

# Subdivision Agreement Clauses

## CLI ECA for Municipal SWM System

### ECA Number 018-S701



The following terms are defined for the purposes of this Schedule "I":

**"CLI ECA Stormwater Permit"** means a project-specific environmental compliance approval agreement between the *Municipality* and the *Owner*, awarded by the *Municipality* through the approval authority granted by the *Ministry* for low-risk *Stormwater Works*.

**"Extreme Weather Event"** means unexpected, unusual, severe, or unseasonal weather occurrence that goes beyond normal weather patterns and which poses risks to life or property.

**"Ministry"** means the ministry of the government of Ontario responsible for the *Environmental Protection Act, R.S.O. 1990, c.E.19*, as amended, and *Ontario Water Resources Act, R.S.O. 1990, c. O.40*, as amended, and includes all officials, employees or other persons acting on its behalf.

**"Natural Environment"** means the air, land and water, or any combination or part thereof, of the City of Kingston.

**"Significant Flooding Event"** means a wet weather event which results in an overflow of water onto normally dry land.

**"Significant Snowmelt Event"** means melting of snow at a rate which adversely affects the performance and function of the *Stormwater Management Facility*.

**"Significant Storm Event"** means a minimum of 25 millimetres of rain in any 24-hour period.

**"Stormwater"** means rainwater runoff, water runoff from roofs, snowmelt, and surface runoff.

**"Stormwater Management Facility"** means a facility for the treatment, retention, infiltration, or control of *Stormwater*.

**"Stormwater Works"** means any works for the collection, transmission, treatment and disposal of stormwater or any part of such works.

**"Wet Weather Event"** means a minimum of 15 mm of rain in the previous 24 hours.

## General

### Erosion & Sedimentation Control Measures

The *Owner* shall ensure that temporary erosion and sedimentation control (ESC) measures are installed in advance of, and maintained during, any construction activity. All ESC measures shall be in accordance with the ESC Plan as provided in the Stormwater Management Report/Brief, prepared by the *Owner's Engineer* to the satisfaction of the *Municipal Engineer*.

Inspections of ESC measures are to be conducted at the frequency specified per the ESC plan, and at a minimum:

- a) once every two (2) weeks for dry weather periods (active and inactive construction phases);
- b) after each *Significant Storm Event*;
- c) after each *Significant Snowmelt Event*; and
- d) after any *Extreme Weather Event*.

The *Owner* shall address any deficiencies and shall undertake any required maintenance action(s) as soon as practicable once they have been identified. If a deficiency cannot be rectified within 48 hours, the *Owner* shall notify the *Municipal Engineer* as soon as practicable, summarizing the situation, including the reason for the delay in rectification, proposed plan to rectify the deficiency, and expected timeframe for completion.

Temporary ESC measures shall remain in place until they are no longer required (i.e., the site has been stabilized) at which point they should be removed along with any accumulated sediment.

The *Owner* shall maintain records of all inspections and maintenance of temporary ESC measures undertaken and shall provide records with each Annual Performance Report. The records shall include the following at a minimum:

- a) the name of each *Stormwater Management Facility*;
- b) the name of the person who conducted the inspection and maintenance, or the name of the inspecting official, where applicable; and
- c) the date and results of each inspection and maintenance including visual observations, an estimate of the quantity of any materials removed, and any other remedial actions undertaken to maintain the temporary ESC measures.

### Operations & Maintenance Manual

The *Owner* shall prepare an Operations & Maintenance Manual to the satisfaction of the *Municipality* prior to the commencement of operation of the *Stormwater Management*

*Facility* that includes, but is not necessarily limited to, the following information:

- a) Operating and maintenance procedures for the routine operation of the *Stormwater Management Facility*;
- b) Inspection programs, including the frequency of inspection, for the *Stormwater Management Facility* and the methods or tests employed to detect when maintenance is necessary;
- c) Repair and maintenance programs, including the frequency of repair and maintenance for the *Stormwater Management Facility*;
- d) Contingency plans and procedures for dealing with potential spills and any other abnormal situations and for notifying the *Municipality*; and
- e) Procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken.

The Owner shall keep the Operations & Maintenance Manual for each *Stormwater Management Facility* current and provide a digital copy of the final manual to *Municipality* staff as supporting documentation in the application for the *Preliminary Certificate of Approval of the Works* (PCAW).

## **Annual Performance Report**

The Owner shall prepare and submit an Annual Performance Report to the *Municipality* each year by March 31<sup>st</sup> following the end of the period being reported upon. The first such report shall cover the commencement of operation of the *Stormwater Management Facility* to December 31<sup>st</sup> of that year and subsequent reports shall be submitted to cover annual periods following thereafter (January 1<sup>st</sup> to December 31<sup>st</sup>). The reports shall contain, but shall not be limited to, the following information:

- a) A description of any operating problems encountered and corrective actions taken;
- b) A description of all inspection, maintenance, and corrective actions carried out on temporary ESC measures;
- c) A summary of all inspection, maintenance, testing and corrective actions carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Stormwater Management Facility*, including an estimate of the quantity of any materials removed from the *Stormwater Management Facility*;
- d) Inspection & Maintenance Program records;
- e) Monitoring Program records;
- f) Measurement of the volume of accumulated sediment removed when undertaking maintenance of the *Stormwater Management Facility*;
- g) A summary of any complaints received during the reporting period and any steps taken to address the complaints;
- h) A summary of all spill or abnormal discharge events;
- i) Current versions of all manuals, plans, records, data, procedures and supporting documentation; and

j) Any other information the *Municipality* requires from time to time.

## **Emergency Reporting**

As it relates to each approved *Stormwater Management Facility*, the *Owner* shall ensure that, upon the occurrence of any spill, bypass or loss of any product, by product, intermediate product, oils, solvents, waste material or any other polluting substance into the environment, such occurrence be immediately reported to the *Municipality*, and the Spills Action Centre for the Ministry (Telephone 1-800-268-6060).

Further, the *Owner* shall, within ten (10) working days of the occurrence, submit a full written report of the occurrence to the *Municipality* describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and the schedule of implementation.

# Stormwater Management Ponds

## Inspection & Maintenance Program

The *Owner* shall inspect the *Stormwater Management Facility* at least once a year and after any *Significant Flooding Event* and, if necessary, clean and maintain the *Stormwater Management Facility* to ensure that sediment, debris, and excessive decaying vegetation are removed from the *Stormwater Management Facility* to prevent the excessive build-up and to avoid the reduction of the capacity and/or permeability of the *Stormwater Management Facility*, as applicable. During the first two (2) years of operation the *Stormwater Management Facility* shall be inspected by the *Owner* after each *Significant Storm Event*. The *Owner* shall regularly inspect and clean out the inlet to and outlet from the *Stormwater Management Facility* to ensure that these are not obstructed. In addition, the *Owner* shall ensure that the design minimum liquid retention volume in the pond is maintained at all times and operate the *Stormwater Management Facility* with the objective *Stormwater Management Facility* 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.

The *Owner* shall maintain records of the results of all inspections, cleaning and maintenance operations undertaken, and shall make available the records for inspection by the *Municipality* upon request.

The records shall include the following:

- a) The name of the *Stormwater Management Facility*;
- b) The date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed and method of clean-out of the *Stormwater Management Facility*;
- c) The name of the person who conducted the inspection, maintenance and cleaning, or the name of the inspecting official, where applicable;
- d) Observations resulting from the inspection including, at a minimum:
  - i. condition of vegetation in and around the *Stormwater Management Facility*;
  - ii. occurrence of obstructions at the inlet and outlet of the *Stormwater Management Facility*;
  - iii. evidence of spills or oil/grease contamination, and the date of each spill within the site, including follow-up actions / remedial measures undertaken; and presence of trash build-up.
- e) Hydraulic operation of the *Stormwater Management Facility* (e.g., length of occurrence since the last rainfall event, evidence or occurrence of overflows);
- f) A summary of any operating problems encountered and corrective actions taken;
- g) A summary of any complaints related to the *Stormwater Management Facility*

received during the reporting period and any steps taken to address the complaints;

- h) A summary of actions taken, including timelines, to improve or correct performance of any aspect of the *Stormwater Management Facility*; and
- i) A summary of the status of actions for the previous reporting year.

The *Owner's Engineer* must submit inspection and maintenance records to the *Municipality* each year as part of the Annual Performance Report.

## **Monitoring Program**

The *Owner* shall carry out a monitoring program and evaluate the performance of the *Stormwater Management Facility* commencing at the initial completion of construction of the facility and continuing until the *Preliminary Certificate of Approval of the Works* has been issued, or when agreed upon by the *Owner* and the *Municipal Engineer* during the PCAW process.

The monitoring program must include obtaining grab samples at the outfall from the pipe discharging from the *Stormwater Management Facility* for at least three (3) *Wet Weather Events* per year. Two (2) of the events must occur within the May to September period. Samples must be tested for Total Suspended Solids (mg/L), Phosphorus (ppm), and Temperature (°C) and the results recorded. The *Owner* shall maintain records of the results of all monitoring operations undertaken and shall make available the records for inspection by the *Municipality* upon request.

The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:

- a) the *Ministry's* Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Stormwater Management Facility (Liquid Waste Streams Only)", as amended from time to time by more recently published editions;
- b) the *Ministry's* publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions;
- c) CCME publication "Protocols Manual for Water Quality Sampling in Canada" (2011), ISBN 978-1-896997-7-0, as amended from time to time by more recently published editions; and
- d) the publication "Standard Methods for the Examination of Water and Wastewater" (21<sup>st</sup> edition), as amended from time to time by more recently published editions.

The records shall include the following:

- a) the name of the *Stormwater Management Facility*;
- b) the name of the person who conducted the monitoring, or the name of the inspecting official, where applicable;
- c) the date and results of each sample taken under the monitoring program (described above);
- d) a summary of all monitoring data along with an interpretation of the data and an overview of the condition and operational performance of the infrastructure and any Adverse Effects on the Natural Environment (Adverse Effect as defined in the *Environmental Protection Act, R.S.O. 1990, c. E.19*);
- e) a summary and interpretation of environmental trends based on all monitoring information and data for the previous years; and
- f) a summary of the calibration and maintenance carried out on all monitoring equipment.

The *Owner's Engineer* must submit monitoring records to the *Municipality* each year as part of the Annual Performance Report.

## **As-Built Information**

Prior to the *Municipality* issuing the *Preliminary Certificate of Approval of the Works* for the *Stormwater Management Facility*, the *Owner* must complete a bathymetric survey (using GPS/Sonar, surveying and manual checks) that demonstrates the *Stormwater Management Facility* beneath the permanent pool elevation has been constructed in conformance with the approved design to the satisfaction of the *Municipality* and provide a letter stamped by the *Owner'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 *Stormwater Management Facility*). The *Owner'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 *Stormwater Management Facility* by completing at least one (1) pond clean out. The surveys must include elevations for the permanent pool water level, forebay water level, bottom of the permanent pool, bottom of the forebay, permanent pool top of sediment, forebay top of sediment, top of pond, inlet location, and outlet location.

As-built drawings for the *Stormwater Management Facility* must also include topographic survey information to verify that as-built conditions conform with the approved design. As-built drawings are to be provided in both a PDF version and an AutoCAD version depicting all as built features. Refer to Section 8.8 of the [Municipality of Kingston Subdivision Development Guidelines & Technical Standards](#) for additional as-built drawing specifications and requirements.

# Manufactured Treatment Devices

## Inspection & Maintenance Program

The *Owner* shall inspect Manufactured Treatment Devices (e.g., filter units) at least once a year and, if necessary, after any major spills have occurred and clean and maintain the *Stormwater Management Facility* to prevent the excessive build-up of sediments and oil/grease contamination.

The *Owner* shall maintain records of the results of all inspections, cleaning and maintenance operations undertaken, and shall make available the records for inspection by the *Municipality* upon request.

The records shall include the following:

- a) the name of the *Stormwater Management Facility*;
- b) the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed;
- c) the name of the person who conducted the inspection, maintenance and cleaning, or the name of the inspecting official, where applicable;
- d) observations resulting from the inspection including, at a minimum:
  - i. occurrence of obstructions at the inlet and outlet of the *Stormwater Management Facility*;
  - ii. evidence of spills or oil/grease contamination, and the date of each spill within the site, including follow-up actions / remedial measures undertaken; and
  - iii. presence of trash build-up.
- e) a summary of any operating problems encountered and corrective actions taken;
- f) a summary of any complaints related to the *Stormwater Management Facility* received during the reporting period and any steps taken to address the complaints;
- g) a summary of actions taken, including timelines, to improve or correct performance of any aspect of the *Stormwater Management Facility*;  
and
- h) a summary of the status of actions for the previous reporting year.

The *Stormwater Management Facility* can be cleaned using a vacuum pump inserted down the maintenance access ways – no entry into the unit is required for its operation. The *Owner* shall clean the *Stormwater Management Facility* annually, whenever the accumulation reaches 15% of the sediment storage, or after any major spills have



occurred. Oil levels greater than 25 mm should be removed immediately by a licensed waste management firm, usually to a licensed landfill facility.

The sediment should be tested to determine the disposal options. The *Ministry* publishes [sediment disposal guidelines](#) which should be consulted for up-to-date information pertaining to the exact parameters and acceptable levels for the various disposal options. The preferred option is off-site disposal arranged by a licensed waste management firm, usually to a licensed landfill facility.

The *Owner's Engineer* must submit inspection and maintenance records to the *Municipality* each year as part of the Annual Performance Report.

## **Monitoring Program**

The *Owner* shall carry out a monitoring program and evaluate the performance of the manufactured treatment device commencing at the initial completion of construction of the treatment facility until the *Preliminary Certificate of Approval of the Works* has been issued, or when agreed upon by the *Owner* and the *Municipal Engineer* during the PCAW process.

The monitoring program must include obtaining grab samples at the manufactured treatment device once during three (3) representative *Wet Weather Events* in both the autumn and spring seasons (annually six samples per unit). Two (2) of the events must occur within the May to September period. Samples must be tested for oil & grease and the results recorded. The *Owner* shall maintain records of the results of all monitoring operations undertaken and shall make available the records for inspection by the *Municipality* upon request.

The records shall include the following:

- a) the name of the *Stormwater Management Facility*;
- b) the name of the person who conducted the monitoring, or the name of the inspecting official, where applicable;
- c) the date and results of each sample taken under the monitoring program (described above);
- d) quantity and frequency of slop oil disposal from the manufactured treatment device, including a copy of the disposal manifest;
- e) a summary of all monitoring data along with an interpretation of the data and an overview of the condition and operational performance of the infrastructure and any Adverse Effects on the Natural Environment (Adverse Effect as defined in the *Environmental Protection Act, R.S.O. 1990, c. E.19*);
- f) a summary and interpretation of environmental trends based on all monitoring information and data for the previous years; and

- g) a summary of the calibration and maintenance carried out on all monitoring equipment.

The *Owner's Engineer* must submit monitoring records to the *Municipality* each year as part of the Annual Performance Report.

# Stormwater Chambers

## Inspection & Maintenance Program

The *Owner* shall inspect the *Stormwater Management Facility* at least once a year and after any *Significant Flooding Event* and, if necessary, clean and maintain the *Stormwater Management Facility* to prevent the excessive build-up of sediment and debris to avoid reduction of the capacity and/or permeability of the *Stormwater Management Facility*, as applicable. The *Owner* shall also regularly inspect and clean out the inlet to and outlet from the *Stormwater Management Facility* to ensure that these are not obstructed.

The *Owner* shall maintain records of the results of all inspections, cleaning and maintenance operations undertaken, and shall make available the records for inspection by the *Municipality* upon request.

The records shall include the following:

- a) the name of the *Stormwater Management Facility*;
- b) the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed and method of clean-out of the *Stormwater Management Facility*;
- c) the name of the person who conducted the inspection, maintenance and cleaning, or the name of the inspecting official, where applicable;
- d) observations resulting from the inspection including, at a minimum:
  - i. occurrence of obstructions at the inlet and outlet of the *Stormwater Management Facility*;
  - i. evidence of spills or oil/grease contamination, and the date of each spill within the site, including follow-up actions / remedial measures undertaken;
  - ii. presence of trash build-up.
- e) hydraulic operation of the *Stormwater Management Facility* (e.g., length of occurrence since the last rainfall event, evidence or occurrence of overflows);
- f) a summary of any operating problems encountered and corrective actions taken;
- g) a summary of any complaints related to the *Stormwater Management Facility* received during the reporting period and any steps taken to address the complaints;
- h) a summary of actions taken, including timelines, to improve or correct performance of any aspect of the *Stormwater Management Facility*;  
and

- i) a summary of the status of actions for the previous reporting year.

The sediment should be tested to determine the disposal options. The *Ministry* publishes [sediment disposal guidelines](#) which should be consulted for up-to-date information pertaining to the exact parameters and acceptable levels for the various disposal options.

The *Owner's Engineer* must submit inspection and maintenance records to the *Municipality* each year as part of the Annual Performance Report.

## **Final Clean Out**

Prior to the *Municipality* issuing the *Preliminary Certificate of Approval of the Works* for the *Stormwater Management Facility*, the *Municipality* will require certification from the *Owner* that all excess sediment and debris have been cleaned out of the *Stormwater Management Facility*. This certification must be a letter stamped by the *Owner's Engineer* supported with at least one (1) clean out (i.e., flushing and disposal of accumulated sediment) of the *Stormwater Management Facility*.

# Storm Sewers

## General Requirements

The *Owner* shall inspect and test all new and replaced storm sewers, maintenance holes, connections and appurtenances shall be inspected and tested to ensure integrity of the installed material for water tightness prior to placing into service. A single testing plan can be used for similar tests on the same project; however, each test shall be recorded separately.

Inspection and testing plans including procedure, equipment, schedule, safety requirements, and emergency response plan shall be submitted to the *Municipality* at least two (2) weeks prior to the inspection or testing. The *Owner* shall not proceed with the inspection or testing until the plans have been accepted by the *Municipality*. Seasonal variation (e.g., spring freshet) on groundwater conditions shall be considered on selecting appropriate testing method.

## CCTV Inspections

The *Owner* shall conduct a camera inspection shall be conducted throughout the entire length of the storm sewer system in accordance OPSS.MUNI 409 and supplemental conditions outlined in Appendix 2A of the [Municipality of Kingston Subdivision Development Guidelines & Technical Standards](#). The inspection shall be carried out prior to the application of the final lift of asphalt but not within the first ten (10) months following the completion of base asphalt. All new storm sewers including connections and associated appurtenances shall be inspected to confirm alignment and to ensure that the *Stormwater Management Facility* is free from obstructions, debris, and defects. All storm maintenance holes/access structures shall be inspected for any defects, leaks, debris, and to ensure proper benching.

If the *Municipality* is provided with sufficient justification from the *Owner's Engineer* to determine that a CCTV inspection is not possible, other acceptable inspection methods for storm sewers and structures are included in Section 8.0 of the *Ministry's* "Design Criteria for Sanitary Sewers, Storm Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval", and are summarized below:

- a) zoom camera inspections as per OPSS.MUNI 432;
- b) sonar inspections as per OPSS.MUNI 435 (under submerged or partially submerged conditions); and
- c) laser inspections as per OPSS.MUNI 434.

The *Owner's Engineer* shall speak to any defects with respect to the sewer installations and recommend the method of remedial work, where warranted. The *Owner* shall correct, at the *Owner's* expense, any issues identified in the inspections and the respective pipe segments and maintenance holes shall be re-inspected.

## **Deflection Testing**

The *Owner* shall complete a deflection test for all new flexible storm sewers at least thirty (30) calendar days after backfilling but prior to paving. Pipe segments failing the deflection test shall be removed and replaced. Mandrel testing and laser profiling performed in accordance with OPSS.MUNI 438 and OPSS.MUNI 434, respectively, are acceptable tests for pipe deflection testing. Equipment used to perform mandrel tests shall be specifically designed for the pipe material being tested.

The *Owner's Engineer* shall speak to any defects with respect to the sewer installations and recommend the method of remedial work where warranted. The *Owner* shall correct, at the *Owner's* expense, any issues identified in the testing shall be corrected at the *Owner's* expense and the respective pipe segments shall be re-inspected.