

Development Application Guideline

Terms of Reference – Stormwater Management Report



Description

A Stormwater Management Report is a document that identifies the quality and quantity impacts of the change in stormwater operations on the following:

- existing infrastructure;
- the lands subject to development;
- water bodies; and
- Downstream impacts

This document will highlight where improvements to private and public servicing infrastructure are required in order to support the proposal and provide strategies for reducing negative impacts through mitigation measures. Additionally, the report will evaluate the effects of the proposed development on the natural environment with regards to sediment loading and erosion, major fluctuations in peak flows, pollutant contaminant loads on the receiving stormwater network, and any other relevant impacts.

Best practices in stormwater management help to minimize the effects of polluted or otherwise impacted (e.g. higher temperature, high levels of sediment, de-oxygenated) runoff on the hydrologic cycle due to the current urban form. Effective management of stormwater is critical to the continued health of the lakes, streams, ponds, fisheries and habitats that make up our watershed.

This Terms of Reference document is intended to be applied in conjunction with all other applicable guidelines, such as the City of Kingston's Site Plan Control Guideline and the City of Kingston's Subdivision Development Guideline and Technical Standards.

Rationale

A Stormwater Management Report is required in order to provide City staff with the necessary information to evaluate the effects of the proposed development on the stormwater and drainage infrastructure as well as the local hydrologic cycle and watershed. Promoting best practices in stormwater management is important to protect the watershed, the great lakes and the St. Lawrence River from excess erosion,

fluctuation in flows, and flooding as well as maintain groundwater recharge and improve water quality.

Requiring a Stormwater Management Report for the evaluation of a development proposal is in keeping with the policies of the City of Kingston's Official Plan, including Section 4.3.1., which addresses stormwater impacts and Section 4.3.4., which states:

For urban infill development projects, the City will require the preparation of a stormwater management report to address the impacts of additional lot coverage or new uses of the site on the quality and quantity of water. Proponents must endeavor to improve the management of stormwater from the existing development areas.

When Required

A stormwater management report may be required for any of the following applications depending on site context and conditions:

- Zoning By-law Amendment
- Plan of Subdivision
- Site Plan Control
- Plan of Condominium
- Or any other development application deemed appropriate by Council or delegate

Applicable Legislation

There are various legislation and policies that prescribe proper stormwater management practices including the Fisheries Act, the Lakes and Rivers Improvement Act, the Ontario Water Resources Act, and the Conservation Authorities Act. In addition, the Provincial Policy Statement outlines the following policies related to stormwater management:

1.6.6 Sewage, Water and Stormwater

1.6.6.7 Planning for stormwater management shall:

- a) minimize, or, where possible, prevent increases in contaminant loads;
- b) minimize changes in water balance and erosion;
- c) not increase risks to human health and safety and property damage;
- d) maximize the extent and function of vegetative and pervious surfaces;
- and
- e) promote stormwater management best practices, including stormwater attenuation and re-use, and low impact development.

Furthermore, Section 41 of the Planning Act states:

(7) **Conditions to approvals of plans.**—As a condition to the approval of the plans and drawings referred to in subsection (4), a municipality may require the owner of the land to,

(a) provide to the satisfaction of and at no expense to the municipality any or all of the following:

9. Grading or alteration in elevation or contour of the land and provision for the disposal of storm, surface and waste water from the land and from any buildings or structures thereon;

The Planning Act also gives Council the authority to request other information or material that it deems necessary in order to evaluate and make a decision on a proposed planning application.

Section 9.12.3 of the City's Official Plan contains a list of additional information (such as a Stormwater Management Report) which may be required upon request.

Qualified Persons

A Stormwater Management Report should be completed by a qualified professional engineer licenced in the Province of Ontario with experience in stormwater and water resource management.

Required Contents

Consult the Cataraqui Region conservation Authority (CRCA) Guidelines for Stormwater Management, City of Kingston Subdivision Development Guidelines and Technical Standards and Site Plan Control Guidelines for design criteria and best practices.

1. Introduction

1.1. Provide a brief description of the site, which may include:

- Key map of the site with dimensions
- Location
- Significant features on or near the site which may include waterbodies, trees, or other natural heritage features

1.2. Describe the proposed development.

2. Background & Site Context

2.1. Relevant site history and existing development or land uses.

2.2. Identify existing and proposed legal outlet(s) for both minor and major stormwater flows in the pre- and post-development conditions

2.3. Include a plan of existing and proposed structures on the site, which may include:

- Existing and proposed buildings
- Hard surfaces such as asphalt, gravel, sidewalks and walkways, etc.

- Landscaping elements such as lawn, long grass, flower beds, trees and shrubs, etc.
 - Any existing or proposed water features on the site such as ponds, streams, stormwater management ponds, etc.
- 2.4. Provide local runoff coefficients
- 2.5. Identify any site constraints such as:
- Limits of flooding hazards and erosion hazards
 - Local sewer and water treatment infrastructure
 - Overland flow routes
- 2.6. Locate nearby receiving water bodies and their relative distance to the site as well as the existing conditions and any issues with the water body.
- 2.7. Present geotechnical properties of the local soil including permeability, depth to bedrock, water table levels, etc.

3. Analyses

In order to compare and control post-development runoff to pre-development levels, controlled release and on site storage information is required.

3.1. Quantity Control

- 3.1.1. Quantity control analysis should be provided for the minor through regulatory (2 year through 100 year) return periods.
- 3.1.2. Provide a pre-development hydrograph for peak flows on site and estimated post-development peak flow hydrograph.
- 3.1.3. Using CRCA guidelines and Intensity Duration Frequency curves for Kingston, calculate pre-development and post-development storm runoff coefficients and provide any assumptions or equations.
 - 3.1.3.1. Design storm distributions and durations shall match the recommendations of the appropriate sub-watershed study or Master Drainage Plan. If no such study exists, the SCS type II, Chicago, and AES Southern Ontario 30% distribution shall be applied for 6-hour, 12-hour, and 24-hour durations.
- 3.1.4. Describe any potential control methods such as BMPs, dry pond, wet pond, wetland, infiltration, enhanced catch basin, etc.
- 3.1.5. Calculations supporting open channels, flow control, and major flow path designs.
- 3.1.6. Give an examination of the impacts of the control method on groundwater recharge.

3.2. Quality Control

- 3.2.1. For storm-water management ponds, quality control should be measured under the Ministry of Environment and Climate Change (MOECC) 'Normal Protection' standards for a 25mm storm held for 24 hours.

- 3.2.1.1. If the site is located near a sensitive water body such as a wetland or cold-water lake more stringent requirements may be required.
- 3.2.2. Identify the quality control measures for the proposed development and how stormwater will be treated on site. This should include:
- Drawings, diagrams, cross sections of any measures and structures used for controls.
 - Any equations and calculations.
 - Erosion and sediment control methods to be used before, during, and after construction. There should also be a monitoring and removal plan for sediment control measures.
 - Emergency overflow measures.
 - Native plants to be planted for appropriate inundation control as well as Low Impact Development elements of the site's landscaping.
 - All snow storage areas, maintenance and operations access, and any other pertinent control elements on site.

4. Recommendations and Conclusions

- 4.1. Summarize the key recommendations for the stormwater management of the proposed development's site based on the analyses performed.
- 4.2. Address any long term maintenance and monitoring provisions for the proposed stormwater management measures.

Submission Requirements

All development applications and accompanying studies and reports should be submitted through the City of Kingston's **DASH Development and Services Hub** which can be accessed online at: [City of Kingston DASH](#)

Additional Information

For additional information, please contact the City of Kingston Planning, Building and Licensing Services Department at:

1211 John Counter Boulevard, Kingston
613-546-4291 ext. 3180
planning@cityofkingston.ca

The Cataraqui Region Conservation Authority can be contacted at:

P.O. Box 160, 1641 Perth Road, Glenburnie, ON, K0H 1S0
Phone: 613-546-4228
Email: info@crca.ca

See the Cataraqui Region Conservation Authority's Guideline for Stormwater Management for more information and best practice for Stormwater Management:
[Stormwater Management Guideline](#)