

# Renfrew Wastewater System

---

Waterworks #120000603

## Annual Report

Prepared For: Town of Renfrew

Reporting Period of January 1<sup>st</sup> – December 31<sup>st</sup> 2023

Issued: March 21, 2024

Revision: 0

Operating Authority:



This report has been prepared to meet the requirements set out in:

Document	Document #	Issue Date	Issue Number
Facility ECA	4237-ACPJ6Y	October 13, 2016	N/A

## **Table of Contents**

- 1 Revision History**
  - 2 Operations and Compliance Reliability Indices**
  - 3 Process Description**
  - 4 Treatment Flows**
  - 5 Raw Sewage Quality**
  - 6 Effluent Quality**
  - 7 Operating Issues/Problems**
  - 8 Maintenance**
  - 9 Sludge Generation**
  - 10 Summary of Complaints**
- Appendix A – Performance Assessment Report**
- Appendix B – Raw Sewage Loading Summary**
- Appendix C - Biosolids Quality Report**
- Appendix D - Details of Abnormal Sewage Discharge Events**
- Appendix E - ECA Annual Report Requirements**

## 1 Revision History

Date	Rev#	Revisions	Revised By
2023-03-21	0	Annual report issued	Lauren Lacombe, OCWA

## 2 Operations and Compliance Reliability Indices

Compliance Event	Details
Ministry of Environment Inspections	No MECP Inspection during the reporting period
Ministry of Labour Inspections	No MOL Inspection during the reporting period
Non-Compliance	There was one (1) non-compliance event during the reporting period – See Raw Sewage Quality and Effluent Quality for details
Community Complaints	There were no community complaints during the reporting period
Spills	There were no spills during the reporting period
Overflows	There was one (1) overflow event during the reporting period - See Appendix D for details of Abnormal Sewage Discharge Events
Bypass	There were no bypasses during the reporting period

## 3 Process Description

Renfrew's wastewater treatment system consists of a gravity fed collection system of separated sewers, partially separated sewers, nominally separated sewers, combined sewers and six (6) sewage pumping stations that discharge to the wastewater treatment facility located at 325 Mutual Avenue in Renfrew, Ontario. The sewage pumping stations (SPS) are located on Arthur Avenue, O'Brien Road, Lisgar Avenue, June Street, Coleraine Drive and Forestview Crescent. There are authorized overflow points at the Hinks SPS (Arthur Ave) and June Street SPS. The Town of Renfrew operated the collection system in 2023.

Renfrew's Water Pollution Control Plant (WPCP) is a Class III facility. Raw influent enters the WPCP through two (2) influent channels, one equipped with a mechanical screen and one with a manual bar screen for use during maintenance activities and emergency bypass events. The screening system is equipped with one (1) screenings washer/compactor, influent then enters two (2) aerated grit tanks, utilizing automated blowers to provide aeration. Two (2) grit slurry pumps, two (2) grit cyclones and one grit classifier/dewatering unit transport and process inorganic particulate material from the incoming influent to be removed from site.

Biological primary treatment is provided using two (2) three-pass aeration tanks with fine bubble aeration systems and one anoxic intake zone. The primary effluent flow is then directed to two (2) two-

pass secondary treatment clarifiers equipped with sludge and scum removal mechanisms. Phosphorus is removed and controlled in the incoming wastewater by the use of a settling agent called Ferric Chloride, which is introduced at the beginning of the aeration process in the secondary clarifiers.

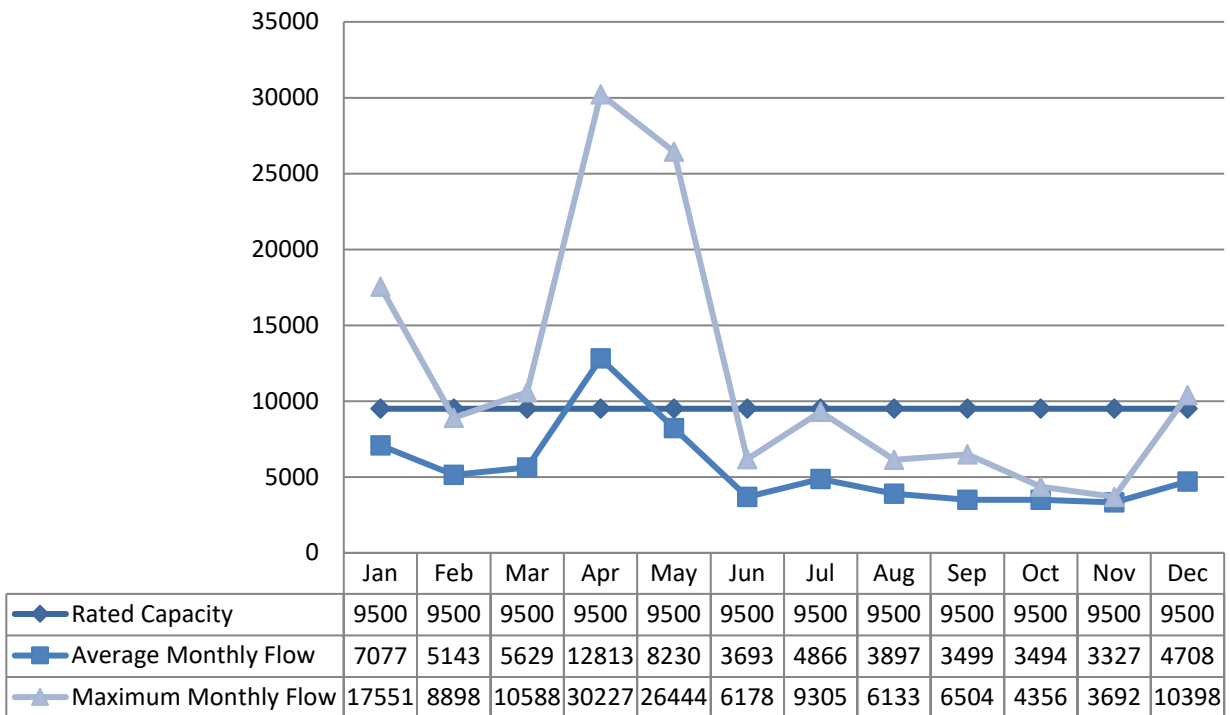
Disinfection of final effluent is achieved via ultraviolet (UV) light disinfection. The UV bulbs are cleaned via automated wipers. Final effluent discharges to the Bonnechere River. Sludge digestion occurs via aerobic digestion. Digested sludge is dewatered via one centrifuge and back-up system dewatering press. A polymer is added to aid in dewatering process by binding the solids in the process sludge. The dewatered cake is conveyed into a Town-owned dump truck and hauled to the Renfrew Landfill Site, located at 376 Bruce Street in Renfrew, ON. There are no sludge storage facilities onsite at Renfrew WPCP.

The facility is equipped with back-up power in the form of a 750 kW standby diesel generator. Three portable backup power generators are available for use at the six (6) sewage pumping stations. A 25 cubic meter storage tank is equipped with a chopper pump for the recirculation and mixing of the imported wastewaters which is then pumped to the screen influent channel.

## 4 Treatment Flows

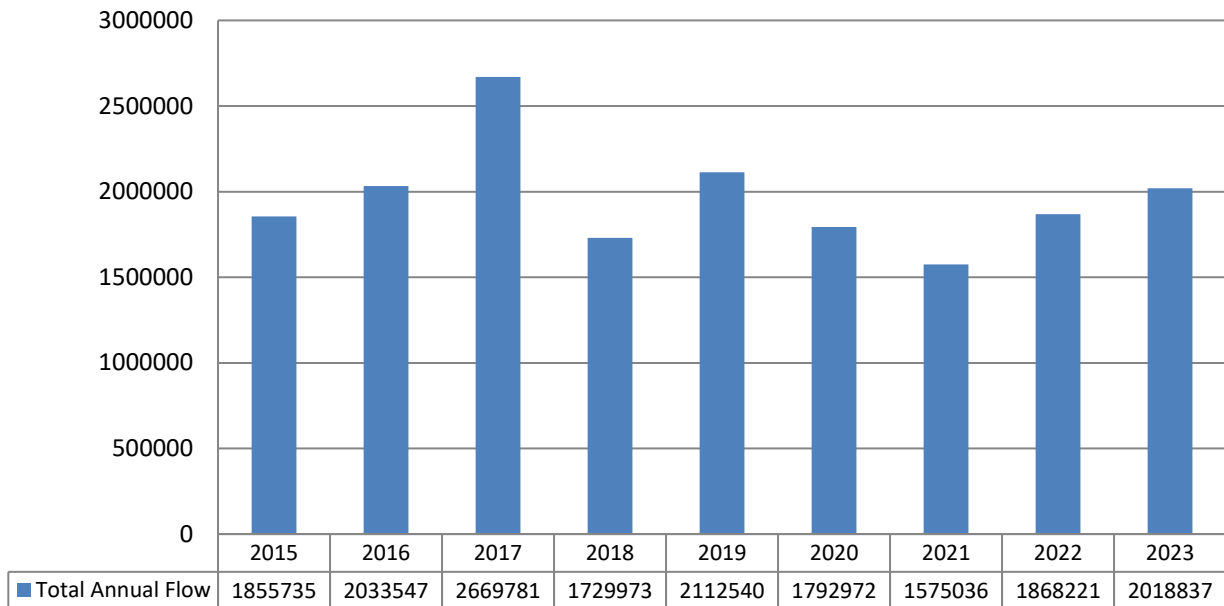
### 4.1 Raw Flow (m<sup>3</sup>/d)

Compliance is based on an annual average flow. For 2023, the annual average flow was 5531.1 m<sup>3</sup>/d or 58% of the rated capacity.



Note: Elevated flows above the rated capacity are directly related to snow melt and wet weather events.

#### 4.1.1 Annual Comparison (m<sup>3</sup>)



## 4.2 Imported Sewage

### 4.2.1 Leachate Flow (m<sup>3</sup>/d)

There was no leachate accepted at this facility in 2023.

### 4.2.2 Septage Flow (m<sup>3</sup>/d)

There was no septage accepted at this facility in 2023.

## 5 Raw Sewage Quality

5 Year Average Trends for Raw Sewage Quality are detailed below. Additional details for the 2023 reporting period and specific monthly minimum, maximum and averages are included in the Performance Report located in Appendix A.

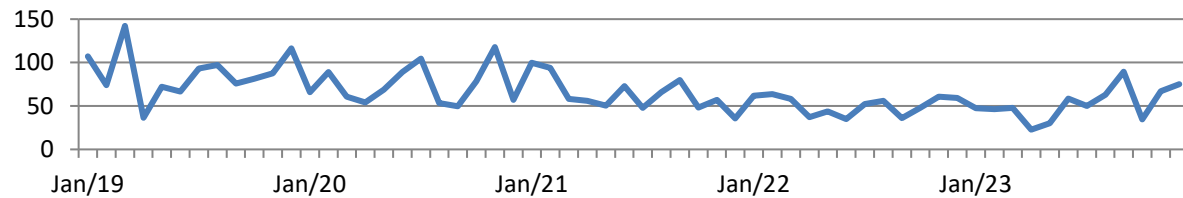
### 5.1 Annual Average Loading Objectives

Parameter	Annual Average (kg/d)	Objective (kg/d)	Status
BOD5	409	712	MET
Total Suspended Solids	354	801	MET
Total Phosphorus	13	22	MET
Total Kjeldahl Nitrogen (TKN)	130	125	NOT MET

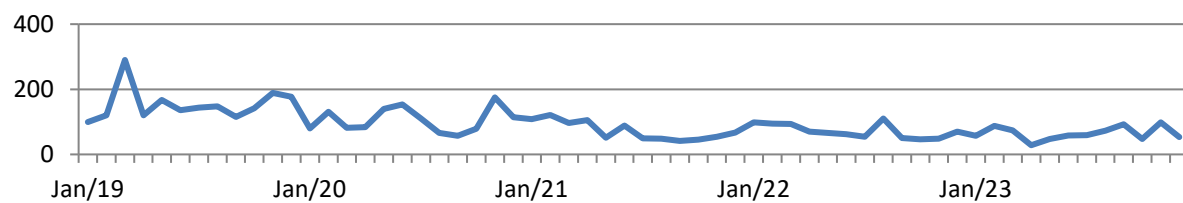
## 5.2 Influent Trending

Five (5) Year Average Trends from 2019-2023 for Raw Sewage Quality are graphed below:

### 5.2.1 CBOD5



### 5.2.2 Total Suspended Solids



## 6 Effluent Quality

### 6.1 Effluent Quality Assurance and Control Measures Taken

This system is part of OCWA's Mississippi Cluster. The cluster is supported by the Eastern Regional Hub, and corporate resources. Operational Services are delivered by OCWA staff that live and work in the community. The systems are operated to meet compliance with applicable regulations. The system has comprehensive manuals detailing operations, maintenance, instrumentation, and emergency procedures. All procedures are treated as active documents and are updated as required. These documents are also part of OCWA's Quality & Environmental Management System.

The process is reviewed and maintained by certified operators. These operators complete in-house rounds and testing to monitor the process. All Sampling and analysis follow approved methods and protocols for sampling, analysis and recording as specified in the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works", the Ministry's publication, "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" and the publication, "Standard Methods for the Examination of Water and Wastewater".

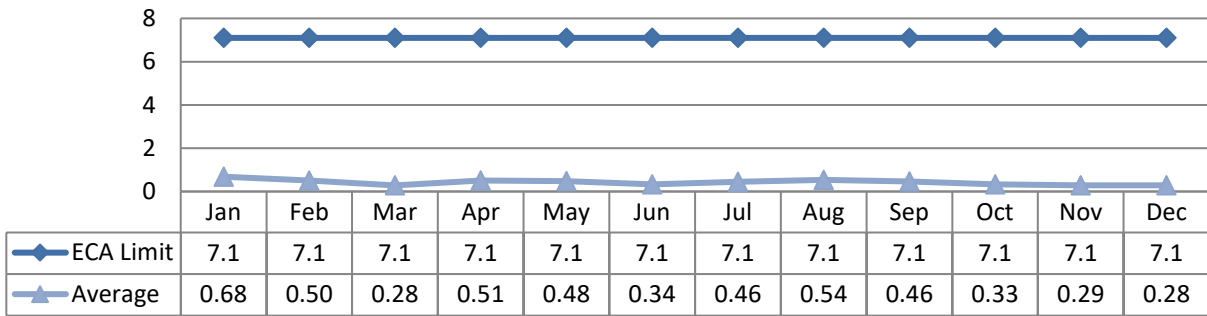
All final effluent samples collected during the reporting period to meet legislated sampling requirements are submitted to Caduceon in Ottawa, ON for analysis, with the exception of disinfection residuals and temperature. Caduceon has been deemed accredited by the Canadian Association for Laboratory Accreditation (CALA), meeting strict provincial guidelines including an extensive quality assurance/quality control program. By choosing this laboratory, the Ontario Clean Water Agency is ensuring appropriate control measures are undertaken during sample analysis. The disinfection residuals and temperature parameters are analyzed in the field at the time of sample collection by certified operators, to ensure accuracy and precision of the results obtained.







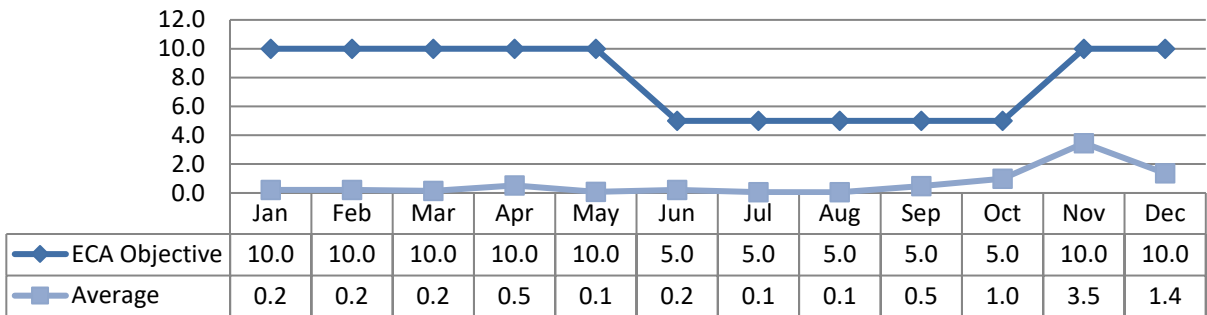
6.4.2 Loading (kg/d)



6.5 Total Ammonia Nitrogen

There is no Compliance Limit for this parameter  
 Compliance Objective for this parameter was MET

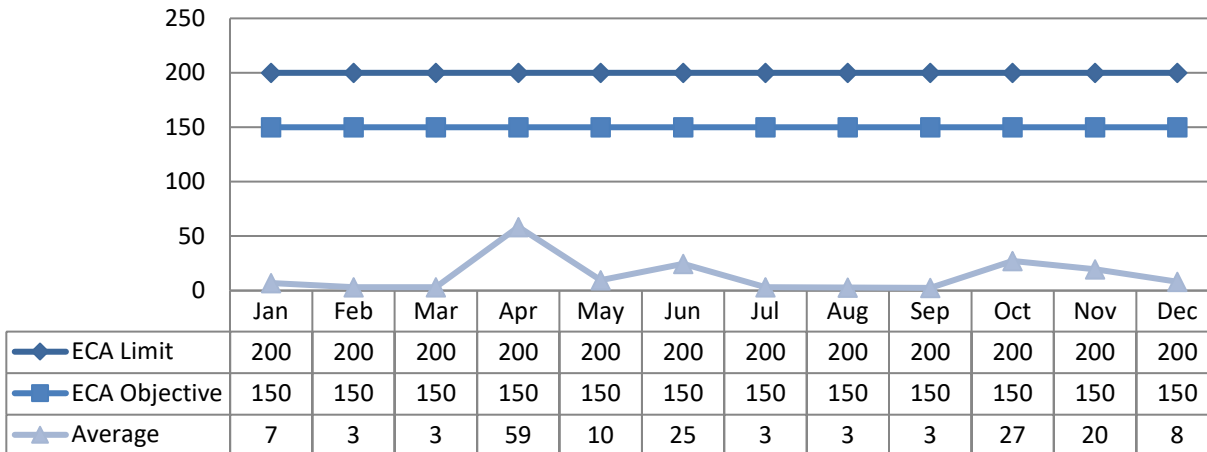
6.5.1 Concentration (mg/L)



6.6 E-coli

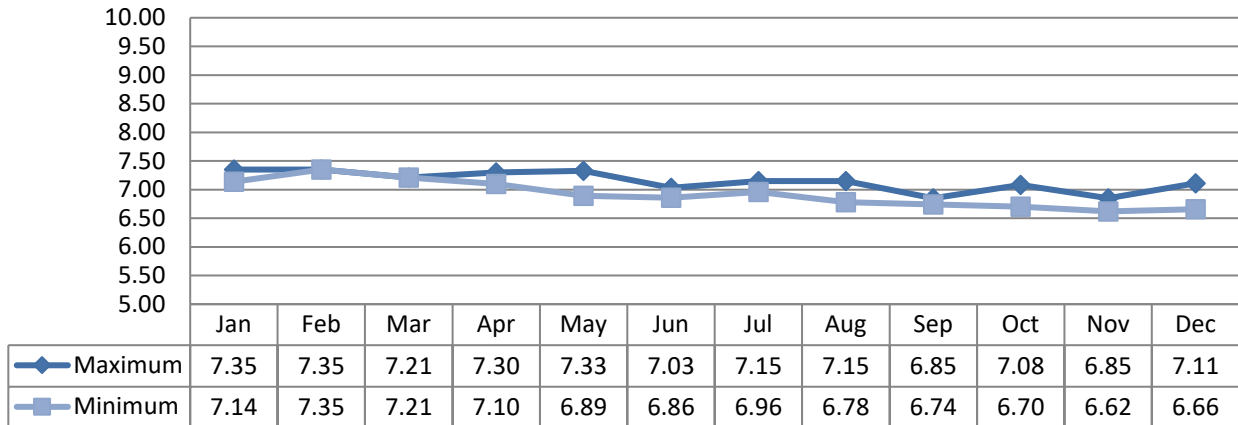
Compliance Limit for this parameter was MET  
 Compliance Objective for this parameter was MET

6.6.1 Geometric Mean (cfu/100mL)



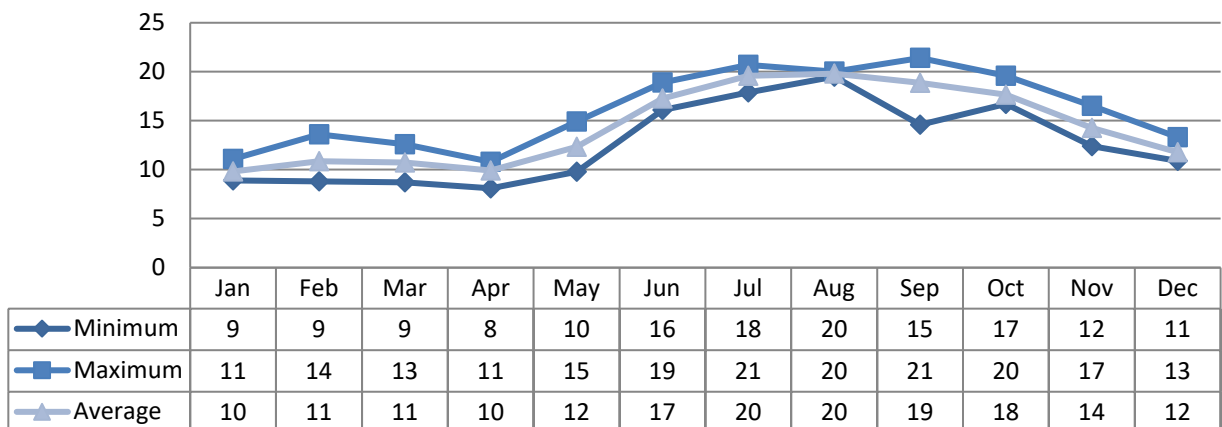
### 6.7 pH

Compliance Limit range for this parameter is 6.0 – 9.5. The parameter was MET  
 Compliance Objective range for this parameter is 6.5-8.5. The parameter was MET



### 6.8 Temperature

There are no compliance limits or objectives defined for Effluent.



### 6.9 Acute Lethality

There were four (4) samples collected in 2023 and tested for acute lethality (Rainbow Trout and Daphnia Magna). This sampling is required both provincially and federally. Results are displayed as % mortality. An adverse result is a > 50% mortality rate.

Compliance Limit for this parameter was MET

Quarter	Date	Rainbow Trout	Daphnia Magna
1 <sup>st</sup> Quarter	2023-02-23	0%	0%
2 <sup>nd</sup> Quarter	2023-05-16	0%	0%
3 <sup>rd</sup> Quarter	2023-08-15	0%	0%
4 <sup>th</sup> Quarter	2023-11-21	0%	0%

## 7 Operating Issues/Problems

There were no design objective exceedances for Effluent, and no operational issues were identified in 2023.

Influent TKN Annual Average Loading exceeded the limit of 125 kg/day at 130 kg/day. There are currently no collection treatment options to address this issue. Please refer to the chart below for a summary of corrective actions taken regarding the TKN loadings.

### 7.1 Influent Quality Non-Compliance Summary

Date	Exceedance of	Limit	Value	Corrective Action
2023	ECA Limit – Influent TKN <i>Annual Effluent Quality Non- Compliance Summary Loading</i>	125 kg/d	130 kg/d	The Town has completed extensive infrastructure repairs and replacements which has resulted in lower influent flows. With lower influent flows, the raw sewage concentration and lack of dilution, has made a noticeable increase in influent parameters, especially Total Kjeldahl Nitrogen

### 7.2 Effluent Quality Non-Compliance Summary

Date	Exceedance of	Limit	Value	Corrective Action
There were no Effluent Quality Non-Compliance items in 2023.				

### 7.3 Overflow, Bypass and Spills Summary

There were no Spills or Bypasses in 2023, however there was one Overflow caused by an extreme rain event. Please see Appendix D for details.

## 8 Maintenance

Routine planned maintenance activities are scheduled in WMS and include:

- Inspect, adjust and calibrate process control equipment to ensure proper operation of water distribution systems, pumps, chemical feeders, and all other equipment installed at the facilities.
- Carry out a routine maintenance program including greasing and oiling as specified in the lubrication schedule.
- Perform day-to-day maintenance duties to equipment including checking machinery and electrical equipment when required.
- Maintain an equipment inventory
- Maintain accurate records of work conducted, activities, and achievements.

Planned maintenance activities are communicated to the person responsible for completing the task through the issuance of WMS work orders. Work orders are automatically generated on a schedule as

determined based on manufacturer's recommendations and site specific operational and maintenance needs and are assigned directly to the appropriate operations personnel. This schedule is set up by the designated WMS Primary. Work orders are completed and electronically entered into WMS by the person responsible for completing the task.

Unplanned maintenance is conducted as required.

## 8.1 Normal Maintenance and Repairs

Work Order	Details
3201933	Capital UV system rebuilt
3291834	Capital Clarifier gear boxes housing replacement
3434630	Capital Headwork exhaust fan VFD replacement
3483817	Capital Calibration of level sensors
3483980	Capital Compactor replacement
3525765	Capital Centrifuge refurbish
3575874	Capital Annual boiler service
3201930	Capital Digester valve encoder board replacement
3201931	Capital RAS Pump Mechanical seals and gaskets replacement
3206224	Capital snow blower motor repair
3241415	Capital WAS VFD refurbishment
3290518	Capital UV hydraulic push rods replacement
3291604	Capital WAS/SCUM impellers spare replacement
3291832	Capital Centrifuge Main and Conveyor bearing rebuild kits
3435666	Capital WAS VFD repaired
3436028	Capital LEL sensor replacement
3662879	Capital WAS 1VFD repaired
3664982	Capital Digester valve encoder board replacement
3665362	Capital Divicenet Power Module Failure replacement
3665644	Capital Aeration Tank #2 Blower repair
3703589	Capital Divicenet Power Module Failure Raw Water Handling replacement
3703601	Capital Centrifuge Control Power troubleshoot/repair
3705399	Diesel electric transfer switch troubleshoot
3706410	Capital Repair centrifuge program loss
3482550	Capital Victaulic clamps replacement

Work Order	Details
3484386	Capital AHU 90100 repair
3525238	Capital compactor motor disconnect and reconnect installation
3525777	Capital Annual Flow Meter Calibration

## 8.2 Emergency Maintenance and Repairs

Work Order	Details
There were no emergency maintenance or repairs during the reporting period.	

## 8.3 Flow Meter Calibrations and Maintenance

Location	Date of Calibration	Additional Maintenance
Digested Sludge FIT-602001	May 16 2023	N/A
To Centrifuge FIT-601001	May 16 2023	N/A
Polymer FIT-721003	May 16 2023	N/A
Polymer FIT-722003	May 16 2023	N/A
Raw FIT-170000	May 16 2023	N/A
RAS FIT-251002	May 16 2023	N/A
WAS FIT-260000	May 16 2023	N/A
Digested Sludge FIT-254002	May 16 2023	N/A
Final Effluent FIT-Final Effluent	May 16 2023	N/A

## 8.4 Authorized Alterations in Collection System

Work Order	Details	Significant Drinking Water Threat (Y/N)
There was no authorized alterations in the collection system during the reporting period.		

## 8.5 Notice of Modifications

Date	Process	Modification	Status
There were no modifications made to the treatment facility of the collection system during the reporting period.			

## 9 Sludge Generation

Please note Section 10.4 (g) of Environmental Compliance Approval 4237-ACPJ6Y asks to include discussion on lagoon cells. The Renfrew Wastewater Treatment facility does not utilize a lagoon process.

## 9.1 Processed Volumes

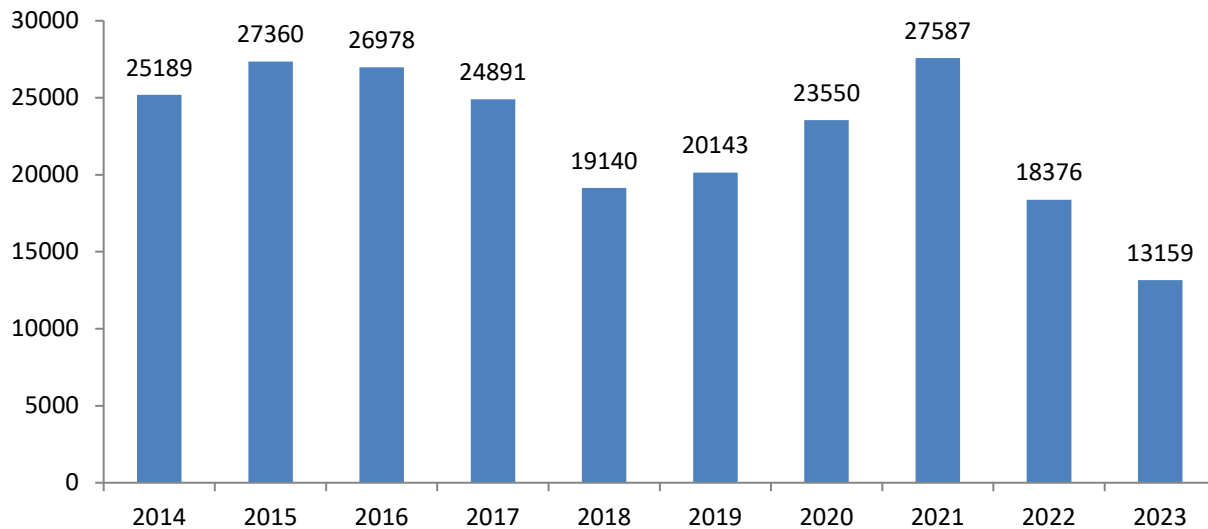
The Renfrew WPCP uses aerobic sludge digestion followed by sludge dewatering. Dewatering is completed using either centrifuge or Fournier press.

Dewatering Process	Volume Processed (m3)
Centrifuge	13159
Total Volume	13159

## 9.2 Sludge Disposal Summary

The dewatered sludge was hauled off site to the Renfrew Landfill Site, ECA# A410401.

## 9.3 Annual Comparison (m<sup>3</sup>/year)



It is anticipated that sludge volumes in 2024 will remain similar to the 2023 volumes. There was significant work completed on the collection system regarding infiltration and inflow which has reduced raw sewage influent flows, and in turn has resulted in less cake production. Cake production was also delayed due to maintenance executed on the centrifuge.

## 9.4 Quality

The biosolids sampling results are summarized in Appendix C. All results met the established guidelines.

## 10 Summary of Complaints

Location	Date	Nature of Complaint	Actions Taken
There were no community complaints during the reporting period.			

# Appendix A

---

## Appendix A – Performance Assessment Report



Performance Assessment Report

02/29/2024

From 1/1/2023 to 12/31/2023

Page 1 of 1

5863 RENFREW WASTEWATER TREATMENT FACILITY 120000603

	1 / 2023	2 / 2023	3 / 2023	4 / 2023	5 / 2023	6 / 2023	7 / 2023	8 / 2023	9 / 2023	10 / 2023	11 / 2023	12 / 2023	<-Total-->	<-Avg-->	<-Max-->	<-Criteria-->
<b>Flows</b>																
Raw Flow: Total - Raw Sewage Influent m <sup>3</sup> /d	219,391.00	143,994.00	174,507.00	384,376.00	255,136.00	110,786.00	150,831.00	120,794.00	104,978.00	108,299.00	99,807.00	145,938.00	2,018,837.00			0.00
Raw Flow: Avg - Raw Sewage Influent m <sup>3</sup> /d	7,077.13	5,142.64	5,629.26	12,812.53	8,230.19	3,692.87	4,865.52	3,896.58	3,499.27	3,493.52	3,326.90	4,707.68		5,531.06		9,500.00
Raw Flow: Max - Raw Sewage Influent m <sup>3</sup> /d	17,551.00	8,898.00	10,588.00	30,227.00	26,444.00	6,178.00	9,305.00	6,133.00	6,504.00	4,356.00	3,692.00	10,398.00			30,227.00	0.00
Raw Flow: Count - Raw Sewage Influent m <sup>3</sup> /d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			0.00
Eff. Flow: Total - Final Effluent m <sup>3</sup> /d	211,914.00	137,571.00	166,695.00	382,470.00	255,143.00	111,671.00	148,445.00	117,498.00	102,486.00	107,303.00	96,665.00	140,564.00	1,978,425.00			0.00
Eff. Flow: Avg - Final Effluent m <sup>3</sup> /d	6,835.94	4,913.25	5,377.26	12,749.00	8,230.42	3,722.37	4,788.55	3,790.26	3,416.20	3,461.39	3,222.17	4,534.32		5,420.34		9,500.00
Eff. Flow: Max - Final Effluent m <sup>3</sup> /d	17,434.00	8,606.00	10,197.00	30,482.00	26,667.00	7,846.00	9,487.00	6,069.00	6,513.00	4,325.00	3,555.00	10,316.00			30,482.00	0.00
Eff Flow: Count - Final Effluent m <sup>3</sup> /d	31.00	28.00	31.00	30.00	31.00	30.00	31.00	31.00	30.00	31.00	30.00	31.00	365.00			0.00
<b>Carbonaceous Biochemical Oxygen Demand: CBOD</b>																
Raw: Avg cBOD5 - Raw Sewage Influent mg/L	47.60	46.50	47.75	22.75	30.20	58.50	50.00	63.00	89.50	34.40	67.00	75.25		52.70	89.50	0.00
Raw: # of samples of cBOD5 - Raw Sewage Influent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Eff: Avg cBOD5 - Final Effluent mg/L	< 3.00	< 3.00	< 3.00	< 2.75	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 2.98	< 15.00	
Eff: # of samples of cBOD5 - Final Effluent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Loading: cBOD5 - Final Effluent kg/d	< 20.508	< 14.740	< 16.132	< 35.060	< 24.691	< 11.167	< 14.366	< 11.371	< 10.249	< 10.384	< 9.667	< 13.603	< 16.16	< 35.06	< 142.500	
Percent Removal: cBOD5 - Raw Sewage Influent %	93.70	93.55	93.72	87.91	90.07	94.87	94.00	95.24	96.65	91.28	95.52	96.01	93.54	96.65	0.00	
<b>Biochemical Oxygen Demand: BOD5</b>																
Raw: Avg BOD5 - Raw Sewage Influent mg/L	74.00	65.50	62.50	26.25	39.00	93.75	52.50	82.80	124.00	88.00	98.50	83.25		74.17	124.00	0.00
Raw: # of samples of BOD5 - Raw Sewage Influent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Eff: Avg BOD5 - Final Effluent mg/L	< 3.00	< 4.00	< 3.00	< 2.75	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 4.20	< 4.25	< 3.25	< 3.25	< 3.29	< 4.25	
Eff: # of samples of BOD5 - Final Effluent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Loading: BOD5 - Final Effluent kg/d	< 20.508	< 19.653	< 16.132	< 35.060	< 24.691	< 11.167	< 14.366	< 11.371	< 10.249	< 14.538	< 13.694	< 14.737	< 17.82	< 35.06		
Percent Removal: BOD5 - Raw Sewage Influent %	95.95	93.89	95.20	89.52	92.31	96.80	94.29	96.38	97.58	95.23	95.69	96.10	94.91	97.58	0.00	
<b>Total Suspended Solids: TSS</b>																
Raw: Avg TSS - Raw Sewage Influent mg/L	56.80	87.25	73.75	28.25	47.00	58.50	59.00	73.20	92.25	47.60	98.50	53.00		64.59	98.50	0.00
Raw: # of samples of TSS - Raw Sewage Influent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Eff: Avg TSS - Final Effluent mg/L	< 3.40	< 3.25	< 3.50	< 3.25	< 3.00	< 3.50	< 3.75	< 3.60	< 4.75	< 3.40	< 5.75	< 6.00	< 3.88	< 6.00	< 15.00	
Eff: # of samples of TSS - Final Effluent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Loading: TSS - Final Effluent kg/d	< 23.242	< 15.968	< 18.820	< 41.434	< 24.691	< 13.028	< 17.957	< 13.645	< 16.227	< 11.769	< 18.527	< 27.206	< 21.06	< 41.43	< 142.500	
Percent Removal: TSS - Raw Sewage Influent %	94.01	96.28	95.25	88.50	93.62	94.02	93.64	95.08	94.85	92.86	94.16	88.68	93.41	96.28	0.00	
<b>Total Phosphorus: TP</b>																
Raw: Avg TP - Raw Sewage Influent mg/L	1.91	2.19	1.98	1.01	1.52	2.49	2.09	4.20	2.95	1.94	3.50	2.51		2.36	4.20	0.00
Raw: # of samples of TP - Raw Sewage Influent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Eff: Avg TP - Final Effluent mg/L	0.10	0.10	0.05	0.04	0.06	0.09	0.10	0.14	0.14	0.10	0.09	0.06	0.09	0.14	0.75	
Eff: # of samples of TP - Final Effluent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Loading: TP - Final Effluent kg/d	0.684	0.504	0.282	0.510	0.477	0.335	0.455	0.538	0.461	0.332	0.290	0.283	0.48	0.68	7.100	
Percent Removal: TP - Raw Sewage Influent %	94.76	95.32	97.35	96.05	96.18	96.38	95.44	96.62	95.42	95.04	97.43	97.51	96.12	97.51	0.00	
<b>Nitrogen Series</b>																
Raw: Avg TKN - Raw Sewage Influent mg/L	20.12	20.13	20.90	13.93	15.30	27.23	21.15	30.02	29.35	23.48	35.45	27.45		23.71	35.45	0.00
Raw: # of samples of TKN - Raw Sewage Influent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00
Eff: Avg TAN - Final Effluent mg/L	< 0.21	< 0.21	< 0.15	< 0.52	< 0.08	< 0.21	< 0.06	< 0.05	< 0.49	< 1.00	< 3.46	< 1.38	< 0.63	< 3.46	< 10.00	
Eff: # of samples of TAN - Final Effluent	5.00	3.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	51.00			0.00
Loading: TAN - Final Effluent kg/d	< 1.449	< 1.048	< 0.793	< 6.568	< 0.658	< 0.772	< 0.263	< 0.205	< 1.657	< 3.468	< 11.157	< 6.235	< 3.44	< 11.16		
<b>Disinfection</b>																
Eff: GMD E. Coli - Final Effluent cfu/100mL	3.78	2.63	2.63	16.69	6.34	9.69	2.83	2.49	2.38	17.65	10.49	7.67				200.00
Eff: # of samples of E. Coli - Final Effluent	5.00	4.00	4.00	4.00	5.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	52.00			0.00





# Appendix C

## Appendix C - Biosolids Quality Report

### Biosolids Quality Report

Facility: RENFREW WASTEWATER TREATMENT FACILITY

Solids & Nutrients

Period: 01/01/2023 to 12/31/2023

Works: 5863 / Digester Type: Aerobic



Solids & Nutrients	Metals & Criteria	Last 4 Samples	
Facility Works Number:	120000603	Receiver:	Bonnechere River
Facility Owner:	Municipality: The Corporation of the	Service Population:	
Facility Classification:	Class 3 Wastewater Treatment	Total Design Capacity:	9500 m3/day

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

Month	Total Solids (mg/L)	Volatile Solids (mg/L)	Total Phosphorus (mg/L)	Total Ammonia Nitrogen (mg/L)	Nitrate as N (mg/L)	Nitrite as N (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Ammonia + Nitrate (mg/L)	Potassium (mg/L)
Parameter Short Name	TS	VS	TP	NH3p_NH4p_N	NO3-N	NO2-N	TKN	Calculation in Report	K
T/S	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	Lab Published Month Mean	- no T/S	Lab Published Month Mean
Jan	11,000.00	6,500.00	293.00	7.42	17.10	1.00	627.00	12.26	39.90
Feb	11,100.00	2,380.00	294.00	19.30	35.60	0.10	559.00	27.45	9.20
Mar	10,700.00	1,880.00	248.00	9.16	14.80	0.10	592.00	11.98	9.60
Apr	13,800.00	13,700.00	280.00	100.00	0.10	0.10	697.00	50.05	53.50
May	18,600.00	9,050.00	355.00	12.00	0.40	0.40	712.00	6.20	65.50
Jun	10,700.00	5,540.00	292.00	15.00	27.00	0.10	464.00	21.00	44.00
Jul	13,900.00	8,800.00	358.00	10.00	31.30	0.10	485.00	20.65	48.40
Aug	6,040.00	2,940.00	378.00	6.00	58.10	0.10	555.00	32.05	52.50
Sep	15,900.00	11,000.00	440.00	2.00	104.00	0.10	590.00	53.00	42.50
Oct	7,520.00	4,440.00	445.00	1.00	24.50	0.10	549.00	12.75	54.80
Nov	18,500.00	7,720.00	469.00	1.00	95.00	0.10	615.00	48.00	68.60
Dec	25,900.00	14,300.00	741.00	1.00	63.10	0.10	1,040.00	32.05	56.50
Average	13,638.33	7,354.17	382.75	15.32	39.25	0.20	623.75	27.29	45.42
Total	163,660.00	88,250.00	4,593.00	183.88	471.00	2.40	7,485.00	327.44	545.00

# Appendix D

---

## Appendix D - Details of Abnormal Sewage Discharge Events

### Event Details Summary

#### Facility Bypass

Date	Location	Details	Volume (m <sup>3</sup> )	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
There were no facility bypass events reported during the reporting period.								

#### Facility Overflow

Date	Location	Details	Volume (m <sup>3</sup> )	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
2023-07-01	Renfrew WPCP	An extreme rain event caused a sudden spike in the raw flow entering the sewage treatment plant	18,383	14:44	15:45	~ 1	Bonnechere River	Chlorine pucks in channel

#### Spills of Sewage

Date	Location	Details	Volume (m <sup>3</sup> )	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
There were no spill events reported during the reporting period.								

# Appendix E

## Appendix E - ECA Annual Report Requirements

Facility ECA #4237-ACPJ6Y Section 10 (4)	Section in Report
a. a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Effluent Limits Condition, including an overview of the success and adequacy of the Works;	Treatment Flows, Raw Sewage Quality, Effluent Quality
b. a description of any operating problems encountered and corrective actions taken;	Operating Issues/Problems
c. a summary of all maintenance carried out on any major structure, equipment, apparatus,	Maintenance
d. a summary of any effluent quality assurance or control measures undertaken in the reporting period;	Effluent Quality
e. a summary of the calibration and maintenance carried out on all effluent monitoring equipment; and	Maintenance
f. a description of efforts made and results achieved in meeting the objectives of Effluent Objectives Condition.	Raw Sewage Quality, Effluent Quality
g. an estimate of the sludge volumes in the lagoon cells. 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;	Sludge Generation
h. a summary of any complaints received during the reporting period and any steps taken to address the complaints;	Summary of Complaints
i. a summary of all Bypass, Overflow, spill or abnormal discharge events;	Appendix D
j. a copy of all Notice of Modifications to Sewage Works submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;	Maintenance
k. a report summarizing all modifications completed as a result of Schedule B, Section 3; and	Maintenance
l. any other information the Water Supervisor requires from time to time	N/A

The report required for the sanitary collection system outlined in the CLI ECA is being prepared and submitted by the Town of Renfrew.