Stormwater Annual Performance Report 2023

Submitted April 22, 2024

Environmental Compliance Approval Number: 018-S701
Name of Municipal Stormwater Management System: City of Kingston Stormwater Management System
Name of System Owner: The Corporation of the City of Kingston
Period Reported: January 1st to December 31st, 2023

Questions about the report should be directed to:

Adam M. Hardy
Supervising Engineer
Engineering Services
613-546-4291, ext. 2263
ahardy@cityofkingston.ca

Brief Description of the System

The Municipal Stormwater Management (SWM) System serving the City of Kingston catchment area, is a separate system for stormwater (i.e., designed not to convey sanitary sewage or combined sewage) within the Lake Ontario, Great Cataraqui River, Gananoque River, and St. Lawrence River watersheds.

The Municipal SWM System consists of storm sewers, culverts, ditches, swales, Stormwater Management Facilities, and outlets.

The entire Municipal SWM System is owned and operated by the City of Kingston and connects to three (3) neighbouring Municipal Stormwater Management Systems: Loyalist Township to the west, South Frontenac Township to the north and The Township of Leeds and the Thousand Islands to the Thousand Islands to the east.

Section 1: Monitoring Program Information

Monitoring Program Partners

The City of Kingston has yet to develop a system-wide Monitoring Plan for the City of Kingston's Municipal SWM System, as the Ministry of the Environment, Conservation and Parks (MECP) has yet to finalize its forthcoming monitoring plan guidance document. The City's Monitoring Plan will be developed and implemented for the Municipal SWM System within twenty-four (24) months of the date of the publication of the Ministry's monitoring guidance, as per the terms of our Consolidated Linear Infrastructure Environmental Compliance Approval (CLI ECA) Agreement with the MECP.

In 2022, the City reached out to the Cataraqui Region Conservation Authority (CRCA) to offer them an opportunity to develop the Monitoring Plan for the Municipal SWM System with the understanding that the City would implement the plan using its own staff resources. A proposal was received from the CRCA in January 2023, but has been left in draft and put on hold pending the MECP's publication of the final monitoring plan guidance document. It is the City's intent to prepare its own independent Monitoring Plan separate from neighbouring Municipal Stormwater Management Systems located within the same watershed areas.

Currently, the City is carrying out monitoring of SWM Facilities in accordance with the individual Environmental Compliance Approvals issued prior to the finalization of the City's CLI ECA Agreement.

The City of Kingston has a CLI ECA Stormwater webpage which provides links to the City's CLI ECA Agreement, CLI ECA Stormwater Permit Application documents and other relevant resources. It is the City's intent to post the City's Monitoring Plan to this webpage once it has been finalized and approved by the MECP.

Monitoring Details

Number of Monitoring Stations: 5 (Grab Samples at SWM Facilities)

Monitoring Level: In accordance with original Environmental Compliance Approval requirements for each individual SWM Facility

Key Receivers Monitored: N/A

Name of Accredited Laboratory(ies) Used: Caduceon Environmental Laboratories

Summary of Monitoring Data

Station Name	Sample type [1]	Parameter Name		Dry Weather Flow					Snow melt					Wet weather flow				
			Units	Total Count[2]	Year under Study				Total Count[2]	Year under Study				Total Count[2]	Year under Study			
					Count	Min	Max	Mean		Count	Min	Max	Mean		Count	Min	Max	Mean
SWM-33	Grab	pH												66	6	7.37	8.49	7.83
SWM-33	Grab	Conductivity	mS											66	6	0.18	1.70	0.85
SWM-33	Grab	TDS	ppt											66	6	0.09	0.84	0.42
SWM-33	Grab	Temperature	°C											66	6	8.7	20.2	13.1
SWM-33	Grab	Oil & Grease	mg/L											66	6	<0.5	1.8	0.83
SWM-34	Grab	TSS	mg/L											22	2	5	7	6
SWM-42	Grab	TSS	mg/L											18	3	9	30	19
OGS-M	Grab	pH												66	6	7.37	8.85	8.16
OGS-M	Grab	Conductivity	mS											66	6	0.14	0.94	0.35
OGS-M	Grab	TDS	ppt											66	6	0.07	0.47	0.18
OGS-M	Grab	Temperature	°C											66	6	8.7	22.1	14.2
OGS-M	Grab	Oil & Grease	mg/L											66	6	<0.5	1.6	1.03
OGS-U	Grab	pH												66	6	7.3	8.51	7.91

OGS-U	Grab	Conductivity	mS											66	6	0.10	1.91	0.51
OGS-U	Grab	TDS	ppt											66	6	0.05	0.93	0.25
OGS-U	Grab	Temperature	°C											66	6	10.5	21.7	13.9
OGS-U	Grab	Oil & Grease	mg/L											66	6	1.0	2.5	1.5

1. Sample type: grab, automatic, continuous, composite, field measurements
2. Total count for all years of this type of sampling

Section 2: Monitoring Results Analysis

Description of Catchment Area(s) being Monitored

SWM-33, OGS-M & OGS-U: Catchment area of approximately 84 hectares consisting of the following land uses: General Industrial, Business Park Industrial, Waste Management Area, Residential, Estate Residential, Environmental Protection Area, Open Space, Arterial Commercial, Regional Commercial, and Institutional. Overall imperviousness would be characterized as having an average runoff coefficient of 0.75. Potential sources of pollutants include: Industrial Activities (heavy metals, chemicals, solvents, and particulate matter through emissions, spills, and waste disposal), Urban Runoff (sediment, oil, grease, heavy metals, pesticides, herbicides, fertilizers, animal waste, trash, and debris), Construction Activities (dust, sediment, debris, and chemicals), Urban Agriculture (pesticides, fertilizers, and animal waste), Commercial and Institutional Facilities (waste generation, chemical use, and transportation), Atmospheric Deposition (airborne particulates), Residential Areas (pesticides, herbicides, and fertilizers), and Waste Management Areas (chemicals, oils, solvents, leachate, sediment, nutrients, heavy metals, petroleum hydrocarbons).

SWM-34: Catchment area of approximately 62 hectares consisting of the following land uses: Residential, Environmental Protection Area, Open Space, and Arterial Commercial. Overall imperviousness would be characterized as having an average runoff coefficient of 0.50. Potential sources of pollutants include: Urban Runoff (sediment, oil, grease, heavy metals, pesticides, herbicides, fertilizers, animal waste, trash, and debris), Construction Activities (dust, sediment, debris, and chemicals), Urban Agriculture (pesticides, fertilizers, and animal waste), Commercial Facilities (waste generation, chemical use, and transportation), Atmospheric Deposition (airborne particulates), and Residential Areas (pesticides, herbicides, and fertilizers).

SWM-42: Catchment area of approximately 28 hectares consisting of the following land uses: Residential, Open Space, Arterial Commercial, Business Commercial, and Neighbourhood Commercial. Overall imperviousness would be characterized as having an average runoff coefficient of 0.50. Potential sources of pollutants include: Urban Runoff (sediment, oil, grease, heavy metals, pesticides, herbicides, fertilizers, animal waste, trash, and debris), Construction Activities (dust, sediment, debris, and chemicals), Urban Agriculture (pesticides, fertilizers, and animal waste), Commercial Facilities (waste generation, chemical use, and transportation), Atmospheric Deposition (airborne particulates), and Residential Areas (pesticides, herbicides, and fertilizers).

Supporting Information for Monitoring Results

Summary of monitoring issues:

- Most of the wet weather events that occur during the year do not meet the minimum threshold of 15mm of rain stipulated in the ECAs for SWM-33 and SWM-42 and therefore opportunities for water sampling are limited. Opportunities are further reduced when the 24-hour period after the rainfall event occurs on a weekend and unionized staff are not available to undertake sampling.
- Stormwater management pond SWM-42 is located downstream of a new residential subdivision which has been an active construction zone for the past few years and sediment-laden runoff has been flowing into the pond spiking the total suspended solids concentration in the pond water. While orders to cease discharging sediment-laden water to the pond have been coordinated through our Planning Services department on a case-by-case basis when

observed (the City's Sewer Use By-Law stipulates a maximum allowable total suspended solids concentration of 15 mg/L can be discharged to municipal storm sewers), such incidents continue to occur in between enforcement and follow up inspection visits. In addition, the subdivision agreement for this development does not include any clauses for enforcing a pond cleanout at the conclusion of construction.

Comparison of monitoring results to provincial water quality objectives (PWQO):

- Oil grit-separators OGS-M and OGS-U recorded maximum pH values of 8.85 and 8.51, respectively, which are slightly outside of the range considered acceptable by the PWQO (i.e., pH values should be between 6.5 and 8.5).
- Oil grit-separators OGS-M and OGS-U recorded sheen/sludge inside of the structures, which exceeds the PWQO that "oil or petrochemicals should not be present in concentrations that can be detected as a visible film, sheen, or discolouration on the surface". A clean out of the structures and proper handling and disposal of the contaminated material at a licensed facility was promptly carried out. It should be noted that at no time was oil or sheen observed in the effluent from these structures, which are located upstream of regional stormwater pond SWM-33.
- All other parameters were within PWQO limits or do not have PWQO limits.

Analysis of Overall Performance

Based on the City's current monitoring approach (i.e., monitoring of SWM Facilities in accordance with the individual Environmental Compliance Approvals issued prior to the finalization of the City's CLI ECA Agreement), the municipal stormwater system seems to be functioning well. Exceedances of Provincial Water Quality Objectives (PWQO) are rare (see summary of monitoring results table above), slight (see pH discussion above), identified and addressed in a timely manner (see sheen/sludge discussion above), or construction-related and able to be enforced through the City's Sewer Use By-Law and, going forward, through newly developed CLI ECA clauses in our subdivision agreements.

Analysis of Water Quality in the Watershed

As described in Section1, the City's current Monitoring Program consists of monitoring SWM Facilities in accordance with the individual Environmental Compliance Approvals issued prior to the finalization of the City's CLI ECA Agreement, and in this regard the municipal stormwater system seems to be functioning well (see overall performance analysis above). A comprehensive Monitoring Plan for the Municipal SWM System is pending the MECP's publication of the final monitoring plan guidance document.

Section 3: Interpretation of Environmental Trends

For the five-year period from January 2019 to December 2023

Based on the City's current monitoring approach (i.e., monitoring of SWM Facilities in accordance with the individual Environmental Compliance Approvals issued prior to the finalization of the City's CLI ECA Agreement), exceedances of Provincial Water Quality Objectives (PWQO) are rare (see summary of monitoring results table in Section 2), slight (see pH discussion in Section 2), identified and addressed in a timely manner (see sheen/sludge discussion in Section 2), or construction-related and able to be enforced through the City's Sewer Use By-Law. There do not appear to be any clear environmental trends for any of the parameters analyzed at the monitored SWM Facilities.

Section 4: Operations

Operational Problems Experienced

Below is a summary of operating problems encountered and corrective actions taken:

- Most of the wet weather events that occur during the year do not meet the minimum threshold of 15mm of rain stipulated in the ECAs for SWM-33 and SWM-42 and therefore opportunities for water sampling at SWM Ponds are limited. Opportunities are further reduced when the 24-hour period after the rainfall event occurs on a weekend and unionized staff are not available to undertake sampling. Staff will take additional samples following less significant wet weather events throughout the year to avoid missing sampling opportunities all together.
- Stormwater management pond SWM-42 is located downstream of a new residential subdivision which has been an active construction zone for the past few years and sediment-laden runoff has been flowing into the pond spiking the total suspended solids concentration in the pond water. While orders to cease discharging sediment-laden water to the pond have been coordinated through our Planning Services department on a case-by-case basis when observed (the City's Sewer Use By-Law stipulates a maximum allowable total suspended solids concentration of 15 mg/L can be discharged to municipal storm sewers), such incidents continue to occur in between enforcement and follow up inspection visits. In addition, the subdivision agreement for this development does not include any clauses for enforcing a pond cleanout at the conclusion of construction. However, going forward, newly developed CLI ECA clauses in our subdivision agreements will require developers to clean out stormwater management ponds prior to the Municipality issuing a Preliminary Certificate of Approval of the Works (PCAW) in instances where the accumulation of sediment exceeds the expected sediment accumulation as compared to the pond design elevations since the commencement of operation (i.e., excess sediment in the SWM Pond). To prove sediment accumulation is within expected tolerance, the Owner's Engineer must provide calculations and cite sources within a stamped certification letter following completion of a bathymetric survey.

- Oil grit-separators OGS-M and OGS-U recorded sheen/sludge inside of the structures, which exceeds the PWQO that “oil or petrochemicals should not be present in concentrations that can be detected as a visible film, sheen, or discolouration on the surface”. A clean out of the structures and proper handling and disposal of the contaminated material at a licensed facility was promptly carried out. It should be noted that at no time was oil or sheen observed in the effluent from these structures, which are located upstream of regional stormwater pond SWM-33. The sheen/sludge was observed during the third inspection out of 6 completed in 2023 in accordance with the ECA for these SWM Facilities.
- Phragmites and wild parsnip were observed at the beginning of several SWM Pond inspections. The inspector followed procedure by concluding the inspection immediately due to health and safety concerns, requesting removal of the vegetation by the City’s Public Works crews (in accordance with their own safe work standard operating procedures) and resuming/completing the inspection once it was safe to do so.
- Uploading photos to the Inspection Record in the City’s Asset Management Database (Cartegraph) in low service areas has resulted in photos not fully uploading. This has been resolved by uploading photos via Wi-Fi instead.
- Two OGS Unit inspections could not be completed in 2023 as they were located within an active construction zone at Queen’s University and access was not permitted.

Inspections, Maintenance and Repairs

The frequency of inspection varies based on each component of the storm sewer system:

- Inlets are inspected once every 4 years at a minimum as part of the inlet inspection program managed by Public Works.
- Inlets are cleaned out once every four 4 years at a minimum as part of the inlet maintenance program managed by Public Works.
- Inlets that include inlet filters or insert devices are inspected every 2 years at a minimum as part of the inspection program managed by Public Works or more frequently if in an area of high potential loading.

- Maintenance hole structures and storm sewer mains are inspected once every 10 years at a minimum as part of the annual CCTV inspection program managed by Engineering Services.
- Outlets are inspected once every 4 years at a minimum as part of the outlet inspection program managed by Engineering Services.
- Maintenance hole structures, storm sewer mains, and outlets are cleaned out once every 10 years at a minimum as part of the annual CCTV inspection program managed by Engineering Services.
- Roadside ditches and swales are monitored routinely or in response to public complaints as part of the operations program managed by Public Works; higher frequency inspections may be required based on sediment accumulation rates, trash or debris accumulation or wildlife activity.
- Culverts are monitored routinely or in response to public complaints as part of the operations program managed by Public Works; higher frequency inspections may be required based on sediment accumulation rates, trash or debris accumulation or wildlife activity.
- Visual inspections of all stormwater management (SWM) ponds are completed every year by Engineering Services. Inspections are completed between May and October when the weather is favourable.
- All SWM Ponds are inspected after storm events greater than the 5-year return period.
- SWM Pond inspections are completed immediately after a fuel or chemical spill in coordination with the City's Environment Group.
- SWM Pond clean outs will be prioritized based on the results of bathymetric surveys starting in 2025. Higher frequency clean outs may be required at specific locations based on sediment accumulation rates.
- OGS units are inspected every 6 months for the first year to determine the oil and/or sediment accumulation rates as part of the operations program managed by Public Works.
- OGS units are inspected annually after the first year and with sediment accumulation rates continuing to be monitored as part of the operations program managed by Public Works.
- OGS units are inspected after each major storm event (>25 mm) as part of the operations program managed by Public Works.
- OGS unit inspections are completed immediately after an oil, fuel, or chemical spill in coordination with the City's Environment Group.

- OGS units are cleaned out once the sediment depth reaches 15% of the storage capacity, or at least once per year, whichever comes first, as part of the operations program managed by Public Works.

A summary of deficiencies and follow up maintenance/works are provided below:

- As per the City's CCTV program, all inspected storm sewers and structures were hydraulically cleaned by the Contractor to remove dirt, grease, sand, and other foreign and objectionable debris before inspection. The Contractor transported and disposed of all waste material associated with flushing, cleaning, or blockage removal to an approved disposal site in accordance with current Ministry of Environment, Conservation and Parks (MECP) waste disposal requirements.
- Like-for-like culvert replacements were completed in various locations throughout the City in 2023 as part of the operations program managed by Public Works where pipes had reached the end of their service life.
- Removal of liquid waste/oil was coordinated for four (4) OGS units with disposal at a licensed disposal facility, the remaining OGS units were cleaned out using Public Works vacuum truck. Two (2) OGS units were located within a construction zone at Queen's University and could not be inspected.
- Several outlets required a clean out while others were unable to be located (buried). In a few locations modest maintenance work was required such as debris/object or sediment removal, erosion repair measures, minor concrete repairs, vegetation management, grate repair, and/or illegal dumping. Public Works was assigned a work order in Cartegraph (asset management software) with individual tasks to locate and/or clean out each outlet location that required maintenance.
- Most stormwater management ponds required some form of modest maintenance work such as debris/object or sediment removal, erosion repair measures, minor concrete repairs, phragmites or wild parsnip management, landscape maintenance, fence and gate repair, dislodged structure lid resetting, missing orifice plate replacement, and/or illegal dumping removal. Public Works was assigned a work order in Cartegraph (asset management software) with individual tasks to rectify each pond location that required maintenance.

Calibration and Maintenance of Monitoring Equipment

Calibration and monitoring equipment is completed once per year before inspections commence. Equipment undergoes maintenance and/or replacement as required. Equipment includes a multi-parameter portable unit (TDS, pH, conductivity, temperature) and an infrared thermometer (temperature). Total suspended solids are sampled for analysis at an accredited laboratory.

Section 5: Complaints

Summary of Complaints Received and Actions Taken

The City of Kingston launched its Customer Relationship Management (CRM) system in June 2018. The system allows for a more holistic approach to customer service by providing increased access to online services via self-serve options, open access to current and accurate information for the public and staff, a mechanism for soliciting and collecting feedback through feedback surveys, and a centralized place for tracking customer information and interactions with the City. The CRM system allows staff to document, maintain, and share information across departments with the goal of providing seamless customer service through the entire lifecycle of a service request.

Summary of complaints received, and actions taken:

- **Complaint Type #1**: Stormwater system components not functioning properly (e.g., sediment or debris in a ditch, catch basin grate clogged with leaves, culvert joint failure). **Resolution**: Maintenance is completed as part of the operations program managed by Public Works. The complaint is tracked in the City's CRM system and the asset maintenance is tracked in Cartegraph (City's asset management software).
- **Complaint Type #2**: Inquiries about the status and scope of upcoming capital projects. **Resolution**: Inquiries addressed via email response and tracked in the City's CRM system. Customers were directed to the City's My Neighbourhood application for future updates. The My Neighbourhood App is an online tool that uses geo-enabled information to create an interactive map that offers users the ability to search and discover City programs, services,

facilities, and projects within an area of the City of Kingston. Starting with an address, users can search and access available public information online, specific to a geographic area. Capital project information available includes scope of work, expected timeline for completion, and contact information for the staff person who is leading the project.

- **Complaint Type #3**: Drainage concerns on private property (e.g., neighbour modifies backyard grading and customer now has regular water ponding on their property). **Resolution**: If the source of the drainage issue is City infrastructure, then maintenance is completed as part of the operations program managed by Public Works; however, if the drainage issue is between private property owners, the City facilitates a discussion between property owners, explains the cause of the concerns and provides information/resources for property owners to resolve the issue on their own. The complaint is tracked in the City's CRM system and any asset maintenance on City infrastructure is tracked in Cartegraph (City's asset management software).

Section 6: Summary of Alterations to the System

Summary of all Alterations to the System

Alteration Type	Number of Alterations	Number of Alterations that Pose a Significant Drinking Water Threat
Pre-Authorized Storm Sewer, Ditch or Culvert	9 Permits	0
Pre-Authorized Stormwater Management Facility	3 Permits	0
Pre-Authorized Third Pipe	0	0
Previously Approved Works	2	0

Schedule C Works	0	0

Significant Alterations

Storm Sewers, Ditches and Culverts: one (1) subdivision development (various new storm sewers, ditches, and culverts), six (6) capital infrastructure improvement projects such as road reconstruction or active transportation upgrades (new storm sewer system and/or ditch and culvert modifications), and eighteen (18) culvert replacements.

Stormwater Management Facilities: one (1) new stormwater management pond to service a subdivision development, and two (2) new oil-grit separator units as part of capital infrastructure improvement projects.

Previously Approved Works: one (1) new stormwater management pond and one (1) new oil-grit separator to service the Creekford Road Waste Transfer Site were constructed (ECA Number 9403-BU5QWG, Issued December 17, 2020).

Section 7: Spills and Abnormal Discharge Events

Summary of Spills and Abnormal Discharge Events

None. No spills or abnormal discharge events to report.

Section 8: Actions Taken to Improve or Correct Performance

Actions Taken in Current Reporting Year

Issue 1

As noted in Section 4, oil grit-separators OGS-M and OGS-U recorded sheen/sludge inside of the structures on May 24, 2023, which exceeded the Provincial Water Quality Objectives that “oil or petrochemicals should not be present in concentrations that can be detected as a visible film, sheen, or discolouration on the surface”.

Actions to be Taken

A clean out of the structures and proper handling and disposal of the contaminated material at a license facility was completed on June 23, 2023. It should be noted that at no time was oil or sheen observed in the effluent from these structures, which are located upstream of regional stormwater pond SWM-33. The sheen/sludge was observed during the third inspection out of 6 completed in 2023 in accordance with the ECA for these SWM Facilities.

Target Completion Date

Completed June 23, 2023.

Issue 2

Liquid waste/oil was discovered in 4 OGS units, sixteen other OGS units required regular maintenance to remove accumulated sediment. There were 2 OGS units located within a construction zone at Queen’s University and could not be inspected.

Actions to be Taken

Removal of liquid waste/oil has been coordinated for 4 OGS units with disposal at a licensed disposal facility, sixteen OGS units were cleaned out using Public Works vacuum truck in November 2023.

Target Completion Date

Sixteen OGS units requiring regular maintenance to remove accumulated sediment were cleaned out in November 2023. Liquid waste/oil is scheduled for removal in April 2024. The 2 OGS units located within the construction zone at Queen's University will be inspected once the structures are accessible, expected November 2024.

Issue 3

Several outlets required modest maintenance work such as debris/object or sediment removal, erosion repair measures, minor concrete repairs, vegetation management, grate repair, and/or illegal dumping.

Actions to be Taken

Public Works was assigned a work order in Cartegraph (asset management software) with individual tasks to locate and/or clean out each outlet location that required maintenance.

Target Completion Date

Work planned for completion as part of Public Works 2024 operations plan.

Issue 4

Most stormwater management ponds required some form of modest maintenance work such as debris/object or sediment removal, erosion repair measures, minor concrete repairs, phragmites or wild parsnip management, landscape maintenance, fence and gate repair, dislodged structure lid resetting, missing orifice plate replacement, and/or illegal dumping removal.

Actions to be Taken

Public Works was assigned a work order in Cartegraph (asset management software) with individual tasks to rectify each pond location that required maintenance.

Target Completion Date

Work planned for completion as part of Public Works 2024 operations plan.

Update on Actions from Previous Reporting Year

Issue 1

Most stormwater management ponds required some form of modest maintenance work such as debris/object or sediment removal, erosion repair measures, minor concrete repairs, phragmites or wild parsnip management, landscape maintenance, fence and gate repair, dislodged structure lid resetting, missing orifice plate replacement, and/or illegal dumping removal.

Actions to be Taken

Public Works was assigned a work order in Cartegraph (asset management software) with individual tasks to rectify each pond location that required maintenance.

Target Completion Date

Maintenance work was addressed as part of Public Works 2023 operations plan.Section 9: Additional Notes / Comments

Additional Notes / Comments

Combined Sewer Separation

The City of Kingston, in partnership with Utilities Kingston, has been working to separate all combined sewers in the city as it is the preferred method for overflow reduction, in accordance with our Pollution Prevention and Control Plans. Since 2008, the City has been separating sewers at a rate of about 3-4% per year, in coordination with full road reconstruction projects. In 2023, City Council has endorsed a 20-year separation plan to eliminate all combined sewers remaining in the City. The City's sewer separation map shows the progress since 2000.

Operations & Maintenance Manual for the Municipal Stormwater System

The City of Kingston is in the process of finalizing an operations and maintenance manual for all municipal stormwater infrastructure within the Authorized System on or before May 21, 2024, that includes or references, but is not necessarily limited to, the following information:

a) Procedures for the routine operation of all municipal stormwater infrastructure;
b) Inspection programs, including the frequency of inspection, and the methods or tests employed to detect when maintenance is necessary;
c) Maintenance and repair programs;
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/Procedures for dealing with equipment breakdowns, potential spills, and any other abnormal situations, including notification to the Spills Action Centre, 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 for all municipal stormwater infrastructure constructed after 2010 and where available, for stormwater works constructed before 2010.

Significant Drinking Water Threat Report

The City of Kingston will prepare a Significant Drinking Water Threat Assessment (SDWTA) Report for Proposed Alterations for the Authorized System on or before May 31, 2024. The City will make any necessary updates to the report at least once every twelve (12) months. Any components, equipment, or Sewage Works added to the report will be included in the report for the operational life of the Sewage Works. Upon request, the Owner shall make a copy of the report available to the Ministry or Source Protection Authority staff. The SDWTA Report will include, but not necessarily be limited to:

a) 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;
b) An outline of how the Owner assesses the proposed Alterations to identify drinking water threats under the CWA;
c) A list of components, equipment, or Sewage Works that are being altered and have been identified as a Significant Drinking Water Threat for any proposed Alteration; and
d) 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, such as those included in the Standard Operating Policy for Sewage Works.

SWM Pond Warning Signs

The City of Kingston is working to design, fabricate, and install warning signage at all stormwater management ponds on or before May 21, 2025. The signs will include the following minimum information:

a) Identification that the site contains a Stormwater Management Facility;
b) Identification of potential hazards and limitations of water use, as applicable;
c) Identification of the purpose of the Facility;
d) ECA approval number and/or asset ID; and

e) Owner's contact information.

Storm Sewershed Catchment Asset Inventory

The City of Kingston will prepare and submit to the Ministry an inventory and classification of all storm sewersheds on or before May 31, 2025. Within 12 (twelve) months of the date that the inventory is submitted, the document(s) or file(s) referenced in the City's ECA Agreement Number 018-S701 will be updated to identify the storm sewersheds for each outlet and their level of stormwater management. The minimum classification of the level of stormwater management will be as follows:

a) Level A – Stormwater receives treatment for water quality and quantity prior to discharge to the environment;
b) Level B – Stormwater receives treatment for water quality but no water quantity prior to discharge to the environment; and
c) Level C – Stormwater receives no treatment for water quality prior to discharge to the environment.

Monitoring Plan

The City of Kingston will develop and implement a Monitoring Plan for the municipal stormwater system (Authorized System) within twenty-four months of the date of the publication of the Ministry's monitoring guidance (pending). The monitoring plan shall be 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. The City will 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. The City shall, on request and without charge, provide a copy of the Monitoring Plan and any resulting monitoring data to members of the public.

The Monitoring Plan shall include:

a) Procedures to verify that the operational performance of the Authorized System is as designed or planned;

b) Procedures to assess the environmental impact of the Municipal Stormwater Management System;
c) Procedures for any corrective action that may be required to address any performance deficiencies or environmental impacts;
d) Identification of the Sewage Works to be monitored, including outlets and any works that provide quality and/or quantity control;
e) Identification of the key receivers to be monitored within the Owner's municipal boundaries and the monitoring locations;
f) 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);
g) Characterization of water quality and quantity conditions and identification of water users to be protected;
h) Identification of water quality and quantity goals, as it relates to stormwater management;
i) Identification of locations of rainfall gauges to be used;
j) 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;
k) Details respecting a monitoring program for the works and the receivers;
l) 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;
m) 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
n) Consideration of adaptive management practices (e.g., evidence-based decision making).

Subdivision Agreement Clauses

The City of Kingston's Engineering Services and Planning Services departments have coordinated to undertake development of standard CLI ECA clauses for Subdivision Agreements to ensure that all inspection, maintenance, operations, record-keeping and reporting requirements under the City's ECA Agreement Number 018-S701 are carried

out by Developers and provided to the City in Annual Performance Reports while Developers are responsible for the operation and maintenance of municipal stormwater infrastructure, i.e., before the responsibility is assumed by the municipality. The current CLI ECA clauses include dedicated securities ("CLI ECA SWM Security") to be released at set milestones to compel Developers to provide Annual Performance Reports to the satisfaction of the City, and are generally as follows:

a) prior to commencing operation of the Stormwater Management Facility, the Developer shall submit a digital copy of the current Operations & Maintenance Manual for each Stormwater Management Facility to the Municipality, to the satisfaction of the Municipal Engineer;
b) after the submission and acceptance of each Annual Performance Report between issuance of Preliminary Certificate of Approval of Underground Services (PCAUS) and issuance of the Preliminary Certificate of the Works (PCAW) the CLI ECA SWM Security can be reduced;
c) the Developer shall submit a digital copy of the final Operations & Maintenance Manual for each Stormwater Management Facility to the Municipality at issuance of PCAW, to the satisfaction of the Municipal Engineer, at which point the Developer may request that the CLI ECA SWM Security be reduced;
d) prior to the Municipality issuing PCAW for the Stormwater Management (SWM) Pond, the Developer shall complete a bathymetric survey of the pond and provide a letter stamped by the Developer's Engineer certifying that the accumulation of sediment is acceptable (i.e., within the tolerance of expected sediment accumulation) as compared to the pond design elevations since the commencement of operation (i.e., no excess sediment in the SWM Pond). The Developer's Engineer must provide calculations and cite sources within the certification letter (e.g., expected sediment accumulation rate/volume). Should excess settlement and/or debris be present it shall be removed from the SWM Pond by completing at least one (1) pond clean out. At this point, or should no excess sediment or debris be present, and provided that the Owner has provided as-built drawings for the SWM Pond, the Developer may request that the CLI ECA SWM Security be reduced;
e) following the Municipality issuing PCAW, the Developer must submit all outstanding monitoring records for each Stormwater Management Facility constructed for the purpose of stormwater treatment to the satisfaction of the Municipal Engineer, at which point the Developer may request that the CLI ECA SWM Security be reduced; and

f) the CLI ECA SWM Security shall be fully released only when the final Annual Performance Report and any other outstanding deliverables (e.g., monitoring records) have been provided to the Municipality, to the satisfaction of the Municipal Engineer to facilitate the Municipality issuing the Final Certificate of Approval of the Works.

CLI ECA SWM Webpage

The City has developed a CLI ECA SWM permit application webpage (link below) that provides links to resources (e.g., design standards and guidelines, Ontario Regulations), application fees and forms, templates, and contact information generally covering the following topics:

a) What is a CLI ECA SWM permit?
b) When is a Permit Required?
c) Before you Apply for a Permit
d) Design Standards and Guidelines
e) Application Checklist
f) Technical Review Process
g) Application Fees and Submission
h) Additional Resources

City's CLI ECA SWM Webpage

Section 10: Making Available to the Public

Details on how the report can be accessed

The City's Annual Performance Reports will be made available to the public via a link on the City's CLI ECA SWM Webpage (link below). The webpage currently provides links to the City's Core Asset Management Plan, Watershed and Subwatershed Maps, default CLI ECA Subdivision Agreement Clauses, and access to an inventory of all identified municipal stormwater management system infrastructure assets which are publicly available through Open Data Kingston (link below). Once available and as required, the webpage will also include links to the following City documents discussed in Section 9 of this report:

a) Operations & Maintenance Manual for the Municipal Stormwater System
b) Significant Drinking Water Threat Report
c) Storm Sewershed Catchment Asset Inventory
d) Monitoring Plan

City's CLI ECA SWM Webpage

Open Data Kingston - Storm assets