

~~REVIEW~~ FINAL DRAFT
VOLUME 1 -
PROJECT MINIMUM REQUIREMENTS

City of Seattle
Seattle Public Utilities
Department of Planning and Development

~~April 2014~~ September 2015

With a publication of this size and complexity there will inevitably be errors that must be corrected and clarifications that are needed. There will also be new information and technological updates. The City intends to publish correction, updates, and new technical information on our Stormwater Code website (<http://www.seattle.gov/dpd/codesrules/codes/stormwater/default.htm>). The City will not use the website to make revisions in key policy areas - such as the thresholds and minimum requirements in Volume 1. Please check this site periodically for corrections and updates.

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| DPD | Director's Rule 21-2015 |
| SPU | Director's Rule DWW-200 |

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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 2013-2018 Phase I National Pollutant Discharge Elimination System and State Waste Discharge General Permit for Discharges from Large and Medium Municipal Separate Storm Sewer Systems, modified effective January 16, 2015 (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 Ecology Permit], with reference to the Stormwater Management Manual for Western Washington (Ecology 2012~~2014~~).

The City's Stormwater Code is contained in the Seattle Municipal Code (SMC), Chapters 22.800 - 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:

- To pProtect, 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.
- To pProtect the public interest in drainage and related functions of drainage basins, watercourses, and shoreline areas.
- To pProtect 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.
- To mMeet the requirements of state and federal law and the City's municipal stormwater Phase I NPDES Municipal Stormwater pPermit.
- To pProtect the functions and values of environmentally critical areas as required under the state's Growth Management Act and Shoreline Management Act.
- To pProtect 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.

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 Department of Planning and Development (DPD) promulgate rules that provide specific technical requirements, criteria, guidelines, and additional information. This Directors' Rule consists of a five-volume City Stormwater Manual and ~~eight~~ 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 ~~eight~~ nine appendices:

- *Appendix A: Definitions* provides terminology for all five volumes of the Stormwater Manual.
- *Appendix B: Background Information on Chemical Treatment* provides supplemental information for Volume 2 (Construction Stormwater Control).
- *Appendix C: On-site Stormwater Management Infeasibility Criteria* provides a list of criteria to be evaluated for on-site stormwater management.
- *Appendix D: Subsurface ~~Characterization~~ Investigation and Infiltration Testing for Infiltration ~~Facilities~~ BMPs* describes subsurface ~~characterization~~ report requirements, geotechnical explorations, four infiltration testing methods (Simple Test, Small Pilot Infiltration Test (PIT), large PIT, and deep ~~Underground Injection Control~~ (UIC) infiltration test), infiltration rate correction factors, groundwater monitoring, and groundwater mounding analysis.

- *Appendix E: Additional Design Requirements* 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 ~~facilities~~ BMPs and components.
- ~~*Appendix H: Integrated Pest Management Plan* provides supplemental information for Volume 4 (Source Control).~~ *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 IH: Integrated Pest Management Plan* provides supplemental information for 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 standard and comprehensive drainage review minimum submittal requirements.

CHAPTER 2 – DETERMINING MINIMUM REQUIREMENTS

Per the Stormwater Code (SMC, Section 22.801.170), "project" means "the addition or replacement of ~~impervious~~ hard surface or the undertaking of ~~land-disturbing~~ land-disturbing activity on a site." A hard surface is defined as an impervious surface, a permeable pavement, or a vegetated roof. 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 ~~impervious~~ 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 ~~must~~ 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). ~~These seven steps are described in further detail below.~~

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

The boundaries of the project site ~~must~~ shall contain the discharge point, all ~~land~~ land-disturbing activities, and all new and replaced ~~impervious~~ hard surfaces. The boundary of the public right-of-way ~~shall~~ typically forms the boundary between ~~portions of the site that can be defined as separate~~ 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 ~~but the lot or parcel that triggered~~ associated with the right-of-way or utility improvements. Defining project boundaries will help identify ~~establish~~ the project type(s) in Step 2.

2.2. Step 2 – Identify the Type of Project

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

1. A **single-family residential (SFR) project** (Figure 2.1) is defined in the Stormwater Code (SMC, Section 22.801.200) as:
 - o A project that constructs one single-family 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) per-pursuant to SMC, Section 23.30.010.
 - o The total new plus replaced impervious-hard surface is less than 10,000 square feet, and:-
 - o The total new plus replaced pollution-generating impervious-hard surface (PGIS/PGHS) is less than 5,000 square feet.

Note that projects with 10,000 square feet or more of new plus replaced impervious-hard surface each, or more than 5,000 square feet of PGIS/PGHS each, are considered parcel-based projects.

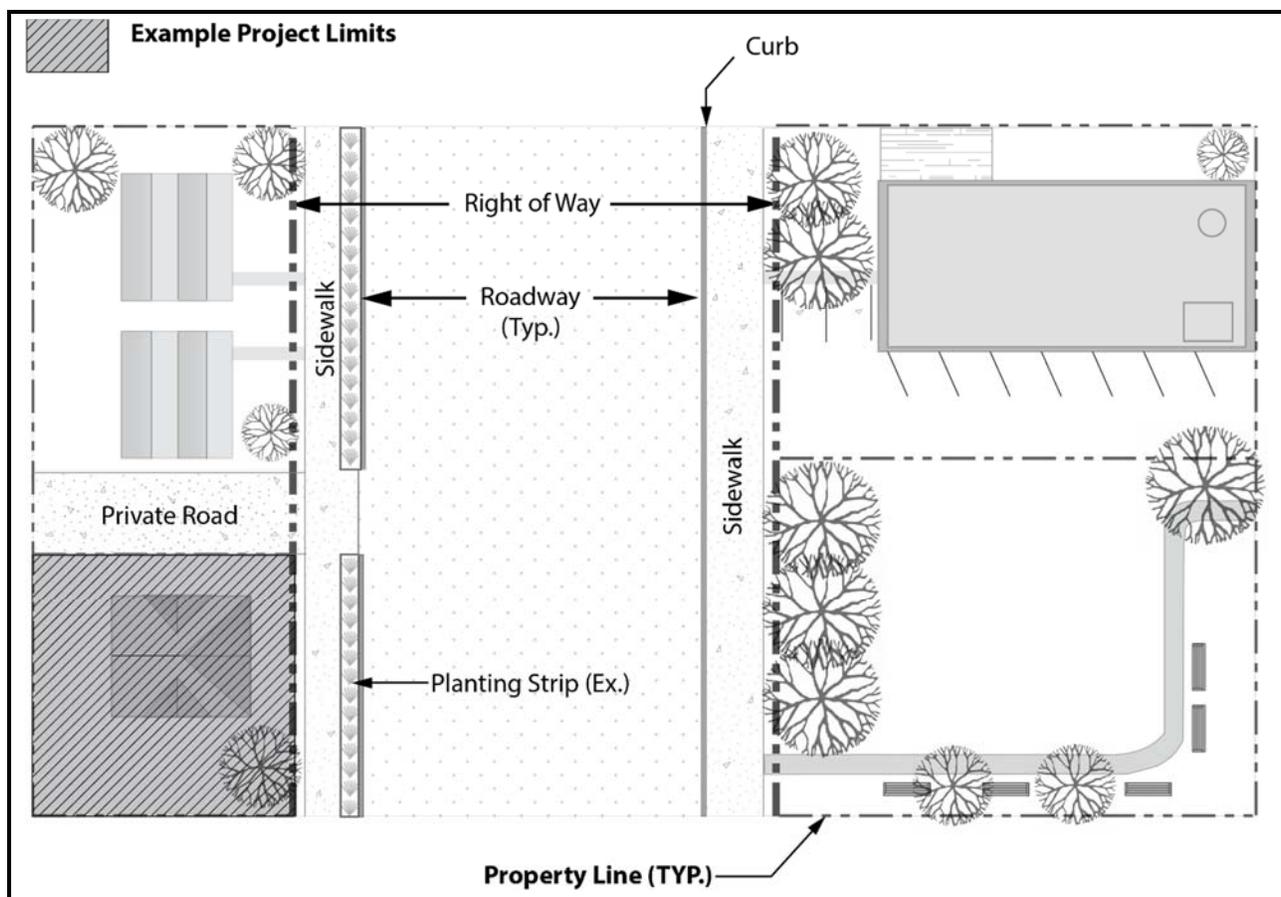


Figure 2.1. Single-family Residential Project Site Definition.

2. A sidewalk project (Figure 2.2) is defined as 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 ~~exclusively involves the creation of a new or replacement of an existing sidewalk, including any associated planting strip, curb, or gutter~~ (SMC, Section 22.801.200).
3. A trail project (Figure 2.3) is defined as a project ~~exclusively involves~~ for the creation of a new trail or replacement of an existing trail, which does not contain ~~PGIS~~ PGHS (SMC, Section 22.801.210).

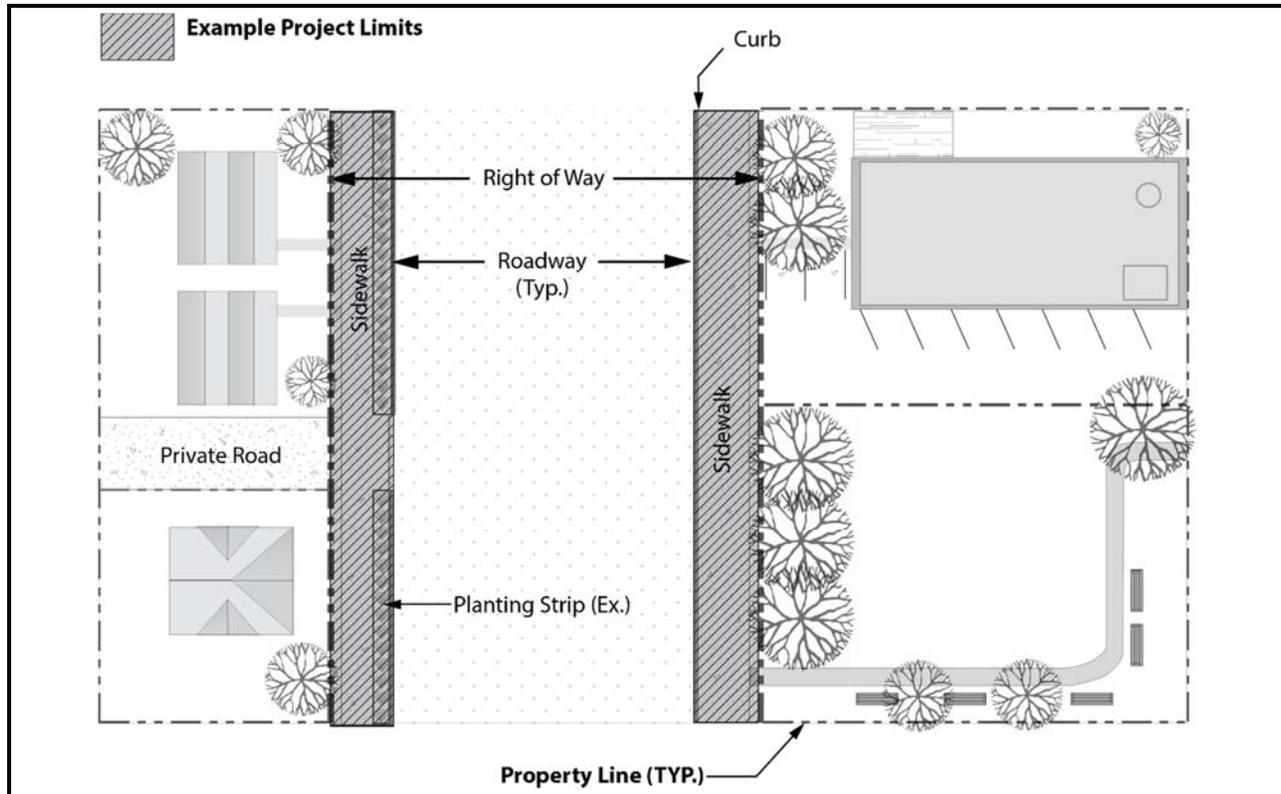


Figure 2.2. Sidewalk-only Project Site Definition.

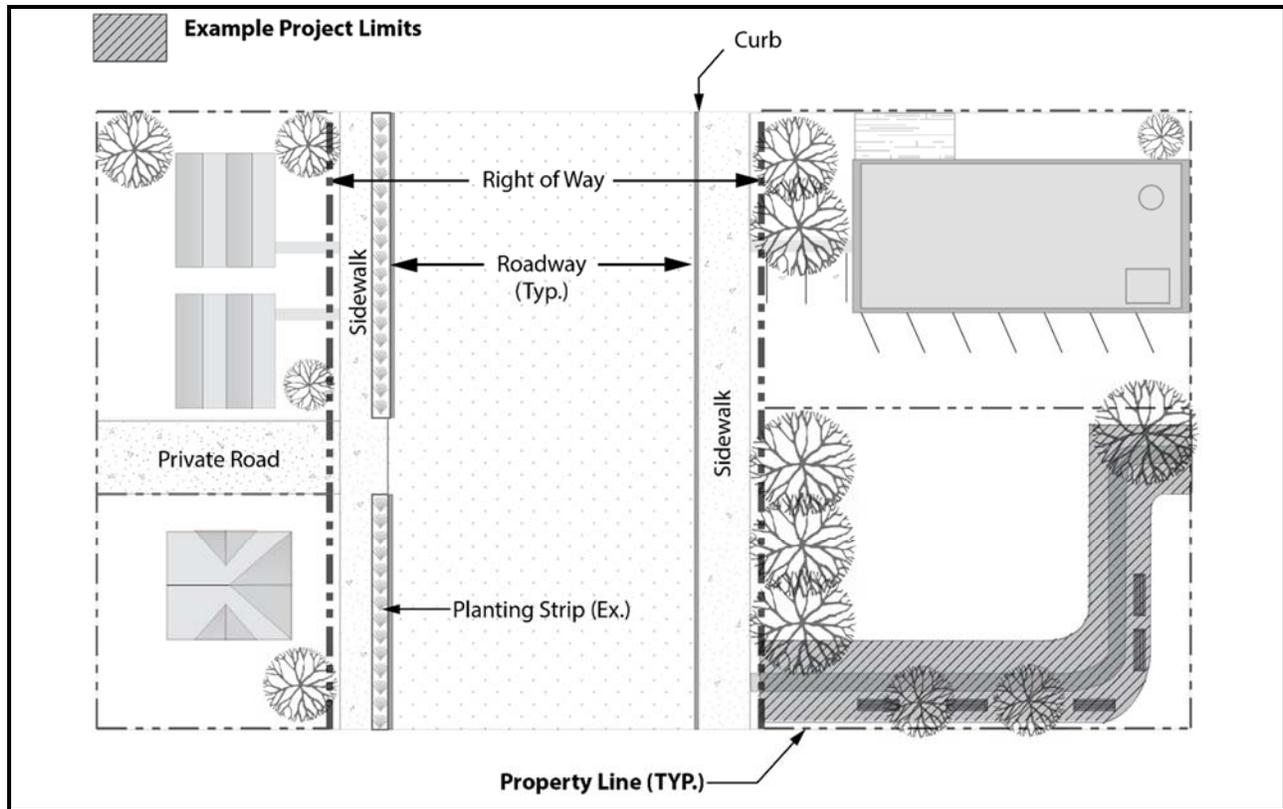


Figure 2.3. Trail Project Definition.

4. A roadway project (Figure 2.4) is defined as a project ~~is~~ located in the public right-of-way and 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 (SMC, Section 22.801.190). A roadway project can also include other improvements located in the public right-of-way.

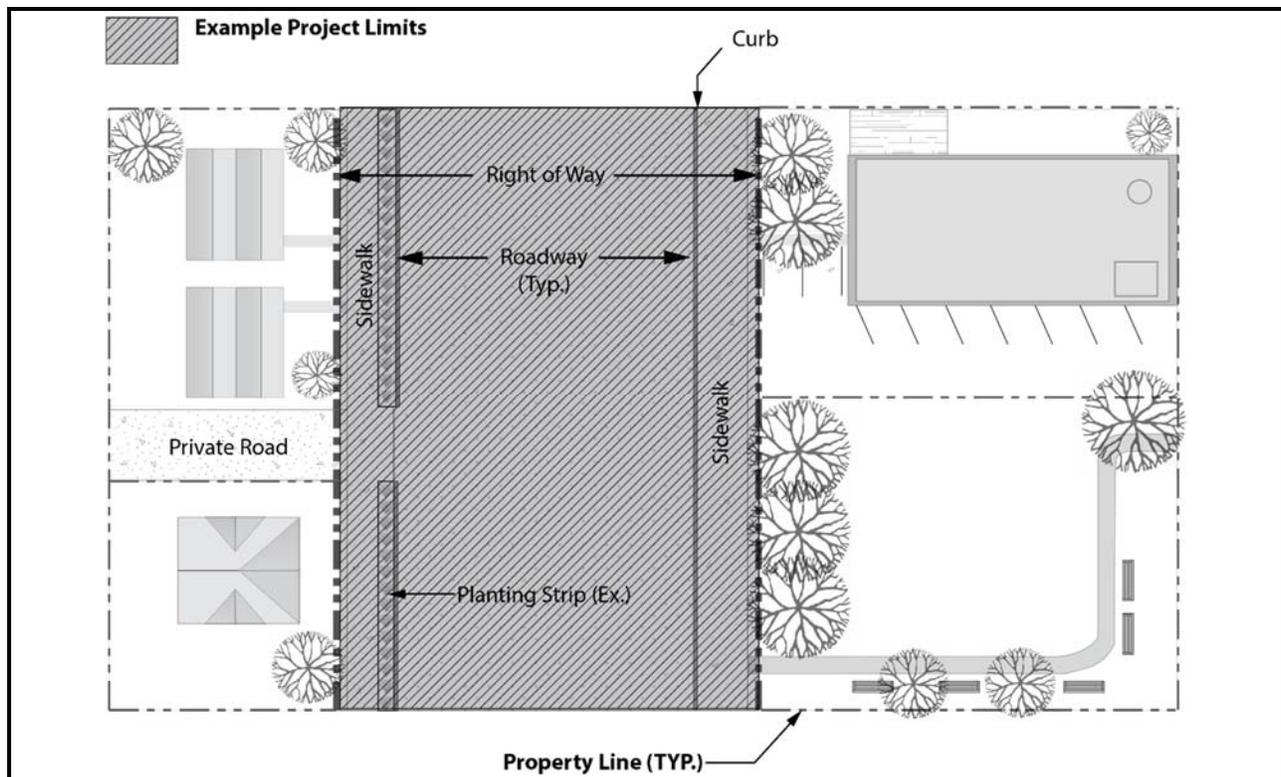


Figure 2.4. Roadway Project Site Definition.

5. A **parcel-based project** (Figure 2.5) means any project that is not a single-family residential project, roadway project, sidewalk project, or trail project, ~~or an exempt project~~. The boundary of the public right-of-way shall form the boundary between the parcel and roadway portions of a project (SMC, Section 22.801.170). Examples include commercial developments and multi-family developments.
6. ~~A~~ For the purposes of this Manual, a utility project (land-disturbing activity not required to comply with requirements as stated in SMC, Section 22.800.040.A.2) includes maintenance, repair, or installation of underground or overhead utility facilities, such as, but not limited to, pipes, conduits, and vaults, and ~~replaces that includes replacing~~ the ground surface with in-kind material or materials with similar runoff characteristics.
7. For the purposes of this Manual, a road pavement maintenance project (land-disturbing activity not required to comply with requirements as stated in SMC, Section 22.800.040.A.2) is limited to ~~includes~~ the following ~~road~~ maintenance ~~practices~~ activities:
 - o Pothole and square cut patching
 - o Overlaying existing asphalt, concrete, or brick pavement with asphalt or concrete without expanding the area of coverage
 - o Shoulder grading
 - o Reshaping or regrading drainage ditches
 - o Crack sealing
 - o Vegetation maintenance

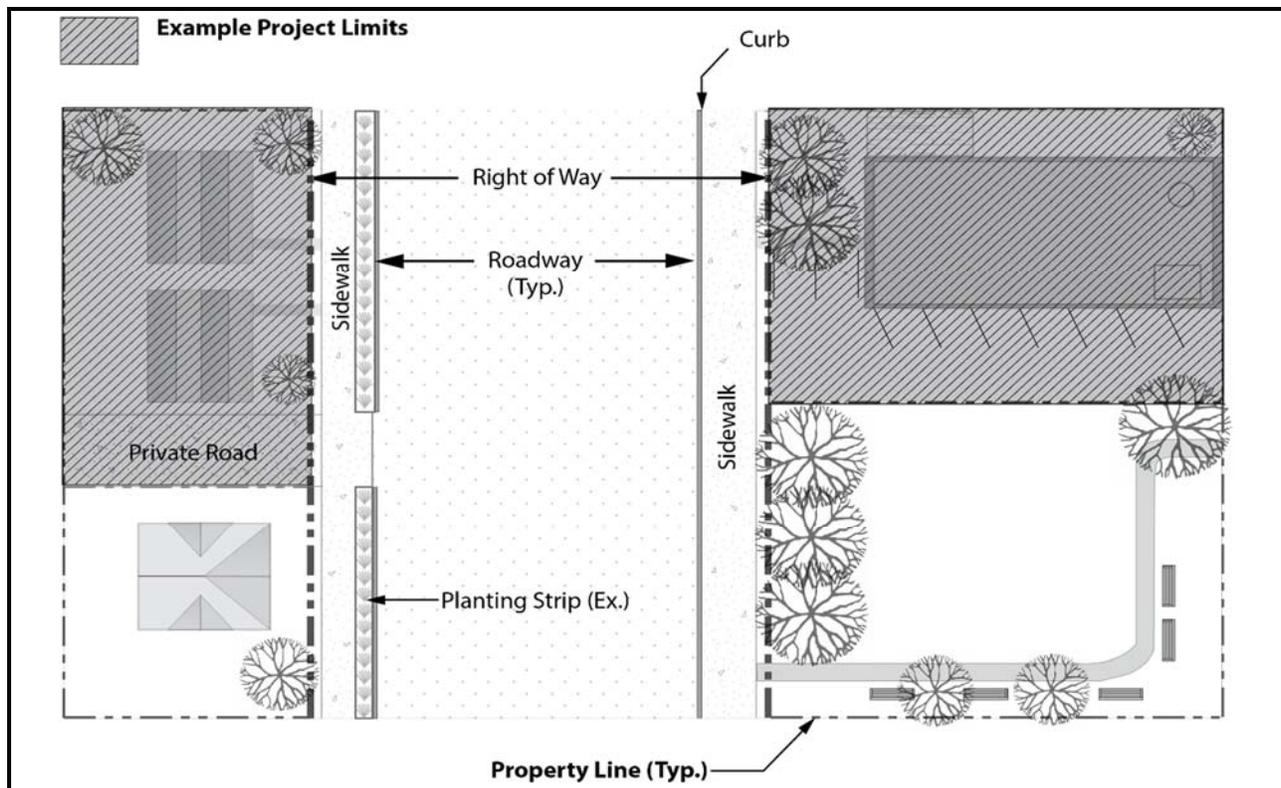


Figure 2.5. Parcel-based Project Site Definition.

8. For the purposes of this Manual, a Washington State Department of Transportation (WSDOT) project (which shall manage stormwater as stated in SMC, Section 22.800.040.A.6) includes state-WSDOT roadway projects within highway-state rights-of-way under WSDOT control within the jurisdiction of the City.
9. Special circumstances projects do not closely fit a defined project type and require a case-by-case review (refer to *Section 4.8*).

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 drainage-system into which the project site discharges. The project proponent must-shall determine 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).

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. In addition, the sequence of the discharge should also be noted (for example projects discharging to drainage system within a creek basin that then discharge to a designated receiving water must meet the requirements applicable to creek basins). An overview of the types of receiving waters and drainage-systems in Seattle is provided below:

- Wetlands: ~~are~~ designated under SMC, Section 25.09.020.
- Creek Basins: include stream basins throughout Seattle (Figures 2.6 and 2.7), ~~which are~~ generally referred to as “creek basins.” Discharges are to the creek or the associated drainage basin (example: SMC, Section 22.805.050.C.2).
- ~~The~~ Public Combined Sewer: ~~is~~ a publicly owned and maintained system that carries drainage water and wastewater to a publicly owned treatment works (SMC, Section 22.801.170) (Figure 2.8). Discharges are to the public combined sewer or its associated basin.
- Small Lake Basins: in Seattle these include Bitter Lake, Green Lake, and Haller Lake (Figures 2.6 and 2.7). Discharges are to the small lake or the associated drainage basin.
- Designated Receiving Waters: includes 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 Seattle Public Utilities (SPU) and approved by Ecology as having sufficient capacity to receive drainage discharges ~~of drainage water~~ (Figures 2.9 and 2.10). Discharges are to the designated receiving water or its associated drainage basin.

Capacity constraints in any downstream conveyance can modify the flow control requirements for discharges:

- A Capacity-constrained System is a drainage system or a public combined sewer that the Director of SPU has determined to have inadequate capacity to carry drainage water existing and anticipated loads, or a public drainage system to which groundwater is permanently discharged, and the informal drainage system that (includes ~~ing~~ ditches and culverts). Discharges are to the capacity-constrained system or its associated basin.

2.4. Step 4 – Perform Site Assessment and Planning

After the applicable minimum requirements have been identified, each project ~~must~~ 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 ~~must~~ shall be addressed in association with stormwater management requirements. This step ~~must~~ 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
- Soil conditions and infiltration capacity
- Critical area issues (e.g., flood plains, landslide prone areas, and site contamination)
- Groundwater elevations

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*). Once the site conditions are known and the applicable minimum requirements have been identified, proceed to *Volume 3* [↗](#) *Chapters 3, 4, and 5* to begin the BMP selection and design process.

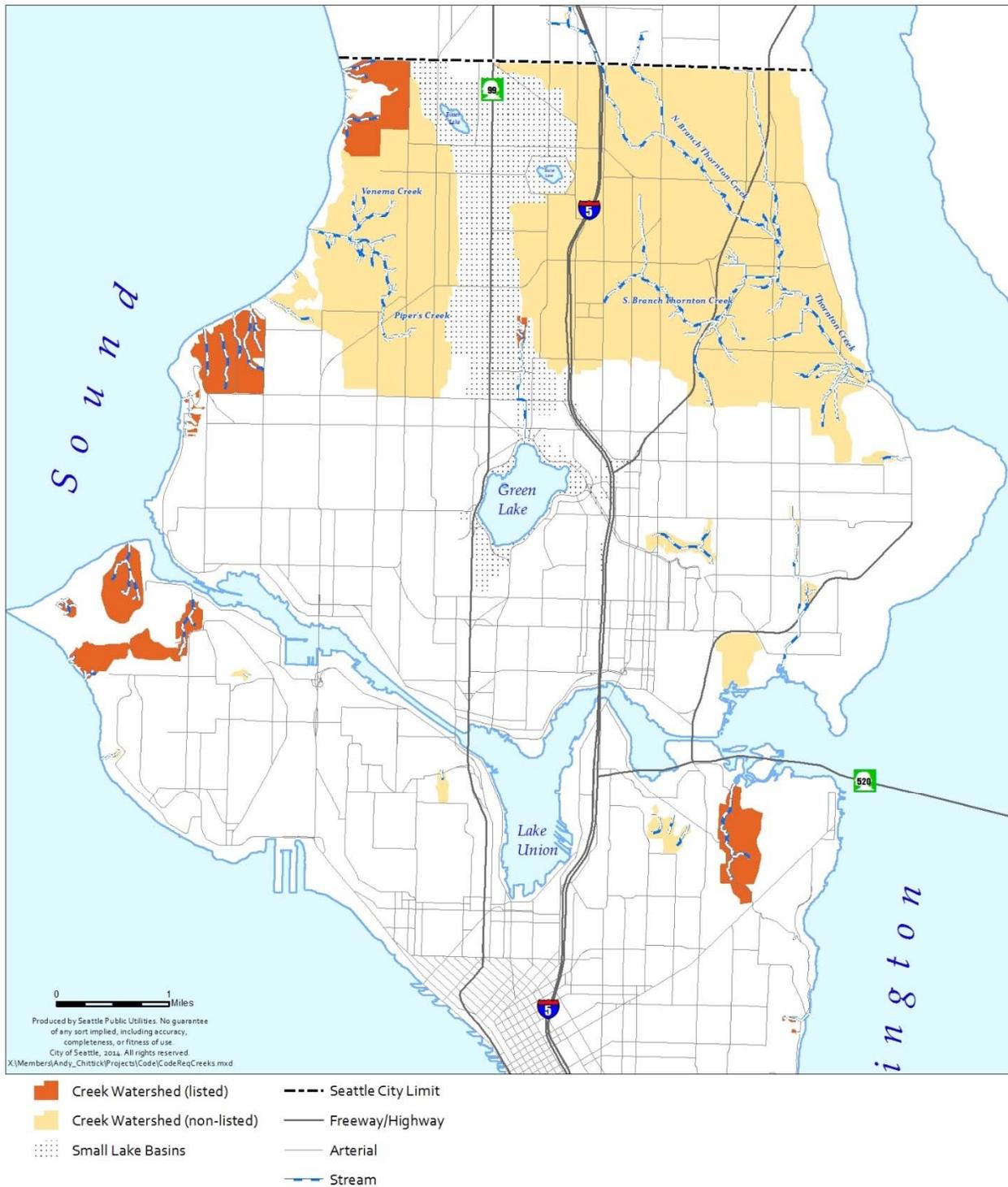


Figure 2.6. North End Creek and Small Lake Basins.

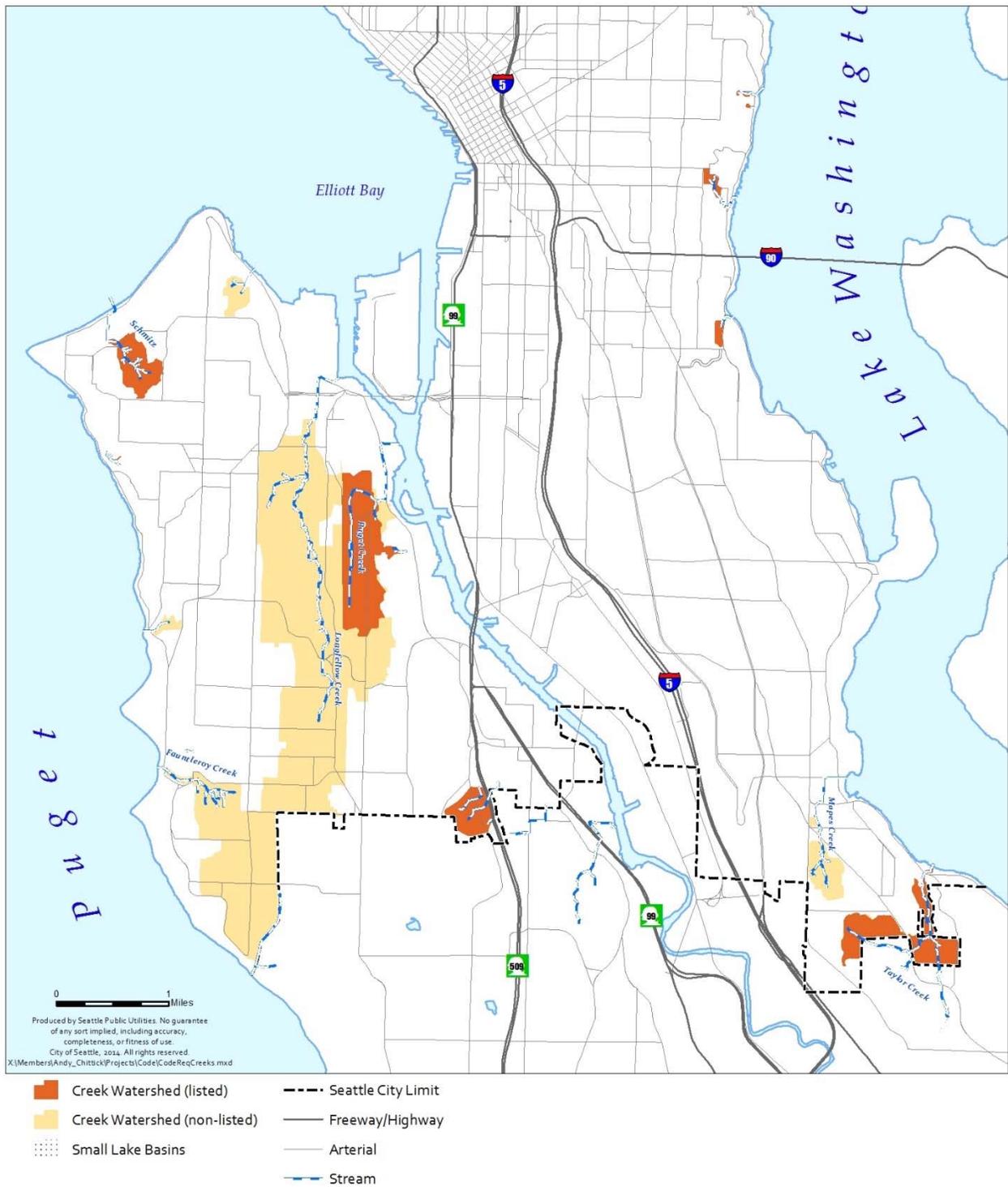


Figure 2.7. South End Creek and Small Lake Basins.

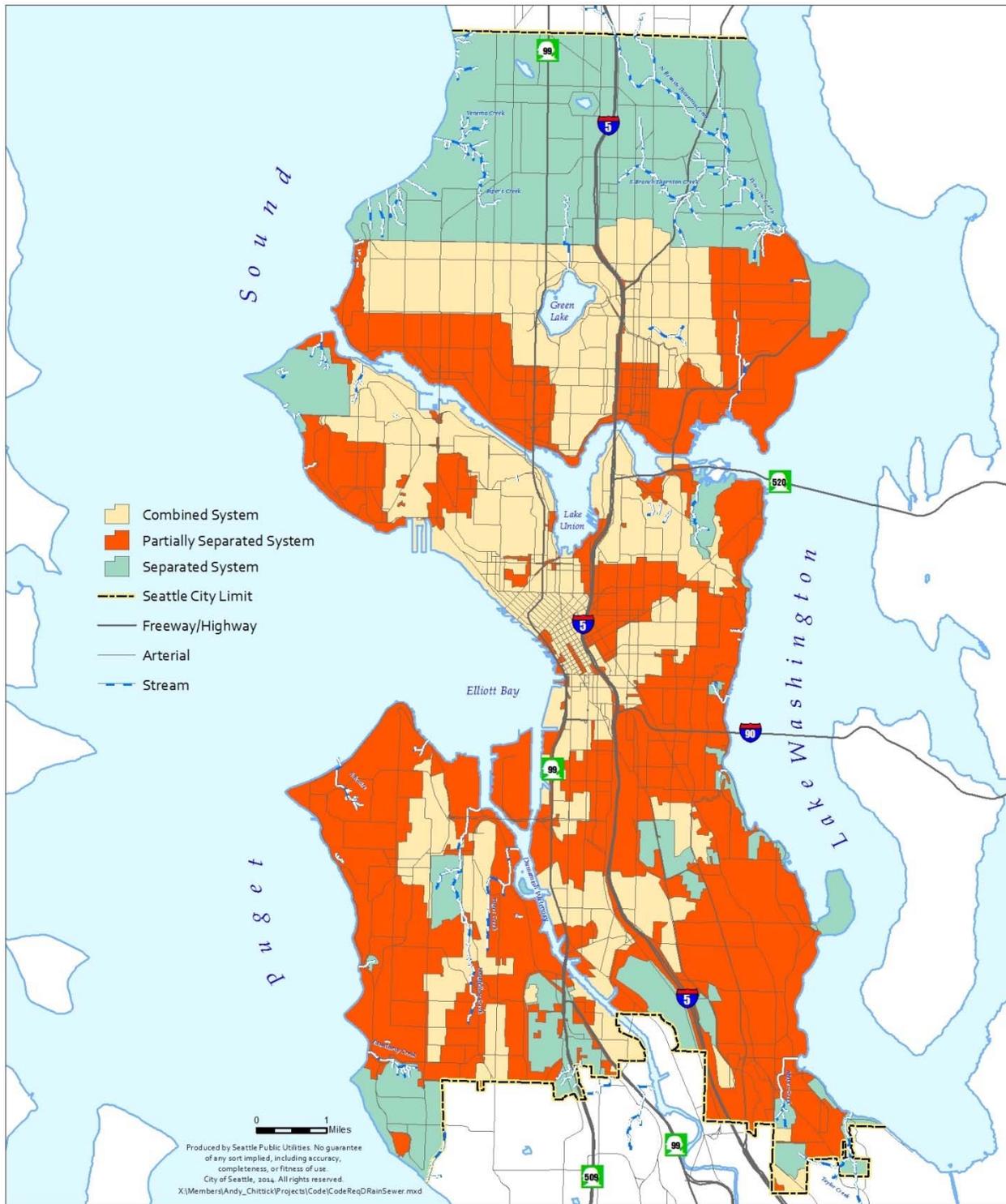


Figure 2.8. Public Combined Sewer Basins.

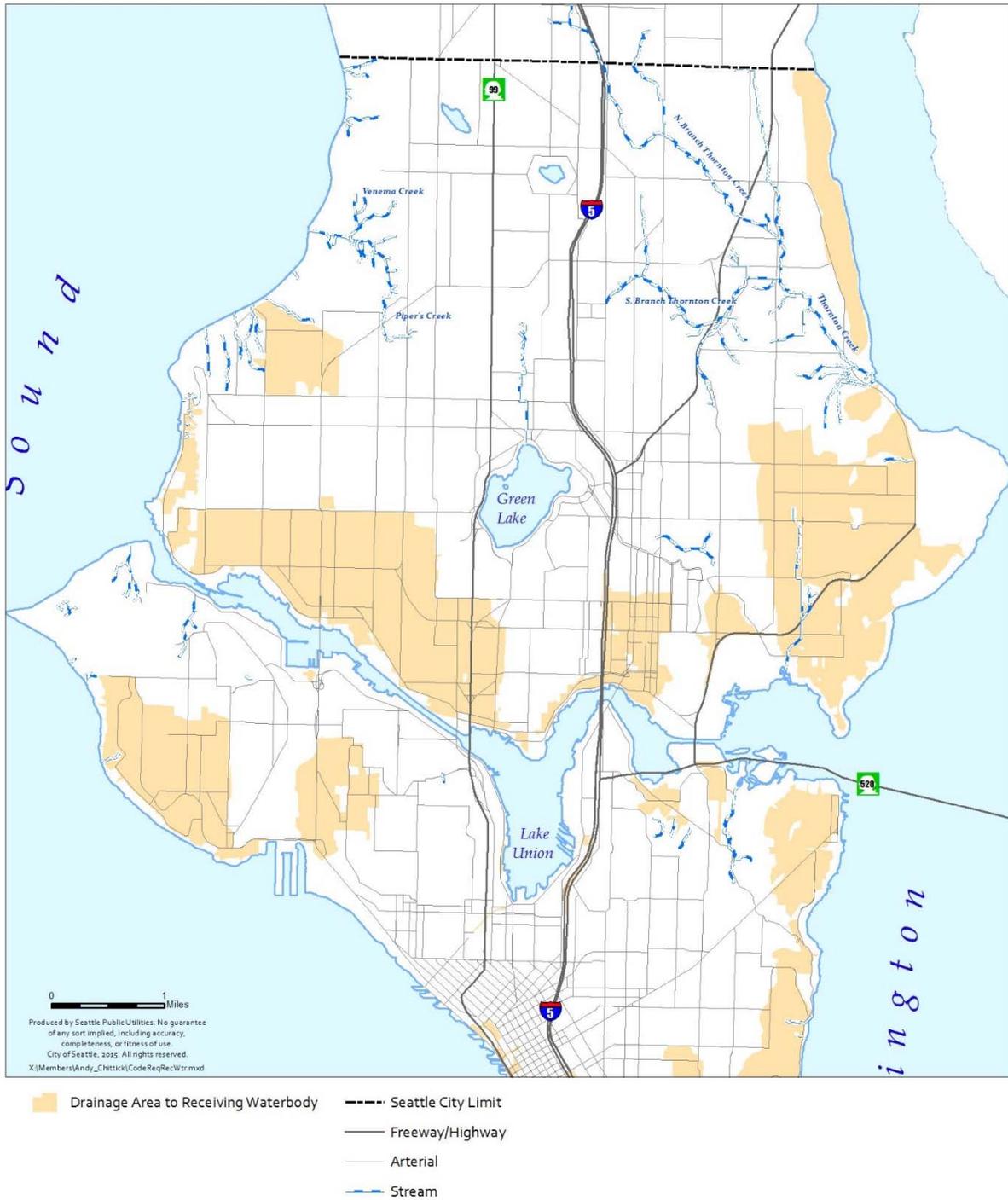


Figure 2.9. North End Designated Receiving Water Drainage Areas.

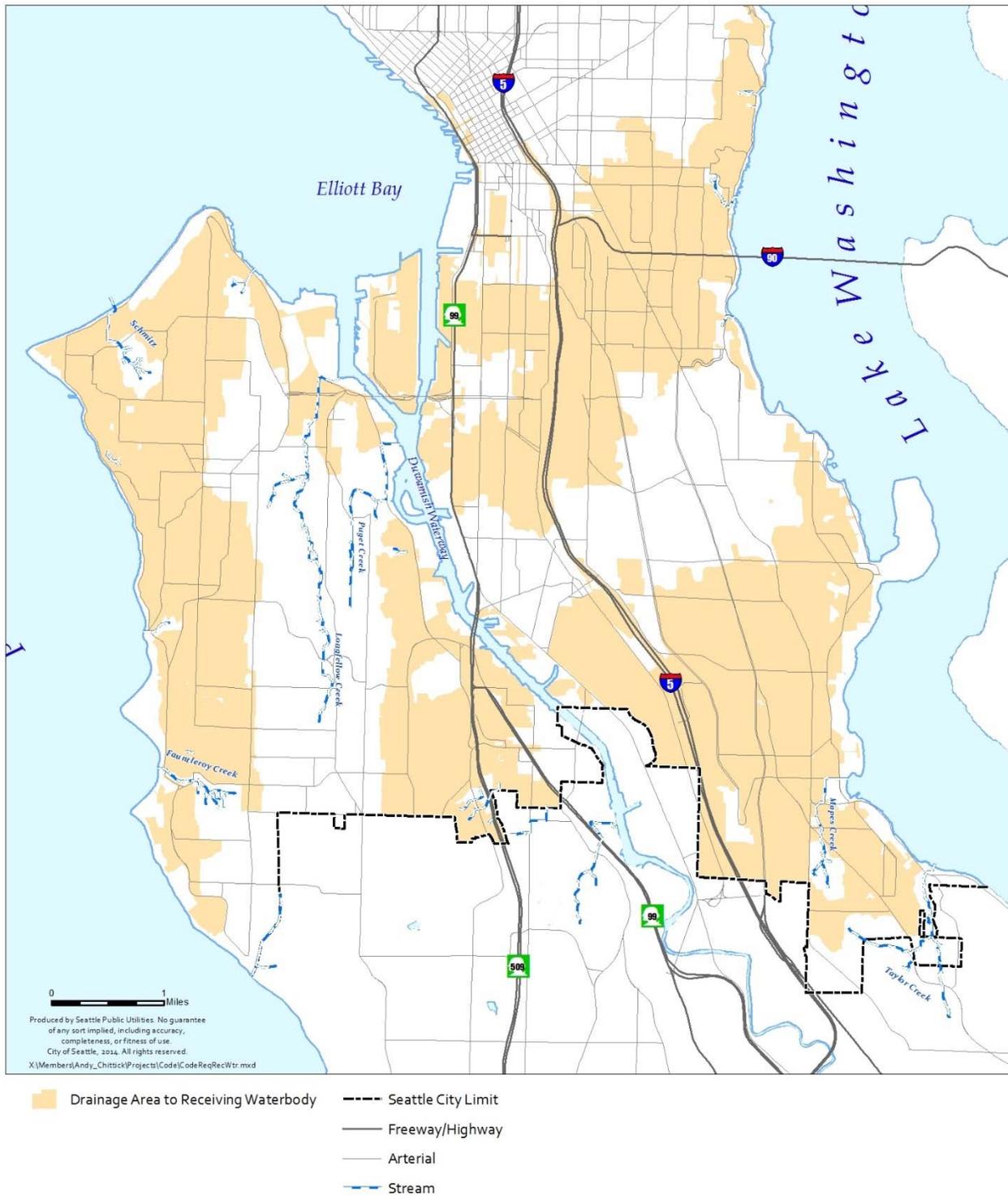


Figure 2.10. South End Designated Receiving Water Drainage Areas.

2.5. Step 5– Calculate New Plus Replaced ~~Impervious~~ Hard Surface and Native Vegetation Conversion

The thresholds triggering specific Minimum Requirements for Flow Control are based on the amount of the project's new plus replaced ~~impervious~~ hard surface and converted native vegetation.

Note that open, uncovered retention or detention facilities shall not be considered as impervious 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. Permeable pavement, vegetated roof systems, and areas with underdrains (e.g., playfields, athletic fields, rail yards) shall be considered as impervious surfaces for the purposes of determining whether the minimum requirement thresholds are exceeded. 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 ~~must~~ shall also be calculated.

New plus replaced ~~impervious~~ 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 ~~PGIS-PGHS~~ and new plus replaced pollution-generating pervious surface (PGPS). ~~PGIS-PGHS~~ and PGPS include areas that are considered to be a significant source of pollutants in stormwater runoff. Examples of pollution-generating surfaces include areas subject to vehicular use (including permeable pavement); certain industrial activities; ~~and~~ outdoor storage of erodible or leachable materials, wastes, or chemicals; lawns, landscaping areas, golf courses, parks, cemeteries, and sports fields (natural and artificial turf). Metal roofs are also considered to be ~~PGIS~~ a pollution-generating surface unless ~~they are~~ coated with an inert, non-leachable material (e.g., baked-on enamel coating). ~~Examples of PGPS include lawns and landscaping areas subject to the use of fertilizers and pesticides.~~ Refer to SMC, Section 22.801 and *Appendix A* for detailed definitions of these key terms.

New plus replaced ~~PGIS-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 ~~other~~ minimum requirements applicable to all projects 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)

~~An overview of the other minimum requirements applicable to all projects types is included in Chapter 3.~~

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 each section. The second column in each section provides applicable references for further information on how to meet the requirement. 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><i>SMC 22.805.020.A - 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 discharges from sites shall not cause a significant adverse impact to receiving channels or riparian properties. Drainage water retained on the site shall not cause significant adverse impact to up-gradient properties.</i></p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • Volume 1, Section 3.2 (SMC, Section 22.805.020.B) – Minimum Requirements for Discharge Point • Volume 3, Section 3.4.3 – BMP Selection for On-site Stormwater Management • Volume 3, Section 3.4.2 – BMP Selection for Flow Control |

3.2. Discharge Point

| Stormwater Code Language | References |
|--|--|
| <p><i>SMC 22.805.020. B - The point of discharge 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 sufficient for the site and volume. For all projects meeting the criteria, the proposed point of discharge shall be identified in the drainage control plan required by this subtitle, for review and approval or disapproval by the Director.</i></p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • Volume 3, Section 4.3.2-4.5.2 – <u>Discharge and Overflow Design Approved Point of Discharge</u> |

3.3. Flood-prone Areas

| Stormwater Code Language | References |
|--|---|
| <p><i>SMC 22.805.020.C - 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 the Seattle Municipal Code and rules promulgated thereunder, including, but not limited to, Chapter 23.60 (Shoreline Master Program), Chapter 25.06 (Floodplain Development) and Chapter 25.09 (Environmentally Critical Areas) of the Seattle Municipal Code.</i></p> <p>Final code language to be added to final manual</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 (SMC, Section 22.805.020.D). These 19 elements include:

1. Mark Clearing Limits and Environmentally Critical Areas
2. Retain Top Layer
3. Establish Construction Access
4. Protect Downstream Properties and Receiving Waters
5. Prevent Erosion and Sediment Transport from the Site
6. Prevent Erosion and Sediment Transport from the Site by Vehicles
7. Stabilize Soils
8. Protect Slopes
9. Protect Storm Drains
10. Stabilize Channels and Outlets
11. Control Pollutants
12. Control Dewatering
13. Maintain BMPs
14. Inspect BMPs
15. Execute Construction Stormwater and Erosion Control Plan
16. Minimize Open Trenches
17. Phase the Project
18. Install Flow Control and Water Quality Facilities
19. Protect Stormwater BMPs

| Stormwater Code Language | References |
|--|--|
| <p>SMC 22.805.020.D - Temporary and permanent construction controls shall be used to accomplish [the 19 construction site stormwater pollution prevention plan (CSPPP) or CSPPP equivalent] for projects in Volume 2, Construction Stormwater Control. All projects are required to meet each of the elements of the CSPPP, unless it 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.</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • Volume 2, Chapter 3 – Selecting Construction Stormwater Controls • (SMC, Section 22.805.020.D) – Minimum Requirements for Construction Site Stormwater Pollution Prevention Control |

3.5. Protect Wetlands

| Stormwater Code Language | References |
|--|---|
| <p>SMC 22.805.020.E- All projects discharging into a wetland or its buffer, either directly or indirectly through a stormwater conveyance system, shall select, design, construct, and maintain stormwater controls that will prevent or minimize stormwater impacts to wetlands that would result in a net loss of functions or values.</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • SMC, Chapter 25.09 – Environmentally Critical Areas • Guide sheets 1 through 3 in the SWMMWW Volume I, Appendix I-D (Ecology 20142) |

3.6. Protect Streams and Creeks

| Stormwater Code Language | References |
|--|---|
| <p>SMC 22.805.020.F- All projects, including projects discharging directly to a stream or creek, or to a drainage system that discharges to a stream or creek, shall select, design, construct, and maintain stormwater controls that will prevent or minimize stormwater impacts to streams and creeks by selecting, designing, constructing, and maintaining temporary and permanent controls.</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • None provided |

3.7. Protect Shorelines

| Stormwater Code Language | References |
|--|---|
| <p>SMC 22.805.020.G - All projects discharging directly or indirectly through a drainage system into the shoreline district as defined in Chapter 23.60 shall select, design, construct, and maintain stormwater controls that will prevent or minimize stormwater impacts to shorelines as defined in WAC 173-26-020(11).</p> <p><i>Final code language to be added to final manual</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><i>SMC 22.805.020.H - 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 point of discharge of the site. Sites at which there is insufficient capacity may be required to install conveyance facilities to the public combined sewer to a point of discharge 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"> <i>1. 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> <i>2. 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"> • Volume 3, Section 4.3 – Conveyance General Design Requirements • Appendix F – Hydrologic Analysis and Design • CAM 1180 – Design Guidelines for Public Storm Drain Facilities |

3.9. Install Source Control BMPs

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC 22.805.020.I - Source control BMPs shall be installed for specific pollution-generating activities as specified in the joint SPU/DPD Directors' Rule, "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. The following:</i></p> <ol style="list-style-type: none"> <i>1. A roof, awning, or cover erected over the pollution-generating activity area;</i> <i>2. 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> <i>3. 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> | <ul style="list-style-type: none"> • Volume 4 – Source Control |

| Stormwater Code Language | References |
|---|------------|
| <ol style="list-style-type: none"> 4. Construct a berm or dike to enclose or contain the pollution-generating activities; 5. 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; 6. 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 7. Prevent precipitation from flowing or being blown onto containment areas of pollution-generating activities. | |

3.10. Do Not Obstruct Watercourses

| Stormwater Code Language | References |
|---|---|
| <p><i>Final code language to be added to final manual</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 Department of Planning and Development (DPD) 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-</p> <ol style="list-style-type: none"> 1. All privately owned and operated drainage control facilities or systems, whether or not they discharge to a public drainage system, shall be subject to Chapter 21.16 (Side Sewer Code), SPU Director's Rule 21-2015-001, and installation specifications and permit requirements of SPU and DPD for side sewer and drainage systems. 2. 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. <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • SMC, Chapter 21.16 – Side Sewer Code • SMC, Chapter 22.808 – Stormwater Code Enforcement • Volume 5 – Enforcement |

| Stormwater Code Language | References |
|--|------------|
| <p><i>When the work is ready for inspection, the permittee shall notify the Director of DPD. If 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 DPD design and installation specifications, then the Director may issue a cease work order under Title 21.16, and require the permittee to provide corrective actions as provided in this subtitle and Chapter 21.16.</i></p> <p><i>Final code language to be added to final manual</i></p> | |

1.1. Maintenance and Inspection

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

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC 22.807.090 -</i></p> <p><i>A. The owner and other responsible party shall maintain drainage control facilities, source controls, and other facilities required by this subtitle and by rules adopted hereunder to keep these facilities in continuous working order. The owner and other responsible party 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 compliance with this subtitle. The responsible party shall inform the Director 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.</i></p> <p><i>B. 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 which</i></p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • <i>Appendix G – Stormwater Control Operations and Maintenance Requirements</i> |

| Stormwater Code Language | References |
|--|------------|
| <p><i>are 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.</i></p> <p><i>Final code language to be added to final manual</i></p> <p><i>maintenance and keep records, sampling discharges, surface water, groundwater, and material of water in drainage control facilities; and evaluating the condition of drainage control facilities and other best management practices.</i></p> | |

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 each section. The second column in each section provides applicable references. ~~Each section includes a~~ Flow charts are included in the roadway and parcel-based project sections (Sections 4.3 and 4.4) that to summarizes the key minimum requirements. Utility and pavement maintenance project types are exempt from certain minimum requirements (refer to Sections 4.5 and 4.6 for additional information). This chapter also includes a short section on WSDOT projects (Sections 4.7) and special circumstances (Sections 4.8), applicable when a project does not fit into the other project type categories listed below.

The key minimum requirements include the following:

- Soil Amendment
- On-site Stormwater Management ~~(On-site)~~
- Wetland Protection standard ~~—Flow Control Minimum Requirement #1 (FC#1) or Wetland~~
- Pre-developed Forested standard ~~—FC#2 or Forest~~
- Pre-developed Pasture standard ~~—FC#3 or Pasture~~
- Peak Control standard ~~—FC#4 or Peak~~
- Basic Treatment ~~—Water Quality Treatment Minimum Requirement #1 (WQ#1) or Basic~~
- Oil Treatment ~~—WQ#2 or Oil~~
- Phosphorus Treatment ~~—WQ#3 or Phosphorus~~
- Enhanced Treatment ~~—WQ#4 or Enhanced~~

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 impervious 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 PGIS pollution-generating hard surface (PGHS)
- The amount of new plus replaced pollution-generating pervious surface (PGPS)

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 ~~facilities-BMPs~~ since the project type, by definition, does not trigger the minimum requirements for flow control or water quality treatment.

| Stormwater Code Language | References |
|---|--|
| <p>SMC 22.805.030 –</p> <p><i>A. On-site Stormwater Management: All single-family residential projects</i></p> <p><i>Final code language to be added to final manual</i></p> <p><i>square feet of impervious surface shall meet the 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"> • Volume 1, Section 5.1 (SMC, Section 22.805.030)– Soil Amendment • Volume 1, Section 5.2 (SMC, Section 22.805.070)– On-site Stormwater Management • Volume 3, Section 3.1 – BMP Selection for On-Site Stormwater Management |

4.2. Trail and Sidewalk Projects

The applicable code language and references for trail and sidewalk projects are summarized below.

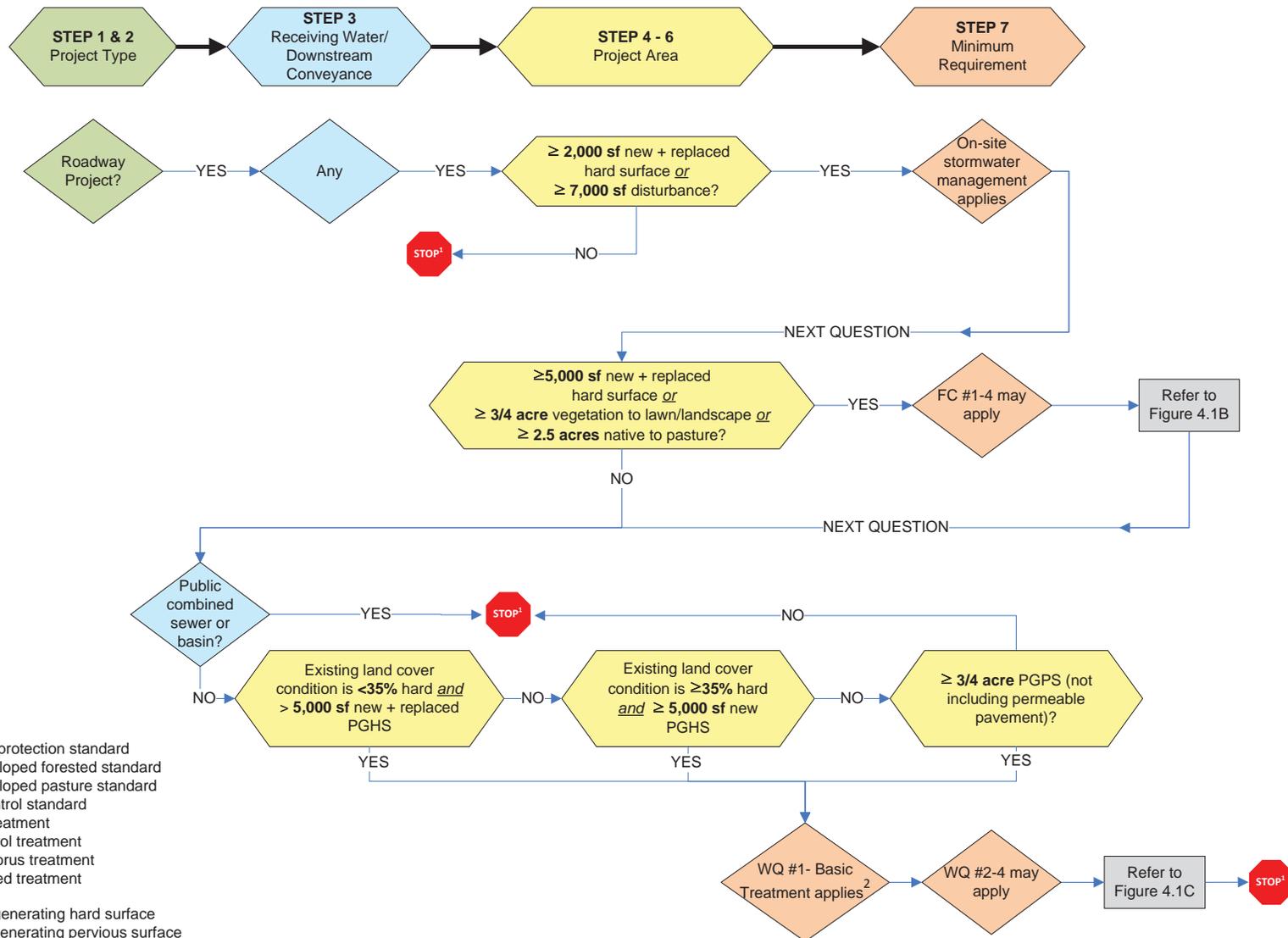
| Stormwater Code Language | References |
|--|--|
| <p>SMC 22.805.040 –</p> <p><i>Final code language to be added to final manual</i></p> <p>4. On-site Stormwater Management: All trail and sidewalk projects with 100,000 square feet or less of impervious surface or 7,000 square feet of lawn area shall meet the minimum requirements for On-site Stormwater Management contained in Section 22.805.070, to the extent allowed by law.</p> | <ul style="list-style-type: none"> • Volume 1, Section 5.1 (SMC, Section 22.805.040)– Soil Amendment • Volume 1, Section 5.2 (SMC, Section 22.805.070)– On-site Stormwater Management • Volume 3, Section 3.1 – BMP Selection for On-Site Stormwater Management |

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. This section provides a summary of the following requirements for roadway projects:

| Receiving Water/ Downstream Conveyance | Potentially Applicable Standard(s) | Reference |
|--|---|---------------------------------|
| All | Soil amendment | Section 4.3.1 |
| All | On-site stormwater management | Section 4.3.2 |
| Wetland* | Wetland protection | Section 4.3.3.1 |
| Listed creek basin* | Pre-developed forested Pre-developed pasture | Section 4.3.3.2 |
| Non-listed creek basin* | Pre-developed forested Pre-developed pasture | Section 4.3.3.3 |
| Small lake basins | Peak control | Section 4.3.3.4 |
| Public combined sewer | Peak control | Section 4.3.3.5 |
| Capacity-constrained basin | Peak control | Section 4.3.3.6 |
| Groundwater discharge to public drainage system or public combined sewer | Peak control | Section 4.3.3.7 |
| All, except public combined sewer | Water quality treatment | Section 4.3.4 |

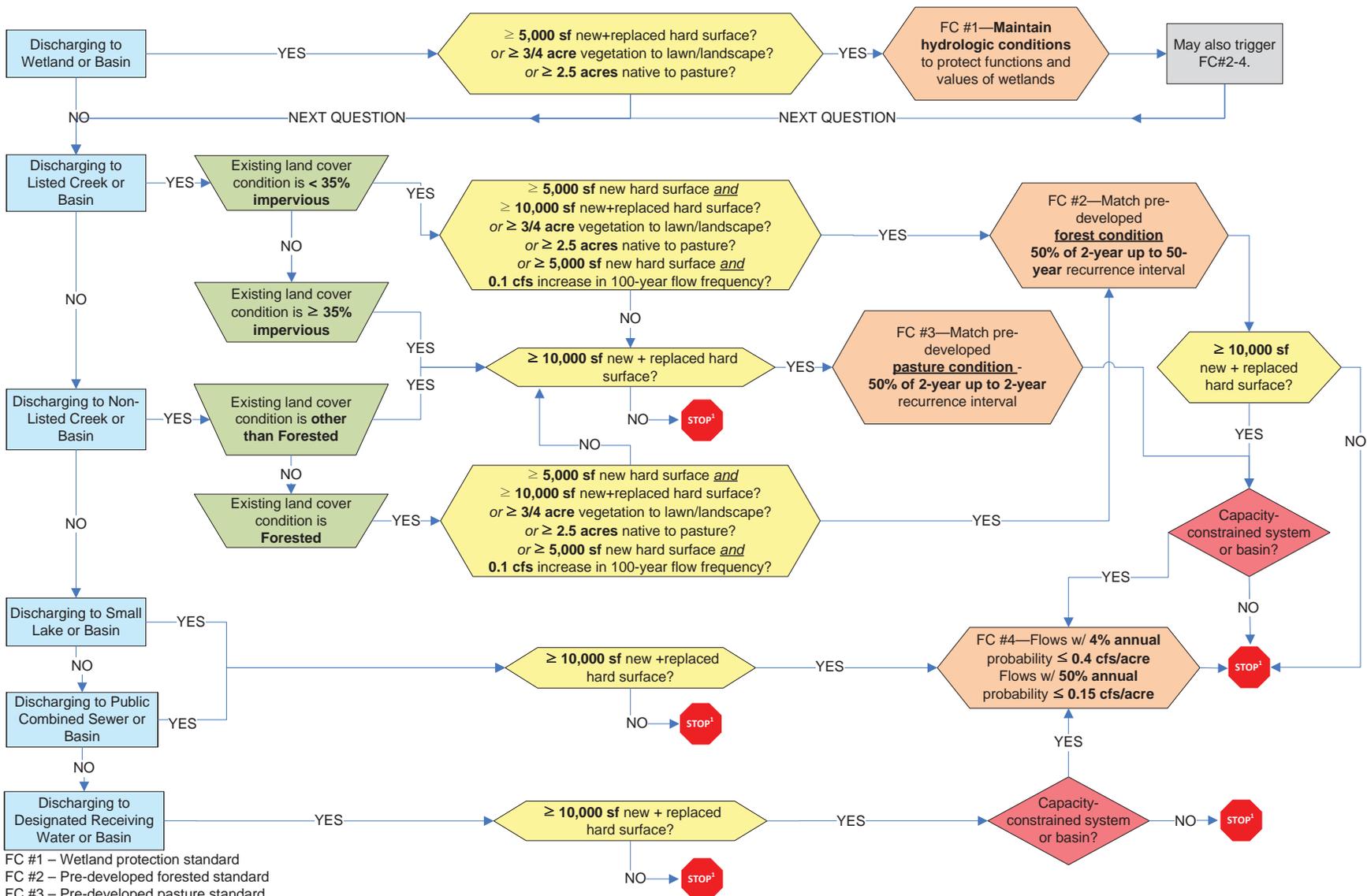
* Note: In addition to meeting a forested, pasture, or wetland protection standard, projects discharging to a capacity-constrained system will also be required to meet the peak control standard.



FC #1 – Wetland protection standard
 FC #2 – Pre-developed forested standard
 FC #3 – Pre-developed pasture standard
 FC #4 – Peak control standard
 WQ #1 – Basic treatment
 WQ #2 – Oil control treatment
 WQ #3 – Phosphorus treatment
 WQ #4 – Enhanced treatment
 sf- square feet
 PGHS- pollution generating hard surface
 PGPS- pollution generating pervious surface

1- Evaluate applicability of soil amendment requirement (refer to Chapter 5), requirements for discharges from groundwater (refer to Chapter 4), and minimum requirements for all projects (refer to Chapter 3).
 2- Evaluate if water quality treatment requirements apply to all PGHS or only to new PGHS (refer to SMC 22.805.060.D2.)

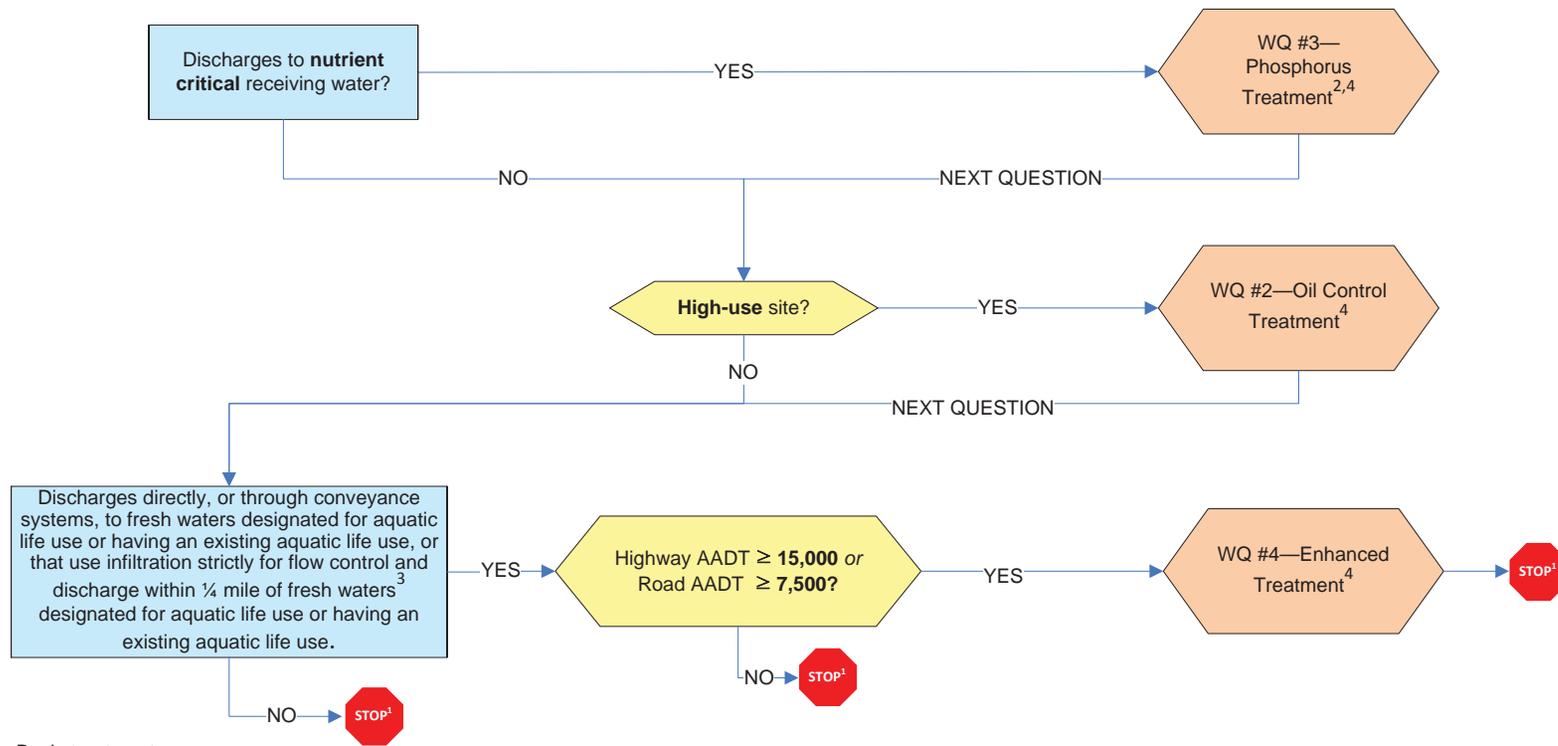
Figure 4.1A. Project Minimum Requirement Overview Flow Chart for Roadway Projects.



FC #1 – Wetland protection standard
 FC #2 – Pre-developed forested standard
 FC #3 – Pre-developed pasture standard
 FC #4 – Peak control standard
 sf- square feet
 PGHS- pollution generating hard surface
 PGPS- pollution generating pervious surface

1- Evaluate applicability of soil amendment requirement (refer to Chapter 5), requirements for discharges from groundwater (refer to Chapter 4), and minimum requirements for all projects (refer to Chapter 3).

Figure 4.1B Flow Control Minimum Requirements for Roadway Projects.



WQ #1 – Basic treatment
 WQ #2 – Oil control treatment
 WQ #3 – Phosphorus treatment
 WQ #4 – Enhanced treatment
 PGHS- pollution generating hard surface
 PGPS- pollution generating pervious surface
 AADT- Annual Average Daily Traffic

- 1- Evaluate applicability of soil amendment requirement (refer to Chapter 5), requirements for discharges from groundwater (refer to Chapter 4), and minimum requirements for all projects (refer to Chapter 3).
- 2- At the time this Stormwater Manual was developed, there were no established phosphorus-specific treatment requirements for project-scale treatment BMPs in Seattle. Refer to the DPD website to determine if any nutrient-critical treatment criteria apply (www.seattle.gov/dpd/codesrules/codes/stormwater/default.htm)
- 3- 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, at minimum, the following water bodies are designated for aquatic life use: small lakes, creeks, and freshwater designated receiving waters.
- 4- Evaluate if water quality treatment requirements apply to all PGHS or only to new PGHS (refer to SMC 22.805.060.D2.)

Figure 4.1C. Water Quality Treatment Minimum Requirements for Roadway Projects

4.3.1. Soil Amendment

| Stormwater Code Language | References |
|--|---|
| <p><i>SMC 22.805.060.A - 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 to comply with the rules promulgated by the Director.</i></p> | <ul style="list-style-type: none"> • Volume 1, Section 5.1 (SMC, Section 22.805.060)– Soil Amendment |

4.3.1.4.3.2. On-site Stormwater Management

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.060.B - All roadway projects with 2,000 square feet or more of new plus replaced impervious surface or 7,000 square feet or more of landscaped impervious surface shall comply with the On-site Stormwater Management rules promulgated by the Director, to the extent allowed by law.</i></p> | <ul style="list-style-type: none"> • Volume 1, Section 5.1 (SMC, Section 22.805.070)– On-site Stormwater Management • Volume 3, Section 3.1 – BMP Selection for On-site Stormwater Management |

4.3.2.4.3.3. Flow Control

4.3.2.1.4.3.3.1. Roadway Projects Discharging to Wetlands – Flow Control

| Stormwater Code Language | References |
|--|---|
| <p><i>SMC 22.805.060.C.1 - Roadway projects discharging into a wetland shall comply with subsection 22.805.080.B.1 (Wetland Protection Standard) if:</i></p> <p>a. <i>The total new plus replaced impervious surface is 5,000 square feet or more; or</i></p> <p>b. <i>The project converts 3 acres or more of vegetation to lawn or landscaped impervious surface discharge into a natural or man-made conveyance system from the site; or</i></p> <p>c. <i>The project converts 2.5 acres or more of vegetation to pasture and from which there is a surface discharge into a natural or man-made conveyance system from the site.</i></p> | <ul style="list-style-type: none"> • SMC, Section 22.805.080.B.1 – Wetland Protection Standard • Volume 1, Section 3.5 – Protect Wetlands • Guide sheets 1 through 3 in the SWMMWW Volume I, Appendix I-D (Ecology 2014²) |

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

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.060.B.2 - Roadway projects discharging into Blue Ridge Creek, Broadview Creek, Discovery Park Creek, Durham Creek, Frink Creek, Green Creek, Pease Creek, Redmond Creek, Redmond Springs Creek, Madrona Park Creek, Madrona Park Creek, Mount Baker Park Creek, Puget Creek, Riverview Creek, Schmitz Creek, Taylor Creek, or Washington Park Creek shall:</i></p> | <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 • Figure 2.6 – North End Creek and Small Lake Basins |

| Stormwater Code Language | References |
|---|---|
| <p>a. Comply with subsection 22.805.080.B.2 (Pre-developed Forested Standard) if the existing impervious coverage is less than 35 percent and one or more of the following apply:</p> <ol style="list-style-type: none"> 1. The project adds 5,000 square feet or more of new impervious surface and the total new plus replaced impervious surface is 10,000 square feet or more; or 2. The project converts 3/4 acres or more of vegetation to lawn or landscaped areas and from which there is a surface discharge into a natural or man-made conveyance system from the site; or 3. The project converts 2.5 acres or more of vegetation to pasture and from which there is a surface discharge into a natural or man-made conveyance system from the site; or 4. The project adds 5,000 square feet or more of new impervious surface and, through a combination of effective impervious surfaces and converted pervious surfaces, causes a 0.1 cubic feet per second increase in the 100-year recurrence interval flow frequency as estimated using a continuous model approved by the Director. <p>b. Comply with subsection 22.805.080.B.3 (Pre-developed Pasture Standard) if the criteria in subsection 22.805.060.B.2.a do not apply and the total new plus replaced impervious surface is 10,000 square feet or more.</p> | <ul style="list-style-type: none"> • Figure 2.7 – South End Creek and Small Lake Basins • Volume 3, Section 3.4 – BMP Selection for Flow Control • Volume 3, Section 4.1 – Sizing Approach |

Final code language to be added to final manual

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

| Stormwater Code Language | References |
|--|--|
| <p>SMC 22.805.060.B.3 - Roadway projects discharging into a creek not listed in subsection 22.805.060.B.2 shall:</p> <p>a. 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:</p> <ol style="list-style-type: none"> 1. The project adds 5,000 square feet or more of new impervious surface and the total new plus replaced impervious surface is 10,000 square feet or more; or 2. The project converts 3/4 acres or more of vegetation to lawn or landscaped areas and from which there is a surface discharge into a natural or man-made conveyance system from the site; or 3. The project converts 2.5 acres or more of vegetation to pasture and from which there is a surface discharge into a natural or man-made conveyance system from the site; or 4. The project adds 5,000 square feet or more of new impervious surface and, through a combination of effective impervious surfaces and converted pervious surfaces, causes a 0.1 cubic feet per second increase in the 100-year recurrence interval flow frequency as estimated using a continuous model approved by the Director. | <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 • Figure 2.6 – North End Creek and Small Lake Basins • Figure 2.7 – South End Creek and Small Lake Basins • Volume 3, Section 3.4 – BMP Selection for Flow Control • Volume 3, Section 4.1 – Sizing Approach |

Final code language to be added to final manual

| Stormwater Code Language | References |
|--|------------|
| <p>3. The project converts 2.5 acres or more of vegetation to pasture and from which there is a surface discharge into a natural or man-made conveyance system from the site; or</p> <p>4. The project adds 5,000 square feet or more of new impervious surface and, through a combination of effective impervious surfaces and converted pervious surfaces, causes a 0.1 cubic feet per second increase in the 100-year recurrence interval flow frequency as estimated using a continuous model approved by the Director.</p> <p>b. Comply with subsection 22.805.080.B.3 (Pre-developed Pasture Standard) if the criteria in subsection 22.805.060.B.3.a do not apply and the total new plus replaced impervious surface is 10,000 square feet or more.</p> | |

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

| Stormwater Code Language | References |
|---|--|
| <p>SMC 22.805.060.B.4 - Projects discharging into Bitter Lake, Green Lake, or Haller Lake drainage basins shall comply with subsection 22.805.060.B.3 (Pre-developed Pasture Standard) if the total new plus replaced impervious surface is 10,000 square feet or more.</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • SMC, Section 22.805.080.B.4 – Peak Control Standard • Figure 2.6 – North End Creek and Small Lake Basins • Figure 2.7 – South End Creek and Small Lake Basins • 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 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. Roadway projects are not required to provide peak flow control in this basin. Refer to the DPD website to determine which basins are included in this category (www.seattle.gov/dpd/codesrules/codes/stormwater).

| Stormwater Code Language | References |
|--|--|
| <p>SMC 22.805.060.B.5 - Unless the Director of SPU determines the public combined sewer has sufficient capacity to carry existing and anticipated loads, roadway projects discharging into the public combined sewer shall comply with subsection 22.805.060.B.4 (Pre-developed Pasture Standard) if the total new plus replaced impervious surface is 10,000 square feet or more.</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • SMC, Section 22.805.080.B.4 – Peak Control Standard • Figure 2.8 – Public Combined Sewer Basins • Volume 3, Section 3.4 – BMP Selection for Flow Control |

| Stormwater Code Language | References |
|--------------------------|---|
| | <ul style="list-style-type: none"> Volume 3, Section 4.1 – Sizing Approach |

~~4.3.2.5~~ **4.3.3.6. Roadway Projects Discharging to a Capacity-constrained System – Flow Control**

| Stormwater Code Language | References |
|--|--|
| <p>SMC 22.805.060.B.6 - In addition to applicable minimum requirements for flow control in subsection 22.805.060.B.1 through subsection 22.805.060.B.5, roadway projects discharging into a capacity-constrained system shall also comply with subsection 22.805.080.B.4 (Peak Control Standard) if the total new plus replaced impervious surface is 10,000 square feet or more.</p> <p>SMC 22.801.040 – "Capacity-constrained system" means a drainage system determined to have inadequate capacity to carry drainage water, a public drainage system to which drainage water is regularly discharged, and the informal drainage system (including ditches and culverts).</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> SMC, Section 22.805.060.B.1 – Discharges to Wetlands SMC, Section 22.805.060.B.2 – Discharges to Listed Creek Basins SMC, Section 22.805.060.B.3 – Discharges to Non-listed Creek Basins SMC, Section 22.805.060.B.4 – Discharges to Small Lake Basins SMC, Section 22.805.060.B.5 – Discharges to Public Combined Sewer SMC, Section 22.805.080.B.4 – Peak Control Standard Volume 3, Section 3.4 – BMP Selection for Flow Control Volume 3, Section 4.1 – Sizing Approach |

~~4.3.3.7~~ **4.3.3.7. Roadway Projects Discharging Groundwater- Flow Control**

| Stormwater Code Language | References |
|--|---|
| <p>SMC 22.805.060.C.7 - Roadway projects that will permanently discharge groundwater to the public shall also comply with subsection 22.805.080.B.4 (Peak Control Standard) if the total new plus replaced hard surface is 10,000 square feet or more.</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> SMC, Section 22.805.060.C.7 – Discharges from Groundwater |

~~4.3.3~~ **4.3.4. Water Quality Treatment**

| Stormwater Code Language | References |
|--|---|
| <p>SMC 22.805.060.C - Roadway projects not discharging to the public combined sewer shall comply with the minimum requirements for treatment contained in Section 22.805.090, to the extent allowed by law, if:</p> <ol style="list-style-type: none"> The existing impervious coverage is less than 35 percent of the project area and the total new plus replaced pollution-generating surface is 10,000 square feet or more. <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> SMC, Section 22.805.090 – Minimum Requirements for Treatment Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment |

| | |
|---|--|
| <ol style="list-style-type: none"><li data-bbox="250 201 967 302">2. <i>The total new pollution-generating impervious surface is 5,000 square feet or more and results in a 50% or more expansion of the existing impervious surfaces within the project site; or</i><li data-bbox="250 317 943 457">3. <i>The total new plus replaced pollution-generating pervious surfaces is three-quarters of an acre or more and from which there is a surface discharge in a natural or man-made conveyance system from the site.</i> | <ul style="list-style-type: none"><li data-bbox="1026 201 1390 268">• 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. This section provides a summary of the following requirements for parcel-based projects:

| Receiving Water/ Downstream Conveyance | Potentially Applicable Standard(s) | Reference |
|--|---|---------------------------------|
| All | Soil amendment | Section 4.4.1 |
| All | On-site sStormwater mManagement | Section 4.4.2 |
| Wetland* | Wetland protection | Section 4.4.3.1 |
| Listed creek basin* | Pre-developed forested Pre-developed pasture | Section 4.4.3.2 |
| Non-listed creek basin* | Pre-developed forested Pre-developed pasture | Section 4.4.3.3 |
| Small lake basins | Peak control | Section 4.4.3.4 |
| Public combined sewer | Peak control | Section 4.4.3.5 |
| Capacity-constrained system | Peak control | Section 4.4.3.6 |
| Groundwater discharge to public drainage system or public combined sewer | Peak control | Section 4.4.3.7 |
| All, except public combined sewer | Water quality treatment | Section 4.4.4 |

* Note: 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.

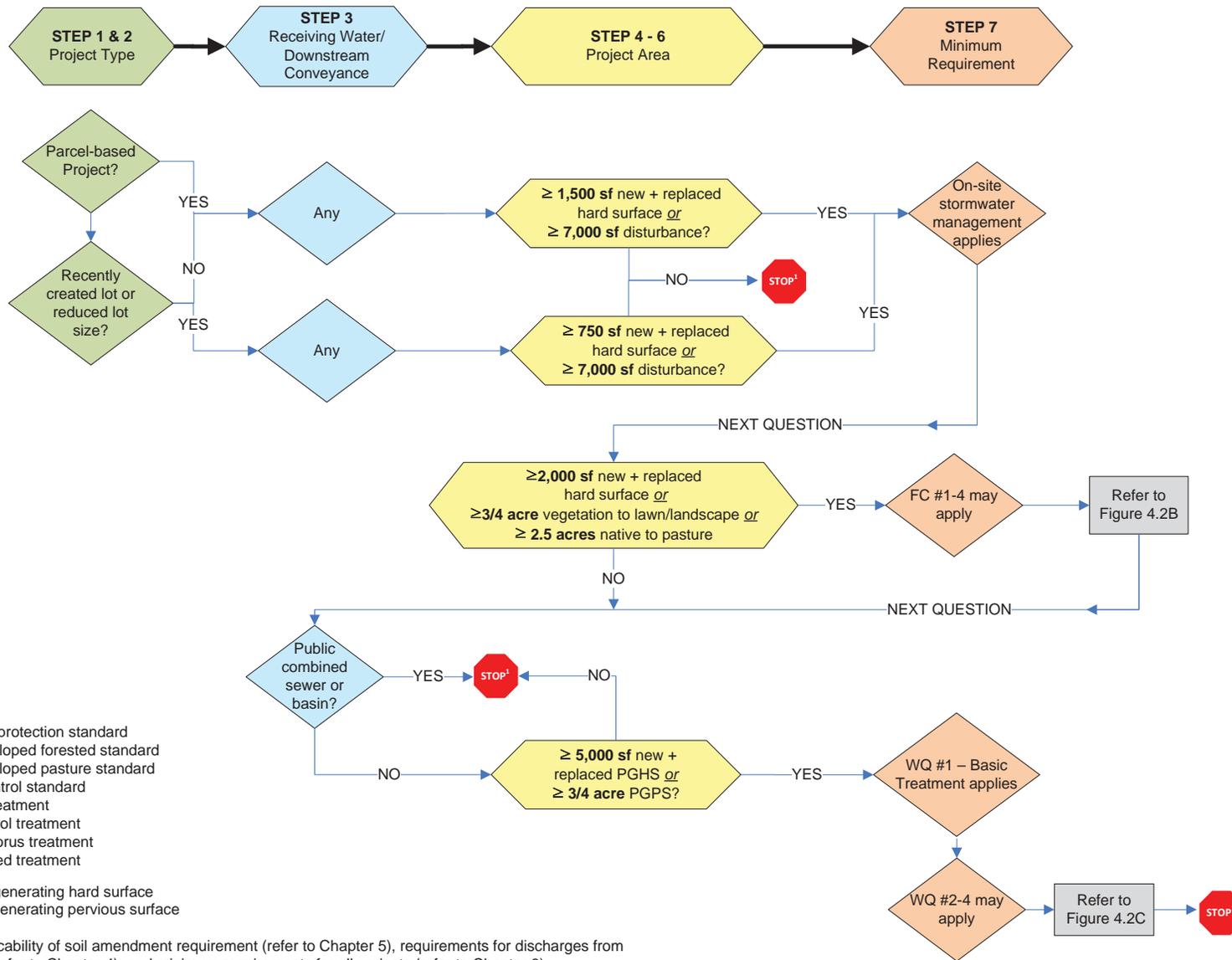
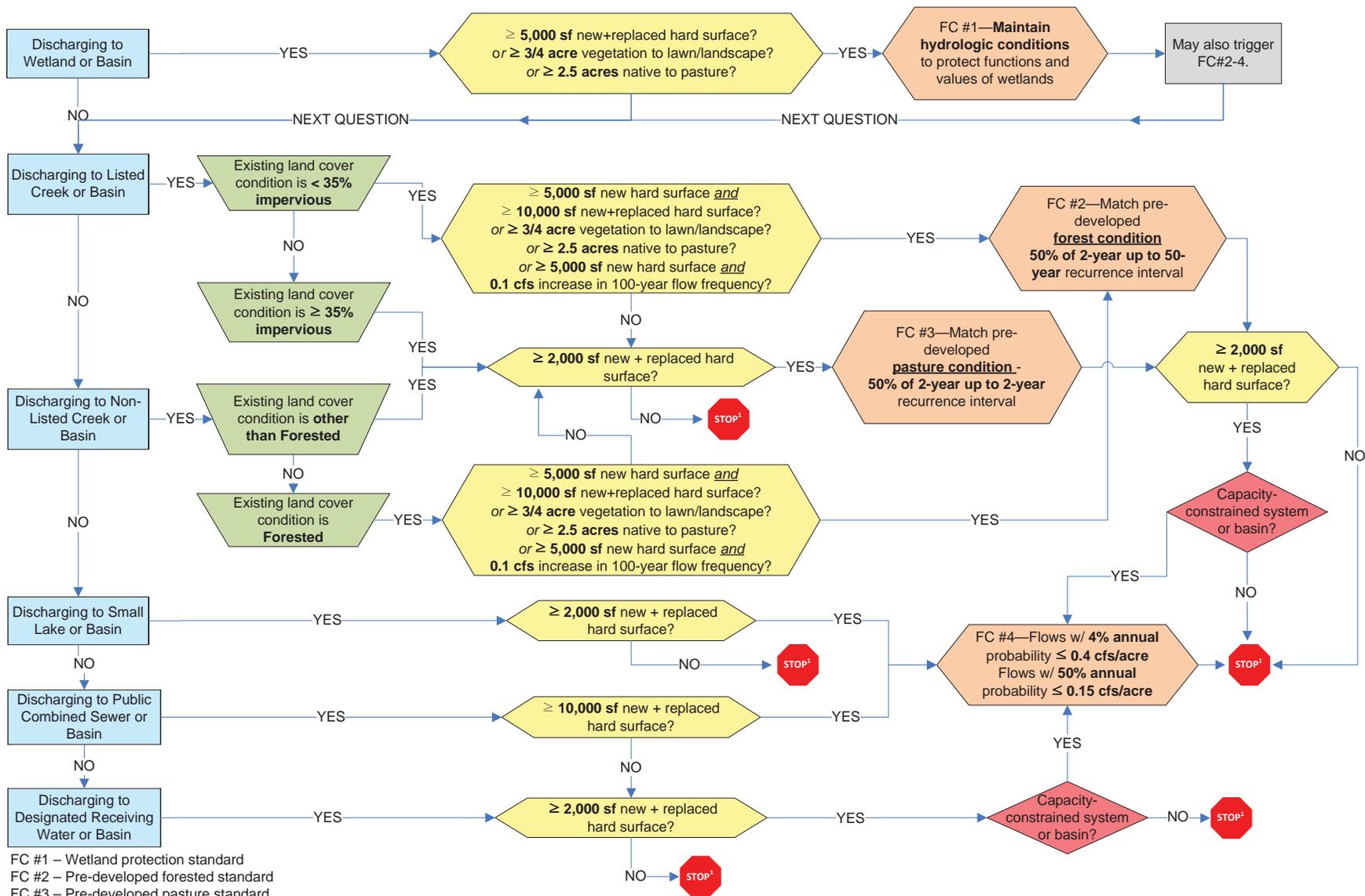


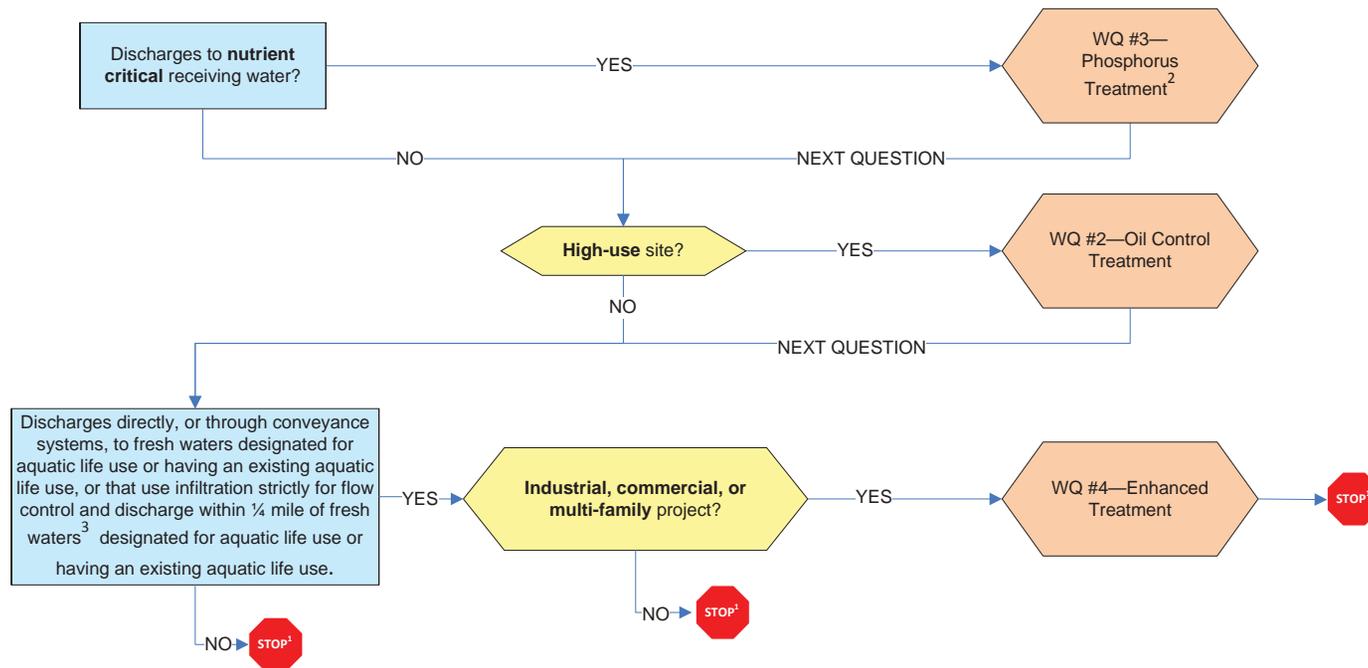
Figure 4.2A. Project Minimum Requirement Overview Flow Chart for Parcel-Based Projects.



FC #1 – Wetland protection standard
 FC #2 – Pre-developed forested standard
 FC #3 – Pre-developed pasture standard
 FC #4 – Peak control standard
 sf- square feet
 PGHS- pollution generating hard surface
 PGPS- pollution generating pervious surface

1- Evaluate applicability of soil amendment requirement (refer to Chapter 5), requirements for discharges from groundwater (refer to Chapter 4), and minimum requirements for all projects (refer to Chapter 3).

Figure 4.2B. Flow Control Minimum Requirements for Parcel-Based Projects.



WQ #1 – Basic treatment
 WQ #2 – Oil control treatment
 WQ #3 – Phosphorus treatment
 WQ #4 – Enhanced treatment
 sf- square feet
 PGHS- pollution generating hard surface
 PGPS- pollution generating pervious surface

- 1- Evaluate applicability of soil amendment requirement (refer to Chapter 5), requirements for discharges from groundwater (refer to Chapter 4), and minimum requirements for all projects (refer to Chapter 3).
- 2- At the time this Stormwater Manual was developed, there were no established phosphorus-specific treatment requirements for project-scale treatment BMPs in Seattle. Refer to the DPD website to determine if any nutrient-critical treatment criteria apply (www.seattle.gov/dpd/codesrules/codes/stormwater/default.htm).
- 3- 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, at minimum, the following water bodies are designated for aquatic life use: small lakes, creeks, and freshwater designated receiving waters.

Figure 4.2C. Water Quality Treatment Minimum Requirements for Parcel-Based Projects.

4.4.1. Soil Amendment

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC 22.805.050.A - Retain and protect undisturbed soil in areas not being developed and provide compliance with project for final manual. Amend 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><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> Volume 1, Section 5.1 (SMC, Section 22.805.050) – Soil Amendment |

4.4.1.4.4.2. On-site Stormwater Management

| Stormwater Code Language | References |
|--|--|
| <p><i>SMC 22.805.050.B - On-site Stormwater Management: All parcel-based projects with 2,000 square feet or more of new plus replaced impervious surface shall meet the minimum requirements of the content contained in Section 22.805.070, to the extent allowed by law.</i></p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> Volume 1, Section 5.1 (SMC, Section 22.805.070) – On-site Stormwater Management Volume 3, Section 3.1 – BMP Selection for On-site Stormwater Management |

4.4.2.4.4.3. Flow Control

4.4.2.1.4.4.3.1. Parcel-based Projects Discharging to Wetlands – Flow Control

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.050.B.1 - Parcel-based projects discharging into a wetland shall comply with subsection 22.805.080.B.1 (Wetland Protection Standard) if:</i></p> <p><i>a. The total new plus replaced impervious surface is 5,000 square feet or more;</i></p> <p><i>b. The project converts 3/4 acres or more of vegetation to lawn or landscaped areas and from which there is a surface discharge into a natural or man-made conveyance system from the site; or</i></p> <p><i>c. The project converts 2.5 acres or more of vegetation to pasture and from which there is a surface discharge into a natural or man-made conveyance system from the site.</i></p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> Volume 1, Section 5.3.1 (SMC, Section 22.805.080.B.1) – Wetland Protection Standard Volume 1, Section 2.6 – Protect Wetlands Guide sheets 1 through 3 in the SWMMWW Volume I, Appendix I-D (Ecology 2014²) |

4.4.2.2.4.4.3.2. Parcel-based Projects Discharging to Listed Creek Basins – Flow Control

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.050.B.2 - Parcel-based projects discharging into Blue Ridge Creek, Broadview Creek, Discovery Park Creek, Durham Creek, Frink Creek, Golden Gardens Creek, Kivanis Ravine/Wolfe Creek, Linton Springs Creek, Madison Park Creek, Meigs Park Creek, Mount Baker Park Creek,</i></p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> Volume 1, Section 5.3.2 (SMC, Section 22.805.080.B.2) – Pre-developed Forested Standard |

| Stormwater Code Language | References |
|---|--|
| <p><i>Puget Creek, Riverview Creek, Schmitz Creek, Taylor Creek, or Washington Park Creek shall:</i></p> <p>a. <i>Comply with subsection 22.805.080.B.2 (Pre-developed Forested Standard) if the existing impervious 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 impervious surface and the total new plus replaced impervious 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 which there is a surface discharge into a natural or man-made conveyance system from the site; or</i> 3. <i>The project converts 2.5 acres or more of vegetation to pasture and from which there is a surface discharge into a natural or man-made conveyance system from the site; or</i> 4. <i>The project adds 5,000 square feet or more of new impervious surfaces, and converted pervious surfaces, causes a 0.1 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.B.2.a {above} do not apply and the total new plus replaced impervious surface is 2,000 square feet or more.</i></p> | <ul style="list-style-type: none"> • <i>Volume 1, Section 5.3.3 (SMC, Section 22.805.080.B.3) – Pre-developed Pasture Standard</i> • <i>Figure 2.6 – North End Creek and Small Lake Basins</i> • <i>Figure 2.7 – South End Creek and Small Lake Basins</i> • <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> • <i>Volume 3, Section 4.1 – Sizing Approach</i> |

Final code language to be added to final manual

4.4.2.3.4.4.3.3. Parcel-based Projects Discharging to Non-listed Creek Basins - Flow Control

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC 22.805.050.B.3 - Parcel-based projects discharging into a creek not listed in subsection 22.805.050.B.2 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 impervious surface and the total new plus replaced impervious 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 which there is a surface discharge into a natural or man-made conveyance system from the site; or</i> | <ul style="list-style-type: none"> • <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>Figure 2.6 – North End Creek and Small Lake Basins</i> • <i>Figure 2.7 – South End Creek and Small Lake Basins</i> • <i>Volume 3, Section 3.4 – BMP Selection for Flow Control</i> |

Final code language to be added to final manual

| Stormwater Code Language | References |
|---|---|
| <p>3. The project converts 2.5 acres or more of vegetation to pasture and from which there is a surface discharge into a natural or man-made conveyance system from the site; or</p> <p>4. The project adds 5,000 square feet or more of new impervious surface and, through a combination of effective impervious surfaces and converted pervious surfaces, causes a 0.1 cubic feet per second increase in the 100 year recurrence interval flow frequency as estimated using a continuous model approved by the Director.</p> <p>b. Comply with subsection 22.805.080.B.3 (Pre-developed Pasture Standard) if the criteria in subsection 22.805.050.B.3.a do not apply and the total new plus replaced impervious surface is 2,000 square feet or more.</p> | <ul style="list-style-type: none"> Volume 3, Section 4.1 – Sizing Approach |

4.4.2.4.4.4.3.4. Parcel-based Projects Discharging to Small Lake Basins – Flow Control

| Stormwater Code Language | References |
|---|--|
| <p><i>Final code language to be added to final manual</i></p> <p>SMC 22.805.050.B.4. Parcel-based projects discharging into Bitter Lake, Green Lake, or Hainer Lake shall comply with subsection 22.805.080.B.4 (Peak Control Standard) if the total new plus replaced impervious surface is 2,000 square feet or more.</p> | <ul style="list-style-type: none"> Volume 1, Section 5.3.4 (SMC, Section 22.805.080.B.4) – Peak Control Standard Figure 2.6 – North End Creek and Small Lake Basins Figure 2.7 – South End Creek and Small Lake Basins Volume 3, Section 3.4 – BMP Selection for Flow Control Volume 3, Section 4.1 – Sizing Approach |

4.4.2.5.4.4.3.5. 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 DPD website to determine which basins are included in this category (www.seattle.gov/dpd/codesrules/codes/stormwater).

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.050.B.5 - Unless the Director of SPU determines the public combined sewer has sufficient capacity to carry existing and anticipated loads, Parcel-based projects discharging to the public combined sewer shall comply with subsection 22.805.080.B.4 (Peak Control Standard) if the total new plus replaced impervious surface is 10,000 square feet or more.</i></p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • Volume 1, Section 5.3.4 (SMC, Section 22.805.080.B.4) – Peak Control Standard • Figure 2.8 – Public Combined Sewer Basins • Volume 3, Section 3.4 – BMP Selection for Flow Control • Volume 3, Section 4.1 – Sizing Approach |

4.4.2.6.4.4.3.6. Parcel-based Projects Discharging to a Capacity-constrained System - Flow Control

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC 22.805.050.B.6 - In addition to applicable minimum requirements for flow control in subsection 22.805.050.B.1 through subsection 22.805.050.B.5, parcel-based projects discharging into a capacity-constrained system shall also comply with subsection 22.805.080.B.4 (Peak Control Standard) if the total new plus replaced impervious surface is 2,000 square feet or more.</i></p> <p><i>Final code language to be added to final manual</i></p> <p><i>SMC 22.805.050.B.6 - In addition to applicable minimum requirements for flow control in subsection 22.805.050.B.1 through subsection 22.805.050.B.5, parcel-based projects discharging into a capacity-constrained system shall also comply with subsection 22.805.080.B.4 (Peak Control Standard) if the total new plus replaced impervious surface is 2,000 square feet or more. or a public combined sewer that the Director of SPU has determined to have inadequate capacity to carry drainage water, a public drainage system to which groundwater is permanently discharged, and the informal drainage system (including ditches and culverts).</i></p> | <ul style="list-style-type: none"> • Volume 1, Section 4.4.3.1 (SMC, Section 22.805.050.B.1) – Discharges to Wetlands • Volume 1, Section 4.4.3.2 (SMC, Section 22.805.050.B.2) – Discharges to Listed Creek Basins • Volume 1, Section 4.4.3.3 (SMC, Section 22.805.050.B.3) – Discharges to Non-listed Creek Basins • Volume 1, Section 4.4.3.4 (SMC, Section 22.805.050.B.4) – Discharges to Small Lake Basins • Volume 1, Section 4.4.3.5 (SMC, Section 22.805.050.B.5) – Discharges to Public Combined Sewer • Volume 1, Section 5.3.4 (SMC, Section 22.805.080.B.4) – Peak Control Standard • Volume 3, Section 3.4 – BMP Selection for Flow Control • Volume 3, Section 4.1 – Sizing Approach |

4.4.3.7. Parcel-based Projects Discharging Groundwater- Flow Control

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.050.C.7- parcel-based projects that will permanently discharge groundwater to public drainage systems or a public combined sewer shall also comply with the minimum flow 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"> • <u>SMC, Section 22.805.050.C.7– Discharges from Groundwater</u> |

4.4.3.4.4. Water Quality Treatment

| Stormwater Code Language | References |
|--|--|
| <p><i>SMC 22.805.050.C - Parcel-based projects not discharging to the public combined sewer shall comply with the minimum requirements for treatment contained in Section 22.805. 090, to the extent allowed by law, if:</i></p> <ol style="list-style-type: none"> <i>1. The total new plus replaced pollution-generating impervious surface is 5,000 square feet or more; or</i> <i>2. The total new plus replaced pollution-generating pervious surfaces is three-quarters of an acre or more and from which there is a surface discharge in a natural or man-made conveyance system from the site.</i> | <ul style="list-style-type: none"> • SMC, Section 22.805.090 – Minimum Requirements for Treatment • <i>Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment</i> • <i>Volume 3, Section 4.1 – Sizing Approach</i> |

4.5. Utility Projects

| Stormwater Code Language | References |
|--|--|
| <p><i>SMC 22.800.040.A.2.a - Maintenance, repair, or installation of underground or overhead utility facilities, such as, but not limited to, pipes, conduits and 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> <p><i>a. 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></p> <p><i>Final code language to be added to final manual</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> • <u>Volume 1, Section 5.2 (SMC, Section 22.805.070) – Minimum Requirements for On-site Stormwater Management</u> • <i>Volume 1, Section 5.3 (SMC, Section 22.805.080) – Minimum Requirements for Flow Control</i> • <i>Volume 1, Section 5.4 (SMC, Section 22.805.090) – Minimum Requirements for Treatment</i> |

4.6. Road Pavement Maintenance Practices Projects

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC 22.800.040.A.2.b - 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"> <i>1. Pothole and square cut patching;</i> <i>2. Overlaying existing asphalt or concrete or brick pavement with asphalt or concrete without expanding the area of coverage;</i> <i>3. Shoulder grading;</i> <i>4. Reshaping or regrading drainage ditches;</i> <i>5. Crack sealing;</i> <i>6. Vegetation maintenance</i> <i>7. Pavement preservation activities that do not expand the road prism</i> <p><i>Final code language to be added to final manual</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>Volume 1, Section 5.2 (SMC, Section 22.805.070) – Minimum Requirements for On-site Stormwater Management</i> • <i>Volume 1, Section 5.3 (SMC, Section 22.805.080) – Minimum Requirements for Flow Control</i> • <i>Volume 1, Section 5.4 (SMC, Section 22.805.090) – Minimum Requirements for Treatment</i> • <i>Appendix G – Stormwater Control Operations and Maintenance Requirements</i> |

4.7. WSDOT Projects

| Stormwater Code Language | References |
|--|---|
| <p><i>SMC 22.800.040.A.6 - With respect to all state highway right-of-way under 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 equipped to enforce 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.</i></p> | <ul style="list-style-type: none"> • Volume 1, Section 4.3 (SMC, Section 22.805.060) – Minimum Requirements for Roadway Projects • WSDOT Highway Runoff Manual • WAC, Sections 173-270-030(1) and (2) – Best Management Practices – Approved Manual Required and Amendments to Manual • WAC, Sections 173-270-030(3)(b) and (c) – More Stringent Standards • SMC, Chapter 25.09 – Environmentally Critical Areas |

4.8. Special Circumstances

Some projects do not closely fit defined project types, and therefore, require a case-by-case review to determine the applicable minimum requirements. These projects ~~must~~ shall first go through a pre-permit review process ~~established by DPD~~ to assist the proponent in identifying the specific minimum requirements to be applied. 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
- ~~Permanent dewatering~~
- Draining into more than one basin
- Multiple blocks or a subdivision

- ~~Alleys~~
- Railroads
- Work performed in ~~one or more~~ than one jurisdictions

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)

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.

| <u>Stormwater Code Language</u> | <u>References</u> |
|--|--|
| <p><u>SMC, Section 22.805.030, SMC, Section 22.805.040,</u></p> <p><u>SMC, Section 22.805.060-</u> <u>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.</u></p> | <ul style="list-style-type: none"> • <u>Volume 1, Section 5.1 (SMC, Section 22.805.030)– Soil Amendment</u> • <u>Volume 1, Section 5.1 (SMC, Section 22.805.040)– Soil Amendment</u> • <u>Volume 1, Section 5.1 (SMC, Section 22.805.050) – Soil Amendment</u> • <u>Volume 1, Section 5.1 (SMC, Section 22.805.060) – Soil Amendment</u> |

5.1.5.2. On-site Stormwater Management

Projects triggering this minimum requirement ~~must~~ 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 P~~ Performance S ~~standard~~ and the ~~On-site List~~ Approach.

| Stormwater Code Language | References |
|--|--|
| <p>SMC, Section 22.805.070 -</p> <p><i>A. Applicability. The requirements of this subsection apply to the</i></p> <p><i>B. Requirements. On-site stormwater management shall be installed to the extent allowed by law and maintained per rules promulgated by the Director to receive flows from the new plus replaced impervious surfaces on the site being developed shall:</i></p> <ol style="list-style-type: none"> <i>1. Retain and protect existing trees and native vegetation to the maximum extent feasible, and</i> <i>2. Prior to completion of the project, all new, replaced, and disturbed topsoil (including construction lay-down areas) shall be amended with organic matter per rules promulgated by the Director to improve on-site management of drainage water flow and water quality, and</i> <i>3. Comply with Subsection 22.805.070.C (On-site Performance Standard), or</i> <i>4. Subsection 22.805.070.D (On-site Lists). For each project surface, follow the appropriate project table to evaluate GSI BMPs in the order shown for that type of surface, by category. Consider any of the GSI BMPs in the first category. Use the first BMP in the first category. If the first BMP is not feasible, evaluate the next category and evaluating those BMPs in the same manner. No other GSI BMP is necessary for a given project surface. Feasibility shall be determined by evaluation against:</i> <ol style="list-style-type: none"> <i>a. Design criteria, limitations, and infeasibility criteria identified for each BMP in the Rules promulgated by the Director including that a BMP is infeasible if it does not meet the minimum design criteria for the project in the space remaining on the project site; and</i> <i>b. Competing Needs: Subsection 22.805.070.D (On-site List) can be superseded or reduced by the Director if the installation of the BMPS is in conflict with:</i> | <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 5.1 – Soil Amendment BMP</i> • <i>Volume 3, Section 5.2 – Tree Planting and Retention</i> • <i>Appendix C – On-site Stormwater Management Infeasibility Criteria</i> |

| Stormwater Code Language | References |
|--|------------|
| <ol style="list-style-type: none"> 1) <i>The following federal or state laws, rules, and standards: Historic Preservation and Archaeology Laws per SMC 22.805.070.E (Competing Historic Preservation and Archaeology Laws), Federal Superfund or Washington State Model Toxics Control Act, Federal Aviation Administration requirements for airports, Americans with Disabilities Act; or</i> 2) <i>Special zoning district design criteria adopted and being implemented pursuant to a community planning process. Special zoning district criteria include, for example, pedestrian zone overlays and minimum floor area ratio requirements. See also Municipal Stormwater Response to Comments, Part V: Response to Comments on Appendix 1 & Low Impact Development for Phase I and Western Washington Phase II Permits, Response "V-27 Competing Needs Feasibility Criteria" (Washington State Department of Ecology, August 1, 2012); or</i> 3) <i>Public health and safety standards; or</i> 4) <i>Transportation regulations to maintain the option for future expansion or multi-modal use of public rights-of-way; or</i> 5) <i>Chapter 15.43 Tree and Vegetation Management in Public Places; Chapter 25.09 Regulations for Environmentally Critical Areas; and Chapter 25.11 Tree Protection and Chapter XXX Standards for Vegetation in the Shoreline Master Plan.</i> | |

Projects triggering this minimum requirement ~~must~~ 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:
 - ~~Match~~ the post-development discharge durations shall match the discharge peak flow rate and flow durations to the 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.
 - The post-development discharge durations shall match the discharge durations of ~~or the~~ pre-developed pasture condition for the range of pre-developed discharge rates between the 1 percent and 10 percent exceedance values.

- On-site lists:
 - Select appropriate on-site GSI BMP(s) from a prioritized list (refer to Volume 3, Section 3.3.1). A prioritized list has been developed for each of the four primary project types (single-family residential, trail and sidewalk, parcel-based, and roadway projects). For each project type, divide the project area into surfaces with distinct drainage pathways and select on-site BMP(s) for each surface "sub area".

5.1.1.5.2.1. On-site Performance Standard

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

5.1.2.5.2.2. On-site Lists

| Stormwater Code Language | References |
|---|---|
| <p>SMC 22.805.070.D –</p> <p>1. For single-family residential projects, follow Table 805.1.</p> <p>2. For trail and sidewalk projects, follow Table 805.2.</p> <p>3. For parcel-based projects, follow Table 805.3.</p> <p>4. For roadway projects, follow Table 805.4.</p> | <ul style="list-style-type: none"> ● Volume 3, Section 3.3.1 – On-site List Approach ● Volume 3, Section 4.1.1 – On-site List Approach ● Appendix C – On-site Stormwater Management Infeasibility Criteria |

5.1.2.1.5.2.2.1. Single-family Residential Projects

Table 805.1. On-site List for Single-family Residential Projects.

| Category | GSI-BMPs | All Basins Discharge Locations |
|----------|-----------------------|--------------------------------|
| 1 | Full Dispersion | R, S |
| | Infiltration Trenches | R, S |

| | | |
|---|--|-----------------|
| | Dry Wells | R, S |
| 2 | <i>Final code language to be added to final manual</i> | |
| | | R, S |
| | Rainwater Harvesting | X |
| | Permeable Pavement Surfaces <u>Facilities</u> | R, S |
| | Permeable Pavement <u>Facilities</u> Surfaces | <u>R, S</u> |
| 3 | Sheet Flow Dispersion | S |
| | Concentrated <u>Flow</u> -Dispersion | S |
| | <i>Final code language to be added to final manual</i> | |
| | Splashlock Downspout Dispersion | R |
| | Perforated Stub-out Dispersion | R |
| | Perforated Stub-out Connections | R, S |
| | Vegetated Roof <u>ss</u> | X |
| 4 | Single Family Residential Cisterns | R |
| | Perforated Stub-out Connections | R |
| | Newly Planted Trees | S |

GSI BMPs - ~~Green Stormwater Infrastructure~~ Best Management Practices

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

S = Evaluation is required for all surfaces of Single-family residential projects.

X = Evaluation is not required but is allowed.

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

5.2.2.2. Trail and Sidewalk Projects

Table 805.2. On-site List for Trail and Sidewalk Projects.

| Category | GSI-BMPs | Projects Discharging to a Wetland, Creek, Public Combined Sewer, Small Lake, or Capacity Constrained System Receiving Water Not Designated by Section 22.801.050, or its Basin | Projects Discharging to a Designated Receiving Water Basin 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 | <u>S</u> |
| 2 | Rain Gardens | S | S | X |
| | Permeable Pavement | X | X ^a | X ^{a,b} |
| | Permeable Pavement Facilities | X ^a S | X ^a X | X ^{a,b} |
| 3 | Sheet Flow Dispersion | S | S S | <u>S</u> |
| | Concentrated <u>Flow</u> Dispersion | S | S S | <u>S</u> |

Final code language to be added to final manual. Refer to code language in separate document

GSI-BMPs - Green Stormwater Infrastructure Best Management Practices

PGIS—Pollution-generating impervious surface

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

X = Evaluation is not required for tTrail or sSidewalk pProjects.

^a Minimum permeable pavement area allowed in right-of-way is 2,000 square feet of pavement within the project site. Minimum bioretention cell size top area in right-of-way is 500 square feet (sf) (including pre-settling area). Installation only allowed when contributing area is sufficient to warrant minimum bioretention cell size in right-of-way.

^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. Minimum bioretention cell size top area in right-of-way is 500 sf (including pre-settling area). Installation only allowed when contributing area is sufficient to warrant minimum bioretention cell size in right-of-way and the PGIS directed to the cell is 2,000 sf or greater.

^c Evaluation not required if pavement is less than 2,000 sf of contiguous pavement. Does not include any project discharging to a receiving water not designated by Section 22.801.050, or its basin, even if the project discharges to a capacity-constrained system or its basin.

^d Evaluation not required if new or replaced PGIS is less than 2,000 sf of contiguous pavement.

5.2.2.3. Parcel-based Projects

Table 805.3. On-site List for Parcel-based Projects.

| Category | GSI BMPs | All Basins |
|----------|--|---------------------------------|
| 1 | Full Dispersion | R, S |
| | Infiltration Trenches | R, S |
| | Dry Wells | R, S |
| 2 | Rain Gardens ^e | R ^a , S ^a |
| | Infiltrating Bioretention | R, S |
| | Permeable Pavement Facilities | R, S |
| | Permeable Pavement Facilities | S, R, S |
| | Permeable Pavement Facilities | S, R, S |
| 3 | Sheet Flow Dispersion | R, S |
| | Concentrated Flow Dispersion | S |
| | Splashblock Downspout Dispersion | R |
| | Trench Downspout Dispersion | R |
| | Non-infiltrating Bioretention | R, S |
| | Vegetated Roofs ^s | R ^e , X |
| 4 | Perforated Stub-out Connections | R |
| | Newly Planted Trees | S |

Final code language to be added to final manual. Refer to code language in separate document.

GSI BMPs - Green Stormwater Infrastructure Best Management Practices

R = Evaluation is required for roof runoff from all roofs of parcel-based projects.

S = Evaluation is required for all surfaces of p Parcel-based projects, unless otherwise noted below.

^a ~~Flow Control Basins include: Wetland, Creek, Public Combined Sewer System, Small Lake, Capacity Constrained System~~

^b ~~Non-Flow Control Basins include: Designated Receiving Water.~~

^{a^c} Installation is only allowed for projects not required to meet Section 22.805.080 (Minimum Requirements for Flow Control) or Section 22.805.090 (Minimum Requirements for Treatment) and with less than 5,000 sf of impervious hard surface infiltrating on site.

^{b^d} Evaluation is not required for projects in Non-Flow Control Basins^b or for projects with less 10,000 sf of new plus replaced rooftop surface in Flow Control Basins^a.

^e Evaluation is not required for projects in Non-Flow Control Basins^b or for projects with less 5,000 sf of new plus replaced rooftop surface in Flow Control Basins^a.

5.2.2.4. Roadway Projects

Table 805.4. On-site List for Roadway Projects.

| Category | GSI BMPs | Projects Discharging to a Wetland, Creek, Public Combined Sewer, Small Lake, or Capacity Constrained Receiving Water Not Designated by Section 22.801.050, or its System Basin | Projects Discharging to a Public Combined Sewer or Capacity Constrained System, ⁹ or its Basin | Projects Discharging to a Designated Receiving Water Basin |
|----------|--|--|---|--|
| 1 | Full Dispersion | S | S | S |
| 2 | Rain Gardens <small>[use allowed for projects not required to meet Section 22.805.080 (FC or WQ Standard) and with less than 5,000 sf of impervious surface infiltrating on-site]</small> | S ^a | S ^a | S ^a X |
| | Infiltrating Bioretention | S ^b | S ^{b,c} | S ^{b,c} |
| | Permeable Pavement Facilities Permeable Pavement Surfaces | X ^d S ^{e,f,h} | S ^{e,f,h} | X ^{c,e,f} |
| | Permeable Pavement Surfaces Permeable Pavement Facilities | S ^d X | X ^{S^{e,f}} | S ^{c,e,f} X |
| 3 | Sheet Flow Dispersion | S | S | S |
| | Concentrated <u>Flow</u> Dispersion | S | S | S |

Final code language to be added to final manual

GSI BMPs - ~~Green Stormwater Infrastructure~~ 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 ~~Installation is Use~~ only allowed for projects not required to meet Section 22.805.080 (Minimum Requirements for Flow Control) or Section 22.805.090 (Minimum Requirements for Treatment) ~~a FC or WQ Standard~~ and with less than 5,000 sf of ~~impervious hard~~ surface infiltrating on site.

^b Minimum bioretention cell size top area in right-of-way is 500 sf (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 ~~Minimum bioretention cell size top area in right-of-way is 500 sf (including pre-settling area).~~ Evaluation only is not required, and installation is not allowed, if new plus replaced pollution-generating hard surface is less than only allowed when contributing area is sufficient to warrant minimum bioretention cell size in right-of-way and the PGIS directed to the cell is 2,000 sf or greater.

^d Evaluation ~~not required if less than 2,000 sf of contiguous pavement 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.

⁹ Does not include any project discharging to a receiving water not designated by Section 22.801.050, or its basin, even if the project discharges to a capacity-constrained system or its basin.

~~Evaluation not required if new plus replaced PGIS is less than 2,000 sf of contiguous pavement.~~

~~Evaluation of Roadways, including alleys, not required unless discharging to a Creek or Wetland Basin.~~

5.2.5.3. Flow Control

Projects triggering this minimum requirement ~~must~~ shall install flow control ~~facilities~~ BMPs meeting the applicable design requirements for the ~~specific 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 5.32.1~~ through ~~5.32.4~~ for specific flow control standards for wetland protection, pre-developed forested, pre-developed pasture, and peak control.

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC, Section 22.805.080 -</i></p> <p><i>A. Applicability: The requirements of this subsection apply to the extent required in Section 22.805.050 to Section 22.805.060.</i></p> <p><i>B. Requirements. Flow control facilities shall be installed to the extent allowed by law and maintained per rules promulgated by the Director to receive flows from that portion of the site being developed that discharge stormwater. Projects shall use green stormwater infrastructure 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 green stormwater infrastructure to meet the requirement, and the green stormwater infrastructure provides substantially equivalent environmental protection as facilities not using green stormwater infrastructure that receive flows from all of the portion of the site being developed.</i></p> <p style="text-align: center; font-size: 1.2em; font-weight: bold;">Final code language to be added to final manual</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 Standard</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 – Peak Control Standard</i> |

~~Projects triggering this minimum requirement must install flow control facilities BMPs meeting the applicable design requirements for the given project type, size, and discharge location as summarized in Chapter 2.~~ The performance standards applicable to the key Minimum Requirements for Flow Control include the following:

- Wetland ~~protection~~ Protection standard ~~Standard (FC#1)~~: Protect the functions and values of the wetland.
- Pre-developed ~~forest~~ Forested standard ~~Standard (FC#2)~~: Match the post-development discharge flow rates and durations to a pre-developed forested ed condition for the range of pre-developed discharge rates from 50 percent of the 2-year recurrence interval flow up to the 50-year recurrence interval flow.
- Pre-developed ~~pasture~~ Pasture standard ~~Standard (FC#3)~~: Match the post-development discharge flow rates and durations to a pre-developed pasture condition for the range of pre-developed discharge rates from 50 percent of the 2-year recurrence interval flow up to the 2-year recurrence interval flow.

- Peak ~~control~~ **Control standard** ~~Standard~~ (FC#4): The post-development 25-year recurrence interval flow ~~must~~ **shall** not exceed 0.4 cubic feet per second per acre (cfs/acre); and the 2-year recurrence interval flows ~~must~~ **shall** not exceed 0.15 cfs/acre.

~~When triggered, flow control BMPs must be installed to manage flows from the impervious surfaces and converted pervious surfaces on the site being developed. Post development discharge determination must include flows from dewatering activities. When flows cannot feasibly bypass proposed flow control BMPs, the flow control BMPs must be modeled and sized to handle the combined total flow (refer to Volume 3, Section 4.4.2).~~

Note:

- If a project requires **compliance with the** Peak Control **Standard**(FC#4) and either **the** Pre-developed Forest **ed** or Pre-developed Pasture **Standard**(FC#2 or FC#3) **apply**, the facility shall be sized to the standard that results in the largest facility (i.e., to meet the more stringent of the requirements).
- Projects may mitigate 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 cannot feasibly manage the last 2,000 sf of new and replaced hard surface area.
- If an infiltration basin or any detention BMPs are used, all of the new and replaced hard surface area shall be mitigated. Note that the minimum hard surface area tributary to an orifice controlled detention facility shall be 2,000 square feet.
- 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).
- ~~Stormwater f~~low control ~~facilities~~ **BMPs** are not required if the site ~~produces no stormwater runoff discharge~~ **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*).

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

~~5.2.1.5.3.1.~~ **5.3.1. Wetland Protection Standard**

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.080.B.1 - 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 sediment shall be prevented. The introduction of sediment, heat and other pollutants into wetlands shall be minimized through the selection, design, installation, and maintenance of</i></p> <p><i>Final code language to be added to final manual</i></p> | <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 |

| Stormwater Code Language | References |
|--|---|
| <p><i>temporary and permanent controls. The total volume of stormwater discharging into a wetland shall not be more than:</i></p> <ul style="list-style-type: none"> • <i>20 percent higher or lower than the pre-developed volume during a single precipitation event, and</i> • <i>15 percent higher or lower than the pre-developed volume on a monthly basis.</i> <p><i>Prior to 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 of SMC 22.805.080.B.2, SMC 22.805.080.B.3, and SMC 22.805.080.B.4 also apply to the project, an analysis shall be conducted to ensure that the functions and values of the affected wetland are maintained while implementing these flow control requirements. Projects triggering this requirement shall refer to Guide Sheets #1 through #3 presented in Appendix I-D of Ecology's Stormwater Management Manual for Western Washington (Ecology 2012) for additional guidance. 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 style="text-align: center; font-size: 24pt; font-weight: bold; opacity: 0.5;">Final code language to be added to final manual</p> | <ul style="list-style-type: none"> • SMC, Section 22.805.080.B.4 – Peak Control Standard • <i>Volume 1, Section 3.7 – Protect Wetlands</i> • Guide sheets 1 through 3 in the SWMMWW Volume I, Appendix I-D) (Ecology 20142) |

~~5.2.2~~ **5.3.2. Pre-developed Forested Standard**

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.080.B.2 - The post-development discharge flow durations shall maintain the pre-developed forested condition for the range of pre-developed discharge rates from 50 percent of the 2-year recurrence interval flow up to the 50-year recurrence interval flow.</i></p> <p style="text-align: center; font-size: 24pt; font-weight: bold; opacity: 0.5;">Final code language to be added to final manual</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> |

~~5.2.3~~ **5.3.3. Pre-developed Pasture Standard**

| Stormwater Code Language | References |
|--|---|
| <p><i>SMC 22.805.080.B.3 - The post-development discharge flow durations shall maintain the pre-developed pasture condition for the range of pre-developed discharge rates from 50 percent of the 2-year recurrence interval flow up to the 50-year recurrence interval flow.</i></p> <p style="text-align: center; font-size: 24pt; font-weight: bold; opacity: 0.5;">Final code language to be added to final manual</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> |

~~5.2.4~~**5.3.4. Peak Control Standard**

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC 22.805.080.B.4 - The post-development peak flow with a 4 percent annual probability (25-year recurrence flow) shall not exceed 0.4 cubic feet per second per acre. Additionally, the peak flow with a 50 percent annual probability (2-year recurrence flow) shall not exceed 0.5 cubic feet per second per acre.</i></p> <p>Final code language to be added to final manual</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> |

5.3.5.4. Water Quality Treatment

Projects triggering this minimum requirement based on the amount of pollution generating hard surface (PGHS) ~~must shall~~ install water quality treatment ~~facilities~~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 may mitigate 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 cannot feasibly manage the last 2,000 sf of new and replaced hard surface area.

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC, Section 22.805.090 -</i></p> <p><i>A. Applicability: The requirements of this subsection apply to the extent required in Section 22.805.050 to Section 22.805.060.</i></p> <p><i>B. Requirements: Water quality treatment facilities shall be installed to the Director to treat flows from the pollution generating pervious and impervious surfaces on the site being developed. When stormwater flows from other areas, including non-pollution generating surfaces (e.g., roofs), dewatering activities, and offsite areas, cannot be separated or bypassed, treatment BMPs shall be designed for the entire area draining to the treatment facility. All projects shall use green stormwater infrastructure to the maximum extent feasible to meet the minimum requirements.</i></p> <p style="text-align: center;"><i>Final code language to be added to final manual</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> |

~~Stormwater~~Water quality treatment ~~facilities~~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.

~~5.3.1.5.4.1.~~ 5.4.1. *General Water Quality Treatment Requirements*

~~5.3.1.1.5.4.1.1.~~ 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 - The daily runoff volume at or below which 91 percent of the total runoff volume for the simulation period is determined using an approved continuous runoff model.</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • Volume 1, Section 5.4.1.3 – Infiltration Treatment Requirements • Volume 3, Section 4.1 – Sizing Approach • Appendix F – Hydrologic Analysis and Design |

5.3.1.2.5.4.1.2. Runoff Treatment Rates

| Stormwater Code Language | References |
|--|--|
| <p>SMC, Section 22.805.090.B.1.b - Different design flow rates are required depending on whether a treatment facility will be located upstream or downstream of detention facilities.</p> <p><i>Final code language to be added to final manual</i></p> <ol style="list-style-type: none"> 1. For facilities located upstream of detention or when detention is not required, the design flow rate is the release rate from the detention facility 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. 2. For facilities located downstream of detention, the design flow rate is the release rate from the detention facility that has a 50 percent annual probability of occurring in any given year (2-year recurrence interval), as determined using an approved continuous runoff model. | <ul style="list-style-type: none"> • Volume 3, Section 4.1 – Sizing Approach • Appendix F – Hydrologic Analysis and Design |

5.3.1.3.5.4.1.3. Infiltration Treatment Requirements

| Stormwater Code Language | References |
|---|---|
| <p>SMC, Section 22.805.090.B.1.c - Infiltration facilities designed for water quality treatment must infiltrate 91 percent of the total runoff volume as determined using an approved continuous runoff model. Infiltration facilities 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.</p> <p><i>Final code language to be added to final manual</i></p> | <ul style="list-style-type: none"> • Volume 1, Section 5.4.1.1 – Runoff Treatment Volume • Volume 3, Section 4.1 – Sizing Approach • Appendix F – Hydrologic Analysis and Design |

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.

5.3.2.5.4.2. Water Quality Treatment Standards

Projects triggering this minimum requirement ~~must~~ shall install water quality treatment ~~facilities~~ BMPs for the given project type, size, and discharge location as summarized in *Chapter 2*. The performance standards applicable to the key Minimum Requirements for Water Quality Treatment include the following:

- Basic Treatment ~~(WQ#1)~~: Install and maintain a basic water quality treatment facility. The requirements for determining the applicable water quality treatment volume and/or rate are presented in *Section 5.4.1*, with additional modeling requirements and guidance presented in *Appendix F*. If the requirement for basic treatment applies to a project, all other treatment minimum requirements (oil, phosphorus, and enhanced treatment) ~~must~~ shall be evaluated to determine if they are applicable.
- Oil Control Treatment ~~(WQ#2)~~: Install and maintain an oil control treatment facility for high-use sites.
- Phosphorus Treatment ~~(WQ#3)~~: Install and maintain a phosphorus treatment facility for projects discharging into nutrient-critical receiving waters.
- Enhanced Treatment ~~(WQ#4)~~: Install and maintain an enhanced treatment facility.

When triggered, water quality treatment BMPs ~~must~~ shall be installed to treat flows from the ~~PGIS~~ pollution-generating hard surface (PGHS) and pollution-generating pervious surface (PGPS) on the site being developed. When stormwater flows from other areas, including non-~~PGIS~~ PGHS (e.g., roofs), dewatering activities, and flows that cannot be separated or bypassed, water quality treatment BMPs ~~must~~ shall be sized for the combined total flow. Direct discharge of untreated drainage water ~~from PGIS~~ to groundwater is prohibited (SMC, Section 22.805.090.B.6).

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

~~5.3.2.1~~ 5.4.2.1 *Basic Treatment*

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 - and the discharge is within 1/4 mile of a nutrient-critical receiving water (refer to *Section 5.4.2.3* ~~Phosphorus Treatment~~), or
 - The project site is required to provide Enhanced Treatment (refer ~~to Enhanced Treatment~~ *Section 5.4.2.4*).
- Single-family residential projects not otherwise required to provide phosphorus control (*Section 5.4.2.3*) 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
 - 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 ~~the following water bodies are designated for aquatic life use: small lakes, creeks, and freshwater designated receiving waters.~~
- Landscaped areas of industrial, commercial, and multi-family project sites,
- ~~and~~ Parking lots of industrial and commercial project sites, dedicated solely to parking of employees' private vehicles that do not involve any other pollution-generating activities (e.g., industrial activities; customer parking; storage of erodible or leachable material, wastes, or chemicals; vehicle maintenance).

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC, Section 22.805.090.B.2 - A basic treatment facility shall be required for projects requiring air quality treatment (PM₁₀ and PM_{2.5} Treatment), subsection 22.805.090.B.4 (Phosphorus Treatment), subsection 22.805.090.B.5 (Enhanced Treatment) and in addition to this basic treatment requirement.</i></p> <p>Final code language to be added to final manual</p> | <ul style="list-style-type: none"> • SMC, Section 22.805.090.B.3 – Oil Control Treatment • SMC, Section 22.805.090.B.4 – Phosphorus Treatment • SMC, Section 22.805.090.B.5 – Enhanced Treatment • Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment • Volume 3, Section 4.1 – Sizing Approach • Appendix F – Hydrologic Analysis and Design |

5.3.2.2.5.4.2.2. Oil Control Treatment

Oil control treatment applies to projects that include “high-use sites” or have NPDES permits that require application of oil control. Gasoline service stations will likely exceed the high-use site threshold. The petroleum storage and transfer criterion is intended to address regular transfer operations such as gasoline service stations, not occasional filling of heating oil tanks. In general, all-day parking areas are not intended to be defined as high-use sites, and should not require oil control.

The project proponent shall develop an ADT estimate for approval by the City (www.seattle.gov/transportation/tfdmaps.htm). The City may also require oil control facilities to be used on sites that may generate high concentrations of oil, but do not meet the high-use site thresholds.

| Stormwater Code Language | References |
|---|---|
| <p><i>SMC, Section 22.805.090.B.3 - An oil control treatment facility shall be required for high-use sites, as defined in 22.801.090.</i></p> <p><i>SMC, Section 22.801.090 - "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"> 1. <i>An area of a commercial or industrial site subject to an expected average daily traffic (ADT) count equal to or greater than</i> 2. <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> 3. <i>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.);</i> <p>Final code language to be added to final manual</p> | <ul style="list-style-type: none"> • Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment |

| | |
|--|--|
| <p><i>4. A road intersection with a measured ADT count of 25,000 vehicles intersecting roadway lighting projects providing primarily pedestrian or bicycle use improvements.</i></p> <p style="text-align: center; font-size: 1.2em;">Final code language to be added to final manual</p> | |
|--|--|

5.3.2.3.5.4.2.3. Phosphorus Treatment

The requirement to provide phosphorus treatment is determined by the City, Ecology, or the EPA. At the time this Manual was developed, there were no established phosphorus-specific treatment requirements for project-scale treatment BMPs in Seattle. In the future, the City may develop a management plan and implement ordinances or regulations for control of phosphorus from new development and redevelopment for the receiving water(s) of the stormwater drainage. Refer to the DPD website to determine if any nutrient-critical treatment criteria apply (www.seattle.gov/dpd/codesrules/codes/stormwater).

The project proponent ~~must~~ shall comply with all applicable legal requirements.

| Stormwater Code Language | References |
|--|---|
| <p><i>SMC, Section 22.805.090.B.4 - A phosphorus treatment facility shall be required for projects discharging to critical receiving waters.</i></p> <p style="text-align: center; font-size: 1.2em;">Final code language to be added to final manual</p> | <ul style="list-style-type: none"> • Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment |

Project sites subject to the phosphorus treatment requirement could also be subject to the enhanced treatment requirement (*Section 5.4.2.4*).

5.3.2.4.5.4.2.4. Enhanced Treatment

Sites that discharge directly (or, indirectly through a drainage system) to a Basic Treatment Receiving Water (*Section 5.4.2.1*) are not subject to enhanced treatment requirements. Likewise, any portion of a project site that is identified as subject to basic treatment requirements only (*Section 5.4.2.1*) are not subject to enhanced treatment requirements.

| Stormwater Code Language | References |
|--|---|
| <p><i>SMC, Section 22.805.090.B.5 - An enhanced treatment facility for reducing concentrations of dissolved metals shall be required for projects that discharge directly to fresh waters, or waters tributary to fresh waters, designated for aquatic life use or have an existing aquatic life use; or use infiltration strictly for flow control (not treatment) and the discharge is within ¼ mile of fresh water designated for aquatic life use or have an existing aquatic life use.</i></p> <p style="text-align: center; font-size: 1.2em;">Final code language to be added to final manual</p> <p>a. For a parcel-based project, the site is an industrial, commercial, or multi-family project.</p> <p>b. For a roadway project, the site is either:</p> | <ul style="list-style-type: none"> • Volume 3, Section 3.5 – BMP Selection for Water Quality Treatment |

| | |
|---|--|
| <ol style="list-style-type: none">1. <i>A fully controlled or a partially controlled limited access highway with Annual Average Daily Traffic counts of 15,000 or more; or</i>2. <i>Any other road with an Annual Average Daily Traffic count of 7,500 or greater.</i> | |
|---|--|

Project sites subject to the enhanced treatment requirement could also be subject to the phosphorus treatment requirement if located in an area designated for phosphorus control (*Section 5.4.2.3*).

CHAPTER 6 – ALTERNATIVE COMPLIANCE

| Stormwater Code Language | References |
|---|--|
| <p><i>SMC 22.800.080 – Authority</i></p> <p><i>The Director of SPU is authorized, to the extent allowed by law:</i></p> <p><i>E. 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 used, such that the cumulative effect on the discharge from the sites 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. To enter into an agreement with the developer of a project for the developer to voluntarily contribute funds toward the construction of one or more drainage control facilities that mitigate the impacts to the same receiving water that have been identified as a consequence of the proposed development. (SMC 22.800.080.F)</i></p> <p><i>G. To enter into an agreement with the developer of a project for the developer to voluntarily construct one or more drainage control facilities at an alternative location, determined by the Director, to mitigate the impacts to the same receiving water that have been identified as a consequence of the proposed development. (SMC 22.800.080.G)</i></p> | <ul style="list-style-type: none"> • Not applicable |

Final code language to be added to final manual

When the consequences of the proposed development are from new impervious 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 impervious surfaces, there should be a construction plan and schedule that ensure the drainage-stormwater control facility or facilities 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 ~~facilities~~BMPs, each project ~~must~~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 ~~must~~shall be addressed before selecting on-site stormwater management, flow control, and/or water quality treatment ~~facilities~~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.

7.1.1. Project Boundaries and Structures

Project boundaries, nearby structures, and other related issues can directly affect stormwater designs. The following ~~must~~shall be addressed before selecting a stormwater ~~facility~~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.
- Setbacks: Property lines, existing and proposed structures, and adjacent right-of-way boundaries ~~must~~shall be identified and considered to evaluate project impacts on adjacent properties.
- Location of Buildings: All existing and proposed buildings ~~must~~shall be identified, including all existing and proposed temporary and permanent structures (such as retaining walls) and impervious surfaces (driveways, patios, etc.). 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, ~~must~~shall be determined, to include the following:
 - Conventional spread footings
 - Pile shaft
 - Basement

- Footing drains and their associated point of discharge, ~~if~~ where applicable
- Water-tight foundation without footing drains
- Elevation of groundwater table in relation to the footings and basement

7.1.2. Soil Condition Assessment

The soil type and land cover types on the project ~~must~~ shall be evaluated to assess the infiltration capacity of the site and the applicability of various stormwater ~~facilities~~ BMPs. General requirements for infiltration feasibility, ~~infiltration facilities, including site characterization,~~ and infiltration rate determination are presented in *Volume 3, Section ~~3.4.5.2~~* and *Appendix D*. ~~An infiltration feasibility map is included in Appendix C.~~

7.1.3. 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.

7.1.4. 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 Requirement to Ensure Sufficient Capacity (*Section 3.8*).

If temporary dewatering shall 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 permit may require compliance with a separate Temporary Dewatering Plan, water quality treatment, flow control requirements, and also require compliance monitoring.

7.1.5. Topography

Because topography will influence how and where stormwater ~~BMPs~~ facilities are incorporated onto the site, the existing and proposed topography ~~must~~ 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

7.2. Site Assessment

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

- Topography: Topography within 500 feet of the site (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, Above Ground 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 infiltrated on the site, 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: 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 (1,320 feet) of proposed deep infiltration BMP location

Sources of data to evaluate site suitability include, but are not limited to, City of Seattle Department of Planning and Development Critical Area maps, Washington Department of Natural Resources Subsurface GIS, Flood Hazard maps, and other mapping information available from the City of Seattle (including Seattle Public Utilities and the Seattle Department of Transportation), 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 UIC wells, setback and site restrictions shall be in accordance with the UIC Guidance Manual (Ecology 2006).

7.2.7.3. Site Design Considerations

To manage stormwater effectively and efficiently, site design for both the construction phase and post-development condition should be done in unison 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 reduce 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 flow path, both pipe and topographically
 - Manage stormwater runoff (quantity and quality) as close to the point of origin as possible
 - Minimize the quantity of stormwater collection and conveyance systems required
 - Use simple, nonstructural methods for stormwater management
 - Use dispersion, infiltration, rainwater harvesting, and alternative surface ~~GSI~~ BMPs (e.g., dispersion, infiltration, and reuse) where feasible
- Landscaping:
 - Maintain and use natural drainage patterns
 - Preserve natural features and resources, including trees
 - 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 minimize impacts to environmentally critical areas 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
- 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 porous soils by locating bioretention and permeable pavement over them.
- Cluster buildings together
- Minimize impervious surfaces (e.g., buildings, sidewalks)
- Minimize pollution-generating hard surfaces (PGHS)~~PGHS~~ (e.g., areas subject to vehicular use such as driveways and parking strips)
- Minimize pollution-generating pervious surfaces (PGPS)~~PGPS~~ (e.g., fertilized lawns)

CHAPTER 8 – DRAINAGE CONTROL REVIEW AND APPLICATION REQUIREMENTS

Most construction projects in Seattle require a permit from [the Seattle Department of Planning and Development \(DPD\)](#) and/or [the Seattle Department of Transportation \(SDOT\)](#). There are two levels of Drainage Control Review required for construction permits: Standard Drainage Review and Comprehensive Drainage Review. The type of Drainage Control Review required is based on the total amount of new plus replaced impervious surface and the total amount of ~~land-disturbing~~[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 DPD's website \(www.seattle.gov/dpd/codesrules/codes/stormwater\)](#).

Forms and submittal documents for projects conducted in the right-of-way can be found on SDOT's website ([www.seattle.gov/transportation/stuse_sip.htm](#)).

The City also has resources available at the DPD Applicant Services Center, including DPD staff available to answer questions, and relevant "Tips" with detailed information for construction projects. Visit the DPD Applicant Services Center on the 20th floor of the Seattle Municipal Tower 700 Fifth Avenue, Seattle, Washington 98124 or the website ([www.seattle.gov/dpd](#)). Copies of all available "Tips" are also available at the DPD Public Resources Center (same location as above) or visit DPD's "Tips" website ([http://web1.seattle.gov/dpd/cams/CamList.aspx](#)).

8.1. 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~~[land-disturbing](#) activity, and less than 5,000 square feet of new plus replaced impervious surface. [For a project with no offsite discharge point as determined by the Director, the drainage control plan shall be prepared by a licensed engineer \(refer to Volume 3, Section 4.3.2\).](#)

~~All~~[The](#) submittals ~~that~~[required](#) for Standard Drainage Review ~~must~~[shall](#) include the following, [at a minimum](#):

- Construction Stormwater Control Plan (refer to *Volume 2 - Construction Stormwater Control*)
- Post Construction Soil Management Plan (refer to *Volume 3, Section 5.1*)
- 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.)
- On-site Stormwater Management BMPs and hard surface identification (see On-site Stormwater Management documentation below)
- Flow Control BMPs
- Water Quality Treatment BMPs
- 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)
 - 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)
 - Ground elevations, flow lines and tops and bottoms of slopes
 - Existing and proposed below grade and above grade utilities and infrastructure
 - Property line dimensions
 - Existing and proposed easements
 - Setbacks
- ~~Design details and figures~~
- Maintenance instructions
- ~~Site Plan including, at a minimum (Tip 103—Site Plan Requirements):-~~
 - ~~Names and widths of adjacent streets and alleys~~
 - ~~Street and alley improvement type~~
 - ~~Easements and setbacks~~
 - ~~Distances from structures to property lines~~
 - ~~General size and shape of current and proposed structures~~
 - ~~Type, location, and dimension of curbs, sidewalks, and street trees~~

- ~~Building identifiers (for sites with more than one building)~~
- ~~Location of primary entrance~~
- ~~Property line dimensions~~
- ~~Proposed work~~
- ~~Address of project, owner's name, legal description, and King County Assessor Parcel Number~~
- 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~~Infeasibility Criteria~~ (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 ~~characterization~~investigation, infiltration test results, or groundwater analysis, as required per *Volume 3, Sections 3.2 and Section 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 ~~characterization~~investigation, infiltration test results, or groundwater analysis as required per *Volume 3, Sections 3.2 and Section 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
 - An agreement to inform future purchasers/successors/assignees of the existence, limitations, and inspection and maintenance requirements of the ~~drainage~~stormwater control ~~facilities~~BMPs
 - 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 ~~facilities~~ BMPs or include reference to the O&M requirements in *Appendix G* on the Drainage Control Plan

8.2. Comprehensive Drainage Review for Large Projects

Comprehensive Drainage Review is required for projects involving 5,000 square feet or more of new plus replaced impervious surface or 1 acre or more of ~~land-disturbing~~ land-disturbing activity, 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:

- ~~A Technical Information Report (TIR) to provide a standard format for presenting the information required~~
- A Drainage Report including, at a minimum:
 - A narrative detailing the proposed project, summary of minimum requirements, and proposed stormwater mitigation management
 - Narrative of existing conditions including drainage basins, existing surface types, soil conditions, groundwater conditions, Environmentally Critical Areas (ECAs), and known contamination
 - Water quality supporting calculations (if triggered)
 - Drainage basin maps
 - Inspection and ~~maintenance~~ O&M requirements and schedule

8.3. Additional Documentation

Additional information may be required by the Director based on project specifics (e.g., infeasibility evaluation, existing conditions) to allow adequately ~~evaluate~~ 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 ~~(refer to Section 5.4.1 and Appendix D)~~
- Geotechnical Report ~~(refer to Section 5.4.1 and Appendix D)~~
- 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

- [Basin Analysis](#)