

# Carleton Place Wastewater System

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Waterworks # 11000971

## Annual Report

Prepared For: Town of Carleton Place

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

Issued: March 18, 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	5001-7FZT4A	October 3 <sup>rd</sup> 2008	N/A
ECA for Municipal Sewage Collection System	172-W601	June 2 <sup>nd</sup> 2022	1

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## 1 Revision History

Date	Rev#	Revisions	Revised By
18-Mar-2024	0	Annual Report Issued	Vanessa Greatrix

## 2 Operations and Compliance Reliability Indices

Compliance Event	Details
Ministry of Environment Inspections	No MECP Inspection during the reporting period
Ministry of Labour Inspections	One (1) MOL Inspection during the reporting period
Non-Compliance	No non-compliance events during the reporting period
Community Complaints	No community complaints during the reporting period
Spills	One (1) spill during the reporting period – See Appendix D for details of Abnormal Sewage Discharge Events
Overflows	No overflows during the reporting period
Bypass	No bypasses during the reporting period
Diversion (if applicable)	Two (2) diversions - Details in report

## 3 Process Description

Carleton Place's wastewater treatment systems consists of gravity fed separated sewers and twelve (12) sewage pumping stations (SPS): Highway 7 SPS, Bridge Street SPS, Carlgate SPS, Westview Heights SPS, Joseph Street SPS, Industrial Avenue SPS, Princess Street SPS, Findlay Ave SPS, Mississippi Quays SPS, Highgate SPS, Charles Street SPS, Bodnar SPS. Only the Westview SPS is equipped to overflow from its wet well. Of the twelve pumping stations, ten have backup power, and all pumping stations convey flow to the wastewater treatment facility located at 122 Patterson Crescent in Carleton Place, ON.

Carleton Place's Water Pollution Control Plant (WPCP) is a Class III conventional activated sludge plant with anaerobic digestion. The process begins with preliminary treatment consisting of a mechanical bar screen with a backup manual screen and a vortex grit removal system. Primary treatment occurs in two (2) rectangular primary clarifiers equipped with scum and sludge removal. Three (3) 'storm' tanks are in place for the purpose of tempering the effects of high flows during wet weather events by diverting the flow from secondary treatment to be disinfected, however, with plant approaching rated capacity they are currently used as additional primary clarifiers. For more details, see the Bypass, Overflow, Diversion section of this report.

Secondary treatment begins in the activated sludge process. There are three (3) aeration tanks, supplied with air by two (2) PD blowers and a turbo blower, and three (3) secondary clarifiers equipped with circular sludge rakes. Returned Activated Sludge (RAS) is pulled from the secondary clarifiers and returned to aeration. Waste Activated Sludge (WAS) is pumped from the secondary clarifiers to the primary clarifiers and is then wasted to the primary digester. WAS transfers and wasting pumps cycle automatically by a volume setpoint. The primary digester then overflows into the storage tank. Supernatant is decanted off the storage tank and returned before the primary clarifiers. There is a centrifuge on-site but due to the concentration of hydrogen sulphide in the process the centrifuge is not operational.

Several chemicals are added to the process to support the biological activity. Sodium hydroxide is added pre-aeration to aid in alkalinity adjustments and to promote nitrification throughout the aerated phase of sewage treatment. Polyaluminum Sulphate (PAS-8) is added for phosphorus removal post aeration, but pre-settling. Effluent from the secondary clarifiers is then disinfected by Ultra Violet Reactors (UV) prior to discharging to the Mississippi River.

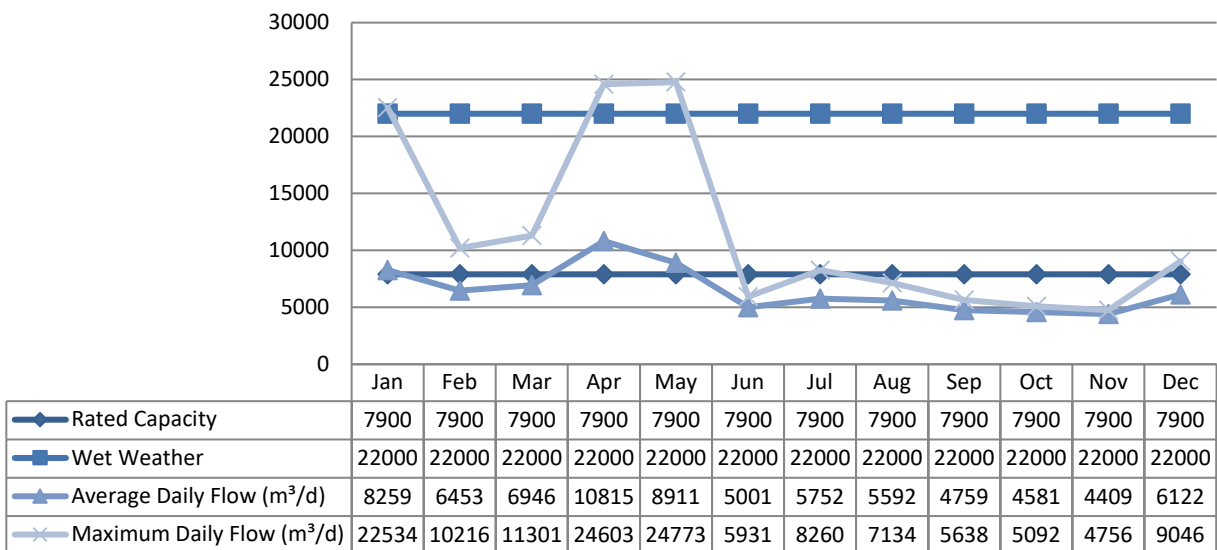
Sludge from the treatment process is co-thickened and stabilized in a two-stage digestion process consisting of a primary digester and sludge storage tank. Supernatant is decanted off the storage tank and returned before the primary clarifiers. There is a centrifuge on-site but due to hydrogen sulphide issues the centrifuge is not in operation.

The Carleton Place WPCP is equipped with back-up power in the form of a 200 kW diesel generator.

## 4 Treatment Flows

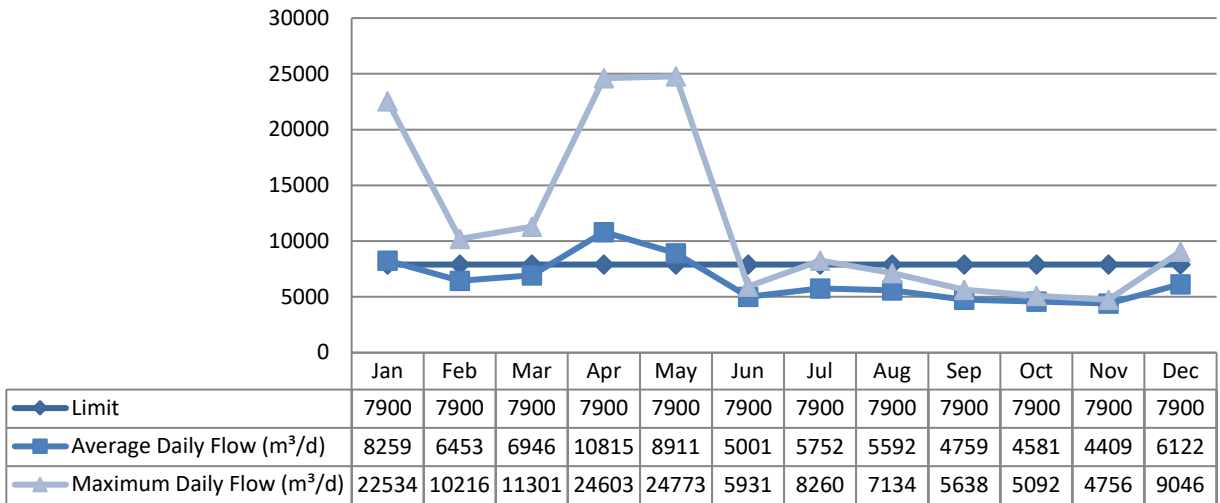
The annual average daily flow for 2023 was 6,470 m<sup>3</sup>/d, which represents 82% of the facility’s 7900 m<sup>3</sup>/d rated capacity.

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

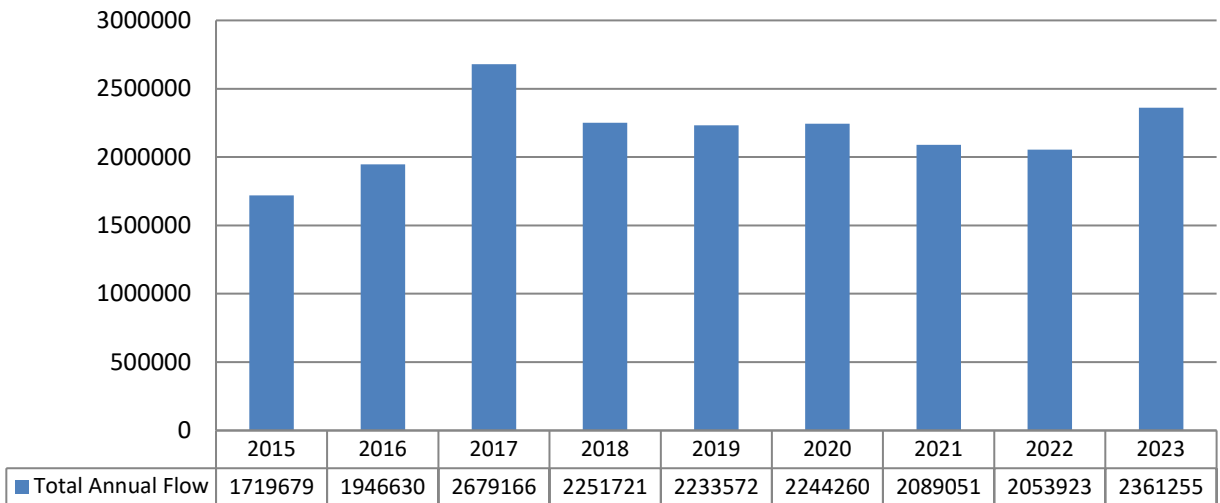


Note: Elevated flows above the rated capacity are directly related to snow melt and wet weather events.

## 4.2 Effluent Flow (m<sup>3</sup>/d)



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



## 4.3 Imported Sewage

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

There was no septage accepted at this facility in 2023.

## 4.4 Returned Centrate

The centrifuge did not operate in 2023 at the Carleton Place WPCP.

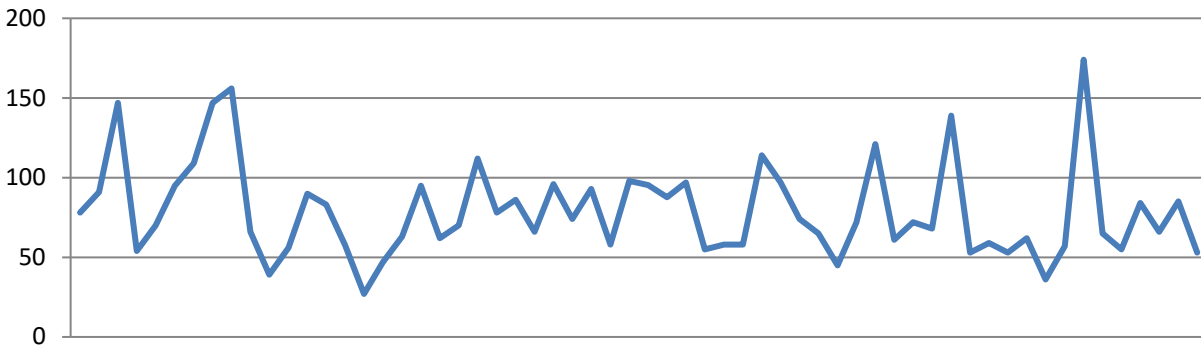
## 5 Influent Quality

Current year minimum, maximum and averages are available in Appendix A – Performance Assessment Report.

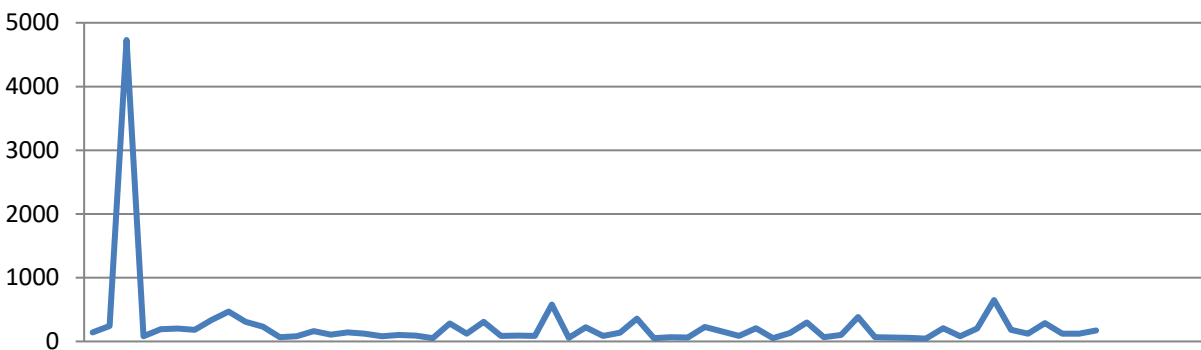
### 5.1 5 Year Influent Trending

Five (5) year average trends from 2019-2023 for raw sewage quality are graphed below.

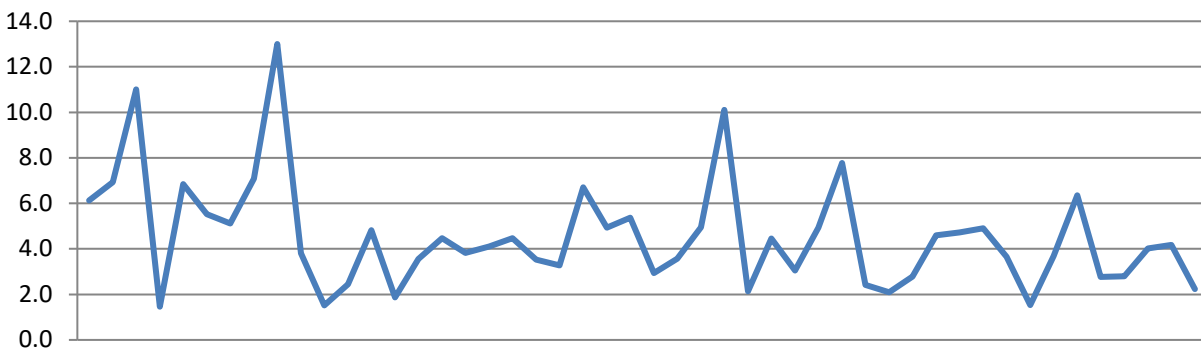
#### CBOD5



#### Total Suspended Solids

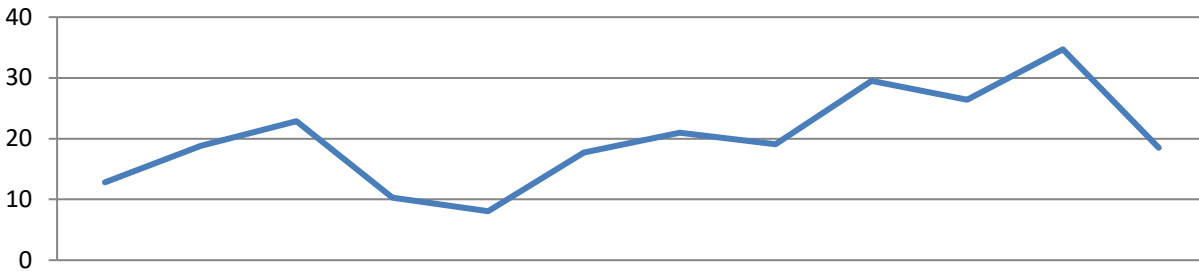


#### Total Phosphorus

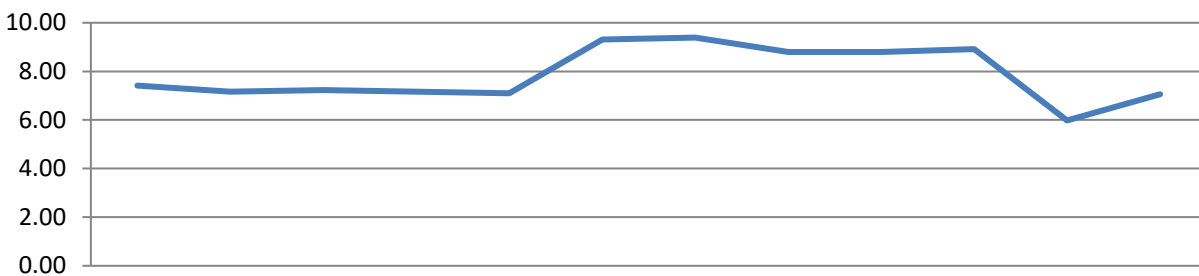


## 5.2 1 Year Influent Trend

### Total Ammonia Nitrogen



### pH



## 6 Effluent Quality

In 2023, the monthly average concentrations of the carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>) remained below the effluent objectives and limits outlined in the facility’s ECA throughout the year. In addition, the effluent pH remained within the limits and objectives. The monthly average concentrations of the total phosphorus (TP) remained under the facility’s ECA objective and effluent limit. The monthly average concentrations of the total ammonia nitrogen (TAN) remained below the facility’s ECA objective and limit. The monthly average concentrations of the total suspended solids (TSS) exceeded the effluent objectives in January, April and May due to high flows, snow melt, and infiltration. However, TSS limits were not exceeded at any point throughout the reporting period. The geometric mean density of *E. Coli* in the effluent exceeded the ECA objective in January, April, May and December.

The Federal Government also regulates the effluent flow, the monthly average CBOD<sub>5</sub> and total suspended solids in the effluent under the Federal Fisheries Act. The results are submitted to Environment and Climate Change Canada’s effluent regulatory reporting information system, under wastewater systems effluent regulations (WSER) on a quarterly basis.

Effluent results from the Carleton Place wastewater treatment facility for 2023 are tabulated in Appendix A of this report.



## 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 Labs for analysis, with the exception of disinfection residuals and temperature. Caduceon Labs 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.

OCWA uses several computer systems which include:

- Process Data Management (PDM)
  - This database program consolidates all operational data from a variety of sources including field data, online instrumentation, and electronic receipt of lab test results for reporting, tracking and analysis.
- Maximo – OCWA's Work Management System (WMS)
  - This program is used to track and schedule maintenance activities for all equipment in the system. It is also used to assign tasks for specific operational tasks.
- Wonderware (OUTPOST5)/SCADA
  - Wide-area SCADA system allows for process optimization and data logging, process trending, remote alarming.

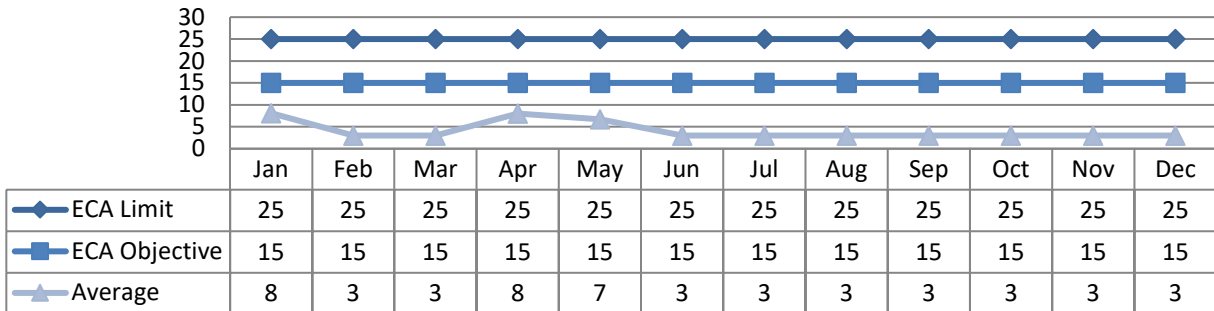
The operations team also has access to a network of operational compliance and process specialists to assist for emerging process issues. This aids in establishing additional control measures to ensure a quality effluent product.

Detailed individual sample results for both raw sewage and final effluent can be requested from the operating authority.

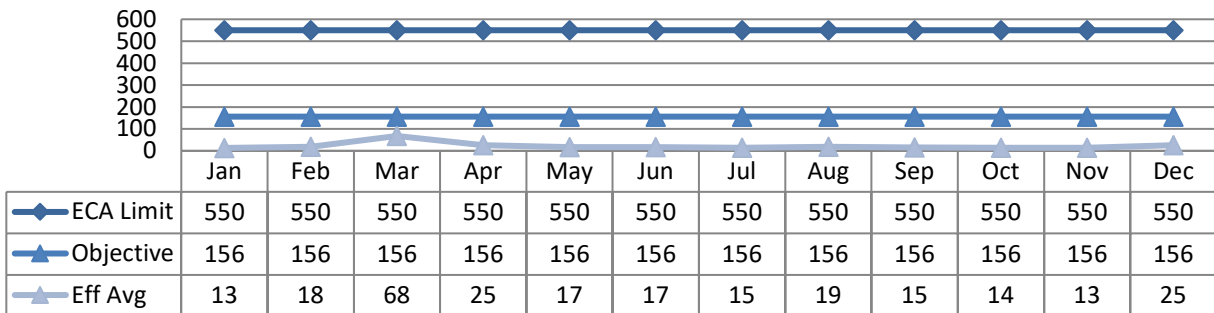
## 6.2 CBOD5

Compliance Limit and Objective for this parameter was MET.

### 6.2.1 Concentration (mg/L)



### 6.2.2 Loading

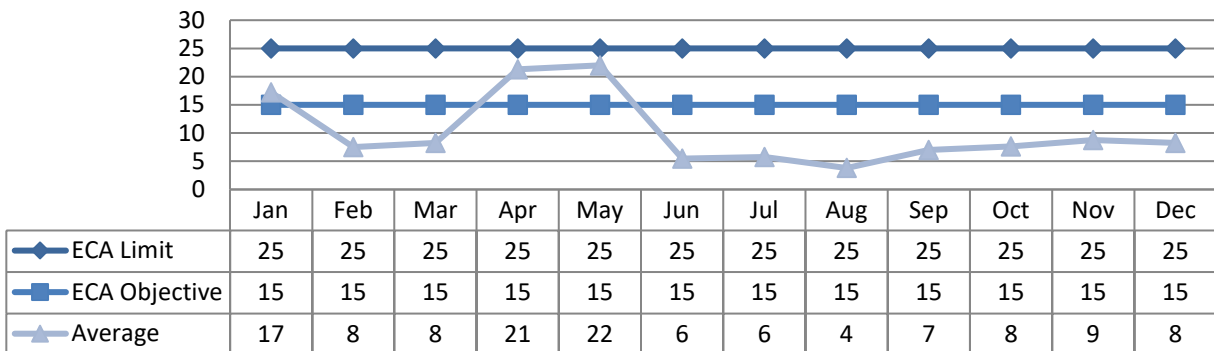


## 6.3 Total Suspended Solids

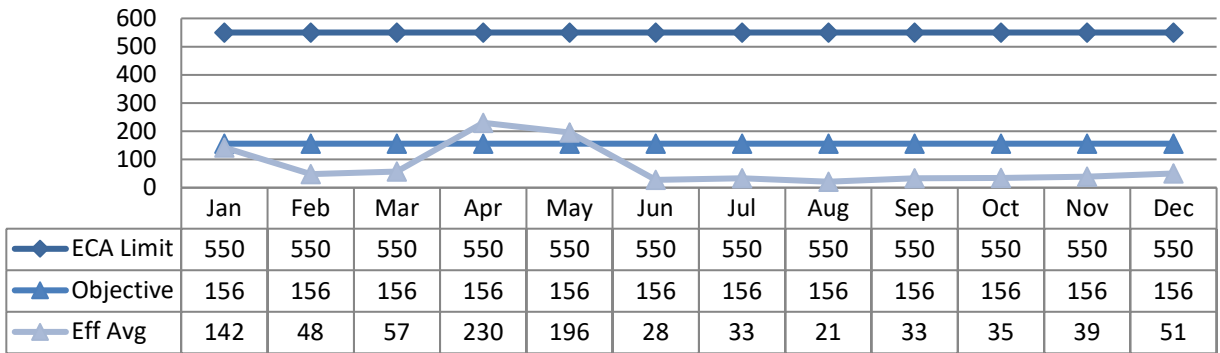
Compliance Limit for this parameter was MET.

Compliance Objective for this parameter was exceeded in January (snow melt) April and May due to high flows (heavy rain).

### 6.3.1 Concentration (mg/L)



6.3.2 Loading (kg/d)

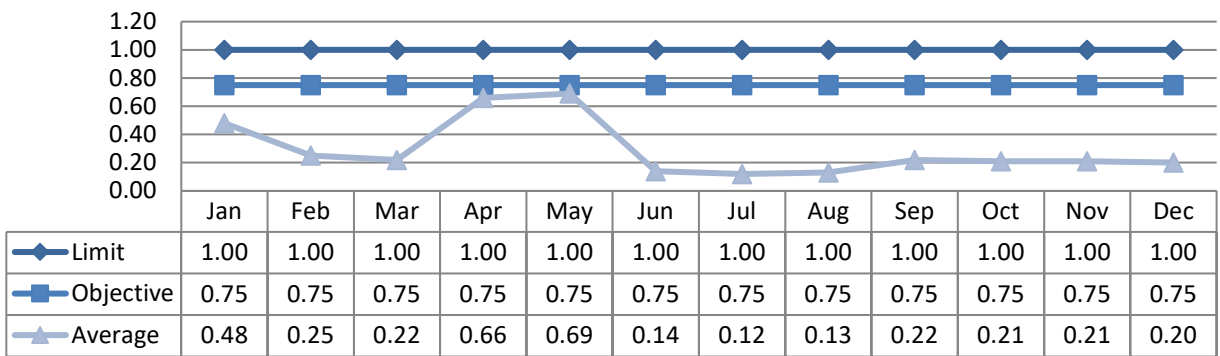


6.4 Total Phosphorus

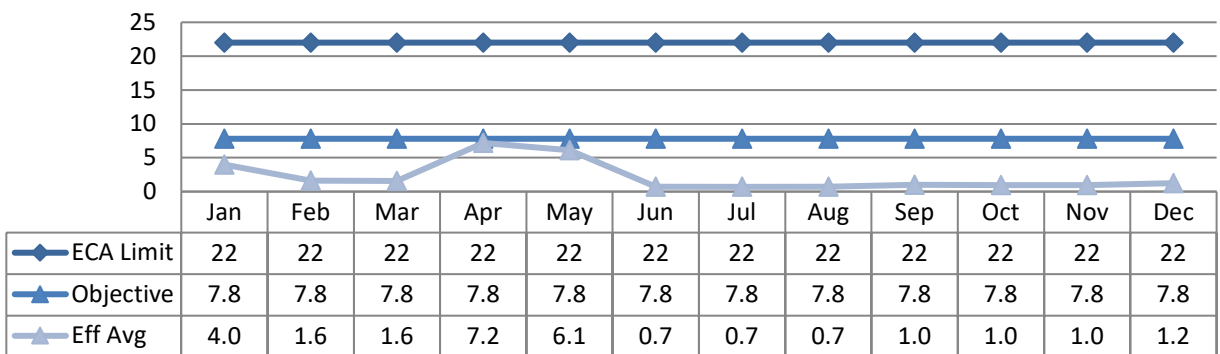
Compliance Limit for this parameter was MET

Compliance Objective for this parameter was MET

6.4.1 Concentration (mg/L)



6.4.2 Loading (kg/d)

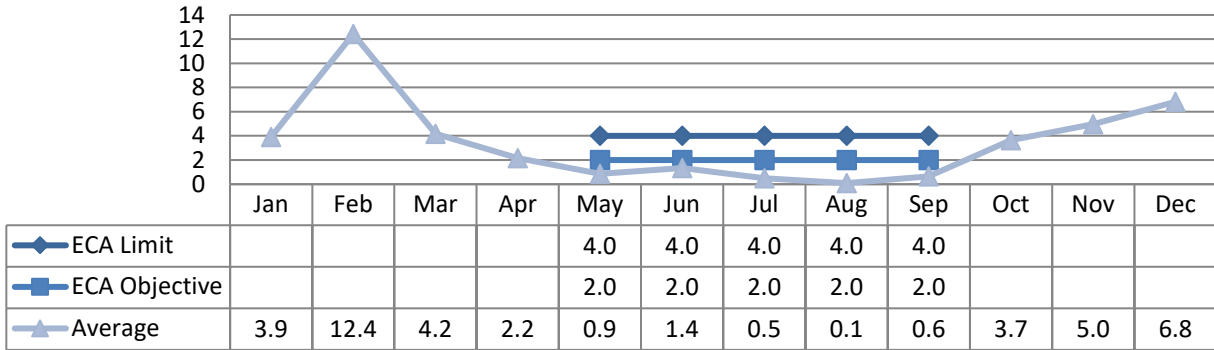


### 6.5 Total Ammonia Nitrogen

Compliance Limit and objective for this parameter was MET.

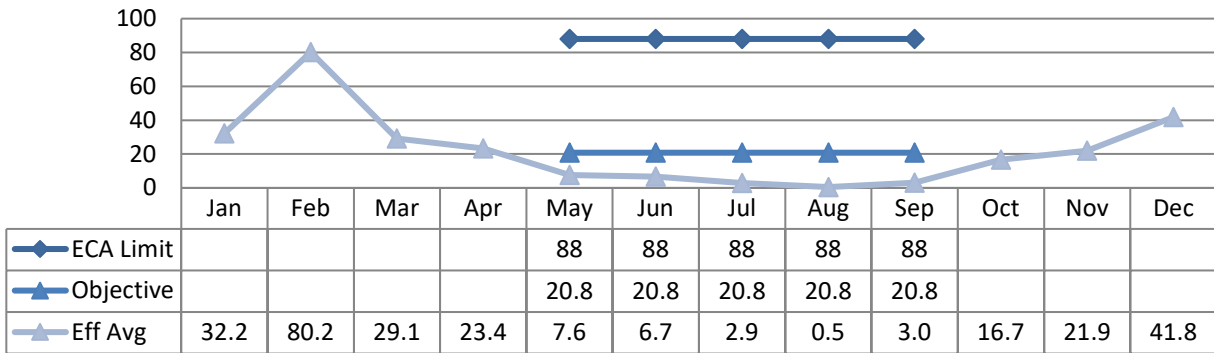
#### 6.5.1 Concentration (mg/L)

Compliance Limit in effect from May 15 to September 30th



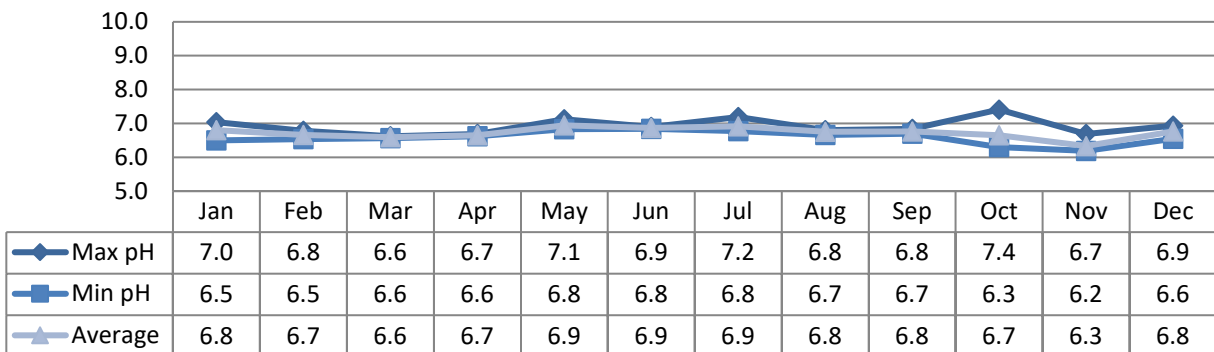
#### 6.5.2 Loading (kg/d)

Compliance Limit in effect from May 15 to September 30



### 6.6 pH

Compliance Limit for this parameter was MET. This parameter is to be maintained between 6.0 and 9.5 inclusively at all times.



## 6.7 Acute Lethality

There were four (4) samples collected in 2023 and tested for acute lethality (Rainbow Trout). The 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
1 <sup>st</sup> Quarter	2023-03-01	0%
2 <sup>nd</sup> Quarter	2023-05-17	0%
3 <sup>rd</sup> Quarter	2023-08-16	0%
4 <sup>th</sup> Quarter	2023-11-23	0%

## 7 Operating Issues/Problems

### 7.1 Effluent Quality Non-Compliance Summary

The effluent limits are based on current requirements in the facility's Environmental Compliance Approval (ECA). As the operating authority we shall use our best efforts to operate the facility in a manner that ensures the limits are not exceeded in the treated effluent. Please refer to the chart below for ECA Objective exceedances. There were no Effluent Quality Non-Compliances for 2023.

Capacity is the most significant issue at Carleton Place WWTP. Regular Daily flows for this plant are above the rated capacity, causing hydraulic overloading during high flow events. Two (2) Phys/Chem Tanks are currently used as primary clarifiers as the plant is not able to adequately treat the flow otherwise.

A regular hauling program year-round is required as the storage capacity for digested sludge is not large enough to accommodate required operations.

Plant upgrades are currently in the design stage to address all of these issues.

Date	Exceedance of	Limit	Value	Corrective Action
January 2023	Monthly average concentration exceedance for Total Suspended Solids Objective	15 mg/L	17 mg/L	High Flows condition – Diversion (Dec 2022)
April 2023	Monthly average concentration exceedance for Total Suspended Solids Objective	15 mg/L	21 mg/L	High Flows condition - Diversion

Date	Exceedance of	Limit	Value	Corrective Action
May 2023	Monthly average concentration exceedance for Total Suspended Solids Objective	15 mg/L	22 mg/L	High Flows condition - Diversion

## 7.2 Summary of Abnormal Sewage Discharge Events

Abnormal Discharge Events include Bypass', Overflows, Diversions and Spills of Sewage. Summary Details are included in Appendix D.

## 7.3 Spills (Other than Sewage)

Date	Location	Details	Volume (m3)	Start Date and Time	End Date and Time
May 1, 2023	Final Effluent UV Channel	Heavy rainfall/storm and a spill occurred over the UV/Final effluent channel onto the ground	~ 10	7:05 am	7:20 am

# 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
3387354	Capital - SCADA programming to integrate new instrumentation for heat exchanger
3435986	Capital Asset Inventory Update
3483220	Capital New floats purchased

Work Order	Details
3484305	Capital Replacement Parts for Bar Screen
3526032	Capital Sinus capacitor for the Turbo Blower replacement
3574497	Capital South East SPS Generator ATS Service
3574520	Capital Axial Blowers (Ventilation) purchased
3575380	Capital Emergency MCC Repairs
3620939	Capital PAS8 dosing line replacement
3621126	Capital New gearbox for Storm tank 2 installation
3621271	Capital - General Chemical Pump purchased
3622703	Capital PVC 1 1/2 inch pipe replacement
3201934	Capital new 1.5" hose purchased
3202844	Capital New Compactor Gearbox – Head Works installation
3202846	Capital Replacement Auger for Compactor
3202854	Capital Raw Sewage Pump Fail to Start/Stop Alarms repaired
3244654	Capital Repairing Jet pump 3
3245325	Capital Spare pump for Mississippi Quays SPS purchased
3245738	Capital Mechanical seal for Jet Pump 3 replacement
3246747	Capital pH Probe for Final Effluent Channel replacement
3247218	Capital Repair Sludge Holding Tank Mixer
3247706	Capital Equipment for Grounds Maintenance purchased
3247710	Capital 1000 mL Graduated Cylinders purchased
3288976	Capital Effluent pH Sensor Connection Cable replacement
3290832	Capital Diesel Engine Battery Replacement
3339675	Capital Lighting Replacement
3340383	Capital HVAC/ AC service
3385499	Capital Pumping Station Clean Outs
3386938	Capital Backflow Prevention Valve Replacement/Repairs
3387350	Capital New Replacement Sensors for Heat Exchanger
3431468	Capital Oil for Preventative Maintenance Purchased
3431982	Capital Replacement pump for Carlgate SPS
3434622	Capital CP Scheduled Power Outage Industrial SPS Pump Truck Service
3434628	Capital Fire Extinguisher Inspection
3434937	Capital HVAC Maintenance Improvements
3624859	Capital Bodnar Outpost Communications Installation
3624860	Capital Joseph SPS Outpost Communications Installation
3665360	Capital ESA Defect Repairs
3703634	Capital New Locks installed

Work Order	Details
3481485	Capital Washing machine Purchase
3482794	Capital Disposal of old/unused Chemicals
3483283	Capital Slings and Harness Replacement (lifting devices) purchased
3522918	Capital Industrial Power Outage – Pump truck service
3524505	Capital Investigation of South East PLC controls
3526056	Capital 8" VICTAULIC 90 replacement
3526398	Capital PAS 8 Pump Diaphragms replacements
3572730	Capital Replacement MCC Breakers

**8.2 Emergency Maintenance and Repairs**

Work Order	Details
3575380	Emergency MCC Repairs due to water line leak

**8.3 Flow Meter Calibrations and Maintenance**

Location	Date of Calibration	Additional Maintenance
Effluent Flow Meter	2023-11-30	N/A
Bypass Flowmeter	2023-11-30	N/A
BIO Plant Flowmeter	2023-11-30	N/A
Physical Chemical Flowmeter	2023-11-30	N/A
Meter Flow RAS	2023-11-30	N/A
Meter Flow Raw Sewage	2023-11-30	N/A
Meter Flow WAS	2023-11-30	N/A
Secondary Sludge TXFR	2023-11-30	N/A
Raw Sludge to Primary's	2023-11-30	N/A
SPS Flow	2023-11-30	N/A

**8.4 Authorized Alterations in Collection System**

Work Order	Details	Significant Drinking Water Threat (Y/N)
Environmental Assessment completed for the plant upgrades. Now into design phase.		

**8.5 Notice of Modifications**

Date	Process	Modification	Status
No modifications during the reporting period			

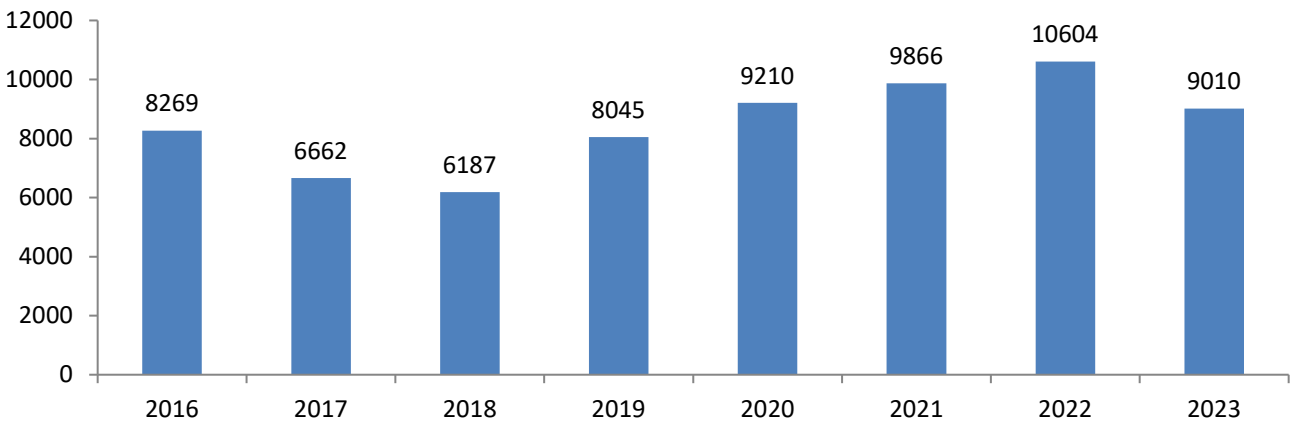


## 9 Sludge Generation

### 9.1 Sludge Disposal Summary

Date	Disposal Location	Approval Number	Total Volume (m <sup>3</sup> )
February, 2023	THF Facility – Nine Mile	A710174	479.50
March, 2023	THF Facility – Nine Mile	A710174	720.00
April 18, 2023	THF Facility – DES 4	5948-7JRMAJ	63.99
May, 2023	GFL Storage Facility	S-3708-42	240.00
May 10-16	Sunol Farms – Turner Farm	24589	2000.00
June, 2023	GFL Storage Facility	S-3708-42	320.00
July, 2023	GFL Storage Facility	S-3708-42	680.00
August 2023	GFL Storage Facility	S-3708-42	360.00
August 2-4, 2023	Sunol Farms - #14 & #15	24216	1240.00
September 11-21, 2023	Vanderspank – Drummond Conc. 7	60660	1440.00
November 3-7, 2023	Sunol Farms – Turner Farm	24589	1467.00
<b>Total</b>			<b>9010.49</b>

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



It is anticipated that sludge volumes in 2024 will remain similar to the 2023 volumes.

## 10 Summary of Complaints

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

## 11 Collection System Highlights

Collection System Highlights are provided for inclusion by the Town of Carleton Place:

- Staff performed routine inspections of the collection system which included an emphasis on areas with lower flows.
- Staff performed annual flushing activities.
- One blockage within the collection system occurred on Mailey Drive

# Appendix A

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## Appendix A – PARS Report and Monitoring Data



Performance Assessment Report

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

5672 CARLETON PLACE WASTEWATER TREATMENT FACILITY 110000971

	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 m³/d	256,013.90	180,695.83	215,323.40	324,451.59	276,248.26	150,042.84	178,322.53	173,337.24	142,756.80	142,007.82	132,277.77	189,776.96	2,361,254.94			0.00
Raw Flow: Avg - Raw Sewage Influent m³/d	8,258.51	6,453.42	6,945.92	10,815.05	8,911.23	5,001.43	5,752.34	5,591.52	4,758.56	4,580.90	4,409.26	6,121.84		6,469.19		
Raw Flow: Max - Raw Sewage Influent m³/d	22,533.63	10,215.71	11,300.65	24,602.71	24,772.93	5,930.86	8,260.00	7,133.85	5,637.73	5,091.85	4,755.78	9,046.49			24,772.93	0.00
Raw Flow: Count - Raw Sewage Influent m³/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 m³/d	256,013.92	180,695.83	215,323.40	324,451.59	276,248.26	150,042.84	178,322.53	173,337.24	142,756.80	142,007.82	132,277.77	189,776.96	2,361,254.96			0.00
Eff. Flow: Avg - Final Effluent m³/d	8,258.51	6,453.42	6,945.92	10,815.05	8,911.23	5,001.43	5,752.34	5,591.52	4,758.56	4,580.90	4,409.26	6,121.84		6,469.19		7,600.00
Eff. Flow: Max - Final Effluent m³/d	22,533.65	10,215.71	11,300.65	24,602.71	24,772.93	5,930.86	8,260.00	7,133.85	5,637.73	5,091.85	4,755.78	9,046.49			24,772.93	0.00
Eff Flow: Count - Final Effluent m³/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	59.00	53.00	62.00	36.00	57.00	174.00	65.00	55.00	84.00	66.00	85.00	53.00		70.75	174.00	0.00
Raw: # of samples of cBOD5 - Raw Sewage Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg cBOD5 - Final Effluent mg/L	< 8.10	< 3.00	< 3.00	< 8.00	< 6.70	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 5.07	< 8.10	25.00
Eff: # of samples of cBOD5 - Final Effluent	10.00	4.00	4.00	11.00	10.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	69.00			0.00
Loading: cBOD5 - Final Effluent kg/d	< 66.894	< 19.360	< 20.838	< 86.520	< 59.705	< 15.004	< 17.257	< 16.775	< 14.276	< 13.743	< 13.228	< 18.366	< 32.81	< 86.52	550.000	
Percent Removal: cBOD5 - Raw Sewage Influent %	86.27	94.34	95.16	77.78	88.25	98.28	95.38	94.55	96.43	95.45	96.47	94.34	92.72	98.28	0.00	
<b>Biochemical Oxygen Demand: BOD5</b>																
Raw: Avg BOD5 - Raw Sewage Influent mg/L	62.00	66.00	69.00	36.00	78.00	168.00	64.00	89.00	199.00	57.00	107.00	79.00		89.50	199.00	0.00
Raw: # of samples of BOD5 - Raw Sewage Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg BOD5 - Final Effluent mg/L	< 3.00	< 4.00	< 4.00	< 4.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 3.00	< 5.00	< 3.42	< 5.00		
Loading: BOD5 - Final Effluent kg/d	< 24.776	< 25.814	< 27.784	< 43.260	< 26.734	< 15.004	< 17.257	< 16.775	< 14.276	< 13.743	< 13.228	< 30.609	< 22.10	< 43.26		
Percent Removal: BOD5 - Raw Sewage Influent %	86.94	95.45	95.65	77.78	91.41	98.21	95.31	96.63	98.49	94.74	97.20	96.20	93.67	98.49	0.00	
<b>Total Suspended Solids: TSS</b>																
Raw: Avg TSS - Raw Sewage Influent mg/L	56.00	44.00	208.00	84.00	202.00	650.00	180.00	120.00	285.00	124.00	120.00	170.00		186.92	650.00	0.00
Raw: # of samples of TSS - Raw Sewage Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TSS - Final Effluent mg/L	17.20	7.50	8.25	21.27	22.00	5.50	5.75	3.80	7.00	7.60	8.75	8.25	12.86	22.00	25.00	
Eff: # of samples of TSS - Final Effluent	10.00	4.00	4.00	11.00	10.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	69.00			0.00
Loading: TSS - Final Effluent kg/d	142.046	48.401	57.304	230.066	196.047	27.508	33.076	21.248	33.310	34.815	38.581	50.505	83.16	230.07	550.000	
Percent Removal: TSS - Raw Sewage Influent %	69.29	82.95	96.03	74.68	89.11	99.15	96.81	96.83	97.54	93.87	92.71	95.15	90.34	99.15	0.00	
<b>Total Phosphorus: TP</b>																
Raw: Avg TP - Raw Sewage Influent mg/L	4.56	4.74	4.51	1.96	4.47	13.60	4.53	2.99	7.59	4.35	2.32	3.84		4.96	13.60	0.00
Raw: # of samples of TP - Raw Sewage Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TP - Final Effluent mg/L	0.49	0.25	0.23	0.66	0.69	0.14	0.12	0.13	0.22	0.21	0.22	0.20	0.38	0.69	1.00	
Eff: # of samples of TP - Final Effluent	10.00	4.00	4.00	11.00	10.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	69.00			0.00
Loading: TP - Final Effluent kg/d	4.005	1.613	1.563	7.177	6.122	0.713	0.705	0.716	1.023	0.962	0.948	1.224	2.46	7.18	22.000	
Percent Removal: TP - Raw Sewage Influent %	89.36	94.73	95.01	66.14	84.63	98.95	97.30	95.72	97.17	95.17	90.73	94.79	91.64	98.95	0.00	
<b>Nitrogen Series</b>																
Raw: Avg TKN - Raw Sewage Influent mg/L	21.50	29.40	31.50	14.80	16.50	39.90	28.00	29.10	38.00	35.40	38.00	26.50		29.05	39.90	0.00
Raw: # of samples of TKN - Raw Sewage Influent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg TAN - Final Effluent mg/L	3.90	12.43	4.19	2.16	0.86	1.35	0.50	0.09	0.64	3.65	4.98	6.83	3.36	12.43	4.00	
Eff: # of samples of TAN - 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: TAN - Final Effluent kg/d	32.208	80.184	29.069	23.361	7.628	6.739	2.891	0.514	3.034	16.739	21.936	41.797	21.74	80.18	88.000	
Eff: Avg NO3-N - Final Effluent mg/L	9.90	5.59	14.90	3.43	8.73	16.50	16.70	20.00	22.10	8.48	21.80	12.10	13.35	22.10	0.00	
Eff: # of samples of NO3-N - Final Effluent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
Eff: Avg NO2-N - Final Effluent mg/L	< 0.10	< 0.11	< 0.10	< 0.52	< 0.12	< 0.12	< 0.05	< 0.05	< 0.05	< 0.18	< 0.05	< 0.05	< 0.13	< 0.52	0.00	
Eff: # of samples of NO2-N - Final Effluent	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	12.00			0.00
<b>Disinfection</b>																
Eff: GMD E. Coli - Final Effluent cfu/100mL	2,471.84	128.25	30.55	5,178.88	3,217.56	10.89	36.32	33.14	186.47	68.06	89.22	204.74			200.00	
Eff: # of samples of E. Coli - Final Effluent	10.00	4.00	4.00	11.00	10.00	4.00	4.00	5.00	4.00	5.00	4.00	4.00	69.00			0.00

# Appendix B

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## Appendix B - Biosolids Quality Report

**Biosolids Quality Report**

Facility: CARLETON PLACE WASTEWATER TREATMENT FACILITY



Solids & Nutrients

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

Works: 5672 / Digester Type: Anaerobic

<b>Solids &amp; Nutrients</b>	<b>Metals &amp; Criteria</b>	<b>Last 4 Samples</b>
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Facility Works Number: 110000971 Receiver: Mississippi River  
 Facility Owner: Municipality: Town of Carleton Place Service Population:  
 Facility Classification: Class 3 Wastewater Treatment Total Design Capacity:

**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	27,450.00	17,300.00	823.00	890.00	1.00	1.00	1,820.00	445.50	63.40
Feb	28,800.00	14,275.00	754.00	686.00	0.10	0.10	1,445.00	343.05	44.45
Mar	36,100.00	10,990.00	961.00	802.50	0.85	0.40	2,005.00	401.68	15.15
Apr	31,850.00	17,650.00	1,150.00	970.50	0.60	0.25	2,100.00	485.55	83.25
May	39,050.00	19,400.00	956.50	909.50	0.40	0.40	1,650.00	454.95	70.50
Jun	27,100.00	17,950.00	675.50	562.00	0.60	0.40	1,525.00	281.30	57.50
Jul	32,200.00	16,350.00	769.50	500.00	0.25	0.25	1,310.00	250.13	45.70
Aug	38,950.00	20,700.00	1,087.50	619.00	0.40	0.25	1,775.00	309.70	44.75
Sep	38,500.00	20,450.00	1,905.00	758.00	0.30	0.25	2,680.00	379.15	45.75
Oct	20,650.00	11,350.00	718.00	475.00	0.85	0.10	1,176.00	237.93	27.85
Nov	15,480.00	9,030.00	720.50	546.00	0.35	0.25	1,360.00	273.18	46.80
Dec	22,700.00	15,800.00	851.00	638.00	0.70	0.50	1,680.00	319.35	55.10
<b>Average</b>	29,902.50	15,937.08	947.63	696.38	0.53	0.35	1,710.50	348.45	50.02
<b>Total</b>	358,830.00	191,245.00	11,371.50	8,356.50	6.40	4.15	20,526.00	4,181.45	600.20

# Appendix C

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## Appendix C - Details of Abnormal Sewage Discharge Events

## Event Details Summary

### Facility Diversion

Date	Location	Details	Volume (m <sup>3</sup> )	Start Time	End Time	Duration (h)	Discharge Receiver	Disinfection Provided
2023-04-05	Carleton Place WPCP	Heavy rain fall	52,367	15:00	14:00	~143	Mississippi River	Yes
2023-05-01	Carleton Place WPCP	Heavy rain fall	50,747	6:20	13:00	~103	Mississippi River	Yes

### 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
There were no facility overflow events reported during the reporting period.								

### Collection Overflow

There are no authorized overflow locations in this system.

### 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.								

## Collection System Monitoring Data

Event Date	Event Location	Volume (m3)	Parameter	mg/L	Source Loading	Any Adverse Impacts & Corrective Actions
There were no overflow or spill of sewage events in the Collection System reported during the reporting period.			BOD			
			Total Suspended Solids			
			Total Phosphorus			
			Total Kjeldahl Nitrogen (TKN)			
			E.Coli			



# Appendix D

## Appendix D - ECA Annual Report Requirements

<b>Facility ECA # 5001-7FZT4A Section 12(6)</b>	<b>Section in Report</b>
(a) a summary and interpretation of all monitoring data and a comparison to the effluent limits outlined in Condition 7, including an overview of the success and adequacy of the Works;	4 Treatment Flows 6 Effluent Quality
(b) a description of any operating problems encountered and corrective actions taken;	7 Operating Issues/Problems
(c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;	8 Maintenance
(d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;	6 Effluent Quality
(c) a summary of the calibration and maintenance carried out on all effluent monitoring equipment;	8 Maintenance
(l) a description of efforts made and results achieved in meeting the Effluent Objective of Condition 6;	6 Effluent Quality
(g) a tabulation of the quantity of centrate returned to the headwork of the Works during the reporting period;	4 Treatment Flows
(h) a summary of chemical characterization data for samples of centrate collected in accordance with Table 7 of Condition 9 during the reporting period;	5 Influent Quality
(i) a summary of the contaminant mass loadings associated with centrate return during the reporting period, based on the corresponding monitoring results in accordance with Table 7, and an assessment of the impacts on the available treatment capacity and nitrification performance of the STP;	5 Influent Quality
(j) a tabulation of the quantity of septage added to the works for co-treatment during the reporting period;	4 Treatment Flows
(k) a summary of chemical characterization data for samples of septage collected in accordance with Table 6 of Condition 9 during the reporting period;	5 Influent Quality
(l) a summary of the contaminant mass loadings associated with septage additions during the reporting period based on the corresponding monitoring results in accordance with Table 6. and an assessment of the impacts on the available treatment capacity and nitrification performance of the STP;	5 Influent Quality
(m) a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;	9 Sludge Generation Appendix B
(n) a summary of any complaints received during the reporting period and any steps taken to address the complaints;	10 Summary of Complaints
(o) a summary of all bypass, spill or abnormal discharge events;	7 Operating Issues/Problems Appendix C
(p) any other information the District Manager requires from time to time;	Spill Approval from MECP required before Digester Flame Arrestor maintenance.

<b>Collection ECA #172-W601 - Schedule E</b>	
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.	Operating Issues and Problems
4.6.4 Includes a summary of any operating problems encountered and corrective actions taken.	Operating Issues and Problems
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.	Maintenance
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.	Summary of 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.	Maintenance
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.	Operating Issues and Problems Appendix D
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.	Maintenance Operating Issues and Problems