

Centre Wellington

Township Of Centre Wellington

ANNUAL PERFORMANCE REPORT FOR

2023

SEWAGE COLLECTION SYSTEM

Environmental Compliance Approval (ECA) #098-W601

Prepared:

January 2024

Township of Centre Wellington SEWAGE COLLECTION SYSTEM ANNUAL PERFORMANCE REPORT

January 1, 2023 - December 31, 2023

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GLOSSARY OF TERMS AND ABBREVIATIONS

Collection System Overflow ('CSO' / 'overflow'): A discharge to the environment at designed location(s) from the Authorized System

Director: A person appointed by the Minister, pursuant to section 5 of the EPA for the purpose of Part II.1 of EPA (Environmental Compliance Approvals)

Forcemain: A pipe that conveys wastewater under pressure out of a sewage pumping station

Inflow and infiltration (I/I): Inflow is the water that enters the sewer system through improper connection such as foundation drains, downspouts, manhole covers, etc. Infiltration is the water that enters sewer system through defective (leaky) pipes, joints, connections, or manholes.

Lateral Sewer: A smaller sewer that collects wastewater directly from homes and buildings and conveys it to a larger connector sewer Mainline Sewer: a pipe that collects wastewater from smaller laterals and conveys to a larger trunk sewer

Lateral Sewer Block (SB): When an obstruction in a private or public line slows or stops the flow of wastewater through the line

Low Pressure Sewer System ('LPS'): A type of sewage collection and transportation system that utilizes low-pressure pipelines to convey wastewater from individual properties or small clusters of properties to a centralized treatment facility

Maintenance Hole (M/H): A structure that provides access to a sewer system for inspection, cleaning, maintenance, sampling, or flow monitoring

Ministry: The Ministry of the Minister and includes all employees or other persons acting on its behalf

Overflow: A controlled discharge of wastewater to the environment from a location designed for this purpose

pH: Measure of the alkalinity or acidity in wastewater

SDWT: Significant Drinking Water Threat

Spill: An unplanned discharge of wastewater to the environment from any location that is not specifically designed for this purpose

SPS: Sewage Pumping Station

STP: Sewage Treatment Plant, also known as Wastewater Treatment Plant ('WWTP')

Total Ammonia Nitrogen (TAN): A measure of the amount of ammonia (nitrogen pollution) in wastewater

Total Phosphorus (TP): An essential nutrient used by microorganisms for growth. Excess amounts can lead to environmental issues like algae over-growth

Total Suspended Solids (TSS): Suspended particles (organic and inorganic material) present in the water sample

Trunk Sewer: A larger sewer that collects wastewater from mainline sewers and conveys it to a pumping station or directly to the wastewater treatment plant

Wastewater: Water that has been used and discharged by homes, businesses, and industries. Everything we flush down a toilet or pour down a drain, collectively.

INTRODUCTION:

The Township of Centre Wellington's (Township's) Municipal Sewage Collection System (Collection System) services the communities of Fergus, Elora, and Salem. The Collection System is under the ownership of the Township of Centre Wellington and operational oversight by the Township's Wastewater Services Department. The Collection System has been classified by the Ministry of the Environment, Conservation and Parks ('the Ministry') as a Class III Wastewater Collection System in Elora/Salem and a Class II Wastewater Collection System in Fergus.

Regulatory compliance, inspections, and reporting are completed through 'the Ministry Guelph District Office. CLI ECAs are issued under the Environmental Protection Act (EPA). The Sewage Collection System ECA # 098-W601 ('the ECA') was issued on December 22, 2022, and defines the terms and conditions of operation within the Collection System.

Wastewater staff employed in the Wastewater Services Department, licensed as per O. Reg. 129/04 (Licensing of Sewage Works Operators) under the OWRA and ECA #098-W601, undergo regulatory training to maintain and upgrade their licenses.

ECA #098-W601 outlines the terms and conditions for operating the Collection System. Schedule E, Section 4.6 of the ECA mandates the submission of an Annual Performance Report ('the report') to the Director. This comprehensive report encompasses monitoring data, operational issues, calibration, maintenance, repairs, alterations, overflows, spills, public complaints, and other factors affecting operations during the reporting period.

This report summarizes the monitoring and maintenance results for the Collection System required by the Approval and describes the system's overall operational performance, such as:

Monitoring Data:

- Summary and interpretation of required monitoring data
- Conclusions drawn about the need for future modifications/alterations

Operating Problems and Corrective Actions:

• Any encountered operating problems encountered, and the corresponding corrective actions taken

Calibration, Maintenance, and Repairs:

• Summary of calibration, maintenance, and repairs on major structures, equipment, apparatus, mechanisms, or components of the Sewage Collection System

Complaints and Resolutions:

- Summary of complaints related to the Sewage Collection System during the reporting period
- Steps taken to address complaints

Alterations:

- Summary of all authorized alterations within the reporting period (ECA #098-W601)
- List of alterations posing Significant Drinking Water Threat

Overflows and Spills:

- Summary of all Collection System Overflows and Spill(s) of Sewage
- Including dates, volumes, durations, pollutant loadings, disinfection (if any), adverse impacts, and corrective actions

Efforts to Reduce Overflows and Spills:

- Summary of projects including description, expenditures, and estimated budget forecast
- Details of the establishment and maintenance of a Pollution Prevention Control Plan (PPCP), including project progress versus PPCP timelines
- Assessment of the effectiveness of each action taken, as well as assessment of the ability to meet Procedure F-5-1 Objectives
- Public reporting approach, including proactive efforts

The report, available by June 1st on www.centrewellington.ca, reflects our commitment to transparency and environmental sustainability.

EXECUTIVE SUMMARY

There was 1 spill event within the Collection System during the reporting period, as described in Section 4.6.8.

The Township received 25 public complaints associated with the Collection System, of which 15 were associated with sewer back-ups. In addition, there were one (1) complaint regarding odour issues, four (4) related to the LPS and three (3) related to maintenance holes. The Township has investigated and satisfactorily addressed the reported concerns, as described in Section 4.6.6.

SYSTEM HISTORY AND DESCRIPTION:

The Sewage Collection System comprises Sewage Works designed for gathering and conveying sewage originating from residential, commercial, and select industrial sources in Fergus, Elora, and Salem. Tables 1 and 2 showcase the assets and processes within the Collection System at the time of ECA issuance, contrasting them with the status upon conclusion of the reporting period.

	Assumed	Assumed	Unassumed
Asset	Quantity	Quantity	Quantity
	(as of 098-W601)	(as of Dec 31, 2023)	(as of Dec 31, 2023)
Gravity Main	1.4 km	113.32 km	2.50 km
Force Main	2.4 km	2.67 km	N/A
Low Pressure Sewer Main	5.3 km	5.34 km	Unknown
LPS Peroxide Injection Vault for	1	1	0
Odour and Corrosion Control	Ι	Ι	0
Maintenance Holes	1677	1712	93
Sewage Pumping Stations	7 (1)	7	1

¹ The Township currently has care and control of the Farley SPS under contract with the developer, until formal assumption of the SPS takes place. Ownership remains with the developer at this time.

Wastewater Treatment Plants	2	2	0
wastewater freatment Plants	Z	2	0

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SPS	SPS Address	CSO to the Environment?
Tower SPS	963 Tower St. S, Fergus	Yes
St. Andrew SPS	490 St. Andrew St. E, Fergus	Yes
Union SPS	535 Union St. W, Fergus	Yes
Clyde SPS	23 Metcalfe St. Elora	Yes
Mill SPS	48 West Mill St. Elora	Yes
Stafford SPS	19 Stafford St. Elora	Yes
David SPS	25 David St. Elora	Yes
Farley SPS	260 Farley Rd. Fergus	Yes

Table 3: Sewage Treatment Plants (STP) Within the Collection System

STP Name	STP Address	Receiving Areas
Fergus STP	350 Queen St. W, Fergus	Fergus
Elora STP	6510 Wellington Rd. 7, Elora	Elora and Salem

E.

CONDITION AND OPERATIONAL PERFORMANCE

Operational Monitoring

Pump stations operate through automatic control and are monitored continuously using Supervisory Control and Data Acquisition (SCADA). Station alarms are programmed to alert the operations staff 24 hours a day of potential issues including but not limited to high wet well levels, pump faults, communication failures and standby generator status. Operators will respond to station alarms as required to ensure proper station operation.

Station operations are trended in SCADA. SCADA trends and pump runtimes are reviewed daily by operations staff to evaluate station performance. Operators will look at pump cycle times, wet well levels, and function of trends to identify potential issues. Where potential issues are identified, work orders are generated for follow up by maintenance staff. In addition to SCADA monitoring, monthly station inspections are completed by operations staff. This includes inspection of the station and testing of standby generator equipment.

Monitoring Data

The Township is awaiting release of the Ministry's monitoring guidance document to fully implement a monitoring plan. As Policy WC-MC-3.5 does not specify the form of monitoring and inspections, the Township shall ensure the Provincial Standard Operating Policy for Sewage Works, both General and Sanitary Sewers and Related Pipes is adhered to.

Monitoring	Purpose of Monitoring	Interpretation of Data	Conclusions Drawn
Sewage Pumping	To estimate sewage	Surrogate sample results can be found	Sampled during dry
Station Surrogate	loading in the event of a	below in Table 5.	weather conditions. This
Samples	CSO, to meet the		data will be used for
			loading calculations.

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Monitoring	Purpose of Monitoring	Interpretation of Data	Conclusions Drawn
	requirements of section		
	3.4.1.b.ii		
10-Year Wet / Dry	To determine impact of	The assessment indicated that I/I occurs	There is a need for a
Weather	I/I concurrent to meeting	during wet weather events with some	program to reduce I/I in
Assessment Study	CLI-ECA requirements	events resulting in the Fergus STP	the Sewage Collection
	under Schedule E,	bypassing standard processes to manage	System to take
	Section 8.1.	the wet weather flow.	unnecessary pressures
		One identified trend is that a rain event	off of the STPs.
		exceeding 60 mm of rain in a short period	
		of time significantly increases the	
		likelihood of a bypass event occurring at	
		the Fergus STP.	
Sewage Pumping	Daily – Operators	The data trends, as well as the alarms	Monitoring SPS statistics
Station Operation	conduct a review of	received, provide good insight into the	& trends daily has
	SCADA and the SPS	controlling system.	proven to be effective.
	data.	On-site inspections confirm SCADA	Weekly visits are
	Weekly – Operators	operation.	sufficient to confirm
	conduct site visit to		operations.
	confirm operation of		
	SPS.		

Sewage Pumping Station Monitoring Data

The Township is currently anticipating the release of the monitoring guidance document from the Ministry. Surrogate samples have been obtained to estimate contaminant concentrations of the discharged CSO, when it is not possible to collect samples. Schedule E, Section 3.4.1.b.ii states that the minimum contaminants required to sample are BOD or COD, TSS, TP, TKN, and E. Coli. Table 5 below shows results from samples taken May 17, 2023 during dry weather conditions and would provide an estimate of "worst-case" loading on the receiving watercourse.

Sewage Pu Statior	mping า	Saint Andrew	Farley Road	Tower	Union Street	Stafford Street	Clyde Street	David Street	Mill Street
Analysis	Units	Street		0.000	0.000	0.000	0	0.000	
BOD ₅	mg/L	360	142	442	329	449	1310	445	434
TSS	mg/L	205	124	1930	250	480	4090	250	410
COD	mg/L	303	73	188	276	289	1120	403	178
TP	mg/L	10.2	3.73	16.4	7.93	9.8	27.7	5.53	4.8
TKN	mg/L	86.0	35.9	69.1	68.3	78.5	97.5	53.5	43.8
E. Coli	CFU / 100mL	8,600,000	8,000,000	6,000,000	10,600,000	8,000,000	6,800,000	7,800,000	4,600,000

Collection System Monitoring Data

As required in Schedule E, Section 8.1, which states "that if there has been one or more of: an STP overflow, STP bypass or a Collection System overflow within the ten (10) year period starting January 1, 2012 and ending December 31, 2021", the Township was required to complete an assessment of Wet Weather Flows compared to the Dry Weather Flows. As there were WWTP bypasses, an assessment was undertaken. The data analyzed in the 10 year period indicated infiltration and/or inflow occurring during wet weather events, with some events resulting in the STPs bypassing standard processes to manage the increased influent flow volume.

One identified trend is that a rain event exceeding 60 mm of rain in a short period of time, significantly increases the likelihood of a bypass event occurring at the Fergus STP.

Figure 1 shows a correlation between rain events and spiking STP flows from January 2014 – January 2024.



Figure 1: Weather Tracking vs. STP Flow

OPERATIONAL PROBLEMS AND CORRECTIVE ACTIONS

Table 6 demonstrates major operational and maintenance items encountered / completed within the Municipal Sewage Collection System during the reporting period. The table includes the location, description of the major issue, and actions taken to remove the major issue.

Location &	Actions Taken to Remediate Major Issue	
Major Issue		
Metcalfe Street	Description – Staff responded on November 15 th to what was	
8" Sewer Main	reported as a sewer backup into the basement of a business on	
Collapse.	Church St. W. ('Church'). Upon arrival staff discovered that the	
	sewer main on Metcalfe St. ('Metcalfe') was blocked.	
	Actions Taken – Operations staff attempted to clear the blockage	
	via flusher truck but remained unsuccessful.	
	Next steps were to excavate the road to expose the sewer and	
	determine the cause of the blockage. Staff identified that a section	
	of sanitary sewer pipe had collapsed on Metcalfe, between Church	
	and Mill St. ('Mill') in Elora.	
	A bypass pumping system around the collapsed section of sewer	
	was implemented for the duration of repairs.	
	A 30 m section of sanitary sewer pipe was deemed to be in very poor	
	Immediate replacement of the server main was required to eliminate	
	risk to public health & safety, and possible adverse environmental	
	impacts	
	Next Township staff completed CCTV condition assessment of the	
	sanitary sewers in the vicinity of the emergency repair. Based on this	
	assessment the Townshin identified a 6 m section of sanitary sewer	
	on Metcalfe between Church and James St. and a 70 m section of	
	sanitary sewer between Church and Mill that needed to be replaced	
	immediately due to their advanced state of deterioration Both	
	sections of sanitary sewer was completed were replaced completing	
	the repair	
	Background – The collapsed sections of sewer were constructed in	
	the 1960s and have been in-place for approximately 60 years. The	
	typical service life of for a concrete sanitary sewer is 80 years.	
	Township staff observed sections of the collapsed pipe crown with	
	only 3-5 mm of pipe thickness remaining (typical concrete pipe	
	thickness is 10-15 mm).	

Based on analysis of the collapsed pipe segments and in discussions with experts in the concrete pipe industry, the likely cause of the premature pipe failure is a phenomenon called Microbial-Induced Concrete Corrosion ('MICC'). MICC occurs above the waterline in the presence of elevated concentrations of gaseous hydrogen sulfide and sulfuric acid build-up caused by bacteria coating the interior of the pipe.

Figure 2 shows the Metcalfe St. sewer main repair.



Figure 2: Metcalfe St. Sewer Main Repair

INSPECTIONS, MAINTENANCE, REPAIRS, AND CALIBRATIONS

Inspections

Inspections are vital for sewage collection systems to detect and address issues promptly, preventing environmental contamination and ensuring regulatory compliance. By identifying potential problems early on, inspections help maintain the integrity and performance of sewage infrastructure while minimizing risks to public health and the environment. Additionally, regular inspections enable optimization of system performance and contribute to overall safety by ensuring that sewage systems operate reliably and efficiently. Table 7 below displays inspections conducted on the Collection System, along with an action plan for the following reporting period.

Type of Assets	Required Frequency	# Completed	2023 Comments	2024 Action Plan
CSO	Annual	0	• Staff turnover in 2023.	 Complete the required number of inspections.
SPS Condition Assessment	Annual	0	Staff turnover in 2023.	 Create a process to track condition
Sanitary Sewer (CCTV)	10 Years	~ 5 km	 Re-Lining portion of Biennial CCTV / Re- lining Program was conducted in 2023 35.9 km inspected in 2022 	 Fergus: 25,428 m of sanitary sewer and associated maintenance holes. Elora: 3,335 m of sanitary sewer and associated maintenance holes.
Maintenance Holes			366 inspected in 2022	See Above

Table 7:Inspections on the Sewage Collection System

The Township uses a preventative maintenance software to manage work orders for all scheduled and unscheduled maintenance activities. Scheduled maintenance work orders are derived from manufacturer operation and maintenance manuals, supplemented by staff expertise. Moreover, the work order system efficiently records non-routine and unplanned maintenance activities. Staff meticulously document the actions taken, then subsequent follow-up work is planned and executed to ensure comprehensive maintenance coverage.

Sewage Pumping Stations within the Collection System are equipped with stand-by power generators to ensure critical equipment can continue to operate in the event of a power failure. The SPS standby power units were tested monthly and serviced annually. CSA Load testing is completed on a 3-year rotation.

Maintenance

Table 8 demonstrates maintenance activities conducted within the reporting period to improve the Sewage Collection System. The table includes the location, issue and actions taken.

Type of Assets	Maintenance Frequency	# Completed	2023 Comments	2024 Action Plan
Sanitary Sewer – Third-Party Flushing	10 Years	 785 m full- length Cure In Place Pipe (CIPP) on sanitary sewers Five (5) spot- repairs Two (2) grout repairs 	Re-lining portion of Biennial CCTV / Repair Program took place	CCTV portion of Biennial CCTV / Repair Program will take place
Sanitary Sewer – In-House Flushing	10 Years	Approximately 20 occurrences	operations responded to emergency calls requiring flushing.	In-house flushing program to be developed to track emergency and maintenance flushing

Table 8: Maintenance on the Sewage Collection System

Type of Assets	Maintenance Frequency	# Completed	2023 Comments	2024 Action Plan
				Odour control
Odour Control			Replacement of	capital project
Carbon		1	carbon on Clyde	has been
Calbon	As Required	I	SPS and Mill	awarded and is
Replacement			SPS odour filters	slated to be
				installed in 2024
SPS Wet Well		2	 Clyde SPS 	 Clyde SPS
Clean-Out	As Nequileu	Z	 Farley SPS 	• Tower SPS x2

Repairs

Table 9 demonstrates the status of past actions taken to improve the Collection System. Included is the location, issue, past actions, and status of past actions. As this marks the initial reporting period, there are no prior actions to report.

Table 9: Status of Past Actions Taken to Improve the System

Location	Issue	Past Actions Taken	Status of Past Action
N/A	N/A	N/A	N/A

Calibration Summary

Accuracy verification and calibration of flow metering devices are completed annually by a third-party certified contractor. Table 10 below shows the accuracy verification results of the Sewage Pumping Station flow monitoring devices.

Table 10: Calibration Report – Accuracy Verification

Equipment Description	Date Calibrated	Results (²)
Clyde SPS Discharge Meter	August 8, 2023	Passed
Salem LPS Discharge Meter	August 8, 2023	Passed
Stafford SPS Discharge Meter	August 8, 2023	Passed

² A copy of the full report is included in this submission to the Ministry.

PUBLIC COMPLAINTS

A total of 25 complaints were received during the reporting period regarding the operation of the Sewage Collection System. One (1) odour concern, three (3) maintenance hole cover concerns, four (4) LPS concerns, 15 sewage lateral block concerns and two (2) sewer main blockage concerns were received in 2023. Information regarding received complaints and corrective actions taken are available below in Table 11. The table includes the date, location and type of complaints received related to the Sewage Works, as well as actions taken to address the complaints.

Quantity	Complaint Type	Description	Actions Taken
1	Odour Concern	Odour between homeowner's home and her neighbour	Smell was found to be from natural gas meter. Directed complainant to call Enbridge
3	M/H Lid Concern	Deteriorating M/H condition	Operations conducted assessments of each complaint to determine the necessary actions. All complaints were effectively resolved
4	LPS Concern	LPS alarms and condition	LPS concerns are directed to contractor to remediate. All complaints were effectively resolved
15	Sewer Lateral Blockage	Homeowners calling with inability to use their sewer lateral	Operations conducted assessments of each complaint to determine the necessary actions. All complaints were effectively resolved
2	Sewer Main Blockage	 Multiple houses on Erb St. had sewage backing up into their basements 	 Located sewer main blockage. Appeared to be sand/gravel. Flushed that section of main until blockage let go Actions taken are outlined in Table 6:

Table 11: Public Complaints

Quantity	Complaint Type	Description	Actions Taken
		2. Sewage back-up in	Major Operation &
		basement of	Maintenance Items
		downtown business	(page 14)

IMPROVING THE SEWAGE COLLECTION SYSTEM

Efforts Made to Reducing Overflows, Spills and STP Bypasses

Table 12 demonstrates efforts made during the reporting period to reduce spills, overflows and STP bypasses. It includes location, description of issue, corrective action to remediate the issue, project costs, effectiveness, and target completion date.

Table 12: Efforts Made to Reduce Spills / Overflows				
Location	Description of Issue and Corrective Action	Estimated Cost of Project	Effective?	Target Completion Date
Clyde SPS	 Level sensor issues were contributing to SPS overflows Verified float control Replace level transducer Revert to original station control logics SAT normal operation to verify effective 	\$7,300	Yes	Complete
Collection System	 Inflow and Infiltration causing / contributing to STP bypasses. The re-lining portion of the Biennial Flushing & CCTV / Re-Lining 	\$220 K	TBD	2031

Program was conducted in 2023		

Actions and Timelines: Meeting Procedure F-5-1 Objectives

In 2020, an Inflow and Infiltration study was completed by Cole Engineering. This study defined sanitary catchment areas for the urban systems of Fergus and Elora. Figure 3 below illustrates the sanitary catchment areas located in Fergus.



Figure 3: Fergus Sanitary Catchment Areas

The Township of Centre Wellington has developed a Sanitary System Procedure and a Bypass Structure Regular Inspection Procedure, concurrent with an alternating biennial program to address I/I. The biennial program will facilitate NASSO certified inspections and assess a section of the sanitary system within year one and will complete high priority applicable repairs in year two. This program aims to have the entire sanitary system inspected and assessed to provide recommendations for applicable repairs within a 10year period.

In 2022, the Sanitary Sewer and Storm Sewer CCTV Inspection, Assessment and Recommendation program selected areas FM09, FM03, FM04 (Figure 3) and the unmonitored grey section from the Cole Engineering Report for inspection as they were identified as the highest sources of inflow and infiltration.

Based on the 2022 inspection program, the assessments and recommendations were reviewed and scheduled for completion in 2023 (Figure 4), with 785 m of sewer receiving a full-length Cure-in-Place Pipe (CIPP) repair, seven (7) locations receiving spot repairs, and one (1) location receiving two (2) grout repairs.

The 2024 program will use a similar method of selection and focus on the areas identified from the Cole Engineering Report with high inflow and infiltration responses.

The Fergus WWTP, as per its ECA, makes use of a modified aeration tank and modified secondary clarifier as bypass retention for extraneous wet weather peak flows. This, however, provides limited storage volume and wet weather bypasses may still occur, therefore outlining the need for these further improvements.



Figure 4: 2023 Repairs Scheduled for Fergus Area

The Township has been discussing the creation of a targeted downspout disconnection program and will be reviewing approaches used in municipalities to determine if similar programs can be successful.

ALTERATIONS TO THE SYSTEM

There were no Notice of Modifications submitted to the MECP during the reporting period. Four (4) Alterations were made to the Collection System within the reporting period, which are outlined in Table 14 below. Presented on Table 14 is the capital project number and identified components, equipment and/or Sewage Works for the capital projects Identified as Proposed Alterations to the Wastewater Authorized System. Also included is whether or not the Alteration has been classified as a Significant Drinking Water Threat ('SDWT').

Project	Project Stage	Sewage Works	Significant Drinking Water Threat?
Dickson Dr. Land Servicing	Constructed (2023)	Linear Sanitary Sewer Infrastructure	No
Moir St. Reconstruction	Constructed (2023)	Linear Sanitary Sewer Infrastructure	Yes
Beatty Line @ Garafraxa St. & Colbourne St.	Awaiting Final Acceptance	Linear Sanitary Sewer Infrastructure	No
East Mill St. – Metcalfe St. to Melville St.	Awaiting Final Acceptance	Linear Sanitary Sewer Infrastructure	No

Table 13: Proje	cts reported b	efore February	29, 2024

Significant Drinking Water Threats

As required in Schedule E Section 7.2.4 of the CLI-ECA, this section has been prepared by the Township of Centre Wellington Engineering Services Department outlining the design considerations for proposed alterations. The '2015 MOECC Source Protection Standard Operating Procedures' were used as a reference for this section.

The Moir St. Reconstruction Project was the only Alteration during the reporting period identified as a SDWT.

In order to prevent potential risk from becoming a SDWT, the Township has implemented requirements for the establishment of sewage works where the works have been identified as a SDWT. Please note that no issues contributing areas for nitrate are located within the municipality.

These actions are aimed at ensuring that proposed alterations to the Authorized System for sewage works are designed and operated in a way that minimizes the risk of SDWT.

Firstly, the design must incorporate a comprehensive Source Protection Supplementary Report, demonstrating the effective implementation of mitigation measures dedicated to safeguarding drinking water sources. Additionally, the design is mandated to meet the stringent requirements set forth by both the Clean Water Act and the specific design and operational standards established by the Township. Moreover, the design must thoroughly evaluate potential risks, drawing on the Ministry's Risk Management Measures Catalogue for guidance. To ensure comprehensive oversight, designs must be accompanied by a robust monitoring and reporting plan. Furthermore, a Spill Prevention and Contingency Plan is an integral component, designed to prevent, eliminate, or mitigate any adverse effects on drinking water resulting from pollutant spills. The ongoing relevance and efficacy of Spill Prevention and Contingency Plans are emphasized through the requirement for regular updates

It is important to note that these actions are specific to the Township of Centre Wellington and are in accordance with the Consolidated Linear Infrastructure – Environmental Compliance Approval (CLI-ECA) for a Municipal Sewage Collection System, to mitigate drinking water threats.

10-YEAR CAPITAL PROJECT FORECAST

The Township of Centre Wellington received proposals to complete its first Water and Wastewater Servicing Master Plan in December, 2023. The main objective of this study is to undertake a comprehensive analysis and evaluation of the Township's wastewater system to identify system deficiencies, determine gaps in information, and to provide a framework for sustainable management and optimization of the Sewage Collection System in the context of planned growth and development. This Master will include a prioritized list of capital work to be completed over a 30-year horizon. The anticipated completion of this Master Plan is Q1 of 2025.

The Township maintains a 10-year capital forecast which incorporates upcoming projects for the period of 2023 – 2032. Within this capital forecast are projects that will assist in eliminating infrastructure that has reached the end of its lifecycle and upgrade

compromised materials to the latest design standards. Table 15 below is a summary of some key forecasted projects, including the forecasted completion years.

Table 14: 10-fear Capital For	ecasi
Project Description	Year
Biennial CCTV / Repair Program	2022-2031
Water/Wastewater Servicing Master Plan	Q1 2025
David Street SPS Rehabilitation	2024
Future Expansion of Fergus WWTP	2025,2026,2027
Union Street SPS Upgrade	2033
Union Street Forcemain to Fergus WWTP	2033

able	14:	10-Year	Capital	For	ecast	
						1

Current Status of Capital Projects

Table 16 shows the current status of Capital Projects. It demonstrates efforts made during the to reduce spills / overflows. It includes the project, status, budget, and target completion date.

Project	Status	Budget	Estimated Completion
Biennial Repair Program (2023)	In December 2023, the Township completed its biennial sewer relining program. The 2023 program completed 785 m of full- length Cure-In-Place-Pipe (CIPP) sanitary sewer repair, CIPP spot repairs in five (5) locations and grout repairs in two (2) locations. Outcomes from these repairs will be monitored by continuing to review flow data from the STP and any potential future I/I studies.	\$220 K	Completed in 2023

Table 15: Status of Capital Projects

Project	Status	Budget	Estimated Completion
Biennial CCTV Program (2024)	The 2024 capital program includes continuation of the biennial storm and sanitary sewer CCTV and flushing program. The 2024 program includes the inspection of 28,763 m of sanitary sewer and associated maintenance holes. Elora will have 3,335 m competed and Fergus will have 25,428 m completed.	\$250 K	2024
David SPS Rehabilitation	Contract was awarded in 2023 with work slated to be complete in 2024.	\$75 K	2024
St. David St. N. Road Re- Construction	Includes replacement of 920 m of sanitary sewer that has reached end of service life. Sewer was identified through the 2022 CCTV program as being in poor condition and a potential source of inflow and infiltration. Replacing a trunk sewer within the sanitary network with modern materials will reduce I/I within the Collection System and have a positive effect on reducing bypasses and overflows that will be monitored with STP data.	\$8.8 Million	2025

		Dudget	Estimated
Project	Status	Budget	Completion
Water and Wastewater Service Master Plan (WWSMP)	The Fergus WWTP is to be analyzed in the context of lifecycle replacements related to the unit processes associated with the timing of the next expansion. This study will include assessing the existing system and projecting renewal and replacement needs. The development and delivery of calibrated water and wastewater system models will also form part of this assignment. The Township expects to award consulting services to complete the WWSMP in January 2024.	\$500 K	Q1 2025
Future Expansion of Fergus WWTP	Project has not yet been initiated.	\$33 Million	2025, 2026, 2027
Union SPS Upgrade	Project has not yet been initiated.	\$6.745 Million	2033
Union SPS Forcemain to Fergus WWTP	Project has not yet been initiated.	\$465 K	2033

All projects listed above in Table 16 meet Procedure F-5-1 Objectives.

SEWAGE COLLECTION SYSTEM SPILLS AND OVERFLOWS

Spills

The Township of Centre Wellington strives to maintain and operate wastewater infrastructure so that spills to the environment do not occur, however there are circumstances that arise where a spill occurs due to equipment malfunction, failure, or other reasons. Occasionally, a planned spill may be necessary in order to safely complete required maintenance to critical equipment. In the event that this is necessary, approval from the MECP shall be obtained in advance.

All spills are reported to the MECP Spills Action Centre upon discovery. Spills are investigated and written reports are submitted to the MECP and Environment and Climate Change Canada as required by legislation. Table 17 demonstrates spills that occurred during the transitional period and Table 18 demonstrates spills occurring during the reporting period. The tables both include the location, MOE incident number, volume, pollutant loading to the environment, and a description of the spills that occurred.

Location &			Load	ling			Department of Fuget
Incident #	volume	BOD	TSS	TP	TKN	E. Coli	Description of Event
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 16: Spills Occurring During the Transitional Period

Table 17: Spills Occurring During the Reporting Period

Location &			Loa	ding			Description of Event
Incident #	volume	BOD	TSS	TP	TKN	E. Coll	Description of Event
Metcalfe St.		1 65	0.07	0.06	0.52	800,000	Critical failure of the sewer main on Metcalfe
Elora	7.09 m ³	1.05 ka	0.97 ka	0.00	0.52 ka	CFU /	occurred, causing the discharge of sewage
# 1-4FFP7F		ĸġ	кy	кy	кy	100 mL	

	from a manhole at the intersection of Church
	St. W and Metcalfe St. into the storm sewer.
	Final volume of 7.09 m ³ was discharged into the storm sewer over a duration of 4 hours and 20 minutes, until crews could arrange a septic vacuum truck and set up a temporary sewer bypass to the downstream manhole.
	All Ministry paperwork and reporting has been completed in the required timeframe.
	No adverse effects on the Natural Environment were reported from this spill event.

Overflows

The Fergus STP encounters intermittent high-flow scenarios, occasionally necessitating overflows to manage inflow and infiltration in the Collection System and prevent emergency situations. Throughout the reporting period there were two (2) overflows in the Collection System. Table 19 provides a comprehensive overview of these overflows, providing details on pollutant loadings that were discharged to the Grand River from these events.

Table 18: Overflows Occurring During the Reporting Period

Location &	Volumo		Loadi	ng (³)		E Col	li	- Description of Event
Incident #	volume	BOD	TSS	TP	TKN	L. 00	11	Description of Event

³ Though no samples were obtained, loading was estimated using the surrogate sample results, outlined in Table 5 (on page 12).

Clyde SPS # 1-2FS4TQ	644.4 m ³	844 kg	2636k g	17.8 kg	62.8 kg	800,000 CFU / 100mL	Due to a power outage and equipment malfunction, the pumps and alarms were inoperable for a period of time. The station overflowed to the Grand River until the pumps were brought back to service. Paperwork and reporting were completed as necessary. There are no adverse effects on the Natural Environment to report from this overflow event.
Clyde SPS # 1-3460L3	90 m ³	117.9 kg	368 kg	2.5 kg	8.8 kg	800,000 CFU / 100mL	Heavy rainfall combined with equipment failure resulted in an overflow lasting approximately 23 minutes. Paperwork and reporting were completed as necessary. There are no adverse effects on the Natural Environment to report from this overflow event.

PUBLIC REPORTING APPROACH

Public reporting is conducted through various means of social media platforms. Additionally, public reporting is posted on the Township of Centre Wellington public website: <u>https://www.centrewellington.ca/en/index.aspx</u>.

Situations reported through public reporting approach include:

- Annual Performance Reports, posted publicly on iCompass.
- Emergency repairs requiring road closures

REFERENCES

- 1. Surrogate sample results
 - a. SGS Lab Report # CA14659
- 2. 2023 SCG Calibration Report
- 3. CityWide Work Orders and Service Requests
- 4. Spill reports
 - a. Reference # 1-4FFP7F
- 5. Overflow reports
 - a. Reference # 1-2FS4TQ
 - b. Reference # 1-3460L3
- 6. Significant Drinking Water Threat Report, written by the Source Water Protection department within the Township.
 - a. "2024 02 29 Significant DW Threat Report Sanitary"
- 7. Sanitary System Procedure
- 8. Bypass Structure Regular Inspection Procedure

Detailed summary reports that present information regarding maintenance, inspection, monitoring data, etc. are available upon request.