond at the Kincardine Wastewater Treatment Plant.

[Kincardine Wastewater Collection-Leachate Pumping Station]

Asset ID and Name	S-LPS Kincardine Wastewater Collection-Leachate Pumping Station
Site Location	139 Valentine Avenue, Kincardine
Latitude and Longitude	Lat: 44.15369 Lon: 81.63914
Coordinates (optional)	N 4889141.2421 E 448889.7012 NAD1983 Zone 17N
Description	A 1.5m diameter precast concrete pumping station with aboveground pump control panel (no building), located at 139 Valentine Avenue, the former landfill site.
Pumping Station Capacity	2.8 L/s
Equipment	One (1) 2.8 L/s submersible pump, 1.5m diameter wet well of 2.8m^3 capacity. The Station is connected to a 75mm forcemain discharging to the Kincardine Wastewater Treatment Plant Aeration Pond. Emergency storage tank/pipe volume is approx. 6.6m^3
Emergency Storage	
Equipment: Associated controls and appurtenances	Above ground pump control panel with valve chamber, piping, and electrical
Sewage Pumping Station – Collection System Overflow	No Overflow chamber or piping
Receiving Stations (if applicable)	Leachate collection receiving station from Kincardine Waste Management Center. Maximum allowable leachate received 33m3/day.
Odour Control Units	None
Standby Power	None
Notes	Discharges to a 75mm forcemain into the aeration pond at the Kincardine Wastewater Treatment Plant.

[BEC Wastewater Collection-Inverhuron Park Sewage Pumping Station]

Asset ID and Name	S-IPPS BEC Wastewater Collection-Inverhuron Park Sewage Pumping Station
Site Location	19 Jordan Road, Inverhuron
Latitude and Longitude	Lat: 44.29975 Lon: 81.58761
Coordinates (optional)	N 4905333.0978 E 453127.6209 NAD1983 Zone 17N
Description	A Sewage Pumping Station consisting of an in-ground pre-manufactured fiberglass reinforced plastic wet well 1.8m in diameter with an aboveground weatherproof pump control panel (no building) located near the gatehouse inside the

	boundary of the Inverhuron Provincial Park
Pumping Station Capacity	9.8 L/s
Equipment	Two (2) 18 HP submersible pumps (one duty and one standby), 1.8m wet well of 3.5 m^3 capacity. The station is connected to a 100mm forcemain discharging to Albert Road then over to the Bruce Energy Center Treatment Plant.
Emergency Storage	
Equipment: Associated controls and appurtenances	Aboveground Pump control Panel, electrical equipment, instrumentation, piping, pumps, valves, and appurtenances essential for the proper operation of the sewage works.
Sewage Pumping Station – Collection System Overflow	A 1.5m diameter precast bypass chamber located on the forcemain immediately downstream of the pumping station. There is no overflow from the SPS. In event of an emergency, sewage flow to the SPS halts. The Inverhuron Provincial Park has installed emergency overflow tanks at their major SPS within the Park, this allows for 75m^3 of upstream emergency storage. Note: there is also about 2.5m^3 of emergency storage at the SPS.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	None
Notes	Discharges to a 100mm forcemain that connects to the 200mm forcemain on Albert Street then goes to the Bruce Energy Center Treatment Facility.

[BEC Wastewater Collection-King Street Sewage Pumping Station]

Asset ID and Name	S-KSPS BEC Wastewater Collection-King Street Sewage Pumping Station
Site Location	41 King Street, Tiverton
Latitude and Longitude	Lat: 44.27242 Lon: 8154054
Coordinates (optional)	N 4902270.3353 E 456860.5855 NAD1983 Zone 17N
Description	Submersible type sewage pumping station located on Lot 36 west of King Street in Tiverton approximately 244m south of Lois Street with concrete block control building structure with yard piping, bypass chamber and overflow pipe.
Pumping Station Capacity	13.8 L/s
Equipment	Two (2) submersible pumps (1 duty and 1 standby) each rated at 13.8 L/s at 22.2m Total Dynamic Head, one bar screen, 2438mm diameter wet well of 6.4 m^3 capacity. The

	station is connected to a 100mm forcemain on King Street that connects to the gravity sewage system approximately 244m south and then flows to the Maple Street pumping station.
Emergency Storage	
Equipment: Associated controls and appurtenances	
Sewage Pumping Station – Collection System Overflow	A 200mm overflow pipe discharges from the bypass chamber to a stream which flows west to Little Sauble River then to Lake Huron. The emergency storage volume is 14.4m^3, the response time prior to overflow at peak flow is 46.2 minutes.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	A 10 kW diesel generator with a 454L fuel tank
Notes	Discharges via a 100mm forcemain on King Street to the gravity sanitary system approximately 244m south then flows over to maple street pumping station.

[BEC Wastewater Collection-Lake Street Sewage Pumping Station]

Asset ID and Name	S-LSPS BEC Wastewater Collection-Lake Street Sewage Pumping Station
Site Location	125 Lake Street
Latitude and Longitude	Lat: 44.28502 Lon: 81.59308
Coordinates (optional)	N 4903699.6602 E 452679.8117 NAD1983 Zone 17N
Description	Sewage pumping station consisting of approximately 3.5m diameter wet well, with aboveground weatherproof pump control panel (no building)
Pumping Station Capacity	5.6L/s
Equipment	Two (2) submersible centrifugal sewage pumps (one to act as standby), each rated at 5.6 L/s at 27.5m total dynamic head, 3.0m diameter wet well of 8.1m^3 capacity. The station is connected to a 75mm forcemain discharging to the Bruce Energy Center Treatment Facility.
Emergency Storage	
Equipment: Associated controls and appurtenances	Above ground pump control panel, emergency overflow, temporary bypass connection and surge relief valve;
Sewage Pumping Station – Collection System Overflow	Overflow to valve/Bypass chamber with 200mm overflow pipe to Lake Huron. The emergency storage volume is

	9.2m^3, the response time prior to overflow at peak flow is 47.8 minutes.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	None
Notes	Discharges via a 75mm forcemain to the Bruce Energy Center Wastewater Treatment Facility.

[BEC Wastewater Collection-Maple Street Sewage Pumping Station]

Asset ID and Name	S-MSPS BEC Wastewater Collection-Maple Street Sewage Pumping Station
Site Location	21 Maple Street, Tiverton
Latitude and Longitude	Lat: 44.26788 Lon: 81.54953
Coordinates (optional)	N 4901771.2456 E 456144.0079 NAD1983 Zone 17N
Description	Submersible type sewage pumping station located at 21 Maple Street with a concrete block control building structure, yard piping, bypass chamber, and overflow pipe
Pumping Station Capacity	29.6 L/s
Equipment	Two (2) submersible pumps (1 duty and 1 standby) each rated at 29.6 L/s at 10.0 Total dynamic head. one bar screen, 2438mm diameter wet well of 9.2 m^3 capacity. The Station is connected to a 200mm forcemain discharging to the Bruce Energy Center Wastewater Treatment Facility.
Emergency Storage	
Equipment: Associated controls and appurtenances	
Sewage Pumping Station – Collection System Overflow	The 300mm overflow pipe discharges into a creek that flows into Tiverton Creek then west to Lake Huron. The emergency storage volume is 19.2m^3, the response time prior to overflow at peak flow is 7.2 minutes.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	A 10 kW Diesel Generator with a 454 L fuel tank
Notes	Discharges via a 200mm forcemain to the Bruce Energy Center Wastewater Treatment Facility.

[Combined Sewage Pumping Stations] Not Applicable

Asset ID and Name	N/A
Site Location	
Latitude and Longitude	
Coordinates (optional)	
Description	
Pumping Station Capacity	
Equipment	
Emergency Storage	
Equipment: Associated controls and Appurtenances	
Sewage Pumping Station – Collection System Overflow	
Receiving Stations (if applicable)	
Odor Control Units	
Standby Power	
Notes	

Real-Time Control

1.4 The following are identified Real-Time Control Systems in the Authorized System:

	Description
Process Equipment/System Elements	Radar Level Measurement for pump control Ultrasonic level measurement for pump control
Flow Measurement Locations	Where present at SPS's, flow meters are used for monitoring purposes but do not provide operational control
Level Measurement Locations	Radar level measurement for control of pumps at: Connaught Park SPS Huron Terrace SPS Ultrasonic level measurement for control of pumps at: Durham Street SPS Goderich Street SPS Harbour Lift SPS Hunter's Ridge SPS Kincardine Ave SPS Park Street SPS Queen Street SPS Groundwater Leachate

	King Street SPS Inverhuron Park SPS Lake Street SPS Maple Street SPS
Other Instrumentation and Controls	Float switches are provided for pump control (primary control for stations without ultrasonic or radar level measurement, backup control for stations with ultrasonic or radar level measurement)

Combined Sewage Structures

1.5 The following are regulators and combined Sewage storage structures in the Authorized System:

Table B2: Identified Combined Sewer Overflow Regulators			
Column 1 Asset ID/Name	Column 2 Site Location (Latitude & Longitude)	Column 3 Regulator Capacity (m^3/s)	Column 4 Overflow Location (Latitude & Longitude)
N/A			

Table B3: Identified Combined Sewage Storage Tanks and Storage Structures			
Column 1 Asset ID/Name	Column 2 Site Location (Latitude & Longitude)	Column 3 Regulator Capacity (m^3/s)	Column 4 Overflow Location (Latitude & Longitude)
N/A			

Collection System Overflow Points

1.6 The following are Collection System Overflow points in the Authorized System:

Table B4: Identified Combined Sewer Overflow Points including Pumping Stations			
Column 1 Asset ID / Name	Column 2 Regulator or Combined Sewer Storage Asset ID	Column 3 Overflow Location (Latitude & Longitude)	Column 4 Point of Entry to Receiver (Latitude and Longitude)
STM-2358/ Connaught Park SPS Overflow		Lat: 44.18372 Lon: 81.63853	Lat: 44.18372 Lon: 81.63853
STM-1436/ Hunter's Ridge SPS Overflow		Lat: 44.16708 Lon: 81.62560	Lat: 44.17686 Lon: 81.63834
SM-850/ Park Street SPS Overflow		Lat: 44.16810 Lon: 81.63360	Lat: 44.17686 Lon: 81.63834

Table B5: Identified Sanitary Sewer Overflow Points including Pumping Stations			
Column 1 Asset ID	Column 2 Asset Name	Column 3 Overflow Location (Latitude & Longitude)	Column 4 Point of Entry to Receiver (Latitude and Longitude)
SM-851	Sanitary Main-Kincardine WWC Durham Street SPS Overflow Pipe	Lat: 44.17710 Lon: 81.63025	Lat: 44.17686 Lon: 81.63834
SM-947	Sanitary Main-Kincardine WWC Goderich Street SPS Overflow Pipe	Lat: 44.16057 Lon: 81.65708	Lat: 44.16057 Lon: 81.65708
SM-1000	Sanitary Main-Kincardine WWC Huron Terrace SPS Overflow Pipe	Lat: 44.17659 Lon: 81.63801	Lat: 44.17686 Lon: 81.63834
SM-17	Sanitary Main-Kincardine WWC Kincardine Avenue SPS Overflow Pipe	Lat: 44.16240 Lon: 81.63623	Lat: 44.17686 Lon: 81.63834
SM-1167	Sanitary Main-Kincardine WWC Queen Street SPS Overflow Pipe	Lat: 44.17212 Lon: 81.63808	Lat: 44.17686 Lon: 81.63834
SM-255	Sanitary Main- BEC WWC King Street SPS Overflow Pipe	Lat: 44.27198 Lon: 81.54066	Lat: 44.29102 Lon: 81.59161
SM-1133	Sanitary Main-BEC WWC Maple Street SPS Overflow Pipe	Lat: 44.26794 Lon: 81.54933	Lat: 44.27230 Lon: 81.60427
SM-1134	Sanitary Main-BEC WWC Lake Street SPS Overflow Pipe	Lat: 44.28514 Lon: 81.59328	Lat: 44.28514 Lon: 81.59328

Other Works:

1.7 The following works are part of Authorized System:

Table B6: Other Works			
Column 1 Asset ID / Name	Column 2 Site Location (Latitude & Longitude)	Column 3 Component	Column 4 Description
N/A			

Schedule C: List of Notices of Amendment to this ECA: Additional Approved Sewage Works

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-W601**
System Name	**Kincardine and BEC Wastewater Collection System**
ECA Issue Date	**November 10th, 2022**

1.0 General

1.1 Table C1 provides a list of all notices of amendment to this Approval that have been issued pursuant to clause 20.3(1) of the EPA that impose terms and conditions in respect of the Authorized System after consideration of an application by the Director (Schedule C Notices).

Table C1: Schedule C Notices

Column 1 Issue #	Column 2 Issue Date	Column 3 Description	Column 4 Status	Column 5 DN#
N/A	N/A	N/A	N/A	N/A

Schedule D: General

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-W601**
System Name	**Kincardine and BEC Wastewater Collection System**
ECA Issue Date	**November 10th, 2022**

1.0 Definitions

1.1 For the purpose of this Approval, the following definitions apply:

"Adverse Effect(s)" has the same meaning as defined in section 1 of the EPA.

"Alteration(s)" includes the following, in respect of the Authorized System, but does not include repairs to the system:

a) An extension of the system,

b) A replacement or retirement of part of the system, or

c) A modification of, addition to, or enlargement of the system.

"Approval" means this Environmental Compliance Approval including any Schedules attached to it.

"Appurtenance(s)" has the same meaning as defined in O. Reg. 525/98 (Approval Exemptions) made under the OWRA.

"Authorized System" means the Sewage Works comprising the Municipal Sewage Collection System authorized under this Approval".

"Average Year" means the long term average of flow based on:

a) Simulation of at least twenty years of rainfall data;

b) A year in which the rainfall pattern (e.g., intensity, volume, and frequency) is consistent with the long-term mean of the area;

c) A year in which the runoff pattern resulting from the rainfall (e.g., rate, volume, and frequency) is consistent with the long-term mean of the area; or

d) Any combination of a), b) and c).

"Collection System Overflow(s)" means a discharge (SSO or CSO) to the environment at designed location(s) from the Authorized System.

“Combined Sewer(s)” means pipes that collect and transmit both sanitary Sewage and other Sewage from residential, commercial, institutional and industrial buildings, and facilities and Stormwater through a single-pipe system, but does not include Nominally Separate Sewers.

“Completion” means substantial performance as described in s.2 (1) of the *Construction Act*, R.S.O. 1990, c. C.30.

“Compound of Concern” means a Contaminant that is discharged from the Facility in an amount that is not negligible.

“Contaminant” has the same meaning as defined in section 1 of the EPA.

“CSO” means a combined sewer overflow which is a discharge to the environment at designated location(s) from a Combined Sewer or Partially Separated Sewer as per Table B4 that usually occurs as a result of precipitation when the capacity of the Sewer is exceeded. An intervening time of twelve hours or greater separating a CSO from the last prior CSO at the same location is considered to separate one overflow Event from another.

"CWA" means the *Clean Water Act*, R.S.O. 2006, c.22.

“Design Criteria” means the design criteria set out in the Ministry’s publication “Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval”, (as amended from time to time).

“Design Guidelines for Sewage Works” means the Ministry document titled “Design Guidelines for Sewage Works”, 2008 (as amended from time to time).

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of EPA (Environmental Compliance Approvals).

“Director Notification Form” means the most recent version of the Ministry form titled Director Notification – Alterations to a Municipal Sewage Collection System, as obtained directly from the Ministry or from the Ministry’s website.

"District Manager" means the district manager or a designated representative of the Local Ministry Office.

“Dry Weather Flow(s)” means Sewage flow resulting from both sanitary Sewage, and infiltration and inflows from foundation drains or other drains occurring during periods with an absence of rainfall or snowmelt.

"EAA" means the *Environmental Assessment Act*, R.S.O. 1990, c. E.18.

"EPA" means the *Environmental Protection Act*, R.S.O. 1990, c.E.19.

"Emergency Situation" means a structural, mechanical, electrical failure, or operational health and safety incident, that causes a temporary reduction in the capacity, function, or performance of any part of the Authorized System or an unforeseen flow condition that may result in:

a) Danger to the health or safety of any person;

b) Injury or damage to any property, or serious risk of injury or damage to any property;

c) Adverse Effect to the Natural Environment; or

d) Spill.

"Equipment" means equipment or processes described in this Approval and any other equipment or process that supports the operation or maintenance of the Authorized System.

"ESC" means erosion and sediment control.

"Event(s)" means an action or occurrence, at any given location within the Authorized System that causes a Collection System Overflow. An Event ends when there is no recurrence of a CSO or SSO in the Collection System at the same location in the 12-hour period following the last Collection System Overflow.

"Facility" means the entire operation located on the property where the Sewage Works or Equipment is located.

"Form A1" means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Equipment Discharging a Contaminant of Concern to the Atmosphere from a Municipal Sewage Collection System, as obtained directly from the Ministry or from the Ministry's website.

"Form CS1" means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Combined Sewers/Partially Separated Sewers/Combined Sewage Storage Tanks and Storage Structures as obtained directly from the Ministry or from the Ministry's website.

"Form SS1" means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Separate Sewers/Nominally Separate Sewers/Forcemains, as obtained directly from the Ministry or from the Ministry's website.

"Form SS2" means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Components of the Municipal Sewage Collection System, as obtained directly from the Ministry or from the Ministry's website.

"Hauled Sewage" has the same meaning as defined in section 1 of Regulation 347 (General – Waste Management) made under the EPA.

"Licensed Engineering Practitioner" means a person who holds a licence, limited licence, or temporary licence under the *Ontario Professional Engineers Act* R.S.O. 1990, c. P.28.

"Local Ministry Office" means the local office of the Ministry responsible for the geographic area where the Authorized System is located.

"Minister" means the Minister of the Ministry, or such other member of the Executive Council as may be assigned the administration of the EPA and OWRA under the *Executive Council Act*, R.S.O. 1990, c. E.25.

"Ministry" means the Ministry of the Minister and includes all employees or other persons acting on its behalf.

"Municipal Sewage Collection System" means all Sewage Works, located in the geographical area of a municipality that collect and transmit Sewage and are owned, or may be owned pursuant to an agreement with a municipality entered into under the *Planning Act* or *Development Charges Act*, 1997, by:

a) A municipality, a municipal service board established under the *Municipal Act*, 2001 or a city board established under the *City of Toronto Act*, 2006; or

b) A corporation established under sections 9, 10, and 11 of the *Municipal Act*, 2001 in accordance with section 203 of that Act or under sections 7 and 8 of the *City of Toronto Act*, 2006 in accordance with sections 148 and 154 of that Act.

"Natural Environment" has the same meaning as defined in section 1 of the EPA.

"Nominally Separate Sewer(s)" mean Separate Sewers that also have connections from roof leaders and foundation drains, and are not considered to be Combined Sewers.

"Operating Authority" means, in respect of the Authorized System, the person, entity, or assignee that is given responsibility by the Owner for the operation, management, maintenance or Alteration of the Authorized System or a portion of the Authorized System.

"Owner" for the purposes of this Approval The Corporation of the Municipality of Kincardine, and includes its successors and assigns.

"OWRA" means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40.

"O&M Manual" means the operation and maintenance manual prepared and maintained by the Owner under condition 3.2 in Schedule E of this Approval.

"Partially Separated Sewer(s)" means Combined Sewers that have been retrofitted to transmit sanitary Sewage but in which roof leaders or foundation drains still contribute Stormwater inflow to the Partially Separated Sewer.

"Peak Hourly Flow" means the the largest volume of flow to be received during a one-hour period expressed as a volume per unit time. This is also referred to as maximum hourly flow or maximum hour flow.

"Point of Entry" has same meaning as in the Wastewater Systems Effluent Regulations (SOR/2012-139) under the *Fisheries Act*, R.S.C 1985, c. F-14.

“Pollution Prevention and Control Plan” or “PPCP” means a plan developed for Combined Sewers in the Authorized System to meet the goals of Procedure F-5-5.

"Prescribed Person” means a person prescribed in O. Reg. 208/19 (Environmental Compliance Approval in Respect of Sewage Works) for the purpose of ss. 20.6 (1) of the EPA, and where the alteration, extension, enlargement, or replacement is carried out under an agreement with the Owner.

"Procedure F-5-1" means the Ministry document titled “F-5-1 Determination of Treatment Requirements for Municipal and Private Sewage Treatment Works” (as amended from time to time).

"Procedure F-5-5" means the Ministry document titled “F-5-5 Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer System” (as amended from time to time).

"Publication NPC-207" means the Ministry draft technical publication "Impulse Vibration in Residential Buildings", November 1983, supplementing the Model Municipal Noise Control By-Law, Final Report, August 1978, (as amended from time to time).

“Publication NPC-300” means the Ministry publication NPC-300, “Environmental Noise Guideline: Stationary and Transportation Sources – Approval and Planning” August 2013, (as amended from time to time).

“Pumping Station Capacity” means the design Peak Hourly Flow of Sewage which the Sewage pumping station is designed to handle.

“Real-time Control System” means the dynamic operation of the collection system, including Real-Time Physical Control Structures, by responding to continuous field monitoring to maintain and achieve performance and operational objectives, during dry and wet weather conditions.

“Real-time Physical Control Structure” means a structure (e.g., pumps, gates, and weirs) that reacts in real-time based on direction from the Real-Time Control System.

“Regulator Capacity” means the flowrate (m^3/s) at which Collection System Overflow begins.

“SAC” means the Ministry’s Spills Action Centre.

“SCADA” means a supervisory control and data acquisition system used for process monitoring, control, automation, recording, and/or reporting within the Sewage system.

“Schedule C Notice(s)” means a notice(s) of amendment to this Approval issued pursuant to clause 20.3(1) of the EPA that imposes terms and conditions in respect of the Authorized System after consideration of an application by the Director.

“Separate Sewer(s)” means pipes that collect and transmit sanitary Sewage and other Sewage from residential, commercial, institutional, and industrial buildings.

“Sewage” has the same meaning as defined in section 1 of the OWRA.

“Sewage Works” has the same meaning as defined in section 1 of the OWRA.

“Sewer” has the same meaning as defined in section 1 of O. Reg. 525/98 under the OWRA.

"Significant Drinking Water Threat" has the same meaning as defined in section 2 of the CWA.

“Significant Snowmelt Event(s)” means the melting of snow at a rate which adversely affects the performance and function of the Authorized System and/or the STP(s) identified in Schedule A of this Approval.

“Significant Storm Event(s)” means a minimum of 25 mm of rain in any 24 hours period.

“Source Protection Authority” has the same meaning as defined in section 2 of the CWA.

"Source Protection Plan" means a drinking water source protection plan prepared under the CWA.

“Spill(s)” has the same meaning as defined in subsection 91(1) of the EPA.

“SSO” means a sanitary sewer overflow which is a discharge of Sewage from a Separate Sewer or Nominally Separate Sewer to the environment from designated location(s) in the Authorized System as per Table B5.

“Standard Operating Policy for Sewage Works” means the standard operating policy developed by the Ministry to assist in the implementation of Source Protection Plan policies related to Sewage Works and providing minimum design and operational standards and considerations to mitigate risks to sources of drinking water, as amended from time to time.

“Storm Sewer” means Sewers that collect and transmit, but not exfiltrate or lose by design, Stormwater resulting from precipitation and snowmelt.

“Stormwater” means rainwater runoff, water runoff from roofs, snowmelt, and surface runoff.

“Stormwater Management Facility(ies)” means a Facility for the treatment, retention, infiltration, or control of Stormwater.

“STP” means sewage treatment plant.

“STP Bypass(es)” means diversion of Sewage around one or more treatment processes, excluding preliminary treatment system, within the STP with the diverted Sewage flows being returned to the STP treatment train upstream of the

final effluent sampling point(s) and discharged via the approved effluent disposal facilities.

“STP Overflow(s)” means a discharge to the environment from the STP at designed location(s) other than the approved effluent disposal facilities or via the effluent disposal facilities downstream of the final effluent sampling point.

“Uncommitted Reserve Hydraulic Capacity” means uncommitted reserve capacity as described in the Ministry document titled “D-5-1 Calculating and Reporting Uncommitted Reserve Capacity at Sewage and Water Treatment Plants” (as amended from time to time).

"Undertaking" has the same meaning as in the EAA.

“Vulnerable Area(s)” has the same meaning as in the CWA.

“Wet Weather Flow(s)” means the flow resulting from the combination of sanitary Sewage and extraneous flows resulting from the inflow and infiltration of groundwater, rainfall or snowmelt, and snow or ice melt that enters the Authorized System.

2.0 General Conditions

2.1 The works comprising the Authorized System shall be constructed, installed, used, operated, maintained, replaced, or retired in accordance with the conditions of this Approval, which includes the following Schedules:

Schedule A – System Information

Schedule B – Municipal Sewage Collection System Description

Schedule C – List of Notices of Amendment to this ECA

Schedule D – General

Schedule E – Operating Conditions

Schedule F – Residue Management

2.2 The issuance of this Approval does not negate the requirements of other regulatory bodies, which includes but is not limited to, the Ministry of Northern Development, Mines, Natural Resources and Forestry and the local Conservation Authority.

2.3 Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence. Where there is a conflict between the information in a Schedule C Notice and another section of this Approval, the document bearing the most recent date shall prevail.

2.4 The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Authorized System is provided with a print or electronic copy of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

2.5 The conditions of this Approval are severable. If any condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

3.0 Alterations to the Municipal Sewage Collection System

3.1 Any Schedule C Notice shall provide authority to alter the Authorized System in accordance with the conditions of this Approval.

3.2 All Schedule C Notices issued by the Director for the Municipal Sewage Collection System shall form part of this Approval.

3.3 The Owner and a Prescribed Person shall ensure that the documentation required through conditions in this Approval and the documentation required in the Design Criteria are prepared for any Alteration of the Authorized System.

3.4 The Owner shall notify the Director within thirty (30) calendar days of the placing into service or Completion of any Alteration of the Authorized System which had been authorized:

3.4.1 Under Schedule D to this Approval where the Alteration results in a change to Sewage Works or Equipment specifically described in Schedule B of this Approval;

3.4.2 Through a Schedule C Notice respecting Sewage Works other than Sewers or forcemains; or

3.4.3 Through another approval that was issued under the EPA prior to the issue date of this Approval.

3.5 The notification requirements set out in condition 3.4 do not apply to any Alteration in respect of the Authorized System which:

3.5.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98;

3.5.2 Constitutes maintenance or repair of the Authorized System; or

3.5.3 Is a Sewer or forcemain authorized by condition 4.1 of Schedule D of this Approval.

3.6 The Owner shall notify the Director within ninety (90) calendar days of:

3.6.1 The discovery of existing Sewage Works not described or depicted in Schedule B, or

3.6.2 Additional or revised information becoming available for any Sewage Works or Equipment described in Schedule B of this Approval.

3.7 The notifications required in condition 3.4 and 3.6 shall be submitted to the Director using the Director Notification Form.

3.8 The Owner shall ensure that an ESC plan is prepared, and temporary ESC measures are installed in advance of and maintained during any construction activity on the Authorized System, subject to the following conditions:

3.8.1 Inspections of ESC measures are to be conducted at a frequency specified per the ESC plan, for dry weather periods (active and inactive construction phases), after Significant Storm Events and Significant Snowmelt Events, and after any extreme weather events.

3.8.2 Any deficiencies shall be addressed, and any required maintenance actions(s) shall be undertaken as soon as practicable once they have been identified.

3.8.3 Inspections and maintenance of the temporary ESC measures shall continue until they are no longer required.

3.8.4 The ESC plan, ESC measures and its installation, inspections and maintenance shall have regard to at least one of the following:

a) CSA W202 Erosion and Sediment Control Inspection and Monitoring Standard, as amended from time to time;

b) Erosion and Sediment Control Guideline for Urban Construction (2019), as amended from time to time, prepared by the Toronto Region Conservation Authority; or

c) CSA W208 Erosion and Sediment Control Installation and Maintenance, as amended from time to time.

3.9 The Owner shall ensure that records of inspections required by this Approval during any construction activity, including those required under condition 3.8:

3.9.1 Include the name of the inspector, date of inspection, visual observations, and the remedial measures, if any, undertaken to maintain the temporary ESC measures.

3.9.2 Be retained with records relating to the Alteration that the construction relates to, such as the form required in conditions 4.3.1, 5.4.1, 6.9.1, or 7.6.1 of Schedule D, or the Schedule C Notice.

3.9.3 Be retrievable and made available to the Ministry upon request.

3.10 The document(s) or file(s) referenced in Table B1 of Schedule B of this Approval shall:

3.10.1 Be retained by the Owner;

3.10.2 Include at a minimum:

a) Identification of the type of Sewers in the Municipal Sewage Collection System (e.g., Separate Sewer; Combined Sewer; Partially Separated Sewer; Nominally Separate Sewer) including:

i Location of Sewers relative to street names or easements;

ii Sewer and/or forcemain diameters;

iii Identification of pumping stations and storage structures, including asset IDs;

iv Identification of SSO and/or CSO locations, including asset IDs;

v Identification of small-bore systems, if any; and

vi Identification of any source protection Vulnerable Areas.

3.10.3 Be updated to include:

a) Alterations authorized under Schedule D of this Approval or through a Schedule C Notice within twelve (12) months of the Alteration being placed into service.

b) Updates to information contained in the document(s) or files(s) not associated with an Alteration within twelve (12) months of becoming aware of the updated information.

3.11 An Alteration is not authorized under Schedule D of this ECA for projects that impact Indigenous treaty rights or asserted rights where:

3.11.1 The project is on Crown land or would alter access to Crown land;

3.11.2 The project is in an open or forested area where hunting, trapping or plant gathering occur;

3.11.3 The project involves the clearing of forested land unless the clearing has been authorized by relevant municipal, provincial, or federal authorities, where applicable;

3.11.4 The project alters access to a water body;

3.11.5 The proponent is aware of any concerns from Indigenous communities about the proposed project and these concerns have not been resolved; or

3.11.6 Conditions respecting Indigenous consultation in relation to the project were placed in another permit or approval and have not been met.

3.12 No less than 60 days prior to construction associated with an Alteration the Director may notify the Owner in writing that a project is not authorized through Schedule D of this ECA where:

3.12.1 Concerns regarding treaty rights or asserted rights have been raised by one or more Indigenous communities that may be impacted by the Alteration; or

3.12.2 The Director believes that it is in the public interest due to site specific, system specific, or project specific considerations.

3.13 Where an Alteration is not authorized under condition 3.11 or 3.12 above:

3.13.1 An application respecting the Alteration shall be submitted to the Ministry; and,

3.13.2 The Alteration shall not proceed unless:

a) Approval for the Alteration is granted by the Ministry (i.e., a Schedule C Notice); or,

b) The Director provides written notice that the Alteration may proceed in accordance with conditions in Schedule D of this ECA.

4.0 Authorizations of Future Alterations for Separate Sewers, Nominally Separate Sewers and Forcemains - Additions, Modifications, Replacements and Extensions

4.1 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, replacing, or extending a Separate Sewer, Nominally Separate Sewer or forcemain within the Authorized System subject to the following conditions and condition 4.2 below:

4.1.1 The design of the addition, modification, replacement, or extension:

a) Has been prepared by a Licensed Engineering Practitioner;

b) Has been designed only to collect and transmit Sewage and has not been designed to treat Sewage;

c) Satisfies the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria;

d) Is consistent with or otherwise addresses the design objectives contained within the Design Guidelines for Sewage Works; and

e) Includes design considerations to protect sources of drinking water, including those set out in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies.

4.1.2 The addition, modification, replacement, or extension shall be designed so that it will:

a) Not cause overflows or backups nor increase surcharging at any maintenance holes or privately owned infrastructure (e.g., service connections to basements) connected to the Authorized System or any Municipal Sewage Collection System connected to it;

b) Provide smooth flow transition to existing gravity Sewers; and

c) Not increase the generation of sulfides and other odourous compounds in the Municipal Sewage Collection System.

4.1.3 The maximum discharge/generation of Sewage by users who will be served by the addition, modification, replacement, or extension will not result in:

a) An exceedance of the Authorized System hydraulic capacity, STP Uncommitted Reserve Hydraulic Capacity, or the downstream Pumping Station Capacity as specified in this Approval;

b) Adverse Effects;

c) Any increase in Collection System Overflows that is not offset by measures; or

d) Any increase in the frequency or volume of STP Bypasses or STP Overflows that is not offset by measures.

4.1.4 The addition, modification, replacement, or extension is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent municipality respecting the Alteration and resulting Sewage Works.

4.1.5 The Owner consents in writing to the addition, modification, replacement, or extension.

4.1.6 A Licensed Engineering Practitioner has verified in writing that the addition, modification, replacement, or extension meets the requirements of conditions 4.1.1 a) to d).

4.1.7 The Owner has verified in writing that the addition, modification, replacement, or extension has complied with inspection and testing requirements in the Design Criteria.

4.1.8 The Owner has verified in writing that the addition, modification, replacement, or extension meets the requirements of conditions 4.1.4 e) and 4.1.2 to 4.1.6.

4.2 The Owner or a Prescribed Person is not authorized to undertake an Alteration described above in condition 4.1 where the Alteration relates to the addition,

modification, replacement or extension of a Separate Sewer, Nominally Separate Sewer, or forcemain that:

4.2.1 Passes under or through a body of surface water unless trenchless construction methods are used, or the local Conservation Authority has authorized an alternative construction method.

4.2.2 Has a nominal diameter greater than 750 mm for a Separate Sewer or Nominally Separate Sewer.

4.2.3 Has a nominal diameter greater than 350 mm for a forcemain.

4.2.4 Is a Combined Sewer or Partially Separated Sewer.

4.2.5 Connects to another Municipal Sewage Collection System, unless:

a) Prior to construction, the Owner of the Authorized System obtains written consent from the Owner or Owner's delegate of the Municipal Sewage Collection System being connected to; and

b) The Owner of the Authorized System retains a copy of the written consent from the Owner or Owner's delegate of the Municipal Sewage Collection System being connected to as part of the record that is recorded and retained under condition 4.3.

4.2.6 Creates a new discharge point to the Natural Environment.

4.2.7 Is part of an Undertaking in respect of which:

a) A request under s.16(6) of the EAA has been made, namely a request that the Minister make an order under s.16;

b) The Minister has made an order under s.16; or

c) The Director under that EAA has given notice under s.16.1 (2) that the Minister is considering making an order under s.16.

4.3 The consents and verifications required in conditions 4.1 and 4.2, if applicable, shall be:

4.3.1 Recorded on Form SS1 prior to the Separate Sewer, Nominally Separate Sewer or forcemain addition, modification, replacement, or extension being placed into service; and

4.3.2 Retained for a period of at least ten (10) years by the Owner.

4.4 For greater certainty, the verification requirements set out in condition 4.3 do not apply to any Alteration in respect of the Authorized System which:

4.4.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or

4.4.2 Constitutes maintenance or repair of the Authorized System.

5.0 Authorizations of Future Alterations for Combined Sewers, Partially Separated Sewers and Combined Sewage Storage Tanks and Storage Structures

5.1 Subject to conditions 5.2 and 5.3, the Owner or a Prescribed Person may alter the Combined Sewers, Partially Separated Sewers and combined Sewage storage tanks and storage structures in the Authorized System by:

5.1.1 Modifying or replacing Combined Sewers, Partially Separated Sewers, overflow Regulators and/or outfalls if the purpose of the project is to restore the Sewage Works to good condition.

5.1.2 Replacing Combined Sewers with Separate Sewers for Stormwater and sanitary Sewage.

5.1.3 Modify or replace Combined Sewers, Partially Separated Sewers, overflow regulators, outfalls, or combined Sewage storage tanks, provided that:

a) The Alteration is designed in such a manner that will contribute to the ultimate attainment of the capture and treatment for an Average Year all the Dry Weather Flow plus a minimum of 90% of the volume resulting from Wet Weather Flow that is above Dry Weather Flow;

b) The volume control criterion described in 5.1.3 a) is applied:

i For a consecutive seven (7) month period commencing within fifteen (15) calendar days of April 1; and

ii To the flows collected by the Authorized System immediately above each Collection System Overflow location unless it can be shown through modelling that the criterion is being achieved on a system-wide basis.

c) The Alteration is designed in a manner that will not increase CSO volumes above existing levels at each outfall except where the increase is due to the elimination of upstream CSO outfalls as part of the Alteration; and

d) During the remainder of the year following the seven (7) month period described in condition 5.1.3 b) above, at least the same storage and treatment capacity are maintained for treating Wet Weather Flow.

5.1.4 Add oversized pipes provided they are designed to alleviate local / neighbourhood basement flooding and the Alteration satisfies condition 5.1.3 a), b), c), and d).

5.2 Any Alteration to the Authorized System authorized under condition 5.1 is subject to the following conditions:

5.2.1 The design of the Alteration shall:

a) Be prepared by a Licensed Engineering Practitioner;

b) Be designed only to collect and transmit Sewage and shall not be designed to treat Sewage;

c) Satisfy the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria;

d) Be consistent with or otherwise address the design objectives contained within the Design Guidelines for Sewage Works; and

e) Include design considerations to protect sources of drinking water, including those set out in the Standard Operating Policy for Sewage Works and any applicable local Source Protection Plan policies.

5.2.2 The design of the Alteration shall be:

a) Undertaken in accordance with a Pollution Prevention and Control Plan; or

b) If no Pollution Prevention and Control Plan is available, undertaken in accordance with an interim detailed plan for the local sewershed that:

i Describes the location, frequency, and volume of the CSOs, as well as the concentrations and mass pollutant loadings resulting from CSOs from the study area.

ii Includes the following minimum information:

1. Location and physical description of CSO outfalls in the Authorized System, Collection System Overflows at pumping stations in Emergency Situations, STP Bypass and STP overflows locations;
2. Location and identification of receiving water bodies, including sensitive receivers, for all Combined Sewer outfalls;
3. Authorized System flow and STP treatment component capacities, present and future expected peak flow rates during dry weather and wet weather;
4. Capacity of all regulators; and
5. Location of cross connections between Sewage and Stormwater infrastructure.

iii Is intended to reduce the overall CSO volume, frequency, duration, or by-pass of treatment in the Authorized and/or municipal STP; and

iv If there is a temporary Storm Sewer connection to a combined system as part of a Combined Sewer separation project, the construction plan includes a timeline to disconnect the Storm Sewer to a separated storm outlet.

5.2.3 The Alteration shall not result in:

a) An exceedance of hydraulic capacity of the Authorized System, STP Uncommitted Reserve Hydraulic Capacity, or the Pumping Station Capacity as specified in this Approval;

b) Adverse Effects;

c) Any increase in Collection System Overflows that is not offset by measures elsewhere in the Authorized System; or

d) Any increase in the frequency and/or volume of STP Bypasses or STP Overflows that is not offset by measures.

5.2.4 Where replacement of pipes to achieve Combined Sewer separation has been authorized under conditions 5.1.2 or 5.1.3, the following conditions apply:

a) Stormwater quantity, quality and water balance control shall be provided such that Combined Sewer separation shall not result in an overall increase in pollutants discharged to the Natural Environment;

b) Any new Storm Sewers that result from the Combined Sewer separation can be constructed but not operated until the proposed Stormwater Management Facilities designed to satisfy condition 5.2.4 a) are in operation; and

c) Where any temporary structures have been installed to facilitate Combined Sewer separation, the Owner shall ensure that immediately upon Completion of the Combined Sewer separation, the temporary structure connection shall be disconnected and decommissioned.

5.2.5 The Alteration shall:

a) Not cause overflows or backups nor increase surcharging at any maintenance holes or privately owned infrastructure (e.g., service connections to basements) connected to the Authorized System or any Municipal Sewage Collection System connected to it;

b) Provide smooth flow transition to existing gravity sewers; and

c) Not increase the generation of sulfides and other odourous compounds in the Authorized System.

5.2.6 The Alteration is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent municipality respecting the Alteration and resulting Sewage Works.

5.2.7 The Owner consents in writing to the Alteration authorized under condition 5.1.

5.2.8 A Licensed Engineering Practitioner has verified in writing that the Alteration authorized under condition 5.1 meets the design requirements of conditions 5.2.1 a) to e) and to 5.2.2.

5.2.9 The Owner has verified in writing that the Alteration authorized under condition 5.1 has complied with inspection and testing requirements in the Design Criteria.

5.2.10 The Owner has verified in writing that the Alteration authorized under condition 5.1 meets the requirements of conditions 5.2.1 f) and 5.2.3 to 5.2.8.

5.3 The authorization in condition 5.1 does not apply:

5.3.1 To the modification or replacement of a Combined Sewer or Partially Separated Sewer that has a nominal diameter greater than 750 mm.

5.3.2 To the modification or replacement of a Combined Sewer or Partially Separated Sewer that connects to another Municipal Sewage Collection System, unless:

a) Prior to construction, the Owner of the Authorized System seeking the connection obtains written consent from the Owner or Owner's delegate of the Municipal Sewage Collection System being connected to; and

b) The Owner of the Authorized System retains a copy of the written consent from the Owner or Owner's delegate of the Municipal Sewage Collection System being connected to as part of the record that is recorded and retained under condition 5.4.

5.3.3 Where the Alteration would create a new discharge point to the Natural Environment.

5.3.4 Where the Alteration would result in the addition of a new combined Sewage storage tank in the Authorized System.

5.4 The consents and verifications required in conditions 5.2.7 to 5.2.10, and 5.3.2 if applicable, shall be:

5.4.1 Recorded on Form CS1, prior to the Combined Sewer or Partially Separated Sewer modification or replacement being placed into service; and

5.4.2 Retained for a period of at least ten (10) years by the Owner.

5.5 For greater certainty, the verification requirements set out in condition 5.4 do not apply to any Alteration in respect of the Authorized System which:

5.5.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or,

5.5.2 Constitutes maintenance or repair of the Authorized System.

6.0 Authorizations of Future Alterations to Components of the Municipal Sewage Collection System

6.1 The Owner or a Prescribed Person may make the following Alterations to the Authorized System subject to conditions 6.4 through 6.7:

6.1.1 Adding, modifying, or replacing storage the following components of Sewage pumping stations, Separate Sewers, or Nominally Separate Sewers:

a) In-line and/or off-line storage to manage peak flow / inflow and infiltration that does not require pumping;

b) Off-line storage to manage peak flow / inflow and infiltration that only requires electricity to empty the structure;

c) Any associated Equipment for cleaning; and

d) All Appurtenances associated with in-line or off-line storage facilities, including odour, and corrosion control.

6.1.2 Modifying existing Sewage pumping stations and odour control units / Facilities, including adding, replacing, or modifying the following components:

a) Pumps, including replacement parts, in an existing pumping system;

b) Grinders and screens;

c) Aeration and/or mixing Equipment;

d) Chemicals and associated Equipment and tanks (including secondary containment);

e) Odour and corrosion control structures;

f) Instrumentation and controls;

g) Discharge and process piping;

h) Valves;

i) Wet-wells; and

j) Fat, oil, and grease separators (FOGs).

6.1.3 Adding new Sewage pumping stations, where they:

a) Are designed to transmit a Peak Hourly Flow of no greater than 30 L/s;

b) Include emergency stand-by power, Spill containment, and emergency alarms (SCADA, if applicable);

c) Include emergency storage designed to provide at minimum two (2) hours of response time at peak design flow;

d) Include odour and corrosion control, as applicable;

e) Would serve a new residential development (or new phased residential development), which may include existing residential development that has no Combined or Partially Separated Sewers;

f) Are designed to only collect sanitary Sewage and not Stormwater; and

g) Do not include an emergency sanitary overflow or piping to a municipal Stormwater management system or a natural receiver to prevent the discharge to the Natural Environment.

6.1.4 Adding, modifying, or replacing Equipment associated with Real-time Control Systems, where:

a) The Equipment is designed and implemented as part of the Owner's CSO reduction strategy or to optimize use of Sewage Works comprising the Authorized System;

b) The Real-Time Control System is designed and integrated with fail-safe procedures such that they are automatically activated when the requirements of the current mode of operation cannot be met;

c) Risk management procedures are in place or will be in place prior to use of the Real-time Control System; and

d) Station alarms to control center are in place or will be in place prior to use of the Real-time Control System.

6.1.5 Adding, modifying, replacing, or removing chemical storage tanks (including fuel storage tanks) with Spill containment and associated Equipment.

6.1.6 Adding, modifying, replacing, or removing Motor Control Centre (MCC) and/or associated electrical.

6.2 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, replacing, or removing the following components subject to conditions 6.4 through 6.7:

6.2.1 Valves and their associated controls installed for maintenance purposes;

6.2.2 Instrumentation for monitoring and controls, including SCADA systems, and hardware associated with these monitoring devices;

6.2.3 Spill containment works for chemicals used within the Authorized System;

6.2.4 Chemical metering pumps and chemical handling pumps;

6.2.5 Measuring and monitoring devices that are not required by regulation, by a condition in this Approval, or by a condition otherwise imposed by the Ministry;

6.2.6 Process piping within a Sewage pumping station, storage tank, or other structures; and

6.2.7 Valve chambers or maintenance holes.

6.3 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, or replacing the following components subject to conditions 6.4 through 6.7:

6.3.1 Measuring and monitoring devices that are required by regulation, by a condition in this Approval, or by a condition otherwise imposed by the Ministry.

6.4 The design of the Alteration shall:

6.4.1 Be prepared by a Licensed Engineering Practitioner, where the Alteration falls within the practice of professional engineering as defined in the *Professional Engineers Act*, R.S.O. 1990;

6.4.2 Be consistent with or otherwise address the design objectives contained within the Design Guidelines for Sewage Works; and

6.4.3 Include design considerations to protect sources of drinking water, such as those included in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies.

6.5 The Alteration shall:

6.5.1 Not cause overflows or backups nor increase surcharging at any maintenance holes or privately owned infrastructure (e.g., service connections to basements) connected to the Authorized System or any Municipal Sewage Collection System connected to it;

6.5.2 Provide smooth flow transition to existing gravity Sewers;

6.5.3 Not increase the generation of sulfides and other odourous compounds in the Authorized System; and

6.5.4 Be wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent municipality respecting the Alteration and resulting Sewage Works.

6.6 Any Alteration of the Authorized System made under conditions 6.1, 6.2, or 6.3 shall not result in:

6.6.1 Exceedance of hydraulic capacity (including Uncommitted Reserve Hydraulic Capacity, as applicable) of the downstream:

a) Municipal Sewage Collection System; or

b) Receiving STPs.

6.6.2 Exceedance of any downstream Pumping Station Capacity as specified in Schedule B of this Approval.

6.6.3 An increase in the capacity of an existing Pumping Station Capacity of greater than 30%.

6.6.4 Any increase in Collection System Overflows that is not offset by measures taken elsewhere in the Authorized System.

6.6.5 Any increase in the frequency and/or volume of STP Bypasses or STP Overflows that is not offset by measures.

6.6.6 Deterioration of the normal operation of municipal STPs and/or the Authorized System.

6.6.7 A negative impact on the ability to undertake monitoring necessary for the operation of the Authorized System.

6.6.8 Adverse Effects.

6.7 The Alteration is subject to the following conditions:

6.7.1 The Owner consents in writing to the Alteration.

6.7.2 The person responsible for the design has verified in writing that the Alterations meets the requirements of conditions 6.4.1 and 6.4.2, as applicable.

6.7.3 The Owner has verified in writing that the Alteration meets the requirements of conditions 6.4.3, 6.7.1, and 6.7.2.

6.8 The Owner shall verify in writing that any Alteration of the Authorized System in accordance with conditions 6.1 or 6.2 has met the requirements of the conditions listed in conditions 6.5 and 6.6.

6.9 The consents, verifications and documentation required in conditions 6.7 and 6.8 shall be:

6.9.1 Recorded on Form SS2 prior to undertaking the Alteration; and

6.9.2 Retained for a period of at least ten (10) years by the Owner.

6.10 For greater certainty, the verification requirements set out in condition 6.9 do not apply to any Alteration in respect of the Authorized System which:

6.10.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or

6.10.2 Constitutes maintenance or repair of the Authorized System, including changes to software for an existing SCADA system resulting from Alterations authorized in condition 6.2.

6.11 The Owner shall update, within twelve (12) months of the Alteration of the Sewage Works being placed into service, any drawings maintained for the Municipal Sewage Collection System to reflect the Alterations of the Sewage Works, where applicable.

7.0 Authorizations of Future Alterations to Equipment with Emissions to the Air

7.1 The Owner and a Prescribed Person may alter the Authorized System by adding, modifying, or replacing the following Equipment in the Municipal Sewage Collection System:

7.1.1 Venting for odour control using solid scavenging or carbon adsorption units;

7.1.2 Venting for odour control by replacing existing or wet air scrubbing systems, including any components, with Equipment of the same or better performance characteristics; and

7.1.3 Emergency generators that fire No. 2 fuel oil (diesel fuel) with a sulphur content of 0.5 per cent or less measured by weight, natural gas, propane, gasoline, or biofuel, and that are used for emergency duty only with periodic testing.

7.2 Any Alteration of the Municipal Sewage Collection System made under condition 7.1 that may discharge or alter the rate or manner of a discharge of a Compound of Concern to the atmosphere is subject to the following conditions:

7.2.1 The Owner shall, at all times, take all reasonable measures to minimize odorous emissions and odour impacts from all potential sources at the Facility.

7.2.2 The Owner shall ensure that the noise emissions from the Facility comply with the limits set out in Publication NPC-300.

7.2.3 The Owner shall ensure that the vibration emissions from the Facility comply with the limits set out in Publication NPC-207.

7.3 The Owner shall not add, modify, or replace Equipment in the Municipal Sewage Collection System as set out in condition 7.1 unless the Equipment performs an activity that is directly related to municipal Sewage collection and transmission.

7.4 The emergency generators identified in condition 7.1.3 shall not be used for non-emergency purposes (excluding generator testing) including the generation of electricity for sale or for peak shaving purposes.

7.5 The Owner shall verify in writing that any addition, modification, or replacement of Equipment in accordance with condition 7.1 has met the requirements of the conditions listed in conditions 7.2, 7.3, and 7.4.

7.6 The verifications and documentation required in condition 7.5 shall be:

7.6.1 Recorded on Form A1 prior to the additional, modified or replacement Equipment being placed into service; and

7.6.2 Retained for a period of at least ten (10) years by the Owner.

7.7 For greater certainty, the verification and documentation requirements set out in condition 7.5 and 7.6 do not apply to any addition, modification, or replacement in respect of the Authorized System which:

7.7.1 Is exempt from the requirements of the EPA, or for Equipment that is exempt from s.9 of the EPA under O. Reg. 524/98; or

7.7.2 Constitutes maintenance or repair of the Authorized System.

8.0 Previously Approved Sewage Works

8.1 If approval for an Alteration to the Authorized System was issued under the EPA and is revoked by this Approval, the Owner may make the Alteration in accordance with:

8.1.1 The terms of this Approval; or

8.1.2 The terms and conditions of the revoked approval as of the date this approval was issued, provided that the Alteration is commenced within five (5) years of the date that the revoked approval was issued.

9.0 Transition

9.1 An Alteration of the Authorized System is exempt from the requirements in clause (c) of condition 4.1.1 and clause (c) of condition 5.2.1 where:

9.1.1 Effort to undertake the Alteration, such as tendering or commencement of construction of the Sewage Works associated with the Alteration, begins on or before June 14, 2023.

9.1.2 The design of the Alteration conforms to the Design Guidelines for Sewage Works;

9.1.3 The design of the Alteration was completed on or before the issue date of this Approval or a Class Environmental Assessment was completed for the Alteration and changes to the design result in significant cost increase or significant project delays; and

9.1.4 The Alteration would be otherwise authorized under this Approval.

Schedule E: Operating Conditions

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-W601**
System Name	**Kincardine and BEC Wastewater Collection System**
ECA Issue Date	**November 10th, 2022**

1.0 General Operations

1.1 The Owner shall ensure that, at all times, the Sewage Works comprising the Authorized System and the related Equipment and Appurtenances used to achieve compliance with this Approval are properly operated and maintained.

1.2 Prescribed Persons and Operating Authorities shall ensure that, at all times, the Sewage Works under their care and control and the related Equipment and Appurtenances used to achieve compliance with this Approval are properly operated and maintained.

1.3 In conditions 1.1 and 1.2 “properly operated and maintained” includes effective performance, adequate funding, adequate operator staffing and training, including training in applicable procedures and other requirements of this Approval and the EPA, OWRA, CWA, and regulations, adequate laboratory services, process controls and alarms and the use of process chemicals and other substances used in the Authorized System.

2.0 Duties of Owners and Operating Authorities

2.1 The Owner, Prescribed Persons and any Operating Authority shall ensure the following:

2.1.1 At all times that the Sewage Works within the Authorized System are in service the Sewage Works are:

a) Operated in accordance with the requirements under the EPA and OWRA, and

b) Maintained in a state of good repair.

2.1.2 The Authorized System is operated by persons having the training or expertise for their operating functions that is required by O. Reg. 129/04 (Licensing of Sewage Works Operators) under the OWRA and this Approval.

2.1.3 All sampling, testing, monitoring, and reporting requirements under the EPA and this Approval that relate to the Authorized System are complied with.

2.1.4 Any person who is operating the Sewage Works within the Authorized System is supervised by an operator-in-charge as described in O. Reg. 129/04 under the OWRA.

2.2 For clarity, the requirements outlined in the above conditions 2.1.1 through 2.1.4 for Prescribed Persons and any Operating Authority only apply to Sewage Works within the Authorized System where they are responsible for the operation.

2.3 The Owner, Prescribed Persons and Operating Authority shall take all reasonable steps to minimize and ameliorate any Adverse Effect on the Natural Environment or impairment of the quality of water of any waters resulting from the operation of the Authorized System, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

3.0 Operations and Maintenance

3.1 Inspection

3.1.1 The Owner shall ensure that all Sewage Works within the Authorized System are inspected at the frequency and in accordance with procedures set out in their O&M Manual.

3.1.2 The Owner shall ensure that:

a) Any pumping stations, combined Sewage storage tanks, and any Collection System Overflow within the Authorized System as of the date of issuance of this Approval are inspected at least once per calendar year starting the year after the O&M Manual is required to be prepared and implemented as per condition 3.2.1 in Schedule E of this Approval, and more frequently if required by the O&M Manual; and

b) Any pumping stations, combined Sewage storage tanks, and any Collection System Overflow established or replaced within the Authorized System after the date of issuance of this Approval are inspected within one year of being placed into service and thereafter once per calendar year and more frequency if required by the O&M Manual.

3.1.3 The inspection of the combined Sewage storage tanks required in condition 3.1.2 shall include physical inspection at the Point of Entry, including looking for signs of unplanned discharges from Wet Weather Flow and Dry Weather Flow.

3.1.4 The Owner shall clean and maintain Sewage Works within the Authorized System to ensure the Sewage Works perform as designed.

3.1.5 The Owner shall maintain records of the results of the inspections required in condition 3.1.1, 3.1.2, and 3.1.3, monitoring (if applicable) and any cleaning and maintenance operations undertaken, and shall make

available the records for inspection by the Ministry upon request. The records shall include the following:

a) Asset ID and name of the Sewage Works;

b) Date and results of each inspection, maintenance, or cleaning; and

c) Name of person who conducted the inspection, maintenance, or the name of the inspecting official, where applicable.

3.2 Operations & Maintenance (O&M) Manual

3.2.1 The Owner shall prepare and implement an operations and maintenance manual for Sewage Works within the Authorized System on or before June 14, 2023, that includes or references, but is not necessarily limited to, the following information:

a) Procedures for the routine operation of the Sewage Works;

b) Inspection programs, including the frequency of inspection, and the methods or tests employed to detect when maintenance is necessary;

c) Maintenance and repair programs, including:

i The frequency of maintenance and repair for the Sewage Works.

ii Clean out requirements for any storage or overflow tanks, if applicable.

d) Operational and maintenance requirements to protect sources of drinking water, such as those included in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies;

e) Procedures for routine physical inspection and checks of controlling systems (e.g., SCADA) to ensure the mechanical integrity of Equipment and its accuracy on the controlling system.

f) Procedures for preventing odours and odour impacts;

g) Procedures for calibration of monitoring Equipment (e.g., flow, level, pressure);

h) Emergency Response, Spill Reporting and Contingency Plans and Procedures for dealing with Equipment breakdowns, potential Spills and any other abnormal situations, including notification to the SAC, the Medical Officer of Health, and the District Manager, as applicable;

i) Procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken; and

j) As-built drawings or record drawings of the Sewage Works.

3.2.2 The Owner shall review and update the O&M Manual and ensure that operating staff have access, as per O. Reg 129/04 (Licensing of Sewage Works Operators) under the OWRA. Upon request, the Owner shall make the O&M Manual available to Ministry staff.

3.2.3 The Owner shall revise the O&M Manual to include procedures necessary for the operation and maintenance of any Sewage Works within the Authorized System that are established, altered, extended, replaced, or enlarged after the date of issuance of this approval prior to placing into service those Sewage Works.

3.2.4 For greater certainty, the O&M Manual may be a single document or a collection of documents that, when considered together, apply to all parts of the Authorized System.

3.3 Collection System Overflows

3.3.1 Any CSO at a point listed in Table B4 of Schedule B is considered a Class 1 approved discharge type Spill under O.Reg.675/98:

a) Where the CSO is as a result of wet weather events when the designed capacity of the Authorized System is exceeded;

b) Where the CSO is a direct and unavoidable result of a planned repair and/or maintenance procedure, the Owner has notified the Local Ministry Office fifteen at least (15) calendar days prior to the CSO and the Local Ministry Office has provided written consent of the CSO; or

c) Where the CSO is planned for research or training purposes, the Owner has notified the Local Ministry Office fifteen at least (15) calendar days prior to the CSO and the Local Ministry Office has provided written consent of the CSO.

3.3.2 Any SSO at a point listed in Table B5 of Schedule B is considered a Class 1 approved discharge type Spill under O.Reg. 675/98:

a) Where the SSO is a direct and unavoidable result of a planned repair or maintenance procedure and the Owner has notified the Local Ministry Office at least fifteen (15) calendar days prior to the SSO and the Director for the purposes of s.4 of O. Reg. 675/98 under the EPA has provided written consent of the SSO; or

b) Where the SSO is planned for research or training purposes, the Owner has notified the Local Ministry Office at least fifteen (15) calendar days prior to the SSO and the Director for the purposes of

s.4 of O. Reg. 675/98 under the EPA has provided written consent of the SSO.

3.3.3 On or before June 14, 2025, the Owner shall establish signage to notify the public, at the nearest publicly accessible point(s) downstream of any CSO outfall location identified in Schedule B, Table B4, and any SSO when the overflow is piped to a specified outlet point. If the nearest publicly accessible point is more than 100m away, then signage shall be established at the CSO or SSO outfall location. The signage shall include the following minimum information:

a) Type of Collection System Overflow;

b) Identification of potential hazards and limitations of water use, as applicable;

c) ECA number and/or asset ID; and

d) The Owner's contact information.

3.4 Monitoring

3.4.1 For a Collection System Overflow that occurs at a designated location, the following conditions apply:

a) For CSO storage tanks/facilities listed in Table B3, the Owner shall:

i On or before December 14, 2022 or within six (6) months of the date of the publication of the Ministry's monitoring guidance, whichever is later, collect a composite sample of the combined Sewage from the CSO tank whenever the tank(s) is(are) in operation. If there is more than one tank, the tank nearest to the discharge point shall be sampled. The composite sample shall consist, at a minimum, of one sample at the beginning of the Event, and one sample at approximately every 8-hours until the end of the Event. The composite sample shall be analyzed, at a minimum, for Biochemical Oxygen Demand (BOD) (or Chemical Oxygen Demand (COD) if agreed upon by the District Manager), total suspended solids, total phosphorus and total Kjeldahl nitrogen. If the CSO continues for more than one day, multiple composite samples are allowed.

ii If 3.4.1 a) i) cannot be achieved, then surrogate sampling may be used to determine the contamination concentrations of the discharge CSO tank overflow, at a minimum, for BOD (or COD), total suspended solids, total phosphorus and total Kjeldahl nitrogen. The methodology in determining, applying, and analyzing surrogate sampling shall be proposed by the Owner and subject to the written approval of the District Manager.

b) For CSO regulator structures listed in Table B2, and for any CSO or SSO locations listed under Table B4 or Table B5, the Owner shall:

i On or before December 14, 2022 or within six (6) months of the date of publication of the Ministry's monitoring guidance, whichever is later, take at least one (1) grab sample, for BOD (or COD, if agreed upon by the District Manager), total suspended solids, total phosphorus, total Kjeldahl nitrogen, and E. Coli, or

ii On or before December 14, 2022 or within six (6) months of the date of publication of the Ministry's monitoring guidance, whichever is later, use surrogate sampling to determine the Contaminant concentrations of the discharged Collection System Overflow, at a minimum, for BOD (or COD), total suspended solids, total phosphorus, total Kjeldahl nitrogen, and E. Coli. The methodology in determining, applying, and analyzing surrogate sampling shall be proposed by the Owner and subject to the written approval of the District Manager.

c) The Owner shall use the Event discharged volume and the concentrations as determined in condition 3.4.1 to calculate the loading to the Natural Environment for each parameter.

3.4.2 For any Spill of Sewage that does not meet 3.4.1 a) or b):

a) Where practicable, take a least one (1) grab sample, for BOD (or COD, if agreed upon by the District Manager), total suspended solids, total phosphorus, total Kjeldahl nitrogen, and E. Coli

b) The Owner shall use the discharged volume, where possible, and the concentrations as determined in condition 3.4.2 a) to calculate the loading to the Natural Environment for each parameter.

3.4.3 If COD sampling was completed, the equivalent BOD values are required to be included with the data reported to the Ministry.

3.4.4 The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following documents and all analysis shall be conducted by a laboratory accredited to the ISO/IEC:17025 standard or as directed by the District Manager:

a) Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only)", as amended from time to time.

b) The Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), as amended from time to time.

c) The publication "Standard Methods for the Examination of Water and Wastewater", as amended from time to time.

4.0 Reporting

4.1 The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

4.2 Collection System Overflows

4.2.1 If the Collection System Overflow meets the criteria listed in condition 3.3.1 or 3.3.2:

a) The Owner shall report the Event as a Class 1 approved discharge type Spill as soon as practicable to the Ministry either by a verbal to SAC or in an electronic format if the Ministry makes a system available;

b) The Owner shall report the Event to the local Medical Officer of Health in a manner agreed upon with the local Medical Officer of Health;

c) The manner of notification to the Ministry shall be in two (2) stages and include, at a minimum, the following information:

i The Asset ID, infrastructure description as detailed in Table B5 in Schedule B, the outfall location, and the Point of Entry (as applicable), and the reason(s) for the Event.

ii First stage of reporting:

a. The date and time (start) of the Event.

iii Second stage of reporting (as soon as practicable and may be reported at same time as first stage):

a. The date, duration, and time (start and end) of the Event;

b. The estimated or measured volume of the Event, accurate to at least +/- 20% of the volume;

i. If the volume of the Event is not readily available at the time of the second stage of reporting, the estimated volume can be provided to the Ministry within seven (7) calendar days of the second stage of reporting;

c. If any, summary of complaints, observed adverse impacts, any additional sampling obtained, disinfection, and any corrective measures taken;

d) Upon request of the local office, the Owner shall within fifteen (15) calendar days of the occurrence of any Collection System Overflow, the Owner shall submit a full written report of the occurrence to the District Manager describing the cause and discovery of the Collection System Overflow, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation, or an alternate report as agreed to in writing by the District Manager.

4.3 Spills

4.3.1 If the Collection System Overflow does not meet the criteria listed in condition 3.3.1 or 3.3.2, or is otherwise considered a Spill of Sewage:

a) The Owner shall report the Spill to SAC pursuant to O.Reg.675/98 and Part X of the EPA;

b) The Owner shall report the Event to the local Medical Officer of Health in a manner agreed upon with the local Medical Officer of Health;

c) In addition to the obligations under Part X of the Environmental Protection Act, the Owner shall, within fifteen (15) calendar days of the occurrence of any reportable Spill, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill or loss, actual/estimated volume of the Spill, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

4.4 If the Owner is unable to determine the volume of a Collection System Overflow for the purpose of reporting, the Owner shall develop procedures that enable estimated or measured volumes to be included in the required reporting for any Collection System Overflow occurring on or after June 14, 2023.

4.5 The Owner shall follow the direction of the Ministry and the local Medical Officer of Health regarding any Collection System Overflows.

4.6 The Owner shall prepare an annual performance report for the Authorized System that:

4.6.1 Is submitted to the Director on or before March 31st of each year and covers the period from January 1st to December 31st of the preceding calendar year.

a) For clarity, the first report shall cover the period of January 1st, 2023 to December 31st, 2023 and be submitted to the Director on or before March 31st, 2024.

b) For the transitional period of January 1, 2022 to December 31, 2022, annual reporting requirements from previous ECAs pertaining

to Spills only, where these occurred in the reporting period, and that have been revoked through issuance of this ECA shall apply.

i For the transitional period, condition 4.7.2 does not apply.

4.6.2 Is also submitted to the District Manager where a Collection System Overflow or Spill of Sewage has occurred in the reporting period.

4.6.3 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.

4.6.4 Includes a summary of any operating problems encountered and corrective actions taken.

4.6.5 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.

4.6.6 Includes a summary of any complaints related to the Sewage Works received during the reporting period and any steps taken to address the complaints.

4.6.7 Includes 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.

4.6.8 Includes a summary of all Collection System Overflow(s) and Spill(s) of Sewage, including:

a) Dates;

b) Volumes and durations;

c) If applicable, loadings for total suspended solids, BOD, total phosphorus, and total Kjeldahl nitrogen, and sampling results for E.coli;

d) Disinfection, if any; and

e) Any adverse impact(s) and any corrective actions, if applicable.

4.6.9 Includes a summary of efforts made to reduce Collection System Overflows, Spills, STP Overflows, and/or STP Bypasses, including the following items, as applicable:

a) 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.

b) Details of the establishment and maintenance of a PPCP, including a summary of project progresses compared to the PPCP's timelines.

c) An assessment of the effectiveness of each action taken.

d) 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.

e) Public reporting approach including proactive efforts.

4.7 The report described in condition 4.6 shall be:

4.7.1 Made available, on request and without charge, to members of the public who are served by the Authorized System; and

4.7.2 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.

5.0 Record Keeping

5.1 The Owner shall retain for a minimum of ten (10) years from the date of their creation:

5.1.1 All records, reports and information required by this Approval and related to or resulting Alterations to the Authorized System, and

5.1.2 All records, report and information related to the operation, maintenance and monitoring activities required by this Approval.

5.2 The Owner shall update, within twelve (12) months of any Alteration to the Authorized System being placed into service, any drawings maintained for the Municipal Sewage Collection System to reflect the Alteration of the Sewage Works, where applicable.

6.0 Review of this Approval

6.1 No later than the date specified in Condition 1 of Schedule A of this Approval, the Owner shall submit to the Director an application to have the Approval reviewed. The application shall, at minimum:

6.1.1 Include an updated description of the Sewage Works within the Authorized System, including any Alterations to the Sewage Works that were made since the Approval was last issued; and

6.1.2 Be submitted in the manner specified by Director and include any other information requested by the Director.

7.0 Source Water Protection

7.1 The Owner shall ensure that any Alteration in the Authorized System is designed, constructed, and operated in such a way as to be protective of sources of drinking water in Vulnerable Areas as identified in the Source Protection Plan, if available.

7.2 The Owner shall prepare a "Significant Drinking Water Threat Assessment Report for Proposed Alterations" for the Authorized System on or before June 14, 2023 that includes, but is not necessarily limited to:

7.2.1 An outline of the circumstances under which the proposed Alterations could pose a Significant Drinking Water Threat based on the Director's Technical Rules established under the CWA.

7.2.2 An outline of how the Owner assesses the proposed Alterations to identify drinking water threats under the CWA.

7.2.3 For any proposed Alteration a list of components, Equipment, or Sewage Works that are being altered and have been identified as a Significant Drinking Water Threat.

7.2.4 A summary of design considerations and other measures that have been put into place to mitigate risks resulting from construction or operation of the components, Equipment or Sewage Works identified in condition 7.2.3, such as those included in the Standard Operating Policy for Sewage Works.

7.3 The Owner shall make any necessary updates to the report required in condition 7.2 at least once every twelve (12) months.

7.4 Any components, Equipment or Sewage Works added to the report required in condition 7.2 shall be include in the report for the operational life of the Sewage Works.

7.5 Upon request, the Owner shall make a copy of the report required in condition 7.2 available to the Ministry or Source Protection Authority staff.

8.0 Additional Studies

Assessment of Wet Weather Flows Compared to Dry Weather Flows

8.1 This condition and the following requirements apply where:

a) The Authorized System has no Combined Sewers or Partially Separated Sewers; and

b) There has been one or more of: an STP Overflow, STP Bypass, or Collection System Overflow within the ten (10) year period starting January 1, 2012 and ending December 31, 2021.

The following requirements do not apply if:

a) The Collection System Overflow is a result of emergency overflows at pumping stations during power outage or Equipment failure; and

b) There has been no STP Overflow or STP Bypass.

8.1.1 The Owner shall conduct an assessment of Wet Weather Flows compared to the Dry Weather Flows in the Authorized System and/or to the STP(s) described in Schedule A, as per the following conditions:

a) The assessment shall evaluate available data from the ten (10) year period starting January 1, 2012 and ending December 31, 2021.

b) The assessment shall be completed and submitted to the Director by December 14, 2023.

c) In the event that Wet Weather Flows in the ten (10) year period described above have created STP Bypasses or STP Overflows at the STP(s) specified in Schedule A or Collection System Overflows in an Average Year, then the study shall include:

i Actions and timelines to meeting the Procedure F-5-1 objectives;

ii Review of causes of STP Overflow, STP Bypass and/or Collection System Overflow Events, including inflow and infiltration, sewer use, and characteristics of rainfall events, as applicable;

iii Inspection of the Sewers and bypass structures; and

iv Identification of any near and/or long-term corrective actions with anticipated timelines.

Assessment of Conformance to Procedure F-5-1 and F-5-5

8.2 This condition and the following requirements apply where:

a) The Authorized System includes Combined Sewers or Partially Separated Sewers, and

b) The Authorized System experienced a Collection System Overflow, an STP Bypass, or STP Overflow within the ten (10) year period starting January 1, 2012 and ending December 31, 2021.

8.2.1 The Owner shall conduct an assessment to demonstrate conformance of the Authorized System to Procedure F-5-1 or Procedure F-5-5, as applicable, in accordance with the following conditions:

a) The assessment shall:

i Be prepared by a Licensed Engineering Practitioner and be submitted to the Director by December 14, 2023;

ii Be performed for each of the years 2012 through to 2021;

iii Include the number of Collection System Overflows as a result of storms that are not Significant Storm Events for each year;

iv Include the estimated length of Combined Sewers and Separate Sewers within the collection system;

v Include the date of the most recent PPCP;

vi Include the status of each action items specified in the PPCP, as applicable;

vii Include a summary of additional action items not specified in a PPCP which have been taken to prevent Collection System Overflows in the ten (10) year period starting January 1, 2012 and ending December 31, 2021; and

viii Identify timelines for achieving conformance to Procedure F-5-1 or Procedure F-5-5 objectives, as applicable.

8.2.2 The Owner shall submit a new or updated PPCP to the Director, no later than June 14, 2027, if:

a) No PPCP exists for the Authorized System, or

b) The PPCP for the Authorized System is older than ten (10) years as of November 10th, 2022.

8.2.3 The PPCP shall include, at minimum:

a) Characterization of the Combined Sewer System (CSS) – Monitoring, modeling and other appropriate means shall be used to characterize the CSS and the response of the CSS to precipitation events. The characterization shall be based on the ten (10) year period starting January 1, 2012 and ending December 31, 2021 and include the determination of the location, frequency and volume of the CSOs, concentrations and mass pollutants resulting from CSOs, and identification and severity of suspected CSS deficiencies. Records shall be kept for CCS including the following:

i Location and physical description of CSO and SSO outfalls in the collection systems, emergency overflows at pumping stations, and bypass locations at STPs;

ii Location and identification of receiving water bodies, including sensitive receivers, for all Combined Sewer outfalls;

iii Combined Sewer system flow and STP treatment capacities, present and future (20-year timeframe) expected peak flow rates during dry weather and wet weather;

iv Capacity of all regulators;

v Location of cross connections between sanitary Sewage and Stormwater infrastructure; and

vi Location and identification of infrastructure in the CSS where monitoring Equipment is installed.

b) Operational procedures shall be developed including the following:

i Combined Sewer maintenance program; and

ii Regulator inspection and maintenance programs.

c) An examination of non-structural and structural CSO control alternatives that may include:

i Source control;

ii Inflow/Infiltration reduction;

iii Operation and maintenance improvements;

iv Control structure improvements;

v Collection system improvements;

vi Storage technologies;

vii Treatment technologies; and

viii Sewer separation.

d) An implementation plan with a schedule of all practical measures to eliminate dry weather overflows and minimize wet weather overflows, as well as an overflow percent reduction target.

i The implementation plan shall show how the minimum CSO prevention and control requirements and other criteria in Procedure F-5-5 are being achieved.

8.2.4 The Owner shall ensure that an updated PPCP for the Authorized System is prepared within ten (10) years of the date of that the previous PPCP was finalized.

Sewer Model

8.3 The Owner shall prepare a new/updated Sewer model, within three (3) years of November 10th, 2022, if any of the following pertain to the Authorized System:

8.3.1 It includes Combined Sewers;

8.3.2 It services a population greater than 10,000; or

8.3.3 The Sewer model for the Authorized System was last updated prior to 2012 and 8.3.1 or 8.3.2 apply.

Schedule F: Residue Management

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-W601**
System Name	**Kincardine and BEC Wastewater Collection System**
ECA Issue Date	**November 10th, 2022**

1.0 Residue Management System

1.1 Not Applicable:

Ontario

Ministry of the Environment, Conservation and Parks

Form SS2
Record of Future Alteration Authorized for Components of the Municipal Sewage Collection System

RETAIN COMPLETED FORM - DO NOT SEND TO THE MINISTRY

Part 1 - Environmental Compliance Approval Number

(Insert the Environmental Compliance Approval number authorizing the future alteration of components of the municipal sewage collection system)

088-W601

Part 2 - Description of alteration of components of the municipal sewage collection system (Use attachments if required)

The replacement of the existing Queen Street Sewage Pumping Station (S-QSPS) with a new low pressure Quadplex Grinder Pumping Station (E/One W-Series WF48X150QDL-078 FRP). The new station is 6 metres north of the old station on the unopened road allowance north of 601 Queen Street. Refer to additional details for works and capacity.
Refer to attached BM ROSS drawings for project 17318A - Municipality of Kincardine, Queen Street Reconstruction, drawing 593, 595, 601 Queen Street Sanitary Plan and Details.

The description shall include:

1) A brief description above of the undertaking (e.g. street name(s); subdivision name; project name);
2) An identification of the system component being altered;
3) The location of the works being altered: and
4) Any associated drawings, if applicable.

Part 3 - Verification by Licensed Engineering Practitioner (as applicable to the undertaking) or Technical Representative

I hereby verify that I am a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario (as applicable to the undertaking) or the technical representative and the design of the alteration of the components of the municipal sewage collection system:

1) Has been prepared by a Licensed Engineering Practitioner who is licensed to practice in the Province of Ontario, where the Alteration falls within the practice of professional engineering as defined in the Professional Engineers Act, R.S.O. 1990, OR has been prepared by a technical representative with the required qualifications.
2) Has been documented in a design report and any other applicable design forms;
3) Is consistent with, or otherwise addresses, the design objectives contained within the Ministry of the Environment, Conservation and Parks publication "Design Guidelines for Sewage Works", as amended and as applicable;

Name (Print)	PEO Licence Number
Dale Erb, P.Eng.	90408295
Signature 	Date (yyyy/mm/dd) 2023/04/12

Part 4 - Verification by Owner

I hereby verify that:

1) The alteration of the municipal sewage collection system made shall not result in:
   a) Exceedance of hydraulic capacity (including uncommitted reserve hydraulic capacity, as applicable) of the downstream:
      i) Municipal sewage collection system; or
      ii) Receiving sewage treatment plants (STP).
   b) Exceedance of any downstream pumping station capacity, unless verified under Part 3 of this form;
   c) Any increase in collection system overflows, that is not offset by measures taken elsewhere in the municipal sewage collection system, and have documented any offset measures used;
   d) Any increase in the frequency and/or volume of STP bypasses or STP overflows that is not offset by measures, and have documented any offset measures used; (Alternatively, if the wastewater flows to a STP not owned by the Owner, then the wastewater volume or flow rate is as agreed to with the Owner of the STP.)
   e) Deterioration of the normal operation of municipal STPs (as applicable) and/or municipal sewage collection system;

f) A negative impact on the ability to undertake monitoring necessary for the operation of the municipal sewage collection system; and

g) Adverse effects.

2) The alteration will:

a) Not cause overflows or backups, nor increase surcharging at any maintenance holes or privately owned infrastructure (e.g. basements) within the municipal sewage collection system or any collection system connected to it; and

b) Provide smooth flow transition to existing gravity sewers.

3) An assessment of the proposed works has been completed to determine if the works pose a significant drinking water threat. The proposed works do not pose any threats to sources of drinking water or design includes features that mitigate the threat to s ources of drinking water, such as those included in: Ministry's Standard Operating Policy for Sewage Works, as amended from time to time; and Source Protection Plan policies pertaining to the works;

4) The alteration is wholly located within the municipal boundary over which the owner has jurisdiction, except where there is an agreement existed between municipalities;

5) The owner consents to the alteration of components to the municipal sewage collection system; and

6) I am an authorized representative of the owner to complete this verification.

Name of Owner (Print)	Name of Owner Representative (Print)
Municipality of Kincardine	Mark O'Leary
Signature	Date (yyyy/mm/dd)
M. O'Leary	2023/07/20

Part 5 - Post Construction Verification by Owner for Inspection

I hereby verify that:

1) Any alterations the Municipal Sewage Collection System have been inspected before operation to ensure that the works as constructed will continue to conform to the Design Criteria and the ECA, and have documentation of the inspection results.

Name of Owner (Print)	Name of Owner Representative (Print)
Municipality of Kincardine	Mark O'Leary
Signature	Date (yyyy/mm/dd)
M. O'Leary	2023/07/20

Note: Parts 1 to 4 above shall be completed before construction.
Part 5 is to be completed after the inspection and testing have been undertaken.

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street, Goderich, ON N7A 2T4
p. (519) 524-2641 www.bmross.net

File No. 17318A

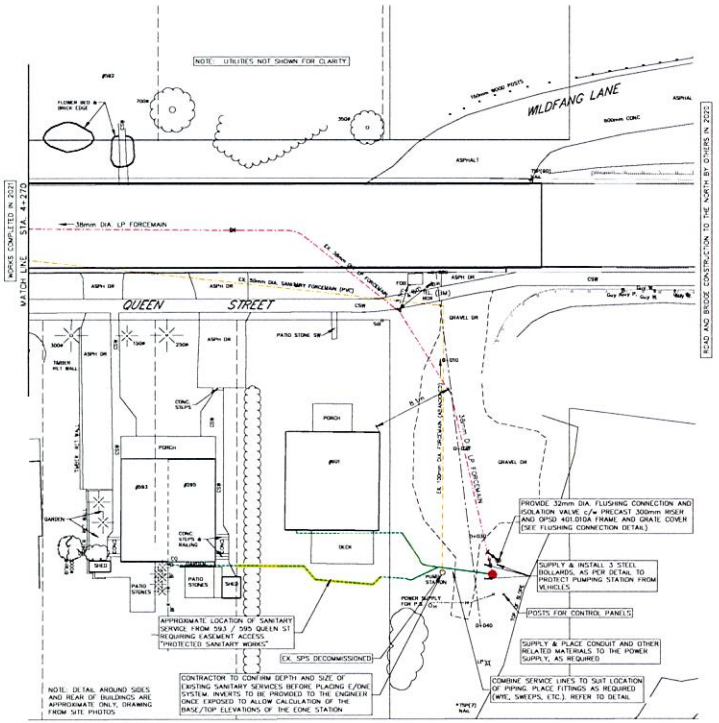
QUEEN STREET
SEWAGE PUMPING STATION REPLACEMENT
DESCRIPTION OF WORKS

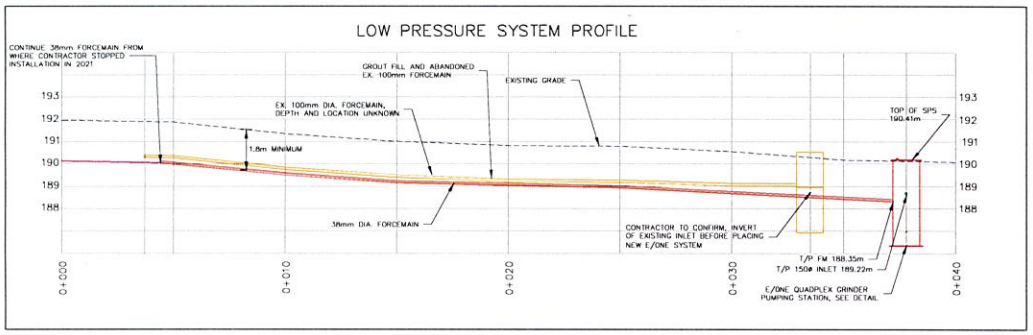
Asset ID and Name	S-QSPS Kincardine Wastewater Collection-Queen Street Sewage Pumping Station
Site Location	601 Queen Street, Kincardine
Latitude and Longitude	Lat: 44.17221 Lon: 81.63831
Coordinates (optional)	N 4891192.4408 E 448976.9324 NAD1983 Zone 17N
Description	A sewage pumping station consisting of a 1.2m diameter wet well located on the unopened road allowance north of 601 Queen Street with an aboveground weatherproof pump control panel (no building). Station is a prefabricated Environment One (E/One) W-Series Quadplex Fiberglass Grinder Pump Station model#WF48X150QDL-078 FRP
Pumping Station Capacity	1.4 L/s with two pumps operation, in an emergency all four pumps would operate at 2.8 L/s
Equipment	Four 1 HP submersible grinder pumps with an estimated pump capacity of 0.70 L/s each and a 1.2 m wet well of approx.. 2.5m^3 capacity. The station is connected to a 38mm diameter low pressure forcemain discharging to the Queen Street gravity sewer and ultimately to the Kincardine Wastewater Treatment Plant
Emergency Storage	
Equipment: Associated controls and appurtenances	Aboveground pump control panel with alarm system.
Sewage Pumping Station-Collection System Overflow	No overflow.
Receiving Stations (if applicable)	None
Odour Control Units	None
Standby Power	None
Notes	Discharges to a forcemain which leads to the Gravity sewer system on Queen Street. Ultimately the sewage is conveyed to the Huron Terrace Sewage Pumping Station.

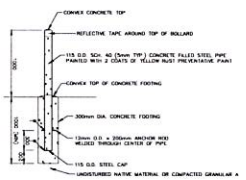
CURB STOPS/CHECK (UNI-LATERAL) VALVES CURB BOX:

1. THE CONTRACTOR SHALL SUPPLY ALL LABOUR, EQUIPMENT AND MATERIAL REQUIRES TO INSTALL THE LOW-PRESSURE SANITARY SERVICE COMBINATION CURB STOP/CHECK VALVES AND SERVICE BOX INCLUDING ALL REQUIRED FITTINGS. THE COMBINATION CURB STOP/CHECK VALVES SHALL BE THE E/ONE SEWER SYSTEMS UNI-LATERAL CURB STOP C/W INTEGRAL STAINLESS STEEL CHECK VALVE OR APPROVED EQUIVALENT. SERVICE BOX SHALL HAVE A STAINLESS-STEEL STEM AND THE SERVICE BOX COVER SHALL BE STAMPED "SEWER". ISOLATION VALVES SHALL BE LOCATED AS SHOWN. THE LOCATION OF THE CURB STOP/CHECK VALVES SHALL BE MARKED WITH WOODEN 50X100MM WOODEN POSTS WHICH SHALL EXTEND A MINIMUM OF 0.6M ABOVE THE GRADE. THE CURB STOP/CHECK VALVES AND BOXES SHALL BE INSTALLED AS PER MANUFACTURES RECOMMENDATIONS.

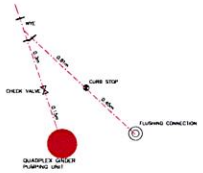
2. THE CURB STOP/CHECK VALVES SHALL INCLUDE THE COST TO SUPPLY AND INSTALL SERVICE TAILS FROM THE CURB STOP/CHECK VALVES TO A MINIMUM OF 0.6M ABOVE GRADE. THE SERVICE TAILS SHALL BE SECURED TO THE WOODEN MARKER POSTS AND SHALL B UTILIZED FOR FLUSHING AND TO BLOW OFF AIR DURING THE PRESSURE TESTING OF THE SYSTEM. BECAUSE THE UNI-LATERAL CHECK VALVE THE CONTRACTOR MAY NEED TO FLUSH WATER INTO THE FORCEMAIN OUTLET ON QUEEN STREET AT SAN MH 395 IN ORDER TO FORCE ANY AIR IN THE SERVICES OUT TO THE TOP OF THE SYSTEM PRIOR TO THE PRESSURE TEST.



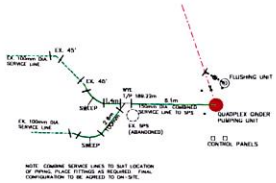




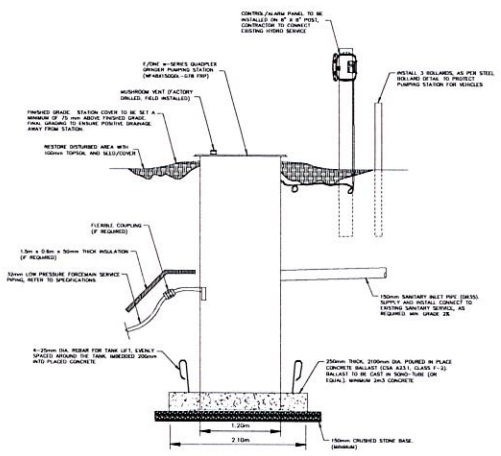
STEEL BOLLARD DETAIL
NOT TO SCALE



FLUSHING CONNECTION DETAIL
NOT TO SCALE



COMBINED SERVICES DETAIL
NOT TO SCALE



QUADPLEX GRINDER PUMPING UNIT

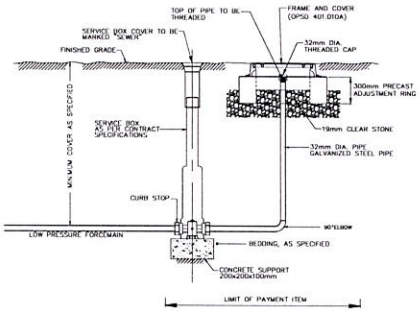
NOTES:

1. BEDDING, COVER AND BACKFILL MATERIAL TO BE AS PER THE SPECIFICATIONS. BACKFILL AND BEDDING FOR GRINDER PUMPING UNIT TO BE GRANULAR 'A' COMPACTED TO 95% SPMDD.
2. CATHODIC PROTECTION FOR FITTINGS TO BE THE SAME AS THAT SPECIFIED ELSEWHERE FOR L.P. MAIN.
3. SANITARY INLET PIPE TO BE CONNECTED USING EPDM GROMMET FITTING (SUPPLIED WITH UNIT). GROMMET TO BE INSTALLED FOLLOWING MANUFACTURER RECOMMENDATIONS AND SITUATED AT ANGLE DETERMINED IN THE FIELD. FOR THE QUADPLEX STATION THE GROMMET CAN BE FIELD INSTALLED.
4. MANUFACTURER RECOMMENDATIONS ARE TO BE FOLLOWED FOR INSTALLATION OF PUMPING UNIT INCLUDING BALLAST PLACEMENT.
5. ELECTRICAL WIRING AND RELATED MATERIALS REQUIRED TO COMPLETE THE ELECTRICAL SUPPLY AND CONNECTIONS ARE TO MEET ESA REQUIREMENTS. CONTRACTOR TO OBTAIN ALL RELATED ESA PERMITS. CONTROL PANEL, POWER SUPPLY, ANCILLARY WORK, AND RELATED MATERIALS ARE TO BE INSTALLED AS PER ESA AND MANUFACTURER RECOMMENDATIONS.

TYPICAL GRINDER PUMP AND SERVICE DETAIL
NOT TO SCALE

GENERAL NOTES:

1. WORK ACTIVITIES AND THE EXCAVATION FOR THE UNDERTAKING OF THE PROPOSED WORKS IS NOT TO COMMENCE UNTIL ALL RESOURCES NECESSARY FOR THE CONSTRUCTION ARE IN PLACE AND THE WORK IS READY TO COMMENCE IN EARNEST. ONCE COMMENCED, CONSTRUCTION IS PROCEED IN A CONTINUES AND DILIGENT MANNER IN ORDER TO MINIMIZE THE DURATION OF THE DISTURBANCE TO THE AREA.
2. CONTRACTOR TO RESTRICT EQUIPMENT TRAFFIC AND STOCKPILE/WORK AREAS AS CLOSE TO THE WORKING LIMITS AS FEASIBLE. MAINTAIN ACCESS FOR LOCAL RESIDENT(S) AND PROVIDE NOTIFICATIONS WHEN ACCESS IS TEMPORARILY RESTRICTED DUE TO CONSTRUCTION ACTIVITIES.
3. EONE STATION TO BE COMMISSIONED PRIOR TO DISCONNECTING SERVICE CONNECTIONS FROM EX. PUMP STATION AND MAKING NEW CONNECTIONS TO EONE SYSTEM.



FLUSHING CONNECTION DETAIL
NOT TO SCALE

LEGEND

- EXISTING GENERAL SANITARY
- MANHOLE and CATCHBASIN
- WATERMAIN
- GASMAIN
- UNDERGROUND TELEPHONE
- UNDERGROUND HYDRO
- UNDERGROUND T.V. CABLE
- UTILITY POLES
- UPLOADING
- REMOVE EXISTING CONC. SIDEWALK AND DRIVES
- REMOVE AND PLACE CONC. SIDEWALK AND DRIVES
- PLACE CONC. SIDEWALK AND DRIVES
- REMOVE EXISTING ASPHALT PAVT
- PLACE HOT MIX ASPHALT
- REMOVE EXISTING CONC. CURB

1:250 5m 0 5m 10m
1:50 1m 0 1m 2m

NOTE

The locations of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work and agrees to be fully responsible for any damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

BENCHMARK INFORMATION
B.M. Elev 196.961
Nail & Flag in West face of HP, East side of Queen Street, accross from house #578.

BENCHMARK INFORMATION
B.M. Elev. 192.488
Nail & Flag in West face of HP on East side of Queen Street, near house #601

Design By: J.M.W. Checked By: D.L.E.

AS RECORDED
The information on this record drawing is believed to be reliable, however it may be based, in part, upon information provided by others, which can not be verified by B.M. Ross and Associates Limited. Those relying on this record drawing are advised to obtain additional verification of its accuracy before applying it for any purpose.
MAY 17, 2023
Date

No.	DATE	REVISION
1	April 30, 2020	Issued for Tender
2	May 11, 2020	Issued for Approval
3	June 30, 2020	Issued for Construction
4	Feb. 19, 2021	Reissued for Construction
5	Mar. 7, 2023	Revised for Quadplex EOne System

BMROSS engineering better communities

Goderich | Mount Forest | Sarnia

THE MUNICIPALITY OF great energy balanced life KINCARDINE

Municipality of Kincardine

Queen Street Reconstruction

593, 595, 601 Queen Street Sanitary Plan and Details

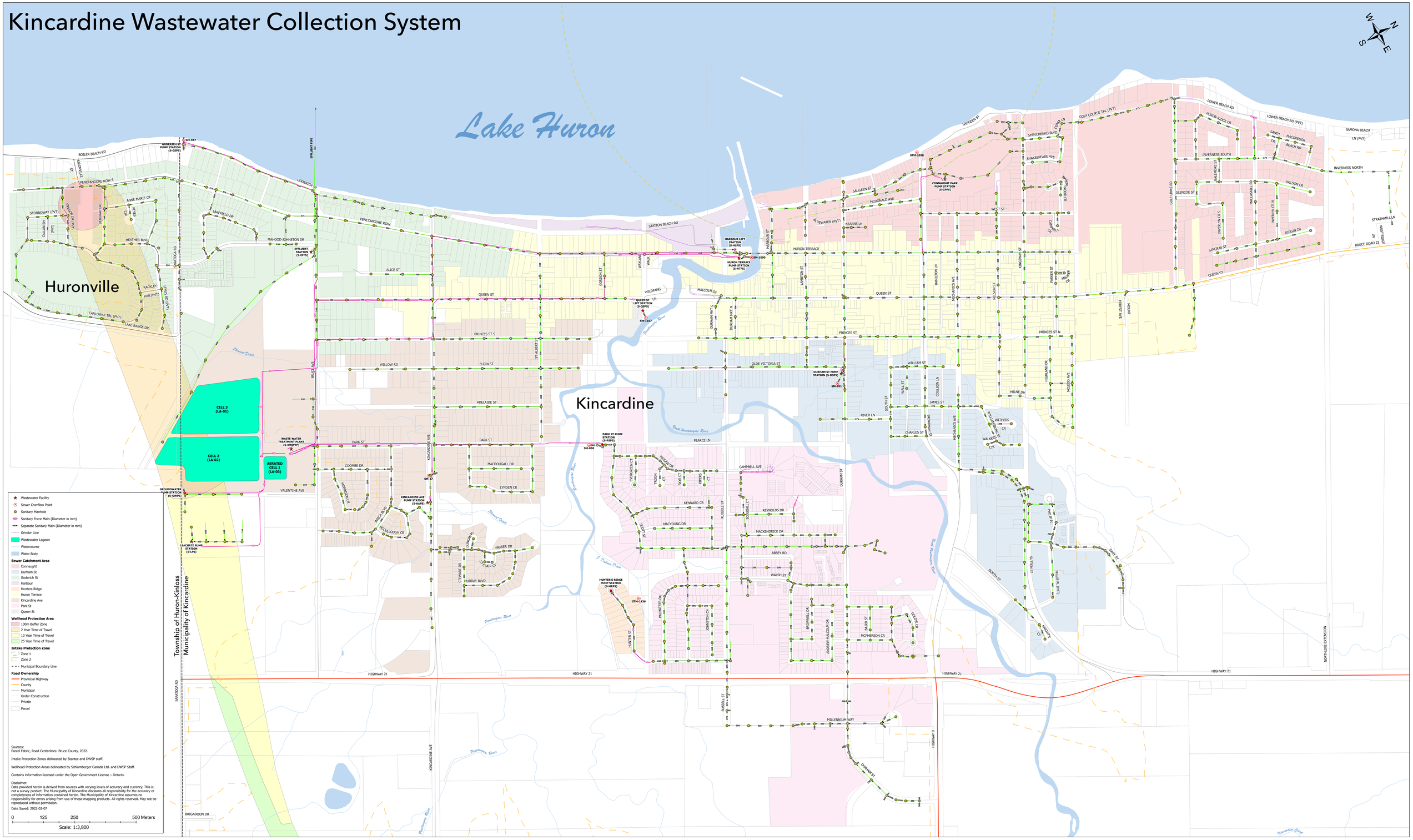
Part	Project No.
3	17318

Scale (24x36)
Horizontal : 1 : 250
Vertical : 1 : 100

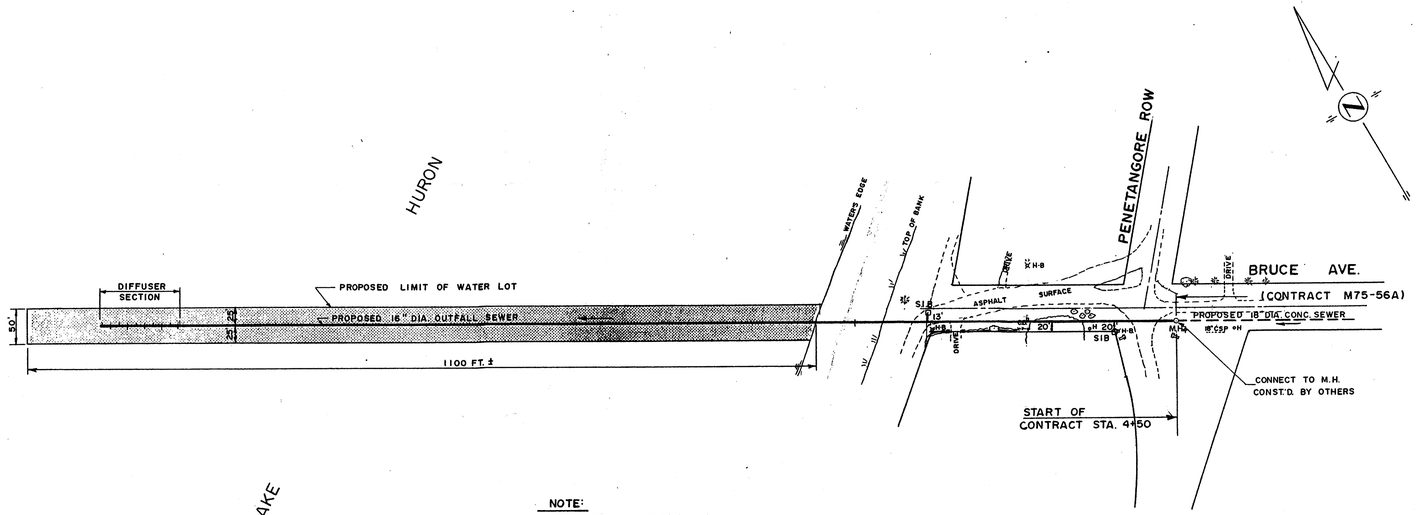
Drawing No. 15R

APPENDIX B

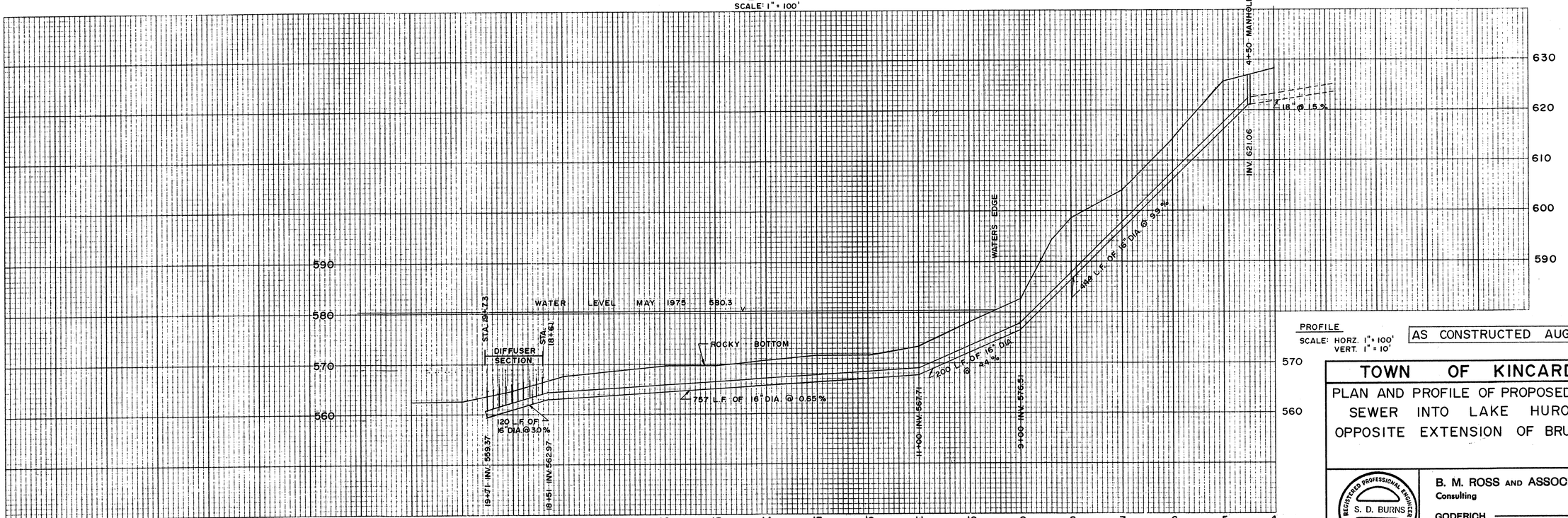
Kincardine Wastewater Collection System



CONTRACT Nº M75-56C
SHEET Nº 2



PLAN
SCALE: 1" = 100'



PROFILE
SCALE: HORZ. 1" = 100'
VERT. 1" = 10'

AS CONSTRUCTED AUG. 1977

TOWN OF KINCARDINE

PLAN AND PROFILE OF PROPOSED OUTFALL SEWER INTO LAKE HURON OPPOSITE EXTENSION OF BRUCE AVENUE

REGISTERED PROFESSIONAL ENGINEER S. D. BURNS PROVINCE OF ONTARIO

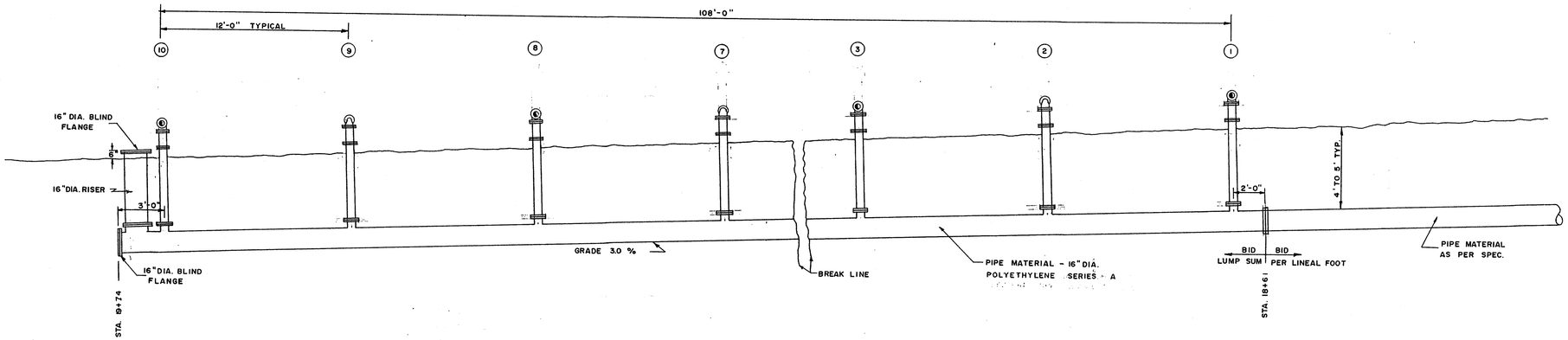
B. M. ROSS AND ASSOCIATES LIMITED
Consulting Engineers
GODERICH ——— ONTARIO

DATE: FEB. 1976
DRWN. - D. H.
CHK'D - B. M. R.

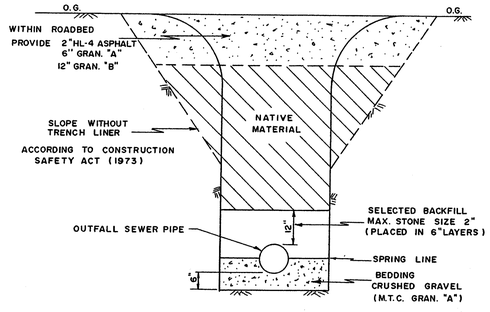
M-17

BRUNINO

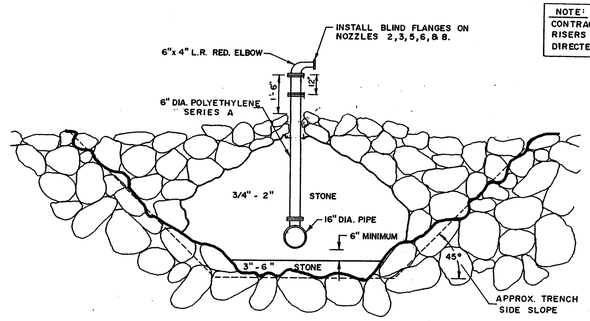
CONTRACT № M 75-56-C
SHEET № 3



DIFFUSER SECTION
SCALE: 1/4" = 1'-0"

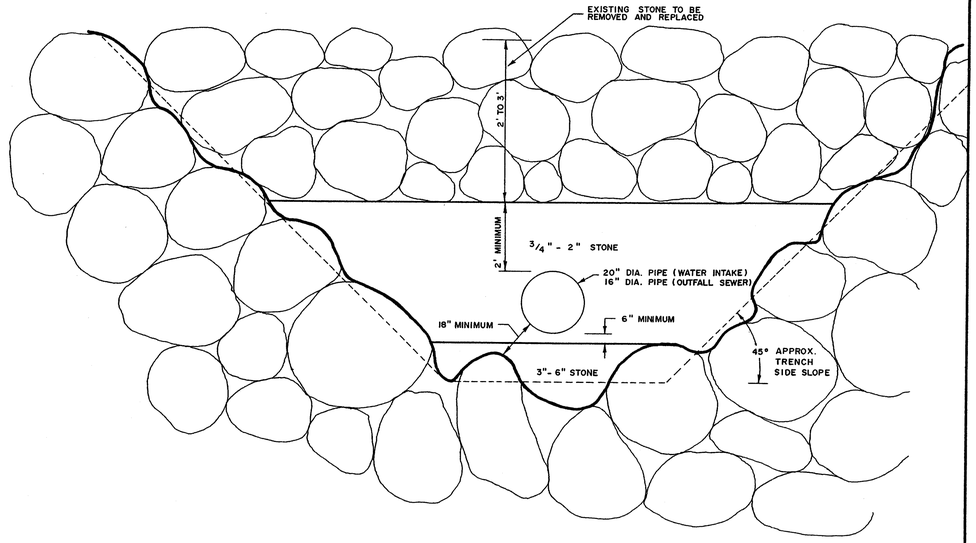


SECTION THROUGH OUTFALL SEWER
STA. 4+50 TO STA. 9+50 ±
N. T. S.



NOTE:
CONTRACTOR TO SUPPORT DIFFUSER RISERS DURING BACKFILLING AS DIRECTED BY THE ENGINEER.

SECTION THROUGH DIFFUSER PORTION OF OUTFALL SEWER
N.T.S.



SECTION THROUGH OUTFALL SEWER AND WATER INTAKE
N.T.S.

AS CONSTRUCTED AUG. 1977

TOWN OF KINCARDINE

PLAN SHOWING DETAILS OF OUTFALL SEWER

REGISTERED PROFESSIONAL ENGINEER
S. D. BURNS
PROVINCE OF ONTARIO

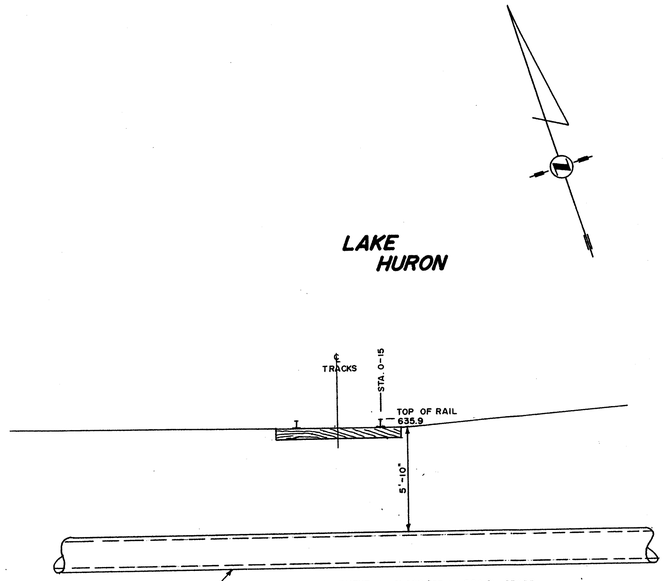
B. M. ROSS AND ASSOCIATES LIMITED
Consulting Engineers
GODERICH — ONTARIO

DATE:	DRWN. - L. M.	SCALE
MARCH 1976	CHK'D. - S.D.B.	AS SHOWN

BRUNING 40-105 250-1-74 x

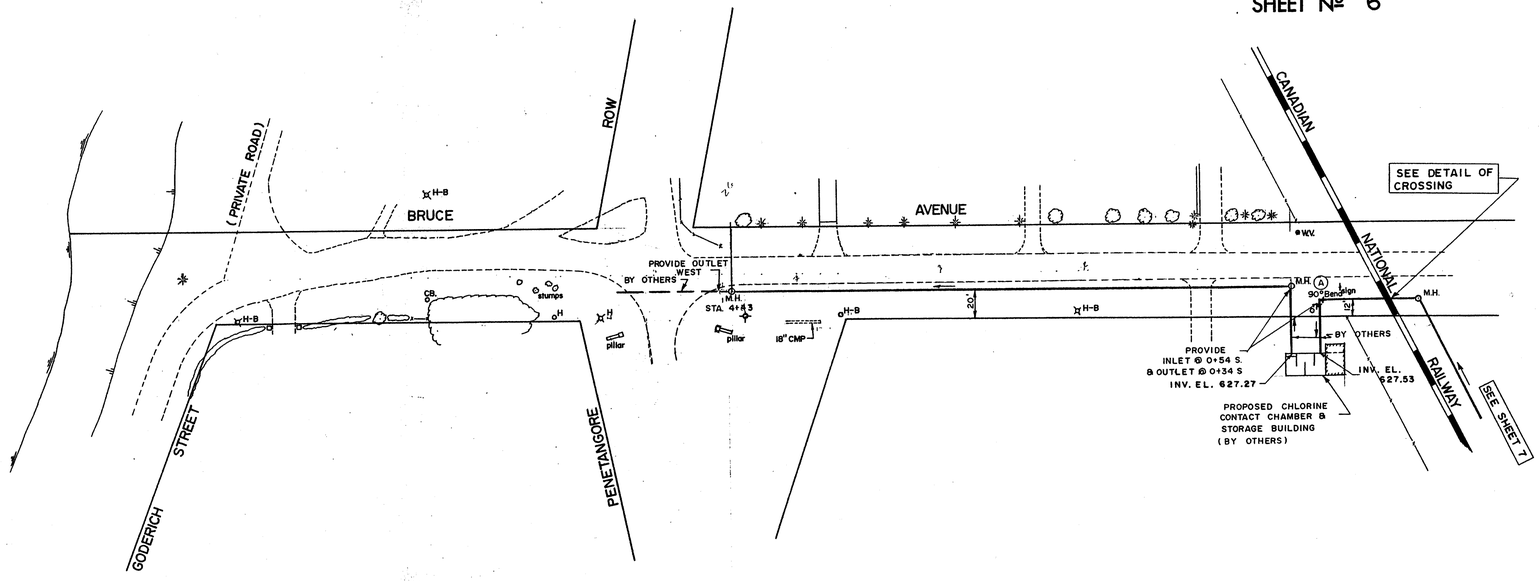
m-17

CONTRACT Nº M75-56A
SHEET Nº 6

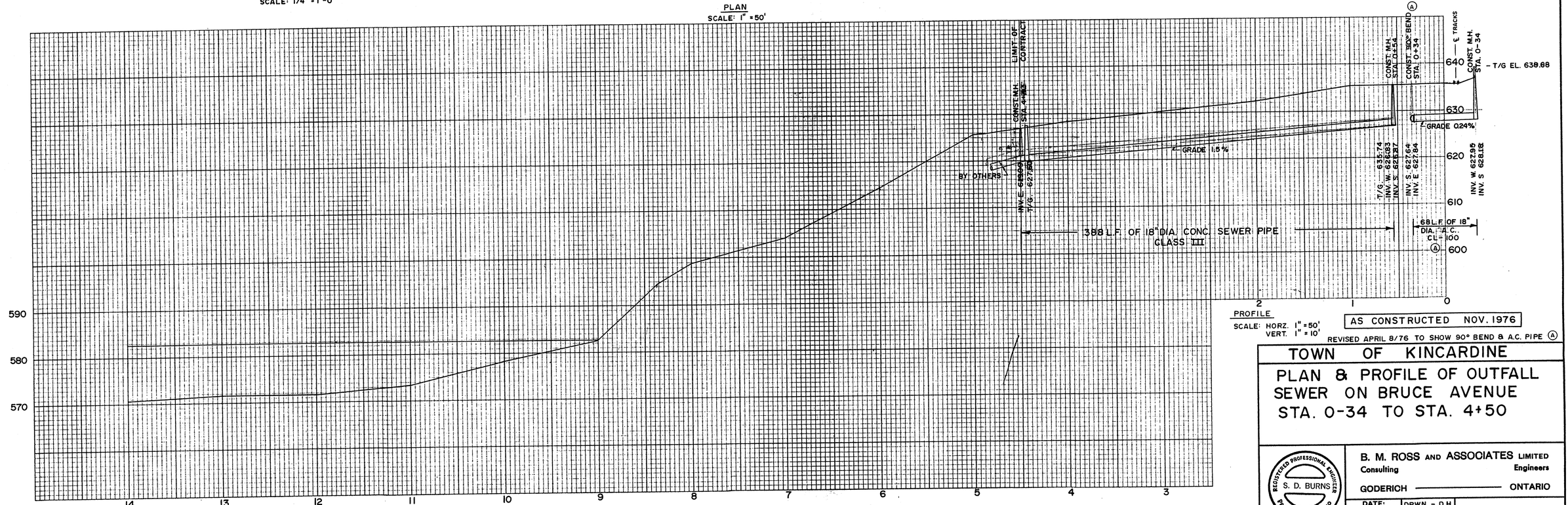


NOTE:
INSTALLATION TO BE IN ACCORDANCE WITH GENERAL ORDER E-10 CANADIAN TRANSPORT COMMISSION

SECTION AT MI. 56.80 KINCARDINE SUBDIVISION
SCALE: 1/4" = 1'-0"



PLAN
SCALE: 1" = 50'



PROFILE
SCALE: HORZ. 1" = 50'
VERT. 1" = 10'

AS CONSTRUCTED NOV. 1976
REVISED APRIL 8/76 TO SHOW 90° BEND & A.C. PIPE (A)

TOWN OF KINCARDINE

PLAN & PROFILE OF OUTFALL SEWER ON BRUCE AVENUE STA. 0-34 TO STA. 4+50

REGISTERED PROFESSIONAL ENGINEER S. D. BURNS PROVINCE OF ONTARIO

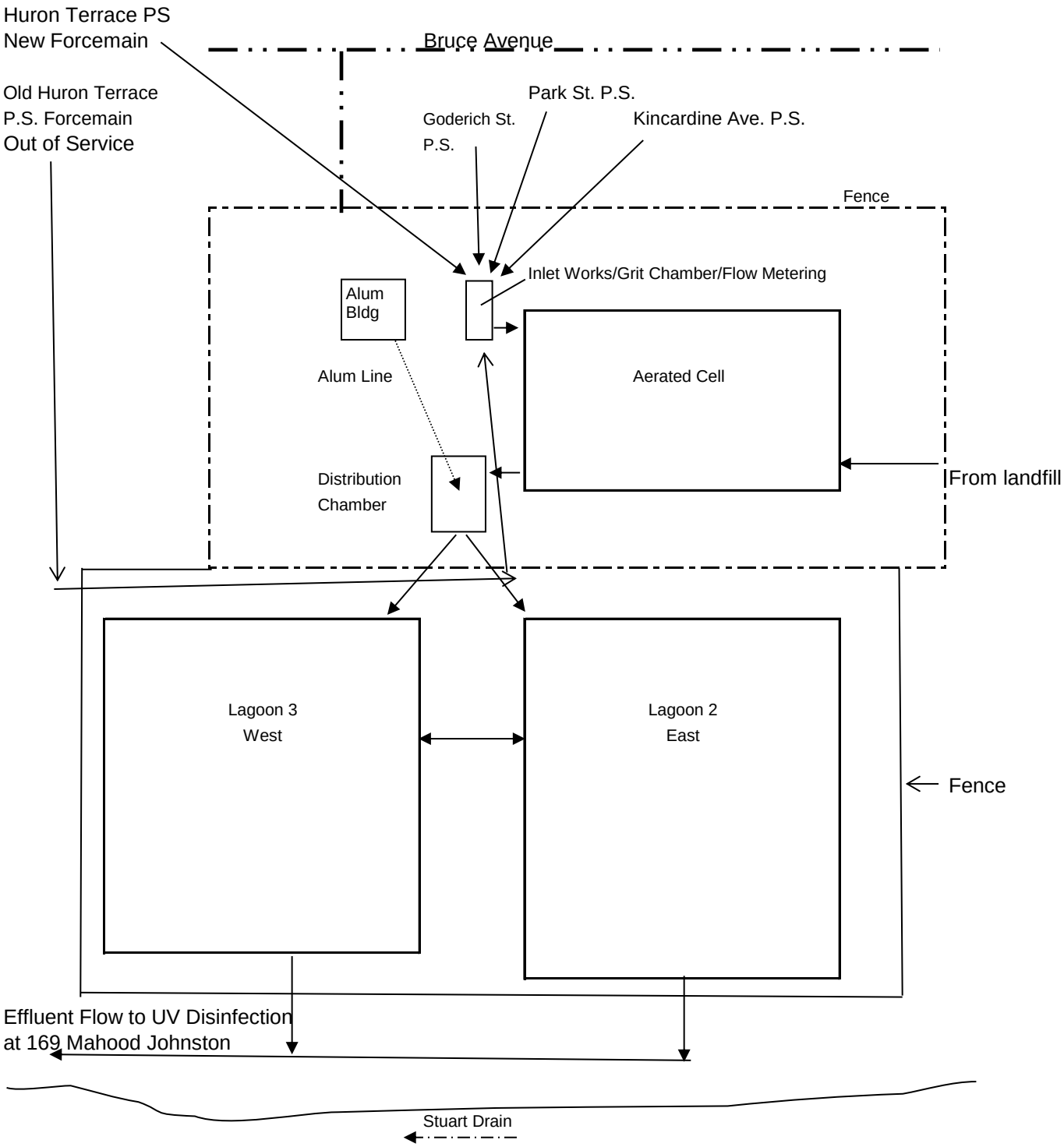
B. M. ROSS AND ASSOCIATES LIMITED
Consulting Engineers
GODERICH — ONTARIO

DATE: JAN. 1976
DRWN. - D.H.
CHK'D. - S.D.B.

M-15

BRUNING

SCHEMATIC DIAGRAM OF THE WASTEWATER TREATMENT FACILITY



Revision 2
October 24, 2023

APPENDIX C

NAUTILUS ENVIRONMENTAL
B-11 Nicholas Beaver Road
Puslinch, ON N0B 2J0
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TOXICITY TEST REPORT
Rainbow Trout
EPS 1/RM/13
EPS 1/RM/50

Work Order : 256461
Sample Number : 84972

SAMPLE IDENTIFICATION

Company :	Nautilus Environmental, Point Edward	Sampling Date :	2024-11-12
Location :	Point Edward ON	Sampling Time :	10:20
Substance :	KWWTP	Date Received :	2024-11-15
Sampling Method :	Grab	Time Received :	16:00
Sampled By :	C. Crimmings	Temperature at Receipt :	10 °C
Sample Description :	Cloudy, green	Date Tested :	2024-11-16

Test Method(s) : Reference Method for Determining Acute Lethality of Liquid Effluents to Rainbow Trout. Environment Canada, EPS 1/RM/13 (2nd Edition, December 2000, with May 2007, February 2016, and December 2023 amendments).

Procedure for pH Stabilization During the Testing of Acute Lethality of Wastewater Effluent to Rainbow Trout. Environment Canada, EPS 1/RM/50 (March 2008), with deviation(s) as noted.

96-HOUR TEST RESULTS

Substance	Effect	Value
Control	Mean Impairment	0.0 %
	Mean Mortality	0.0 %
100%	Mean Impairment	0.0 %
	Mean Mortality	0.0 %

The results reported relate only to the sample tested and as received.

TEST ORGANISM

Test Organism :	*Oncorhynchus mykiss*	Mean Fork Length :	39.3 mm
Organism Batch :	T24-24	Range of Fork Lengths :	37 - 41 mm
Control Sample Size :	10	Mean Wet Weight :	0.5 g
Cumulative stock tank mortality rate :	0% (previous 7 days)	Organism Loading Rate :	0.3 g/L
Control organisms showing stress :	0 (at test completion)		

TEST CONDITIONS

Sample Treatment :	pH Stabilization	Number of Replicates :	1
pH Adjustment :	Yes (as per EPS 1/RM/50)	Organisms Per Replicate :	10
pH Stabilization Technique :	pH Controller	Organisms Per Test Level :	10
Gas Mixture Used :	100% CO_2	Pre-aeration/Aeration Rate :	6.5 ± 1 mL/min/L
Test Aeration :	Yes	Total Pre-Aeration Time :	30 minutes
Volume Tested (L) :	18	Test Method Deviation(s) :	Yes (see 'COMMENTS')

REFERENCE TOXICANT DATA

Toxicant :	Potassium Chloride		
Organism Batch :	T24-24	LC50 :	4317 mg/L
Date Tested :	2024-11-09	95% Confidence Limits :	4026 - 4628 mg/L
Analyst(s) :	FM, JGR, GR, AJS	Historical Mean LC50 :	3491 mg/L
Statistical Method :	Spearman-Kärber	Warning Limits (± 2SD) :	2528 - 4822 mg/L

COMMENTS

• All test validity criteria as specified in the test method were satisfied.

• Noted Deviation: pH controllers are calibrated at the start of the test, and not daily as described in the test method. Extensive internal method validation of this approach has confirmed the accuracy and stability of the pH controllers over the course of the 96-h test. Additionally, pH of the test and control solutions is measured daily throughout the test.

Adam Wartman
I am approving this document
2024-11-26 11:24-05:00

Approved By : _____

Project Manager

NAUTILUS ENVIRONMENTAL

TOXICITY TEST REPORT

Rainbow Trout
EPS 1/RM/13
EPS 1/RM/50

Work Order : 256461
Sample Number : 84972

TEST DATA

	pH	Dissolved O_2 (mg/L)	Conductivity (µmhos/cm)	Temperature (°C)	O_2 Saturation (%)[3]	TAN (mg/L)[1]	NH3 (mg/L)[2]
Initial Water Chemistry (100%) :	7.6	6.1	796	15	64	18.9	0.205
After 30 min pre-aeration :	7.6	6.8	791	15	71	–	–

0 HOURS

Date & Time 2024-11-16 10:40
Analyst(s) : AJS

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	O_2 Saturation[3]	Hardness (mg/L as $CaCO_3$)	Total Chlorine (mg/L)
100%	0	0	7.6	6.8	791	15	71	170	–
Control	0	0	8.0	9.4	756	15	98	–	–

Notes:

24 HOURS

Date & Time 2024-11-17 11:25
Analyst(s) : AJS

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	TAN (mg/L)[1]	NH3 (mg/L)[2]
100%	0	0	7.7	–	–	15	–	–
Control	0	0	8.1	–	–	15	–	–

Notes:

48 HOURS

Date & Time 2024-11-18 9:45
Analyst(s) : JGR

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	TAN (mg/L)[1]	NH3 (mg/L)[2]
100%	0	0	7.6	–	–	15	–	–
Control	0	0	8.1	–	–	15	–	–

Notes:

72 HOURS

Date & Time 2024-11-19 10:00
Analyst(s) : GR (JGR)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	TAN (mg/L)[1]	NH3 (mg/L)[2]
100%	0	0	7.8	–	–	15	–	–
Control	0	0	8.2	–	–	15	–	–

Notes:

96 HOURS

Date & Time 2024-11-20 11:15
Analyst(s) : GR (JGR)

Concentration	Dead	Impaired	pH	Dissolved O_2	Conductivity	Temperature	TAN (mg/L)[1]	NH3 (mg/L)[2]	Average pH (0 - 96 h)
100%	0	0	7.7	8.6	810	16	–	–	7.7
Control	0	0	8.2	9.1	754	16	–	–	8.1

Notes:

[1] TAN = Total ammonia (as N); analysis conducted by Bureau Veritas S.A., Mississauga ON; MDL = 0.05 mg/L.

[2] NH3 = Un-ionized ammonia (calculated from TAN, pH, and temperature according to the test method).

[3] adjusted for temperature and barometric pressure

"–" = not measured/not required

Number impaired does not include number dead.

Test Data Reviewed By : JL

Date : 2024-11-26

AVERAGE MONTHLY ANALYTICAL RESULTS

Kincardine Wastewater Treatment Plant

2024	INFLUENT FLOWS			RAW INFLUENT Monthly Average						FINAL EFFLUENT Monthly Average											
Month	Total Flow m3	Max Flow m3/day	Avg. Flows m3/Day	BOD5 mg/L	TSS mg/L	TKN mg/L	Total P mg/L	pH	Alkalinity CaCO3 mg/L	CBOD5 mg/L	TSS mg/L	TKN mg/L	Total P mg/L	Alkalinity CaCO3 mg/L	Nitrite NO2 mg/L	Nitrate NO3 mg/L	Ammonia+ Ammonium NH3+NH4 mg/L	E-Coli /100 mL (Geomean)	pH	Temper-ature C	Conduct-ivity uS/cm	Unionized Ammonia ug/L
January	141964	6758	4579.5	99	134	25.3	2.39	8.00	293	11.0	23.5	19.2	0.61	247	0.07	0.32	18.5	10	7.90	4.0	930	0.173
February	118901	5268	4100	90	109	26.7	2.49	8.05	299	17.5	19.0	19.1	0.48	259	0.06	0.25	17.0	3	8.00	4.9	970	0.246
March	129275	5925	4170.2	102	125	29.6	2.79	8.15	269	11.5	19.5	18.2	0.59	237	0.09	0.37	16.6	12	8.30	7.8	940	0.675
April	141917	8438	4730.6	74	102	23.5	2.10	8.13	298	27.7	30.0	17.0	0.58	228	0.21	0.72	14.2	5	8.23	14.1	893	0.607
May	120439	5192	3885.1	132	147	33.3	2.07	7.90	252	24.0	36.3	11.4	0.43	193	0.42	0.83	8.4	30	8.25	17.0	805	0.461
June	103096	4538	3436.5	143	127	45.9	3.94	8.30	332	17.0	41.5	16.6	0.64	210	0.18	0.20	12.6	14	7.95	21.0	855	0.460
July	105124	4824	3391.1	153	143	37.8	3.42	7.75	281	16.0	63.5	7.0	0.59	133	0.57	0.81	4.5	112	8.43	24.2	758	0.608
August	92906	3360	2997	130	166	28.3	2.89	7.90	247	11.0	52.5	4.8	0.53	95	0.48	0.86	2.9	6	8.40	20.6	690	0.278
September	83020	3262	2767.3	132	90	51.5	4.78	8.20	281	12.5	68.0	4.0	0.48	76	0.62	1.85	1.3	2	9.10	19.9	665	0.422
October	81472	3011	2628.1	133	143	37.2	3.55	7.97	239	10.0	32.0	11.2	0.45	133	0.39	1.51	9.3	2	8.03	14.7	767	0.247
November	81381	3706	2712.7	133	109	30.5	3.13	8.00	255	7.5	23.0	20.1	0.45	193	0.29	0.70	19.6	3	8.15	8.6	870	0.468
December	132726	8818	4281.5	128	158	29.9	2.91	8.25	283	8.0	16.5	23.5	0.51	215	0.16	0.51	22.0	5	8.10	5.2	895	0.344
Annual	1332221	8817.93	3640	121	129	33.3	3.04	8.05	277	14.5	35.4	14.3	0.53	185	0.29	0.74	12.2	8	8.24	13.5	836	0.416

refers to <

Exceedance Reported

SAMPLING SCHEDULE 2024

JANUARY

S	M	T	W	T	F	S
	1	2 Raw HDS	3	4	5	6
7	8 319	9 WW	10	11	12	13
14	15 Q As	16	17	18	19	20
21	22 319	23 WW LQ	24	25	26	27
28	29	30	31			

FEBRUARY

S	M	T	W	T	F	S
				1	2	3
4	5 Raw HDS 319	6 WW	7	8	9	10
11	12 As	13	14	15	16	17
18	19	20 319 WW	21	22	23	24
25	26	27	28	29		

MARCH

S	M	T	W	T	F	S
					1	2
3	4 Raw HDS 319	5 WW	6	7	8	9
10	11 As	12	13	14	15	16
17	18 319	19 WW	20	21	22	23
24	25 Lead	26	27	28	29	30
31						

APRIL

S	M	T	W	T	F	S
	1	2 Raw HDS 319	3 WW SA LTF	4	5	6
7	8 Q As	9	10	11	12	13
14	15 319	16 WW	17	18	19	20
21	22	23	24	25	26	27
28	29 319	30 WW				

MAY

S	M	T	W	T	F	S
			1	2	3	4
5	6 Raw HDS	7	8	9	10	11
12	13 319 As	14 WW	15	16	17	18
19	20	21	22	23	24	25
26	27 319 THM	28 WW	29	30	31	

JUNE

S	M	T	W	T	F	S
						1
2	3 Raw HDS	4	5	6	7	8
9	10 319 As	11 WW	12	13	14	15
16	17 THM M	18	19	20	21	22
23	24 319	25 WW	26	27	28	29
30						

JULY

S	M	T	W	T	F	S
	1	2 Raw HDS	3	4	5	6
7	8 319 Q NA	9 WW LQ	10	11	12	13
14	15 THM As M	16	17	18	19	20
21	22 319	23 WW	24	25	26	27
28	29	30	31			

AUGUST

S	M	T	W	T	F	S
				1	2	3
4	5	6 Raw HDS 319	7 WW	8	9	10
11	12 Lead THM As	13	14	15	16	17
18	19 319 M	20 WW	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER

S	M	T	W	T	F	S
1	2	3 Raw HDS 319	4 WW	5	6	7
8	9 THM As	10	11	12	13	14
15	16 319 M	17 WW	18	19	20	21
22	23	24	25	26	27	28
29	30 319					

OCTOBER

S	M	T	W	T	F	S
		1 WW	2	3	4	5
6	7 Raw HDS Q A	8	9	10	11	12
13	14	15 319 THM As	16 WW SA	17	18	19
20	21 M	22	23	24	25	26
27	28 319	29 WW	30	31		

NOVEMBER

S	M	T	W	T	F	S
					1	2
3	4 Raw HDS	5	6	7	8	9
10	11 319 As	12 WW AL	13	14	15	16
17	18	19	20	21	22	23
24	25 319	26 WW	27	28	29	30

DECEMBER

S	M	T	W	T	F	S
1	2 Raw HDS	3	4	5	6	7
8	9 319	10 WW	11	12	13	14
15	16 As	17	18	19	20	21
22	23 319 WW	24	25	26	27	28
29	30	31				

Holiday

Weekly bacti sampling All DWS

Tuesdays: Wells - Raw NTU; Well Depths

Raw	Raw Well Sample (Scott Point)
HDS	Huronville Distribution System
319	Biweekly Bacti Sampling (MAC, Airport, Brucedale)
Lead	pH/Alkalinity/Lead - All DWS
THM	Treated Water during Zebra Mussel Prechlorination
Q	3 month Sampling - KDWS, SPDWS, UDWS, TDWS, ADWS
A	Annual Sampling - KDWS
As	Armow Arsenic
NA	North Annual Sampling Tiv- Briar #1 Well
M	Microsystin-KWTP (June to October)
WW	Biweekly Wastewater Sampling KWWTP / BEC / LTF
SA	KWWTP Semiannual Effluent Sampling
LQ	Leachate Quarterly Sampling (Valentine Ave site)
LTF	Annual Sampling Leachate Treatment Facility
AL	KWWTP Acute Lethality Testing

Municipality of Kincardine Environmental Services
Revision 2024-01 December 2023

SAMPLING SCHEDULE 2025

JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5 WW LQ	6 Raw HDS 319	7	8	9	10	11
12	13 Q As	14	15	16	17	18
19 WW	20 319	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2 WW	3 Raw HDS 319	4	5	6	7	8
9	10 As	11	12	13	14	15
16 WW	17	18 319	19	20	21	22
23	24	25	26	27	28	

MARCH

S	M	T	W	T	F	S
						1
2 WW	3 Raw HDS 319	4	5	6	7	8
9	10 As	11	12	13	14	15
16 WW	17 319	18	19	20	21	22
23	24 pH/Alk	25	26	27	28	29
30 WW	31 319					

APRIL

S	M	T	W	T	F	S
		1	2	3	4	5
6	7 Raw HDS	8	9	10	11	12
13 WW SA LTF	14 319 Q As	15	16	17	18	19
20	21	22	23	24	25	26
27 WW	28 319	29	30			

MAY

S	M	T	W	T	F	S
				1	2	3
4	5 Raw HDS	6	7	8	9	10
11 WW	12 319 As	13	14	15	16	17
18	19	20	21	22	23	24
25 WW	26 319 THM	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
1	2 Raw HDS	3	4	5	6	7
8 WW	9 319 As	10	11	12	13	14
15	16 THM M	17	18	19	20	21
22 WW	23 319	24	25	26	27	28
29	30					

JULY

S	M	T	W	T	F	S
		1	2	3	4	5
6 WW LQ	7 Raw HDS 319	8	9	10	11	12
13	14 Q As THM NA	15	16	17	18	19
20 WW	21 319 M	22	23	24	25	26
27	28	29	30	31		

AUGUST

S	M	T	W	T	F	S
					1	2
3 WW	4	5 Raw HDS 319	6	7	8	9
10	11 pH/Alk As	12	13	14	15	16
17 WW	18 319 THM M	19	20	21	22	23
24	25	26	27	28	29	30
31	Aug 31 biweekly sample to be collected on September 2					

SEPTEMBER

S	M	T	W	T	F	S
	1	2 Raw HDS 319 WW	3	4	5	6
7	8 As	9	10	11	12	13
14 WW	15 319 M	16	17	18	19	20
21	22 THM	23	24	25	26	27
28 WW	29 319	30				

OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
5	6 Raw IO HDS Q A	7	8	9	10	11
12 WW SA	13	14 319 THM As	15	16	17	18
19	20 M	21	22	23	24	25
26 WW	27 319	28	29	30	31	

NOVEMBER

S	M	T	W	T	F	S
						1
2	3 Raw HDS	4	5	6	7	8
9 WW	10 319 As AL	11	12	13	14	15
16	17	18	19	20	21	22
23 WW	24 319	25	26	27	28	29
30						

DECEMBER

S	M	T	W	T	F	S
	1 Raw HDS	2	3	4	5	6
7 WW	8 319 As	9	10	11	12	13
14	15	16	17	18	19	20
21 WW	22 319	23	24	25	26	27
28	29	30	31			

Holiday

Weekly bacti sampling
All DWS

Tuesdays: Wells - Raw NTU; Well Depths

Raw — Raw Well Sample (Scott Point)

HDS — Huronville Distribution System

319 — Biweekly Bacti Sampling (MAC, Airport, Brucedale)

pH/Alk — pH/Alkalinity - All DWS

THM — Treated Water during Zebra Mussel Prechlorination

Q — 3 month Sampling - KDWS, SPDWS, UDWS, TDWS, ADWS

A — Annual Sampling - KDWS

As — Armow Arsenic

NA — North Annual Sampling Tiv- Briar #2 Well

M — Microsystin-KWTP (June to October)

IO — Armow Inorganics and Organics, Sodium and Fluoride (5 year)-Oct

WW — Biweekly Wastewater Sampling KWWTP / BEC / LTF

SA — KWWTP Semiannual Effluent Sampling

LQ — Leachate Quarterly Sampling (Valentine Ave site)

LTF — Annual Sampling Leachate Treatment Facility

AL — KWWTP Acute Lethality Testing

Note: WW and Leachate samples including ph and temp can be collected on Sundays and shipped the following business day as long as they can be refrigerated. The exception is the WW Bacti sample which will need to be taken the day the samples are shipped to ensure it is received at the lab before the holding time expires

Note: Purolator observes Holiday on Sept 30, cannot ship samples

Municipality of Kincardine Environmental Services

Revision 2025-01 December 2024

Wastewater Sampling Requirements 2024

		Bi-weekly	Monthly	Quarterly	Semi-annual	Annual
Kincardine WWTP	Raw	**Grab Samples:** **3 - 500 mL chemical bottles** BOD5 Total Suspended Solids Total Phosphorous Total Kjeldahl Nitrogen Alkalinity				
	Final Effluent	**Grab Samples:** **5 - 500 mL chemical bottles** CBOD5 Total Suspended Solids Total Phosphorous Total Ammonia Nitrogen as N Total Kjeldahl Nitrogen NO2/NO3 Alkalinity Provincial Unionized Ammonia **1 - bacti bottle for:** E. coli **Field Tests:** pH Temperature			As per ECA Chloride COD DOC Hardness Phenols ICP 24 metal scan US EPA 624 parameters VOC **Field Tests:** pH Conductivity Temperature (April and October)	Acute Lethality Testing (WSER) November
Bruce Energy Centre Lagoons	Raw	**24-hour composite samples:** **3 - 500 mL chemical bottles** BOD5 Total Suspended Solids Total Phosphorous Total Kjeldahl Nitrogen				
	Final Effluent	**Grab samples:** **4 - 500 mL chemical bottles** CBOD5 Total Suspended Solids Total Phosphorous Total Kjeldahl Nitrogen Total Ammonia Nitrogen NO2/NO3 Alkalinity **1 - bacti bottle for:** E. coli **Field Tests:** pH Temperature **Calculate:** Provincial Un-ionized Ammonia				
	Septage	BOD5 Total Phosphorous Total Suspended Solids TKN Oil and Grease Field Tests: pH Temperature **(During Each event-Grab sample)**				
	Leachate Hauled to BEC	BOD5 Total Phosphorous Total Suspended Solids TKN Boron Zinc Iron Field Tests: pH Temperature **(Only as required if LTF is out of service)**				
Valentine Ave. Landfill	Groundwater Collection System				**Sampling As per GWCS C of A:** BOD5 Suspended Solids Total Phosphorous TKN Ammonia Heavy metals **(GHD Samples)**	
	Leachate Collection System			**As per LCS C of A:** BOD5 Total Phosphorous Suspended Solids NO2/NO3 Ammonia TKN VOCs COD DOC Alkalinity Chloride Hardness Phenols Metals **Field Tests:** pH Conductivity Temperature **(GHD samples May and November)**	**As per WWTP ECA:** Alkalinity BOD5 Chloride COD DOC Hardness NO2/NO3 TKN Ammonia ICP 24 metal scan US EPA 624 parameters VOC **Field Tests:** pH Conductivity Temperature (January and July-covers quarterly samples for this time frame too) **MOK Samples**	
Kincardine Waste Management Centre Leachate Treatment Facility	Influent		**Grab Samples:** **3 - 500 mL chemical bottles** BOD5 Total Suspended Solids Total Phosphorous Total Kjeldahl Nitrogen			
	Effluent (Clarifier Discharge)	**Grab samples:** **4 - 500 mL chemical bottles** CBOD5 Total Suspended Solids Total Phosphorous Total Ammonia Nitrogen Nitrate Nitrogen **1 - bacti bottle for:** E. coli **Field Tests:** pH Temperature **Calculate:** Provincial Un-ionized Ammonia				**Spring sampling:** **Grab samples** BOD5 COD DOC Phenol VOCs Inorganics (Table 6 of ECA) (Due April)
	SW4 (Surface Water 4)	Grab samples: 1-500mL chemical bottles Nitrate Nitrogen				

Revision 2024-01 December 15, 2023

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110000864

11-April-2024

Mun of Kincardine (WWTP)
Attn : Lisa Crimmings

155 Durham St.
Kincardine, ON
N2Z 1A4, Canada

Phone: 519-396-4660
Fax:

Date Rec. : 04 April 2024
LR Report: **CA12208-APR24**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Final Effluent
Sample Date & Time					03-Apr-24 07:57
Temperature Upon Receipt [°C]	---	---	---	---	8.0
Field pH [no unit]	---	---	---	---	8.0
Field Temperature [celcius]	---	---	---	---	9.4
Chloride [mg/L]	09-Apr-24	12:55	10-Apr-24	13:13	130
Chemical Oxygen Demand [mg/L]	05-Apr-24	08:15	05-Apr-24	13:29	54
Dissolved Organic Carbon [mg/L]	08-Apr-24	21:44	09-Apr-24	08:35	10
4AAP-Phenolics [mg/L]	05-Apr-24	09:47	10-Apr-24	08:52	< 0.002
Hardness [mg/L as CaCO3]	09-Apr-24	07:30	11-Apr-24	12:01	248
Silver (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	< 0.00005
Aluminum (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	1.08
Arsenic (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.0005
Barium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.0166
Beryllium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	< 0.000007
Boron (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.126
Bismuth (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.00024
Calcium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	69.9
Cadmium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.000010
Cobalt (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.000212
Chromium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.00057
Copper (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.005
Iron (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.384
Potassium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	9.55
Lithium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.0029
Magnesium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	17.9
Manganese (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.0557
Molybdenum (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.0013
Sodium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	74.6
Nickel (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.0013
Phosphorus (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	1.12
Lead (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.00021
Antimony (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	< 0.0009
Selenium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.00036
Silicon (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	2.27

SGS Canada Inc.
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Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110000864

LR Report : **CA12208-APR24**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Final Effluent
Tin (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.00048
Strontium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.711
Titanium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.0018
Thallium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	< 0.000005
Uranium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.000562
Vanadium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.00062
Tungsten (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	< 0.0002
Yttrium (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.00005
Zinc (total) [mg/L]	09-Apr-24	07:30	11-Apr-24	12:01	0.016
Benzene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Bromodichloromethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Bromoform [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Bromomethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Carbon tetrachloride [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.2
Chlorobenzene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Chloroethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 5
Chloroform [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Chloromethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 5
Dibromochloromethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,2-Dichlorobenzene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,3-Dichlorobenzene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,4-Dichlorobenzene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,1-Dichloroethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,2-Dichloroethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,1-Dichloroethylene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,2-Dichloropropane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
trans-1,2-Dichloroethene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
cis-1,2-Dichloroethene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
cis-1,3-Dichloropropene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
trans-1,3-Dichloropropene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Ethylbenzene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Ethylenedibromide [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.2
Dichloromethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Styrene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,1,2,2-Tetrachloroethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Tetrachloroethene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Toluene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Trichloroethylene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Vinyl Chloride [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.2
Trichlorofluoromethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 5
1,1,1-Trichloroethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
1,1,2-Trichloroethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
Xylene (total) [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
o-xylene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
m/p-xylene [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5
2-Chloroethylvinylether [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 5
1,1,1,2-Tetrachloroethane [ug/L]	08-Apr-24	11:28	09-Apr-24	12:10	< 0.5

SGS Canada Inc.
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Works #: 110000864

LR Report : **CA12208-APR24**

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

0003675764

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Works #: 110000864

23-October-2024

Mun of Kincardine (WWTP)
Attn : Lisa Crimmings

155 Durham St.
Kincardine, ON
N2Z 1A4, Canada

Phone: 519-396-4660
Fax:

Date Rec. : 17 October 2024
LR Report: **CA12538-OCT24**

Copy: #1

CERTIFICATE OF ANALYSIS
Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Final Effluent
Sample Date & Time					16-Oct-24 09:50
Temperature Upon Receipt [°C]	---	---	---	---	9.0
Field pH [no unit]	---	---	---	---	8.2
Field Temperature [celcius]	---	---	---	---	11.1
Chloride [mg/L]	18-Oct-24	12:21	21-Oct-24	13:06	89
Chemical Oxygen Demand [mg/L]	18-Oct-24	13:49	18-Oct-24	16:31	48
Dissolved Organic Carbon [mg/L]	18-Oct-24	11:21	21-Oct-24	09:40	10
4AAP-Phenolics [mg/L]	18-Oct-24	09:15	21-Oct-24	10:24	< 0.002
Hardness [mg/L as CaCO3]	18-Oct-24	21:02	23-Oct-24	12:52	151
Silver (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	< 0.00005
Aluminum (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.539
Arsenic (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.0005
Barium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.0124
Beryllium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	< 0.000007
Boron (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.115
Bismuth (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.00010
Calcium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	46.3
Cadmium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.000004
Cobalt (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.000144
Chromium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.00019
Copper (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.002
Iron (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.112
Potassium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	12.1
Lithium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.0017
Magnesium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	8.68
Manganese (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.0185
Molybdenum (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.0010
Sodium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	71.0
Nickel (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.0009
Phosphorus (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.538
Lead (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.00012
Antimony (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	< 0.0009

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Works #: 110000864

LR Report : **CA12538-OCT24**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Final Effluent
Selenium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.00018
Silicon (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	1.45
Tin (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.00011
Strontium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.675
Titanium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.0007
Thallium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	< 0.000005
Uranium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.000162
Vanadium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.00032
Tungsten (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	< 0.0002
Yttrium (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.00003
Zinc (total) [mg/L]	18-Oct-24	21:02	23-Oct-24	12:52	0.005
Benzene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Bromodichloromethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Bromoform [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Bromomethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Carbon tetrachloride [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.2
Chlorobenzene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Chloroethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 5
Chloroform [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Chloromethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 5
Dibromochloromethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,2-Dichlorobenzene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,3-Dichlorobenzene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,4-Dichlorobenzene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,1-Dichloroethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,2-Dichloroethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,1-Dichloroethylene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,2-Dichloropropane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
trans-1,2-Dichloroethene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
cis-1,2-Dichloroethene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
cis-1,3-Dichloropropene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
trans-1,3-Dichloropropene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Ethylbenzene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Ethylenedibromide [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.2
Dichloromethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Styrene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,1,2,2-Tetrachloroethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Tetrachloroethene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Toluene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Trichloroethylene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Vinyl Chloride [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.2
Trichlorofluoromethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 5
1,1,1-Trichloroethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
1,1,2-Trichloroethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
Xylene (total) [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
o-xylene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5
m/p-xylene [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5

SGS Canada Inc.
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Works #: 110000864

LR Report : **CA12538-OCT24**

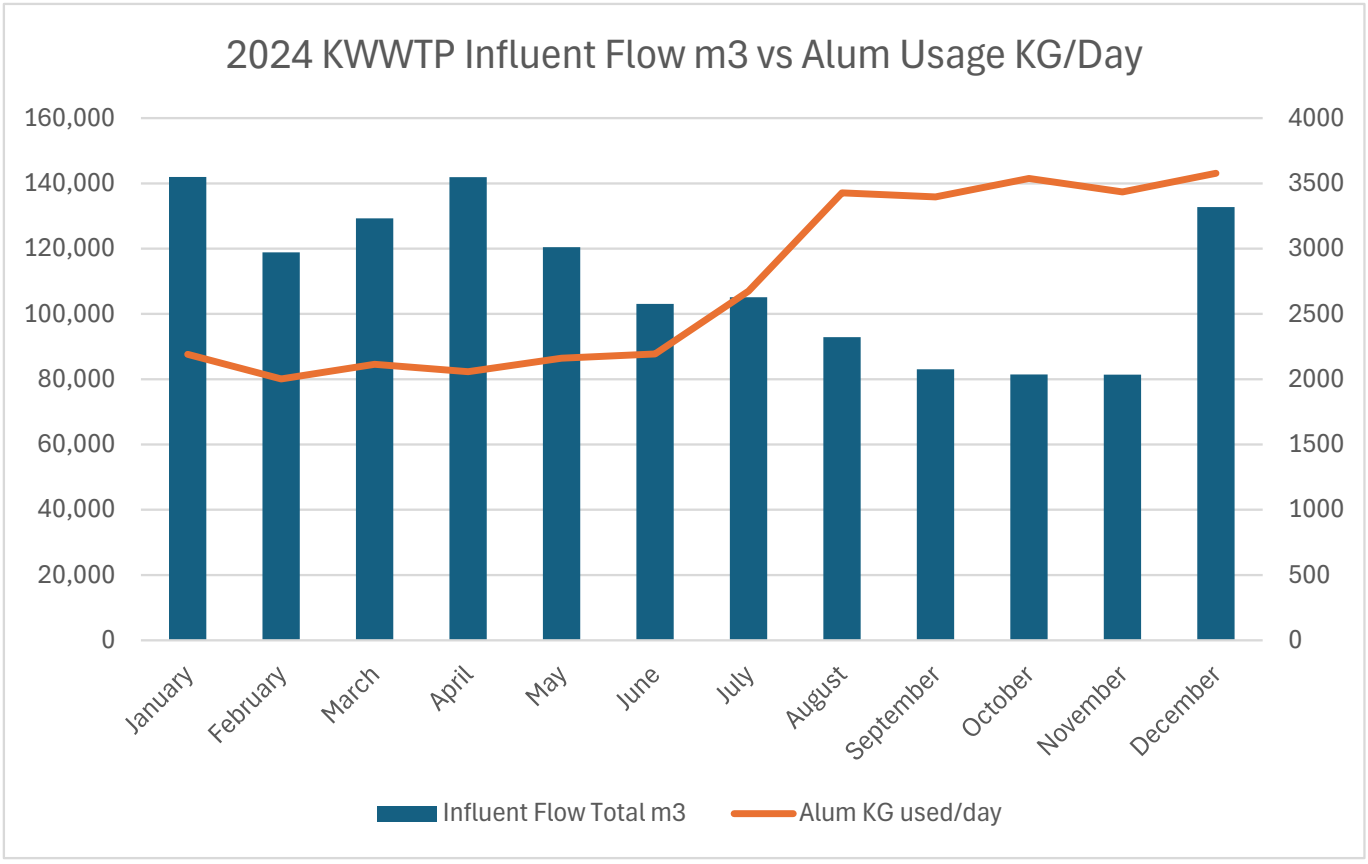
Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Final Effluent
2-Chloroethylvinylether [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 5
1,1,1,2-Tetrachloroethane [ug/L]	21-Oct-24	12:32	22-Oct-24	13:31	< 0.5

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

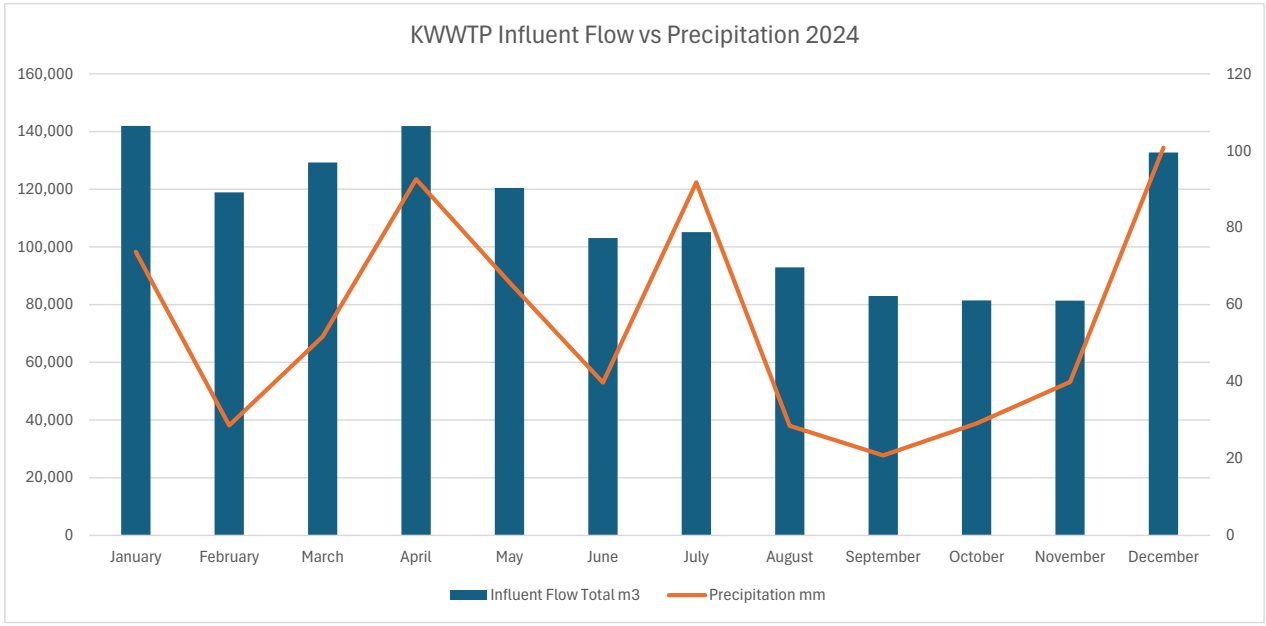
OnLine LIMS

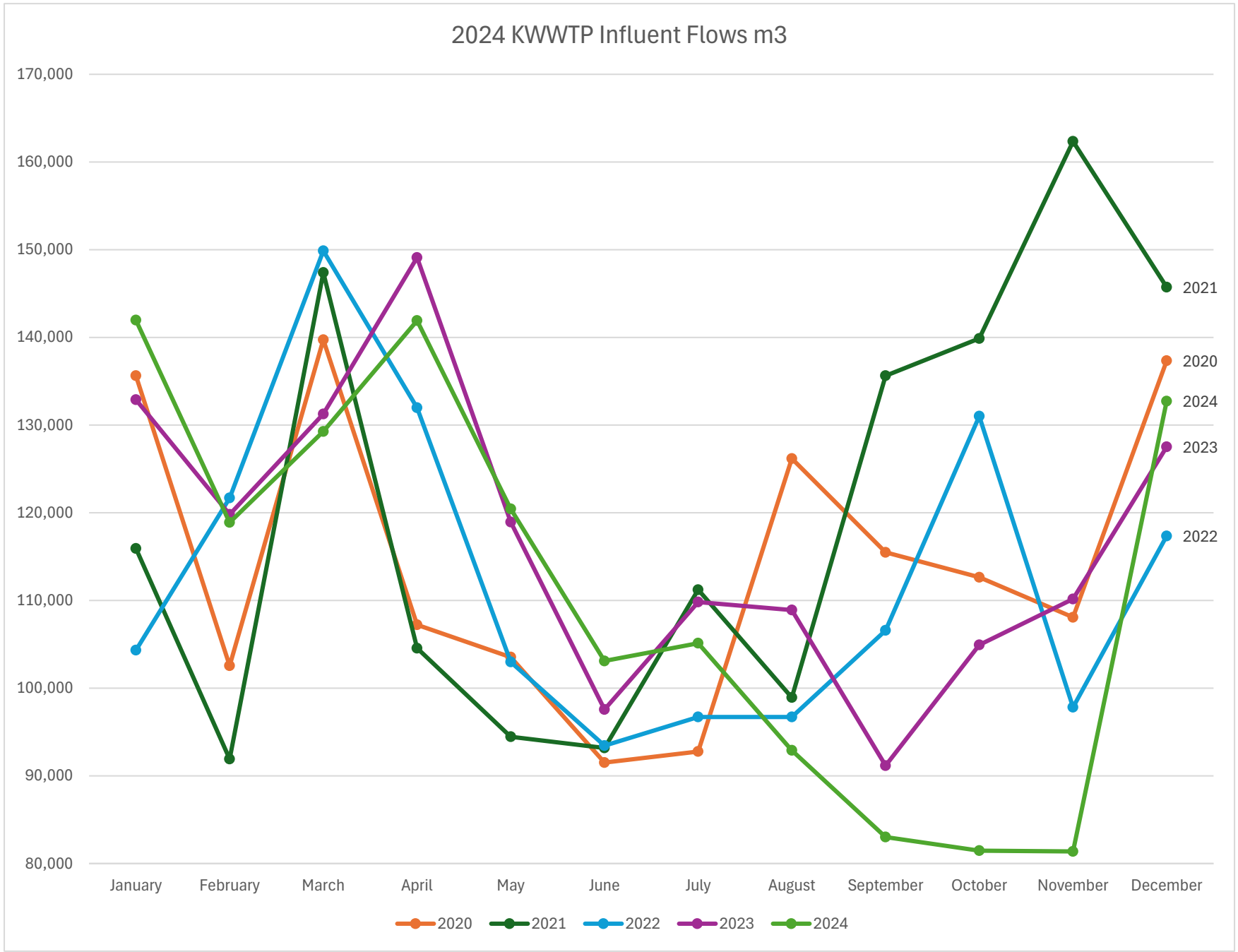
0003902399

APPENDIX D


2024 KWWTP Influent Flow m3 vs Alum Usage KG/Day
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
4000
3500
3000
2500
2000
1500
1000
500
0
January
February
March
April
May
June
July
August
September
October
November
December
Influent Flow Total m3
Alum KG used/day

Month	Influent Flow Total m3	Precipitation mm
January	141,964	73.7
February	118,901	28.6
March	129,275	51.7
April	141,917	92.6
May	120,439	65.8
June	103,096	39.7
July	105,124	91.8
August	92,906	28.5
September	83,020	20.8
October	81,472	29.1
November	81,381	39.9
December	132,726	100.8
Totals	1,332,221	663.04




2024 KWWTP Influent Flows m3
170,000
160,000
150,000
140,000
130,000
120,000
110,000
100,000
90,000
80,000
January
February
March
April
May
June
July
August
September
October
November
December
2020
2021
2022
2023
2024

APPENDIX E

SGS Canada Inc.
P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - KOL 2HO
Phone: 705-652-2000 FAX: 705-652-6365

Works #: 110000864

01-February-2024

Mun of Kincardine (WWTP)
Attn : Lisa Crimmings

155 Durham St.
Kincardine, ON
N2Z 1A4, Canada

Phone: 519-396-4660
Fax:

Date Rec. : 24 January 2024
LR Report: **CA13726-JAN24**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Leachate
Sample Date & Time					23-Jan-24 09:20
Temperature Upon Receipt [°C]	---	---	---	---	4.0
Field pH [no unit]	---	---	---	---	7.7
Field Temperature [celcius]	---	---	---	---	8.6
Field Turbidity [NTU]	---	---	---	---	1980
Biochemical Oxygen Demand (BOD5) [mg/L]	25-Jan-24	17:16	30-Jan-24	11:23	< 12
Total Suspended Solids [mg/L]	24-Jan-24	13:59	25-Jan-24	13:23	40
Alkalinity [mg/L as CaCO3]	24-Jan-24	15:24	25-Jan-24	11:04	924
Total Kjeldahl Nitrogen [as N mg/L]	26-Jan-24	14:41	01-Feb-24	10:18	36.0
Ammonia+Ammonium (N) [as N mg/L]	24-Jan-24	18:29	26-Jan-24	11:59	37.3
Nitrite (as N) [mg/L]	25-Jan-24	10:27	26-Jan-24	17:57	< 0.03
Nitrate (as N) [mg/L]	25-Jan-24	10:27	26-Jan-24	17:57	0.28
Nitrate + Nitrite (as N) [mg/L]	25-Jan-24	10:27	26-Jan-24	17:57	0.28
Chloride [mg/L]	25-Jan-24	16:42	26-Jan-24	18:44	77
Chemical Oxygen Demand [mg/L]	29-Jan-24	10:51	30-Jan-24	11:23	62
Dissolved Organic Carbon [mg/L]	25-Jan-24	07:55	26-Jan-24	10:08	18
4AAP-Phenolics [mg/L]	25-Jan-24	13:19	26-Jan-24	10:18	< 0.002
Hardness [mg/L as CaCO3]	25-Jan-24	10:31	26-Jan-24	16:54	734
Silver (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	< 0.00005
Aluminum (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.459
Arsenic (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.0021
Barium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.124
Beryllium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.000008
Boron (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.394
Bismuth (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	< 0.00001
Calcium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	186
Cadmium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.000011
Cobalt (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.00235
Chromium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.00143
Copper (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	< 0.002
Iron (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	5.61
Potassium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	32.3
Lithium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.0089
Magnesium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	65.7

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Works #: 110000864

LR Report : **CA13726-JAN24**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Leachate
Manganese (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.725
Molybdenum (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.00099
Sodium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	72.2
Nickel (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.0046
Phosphorus (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.243
Lead (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.0006
Antimony (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	< 0.0009
Selenium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.0002
Silicon (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	9.72
Tin (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.00016
Strontium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	1.46
Titanium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.00927
Thallium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	< 0.000005
Uranium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.000712
Vanadium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.00168
Tungsten (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	< 0.0002
Yttrium (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.00032
Zinc (total) [mg/L]	25-Jan-24	10:31	26-Jan-24	16:54	0.214
Benzene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Bromodichloromethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Bromoform [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Bromomethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Carbon tetrachloride [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.2
Chlorobenzene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Chloroethane [ug/L]	29-Jan-24	09:26	31-Jan-24	12:40	< 5
Chloroform [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Chloromethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 5
Dibromochloromethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,2-Dichlorobenzene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,3-Dichlorobenzene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,4-Dichlorobenzene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,1-Dichloroethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,2-Dichloroethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,1-Dichloroethylene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,2-Dichloropropane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
trans-1,2-Dichloroethene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
cis-1,2-Dichloroethene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
cis-1,3-Dichloropropene [ug/L]	25-Jan-24	08:59	29-Jan-24	12:05	< 0.5
trans-1,3-Dichloropropene [ug/L]	25-Jan-24	08:59	29-Jan-24	12:05	< 0.5
Ethylbenzene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Ethylenedibromide [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.2
Dichloromethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Styrene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,1,2,2-Tetrachloroethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Tetrachloroethene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Toluene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Trichloroethylene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Vinyl Chloride [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.2
Trichlorofluoromethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 5

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Works #: 110000864

LR Report : **CA13726-JAN24**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Leachate
1,1,1-Trichloroethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
1,1,2-Trichloroethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
Xylene (total) [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	0.8
o-xylene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5
m/p-xylene [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	0.6
2-Chloroethylvinylether [ug/L]	25-Jan-24	08:59	29-Jan-24	12:05	< 5
1,1,1,2-Tetrachloroethane [ug/L]	25-Jan-24	08:59	31-Jan-24	12:40	< 0.5

Carrie Greenlaw
Project Specialist,
Environment, Health & Safety

OnLine LIMS

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Works #: 110000864

16-July-2024

Mun of Kincardine (WWTP)
Attn : Lisa Crimmings

155 Durham St.
Kincardine, ON
N2Z 1A4, Canada

Phone: 519-396-4660
Fax:

Date Rec. : 10 July 2024
LR Report: **CA13412-JUL24**

Copy: #1

CERTIFICATE OF ANALYSIS

Final Report

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Leachate
Sample Date & Time					09-Jul-24 09:40
Temperature Upon Receipt [°C]	---	---	---	---	18.0
Field pH [no unit]	---	---	---	---	7.0
Field Temperature [celcius]	---	---	---	---	16.8
Field Conductivity [uS/cm]	---	---	---	---	2.30
Biochemical Oxygen Demand (BOD5) [mg/L]	11-Jul-24	17:35	16-Jul-24	11:28	< 12
Total Suspended Solids [mg/L]	12-Jul-24	19:24	15-Jul-24	11:27	35
Alkalinity [mg/L as CaCO3]	11-Jul-24	08:17	12-Jul-24	10:40	1170
Total Kjeldahl Nitrogen [as N mg/L]	11-Jul-24	19:06	16-Jul-24	13:51	56
Ammonia+Ammonium (N) [as N mg/L]	12-Jul-24	19:19	16-Jul-24	13:30	50.6
Nitrite (as N) [mg/L]	11-Jul-24	13:51	15-Jul-24	15:05	< 0.03
Nitrate (as N) [mg/L]	11-Jul-24	13:51	15-Jul-24	15:05	< 0.06
Nitrate + Nitrite (as N) [mg/L]	11-Jul-24	13:51	15-Jul-24	15:05	< 0.06
Chloride [mg/L]	11-Jul-24	15:45	15-Jul-24	19:01	140
Chemical Oxygen Demand [mg/L]	11-Jul-24	08:32	16-Jul-24	11:28	83
Dissolved Organic Carbon [mg/L]	11-Jul-24	11:28	12-Jul-24	16:03	34
4AAP-Phenolics [mg/L]	11-Jul-24	09:33	11-Jul-24	14:32	0.008
Hardness [mg/L as CaCO3]	12-Jul-24	08:24	16-Jul-24	08:18	808
Silver (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.00005
Aluminum (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.034
Arsenic (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.0021
Barium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.153
Beryllium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.000007
Boron (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.559
Bismuth (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.00001
Calcium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	199
Cadmium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.000003
Cobalt (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.00345
Chromium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.00261
Copper (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.001
Iron (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	7.85
Potassium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	42.7

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LR Report : **CA13412-JUL24**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Leachate
Lithium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.0103
Magnesium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	75.4
Manganese (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.827
Molybdenum (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.0004
Sodium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	107
Nickel (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.0066
Phosphorus (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.224
Lead (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.00009
Antimony (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.0009
Selenium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.00025
Silicon (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	12.1
Tin (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.00017
Strontium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	1.76
Titanium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.0024
Thallium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.000005
Uranium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.000268
Vanadium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.00177
Tungsten (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	< 0.0002
Yttrium (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	0.00011
Zinc (total) [mg/L]	12-Jul-24	08:24	16-Jul-24	08:18	1.54
Benzene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Bromodichloromethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Bromoform [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Bromomethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Carbon tetrachloride [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.2
Chlorobenzene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Chloroethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 5
Chloroform [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Chloromethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 5
Dibromochloromethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
1,2-Dichlorobenzene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
1,3-Dichlorobenzene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
1,4-Dichlorobenzene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	0.8
1,1-Dichloroethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
1,2-Dichloroethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
1,1-Dichloroethylene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
1,2-Dichloropropane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
trans-1,2-Dichloroethene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
cis-1,2-Dichloroethene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
cis-1,3-Dichloropropene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
trans-1,3-Dichloropropene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Ethylbenzene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Ethylenedibromide [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.2
Dichloromethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Styrene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
1,1,2,2-Tetrachloroethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Tetrachloroethene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5

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Works #: 110000864

LR Report : **CA13412-JUL24**

Analysis	1: Analysis Start Date	2: Analysis Start Time	3: Analysis Completed Date	4: Analysis Completed Time	5: Leachate
Toluene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Trichloroethylene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Vinyl Chloride [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.2
Trichlorofluoromethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 5
1,1,1-Trichloroethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
1,1,2-Trichloroethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
Xylene (total) [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
o-xylene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
m/p-xylene [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5
2-Chloroethylvinylether [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 5
1,1,1,2-Tetrachloroethane [ug/L]	12-Jul-24	10:49	15-Jul-24	13:47	< 0.5

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APPENDIX F

KWW Effluent Station
UV System

The effectiveness of the disinfection system can be viewed by monitoring the UV intensity displayed at the Operator Station as well as regular sampling and analysis of the effluent treated by the system.

A low UV intensity reading can indicate the need for more frequent cleaning of the quartz sleeves. The frequency is dependent on the characteristics of the flow and is determined on the basis of practical operating experience.

The next section details the recommended preventative maintenance schedules. The procedures to carry out the maintenance are found in *Section 10.2*. Refer to the *Section 12.0 Troubleshooting Guide* for information on alarms and potential causes with options for corrective action.

10.1 Preventative Maintenance

A recommended maintenance schedule is provided to guide the operator in routine maintenance tasks. An operators' log should be kept of all maintenance performed.

D = daily
W = weekly
M = monthly
Q = quarterly
S = semi-annually
A = annually

Table 10-1: Preventative Maintenance Schedule

GENERAL		D	W	M	Q	S	A
1	Check UV intensity readings for significant changes.	•					
2	Monitor process for major changes in normal effluent quality including suspended solids, percent UV transmittance and flow rate.	•					
3	Check indicator LED's to ensure all UV lamps are energized and all ballasts are operating correctly.	•					
4	Check elapsed time meter, microbiological results, and lamp log sheet (in the Operating Log) to determine when UV lamps require replacement.		•				
POWER DISTRIBUTION CENTER		D	W	M	Q	S	A
1	Clean the inside and outside of the Power Distribution Center (dust, etc.)			•			
2	Check the enclosure door seals for damage and/or leakage.				•		
3	Check the integrity (tight connection) of all the power, grounding and remote signaling connections.				•		
4	Inspect each Rack Connector for visible corrosion, water ingress and watertight seal effectiveness.				•		
5	Check that all indicator LED's operate correctly.			•			
6	Inspect external power supply, remote annunciation, UV Sensor, Level Probe and Rack Supply Cable for mechanical damage.				•		
7	Check the operation of the Residual Current Circuit Breaker (RCCB)			•			
SYSTEM CONTROL CENTER		D	W	M	Q	S	A
1	Clean the inside and outside of the System Control Center.				•		
2	Check the enclosure door seal for any damage and/or leakage.				•		
3	Inspect the external power supply and remote annunciation cabling for mechanical damage.				•		

CHANNEL MOUNTED EQUIPMENT		D	W	M	Q	S	A
1	Inspect for, and remove, organic growth and debris that could cause a conducting path between the electrodes of the Level Probe.		•				
2	Inspect for, and remove, organic growth and debris that is clogging the UV Sensor.		•				
3	Inspect for, and remove, organic growth and debris that is impeding flow through the Lamp Racks.		•				
4	Inspect for, and remove, organic growth and debris that is impeding flow over the Weir (if fitted).			•			
5	Inspect for, and remove, organic growth and debris that is impeding flow through or free movement of the Level Control Gate (if fitted).			•			
6	Check the Lamp Racks for mechanical damage, broken, discolored or fouled sleeves or leaking seals.				•		
7	Check that the effluent level is less than 2.0 inches (50 mm) above the top lamp.				•		
8	Check for, and remove, sediment buildup at the Weir (if fitted).				•		
9	Check and re-tighten the hardware and fittings associated with the Level Control Gate (if fitted).				•		
10	Inspect all "Koroseal" rubber gaskets at the Level Control Gate (if fitted).				•		
11	Inspect, and if necessary replace, the caulking on all seams and corner joints at the Level Control Gate (if fitted).					•	
AUTOMATIC CLEANING SYSTEM		D	W	M	Q	S	A
1	Inspect the scrapers for, and remove, organic growth and debris.				•		
2	Lubricate lead screw and nut at top of the lamp rack assembly				•		
3	Maintain the motor.				•		
CONTROL SYSTEM							
	For preventative and corrective maintenance requirements for your particular control system refer to the control system documentation shipped from the factory with the UV system.						

10.2 Replacing Lamps

Refer to *Section 3.3.2 Lamp Rack* for diagrams of lamp rack components.

Follow the procedure outlined below to remove and re-install one Lamp and Quartz Sleeve from the Lamp Rack for routine lamp replacement.

1. Jog the cleaning mechanism of the selected Bank of lamps to the sleeve support leg (remote position) to facilitate maintenance of the Lamp Rack. The cleaning mechanism is jogged from the Clean Timer display of the Operator Station. The operator initiates this command in LOCAL mode by holding down the <A/B> button and pressing the <UP> button.
2. After the cleaning mechanism is parked in the remote position, after approximately 7 minutes, remove power from the selected Lamp Rack and disconnect the Rack Supply Cable as well as the UV Sensor Cable (if fitted) from the Power Distribution Center. Protect the Rack Connector from moisture and mechanical damage.
3. Remove the Lamp Rack from the channel and place it on a Service Trolley for carrying out the maintenance procedure. It can also be secured by other means if a Service Trolley is not available.
4. Clean off any debris from the Lamp Rack and Automatic Cleaning System (using water).
5. Remove the Support Locking Clip (at the sleeve support leg).
6. Remove the Teflon Sleeve Support (at the sleeve support leg).
7. Unscrew the Sleeve Coupling Nut and remove it from the coupling, allowing it to rest on the Quartz Sleeve.

	Maintenance Schedule	WW Collection	
Frequency	**Equipment**	**Activity**	**Performed By**
	Pump Stations		
2 wks	Bar Screens	Raked and inspected	Staff
As needed	Bar Screens; **Connaught** and **Huron Terrace** - have automatic bars screens	Change & Empty bins they dump into	Staff
Annually	Automatic Bar Screens	Inspected	Staff
Monthly	Gensets	Ran for Inspection	Staff
Annually	Pumps	Greased	Staff
Annually	Pumps	Inspection	Staff
Annually	Valves	Operated	Staff
Annually	Dialer Channel	Tested and Batteries replaced	Staff
Annually	Gensets	Inspected	3rd Party
Annually	Dialer Channel and SCADA	Tested	Staff
Annually	Overflow Pipe	Inspected	Staff
Annually	Overflow Signage	Inspected	Staff
Biennial	Flow meters (pump stations)	Calibration (on a rotating 2 year schedule)	3rd Party
Annually	Wet Well	Cleaned out (on a rotating 3 year schedule)	3rd Party
5 years	UPS Backup units	Replaced	Staff
	Groundwater Collection System		
Annually or as needed	Discharge piping and forcemain	Removal of sediment when flow rate is 1.58 L/s or lower	Staff
	Leachate Collection System		
Annually or as needed	Discharge piping and forcemain	Removal of sediment when flow rate is 1.58 L/s or lower	Staff
	Collection Systems		
Annually	Air Relief Valves	Inspected (on a rotating 3 year schedule)	Staff
Annually	Forcemain Chambers	Inspected (on a rotating 3 year schedule)	Staff
Annually	Sewermain	Flush mains (on a rotating 5 year schedule)	staff or 3rd party
Annually	Sewermain	Inspect with CCTV (on a rotaing 5 year schedule)	staff or 3rd party
Annually	Manholes	Inspected (on a rotating 5 year schedule)	Staff
Annually	Manholes	Flushed (on a rotating 5 year schedule)	staff or 3rd party
Annually	Sanitary Valves	Operated (on a rotating 3 year schedule)	Staff

*ECA requirement is to have any pumping station and collection system overflow inspected at least once per calendar year

Updated May 9, 2023

	Maintenance Schedule	KWW Treatment	
Frequency	**Equipment**	**Activity**	**Performed By**
	Kincardine Lagoons		
Daily	Blowers	Inspection	Staff
Daily	Aeration System	Inspection	Staff
As needed	Vegetation & Debris	Cleaned	Staff
Weekly	Blowers	Inspection-Oil level/Filter/Pressure/Belt Guard	Staff
Monthly	Blowers	Greased	Staff
Monthly	Alum Line	Flushed	Staff
Quarterly	Aeration System	Blowout Procedure/Clean diffusers	Staff
Every 6 months or 4,000 hours	Blower System	Inspect and repair-Exhaust/Safety Valve/Belts/Sheaves/Oil Change/Grease	Staff or 3rd party
Twice yearly or, as needed (whichever comes 1st)	Splitter Box	Sucked out w/ Vactor	Staff or 3rd party
Twice Yearly	Alum Pumps	Cleaned/Tested for accuracy	Staff
Annually	Aeration System	Clean Aerator Wands	Staff
Annually	Lagoon Sludge Depths	Inspected	Staff
Annually	Influent Flow Meter	Calibration	3rd Party
Annually	Alum Pumps	Tested/Rebuilt	Staff
Annually	Dialer Channel	Tested and Batteries replaced	Staff
Annually	SCADA Alarms/Win911	Tested	Staff
5 years	UPS Backup units	Replaced	Staff
6 Years	Blowers	Replace Hose lines	Staff or 3rd party
10 Years or as required	Aeration Coarse Bubble Diffusers	Replaced	Staff or 3rd party
15 Years or as required	Aeration System Diffuser Membranes	Replaced	Staff or 3rd party
15 Years or as required	Lagoon Sludge Removal	Removal	3rd Party
	Kincardine Effluent Station		
Daily	UV Equipment	Inspection	Staff
Weekly	UV Channel Mounted Equipment	Inspect and remove debris	Staff
As needed	UV Sensors	Maintenance	Staff
Quarterly	UV Lamps	Inspected	Staff
after 12,000 hrs	UV Lamps	Replaced	Staff
Quarterly	UV Sensors	Racks pulled & cleaned	Staff
Quarterly	UV Automatic Cleaning System	Inspect and maintain	Staff
Quarterly	UV Power Distribution Center	Inspect and maintain	Staff
Quarterly	UV System Control Center	Inspect and maintain	Staff
Annually	Flow meter	Calibration	3rd Party
Annually	Dialer Channel	Tested and Batteries replaced	Staff
5 years	UPS Backup units	Replaced	Staff

Updated November 15, 2024

APPENDIX G

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- LEVEL MEASUREMENT
MULTIRANGER PLUS

Customer Name:	Municipality of Kincardine	Site/Plant Address:	139 Valentine Avenue
Plant Name:	Groundwater Lift		Kincardine, ON, N2Z 2Y6

Device Information	
Make:	Milltronics
Model:	Multiranger Plus
Order Code:	N/A
Serial No.:	071890074-14
Tag:	N/A
Job Location:	Groundwater Lift

Service Information	
Date:	June 3, 2024
Report No:	CO1543_2406-15
Job No:	CO1543_2406

Inst. Reading	AS FOUND	AS LEFT
Level (m)	1.522	1.521

Flow Details	
Unit:	Meter
Level Range:	0-1.8
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	1.8

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	0.00000	P40	Parshall Flume	1.00
P1	Dimension Unit (m)	1.000	P41	flow rate (per day)	4.00
P2	Mode	4	P42	OCM exponent	0.00
P3	Empty Distance	2.20	P43	Flume dimension	1
P4	Span	1.80	P45	Maximum head	1.80
P5	near blanking	0.4	P46	Maximum flow rate	1000.00

Instrument Test Information and Results

Input (%)	Calculated Distance (m)	Calculated Input (mA)	Level on UUT Display (m)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.00	4.00	0.00
25	0.45	8.00	0.46	7.98	0.02
50	0.90	12.00	0.94	12.08	-0.08
75	1.35	16.00	1.36	16.02	-0.02
100	1.80	20.00	1.81	20.01	-0.01

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. Instrument works within specification.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 3, 2024		

End of Report

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- LEVEL MEASUREMENT
MULTIRANGER PLUS

Customer Name:	Municipality of Kincardine	Site/Plant Address:	139 Valentine Avenue
Plant Name:	Leachate Lift		Kincardine, ON, N2Z 2Y6

Device Information	
Make:	Milltronics
Model:	Multiranger Plus
Order Code:	N/A
Serial No.:	06-19-97 169MW
Tag:	N/A
Job Location:	Leachate Lift

Service Information	
Date:	June 4, 2024
Report No:	CO1543_2406-16
Job No:	CO1543_2406

Flow Details	
Unit:	Meter
Level Range:	0-3.9
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	3.9

Inst. Reading	AS FOUND	AS LEFT
Level (m)	1.33	1.38

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	0.00000	P40	Parshall Flume	1.00
P1	Dimension Unit (m)	1.000	P41	flow rate (per day)	4.00
P2	Mode	4	P42	OCM exponent	1.55
P3	Empty Distance	4.29	P43	Flume dimension	1
P4	Span	3.99	P45	Maximum head	3.99
P5	near blanking	0.3	P46	Maximum flow rate	1000.00

Instrument Test Information and Results

Input (%)	Calculated Distance (m)	Calculated Input (mA)	Level on UUT Display (m)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.01	4.01	0.01
25	0.98	8.00	0.95	7.98	-0.02
50	1.95	12.00	1.92	11.98	-0.02
75	2.93	16.00	2.94	16.02	0.02
100	3.90	20.00	3.89	19.99	-0.01

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. Limited Verification Performed as Sensor Immersed in water. Transmitter Test Passed.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 4, 2024		

End of Report

Version: 19-12

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- MULTIRANGER 100
OPEN CHANNEL LEVEL MEASUREMENT

Customer Name:	Municipality of Kincardine	Site/Plant Address	141 Broadway St.,
Plant Name:	Connaught Park Lift		Kincardine, ON

Device Information		Service Information	
Make:	Siemens Milltronics	Date:	June 5, 2024
Model:	Multiranger 100	Report No:	CO1543_2406-17
Order Code:	7ML50331AA001A	Job No:	CO1543_2406
Serial No.:	PBD/K4260463		
Tag:	LIT 01		

Flow Details	
Unit:	millimetres
Range:	0-1230
Current Output:	4 to 20 mA
4 mA Set Point	0
20 mA Set Point	1230.00

Inst. Reading	AS FOUND	AS LEFT
Level (mm)	218.53	224.81

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

Programming Parameter of Instrument

Parameter	Discription	Value	Parameter	Discription	Value
P001	Operation	Level	P007	Span	1230 mm
P002	Material	Liquid	P062	Offset Reading	0.000 mm
P004	Transducer	104(XPS_15)	P211	20 mA Setpoint	1230 mm
P005	Units	millimetres	P701	Max. empty rate	1000 mm
P006	Empty	1670 mm	P800	Near Blanking	300 mm

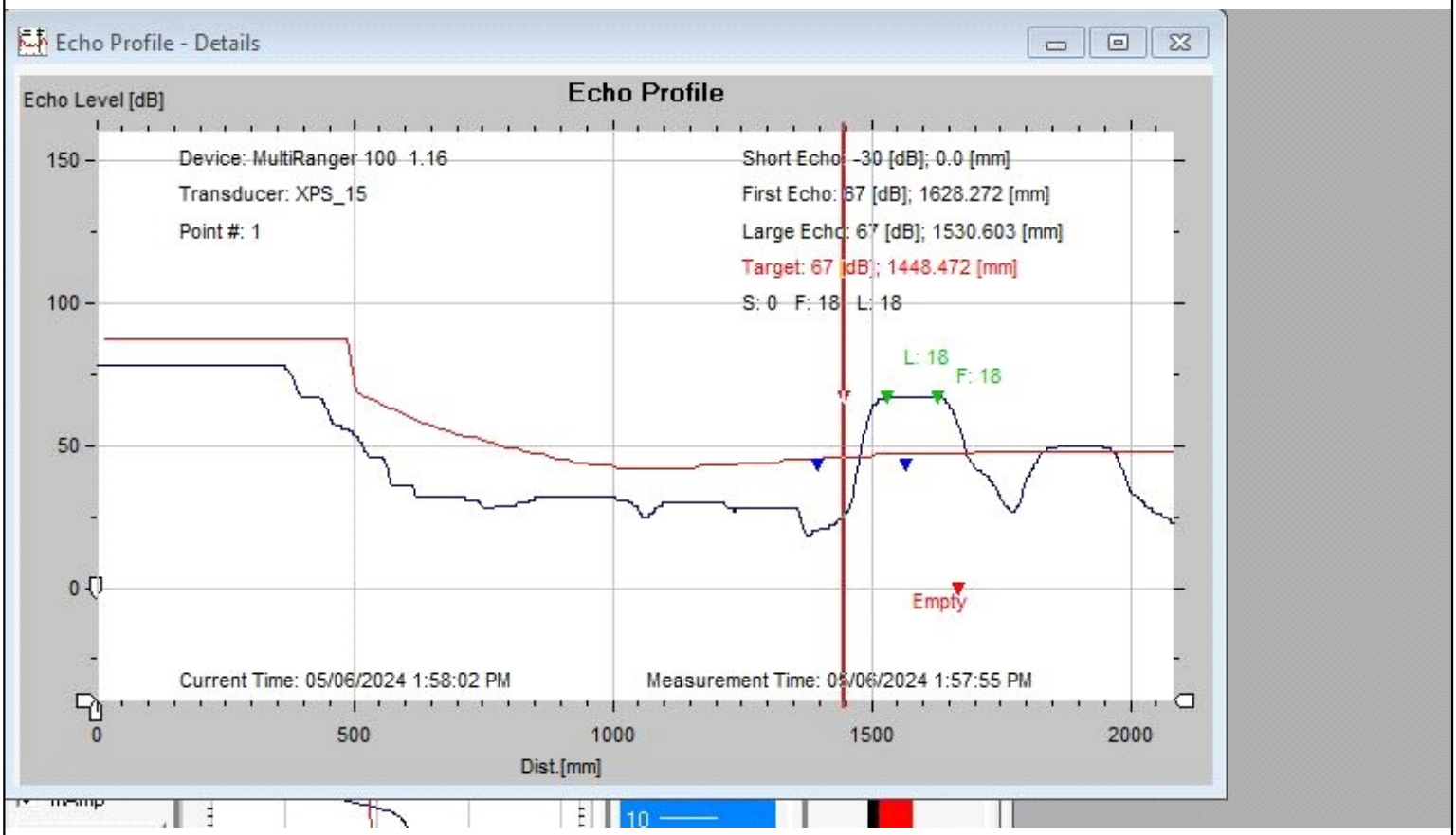
Instrument Test Information and Results

Input (%)	Calculated Level(mm)	Calculated Input (mA)	UUT Measured level (mm)	UUT Measured Output (mA)	Deviation (m)
0	0.00	4.00	0.00	4.00	0.00
25	307.50	8.00	307.52	8.01	-0.02
50	615.00	12.00	615.20	12.01	-0.20
75	922.50	16.00	922.48	15.98	0.02
100	1230.00	20.00	1230.02	20.00	-0.02

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- MULTIRANGER 100
OPEN CHANNEL LEVEL MEASUREMENT

Echo Profile



Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model	Serial No:
Electrical Multimeter	Fluke	179	As per Provided

Verification Test Result:	☑	Passed	☐	Fail	☐ Not Verified

Overall Remarks:	Program Parameters Verified. Verification Test Passed.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 5, 2024		

End of Report

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- LEVEL MEASUREMENT
MULTIRANGER PLUS

Customer Name:	Municipality of Kincardine	Site/Plant Address:	867 Olde Victoria St
Plant Name:	Durham St.		Kincardine, ON

Device Information	
Make:	Milltronics
Model:	Multiranger Plus
Order Code:	N/A
Serial No.:	102191049-13
Tag:	N/A
Job Location:	Durham St.

Service Information	
Date:	June 3, 2024
Report No:	CO1543_2406-18
Job No:	CO1543_2406

Inst. Reading	AS FOUND	AS LEFT
Level (in)	7.34	8.520

Flow Details	
Unit:	inches
Level Range:	0-94
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	94

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	0.00000	P40	Parshall Flume	1.00
P1	Dimension Unit (in)	4.000	P41	flow rate (per day)	4.00
P2	Mode	4	P42	OCM exponent	1.55
P3	Empty Distance	106.00	P43	Flume dimension	39.37
P4	Span	94.00	P45	Maximum head	94.00
P5	near blanking	12	P46	Maximum flow rate	1000.00

Instrument Test Information and Results

Input (%)	Calculated Distance (in)	Calculated Input (mA)	Level on UUT Display (in)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.00	4.00	0.00
25	23.50	8.00	23.48	7.99	0.01
50	47.00	12.00	46.94	11.98	0.02
75	70.50	16.00	70.52	16.01	-0.01
100	94.00	20.00	93.98	19.99	0.01

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. Instrument works within specification.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 3, 2024		

End of Report

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- LEVEL MEASUREMENT
MULTIRANGER PLUS

Customer Name:	Municipality of Kincardine	Site/Plant Address:	7 Goderich St.,
Plant Name:	Goderich St		Kincardine, ON

Device Information	
Make:	Milltronics
Model:	Multiranger Plus
Order Code:	N/A
Serial No.:	013092011-14
Tag:	N/A
Job Location:	Goderich St.

Service Information	
Date:	June 5, 2024
Report No:	CO1543_2406-19
Job No:	CO1543_2406

Inst. Reading	AS FOUND	AS LEFT
Level (in)	22.17	23.730

Flow Details	
Unit:	inches
Level Range:	0-129
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	129

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	0.00000	P40	Parshall Flume	1.00
P1	Dimension Unit (in)	4.000	P41	flow rate (per day)	4.00
P2	Mode	4	P42	OCM exponent	1.55
P3	Empty Distance	141.00	P43	Flume dimension	39.37
P4	Span	129.00	P45	Maximum head	129.00
P5	near blanking	12	P46	Maximum flow rate	1000.00

Instrument Test Information and Results

Input (%)	Calculated Distance (in)	Calculated Input (mA)	Level on UUT Display (in)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.00	4.00	0.00
25	32.25	8.00	32.20	7.99	0.01
50	64.50	12.00	64.52	11.97	0.03
75	96.75	16.00	96.78	16.02	-0.02
100	129.00	20.00	129.03	20.01	-0.01

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. Instrument works within specification. Limited Verification Performed

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 5, 2024		

End of Report

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- LEVEL MEASUREMENT MULTIRANGER PLUS

Customer Name:	Municipality of Kincardine	Site/Plant Address:	249 Station beach Rd.,
Plant Name:	Harbour Lift		Kincardine, ON

Device Information	
Make:	Milltronics
Model:	Multiranger Plus
Order Code:	N/A
Serial No.:	080603173VR
Tag:	N/A
Job Location:	Harbour Lift

Service Information	
Date:	June 5, 2024
Report No:	CO1543_2406-20
Job No:	CO1543_2406

Inst. Reading	AS FOUND	AS LEFT
Level (m)	1.434	1.432

Flow Details	
Unit:	meters
Level Range:	0-1.53
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	1.53

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	0.00000	P40	Parshall Flume	1.00
P1	Dimension Unit (m)	1.000	P41	flow rate (per day)	4.00
P2	Mode	4	P42	OCM exponent	1.549
P3	Empty Distance	1.83	P43	Flume dimension	1.00
P4	Span	1.53	P45	Maximum head	1.53
P5	near blanking	0.3	P46	Maximum flow rate	1000.00

Instrument Test Information and Results

Input (%)	Calculated Distance (m)	Calculated Input (mA)	Level on UUT Display (m)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.00	4.01	-0.01
25	0.38	8.00	0.42	7.98	0.02
50	0.77	12.00	0.79	12.02	-0.02
75	1.15	16.00	1.17	16.04	-0.04
100	1.53	20.00	1.54	19.98	0.02

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. Instrument works within specification.

Service Technician :	Sanket Trada	Stamp/Signature	
Printed Date:	June 5, 2024		

End of Report

Version: 19-12

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- MULTIRANGER 100
OPEN CHANNEL LEVEL MEASUREMENT

Customer Name:	Municipality of Kincardine
Plant Name:	Hunters Ridge
Site/Plant Address	540 Hunters St, Kincardine, ON

Device Information

Make:	Siemens Milltronics
Model:	Multiranger 100
Order Code:	7ML10331AA002A
Serial No.:	PBD/UN080633
Tag:	LIT 01

Service Information

Date:	June 5, 2024
Report No:	CO1543_2406-21
Job No:	CO1543_2406

Flow Details

Unit:	metres
Range:	0-1230
Current Output:	4 to 20 mA
4 mA Set Point	0
20 mA Set Point	1230.00

Inst. Reading	AS FOUND	AS LEFT
Level (m)	1.13	1.13

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

Programming Parameter of Instrument

Parameter	Discription	Value	Parameter	Discription	Value
P001	Operation	Level	P007	Span	3.32 m
P002	Material	Liquid	P062	Offset Reading	0.00 m
P004	Transducer	112(XRS_5)	P211	20 mA Setpoint	3.20 m
P005	Units	metres	P701	Max. empty rate	0.50 m
P006	Empty	3.45 m	P800	Near Blanking	0.30 m

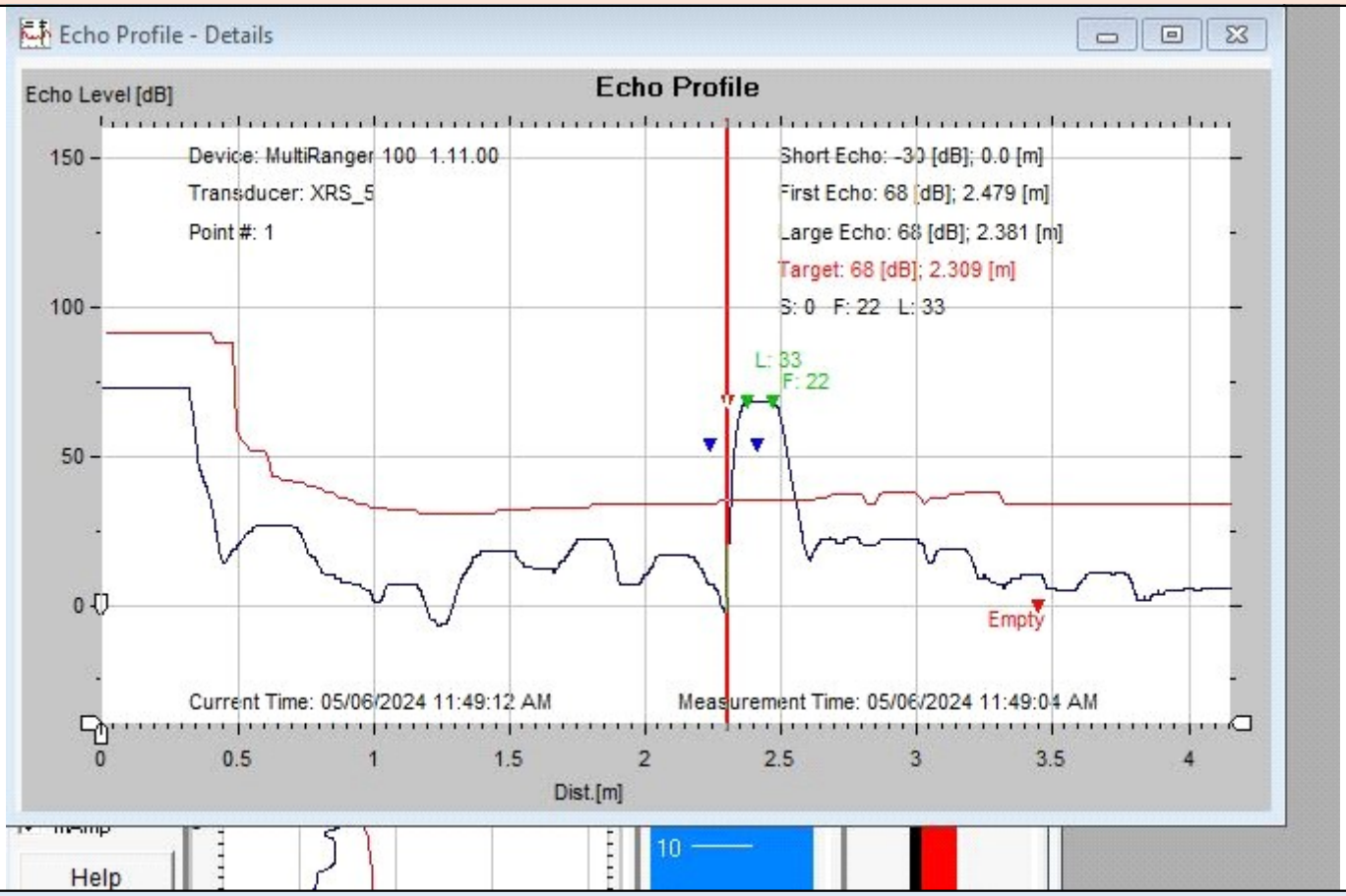
Instrument Test Information and Results

Input (%)	Calculated Level(m)	Calculated Input (mA)	UUT Measured level (m)	UUT Measured Output (mA)	Deviation (m)
0	0.00	4.00	0.00	4.00	0.00
25	0.83	8.00	0.81	8.01	0.02
50	1.66	12.00	1.65	11.99	0.01
75	2.49	16.00	2.52	16.02	-0.03
100	3.32	20.00	3.34	20.02	-0.02

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- MULTIRANGER 100
OPEN CHANNEL LEVEL MEASUREMENT

Echo Profile



Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model	Serial No:
Electrical Multimeter	Fluke	179	As per Provided

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Program Parameters Verified. Verification Test Passed.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 5, 2024		

End of Report

Version: 20-01

Report no. CO1543-2406-22

Verification report Promag 500

Endress+Hauser
People for Process Automation

Plant operator: IndusControl Inc.

Device information

Location	Hurron Terracce
Device tag	FIT01
Module name	C300-01
Nominal diameter	DN400 / 16"
Device name	Promag 500
Order code	5W5B4H-3MT6/0
Serial number	SC1E7419000
Firmware version	01.01.06

Heartbeat Technology

Calibration

Calibration factor	1.1184
Zero point	4

Verification information

Operating time (counter)	510d17h09m43s
Date/time (manually recorded)	05.06.24 13:26
Verification ID	6
Verification mode	Internal verification

Overall verification result*

☑ Passed	Details see next page

*Result of the complete device functionality test via Heartbeat Technology

Confirmation

Heartbeat Verification verifies the function of the flowmeter within the specified measuring tolerance, over the useful lifetime of the device, with a total test coverage > 94 %, and complies with the requirements for traceable verification according to DIN EN ISO 9001:2008 – Section 7.6 a. (attested by TÜV-SÜD Industrieservices GmbH)

Notes

05.06.24		
Date	Operator's signature	Inspector's signature

Plant operator: IndusControl Inc.

Device identification and verification identification	
Serial number	SC1E7419000
Device tag	FIT01
Verification ID	6

Heartbeat Technology

Sensor		☑ **Passed**
Shot time symmetry		☑ Passed
Hold voltage symmetry		☑ Passed
Coil current loss		☑ Passed
Coil current stability		☑ Passed
Coil resistance		☑ Passed
Electrode circuit 1		☑ Passed
Electrode circuit 2		☑ Passed
Electrode circuit EPD		☑ Passed
Sensor electronic module (ISEM)		☑ **Passed**
Supply voltage		☑ Passed
External reference voltage		☑ Passed
Linearity and reference voltage		☑ Passed
Offset of electrode measuring circuit		☑ Passed
Hold voltage feedback		☑ Passed
Shot voltage feedback		☑ Passed
Electronic current loss		☑ Passed
Coil circuit measurement		☑ Passed
Shot control circuit		☑ Passed
Electrode signal integrity		☑ Passed
System status		☑ **Passed**
I/O module		☑ **Passed**
Input/output 1	26-27 (I/O 1)	☑ Passed
Input/output 2	24-25 (I/O 2)	? Not used
Input/output 3	22-23 (I/O 3)	? Not used
Input/output 4	20-21 (I/O 4)	☒ Not plugged

Plant operator: IndusControl Inc.

Device identification and verification identification

Serial number	SC1E7419000
Device tag	FIT01
Verification ID	6

Heartbeat Technology

Test item with value	Unit	Actual	Min.	Max.	Visualization
Sensor					
Shot time symmetry deviation		0.9996	0.9000	1.1000	
Hold voltage symmetry deviation		1.0016	0.9000	1.1000	
Coil current loss deviation	%	0.08811	-10.0000	10.0000	
Coil current offset	%	0.0081	-0.1	0.1	
Coil current deviation	%	0.024	-0.1	0.1	
Coil resistance value	Ohm	136.2	50.0	240.0	
Electrode impedance 1	Ohm	754.25			
Electrode impedance 2	Ohm	810.01			
Electrode EPD impedance	Ohm	33404.10			
Electrode impedance E1/E2 on E1	Ohm	752.66			
Electrode impedance E1/E2 on E2	Ohm	806.44			
Sensor electronic module (ISEM)					
External reference voltage 1	V	-nan			
Linearity and reference voltage 1		0.9996			
Linearity and reference voltage 2		0.9997			
Measuring point offset		0.3571	-100.0000	100.0000	
Hold voltage feedback value	%	0.77	-10.0	10.0	
Shot voltage feedback value	%	-0.55	-20.0	20.0	
Electronic current loss deviation	%	0.27	-10.0000	10.0000	
Coil circuit value	%	0.055	-1.0	1.0	
Shot control circuit value	%	-0.084	-10.0	10.0	
Electrode signal integrity deviation	%	-1.52	-40.0	40.0	
System status					

Test item with value		Unit	Actual	Min.	Max.	Visualization
I/O module						
I/O module 1 terminal numbers	26-27 (I/O 1)					
Output 1 value 1		mA	0.004856	-0.1400	0.1400	
Output 1 value 2			0.0000	0.0000	0.0000	
I/O module 2 terminal numbers	24-25 (I/O 2)					
Output 2 value 1			0.0000	0.0000	0.0000	
Output 2 value 2			0.0000	0.0000	0.0000	
I/O module 3 terminal numbers	22-23 (I/O 3)					
Output 3 value 1			0.0000	0.0000	0.0000	
Output 3 value 2			0.0000	0.0000	0.0000	

Plant operator: IndusControl Inc.

Device identification and verification identification	
Serial number	SC1E7419000
Device tag	FIT01
Verification ID	6

Heartbeat Technology

Test item with value	Unit	Actual
Process conditions		
Volume flow value verification	l/s	0.0000
Conductivity value verification	µS/cm	-nan
Electronic temperature	°F	83.8460

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- MULTIRANGER 100
OPEN CHANNEL LEVEL MEASUREMENT

Customer Name:	Municipality of Kincardine
Plant Name:	Hurron Terrace
Site/Plant Address	733 Hurron terrace, Kincardine, ON

Device Information

Make:	Siemens Milltronics
Model:	Multiranger 100
Order Code:	7ML50331AA001A
Serial No.:	PBD/P4110021
Tag:	LIT 01

Service Information

Date:	June 5, 2024
Report No:	CO1543_2406-23
Job No:	CO1543_2406

Flow Details

Unit:	metres
Range:	0-1230
Current Output:	4 to 20 mA
4 mA Set Point	0
20 mA Set Point	1230.00

Inst. Reading	AS FOUND	AS LEFT
Level (m)	0.41	0.22

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

Programming Parameter of Instrument

Parameter	Discription	Value	Parameter	Discription	Value
P001	Operation	Level	P007	Span	3.32 m
P002	Material	Liquid	P062	Offset Reading	0.00 m
P004	Transducer	104(XPS_15)	P211	20 mA Setpoint	3.20 m
P005	Units	metres	P701	Max. empty rate	0.50 m
P006	Empty	3.45 m	P800	Near Blanking	0.30 m

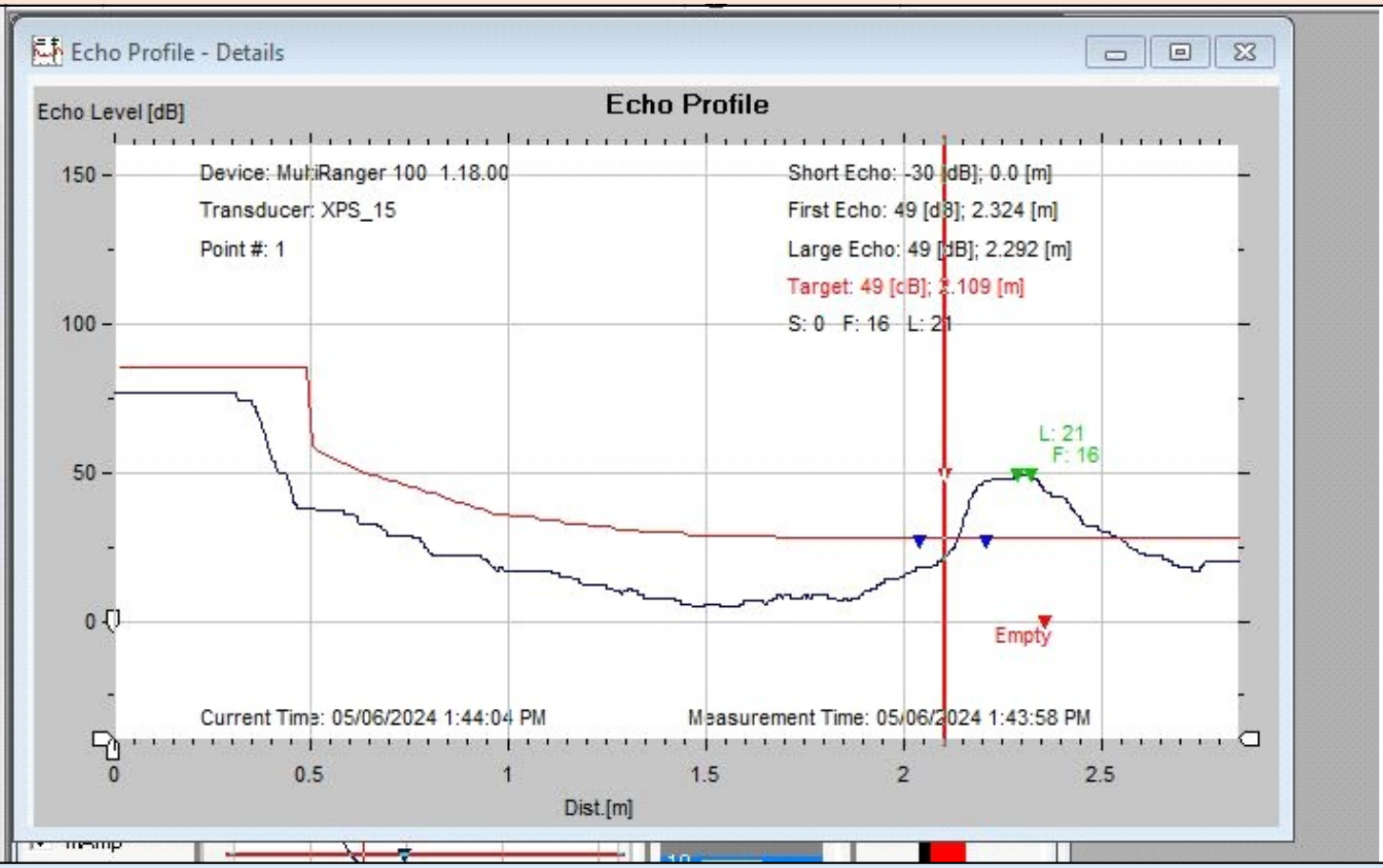
Instrument Test Information and Results

Input (%)	Calculated Level(m)	Calculated Input (mA)	UUT Measured level (m)	UUT Measured Output (mA)	Deviation (m)
0	0.00	4.00	0.00	3.99	0.00
25	0.83	8.00	0.81	7.99	0.02
50	1.66	12.00	1.64	12.02	0.02
75	2.49	16.00	2.52	16.03	-0.03
100	3.32	20.00	3.33	20.01	-0.01

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- MULTIRANGER 100
OPEN CHANNEL LEVEL MEASUREMENT

Echo Profile



Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model	Serial No:
Electrical Multimeter	Fluke	179	As per Provided

Verification Test Result:	☑ Passed	☐ Fail	☐ Not Verified

Overall Remarks:	Program Parameters Verified. Verification Test Passed.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 5, 2024		

End of Report

Version: 20-01

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- LEVEL MEASUREMENT
MULTIRANGER PLUS

Customer Name:	Municipality of Kincardine	Site/Plant Address:	570 Kincardine St.,
Plant Name:	Kincardine Ave		Kincardine, ON

Device Information	
Make:	Milltronics
Model:	Multiranger Plus
Order Code:	N/A
Serial No.:	012694217-GD
Tag:	N/A
Job Location:	Kincardine Ave

Service Information	
Date:	June 5, 2024
Report No:	CO1543_2406-24
Job No:	CO1543_2406

Inst. Reading	AS FOUND	AS LEFT
Level (in)	15.63	18.810

Flow Details	
Unit:	inches
Level Range:	0-114
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	114

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	0.00000	P40	Parshall Flume	1.00
P1	Dimension Unit (in)	4.000	P41	flow rate (per day)	4.00
P2	Mode	4	P42	OCM exponent	1.550
P3	Empty Distance	126.00	P43	Flume dimension	39.37
P4	Span	114.00	P45	Maximum head	114.00
P5	near blanking	12	P46	Maximum flow rate	1000.00

Instrument Test Information and Results

Input (%)	Calculated Distance (in)	Calculated Input (mA)	Level on UUT Display (in)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.00	3.99	0.01
25	28.50	8.00	28.49	7.99	0.01
50	57.00	12.00	59.98	11.99	0.01
75	85.50	16.00	85.52	16.02	-0.02
100	114.00	20.00	114.02	20.01	-0.01

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. Instrument works within specification.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 5, 2024		

End of Report

Version: 19-12

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- LEVEL MEASUREMENT
MULTIRANGER PLUS

Customer Name:	Municipality of Kincardine	Site/Plant Address:	494 Scott St.,
Plant Name:	Kincardine PS		Kincardine, ON

Device Information	
Make:	Milltronics
Model:	Multiranger Plus
Order Code:	N/A
Serial No.:	012990149-12
Tag:	N/A
Job Location:	Park St.

Service Information	
Date:	June 3, 2024
Report No:	CO1543_2406-25
Job No:	CO1543_2406

Inst. Reading	AS FOUND	AS LEFT
Level (in)	23.9	25.5

Flow Details	
Unit:	inches
Level Range:	0-107
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	107

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	0.00000	P40	Parshall Flume	1.00
P1	Dimension Unit (in)	4.000	P41	flow rate (per day)	4.00
P2	Mode	4	P42	OCM exponent	1.550
P3	Empty Distance	119.00	P43	Flume dimension	39.37
P4	Span	107.00	P45	Maximum head	107.00
P5	near blanking	12	P46	Maximum flow rate	1000.00

Instrument Test Information and Results

Input (%)	Calculated Distance (in)	Calculated Input (mA)	Level on UUT Display (in)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.00	4.02	-0.02
25	26.75	8.00	26.73	7.99	0.01
50	53.50	12.00	53.45	11.98	0.02
75	80.25	16.00	80.22	15.96	0.04
100	107.00	20.00	106.98	20.01	-0.01

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. Instrument works within specification.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 3, 2024		

End of Report

Version: 19-12

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- MULTIRANGER 100
OPEN CHANNEL LEVEL MEASUREMENT

Customer Name:	Municipality of Kincardine	Site/Plant Address	Provincial Park
Plant Name:	Provincial Park		ON

Device Information		Service Information	
Make:	Siemens	Date:	June 5, 2024
Model:	Multiranger 200	Report No:	CO1543_2406-26
Order Code:	N/A	Job No:	CO1543_2406
Serial No.:	111804139UV		

Flow Details	
Unit:	metres
Range:	0-2.200
Current Output:	4 to 20 mA
4 mA Set Point	0
20 mA Set Point	2.200

Inst. Reading	AS FOUND	AS LEFT
Level (m)	1.01	1.02

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

Programming Parameter of Instrument

Parameter	Discription	Value	Parameter	Discription	Value
P001	Operation	Level	P007	Span	2.20 m
P002	Material	Liquid	P062	Offset Reading	0.00 m
P004	Transducer	102(XPS-10)	P211	20 mA Setpoint	2.20 m
P005	Units	metres	P701	Max. empty rate	10.00 m
P006	Empty	2.50 m	P800	Near Blanking	0.30 m

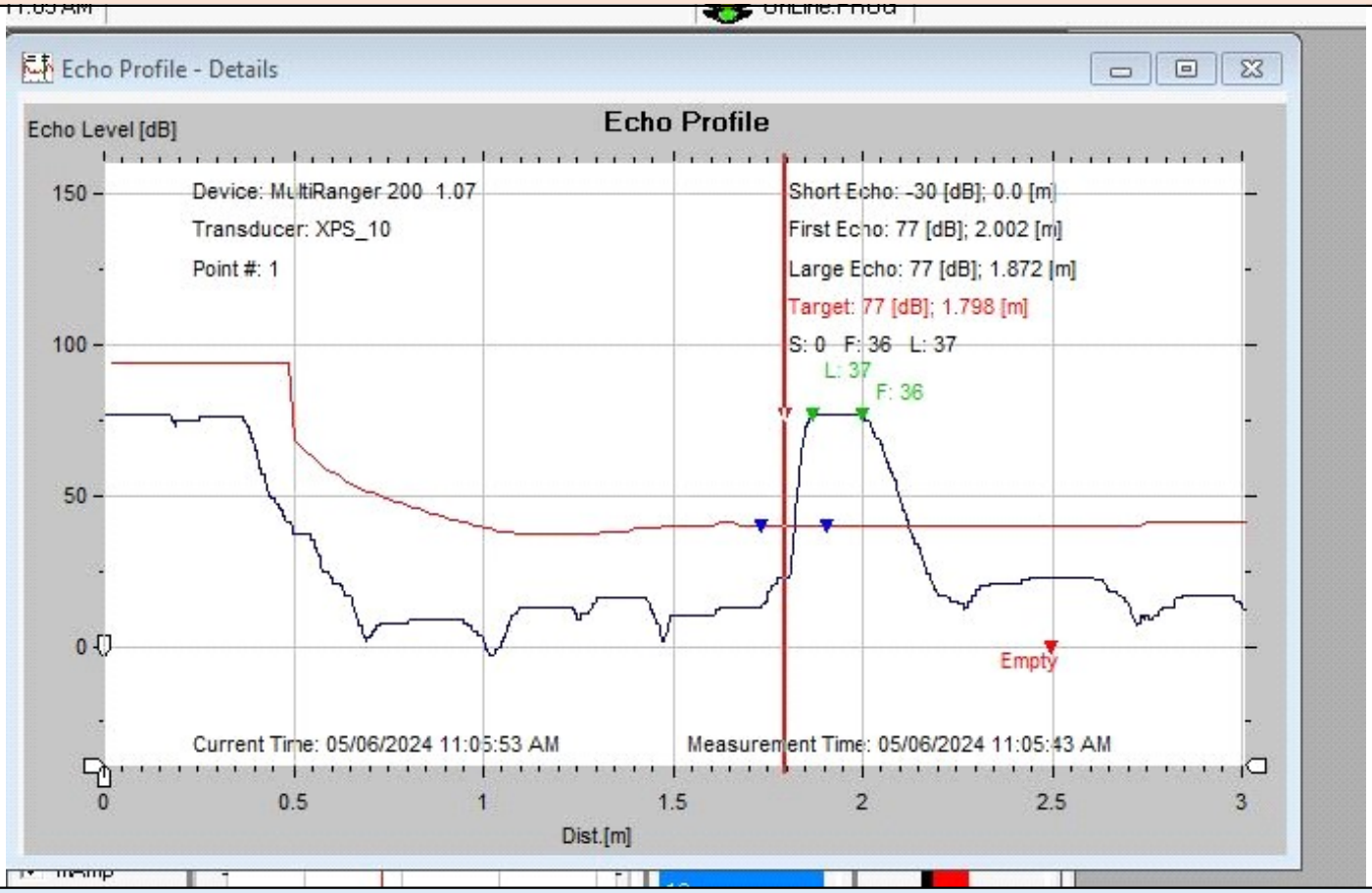
Instrument Test Information and Results

Input (%)	Calculated Level(m)	Calculated Input (mA)	UUT Measured level (m)	UUT Measured Output (mA)	Deviation (m)
0	0.00	4.00	0.00	4.01	0.00
25	0.55	8.00	0.54	7.99	0.01
50	1.10	12.00	1.14	12.05	-0.04
75	1.65	16.00	1.63	15.98	0.02
100	2.20	20.00	2.19	20.01	0.01

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

VERIFICATION REPORT- MULTIRANGER 100
OPEN CHANNEL LEVEL MEASUREMENT

Echo Profile



Information of Tools used for Verification of the Instruments

Device Description:	Manufacturer	Model	Serial No:
Electrical Multimeter	Fluke	179	As per Provided

Verification Test Result:	☑	Passed	☐	Fail	☐ Not Verified

Overall Remarks:	Program Parameters Verified. Verification Test Passed.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 5, 2024		

End of Report

Version: 20-01

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

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

Customer Name:	Municipality of Kincardine	Site/Plant Address:	520, Bruce Avenue
Plant Name:	Kincardine WWTP		Kincardine, ON, N2Z 1A4

Device Information		Service Information	
Make:	Siemens	Date:	June 3, 2024
Model:	Multiranger 200	Report No:	CO1543_2406-09
Serial No.:	PB-P6150012	Job No:	CO1543_2406

Flow Details	
Unit:	L/S
Flow Range:	0-368.1
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	368

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	699921.23	733745.7
FLOW (L/S)	274.26	0.67

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

Programming Parameter of Instrument

Discription	Value	Discription	Value
Access Code	N/A	Height of Max. Head	0.500
Dimension Unit (m)	3	Empty Distance	1.220
Exponential Device	1.6	Span	0.500
Cal. Method -Ratiometric	1	Blanking Distance	0.300
Flow Unit	l/sec		
Max Flow rate	368.1		

Instrument Test Information and Results

Input (%)	Calculated Flow(L/S)	Calculated Input (mA)	Flow on UUT (L/S)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.00	4.02	-0.02
25	92.03	8.00	92.15	8.02	-0.02
50	184.05	12.00	183.86	12.01	-0.01
75	276.08	16.00	276.56	16.02	-0.02
100	368.10	20.00	367.98	19.99	0.01

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. Verification Test Performed.

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 3, 2024		

End of Report

IndusControl Inc
3170 Ridgeway Drive, Unit 11
Mississauga, ON, L5L 5R4

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

Customer Name:	Municipality of Kincardine	Site/Plant Address:	169 Mahood - Johnson Dr
Plant Name:	Kincardine WWTP		Kincardine, ON, N2Z 1A4

Device Information		Service Information	
Make:	Siemens	Date:	June 4, 2024
Model:	Miltronics OCM III	Report No:	CO1543_2406-10
Tag:	WWTP Effluent	Job No:	CO1543_2406

Flow Details	
Unit:	L/S
Flow Range:	0-400.5
Current Output:	4-20 mA
4 mA Set Point	0
20 mA Set Point	400.5

Inst. Reading	AS FOUND	AS LEFT
TOTALIZER (m3)	5772	5783
FLOW (L/S)	35.23	35.55

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	1	P7	Height of Max. Head	61.00
P1	Dimension Unit (cm)	0	P32	Totalizer Multiplier	6X1000
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	P46	Range at Zero Head	143.7769
P6	Max Flow rate	400.5	P47	Blanking Distance	50

Instrument Test Information and Results

Input (%)	Calculated Flow(L/S)	Calculated Input (mA)	Flow on UUT (L/S)	UUT Measured Output (mA)	Deviation (mA)
0	0.00	4.00	0.00	4.00	0.00
25	100.00	8.00	98.52	7.98	0.02
50	200.00	12.00	198.46	11.94	0.06
75	300.00	16.00	298.65	15.97	0.03
100	400.00	20.00	399.23	19.99	0.01

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/Limited verification Performed, Measurement works as per specification

Service Technician :	Chetan Parekh	Stamp/Signature	
Printed Date:	June 4, 2024		

End of Report

APPENDIX H

Date Initiated	Description	Address	Comments	WO comments
2024-02-21 03:08 PM	Wastewater Backup/Blockage	1120 Sutton St, Kincardine, Ontario, N2Z 2C9	Q: Is the backup inside your home? A: Yes Q: Have you called a plumber? A: Yes	Lateral was flushed while sucking it out at the manhole that the lateral drains into
2024-02-26 08:53 AM	Wastewater Backup/Blockage	388 Kingsway St, Kincardine, Ontario, N2Z 1W3	Sewage backing up into sump pump. Owner has called a plumber but he thinks the Hurontel fibre line was drilled through his lateral becuase his next door neighbour at 398 Kingsway recently had the same issue. Told him we would start with the plumber	Both manholes (upstream and downstream) were checked at 0914 to be flowing good
2024-03-05 11:16 AM	Wastewater Backup/Blockage	1111 Sutton St, Kincardine, Ontario, N2Z 2C5	Advised owner to call a plumber to clear line and see if on municipal side or business side. He will call back if on our side and cleared.	Checked 3 surrounding manholes and all were running fine proving it was not municipal issue
2024-03-10 12:00 AM	Wastewater Backup/Blockage	26 Inverness ST S	Received call the owner had water coming kup from basement drain	Checked manholes, flow was good in sewer main, suggested to owner to call a plumber to have lateral snaked
2024-03-19 12:15 PM	Wastewater Backup/Blockage	354 Queen St - Skyview Motel	Sewer backup at hotel	Operator checked manholes, sewer main ok, internal issues
2024-04-08 03:10 AM	Wastewater Backup/Blockage	1133 Huron Terr, Kincardine, Ontario, N2Z 1G1	Partial blockage	Partial blockage at 21m and couldn't get camera head past. Appeared to be grease, non municipal issue
2024-04-18 09:42 AM	Wastewater Backup/Blockage	950 Queen St, Kincardine, Ontario, N2Z	Business owner called Apr 17 re: blockage /backup in business. Advised him to call a plumber to clear and call back for an operator to come camera lateral.	Put camera down and line full of water, traced camera head out into parking lot, also cameraed pizza place in same plaza and line full of grease. Not a municipal issue
2024-05-28 01:45 PM	Wastewater Backup/Blockage	1117 Milne Dr, Kincardine, Ontario, N2Z 1X5	Q: Is the backup inside your home? A: Yes Q: Have you called a plumber? A: No	Responsed to sanitary backup. Both manholes upstream and downstream were clear. Advised homeonwer to call a plumber and have lateral snaked
2024-05-29 11:06 AM	Wastewater Odour	554 Huron Terr, Kincardine, Ontario, N2Z 2H5	Q: Can you describe the odour? A: strong sewer smell Q: Is the odour contained to one general area or fixture? A: entry way of home Q: Are your toilets and drains working properly? A: yes. Plumber came in to investigate.	Responded to complaint of sewage type smell in front yar. By the time I arrived, the smell seemed to have disappeared.
2024-06-06 12:45 PM	Wastewater Odour	505 Morrison Cres	Hello, My backyard is across from the sewage lagoons and it has been unbearable to be outside the last few days because of the smell. I've heard lots of conplaints from neighbours. Just wondering if something is going to be done about this since summer	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 01:55 PM	Wastewater Odour	225 Park St, Kincardine, Ontario, N2Z 0A5	The smell coming from the sewage lagoons is intolerable. It's impossible to enjoy the outdoors. This has been going on for several days now with no improvement.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 11:53 AM	Wastewater Odour	274 Coombe Dr, Kincardine, Ontario, N2Z 0A7	Constant sewage smell in Stonehaven subdivision off of Bruce Avenue in Kincardine.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 12:25 PM	Wastewater Odour	513 Morrison Cres, Kincardine, Ontario, N2Z 0A6	Living on Morrison Cres for past 6 years. The water sewage stench has never been this bad before. You cannot open your windows to let fresh air in as it smells terrible. You don't want to be outside either again because it smells terrible.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 12:25 PM	Wastewater Odour	413 Mccullough Cres, Kincardine, Ontario, N2Z 0A8	Lot of smell is coming in the stone haven subdivision. Please neutralize it as the living conditions are horrible here.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-07 12:20 PM	Wastewater Odour	424 Mccullough Cres, Kincardine, Ontario, N2Z 0A8	The smell from the sewage lagoon has been terrible this year so far and we've barely had any hot weather. Makes sitting outside or having windows open impossible. Soccer games are not enjoyable.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 06:05 PM	Wastewater Odour	565 Morrison Cres, Kincardine, Ontario, N2Z 0A6	Please remedy the terrible odour that we all have to endure from the sewer drainage	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 11:55 AM	Wastewater Odour	269 Wieck Blvd, Kincardine, Ontario, N2Z 0A8	I'm writing to inquire if anything can be done to try and neutralize the smell or algae blooms (if that's the cause?) at the sewage lagoon. We all know that it can get smelly on hot summer days, but with climate temperatures increasing	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues

Date Initiated	Description	Address	Comments	WO comments
2024-06-06 11:45 AM	Wastewater Odour	245 Coombe Dr, Kincardine, Ontario, N2Z 0A7	Concern with the odour constantly coming from the lagoons. Thinking it needs some kind of maintenance.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 11:50 AM	Wastewater Odour	440 Mccullough Cres, Kincardine, Ontario, N2Z 0A8	The smell/foul odor of sewage outside everywhere is nauseating. Please can we rectify this?	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 06:43 PM	Wastewater Odour	239 Coombe Dr, Kincardine, Ontario, N2Z 0A6	Looking to see if anything can be done about the sewer smell in the neighbourhood. It's been pungent for days in a row over the past few weeks. General only happens a couple time a year for a day.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 04:55 PM	Wastewater Odour	425 Mccullough Cres, Kincardine, Ontario, N2Z 0A8	The smell coming from the lagoon is the worst I have ever smelled it in the 13 years I have lived in this subdivision. It is entering our home and we live the absolute furthest away from the lagoon.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 12:58 PM	Wastewater Odour	202 Coombe Dr, Kincardine, Ontario, N2Z 0A6	The smell from sewage in this neighborhood is unbearable we can't have our windows open and it's hard to sit outside . What is going to be done about this ? We pay enough taxes here to not have issues like this .	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 12:38 PM	Wastewater Odour	253 Wieck Blvd, Kincardine, Ontario, N2Z 0A8	Something needs to be done to neutralize the smell coming from sewage lagoons on Bruce Ave. as a resident of Stonehaven subdivision this smell is pungent enough to limit outside activity.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 01:07 PM	Wastewater Odour	546 Morrison Cres, Kincardine, Ontario, N2Z 0A6	Tha lagoon is making living in stone haven unbearable. In the past we have had issues from time to time but lately it is horrible. I can't stand being in my yard or having windows open. This has lasted multiple weeks.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 12:33 PM	Wastewater Odour	213 Park St, Kincardine, Ontario, N2Z 0A5	The smell is the worst it's ever been and been over this way in park street for 6 years, the stench burns my nose and makes me feel sick to my stomach for our whole family. Something needs to change before people become sick.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 11:58 PM	Wastewater Odour	409 Mccullough Cres, Kincardine, Ontario, N2Z 0A8	Over the past week the stench coming from the lagoon to the south of Stonehaven subdivision has been horrendous. Please investigate and repair.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 03:30 PM	Wastewater Odour	557 Morrison Cres, Kincardine, Ontario, N2Z 0A6	Adding my voice to the growing pile of complaints in regards to the revolting odor emanating from the lagoons off Bruce Ave. Although this issue has arisen frequently over the years (especially during warm weather), the bouquet has been particularly Noxious this week	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 05:25 PM	Wastewater Odour	294 Wieck Blvd, Kincardine, Ontario, N2Z 0A7	We have noticed the smell lately has been much worse. Hoping you can do something about it.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 12:15 PM	Wastewater Odour	200 Wieck Blvd, Kincardine, Ontario, N2Z 0A9	There is an ongoing issue with a terrible smell coming from the sewage lagoons for a couple of weeks. We have never had an issue with this intense of a smell and we are unable to enjoy being outdoors or having our windows open, it's unbearable.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 12:10 PM	Wastewater Odour	416 Mccullough Cres, Kincardine, Ontario, N2Z 0A8	There is a bad smell every day coming from the sewage lagoons near Bruce Avenue. Please can you do something to neutralize the odour coming from the sewage lagoons? It is really unbearable smell and not possible to stay outside.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 05:15 PM	Wastewater Odour	219 Park St, Kincardine, Ontario, N2Z 0A5	The odour outside is becoming intolerable. When I got home for work and stopped to get the mail I opened my car door and almost gagged! It is getting worse rather than better.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 11:35 AM	Wastewater Odour	264 Wieck Blvd, Kincardine, Ontario, N2Z 0A8	The smell from the sewage lagoons lately has been disgusting. Is there anything that can be done to neutralize the odour?	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-06 09:15 PM	Wastewater Odour	262 Coombe Dr, Kincardine, Ontario, N2Z 0A7	Hello! I am a resident of the Stonehaven subdivision just off Bruce Ave. The past few days, the stench coming from the nearby sewage lagoons is putrid and unbearable. It is almost impossible to even go outside because the smell is terrible.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues

Date Initiated	Description	Address	Comments	WO comments
2024-06-08 02:12 PM	Wastewater Odour	263 Wieck Blvd, Kincardine, Ontario, N2Z 0A8	The odour coming from the Kincadine lagoon is intolerable. We cannot enjoy sitting outside and it infiltrates our house if our windows are open. And it isn't even the hot days of summer yet! Please neutralize the smell before the really hot weather.	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-12 05:35 PM	Wastewater Odour	291 Park St, Kincardine, Ontario, N2Z 0A5	Q: Can you describe the odour? A: Bruce ave sewage smell	Email response sent to homeowner regarding equipment upgrades and issues ocurring at the Lagoons, Municipality is working with engineering and the Aerator equipment company to try and rectify the issues
2024-06-11 09:56 AM	Wastewater Backup/Blockage	877 Queen St - Locals	Q: Is the backup inside your home? A: No Q: Have you called a plumber? A: Yes	Plumber snaked the line and states blockage at 35 feet. Lateral videos show grease buildup in the lateral
2024-06-12 03:20 PM	Wastewater Backup/Blockage	846 Andrew Malcolm Dr, Kincardine, Ontario, N2Z 1N3	Plumber has been to this location a couple of times now to snake the line so he would like it cameraed to see what the issue is. Plumber will pull the toilet for us.	Low spot on house side of Y. Neighbour not having an issue as they are connected together at property line
2024-06-14 07:45 PM	Wastewater Leak	771 Broadway St, Kincardine, Ontario, N2Z 2G1	Sewage coming out of manhole at entrance to shopper drug Mart plaza just off of Broadway Street	Manhole was full and visible that some sewage ran out of manhole, called in a spill to SAC, Bluewater called in to suck sewage from manhole and take to lagoons. Flushed sewer mains as well to clear blockage. Letter sent to business owners upstream
2024-06-24 04:21 PM	Wastewater Backup/Blockage	1081 Withers Cres, Kincardine, Ontario, N2Z 2G4	I talked to Troy's and was told they were out 100 ft with their snake, the cleanout in the house is approximately 45 ft to the main, nothing in upstream manhole and downstream no flow, but only 5 houses on that main and 3 north of 1081,	Fosters called in to rod the main, seemed to be no issue in the main but lateral did slowly drain afterwards
2024-09-10 10:06 AM	Wastewater Backup/Blockage	287 Mechanics Ave, Kincardine, Ontario, N2Z 1E2	Q: Is the backup inside your home? A: Yes Q: Have you called a plumber? A: Yes	Plumber never showed up and customer never called back.
2024-09-24 08:40 AM	Wastewater Backup/Blockage	877 Queen St, Kincardine, Ontario, N2Z 2Y2	Locals Restaurant has had previous issues with backups. Owner says he has been flushing the line with hot water and has had it snaked and it is backed up again. Wondering if it is due to roadwork that was done outside.	Supervisor called and customer had not had their lateral snaked, was only running hot water down.
2024-09-27 11:30 AM	Wastewater Backup/Blockage	501 Scott St, Kincardine, Ontario, N2Z 1V5	Q: Have you called a plumber? A: Yes	Plumber called with tree toots on municipal side in lateral. Contractor replacing lateral on homeowner side, municipality said to go ahead with replacement of damaged section on municipal property and to send invoice to us
2024-10-19 01:58 PM	Wastewater Backup/Blockage	Broadway St. - MacDonalds	Q: Is the backup inside your home? A: Yes Q: Have you called a plumber? A: Yes	McDonalds employee called in regarding blockage. Badger on site but unable to clear blockage. A lot of grease came out when they flushed from manhole outside. Blockage let go when on site, advised them to run hot water down pipe to ensure it is clear
2024-10-25 03:57 PM	Wastewater Backup/Blockage	McDonalds	Operator to operator manhole lid only. Plumber is on the way.	Blockage inside building, plumber called, all three manholes along the street were clear, not a municipal issue
2024-10-26 10:30 AM	Wastewater Backup/Blockage	338 Durham Market St S, Kincardine, Ontario, N2Z 2A2	Q: Have you called a plumber? A: Yes	Had to camera lateral after plumber cleared line, found roots, bird nest and branch. Lateral repaired afterwards
2024-11-22 09:42 AM	Wastewater Backup/Blockage	13 Maccaskill Rd, Kincardine, Ontario, N2Z 1H5	Advised resident to call a plumber to clear line. Once complete, we can come camera.	Upstream and downstream manholes flow is good. Owner said he used to have a tree where lateral comes out of house, likely a private issue
2024-12-31 08:44 PM	Wastewater Backup/Blockage	850 walsh, unit 16	Checked upstream and downstream manholes, flow is good	Checked upstream and downstream manholes, flow is good, private issue

APPENDIX I

Municipality of Kincardine
Quarterly Report of Wastewater Bypasses, Overflows and Spills
Kincardine Wastewater System
2024 Q1 to Q4

Date	Start Time	End Time	Location	Bypass/ Overflow/ Spill	Planned /Emergency	Reason	Duration (minutes)	Quantity (m3)	Estimated or Measured Volume	Treatment Processes Gone Through	Efforts Made to Maximize Flow through Treatment Process	Samples Collected	Grab or Composite	BOD mg/L	CBOD mg/L	TSS mg/L	TP mg/L	TKN mg/L	Alkalinity mg/L	Ammoniu m mg/L	Nitrate mg/L	Nitrite mg/L	pH	E. coli per 100 mL
April 13, 2024	1100	1730	Effluent Station 169 Mahood Johnston	Bypass	Emergency	Power Outage	390	97.2	Estimated	Lagoons-no disinfection	Reduced effluent flow at lagoons	Yes	Grab	--	20	27	0.54	17.4	235	15.4	0.68	0.23	8.3	2000
June 13, 2024	1050	1315	Effluent Station 169 Mahood Johnston	Bypass	Emergency	Power Outage	145	17.4	Measured	Lagoons-no disinfection	Reduced effluent flow at lagoons	Yes	Grab	--	24	44	0.56	16	220	13.7	0.07	0.2	8.2	2300
June 14, 2024	1945	2130	Broadway and Hwy 21	Spill	Emergency	Sewermain Backup/Manhole blockage	105	0.04	Estimated	None	Sewage removed from manhole and transported to park st sewage pumping station	Yes	Grab	222	--	77	4.39	45	--	--	--	--	--	--
November 18, 2024	1500	1510	Bruce Ave and Penetangore Row Effluent manhole SMH-457	Spill	Emergency	Lagoon boards removed/Manhole Blockage	10	15	Estimated	All Treatment	Placed boards back in to reduce flow	Yes	Grab	--	16	46	0.63	20.3	189	18.6	1.28	0.18	8.3	--

APPENDIX J

Ontario

Ministry of the Environment, Conservation and Parks

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

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

ECA Number	Issuance Date (mm/dd/yy)	Notice number (if applicable)
A-500-1121679176	08/22/24	

ECA Owner	Municipality
The Municipality of Kincardine	The Municipality of Kincardine

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

(Attach a detailed description of the sewage works)

Addition of a 55kW emergency standby diesel generator (outdoor) set to the Kincardine Wastewater Treatment Plant UV Building, including a 576L subbase fuel tank.

Description shall include:
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

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)	PEO License Number
Ryan DeVries	**100183886**
Signature: Ryan DeVries	Date (mm/dd/yy): 08/23/24
Name of Employer: B. M. Ross and 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)	Owner representative's title (Print)
Mark O'Leary	Manager of Environmental Services
Owner Representative's Signature: Mark O'Leary	Date (mm/dd/yy): 2024-10-10

Signed with ConsignO Cloud (2024/10/10)
Verify with verifio.com or Adobe Reader.

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