



CSA W211:21
National Standard of Canada



Management standard for stormwater systems



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Contents

Technical Committee on Management Standards for Stormwater Systems	5
Subcommittee on W211, Management Standard for Stormwater Systems	7
Preface	9
0 Introduction	10
1 Scope	11
1.1 General	11
1.2 Users	11
1.2.1 Primary users	11
1.2.2 Other stakeholders	12
1.3 Application	12
1.3.1 In scope	12
1.3.2 Out of scope	12
1.4 Terminology	12
2 Reference publications	13
3 Definitions and abbreviations	14
3.1 Definitions	14
3.2 Abbreviations	18
4 Planning aspects for the management of stormwater systems	18
4.1 General	18
4.2 Watershed information	19
5 Management system for stormwater	19
5.1 Management plan	19
5.1.1 General	19
5.1.2 Management plan responsibility	19
5.1.3 Stormwater policy	19
5.1.4 Stormwater policy responsibility	19
5.2 Endorsement and commitment	19
5.2.1 Endorsement	19
5.2.2 Commitment	20
5.3 Communications	20
5.3.1 Communication plan	20
5.3.2 Communication responsibility	20
6 Organizational structure, roles, responsibility, and authorities	20
6.1 Operating authority	20
6.1.1 Responsibilities	20
6.1.2 Documentation — Organizational structure	20
6.2 Stormwater system representative	21
6.2.1 Identification	21

6.2.2	Appointment	21
6.2.3	Stormwater system representative responsibilities	21
6.3	Competencies	21
6.3.1	Documentation of competencies	21
6.3.2	Competencies activity	21
6.3.3	Competencies documentation	21
7	Documents and records	22
7.1	Document and records control	22
7.1.1	Procedure	22
7.1.2	Responsibility	22
7.2	Documentation	22
7.3	Retention	22
8	Stormwater system	22
8.1	System description	22
8.1.1	Documentation of system description	22
8.1.2	System description responsibility	23
8.2	Compliance obligations	23
8.2.1	Outline of compliance obligations	23
8.2.2	Compliance obligations responsibility	23
9	Risk management	23
9.1	Risk assessment process	23
9.1.1	Documentation of risk assessment process	23
9.1.2	Risk assessment process considerations	23
9.1.3	Risk assessment process responsibility	24
9.2	Risk assessment outcomes	24
9.2.1	Documentation of outcomes	24
9.2.2	Responsibility for outcomes	24
10	Planning for operations	24
10.1	Personnel coverage	24
10.1.1	Personnel coverage procedure	24
10.1.2	Personnel coverage responsibility	24
10.2	Essential supplies and services	25
10.2.1	Essential supplies and services procedure	25
10.2.2	Essential supplies and services responsibility	25
10.3	Sampling, testing, and monitoring	25
10.3.1	Sampling, testing, and monitoring procedure	25
10.3.2	Sampling, testing, and monitoring responsibility	25
10.4	Residue, sediment, and debris management	25
10.4.1	Residue, sediment, and debris management procedure	25
10.4.2	Residue, sediment, and debris management record-keeping	25
10.4.3	Residue, sediment, and debris management responsibility	26
11	Design and construction	26
11.1	General	26
11.2	Design criteria	26

11.3	Construction	26
12	Levels of service	26
12.1	Level of service documentation	26
12.2	Level of service responsibility	27
13	Infrastructure	27
13.1	Review and provision of infrastructure	27
13.1.1	Infrastructure review procedure	27
13.1.2	Infrastructure review responsibility	27
13.2	Infrastructure maintenance, rehabilitation, and renewal	27
13.2.1	Documentation of infrastructure inspection, maintenance, rehabilitation, and renewal	27
13.2.2	Infrastructure inspection, maintenance, rehabilitation, and renewal responsibility	28
13.3	Measurement and recording equipment calibration and maintenance	28
13.3.1	Documentation for measurement and recording equipment	28
13.3.2	Measurement and recording equipment responsibility	28
14	Emergency management	28
14.1	Flood response strategy	28
14.1.1	Preparation of a flood response strategy	28
14.1.2	Flood response strategy responsibility	28
14.2	Spill emergency response strategy	29
14.3	Emergency preparedness	29
14.3.1	Emergency preparedness procedure	29
14.3.2	Emergency preparedness responsibility	29
15	Internal verification	29
15.1	Internal audit	29
15.1.1	Internal audit procedure	29
15.1.2	Internal audit responsibility	29
15.2	Management review	30
15.2.1	Management review procedure	30
15.2.2	Management review responsibility	30
16	Continual improvement	31
16.1	Best management practices	31
16.1.1	Best management practices procedure	31
16.1.2	Best management practices responsibility	31
16.2	Corrective actions	31
16.2.1	Corrective actions procedure	31
16.2.2	Corrective action responsibility	31
16.3	Preventive actions	31
16.3.1	Preventive actions procedure	31
16.3.2	Preventive actions responsibility	32
<hr/>		
	Annex A (informative) — Bibliography	33
	Annex B (informative) — Watershed planning documents	36
	Annex C (informative) — Hazard occurrences for risk assessment	40
	Annex D (informative) — Life cycle cost analysis	43

Annex E (informative) — Example of key processes in a management standard for stormwater systems 44

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Preface

This is the first edition of CSA W211, *Management standard for stormwater systems*.

The purpose of this Standard is to provide requirements and recommendations for management of stormwater systems. It defines a risk-based process for decision makers responsible for the operation, maintenance, and management of stormwater systems.

Users of this Standard are reminded that this Standard should not be considered a replacement for the requirements contained in any

- a) applicable federal/territorial or provincial statute;
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- c) contract that an owner has with a contractor.

CSA Group gratefully acknowledges the generous support of Standards Council of Canada through their *Standards to Support Resilience in Infrastructure* Program. It was inspired by the report “Developing a Stormwater Quality Management Standard (QMS) in Light of a Changing Climate” (Engineers Canada et al., 2018).

This Standard was prepared by the Subcommittee on W211, Management Standard for Stormwater Systems, under the jurisdiction of the Technical Committee on Management Standards for Stormwater Systems and the Strategic Steering Committee on Natural Resources, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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 - d) *rationale for the change.*

CSA W211:21

Management standard for stormwater systems

0 Introduction

Standards offer a way to reduce risk due to infrastructure failure, help protect against liability, and improve efficiencies within their own internal processes and procedures. This is especially true for stormwater systems. There are limited standards or methodologies across Canada for municipal staff and decision makers to determine acceptable levels of risk associated with the management of stormwater systems or to set appropriate levels of service. This Standard provides a methodical approach, exercising due diligence, to manage a stormwater system, particularly in light of potential impacts on water and supply and climate change with its effect on service level requirements. Moreover, climate change is posing increasing risks to the systems and stakeholders and potentially new liabilities for those who manage them.

In Canada, responsibility for stormwater management, ranging from design to maintenance and monitoring, has been split between municipal, regional, provincial, territorial and national authorities, and associated regulatory agencies, often with no clear lead, resulting in confusion and inefficiencies. Challenges in stormwater management include:

- varying levels of services;
- unpredictable inputs to system;
- managing stormwater across jurisdictional boundaries;
- aging and inadequate infrastructure;
- increasing flows, volumes, and pollutant loadings through urbanization and intensification;
- politics and lack of understanding of challenges and constraints;
- environmental impacts to receiving water bodies and potential spills of hazardous materials;
- landscape modification upstream of the municipal boundaries (e.g., wetland draining, deforestation, etc.);
- impact on emergency management;
- competing funding priorities;
- lack of long-term system-wide planning; and
- consideration of climate change impacts.

The long-term intention of this Standard is to provide an encapsulation of best practices to ensure municipalities across Canada have common, consistent requirements for the management of a stormwater system.

This Standard addresses these gaps by outlining a risk-based framework for the operation, maintenance, and management of a stormwater system. It is intended as a flexible tool that can be simple to apply and effective at reducing environmental, social, legal, and economic risks. This Standard does not address life-cycle cost analysis in any detail, as the topic area is too big to be included in this Standard; however, it is still an important consideration in the management of a stormwater system.

Management, in the context of this Standard, is the repeatable steps that organizations consciously implement to achieve their social, environmental, and economic goals and objectives in the context of climate resiliency and to create an organizational culture that reflexively engages in a continuous cycle