

FACTS ON STORMWATER



Part III: NEW STORM WATER MANAGEMENT SYSTEMS Environmental Compliance Application—The Approvals Review Process

All new storm water management systems must be approved by the Ontario Ministry of Environment and Climate Change (MOECC). An Environmental Compliance Application (ECA) must be submitted to the MOECC for their review and ultimate approval. A streamlined ECA process is in place for greenhouse operations. The approvals review process is outlined as follows:

- Pre-submission consultation meeting/s
- Screening application for completeness
- Public consultation strategy (EBR and OWRA (S.53) and O. Reg. 525/98)
- Technical Suitability Evaluation
 - ◇ Design to meet effluent quantity and quality criteria, etc.
 - ◇ Level of reliability
 - ◇ Monitoring/reporting (as required)
 - ◇ Process equipment sizing and selection
- Approval decision

Note: some storm water facilities are exempted from the ECA requirement by Ontario Regulation 525/98.

Storm Water Management (SWM) – ECAs Legislative Framework

Sewage and Process Wastewater Discharges into Environment are regulated by:

- Environmental Protection Act. R.S.O., 1990.
- Section 53 of the Ontario Resources Act. R.S.O. 1990

Note: Under these regulations storm water is classified as sewage.



Storm Water Management – Past and New ECAs – Change in Focus

Due to climate change implications, conventional end-of-pipe (e.g. pond system) storm water management systems focussing only on controlling peak flow rates and the removal of total suspended solids by end-of-pipe systems are no longer achieving the required protection of the watershed ecosystem. These storm water management practices are not always effective at mitigating in-stream erosion or fully protecting water quality, fish and wildlife habitat, and other aquatic resources from storm water runoff and contaminants.

Past ECAs focussed mostly on end-of-pipe features. Future ECAs however will have an increased focus on upstream, Low Impact Development (LID) and Lot Level Treatment Train Approach Control Options. The latter approach enhances overall infiltration; reduces the amount of impervious area; and/or restricts the discharge of storm water to sewers. The main goal of this latter approach is to control precipitation as close as possible to where it falls by employing lot level and conveyance controls, often as part of a treatment train approach.

Storm Water Management Plan - Treatment Train Approach

Impacts of climate change support the design of SWM systems using a treatment train approach that includes:

- i. Control at the lot and conveyance levels followed by;
 - ii. End-of pipe control.
- Lot level and conveyance controls reduce end-of-pipe storage requirements for erosion control and are the best means for flow balancing.
 - End-of-pipe controls are subsequently required to meet water quality, erosion and flood control requirements.



Storm Water Management Lot Level Control Options

Lot Level Control

- Reduced % grade of lot;
- Rooftop detention;
- Rain gardens;
- Porous pavement;
- Tree planting/vegetation;
- Grassed swales;
- Water reuse systems;
- Soak away pits;
- Catch basin and in-sewer restrictors;
- Others

End-of-Pipe Control

- Dry ponds;
- Wet ponds;
- Infiltration ponds;
- Constructed wetlands;
- Hybrid ponds;
- Off-line ponds;
- Underground storage;
- Others.

Conveyance Control

- Grassed swales;
- Pervious pipe systems;
- Pervious catch basins;
- Infiltration systems;
- Others

References and Sources

- *Stormwater Management Planning and Design Manual*, MOE, March 2003
- *Understanding Stormwater Management: An Introduction to Stormwater Management Planning and Design*, MOE, 2003
- *Stormwater Pollution Prevention Handbook*, MOE, 2001
- *Interim Stormwater Quality Control Guidelines for New Development*, MOE, May 1991
- *Low Impact Development Stormwater Management Planning and Design Guide*, TRCA and CVCA, 2010
- *Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices*, United States Environmental Protection Agency, December 2007
- *Integrated Surface and Groundwater Model Review and Technical Guide, 2011*, Prepared by AquaResource Inc. for the Ministry of Natural Resources
- Low impact storm water management guidance document, MOECC, 2017.

Helpful LID Resources websites

- www.sustainabletechnologies.ca
- www.creditvalleyca.ca/low-impact-development/
- Ministry of Natural Resources at www.waterbudget.ca
- http://www.conservation-ontario.on.ca/media/IWM_WaterBudgetOverview_Final_Jun2.pdf
- <http://www.conservation-ontario.on.ca/what-we-do/what-is-watershed-management/integrated-watershed-management>
- <https://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTI40TM1&statusId=MTk1MDA1&language=en>
- <http://www.ontarioccdp.ca/> **Final for Approval Version. MOECC Approval Pending.**

