



**St. Clair Township**  
**Sewage Collection System**  
**Annual Performance Report**  
**2023**

**Owned and operated by St. Clair Township**



# 1 Wastewater Collection Facilities

## 1.1 General Information

St. Clair Township operates thirty-one (31) sewage pumping stations and is required to report the annual performance on twenty-nine (29) of those facilities as per the St. Clair Township Sewage Collection System ECA Number 039-W601. The Courtright Main Pump Station (PS) is owned and operated by St. Clair Township but not reported in the Consolidated ECA since it is located on the Courtright WWTP property. The Island View Moorings PS is operated but not owned by St. Clair Township therefore it is not included in this annual performance report.

This report covers the authorized system consisting of sewers, forcemains, and the following twenty-nine (29) pump stations:

Asset ID	Pump Station	Location	Treatment Area
SWF-001	Clay Creek	2851 St. Clair Parkway	Sombra
SWF-002	White Line	2998 St. Clair Parkway	Sombra
SWF-003	Cundick Park	3229 St. Clair Parkway	Sombra
SWF-004	Sombra Main	3538 St. Clair Parkway	Sombra
SWF-005	Reagan Park	3617 St. Clair Parkway	Sombra
SWF-007	Holt Line	3775 St. Clair Parkway	Sombra
SWF-008	Lambton Baptist Church	3896 St. Clair Parkway	Sombra
SWF-009	Leeland Gardens	3946 Seaway Road	Sombra
SWF-010	Concession 8 North	4077 St. Clair Parkway	Port Lambton
SWF-011	Concession 8 South	4159 St. Clair Parkway	Port Lambton
SWF-012	Queen Street	502 Queen Street	Port Lambton
SWF-013	Port Lambton Main	4406 McDonald Street	Port Lambton
SWF-016	Brander Park	4628 Old River Road	Port Lambton
SWF-017	Riverside Drive	4648 Riverside Drive	Port Lambton
SWF-019	Maplewood Subdivision	4761 Old River Road	Port Lambton
SWF-020	Indian Road	4697 St. Clair Parkway	Port Lambton
SWF-021	Beresford Street	379 Beresford Street	Courtright
SWF-022	Tom Street	481 Tom Street	Courtright
SWF-024	Industrial Park	426 Polymoore Drive	Courtright
SWF-025	Brigden Main	2393 Courtright Line	Brigden
SWF-026	Frog Point South	1801 St. Clair Parkway	Courtright
SWF-027	Frog Point North	1735 St. Clair Parkway	Courtright
SWF-028	Clairwood	230 Clairwood Crescent	Courtright
SWF-029	Wilkesport	3241 Mill Street	Sombra
SWF-030	Curran Avenue	260 Curran Avenue	Courtright
SWF-031	Church Street	113 Church Street	Courtright
SWF-033	Corunna Main	362 Beresford Street	Courtright
SWF-035	St. Clair Heights	383 Bayhill Drive	Courtright
SWF-036	Lincoln Ave	297 Lincoln Ave	Courtright



## 1.2 Monitoring data

The total flows for each collection system are collected at the main pumping stations before being conveyed to the facilities. Below are the total flows for the Corunna Main PS, Brigden Main PS, Sombra Main PS, Port Lambton Main PS.

Average Monthly Flows (m <sup>3</sup> )	Corunna PS	Brigden PS	Sombra PS	Port Lambton PS
<b>January</b>	1,868.16	120	352	353
<b>February</b>	2,156.87	144	421	421
<b>March</b>	2,742.66	163	559	533
<b>April</b>	2,927.71	156	679	723
<b>May</b>	2,007.85	92	408	411
<b>June</b>	1,907.60	94	361	328
<b>July</b>	2,461.81	171	545	421
<b>August</b>	2,535.36	210	581	502
<b>September</b>	2,084.16	141	362	336
<b>October</b>	2,077.12	148	349	361
<b>November</b>	1,997.22	144	333	349
<b>December</b>	2,281.64	181	581	460
<b>Average</b>	2,254.01	147	460	433
<b>Maximum Daily Flow (date)</b>	8,061.80 (April 1, 2023)	763 (April 1, 2023)	3,184 (April 1, 2023)	2,843 (April 1, 2023)
<b>Rated Capacity at facilities receiving the flows (m<sup>3</sup>)</b>	<b>6,000</b>	<b>380</b>	<b>960</b>	<b>855</b>
<b>Annual Capacity %</b>	38%	39%	48%	51%

The Corunna Main PS consists of about 80% of the flow that is conveyed to the Courtright WWTP. The remaining 20% is conveyed by the Courtright Main PS and is located on the Courtright WWTP property.

These flows and capacity percentage conclude that each system has adequate capacity currently.

## 1.3 Operating problems and corrective actions

In general, the pump stations operated as designed however there are still some trouble pump stations that continue to require pulling pumps to remove blockages but there has been a major improvement over the last 5 years.



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## 1.4 Calibration, maintenance and repairs

### 1.4.1 Calibration

The Corunna Main PS sewage flow meter was last calibrated November 6, 2023, by Pierce Services & Solutions Inc. See attached report.

The Brigden, Sombra and Port Lambton Main Pump Stations sewage flow meters were calibrated February 21, 2023, by Flowmetrix. See attached reports.

### 1.4.2 Maintenance and Repairs

Regular maintenance is completed by operations staff and tracked using a maintenance management system (Cartegraph OMS). Cartegraph OMS monitors routine and preventative maintenance scheduling. Larger or specialized maintenance activities such as CCTV is completed by third party contractors.

#### Pump Stations

All pump stations had monthly PS operational checks, semi annual vac and clean in the spring and fall, annual check valve maintenance, annual inspection, and pump PM. All pump stations with generators had monthly generator run and check. Pulled pumps and removed blockages as needed. A few stations required communication troubleshooting with some communication difficulties after power outages or lost cellular signal. Annual generator service was completed by Sommers in December 2023. Bar screens were cleaned at main pump stations.

Several deficiencies were corrected after ESA inspection:

- **SWF-003 Cundick Park** – Repaired live conductor at bottom of panel. Replaced pump #1 start relay and capacitor.
- **SWF-017 Riverside Drive** – Silicone sealed conduit from control panel to well.
- **SWF-020 Indian Road** – Installed new electrical panel door seal.
- **SWF-026 Frog Point South** – Installed new electrical panel door seal.
- **SWF-027 Frog Point North** – Installed new electrical panel door seal. Replaced UPS panel cord cap.

#### SWF-001 Clay Creek

- Replaced start relay. Replaced pump #1 rails with new stainless-steel rails and a new top bracket. Repaired Pump #1 starter cap. Replaced bolt on pump #2 stator housing.

#### SWF-002 White Line

- Replaced bolt on the stator housing.

#### SWF-004 Sombra Main PS

- High float replacement and installed new monitor levels.



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**SWF-012 Queen Street**

- Pump station rehab. Installed new pumps and restored to new condition. Commissioned May 2023.

**SWF-013 Port Lambton Main PS**

- Installed new monitor levels.

**SWF-017 Riverside Drive**

- Pump station rehab. Installed new pumps and restored to new condition. Commissioned May 2023.

**SWF-019 Maplewood**

- New valve chamber added to Maplewood PS Rehabilitation Project.

**SWF-025 Brigden Main PS**

- Replaced alum pump #1.
- Replaced the UPS.

**SWF-033 Corunna Main PS**

- Reseal leaking roof anchor points.
- Installed new belt on HVAC EF 103.
- Replaced dead 6V battery on emergency lighting.
- Noise reduction on odour control unit and blower. Installed foam strips under guarding to prevent vibration and noise. Fixed rivet nut. Installed guard with new hardware, stainless steel bolts and zinc washers and lock washers.
- Replaced check valve on fuel line for generator.
- Replaced contactor for RLP 101.
- Repaired pressure gauge assembly on RLP 103.
- Replaced screen room explosion proof lighting.
- Filled sink holes around the pump station property with "A" gravel.
- Maintenance on screens for supply air in building.
- Fence repair around property.
- Paint railing and bollards on property.
- Monthly HVAC maintenance. Check fan and belt. Grease as required.
- Monthly odour control unit inspection and maintenance.
- Monthly bar screen maintenance.
- Inspect RLP 101, 102 and 103 condition with Xylem.
- Inspect heating system boilers.
- Inspected and tested UV system.
- Replaced float on dry well sump.
- Repaired Bioxide injection system.
- Troubleshooting generator.
- Serviced the RLP 101, 102 and 103.



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### **SWF-035 St. Clair Heights**

- Replaced relay for pump #1.

### **Sanitary Main Inspection and Flushing**

- Hurricane SMS Inc. completed CCTV inspection and flushed sanitary sewers in part of Corunna.

### **Forcemains**

Sanitary sewer force mains were inspected and flushed in the following areas:

- St Clair Parkway (Church St PS to Shell South Entrance)
- St Clair Parkway (Curran Ave PS to Lincoln Drive)
- Catalpa Way
- Keww Drive
- Courtright Line (Brigden Main PS to Brigden Lagoons)
- West Wilkesport Line, Wilkesport Line to Mill Street
- St Clair Parkway South of Sombra to Sombra Lagoons.
- Brander Park
- McDonald Street, Port Lambton (North of Port Lambton Main PS)
- Broadway Street, Port Lambton (McDonald Street to Port Lambton Lagoons)

To minimize odours and odour complaints along St. Clair Parkway between Corunna and Courtright the odour control carbon canisters at 899, 939 and 1029 St. Clair Parkway were exchanged every quarter.

### **1.5 Complaints**

**Port Lambton Main PS** – a neighbour was concerned of potential odours since the carbon canister was not on vent anymore. Repaired carbon canister on vent stack.

### **1.6 Alterations to the Authorized System**

- The generators were replaced at the Brigden Main PS, Sombra Main PS and the Port Lambton Main PS. They were all commissioned Dec 28, 2023 by Sommers.
- Approximately 110 m of 200 mm PVC SDR 35 new gravity sewer main was extended on Sophia Street in Mooretown from St. James Street to the dead end.

### **1.7 Overflows and spills**

There were no overflows or spills to report for 2023.



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## 1.8 Summary of efforts to reduce overflows, spills and bypasses

In recent years St. Clair Township has made efforts to reduce overflows, spills and bypasses. St. Clair Township retained Jacobs to help develop an Inflow and Infiltration (I & I) Program with Council's endorsement in 2019. Since then, the I & I Inspection Program has been implemented and a substantial number of properties have been identified as contributing to I & I issues. The Port Lambton South area was inspected in 2020/2021. Mooretown from Rokeby Line to Baby Creek was inspected in 2022. Courtright from Baby Creek to Milton Street was inspected in 2023. The plan for 2024 is to complete the I & I Inspections in Courtright from Milton Street to Frog Point (SWF-026). The program has proven to be effective.

Other actions taken place have been raising, repairing and sealing manholes where high-water levels existed.



Pierce Services  
& Solutions Inc.

519.820.4853 Fax 519.824.9402

## Instrument Verification Sheet

Client Name: St.Clair Township

Date: November 06, 2023

Equipment Description: Flow Transmitter

Assigned Number: FIT 201

Area Located: Pump Station

AMMS Number:

### Instrument Data

Manufacturer: Krohne

Model Number: IFC 300 F

Type: Magmeter 200mm

Serial Number: S08 25530

Range: 0-200 l/s

Accuracy: +/- 5%

Method Of Calibration: Standard Verification

Application: Wastewater

### Calibration Data

Input %	Input	As Found	As Left	Pass/Fail
	Program Test OK			Pass
	Functional Test OK			
	Output Test Ok			
Coil Temp 519.9 C	34.2306.7 l/s	34.3 l/s	34.3 l/s	Pass
Electrical Temp 92.7				
Flow speed 5.3 ft/s	1.37 ft/s	28.8 l/s	28.8 l/s	Pass
Flow 28.8 l/s				

Confirmed Run Mode:

Placed back in service:

Comments:

Verification of original calibration only.



Coil Resistance 127.0 ohm

Conductivity 1688 µs/cm

Checked By: Greg Pierce CCST

Signature: \_\_\_\_\_





**AS FOUND CERTIFICATION**

**PASS**

**CLIENT DETAIL**

CUSTOMER St. Clair Township  
 CONTACT Doug Brooks  
 Crew Leader of Operations Water/Wastewater  
 1155 Emily St  
 Mooretown, Ontario  
 O: 519-867-2993  
 C: 519-383-2350  
 E: dbrooks@stclairtownship.ca

**EQUIPMENT DETAIL**

MODEL WaterMaster  
 SENSOR SERIAL NUMBER 3K672018500900  
 CONVERTER SERIAL NUMBER 3K672018500900  
 SENSOR SIZE (DN) 150  
 PLANT ID Sombra Sewage Pumping Station  
 METER ID Station Sewage Flow Meter  
 FIT ID N/A  
 CLIENT TAG N/A  
 OTHER N/A  
 GPS COORDINATES N42 42.480 W082 28.795  
 ADDRESS 3538 St Clair Parkway, Sombra, ON  
 VERIFICATION DATE February 21, 2023  
 CAL. FREQUENCY Annual  
 CAL. DUE DATE February, 2024

VER. BY - FM Paris Machuk

Quality Management Standards Information -  
 Reference equipment and instrumentation used to  
 conduct this verification test is found in our AC-  
 QMS document at the time this test was

**SENSOR INFORMATION**

Q3 l/sec 175  
 CALIBRATION ACCURACY OIML Class 1  
 SENSOR CAL. ACCURACY % 134.7  
 mm/sec -0.73  
 ~ 11  
 DATE OF MANUFACTURE December 05, 2018  
 RUN HOURS d/h/m 725/15/-1876

**TRANSMITTER INFORMATION**

APPLICATION VERSION V01.07.00 03/02/17  
 MSP VERSION 01.00.00  
 DATE OF MANUFACTURE December 05, 2018  
 RUN HOURS d/h/m 1452/12/2816

ALLOWABLE TOLERANCE % 5.0

**CURRENT OUTPUT**

OUTPUT TEST	READING	ERROR	PASS
4.00	4.00	3.997	PASS
20.00	20.00	19.989	PASS
4.0 mA	4.00	3.997	PASS
12.0 mA	12.00	11.980	PASS
20.0 mA	20.00	19.989	PASS

**PULSE OUTPUT**

OUTPUT TEST	READING	ERROR	PASS
OUTPUT 1, Hz	100	N/A	N/A
OUTPUT 1, Hz	50	N/A	N/A
OUTPUT 2, Hz	100	N/A	N/A
OUTPUT 2, Hz	50	N/A	N/A

**VERIFICATION HISTORY**

OIML Accuracy Alarms 0

**TOTALIZER INFORMATION**

FORWARD 103880.6 m3  
 REVERSE 6.88 m3  
 NET 103873.72 m3

**SENSOR DATA**

COIL CURRENT 179.9 mA  
 COIL INDUCTANCE 161.6 mH  
 COIL SHIFT 0 %  
 COIL/LOOP RESISTANCE 34.1 ohm

**TRANSMITTER DATA**

TX GAIN - ADJUSTMENT 0 %

**VeriMASTER INFORMATION**

VERSION 01.00.03  
 LIMIT VERSION 01.00.01

**CONFIGURATION SETTINGS**

MAINS/FREQUENCY 60 Hz  
 QMAX 60 l/sec  
 PULSES/UNIT 1  
 PULSES LIMIT FREQUENCY 1 Hz  
 SENSOR USER SPAN 100 %  
 ZERO 0 mm/s  
 USER FLOW CUTOFF 1 %  
 HYSTERESIS 20 %  
 METER MODE Normal Operation

**COMMENTS**

**QUALITY MANAGEMENT STANDARDS INFO.**

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] FTS	ABBWM	1
PROCESS METER	PM	11

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**AS FOUND CERTIFICATION**

**PASS**

**CLIENT DETAIL**

CUSTOMER St. Clair Township  
 CONTACT Doug Brooks  
 Crew Leader of Operations Water/Wastewater  
 1155 Emily St  
 Mooretown, Ontario  
 O: 519-867-2993  
 C: 519-383-2350  
 E: dbrooks@stclairtownship.ca

**EQUIPMENT DETAIL**

MODEL WaterMaster  
 SENSOR SERIAL NUMBER 3K672018500899  
 CONVERTER SERIAL NUMBER 3K672018500899  
 SENSOR SIZE (DN) 200  
 PLANT ID Port Lambton Sewage Pumping Station  
 METER ID Station Sewage Flow Meter  
 FIT ID N/A  
 CLIENT TAG N/A  
 OTHER N/A  
 GPS COORDINATES N/A  
 ADDRESS 4406 McDonald St, Port Lambton, ON  
 VERIFICATION DATE February 21, 2023  
 CAL. FREQUENCY Annual  
 CAL. DUE DATE February, 2024

VER. BY - FM Paris Machuk

Quality Management Standards Information -  
 Reference equipment and instrumentation used to  
 conduct this verification test is found in our AC-  
 QMS document at the time this test was

**SENSOR INFORMATION**

Q3 l/sec 277.78  
 CALIBRATION ACCURACY OIML Class 1  
 SENSOR CAL. ACCURACY % 119  
 mm/sec -1.4  
 ~ 11  
 DATE OF MANUFACTURE December 05, 2018  
 RUN HOURS d/h/m 726/16/-436

**TRANSMITTER INFORMATION**

APPLICATION VERSION V01.07.00 03/02/17  
 MSP VERSION 01.00.00  
 DATE OF MANUFACTURE December 05, 2018  
 RUN HOURS d/h/m 1454/16/25088

ALLOWABLE TOLERANCE % 5.0

**CURRENT OUTPUT**

OUTPUT TEST	READING	ERROR	PASS
4.00	4.00	3.995	PASS
20.00	20.00	19.988	PASS
4.0 mA	4.00	3.995	PASS
12.0 mA	12.00	11.979	PASS
20.0 mA	20.00	19.988	PASS

**PULSE OUTPUT**

OUTPUT TEST	READING	ERROR	PASS
OUTPUT 1, Hz	100	N/A	N/A
OUTPUT 1, Hz	50	N/A	N/A
OUTPUT 2, Hz	100	N/A	N/A
OUTPUT 2, Hz	50	N/A	N/A

**VERIFICATION HISTORY**

OIML Accuracy Alarms 0

**TOTALIZER INFORMATION**

FORWARD 128473.34 m3  
 REVERSE 286.7 m3  
 NET 128186.64 m3

**SENSOR DATA**

COIL CURRENT 179.9 mA  
 COIL INDUCTANCE 286.7 mH  
 COIL SHIFT -0.1 %  
 COIL/LOOP RESISTANCE 30.3 ohm

**TRANSMITTER DATA**

TX GAIN - ADJUSTMENT 0 %

**VeriMASTER INFORMATION**

VERSION 01.00.03  
 LIMIT VERSION 01.00.01

**CONFIGURATION SETTINGS**

MAINS/FREQUENCY 60 Hz  
 QMAX 40 l/sec  
 PULSES/UNIT 1  
 PULSES LIMIT FREQUENCY 1 Hz  
 SENSOR USER SPAN 100 %  
 ZERO 0 mm/s  
 USER FLOW CUTOFF 0 %  
 HYSTERESIS 20 %  
 METER MODE Normal Operation

**COMMENTS**

**QUALITY MANAGEMENT STANDARDS INFO.**

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] FTS	ABBWM	1
PROCESS METER	PM	11

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**AS FOUND CERTIFICATION**

**PASS**

**CLIENT DETAIL**

CUSTOMER St. Clair Township  
 CONTACT Doug Brooks  
 Crew Leader of Operations Water/Wastewater  
 1155 Emily St  
 Mooretown, Ontario  
 O: 519-867-2993  
 C: 519-383-2350  
 E: dbrooks@stclairtownship.ca

**EQUIPMENT DETAIL**

MODEL WaterMaster  
 SENSOR SERIAL NUMBER 3K220000118860  
 CONVERTER SERIAL NUMBER 3K220000118860  
 SENSOR SIZE (DN) 100  
 PLANT ID Brigden Sewage Pump Station  
 METER ID Station Sewage Flow Meter  
 FIT ID N/A  
 CLIENT TAG N/A  
 OTHER N/A  
 GPS COORDINATES N42 48.694 W082 17.004  
 ADDRESS n/a  
 VERIFICATION DATE February 21, 2023  
 CAL. FREQUENCY Annual  
 CAL. DUE DATE February, 2024

VER. BY - FM Paris Machuk

Quality Management Standards Information -  
 Reference equipment and instrumentation used to  
 conduct this verification test is found in our AC-  
 QMS document at the time this test was

**SENSOR INFORMATION**

Q3 l/sec 69.44  
 CALIBRATION ACCURACY OIML Class 2  
 SENSOR CAL. ACCURACY % 167  
 mm/sec 0.29  
 ~ 11  
 DATE OF MANUFACTURE September 20, 2011  
 RUN HOURS d/h/m 3986/08/55

**TRANSMITTER INFORMATION**

APPLICATION VERSION V01.04.00 26/07/11  
 MSP VERSION 00.00.04  
 DATE OF MANUFACTURE September 20, 2011  
 RUN HOURS d/h/m 6180/12/07

ALLOWABLE TOLERANCE % 5.0

**CURRENT OUTPUT**

OUTPUT TEST	READING	ERROR	PASS
4.00	4.00		PASS
20.00	20.00		FAIL
4.0 mA	3.982	-0.45	PASS
12.0 mA	11.968	-0.27	PASS
20.0 mA	19.984	-0.08	PASS

**PULSE OUTPUT**

OUTPUT TEST	READING	ERROR	PASS
	mA	%	FAIL
OUTPUT 1, Hz	100	N/A	N/A
OUTPUT 1, Hz	50	N/A	N/A
OUTPUT 2, Hz	100	N/A	N/A
OUTPUT 2, Hz	50	N/A	N/A

**VERIFICATION HISTORY**

OIML Accuracy Alarms 0

**TOTALIZER INFORMATION**

FORWARD 25886.2 m3  
 REVERSE 807.05 m3  
 NET 25079.15 m3

**SENSOR DATA**

COIL CURRENT 179.9 mA  
 COIL INDUCTANCE 28.3 mH  
 COIL SHIFT 0 %  
 COIL/LOOP RESISTANCE 28.9 ohm

**TRANSMITTER DATA**

TX GAIN - ADJUSTMENT 0 %

**VeriMASTER INFORMATION**

VERSION 01.00.03  
 LIMIT VERSION 01.00.01

**CONFIGURATION SETTINGS**

MAINS/FREQUENCY 60 Hz  
 QMAX 50 l/sec  
 PULSES/UNIT 1  
 PULSES LIMIT FREQUENCY 1 Hz  
 SENSOR USER SPAN 100 %  
 ZERO 0 mm/s  
 USER FLOW CUTOFF 1 %  
 HYSTERESIS 20 %  
 METER MODE Normal Operation

**COMMENTS**

**QUALITY MANAGEMENT STANDARDS INFO.**

[QMS] INFORMATION	IDENT.	ID #
[REFERENCE] FTS	ABBWM	1
PROCESS METER	PM	11

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