



TOWN OF COLLINGWOOD

2022 Annual Wastewater Performance Report

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Acronyms

BOD	Biochemical Oxygen Demand
CBOD5	Carbonaceous Biochemical Oxygen Demand
cfu	Colony Forming Units
COD	Chemical Oxygen Demand
DO	Dissolved Oxygen
ECA	Environmental Compliance Approval
Hg	Mercury
FP	Filtered Phosphorous
HP	Horsepower
kg	Kilograms
kW	Kilowatt
MECP	Ministry of Environment, Conservation and Parks
mg/L	Milligrams per litre
ML/d	Mega litres per day
m ³ /d	Cubic metres per day
NH ₃	Ammonia
NO ₂	Nitrites
NO ₃	Nitrates
SPS	Sewage Pumping Station
SVI	Sludge Volume Index
TBOD	Total Biochemical Oxygen Demand
TKN	Total Kjeldahl Nitrogen
TP	Total Phosphorous
TS	Total Solids
TSS	Total Suspended Solids
UV	Ultraviolet
VFA	Volatile Fatty Acids
VS	Volatile Solids
WPCP	Water Pollution Control Plant



Executive Summary

This report covers the period from January 1, 2022 to December 31, 2022.

The Town of Collingwood owns and operates the Collingwood Water Pollution Control Plant (WPCP) and the sewage collection system comprising of underground mains (linear works) and eight sewage pumping stations, all in accordance with Environmental Compliance Approvals (ECA's) as shown in *Table a* below:

Table a – Executive Summary - Approvals

Name	Approval Type	Number	Date
Water Pollution Control Plant (WPCP)	ECA	9825-BPDH52	May 14, 2020
	ECA (air)	7583-BTALXW	Sept 4, 2020
Sewage Collection System	ECA	Various	

Annual Performance Reports are required to be prepared and submitted to the Ministry of the Environment, Conservation and Parks (MECP) by March 31st. The report for the WPCP is required to be submitted to the District Manager and the report for the sewage collection system is required to be submitted to the Director. This report is a combined WPCP and sewage collection system report and will be submitted to both the District Manager and the Director.

WPCP Treatment Capacity

The WPCP has a treatment capacity rating of 24,548 m³/d based on average day sewage influent flows. The average daily flow at the WPCP in 2022 was 17,997 m³/d, indicating the WPCP is operating approximately 73% of the rated treatment capacity.

Table b - 2022 WPCP Treatment Capacity

2022 Flows at a Glance	
Total Flow to WPCP	6,536,416 m ³
Design Average Daily Flow	24,548 m ³ /d
Average Daily Flow	17,997 m ³ /d

WPCP Effluent Quality

In addition to treatment capacity limitations, the ECA specifies final effluent quality objectives and compliance limits for the WPCP. Final effluent samples are collected throughout the year and the results are reviewed and compared to these objectives and



compliance limits to ensure the WPCP is operating properly. Adjustments to the WPCP operation are made based on the results of this sampling program.

The final effluent concentration and loading compliance limits were achieved in 2022 except for E. coli in November 2022, when the monthly geometric mean density was 288 CFU/100.

There were two occurrences when the E. coli final effluent objective was not achieved: in May 2022 when the monthly geometric mean density was 148 CFU/100mL, and in June 2022 when it was 121 CFU/100. Details can be found in section 4a - 11 (3) b) *Final Effluent Monitoring*.

Section 1: Introduction

This report has been prepared to address the annual performance reporting requirements for the Collingwood Water Pollution Control Plant (WPCP) as outlined in Condition 11 of the Environmental Compliance Approval (ECA).

This report has further been prepared to address the annual performance reporting requirements for the sewage collection system as outlined in Condition 4.6 of the Environmental Compliance Approval (ECA).

Section 4 of this report has been subdivided into subsections that specifically address the reporting requirements identified in the ECA's. Additional information may also be provided to support and substantiate the required content.

This annual report has been presented to Council. The Collingwood Wastewater System's 2022 Annual Performance Report can be viewed and downloaded on the website or upon request, a copy will be made available free of charge.

Section 2: Wastewater System General Information

Table 2 – Wastewater System Information

System Information	
Wastewater System Name	Collingwood Water Pollution Control Plant
Wastewater Works Number	120000550
Wastewater System Owner	Town of Collingwood
Wastewater System Category	Class III Certification
Environmental Compliance Approval	9825-BPDH52 dated May 14, 2020
Environmental Compliance Approval (Air)	7583-BTALXW dated September 23, 2020
Period Reported	January 1, 2022 – December 31, 2022



Section 3a: The Facility – Water Pollution Control Plant

The Collingwood WPCP, owned and operated by the Town of Collingwood, is a conventional activated sludge plant with alum addition for phosphorus removal. Treated effluent from the plant is discharged to Collingwood Harbour, which is situated in Georgian Bay on the south shore of Nottawasaga Bay.

The plant was first constructed in 1958 to provide primary treatment of the Town's domestic and industrial wastewater. The primary plant was expanded in 1968. Secondary treatment was added in 1981. The rated flow capacity is 24,548 m³ /day with a peak flow rate of 60,900 m³/day. Wastewater from the serviced area flows to the plant by gravity with the assistance of eight (8) pumping stations to boost the flow where required.

Major unit operations at the Collingwood WPCP include the following:

- Headworks - which provides the following preliminary process treatments:
 - Emergency plant bypass
 - Automated mechanical raked raw sewage screen
 - Manual raked bypass raw sewage screen
 - Raw sewage pumping station
 - Grit removal
 - Bio scrubber for headwork's odour control
 - Septic/leachate handling

- Primary Sedimentation
- Activated Sludge with Alum addition for Phosphorus Removal
- Secondary Clarification
- Disinfection with Ultraviolet irradiation (UV)
- Effluent discharge to Collingwood Harbour
- Thickening of waste activated sludge by Dissolved Air Flotation
- Anaerobic Sludge Digestion
- Odour control
- Liquid Digested Sludge Land Utilization Disposal
- Sludge Storage Lagoon (off site)
- Standby power source (diesel driven generator)
- Co-generation System

Section 3b: The Facilities – Sewage Collection System

The sewage collection system consists of the sewage pumping stations listed in table 3b plus the linear works including force mains, gravity mains, and manholes.

*Table 3b - 2022 Station Capacity Sewage Pumping Stations*

Station Capacity		
Sewage Pumping Station	Firm (L/s)	Maximum (L/s)
Black Ash Creek	212	318
Cranberry	32.8	65.6
Minnesota	210	315
Paterson Street	72	108
Pretty River Estates	29	58
Silver Glen	16	32
St. Clair Street	155	310
Tenth Line (Public Works)	T.B.D.	T.B.D.

Section 4a: Reporting: Collingwood Water Pollution Control Plant (WPCP)

This section is in accordance with the reporting requirements in the ECA for the WPCP, section 11.3.

11 (3) a) Influent, Imported Sewage Monitoring Data

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.

Effluent flow data will be used to provide trending prior to 2021 when influent flow data became available. The annual average day influent flow at the WPCP in 2022 was 17,997 m³/d, which is approximately 73% of the WPCP design capacity of 24,548 m³/d. The maximum day flow in 2022 was 51,088 m³/d, which is also below the design peak flow day of 60,900 m³/d.

Imported sewage monitoring results for 2022 are provided in Tables 11(3)a1. No results are available for March 2022 due to a temporary cease in accepting of hauled waste due to operational issues associated with the digesters and solids treatment at the WPCP in early 2022.



Table 11(3)a1 2022 Imported Septage Monitoring Results (mg/L)

2022	BOD5	TSS	TP	TKN
January	3,100	15,300	167	3,220
February	1,300	22,000	175	1,200
March	0	0	0	0
April	3,000	14,200	127	127
May	1,800	4,600	73.8	411
June	3,600	3,290	127	894.5
July	6,100	6,560	122	163
August	2,900	15,800	112	378
September	390	675	11.8	47.3
October	1,300	640	57.7	680
November	3,100	23,700	126	713
December	3,500	8,720	186	648
Annual average	2,508	9,624	107	707

Table 11(3)a2 Imported Septage Monitoring (mg/L)

Annual average	BOD5	TSS	TP	TKN
2020	2,283	9,334	231	1,404
2021	2,748	8,294	115	605
2022	2,508	9,624	107	707

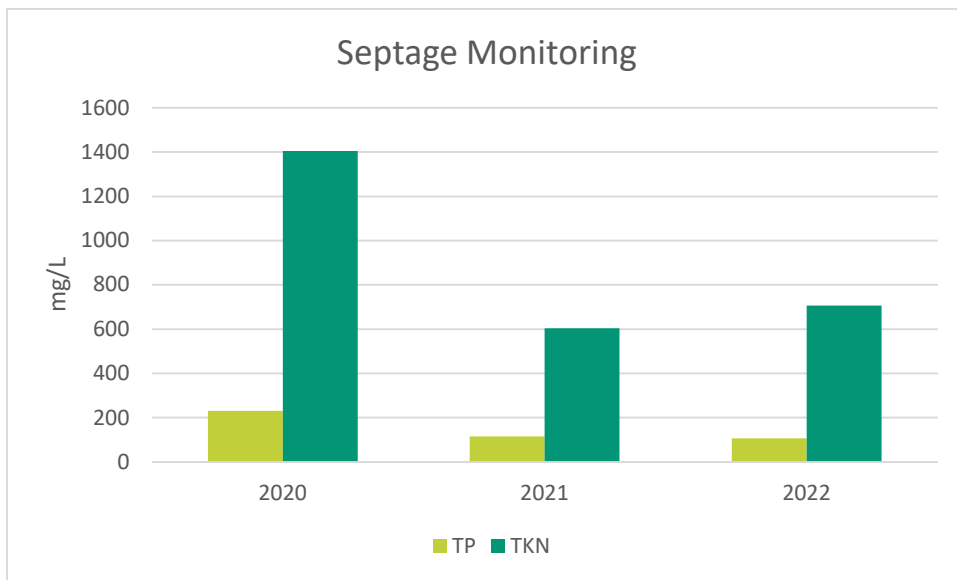
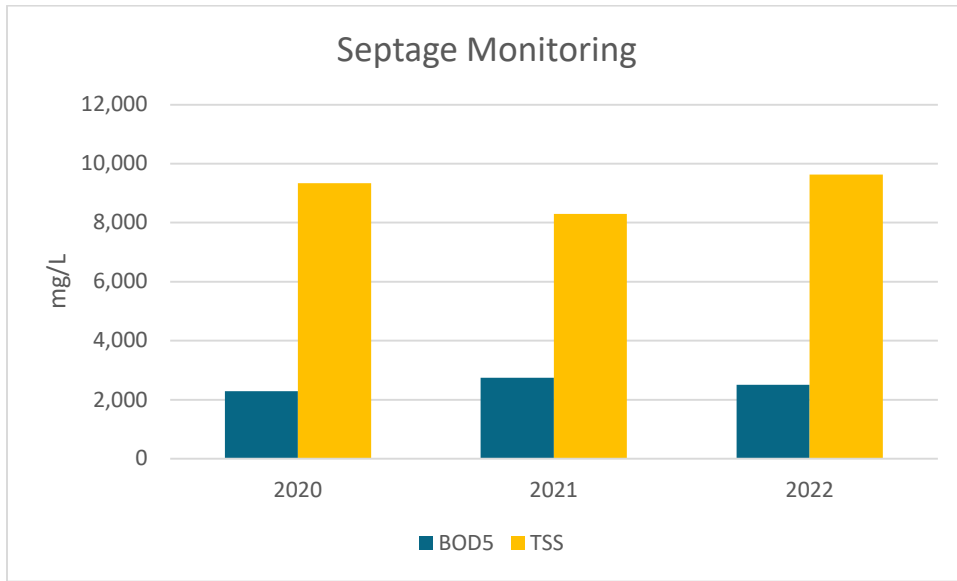




Table 11(3)a3 2022 Influent Monitoring (mg/L)

2022	BOD5	TSS	TP	TKN
January	97	67	2.01	18.6
February	110	108	2.03	19.1
March	110	101	3.61	22.3
April	90	38	1.4	14.1
May	120	84	2.6	14.1
June	190	200	3.75	19.4
July	100	40	2.61	12.9
August	34	40	2.48	14.9
September	99	23	1.69	9.9
October	200	173	3.31	19
November	110	49	2.49	19.5
December	42	17	1.29	11
Annual average	109	78	2	16

Table 11(3)a4 Influent Monitoring Results (mg/L)

Annual average	BOD5	TSS	TP	TKN
2020	110	162	3	30
2021	95	79	2	19
2022	109	78	2	16

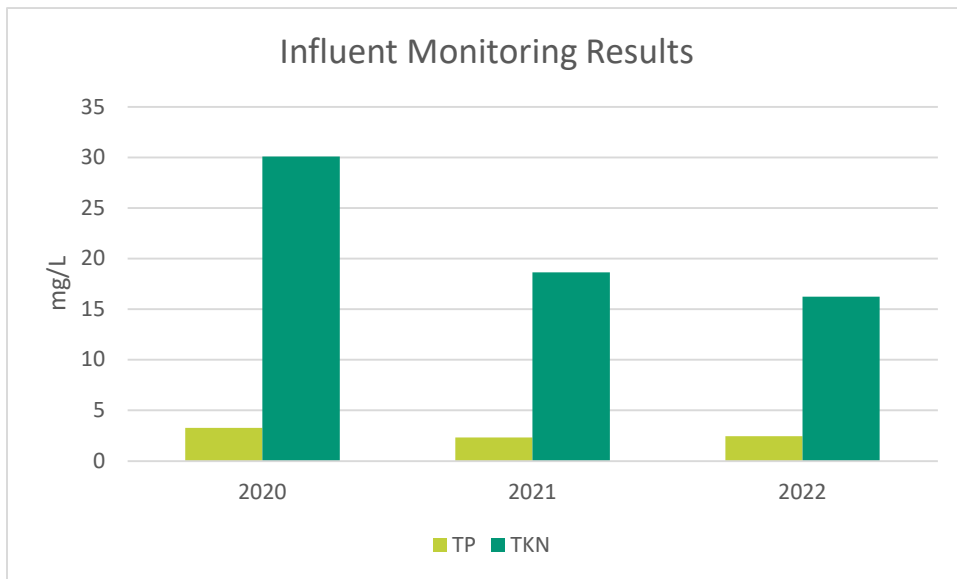
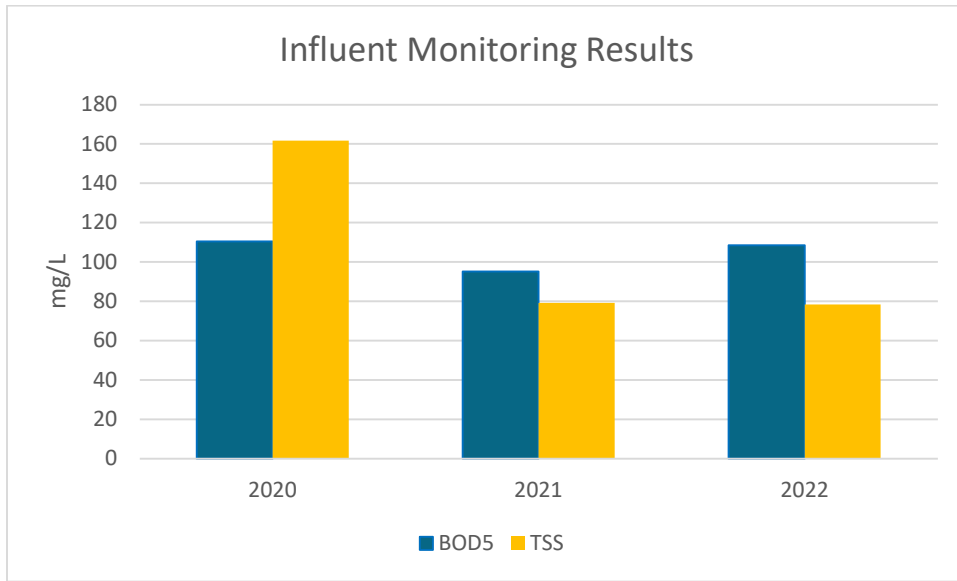


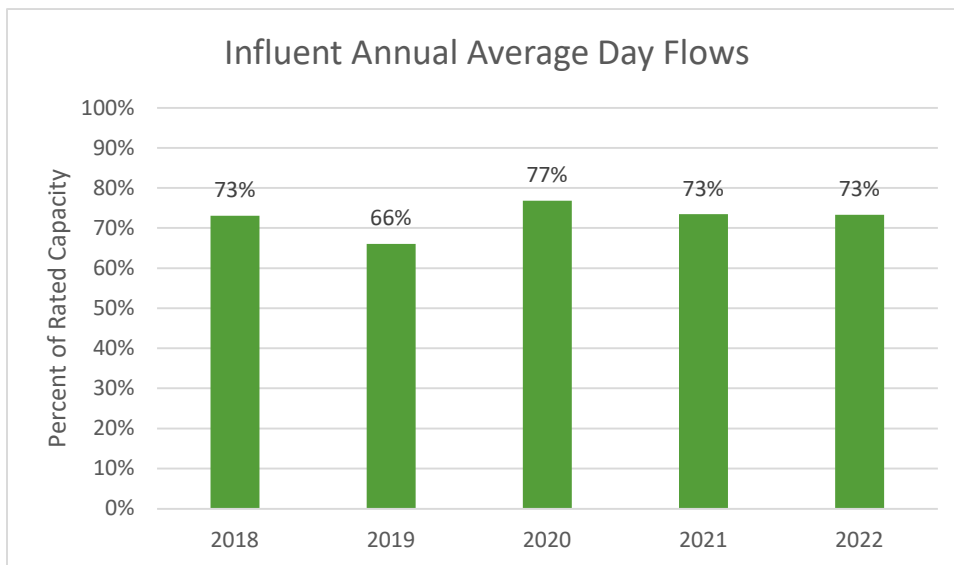
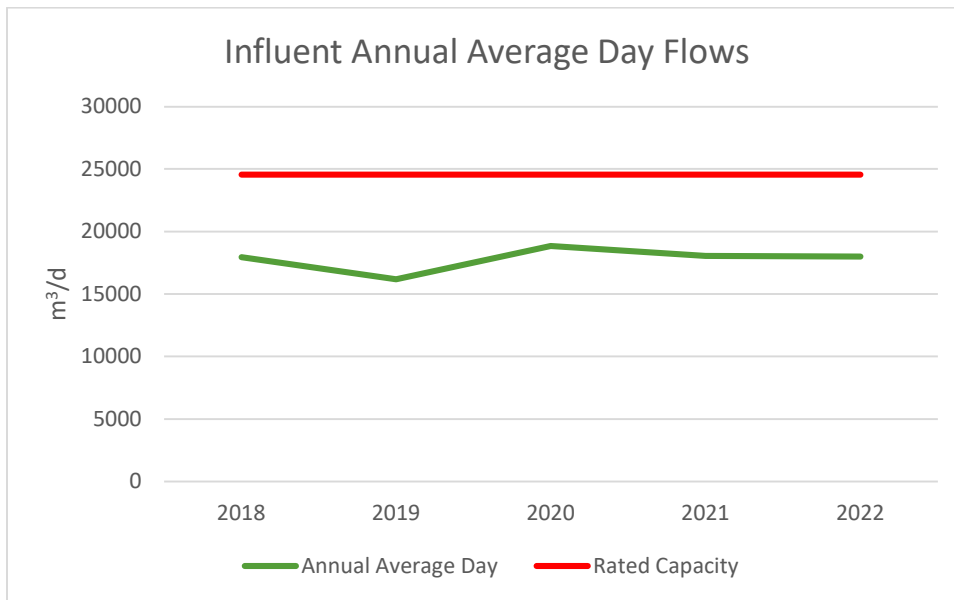


Table 11(3)a5 2022 Raw Influent Flows – Collingwood WPCP

2022	Total volume (m ³)	Mean (m ³ /d)	Max (m ³ /d)	Min (m ³ /d)
January	496,626	16,020	18,031	13,640
February	553,068	19,752	44,987	14,490
March	717,229	23,136	32,244	16,780
April	613,955	20,465	25,558	17,820
May	572,899	18,481	27,624	15,363
June	610,429	20,348	36,748	15,189
July	483,357	15,592	17,532	12,520
August	540,611	17,439	29,424	12,750
September	507,607	16,920	27,642	14,188
October	471,847	15,221	19,281	13,176
November	469,921	15,664	51,088	1,540
December	531,242	17,137	30,571	13,148

Table 11(3)a6 Design Objectives Summary

Measurement	Rated Capacity	Current Year	% of Capacity
Average day flow m ³ /d	24,548 m ³ /d	17,997 m ³ /d	73%
Peak flow m ³ /d	60,900 m ³ /d	51,088 m ³ /d	84%



11 (3) b) Final Effluent Monitoring Data

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 the ECA, including an overview of the success and adequacy of the works.



In summary, all design objective targets and compliance requirements were achieved in 2022 with three exceptions:

- The monthly geometric mean density of E. coli was 148 CFU/100 mL in May, which exceeded the design objective of 100 CFU/100 mL.
- The monthly geometric mean density of E. coli was 121 CFU/100 mL in June, which exceeded the design objective of 100 CFU/100 mL.
- The monthly geometric mean density of E. coli was 288 CFU/100 mL in November, which exceeded the compliance limit of 200 CFU/100 mL.

The higher E. coli results in May and June 2022 are attributable to the UV lamps reaching the end of their useful life. The UV lamps were replaced in June 2022 and the design objectives were met in the subsequent months.

The E. coli analytical results in November 2022 ranged from 1 to 15 CFU/100 mL, with the exception of the sample result from November 22, 2022 when 1,400 CFU/100 mL of E. coli was detected. This single elevated E. coli concentration resulted in an exceedance of the geometric mean compliance limit for E. coli in November 2022. An extensive investigation was completed by the Town to determine the potential cause of this elevated E. coli result, but no source could be identified. The MECP was notified of the exceedance and of the inconclusive results of the investigation and advised that no further action was required by the Town. This result is considered an anomaly as no other elevated E. coli results have been identified in the final effluent subsequent to the November 22, 2022 sampling event.

Monitoring data shows that CBOD5 concentrations were stable while concentrations of TSS, TP and TKN declined in 2022. Based on the effluent data, the WPCP is operating well and adequately treating the wastewater.



Table 11(3)b1 Final Effluent Objectives

Final Effluent Objective Limits				
Parameter	Averaging Calculator	Limit	Result	Units
CBOD5	Annual Average	15	2.2	mg/L
Total Suspended Solids	Annual Average	15	4.3	mg/L
Total Phosphorous	Monthly Average	0.8	0.16	mg/L
E-Coli	Monthly Geometric Mean Density	100	12 – 288	cfu/100 mL
pH	Single Sample Result	6.5 - 9.0	6.6 – 8.0	n/a

Table 11(3)b2 Final Effluent Compliance Limits

Final Effluent Compliance Limits				
Parameter	Averaging Calculator	Limit	Result	Units
CBOD5	Annual Average	25	2.2	mg/L
Total Suspended Solids	Annual Average	25	4.3	mg/L
Total Phosphorous	Monthly Average	1.0	0.16	mg/L
E. coli	Monthly Geometric Mean Density	200	12 – 288	CFU/100 mL
pH	Single Sample Result	6.0-9.5	6.6 – 8.0	n/a

Table 11(3)b3 Final Effluent Loading Limits

Final Effluent Loading Limits				
Parameter	Averaging Calculator	Limit	Result	Units
CBOD5	Annual Average Daily Loading	613.7	39.58	kg/d
Total Suspended Solids	Annual Average Daily Loading	613.7	78.44	kg/d
Total Phosphorous	Monthly Average Daily Loading	24.5	2.81	kg/d



Figure 11(3)b1 Average Final Effluent Carbonaceous Biochemical Oxygen Demand (CBOD5) Concentrations

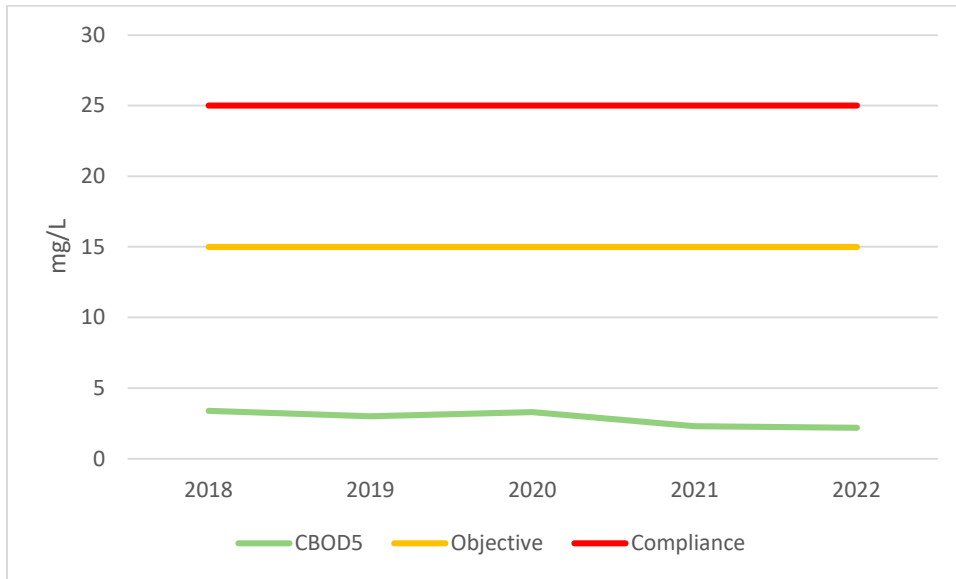


Figure 11(3)b2 Average Final Effluent Total Suspended Solids (TSS) Concentrations

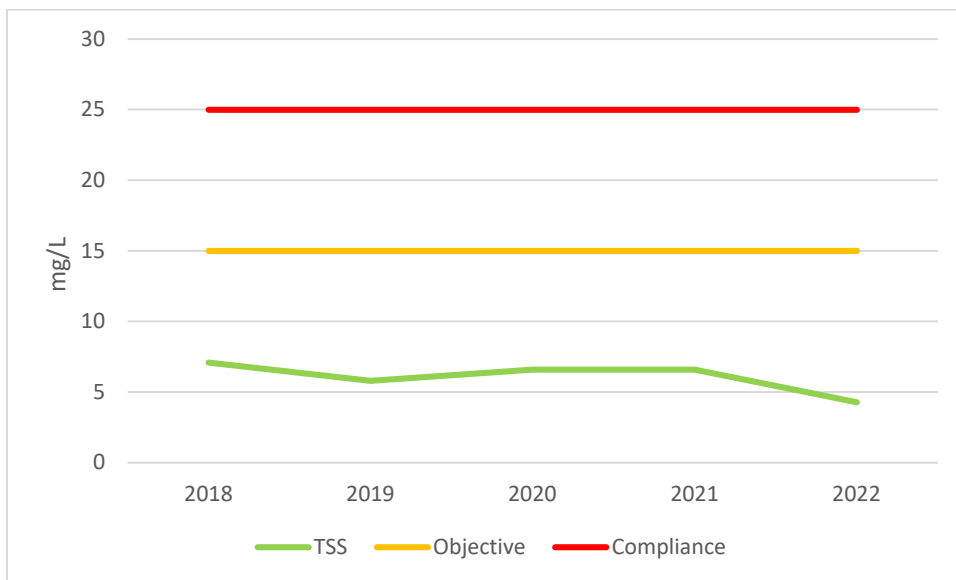
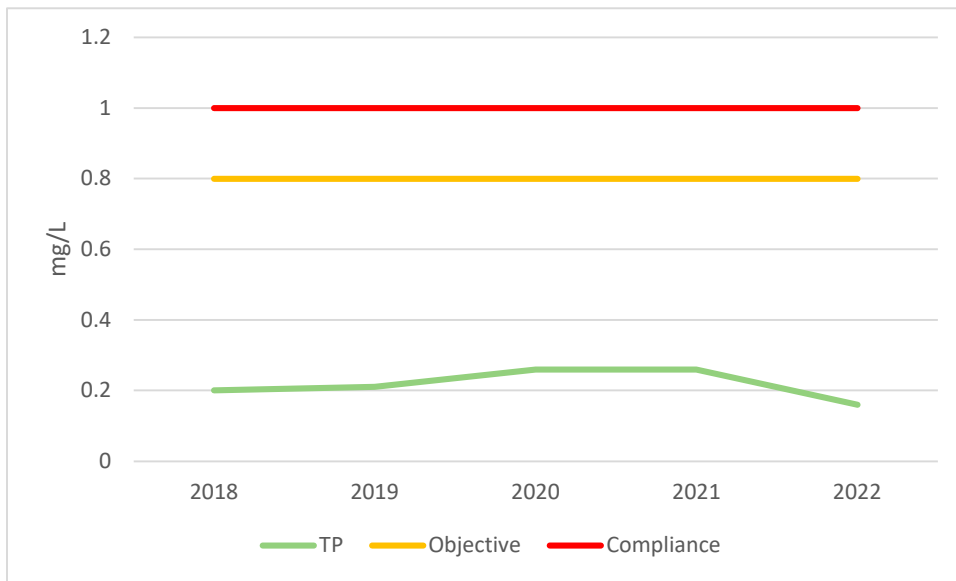




Figure 11(3)b3 Average Final Effluent Total Phosphorous (TP) Concentrations



**Table 11(3)b4** 2022 Final Effluent Flows

2022	Total volume (m³)	Mean (m³/d)	Max (m³/d)	Min (m³/d)
January	474,440	15,305	17,630	12,350
February	562,860	20,102	44,950	13,880
March	774,860	24,995	36,140	16,510
April	637,510	21,250	27,990	17,820
May	544,360	17,560	26,240	14,000
June	573,640	19,121	37,040	13,690
July	439,300	14,171	17,120	11,140
August	512,830	16,543	30,560	11,450
September	488,600	16,287	28,530	13,430
October	458,120	14,778	17,930	13,050
November	463,350	15,445	25,310	12,150
December	498,210	16,071	30,690	12,160

Table 11(3)ab1 - 2022 Monitoring and Performance Data – Collingwood WPCP

2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
BOD5												
Influent (mg/L)	97	110	110	90	120	190	100	34	99	200	110	42
CBOD5	Effluent Average Annual: Objective 15 mg/L, Compliance Concentration Limit 25 mg/L, Compliance Loading Limit 613.7 kg/d											
Effluent (mg/L)	2.13	1.70	10.80	1.08	1.42	1.13	1.18	1.02	2.83	1.00	1.00	1.03
	Average Annual Concentration:				2.2	mg/L	Annual Average Loading:			39.58	kg/d	
TSS												
Effluent Average Annual: Objective 15 mg/L, Compliance Concentration Limit 25 mg/L, Compliance Loading Limit 613.7 kg/d												
Influent (mg/L)	67	108	101	38	84	200	40	40	23	173	49	17
Effluent (mg/L)	5.9	3.4	9.4	4.2	6.5	5.0	3.0	3.3	3.7	2.4	2.5	2.8
% Removal	91%	97%	91%	89%	92%	98%	93%	92%	84%	99%	95%	83%
	Average Annual Concentration:				4.3	mg/L	Annual Average Loading:			78.44	kg/d	
TP												
Effluent Average Monthly: Objective 0.8 mg/L, Compliance Concentration Limit 1 mg/L, Compliance Loading Limit 24.5 kg/d												
Influent (mg/L)	2.01	2.03	3.61	1.4	2.6	3.75	2.61	2.48	1.69	3.31	2.49	1.29
Effluent (mg/L)	0.14	0.08	0.26	0.10	0.22	0.27	0.13	0.31	0.13	0.09	0.09	0.06
% Removal	93%	96%	93%	93%	92%	93%	95%	88%	92%	97%	96%	96%
	Average Annual Concentration:				0.16	mg/L	Annual Average Loading:			2.81	kg/d	
TKN												
Influent (mg/L)	18.6	19.1	22.3	14.1	14.1	19.4	12.9	14.9	9.9	19	19.5	11
Effluent (mg/L)	2.95	4.075	6.56	6.1	2.32	1.275	1.175	1.86	1.5	2.075	2.26	3.075
TAN												
Effluent (mg/L)	0.70	1.22	3.75	3.79	1.41	0.63	0.43	0.82	0.12	0.07	0.05	0.41
pH												
Effluent Single Sample: Objective 6.5 to 9.0, Compliance Limit 6.0 to 9.5												
Effluent Min	7.0	6.9	6.9	6.9	7.0	6.9	6.6	6.6	6.6	6.6	6.7	6.7
Effluent Max	7.2	7.2	8.0	7.1	7.1	7.2	7.1	6.9	7.3	7.3	7.1	7.3
E-Coli												
Effluent Monthly Geometric Mean: Objective 100 CFU/100 mL, Compliance Limit 200 CFU/100 mL												
Effluent (CFU/100mL)	31	12	17	33	148	121	25	65	69	41	<u>288</u>	28

Notes:

Bold Text – Exceeds Compliance Objective; **Bold and Underlined Text** – Exceeds Compliance Limit

11 (3) c) Monitoring Schedule Deviation Summary

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

The only deviation from the 2021 Performance Report schedule indicated samples would be taken on Wednesdays in 2022; however, samples were actually taken on Tuesdays. The 2023 sampling program schedule is presented below.

Table 11(3)c1 2023 Sampling Program Schedule

Sample Location	Parameters	Sample Type	Minimum Sampling Frequency	2023 Sample Collection Schedule
Influent Sewage	BOD5 TSS TP TKN	24-hour Composite	Monthly	First Wednesday of each month
Imported Sewage	BOD5 TSS TP TKN	Grab	Monthly	First Wednesday of each month
Final Effluent	CBOD5 TSS	24-hour Composite	Monthly	Every Wednesday (weekly)
	TP TAN	24-hour Composite	Weekly	Every Wednesday
	E.coli	Grab	Weekly	Every Wednesday
	pH Temperature	Grab	3 times/week	Monday, Tuesday, Wednesday, Thursday, Friday (excluding stat holidays)
Sludge/Biosolids	TS TP TAN Nitrate as Nitrogen Metals Scan	Grab	Bi-weekly	Every second Wednesday



Sample Location	Parameters	Sample Type	Minimum Sampling Frequency	2023 Sample Collection Schedule
Leachate	Boron Cobalt Magnesium Manganese Potassium Strontium Bis (2-ethylhexyl) Phthalate	Grab	Quarterly	February May August November

11 (3) d) Operating Issues

A summary of all operating issues encountered and corrective actions taken:

Table 11(3)d – Operating Issues summary

Date	Description and Corrective Action
2022	Due to only having one operational primary digester we had to balance our loading feed rates vs solids rates in the aeration basins. We employed a consultant to help manage digester health and provide guidance on optimal solids management. There was an increase in odours during re-establishment of the primary digester.
2022	There was an increase in E.coli results in May and June resulting in over-objective monthly averages but within compliance limits. The UV lights were replaced later in June to remedy this problem resulting in satisfactory results.
2022	There was noticeable unusual scum on the aeration basins periodically throughout 2022. The cause of this scum is unknown. A program for monitoring commercial waste has been identified as a departmental need.



11 (3) e) Repairs and Maintenance

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.

A log is kept for each piece of equipment at the Collingwood plant. These logs are available for inspection at the plant.

Table 11(3)e1 Scheduled Maintenance

Equipment	Description
Boiler and pressure vessel	Annual inspection.
Clarifiers	Primary and secondary clarifiers are taken out of service for annual inspection, maintenance and repairs as required.
Gas Monitoring Equipment	Annual calibration, inspection and maintenance.
Electrical systems, pumps and motors	Electrical maintenance program including thermography, voltage, load and harmonic checks, vibration analysis etc.
Standby generator	Semi-annual inspection and maintenance. Bi-weekly operations test, inspection and maintenance
Flow Meter Calibration	Annual calibration of flow meters to ensure they are accurately measuring flows
UV Light Replacement	Replace UV bulbs on all banks of the system
Digester #2	Inspection and clean out – completed every 5-7 years.
Digester waste gas system	Annual inspection of gas lines, flame arrestors and valving system
Influent Bar Screen	Annual inspection of all mechanical parts including bar screen conveyor and grit classifier
Influent flow meter 2	Replace ultrasonic flowmeter with mag meter.
Influent flow meter 1 and 3	Replace ultrasonic clamp-on meter with inline mag meter.



Table 11(3)e2 – *Unscheduled Maintenance / Emergency Repairs*

Equipment	Description
Wasting pump	Pump needed a complete rebuild. Parts ordered in 2021. Due to supply chain issues, pump repair was not finished until Feb 5, 2022
BioRim odour control unit	Replaced flow meter and flushed all recirculation lines and filters.
Digester #1 & #2	Install fittings for cleaning out the piping on the digester lines
Bar screen control switches	Replacement of all control switches
Secondary clarifier chains	Replaced corroded contactor switches and conduit
Raw sludge pump #2	Rebuilt plunger, drive shaft, connecting rod and replaced drive shaft bearings and packing stack.
Raw sludge pump #3	Complete rebuild
TWAS pump	Complete rebuild
Digester mixer	Replaced motor and sheaves
Scum troughs primary clarifiers	Welded and rebuilt
Supernatant Pump	Replaced gear joint – due to supply chain issues other parts back-ordered. The pump remains out of service
TWAS pump	Replace the gear joint and gear joint housing
East Screw Pump	Replaced lower bearings, stub shaft, bushings, and all seals.
Primary clarifier #2	End collector drive motor replaced
North Polymer mixer	Gearbox – all gears replaced
Collector flights	Repaired broken studs and broken guide arms
Digester	Replaced temperature regulating valve

11 (3) f) Effluent Quality Assurance or Control Measures

A summary of any effluent quality assurance or control measures undertaken.

Final effluent quality assurance is provided through sampling and monitoring programs using an accredited laboratory to meet ministry requirements. An on-site laboratory



provides monitoring of process steps to allow operators to perform adjustments as required to produce the desired quality effluent.

11 (3) g) Calibration and Maintenance Summary

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 the ECA or recommended by the manufacturer.

Flows at the Collingwood WPCP are monitored using in-line flow meters, including ultrasonic meters for two of the influent sewage pumps, a magnetic flow meter for the third influent sewage pump, and a level to flow transducer at the final effluent weir. The manufacturer recommends annual calibration of these flow measuring devices.

The flow meters are calibrated annually for accuracy (must be +/- 15% of flow rate) to satisfy condition 9 (4) of the ECA.

Flow meters were not calibrated within 30 days of the previous year's date (June 17th) due to a scheduling issue with the calibration supplier. A letter was sent to the Ministry notifying them of this scheduling issue and no further action was required.

Table 11(3)g Calibration and Maintenance Summary

Date 2022	Equipment Calibrated/ Maintained	Pass / Fail	Comments
Aug 4	Raw Sludge Flow	Pass	
Aug 4	Influent 1	Pass	New magnetic flow meter installed Dec 7, 2022.
Nov	Influent 2	New	Out of service at time of visit – new flow meter installed November.
Aug 4	Influent 3	Pass	New magnetic flow meter installed Dec 7, 2022.
Aug 4	Final Effluent	Pass	
Aug 15	Thickened Waste Activated Sludge (TWAS)	Pass	
Aug 4	Sludge Loading	Pass	



11 (3) h) Design Objectives Summary

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

- i. when any of the design objectives are not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality;
- ii. when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;

Final effluent objectives were achieved more than 50% of the time for all parameters and there is no indication that the final effluent quality is deteriorating.

The Annual Average Daily Influent Flow is below 80% of the Rated Capacity; however, the Town continues to closely monitor the influent flow rates and anticipates commencing a Municipal Class Environmental Assessment for an expansion of the WPCP in the near future.

11 (3) i) Sludge Volume and Disposal

A tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed; Sludge volume is to be measured every five (5) years, but may be estimated in the interim years. A summary of disposal locations and volumes of sludge disposed of must also be provided if sludge was disposed of during the reporting period

The WPCP stabilizes its biosolids (sludge) through an anaerobic digestion process comprised of 2 primary digesters, each with a capacity of 1,223 m³, one (1) secondary digester for separation of digested sludge and collection and storage of gas, with a capacity of 1,223 m³, and one (1) sludge holding tank with continuous air supply and a capacity of 990 m³. A waste gas burner with a rated capacity of 560 m³/hr is connected to the system.

In December of 2021, primary digester #2 failed causing damage to the roof and walls. It was out of service for all of 2022 and expected to remain out of service in 2023 while repairs are completed.

Stabilized biosolids are spread on licensed agricultural land as a nutrient and soil conditioner.



Sludge produced at the Collingwood WPCP meets the quality criteria specified in the Ontario Guidelines for Sewage Sludge Utilization on Agricultural Lands. Sludge is applied in accordance with these guidelines and the conditions set out in the site Environmental Compliance Approval.

Sludge disposal through direct utilization on land is not practical during winter months, during periods of inclement weather and when agricultural fields are inaccessible. The provincial guidelines for biosolids utilization on land recommends municipalities provide 6 months sludge storage facilities. The Town of Collingwood contracts three 6,800 m³ sludge transfer facilities from a private contractor to achieve this guideline.

Sludge disposal operations are currently contracted to a private hauler.

A total volume of 37,246.20 m³ of biosolids was disposed from the Collingwood facility in 2022. A total volume of 42,339.40 m³ of biosolids were land applied from the storage lagoons in 2022. It is estimated that 39,100 m³ of biosolids will be generated at the Collingwood facility in 2023.

Table 11(3)i1 Sludge Disposal Volumes

	Sludge Hauled to Lagoon (m³)
January	2,927.2
February	3,998.4
March	3,353.0
April	2,672.6
May	3,126.2
June	3,872.4
July	2,748.2
August	3,337.6
September	3,045.0
October	2,570.4
November	3,027.8
December	2,567.4
Total	37,246.20



Table 11(3)i b– Sludge Land Application Volume m³

NASM#	April	May	June	July	August	September	November	Total
24503	129.00							129.00
24505	2,525.00							2,525.00
24535	145.60							145.60
24896	987.00							987.00
24286		894.20						894.20
24365		2,936.80						2,936.80
24535		260.40						260.40
24535		36.40						36.40
24536		658.00						658.00
24772		792.00						792.00
24891		1,144.60						1,144.60
24891		72.80						72.80
24891		36.40						36.40
25091			42.00					42.00
23734				2,194.60				2,194.60
23851				4,541.80				4,541.80
23916				4,131.00				4,131.00
23917				576.00				576.00
23733					1,278.60			1,278.60
23733					919.40			919.40
23919					1,766.20			1,766.20
23941					2,361.80			2,361.80
25139					1,317.40			1,317.40
23919						2,618.60		2,618.60
23920						72.80		72.80
23942						718.40		718.40
24380						1,190.00		1,190.00
24873						2,442.80		2,442.80
23407							3,717.00	3,717.00
23647							1,832.80	1,832.80
Total	3,786.60	6,831.60	42.00	11,443.40	7,643.40	7,042.60	5,549.80	42,339.40



11 (3) j) Complaints

A summary of any complaints received and any steps taken to address the complaints.

Table 11(3)j1 Complaints Summary

Date	Nature of Complaint	Corrective Action
31 Jan 2022	Odour	Wasting pump is out of service and parts are on order. Digester #1 returning to service seed sludge being added
31 Jan 2022	Odour (Bread company)	Wasting pump is out of service and parts are on order. Digester #1 returning to service seed sludge being added
8 Feb, 2022	Odour (Shipyards resident)	Digester #1 returning to service waiting for microorganisms to balance which will reduce odours
May 27, 2022	Odour petition	Response provided by manager McGinnity to petitioners on June 30, 2022 explaining the digester process and the contributing odours
8 June, 2022	Noise	Investigated the noise and determined the digester mixer motor needs to have new bearings. New motor ordered and installed in June.

11 (3) k) Bypasses, Overflows and Spills

A summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of Environmental Protection Act (EPA) and abnormal discharge events.

There was one bypass and no overflow events at the WPCP, and no other situations outside normal operating conditions or spills within the meaning of Part X of EPA and abnormal discharge events in 2022.

The UV unit was partially bypassed on August 25, 2022 for just over 3 hours due to a significant precipitation event. Chlorine pucks were placed in the bypass channel to provide disinfection. The bypass was reported to the Ministry with no further action required.

11 (3) l) Notice of Modifications to Sewage Works

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.



There were no Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10 of the ECA in 2022.



11 (3) m) Procedure F-5-1 Summary

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

There is a proposed project to commence investigations into inflow and infiltration in the sanitary collection system in 2023.

11 (3) n) Proposed Works Schedule Changes

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.

Not applicable.



Section 4b: Reporting: Sewage Collection System

The sewage collection system is comprised of linear works, (the underground piping), and eight sewage pumping stations. Public Works is responsible for the linear works with support from the Engineering department. The Wastewater Treatment group is responsible for the sewage pumping stations.

This section is in accordance with the reporting requirements in the ECA for the sewage collection system, section 4.6.

4.6.3 Summary of Required Monitoring Data

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.

There is no required monitoring data for this system.

4.6.4 Summary of Operating Problems

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

Table 4.6.4a Operating Problems		
Location	Problem	Corrective Actions
Black Ash Creek	N/A	
Cranberry	N/A	
Minnesota Street	N/A	
Paterson Street	N/A	
Pretty River Estates	N/A	
Silver Glen	N/A	



St. Clair Street	N/A	
Tenth Line	N/A	
Linear Works	N/A	

4.6.5 Calibration and Maintenance Summary

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.

Flow meters were not calibrated within 30 days of the previous year's date (June 17th) due to a scheduling issue with the calibration supplier. A letter was sent to the Ministry advising them of the scheduling issues and no further action was required.

Table 4.6.5.1 Sewage Pumping Station Calibrations Summary

Date	Location - SPS	Equipment	Pass / Fail
Aug 4	Black Ash Creek (FIT-107)	Flow Meter	Pass
Aug 15	Cranberry Trail	Flow Meter	Pass
Aug 04	Minnesota Street (FIT-103)	Flow Meter	Pass
Aug 15	Paterson Street	Flow Meter	Pass
Aug 4	Pretty River Estates (FIT-101)	Flow Meter	Pass
Aug 15	Silver Glen	Flow Meter	Pass
Dec 22	St. Clair Street (x2)	Flow Meter	Pass



Table 4.6.5.2 Sewage Pumping Station Maintenance Summary

Location	Type	Description
Black Ash Creek, Cranberry, Minnesota, Paterson, Silver Glen, St. Clair, Pretty River SPS	Standby generators	Semi-annual inspection and maintenance. Bi-weekly operations test, inspection and maintenance
All wet wells	Wet well cleaning	As required
All pump stations	Grease bearings	As scheduled with preventive maintenance program



Table 4.6.5.3 Sewage Pumping Station Repairs Summary

Location	Description
Black Ash Creek	n/a
Cranberry	n/a
Minnesota Street	n/a
Paterson Street	Pump #2 was replaced in July 2022, Pump #1 was rebuilt and installed in April 2022.
Pretty River Estates	Replace variable frequency drive
Silver Glen	n/a
St. Clair	
Tenth Line	n/a
Linear Works	450mm forcemain repaired on Huron Street after being damaged due to drilling activities at a construction site.

4.6.6 Complaints

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

Table 4.6.6.1 Complaints Relating to Sewage Pumping Stations

Date	Location	Nature of Complaint	Corrective Action
August 2, 2022	Force main damaged	Inquiry about the spill from the Huron Street force main drilling incident	Manager McGinnity phoned the resident to explain what had occurred
August 2, 2022	Force main damaged	Inquiry about the spill from the Huron St force main drilling incident	Manager McGinnity phoned the resident to explain what had occurred



4.6.7 Alterations to the Authorized System

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.

There are no alternations to the Authorized System within this reporting period.

4.6.8 Collection System Overflow(s) and Spill(s)

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

A spill occurred on the St. Clair SPS force main located on Huron Street. The main was ruptured during construction at the site. The spill occurred from July 22 to July 24th. Approximately 10 metres of pipe was replaced to repair the main. The spill was reported to Spills Action Centre and the Simcoe Muskoka District Health Unit.

Parameter	Units	Leak from Pipe	Storm Manhole
Ammonia (as N)	mg/L	0.20	0.01
BOD5	mg/L	1,400	1,000
Total Kjeldahl Nitrogen	mg/L	13.4	12.3
Total Phosphorus	mg/L	14	15
Total Suspended Solids	mg/L	610	216

4.6.9 Efforts Made to Reduce Overflows, Spills and Bypasses

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.

An aging sanitary sewer on Fifth Street was replaced between Walnut Street and Oak Street, while various manholes were grouted and sections of sewers were relined throughout Town.

Section 5: Conclusion

This report has been compiled in accordance with the reporting requirements of Condition 11 of ECA 5807-B8GM4G and Condition 10 of CofA 2639-5TLQB2. If further clarification is required please do not hesitate to contact:

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