

# Stormwater Management Report

The objective of a Stormwater Management (SWM) Report is to evaluate the effects of a proposed development on the stormwater and drainage system, and to recommend how to manage rainwater/snowmelt for the proposed development, consistent with the municipal requirements and those of the applicable conservation authority, provincial and federal regulations.

It provides staff with a basis on which to assess the increased demands on municipal infrastructure posed by the development and the need for future study requirements such as detailed designs. The study recommends improvements to the municipal infrastructure and mitigative measures to reduce erosion, risk of flooding and maintain water quality in receiving stormwater systems. The Stormwater Management Report provides detailed design calculations/modelling and drawings for Stormwater infrastructure identified within the Functional Servicing Report and/or the Master Environmental Servicing Plan.

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## Required by Legislation

The Ontario Planning Act and the Ontario Water Resources Act.

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## Who should prepare this report?

The Stormwater Management (SWM) Report shall be prepared by a registered professional engineer qualified in civil/water resources/environmental engineering. All drawings must be stamped, signed, and dated by a professional engineer, licensed in the Province of Ontario.

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## Why do we need this report?

- › To identify the quality and quantity impacts of the change in stormwater runoff on existing infrastructure and watercourses due to a proposed development
- › To determine the requirement of new infrastructures and/or improvements to existing municipal servicing infrastructure required to support the proposed level of development, where applicable
- › To determine mitigation measures to minimize any negative impacts on the drainage system
- › To identify opportunities for enhancement of stormwater management facilities and features in redevelopment sites
- › If conducted in an area with an existing Master Environmental Servicing Plan (MESP), to further develop the strategy established in the MESP and confirm the viability of the SWM mitigation plan and targets.

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## How should this report be prepared?

**A Stormwater Management (SWM) Report should at a minimum contain:**

### Introduction

- › Address of the subject property
- › Development Application Number
- › General site location of the subject property and neighbouring properties
- › Project Name (if applicable)
- › Applicant and owner's contact information
- › Author name, title, qualifications, company name and appropriate stamp
- › Brief description of the proposal
- › Overview of the study area and connected external drainage areas
- › Purpose of the study
- › Reference background studies/reports (watershed, subwatershed study, MESP, Functional Servicing Report (FSR), other master planning documents etc.)

**How should this letter/report be prepared?** (continued)

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**Introduction** (continued)

- › Related supporting studies such as geotechnical, hydrogeological, Environmental Impact Study (EIS) etc.
  - › Location and context map
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**Proposal Description and Context**

- › A description of the proposal, development statistics (such as number of units, site area) type of development proposed, imperviousness ratio, height, FSI, parking areas, access points, location of amenity areas, proposed phasing etc.
  - › A description of the existing on-site conditions as well as surrounding areas, development limits, soil conditions, natural heritage features, groundwater, roads, buildings, parking areas, minor and major drainage systems, SWM facilities etc.
  - › A description of the proposal, development stats (such as number of units, site area) type of development proposed, imperviousness ratio, height, parking areas, access points, location of amenity areas, proposed phasing
  - › Concept Plan for the development including building location, parking, access, amenity areas, grading and natural features and any natural hazards, proposed minor and major drainage system, location of SWM facilities
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**Investigation/Evaluation**

- › Identify with a map existing contours and pre-development catchments including external contributing area
  - › Design parameters (e.g., calculation of the time of concentration for pre-development conditions, intensity, design storm etc.)
  - › Proposed grading/contours and post development catchments area
  - › Identify flood plain limits of all watercourses and update, if necessary, based on ground established topographic mapping
  - › Identify pre-development and post-development conditions, etc.
  - › Identify the existing and proposed major and minor systems, overland flow routes, including storm sewers, stormwater management facilities, low impact development measures, approved outlets etc.
  - › Identify all internal and external drainage areas under existing and future development conditions
  - › Identify constraints and potential opportunities – quantitative, qualitative, erosion sensitivity, thermal mitigation and environmental concerns related to stormwater for interim and/or ultimate development conditions
  - › Identify existing stormwater management requirements and/or criteria that apply specifically to the site (applicable watershed and Local drainage constraints)
  - › Include computer modelling and/or calculations required to achieve the previously established SWM criteria (Note: instructions on modelling and/or calculations will be discussed with the municipality)
  - › Assess compliance to municipal Consolidated Linear Infrastructure Environmental Compliance Act (ECA) (for existing municipal or to be municipally owned infrastructure) for pre-authorization.
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**Impacts and Mitigation Measures**

- › Indicate the design assumptions and the engineering schemes to achieve stormwater management criteria including, but not limited to quantity, quality and erosion control, water balance, Low Impact Development (LID) techniques etc.
  - › Identify mitigation measures to achieve the SWM criteria
  - › Demonstrate that the proposal has followed the SWM hierarchy of optimized source control measures, and then consideration of conveyance control measures and end of pipe measures to achieve SWM objectives
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## **How should this letter/report be prepared?** (continued)

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### **Impacts and Mitigation Measures** (continued)

- › Indicate if off-site land or works are required to implement the stormwater management proposal and comment to what extent (e.g., easements, dedication, land acquisition, etc.)
  - › Identify the necessary erosion and sediment control measures required during the construction phase to minimize downstream impacts
  - › Indicate if other agencies have jurisdiction and if their approvals or permits are required and provide record of approvals (e.g., Ministry of Transportation Ontario (MTO), Ministry of Environment, Conservation and Parks (MECP), Department of Fisheries and Oceans (DFO), Conservation Authorities (CAs) etc.)
  - › The Stormwater Management Report (SWM) needs to identify SWM facilities in accordance with municipal requirements for performance monitoring
  - › Provide an Operation and Maintenance manual for the proposed SWM facilities.
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### **Recommendations**

- › Recommendations for mitigation or upgrades
  - › Summary of the identified Stormwater Management strategy for the proposed development.
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### **Drawings and Supporting Information**

- › Submit all drawings, figures, reference reports, computer modeling results and design calculations to support the proposed Stormwater Management scheme.
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## **What else should we know?**

The scope of the study should be discussed with the local municipal engineers, planners and/or other staff or agencies as part of the pre-consultation process.

The level of detail for the Stormwater Management Report depends on the type and scope of application, the size of the development and the types of stormwater management schemes proposed. For example, a report for a Plan of Subdivision will typically be more complex than a report in support of a Site Plan Control application.

A Stormwater Management Report must include the basic quantity and quality assumptions upon which the report is based, and all appropriate functional plans of infrastructure elements for major and minor flow, which could have an impact on the layout of the Plan of Subdivision or site and building design.

These infrastructure elements may include stormwater management facilities, all water resources features and functions (i.e., watercourses, riparian areas, recharge/discharge areas), existing overland flow routes, surface features (i.e., top of bank of valleys) and existing infrastructure (i.e., water and wastewater infrastructure and underground utilities).

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### **Additional Terms**

To be identified by the local municipality where proposed development is located.

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### **Study Submission Instructions**

To be identified by the local municipality where proposed development is located.

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## What other resources are there?

Professional Engineers of Ontario – [Why employ a professional engineer?](#)  
Ministry of the Environment [Stormwater Management Planning and Design Manual](#)  
[Stormwater Management Guidelines, City of Markham](#)  
[Stormwater Management Criteria, TRCA](#)  
[LID Design Guide, CVC/TRCA](#)  
[Lake Simcoe Technical Guidelines for Stormwater Management Submissions](#)  
[Lake Simcoe Protection Act, 2008, S.O. 2008, c. 23](#)  
[York Region Road Design Guidelines, York Region](#)  
[York Region Mid- and High-Rise Development Process and Implementation Guide, York Region](#)  
[Design Guidelines For Sewage Works, MECP](#)  
City of Toronto references including:  
[Standards for Designing and Constructing City Infrastructure, City of Toronto](#)

## About these Terms of Reference

These Terms of Reference were developed as a joint effort with participation by representatives from all York Region municipalities and the Region. The Terms of Reference are in widespread use across the Region, with local requirements added as prescribed by each municipality at the pre-consultation stage.

The need and scope for this study will be decided by a municipality during initial pre-consultation process with input from partner agencies. This pre-consultation process may include:

- Determination if this study is applicable
- Confirmation of criteria within these Terms of Reference that are appropriate for your development project
- Identification of specific technical components that need to be addressed
- Identification of detailed standards to be met

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### Notes:

If the proposed development is revised, the study/report shall reflect the revisions by an updated report or letter from the author indicating the changes and whether or not the recommendations and conclusions are the same (Note: this is subject to the extent of the revisions).

A peer review may be required. The cost of the peer review will be borne by the applicant.

If the submitted study is incomplete, is authored by an unqualified individual or does not contain adequate analysis, the applications will be considered incomplete and returned to the applicant.