



2021 Stormwater Code and Manual Update

Photo by John Skelton



City of Seattle

Public Meeting
April 29, 2020

GROUND RULES



- Use your **computer** to connect to the WebEx.



- Use the **chat function** to submit questions and comments and/or request to speak to the group.



- Use a **headset** or take call from a quiet space to reduce background noise/echo.



- Keep your phone or headset **muted** unless you are speaking to the group.



- Stay focused on the **goal** for today's call...

TECHNOLOGY SUPPORT

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AGENDA

Time	Topic
3:15-3:25pm	Welcome & Introductions
3:25-3:35pm	Project Background & Status Update
3:35-4:05pm	Key Stormwater Code Updates
4:05-4:35pm	Key Stormwater Manual Updates
4:35-4:40pm	Next Steps
4:40-5:00pm	Q&A

SPEAKERS

Sherell Ehlers, PE



Matthew Bateman, PE



Gretchen Muller



Rebecca Dugopolski, PE



OPENING REMARKS



A Chinook salmon spawning in the reconstructed reach of the Thornton Confluence Floodplain project site. Courtesy Chapin Pier, Seattle Public Utilities, October 2018.

Project Background and Status Update

PROJECT BACKGROUND

Why do we have a Stormwater Code?

- Protect life, property, surface waters from harm
- Meet requirements of state and federal law
- Required under the federal Clean Water Act/NPDES permit

What is in our current Stormwater Code?

- Source control for ongoing practices
- Construction site pollution prevention
- Onsite stormwater management, flow control, & water quality treatment requirements

PROJECT BACKGROUND

- **New Phase I permit**
(issued on July 1, 2019; effective Aug. 1, 2019)
- **Updated Ecology Manual**
(2019 Stormwater Management Manual for Western Washington)
- **Internal City staff workshops/meetings**
 - Summer/Fall 2019
- **External outreach**
 - October 2019 meeting
 - April 29 & May 6, 2020 public meetings (webinars)

PROJECT BACKGROUND

Phase 1 – Required Equivalency Items and Ecology Review

- Address items related to Ecology Permit equivalency
- Updates for consistency with the 2019 SWMMWW and Phase I permit
- Clarifications
- Add/update BMPs, figures, and tables

April 1-May 16, 2020
Public Review

July 1, 2020
Ecology
Submittal

PROJECT BACKGROUND

Phase 2 – Non-Equivalency Items and SEPA

- Address items that are not related to Ecology Permit equivalency
 - Update stormwater/combined sewer mainline extension requirements
 - Update combined sewer flow control standard/threshold
 - Update sizing factors
- Technical editing
- SEPA process



PROJECT BACKGROUND

Phase 3 – Legislative Process and Adoption

- City Council review and public hearing

Phase 4 – Implementation

- Implementation tools to support applicants and plan reviewers



Key Stormwater Code Updates

KEY STORMWATER CODE UPDATES

Overview of changes

- **Added** clarification regarding which minimum requirements apply to specific land disturbing activities
- **Added** clarification regarding managing equivalent area at an alternative location
- **Added** and updated definitions
- **Updated** terminology and BMP references (Source Control)
- **Updated** on-site lists for all project types
- **Revised** wetland protection standards
- **Added** preliminary drainage review

KEY STORMWATER CODE UPDATES

22.800 – Title, Scope, Authority

- **Added** exemptions to most minimum requirements (22.800.040) for:
 - Remediation projects, and
 - Structural stormwater control projects
- **Clarified** and **added** detail for the following topics:
 - Managing equivalent areas (flow and water quality) at an alternative location or by contributing funds (22.800.080) (**Equivalency**)
 - Utility installations and start of construction (22.800.100)
- **Added** clause that additional source controls may be required in the combined sewer if activities pose a hazard (22.800.040)

KEY STORMWATER CODE UPDATES

22.801 – Definitions

- **New** definitions
 - New hard surface
 - New impervious surface
 - Non-listed creeks

KEY STORMWATER CODE UPDATES

22.801 – Definitions (cont.)

- **Updated** definitions
 - Aquatic life use
 - Construction Stormwater Control Plan
 - Development
 - Effective impervious surface (now “Effective hard surface”)
 - Master use permit
 - Pollution-generating impervious surface
 - Project
 - Project site
 - Replaced hard surface
 - Replaced impervious surface
 - Sidewalk project
 - Single-family residential project
 - Site

KEY STORMWATER CODE UPDATES

22.803 – Minimum Requirements for All Discharges and All Real Property

- **Revised** BMP names
- **Added** new BMPs for Source Control (**Equivalency**)
- **Clarified** BMPs that apply to businesses and public entities that drain to the public combined sewer

KEY STORMWATER CODE UPDATES

22.805 – Minimum Requirements for Projects

- **Added** general requirements (22.805.010)
 - Closely related projects
 - Master use permits requiring Preliminary Drainage Control Review
 - Stormwater facilities that will serve multiple proposed lots, parcels, or tracts
- **Updated** terminology, including “reduced” to “altered” when a lot is amended
- **Added** thresholds for converting vegetation and increasing runoff during 100-year recurrence interval flow frequency
- **Clarified** requirements for protecting wetlands (**Equivalency**)

KEY STORMWATER CODE UPDATES

22.805.060 – Roadway Projects

- **Revised** Flow Control Thresholds to now be based on “new hard surface” (not replaced hard surface)

KEY STORMWATER CODE UPDATES

22.805.070 – On-Site Stormwater Management

- **Added** that Infiltration Trenches and Drywells can be used for non-roof hard surfaces, but is not required (applies to Single-family Residential Projects and Parcel-based Projects)
- **Moved** Non-infiltrating Bioretention and Vegetated Roofs to Category 4 (shifted former Category 4 BMPs to Category 5)
- **Added** new Category 2 BMP – Sidewalk / Trail Compost Amended Strip (applies to all On-site Lists)
- **Added** that water quality treatment BMPs can be used in lieu of non-infiltrating bioretention for surfaces discharging to designated receiving waters (applies to Parcel-based Projects)
- **Added** trees to a new Category 4 (applies to Trail and Sidewalk Projects and Roadway Projects)

**Table C for 22.805.070
On-site List for Parcel-based Projects**

Category	BMPs	Projects Discharging to a Receiving Water Not Designated by Section 22.801.050, Public Combined Sewer, or Capacity-constrained System, or its Basin	Projects Discharging to a Designated Receiving Water or its Basin
1	Full Dispersion	R, S	R, S
	Infiltration Trenches	R, S X	R, S X
	Dry Wells	R, S X	R, S X
2	Rain Gardens	R ^a , S ^a	R ^a , S ^a
	Infiltrating Bioretention	R, S	R, S
	Rainwater Harvesting	R ^b	X
	Permeable Pavement Facilities	R, S	R, S
	Permeable Pavement Surfaces	S	S
	Sidewalk / Trail Compost-Amended Strip	S	S
3	Sheet Flow Dispersion	R, S	R, S
	Concentrated Flow Dispersion	S	S
	Splashblock Downspout Dispersion	R	R
	Trench Downspout Dispersion	R	R
	((Non-infiltrating Bioretention))	((R, S))	((R, S))
	((Vegetated Roofs))	((R^c))	((X))
4	Non-infiltrating Bioretention	R, S	R, S
	Vegetated Roofs	R^c	X
((4)) <u>5</u>	Perforated Stub-out Connections	R	R
	((Newly Planted)) Trees	S	S

Table D for 22.805.070
On-site List for Roadway Projects

Category	BMPs	Projects Discharging to a Receiving Water Not Designated by Section 22.801.050, or its Basin	Projects Discharging to a Public Combined Sewer or Capacity-constrained System, ^g or its Basin	Projects Discharging to a Designated Receiving Water or its Basin
1	Full Dispersion	S	S	S
2	Rain Gardens	S ^a	S ^a	S ^a
	Infiltrating Bioretention	S	S ^b	S ^{b, c}
	Permeable Pavement Facilities	X ^d	X ^{e, f}	X ^{c, e, f}
	Permeable Pavement Surfaces	S ^d	S ^{e, f}	S ^{c, e, f}
	Sidewalk / Trail Compost-Amended Strip	S	S	S
3	Sheet Flow Dispersion	S	S	S
	Concentrated Flow Dispersion	S	S	S
4	Trees	S	S	S

REQUIREMENTS FOR WETLAND PROTECTION STANDARDS

SMC 22.805.080

- Revised wetland protection flow control requirements based on updated requirements from Ecology (**Equivalency**)
 - **Added** Method 1: 1-yr Monitoring & Wetland Stage Modeling
 - **No change** to Method 2: Site Discharge Modeling
 - **Added** new requirements in determining which method applies

REQUIREMENTS FOR TREATMENT

SMC 22.805.090

- **Added** reference to marine waters for enhanced treatment
- **Updated** enhanced treatment requirements for parcel-based projects including projects that construct four or more dwelling units

KEY STORMWATER CODE UPDATES

22.807 – Drainage Control Review and Application Requirements

- **Added** Preliminary Drainage Review
- **Updated** thresholds for Standard Drainage Review
- **Changed** Large Project to Comprehensive Drainage Review

Key Stormwater Manual Changes

KEY STORMWATER MANUAL CHANGES

Overview

- Volume 1 – Project Minimum Requirements
 - Master Use Permits (MUP) Review
- Volume 2 – Construction Stormwater Control
- Volume 3 – Project Stormwater Control
- Volume 4 – Source Control
- Volume 5 – Enforcement
- Appendices

KEY STORMWATER MANUAL CHANGES

Volume 1 – Project Minimum Requirements

- **Clarified** definitions and provided examples for single-family residential, parcel-based projects, and special circumstances projects
- **Consolidated** requirements for land-disturbing activities
- **Added**
 - Approved landscape management plan as an alternative to treating runoff from PGPS
 - Reference to BMP T5.40 (Preserving Native Vegetation)
- **Removed** Basic Treatment Receiving Waters

KEY STORMWATER MANUAL CHANGES

Volume 1 – Project Minimum Requirements

- Chapter 8 – Drainage Control Review and Application Requirements
 - **Added** new submittal requirements:
 - Preliminary Drainage Review
 - Upstream analysis
 - **Updated and clarified** existing submittal requirements:
 - Standard Drainage Review
 - Comprehensive Drainage Review

MASTER USE PERMITS (MUP) REVIEW

Provide Clarification and Consistency of MUP Drainage Review and Requirements for Short Plats and Subdivisions

- **Clarified** Submittal Requirements for MUPs with **New** Preliminary Drainage Control Review section
- **Clarified** which types of MUPs require Preliminary Drainage Control Review
- **Established** requirements for Shared Drainage Facilities in Subdivisions and Short Plats



MASTER USE PERMITS (MUP) REVIEW

Preliminary Drainage Control Review

Added Code section 22.807.020.A.1 and Manual Vol. 1, Chapter 8.1.

- Preliminary Site Plan
- Preliminary Drainage Control Plan
 - Includes estimate of hard surface coverage in the associated development.
- Preliminary Drainage Report

An Appendix is planned to be added to the Manual to further clarify the submittal requirements for each type of regularly routed MUP.

MASTER USE PERMITS (MUP) REVIEW

MUPs That Will Typically Require Preliminary Drainage Review

- Subdivisions and Short Plats
- Lot Boundary Adjustments*
- Major Institutional Master Plans
- Major Phased Developments
- Cluster Housing Developments
- ECA Variances, Exceptions, Etc.

*Typically do not require “Preliminary Drainage Control Plans”

MASTER USE PERMITS (MUP) REVIEW

MUPs That Typically Will Not Require Preliminary Drainage Review

- SEPA Review for Buildings
- Design Review for Buildings
- Change of Use
- Shoreline Substantial Development
- Planned Residential and Downtown Development

MASTER USE PERMITS (MUP) REVIEW

Shared Drainage Facilities for Subdivisions and Short Subdivision

Added SMC Section 22.805.010.D to require that shared facilities be permitted and constructed...

- Either prior to recording of the Plat,
or
- Prior to sale of any lot, parcel or tract, and
- Prior to final inspection of any other construction permit related to the Subdivision or Short Plat.

KEY STORMWATER MANUAL CHANGES

Volume 2 – Construction Stormwater Control

- **Updated**
 - Terminology (“Construction Stormwater Control and Soil Management Plan”)
 - Minor BMP revisions (see Summary of Changes table)
- **Split BMPs**
 - Concrete Handling
 - Concrete Washout Area



KEY STORMWATER MANUAL CHANGES

Volume 3 – Project Stormwater Control

- **Updated**
 - Guidance related to the Infiltration Investigation Map
 - Bypass, flow-through, and off-site flow general design requirements for on-line and offline BMPs
- **Added**
 - Modeling guidance for projects located in closed depressions
 - New BMP (Sidewalk and Trail Compost-Amended Strip)
 - Figures

KEY STORMWATER MANUAL CHANGES

Volume 3 – Project Stormwater Control (cont.)

- **Clarified**
 - Minimum investigation and testing requirements for shallow infiltration BMPs
 - On-site List Approach
 - On-site Performance Standard
 - Flow Control
 - Modeling Approach
 - Presettling and pretreatment requirements



KEY STORMWATER MANUAL CHANGES

Volume 3 – Project Stormwater Control (cont.)

- Updated BMPs (Chapter 5)

	Setbacks	Design Criteria	Modeling Guidance	O&M	Figures
Soil Amendment BMP			X		
Tree Planting and Retention	X	X		X	
Dispersion BMPs		X	X		X
Infiltration Trenches		X			X
Drywells		X			X
Infiltrating Bioretention		X	X		X
Rain Gardens	X	X			

KEY STORMWATER MANUAL CHANGES

Volume 3 – Project Stormwater Control (cont.)

- Updated BMPs (Chapter 5)

	Site Considerations	Design Criteria	Modeling Guidance	O&M	Figures
Permeable Pavement Facilities		X			X
Perforated Stub-Out Connections					X
Infiltration Chambers/Vaults		X		X	X
Rainwater Harvesting		X	X		
Vegetated Roof Systems		X		X	
Permeable Pavement Surfaces			X		
Detention Pipes	X	X		X	X
Detention Vaults/Chambers	X	X	X	X	X

KEY STORMWATER MANUAL CHANGES

Volume 3 – Project Stormwater Control (cont.)

- Updated BMPs (Chapter 5)

	Site Considerations	Design Criteria	Modeling Guidance	O&M	Figures
Non-infiltrating Bioretention		X	X		X
Filter Strips/Drains		X			
Sand Filters	X				
Wet Ponds	X				
Wet Vaults	X	X			X
Oil/Water Separators					X
Proprietary and Emerging Water Quality Treatment Technologies	X		X		

KEY STORMWATER MANUAL CHANGES

Volume 4 – Source Control

- Updated, clarified, and added
 - Required BMP elements
 - Recommended BMPs
- Added
 - Rooftop Dog Run BMP (new BMP 8)
- Removed
 - Lot Maintenance and Storage BMP



KEY STORMWATER MANUAL CHANGES

Volume 4 – Source Control (cont.)

- **Moved** 8 BMPs from Chapter 3 to Chapter 2 (BMPs for All Real Property)

BMP 9: Fueling at Dedicated Stations	BMP 12: Maintenance and Repair of Vehicles and Equipment	BMP 15: Recycling, Wrecking Yard, and Scrap Yard Operations
BMP 10: Mobile Fueling of Vehicles and Heavy Equipment	BMP 13: Concrete and Asphalt Production	BMP 16: Storage of Liquids in Above-ground Tanks
BMP 11: In-Water and Over-Water Fueling	BMP 14: Concrete Pouring, Concrete/Asphalt Cutting, and Asphalt Application	

KEY STORMWATER MANUAL CHANGES

Volume 4 – Source Control (cont.)

- **Added** 14 BMPs to Chapter 3 (reference to the 2019 SWMMWW for specifics)

BMP 41: Potable Water Line Flushing, Water Tank Maintenance, and Hydrant Testing	BMP 46: Labeling Storm Drain Inlets on Your Property	BMP 51: Irrigation
BMP 42: Urban Streets	BMP 47: Well, Utility, Directional and Geotechnical Drilling	BMP 52: Dock Washing
BMP 43: Nurseries and Greenhouses	BMP 48: Goose Waste	BMP 53: Roof Vents
BMP 44: Color Events	BMP 49: Pesticides and an Integrated Pest Management Program	BMP 54: Streets and Highways
BMP 45: Pet Waste	BMP 50: Storage of Dry Pesticides and Fertilizers	

KEY STORMWATER MANUAL CHANGES

Appendices

- **Appendix A** – Definitions
 - Placeholder (refer to Code)
- **Appendix B** – Background Information on Chemical Treatment
 - Deleted content
 - Will be updated to include Submittal Requirements in a future draft of the Manual
- **Appendix C** – On-site Stormwater Management Infeasibility Criteria
 - Added new infeasibility criteria for consistency with the On-site List Calculator
 - Revised categories for consistency with proposed Stormwater Code updates

KEY STORMWATER MANUAL CHANGES

Appendices (cont.)

- **Appendix D** – Subsurface Characterization and Infiltration Testing for Infiltration Facilities
 - **Clarified** roles and responsibilities of licensed professionals
 - **Updated**
 - Documentation requirements
 - Infiltration testing procedures
 - **Added**
 - Requirement for vertical separation for groundwater mounding
 - Acceptance testing criteria, requirements, and submittals

KEY STORMWATER MANUAL CHANGES

Appendices (cont.)

- **Appendix E** – Additional Design Requirements
 - Updated and clarified design criteria
 - Clarified when each liner type applies
 - Added
 - New figure (rectangular notch, sharp-crested weir)
 - Impermeable liner
 - General planting design principles

KEY STORMWATER MANUAL CHANGES

Appendices (cont.)

- **Appendix F** – Hydrologic Analysis and Design
 - **Added**
 - Note regarding current approval status of MGSFlood
 - Notes regarding the evaluation of tidal influence, sea level rise, and climate change (currently in progress)
 - **Updated**
 - Runoff curve number table for consistency with the SWMMWW
 - Internal and external references and weblinks

KEY STORMWATER MANUAL CHANGES

Appendices (cont.)

- **Appendix G** – Stormwater Control Operations and Maintenance Requirements
 - **Added** Modular Wetland System O&M table (No. 22)
 - **Updated** terminology, table numbering, and references

Next Steps

NEXT STEPS

- Public comments due (**comment spreadsheet format**) by **Saturday, May 16th**
 - www.seattle.gov/sdci/codes/changes-to-code/updating-stormwater-regulations
 - E-mail comment spreadsheet to: SPUStormwaterCodeRev@seattle.gov
- Participate in public review process in **Fall 2020** and **Spring 2021**



Q & A

Q&A



REMINDER: Use the **chat or hand raise function** to submit questions and comments and/or request to speak to the group.

THANK YOU

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