KINCARDINE STORMWATER COLLECTION SYSTEM

Annual Performance Report 2024

Municipality of Kincardine, Environmental Services

Table of Contents

Appendices

1.0 Introduction

The Kincardine Stormwater Collection System has an Environmental Compliance Approval (ECA) # 088-S701 that was issued on November 7, 2022. Schedule E Section 5.2 of the ECA requires that an Annual Performance Report is prepared and outlines the information that must be contained within it. A copy of the ECA is available in Appendix A.

The Kincardine Stormwater Collection System is owned and operated by the Municipality of Kincardine and consists of approximately 85 kilometers of storm mains, two (2) stormwater wet ponds, three (3) stormwater dry ponds and three (3) storm ceptors. The West Ridge-Macallan Blvd SWM pond has not yet been constructed. Most of the storm infrastructure is located in the town of Kincardine with smaller collection areas located in Tiverton, Underwood, Scott's Point and along the Shoreline from Kincardine to Inverhuron. Full descriptions and details on each stormwater pond are available in the ECA document located in Appendix A.

Maps portraying the collection system and associated features are available in appendix B.

2.0 Summary of Monitoring Data

No stormwater sampling was conducted by municipal staff in 2024. Ministry guidance for stormwater monitoring plans is not yet available.

There were no adverse impacts on the environment noted in 2024.

Table 1 below shows precipitation amounts per month, the maximum daily flow for the month as well as the number of days there was precipitation amounts greater than 15mm and greater than 25mm.

Table 1 Precipitation 2024

	Precipitation (mm)	Max Daily Flow	# of days greater than 15mm	# of days greater than 25mm
January	73.70	20.1	2	0
February	28.60	12.2	0	0
March	51.70	18.5	1	0
April	92.60	24.6	2	0
May	65.80	27.7	1	1
June	39.74	10.2	0	0
July	91.80	57.9	2	1
August	28.50	9.1	0	0
September	20.80	11.2	0	0
October	29.10	14.2	0	0
November	39.90	10.9	0	0
December	100.80	30	2	1
Totals	**663.04**	**57.9**	**10**	**3**

3.0 Environmental trends

Table 2 below shows the precipitation trends for the past five years in Kincardine, while Table 3 shows the maximum precipitation trends for the past 10 years.

Table 2 Total Precipitation 5-year trend

Rainfall in mm	2020	2021	2022	2023	2024
January	53.08	8.64	5.80	31.60	73.70
February	11.68	23.01	55.50	31.70	28.60
March	53.34	17.53	38.60	59.60	51.70
April	42.20	18.80	53.20	104.10	92.60
May	38.10	17.53	33.70	57.00	65.80
June	14.22	25.02	38.30	38.10	39.74
July	18.29	32.26	66.30	129.10	91.80
August	69.34	3.05	59.80	109.90	28.50
September	44.96	201.96	99.00	23.10	20.80
October	49.53	67.31	81.40	74.60	29.10
November	19.56	35.56	22.40	47.70	39.90
December	30.23	20.13	22.18	58.60	100.80
Total	**444.53**	**470.77**	**582.10**	**765.10**	**663.04**

Table 3-Maximum Precipitation 10-year trend

	Total Annual Flow	Max Single Daily Flow	# of days greater than 15mm	# of days greater than 25mm	Months with precipitation greater than 25mm
2015	650.60	35.60	10	2	August, September
2016	835.30	59.00	13	6	March, August, September
2017	953.05	45.00	14	6	February, April, June, September
2018	669.60	45.00	7	4	January, February, August, October
2019	709.31	36.58	7	1	April
2020	444.53	25.40	5	1	August
2021	394.40	90.80	7	3	September
2022	582.10	45.70	10	2	September
2023	765.10	50.80	14	5	April, May, July, August, December
2024	663.04	57.9	10	3	May, July, December

Trends in table 3 above show that while maximum rainfall can occur in the winter, spring and fall, most years the summers months July, August and September have storms with rainfall greater than 25mm.

4.0 Summary of Operating Issues and Corrective Actions

The West Ridge Stormwater Wet Pond was noted to have some sand buildup at the inlet and outlet that needs to be removed. This was not completed in 2024.

The Stoney Island Stormwater Dry Pond was noted that the inlet pipe was half plugged with vegetation during the spring inspection. Maintenance was performed in July 2024 to remove smaller trees and vegetation such as bulrush, however the fall inspection noted the inlet pipe is almost half full of dirt and vegetation and needs to be cleaned out. Money has been budgeted in 2025 to clean out this pond.

The Durham Street Stormwater Dry Pond was noted to have vegetation buildup around the inlet piping during the spring inspection and the July inspection after significant rainfall. Vegetation build-up was removed from the inlet piping in July; however, the fall inspection pictures indicate the inlet piping may have a partial blockage. It was also noted that the outlet piping may not be visible or still needs to be located.

All the stormwater ponds have some overgrowth that will need to be assessed in 2025. Trash was removed as required during inspections.

A storm outfall on Goderich Street south of Bruce Avenue is covered with armour stone that were set in place to stop erosion of the roadway. Minor flow will come through between the stones but excessive flows during storms do not flow through and caused damage to the pavement around the catchbasin on Goderich Street in 2023. The roadway has been patched but equipment will need to be used to rearrange the armour stone on the beach to allow more flow. This was not completed in 2024.

Two other outfalls were identified as being partially plugged during annual inspections. Work orders were created for outfalls at 40 Craig Drive and 910 Saugeen Street to follow up with cleaning in 2025.

There were three sections of storm main identified as possibly being plugged/or broken. The first section is located at the corner Queen Street and Kingsway with notes that staff tried to rod with the vactor but were unsuccessful. The second location near 647 Queen St states a discharge pipe from the catchbasin may be plugged or broken pipe. The third issue is located in front of 278 Park Street. The customer called in twice in 2024 regarding the catchbasin being plugged, equipment is required to fully clean the catchbasin and the associated storm main. All three issues will need follow up in 2025.

There was one sump pump drain on Mcpherson Crescent that was causing flooding on the roadway. A contractor was hired to connect the homeowner’s sump pump drain to the storm sewer system through the PDC piping already provided at the property line.

5.0 Maintenance and Inspections

The municipality performs maintenance and inspections as required to ensure that the stormwater works are operated so that effluent from the works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam, or discolouration on the receiving waters. A preventative maintenance schedule is to be followed by staff for recurring maintenance and inspections to be performed on storm infrastructure. A copy of the Preventative maintenance Schedule is available in Appendix C.

The municipality has approximately 68.95km of flushable storm mains. This number excludes the perforated subdrains that are included in the total length of 85km's noted in the ECA. The municipality strives to inspect all stormwater mains on a 3-to-5-year rotating basis. There were no storm mains flushed or inspected in 2024.

There were no storm ceptor inspections or maintenance completed in 2024.

There were three catchbasins cleared in 2024 due to customer complaints and flooding.

There was one catchbasin replaced at 928 Brownell Drive, as it was sunken into the ground and created a hazard to the public.

One Storm manhole was repaired on Church street in Tiverton. A contractor was hired to raise the manhole to grade.

There was no storm outfall maintenance performed in 2024.

There were 19 Stormwater outfall pipe inspections in 2024 for the main outfalls discharging to Lake Huron. Multiple outfalls were identified to have no duck bill or grating at the end of the piping. Two outfalls were identified as requiring maintenance as identified in section 4.0 of this report. These items will be reviewed in 2025.

The Storm Catchbasin in Underwood required to be cleaned as per the Risk Management Plans in relation to Salt Management in vulnerable areas was not completed in 2024.

Stormwater Management Facility inspections were conducted in the spring and fall for 5 of the facilities and ponds. There were 2 major rainfall events in July and December with precipitation greater than 15mm that prompted extra inspections. Issues noted during the inspections are included in section 4.0 Summary of Operating Issues and Corrective Actions.

Vegetation was removed from the inlet and outlet for the Stoney Island Stormwater Dry Pond and the Durham Street Stormwater Dry Pond had vegetation removed from the inlet in July 2024.

There was no sediment removed from any of the storm water ponds in 2024.

6.0 Monitoring Equipment

There is currently no equipment used for stormwater monitoring that requires calibration. Rainfall data is collected from the Kincardine Amateur Weather Station www.pilor.com.

7.0 Complaints

There were no complaints related to Stormwater Ponds or Stormwater Outfalls in 2024.

There were 4 complaints related to plugged catch basins needing to be cleared or repaired. A listing of the complaints is available in Appendix D.

8.0 Summary of alterations

A portion of Bruce Ave was reconstructed from Park Street to the east end towards Highway 21 in 2024. A total of 1,383,706.84 was spent on Stormwater infrastructure and road reconstruction upgrades to accommodate flows from the new Brown's Subdivision.

The Brown's subdivision development includes 700m (0.7km) of Stormwater piping and appurtenances. This subdivision was constructed by a 3rd party and the assets assumed by the municipality. The subdivision agreement and drawings were signed and in place before the Consolidated Linear Infrastructure ECA came into effect so there is no SW1 Form available.

An extension of servicing was installed on Mount Forest Avenue east of Queen Street. The extension was prompted by future development in the area. A total of 1,084,985.93 was spent on Stormwater infrastructure.

A new development off Golf Links Road was installed by a private developer in 2024 with approximately 307m (0.3km) of stormwater piping and associated catchbasins and appurtenances. The Development also includes a stormwater pond that will be assumed by the municipality in 2025.

No new storm laterals to individual lots were installed in 2024.

Upcoming municipal projects are listed in the significant drinking water threat projects in Appendix E.

9.0 Spills or Abnormal Discharge Events

There were no spills or abnormal discharge events in 2024 related to stormwater.

10.0 Performance

There were no issues to indicate a substandard performance of the stormwater system, however more inspections and preventative maintenance should be performed going forward to assist in monitoring the system. There was one outstanding action item from the 2023 for the Goderich Street outfall. This item and other issues noted in section 4.0 will be looked at in 2025.

APPENDIX A

Ontario

ENVIRONMENTAL COMPLIANCE APPROVAL
For a Municipal Stormwater Management System

ECA Number: 088-S701
Issue Number: 1

Pursuant to the *Environmental Protection Act*, R.S.O 1990, c. E. 19 (EPA*),* and the regulations made thereunder and subject to the limitations thereof, this environmental compliance approval is issued under section 20.3 of Part II.1 of the EPA to:

Kincardine, The Corporation of the Municipality of

1475 Concession #5 Conc R.R. 5
Kincardine, ON N2Z 2X6

For the following Sewage Works:

Kincardine Stormwater Collection System

This Environmental Compliance Approval (ECA) includes the following:

Schedule	Description
Schedule A	System Information
Schedule B	Municipal Stormwater Management System Description
Schedule C	List of Notices of Amendment to this ECA: Additional Approved Works
Schedule D	General
Schedule E	Operating Conditions
Schedule F	Residue Management
Appendix A	Stormwater Management Criteria

Except where specified otherwise, all prior ECAs, or portions thereof, issued by the Director for Sewage Works described in section 1 of Schedule B are revoked and replaced by this Approval.

DATED at TORONTO this 7th day of November, 2022

Signature

Aziz Ahmed, P.Eng.
Director, Part II.1, *Environmental Protection Act*

Schedule A: System Information

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-S701**
System Name	**Kincardine Stormwater Collection System**
ECA Issue Date	**November 7th, 2022**

1.0 ECA Information and Mandatory Review Date

ECA Issue Date	November 7th, 2022
Application for ECA Review Due Date	June 15, 2028

1.1 Pursuant to section 20.12 of the EPA, the Owner shall submit an application for review of the Approval no later than the Application for ECA Review Date indicated above.

2.0 Related Documents

2.1 Other Documents

Document Title	Version
Design Criteria for Sanitary Sewers, Storm Sewers, and Forcemains for Alterations Authorized under Environmental Compliance Approval	v.1.1 (Jul 28, 2022)

3.0 Stormwater master Plan and Asset Management Plan

Document Title	Version
The 2022 Asset Management Plan for the Municipality of Kincardine	June 2022

4.0 Operating Authority

System	Operating Authority
Kincardine Stormwater Collection System	The Municipality of Kincardine

Schedule B: Municipal Stormwater Management System Description

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-S701**
System Name	**Kincardine Stormwater Collection System**
ECA Issue Date	**November 7th, 2022**

1.0 System Description

1.1 The following is a summary description of the Sewage Works comprising the Municipal Stormwater Management System:

Overview

The Municipal Stormwater Management (SWM) System serving the Municipality of Kincardine drainage area, is a separate system for stormwater (i.e. designed not to convey sanitary sewage, combined sewage) within the Great Lakes/St Lawrence River watershed. The Municipal SWM System consists of storm sewers, Stormwater Management Ponds and outlets.

This ECA covers the entire Municipal SWM System owned and operated by the Municipality of Kincardine. This ECA does not cover municipally, or privately owned sewage works on industrial or commercial land.

Sewage Collection System

1.2 The Authorized System comprises:

1.2.1 The Sewage Works described and depicted in each document or file identified in column 1 of Table B1.

Table B1: Infrastructure Map

Column 1 Document or File Name	Column 2 Date
Kincardine Stormwater Collection System	2022-02-09
Scott's Point Stormwater Collection System	2022-02-11
Kincardine Shoreline Stormwater Collection System	2022-02-11
Tiverton Stormwater Collection System	2022-02-09
Underwood Stormwater Collection System	2022-02-11

1.2.2 Storm Sewers, Stormwater Management Facilities, stormwater pumping stations and Sewage Works associated with a Third Pipe Collection System that have been added, modified, replaced, or extended through authorization provided in a Schedule C Notice respecting this Approval,

where Completion occurs on or after the date identified in column 2 of Table B1 for each document or file identified in column 1.

1.2.3 Storm Sewers, Stormwater Management Facilities and Sewage Works associated with a Third Pipe Collection System that have been added, modified, replaced, or extended through authorization provided by Schedule D of this Approval, where Completion occurs on or after the date identified in column 2 of Table B1 for each document or file identified in column 1.

1.2.4 Any Sewage Works described in conditions 1.3 through 1.8 below.

Stormwater Collection System

1.3 Categorization of the Authorized System at the date of issue of this Approval is as follows:

Table B2. Stormwater Collection System by Diameter

System Type	Pipe Diameter (mm)	Length (km)	System Totals (km)
Storm Sewers	Up to 250	27.724	--
Storm Sewers	> 250 - 500	35.742	--
Storm Sewers	> 500 - 1050	15.217	--
Storm Sewers	> 1050	910	--
Total Storm Sewers	--	--	
Ditches / Swales	NA	--	0
Total System Length (km)	--	--	79.593

Table B3. Summary of Stormwater Management Facilities by Type and Pumping Stations

Facility Type	Basic Treatment for Suspended Solids*	Normal Treatment for Suspended Solids *	Enhanced Treatment for Suspended Solids *	Other Treatment Level for Suspended Solids**	Total Quality Control	Total Quantity Control	Total Number of Facilities
LID Facilities - Retention (infiltration, evapotranspiration, harvest)	--	--	--	--	--	--	--
LID Facilities - Filtration	--	--	--	--	--	--	--
Stormwater Management Ponds – Wet (includes wetlands, hybrids)	--	--	3	--	--	--	3
Stormwater Management Ponds - Dry	3			--	--	--	2
Super Pipe / Storage Facility	--	--	--	--	--	--	--

Filtration MTD - Filter Unit	--	--	--	--	--		--
Sedimentation MTD - OGS	3	--	--	--	--		3
Pumping Stations							--
Other	--	--	--	--	--	--	--
Total Number of Facilities	6		3				8

* Basic, normal, and enhanced treatment correspond to 60%, 70% and 80% suspended solids removal on an annual average long-term basis, respectively.

** Treatment levels below 60% suspended solids removal on an annual average long-term basis.

Table B4. Third Pipe Collection System				
Description	Pipe Diameter (mm)	Length (km)	Quantity	System Totals
Third Pipe Sewer	Up to 250		N/A	
Third Pipe Sewer	> 250 - 500		N/A	
Third Pipe Sewer	> 500		N/A	
Total				N/A Km
Other Infrastructure Components (e.g., storage tank)	N/A	N/A		

Table B5. Sewage Works on Private Land that are part of the Municipal Stormwater Treatment Train*		
Description	Location	ECA # (if applicable)
N/A		

* Identifies privately owned Sewage Works that are not part of the Authorized System, but are part of a Stormwater Treatment Train

Stormwater Management Facilities

1.4 The following are Stormwater Management Facilities in the Authorized System:

SWMP-03 Gary Street SWM Wet Pond

Location	469 Gary Street
Watershed/Subwatershed	Great Lakes-St Lawrence River/North Penetangore River Watershed
Receiver of discharge	Discharges to the existing drainage feature located to the north and west of the site and ultimately into the Penetangore River
Outlet location	Lat: 44.18294 Lon: 81.61759
Catchment Area	14.0 hectares
Level of Treatment for suspended solids	Enhanced protection level (80% TSS removal)
Treatment for other contaminants, as required	None
Level of Volume control	Imperviousness of 75.9%. A total extended detention volume of 512m^3 at an elevation of 208.14m, which will drawdown in approximately 25.2 hours. Approximate permanent pool volume of 3,320m^3 and an approximate active storage volume of 7,668

	m^3 for the 100-year storm event, at a total storage depth of approximately 3m.
Design Storm	The proposed wet pond SWM facility configuration is designed to maintain or reduce existing peak flow rates resulting from the 2, 5, 10, 25, 50, and 100year return period rainfall events for the site per the SVCA design criteria. In addition, the 2-year 24-hr rainfall event peak flow rate is reduced by greater than 25% to meet Bruce Power building standards criteria.
Reference ECA(s)	4862-BDKLGX
Reference Works as part of treatment train	None
Brief Description	One (1) wet pond with one (1) sediment forebay, a 1500mm diameter Hicken Bottom vertical riser discharging via a 600mm diameter pipe at an inlet invert of 208.00m, into a Rip-Rap pad at the sloped bank of the pond, fitted with a 200mm diameter orifice at an invert elevation of 208.0 m, complete with a 525mm diameter orifice at an invert elevation of 208.3m; a 5m wide high-flow and emergency overflow weir with 10:1 side slopes and an invert elevation of 209.65m
Receive Emergency Sanitary Overflows	No
Notes	Parking lot ponding has been designed to reach a maximum of 0.26 m and major overland flow routes are directed around the proposed building to mitigate flood risk. Pond is Municipally owned.

SWMP-04 Mackwade Subdivision Stormwater Detention Pond

Location	Mill Street, Tiverton Formerly Beisel Subdivision Lat: 44.26490 Lon: 81.54105
Watershed/Subwatershed	Great Lakes-St Lawrence River/East Lake Huron Shoreline Watershed
Receiver of discharge	Surface discharge to Nile Creek, storm sewer discharge from dry pond to municipal storm sewer system on Memorial Drive and Mill Street.
Outlet location	Lat: 44.26615 Lon: 81.54079
Catchment Area	1.65 Hectares
Level of Treatment for suspended solids	Level of treatment not defined. Dry pond facility provided for Quantity control prior to discharge to municipal storm sewer system.
Treatment for other contaminants, as required	None
Level of Volume control	Detention pond and storm sewer system designed to provide 860 m^3 (rounded) of storage to control the discharge off the site to pre-development discharge rates.
Design Storm	The proposed detention pond SWM facility configuration is designed to maintain or reduce pre-development peak flow rates resulting from the 2, 5, 10, 25, 50, and 100 year return period rainfall events for the site.

Reference ECA(s)	Not available in file.
Reference Works as part of treatment train	None
Brief Description	SWM for the site is provided by means of a dry pond detention facility which is located in the south-west portion of the site (immediately west of Lot 4) for the purpose of controlling discharge into the existing storm sewer on Memorial Drive. The pond is situated such that the major system is intended to be conveyed to the dry pond through the proposed storm sewer system.
Receive Emergency Sanitary Overflows	No
Notes	The SWM approach received acceptance from both the SVCA and the MTO through the development review process.

SWMP-05 Durham Street Stormwater Detention Pond

Location	Durham Street Lat: 44.17151 Lon: 81.61662
Watershed/Subwatershed	Great Lakes-St Lawrence River/Penetangore River Watershed
Receiver of discharge	Discharges to the MTO roadside ditch (east side of Hwy. 21), immediately south of Durham Street.
Outlet location	Lat: 44.171975 Lon: 81.61705
Catchment Area	33 Hectares
Level of Treatment for suspended solids	Enhanced protection level (80% TSS removal) – Formerly referred to Level 3 when the original design was completed.
Treatment for other contaminants, as required	None
Level of Volume control	The development of the C.T.C. site under the initial development and the full extension of the industrial roads under the ultimate development did not require quantity controls to be imposed. The report did establish restricted predevelopment discharge rates to be met in the development of the business park lots. Refer to Table 2 (BMROSS 08055A SWM Report, July 3, 2019 – Proposed Durham Street Extension) for the upstream controlled discharge rates that are to be imposed as part of development proposals upstream of Millennium Way.
Design Storm	Quantity: 2yr to 100yr considered; Quality: First Flush=5 Year design flow
Reference ECA(s)	3-0547-99-006 – June 18, 1999
Reference Works as part of treatment train	Future development lands are required to undertake their own SWM to some degree as defined in Table 2 above.
Brief Description	680 m^3 storage capacity stormwater pond with perforated subdrain system, for the quality control of stormwater runoff from the municipal road allowances and the initial development (C.T.C. site) with the drainage area.
Receive Emergency Sanitary Overflows	No – not applicable
Notes	Balance of lands in the drainage area are required to provide their own quality control and be restricted to the runoff rates

	identified in the July 2019 SWM report by BMROSS noted above.

SWMP-06 West Ridge-Inverness St N SWM Wet Pond

Location	Lat: 44.19913 Lon: 81.62516
Watershed/Subwatershed	Great Lakes-St Lawrence River/East Lake Huron Shoreline Watershed
Receiver of discharge	Surface discharge to Lake Huron
Outlet location	Lat: 44.19998 Lon: 81.62793
Catchment Area	12.14 ha
Level of Treatment for suspended solids	Enhanced protection level – 24 hour detention of the extended detention control volume (40 m^3/ha or 25mm event) has been provided.
Treatment for other contaminants, as required	None
Level of Volume control	A permanent pool volume of 1,800 cubic meters, and extended detention volume of 1,085 cubic meters, a storage volume of approximately 8,578 cubic meters for the regional event and a total storage volume of approximately 11,653 cubic meters
Design Storm	2 year to 100 year storm
Reference ECA(s)	4877-BCVP7B
Reference Works as part of treatment train	None
Brief Description	One (1) wet pond, designated as “block 223’ or south pond, with sediment forebay, receiving runoff through a 1050 mm diameter storm sewer as well as overland flow, complete with an emergency spillway and maintenance access road, discharging via the outlet structure. One (1) outlet structure consisting of a reverse-sloped pipe equipped with a 130 mm orifice for extended detention control, and a 1.6m high by 0.3m wide weir to control the 2 through 100 year flows, discharging via a storm sewer into the central channel, ultimately to Lake Huron
Receive Emergency Sanitary Overflows	No
Notes	West Ridge on the Lake Subdivision agreement. Contractor still responsible for pond until 2023.

SWMP-07 West Ridge Macallan Blvd SWM Wet Pond

Location	Lat: 44.19991 Lon: 81.62501
Watershed/Subwatershed	Great Lakes-St Lawrence River/East Lake Huron Shoreline Watershed
Receiver of discharge	Surface discharge to Stream flowing to Lake Huron
Outlet location	Lat: 44.19958 Lon: 81.62515
Catchment Area	9.16 ha
Level of Treatment for suspended solids	Enhanced protection level – 24 hour detention of the extended detention control volume (40 m^3/ha or 25mm

	event) has been provided.
Treatment for other contaminants, as required	None
Level of Volume control	A permanent pool volume of 2,280 cubic meters, and extended detention volume of 673 cubic meters, a storage volume of approximately 11,653 cubic meters
Design Storm	2 year through 25 year storm event
Reference ECA(s)	4877-BCVP7B
Reference Works as part of treatment train	None
Brief Description	One (1) wet pond, designated as “block 230” or north pond, with sediment forebay, receiving runoff through a 750 mm diameter storm sewer as well as overland flow from the 9.16 ha development and 2.93 ha external environmental protection lands, complete with an emergency spillway and maintenance access road discharging via the outlet structure. One (1) outlet structure consisting of a reverse-sloped pipe equipped with a 100 mm orifice for control of extended detention and the 2 through 25 year storm event, a 2.5m wide weir for control of flows above the 25 year storm event, and a 2.4m by 3.0m precast concrete utility chamber grate for control of the regional flow, discharging via a storm sewer into the central channel and ultimately into Lake Huron.
Receive Emergency Sanitary Overflows	No
Notes	West Ridge on the Lake Subdivision Agreement-Not built yet. Contractor would be responsible for pond for 2 years after construction.

SWMP-08 Stoney Island Cres Stormwater Detention Pond

Location	Lat: 44.21783 Lon: 81.61238
Watershed/Subwatershed	Great Lakes-St Lawrence River/East Lake Huron Shoreline Watershed
Receiver of discharge	Surface discharge to Stream flowing to Lake Huron
Outlet location	Lat: 44.21789 Lon: 81.61278
Catchment Area	3.35 ha
Level of Treatment for suspended solids	13 mm event contained within dry pond. Level of treatment not defined. Dry pond facility provided for Quantity control prior to discharge to gully.
Treatment for other contaminants, as required	None
Level of Volume control	Detention pond and storm sewer system designed to provide 873 m^3 (rounded) of storage to control the discharge off the site to pre-development discharge rates.
Design Storm	5 year and 100 year storm event
Reference ECA(s)	Not available
Reference Works as part of treatment train	None
Brief Description	SWM for the site is provided by means of a dry pond

	detention facility which is located in the west portion of the subdivision between lots 7 and 8 for the purpose of controlling discharge into the existing storm sewer on Stoney Island Cres. The pond is situated such that the major system is intended to be conveyed to the dry pond through the proposed storm sewer system.
Receive Emergency Sanitary Overflows	No
Notes / Additional Information	

Stormwater Pumping Stations

1.5 The following are identified Stormwater pumping stations in the Authorized System:

[Stormwater Pumping Station Name]

Asset ID and Name	N/A
Site Location	
Watershed/Subwatershed	
Latitude and Longitude	
Coordinates (optional)	
Description	
Pumping Station Capacity	
Equipment	
Emergency Storage	
Equipment: Associated controls and Appurtenances	
Overflow	
Standby Power	
Notes	

Third Pipe Collection System

1.6 The following are identified third pipe systems in the Authorized System.

[*Asset ID* (e.g., Third Pipe 10]

Asset ID and Name	N/A
Location	
Watershed/Subwatershed	
Receiver of discharge	
Outlet location	
Catchment Area	
Treatment, if applicable	

Reference ECA(s), if applicable	
Brief Description	
Notes	

Other Works:

1.7 The following works are part of Authorized System:

Table B6: Other Works			
Column 1 Asset ID / Name	Column 2 Site Location (Latitude & Longitude)	Column 3 Component	Column 4 Description
N/A			

Developer-Operated Facilities:

1.8 The following facilities are part of the Authorized System, have been constructed, and are being operated by the developer under the authority of an agreement entered into with the Owner of the system.

Table B7: Developer-Operated Facilities			
Asset ID	Type of Facility	Location	Developer Name
N/A			

1.9 The Owner shall notify the Director, using the Director Notification Form, within thirty (30) days where the operation of any Facility identified in Table B7 has been:

1.9.1 Incorporated into the overall Stormwater Management System and assumed by an Operating Authority identified in Schedule B of this Approval.

1.9.2 Has been transferred from the developer identified in Table B7 to another party.

Transitional – Facilities with Individual ECAs

1.10 The following Facilities are connected to the Authorized System, but ownership has not been assumed by the Owner. These Sewage Works are not part of the Authorized System and will continue to have separate ECAs until the Facilities are assumed by the Owner.

Table B8: Facilities with Individual ECAs				
Asset ID	Type of Facility	Location	ECA Number	Developer Name

Table B8: Facilities with Individual ECAs				
Asset ID	Type of Facility	Location	ECA Number	Developer Name
• SWMP-06 West Ridge-Inverness St N SWM Wet Pond ECA 4877-BCVP7B Developer-West Ridge on the Lake Inc. • SWMP-07 West Ridge Macallan Blvd SWM Wet Pond ECA 4877-BCVP7B Developer-West Ridge on the Lake Inc.				

1.11 The Owner shall notify the Director, using the Director Notification Form, within thirty (30) days where the ownership of any Facility identified in Table B8 has been assumed by the Owner.

1.12 The Director Notification required in condition 1.11 shall include:

1.12.1 A request from the developer to revoke the ECA identified in Table B8; or

1.12.2 A copy of an agreement or other documentation that demonstrates that the municipality has assumed ownership of the Facility and that the ECA identified in Table B8 should be revoked.

Schedule C: List of Notices of Amendment to this ECA: Additional Approved Sewage Works

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-S701**
System Name	**Kincardine Stormwater Collection System**
ECA Issue Date	**November 7th, 2022**

1.0 General

1.1 Table C1 provides a list of all notices of amendment to this Approval that have been issued pursuant to clause 20.3(1) of the EPA that impose terms and conditions in respect of the Authorized System after consideration of an application by the Director (Schedule C Notices).

Table C1: Schedule C Notices

Column 1 Issue #	Column 2 Issue Date	Column 3 Description	Column 4 Status	Column 5 DN#
N/A	N/A	N/A	N/A	N/A

Schedule D: General

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-S701**
System Name	**Kincardine Stormwater Collection System**
ECA Issue Date	**November 7th, 2022**

1.0 Definitions

1.1 For the purpose of this Approval, the following definitions apply:

"Adverse Effect(s)" has the same meaning as defined in section 1 of the EPA.

"Alteration(s)" includes the following, in respect of the Authorized System, but does not include repairs to the system:

a) An extension of the system,

b) A replacement or retirement of part of the system, or

c) A modification of, addition to, or enlargement of the system.

"Appendix A" means Appendix A of this Approval.

"Approval" means this Environmental Compliance Approval including any Schedules attached to it.

"Appurtenance(s)" has the same meaning as defined in O. Reg. 525/98 (Approval Exemptions) made under the OWRA.

"Authorized System" means the Sewage Works comprising the Municipal Stormwater Management System authorized under this Approval".

"Class Environmental Assessment Project" means an Undertaking that does not require any further approval under the EAA if the proponent complies with the process set out in the Municipal Engineers Association Class Environmental Assessment document, (Municipal Class Environmental Assessment approved by the Lieutenant Governor in Council on October 4, 2000 under Order in Council 1923/2000), as amended from time to time.

"Combined Sewer(s)" means pipes that collect and transmit both sanitary Sewage and other Sewage from residential, commercial, institutional, and industrial buildings and facilities and Stormwater through a single-pipe system, but does not include Nominally Separate Sewers.

"Completion" means substantial performance as described in s.2 (1) of the *Construction Act*, R.S.O. 1990, c. C.30.

“Compound of Concern” means a Contaminant that is discharged from the Facility in an amount that is not negligible.

“Contaminant” has the same meaning as defined in section 1 of the EPA.

“CSO” means a combined sewer overflow which is a discharge to the environment at designated location(s) from a Combined Sewer or Partially Separated Sewer that usually occurs as a result of precipitation when the capacity of the Sewer is exceeded. An intervening time of twelve hours or greater separating a CSO from the last prior CSO at the same location is considered to separate one overflow Event from another.

"CWA" means the *Clean Water Act*, R.S.O. 2006, c.22.

“Design Criteria” means the design criteria set out in the Ministry’s publication “Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval”, (as amended from time to time).

“Design Guidelines for Sewage Works” means the Ministry document titled “Design Guidelines for Sewage Works”, 2008 (as amended from time to time).

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the purposes of Part II.1 of EPA (Environmental Compliance Approvals).

“Director Notification Form” means the most recent version of the Ministry form titled Director Notification – Alterations to a Municipal Stormwater Management System, as obtained directly from the Ministry or from the Ministry’s website.

"District Manager" means the district manager or a designated representative of the Local Ministry Office.

"EAA" means the *Environmental Assessment Act*, R.S.O. 1990, c. E.18.

"EPA" means the *Environmental Protection Act*, R.S.O. 1990, c.E.19.

“ESC” means erosion and sediment control.

“Facility” means the entire operation located on the property where the Sewage Works or Equipment is located.

“Form SW1” means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Storm Sewers/Ditches/Culverts as obtained directly from the Ministry or from the Ministry’s website.

“Form SW2” means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Stormwater Management Facilities as obtained directly from the Ministry or from the Ministry’s website.

“Form SW3” means the most recent version of the Ministry form titled Record of Future Alteration Authorized for Third Pipe Collection Systems as obtained directly from the Ministry or from the Ministry’s website.

"Licensed Engineering Practitioner" means a person who holds a licence, limited licence, or temporary licence under the *Ontario Professional Engineers Act* R.S.O. 1990, c. P.28.

"LID" means "low impact development" a Stormwater management strategy that seeks to mitigate the impacts of increased runoff and Stormwater pollution by managing runoff as close to its source as possible. LID comprises a set of site design strategies that minimize runoff and distributed, small scale structural practices that mimic natural or predevelopment hydrology through the processes of infiltration, evapotranspiration, harvesting, filtration, and detention of Stormwater.

"Local Ministry Office" means the local office of the Ministry responsible for the geographic area where the Authorized System is located.

"Minister" means the Minister of the Ministry or such other member of the Executive Council as may be assigned the administration of the EPA and OWRA under the *Executive Council Act*, R.S.O. 1990, c. E.25.

"Ministry" means the Ministry of the Minister and includes all employees or other persons acting on its behalf.

"Monitoring Plan" means the monitoring plan prepared and maintained by the Owner under condition 4.1 in Schedule E of this Approval.

"MTD" means manufactured treatment device.

"Municipal Drain" has the same meaning as drainage works as defined in section 1 of the *Drainage Act* R.S.O. 1990, c. D.17.

"Municipal Drainage Engineer's Report" means a report signed by a drainage engineer employed or contracted by a municipality and approved in writing by municipal council or equivalent.

"Municipal Sewage Collection System" means all Sewage Works, located in the geographical area of a municipality, that collect and transmit sanitary Sewage and are owned, or may be owned pursuant to an agreement with a municipality entered into under the *Planning Act* or *Development Charges Act*, 1997, by:

a) A municipality, a municipal service board established under the *Municipal Act*, 2001 or a city board established under the *City of Toronto Act*, 2006; or

b) A corporation established under sections 9, 10, and 11 of the *Municipal Act*, 2001 in accordance with section 203 of that Act or under sections 7 and 8 of the *City of Toronto Act*, 2006 in accordance with sections 148 and 154 of that Act.

"**Municipal Stormwater Management System"** means all Sewage Works, located in the geographical area of a municipality, that collect, transmit, or treat Stormwater and are owned, or may be owned pursuant to an agreement entered into under the *Planning Act* or *Development Charges Act*, 1997, by:

a) A municipality, a municipal service board established under the *Municipal Act*, 2001 or a city board established under the *City of Toronto Act*, 2006; or

b) A corporation established under sections 9, 10, and 11 of the *Municipal Act*, 2001 in accordance with section 203 of that Act or under sections 7 and 8 of the *City of Toronto Act*, 2006 in accordance with sections 148 and 154 of that Act.

“Natural Environment” has the same meaning as defined in section 1 of the EPA.

"Nominally Separate Sewer(s)" mean Separate Sewers that also have connections from roof leaders and foundation drains, and are not considered to be Combined Sewers.

“OGS” means Oil and Grit Separators;

“Operating Authority” means, in respect of the Authorized System, the person, entity, or assignee that is given responsibility by the Owner for the operation, management, maintenance, or Alteration of the Authorized System, or a portion of the Authorized System.

"Owner" for the purposes of this Approval means The Corporation of the Municipality of Kincardine, and includes its successors and assigns.

"OWRA" means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40.

“O&M Manual” means the operation and maintenance manual prepared and maintained by the Owner under condition 3.2 in Schedule E of this Approval.

"Partially Separated Sewer(s)" means Combined Sewers that have been retrofitted to transmit sanitary Sewage but in which roof leaders or foundation drains still contribute Stormwater inflow to the Partially Separated Sewer.

“Pre-development” means the more stringent of a site’s:

a) Existing condition prior to proposed development or construction activities; or

b) Condition as defined by the local municipality.

"Prescribed Person” means a person prescribed in O. Reg. 208/19 (Environmental Compliance Approval in Respect of Sewage Works) for the purpose of ss. 20.6 (1) of the EPA, and where the alteration, extension, enlargement, or replacement is carried out under an agreement with the Owner.

“**Privately Owned Stormwater Works”** means Stormwater Sewage Works on private land that are privately owned and, while not part of the Authorized System, are considered part of a Stormwater Treatment Train.

“Qualified Person (QP)” means persons who have obtained the relevant education and training and have demonstrated experience and expertise in the areas relating to the work required to be carried out by this Approval.

“Schedule C Notice(s)” means a notices of amendment to this Approval issued pursuant to clause 20.3(1) of the EPA that imposes terms and conditions in respect of the Authorized System after consideration of an application by the Director.

“Separate Sewer(s)” means pipes that collect and transmit sanitary Sewage and other Sewage from residential, commercial, institutional, and industrial buildings.

“Sewage” has the same meaning as defined in section 1 of the OWRA.

“Sewage Works” has the same meaning as defined in section 1 of the OWRA.

“Sewer” has the same meaning as defined in section 1 of O. Reg. 525/98 under the OWRA.

"Significant Drinking Water Threat" has the same meaning as defined in section 2 of the CWA.

“Significant Snowmelt Event(s)” means the melting of snow at a rate which adversely affects the performance and function of the Authorized System and/or the Sewage Treatment Plant(s) identified in Schedule A of this Approval.

“Significant Storm Event(s)” means a minimum of 25 mm of rain in any 24 hours period.

“Source Protection Authority” has the same meaning as defined in section 2 of the CWA.

"Source Protection Plan" means a drinking water source protection plan prepared under the CWA.

“SSO” means a sanitary sewer overflow which is a discharge of Sewage from a Separate Sewer or Nominally Separate Sewer to the environment from designated location(s) in the Authorized System.

“Standard Operating Policy for Sewage Works” means the standard operating policy developed by the Ministry to assist in the implementation of Source Protection Plan policies related to Sewage Works and providing minimum design and operational standards and considerations to mitigate risks to sources of drinking water, as amended from time to time.

“Storm Sewer” means Sewers that collect and transmit, but not exfiltrate or lose by design, Stormwater resulting from precipitation and snowmelt.

“Stormwater” means rainwater runoff, water runoff from roofs, snowmelt, and surface runoff.

“Stormwater Management Facility(ies)” means a Facility for the treatment, retention, infiltration, or control of Stormwater.

"Stormwater Management Planning and Design Manual" means the Ministry document titled "Stormwater Management Planning and Design Manual", 2003 (as amended from time to time).

"Stormwater Treatment Train" means a series of Stormwater Management Facilities designed to meet Stormwater management objectives (e.g., Appendix A) for a given area, and can consist of a combination of MTDs, LIDs and end-of-pipe controls.

"TRCA" means the Toronto Region Conservation Authority.

"Third Pipe Collection System" means Sewage Works designed to collect and transmit foundation drainage and/or groundwater to a receiving surface water or dry well;

"Undertaking" has the same meaning as in the EAA.

"Vulnerable Area(s)" has the same meaning as in the CWA.

2.0 General Conditions

2.1 The works comprising the Authorized System shall be constructed, installed, used, operated, maintained, replaced, or retired in accordance with the conditions of this Approval, which includes the following Schedules:

Schedule A – System Information

Schedule B – Municipal Stormwater Management System Description

Schedule C – List of Notices of Amendment to this ECA

Schedule D – General

Schedule E – Operating Conditions

Schedule F – Residue Management

Appendix A – Stormwater Management Criteria

2.2 The issuance of this Approval does not negate the requirements of other regulatory bodies, which includes but is not limited to, the Ministry of Northern Development, Mines, Natural Resources and Forestry and the local Conservation Authority.

2.3 Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence. Where there is a conflict between the information in a Schedule C Notice and another section of this Approval, the document bearing the most recent date shall prevail.

2.4 The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Authorized System is provided with a print or electronic copy of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

2.5 The conditions of this Approval are severable. If any condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

3.0 Alterations to the Municipal Stormwater Management System

3.1 For greater certainty, the Alterations authorized under this Approval are limited to Sewage Works comprising the Authorized System which does not include municipally or Privately Owned Stormwater Works:

3.1.1 On industrial, commercial, or institutional land;

3.1.2 Serving a single parcel of land, unless the stormwater management facility is located on a municipally owned park or community center;

3.1.3 That are operated as waste disposal sites defined under the EPA or snow dump / melt facilities; or,

3.1.4 That propose to collect, store, treat, or discharge stormwater containing substances or pollutants (other than Total Suspended Solids, or oil and grease) detrimental to the environment or human health.

3.2 Any Schedule C Notice shall provide authority to alter the Authorized System in accordance with the conditions of this Approval.

3.3 All Schedule C Notices issued by the Director for the Municipal Stormwater Management System shall form part of this Approval.

3.4 The Owner and a Prescribed Person shall ensure that the documentation required through conditions in this Approval and the documentation required in the Design Criteria are prepared for any Alteration of the Authorized System.

3.5 The Owner shall notify the Director within thirty (30) calendar days of placing into service or Completion of any Alteration of the Authorized System which had been authorized:

3.5.1 Under Schedule D to this Approval where the Alteration results in a change to Sewage Works specifically described in Schedule B of this Approval;

3.5.2 Through a Schedule C Notice respecting Sewage Works other than Storm Sewers; or

3.5.3 Through another approval that was issued under the EPA prior to the issue date of this Approval.

3.6 The notification requirements set out in condition 3.5 do not apply to any Alteration in respect of the Authorized System which:

3.6.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98;

3.6.2 Constitutes maintenance or repair of the Authorized System; or

3.6.3 Is a Storm Sewer, ditch, or culvert authorized by condition 4.1 of Schedule D of this Approval.

3.7 The Owner shall notify the Director within ninety (90) calendar days of:

3.7.1 The discovery of existing Sewage Works not described or depicted in Schedule B, or

3.7.2 Additional or revised information becoming available for any Sewage Works described in Schedule B of this Approval.

3.8 The notifications required in condition 3.5 and 3.7 shall be submitted to the Director using the Director Notification Form.

3.9 The Owner shall ensure that any chemicals, coagulants, or polymers used in the stormwater management system have obtained written approval from the Director prior to use, unless required for spill control or spill clean-up.

3.10 The Owner shall ensure that an ESC plan is prepared, and temporary ESC measures are installed in advance of and maintained during any construction activity on the Authorized System, subject to the following conditions:

3.10.1 Inspections of ESC measures are to be conducted at a frequency specified per the ESC plan, for dry weather periods (active and inactive construction phases), after Significant Storm Events and Significant Snowmelt Events, and after any extreme weather events.

3.10.2 Any deficiencies shall be addressed, and any required maintenance actions(s) shall be undertaken as soon as practicable once they have been identified.

3.10.3 Inspections and maintenance of the temporary ESC measures shall continue until they are no longer required.

3.11 The Owner shall ensure that records of inspections required by this Approval during any construction activity, including those required under condition 3.10:

3.11.1 Include the name of the inspector, date of inspection, visual observations, and the remedial measures, if any, undertaken to maintain the temporary ESC measures.

3.11.2 Be retained with records relating to the Alteration that the construction relates to, such as the form required in conditions 4.4.1, 5.5.1, and 6.2.1 of Schedule D, or the Schedule C Notice.

3.11.3 Be retrievable and made available to the Ministry upon request.

3.12 The document(s) or file(s) referenced in Table B1 of Schedule B of this Approval shall:

3.12.1 Be retained by the Owner;

3.12.2 Include at a minimum:

a) Identification of Storm Sewers, which shall include the following information:

i Location relative to street names or easements; and

ii Sewer diameters.

b) Identification of existing municipally owned Stormwater Sewage Works, including but not limited to ditches, swales, culverts, outlets, Stormwater Management Facilities, sedimentation MTD (for example oil grit separators), filtration MTD, LID, end of pipe controls, Third Pipe Collection Systems, and pumping stations, including any applicable Asset IDs.

c) Identification of the main tributaries and receiving water bodies to that the Sewage Works discharge to.

d) Delineation of municipal, watershed, and subwatershed boundaries, as available.

e) Identification of the storm sewersheds for each outlet.

f) Identification of any source protection Vulnerable Areas.

g) Identification of any Sewage Works that receive SSOs or CSOs.

3.12.3 Be updated to include:

a) Alterations authorized under Schedule D of this Approval or through a Schedule C Notice within twelve (12) months of the Alteration being placed into service.

b) Updates to information contained in the document(s) or files(s) not associated with an Alteration within twelve (12) months of becoming aware of the updated information.

3.13 An Alteration is not authorized under Schedule D of this ECA for projects that impact Indigenous treaty rights or asserted rights where:

3.13.1 The project is on Crown land or would alter access to Crown land;

3.13.2 The project is in an open or forested area where hunting, trapping or plant gathering occur;

3.13.3 The project involves the clearing of forested land unless the clearing has been authorized by relevant municipal, provincial, or federal authorities, where applicable;

3.13.4 The project alters access to a water body;

3.13.5 The proponent is aware of any concerns from Indigenous communities about the proposed project and these concerns have not been resolved; or,

3.13.6 Conditions respecting Indigenous consultation in relation to the project were placed in another permit or approval and have not been met.

3.14 No less than 60 days prior to construction associated with an Alteration the Director may notify the Owner in writing that a project is not authorized through Schedule D of this ECA where:

3.14.1 Concerns regarding treaty rights or asserted rights have been raised by one or more Indigenous communities that may be impacted by the Alteration; or

3.14.2 The Director believes that it is in the public interest due to site specific, system specific, or project specific considerations.

3.15 Where an Alteration is not authorized under condition 3.13 or 3.14 above:

3.15.1 An application respecting the Alteration shall be submitted to the Ministry; and,

3.15.2 The Alteration shall not proceed unless:

a) Approval for the Alteration is granted by the Ministry (i.e., a Schedule C Notice); or,

b) The Director provides written notice that the Alteration may proceed in accordance with conditions in Schedule D of this ECA.

4.0 Authorizations of Future Alterations to Storm Sewers, Ditches, or Culverts - Additions, Modifications, Replacements and Extensions

4.1 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, replacing, or extending a Storm Sewer, ditch, or culvert within the Authorized System subject to the following conditions and conditions 4.2 and 4.3 below:

4.1.1 The design of the addition, modification, replacement, or extension:

a) Has been prepared by a Licensed Engineering Practitioner;

b) Has been designed only to collect and transmit Stormwater;

c) Has not been designed to collect or treat any sanitary Sewage;

d) Has not been designed to collect, store, treat, control, or manage groundwater, unless for the purpose of foundation drains, road subdrains, or LIDs;

e) Satisfies the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria;

f) Satisfies the standards set out in Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD), as applicable to ditches and culverts;

g) Is consistent with or otherwise addresses the design objectives contained within the Design Guidelines for Sewage Works;

h) Is planned, designed, and built to be consistent with the Stormwater Management Planning and Design Guidance Manual. If there is a conflict Appendix A of this Approval, then Appendix A shall prevail; and

i) Includes design considerations to protect sources of drinking water, including those set out in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies.

4.1.2 The addition, modification, replacement, or extension shall be designed so that it will:

a) Not adversely affect the ability to maintain a gravity flow in the Authorized System without overflowing or increase surcharging any maintenance holes as per design; and

b) Provide smooth flow transition to existing gravity Storm Sewers;

4.1.3 The Alteration shall not result in:

a) Adverse Effects; or

b) A deterioration of the approved effluent quality or quantity of downstream Stormwater Management Facilities which results in not being able to achieve the overall Stormwater performance criteria per Appendix A.

4.1.4 The Storm Sewer, ditch or culvert addition, modification, replacement, or extension is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent property owner respecting the Alteration and resulting Sewage Works.

4.1.5 The Owner consents in writing to the addition, modification, replacement, or extension.

4.1.6 A Licensed Engineering Practitioner has verified in writing that the addition, modification, replacement, or extension meets the requirements of conditions 4.1.1 a) to h), 4.3.9, and 4.3.10.

4.1.7 The Owner has verified in writing that the addition, modification, replacement, or extension has complied with inspection and testing requirements in the Design Criteria.

4.1.8 The Owner has verified in writing that the addition, modification, replacement, or extension meets the requirements of conditions 4.1.1 i), 4.1.2 to 4.1.6, 4.3.7, and 7.2.

4.2 The addition of Storm Sewers or ditches can be constructed but not operated until the Stormwater Management Facilities required to service the new Storm Sewers or ditches are in operation.

4.3 The Owner or a Prescribed Person is not authorized to undertake an Alteration described above in condition 4.1 where the Alteration relates to the addition, modification, replacement, or extension of a Storm Sewer that:

4.3.1 Passes under or through a body of surface water, unless trenchless construction methods are used or the local Conservation Authority has authorized an alternative construction method.

4.3.2 Has a nominal diameter greater than 2,400 mm, or equivalent sizing.

4.3.3 Is a Combined Sewer.

4.3.4 Is a concrete channel.

4.3.5 Is designed to, at any time, transmit, store, or control sanitary Sewage.

4.3.6 Converts rural road cross section ditches to curb, gutter, and Storm Sewers if the Stormwater volume and/or peak flow is increased and no water quality treatment is planned or demonstrated to be achieved, in accordance with this Approval and Appendix A, to offset the increase in Stormwater.

4.3.7 Results in new discharges or increased discharges to a Municipal Drain without written approval by the Owner and a signed Municipal Drainage Engineer's Report in accordance with the *Drainage Act* R.S.O. 1990, c. D.17.

4.3.8 Establishes a new outlet with direct discharge into the Natural Environment without monitoring in accordance with this Approval and without achieving the requirements set in Appendix A.

4.3.9 Increases Stormwater flow of an existing Storm Sewer or ditch without achieving water quality criteria set in Appendix A in accordance with this Approval unless the existing downstream Municipal Stormwater Management System has sufficient residual transmission and treatment capacity to accommodate the additional Stormwater.

4.3.10 Increases local hydraulic capacity of an existing Storm Sewer or ditch to accommodate new Stormwater flows unless the existing downstream Municipal Stormwater Management System has sufficient residual hydraulic capacity to accommodate the additional Stormwater.

4.3.11 Connects to another Municipal Stormwater Management System, unless:

a) Prior to construction, the Owner of the Authorized System obtains written consent from the Owner or Owner's delegate of the Municipal Stormwater System being connected to; and

b) The Owner of the Authorized System retains a copy of the written consent from the Owner or Owner's delegate of the Municipal Stormwater Management System being connected to as part of the record that is recorded and retained under condition 4.4.

4.3.12 Is part of an Undertaking in respect of which:

a) A request under s.16(6) of the EAA has been made, namely a request that the Minister make an order under s.16;

b) The Minister has made an order under s.16; or

c) The Director under that EAA has given notice under s.16.1 (2) that the Minister is considering making an order under s.16.

4.4 The consents and verifications required in conditions 4.1 and 4.3, if applicable, shall be:

4.4.1 Recorded on SW1, prior to the Storm Sewer, ditch, or culvert addition, modification, replacement, or extension being placed into service; and

4.4.2 Retained for a period of at least ten (10) years by the Owner.

4.5 For greater certainty, the verification requirements set out in condition 4.4 do not apply to any Alteration in respect of the Authorized System which:

4.5.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or

4.5.2 Constitutes maintenance or repair of the Authorized System.

5.0 Authorizations of Future Alterations to Stormwater Management Facilities - Additions, Modifications, Replacement, and Extensions

5.1 Subject to conditions 5.2 and 5.3, the Owner or a Prescribed Person may alter the Stormwater Management Facilities in the Authorized System by adding, modifying, replacing, or extending the following components:

5.1.1 Rooftop storage

5.1.2 Parking lot storage

5.1.3 Superpipe storage

5.1.4 Reduced lot grading

5.1.5 Roof leader to ponding area

5.1.6 Roof leader to soakaway pit

5.1.7 Infiltration trench

5.1.8 Engineered grassed swales / bioswale

5.1.9 Pervious pipes

5.1.10 Pervious catchbasins

5.1.11 Vegetated filter strips

5.1.12 Natural buffer strips

5.1.13 Green roofs/Rooftop gardens

5.1.14 Wet pond

5.1.15 Engineered wetland

5.1.16 Dry pond

5.1.17 Hybrid Facility

5.1.18 Infiltration basin

5.1.19 Filtration MTD

5.1.20 Sedimentation MTD - OGS

5.1.21 LID that relies on one or more of the following mechanisms to achieve treatment and control:

a) Evapotranspiration;

b) Infiltration into the ground; or

c) Filtration.

5.1.22 Any other Stormwater Management Facilities where the Director has provided authorization in writing to proceed with the Alteration.

5.2 Any Alteration to the Authorized System authorized under condition 5.1 is subject to the following conditions:

5.2.1 The design of the Alteration shall:

a) Be prepared by a Licensed Engineering Practitioner;

b) Be designed only to collect, receive, treat, or control only Stormwater and has not been designed to collect, receive, treat, or control sanitary Sewage;

c) Is planned, designed, and built to be consistent with the Stormwater Management Planning and Design Guidance Manual. If there is a conflict Appendix A of this Approval, then Appendix A shall prevail;

d) Satisfy the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria;

e) Be part of a Stormwater Treatment Train approach that satisfies the requirements outlined in Appendix A, or transmits Stormwater to a Stormwater Management Facility that satisfies the requirements outlined in Appendix A;

f) Includes an outlet or an emergency overflow for the Sewage Works, with the verification of the location, route, and capacity of the receiving major system to accommodate overflows; and

g) Include design considerations to protect sources of drinking water, including those set out in the Standard Operating Policy for Sewage Works and any applicable local Source Protection Plan policies.

5.2.2 The Alteration shall not result in:

a) Adverse Effects; or

b) A deterioration on the approved effluent quality or quantity of downstream Stormwater Management Facilities which results in not being able to achieve the overall Stormwater performance criteria per Appendix A.

5.2.3 The Alteration may incorporate co-benefits, but in doing so shall not diminish functionality or efficiency of any Stormwater Management Facility(ies) that may be impacted by the Alteration.

5.2.4 Any new sedimentation MTD that is part of the Alteration shall meet the following requirements:

a) Tested in accordance with the TRCA protocol Procedure for Laboratory Testing of OGSs and testing data verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol. The suspended solids removal claimed for the sedimentation MTD in achieving the water quality criteria in Appendix A, and the sizing methodology used to determine the appropriate sedimentation MTD dimensions for the particular site, shall be based on the verified removal efficiency for all particle size

fractions comprising the particle size distribution specified within the testing protocol or a particle size distribution approved by the Director.

b) Using the verified sediment removal efficiencies for the respective surface loading rates specified in the testing protocol, the sedimentation MTD sizing methodology shall use linear interpolation to calculate sediment removal efficiencies for surface loading rates that lie between the specified surface loading rates. For surface loading rates less than the lowest specified and tested surface loading rate, the sediment removal efficiency shall be assumed to be identical to the verified removal efficiency for the lowest specified and tested surface loading rate. Where available, 15 min rainfall stations shall be used for sizing the sedimentation MTD.

c) When two or more sedimentation MTD are installed in series, no additional sediment removal credit shall be applied beyond the sediment removal credit of the largest device in the series.

d) The sediment removal rate at the specified surface loading rates determined for the tested full scale, commercially available MTD may be applied to similar MTDs of smaller or larger size by proper scaling. Scaling the performance results of the tested MTD to other model sizes without completing additional testing is acceptable provided that:

i The claimed sediment removal efficiencies for the similar MTD are the same or lower than the tested MTD at identical surface loading rates; and

ii The similar MTD is scaled geometrically proportional to the tested unit in all inside dimensions of length and width and a minimum of 85% proportional in depth.

e) The units must be installed in an off-line configuration if the unit had an effluent concentration greater than 25 mg/L at any of the surface loading rates conducted during the sediment scour and resuspension test as part of the ISO 14034 verification.

f) The sedimentation MTD should be sized for the highest suspended solids percent removal physically and economically practicable, and used as a pre-treatment device in a treatment train designed to achieve the water quality criteria in Appendix A.

5.2.5 Any new filtration MTD that is part of the Alteration shall meet the following requirements:

a) Field tested and verified in accordance with a minimum of one of the following protocols:

i Washington State Technology Assessment Protocol - Ecology (TAPE) General Use Level Designation (GULD); and

1. Has ISO 14034 ETV verification to satisfy ETV Canada requirements;

2. The field monitoring data set used to obtain GULD certification should include a minimum of three (3) events that exceed 75th percentile rainfall event with at least one hour with an intensity of 6 mm/h or greater.

ii Another testing and verification method, where the Director has communicated acceptability in writing.

b) Where available, 15 min rainfall stations shall be used for sizing the filtration MTD using the rainfall intensity corresponding to 90% of annual runoff volume;

c) The SS removal rate determined for the tested full scale, commercially available filtration MTD, or single full-scale commercially available cartridge or filtration module, may be applied to other model sizes of that filtration MTD provided that appropriate scaling principles are applied. Scaling the tested filtration MTD or single full-scale commercially available cartridge or filtration module, to determine other model sizes and performance without completing additional testing is acceptable provided that:

i Depth of media, composition of media, and gradation of media remain constant.

ii The ratio of the maximum treatment flow rate to effective filtration treatment area (filter surface area) is the same or less than the tested filtration MTD;

iii The ratio of effective sedimentation treatment area to effective filtration treatment area is the same or greater than the tested filtration MTD; and

iv The ratio of wet volume to effective filtration treatment area is the same or greater than the tested filtration MTD.

5.2.6 When it is necessary to use Privately Owned Stormwater Works in the Stormwater Treatment Train to achieve Appendix A criteria as part of or as a result of an Alteration, the following conditions apply:

a) The Owner shall, through legal instruments or binding agreements, obtain the right to access, operate, and maintain the Privately Owned Sewage Works;

b) The Owner shall ensure that the right to access, operate and maintain the Privately Owned Sewage Works described in condition 5.2.6 a) above is maintained at all times that the works are in service and used to achieve Appendix A criteria.

c) The Owner shall ensure on-going operation and maintenance of the Privately Owned Stormwater Works;

d) The Owner ensures on-going operation and maintenance of the Privately Owned Stormwater Works; and

e) The Owner shall ensure that the Privately Owned Stormwater Works have obtained separate approval(s) under the EPA, as required.

5.2.7 The Alteration is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent municipality respecting the Alteration and resulting Sewage Works.

5.2.8 The Owner consents in writing to the Alteration authorized under condition 5.1.

5.2.9 A Licensed Engineering Practitioner has verified in writing that the Alteration authorized under condition 5.1 meets the design requirements of conditions 5.2.1 a) to f), 5.2.4 and 5.2.5.

5.2.10 The Owner has verified in writing that the Alteration authorized under condition 5.1 meets the requirements of conditions 5.2.1 g), 5.2.2, 5.2.6 to 5.2.9, 5.3, 5.4, and 7.2.

5.3 The authorization in condition 5.1 does not apply:

5.3.1 To the establishment of a regional Stormwater management end-of-pipe flood control Facility;

5.3.2 Where the Alteration will result in new or increased discharges to a Municipal Drain without written approval by the Owner and a signed Municipal Drainage Engineer's Report in accordance with the *Drainage Act* R.S.O. 1990, c. D.17;

5.3.3 To the establishment of a new outlet with direct discharge into the Natural Environment without treatment and monitoring in accordance with this Approval;

5.3.4 Where the Alteration will service a drainage area greater than 65 ha;

5.3.5 Where the Alteration will result in conversion of an existing Stormwater Management Facility into another type of Stormwater Management Facility;

5.4 Any Alteration to LID or end-of-pipe Stormwater Management Facilities shall be inspected before operation of the Alteration to confirm construction as per specifications (including depth, as applicable).

5.5 The consents and verifications required in conditions 5.2.8 to 5.2.10 if applicable, shall be:

5.5.1 Recorded on Form SW2, prior to undertaking the Alteration; and

5.5.2 Retained for a period of at least ten (10) years by the Owner.

5.6 For greater certainty, the verification requirements set out in condition 5.5 do not apply to any Alteration in respect of the Authorized System which:

5.6.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or

5.6.2 Constitutes maintenance or repair of the Authorized System.

6.0 Authorizations of Future Alterations for Third Pipe Collection System Additions, Modifications, Replacements and Extensions

6.1 The Owner or a Prescribed Person may alter the Authorized System by adding, modifying, replacing, or extending, and operating works comprising a municipal Third Pipe Collection System to collect foundation drainage and groundwater where:

6.1.1 The design of the Alteration:

a) Has been prepared by a Licensed Engineering Practitioner;

b) Is limited to collection, transmission, reuse and/or treatment of only foundation drainage and groundwater, and is not designed to collect or treat sanitary Sewage;

c) Satisfies the Design Criteria or any municipal criteria that have been established that exceed the minimum requirements set out in the Design Criteria; and

d) Is scoped so that the resulting Sewage Works are intended to:

i Primarily function for the non-potable reuse, as deemed acceptable by the Owner and the local health unit, of foundation drainage and/or groundwater, and no discharge to a Storm Sewer or Separate Sewer if there is excess volume that cannot be reused; and/or

ii Provide wetland recharge, in which case, collection of rooftop runoff will also be acceptable.

6.1.2 The Alteration is not located on a contaminated site, or where natural occurring conditions result in contaminated discharge, or where the site receives contaminated groundwater or foundation drainage from another site, unless the discharge being received has been remediated or treated prior to acceptance by the Third Pipe Collection System.

6.1.3 The Owner has undertaken a site assessment for water quantity, water quality, and hydrogeological site conditions regarding the Alteration.

6.1.4 The Alteration will not result in Adverse Effects.

6.1.5 The Alteration is wholly located within the municipal boundary over which the Owner has jurisdiction or there is a written agreement in place with the adjacent property owner respecting the Alteration and resulting Sewage Works.

6.1.6 The Owner consents in writing to the Alteration.

6.1.7 A Licensed Engineering Practitioner has verified in writing that the Alteration meets the requirements of condition 6.1.1.

6.1.8 The Owner has verified in writing that the Alteration meets the requirements of conditions 6.1.2 to 6.1.7.

6.2 The consents, verifications and documentation required in conditions 6.1.7 and 6.1.8 shall be:

6.2.1 Recorded on Form SW3 prior to undertaking the Alteration; and

6.2.2 Retained for a period of at least ten (10) years by the Owner.

6.3 For greater certainty, the verification requirements set out in condition 6.2 do not apply to any Alteration in respect of the Authorized System which:

6.3.1 Is exempt under section 53(6) of the OWRA or by O. Reg. 525/98; or

6.3.2 Constitutes maintenance or repair of the Authorized System, including changes to software for an existing SCADA system resulting from Alterations authorized in condition 6.1.

6.4 The Owner shall update, within twelve (12) months of the Alteration of the Sewage Works being placed into service, any drawings maintained for the Municipal Stormwater Management System to reflect the Alterations of the Sewage Works, where applicable.

7.0 Outlets

7.1 Any outlet established or altered as part of an Alteration authorized through conditions 4, 5, or 6 of Schedule D in this Approval shall have regard to the 2012 TRCA Stormwater Management Criteria document, Appendix E, for outlets.

7.2 Any outlet established as part of an Alteration authorized through conditions 4, 5, or 6 of Schedule D in this Approval shall not:

7.2.1 Increase discharge or create a new point source discharge to privately owned land unless there is express written consent of the owner(s) of such private land(s).

7.2.2 Result in Adverse Effects.

8.0 Previously Approved Sewage Works

8.1 If approval for an Alteration to the Authorized System was issued under the EPA and is revoked by this Approval, the Owner may make the Alteration in accordance with:

8.1.1 The terms of this Approval; or

8.1.2 The terms and conditions of the revoked approval as of the date this approval was issued, provided that the Alteration is commenced within five (5) years of the date that the revoked approval was issued.

9.0 Transition

9.1 An Alteration of the Authorized System is exempt from the requirements in clause (e) of condition 4.1.1, clause (d) of condition 5.2.1, and clause (c) of condition 6.1.1 where:

9.1.1 Effort to undertake the Alteration, such as tendering or commencement of construction of the Sewage Works associated with the Alteration, begins on or before June 14, 2023.

9.1.2 The design of the Alteration conforms to the Stormwater Management Planning and Design Manual, and where applicable, Design Guidelines for Sewage Works;

9.1.3 The design of the Alteration was completed on or before the issue date of this Approval or a Class Environmental Assessment was completed for the Alteration and changes to the design result in significant cost increase or significant project delays; and

9.1.4 The Alteration would be otherwise authorized under this Approval.

Schedule E: Operating Conditions

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-S701**
System Name	**Kincardine Stormwater Collection System**
ECA Issue Date	**November 7th, 2022**

1.0 General Operations

1.1 The Owner shall ensure that, at all times, the Sewage Works comprising the Authorized System and the related equipment and Appurtenances used to achieve compliance with this Approval are properly operated and maintained.

1.2 Prescribed Persons and Operating Authorities shall ensure that, at all times, the Sewage Works under their care and control and the related equipment and Appurtenances used to achieve compliance with this Approval are properly operated and maintained.

1.3 In conditions 1.1 and 1.2 “properly operated and maintained” includes effective performance, adequate funding, adequate operator staffing and training, including training in applicable procedures and other requirements of this Approval and the EPA, OWRA, CWA, and regulations, adequate laboratory services, process controls and alarms and the use of process chemicals and other substances used in the Authorized System.

1.4 The Owner ensure that Sewage Works are operated with the objective that the effluent from the Sewage Works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film, sheen, foam, or discoloration on the receiving waters, and shall evaluate the need for maintenance if the objective is not being met.

1.5 The Owner shall ensure that any Storm Sewers or ditches authorized under Schedule D of this approval are not placed into operation until the associated Stormwater Management Facilities to provide treatment are constructed and operated.

2.0 Duties of Owners and Operating Authorities

2.1 The Owner, Prescribed Persons, and any Operating Authority shall ensure the following:

2.1.1 At all times that the Sewage Works within the Authorized System are in service the Sewage Works are:

a) Operated in accordance with the requirements under the EPA and OWRA, and

b) Maintained in a state of good repair.

2.1.2 The Authorized System is operated by persons that are familiar with the requirements of this Approval.

2.1.3 All sampling, testing, monitoring, and reporting requirements under the EPA and this Approval that relate to the Authorized System are complied with.

2.1.4 All necessary steps are taken to ensure that operations of the Sewage Works and any associated physical structures do not constitute a safety or health hazard to the general public.

2.1.5 Where a Stormwater Management Facility ceases to function as a Stormwater Management Facility, whether by intent, accident, or otherwise (e.g., a CSO or an SSO), a workplan shall be developed that includes local community notification, plans for rehabilitating the Stormwater Management Facility to proper function in a reasonable time, identification of actions that will be taken to prevent reoccurrences, and timelines for implementing the workplan.

2.1.6 That operations and maintenance activities are undertaken at the frequency and in conformance with the procedures set out in the O&M Manual.

a) A Prescribed Person or Operating Authority shall only undertake operations and maintenance activities where they have been delegated the authority to undertake such activities by the Owner or the Owner has expressly approved the activity(ies).

2.2 For clarity, the requirements outlined in the above conditions 2.1 for Prescribed Persons and any Operating Authority only apply to Sewage Works within the Authorized System where they are responsible for the operation.

2.3 The Owner, Prescribed Persons, and Operating Authority shall take all reasonable steps to minimize and ameliorate any Adverse Effect on the Natural Environment or impairment of the quality of water of any waters resulting from the operation of the Authorized System, including such accelerated or additional monitoring as may be necessary to determine the nature and extent of the effect or impairment.

3.0 Operations and Maintenance

3.1 Inspection

3.1.1 The Owner shall ensure that all Sewage Works within the Authorized System are inspected at the frequency and in accordance with procedures set out in their O&M Manual.

3.1.2 The owner shall ensure that:

a) Any Stormwater Management Facilities, pumping stations, and any outlets that discharge to a receiver, are inspected at least once

before December 31, 2026, if these have not been inspected since January 1, 2018 and thereafter as required by the O&M Manual; and

b) Any Stormwater Management Facilities, pumping stations, and any outlets that discharge to a receiver, established, or replaced within the Authorized System after the date of issuance of this Approval, are inspected within one year of being placed into service and thereafter as required by the O&M Manual.

3.1.3 The Owner shall clean and maintain Sewage Works within the Authorized System to ensure the Sewage Works perform as designed.

3.1.4 The Owner shall inspect the Stormwater Management Facilities in the Authorized System after significant flooding events as defined in, and in accordance with procedures documented in, the O&M Manual.

3.1.5 The Owner shall maintain records of the results of the inspections required in condition 3.1.1, 3.1.2 and 3.1.4 and any cleaning and maintenance operations undertaken, and shall make available the records for inspection by the Ministry upon request. The records shall include the following:

a) Asset ID and name of the Sewage Works;

b) Date and results of each inspection, maintenance, or cleaning;

c) Name of person who conducted the inspection, maintenance, or the name of the inspecting official, where applicable, and

d) As applicable to the type of works, observations resulting from the inspection including, at a minimum:

i Hydraulic operation of the works (e.g., length of occurrence since the last rainfall event, evidence or occurrence of overflows).

ii Condition of vegetation in and around the works.

iii Occurrence of obstructions at the inlet and outlet of the works.

iv Evidence of spills and/or oil/grease contamination.

v Presence of trash build-up, and

vi Measurements of other parameters as required in the Monitoring Plan.

3.2 Operations & Maintenance (O&M) Manual

3.2.1 The Owner shall prepare and implement an operations and maintenance manual for Sewage Works within the Authorized System on or before June 14, 2023, that includes or references, but is not necessarily limited to, the following information:

a) Procedures for the routine operation of the Sewage Works;

b) Inspection programs, including the frequency of inspection, and the methods or tests employed to detect when maintenance is necessary, including:

i Presence of algae and/or invasive species impairing the Works (e.g., phragmites, goldfish);

ii Measurements of sediment depth, manual water levels (staff gauge) and/or visual observations, as appropriate to the Stormwater Management Facilities.

c) Maintenance and repair programs, including:

i The frequency of maintenance and repair for the Sewage Works;

ii Stormwater pond sediment cleanout, dewatering, and management;

iii Excavation, modification, replacement of LID soil/media/aggregate/geotextile, such as bioretention cells, green roof, permeable pavement; and

iv The frequency of maintenance for any other Stormwater Management Facilities identified in Schedule B that collect sediment.

d) Operational and maintenance requirements to protect sources of drinking water, such as those included in the Standard Operating Policy for Sewage Works, and any applicable local Source Protection Plan policies;

e) Procedures for routine physical inspection and calibration of monitoring equipment or components in accordance with the Monitoring Plan;

f) Emergency Response, Spill Reporting and Contingency Plans and Procedures for dealing with Equipment breakdowns, potential Spills, and any other abnormal situations, including notification to the SAC, the Medical Officer of Health, and the District Manager, as applicable;

g) Procedures for receiving, responding, and recording public complaints, including recording any follow-up actions taken; and

h) As-built drawings or record drawings of the Sewage Works.

3.2.2 The Owner shall review and update the O&M Manual and ensure that access to a copy is available at each Stormwater Management Facility for the operational life of the works.

3.2.3 The Owner shall provide a copy of the O&M Manual to Ministry staff, upon request.

3.2.4 The Owner shall revise the O&M Manual to include procedures necessary for the operation and maintenance of any Sewage Works within the Authorized System that are established, altered, extended, replaced, or enlarged after the date of issuance of this approval prior to placing into service those Sewage Works.

3.2.5 For greater certainty, the O&M Manual may be a single document or a collection of documents that, when considered together, apply to all parts of the Authorized System.

3.3 On or before June 14, 2025, the Owner shall establish signage to notify the public at any Stormwater Management Facility identified in Schedule B that is a wet pond, dry pond, hybrid Facility, or engineered wetland. The signage shall include the following minimum information:

3.3.1 Identification that the site contains a Stormwater Management Facility;

3.3.2 Identification of potential hazards and limitations of water use, as applicable;

3.3.3 Identification of the purpose of the Facility;

3.3.4 ECA approval number and/or asset ID; and

3.3.5 Owner's contact information.

3.4 Prior to any maintenance of Sewage Works comprising the Authorized System, the Owner shall ensure that all applicable permits or authorizations have been obtained from Federal or Provincial agencies having legislative mandates relating to species at risk or water resources.

4.0 Monitoring Plan

4.1 On or before June 14, 2024 or within twenty-four (24) months of the date of the publication of the Ministry's monitoring guidance, whichever is later, the Owner shall develop and implement a monitoring plan for the Authorized System. The monitoring plan shall be:

4.1.1 Signed and approved by management with the authority delegated by the Owner to do so;

4.1.2 Peer-reviewed by a third-party Qualified Person (QP), external to the development of the Monitoring Plan, to verify the adequacy of the Monitoring Plan in complying with conditions 4.4 and 4.5 of Schedule E. The results of the peer review shall include:

a) Written confirmation from the QP that they have the experience and qualifications to carry out the work; and

b) Written confirmation from the QP of the adequacy of the Monitoring Plan.

4.2 The Owner, or a QP designated by the Owner, may jointly develop the Monitoring Plan in partnership with Owner(s) of other Municipal Stormwater Management Systems as long as the Municipal Stormwater Management Systems are within the same watershed.

4.3 The Owner shall ensure the Monitoring Plan is implemented and any resulting monitoring data is recorded in an electronic database.

4.4 The Monitoring Plan shall include:

4.4.1 Procedures to verify that the operational performance of the Authorized System is as designed/planned;

4.4.2 Procedures to assess the environmental impact of the Municipal Stormwater Management System; and

4.4.3 Procedures for any corrective action that may be required to address any performance deficiencies or environmental impacts identified from above conditions 4.4.1 or 4.4.2.

4.5 The Monitoring Plan shall also include, but not be limited to:

4.5.1 Identification of the Sewage Works to be monitored, including outlets and any works that provide quality and/or quantity control;

4.5.2 Identification of the key receivers to be monitored within the Owner's municipal boundaries and the monitoring locations;

4.5.3 Consideration of relevant municipal land use and environmental planning documents (e.g., Stormwater Management Master Plan, Class Environmental Assessment Project, asset management plan, subwatershed studies, and planned development);

4.5.4 Characterization of water quality and quantity conditions and identification of water users to be protected, based on conditions 4.5.2 and 4.5.3;

4.5.5 Identification of water quality and quantity goals, as it relates to Stormwater management, using the information collected in condition 4.5.4;

4.5.6 Identification of locations of rainfall gauges to be used;

4.5.7 Identification of inspections, measurements, sampling, analysis and/or other monitoring activities that were used as the basis for or will inform future updates to the procedures identified in condition 4.4.

4.5.8 Details respecting a monitoring program for the works and the receivers, that includes, at a minimum:

a) Hydrological, chemical, physical, and biological parameters, as appropriate, in alignment with the goals;

b) Ensures water level of the Stormwater Measurement Facilities, excluding MTDs, are measured at regular intervals with a water level gauge;

c) Monitoring methodology, including the frequency and protocols for sampling, analysis, and recording, with consideration of dry and wet weather events and timing of sampling during wet weather events.

d) Ensures that the time of all samples or measurements are recorded.

4.5.9 An implementation plan for the monitoring program that identifies timelines and, if the monitoring occurs on a rotational basis, provides a description of the rotational schedule and associated works.

4.5.10 Includes a summary of all 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, and

4.5.11 Consideration of adaptive management practices (e.g., evidence-based decision making).

4.6 The Owner shall ensure that the Monitoring Plan is updated where necessary within twelve (12) months of any Alteration to the Authorized System, or more frequently as required by the Monitoring Plan.

4.7 The Owner shall, on request and without charge, provide a copy of the Monitoring Plan and any resulting monitoring data to members of the public.

5.0 Reporting

5.1 The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.

5.2 The Owner shall prepare an annual performance report for the Authorized System that:

5.2.1 Is submitted to the Director on or before April 30th of each year and covers the period from January 1st to December 31st of the preceding calendar year.

a) For clarity, the first report shall cover the period of January 1, 2023 to December 31st, 2023 and be submitted to the Director on or before April 30th, 2024.

5.2.2 Includes a summary of all monitoring data along with an interpretation of the data and an overview of the condition and operational performance of the Authorized System and any Adverse Effects on the Natural Environment;

5.2.3 Includes a summary and interpretation of environmental trends based on all monitoring information and data for the previous five (5) years;

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

5.2.5 Includes a summary of all inspections, maintenance, and repairs carried out on any major structure, equipment, apparatus, mechanism, or thing forming part of the Authorized System;

5.2.6 Includes a summary of the calibration and maintenance carried out on all monitoring equipment;

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

5.2.8 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;

5.2.9 Includes a summary of all Spills or abnormal discharge events;

5.2.10 Includes a summary of actions taken, including timelines, to improve or correct performance of any aspect of the Authorized System; and

5.2.11 Includes a summary of the status of actions for the previous reporting year.

5.3 The report described in condition 5.2 shall be:

5.3.1 Made available, on request and without charge, to members of the public who are served by the Authorized System; and

5.3.2 Made available, by June 1st of the same reporting year, to members of the public without charge by publishing the report on the Internet, if the Owner maintains a website on the Internet.

6.0 Record Keeping

6.1 The Owner shall retain for a minimum of ten (10) years from the date of their creation:

6.1.1 All records, reports and information required by this Approval and related to or resulting Alterations to the Authorized System, and

6.1.2 All records, report and information related to the operation, maintenance and monitoring activities required by this Approval.

6.2 The Owner shall update, within twelve (12) months of any Alteration to the Authorized System being placed into service, any drawings maintained for the Municipal Stormwater Management System to reflect the Alteration of the Sewage Works, where applicable.

7.0 Review of this Approval

7.1 No later than the date specified in Condition 1 of Schedule A of this Approval, the Owner shall submit to the Director an application to have the Approval reviewed. The application shall, at minimum:

7.1.1 Include an updated description of the Sewage Works within the Authorized System, including any Alterations to the Sewage Works that were made since the Approval was last issued; and

7.1.2 Be submitted in the manner specified by Director and include any other information requested by the Director.

8.0 Source Water Protection

8.1 The Owner shall ensure that any Alteration in the Authorized System is designed, constructed, and operated in such a way as to be protective of sources of drinking water in Vulnerable Areas as identified in the Source Protection Plan, if available.

8.2 The Owner shall prepare a “Significant Drinking Water Threat Assessment Report for Proposed Alterations” for the Authorized System on or before June 14, 2023 that includes, but is not necessarily limited to:

8.2.1 An outline of the circumstances under which proposed Alterations could pose a Significant Drinking Water Threat based on the Director’s Technical Rules established under the CWA.

8.2.2 An outline of how the Owner assesses the proposed Alterations to identify drinking water threats under the CWA.

8.2.3 For any proposed Alteration a list of components, equipment, or Sewage Works that are being altered and have been identified as a Significant Drinking Water Threat.

8.2.4 A summary of design considerations and other measures that have been put into place to mitigate risks resulting from construction or operation of the components, equipment, or Sewage Works identified in condition

8.2.3, such as those included in the Standard Operating Policy for Sewage Works.

8.3 The Owner shall make any necessary updates to the report required in condition 8.2 at least once every twelve (12) months.

8.4 Any components, equipment, or Sewage Works added to the report required in condition 8.2 shall be include in the report for the operational life of the Sewage Works.

8.5 Upon request, the Owner shall make a copy of the report required in condition 8.2 available to the Ministry or Source Protection Authority staff.

9.0 Storm Sewer Catchment Asset Inventory

9.1 The Owner shall prepare and submit to the Director an inventory of the storm sewersheds and classify in accordance with Tables E1 and E2, on or before June 14, 2025. Minimum classification of the level of Stormwater management is as follows:

9.1.1 Level A – Stormwater receives treatment for water quality and quantity prior to discharge to the environment;

9.1.2 Level B – Stormwater receives treatment for water quality but no water quantity prior to discharge to the environment; and

9.1.3 Level C – Stormwater receives no treatment for water quality prior to discharge to the environment.

Table E1. Storm Sewershed and Associated Treatment

Outlet Asset ID	Sewershed Catchment Area (ha)	Tributary or Receiver	Subwatershed/ Watershed	Stormwater Management Level (A, B or C)	Treatment provided by other municipality (if applicable)

Table E2. Summary of Storm Sewersheds

Stormwater Management Level	Total Number of Outlets to Environment	Total Sewershed Catchment Area (ha)
Level A		
Level B		
Level C		

9.2 Within 12 (twelve) months of the date that the inventory required in condition 9.1 is submitted to the Director, the document(s) or file(s) referenced in Table B1 of Schedule B of this Approval shall be updated to identify the storm sewersheds for each outlet and their level of Stormwater management.

Schedule F: Residue Management

System Owner	**Kincardine, The Corporation of the Municipality of**
ECA Number	**088-S701**
System Name	**Kincardine Stormwater Collection System**
ECA Issue Date	**November 7th, 2022**

1.0 Residue Management System

1.1 Not Applicable.

Appendix A – Stormwater Management Criteria

1.0 Applicability of Criteria

1.1 The criteria listed under Table A1 of this Appendix applies to all drainage areas greater than 0.1 ha, with the construction erosion and sediment control criteria applying also to sites <0.1 ha;

1.2 Despite condition 1.1 of Appendix A, if some or all of the criteria listed under Table A1 of this Appendix have been assessed for and addressed in other adjacent developed lands to the project site through a subwatershed plan or equivalent study, then those criteria may not be applicable to the project site.

Table A1. Performance Criteria

Water Balance [1]	**FOR DEVELOPMENT SCENARIOS** [2] **Assessment Studies:** i) Control [3] as per the criteria identified in the water balance assessment completed in one or more of the following studies [15], if undertaken: a watershed/subwatershed plan; Source Protection Plan (Assessment Report component); Master Stormwater Management Plan, Master Environmental Servicing Plan; Class EA, or similar approach that transparently considers social, environmental and financial impacts; or local site study including natural heritage, Ecologically significant Groundwater Recharge Areas (EGRA), inflow and infiltration strategies. The assessment should include sufficient detail to be used at a local site level and consistent with the various level of studies; OR **IF Assessment Studies in i) NOT completed:** ii) Control [3] the recharge [4] to meet Pre-development [5] conditions on property; **OR** iii) Control [3] the runoff from the 90th percentile storm event. **Lake Simcoe Watershed Municipalities:** iv) Control [3] as per the evaluation of anticipated changes in water balance between Pre-development and post-development assessed through a Stormwater management plan in support of an application for Major Development [6]. The assessment should include sufficient detail to be used at a local site level. If it is demonstrated, using the approved water balance estimation methods **[7]**, that the site's post to Pre-development water balance cannot be met, and Maximum Extent Possible [8] has been attained, the proponent may use Lake Simcoe and Region Conservation Authority's (LSRCA) Recharge Compensation Program [9]. **FOR RETROFIT SCENARIOS** [10] **Assessment Studies:** i) Control as per criteria identified in the water balance assessment completed in one or more of the following studies: a watershed/subwatershed plan, Source Protection Plan (Assessment Report component), Master Stormwater Management Plan, Master Environmental Servicing Plan, Class EA, or local site study including natural heritage, EGRA, inflow and infiltration strategies, if undertaken. The assessment should include sufficient detail to be used at a local site level and consistent with the various level of studies; **OR** ii) If constraints [11] identified in i), then control [3] as per Maximum Extent Possible [8] based on environmental site feasibility studies or address local needs[14].

	IF Assessment Studies in i) NOT completed: iii) Control [3] the recharge [4] to meet Pre-development [5] conditions on property; **OR** iv) Control [3] the runoff from the 90th percentile storm event.
Water Quality [1]	**FOR DEVELOPMENT SCENARIOS** [2] All of the following criteria must be met for development scenarios: **General:** i) Characterize the water quality to be protected and Stormwater Contaminants (e.g., suspended solids, nutrients, bacteria, water temperature) for potential impact on the Natural Environment, and control as necessary, **OR** ii) As per the watershed/subwatershed plan, similar area-wide Stormwater study, or Stormwater management plan to minimize, or where possible, prevent increases in Contaminant loads and impacts to receiving waters. **Suspended Solids:** i) Control [3] 90th percentile storm event and if conventional methods are necessary, then enhanced, normal, or basic levels of protection (80%, 70%, or 60% respectively) for suspended solids removal (based on the receiver). **Phosphorus:** i) Minimize existing phosphorus loadings to Lake Erie and its tributaries, as compared to 2018 or conditions prior to the proposed development, **OR** ii) Minimize phosphorus loadings to Lake Simcoe and its tributaries. Proponents with development sites located in the Lake Simcoe watershed shall evaluate anticipated changes in phosphorus loadings between Pre-development and post-development through a Stormwater management plan in support of an application for Major Development [6]. The assessment should include sufficient detail to be used at a local site level. If, using the approved phosphorus budget tool [12], it is demonstrated that the site's post to Pre-development phosphorus budget cannot be met, and Maximum Extent Possible [8] has been attained, the proponent may use LSRCA's Phosphorus Offsetting Policy [9]. **FOR RETROFIT SCENARIOS** [10] i) Improve the level of water quality control currently provided on site; **AND** ii) As per the 'Development' criteria for Suspended Solids, **OR** iii) **If 'Development' criteria for Suspended Solids cannot be met**, Works are designed as a multi-year retrofit project, in accordance with a rehabilitation study or similar area-wide Stormwater study, such that the completed treatment train will achieve the 'Development' criteria for Suspended Solids or local needs[14], within ten (10) years; **OR** iv) If constraints [11] identified in ii) and iii), then control [3] as per Maximum Extent Possible [8] based on environmental site feasibility studies.
Erosion Control (Watershed) [1]	**FOR DEVELOPMENT SCENARIOS** [8] i) As per erosion assessment completed in watershed/subwatershed plan, Master Stormwater Management Plan, Master Environmental Servicing Plan, Drainage Plan, Class EA, local site study, geomorphologic study, or erosion analysis; **OR** ii) As per the Detailed Design Approach or Simplified Design Approach methods described in the Stormwater Management Planning and Design Manual: a. The Detailed Design Approach may be selected by the proponent for any development regardless of size and location within the watershed provided technical specialists are available for the completion of the technical assessments; or considered more appropriate than the simplified approach given the size and location of the development within the watershed and the sensitivity of the receiving waters in terms of morphology and habitat

	function. b. The Simplified Design Approach may be adopted for watersheds whose development area is generally less than twenty hectares AND either one of the following two conditions apply: 1) The catchment area of the receiving channel at the point-of-entry of Stormwater drainage from the development is equal to or greater than twenty-five square kilometres; or 2) Meets the following conditions: • The channel bankfull depth is less than three quarters of a metre; • The channel is a headwater stream; • The receiving channel is not designated as an Environmentally Sensitive Area (ESA) or Area of Natural or Scientific Interest (ANSI) and does not provide habitat for a sensitive aquatic species; • The channel is stable to transitional; and • The channel is slightly entrenched; **OR** iii) In the absence of a guiding study, detain at minimum, the runoff volume generated from a 25 mm storm event over 24 to 48 hours. **FOR RETROFIT SCENARIOS** [10] i) If approaches i-iii) under 'Development Scenarios' are not feasible as per identified constraints [11], then improve the level of erosion control [3] currently provided on site to Maximum Extent Possible [8] based on environmental site feasibility studies or address local needs[14].
Water Quantity (Minor and Major System) [1]	**i)** As per municipal standards, Master Stormwater Management Plan, Class EA, Individual EA and/or ECA, as appropriate for the type of project [13]
Flood Control (Watershed Hydrology) [1]	**FOR DEVELOPMENT SCENARIOS** [2] i) Manage peak flow control as per watershed/subwatershed plans, municipal criteria being a minimum 100 year return storm (except for site-specific considerations and proximity to receiving water bodies), municipal guidelines and standards, Individual/Class EA, ECA, Master Plan, as appropriate for the type of project [13]. **FOR RETROFIT SCENARIOS** [10] i) If approaches i) under 'Development Scenarios' are not feasible as per identified constraints [11], then improve the level of flood control [3] currently provided on site to Maximum Extent Possible [8] based on environmental site feasibility studies.
Construction Erosion and Sediment Control	i) Manage construction erosion and sediment control through development and implementation of an erosion and sediment control (ESC) plan. The ESC plan shall: a. Have regard to Canadian Standards Association (CSA) W202 Erosion and Sediment Control Inspection and Monitoring Standard (as amended); OR b. Have regard to Erosion and Sediment Control Guideline for Urban Construction 2019 by TRCA (as amended). ii) Be prepared by a QP for sites with drainage areas greater than 5 ha or if specified by the Owner for a drainage lower than 5 ha. iii) Installation and maintenance of the ESC measures specified in the ESC plan shall have regard to CSA W208:20 Erosion and Sediment Control Installation and Maintenance (as amended). iv) For sites with drainage areas greater than 5 ha, a QP shall inspect the construction ESC measures, as specified in the ESC plan.
Footnote	1. Where the opportunity exists on your project site or the same subwatershed, reallocation of development elements may be optimal for management as

	described in footnote [3]. 2. Development includes new development, redevelopment, infill development, or conversion of a rural cross-section into an urban cross-section. 3. Stormwater volumes generated from the geographically specific 90th percentile rainfall event on an annual average basis from all surfaces on the entire site are targeted for control. Control is in the following hierarchical order, with each step exhausted before proceeding to the next: 1) retention (infiltration, reuse, or evapotranspiration), 2) LID filtration, and 3) conventional Stormwater management. Step 3, conventional Stormwater management, should proceed only once Maximum Extent Possible [8] has been attained for Steps 1 and 2 for retention and filtration. 4. Recharge is the infiltration and movement of surface water into the soil, past the vegetation root zone, to the zone of saturation, or water table. 5. Pre-development is defined as the more stringent of the two following scenarios: 1) a site's existing condition, or 2) as defined by the local municipality. 6. Major Development has the same meaning as in the Lake Simcoe Protection Plan, 2009. 7. Currently, the approved tool by LSRCA for calculating the water balance is the Thornthwaite-Mather Method. Other tools agreed upon by relevant approval agencies (e.g., LSRCA, municipality, or Ministry) may also be acceptable, subject to written acceptance by the Director. 8. Maximum Extent Possible means maximum achievable Stormwater volume control through retention and LID filtration engineered/landscaped/technical Stormwater practices, given the site constraints [11]. 9. Information pertaining to LSRCA's Recharge Compensation Program and Phosphorus Offsetting Policy is available on LSRCA's website (lsrca.on.ca), or in "Water Balance Recharge Policy for the Lake Simcoe Protection Plan", dated July 2021, and prepared by Lake Simcoe Region Conservation Authority and "Phosphorus Offsetting Policy", dated July 2021, and prepared by Lake Simcoe Region Conservation Authority. 10. Retrofit means: 1) a modification to the management of the existing infrastructure, 2) changes to major and minor systems, or 3) adding Stormwater infrastructure, in an existing area on municipal right-of-way, municipal block, or easement. It does not include conversion of a rural cross-section into an urban cross-section. 11. Site constraints must be documented. A list of site constraints can be found in Table A2. 12. Tools for calculating phosphorus budgets may include the Ministry's Phosphorus Tool, the Low Impact Development Treatment Train Tool developed in partnership by TRCA, LSRCA, and Credit Valley Conservation (CVC), or other tools agreed upon by the LSRCA and other relevant approval agencies including the municipality. 13. Possible to look at combined grey infrastructure and LID system capacity jointly. 14. Local needs include requirements for water quality, erosion, and/or water balance retrofits identified by the owner through ongoing operation and maintenance of the stormwater system, including inspection of local receiving systems and the characterization of issues requiring remediation through retrofit controls. 15. All studies shall conform with Ministry policies. If any conclusions in the studies negate policy, then the project will require a direct submission to the Ministry for review through an application pertaining to a Schedule C Notice.

Table A2. Stormwater Management Practices Site Constraints

	Site Constraints
a)	Shallow bedrock [1], areas of blasted bedrock [2], and Karst;
b)	High groundwater [1] or areas where increased infiltration will result in elevated groundwater levels which can be shown through an appropriate area specific study to impact critical utilities or property (e.g., susceptible to flooding);

c)	Swelling clays [3] or unstable sub-soils;
d)	Contaminated soils (e.g., brownfields);
e)	High Risk Site Activities including spill prone areas;
f)	Prohibitions and or restrictions per the approved Source Protection Plans and where impacts to private drinking water wells and /or Vulnerable Domestic Well Supply Areas cannot be appropriately mitigated;
g)	Flood risk prone areas or structures and/ or areas of high inflow and infiltration (I/I) where wastewater systems (storm and sanitary) have been shown through technical studies to be sensitive to groundwater conditions that contribute to extraneous flow rates that cause property flooding / Sewer back-ups;
h)	For existing municipal rights-of-way infrastructure (e.g., roads, sidewalks, utility corridor, Sewers, LID, and trails) where reconstruction is proposed and where surface and subsurface areas are not available based on a site-specific assessment completed by a QP;
i)	For developments within partially separated wastewater systems where reconstruction is proposed and where, based on a site-specific assessment completed by a QP, can be shown to: i Increase private property flood risk liabilities that cannot be mitigated through design; ii Impact pumping and treatment cost that cannot be mitigated through design; or iii Increase risks of structural collapse of Sewer and ground systems due to infiltration and the loss of pipe and/or pavement support that cannot be mitigated through design.
j)	Surface water dominated or dependent features including but not limited to marshes and/or riparian forest wetlands which derive all or a majority of their water from surface water, including streams, runoff, and overbank flooding. Surface water dominated or dependent features which are identified through approved site specific hydrologic or hydrogeologic studies, and/or Environmental Impact Statements (EIS) may be considered for a reduced volume control target. Pre-consultation with the MECP and local agencies is encouraged;
k)	Existing urban areas where risk to water distribution systems has been identified through assessments to meet applicable drinking water requirements, including Procedures F-6 and F-6-1, and substantiated by a QP through an appropriate area specific study and where the risk cannot be reasonably mitigated per the relevant design guidelines;
l)	Existing urban areas where risk to life, human health, property, or infrastructure has been is identified and substantiated by a QP through an appropriate area specific study and where the risk cannot be reasonably mitigated per the relevant design guidelines;
m)	Water reuse feasibility study has been completed to determine non-potable reuse of Stormwater for onsite or shared use;
n)	Economic considerations set by infrastructure feasibility and prioritization studies undertaken at either the local/site or municipal/system level [4].

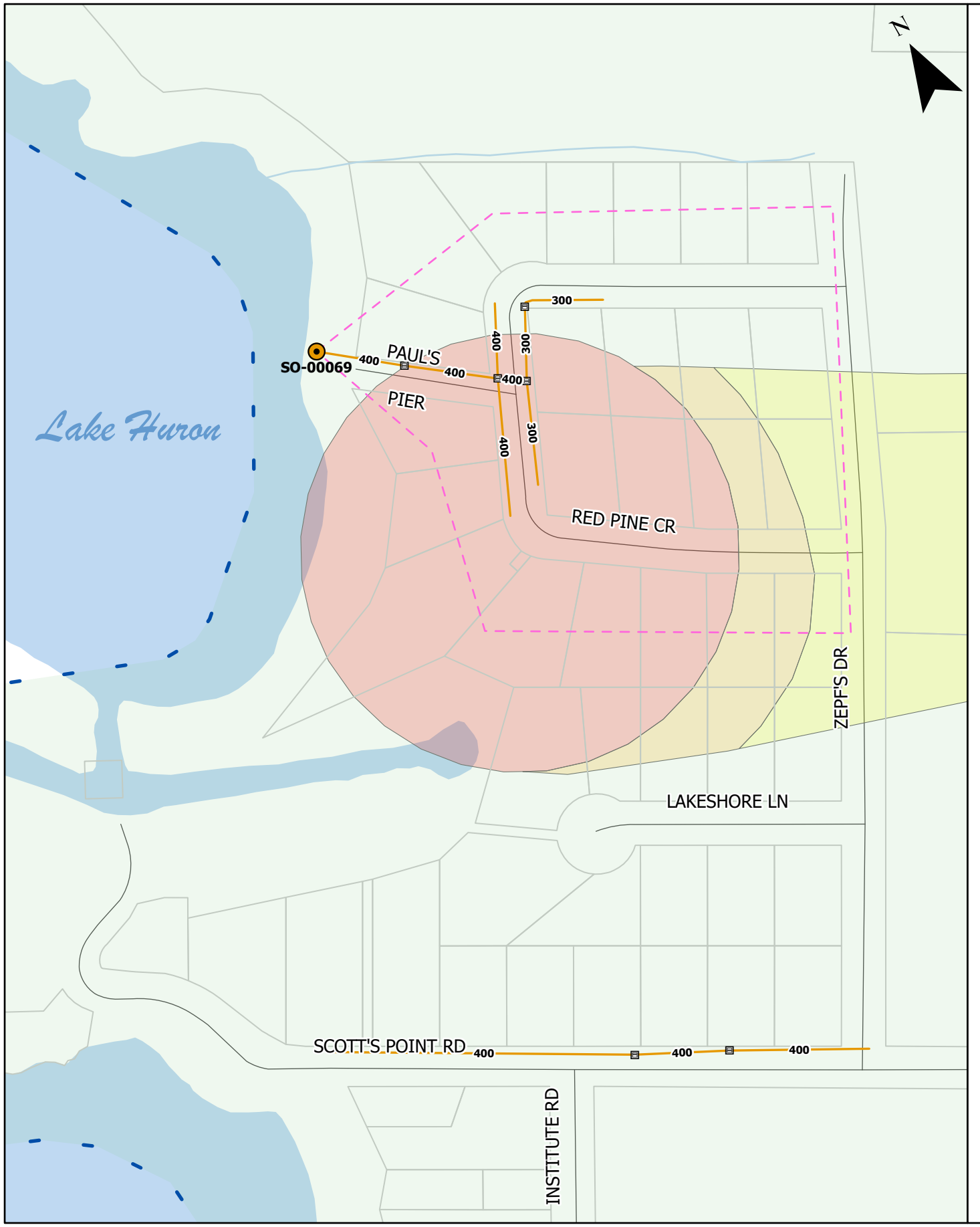
Footnote:

1. May limit infiltration capabilities if bedrock and groundwater is within 1m of the proposed Facility invert per Table 3.4.1 of the LID Stormwater Planning and Design Guide (2010, V1.0 or most recent by TRCA/CVC). Detailed assessment or studies are required to demonstrate infiltration effects and results may permit relaxation of the minimum 1m offset.
2. Where blasting is more localized, this constraint may not be an issue elsewhere on the property. While infiltration-based practices may be limited in blasted rock areas, other forms of LID, such as filtration, evapotranspiration, etc., are still viable options that should be pursued.
3. Swelling clays are clay soils that is prone to large volume changes (swelling and shrinking) that are directly related to changes in water content.
4. Infrastructure feasibility and prioritization studies should comprehensively assess Stormwater site opportunities and constraints to improve cost effectiveness, environmental performance, and overall benefit to the receivers and the community. The studies include assessing and prioritizing municipal infrastructure for upgrades in a prudent and economically feasible manner.

APPENDIX B

Kincardine Stormwater Collection System

Scott's Point Stormwater Collection System



- Stormwater Outlet
- Stormwater Catch Basin
- Stormwater Main
- Storm Sewershed
- Watercourse
- Parcel

Watershed

- East Lake Huron Shoreline
- Little Sauble River

Wellhead Protection Area

- 100m Buffer Zone
- 2 Year Time of Travel
- 10 Year Time of Travel
- 25 Year Time of Travel

Road Ownership

- Provincial Highway
- County
- Municipal
- Under Construction
- Private

Sources:
Parcel Fabric, Road Centerlines: Bruce County, 2022.

Intake Protection Zones delineated by Stantec and DWSP staff.

Wellhead Protection Areas delineated by Schlumberger Canada Ltd. and DWSP Staff.

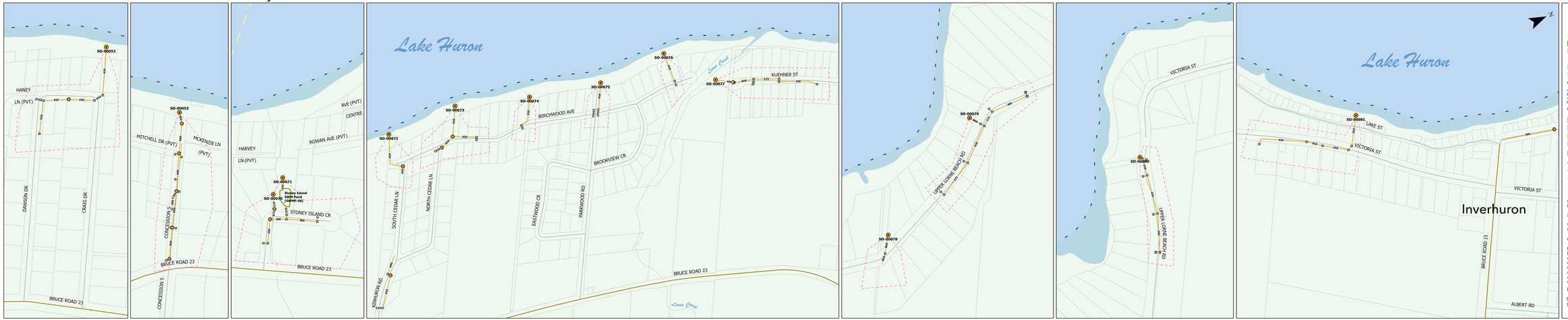
Disclaimer:
Data provided herein is derived from sources with varying levels of accuracy and currency. This is not a survey product. The Municipality of Kincardine disclaims all responsibility for the accuracy or completeness of information contained herein. The Municipality of Kincardine assumes no responsibility for errors arising from use of these mapping products. All rights reserved. May not be reproduced without permission.

Date Saved: 2022-02-11

0 50 100 200 Meters

Scale: 1:2,300

Kincardine Shoreline Stormwater Collection System



- Stormwater Outlet
- Stormwater Manhole
- Stormwater Catch Basin
- Stormwater Main
- Stormwater Management Facility
- Storm Sewershed
- Watercourse
- Water Body
- Parcel

Watershed

- East Lake Huron Shoreline
- Little Sauble River

Wellhead Protection Area

- 100m Buffer Zone
- 2 Year Time of Travel
- 10 Year Time of Travel
- 25 Year Time of Travel

Road Ownership

- Provincial Highway
- County
- Municipal
- Under Construction
- Private

Sources:
Parcel Fabric, Road Centerlines: Bruce County, 2022.

Intake Protection Zones delineated by Stantec and DWSP staff.

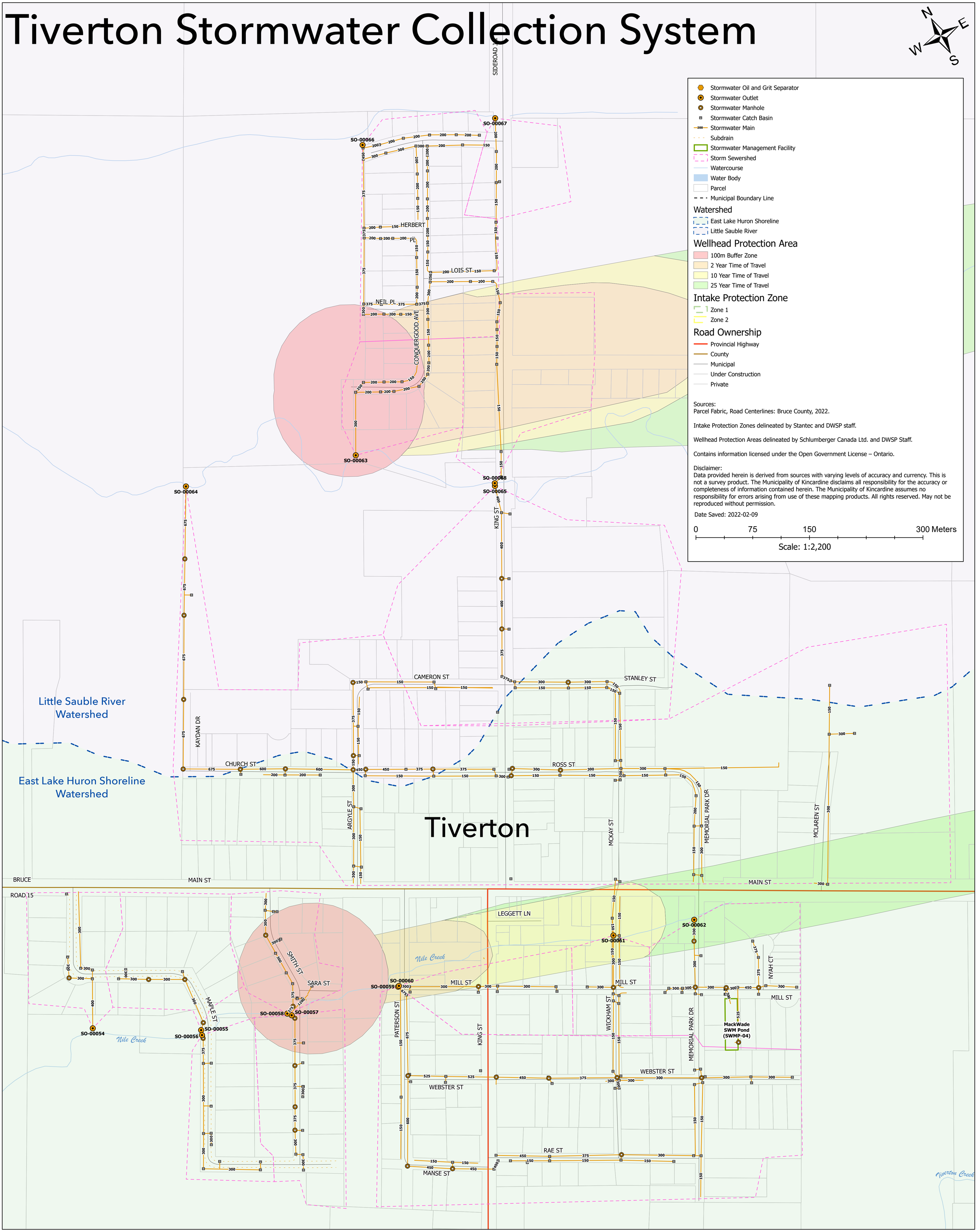
Wellhead Protection Areas delineated by Schlumberger Canada Ltd. and DWSP Staff.

Date Saved: 2022-10-20

0 50 100 200 Meters

Scale: 1:2,500

Tiverton Stormwater Collection System



- Stormwater Oil and Grit Separator
- Stormwater Outlet
- Stormwater Manhole
- Stormwater Catch Basin
- Stormwater Main
- Subdrain
- Stormwater Management Facility
- Storm Sewershed
- Watercourse
- Water Body
- Parcel
- Municipal Boundary Line

Watershed

- East Lake Huron Shoreline
- Little Sauble River

Wellhead Protection Area

- 100m Buffer Zone
- 2 Year Time of Travel
- 10 Year Time of Travel
- 25 Year Time of Travel

Intake Protection Zone

- Zone 1
- Zone 2

Road Ownership

- Provincial Highway
- County
- Municipal
- Under Construction
- Private

Sources:
Parcel Fabric, Road Centerlines: Bruce County, 2022.

Intake Protection Zones delineated by Stantec and DWSP staff.

Wellhead Protection Areas delineated by Schlumberger Canada Ltd. and DWSP Staff.

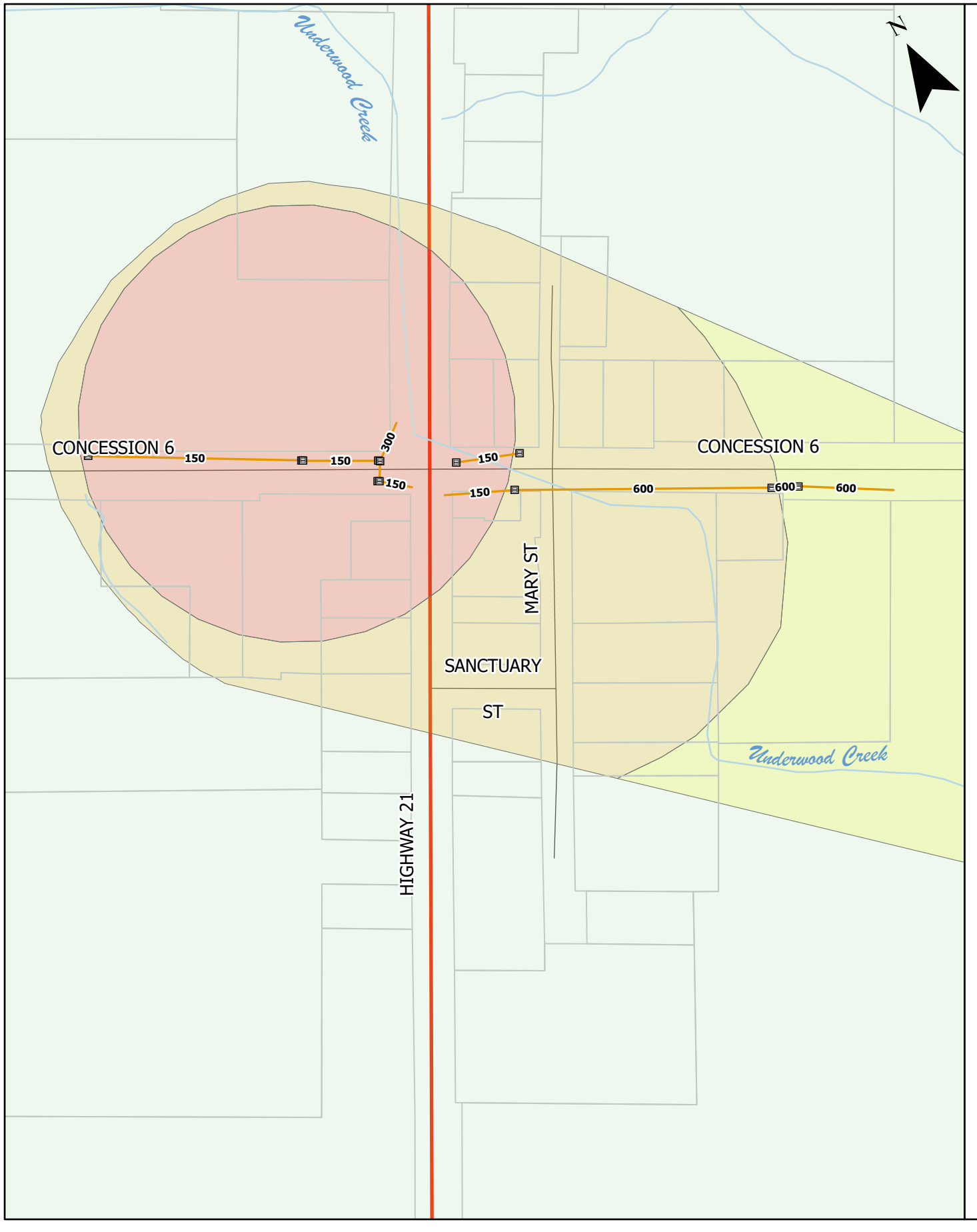
Disclaimer:
Data provided herein is derived from sources with varying levels of accuracy and currency. This is not a survey product. The Municipality of Kincardine disclaims all responsibility for the accuracy or completeness of information contained herein. The Municipality of Kincardine assumes no responsibility for errors arising from use of these mapping products.

Date Saved: 2022-02-09

0 75 150 300 Meters

Scale: 1:2,200

Underwood Stormwater Collection System



- Stormwater Manhole
- Stormwater Catch Basin
- Stormwater Main
- Watercourse
- Parcel
- Municipal Boundary Line

Watershed

- East Lake Huron Shoreline
- Little Sauble River

Wellhead Protection Area

- 100m Buffer Zone
- 2 Year Time of Travel
- 10 Year Time of Travel
- 25 Year Time of Travel

Road Ownership

- Provincial Highway
- County
- Municipal
- Under Construction
- Private

Sources:
Parcel Fabric, Road Centerlines: Bruce County, 2022.

Intake Protection Zones delineated by Stantec and DWSP staff.

Wellhead Protection Areas delineated by Schlumberger Canada Ltd. and DWSP Staff.

Disclaimer:
Data provided herein is derived from sources with varying levels of accuracy and currency. This is not a survey product. The Municipality of Kincardine disclaims all responsibility for the accuracy or completeness of information contained herein. The Municipality of Kincardine assumes no responsibility for errors arising from use of these mapping products. All rights reserved. May not be reproduced without permission.

Date Saved: 2022-02-11

0 50 100 200 Meters

Scale: 1:2,300

APPENDIX C

	Maintenance Schedule	Stormwater	
Frequency	**Equipment**	**Activity**	**Performed By**
Daily	Ponds	Record Rainfall	Staff
Twice a yr; Spring & Fall	Ponds	Inlet & outlet Inspection	Staff
Within 2 wks after significant rain or storm	Ponds	Full Inspection including inlet and outlets, sampling as per monitoring plans	Staff
5-10 years or as required	Ponds	Sediment removal	3rd party
Twice a yr; Spring & Fall	Storm Ceptors	Inspection	Staff
Within 2 wks after significant rain or storm	Storm Ceptors	Inspection	Staff
As required	Storm Ceptors	Clean out	Staff
Annually	Storm Mains	Flush (on a rotating 5 year schedule)	Staff or 3rd party
Annually	Storm Mains	Inspect with CCTV (on a rotating 5 year schedule)	Staff or 3rd party
Annually	Catch Basins	Clean and inspect (on a rotating 5 year schedule)	Staff
Annually	Outfall Pipes	Inspected (on a rotating 3 year schedule)	Staff
Annually	Outfall Pipes	Cleaned (on a rotating 3 year schedule or as required)	Staff or 3rd party
Annually	Storm Manholes	Inspected (on a rotating 5 year schedule)	Staff

Note: significant rainfall is 25mm or more in a 24 hour period
Updated May 15, 2023

APPENDIX D

2024 Stormwater Complaints

Date Initiated	Description	Address	Details	Actual Finish	Comments
2024-03-13 02:51 PM	Storm Catchbasin Plugged	278 Park St	Catch basin Plugged		Tried to clear by hand, no vactor, need to look into still
2024-07-08 01:43pm	Catch Basin Repair	157 Nelson St	Sewer grate installed above level-won't drain, floods yard		Contractor hired to lower to grade
2024-12-09 02:29 PM	Storm Catchbasin Plugged	278 Park St	sewer is blocked and water is now overflowing onto the road	2024-12-09 03:05 PM	Cleared snow from catch basin it wasn't plugged the snow bank on the street was causing the issue.
2024-12-30 11:32 AM	Storm Catchbasin Plugged	226 birchwood	Water not draining from ditch fast enough	2024-12-30 11:33 AM	Shovelled a trench 25 feeet long and a shovel depth to the

APPENDIX E

Municipality of Kincardine

Significant Drinking Water Threat Assessment Report for Proposed Alterations, 2024

Updated June 10, 2024

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street
Goderich, Ontario N7A 2T4
Phone (519) 524-2641
www.bmross.net

File No. 21372

Table of Contents

List of Tables

List of Figures

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street, Goderich, ON N7A 2T4
p. (519) 524-2641 **www.bmross.net**

File No. 21372

Municipality of Kincardine

Significant Drinking Water Threat Assessment
Report for Proposed Alterations, 2024

1.0 Introduction

The Municipality of Kincardine has authorized the preparation of this report by B. M. Ross and Associates (BMROSS) in order to fulfil the conditions of Environmental Compliance Approval (ECA) numbers: 088-5701 (Issue 1) and 088-W601 (Issue 1). This report has been prepared in accordance with Section 7.0 and 8.0 of the ECAs which outlines the requirements for Alterations to the Authorized System to be designed, constructed, and operated in a manner protective of vulnerable areas related to sources of drinking water.

This report includes the following:

- A summary of the sanitary sewage and stormwater systems included in the Authorized System under ECAs: 088-5701 and 088-W601.
- A review of vulnerable areas within the Municipality of Kincardine including: Wellhead Protection Areas (WHPA), Intake Protection Zones (IPZ), Highly Vulnerable Aquifers (HVA), and Significant Groundwater Recharge Areas (SGRA).
- A review of circumstances under which Alterations could be a Significant Drinking Water Threat, as described in the Technical Rules under the Clean Water Act.
- The methodology utilized to assess the proposed Alterations and determine drinking water threats.
- The planned Alterations proposed between June 1, 2024 and June 1, 2034.
- For any Alterations that have been identified as a Significant Drinking Water Threat, a list of components, equipment and/or sewage works being altered and the design considerations and measures put into place to mitigated risks resulting from construction or other measures.

1.1 Annual Update

This report is updated on an annual basis. The annual review includes the following activities:

- Updating the list of alterations to reflect the proposed works over the next 10 years.
- Reviewing the proposed alterations against any changes to local source water protection policies, Technical Rules and the MECP Standard Operating Policy document.

- Review and updating any new vulnerable areas.

2.0 Municipality of Kincardine Authorized System

2.1 Wastewater Systems

There are two wastewater systems that collect and transmit sewage within the Municipality of Kincardine: the Kincardine Wastewater Collection System and Bruce Energy Centre (BEC) Wastewater Collection System.

The Kincardine Wastewater Collection System consists of trunk sewers, separate sewers, 11 sewage pumping stations and forcemains that collect wastewater and discharge it to the Kincardine Wastewater Treatment Plant. Treated wastewater flows to the Kincardine Wastewater Treatment Effluent Station before discharging into Lake Huron. There are no combined sewers associated with this system. This system services the community of Kincardine and a small number of properties in the neighbouring Township of Huron-Kinloss.

The BEC Wastewater Collection System consists of trunk sewers, separate sewers, 4 sewage pumping stations and forcemains. The wastewater collected is discharged to the BEC Wastewater Treatment Plant, which discharges to Lake Huron. This system services the community of Tiverton, a portion of the community of Inverhuron and the BEC Industrial Park.

2.2 Stormwater Systems

The Municipal Stormwater Management (SWM) System is a stormwater conveyance system that includes storm sewers, stormwater management ponds and outlets. The system is a separate system (i.e., not designed to convey combined sewage). The service area includes: the community of Kincardine, Scott Point, Tiverton, Underwood and the area along the Lake Huron shoreline from Dawson Drive north to Inverhuron. The SWM system authorized under the above noted ECA does not include municipally or privately owned sewage works on industrial or commercial land.

3.0 Vulnerable Areas

3.1 Wellhead Protection Areas

There are a number of WHPAs associated with municipal well supplies within the Municipality of Kincardine. The following table (Table 3.1) summarizes the WHPAs within the Municipality of Kincardine where these features are found in the same area of components of the Authorized System. The vulnerable areas and system components are shown in Figure 3.1a, b, c and d. There are a number of vulnerable areas (e.g., Armow WHPAs) that do not intersect with any components of the Authorized System and therefore are not included in the assessment.

Table 3.1 System Components within WHPAs

Vulnerable Area	System(s) within Vulnerable Area
Huronville WHPA A, B, C, D (owned by the Township of Huron-Kinloss) – Figure 3.1a	• Kincardine Wastewater Collection System
Tiverton Wells (Dent, Briarhill) WHPA A, B, C, D – Figure 3.1b	• BEC Wastewater Collection System • Municipal SWM - Tiverton
Underwood WHPA A, B, C, D – Figure 3.1c	• Municipal SWM – Underwood
Scott Point WHPA A, B, C, D – Figure 3.1d*	• Municipal SWM – Scott Point

*Note - Scott Point WHPA updated to reflect new well location and new WHPAs

LAKE HURON

GODERICH STREET
PENETANGORE ROW
MAHOOD JOHNSTON DRIVE
LAKEFIELD DRIVE
QUEEN STREET
PRINCES STREET SOUTH
WILLOW ROAD
PARK STREET
BRUCE AVENUE
WIECK BOULEVARD
COOMBE DRIVE
MORRISON CRESCENT
MCCULLOUGH CRESCENT
DUNCAN PLACE
ST CLAIR COURT
FRASER DRIVE
STEWART DRIVE
MURRAY BOULEVARD
KINCARDINE AVENUE
SARATOGA ROAD
BOILER BEACH ROAD
PENETANGORE ROW SOUTH
ANNE MARIE CRESCENT
KEYES CIRCLE
LEWIS ROAD
VALENTINE AVENUE
HEATHER BOULEVARD
RACKLEY RUN
DEBORAH DRIVE
HURONVILLE STREET
GREGOR DRIVE
CALLANISH
STORNOWAY
CARLOWAY TRAIL
SOUTH LINE
21
KINCARDINE
HURON-KINLOSS
HIGHWAY 21
SARATOGA ROAD
BRIGADOON DRIVE
N

Legend

- Stormwater Mains
- Wastewater Mains
- Municipal Boundary
- Urban Boundary

WHPA Vulnerability Scores

- 2
- 4
- 6
- 8
- 10

0 150 300 600
Meters

BMROSS engineering better communities

MUNICIPALITY OF KINCARDINE
SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT
HURONVILLE WHPA VULNERABILITY SCORES

DATE	PROJECT No.
JUNE. 05, 2023	21372
SCALE	FIGURE No.
1:7,500	3.1A

N

SIDEROAD 1

ELIZABETH STREET

HERBERT PLACE

LOIS STREET

NEIL PLACE

CONQUERGOOD AVENUE

KING STREET

Briarhill WHPA

TIVERTON

CAMERON STREET

STANLEY STREET

CHURCH STREET

ROSS STREET

ARGYLE STREET

MCKAY STREET

MCLAREN STREET

Dent WHPA

HIGHWAY 21

BRUCE ROAD 15

MAIN STREET

LEGGETT LANE

WICKHAM STREET

NYAH COURT

SARA STREET

MILL STREET

MAPLE STREET

SMITH STREET

PATERSON STREET

KING STREET

WEBSTER STREET

21

MANSE STREET

RAE STREET

MEMORIAL PARK DRIVE

0 125 250 500

Meters

Legend

- Stormwater Mains
- Wastewater Mains
- Urban Boundary
- Stormwater Management Facility

WHPA Vulnerability Scores

- 2
- 4
- 6
- 8
- 10

BMROSS engineering better communities

MUNICIPALITY OF KINCARDINE

SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT

DENT AND BRIARHILL WHPA VULNERABILITY SCORES

DATE	PROJECT No.
JUNE. 05, 2023	21372
SCALE	FIGURE No.
1:6,500	3.1B

N

CONCESSION 6

MARY STREET

21

SANCTUARY STREET

HIGHWAY 21

Legend

- Stormwater Mains
- Urban Boundary

WHPA Vulnerability Scores

- 2
- 4
- 6
- 8
- 10

0 50 100 200

Meters

BMROSS engineering better communities

MUNICIPALITY OF KINCARDINE

SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT

UNDERWOOD WHPA VULNERABILITY SCORES

DATE	PROJECT No.
JUNE. 05, 2023	21372
SCALE	FIGURE No.
1:2,500	3.1C

N

LAKE HURON

SUNSET DR

RED PINE CRES

PAULS PIER

LAKESHORE LANE

ZEPFS DR

SCOTTS POINT RD

SPRUCE LANE

INSTITUTE RD

BRUCE ROAD 33

33

CONCESSION 8

Legend

- Well
- Stormwater Mains

WHPA Vulnerability Scores

- Level 2
- Level 4
- Level 6
- Level 8
- Level 10

0 100 200 400
METRES

BMROSS engineering better communities

MUNICIPALITY OF KINCARDINE

SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT

SCOTT'S POINT WHPA VULNERABILITY SCORES

DATE	PROJECT No.
JUNE 12, 2024	21372
SCALE	FIGURE No.
AS SHOWN	3.1D

3.2 Intake Protection Zones

The Kincardine Drinking Water System is supplied by Lake Huron and has associated IPZs. Table 3.2 summarizes the IPZ features and the components of the Authorized System that overlap. These features are also shown in Figure 3.2.

Table 3.2 System Components within IPZs

Vulnerable Area	System(s) within Vulnerable Area
Kincardine Drinking Water System IPZ 1, 2, 3,	• Kincardine Wastewater Collection System • Municipal SWM – Kincardine, Shoreline

3.3 Highly Vulnerable Area

There are a number of HVAs, located primarily along the lakeshore. The HVAs are summarized in Table 3.3 with the associated Authorized System components. Figure 3.3 shows the locations of these features and components of the Authorized System.

Table 3.3 System Components within IPZs

Vulnerable Area	System(s) within Vulnerable Area
HVA – Kincardine shoreline, from approximately Saratoga Road north to Durham Street and west of Highway 21.	• Kincardine Wastewater Collection System • Municipal SWM – Kincardine, Shoreline
HVA - Huron Ridge Shoreline – between Kincardine Golf Course and MacCaskill, and west of Inverlyn Crescent	• Kincardine Wastewater Collection System • Municipal SWM – Kincardine
HVA – Kinhuron Road north to Inverhuron	• BEC Wastewater Collection System • Municipal SWM - Shoreline

3.4 Significant Groundwater Recharge Areas

There are a number of SGRAs, found primarily along the shoreline within the Municipality of Kincardine. Components of the Kincardine Wastewater Collection System, BEC Wastewater System and Municipal SWM System are found within SGRAs. The SGRAs are shown in Figure 3.3.

3.5 Significant Drinking Water Threats and Circumstances

Under the regulations of the Clean Water Act, there are 21 activities considered as potential drinking water threats. These activities, and the circumstances under which they are considered a threat are set out in the Tables of Drinking Water Threats. Threats are categorized as either relating to risks associated with pathogens or chemicals. The 21 activities are summarized in Table 4.1.

INTAKE PROTECTION ZONES

0 1,000 2,000 4,000

Meters

LAKE HURON

INTAKE

23

9

21

KINCARDINE

HURON-KINLOSS

N

Legend

- Stormwater Mains
- Wastewater Mains
- Stormwater Management Facility
- Urban Boundary
- Municipal Boundary

IPZ Vulnerability Score

- 4 - 5.9
- 6 - 7.9

EVENT-BASED AREAS

0 1,000 2,000 4,000

Meters

LAKE HURON

23

21

9

7

KINCARDINE

HURON-KINLOSS

N

Legend

- Stormwater Mains
- Wastewater Mains
- Stormwater Management Facility
- Urban Boundary
- Municipal Boundary

Event-based Area Policy Components

- 2000 L
- 3000 L
- 5000 L
- 7500 L
- 8000 L
- 10000 L

BMROSS engineering better communities

MUNICIPALITY OF KINCARDINE

SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT

KINCARDINE INTAKE PROTECTION ZONES AND EVENT-BASED AREAS

DATE	PROJECT No.
JUNE. 05, 2023	21372
SCALE	FIGURE No.
AS SHOWN	3.2

N

SCOTT POINT

UNDERWOOD

TIVERTON

KINCARDINE

LAKE HURON

33

20

23

21

15

9

Legend

- Stormwater Mains
- Wastewater Mains
- Highly Vulnerable Areas
- Stormwater Management Facility
- Urban Boundary
- Municipal Boundary

0 1 2 4

Kilometers

KINCARDINE

HURON-KINLOSS

BMROSS engineering better communities

MUNICIPALITY OF KINCARDINE

SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT

HIGHLY VULNERABLE AREAS

DATE	PROJECT No.
JUNE. 05, 2023	21372
SCALE	FIGURE No.
1:70,000	3.3

N

SCOTT POINT

UNDERWOOD

TIVERTON

KINCARDINE

LAKE HURON

33

20

23

15

21

9

Legend

- Stormwater Mains
- Wastewater Mains
- Stormwater Management Facility
- Urban Boundary

SGRA - Vulnerability Score

- 2
- 4
- 6

0 1 2 4

Kilometers

BMROSS engineering better communities

MUNICIPALITY OF KINCARDINE

SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT

SIGNIFICANT GROUNDWATER RECHARGE AREAS

DATE	PROJECT No.
JUNE. 05, 2023	21372
SCALE	FIGURE No.
1:70,000	3.4

Table 3.4 Drinking Water Threats Under the CWA

Threat Category	Subcategories and Examples
1. Establishment, operation, maintenance of waste disposals sites	Includes landfilling activities, untreated septage, PCB storage and hazardous waste storage.
2. Establishment, operation and maintenance of system that collects, stores, transmits, treats, and discharges sewage	Includes septic systems, sanitary sewers and related pipes, sewage treatment bypass discharge, treatment plant tanks, combined sewage discharge from stormwater outlet, sewage treatment plant effluent discharges, discharge of untreated stormwater from a stormwater retention pond.
3. Application of agricultural source material to land	Includes manure, bedding, washwater etc.
4. Storage of agricultural source material	Includes manure, bedding, washwater etc.
5. Management of agricultural source material	Relates specifically to aquaculture.
6. Application of non-agricultural source material to land	Includes: pulp and paper biosolids, sewage biosolids, and materials not from an agricultural source.
7. Handling and storage of non-agricultural source material	Includes pulp and paper biosolids, sewage biosolids, and materials not from an agricultural source.
8. Application of commercial fertilizers	Includes synthetic fertilizers.
9. Handling and storage of commercial fertilizers	Includes synthetic fertilizers.
10. Application of pesticides	Includes pesticides used to control weeds or fungi.
11. Handling and storage of pesticides	Includes pesticides used to control weeds or fungi.
12. Application of road salt	For de-icing, ice prevention or traction and includes any solid or liquid chloride-based chemical.
13. Handling and storage of road salt	Handling and storage of over 500 tonnes.
14. Storage of snow	Includes snow stored in parking lots, snow disposal sites, snowbanks along roadways.
15. Handling and storage of fuel	Includes diesel, heating oil, kerosene, gasoline and used fuel.
16. Handling and storage of Dense Non-Aqueous Phase Liquids (DNAPLs)	Are liquids that are denser than water, includes PAHs, PCEs, etc.
17. Handling and storage of organic solvents	Are liquid organic compounds used in industrial and commercial purposes, adhesives, and cleaners.
18. Management of airplane de-icing chemical runoff	De-icing agents used for aircraft.
19. Activities that take water from an aquifer/surface water source without returning to same source	Where a water quantity stress assessment indicates a significant or moderate stress level.

Threat Category	Subcategories and Examples
20. Activities that reduce recharge	Where a water quantity stress assessment indicates a significant or moderate stress level.
21. Use of land for livestock grazing, pasture or outdoor confinement area.	Includes land use for livestock grazing or pasturing, outdoor confinement or farm-animal yards.

The Tables of Drinking Water Threats under the CWA outline the specific circumstances and activities under which the above-noted threats are considered significant drinking water threats. A number of these threats are not applicable to Alterations being undertaken on the Authorized System. The following threats are considered applicable to Alternations that may take place to wastewater and stormwater systems.

- 2. Establishment, operation, maintenance of a system that stores, transmits, treats and discharges sewage.
- 15. Handling and storage of fuel.
- 16. Handling and storage of DNAPLs.
- 17. Handling and storage of organic solvents.

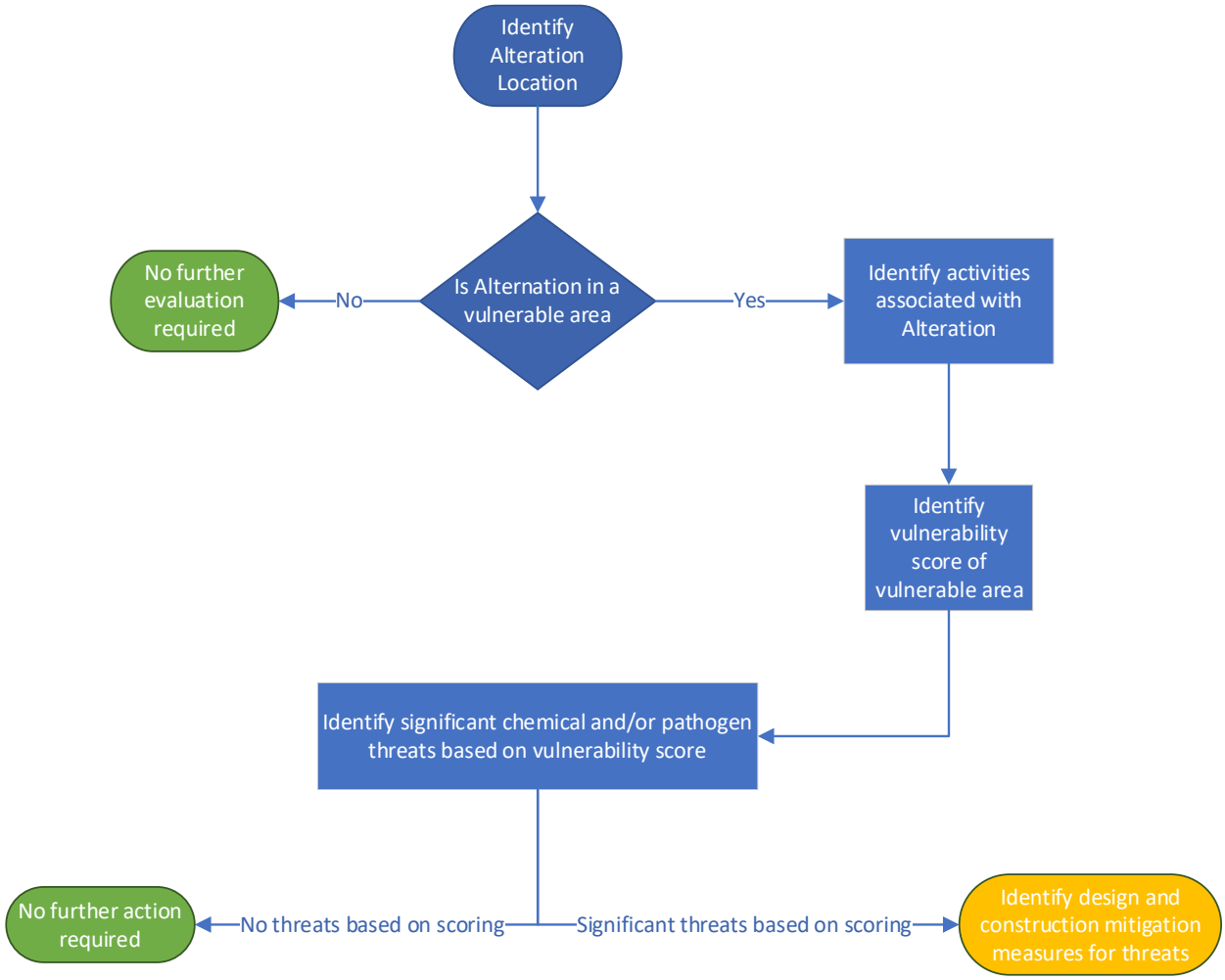
4.0 Methodology for Assessing Alterations

Alterations were assessed for the potential to be significant drinking water threats based on the following methodology:

1. Identifying Alterations to the wastewater and stormwater systems. This step involved reviewing of capital work plans and budgets and consultation with appropriate staff.
2. Mapping the location of proposed Alterations. The Alterations were mapped with vulnerable areas to identify the Alterations taking place within a vulnerable area. Alterations outside vulnerable areas are not considered significant drinking water threats and are not evaluated further.
3. Identify activities associated with Alterations in vulnerable areas. Identify potential activities associated with the Alterations (e.g., replacement of sewer connections, installation of backup generators).
4. Identify vulnerability scoring of the vulnerable area. The vulnerability scoring of the area was used to determine what chemical and/or pathogen threats are considered significant in each vulnerable area.
5. Compare the activities associated with the Alterations against the significant threats based on the vulnerability score. The 2021 Technical Rules under the Clean Water Act identify the specific conditions and activities that are considered significant threats for different vulnerable areas.
6. Identify mitigation measures. If activities associated with the Alteration are considered significant drinking water threats, identify potential mitigation measures or design considerations to mitigate the risk.

The methodology utilized is summarized in Figure 4.1.

Figure 4.1 Threat Assessment Methodology



5.0 Assessment of Alterations

The Alterations expected to be undertaken to wastewater and stormwater infrastructure over the near (1-5 years) and long term (5-10 years) are summarized in Table 5.1. The table also includes the results of the assessment of the Alteration with respect to being a significant drinking water threat. The locations of these Alterations are also shown in Figures 5.1 and 5.2. Alterations from the previous report that were completed in the past year are noted in Table 5.2.

Table 5.1 Threat Assessment of Proposed Alterations

Alteration	Map ID	System	Timing	Significant Drinking Water Threat
Highland Drive Reconstruction	A	Kincardine Wastewater, Kincardine Stormwater	2024	No
Milne Reconstruction (Kingsway to Nelson)	AA	Kincardine Wastewater, Kincardine Stormwater	2029	No
Milne Reconstruction (Kingsway to Highland)	AB	Kincardine Wastewater, Kincardine Stormwater	2028	No
Kingsway Reconstruction (West to Shakespeare)	AC	Kincardine Wastewater, Kincardine Stormwater	2033	No
Kingsway Reconstruction (Huron Terrace to Golf Course)	AD	Kincardine Wastewater, Kincardine Stormwater	2032	No
Kingsway Reconstruction (Queen to Milne)	AE	Kincardine Wastewater, Kincardine Stormwater	2028	No
Replace Pump 1 - Goderich St. SPS	AF-1	Kincardine Wastewater	2024	No
Replace Pump 2 - Goderich St. SPS	AF-2	Kincardine Wastewater	2028	No
Repair Mill/Float - Goderich St. SPS	AF-3	Kincardine Wastewater	2025	No
Rebuild Pump 1 Connaught Park SPS	AG-1	Kincardine Wastewater	2028	No
Rebuild Pump 2 Connaught Park SPS	AG-2	Kincardine Wastewater	2030	No
Rebuild Pump 3 Connaught Park SPS	AG-3	Kincardine Wastewater	2032	No
Repair Mill/Float Connaught Park SPS	AG-4	Kincardine Wastewater	2033	No
Rebuild Pump 1 - Huron Terrace SPS	AH	Kincardine Wastewater	2033	No
Rebuild Pump 1 - Hunter's Ridge SPS	AI-1	Kincardine Wastewater	2030	No
Rebuild Pump 2 - Hunter's Ridge SPS	AI-2	Kincardine Wastewater	2027	No
Repair Mill/Float - Hunter's Ridge SPS	AI-3	Kincardine Wastewater	2025	No
Durham St. Storm Sewer (Queen to Princess)	AJ	Kincardine Stormwater	2030	No
BEC Repairs	AK	BEC Wastewater	2023	No
Durham Street SPS Upgrades	B-1	Kincardine Wastewater	2024	No
Rebuild Pump 1 Durham Street SPS	B-2	Kincardine Wastewater	2034	No
Park St. SPS Upgrades	C	Kincardine Wastewater	2026	No

Alteration	Map ID	System	Timing	Significant Drinking Water Threat
Huron Ridge Crescent Reconstruction	D	Kincardine Wastewater, Kincardine Stormwater	2030	No
Repair Mill/Float - Kincardine Ave. SPS	E	Kincardine Wastewater	2025	No
Repair Mill/Float Kincardine Effluent Station	F-1	Kincardine Wastewater	2025	No
New Generator - Effluent Station	F-2	Kincardine Wastewater	2024	No
Rebuild UV System 1 - Effluent Station	F-3	Kincardine Wastewater	2024	No
Rebuilt UV System 2 - Effluent Station	F-4	Kincardine Wastewater	2028	No
Campbell Crescent Reconstruction	G	Kincardine Wastewater, Kincardine Stormwater	2032	No
McLeod Avenue Reconstruction	H	Kincardine Wastewater, Kincardine Stormwater	2026	No
Nelson Reconstruction (Milne to Princess)	I	Kincardine Wastewater, Kincardine Stormwater	2029	No
Durham Street Forcemain	J	Kincardine Wastewater	2024	No
Malcolm Street Reconstruction	K	Kincardine Wastewater, Kincardine Stormwater	2029	No
Bruce Avenue Reconstruction	L	Kincardine Wastewater, Kincardine Stormwater	2024	No
Inverness South Reconstruction	M	Kincardine Wastewater, Kincardine Stormwater	2031	No
West Street Reconstruction	N	Kincardine Wastewater, Kincardine Stormwater	2026	No
Princess Street Reconstruction (McLeod to Kingsway)	O	Kincardine Wastewater, Kincardine Stormwater	2026	No
Mechanics Ave. Reconstruction	P	Kincardine Wastewater, Kincardine Stormwater	2026	No
Princess Reconstruction (Nelson to Mechanics)	Q	Kincardine Wastewater, Kincardine Stormwater	2029	No
North Street Reconstruction	R	Kincardine Wastewater, Kincardine Stormwater	2025	No
Charles Street Reconstruction	S	Kincardine Wastewater, Kincardine Stormwater	2027	No

Alteration	Map ID	System	Timing	Significant Drinking Water Threat
River Lane Reconstruction	T	Kincardine Wastewater, Kincardine Stormwater	2029	No
Andrew Malcolm Reconstruction	U	Kincardine Wastewater, Kincardine Stormwater	2025	No
King Street Lift Station Electrical Upgrades	V-1	BEC Wastewater	2023	No
Replace Pump 1 - King St. SPS	V-2	BEC Wastewater	2024	No
Rebuild Pump 2 - King St. SPS	V-3	BEC Wastewater	2029	No
Replace Mill/Float - King St. SPS	V-4	BEC Wastewater	2027	No
Rebuild Pump 1 - Maple St. SPS	W-1	BEC Wastewater	2032	No
Rebuild Pump 2 - Maple St. SPS	W-2	BEC Wastewater	2026	No
Replace Mill/Float - Maple St. SPS	W-3	BEC Wastewater	2027	No
Penetangore Reconstruction (Kincardine Av to Bruce Ave)	X	Kincardine Wastewater, Kincardine Stormwater	2034	No
Penetangore Reconstruction (Kincardine Ave to St. Albert)	Y	Kincardine Wastewater, Kincardine Stormwater	2027	No
Phillip Place Reconstruction (Gary to end)	Z	Kincardine Wastewater, Kincardine Stormwater	2027	No

Table 5.2 Alterations Completed in 2023

Alteration	Added to Report	System	Timing	Significant Drinking Water Threat	Status
Queen Street Reconstruction	2023	Kincardine Wastewater, Kincardine Stormwater	2023	No	Completed in 2023
SCADA Connaught Park SPS	2023	Kincardine Wastewater	2023	No	Completed in 2023
Mount Forest Ave Construction	2023	Kincardine Wastewater, Kincardine Stormwater	2024	No	Completed in 2024

Legend

- Planned Alterations
- Municipal Boundary
- Urban Boundary
- Stormwater Management Facility

WHPA Vulnerability Scores

- Level 2
- Level 4
- Level 6
- Level 8
- Level 10

Intake Protection Zone Vulnerability

- 4 - 5.9
- 6 - 7.9

N

Lake Huron

0 200 400 800
METRES

MUNICIPALITY OF KINCARDINE

SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT

PLANNED ALTERATIONS - KINCARDINE

BMROSS engineering better communities

DATE	PROJECT No.
JUNE 10, 2024	21372
SCALE	FIGURE No.
AS SHOWN	6.1

BMROSS engineering better communities	**MUNICIPALITY OF KINCARDINE** SIGNIFICANT DRINKING WATER THREAT ASSESSMENT REPORT **PLANNED ALTERATIONS - TIVERTON**	DATE JUNE 10, 2024	PROJECT No. 21372
		SCALE AS SHOWN	FIGURE No. 6.2

Based on the locations of the proposed Alterations, and the relatively low vulnerability scores associated with the vulnerable areas, none of the identified Alterations are considered significant drinking water threats.

6.0 Design Considerations and Mitigation Measures

At this time, there are no design considerations or mitigation measures in place for the proposed Alterations, as none are considered significant drinking water threats.

7.0 Reporting Requirements

This report must be updated at least once on an annual basis to include any additional Alterations proposed.

This report will also be made available to Ministry of Environment, Conservation and Parks and Source Protection Authority staff upon request.

Yours very truly

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Lisa J. Courtney, M.Sc., MCIP, RPP