



Volume 1: Project Minimum Requirements

City of Seattle
Stormwater Manual
July 2021

Note:

Some pages in this document have been purposely skipped or blank pages inserted so that this document will copy correctly when duplexed.

Table of Contents

CHAPTER 1 - Introduction.....	1-1
1.1. Purpose of This Manual (Volumes 1 through 5 and Appendices)	1-1
1.2. How to Use this Manual (Volumes 1 through 5 and Appendices)	1-2
1.3. Purpose of Volume 1	1-3
1.4. How to Use this Volume	1-3
CHAPTER 2 - Determining Minimum Requirements	2-1
2.1. Step 1 - Define the Boundaries of the Project Site	2-1
2.1.1. Definitions	2-2
2.1.2. Closely Related Projects	2-2
2.2. Step 2 - Identify the Type of Project	2-4
2.2.1. Single-Family Residential Project	2-4
2.2.2. Sidewalk Project	2-5
2.2.3. Trail Project.....	2-7
2.2.4. Roadway Project	2-8
2.2.5. Parcel-Based Project	2-9
2.2.6. Certain Land-Disturbing Activities.....	2-10
2.2.7. WSDOT Project.....	2-10
2.2.8. Special Circumstances Projects.....	2-10
2.3. Step 3 - Identify the Receiving Water and Downstream Conveyance	2-11
2.4. Step 4 - Perform Site Assessment and Planning	2-19
2.5. Step 5 - Calculate Land-Disturbing Activity and New Plus Replaced Hard Surface.....	2-19
2.6. Step 6 - Calculate New Plus Replaced Pollution Generating Surface	2-20
2.7. Step 7 - Determine Which Minimum Requirements Apply	2-20
CHAPTER 3 - Minimum Requirements for All Projects	3-1
3.1. Maintaining Natural Drainage Patterns	3-1
3.2. Discharge Point	3-1
3.2.1. Approved Point of Discharge	3-1
3.2.2. Conveyance Systems to Point of Discharge	3-2
3.3. Flood-Prone Areas.....	3-2
3.4. Construction Site Stormwater Pollution Prevention Control	3-3
3.5. Protect Wetlands.....	3-3
3.6. Protect Streams and Creeks	3-4
3.7. Protect Shorelines.....	3-4
3.8. Ensure Sufficient Capacity.....	3-4
3.9. Install Source Control BMPs.....	3-5
3.10. Do Not Obstruct Watercourses	3-5
3.11. Comply with Side Sewer Code.....	3-5

- 3.12. Extension of Public Drainage System..... 3-7
 - 3.12.1. Projects Not Constructed in the Right-of-Way 3-7
 - 3.12.2. Projects Constructed in the Right-of-Way..... 3-8
- 3.13. Public Drainage System Requirements..... 3-8
- 3.14. Maintenance and Inspection..... 3-9
- CHAPTER 4 - Minimum Requirements Based on Project Type..... 4-1
 - 4.1. Single-Family Residential Projects 4-3
 - 4.2. Trail and Sidewalk Projects 4-4
 - 4.3. Roadway Projects 4-5
 - 4.3.1. Soil Amendment 4-5
 - 4.3.2. On-site Stormwater Management..... 4-5
 - 4.3.3. Flow Control 4-6
 - 4.3.4. Water Quality Treatment4-13
 - 4.4. Parcel-Based Projects 4-14
 - 4.4.1. Soil Amendment4-14
 - 4.4.2. On-site Stormwater Management.....4-14
 - 4.4.3. Flow Control 4-18
 - 4.4.4. Water Quality Treatment4-22
 - 4.5. Reduced Requirements for Certain Land-Disturbing Activities4-23
 - 4.5.1. Utility Projects4-23
 - 4.5.2. Pavement Maintenance Projects.....4-24
 - 4.5.3. Remediation Projects.....4-24
 - 4.5.4. Retrofit Projects.....4-25
 - 4.6. WSDOT Projects4-26
 - 4.7. Special Circumstances.....4-27
- CHAPTER 5 - Minimum Requirement Standards 5-1
 - 5.1. Soil Amendment 5-1
 - 5.2. On-site Stormwater Management..... 5-1
 - 5.2.1. On-site Performance Standard 5-3
 - 5.2.2. On-site Lists 5-3
 - 5.3. Flow Control 5-9
 - 5.3.1. Wetland Protection Standards5-10
 - 5.3.2. Pre-Developed Forested Standard5-11
 - 5.3.3. Pre-Developed Pasture Standard5-12
 - 5.3.4. Existing Condition Standard5-12
 - 5.3.5. Peak Control Standard.....5-12
 - 5.4. Water Quality Treatment5-13
 - 5.4.1. General Water Quality Treatment Requirements5-14
 - 5.4.2. Water Quality Treatment Standards5-15
- CHAPTER 6 - Alternative Compliance 6-1
- CHAPTER 7 - Site Assessment and Planning..... 7-1
 - 7.1. Identifying Key Project Components..... 7-1
 - 7.2. Project Boundaries and Structures 7-1

7.3. Soil Condition Assessment 7-2

7.4. Environmentally Critical Areas (ECAs) 7-2

7.5. Dewatering 7-2

7.6. Topography 7-3

7.7. Site Assessment..... 7-3

7.8. Landscaping Principles 7-4

 7.8.1. Principle 1: Minimize Bare Soil Areas 7-5

 7.8.2. Principle 2: Reduce Water Demand 7-5

 7.8.3. Principle 3: Reduce Turf Area and Manage Remaining Turf to
 Reduce Pollutant Impact 7-6

 7.8.4. Principle 4: Select Plants with Sustainability in Mind 7-6

 7.8.5. Principle 5: Reduce or Eliminate Fertilizer, Pesticide, Herbicide,
 and Fungicide Use and Where, Required, Manage Application
 Wisely 7-7

7.9. Site Design Considerations 7-8

CHAPTER 8 - Drainage Control Review and Application Requirements..... 8-1

 8.1. Preliminary Drainage Review 8-2

 8.2. Standard Drainage Review 8-3

 8.3. Comprehensive Drainage Review 8-6

 8.4. Additional Documentation 8-8

Tables

Table A for 22.805.070.	On-site List for Single-Family Residential Projects.	5-5
Table B for 22.805.070.	On-site List for Trail and Sidewalk Projects.	5-6
Table C for 22.805.070.	On-site List for Parcel-Based Projects.	5-7
Table D for 22.805.070.	On-site List for Roadway Projects.	5-8

Figures

Figure 2.1.	Single-Family Residential Project Site Definition.....	2-5
Figure 2.2.	Sidewalk-only Project Site Definition.	2-6
Figure 2.3.	Trail Project Definition.	2-7
Figure 2.4.	Roadway Project Site Definition.....	2-8
Figure 2.5.	Parcel-Based Project Site Definition.....	2-10
Figure 2.6.	North End Creek Basins.	2-13
Figure 2.7.	South End Creek Basins.	2-14
Figure 2.8.	Public Combined Sewer Basins.....	2-15
Figure 2.9.	North End Designated Receiving Water Drainage Areas.	2-16
Figure 2.10.	South End Designated Receiving Water Drainage Areas.	2-17
Figure 2.11.	Capacity Constrained Systems.	2-18
Figure 4.1A.	Project Minimum Requirements for Roadway Projects.	4-7
Figure 4.1B.	Project Minimum Requirements for Roadway Projects (continued).	4-8
Figure 4.1C.	Project Minimum Requirements for Roadway Projects (continued).	4-9
Figure 4.2A.	Project Minimum Requirements for Parcel-Based Projects.	4-15
Figure 4.2B.	Project Minimum Requirements for Parcel-Based Projects (continued).	4-16
Figure 4.2C.	Project Minimum Requirements for Parcel-Based Projects (continued).	4-17

ACKNOWLEDGEMENTS

The 2021 Seattle Stormwater Manual is dedicated to Liz Anderson. Liz contributed her knowledge and expertise to the City of Seattle for more than 30 years as a Professional Engineer. Her depth and breadth of knowledge of Seattle’s drainage and wastewater system; her design experience; and her dedication, mentorship, and “whip-smart” can-do attitude has made Seattle a better place and the Stormwater Code and Manual more effective at managing the impacts of stormwater on people, property, and the environment. We miss Liz’s expertise, friendship, and perseverance and wish her all the best in her well-deserved retirement.

The City of Seattle gratefully acknowledges the valuable time, comments, and expertise provided by the people listed below who contributed to the 2021 Seattle Stormwater Manual.

City of Seattle Core Team

Name	Affiliation	Role
Sherell Ehlers	SPU	Code Update Lead, Program Manager
Jonathan Brown	SPU	Project Manager
Ingrid Wertz	SPU	Project Manager
Shanti Colwell	SPU	Core Team
Kevin Burrell	SPU	Core Team
Lan Chau	SPU	Core Team
Liz Anderson	SPU	Core Team
Karen Iwasaki	SPU	Core Team
Mary Weber	SPU	Volume 3 Co-Lead, Core Team
Matthew Bateman	SDCI	Volume 1 Lead, Core Team
Ede Courtenay	SDCI	Core Team
Jean Lee	Parks	Core Team
Scott Stevens	Parks	Core Team
Michael Cawrse	SDOT	Core Team
Nick Shrope	SDOT	Core Team
Theresa Wagner	Law	Core Team
Cris Horbelt	SPU	Volume 2 Lead
Kevin Buckley	SPU	Volume 4 Lead
Michael Jeffers	SPU	Volume 4 Team
Erik Lust	SPU	Volume 4 Team
Valerie Monsey	SDCI	Volume 4 Team
Dean Huber	SPU	Technical Support
Melissa Ivancevich	SPU	Technical Support
Brent Robinson	SPU	Technical Support
Miles Mayhew	SPU	Technical Support
Tai Ovbiebo	SPU	Modeling Support
Justin Twenter	SPU	Modeling Support

Name	Affiliation	Role
Michelle Lange	SPU	Technical Support
Edward Lombana	SPU	Technical Support
Aziz Alfi	SPU	Technical Support
Art Richardson	SDCI	Technical Support
Roger Moore	SDCI	Technical Support
Eric Dripps	SDCI	Technical Support
Rob McIntosh	SDCI	Technical Support
Moon Callison	SDCI	Communication Support
Wendy Shark	SDCI	Communication Support
Jeff Weber	Law	Advisory Support
Andrew Eberly	Law	Advisory Support
William Foster	Law	Advisory Support

Consultant Team

Name	Affiliation	Role
Rebecca Dugopolski	Herrera Environmental Consultants	Project Manager
Alice Lancaster	Herrera Environmental Consultants	Senior Technical Advisor
Neil Schaner	Herrera Environmental Consultants	Modeling Lead
Katie Wingrove	Herrera Environmental Consultants	Technical Support
Kate Forester	Herrera Environmental Consultants	Technical Support
Meghan Mullen	Herrera Environmental Consultants	Modeling Support
John Lenth	Herrera Environmental Consultants	Senior Technical Advisor
Craig Doberstein	CPD Solutions	Senior Technical Advisor
Gretchen Muller	Cascadia Consulting Group	Public Outreach Lead
Claire Gibson	Clarity Engineering	Technical Support
Richard Martin	Richard Martin Groundwater	Technical Support
Kristen Matsumura	Lotus Water	Implementation Tools Support
Robin Kirschbaum	RKI	Technical Support
Bruce Barker	MGS Engineering Consultants	Modeling Support
Christine Sophos	CMS Writing and Editing Services	Technical Editor
Lisa Skutecki	Brown and Caldwell	National Advisory Team
Chad Praul	Environmental Incentives	National Advisory Team
Franco Montalto	eDesign Dynamics	National Advisory Team
Eric Zickler	Lotus Water	National Advisory Team

Ecology Reviewers

Name	Affiliation
Colleen Griffith	Department of Ecology
Doug Howie	Department of Ecology

External Stakeholders who participated in the October 2019 Workshop

Name	Affiliation
Kimberly McNabb, Mary Koutrelakos	Blueline
Bailey Cook, Ken Wiersema	Coughlin Porter Lundeen
Tim Gabelein, Cheyenne Thompson	David Consulting Group
Brian Ward	HDR
David Tran	Helsell Fetterman
Kory Swabb	Jacobs
Jenifer Clapham, Puja Shaw, Scott Meurn	KPFF
Lolly Kunkler	MIGISvR
David Sand	MKA
John J Weed, Christian Nichols, Toby Coenen	PACE
John Erickson	WSP

CHAPTER 1 – INTRODUCTION

1.1. Purpose of This Manual (Volumes 1 through 5 and Appendices)

In addition to meeting the specific stormwater needs of the City of Seattle (City), the Stormwater Code meets certain requirements that apply to the City from the 2019-2024 Phase I National Pollutant Discharge Elimination System and State Waste Discharge General Permit for Discharges from Large and Medium Municipal Separate Storm Sewer Systems, effective August 1, 2019 (referred to as the Phase I NPDES Municipal Stormwater Permit). Coverage under the general permit is issued to the City by the Washington State Department of Ecology (Ecology) pursuant to the federal Clean Water Act and state law. One of the conditions of this permit requires the City to adopt and make effective a local program to prevent and control the impacts of stormwater runoff from new development, redevelopment and construction activities. This is accomplished, in large measure, through the Seattle Stormwater Code and its associated Directors' Rule (this Manual) which Ecology has determined to meet the requirements contained in the Phase I NPDES Municipal Stormwater Permit, with reference to the *Stormwater Management Manual for Western Washington* (Ecology 2019).

The City's Stormwater Code is contained in the Seattle Municipal Code (SMC), Chapters 22.800 through 22.808. The Stormwater Code contains regulatory requirements that provide for and promote the health, safety, and welfare of the general public. The provisions of the Stormwater Code are designed to accomplish the following:

1. To protect, to the greatest extent practicable, life, property and the environment from loss, injury, and damage by pollution, erosion, flooding, landslides, strong ground motion, soil liquefaction, accelerated soil creep, settlement and subsidence, and other potential hazards, whether from natural causes or from human activity.
2. To protect the public interest in drainage and related functions of drainage basins, watercourses, and shoreline areas.
3. To protect receiving waters from pollution, mechanical damage, excessive flows and other conditions that will increase the rate of downcutting, stream bank erosion, and/or the degree of turbidity, siltation, and other forms of pollution, or which will reduce their low flows or low levels to levels which degrade the environment, reduce recharging of groundwater, or endanger aquatic and benthic life within these receiving waters and receiving waters of the state.
4. To meet the requirements of state and federal law and the City's municipal stormwater NPDES permit.
5. To protect the functions and values of environmentally critical areas as required under the state's Growth Management Act and Shoreline Management Act.
6. To protect the public drainage system from loss, injury, and damage by pollution, erosion, flooding, landslides, strong ground motion, soil liquefaction, accelerated soil

creep, settlement and subsidence, and other potential hazards, whether from natural causes or from human activity.

7. To fulfill the responsibilities of the City as trustee of the environment for future generations.

To support implementation of the Stormwater Code, the Director of Seattle Public Utilities (SPU) and the Director of the Seattle Department of Construction and Inspection (SDCI) promulgate rules that provide specific technical requirements, criteria, guidelines, and additional information. This Directors' Rule consists of a five-volume City Stormwater Manual and nine appendices.

1.2. How to Use this Manual (Volumes 1 through 5 and Appendices)

The City's Stormwater Manual includes the following five volumes:

- *Volume 1: Project Minimum Requirements* provides information regarding how to apply the minimum requirements contained in the Stormwater Code. It also provides site assessment and planning steps and requirements for drainage control review submittals.
- *Volume 2: Construction Stormwater Control* contains temporary erosion and sediment control technical requirements, which are required to prevent contaminants from leaving the project site during construction.
- *Volume 3: Project Stormwater Control* presents approved methods, criteria, and details for analysis and design of on-site stormwater management, flow control, and water quality treatment best management practices (BMPs).
- *Volume 4: Source Control* provides information to individuals, businesses, and public agencies in Seattle to implement BMPs for controlling pollutants at their source and preventing contamination of stormwater runoff.
- *Volume 5: Enforcement* provides standards, guidelines, and requirements for enforcing the Stormwater Code.

The City's Stormwater Manual includes the following nine appendices:

- *Appendix A: Definitions* provides terminology from the Stormwater Code for all five volumes of the Stormwater Manual.
- *Appendix B: Additional Submittal Requirements* provides supplemental information for Volume 1 (Project Minimum Requirements) related to submittal requirements.
- *Appendix C: On-site Stormwater Management Infeasibility Criteria* provides a list of criteria to be evaluated for on-site stormwater management.
- *Appendix D: Subsurface Investigation and Infiltration Testing for Infiltration BMPs* describes subsurface report requirements, geotechnical explorations, four infiltration testing methods (Simple Test, Small Pilot Infiltration Test (PIT), Large PIT, and Deep Infiltration Test), infiltration rate correction factors, groundwater monitoring, and groundwater mounding analysis.

- *Appendix E: Additional Design Requirements and Plant Lists* includes additional design requirements for flow control structures, flow splitters, flow spreaders, level spreaders, pipe slope drains, outlet protection, facility liners, and geotextiles. *Appendix E* also includes plant lists for biofiltration swales, sand filters, and wet ponds.
- *Appendix F: Hydrologic Analysis and Design* includes descriptions of acceptable methods for estimating the quantity and hydrologic characteristics of stormwater runoff, and the assumptions and data requirements of these methods.
- *Appendix G: Stormwater Control Operations and Maintenance Requirements* contains maintenance requirements for typical stormwater BMPs and components.
- *Appendix H: Financial Feasibility Documentation for Vegetated Roofs and Rainwater Harvesting* provides additional guidance on the required documentation to prove financial infeasibility of vegetated roofs or rainwater harvesting.
- *Appendix I: Landscape Management Plans and Integrated Pest Management Plans* provides supplemental information for Volume 1 (Project Minimum Requirements) and Volume 4 (Source Control).

1.3. Purpose of Volume 1

Volume 1 – Project Minimum Requirements describes and contains minimum requirements for all types of land development and redevelopment. It also provides site assessment and planning steps and drainage control review requirements.

1.4. How to Use this Volume

- *Chapter 1* outlines the purpose and content of the Stormwater Manual and this volume.
- *Chapter 2* outlines steps to determine a project’s minimum requirements.
- *Chapter 3* describes the minimum requirements for all projects.
- *Chapter 4* describes the minimum requirements for specific project types.
- *Chapter 5* describes the minimum standards for on-site stormwater management, flow control, and water quality treatment.
- *Chapter 6* describes the options for alternative compliance.
- *Chapter 7* summarizes site assessment and planning steps and key project components.
- *Chapter 8* summarizes the preliminary, standard, and comprehensive drainage review minimum submittal requirements.

CHAPTER 2 – DETERMINING MINIMUM REQUIREMENTS

There are seven basic steps used to determine which minimum requirements for on-site stormwater management, flow control, and water quality treatment apply to a project:

- **Step 1** – Define the boundaries of the project site
- **Step 2** – Identify the type of project
- **Step 3** – Identify the receiving water and downstream conveyance
- **Step 4** – Perform site assessment and planning
- **Step 5** – Calculate new plus replaced hard surface and native vegetation conversion
- **Step 6** – Calculate new plus replaced pollution generating surface
- **Step 7** – Determine which minimum requirements apply

Note that these seven steps are focused on determining applicable minimum requirements for on-site stormwater management, flow control, and water quality treatment specifically. These seven steps are described in further detail below.

In addition to determining the applicable minimum requirements, all projects shall also review and comply with all other Stormwater Code requirements, in particular the Minimum Requirements for All Discharges and All Real Property (SMC, Section 22.803) and the Minimum Requirements for All Projects (SMC, Section 22.805).

Excerpts from the Stormwater Code (in *italics*) are presented below in the first column in the code reference box in most sections. The second column in the code reference box provides applicable references.

2.1. Step 1 – Define the Boundaries of the Project Site

The boundaries of the project site shall include all development activities as defined by SMC, Section 22.801.050. The boundary of the public right-of-way typically forms the boundary between project types if more than one project type exists. The project site may also include contiguous areas that are subject to the addition or replacement of hard surface or the undertaking of land-disturbing activity. In the case of a subdivision or short plat, the boundary of the project site is the full area included in the subdivision or short plat.

2.1.1. Definitions

Stormwater Code Language	References
<p>SMC, Section 22.801.050 – <i>“Development” means the following activities:</i></p> <ol style="list-style-type: none"> 1. <i>Class IV-general forest practices that are conversions from timberland to other uses;</i> 2. <i>land disturbing activity;</i> 3. <i>the addition or replacement of hard surfaces;</i> 4. <i>expansion of a building footprint or addition or replacement of a structure;</i> 5. <i>structural development, including construction, installation, or expansion of a building or other structure;</i> 6. <i>seeking approval of a building permit other construction permit, grading permit, or master use permit that involves any of the foregoing activities; and</i> 7. <i>seeking approval of subdivision, short plat, unit lot subdivision, or binding site plans, as defined and applied in chapter 58.17 RCW, and other master use permit.</i> <p><i>Development is a type of project.</i></p>	<ul style="list-style-type: none"> • None provided
<p>SMC, Section 22.801.090 – <i>“Hard surface” means an impervious surface, a permeable pavement, or a vegetated roof.</i></p>	<ul style="list-style-type: none"> • None provided
<p>SMC, Section 22.801.170 – <i>“Project” means any proposed action to alter or develop a site. Development is a type of project.</i></p>	<ul style="list-style-type: none"> • None provided
<p>SMC, Section 22.801.170 – <i>“Project site” means that portion of a property, properties, or rights-of-way, subject to land-disturbing activities, new hard surfaces or replaced hard surfaces.</i></p>	<ul style="list-style-type: none"> • None provided

Defining project boundaries will help identify the project type(s) in Step 2.

2.1.2. Closely Related Projects

Stormwater Code Language	References
<p>SMC, Section 22.805.010.B – <i>Closely related projects shall be considered as one project for purposes of applying the Stormwater Code, including but not limited to determining whether the thresholds for applicability of particular Stormwater Code minimum requirements are met.</i></p>	<ul style="list-style-type: none"> • None provided

The Director shall determine whether two or more projects are closely related by applying the following criteria:

1. Two or more projects under review at the same time are treated as a single project if any of the following are true:
 - a. Any feature physically spans the property lines between lots, such as shared structures, shared driveways, shared pedestrian access (including easements to rights-of-way), shared drainage and utility designs, foundation footings, or retaining walls
 - b. A shared driveway accesses a parking area(s) for more than one project, regardless of whether the parking is required

- c. Parking for a project, including maneuvering, aisle requirements, or other parking-related easements, whether the parking is required or not, is proposed to be provided (or partially provided) on the site of another project, even if the sites do not abut each other
 - d. Proposed structures are joined, or share a common wall
 - e. Proposed projects share required open space and/or amenity area
 - f. The design of two or more projects are dependent on grading, construction of retaining walls, and/or foundation design across the lot lines
 - g. One site is required to permanently access, construct and maintain the structures and/or development features on an abutting or adjacent site
 - h. Other features that create interdependence between projects.
2. The following features are not to be taken into consideration in determining whether two or more projects are to be evaluated as a single project:
 - a. Physical connections to a common public right-of-way (such as a street, sidewalk, or alley) or to a public drain or public utility lines in the right-of-way
 - b. Common developer, property owner, or marketing/sales scheme for the development proposals
 - c. Exclusive easements for vehicular or pedestrian access (including easements to rights-of-way) designed to restrict shared access between projects
 - d. Similar or identical design
 - e. Simultaneous construction on abutting lots, even by the same crew
 - f. A common architectural or landscaping design
 - g. Utility-only easements crossing one development site to serve abutting or adjacent lots
 - h. Shared temporary construction access
 - i. Other features that make projects independent of one another
3. If separate applications for development under review at the same time are determined to be one project under this rule, then the total combined development proposed in the applications will be considered when determining Stormwater Code requirements. Projects that are submitted for review are considered “under review” until the applicable construction permits for the project are issued or the permit application is withdrawn by the applicant.

2.2. Step 2 – Identify the Type of Project

For the purposes of determining applicable minimum requirements, there are eight general classifications of projects:

1. Single-family residential (SFR) project
2. Sidewalk project
3. Trail project
4. Roadway project
5. Parcel-based project
6. Certain land-disturbing activities
7. Washington State Department of Transportation (WSDOT) project
8. Special circumstances project

Each project type is described in the following subsections (*Section 2.2.1 through 2.2.8*).

2.2.1. *Single-Family Residential Project*

A single-family residential (SFR) project (Figure 2.1) is defined in SMC, Section 22.801.200.

Stormwater Code Language	References
SMC, Section 22.801.200 – <i>“Single-family residential project” means a project that constructs one Single-family Dwelling Unit as defined in subsection 23.84A.032 and any associated accessory dwelling unit located in land classified as being Single-family Residential 9,600 (SF 9600), Single-family Residential 7,200 (SF 7200), or Single-family Residential 5,000 (SF 5000) pursuant to Section 23.30.010, and the total new plus replaced hard surface is less than 5,000 square feet.</i>	<ul style="list-style-type: none"> • Figure 2.1

Note: Projects with 5,000 square feet or more of new plus replaced hard surface are considered parcel-based projects.

Also, single-family residential projects shall comply with any associated master use permit requirements (e.g., requirements for subdivisions, short plats, unit lot subdivisions), as applicable. For example, if a subdivision required Flow Control Standards, all Single-family projects must meet the requirements of the same Flow Control Standard. Depending on the design in the approved preliminary drainage control plan, this may be achieved by a shared facility that may be constructed prior to the construction of the improvements for the Single-family residential project or by individual facilities that may be required to be constructed with the Single-family residential project. All short plats and subdivisions are considered parcel-based projects (*Section 2.2.5*), regardless of the land use zoning.

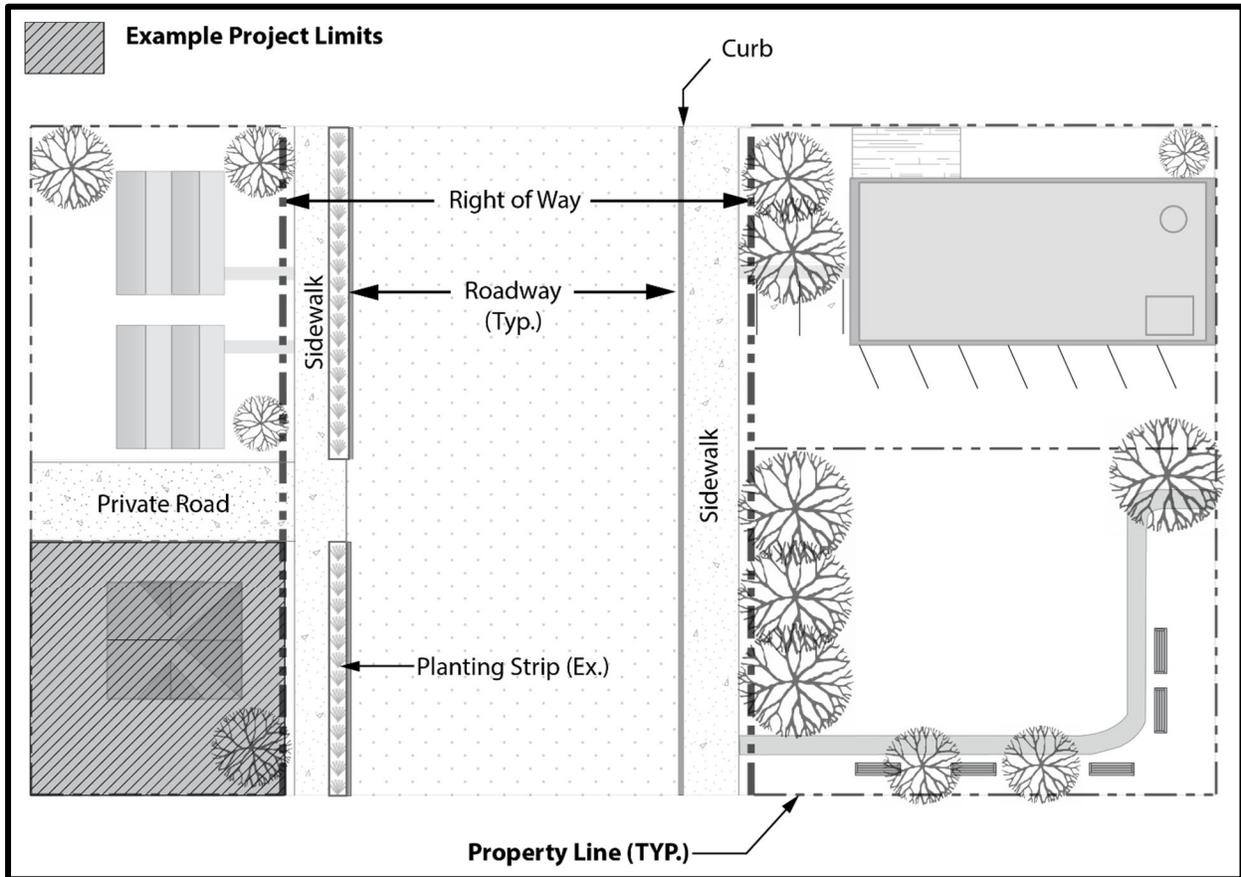


Figure 2.1. Single-Family Residential Project Site Definition.

2.2.2. Sidewalk Project

A sidewalk project (Figure 2.2) is defined in SMC, Section 22.801.200.

Stormwater Code Language	References
<p>SMC, Section 22.801.200 – “Sidewalk project” means a project for the creation of a new sidewalk or replacement of an existing sidewalk, including any associated planting strip, apron, curb ramp, curb, or gutter, and necessary roadway grading and repair. If the total new plus replaced hard surface in the roadway exceeds 10,000 square feet, the entire project is a roadway project.</p>	<ul style="list-style-type: none"> • Figure 2.2

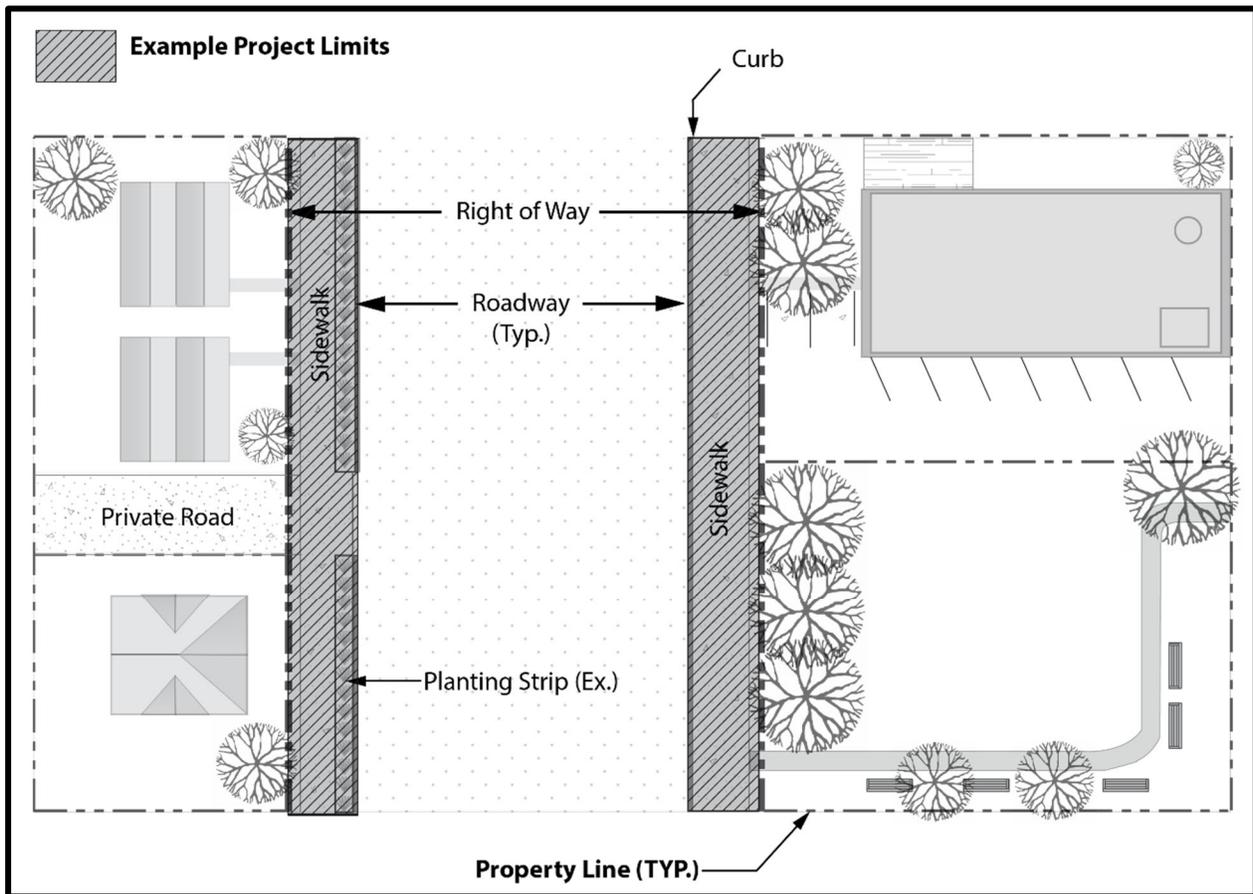


Figure 2.2. Sidewalk-Only Project Site Definition.

2.2.3. Trail Project

A trail project (Figure 2.3) is defined in SMC, Section 22.801.210.

Stormwater Code Language	References
SMC, Section 22.801.210 – “Trail project” means a project for the creation of a new trail or replacement of an existing trail, which does not contain PGHS.	<ul style="list-style-type: none"> • Figure 2.3

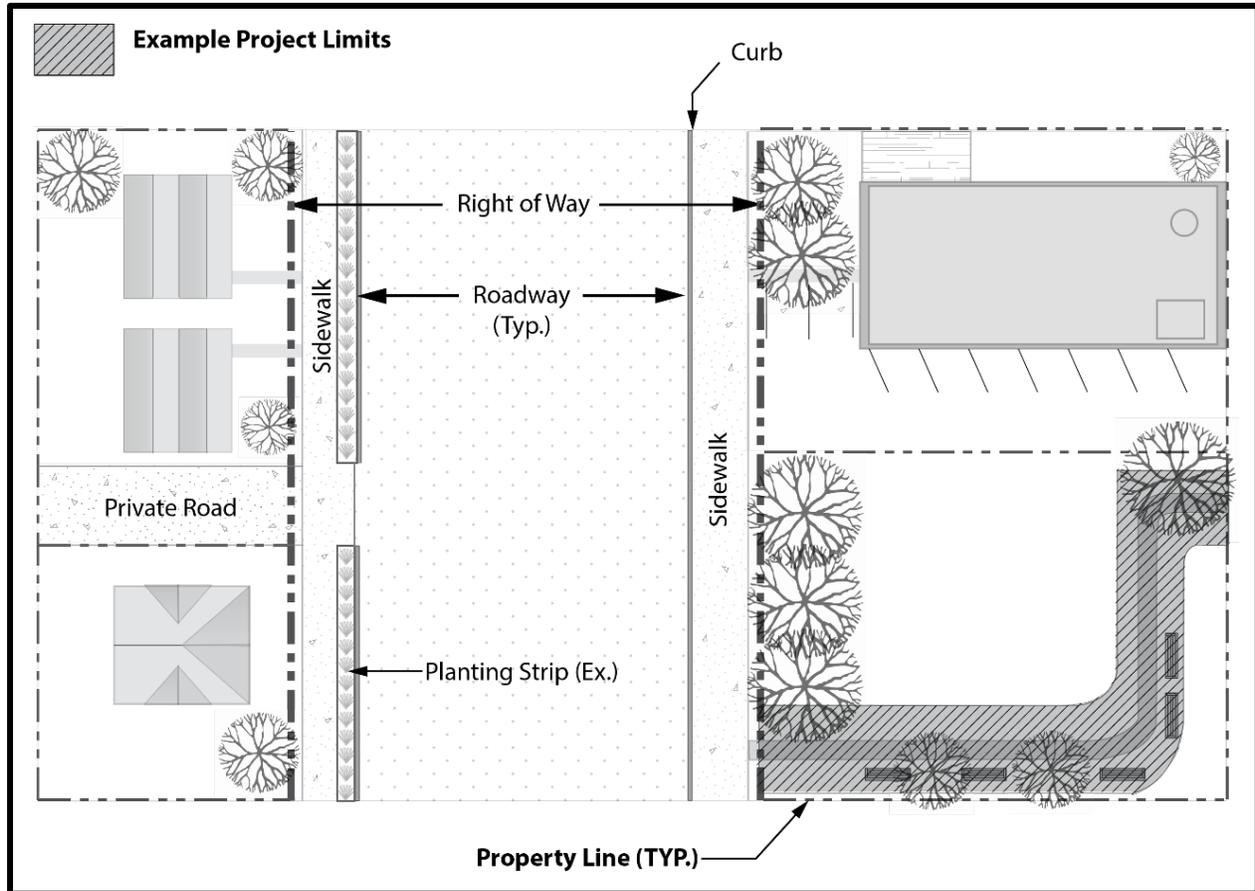


Figure 2.3. Trail Project Definition.

2.2.4. Roadway Project

A roadway project (Figure 2.4) is defined in SMC, Section 22.801.190.

Stormwater Code Language	References
SMC, Section 22.801.190 – “Roadway project” means a project located in the public right-of-way that involves the creation of a new or replacement of an existing roadway or alley. The boundary of the public right-of-way shall form the boundary between the parcel and roadway portions of a project.	<ul style="list-style-type: none"> Figure 2.4

Typically, the boundary of the public right-of-way forms the boundary between the parcel and roadway portions of a project, but special circumstances may exist (Refer to Section 4.7).

Projects that do not meet the definition of a roadway project (i.e., projects that include any development in addition to the creation of a new or replacement of an existing roadway or alley), are parcel-based projects. As an example, portions of projects that include building development and associated hard surfaces (e.g., parking lot) located in the public right-of-way are considered parcel-based projects (refer to Section 4.4 for requirements).

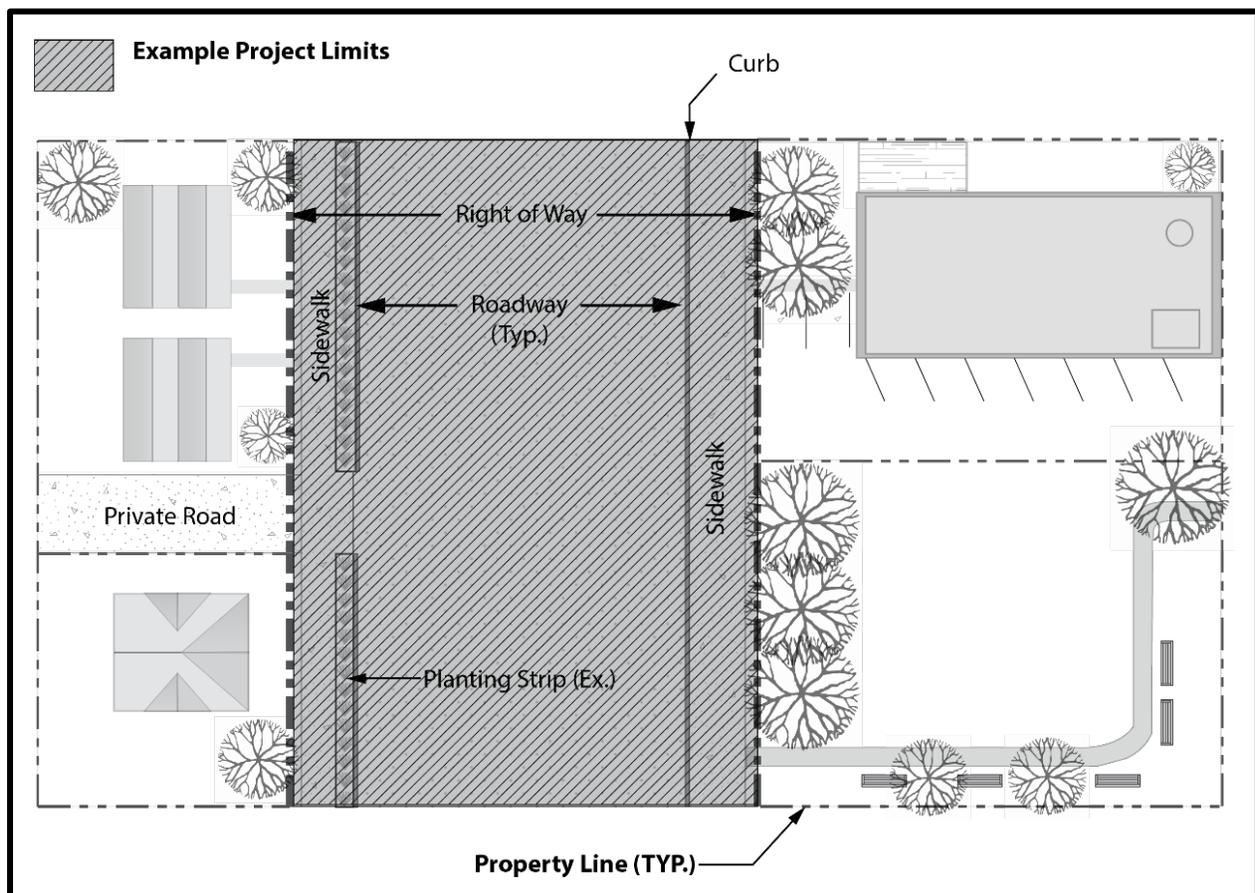


Figure 2.4. Roadway Project Site Definition.

2.2.5. Parcel-Based Project

A parcel-based project (Figure 2.5) is defined in SMC, Section 22.801.170.

Stormwater Code Language	References
SMC, Section 22.801.170 – <i>“Parcel-based project” means any project that is not a single-family residential project, roadway project, sidewalk project, or trail project. The boundary of the public right-of-way shall form the boundary between the parcel and roadway portions of a project.</i>	<ul style="list-style-type: none"> • Figure 2.5

Examples of parcel-based projects include, but are not limited to, commercial developments, multifamily developments, apartments, carriage houses, cottage housing development, rowhouse developments, townhouse development, institutions, industrial buildings and sites, parking lots, parks and playgrounds, commercial use development, public facilities, live-work units, manufacturing facilities, storage facilities, transportation facilities, utility use facilities, subdivisions, and short plats.

In addition, the following specific pollution-generating activities or projects are considered parcel-based projects and require drainage review. Specifically, source control BMPs shall be implemented as specified in Volume 4, to the extent necessary to prevent prohibited discharges and to prevent contaminants from coming in contact with drainage water or being discharged to the drainage system, public combined sewer, or directly into receiving waters.

Stormwater Code Language	References
SMC, Section 22.807.020.A.2.j – <i>Applications for approvals for activities or projects for:</i> <ol style="list-style-type: none"> 1. <i>Fueling at dedicated stations, for new or substantially altered fueling stations.</i> 2. <i>In-water and over-water fueling.</i> 3. <i>Maintenance and repair of vehicles and equipment.</i> 4. <i>Concrete and asphalt mixing and production.</i> 5. <i>Recycling, wrecking yard, and scrap yard operations.</i> 6. <i>Storage of liquids in aboveground tanks.</i> 7. <i>Other projects that the Director determines pose a hazard to public health, safety, or welfare; endanger any property; adversely affect the safety and operation of City right-of-way, utilities, or other property owned or maintained by the City; or adversely affect the functions and values of an environmentally critical area or buffer.</i> 	<ul style="list-style-type: none"> • None provided

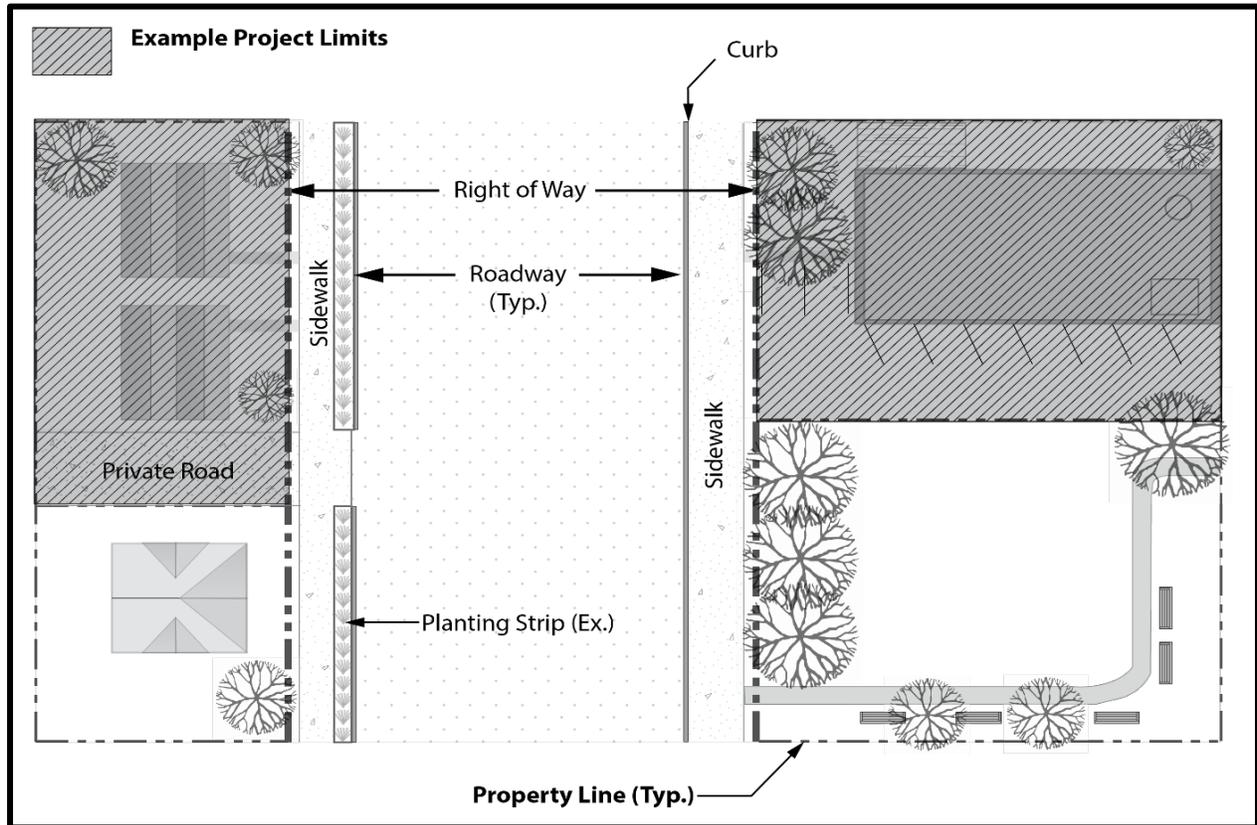


Figure 2.5. Parcel-Based Project Site Definition.

2.2.6. *Certain Land-Disturbing Activities*

Certain land-disturbing activities, including some utility and pavement maintenance projects, are not required to comply with some of the minimum requirements (refer to *Section 4.5*).

2.2.7. *WSDOT Project*

For the purposes of this Manual, a WSDOT project (which shall manage stormwater as stated in SMC, Section 22.800.040.A.6) includes WSDOT roadway projects within state rights-of-way under WSDOT control within the jurisdiction of the City.

In addition to the other provisions in Section 22.800.040.A.6, WSDOT projects shall comply with Stormwater Code requirements when discharging to a public drainage system or combined sewer system as prescribed in Section 22.800.040.A.6.c (refer to *Section 4.6*).

2.2.8. *Special Circumstances Projects*

Special circumstances projects do not closely fit a defined project type or have complicating elements (e.g., discharge to multiple drainage basins with differing requirements) and require a case-by-case review (refer to *Section 4.7*).

2.3. Step 3 – Identify the Receiving Water and Downstream Conveyance

For minimum requirement purposes, runoff leaving the project site is classified based on the type of receiving water and system into which the project site discharges. The project proponent shall identify the receiving water or point of discharge for the stormwater runoff from the project site (e.g., wetland, lake, creek, salt water, or combined sewer) for review and approval or disapproval by the Director. Refer to *Section 3.2* and *Section 3.12*.

The minimum requirements vary considerably by type of receiving water and downstream conveyance; therefore, it is very important to determine and specify the receiving water and type of downstream conveyance. Note: there may be multiple downstream receiving waters (e.g., a creek that flows into a small lake). In this case, the minimum requirements for all downstream receiving waters shall apply.

Portions of watersheds near the City limits discharge to adjacent jurisdictions. In these cases, the more stringent requirements between the Seattle Stormwater Code and Manual and the receiving jurisdiction's requirements will be applied for determining stormwater mitigation requirements (e.g., discharges to nutrient-critical receiving waters). Refer to the Phase I and Phase II Municipal Stormwater Permits for enforceable documents that are functionally equivalent to Ecology's requirements.

Seattle has a complicated system due to historical annexations, major sewer and drainage projects, and other complexities. Therefore, prior to proceeding with project design, confirm your project discharge location through the City's Preliminary Application Report (PAR) process to determine your project requirements. To determine Stormwater Code project requirements for projects that are not required to go through the PAR process, contact the Drainage Review Team at sidesewerinfo@seattle.gov for projects conducted on private property or SPU_PlanReview@Seattle.gov for projects conducted in the right-of-way.

The receiving waters and systems in Seattle include the following:

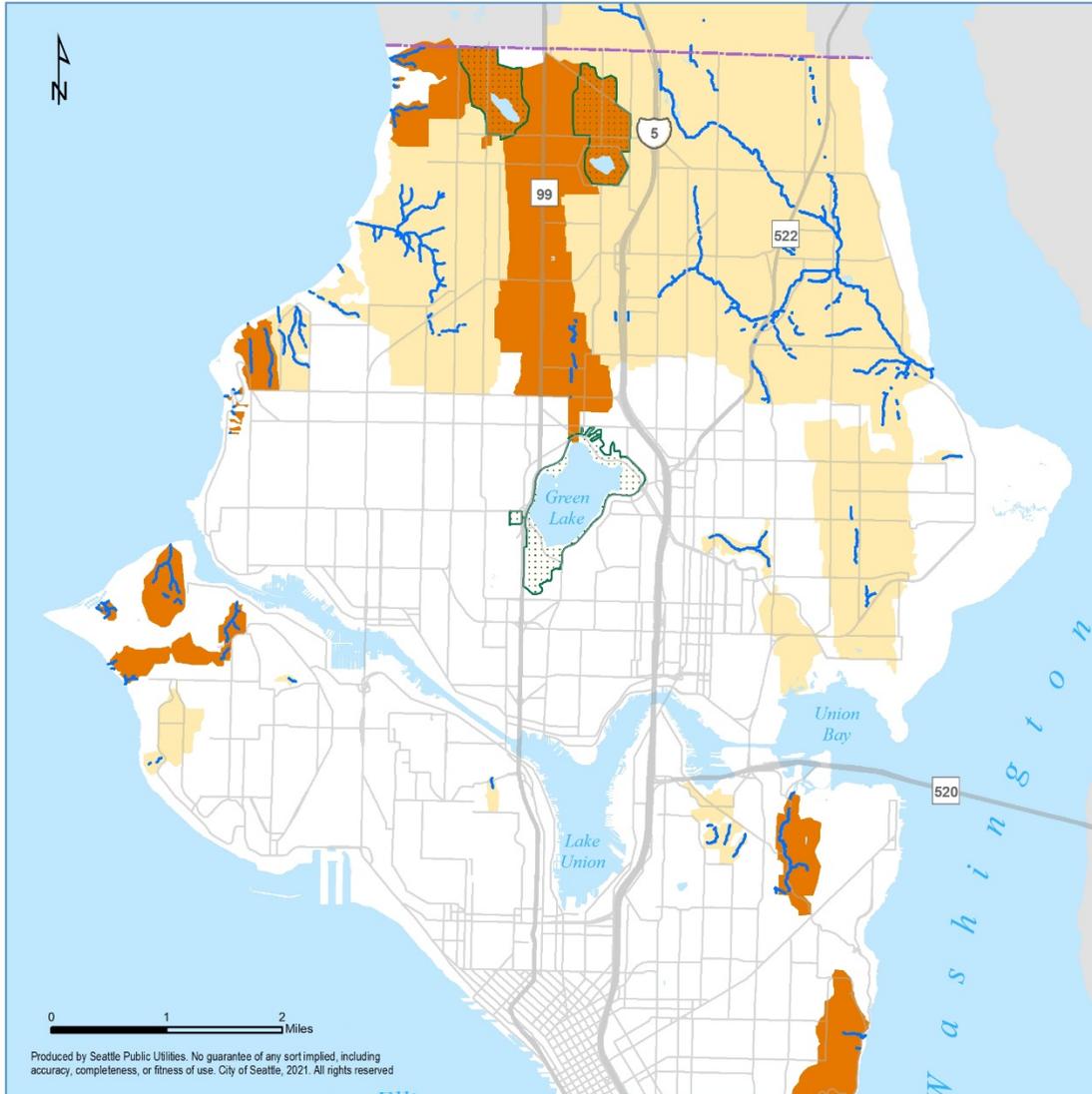
- **Wetlands:** Designated under SMC, Section 25.09.020. Discharges are to the wetland or the associated drainage basin.
- **Creek Basins:** Include stream basins throughout Seattle, generally referred to as "creek basins." Discharges are to the creek or the associated drainage basin. Creeks in piped systems are considered creeks.
- **Public Combined Sewer:** Discharges are to the public combined sewer or its associated basin.
- **Small Lake Basins:** Discharges are to the small lake or the associated drainage basin.
- **Designated Receiving Waters:** Discharges are to the designated receiving water or its associated drainage basin.
- **Capacity-Constrained System:** Capacity constraints in any downstream conveyance can modify the flow control requirements for discharges. This includes discharges directly to the capacity-constrained system or its associated upstream basin. All ditch

and culvert systems are capacity constrained. In addition, at the time of publication, the following areas have been determined by the Director to be capacity-constrained:

- Densmore Basin
- Portions of the Pike/Pine Corridor
- South Park (including both separated storm and combined sewers)

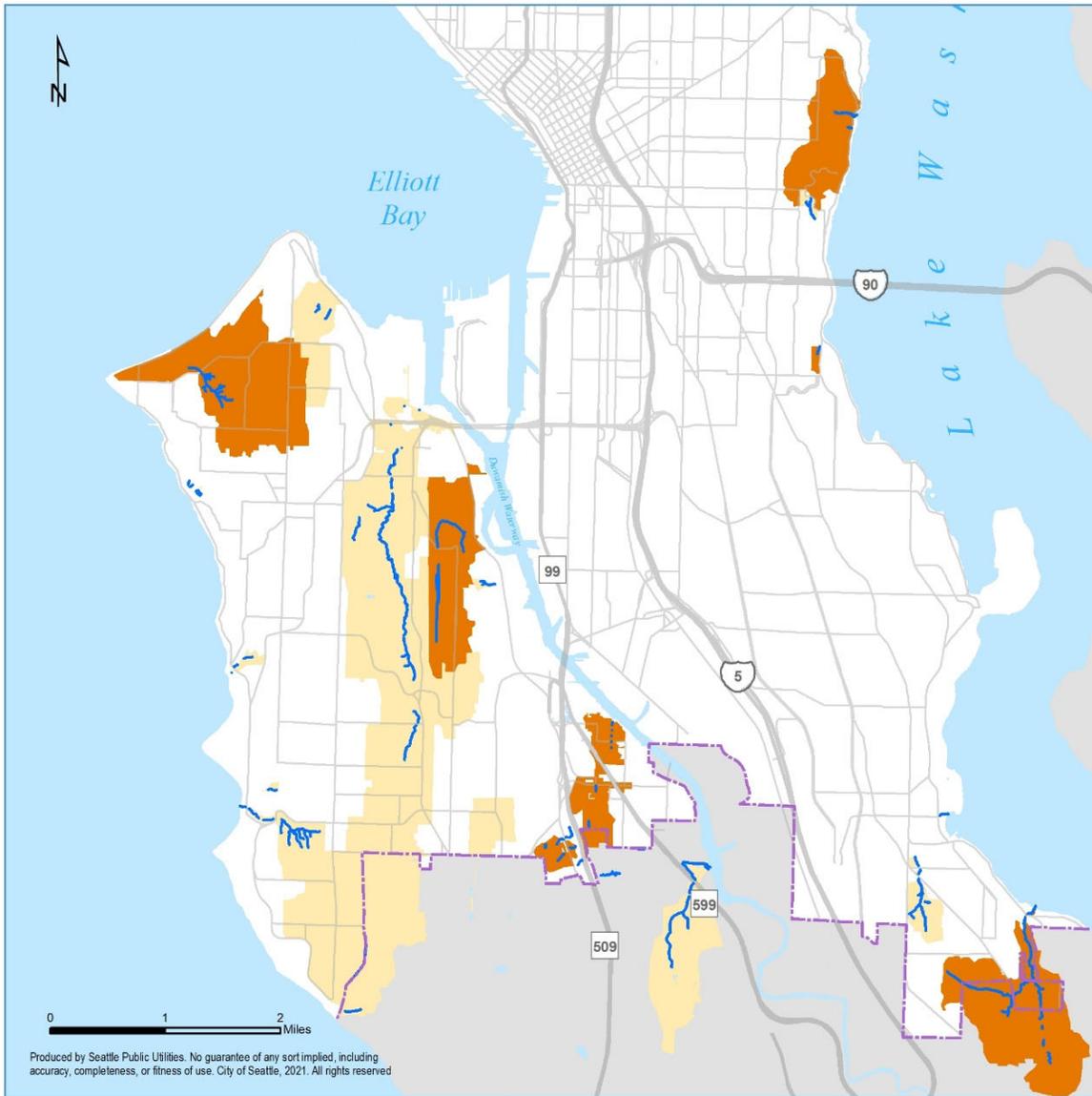
Drainage basin and system figures (references in code reference box) are provided for reference only.

Stormwater Code Language	References
<p>SMC, Section 22.801.040 – “Creek” means a Type S, F, Np, or Ns water as defined in WAC 222-16-031, or as defined in WAC 222-16-030 after state water type maps are adopted, and is used synonymously with stream.</p> <p>SMC, Section 22.801.130 – “Listed creeks” means Blue Ridge Creek, Broadview Creek, Discovery Park Creek, Durham Creek, Frink Creek, Golden Gardens Creek, Kiwanis Ravine/Wolfe Creek, Licton Springs Creek, Madrona Park Creek, Mee-Kwa-Mooks Creek, Mount Baker Park Creek, Puget Creek, Riverview Creek, Schmitz Creek, Taylor Creek, and Washington Park Creek.</p> <p>SMC, Section 22.801.150 – “Non-listed creeks” means any creek not identified in the definition of “Listed creeks” in 22.801.130.</p>	<ul style="list-style-type: none"> ● Figure 2.6 and Figure 2.7
<p>SMC, Section 22.801.170 – “Public combined sewer” means a publicly owned and maintained system which carries drainage water and wastewater and flows to a publicly owned treatment works.</p>	<ul style="list-style-type: none"> ● Figure 2.8
<p>SMC, Section 22.801.200 – “Small lakes” means Bitter Lake, Green Lake, and Haller Lake.</p>	<ul style="list-style-type: none"> ● Figure 2.6
<p>SMC, Section 22.801.050 – “Designated receiving waters” means the Duwamish River, Puget Sound, Lake Washington, Lake Union, Elliott Bay, Portage Bay, Union Bay, the Lake Washington Ship Canal, and other receiving waters determined by the Director of SPU and approved by Ecology as having sufficient capacity to receive discharges of drainage water such that a site discharging to the designated receiving water is not required to implement flow control.</p>	<ul style="list-style-type: none"> ● Figure 2.9 and Figure 2.10
<p>SMC, Section 22.801.040 – “Capacity-constrained system” means a drainage system or public combined sewer that the Director of SPU has determined to have inadequate capacity to carry existing and anticipated loads, or a drainage system that includes ditches or culverts.</p>	<ul style="list-style-type: none"> ● Figure 2.11



-  Creek Watershed (Listed)
-  Creek Watershed (Non-Listed)
-  Small Lake Basins
-  Open Stream Channel
-  Seattle City Limits

Figure 2.6. North End Creek Basins.



- Creek Watershed (Listed)
- Creek Watershed (Non-Listed)
- Open Stream Channel
- Seattle City Limits

Figure 2.7. South End Creek Basins.

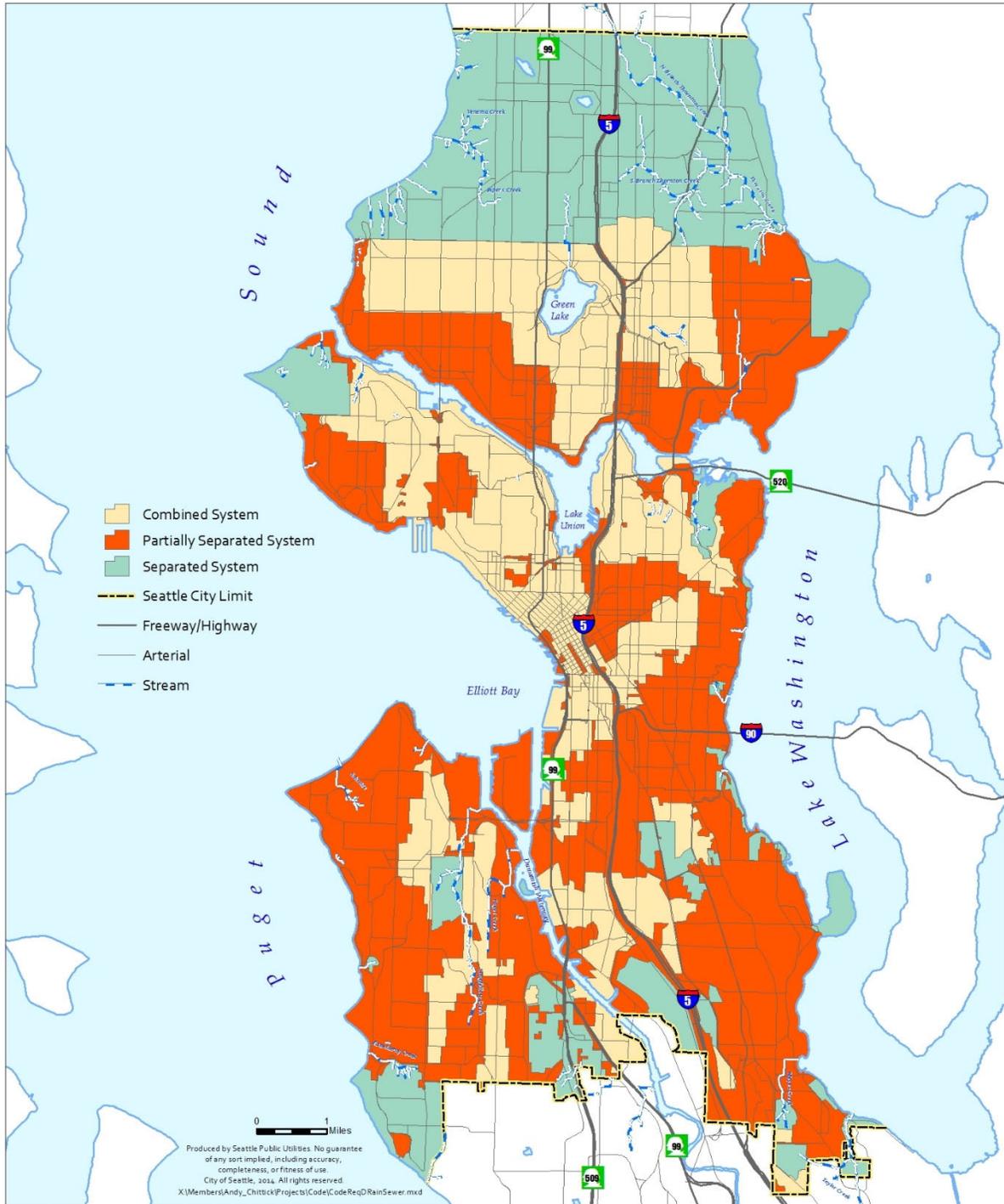
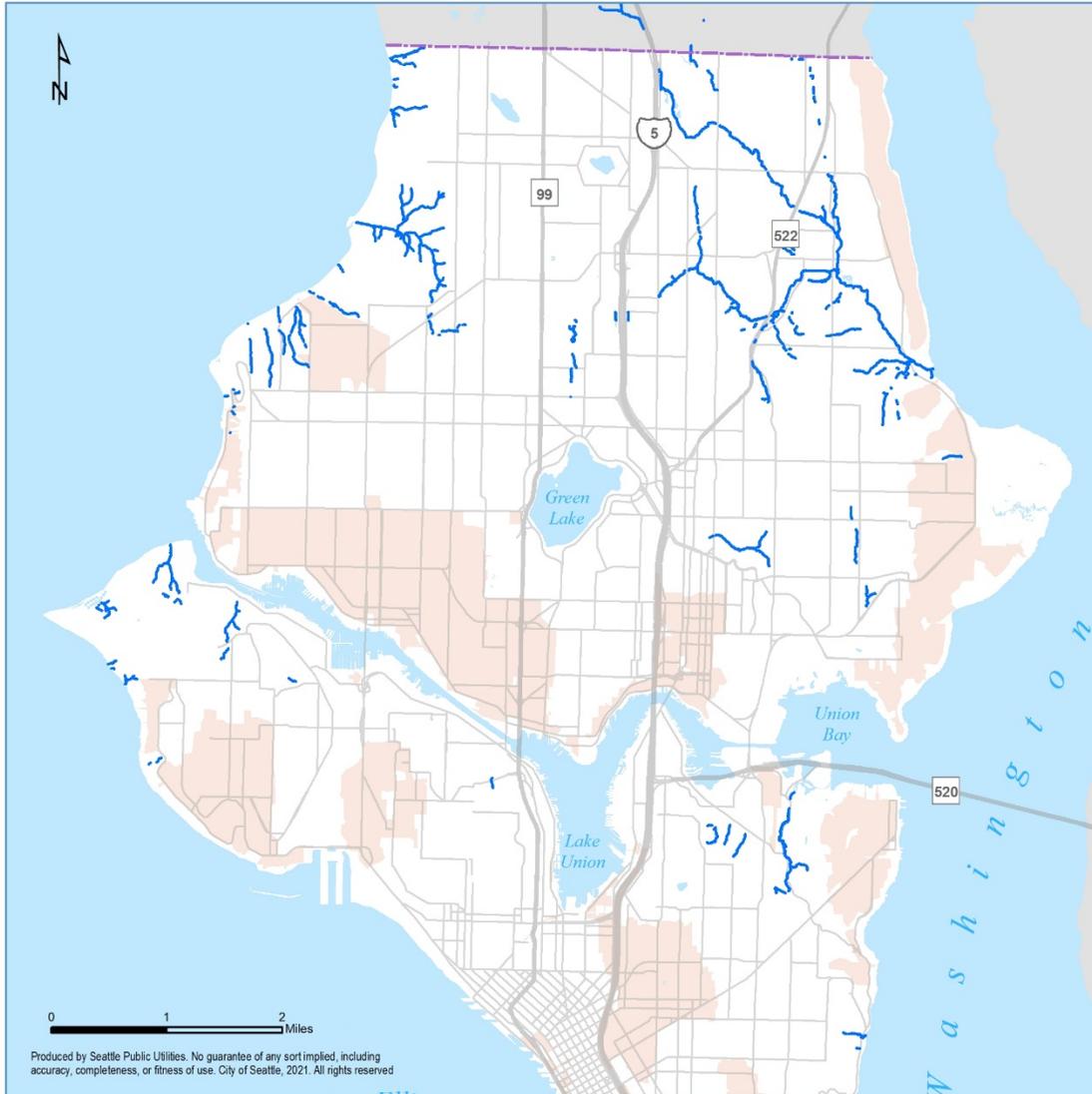
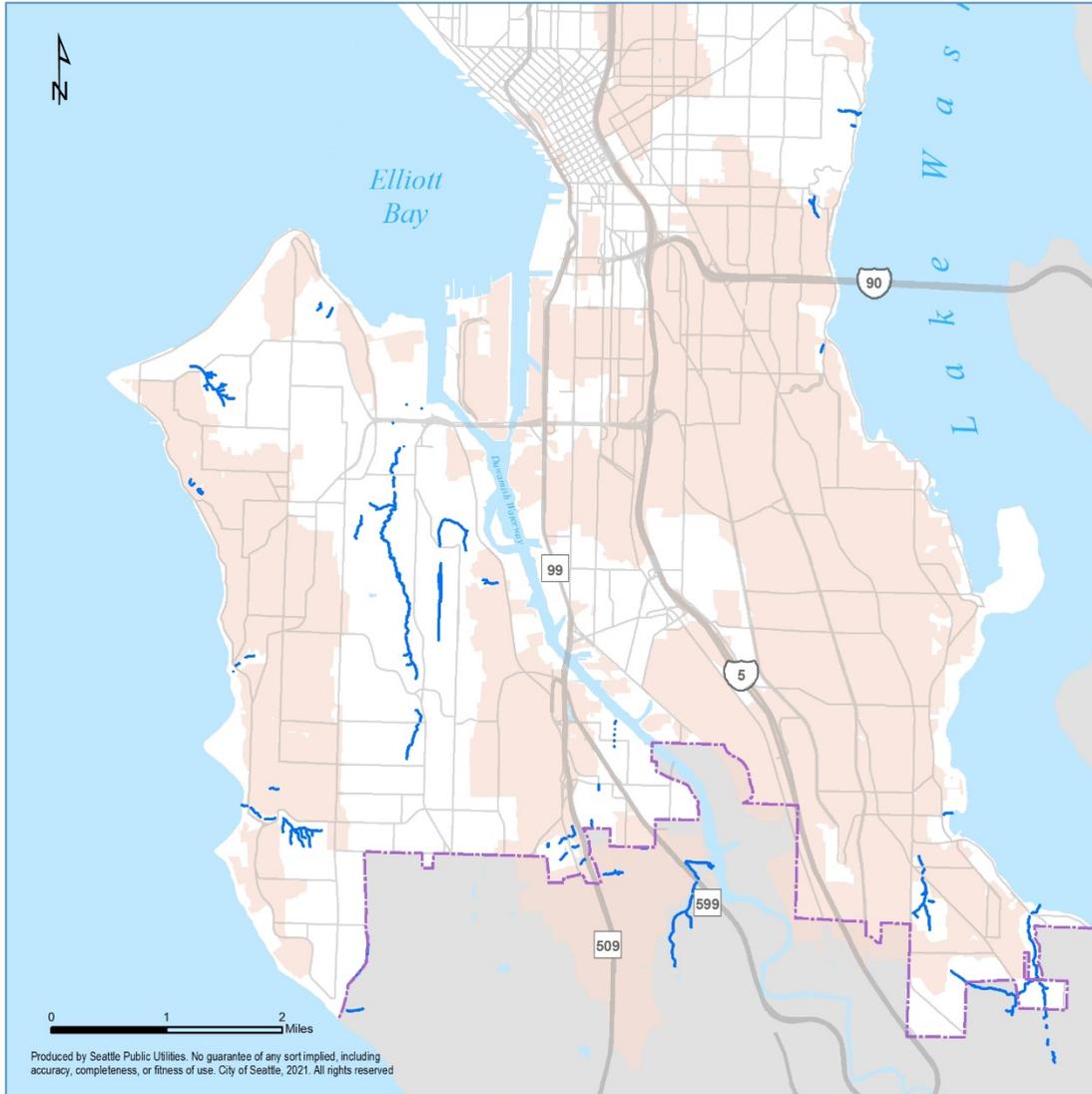


Figure 2.8. Public Combined Sewer Basins.



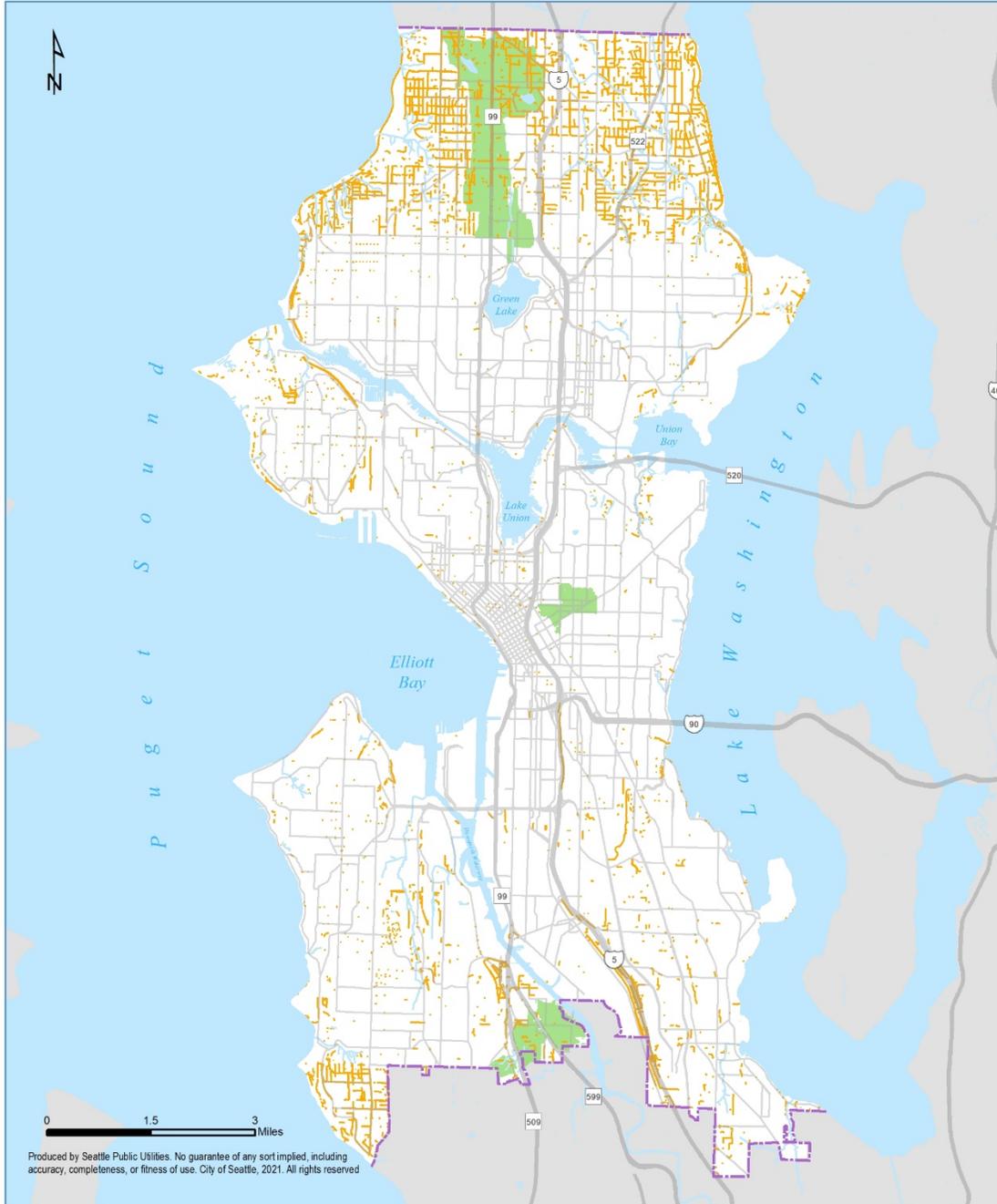
- Designated Receiving Waterbodies
- Open Stream Channel
- Seattle City Limits

Figure 2.9. North End Designated Receiving Water Drainage Areas.



-  Designated Receiving Waterbodies
-  Open Stream Channel
-  Seattle City Limits

Figure 2.10. South End Designated Receiving Water Drainage Areas.



- Capacity Constrained Systems (Director's Rule)
- Ditches and Culverts
- Seattle City Limits

Note: All ditches and culverts are considered to be capacity constrained.

Figure 2.11. Capacity Constrained Systems.

2.4. Step 4 – Perform Site Assessment and Planning

After the applicable minimum requirements have been identified, each project shall evaluate project design considerations and perform a site assessment as outlined in *Chapter 7*. The goal of the site assessment and planning step is to identify any additional issues that shall be addressed in association with stormwater management requirements. This step shall be completed before selecting on-site stormwater management, flow control, and/or treatment BMPs.

Site-specific factors to consider may include, but are not limited to:

- Site boundaries and structures
- Site topography and dispersion feasibility (refer to *Volume 3, Section 3.1*)
- Soil conditions and infiltration capacity (refer to *Volume 3, Section 3.2*) Critical area issues (e.g., flood plains, landslide prone areas, and site contamination)
- Groundwater elevations
- Special circumstances (e.g., discharge to multiple drainage basins with differing requirements) (refer to *Section 4.7*)

Project proponents need to evaluate all the applicable code requirements and conduct a full site assessment to characterize site opportunities and constraints before choosing and designing stormwater strategies (refer to *Chapter 7*).

2.5. Step 5 – Calculate Land-Disturbing Activity and New Plus Replaced Hard Surface

The thresholds triggering specific Minimum Requirements for Flow Control are based on the amount of the project's new plus replaced hard surface, converted native and nonnative vegetation, and land-disturbing activity. Hard surface means an impervious surface, a permeable pavement, or a vegetated roof.

Note that open, uncovered retention or detention facilities shall not be considered as hard surfaces for the purposes of determining whether the minimum requirement thresholds are exceeded. However, these facilities shall be considered impervious surfaces for the purposes of stormwater facility sizing.

Areas with underdrains designed to remove stormwater from the subgrade (e.g., playfields, athletic fields, rail yards) shall be considered as hard surfaces for the purposes of determining whether the minimum requirement thresholds are exceeded. All areas that are connected to the underdrains and surrounding underdrain aggregate with free-draining subbase material or drainage layer, such as a sand or gravel layer or a manufactured drainage mat, shall be counted as hard surface area, regardless of the distance of the surface from the underdrain or spacing of underdrains. Natural lawn or turf areas that do not have a free-draining sand or gravel layer or other type of drainage layer connected to the underdrain or underdrain aggregate are considered to be hard surface areas if there are multiple rows of underdrains

that are spaced closer than 25 feet apart. Refer to SMC, Section 22.801 and *Appendix A* for detailed definitions of these key terms.

The amount of native vegetation that is removed and replaced with lawn, landscaping, and pasture groundcover shall also be calculated.

New plus replaced hard surface areas and converted native vegetation shall be quantified separately for work within, and outside, the right-of-way.

2.6. Step 6 – Calculate New Plus Replaced Pollution Generating Surface

The thresholds triggering specific Minimum Requirements for Treatment are based on the total amount of the project's new plus replaced pollution-generating hard surface (PGHS) and new plus replaced pollution-generating pervious surface (PGPS). PGHS and PGPS include areas that are considered to be a significant source of pollutants in stormwater runoff. Examples of PGHS include areas subject to vehicular use (including permeable pavement); certain industrial activities; outdoor storage of erodible or leachable materials, wastes, or chemicals. Examples of PGPS include lawns, landscaping areas, golf courses, parks, cemeteries, and sports fields (natural and artificial turf). Metal roofs are considered a PGHS unless coated with an inert, non-leachable material (e.g., baked-on enamel coating). Refer to SMC, Section 22.801 and *Appendix A* for detailed definitions of these key terms.

New plus replaced PGHS and PGPS shall be quantified separately for work within and outside the right-of-way.

2.7. Step 7 – Determine Which Minimum Requirements Apply

An overview of the minimum requirements applicable to all project types is included in *Chapter 3*. In addition, an overview of the minimum requirements specific to each project type is included in *Chapter 4*.

Based on the information obtained from Step 1 through Step 6, the applicable minimum requirements for specific project types can be determined for:

- Soil amendment (*Section 5.1*)
- On-site stormwater management (*Section 5.2*)
- Flow control (*Section 5.3*)
- Water quality treatment (*Section 5.4*)

Note: Other projects that do not trigger the minimum requirements for on-site stormwater management, flow control, and/or water quality (e.g., retrofit projects) are encouraged but not required to follow the technical requirements in this manual as guidance on methods and standards that may help protect water resources.

In addition, certain locations in the City may be subject to additional or modified requirements based on other Director’s Rules, Policies, and Tips, such as:

- SPU Director’s Rule DWW-210 – Public Drainage System Requirements
- SPU Director’s Rule DWW-430.1 – Flow Control Requirements for Projects in Identified Public Combined Sewer Basins (SODO/Downtown Waterfront)
- SPU Director’s Rule DWW-420.1 – Yesler Terrace Community Director’s Rule: Allowable Stormwater, Groundwater, and Sewer Release Rates to the Combined Sewer System and Infiltration Zones
- SDCI Tip 505 – High Point Impervious Surface Calculation
- SDCI Director’s Rule 12-2008 – Infiltration Facilities in Peat Settlement-Prone Areas

Note: Under certain circumstances, the ECA code requires Water Quality Treatment and Flow Control in some locations where it is not required per this Manual (e.g., shoreline areas, riparian corridors).

Once the applicable minimum requirements have been identified, proceed to *Volume 3, Chapters 3, 4, and 5* to begin the BMP selection and design process.

CHAPTER 3 – MINIMUM REQUIREMENTS FOR ALL PROJECTS

All projects are required to comply with the minimum requirements listed in SMC, Section 22.805, even when drainage control review is not required. The specifics of the minimum requirements applicable to all projects, as per SMC, Section 22.805.020 are summarized in the following subsections.

Excerpts from the Stormwater Code (in *italics*) are presented below in the first column in the code reference box in each section. The second column in the code reference box provides applicable references.

Note that this section summarizes but does not replace or alter Stormwater Code requirements.

3.1. Maintaining Natural Drainage Patterns

Stormwater Code Language	References
<p>SMC 22.805.020.A – <i>Minimum Requirements for Maintaining Natural Drainage Patterns. For all projects, natural drainage patterns shall be maintained and discharges shall occur at the natural location to the maximum extent feasible and consistent with subsection 22.805.020.B. Drainage water discharged from the site shall not cause a significant adverse impact to receiving waters or down-gradient properties. Drainage water retained or infiltrated on the site shall not cause significant adverse impact to up-gradient or down-gradient properties.</i></p>	<ul style="list-style-type: none"> • <i>Volume 1, Section 3.2 (SMC, Section 22.805.020.B) – Minimum Requirements for Discharge Point</i> • <i>Volume 3, Section 3.3 – BMP Selection for On-site Stormwater Management</i> • <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i>

3.2. Discharge Point

3.2.1. *Approved Point of Discharge*

All projects shall convey stormwater flow to an approved point of discharge and include overflows for all stormwater BMPs.

Stormwater Code Language	References
<p>SMC 22.805.020. B – <i>Minimum Requirements for Discharge Point. The discharge point for drainage water from each site shall be selected using criteria that shall include, but not be limited to, preservation of natural drainage patterns and whether the capacity of the drainage system is adequate for the flow rate and volume. For those projects meeting the drainage review threshold, the proposed discharge point shall be identified in the drainage control plan required by this subtitle, for review and approval or disapproval by the Director.</i></p>	<ul style="list-style-type: none"> • <i>Volume 3, Section 4.3.2 – Approved Point of Discharge</i>

A project’s approved point of discharge as determined by the Director, in order of priority, includes:

1. Receiving waters
2. Piped public drainage system (also known as Pipe Storm Drain [PSD])
3. Ditch and culvert system
4. Public combined sewer pipes
5. Infiltration on site

Extension of the **piped** public drainage system may be required even if a ditch and culvert system or a public combined sewer abuts a project (refer to *Section 3.12* and the Public Drainage System Requirements Director’s Rule (SPU Director’s Rule DWW-210).

Note: Stormwater and groundwater shall not be conveyed to or enter a sanitary sewer (SMC, Section 21.16.220) including those systems that were considered a formerly combined system.

Refer to SPU’s Water & Sewer Map for “Permitted Use” in determining if a system is classified as a public sanitary sewer: https://gisrevprxy.seattle.gov/wab_ext/DSOResearch_Ext/

3.2.2. *Conveyance Systems to Point of Discharge*

The types of conveyance systems to the approved point of discharge, in order of priority, includes:

1. Direct pipe connections
2. Ditch and culvert system
3. Gutter or street flow line
4. Surface dispersal

3.3. Flood-Prone Areas

Stormwater Code Language	References
<p>SMC 22.805.020.C – <i>Minimum Requirements for Flood-prone Areas. On sites within flood-prone areas, responsible parties are required to employ procedures to minimize the potential for flooding on the site and to minimize the potential for the project to increase the risk of floods on adjacent or nearby properties. Flood control measures shall include those set forth in other titles of the Seattle Municipal Code and rules promulgated thereunder, including, but not limited to, Chapter 23.60 (Shoreline District), Chapter 25.06 (Floodplain Development) and Chapter 25.09 (Environmentally Critical Areas) of the Seattle Municipal Code.</i></p>	<ul style="list-style-type: none"> ● SMC, Chapter 23.60 – Shoreline Master Program ● SMC, Chapter 25.06 – Floodplain Development ● SMC, Chapter 25.09 – Environmentally Critical Areas

3.4. Construction Site Stormwater Pollution Prevention Control

There are 19 elements required for construction site stormwater pollution prevention control.

Stormwater Code Language	References
<p>SMC 22.805.020.D – <i>Minimum Requirements for Construction Stormwater Pollution Prevention Plan. Temporary and permanent construction controls shall be used to accomplish [the 19 construction site stormwater pollution prevention control requirements outlined in SMC 22.805.020.D and Volume 2, Construction Stormwater Control]. All projects are required to meet each of the elements below or document why an element is not applicable. Additional controls may be required by the Director when minimum controls are not sufficient to prevent erosion or transport of sediment or other pollutants from the site.</i></p> <ol style="list-style-type: none"> 1. <i>Mark Clearing Limits and Environmentally Critical Areas</i> 2. <i>Retain Top Layer</i> 3. <i>Establish Construction Access</i> 4. <i>Protect Downstream Properties and Receiving Waters</i> 5. <i>Prevent Erosion and Sediment Transport from the Site</i> 6. <i>Prevent Erosion and Sediment Transport from the Site by Vehicles</i> 7. <i>Stabilize Soils</i> 8. <i>Protect Slopes</i> 9. <i>Protect Storm Drains</i> 10. <i>Stabilize Channels and Outlets</i> 11. <i>Control Pollutants</i> 12. <i>Control Dewatering</i> 13. <i>Maintain BMPs</i> 14. <i>Inspect BMPs</i> 15. <i>Execute Construction Stormwater Control and Soil Management Plan</i> 16. <i>Minimize Open Trenches</i> 17. <i>Phase the Project</i> 18. <i>Install Flow Control and Water Quality Facilities</i> 19. <i>Protect Stormwater BMPs</i> 	<ul style="list-style-type: none"> ● <i>Volume 2, Chapter 3 – Selecting Construction Stormwater Controls</i>

3.5. Protect Wetlands

Stormwater Code Language	References
<p>SMC 22.805.020.E – <i>Protect Wetlands. All projects discharging into a wetland or its buffer, either directly or indirectly through a drainage system, shall prevent impacts to wetlands that would result in a net loss of functions or values.</i></p>	<ul style="list-style-type: none"> ● <i>SMC, Chapter 25.09 – Environmentally Critical Areas</i> ● <i>SWMMWW Volume I, Appendix I-C (Ecology 2019)</i>

3.6. Protect Streams and Creeks

Stormwater Code Language	References
<p>SMC 22.805.020.F – <i>Protect Streams and Creeks. All projects, including projects discharging directly to a stream or creek, or to a drainage system that discharges to a stream or creek, shall maintain the water quality in any affected stream or creek by selecting, designing, installing, and maintaining temporary and permanent controls.</i></p>	<ul style="list-style-type: none"> • None provided

3.7. Protect Shorelines

Stormwater Code Language	References
<p>SMC 22.805.020.G – <i>Protect Shorelines. All projects discharging directly or indirectly through a drainage system into the shoreline district as defined in Chapter 23.60 shall prevent impacts to water quality and stormwater quantity that would result in a net loss of shoreline ecological functions as defined in WAC 173-26-020 (13).</i></p>	<ul style="list-style-type: none"> • SMC, Chapter 23.60 – Shoreline Master Program • WAC, Section 173-26-020(11) – Definitions – “Document of Record”

3.8. Ensure Sufficient Capacity

Stormwater Code Language	References
<p>SMC 22.805.020.H – <i>Ensure Sufficient Capacity. All large projects, all projects with an excavation depth of 12 feet or more below the existing grade, and all projects with an excavation depth of less than 12 feet located in an area expected to have shallow groundwater depths, shall ensure that sufficient capacity exists in the public drainage system and public combined sewer to carry existing and anticipated loads, including any flows from dewatering activities. Capacity analysis shall extend to at least 1/4-mile from the discharge point of the site. Sites at which there is insufficient capacity may be required to install a flow control facility or improve the drainage system or public combined sewer to accommodate flow from the site. Unless approved otherwise by the Director as necessary to meet the purposes of this subtitle:</i></p> <ol style="list-style-type: none"> 1. <i>Capacity analysis for discharges to the public drainage system shall be based on peak flows with a 4 percent annual probability (25-year recurrence interval); and</i> 2. <i>Capacity analysis for discharges to the public combined sewer shall be based on peak flows with a 20 percent annual probability (5-year recurrence interval).</i> 	<ul style="list-style-type: none"> • <i>Volume 3, Section 4.3 – Conveyance General Design Requirements</i> • <i>Appendix F – Hydrologic Analysis and Design</i> • SMC, Section 22.805.020.N – Public Drainage System Requirements • Public Drainage System Requirements Director’s Rule DWW-210

3.9. Install Source Control BMPs

Stormwater Code Language	References
<p>SMC 22.805.020.I – <i>Install Source Control BMPs. Source control BMPs shall be installed for discharges, properties, and by businesses and public entities for specific pollution-generating activities as specified in Chapter 22.803 and in the joint SPU/SDCI Directors’ Rule titled “Seattle Stormwater Manual” at “Volume 4 – Source Control,” to the extent necessary to prevent prohibited discharges as described in Section 22.802.020, and to prevent contaminants from coming in contact with drainage water. This requirement applies to the pollution-generating activities that are stationary or occur in one primary location and to the portion of the site being developed. Examples of installed source controls include, but are not limited to, the following:</i></p> <ol style="list-style-type: none"> 1. <i>A roof, awning, or cover erected over the pollution-generating activity area;</i> 2. <i>Ground surface treatment in the pollution-generating activity area to prevent interaction with, or breakdown of, materials used in conjunction with the pollution-generating activity;</i> 3. <i>Containment of drainage from the pollution-generating activity to a closed sump or tank. Contents of such a sump or tank must be pumped or hauled by a waste handler, or treated prior to discharge to a public drainage system;</i> 4. <i>Construct a berm or dike to enclose or contain the pollution-generating activities;</i> 5. <i>Direct drainage from containment area of pollution-generating activity to a closed sump or tank for settling and appropriate disposal, or treat prior to discharging to a public drainage system;</i> 6. <i>Pave, treat, or cover the containment area of pollution-generating activities with materials that will not interact with or break down in the presence of other materials used in conjunction with the pollution-generating activity; and</i> 7. <i>Prevent precipitation from flowing or being blown onto containment areas of pollution-generating activities.</i> 	<ul style="list-style-type: none"> ● SMC, Section 22.802.020 – Prohibited Discharges ● Volume 4 – Source Control

3.10. Do Not Obstruct Watercourses

Stormwater Code Language	References
<p>SMC 22.805.020.J – <i>Do not obstruct watercourses. Watercourses shall not be obstructed.</i></p>	<ul style="list-style-type: none"> ● SMC, Chapter 22.808 – Stormwater Code Enforcement

3.11. Comply with Side Sewer Code

A side sewer permit is required for any repair, replacement or alteration of the sewer or drainage system. Any change to the point of discharge must be approved. A change of use that introduces contaminants or process water to the drainage system, public combined sewer, or public sanitary sewer must also be approved and may require pretreatment. For information on side sewer permits, contact the SDCI Drainage and Sewer Review Desk, at (206) 684-5362 or sidesewerinfo@seattle.gov. For information on King County discharge

requirements, contact the Industrial Waste Program at (206) 477-5300 or Info.KCIW@kingcounty.gov.

Stormwater Code Language	References
<p>SMC 22.805.020.K – <i>Comply with Side Sewer Code</i></p> <ol style="list-style-type: none"> 1. <i>All privately owned and operated drainage control facilities or systems, whether or not they discharge to a public drainage system or public combined sewer, shall be considered side sewers and subject to Chapter 21.16 (Side Sewer Code), SPU Director’s Rules promulgated under Title 21, and the design and installation specifications and permit requirements of SPU and SDCI for side sewer and drainage systems.</i> 2. <i>Side sewer permits and inspections shall be required for constructing, capping, altering, or repairing privately owned and operated drainage systems as provided for in Chapter 21.16. When the work is ready for inspection, the permittee shall notify the Director. the work is not constructed according to the plans approved under this subtitle, Chapter 21.16, the SPU Director’s Rules promulgated under Title 21, and SPU and SDCI design and installation specifications, then the Director may issue a stop work order under Chapter 22.808 and require modifications as provided for in this subtitle and Chapter 21.16.</i> 	<ul style="list-style-type: none"> ● SMC, Chapter 21.16 – Side Sewer Code ● SMC, Chapter 22.808 – Stormwater Code Enforcement ● Volume 5 – Enforcement

3.12. Extension of Public Drainage System

3.12.1. *Projects Not Constructed in the Right-of-Way*

Stormwater Code Language	References
<p>SMC 22.805.020.L – <i>Extension of the Public Drainage System for Projects Not Constructed in the Public Right-of-Way. For projects not constructed in the public right-of-way, extension of the piped public drainage system across the full extent of the parcel boundary in the abutting public place shall be required for any of the following:</i></p> <ol style="list-style-type: none"> 1. <i>All projects where the Director has determined an extension is required considering, but not limited to, the following attributes of the project:</i> <ol style="list-style-type: none"> a. <i>Poses a hazard to public health, safety, or welfare;</i> b. <i>Endangers any property;</i> c. <i>Adversely affects the safety and operation of public right-of-way, utilities, or other property owned or maintained by the City;</i> d. <i>Adversely affects the functions and values of an environmentally critical area or buffer;</i> e. <i>Adversely affects an area with known erosion or flooding problems; or</i> f. <i>Adversely affects receiving waters, any properties, or right-of-way.</i> 2. <i>All projects with 5,000 square feet or more of new plus replaced hard surface, unless:</i> <ol style="list-style-type: none"> a. <i>The piped public drainage system is already accessible within an abutting public place to each existing, proposed, or adjusted parcel; or</i> b. <i>The project is otherwise not required to extend by rules promulgated by the Director.</i> 	<ul style="list-style-type: none"> ● Public Drainage System Requirements Director’s Rule DWW-210

3.12.2. *Projects Constructed in the Right-of-Way*

Stormwater Code Language	References
<p>SMC 22.805.020.M – <i>Extension of the Public Drainage System for Projects Constructed in the Public Right-of-Way. For projects constructed in the public right-of-way, extension of the piped public drainage system across the full extent of the site shall be required for any of the following:</i></p> <ol style="list-style-type: none"> 1. <i>All projects where the Director has determined an extension is required considering, but not limited to, the following attributes of the project:</i> <ol style="list-style-type: none"> a. <i>Poses a hazard to public health, safety, or welfare;</i> b. <i>Endangers any property;</i> c. <i>Adversely affects the safety and operation of City right-of-way, utilities, or other property owned or maintained by the City;</i> d. <i>Adversely affects the functions and values of an environmentally critical area or buffer;</i> e. <i>Adversely affects an area with known erosion or flooding problems; or</i> f. <i>Adversely affects receiving waters, any properties, or right-of-way.</i> 2. <i>The project's total new plus replaced hard surface is 50 percent or more of the existing hard surfaces within the project limits. The project limits are defined by the length of the project and the width of the right-of-way. If a project encompasses more than one intersection, the project limits are further defined by one intersection to the other and blocks may vary in length, unless:</i> <ol style="list-style-type: none"> a. <i>The piped public drainage system is already accessible within the site across the full extent of the site; or</i> b. <i>The project is otherwise not required to extend by rules promulgated by the Director.</i> 	<ul style="list-style-type: none"> ● Public Drainage System Requirements Director's Rule DWW-210

3.13. *Public Drainage System Requirements*

Stormwater Code Language	References
<p>SMC 22.805.020.N – <i>Public Drainage System Requirements. Public drainage systems shall be constructed in accordance with the City's Standard Plans and Specifications, SPU's Design Standards and Guidelines, and as specified in rules promulgated by the Director of SPU.</i></p>	<ul style="list-style-type: none"> ● <i>City of Standard Specifications for Road, Bridge, and Municipal Construction</i> ● <i>City of Seattle Standard Plans for Municipal Construction</i> ● <i>SPU Design Standards and Guidelines</i> ● Public Drainage System Requirements Director's Rule DWW-210

3.14. Maintenance and Inspection

Projects that construct on-site stormwater management, flow control, and water quality treatment BMPs shall comply with the maintenance and inspection requirements specified in SMC, Section 22.807.090.

Stormwater Code Language	References
<p>SMC 22.807.090 –</p> <p>A. <i>Responsibility for Maintenance and Inspection. The owner and other responsible parties shall maintain drainage control facilities, source controls, and other facilities and implement landscape management plans required by this subtitle and by rules adopted hereunder to keep these facilities in continuous working order. The owner and other responsible parties shall inspect permanent drainage control facilities, temporary drainage control facilities, and other temporary best management practices or facilities on a schedule consistent with this subtitle and sufficient for the facilities to function at design capacity. The Director may require the responsible party to conduct more frequent inspections and/or maintenance when necessary to ensure functioning at design capacity. The owner(s) shall inform future purchasers and other successors and assignees to the property of the existence of the drainage control facilities and the elements of the drainage control plan, the limitations of the drainage control facilities, and the requirements for continued inspection and maintenance of the drainage control facilities and for implementation of a landscape management plan, if applicable.</i></p> <p>B. <i>Inspection by City. The Director of SPU may establish inspection programs to evaluate and, when required, enforce compliance with the requirements of this subtitle and accomplishment of its purposes. Inspection programs may be established on any reasonable basis, including, but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type more likely than the typical discharge to cause violations of state or federal water or sediment quality standards or the City's NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other best management practices.</i></p>	<ul style="list-style-type: none"> ● <i>Appendix G – Stormwater Control Operations and Maintenance Requirements</i> ● <i>Appendix I – Landscape Management Plans and Integrated Pest Management Plans</i>

CHAPTER 4 – MINIMUM REQUIREMENTS BASED ON PROJECT TYPE

In addition to the minimum requirements for all projects presented in *Chapter 3*, additional requirements apply based upon project type and are summarized in this chapter. Project types are defined in *Chapter 2, Step 2*.

Excerpts from the Stormwater Code (in *italics*) are presented in the first column in the code reference box in each section. The second column in the code reference box provides applicable references.

Flow charts are included in the roadway and parcel-based project sections (*Sections 4.3 and 4.4*) to summarize the key minimum requirements. Utility and pavement maintenance project types are exempt from certain minimum requirements (refer to *Section 4.5* for additional information). This chapter also includes a short section on WSDOT projects (*Section 4.6*) and special circumstances (*Section 4.7*), applicable when a project does not fit into the other project type categories.

The key minimum requirements include the following:

- Soil Amendment
- On-site Stormwater Management
- Wetland Protection Standard
- Pre-developed Forested Standard
- Pre-developed Pasture Standard
- Peak Control Standard
- Basic Treatment
- Oil Treatment
- Phosphorus Treatment
- Enhanced Treatment

The standards are described in more detail in *Chapter 5*. For each project type, the minimum requirements are a function of the following factors (refer to *Chapter 2*):

- The receiving water and/or type of downstream conveyance
- The amount of new plus replaced hard surface (Note: permeable pavement, vegetated roof systems, and areas with underdrains count toward determining this threshold.)
- The amount of converted native vegetation
- The amount of new plus replaced pollution-generating hard surface (PGHS)
- The amount of new plus replaced pollution-generating pervious surface (PGPS)

In addition, certain locations in the City may be subject to additional or modified requirements based on additional Director’s Rules, Policies, other Codes (e.g., ECA Code) or past agreements. For example, such areas include parts of the SODO and Downtown waterfront areas, the Yesler Terrace Development, the High Point Re-development, Peat Settlement Prone ECAs. Refer to Step 7 (*Section 2.7*) for more information.

4.1. Single-Family Residential Projects

The applicable code language and references for single-family residential projects are summarized below. Note that single-family residential projects are not required to install flow control or water quality treatment BMPs since the project type, by definition, does not trigger the minimum requirements for flow control or water quality treatment unless they are requirements of the master use permit associated with the single-family project as described in *Section 2.2.1*.

Stormwater Code Language	References
<p>SMC 22.805.030 –</p> <p>A. <i>Soil Amendment. Retain and protect undisturbed soil in areas not being developed, and prior to completion of the project, amend all new, replaced, and disturbed topsoil (including construction lay-down areas) with organic matter to the extent required by and in compliance with the rules promulgated by the Director.</i></p> <p>B. <i>On-site Stormwater Management. Single-family residential projects shall meet the Minimum Requirements for On-site Stormwater Management contained in Section 22.805.070, to the extent allowed by law, if:</i></p> <ol style="list-style-type: none"> 1. <i>For a project on a lot most recently created, adjusted, altered, or otherwise amended by a plat or other lawful document recorded with the King County Recorder on or after January 1, 2016, and where that document either created the lot or altered the size of the lot, either the total new plus replaced hard surface is 750 square feet or more or land disturbing activity is 7,000 square feet or more; or</i> 2. <i>For any other project, either the total new plus replaced hard surface is 1,500 square feet or the land disturbing activity is 7,000 square feet or more.</i> 	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.1 – Single-Family Residential Project</i> ● <i>Volume 1, Section 5.1 (SMC, Section 22.805.030) – Soil Amendment</i> ● <i>Volume 1, Section 5.2 (SMC, Section 22.805.070) – On-site Stormwater Management</i> ● <i>Volume 3, Section 3.3 – BMP Selection for On-Site Stormwater Management</i>

4.2. Trail and Sidewalk Projects

The applicable code language and references for trail and sidewalk projects are summarized below. Note that trail and sidewalk projects are not required to install flow control or water quality treatment BMPs if the project meets the definition of a trail or sidewalk project.

Stormwater Code Language	References
<p>SMC 22.805.040 –</p> <p>A. <i>Soil Amendment. Retain and protect undisturbed soil in areas not being developed, and prior to completion of the project, amend all new, replaced, and disturbed topsoil (including construction lay-down areas) with organic matter to the extent required by and in compliance with the rules promulgated by the Director.</i></p> <p>B. <i>On-site Stormwater Management: All trail and sidewalk projects with 2,000 square feet or more of new plus replaced hard surface or 7,000 square feet or more of land disturbing activity shall meet Minimum Requirements for On-site Stormwater Management contained in Section 22.805.070, to the extent allowed by law.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.2 – Sidewalk Project</i> ● <i>Volume 1, Section 2.2.3 – Trail Project</i> ● <i>Volume 1, Section 5.1 (SMC, Section 22.805.040)– Soil Amendment</i> ● <i>Volume 1, Section 5.2 (SMC, Section 22.805.070)– On-site Stormwater Management</i> ● <i>Volume 3, Section 3.3 – BMP Selection for On-Site Stormwater Management</i>

4.3. Roadway Projects

Roadway projects shall meet the minimum requirements for soil amendment (SMC, Section 22.805.060.A), on-site stormwater management (SMC, Section 22.805.020.F), flow control (SMC, Section 22.805.080) and water quality treatment (SMC, Section 22.805.090) when applicable. Key minimum requirements for roadway projects are summarized in Figures 4.1a through 4.1c. In addition to meeting a forested, pasture, or wetland protection standard, projects discharging to a capacity-constrained system will also be required to meet the peak control standard.

4.3.1. Soil Amendment

Stormwater Code Language	References
SMC 22.805.060.A – <i>Retain and protect undisturbed soil in areas not being developed, and prior to completion of the project, amend all new, replaced, and disturbed topsoil (including construction lay-down areas) with organic matter to the extent required by and in compliance with the rules promulgated by the Director.</i>	<ul style="list-style-type: none"> • <i>Volume 1, Section 5.1 (SMC, Section 22.805.060.A) – Soil Amendment</i>

4.3.2. On-site Stormwater Management

Stormwater Code Language	References
SMC 22.805.060.B – <i>All roadway projects with 2,000 square feet or more of new plus replaced hard surface or 7,000 square feet or more of land disturbing activity shall meet the Minimum Requirements for On-site Stormwater Management contained in Section 22.805.070, to the extent allowed by law, except as provided in subsection 22.805.060.E.</i>	<ul style="list-style-type: none"> • <i>Volume 1, Section 2.2.4 – Roadway Project</i> • <i>Volume 1, Section 5.2 (SMC, Section 22.805.070) – On-site Stormwater Management</i> • <i>Volume 3, Section 3.3 – BMP Selection for On-site Stormwater Management</i>

4.3.3. Flow Control

4.3.3.1. Roadway Projects Discharging to Wetlands – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.060.C.1 – <i>Discharges to Wetlands. Roadway projects discharging into a wetland or to the drainage basin of a wetland, shall:</i></p> <ol style="list-style-type: none"> a. <i>Comply with Section 22.805.020 (Minimum requirements for all projects), including, but not limited to subsection 22.805.020.E (Protect Wetlands).</i> b. <i>Comply with the minimum requirements for wetland protection contained in subsection 22.805.080.B.1 (Wetland Protection Standards) if the existing hard surface coverage is less than 35 percent and one or more of the following apply:</i> <ol style="list-style-type: none"> 1. <i>The total new plus replaced hard surface is 5,000 square feet or more; or</i> 2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of native vegetation to pasture and from the project there is a surface discharge into a natural or constructed conveyance system from the site.</i> c. <i>Comply with the minimum requirements for wetland protection contained in subsection 22.805.080.B.1 (Wetland Protection Standards) if the existing hard surface coverage is greater than or equal to 35 percent and one or more of the following apply:</i> <ol style="list-style-type: none"> 1. <i>The total new hard surface is 10,000 square feet or more; or</i> 2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of native vegetation to pasture and from the project there is a surface discharge into a natural or constructed conveyance system from the site.</i> 	<ul style="list-style-type: none"> ● SMC, Section 22.805.080.B.1 – Wetland Protection Standards ● Volume 1, Section 2.2.4 – Roadway Project ● Volume 1, Section 3.5 (SMC, Section 22.805.020.E) – Protect Wetlands ● SWMMWW Volume I, Appendix I-C (Ecology 2019)

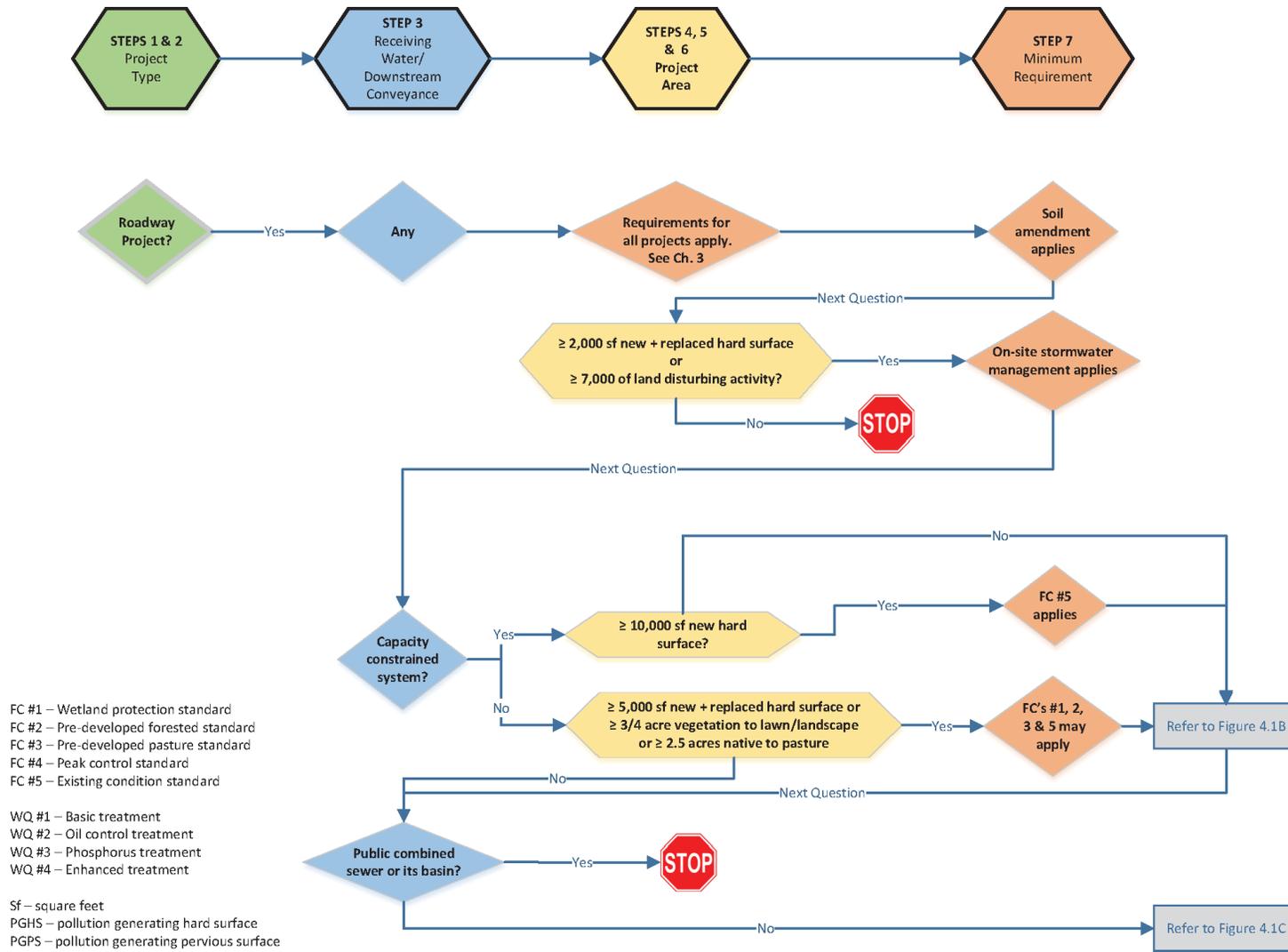


Figure 4.1A. Project Minimum Requirements for Roadway Projects.

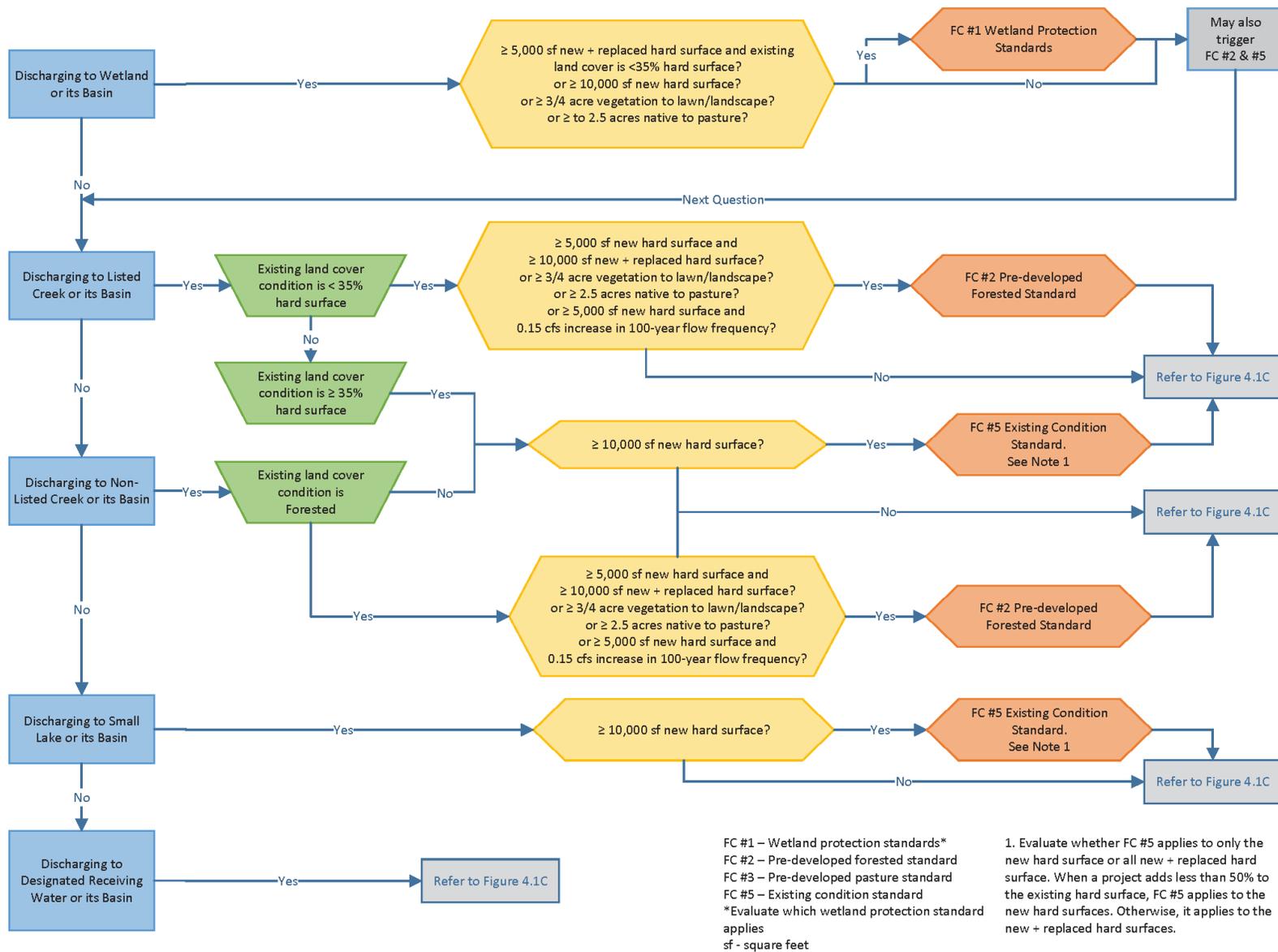


Figure 4.1B. Project Minimum Requirements for Roadway Projects (continued).

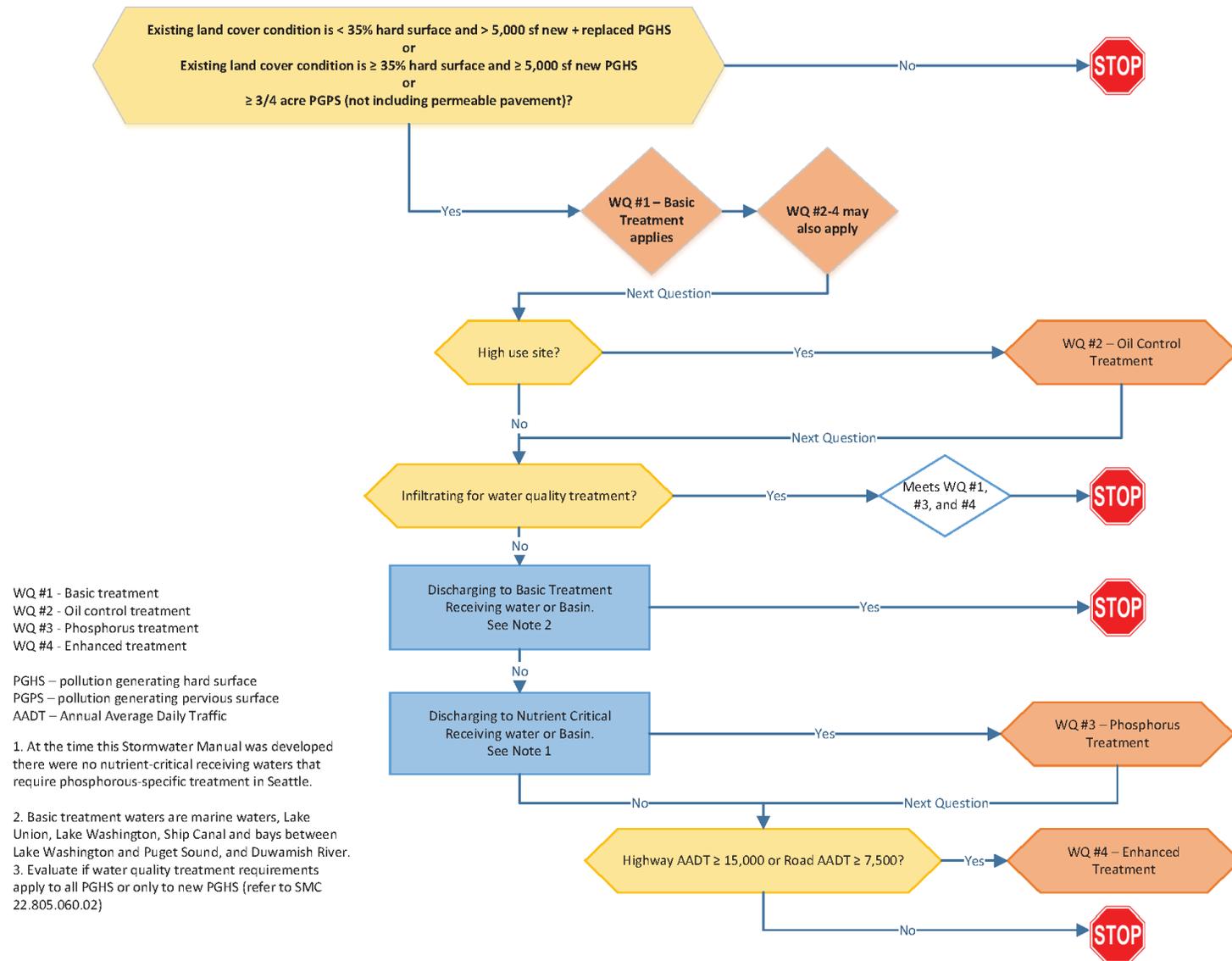


Figure 4.1C. Project Minimum Requirements for Roadway Projects (continued).

4.3.3.2. Roadway Projects Discharging to Listed Creek Basins – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.060.C.2 – <i>Roadway projects discharging into Blue Ridge Creek, Broadview Creek, Discovery Park Creek, Durham Creek, Frink Creek, Golden Gardens Creek, Kiwanis Ravine/Wolfe Creek, Licton Springs Creek, Madrona Park Creek, Mee-Kwa-Mooks Creek, Mount Baker Park Creek, Puget Creek, Riverview Creek, Schmitz Creek, Taylor Creek, or Washington Park Creek, or to the drainage basin of such creek, shall:</i></p> <p>a. <i>Comply with subsection 22.805.080.B.2 (Pre-developed Forested Standard) if the existing hard surface coverage is less than 35 percent and one or more of the following apply:</i></p> <ol style="list-style-type: none"> 1. <i>The project adds 5,000 square feet or more of new hard surface and the total new plus replaced hard surface is 10,000 square feet or more; or</i> 2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of native vegetation to pasture, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 4. <i>The project adds 5,000 square feet or more of new hard surface and, through a combination of effective hard surfaces and converted pervious surfaces, causes a 0.15 cubic feet per second increase in the 100-year recurrence interval flow frequency as estimated using a continuous model approved by the Director.</i> <p>b. <i>Comply with subsection 22.805.080.B.4 (Existing Condition Standard) if the criteria in subsection 22.805.060.C.2.a do not apply and the total new hard surface is 10,000 square feet or more, and:</i></p> <ol style="list-style-type: none"> 1. <i>If the new hard surface adds 50 percent or more to the existing hard surfaces within the project limits, comply with subsection 22.805.080.B.4 (Existing Condition Standard) for the flows from the total new plus replaced hard surfaces. The project limits are defined by the length of the project and the width of the right-of-way; or</i> 2. <i>If the new hard surface adds less than 50 percent to the existing hard surfaces within the project limits, comply with subsection 22.805.080.B.4 (Existing Condition Standard) for the flows from the total new hard surfaces. The project limits are defined by the length of the project and the width of the right-of-way.</i> 	<ul style="list-style-type: none"> ● SMC, Section 22.805.080.B.2 – Pre-developed Forested Standard ● SMC, Section 22.805.080.B.3 – Pre-developed Pasture Standard ● SMC, Section 22.805.080.B.4 – Existing Condition Standard ● <i>Volume 1, Section 2.2.4 – Roadway Project</i> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i>

4.3.3.3. Roadway Projects Discharging to Non-listed Creek Basins – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.060.C.3 – <i>Roadway projects discharging into a creek not listed in subsection 22.805.060.C.2, or to the drainage basin of such creek, shall:</i></p> <p>a. <i>Comply with subsection 22.805.080.B.2 (Pre-developed Forested Standard) if the existing land cover is forested and one or more of the following apply:</i></p> <ol style="list-style-type: none"> 1. <i>The project adds 5,000 square feet or more of new hard surface and the total new plus replaced hard surface is 10,000 square feet or more; or</i> 2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of native vegetation to pasture, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 4. <i>The project adds 5,000 square feet or more of new hard surface and, through a combination of effective hard surfaces and converted pervious surfaces, causes a 0.15 cubic feet per second increase in the 100-year recurrence interval flow frequency as estimated using a continuous model approved by the Director.</i> <p>b. <i>Comply with subsection 22.805.080.B.4 (Existing Condition Standard) if the criteria in subsection 22.805.060.C.3.a do not apply and the total new hard surface is 10,000 square feet or more, and:</i></p> <ol style="list-style-type: none"> 1. <i>If the new hard surface adds 50 percent or more to the existing hard surfaces within the project limits, comply with subsection 22.805.080.B.4 (Existing Condition Standard) for the flows from the total new plus replaced hard surfaces. The project limits are defined by the length of the project and the width of the right-of-way; or</i> 2. <i>If the new hard surface adds less than 50 percent to the existing hard surfaces within the project limits, comply with subsection 22.805.080.B.4 (Existing Condition Standard) for the flows from the total new hard surfaces. The project limits are defined by the length of the project and the width of the right-of-way.</i> 	<ul style="list-style-type: none"> ● SMC, Section 22.805.080.B.2 – Pre-developed Forested Standard ● SMC, Section 22.805.080.B.3 – Pre-developed Pasture Standard ● SMC, Section 22.805.080.B.4 – Existing Condition Standard ● <i>Volume 1, Section 2.2.4 – Roadway Project</i> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i>

4.3.3.4. Roadway Projects Discharging to Small Lake Basins – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.060.C.4 – <i>Roadway projects discharging into Bitter Lake, Green Lake, or Haller Lake, or to the drainage basin of such lake, shall comply with subsection 22.805.080.B.4 (Existing Condition Standard) if the total new hard surface is 10,000 square feet or more and:</i></p> <p>a. <i>If the new hard surface adds 50 percent or more to the existing hard surfaces within the project limits, comply with subsection 22.805.080.B.4 (Existing Condition Standard) for the flows from the total new plus replaced hard surfaces. The project limits are defined by the length of the project and the width of the right-of-way; or</i></p> <p>b. <i>If the new hard surface adds less than 50 percent to the existing hard surfaces within the project limits, comply with subsection 22.805.080.B.4 (Existing Condition Standard) for the flows from the total new hard surfaces. The project limits are defined by the length of the project and the width of the right-of-way.</i></p>	<ul style="list-style-type: none"> ● SMC, Section 22.805.080.B.4 – Existing Condition Standard ● Volume 1, Section 2.2.4 – Roadway Project ● Volume 3, Section 3.4 – BMP Selection for Flow Control ● Volume 3, Section 4.1 – Sizing Approach

4.3.3.5. Roadway Projects Discharging to a Capacity-constrained System – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.060.C.5 – <i>In addition to applicable minimum requirements for flow control in subsection 22.805.00.C.1 through subsection 22.805.060.C.4, roadway projects discharging into a capacity-constrained system or its basin shall also comply with subsection 22.805.080.B.4 (Existing Condition Standard) if the total new hard surface is 10,000 square feet or more unless the downstream system only includes ditches or culverts and has been determined to have sufficient capacity as specified in 22.805.020.H (Ensure Sufficient Capacity).</i></p> <p>SMC 22.801.040 – <i>“Capacity-constrained system” means a drainage system or public combined sewer that the Director of SPU has determined to have inadequate capacity to carry existing and anticipated loads, or a drainage system that includes ditches or culverts.</i></p>	<ul style="list-style-type: none"> ● SMC, Section 22.805.060.C.1 – Discharges to Wetlands ● SMC, Section 22.805.060.C.2 – Discharges to Listed Creek Basins ● SMC, Section 22.805.060.C.3 – Discharges to Non-listed Creek Basins ● SMC, Section 22.805.060.C.4 – Discharges to Small Lake Basins ● SMC, Section 22.805.080.B.5 – Existing Condition Standard ● SMC, Section 22.805.080.B.5 – Peak Control Standard ● Volume 1, Section 2.2.4 – Roadway Project ● Volume 3, Section 3.4 – BMP Selection for Flow Control ● Volume 3, Section 4.1 – Sizing Approach

4.3.4. *Water Quality Treatment*

Stormwater Code Language	References
<p>SMC 22.805.060.D – <i>Roadway projects not discharging to the public combined sewer shall, to the extent allowed by law, except as provided in subsection 22.805.060.E:</i></p> <ol style="list-style-type: none"> 1. <i>If the site has less than 35 percent existing hard surface coverage, and the project’s total new plus replaced pollution-generating hard surface is 5,000 square feet or more, comply with the minimum requirements for treatment contained in Section 22.805.090 for flows from the total new plus replaced pollution-generating hard surface and new plus replaced pollution-generating pervious surface; and</i> 2. <i>If the site has greater than or equal to 35 percent existing hard surface coverage and the project’s total new pollution-generating hard surface is 5,000 square feet or more, and</i> <ol style="list-style-type: none"> a. <i>If the new pollution-generating hard surface adds 50 percent or more to the existing hard surfaces within the project limits, comply with the minimum requirements for treatment contained in Section 22.805.090 for flows from the total new plus replaced pollution-generating hard surface and new plus replaced pollution-generating pervious surface. The project limits are defined by the length of the project and the width of the right-of-way; or</i> b. <i>If the new pollution-generating hard surface adds less than 50 percent to the existing hard surfaces within the project limits, comply with the minimum requirements for treatment contained in Section 22.805.090 for flows from the total new plus replaced pollution-generating hard surface and new plus replaced pollution-generating pervious surface. The project limits are defined by the length of the project and the width of the right-of-way; and</i> 3. <i>If the total new plus replaced pollution-generating pervious surfaces is 3/4 acres or more, and from the project there is a surface discharge in a natural or constructed conveyance system from the site, comply with the minimum requirements for treatment contained in Section 22.805.090 for flows from the total new plus replaced pollution-generating pervious surface and the new plus replaced pollution-generating hard surface.</i> 	<ul style="list-style-type: none"> ● SMC, Section 22.805.090 – Minimum Requirements for Treatment ● Volume 1, Section 2.2.4 – Roadway Project ● Volume 1, Section 5.4 (SMC, Section 22.805.090) – Water Quality Treatment ● Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment ● Volume 3, Section 4.1 – Sizing Approach

4.4. Parcel-Based Projects

Parcel-based projects shall meet the minimum requirements for soil amendment (SMC, Section 22.805.050.A), on-site stormwater management (SMC, Section 22.805.070), flow control (SMC, Section 22.805.080) and water quality treatment (SMC, Section 22.805.090), when applicable. Key minimum requirements for parcel-based projects are summarized in Figures 4.2a through 4.2c. In addition to meeting a forested, pasture, or wetland protection standard, projects discharging to a capacity-constrained system will also be required to meet the peak control standard.

4.4.1. Soil Amendment

Stormwater Code Language	References
SMC 22.805.050.A – <i>Retain and protect undisturbed soil in areas not being developed, and prior to completion of the project, amend all new, replaced, and disturbed topsoil (including construction lay-down areas) with organic matter to the extent required by and in compliance with the rules promulgated by the Director.</i>	<ul style="list-style-type: none"> • <i>Volume 1, Section 5.1 (SMC, Section 22.805.050.A) – Soil Amendment</i>

4.4.2. On-site Stormwater Management

Stormwater Code Language	References
SMC 22.805.050 – B. <i>On-site Stormwater Management. Parcel-based projects shall meet the Minimum Requirements for On-site Stormwater Management contained in Section 22.805.070, to the extent allowed by law, if:</i> <ol style="list-style-type: none"> 1. <i>For a project on a lot most recently created, adjusted, altered, or otherwise amended by a plat or other lawful document recorded with the King County Recorder on or after January 1, 2016, and where that document either created the lot or altered the size of the lot, either the total new plus replaced hard surface is 750 square feet or more or land disturbing activity is 7,000 square feet or more; or</i> 2. <i>For any other project, either the total new plus replaced hard surface is 1,500 square feet or more or the land disturbing activity is 7,000 square feet or more.</i> 	<ul style="list-style-type: none"> • <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> • <i>Volume 1, Section 5.2 (SMC, Section 22.805.070) – On-site Stormwater Management</i> • <i>Volume 3, Section 3.3 – BMP Selection for On-site Stormwater Management</i>

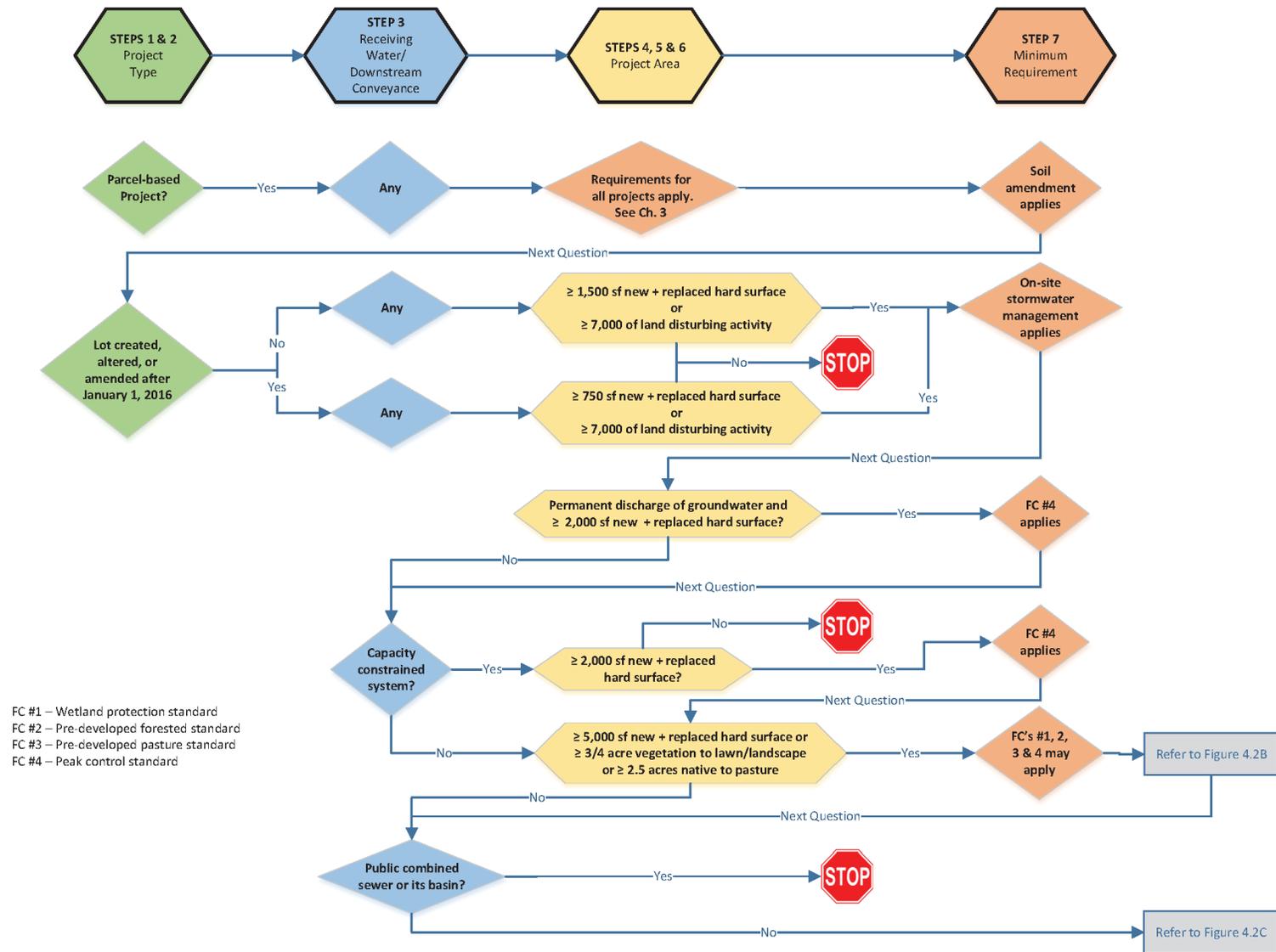


Figure 4.2A. Project Minimum Requirements for Parcel-Based Projects.

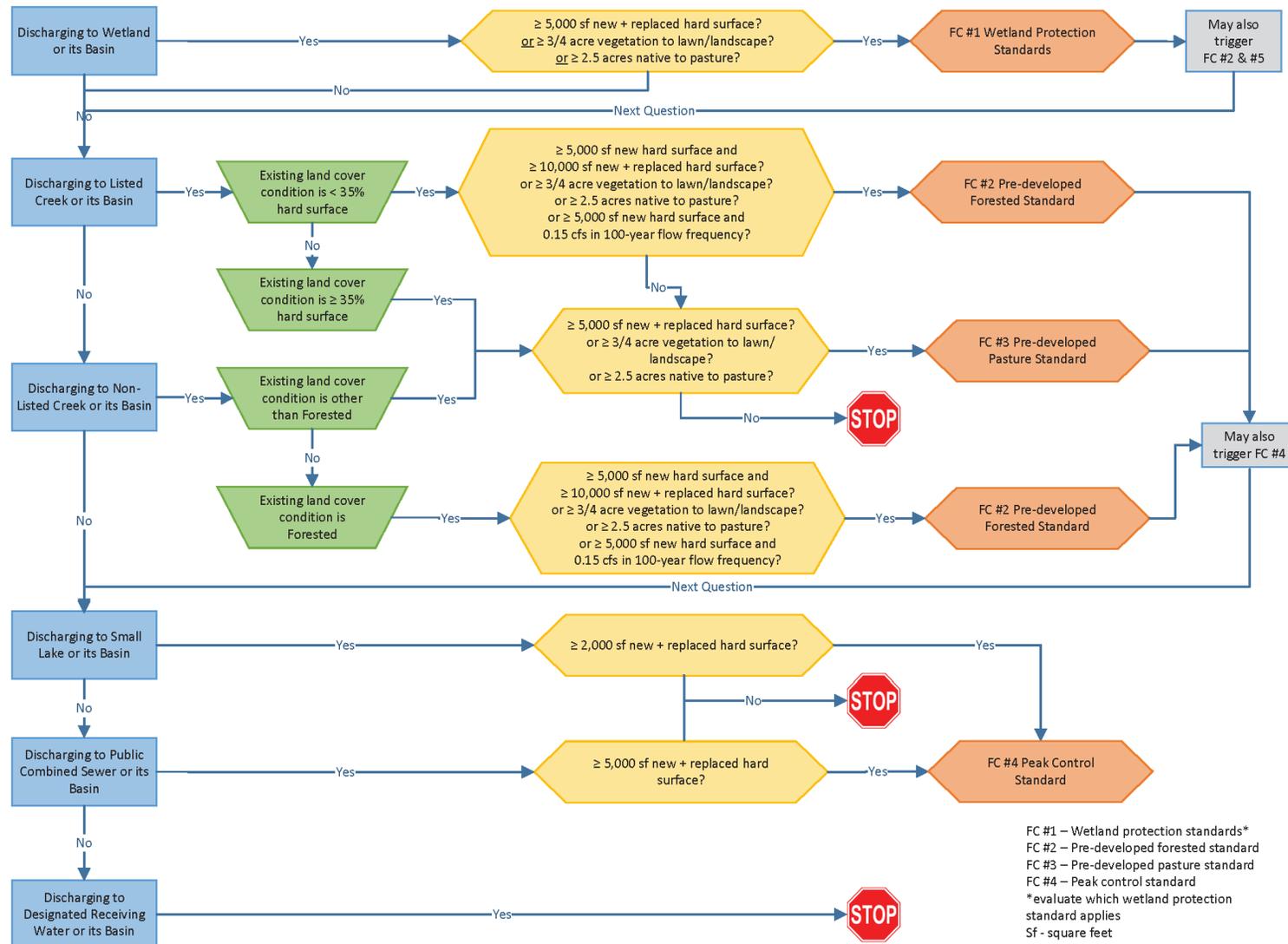


Figure 4.2B. Project Minimum Requirements for Parcel-Based Projects (continued).

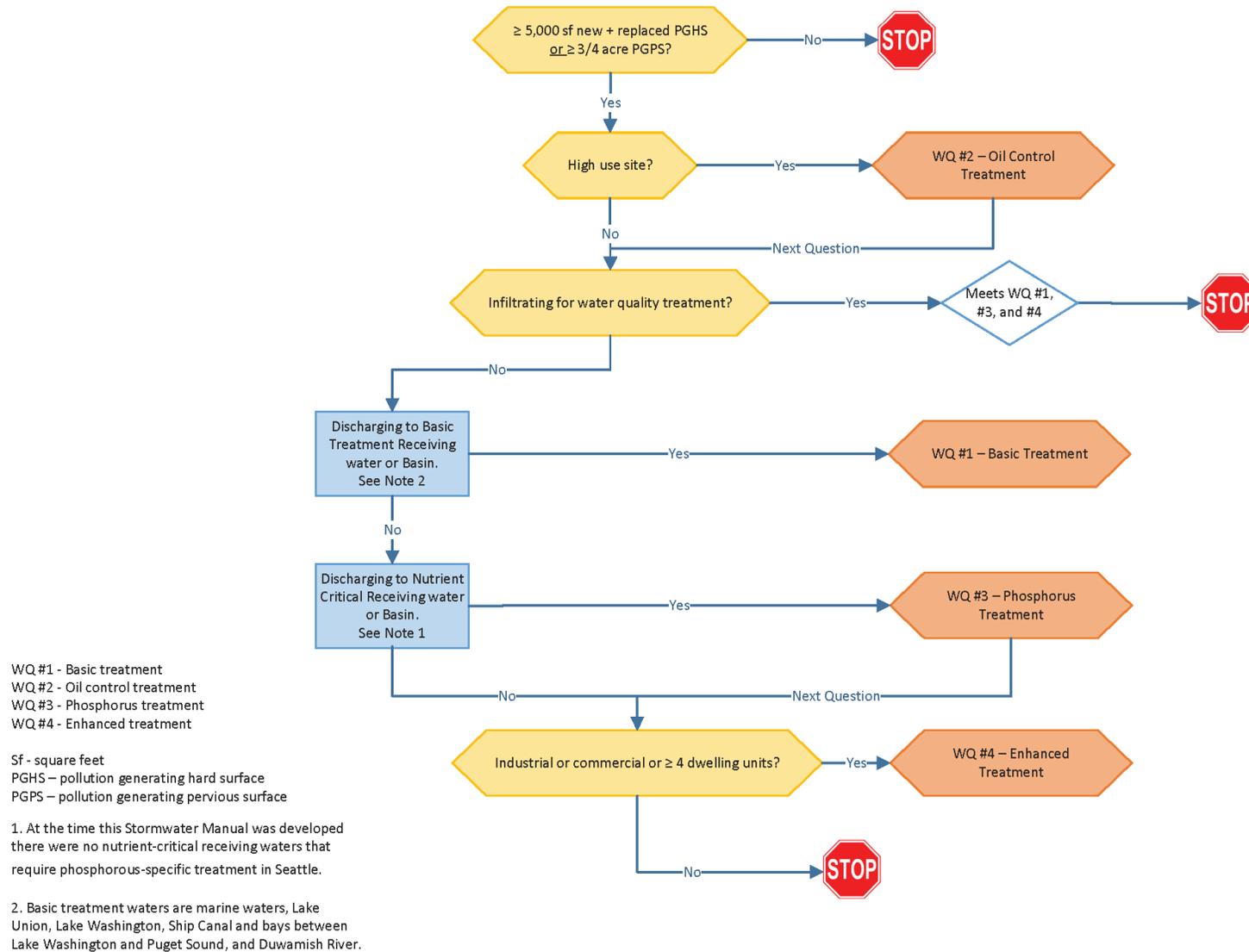


Figure 4.2C. Project Minimum Requirements for Parcel-Based Projects (continued).

4.4.3. Flow Control

4.4.3.1. Parcel-Based Projects Discharging to Wetlands – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.050.C.1 – <i>Parcel-based projects discharging into a wetland, or to the drainage basin of a wetland, shall:</i></p> <ol style="list-style-type: none"> a. <i>Comply with Section 22.805.020 (Minimum requirements for all projects), including, but not limited to subsection 22.805.020.E (Protect Wetlands).</i> b. <i>Comply with the minimum requirements for wetland protection contained in subsection 22.805.080.B.1 (Wetland Protection Standards) if:</i> <ol style="list-style-type: none"> 1. <i>The total new plus replaced hard surface is 5,000 square feet or more; or</i> 2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of native vegetation to pasture, and from the project there is a surface discharge into a natural or constructed conveyance system from the site.</i> 	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> ● <i>Volume 1, Section 3.5 – Protect Wetlands</i> ● <i>Volume 1, Section 5.3.1 (SMC, Section 22.805.080.B.1) – Wetland Protection Standards</i> ● <i>SWMMWW Volume I, Appendix I-C (Ecology 2019)</i>

4.4.3.2. Parcel-Based Projects Discharging to Listed Creek Basins – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.050.C.2 – <i>Parcel-based projects discharging into Blue Ridge Creek, Broadview Creek, Discovery Park Creek, Durham Creek, Frink Creek, Golden Gardens Creek, Kiwanis Ravine/Wolfe Creek, Licton Springs Creek, Madrona Park Creek, Mee-Kwa-Mooks Creek, Mount Baker Park Creek, Puget Creek, Riverview Creek, Schmitz Creek, Taylor Creek, or Washington Park Creek, or to the drainage basin of such creek, shall:</i></p> <ol style="list-style-type: none"> a. <i>Comply with subsection 22.805.080.B.2 (Pre-developed Forested Standard) if the existing hard surface coverage is less than 35 percent and one or more of the following apply:</i> <ol style="list-style-type: none"> 1. <i>The project adds 5,000 square feet or more of new hard surface and the total new plus replaced hard surface is 10,000 square feet or more; or</i> 2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of native vegetation to pasture, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 4. <i>The project adds 5,000 square feet or more of new hard surface and, through a combination of effective hard</i> 	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> ● <i>Volume 1, Section 5.3.2 (SMC, Section 22.805.080.B.2) – Pre-developed Forested Standard</i> ● <i>Volume 1, Section 5.3.3 (SMC, Section 22.805.080.B.3) – Pre-developed Pasture Standard</i> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i>

Stormwater Code Language	References
<p><i>surfaces and converted pervious surfaces, causes a 0.15 cubic feet per second increase in the 100-year recurrence interval flow frequency as estimated using a continuous model approved by the Director.</i></p> <p>b. <i>Comply with subsection 22.805.080.B.3 (Pre-developed Pasture Standard) if the criteria in subsection 22.805.050.C.2.a do not apply and one or more apply:</i></p> <ol style="list-style-type: none"> 1. <i>The total new plus replaced hard surface is 5,000 square feet or more; or</i> 2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of native vegetation to pasture, and from the project there is a surface discharge into a natural or constructed conveyance system from the site.</i> 	

4.4.3.3. Parcel-Based Projects Discharging to Non-listed Creek Basins – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.050.C.3 – <i>Parcel-based projects discharging into a creek not listed in subsection 22.805.050.C.2, or to the drainage basin of such creek, shall:</i></p> <p>a. <i>Comply with subsection 22.805.080.B.2 (Pre-developed Forested Standard) if the existing land cover is forested and one or more of the following apply:</i></p> <ol style="list-style-type: none"> 1. <i>The project adds 5,000 square feet or more of new hard surface and the total new plus replaced hard surface is 10,000 square feet or more; or</i> 2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of native vegetation to pasture, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i> 4. <i>The project adds 5,000 square feet or more of new hard surface and, through a combination of effective hard surfaces and converted pervious surfaces, causes a 0.15 cubic feet per second increase in the 100 year recurrence interval flow frequency as estimated using a continuous model approved by the Director.</i> <p>b. <i>Comply with subsection 22.805.080.B.3 (Pre-developed Pasture Standard) if the criteria in subsection 22.805.050.C.3.a do not apply and one or more of the following apply:</i></p> <ol style="list-style-type: none"> 1. <i>The total new plus replaced hard surface is 5,000 square feet or more; or</i> 	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> ● <i>Volume 1, Section 5.3.2 (SMC, Section 22.805.080.B.2) – Pre-developed Forested Standard</i> ● <i>Volume 1, Section 5.3.3 (SMC, Section 22.805.080.B.3) – Pre-developed Pasture Standard</i> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i>

Stormwater Code Language	References
<p>2. <i>The project converts 3/4 acres or more of vegetation to lawn or landscaped areas, and from the project there is a surface discharge into a natural or constructed conveyance system from the site; or</i></p> <p>3. <i>The project converts 2.5 acres or more of native vegetation to pasture, and from the project there is a surface discharge into a natural or constructed conveyance system from the site.</i></p>	

4.4.3.4. *Parcel-Based Projects Discharging to Small Lake Basins – Flow Control*

Stormwater Code Language	References
<p>SMC 22.805.050.C.4 – <i>Parcel-based projects discharging into Bitter Lake, Green Lake, or Haller Lake, or to the drainage basin of such lake, shall comply with subsection 22.805.080.B.5 (Peak Control Standard) if the total new plus replaced hard surface is 2,000 square feet or more.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> ● <i>Volume 1, Section 5.3.5 (SMC, Section 22.805.080.B.4) – Peak Control Standard</i> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i>

4.4.3.5. *Parcel-Based Projects Discharging to Public Combined Sewer – Flow Control*

At the time this Manual was developed, there was one public combined sewer basin that was determined to have sufficient capacity to carry existing and anticipated loads. Parcel-based projects are not required to provide peak flow control in this basin. Refer to the SDCI website to determine which basins are included in this category ([www.seattle.gov/sdci/codes/codes-we-enforce-\(a-z\)/stormwater-code](http://www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/stormwater-code)).

Stormwater Code Language	References
<p>SMC 22.805.050.C.5 – <i>Unless the Director of SPU has determined that the public combined sewer has sufficient capacity to carry existing and anticipated loads, parcel-based projects discharging into the public combined sewer or its basin shall comply with subsection 22.805.080.B.5 (Peak Control Standard) if the total new plus replaced hard surface is 5,000 square feet or more.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> ● <i>Volume 1, Section 5.3.5 (SMC, Section 22.805.080.B.4) – Peak Control Standard</i> ● <i>Figure 2.6 – Public Combined Sewer Basins</i> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i>

4.4.3.6. Parcel-Based Projects Discharging to a Capacity-constrained System – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.050.C.6 – <i>Discharges to a Capacity-constrained System. In addition to applicable minimum requirements for flow control in subsection 22.805.050.C.1 through subsection 22.805.050.C.5, parcel-based projects discharging into a capacity-constrained system or its basin shall also comply with subsection 22.805.080.B.5 (Peak Control Standard) if the total new plus replaced hard surface is 2,000 square feet or more unless the downstream system only includes ditches or culverts and the system has been determined to have sufficient capacity as specified in subsection 22.805.020.H (Ensure Sufficient Capacity).</i></p> <p>SMC 22.801.040 – <i>“Capacity-constrained system” means a drainage system or public combined sewer that the Director of SPU has determined to have inadequate capacity to carry existing and anticipated loads, or a drainage system that includes ditches or culverts.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> ● <i>Volume 1, Section 4.4.3.1 (SMC, Section 22.805.050.C.1) – Discharges to Wetlands</i> ● <i>Volume 1, Section 4.4.3.2 (SMC, Section 22.805.050.C.2) – Discharges to Listed Creek Basins</i> ● <i>Volume 1, Section 4.4.3.3 (SMC, Section 22.805.050.C.3) – Discharges to Non-listed Creek Basins</i> ● <i>Volume 1, Section 4.4.3.4 (SMC, Section 22.805.050.C.4) – Discharges to Small Lake Basins</i> ● <i>Volume 1, Section 4.4.3.5 (SMC, Section 22.805.050.C.5) – Discharges to Public Combined Sewer</i> ● <i>Volume 1, Section 5.3.5 (SMC, Section 22.805.080.B.5) – Peak Control Standard</i> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i>

4.4.3.7. Parcel-Based Projects Discharging Groundwater – Flow Control

Stormwater Code Language	References
<p>SMC 22.805.050.C.7 – <i>In addition to applicable minimum requirements for flow control in subsection 22.805.050.C.1 through subsection 22.805.050.C.6, parcel-based projects that will permanently discharge groundwater to a public drainage system or to a public combined sewer shall also comply with subsection 22.805.080.B.5 (Peak Control Standard) if the total new plus replaced hard surface is 2,000 square feet or more.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> ● <i>Volume 1, Section 5.3.5 (SMC, Section 22.805.080.B.5) – Peak Control Standard</i>

Note: If the subsurface drainage for a project (e.g., footing drains, wall drains) extends into a zone containing groundwater, perched or otherwise, evaluation of groundwater discharge is required. If the total estimated groundwater discharge rate from the project site during the wet season is less than 5 gallons per minute for sites less than 1 acre or less than 5 gallons per minute per acre for sites 1 acre or greater, then the groundwater discharge is considered to be de minimis and will not trigger Peak Control Standard. However, if the flow control is triggered by another condition, the estimated groundwater discharge rate must be considered

in the sizing of the flow control BMPs. Estimates of groundwater discharge must be made by a licensed geotechnical engineer or hydrogeologist.

4.4.4. *Water Quality Treatment*

Stormwater Code Language	References
<p>SMC 22.805.050.D – <i>Treatment. Parcel-based projects not discharging to the public combined sewer shall comply with the minimum requirements for treatment contained in Section 22.805.090 for flows from the total new plus replaced pollution-generating hard surface and the new plus replaced pollution-generating pervious surface, to the extent allowed by law, if:</i></p> <ol style="list-style-type: none"> 1. <i>The total new plus replaced pollution-generating hard surface is 5,000 square feet or more; or</i> 2. <i>The total new plus replaced pollution-generating pervious surfaces is 3/4 acres or more, and from the project there is a surface discharge in a natural or constructed conveyance system from the site.</i> 	<ul style="list-style-type: none"> ● SMC, Section 22.805.090 – Minimum Requirements for Treatment ● <i>Volume 1, Section 2.2.5 – Parcel-Based Project</i> ● <i>Volume 1, Section 5.4 (SMC, Section 22.805.090) – Water Quality Treatment</i> ● <i>Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i>

4.5. Reduced Requirements for Certain Land-Disturbing Activities

Certain land-disturbing activities are not required to comply with some of the minimum requirements. These activities are summarized below for utility projects (*Section 4.5.1*), pavement maintenance projects (*Section 4.5.2*), remediation projects (*Section 4.5.3*), and retrofit projects (*Section 4.5.4*).

4.5.1. Utility Projects

Applicable utility projects are described in SMC, Section 22.800.040.A.2.a. Note that the installation of side sewers, service drains, and underdrains require a Side Sewer Permit per SMC, Section 21.16.070 (Permit And Fee Required For Connection And Repairs).

Installation of a new fuel tank is not considered a utility project. Projects that include fuel dispensing equipment, installation of underdrains for groundwater collection, parking or driveway areas for utility maintenance or operation, buildings for utility maintenance or operation, or pavement replacement or repair beyond the extent required for the utility maintenance, repair or installation are not considered a utility project.

Stormwater Code Language	References
<p>SMC 22.800.040.A.2.a – <i>Maintenance, repair, or installation of underground or overhead utility facilities, such as, but not limited to, pipes, conduits and vaults, and that includes replacing the ground surface with in-kind material or materials with similar runoff characteristics are not required to comply with Section 22.805.070 (Minimum Requirements for On-site Stormwater Management), Section 22.805.080 (Minimum Requirements for Flow Control), or Section 22.805.090 (Minimum Requirements for Treatment), except as modified as follows:</i></p> <ol style="list-style-type: none"> 1. <i>Installation of underground or overhead utility facilities that are integral with and contiguous to a road-related project shall comply with Section 22.805.060 (Minimum Requirements for Roadway Projects).</i> 	<ul style="list-style-type: none"> • <i>Volume 1, Chapter 3 (SMC, Section 22.805.020) – Minimum Requirements for All Projects</i>

4.5.2. *Pavement Maintenance Projects*

Applicable pavement maintenance projects are described in SMC, Section 22.800.040.A.2.b.

Stormwater Code Language	References
<p>SMC 22.800.040.A.2.b – <i>Pavement maintenance practices limited to the following activities are not required to comply with Section 22.805.060 (Minimum Requirements for Roadway Projects), Section 22.805.070 (Minimum Requirements for On-site Stormwater Management), Section 22.805.080 (Minimum Requirements for Flow Control), or Section 22.805.090 (Minimum Requirements for Treatment):</i></p> <ol style="list-style-type: none"> 1. <i>Pothole and square cut patching;</i> 2. <i>Overlaying existing asphalt or concrete or brick pavement with asphalt or concrete without expanding the area of coverage;</i> 3. <i>Shoulder grading;</i> 4. <i>Reshaping or regrading drainage ditches;</i> 5. <i>Crack sealing; and</i> 6. <i>Vegetation maintenance.</i> 	<ul style="list-style-type: none"> ● <i>Volume 1, Chapter 3 (SMC, Section 22.805.020) – Minimum Requirements for All Projects</i>

4.5.3. *Remediation Projects*

Applicable remediation projects are described in SMC, Section 22.800.040.A.2.c.

Stormwater Code Language	References
<p>SMC 22.800.040.A.2.c – <i>Land disturbing activity that includes replacing the ground surface with in-kind material or with materials having equivalent runoff characteristics and is associated solely with soil remediation or tank removal for the purpose of removing contaminants and pollutants and not associated with other development is not required to comply with subsections 22.805.050.A and 22.805.060.A (Soil Amendment), Section 22.805.070 (Minimum Requirements for On-site Stormwater Management), or Section 22.805.080 (Minimum Requirements for Flow Control). Projects that include any development in addition to soil remediation or tank removal replaced with in-kind material or with materials having equivalent runoff characteristics are not exempt.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Chapter 3 (SMC, Section 22.805.020) – Minimum Requirements for All Projects</i>

4.5.4. Retrofit Projects

Applicable retrofit projects are described in SMC, Section 22.800.040.A.2.d.

Stormwater Code Language	References
<p>SMC 22.800.040.A.2.d – <i>Drainage control facilities that are part of a public retrofit project installed to meet Appendix 12 to the City’s municipal stormwater NPDES permit or for combined sewer control, or other voluntary retrofit project, are not required to comply with Section 22.805.070 (Minimum Requirements for On-site Stormwater Management), Section 22.805.080 (Minimum Requirements for Flow Control), or Section 22.805.090 (Minimum Requirements for Treatment). This exemption does not include land disturbing activities or hard surfaces that are not integral to or are in addition to the drainage control facilities described above, or installation of drainage control facilities that are otherwise required to meet this subtitle.</i></p>	<ul style="list-style-type: none"> • Volume 1, Chapter 3 (SMC, Section 22.805.020) – Minimum Requirements for All Projects

Examples of projects that meet the criteria for retrofit projects include projects whose sole purpose is to reduce runoff, improve water quality, reduce flooding, reduce sanitary sewer overflows (SSOs), or combined sewer overflows (CSOs) and are not otherwise installed as a requirement of meeting the requirements of SMC, Section 22.805. Qualifying project types that address stormwater runoff include:

1. Installation of flow control facilities (e.g., detention tanks, pump stations)
2. Installation of water quality treatment facilities (e.g., water quality treatment pond)
3. Installation of green stormwater infrastructure (e.g., natural drainage systems, bioretention cells)
4. Retrofit of existing drainage and wastewater infrastructure
5. Restoration of riparian buffer
6. Restoration of forest cover
7. Floodplain reconnection project
8. Removal of impervious or hard surfaces not associated with other development
9. Other actions to address stormwater runoff and water quality treatment

4.6. WSDOT Projects

Applicable WSDOT projects are described in SMC, Section 22.800.040.A.6.

Stormwater Code Language	References
<p>SMC 22.800.040.A.6 – <i>With respect to all state highway right-of-way under Washington State Department of Transportation (WSDOT) control within the jurisdiction of The City of Seattle, WSDOT shall use the current, approved Highway Runoff Manual (HRM) for its existing and new facilities and rights-of-way, as addressed in WAC 173-270-030(1) and (2). Exceptions to this exemption, where more stringent stormwater management requirements apply, are addressed in WAC 173-270-030(3)(b) and (c).</i></p> <p><i>a. When a state highway is located in the jurisdiction of a local government that is required by Ecology to use more stringent standards to protect the quality of receiving waters, WSDOT shall comply with the same standards to promote uniform stormwater management.</i></p> <p><i>b. WSDOT shall comply with standards identified in watershed action plans for WSDOT rights-of-way, to the extent required by state law.</i></p> <p><i>c. Other instances where more stringent local stormwater standards apply are projects subject to tribal government standards or to the stormwater management-related permit conditions imposed under Chapter 25.09 to protect environmentally critical areas and their buffers (under the Growth Management Act), an NPDES permit, or shoreline master programs (under the Shoreline Management Act). In addition, WSDOT shall comply with local jurisdiction stormwater standards when WSDOT elects, and is granted permission, to discharge stormwater runoff into a municipality's drainage system or combined sewer system.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 4.3 (SMC, Section 22.805.060) – Minimum Requirements for Roadway Projects</i> ● <i>WSDOT Highway Runoff Manual</i> ● <i>WAC, Sections 173-270-030(1) and (2) – Best Management Practices – Approved Manual Required and Amendments to Manual</i> ● <i>WAC, Sections 173-270-030(3)(b) and (c) – More Stringent Standards</i> ● <i>SMC, Chapter 25.09 – Environmentally Critical Areas</i>

4.7. Special Circumstances

Some projects do not closely fit defined project types or have complicating elements. These projects require a case-by-case review (no review of special circumstances sets a precedent) to determine the applicable minimum requirements. These projects shall first go through a pre-permit review process to assist the proponent in identifying the specific minimum requirements to be applied. Project requirements will be based on requirements for roadway projects (refer to *Section 4.3*) or parcel-based projects (refer to *Section 4.4*) or a combination, in addition to minimum requirements for all projects (refer to *Chapter 3*).

The following list is not comprehensive, but gives the proponent an indication of the complexity of the special circumstances. Examples of special circumstances projects include:

- Bridges or tunnels
- Construction over water
- Closed-contour basins
- Draining into more than one basin with conflicting requirements
- Multiple blocks or a subdivision
- Railroads
- Rail stations in public right-of-way

Work performed in more than one jurisdiction. Projects that propose to develop multiple blocks or a subdivision have the potential for greater impacts to the existing drainage system or public combined sewer. These projects may be required to conduct a more comprehensive downstream analysis examining a larger range of flow and discharge conditions to demonstrate that the project meets the requirement to ensure sufficient capacity (SMC, Section 22.805.020H) and will not cause a significant adverse impact to receiving waters or up-gradient or down-gradient properties (SMC, Section 22.805.020A).

Similarly, projects that discharge to closed-contour basins may be required to demonstrate the project will not cause a significant adverse impact to down-gradient properties (SMC, Section 22.805.020H) and increase either the frequency or severity of flooding, including for peak flows with a 1 percent annual probability.

Projects that discharge to multiple drainage basins will be analyzed separately by drainage basin. To determine which minimum requirements apply and which part of the drainage system or public combined sewer will be analyzed to ensure sufficient capacity, the proponent shall prepare exhibits showing the land disturbing activity anticipated for each receiving water and drainage basin and downstream drainage system. Refer to *Section 2.3*.

The Director of SPU may determine that subbasins within the public combined sewer system or designated receiving waters are sufficiently distinct and separated to be analyzed independently and as separate areas. Discharges to each of the small lake basins will be analyzed independently and are considered separate areas.

Discharges to each creek basin will be analyzed independently and are considered separate areas. In addition, discharges to distinct branches of a creek, or where the two points discharge to a single creek branch are more than 1/4 mile apart, will be analyzed independently and are considered separate areas.

If a project requires compliance with more than one flow control standard (e.g., the Peak Control Standard and the Pre-Developed Pasture Standard), the facility shall be sized to meet all standards unless otherwise allowed using the Pre-sized Approach (refer to *Volume 3, Section 4.1.2*).

CHAPTER 5 – MINIMUM REQUIREMENT STANDARDS

This chapter summarizes the standards related to the following minimum requirements:

- Soil amendment (*Section 5.1*)
- On-site stormwater management (*Section 5.2*)
- Flow control (*Section 5.3*)
- Water quality treatment (*Section 5.4*)

Excerpts from the Stormwater Code (in *italics*) are presented below in the first column in the code reference box in each section. The second column in the code reference box provides applicable references.

5.1. Soil Amendment

Projects triggering this minimum requirement shall retain and protect undisturbed soil in areas not being developed and, prior to completion of the project, amend all new, replaced, and disturbed topsoil with organic matter. This requirement applies to the four primary project types (single-family residential, trail and sidewalk, parcel-based, and roadway projects). General soil amendment requirements included in SMC, Section 22.805.030, Section 22.805.040, Section 22.805.050, and Section 22.805.060 are summarized below.

Stormwater Code Language	References
SMC, Section 22.805.030.A; SMC, Section 22.805.040.A; SMC, Section 22.805.060.A – <i>Retain and protect undisturbed soil in areas not being developed, and prior to completion of the project, amend all new, replaced, and disturbed topsoil (including construction lay-down areas) with organic matter to the extent required by and in compliance with the rules promulgated by the Director.</i>	<ul style="list-style-type: none"> • <i>Volume 3, Section 5.1 – Soil Amendment BMP</i>

5.2. On-site Stormwater Management

Projects triggering this minimum requirement shall evaluate on-site stormwater management to meet the applicable design requirements for the specific project type and discharge location. On-site stormwater management includes BMPs that can be used to meet flow control and water quality treatment requirements. General on-site stormwater management requirements included in SMC, Section 22.805.070 are summarized below. Refer to *Section 5.2.1* and *5.2.2* for the On-site Performance Standard and the On-site List Approach.

Stormwater Code Language	References
<p>SMC, Section 22.805.070 –</p> <p>A. <i>Applicability. The requirements of this subsection 22.805.070 apply as required in Section 22.805.030 to Section 22.805.060.</i></p> <p>B. <i>Requirements. On-site stormwater management shall be installed to the extent allowed by law and maintained in compliance with the rules promulgated by the Director to receive flows from that portion of the site being developed and shall:</i></p> <p>1. <i>Comply with either:</i></p> <p>a. <i>Subsection 22.805.070.C (On-site Performance Standard); or</i></p> <p>b. <i>Subsection 22.805.070.D (On-site Lists).</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 4.1 – Single Family Residential Projects</i> ● <i>Volume 1, Section 4.2 – Trail and Sidewalk Projects</i> ● <i>Volume 1, Section 4.3.2 – On-site Stormwater Management for Roadway Projects</i> ● <i>Volume 1, Section 4.4.2 – On-site Stormwater Management for Parcel-Based Projects</i> ● <i>Volume 1, Section 5.2.1 (SMC, Section 22.805.070.C) – On-site Performance Standard</i> ● <i>Volume 1, Section 5.2.2 (SMC, Section 22.805.070.D) – On-site Lists</i> ● <i>Volume 3, Section 3.3 – BMP Selection for On-site Stormwater Management</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i> ● <i>Volume 3, Section 5.2 – Tree Planting and Retention</i> ● <i>Appendix C – On-site Stormwater Management Infeasibility Criteria</i>

Projects triggering this minimum requirement shall evaluate on-site stormwater management to meet the applicable design requirements for the given project type, size, and discharge location as summarized in *Chapter 2*. Two approaches that can be used for evaluating Minimum Requirements for On-site Stormwater Management include the following:

- On-site Performance Standard per *Section 5.2.1*, or
- On-site Lists per *Section 5.2.2*.

5.2.1. On-site Performance Standard

Stormwater Code Language	References
<p>SMC 22.805.070.C –</p> <ol style="list-style-type: none"> 1. <i>If the existing hard surface coverage is less than 35 percent and the project discharges to a listed creek, or to the drainage basin of such creek:</i> <ol style="list-style-type: none"> a. <i>The post-development discharge durations shall match the discharge durations of a pre-developed forested condition for the range of pre-developed discharge rates from 8 percent of the 2-year peak flow to 50 percent of the 2-year peak flow.</i> 2. <i>For all other projects:</i> <ol style="list-style-type: none"> a. <i>The post-development discharge durations shall match the discharge durations of a pre-developed pasture condition for the range of pre-developed discharge rates between the 1 percent and 10 percent exceedance values.</i> 	<ul style="list-style-type: none"> ● <i>Volume 3, Section 3.3.2 – On-site Performance Standard Approach</i> ● <i>Volume 3, Section 4.1.3 – Modeling Approach</i> ● <i>Appendix F – Hydrologic Analysis and Design</i>

5.2.2. On-site Lists

Stormwater Code Language	References
<p>SMC 22.805.070.D –</p> <ol style="list-style-type: none"> 1. <i>For each project surface, follow the appropriate project table in subsection 22.805.070.D.2 to subsection 22.805.070.D.5 to evaluate on-site BMPs shown for that type of surface, by category. The project tables apply to roofs and other hard (non-roof) surfaces. All on-site BMPs used must comply with the rules promulgated by the Director. For each surface, consider all of the applicable on-site BMPs in the first category. Use any that is considered feasible. If none is feasible for that surface, move on to each successive category and repeat the selection process as necessary. Once one on-site BMP is used for a surface, no other on-site BMP is necessary for that surface. If no BMP in the appropriate categories is feasible, then no further evaluation is required for that surface under this subsection 22.805.70.D.1. Feasibility shall be determined by evaluation against:</i> <ol style="list-style-type: none"> a. <i>Design criteria, minimum size, limitations, and infeasibility criteria identified for each BMP in this subsection and the rules promulgated by the Director; and</i> b. <i>Competing Needs: Subsection 22.805.070.D (On-site Lists) can be superseded or reduced by the Director if the installation of the BMPs is in conflict with:</i> <ol style="list-style-type: none"> 1) <i>Any of the following federal or state laws, rules, and standards, as may be amended or superseded: Historic Preservation and Archaeology Laws identified in subsection 22.805.070.E (Historic Preservation and Archaeology Laws), Federal Superfund or Washington State Model Toxics Control Act, Federal Aviation Administration requirements for airports, the Americans with Disabilities Act, and related rules and standards; or</i> 	<ul style="list-style-type: none"> ● <i>Volume 3, Section 3.3.1 – On-site List Approach</i> ● <i>Volume 3, Section 4.1.1 – On-site List Approach</i> ● <i>Appendix C – On-site Stormwater Management Infeasibility Criteria</i>

Stormwater Code Language	References
<p>2) <i>Special zoning district design criteria adopted and being implemented pursuant to a community planning process. Special zoning districts include, for example, historic and preservation districts, pedestrian zone overlays, station area overlays, special review districts, multifamily residential zones, urban centers and urban villages, and master planned communities. Specific criteria in these areas include, but are not limited to, minimum Floor Area Ratio standards; zero lot line development; usable open space requirements; minimum sidewalk width and required bicycle facilities; alley, loading, and access requirements; pitched roof standards; and street-level development standards for modulation and projections; or</i></p> <p>3) <i>Public health and safety standards; or</i></p> <p>4) <i>Transportation regulations to maintain the option for future expansion or multi-modal use of public rights-of-way; or</i></p> <p>5) <i>Chapter 15.43 (Tree and Vegetation Management in Public Places); Chapter 25.09 (Regulations for Environmentally Critical Areas); Chapter 25.11 (Tree Protection); and Chapter 23.60A (Standards for Vegetation in the Shoreline Master Plan).</i></p> <p>2. <i>For single-family residential projects, Table A for 22.805.070 applies.</i></p> <p>3. <i>For trail and sidewalk projects, Table B for 22.805.070 applies.</i></p> <p>4. <i>For parcel-based projects, Table C for 22.805.070 applies.</i></p> <p>5. <i>For roadway projects, Table D for 22.805.070 applies.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 3, Section 3.3.1 – On-site List Approach</i> ● <i>Volume 3, Section 4.1.1 – On-site List Approach</i> ● <i>Appendix C – On-site Stormwater Management Infeasibility Criteria</i>

5.2.2.1. *Single-Family Residential Projects*

Table A for 22.805.070. On-site List for Single-Family Residential Projects.

Category	BMPs	All Discharge Locations
1	Full Dispersion	R, S
	Infiltration Trenches	R, S ^d
	Drywells	R, S ^d
2	Rain Gardens ^a	R, S
	Infiltrating Bioretention	R, S
	Rainwater Harvesting – Category 2 Sizing	X ^b
	Permeable Pavement Facilities	R, S
	Permeable Pavement Surfaces	S
	Sidewalk/Trail Compost-Amended Strip	S
3	Sheet Flow Dispersion	R, S
	Concentrated Flow Dispersion	S
	Splashblock Downspout Dispersion	R
	Trench Downspout Dispersion	R
4	Non-infiltrating Bioretention	R, S
	Rainwater Harvesting – Category 4 Sizing	X ^c
	Vegetated Roofs	X
5	Single-family Residential Cisterns	R
	Perforated Stub-out Connections	R
	Trees	S

Note that subsection 22.805.070.D.1 requires consideration of all on-site BMPs in a category for feasibility before moving on to each successive category as necessary. Within a category, BMPs may be considered in any order.

BMPs – Best Management Practices

R = Evaluation is required for all roof runoff from Single-family residential projects.

S = Evaluation is required for all other hard (non-roof) surfaces of Single-family residential projects, unless otherwise noted below.

X = Evaluation is not required but is allowed.

^a Installation is only allowed for projects with less than 5,000 square feet of hard surface infiltrating on the project site.

^b Category 2 rainwater harvesting shall be sized to meet the on-site performance standard, subsection 22.805.070.C.

^c Category 4 rainwater harvesting shall be sized to reduce the runoff volume by 25 percent or more on an annual average basis.

^d Evaluation of other hard (non-roof) surfaces is not required but is allowed.

5.2.2.2. Trail and Sidewalk Projects

Table B for 22.805.070. On-site List for Trail and Sidewalk Projects.

Category	BMPs	Projects Discharging to a Receiving Water Not Designated by Section 22.801.050, or its Basin [creek, small lake basin, or wetland]	Projects Discharging to a Public Combined Sewer or Capacity Constrained System,^c or its Basin	Projects Discharging to a Designated Receiving Water, or its Basin
1	Full Dispersion	S	S	S
2	Rain Gardens	S	S	X
	Permeable Pavement Facilities	X	X ^a	X ^{a,b}
	Permeable Pavement Surfaces	S	S ^a	X ^{a,b}
	Sidewalk/Trail Compost-Amended Strip	S	S	X
3	Sheet Flow Dispersion	S	S	S
	Concentrated Flow Dispersion	S	S	S
4	Trees	S	S	S

Note that subsection 22.805.070.D.1 requires consideration of all on-site BMPs in a category for feasibility before moving on to each successive category as necessary. Within a category, BMPs may be considered in any order.

BMPs – Best Management Practices

S = Evaluation is required for all surfaces of trail or sidewalk projects.

X = Evaluation is not required for trail or sidewalk projects.

^a Minimum permeable pavement area allowed in right-of-way is 2,000 square feet of pavement within the project site.

^b Installation is not allowed in the right-of-way if new plus replaced pollution-generating hard surface area is less than 2,000 square feet of pavement within the project site.

^c Does not include any project discharging to a receiving water not designated by Section 22.801.050 (e.g., wetlands, creeks, and small lakes), or its basin, even if the project discharges to a capacity-constrained system or its basin.

5.2.2.3. *Parcel-Based 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 [creek, small lake basin, or wetland], a 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 ^g	R, S ^g
	Drywells	R, S ^g	R, S ^g
2	Rain Gardens	R ^a , S ^a	R ^a , S ^a
	Infiltrating Bioretention	R, S	R, S
	Rainwater Harvesting – Category 2 Sizing	X ^e	X ^e
	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
4	Non-infiltrating Bioretention	R ^d , S ^d	R ^d , S ^d
	Rainwater Harvesting – Category 4 Sizing	R ^{b,f}	X ^f
	Vegetated Roofs	R ^c	X
5	Perforated Stub-out Connections	R	R
	Trees	S	S

Note that subsection 22.805.070.D.1 requires consideration of all on-site BMPs in a category for feasibility before moving on to each successive category as necessary. Within a category, BMPs may be considered in any order.

BMPs – Best Management Practices

R = Evaluation is required for roof runoff from parcel-based projects, unless otherwise noted below.

S = Evaluation is required for all other hard (non-roof) surfaces of parcel-based projects, unless otherwise noted below.

X = Evaluation is not required but is allowed.

^a Rain gardens cannot be used to meet Section 22.805.080 (Minimum Requirements for Flow Control) or Section 22.805.090 (Minimum Requirements for Treatment) or for areas of 5,000 square feet or more of hard surface infiltrating on the project site.

^b Evaluation is not required for projects with less than 20,000 square feet of new plus replaced rooftop surface.

^c Evaluation is not required for projects with less than 5,000 square feet of new plus replaced rooftop surface.

^d Water quality treatment BMPs sized to meet Section 22.805.090 (Minimum Requirements for Treatment) may be installed in lieu of non-infiltrating bioretention unless the project discharges to a public combined sewer basin.

^e Category 2 rainwater harvesting shall be sized to meet the on-site performance standard, subsection 22.805.070.C.

^f Category 4 rainwater harvesting shall be sized to reduce the runoff volume by 25 percent or more on an annual average basis.

^g Evaluation of other hard (non-roof) surfaces is not required but is allowed.

5.2.2.4. Roadway Projects

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 [creek, small lake basin, or wetland]	Projects Discharging to a Public Combined Sewer or Capacity Constrained System, ^g or its Basin	Projects Discharging to a Designated Receiving Water 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}	X ^{c,e,f}
	Sidewalk/Trail Compost-Amended Strip	S ^e	S ^e	S ^e
3	Sheet Flow Dispersion	S	S	S
	Concentrated Flow Dispersion	S	S	S
4	Trees	S	S	S

Note that subsection 22.805.070.D.1 requires consideration of all on-site BMPs in a category for feasibility before moving on to each successive category as necessary. Within a category, BMPs may be considered in any order.

BMPs – Best Management Practices

PGIS – Pollution generating impervious surface

S = Evaluation is required for all surfaces of Roadway Projects.

X = Evaluation is not required for Roadway Projects, but is allowed.

^a Rain gardens cannot be used to meet Section 22.805.080 (Minimum Requirements for Flow Control) or Section 22.805.090 (Minimum Requirements for Treatment) or for areas of 5,000 square feet or more of hard surface infiltrating on the project site.

^b Minimum bioretention cell size top area in right-of-way is 500 square feet (including pre-settling area). Evaluation is only required and installation only allowed when contributing area is sufficient to warrant minimum bioretention cell size in right-of-way.

^c Evaluation is not required, and installation is not allowed, if new plus replaced pollution-generating hard surface is less than 2,000 square feet.

^d Evaluation of roadway surfaces is not required, and installation is not allowed, if roadway is an arterial street/collector.

^e Evaluation of roadway surfaces, including alleys, is not required and installation is not allowed.

^f Minimum permeable pavement area allowed in right-of-way is 2,000 sf of pavement within the project site.

^g **Does not** include any project discharging to a receiving water not designated by Section 22.801.050 (e.g., wetlands, creeks, and small lakes), or its basin, even if the project discharges to a capacity-constrained system or its basin.

5.3. Flow Control

Projects triggering this minimum requirement shall install flow control BMPs meeting the applicable design requirements for the given project type, size, and discharge location as summarized in *Chapter 2*. General flow control requirements included in SMC, Section 22.805.080 are summarized below. Refer to *Section 5.3.1* through *5.3.5* for specific flow control standards for wetland protection, pre-developed forested, pre-developed pasture, existing condition, and peak control.

Stormwater Code Language	References
<p>SMC, Section 22.805.080 –</p> <p>A. <i>Applicability: The requirements of this subsection apply to the extent required in Section 22.805.050 to Section 22.805.060.</i></p> <p>B. <i>Requirements. Flow control facilities shall be installed to the extent allowed by law and maintained pursuant to rules promulgated by the Director to receive flows from that portion of the site being developed. Post-development discharge determination must include flows from dewatering activities. All projects shall use on-site BMPs identified in Section 22.805.070.D to the maximum extent feasible to meet the minimum requirements. Flow control facilities that receive flows from less than that portion of the site being developed may be installed if the total new plus replaced impervious surface is less than 10,000 square feet, the project site uses only on-site BMPs to meet the requirement, and the on-site BMPs provide substantially equivalent environmental protection as facilities not using on-site BMPs that receive flows from all of the portion of the site being developed.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 4.3.3 – Minimum Requirements for Flow Control for Roadway Projects</i> ● <i>Volume 1, Section 4.4.3 – Minimum Requirements for Flow Control for Parcel-Based Projects</i> ● <i>Volume 1, Section 5.3.1 – Wetland Protection Standards</i> ● <i>Volume 1, Section 5.3.2 – Pre-developed Forested Standard</i> ● <i>Volume 1, Section 5.3.3 – Pre-developed Pasture Standard</i> ● <i>Volume 1, Section 5.3.4 – Existing Condition Standard</i> ● <i>Volume 1, Section 5.3.5 – Peak Control Standard</i>

Note:

- If a project requires compliance with the Peak Control Standard and either the Pre-developed Forested or Pre-developed Pasture Standard apply, the BMP shall be sized to meet both standards unless otherwise allowed using the Pre-sized Approach (refer to *Volume 3, Section 4.1.2*).
- Projects with 35 percent or greater existing hard surface may manage a smaller portion of the project’s new and replaced hard surface area to meet flow control requirements if only On-site BMPs are employed.
 - Specifically, if flow control is required and only On-site BMPs are used, the hard surface area requiring management may be reduced by up to 2,000 square feet if On-site BMPs are utilized to the maximum extent feasible.
- When off-site flows cannot feasibly bypass proposed flow control BMPs, the flow control BMPs shall be modeled and sized to handle the combined total flow (refer to *Volume 3, Section 4.2.2*).
- Flow control BMPs are not required if the site fully infiltrates all flows, as determined by a licensed civil engineer using an approved continuous runoff model for the 158-year simulation period (refer to *Appendix F*).

5.3.1. Wetland Protection Standards

Stormwater Code Language	References
<p>SMC 22.805.080.B.1 – <i>Wetland Protection Standards. Protect the functions and values of wetlands and their buffers from all projects discharging stormwater directly or indirectly to them. The hydrologic conditions, vegetative community, and substrate characteristics of the wetlands shall be protected, and impacts caused by changes in water flows and pollutants shall be prevented. The introduction of sediment, heat and other pollutants and contaminants into wetlands shall be minimized through the selection, design, installation, and maintenance of temporary and permanent controls.</i></p> <p><i>Before authorizing new discharges to a wetland, alternative discharge locations shall be evaluated and infiltration options outside the wetland shall be maximized unless doing so will adversely impact the functions and values of the affected wetlands. If one or more of the flow control requirements contained in subsections 22.805.080.B.2 through 22.805.080.B.4 also applies to the project, an analysis shall be conducted to ensure that the functions and values of the affected wetland are protected before implementing these flow control requirements.</i></p> <p><i>Notwithstanding any provision in this subtitle, no net loss of wetland functions or values shall result from actions regulated by this subtitle.</i></p> <p><i>Refer to the Washington State Wetland Rating System for Western Washington: 2014 Update (Hruby, 2014) to determine the category, characteristics, and habitat score of the wetland. Wetland classification shall be determined by a wetland professional per rules promulgated under subsection 25.09.330.C (Regulations for Environmentally Critical Areas).</i></p> <ol style="list-style-type: none"> a. <i>Comply with subsection 22.805.080.B.1.c (Wetland Protection Standard—Method 1: Monitoring and Wetland Stage Modeling) if the following applies:</i> <ol style="list-style-type: none"> 1) <i>The project discharges to a Category I or II depressional or riverine impounding wetland; and</i> 2) <i>The project owner has legal access to the entire wetland for purposes of conducting monitoring in the wetland.</i> b. <i>Comply with subsection 22.805.080.B.1.d (Wetland Protection Standard—Method 2: Site Discharge Modeling) if the criteria in subsection 22.805.080.B.1.a do not apply and one or more of the following applies (or applicability is unknown):</i> <ol style="list-style-type: none"> 1) <i>The wetland is Class I or II and does not meet the requirements of subsection 22.805.080.B.1.a.</i> 2) <i>The wetland is Class III or IV and:</i> <ol style="list-style-type: none"> a) <i>Has a habitat score greater than 5;</i> b) <i>Is interdunal and has special characteristics;</i> c) <i>Provides habitat for rare, threatened, endangered, or sensitive species; or</i> d) <i>Contains breeding population of any native amphibian. Per Ecology’s guidance, wetlands with permanent or seasonal ponding or inundation are assumed to have breeding population of native amphibian.</i> 	<ul style="list-style-type: none"> ● SMC, Section 22.805.080.B.2 – Pre-developed Forested Standard ● SMC, Section 22.805.080.B.3 – Pre-developed Pasture Standard ● SMC, Section 22.805.080.B.5 – Peak Control Standard ● Volume 1, Section 3.7 – Protect Wetlands ● SWMMWW Volume I, Appendix I-C) (Ecology 2019)

Stormwater Code Language	References
<p>c. <i>Wetland Protection Standard—Method 1: Monitoring and Wetland Stage Modeling. Comply with I-C.4, Wetland Hydroperiod Protection, presented in Appendix I-C of Ecology’s Stormwater Management Manual for Western Washington (Ecology 2019).</i></p> <p><i>Projects triggering Method 1 shall refer to I-C-5, Wetland Hydroperiod Data Collection and Evaluation Procedures, presented in Appendix I-C of Ecology’s Stormwater Management Manual for Western Washington (Ecology 2019) for additional guidance.</i></p> <p>d. <i>Wetland Protection Standard—Method 2: Site Discharge Modeling. The total volume of stormwater discharging from the site into a wetland shall not be more than:</i></p> <ol style="list-style-type: none"> 1) <i>On a daily basis, 20 percent higher or lower than the pre-project volume, and</i> 2) <i>On a monthly basis, 15 percent higher or lower than the pre-project volume.</i> <p><i>Projects triggering Method 2 shall refer to I-C-5, Wetland Hydroperiod Data Collection and Evaluation Procedures, presented in Appendix I-C of Ecology’s Stormwater Management Manual for Western Washington (Ecology 2019) for additional guidance.</i></p>	

5.3.2. Pre-Developed Forested Standard

Stormwater Code Language	References
<p>SMC 22.805.080.B.2 – <i>The post-development discharge durations shall match the discharge durations of a pre-developed forested condition for the range of pre-developed discharge rates from 50 percent of the 2-year peak flow to the 50-year peak flow.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i> ● <i>Appendix F – Hydrologic Analysis and Design</i>

5.3.3. *Pre-Developed Pasture Standard*

Stormwater Code Language	References
SMC 22.805.080.B.3 – <i>The post-development discharge durations shall match the discharge durations of a pre-developed pasture condition for the range of pre-developed discharge rates from 50 percent of the 2-year peak flow to the 2-year peak flow.</i>	<ul style="list-style-type: none"> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i> ● <i>Appendix F – Hydrologic Analysis and Design</i>

5.3.4. *Existing Condition Standard*

Stormwater Code Language	References
SMC 22.805.080.B.4 a. <i>The post-development discharge durations shall be limited as follows:</i> <ol style="list-style-type: none"> 1) <i>Match the discharge durations of the existing land cover condition for the range of discharge rates from 50 percent of the 2-year peak flow to the 25-year peak flow, and</i> 2) <i>For discharges to a creek or a creek drainage basin or to a small lake or a small lake basin, also match the discharge durations of the existing land cover condition for the range of discharge rates from 50 percent of the 2-year peak flow to the 50-year peak flow.</i> 	<ul style="list-style-type: none"> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i> ● <i>Appendix F – Hydrologic Analysis and Design</i>

Existing conditions means the conditions of drainage, vegetation, and impervious cover at the time of analysis.

5.3.5. *Peak Control Standard*

Stormwater Code Language	References
SMC 22.805.080.B.5 a. <i>The post-development release rates shall be limited as follows:</i> <ol style="list-style-type: none"> 1) <i>The peak flow with a 50 percent annual probability (2-year recurrence flow) shall not exceed 0.07 cubic feet per second per acre;</i> 2) <i>The peak flow with a 20 percent annual probability (5-year recurrence flow) shall not exceed 0.10 cubic feet per second per acre; and</i> 3) <i>The peak flow with a 4 percent annual probability (25-year recurrence flow) shall not exceed 0.40 cubic feet per second per acre.</i> 	<ul style="list-style-type: none"> ● <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i> ● <i>Appendix F – Hydrologic Analysis and Design</i>

5.4. Water Quality Treatment

Projects triggering this minimum requirement based on the amount of pollution generating surface shall install water quality treatment BMPs, which typically remove pollutants through a combination of gravity settling, filtration, biological uptake, and soil adsorption. General water quality treatment requirements included in SMC, Section 22.805.090 are summarized below.

Note:

- Projects with 35 percent or greater existing hard surface may manage a smaller portion of the project’s new and replaced hard surface area to meet water quality treatment requirements if only On-site BMPs are employed. Specifically, if water quality treatment is required and only On-site BMPs are used, the hard surface area requiring management may be reduced by up to 2,000 square feet if On-site BMPs are utilized to the maximum extent feasible.
- An approved landscape management plan (LMP) can be used as an alternative to the requirement to formally treat (with a water quality treatment BMP) the runoff from pollution generating pervious surfaces subject to water quality treatment. A LMP is a City approved plan for defining the layout and long-term maintenance of landscaping features to minimize the use of pesticides and fertilizers, and reduce the discharge of suspended solids and other pollutants. Runoff from an impervious area that is routed to a pervious area is not included in a LMP and must be addressed separately through applying Minimum Requirements #5, #6, and/or #7. LMPs do not apply to artificial turf fields. LMPs are required to be updated if the layout of landscaping features will be substantially modified or if specific maintenance approaches will be altered from the approved LMP. Refer to *Appendix I* for LMP submittal requirements.
- Refer to *Volume 3, Section 4.4* for applicable presettling and pretreatment requirements.

Stormwater Code Language	References
<p>SMC, Section 22.805.090 –</p> <p>A. <i>Applicability. The requirements of this subsection apply to the extent required in Section 22.805.050 to Section 22.805.060.</i></p> <p>B. <i>Requirements. Water quality treatment facilities shall be installed to the extent allowed by law and maintained pursuant to rules promulgated by the Director to treat flows from the pollution-generating pervious and hard surfaces on the site being developed. When stormwater flows from other areas, including non-pollution generating surfaces (e.g., roofs), dewatering activities, and off-site areas, cannot be separated or bypassed, treatment BMPs shall be designed for the entire area draining to the treatment facility. All projects shall use on-site BMPs identified in Section 22.805.070.D to the maximum extent feasible to meet the minimum requirements. For pollution-generating pervious surfaces other than artificial turf, a landscape management plan developed according to rules promulgated by the Director may be utilized in lieu of installing water quality treatment facilities.</i></p>	<ul style="list-style-type: none"> • <i>Volume 1, Section 4.3.4 – Treatment Requirements for Roadway Projects</i> • <i>Volume 1, Section 4.4.4 – Treatment Requirements for Parcel-Based Projects</i> • <i>Volume 1, Section 5.4.1.1 – Runoff Treatment Volume</i> • <i>Volume 1, Section 5.4.1.2 – Runoff Treatment Rates</i> • <i>Volume 1, Section 5.4.1.3 – Infiltration Treatment Requirements</i> • <i>Volume 3, Section 4.4 – Presettling and Pretreatment Requirements</i>

Water quality treatment BMPs shall be designed based on the stormwater runoff volume from the contributing area or a peak flow rate as outlined in the following subsections.

5.4.1. General Water Quality Treatment Requirements

5.4.1.1. Runoff Treatment Volume

The water quality design treatment volume is determined as follows:

Stormwater Code Language	References
<p>SMC, Section 22.805.090.B.1.a – <i>The daily runoff volume at or below which 91 percent of the total runoff volume for the simulation period occurs, as determined using an approved continuous model. It is calculated as follows:</i></p> <ol style="list-style-type: none"> 1) <i>Rank the daily runoff volumes from highest to lowest.</i> 2) <i>Sum all the daily volumes and multiply by 0.09.</i> 3) <i>Sequentially sum daily runoff volumes, starting with the highest value, until the total equals 9 percent of the total runoff volume. The last daily value added to the sum is defined as the water quality design volume.</i> 	<ul style="list-style-type: none"> ● <i>Volume 1, Section 5.4.1.3 – Infiltration Treatment Requirements</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i> ● <i>Appendix F – Hydrologic Analysis and Design</i>

5.4.1.2. Runoff Treatment Rates

Stormwater Code Language	References
<p>SMC, Section 22.805.090.B.1.b – <i>Different design flow rates are required depending on whether a treatment facility will be located upstream or downstream of a detention facility:</i></p> <ol style="list-style-type: none"> 1) <i>For facilities located upstream of detention or when detention is not required, the design flow rate is the flow rate at or below which 91 percent of the total runoff volume for the simulation period is treated, as determined using an approved continuous runoff model.</i> 2) <i>For facilities located downstream of detention, the design flow rate shall be the full 2-year release rate, as determined using an approved continuous runoff model.</i> 	<ul style="list-style-type: none"> ● <i>Volume 3, Section 4.1 – Sizing Approach</i> ● <i>Appendix F – Hydrologic Analysis and Design</i>

5.4.1.3. Infiltration Treatment Requirements

Stormwater Code Language	References
<p>SMC, Section 22.805.090.B.1.c – <i>Infiltration facilities designed for water quality treatment must infiltrate 91 percent of the total runoff volume as determined using an approved continuous runoff model. To prevent the onset of anaerobic conditions, an infiltration facility designed for water quality treatment purposes must be designed to drain the water quality design treatment volume (the 91st percentile, 24-hour volume) within 48 hours.</i></p>	<ul style="list-style-type: none"> ● <i>Volume 1, Section 5.4.1.1 – Runoff Treatment Volume</i> ● <i>Volume 3, Section 4.1 – Sizing Approach</i> ● <i>Volume 3, Section 4.4 – Presettling and Pretreatment Requirements</i> ● <i>Appendix F – Hydrologic Analysis and Design</i>

Note that the “91st percentile, 24-hour volume” referenced above represents the upper limit of the range of daily volumes that accounts for 91 percent of the entire runoff volume over a multi-decade period of record.

5.4.2. Water Quality Treatment Standards

Projects triggering this minimum requirement shall install water quality treatment BMPs for the given project type, size, and discharge location as summarized in *Chapter 2*. Refer to *Section 5.4.2.1* through *5.4.2.4* for oil, phosphorus, enhanced, and basic water quality treatment standards.

When triggered, water quality treatment BMPs shall be installed to treat flows from the pollution-generating hard surface (PGHS) and pollution-generating pervious surface (PGPS) on the site being developed. When stormwater flows from other areas, including non-PGHS (e.g., roofs), dewatering activities, and flows that cannot be separated or bypassed, water quality treatment BMPs shall be sized for the combined total flow.

Stormwater Code Language	References
SMC, Section 22.805.090.B.6 – <i>Discharges to Groundwater. Direct discharge of untreated drainage water from pollution-generating hard surfaces to groundwater is prohibited.</i>	<ul style="list-style-type: none"> SMC, Section 22.805.090.B.6 – Minimum Requirements for Treatment

5.4.2.1. Oil Control Treatment

Oil control treatment applies to projects that include “high-use sites” or have NPDES permits that require application of oil control. Oil control treatment is in addition to other water quality treatment requirements (i.e., phosphorus, enhanced, or basic). The petroleum storage and transfer criterion is intended to address regular transfer operations such as gasoline service stations.

The project proponent shall develop an Average Daily Traffic (ADT) estimate for approval by the City (<http://data-seattlecitygis.opendata.arcgis.com/search?tags=transportation>). In addition to the typical sites outlined in the definition for high-use site, the City may also require oil control treatment to be used on other sites that have the potential to generate high concentrations of oil or with oil handling activity.

Stormwater Code Language	References
<p>SMC, Section 22.805.090.B.3 – <i>An oil control treatment facility shall be required for high-use sites, as defined in this subtitle.</i></p> <p>SMC, Section 22.801.090 – <i>“High-use sites” means sites that typically generate high concentrations of oil due to high traffic turnover or the frequent transfer of oil. High-use sites include:</i></p> <ol style="list-style-type: none"> <i>An area of a commercial or industrial site subject to an expected average daily traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area;</i> <i>An area of a commercial or industrial site subject to petroleum storage and transfer in excess of 1,500 gallons per year, not including routinely delivered heating oil;</i> 	<ul style="list-style-type: none"> <i>Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment</i>

Stormwater Code Language	References
<p>3. An area of a commercial or industrial site subject to parking, storage or maintenance of 25 or more vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.);</p> <p>4. A road intersection with a measured ADT count of 25,000 vehicles or more on the main roadway and 15,000 vehicles or more on any intersecting roadway, excluding projects proposing primarily pedestrian or bicycle use improvements.</p>	

5.4.2.2. Phosphorus Treatment

The requirement to provide phosphorus treatment is determined by the discharge location of the project. Phosphorus treatment is required for projects discharging stormwater to or infiltrating within 1/4 mile of a nutrient-critical receiving water or a tributary to that water. If the soil suitability criteria for infiltrating BMPs are met (refer to *Volume 3, Section 4.5.2*) and pre-settling is provided (refer to *Volume 3, Section 4.4*), then it is assumed that the phosphorus treatment performance goal is met.

At the time this Manual was developed, there were no nutrient-critical receiving water segments determined to be impaired due to phosphorus contributed by stormwater. In the future, the City may designate a waterbody as a nutrient-critical receiving water as defined by the SMC, Section 22.801.150. Refer to the SDCI website to determine if any nutrient-critical receiving waters have been designated ([www.seattle.gov/sdci/codes/codes-we-enforce-\(a-z\)/stormwater-code](http://www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/stormwater-code)).

Stormwater Code Language	References
SMC, Section 22.805.090.B.4 – A phosphorus treatment facility shall be required for projects discharging into nutrient-critical receiving waters.	<ul style="list-style-type: none"> • <i>Volume 3, Section 3.5</i> – BMP Selection for Water Quality Treatment • <i>Volume 3, Section 4.4.3.2</i> – Pretreatment

Project sites subject to the phosphorus treatment requirement could also be subject to the oil treatment and enhanced treatment requirements (*Section 5.4.2.1* and *Section 5.4.2.3*).

5.4.2.3. Enhanced Treatment

The requirement to provide enhanced treatment is determined by the discharge location of the project and activities occurring on the project site. If the soil suitability criteria for infiltrating BMPs are met (refer to *Volume 3, Section 4.5.2*) and pre-settling is provided (refer to *Volume 3, Section 4.4*), then it is assumed that the enhanced treatment performance goal is met.

Stormwater Code Language	References
<p>SMC, Section 22.805.090.B.5 – <i>Enhanced Treatment</i>. Unless a project discharges to a basic treatment receiving water (subsection 22.801.030 “B”), an enhanced treatment facility for reducing concentrations of dissolved metals shall be required for projects that discharge, directly or through conveyance systems, to fresh waters designated for aquatic life use or having an existing aquatic life use, or that use infiltration strictly for flow control (not treatment) and discharge within one-quarter mile of fresh waters designated for aquatic life use or having an existing aquatic life use, if the project meets one of the following criteria:</p> <ol style="list-style-type: none"> a. For a parcel-based project, the project is industrial, is commercial, or proposes four or more dwelling units. b. For a roadway project, the site is either: <ol style="list-style-type: none"> 1. A fully controlled or a partially controlled limited access highway with Annual Average Daily Traffic counts of 15,000 or more; or 2. Any other road with an Annual Average Daily Traffic count of 7,500 or greater. 	<ul style="list-style-type: none"> ● Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment ● Volume 3, Section 4.4.3.2 – Pretreatment

Note: Sites not considered residential, industrial, or road-related are considered commercial for the purposes of applying enhanced treatment requirements. Examples include transit facilities, parks, and schools.

Any portion of a project site that is identified as subject to basic treatment requirements only (Section 5.4.2.4) are not subject to enhanced treatment requirements.

Project sites subject to the enhanced treatment requirement could also be subject to the oil control treatment requirement (Section 5.4.2.1) and phosphorus treatment requirement (Section 5.4.2.2).

5.4.2.4. Basic Treatment

Projects triggering water quality treatment shall install, at a minimum, a BMP that meets the basic treatment requirements. The requirements for oil control treatment (which may also be required if the project includes “high-use sites,” refer to Section 5.4.2.1), phosphorus treatment, and enhanced treatment are in addition to the basic treatment requirement. If the soil suitability criteria for infiltrating BMPs are met (refer to Volume 3, Section 4.5.2) and pre-settling is provided (refer to Volume 3, Section 4.4), then it is assumed that the basic treatment performance goal is met. Areas that must provide phosphorus treatment or enhanced treatment do NOT have to provide additional basic treatment BMPs to meet the basic treatment performance goal.

Basic treatment is required in the following circumstances:

- Project sites that discharge stormwater to the ground (i.e., via infiltration) UNLESS:
 - The soil suitability criteria for infiltration treatment are met (refer to Volume 3, Section 4.5.2) and pre-settling is provided (refer to Volume 3, Section 4.4), or
 - The project site uses infiltration strictly for flow control – not treatment, or
 - The project site is required to provide enhanced treatment (refer to Section 5.4.2.3).

- Single-family residential projects not otherwise required to provide phosphorus control (*Section 5.4.2.2*) as designated by EPA, Ecology, or the City.
- Project sites discharging directly (or indirectly through a drainage system) to the following Basic Treatment Receiving Waters:
 - All marine waters, including Puget Sound
 - Lake Union
 - Lake Washington
 - Ship Canal and bays between Lake Washington and Puget Sound
 - Duwamish River
- Project sites that drain to fresh waters, or to waters tributary to fresh waters, that are not designated for aquatic life use and that do not have an existing aquatic life use. As provided in Chapter 173-201A WAC, all surface waters of the state, including but not limited to wetlands, in or near the City are to be protected for designated aquatic life use. For the purposes of the Stormwater Code and this Manual, the City of Seattle interprets “fresh waters designated for aquatic life use” to include at minimum fresh water wetlands as well as small lakes, creeks, and freshwater designated receiving waters.
- Landscaped areas of industrial, commercial, and multifamily project sites.

Stormwater Code Language	References
<p>SMC, Section 22.805.090.B.2 – <i>A basic treatment facility shall be required for all projects. The requirements of subsection 22.805.090.B.3 (Oil Control Treatment), subsection 22.805.090.B.4 (Phosphorus Treatment), subsection 22.805.090.B.5 (Enhanced Treatment) are in addition to this basic treatment requirement.</i></p>	<ul style="list-style-type: none"> ● <i>Section 5.4.1</i> (SMC, Section 22.805.090.B.3) – Oil Control Treatment ● <i>Section 5.4.2</i> (SMC, Section 22.805.090.B.4) – Phosphorus Treatment ● <i>Section 5.4.3</i> (SMC, Section 22.805.090.B.5) – Enhanced Treatment ● <i>Volume 3, Section 3.5</i> – BMP Selection for Water Quality Treatment ● <i>Volume 3, Section 4.1</i> – Sizing Approach ● <i>Appendix F</i> – Hydrologic Analysis and Design

CHAPTER 6 – ALTERNATIVE COMPLIANCE

Alternative compliance in creek basins applies only within the city of Seattle. An excerpt from the Stormwater Code (in *italics*) is presented below.

Stormwater Code Language	References
<p>SMC 22.800.080 – Authority</p> <p><i>E. The Director of SPU is authorized, to the extent allowed by law, to develop, review, or approve an Integrated Drainage Plan as an equivalent means of complying with the requirements of this subtitle, in which the developer of a project voluntarily enters into an agreement with the Director of SPU to implement an Integrated Drainage Plan that is specific to one or more sites where best management practices are employed such that the cumulative effect on the discharge from the site(s) to the same receiving water is the same or better than that which would be achieved by a less integrated, site-by-site implementation of best management practices. (SMC 22.800.080.E)</i></p> <p><i>F. For projects that do not discharge to the combined sewer system, the Director of SPU is authorized, to the extent allowed by law, to enter into an agreement with the developer to allow a project’s flow control, water quality treatment, on-site stormwater management, or wetland protection requirements to be met at an alternative location if the following conditions are met, or if another scenario is approved by Ecology:</i></p> <ol style="list-style-type: none"> <i>1. The developer enters the agreement voluntarily to contribute funds toward the construction of, or to construct, one or more drainage control facilities at an alternative location to mitigate the impacts to the same receiving water that have been identified as a consequence of the project; and</i> <i>2. The alternative location is for an equivalent area in terms of flow and pollution characteristics when compared with the project, as determined by the Director; and</i> <ol style="list-style-type: none"> <i>a. The site of the project has greater than or equal to 35 percent existing hard surface coverage and the project discharges to:</i> <ol style="list-style-type: none"> <i>1) A Listed Creek and the equivalent area is in-basin, which means that the equivalent area is on the same site as the project, the project is located within contributing area to the equivalent area, or the equivalent area discharges from the public drainage system to the receiving water at the same point as (or upstream of) the point where the project area discharges from the public drainage system to the same receiving water; or</i> <i>2) A receiving water other than a Listed Creek and the equivalent area discharges to the same receiving water as the project. (SMC 22.800.080.F)</i> <p><i>G. For projects that discharge to the combined sewer system, the Director of SPU is authorized, to the extent allowed by law, to enter into an agreement with the developer to allow a project’s flow control or on-site stormwater management requirements to be met at an alternative location if the developer enters the agreement voluntarily to contribute funds towards the construction of, or to construct, one or more drainage control facilities at an alternative location, determined by the Director, to mitigate the impacts that have been identified as a consequence of the project. (SMC 22.800.080.G)</i></p>	<ul style="list-style-type: none"> ● Not applicable

When the consequences of the proposed development are from new hard surfaces, the mitigation should be provided at the same time as completion of the new surfaces. When the consequences of the proposed development are from replaced hard surfaces, there should be a construction plan and schedule that ensure the stormwater control BMP(s) mitigating the impacts are constructed within 5 years of the original development, which may be required by state law.

CHAPTER 7 – SITE ASSESSMENT AND PLANNING

To help evaluate minimum requirements and start the process for selecting on-site stormwater management, flow control, and water quality treatment best management practices (BMPs), each project shall assess and evaluate existing and post-development site conditions. This chapter describes typical site information and design considerations to be identified early in the project development process. The goal of site assessment and planning is to identify any additional stormwater management issues that shall be addressed before selecting on-site stormwater management, flow control, and/or water quality treatment BMPs. Additional information on drainage control reviews and required plan submittals is included in *Chapter 8*.

7.1. Identifying Key Project Components

Chapter 3 presents steps for determining the applicable on-site stormwater management, flow control, and water quality treatment requirements. The following sections provide additional guidance on key project components that can significantly influence the project design and approach, and should be considered as part of the site assessment and planning step.

7.2. Project Boundaries and Structures

Project boundaries, nearby structures, and other related issues can directly affect designs for stormwater management. The following shall be addressed before selecting a stormwater BMP:

- **Project Boundaries:** The project boundaries typically define the limits of disturbance and can affect the thresholds and applicable minimum requirements. Project boundaries generally coincide with the right-of-way and/or property line, but may include multiple properties. Refer to *Section 2.1*.
- **Setbacks:** Property lines, existing and proposed structures, and adjacent right-of-way boundaries shall be identified and considered to evaluate project impacts on adjacent properties.
- **Location of Buildings:** All existing and proposed buildings shall be identified, including all existing and proposed temporary and permanent structures (e.g., retaining walls) and hard surfaces (e.g., driveways and patios). Structures on neighboring properties can also affect stormwater BMP selection.
- **Foundations and Footing Drains:** The type of proposed foundations and footing drains, including location and extent, shall be determined, to include the following:
 - Conventional spread footings
 - Pile shaft
 - Basement

- Footing drains and their associated point of discharge, where applicable (refer to *Section 3.2.1*)
- Water-tight foundation without footing drains
- Elevation of groundwater table in relation to the footings and basement

7.3. Soil Condition Assessment

The soil type and land cover types on the project site shall be evaluated to assess the infiltration capacity of the site and the applicability of various stormwater BMPs. General requirements for determining infiltration feasibility, site characterization, and infiltration rate are presented in *Volume 3, Sections 3.2 and 4.5.2 and Appendix D*.

7.4. Environmentally Critical Areas (ECAs)

Additional regulatory requirements are placed upon projects that are within or near ECAs, pursuant to SMC, Chapter 25.09. Depending upon the type of ECA, additional requirements or limitations regarding stormwater management may apply.

The following information is needed to assess the impacts on and risks posed to wetlands and to determine the necessary protection level:

- Size, boundary, and characteristics of the proposed project site, wetland contributing drainage area, and the wetland and its buffer
- Wetland type, category, and habitat score (based on the Wetland Protection Guidelines in the *Stormwater Management Manual for Western Washington* (SWMMWW) Volume I, Appendix I-C [Ecology 2019])
- Presence of rare, endangered, threatened, or sensitive species
- Presence of breeding populations of native amphibian species
- Legal access to the wetland

7.5. Dewatering

It is important to have early estimations of the groundwater discharge from the project site. The site's proximity to receiving waters, or its location in areas where there may be perched, static, tidally influenced, or hydraulically connected groundwater can have significant impacts on how the project is designed and which other minimum requirements apply. Refer to the Minimum Requirements for Flow Control (*Section 5.3*) and the Minimum Requirements to Ensure Sufficient Capacity (*Section 3.8*).

If temporary dewatering will occur, a Side Sewer Permit for Temporary Dewatering (SSPTD) and a Discharge Authorization Letter from King County Industrial Waste may be required prior to commencing dewatering at the site. The SSPTD may require compliance with a separate Temporary Dewatering Plan, water quality treatment, flow control requirements, and compliance monitoring.

7.6. Topography

Because topography will influence how and where stormwater BMPs are incorporated onto the site, the existing and proposed topography shall be considered. Important features to assess include the following:

- Key terrain features, such as closed depressions and grade breaks
- Natural drainage courses, such as swales, ditches, rills, and gullies
- Flow entering and exiting the property
- Roadway grades and elevations

7.7. Site Assessment

The following information shall be evaluated as part of the site assessment:

- **Topography:** Topography within 500 feet of the site (geographic information system [GIS]) topographic data may be used
- **Steep Slope or Landslide-Prone Areas:** Location of steep slope areas or landslide-prone areas within 500 feet of the site
- **Septic Systems and Drain Fields:** Location of septic systems and drain fields in the vicinity of the site
- **Underground Storage Tanks, Aboveground Storage Tanks, Residential Heating Oil Tanks:** Location of underground storage tanks, above ground storage tanks, or residential heating oil tanks in the vicinity of the site
- **Contaminated Sites and Landfills:** Location of contaminated sites and abandoned landfills within 100 feet of the site

For roadway projects or parcel-based projects with runoff from 5,000 square feet or more of impervious area to infiltrate, the following information shall also be evaluated:

- **Site Geology:** Local site geology, including soil or rock units likely to be encountered, the groundwater regime, and geologic history of the site
- **Water Supply Wells:** Location of water supply wells within 500 feet of the site
- **Contaminated Sites and Landfills:** Location of contaminated sites and abandoned landfills within 500 feet of the site
- **Groundwater Protection Areas:** Location of groundwater protection areas and/or 1-, 5-, and 10-year time of travel zones for municipal well protection areas
- **Anticipated Site Use:** Street/highway, residential, commercial, high-use site that may affect the water quality of stormwater runoff

For projects proposing to use deep infiltration BMPs, the following information shall also be reviewed and mapped:

- Regional geologic mapping
- Publicly available geotechnical exploration data
- Steep slope and landslide-prone areas within a quarter mile of proposed location of the deep infiltration BMP

Sources of data to evaluate site suitability include, but are not limited to, City of Seattle Department of Construction and Inspection (SDCI) Critical Area maps, Washington Department of Natural Resources (DNR) Subsurface GIS, Flood Hazard maps, and other mapping information available from the City of Seattle (including Seattle Public Utilities [SPU] and the Seattle Department of Transportation [SDOT]), King County, and consultant reports for other public agencies. Any of the above information identified as part of the review shall be shown on a map relative to the proposed infiltration location(s).

Using the site assessment information, evaluate the site for infiltration suitability based on the limitations and setbacks provided in *Volume 3, Section 3.2 and Appendix D, Section D-2.2.4*. Based on this evaluation, identify all portions of the site where infiltration may be feasible. Additionally, for underground injection control (UIC) wells, setback and site restrictions shall be in accordance with the UIC requirements in Volume I of the SWMMWW (Ecology 2019). UIC wells are regulated by the Washington State Department of Ecology (Ecology) under federal and state laws and must comply with all federal and state requirements.

7.8. Landscaping Principles

Before designing the site and stormwater infrastructure, consider the following:

- Maintain and use natural drainage patterns
- Preserve and use natural features and resources, including trees
- Preserve native vegetation (refer to BMP T5.40, Preserving Native Vegetation, in Volume V of the SWMMWW [Ecology 2019])
- Create a multifunctional landscape using the natural site hydrology as a framework for site design
- Confine and phase construction activities to minimize disturbed areas and impacts on ECAs and their associated buffers
- Plant new trees in proximity to ground-level impervious surfaces for on-site stormwater management and/or flow control credit
- Minimize or prevent compaction and protect soils

Soil type, slope, exposure, depth to groundwater, and the suite of plants chosen for the site will all influence the proposed landscape management approach. However, there are five basic principles that must be considered for all sites to be successful in controlling the export of soil or organic matter, fertilizers, and pesticides in stormwater runoff:

- Minimize bare soil areas
- Reduce water demand
- Reduce extent of turf area and manage remaining turf to reduce pollutant impact
- Select plants with sustainability in mind
- Reduce or eliminate fertilizers, pesticides, herbicides, and fungicides and, where required, manage application wisely

Each of the five basic principles is expanded upon in the following subsections. The recommendations discussed for each principle are intended as a framework for a variety of site situations, from individual homes to large parks and golf courses. The specific application of each of these principles will vary from site to site depending on the type of landscaping (e.g., grass lawn, planter bed) that is being managed.

7.8.1. Principle 1: Minimize Bare Soil Areas

Bare soil areas are one source of solids that can be mobilized and carried downstream by rainfall. Minimizing bare soil areas makes it less likely that solid particles will be dislodged by rainfall. Landscapes can be managed to minimize bare soil using one or more of the following:

- Establish dense plantings of pest-resistant groundcover to shade out weeds. Some easy-care recommendations are rock rose (*Cistus sp.*), snowberry (*Symphoricarpus alba*), salal (*Gaultheria shallon*) and kinnickinick (*Arctostaphylos uva-ursi*).
- If bare soil areas are required, as in planting beds or ball diamonds, surround the bare area with an area of grass or groundcover to filter out solids that may be picked up by stormwater runoff.
 - The denser the grass or groundcover, the more effective it will be in capturing solids in runoff.
 - The filtering area should be as level as possible, minimizing low spots, where runoff can concentrate and create channels.
 - In general, filtering areas should be about one-fourth as long (along the flowpath) as the area contributing flow, assuming that the slopes are gentle (less than 10 percent). For flat, level areas without dips, this length can be reduced.
- Promptly repair bare patches in lawns or groundcovers that could contribute solids to stormwater runoff.
- Do not place bark or loose mulch on slopes where it can be carried to storm drains or receiving waters.

7.8.2. Principle 2: Reduce Water Demand

Reducing the need for irrigation reduces the potential movement of pollutants, conserves water, and saves money.

- Use drought-tolerant or native vegetation.
- Install underground irrigation systems timed to water at night or drip irrigation systems. Systems with automatic leak detection capability will reduce inadvertent runoff due to a break in the system.
- Increase the organic content of soils to improve its water-retention capability.
- Terrace sloped areas to improve water retention.

7.8.3. *Principle 3: Reduce Turf Area and Manage Remaining Turf to Reduce Pollutant Impact*

Turf requires care to look attractive. In addition to mowing, turf areas typically require water, fertilizer, and weed and disease control. However, some practices can reduce or minimize the amount of chemical controls needed.

- Amend soil with organic matter per *Volume 3, Section 5.1*.
- Decide whether all lawn area needs the same level of upkeep: let some areas have a less formal look, if possible, and reduce or eliminate fertilizer and pesticide use in those areas. Apply fertilizer only if the need is indicated by soil testing, and apply it at rates recommended by a soil testing laboratory for current conditions.
- Rely on irrigation and lawn aeration as the primary tools for maintaining healthy turf.
- Remove thatch each year to increase water penetration to grass roots and reduce runoff.
- In shady areas, plant groundcovers rather than grass. Turf grasses usually need at least partial sun to remain vigorous.

7.8.4. *Principle 4: Select Plants with Sustainability in Mind*

Plants differ in their ability to cope with different soils, rainfall conditions, pests, diseases, and microclimates. Techniques that can be used to create landscapes requiring less intervention include the use of resilient plant species, the selection of plants with adaptations for particular environments, and the creation of optimal microenvironments. Less watering and a reduced need for pesticide and fertilizer application means less potential for pollutants to leave the site.

- Select disease-resistant plants.
- Select drought-resistant groundcovers, shrubs, and trees in areas with poor soil or little shading.
- Group plants in clusters with tree, shrub, and groundcover layers to create a better micro-environment and to supply organic matter back to the soil.
- Include plants in the landscape that are important for beneficial insects such as parasitic wasps. If beneficial insects have nothing to sustain them, they will not stick around to control pests when you need them.
- Use dense plantings or close spacing to shade out weeds rather than herbicides.
- On steep slopes or erosion-prone areas, use plants with fibrous roots including, but not limited to, the following:
 - Ornamental grasses and lawn grasses
 - Dwarf rose (*Rosa gymnocarpa*) – native
 - Nootka rose (*Rosa nutkana*) – native
 - Rock rose (*Cistus* sp.)
 - Rugosa rose (*Rosa rugosa*)

- Evergreen huckleberry – native
- Salal (*Gaultheria shallon*) – native
- Salmonberry (*Rubus spectabilis*) – native
- Snowberry (*Symphoricarpos alba* or *Symphoricarpos mollis*) – native
- Sword fern (*Polystichum munitum*) – native
- Use wetland plants in areas with seeps or a high groundwater table.
- Attend to installation details. Write enforceable planting specifications that include details such as soil preparation, plant spacing, plant condition and size, planting depth, transplant handling and irrigation. During installation, inspect the planting to prevent the use of shortcuts such as blowing the soil mixture around root balls rather than digging the roots into amended native soils. Where possible, specify and install bare-root plants for improved adaptation to native soils.

7.8.5. *Principle 5: Reduce or Eliminate Fertilizer, Pesticide, Herbicide, and Fungicide Use and Where, Required, Manage Application Wisely*

Use of fertilizers, pesticides, and herbicides should be reduced or eliminated to the maximum extent feasible. However, if the landscape plants and turf simply will not survive without fertilization and some amount of pest management, an Integrated Pest Management plan or landscape management plan (refer to *Appendix I*) must address when and how these actions will be taken so that the impact on water quality will be reduced.

- Keep plants healthy by building healthy soil using composted organic material. Healthy plants can better resist diseases and insect pests.
- Tailor fertilizer formulation to lawn needs. Apply fertilizer only if the need is indicated by soil testing, and apply it at rates recommended by a soil testing laboratory for current conditions. Adjust the fertilizer application rate and timing of applications to avoid carry-off in stormwater runoff.
- Reduce the phosphorus (P) concentration in fertilizers when possible by using a low phosphorus formulation or formulations containing only nitrogen or potassium.
- Use an Integrated Pest Management approach to control pests (see *Appendix I*). Include non-chemical control options as a first-defense against pests.
- Encourage a diverse insect community in your landscape: Beneficial insects can help control pests, especially pests of trees and shrubs.
- Target pesticide application to the specific pest of concern. Avoid pesticide “mixes” targeting generic problems (such as weed and feed) unless you actually need each of the formulations for a current problem.
- Apply pesticides only during the life-stage when the pest is vulnerable.
- Use fungicides very sparingly; they disrupt the base of aquatic food webs. If you need to use fungicides, spray formulations with faster break-down times.
- Tolerate some weeds.

7.9. Site Design Considerations

To manage stormwater effectively and efficiently, site design for both the construction phase and the post-development condition should coincide with the design and layout of the stormwater infrastructure. Efforts should be made, as required and encouraged by local development codes, to conserve natural areas, retain native vegetation, reduce impervious surfaces, and integrate stormwater controls into the existing site layout to the maximum extent feasible. With careful planning, these efforts will not only help achieve the minimum requirements contained in the Stormwater Code, but can also reduce impacts from development projects and the costs of water quality treatment and flow control.

Before designing the site and stormwater infrastructure, consider the following:

- Stormwater:
 - Identify the approved point of discharge and conveyance system flowpath, both pipe and topographically
 - Manage stormwater runoff (quantity and quality) as close to the point of origin as possible
 - Minimize the required quantity of stormwater collection and conveyance systems
 - Use simple, nonstructural methods for stormwater management
 - Use dispersion, infiltration, rainwater harvesting, and alternative surface BMPs where feasible
- Impervious and Pervious Surfaces:
 - Fit development to the terrain to minimize land disturbance
 - For sites with varied soil types, locate impervious areas over less permeable soil (e.g., till). Minimize development over more porous soils. Use areas of porous soils for bioretention and permeable pavement.
 - Cluster buildings together
 - Minimize impervious surfaces (e.g., buildings and sidewalks)
 - Minimize pollution-generating hard surfaces (PGHS) (e.g., areas subject to vehicular use such as driveways and parking strips)
 - Minimize pollution-generating pervious surfaces (PGPS)

CHAPTER 8 – DRAINAGE CONTROL REVIEW AND APPLICATION REQUIREMENTS

Most construction and land use projects in Seattle require a permit from SDCI and/or SDOT. Drainage Control Review types include: Preliminary Drainage Review, Standard Drainage Review, and Comprehensive Drainage Review. The type of Drainage Control Review is based on the project type and the proposed total amount of new plus replaced hard surface and the total amount of land-disturbing activity.

Forms and submittal documents for projects not conducted in the right-of-way (typically on private property) can be found on the SDCI website ([www.seattle.gov/sdci/codes/codes-we-enforce-\(a-z\)/stormwater-code](http://www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/stormwater-code)).

Forms and submittal documents for projects conducted in the right-of-way can be found on SDOT's website (www.seattle.gov/transportation/permits-and-services/permits/street-improvement-permits).

The City also has resources available at the SDCI Applicant Services Center, including SDCI staff available to answer questions, and relevant “Tips” with detailed information for construction projects. Visit the SDCI Applicant Services Center, or the website (www.seattle.gov/sdci).

Refer to *Section 4.7* for additional information regarding complex projects.

Excerpts from the Stormwater Code (in *italics*) are presented below in the first column in the code reference box in most sections. The second column in the code reference box provides applicable references.

8.1. Preliminary Drainage Review

Preliminary Drainage Review is required for Master Use Permits (MUPs) summarized below.

Stormwater Code Language	References
<p>SMC 22.807.020.A – <i>Thresholds for Drainage Control Review. Drainage control review and approval as described in subsection 22.807.020.B is required for any of the following:</i></p> <ol style="list-style-type: none"> 1. <i>Preliminary drainage review and approval is required for applications for the following approvals:</i> <ol style="list-style-type: none"> a. <i>Subdivisions (Chapter 23.22);</i> b. <i>Short plats (Chapter 23.24);</i> c. <i>Unit lot subdivisions (Section 23.24.045)</i> d. <i>Lot boundary adjustments (Chapter 23.28);</i> e. <i>Master use permits that would allow development that includes 750 square feet or more of new plus replaced hard surface or 5,000 square feet of land disturbing activity where the Director has determined that a preliminary drainage review is required considering, but not limited, to the following attributes of the site:</i> <ol style="list-style-type: none"> 1) <i>Location within an environmentally critical area or buffer;</i> 2) <i>Proximity and tributary to an environmentally critical area or buffer; and</i> 3) <i>Proximity and tributary to an area with adequacy, erosion, water quality, or flooding problems.</i> 	<ul style="list-style-type: none"> ● SMC, Section 22.807.020.B – Submittal Requirements for Drainage Control Review and Approval ● SMC, Chapter 23.22 – Subdivisions ● SMC, Chapter 23.24 – Short Plats ● SMC, Section 23.24.045 – Unit lot subdivisions ● SMC, Chapter 23.28 – Lot boundary adjustments

The submittals required for Preliminary Drainage Review shall include the following, at a minimum. Refer to *Appendix B* for additional requirements for specific types of MUPs:

- Preliminary Drainage Control Plan*. The required elements for a Preliminary Drainage Control Plan are the same as for a Drainage Control Plan for Standard or Comprehensive Review with the following differences:
 - On-site Stormwater Management BMPs for proposed lots/parcels where the future development is unknown shall show conceptual BMPs.
 - Tables for estimated new and replaced hard surface area for each proposed lot, parcel, tract, etc.
- Preliminary Site Plan (elements can be incorporated within Drainage Control Plan)*. The required elements for a Preliminary Site Plan are the same as for a Site Plan for Standard or Comprehensive Review with the following differences:
 - Details
- Preliminary On-site stormwater management documentation*
- Preliminary Drainage Report or Flow Control and Water Quality Documentation*
 - Tables for estimated hard surface coverage, etc.*All submittals for Preliminary Drainage Review shall be identified as “Preliminary.” Preliminary Drainage Review approval does not permit construction. Standard or Comprehensive Drainage Review approval will be required for all associated construction permits.

Note: Refer to *Appendix B* for instances when some of the listed items may be deferred to the construction permits rather than being submitted with the MUP application.

8.2. Standard Drainage Review

Standard Drainage Review generally applies to projects that involve 750 square feet or more, but less than 1 acre, of land-disturbing activity, and less than 5,000 square feet of new plus replaced hard surface.

For a project with no offsite discharge point as determined by the Director (refer to *Volume 3, Section 4.3.2*) or includes development conducted in or near a receiving water requiring a Hydraulic Project Approval (WAC 220-660), the drainage control plan shall be prepared by a licensed engineer (SMC 22.807.020.B.2.b).

Stormwater Code Language	References
<p>SMC 22.807.020.A – <i>Thresholds for Drainage Control Review</i></p> <p>2. <i>Standard drainage review and approval is required for the following:</i></p> <ul style="list-style-type: none"> a. <i>Applications other than those listed in subsection 22.807.020.A.1 that include any land disturbing activity encompassing an area of 5,000 square feet or more, including demolition permits;</i> b. <i>Applications for a building permit or other construction permit that authorizes the construction or installation of 750 square feet or more of new plus replaced hard surface;</i> c. <i>Applications for which a grading permit or approval is required pursuant to Chapter 22.170;</i> d. <i>Applications for street use permits for the cumulative addition of 750 square feet or more of new plus replaced hard surface and land disturbing activity;</i> e. <i>City public works projects or construction contracts, including contracts for day labor and other public works purchasing agreements, for the cumulative addition of 750 square feet or more of new plus replaced hard surface and/or land disturbing activity to the site, except for projects in a City-owned right-of-way and except for work performed for the operation and maintenance of park lands under the control or jurisdiction of the Department of Parks and Recreation;</i> f. <i>Applications for approvals and contracts that include any new or replaced hard surface or any land disturbing activity on a site deemed a potentially hazardous location, as specified in Section 22.800.050 (Potentially Hazardous Locations);</i> g. <i>Applications for approvals that include any new hard surface in a Category I peat settlement-prone area delineated pursuant to Section 25.09.012;</i> h. <i>Whenever an exception to a requirement set forth in this Subtitle VIII or in a rule promulgated under this Subtitle VIII is desired, whether or not review and approval would otherwise be required, including, but not limited to, alteration of natural drainage patterns or the obstruction of watercourses;</i> i. <i>Whenever roadway project infeasibility pursuant to subsection 22.805.060.E is applied, whether or not review and approval would otherwise be required or</i> j. <i>Applications for approvals for activities or projects for:</i> <ul style="list-style-type: none"> 1. <i>Fueling at dedicated stations, for new or substantially altered fueling stations.</i> 	<ul style="list-style-type: none"> ● SMC, Chapter 22.170 – Grading Code ● SMC, Section 22.800.050 – Potentially Hazardous Locations ● SMC, Section 22.805.060 – Minimum Requirements for Roadway Projects ● SMC, Section 25.09.012 – Designation and Definitions of Environmentally Critical Areas

Stormwater Code Language	References
<ol style="list-style-type: none"> 2. <i>In-water and over-water fueling.</i> 3. <i>Maintenance and repair of vehicles and equipment.</i> 4. <i>Concrete and asphalt mixing and production.</i> 5. <i>Recycling, wrecking yard, and scrap yard operations.</i> 6. <i>Storage of liquids in aboveground tanks.</i> 7. <i>Other projects that the Director determines pose a hazard to public health, safety or welfare; endanger any property; adversely affect the safety and operation of City right-of-way, utilities, or other property owned or maintained by the City; or adversely affect the functions and values of an environmentally critical area or buffer.</i> 	

The submittals required for Standard Drainage Review shall include the following, at a minimum:

- Construction Stormwater Control and Soil Management Plan (refer to *Volume 2*) including a dewatering plan if groundwater dewatering will occur. and *Volume 3, Section 5.1*)
- Standard Drainage Control Plan
 - Site and drainage control summary
 - Existing drainage infrastructure
 - Location of drainage discharge from the site
 - Drainage collection and conveyance measures (e.g., inlets, catch basins, maintenance holes, downspouts, drain lines, subgrade drainage, pumps, etc.)
 - Identification of uphill run-on areas (i.e., areas that may contribute stormwater runoff onto the project site)
 - On-site Stormwater Management BMPs and hard surface identification (refer to On-site Stormwater Management documentation below)
 - Flow Control BMPs
 - Water Quality Treatment BMPs
 - Source Control BMPs
 - Identification of which of the following standards are met with each BMP using the following abbreviations:
 - On-site Stormwater Management (OSM)
 - Flow Control (FC)
 - Water Quality (WQ)
 - Source Control (SC)
 - Maintenance instructions

- Site Plan (elements can be incorporated within Drainage Control Plan)
 - Address of project and permit number
 - Creeks, streams, shorelines and any other Environmentally Critical Areas (ECAs) or their buffers
 - Areas to be protected
 - Names, widths, and improvement types of adjacent streets and alleys
 - Type, location, and dimension of curbs, sidewalks, and street trees
 - All other trees at least 6 inches in diameter or larger measured 4.5 feet above the ground
 - Location of all existing and proposed driveways, parking areas, and other paved areas and hard surfaces
 - Size and shape of current and proposed buildings (including overhangs) and all other structures (retaining walls, etc.)
 - Entrances
 - Building identifiers (for sites with more than one building)
 - Existing grades/ground elevations including contours, flow lines and/or slope arrows, tops and bottoms of slopes, and retaining walls, etc.
 - Proposed grades/ground elevations including contours, spot elevations, flow lines and/or slope arrows, tops and bottoms of slopes, and retaining walls, etc., with enough information to identify drainage patterns.
 - Existing and proposed retaining walls
 - Existing and proposed below grade and above grade utilities and infrastructure
 - Property line dimensions
 - Existing and proposed easements
 - Setbacks
- On-site stormwater management documentation:
 - Hard surface identification (e.g., roofs, driveways, sidewalks, patios)
 - On-site Stormwater Management BMP selection and sizing (refer to *Volume 3, Section 3.3*, and *Chapter 5*)
 - Documentation of On-site Stormwater Management BMPs determined to be infeasible (refer to *Appendix C*)
 - Where dispersion is not feasible, documentation demonstrating infeasibility (refer to *Volume 3, Section 3.1*)
 - Where infiltration is not feasible, documentation demonstrating infeasibility (refer to *Volume 3, Section 3.2*)
 - Subsurface investigation, infiltration test results, or groundwater analysis, as required per *Volume 3, Sections 3.2 and 5.4.1*, and *Appendix D*

- Flow control documentation, if triggered. Required documentation may include:
 - Flow control BMP selection and sizing (refer to *Volume 3, Section 3.4, and Chapter 5*)
 - Details of any flow control device assembly, including orifice and weir sizing and elevations, if used
 - Modeling documentation (refer to *Appendix F*)
 - Subsurface investigation, infiltration test results, or groundwater analysis as required per *Volume 3, Sections 3.2 and 5.4.1, and Appendix D*
- Memorandum of Drainage Control for projects not located in the right-of-way including, at a minimum (SMC, Section 22.807.020.B.1.d):
 - The legal description of the site
 - A summary of the terms and limitations of the drainage control plan
 - Identify all stormwater BMPs specific to the project (e.g., catch basins, permeable pavement surfaces, detention pipes, biofiltration swales, wash pads)
 - An agreement to inform future purchasers/successors/assignees of the existence, limitations, and inspection and maintenance requirements of the stormwater BMPs
 - Landscape management plan (if applicable)
 - The side sewer permit number, date, and name
 - Permission for the City to enter the property for inspection, monitoring, correction, and abatement purposes
 - Acknowledgment by the owner(s) that the City is not responsible for the adequacy or performance of the drainage control plan, and a waiver of any and all claims against the City for any harm, loss, or damage related to the plan, or to drainage or erosion on the property, except for claims arising from the City's sole negligence
 - The owner(s)' signatures acknowledged by a notary public
- Operations and maintenance (O&M) plan for stormwater BMPs or include reference to the O&M requirements in *Appendix G* on the Drainage Control Plan

8.3. Comprehensive Drainage Review

Stormwater Code Language	References
SMC 22.807.020.A – <i>Thresholds for Drainage Control Review</i> 3. <i>Comprehensive drainage review and approval is required for applications other than those listed in subsection 22.807.020.A.1 that include:</i> a. <i>Five thousand square feet or more of new plus replaced hard surface;</i> b. <i>One acre or more of land disturbing activity;</i> c. <i>Conversion of 3/4 acres or more of vegetation to lawn or landscaped area; or</i> d. <i>Conversion of 2.5 acres or more of native vegetation to pasture.</i>	<ul style="list-style-type: none"> ● None provided

Comprehensive Drainage Plan shall be prepared by a licensed engineer.

In addition to the requirements of the Standard Drainage Review, the following information is required for the Comprehensive Drainage Review:

- Comprehensive Drainage Control Plan including, consisting of:
 - Comprehensive Drainage Control Construction Drawing including all elements of a Standard Drainage Control Plan.
 - A Comprehensive Construction Stormwater Control and Soil Management Plan narrative, supporting calculations, and supporting documents including the Checklist to Select Large Project Construction BMPs (refer to Table 1b in *Volume 2, Chapter 3*).
 - A Comprehensive Drainage Control Report including, but not limited to (see *Appendix B* for other required elements and recommended format):
 - A narrative detailing the proposed project, summary of minimum requirements, and proposed stormwater management
 - Narrative of existing conditions including drainage basins, existing surface types, soil conditions, groundwater conditions, Environmentally Critical Areas (ECAs), and known contamination
 - Dispersion feasibility analysis and documentation (refer to *Volume 3, Section 3.1*)
 - Infiltration feasibility analysis and documentation (refer to *Volume 3, Section 3.2*)
 - On-site stormwater management documentation and supporting calculations (if triggered). Refer to *Section 8.2*.
 - Flow control documentation and supporting calculations (if triggered). Refer to *Section 8.2*.
 - Water quality documentation and supporting calculations (if triggered)
 - Landscape management plan (if applicable). Refer to *Appendix I*.
 - Source control documentation and calculations (if required)
 - Drainage basin maps
 - Inspection and O&M requirements and schedule for stormwater BMPs and for any applicable landscape management plans

8.4. Additional Documentation

Additional information may be required by the Director based on project specifics (e.g., infeasibility evaluation, existing conditions) to allow adequate evaluation of a project for compliance with the requirements and purpose of the Stormwater Code and other laws and regulations.

Such information includes, but is not limited to:

- Soils analysis
- Geotechnical report
- Survey of existing native vegetation cover (SMC, Section 25.11.050)
- Topographic/boundary survey (SMC, Section 25.09.330)
- Environmental assessment for potentially contaminated sites
- Downstream analysis
- Upstream analysis
- Basin analysis
- Landscape management plan (See *Appendix I* for submittal requirements)
- Closed contour analysis