

Informal Comments on the PRELIMINARY DRAFT Municipal Stormwater Permits (Phase I, Eastern and Western Phase II) and Stormwater Management

PRELIMINARY DRAFT TOPIC (select from drop down)	Comment	Comment Made By
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 01 of 47, Section 1. Exemptions: Pavement Maintenance Projects, 1st paragraph, 1st sentence - Consider revising the word "structures" as structures is used elsewhere in the Permit and typically defines "building structures" in App. 1. Or, clearly define that the term refers to the structural integrity of the pavement. Also, "facility" is used elsewhere within the Permit, for example when referring to stormwater BMPs. Perhaps "pavement" could be used in lieu of both "structures" and "facility" to avoid overuse.</p> <p>Page 01 of 47, Section 1. Exemptions: Pavement Maintenance Projects, 1st paragraph, 2nd sentence - Seattle thinks that "increase in traffic capacity" should only apply to "roadways" and not "parking areas". One could argue that if a parking lot is entirely <u>replaced</u> but the "traffic capacity" of the "parking area" is not increased, then the project is considered a "pavement maintenance project". Therefore, consider rewriting sentence to reduce possible improper application of Pavement Maintenance Projects.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 02 of 47, Section 1. Exemptions: Pavement Maintenance Projects, 2nd paragraph, last sentence - Consider removing "Larger" as there isn't a definition related to "larger" redevelopment projects. Instead, any size redevelopment project must consider pavement maintenance areas as new or replaced hard surfaces.	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 02 of 47, Section 1. Exemptions: Pavement Maintenance Projects, beginning of bulleted list - Consider changing "are exempt from all Minimum Requirements" to the language that is used for Underground Utility Projects - i.e., "are only subject to 4.1 Minimum Requirement #1: Preparation of a Stormwater Site Plan and 4.2 Minimum Requirement #2: Construction Stormwater Pollution Prevention Plan (SWPPP)".	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 02 of 47, Section 1. Exemptions: Pavement Maintenance Projects, bulleted list of exempt items - Consider making projects that are strictly for ADA access improvements (e.g. ADA parking stall, ramps, sidewalk grades, but do not increase the hard surface area) are also considered "Pavement Maintenance Projects".	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 02 of 47, Section 1. Exemptions: Pavement Maintenance Projects, bulleted list of exempt items - What is the definition of "square cut patching"? And is there a size limit of the amount compared to the rest of the existing pavement?	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 02 of 47, Section 1. Exemptions: Underground Utility Projects, 1st paragraph, second sentence - "Installation" of an underground utility is missing. Please add to sentence, i.e., "The entire project must be for the sole purpose of maintaining, upgrading, or <u>installing</u> an underground utility"	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 05 of 47, Section 2. Definitions, Impervious Surface - the definition was changed from "non-vegetated" to "hard" surface area. This is incorrect, since a "hard surface" is, by definition: "An impervious surface, a permeable pavement, or a vegetated roof." This change creates a circular definition as well defines both permeable pavement and vegetated roofs as impervious surfaces. Seattle requests that this definition remains unchanged.	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 07 of 47, Section 2. Definitions, New Hard Surface - Consider adding a definition for "New Hard Surface" (and "Replaced Hard Surface") since all thresholds are based on "new and replaced <u>hard</u> surface", not "new and replaced <u>impervious</u> surfaces".	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 08 of 47, Section 2. Definitions, Pollution-generating impervious surface (PGIS) - "Vehicular Use" is already defined in this Section 2. Definitions - therefore, it is not necessary, nor advisable to repeat the definition of "vehicular use" under the definition of "PGIS".	City of Seattle

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MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 08 of 47, Section 2. Definitions, Pollution-generating impervious surface (PGIS) - Appendix 1 applies to new and redevelopment projects with new and replaced hard surfaces that are also required to meet clean air requirements mandated under other regulations (e.g., restaurant and manufacturing ventilation systems). Therefore, it is not expected that newly constructed projects would expel oils or other solid particles.</p> <p>Through Seattle's source control program, newly permitted projects that meet current ventilation requirements have not generally been found to be sources of significant amount of dusts, mists, or fumes.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 09 of 47, Section 2. Definitions, Project - THE FOLLOWING UNDERLINED SECTION WAS ADDED: Any proposed action to alter or develop a site; <u>or the proposed action of a permit application or an approval that requires drainage review.</u></p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 12 of 47, Section 2. Definitions, Vehicular Use - Please add "rail" (light, heavy) to definition of "vehicular use" to be consistent with Ecology's previous 2019 RTC (link below). This definition is still silent on whether "rail lines" are considered subject to vehicular use. As such, both "railroad yards" (added to the trigger for 3. Enhanced Treatment, Section 4.6) and "rail lines" are not included in the definition of "pollution-generating" and therefore do not count towards the thresholds for pollution-generating found in Section 3 of the Appendix 1. Is this Ecology's intent? Seattle would prefer to rely on Permit definitions as opposed to previous Response to Comments regarding this subject.</p> <p>For reference:  <a href="https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMWW/2019SWMMWW.htm#Topics/AdditionalResources/ResponseToComments/RTC_Glossary.htm?Highlight=light%20rail">https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMWW/2019SWMMWW.htm#Topics/AdditionalResources/ResponseToComments/RTC_Glossary.htm?Highlight=light%20rail</a></p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 12 of 47, Section 2. Definitions, Wetlands - "Groundwater" was changed to "ground water" which does not match the definition spelling in the Permit which uses "groundwater" and matches WAC Section 173-200-020 Definitions. Please revert back to "groundwater" and update spelling in SWMMWW to match.</p> <p>For reference:  <a href="https://fortress.wa.gov/ecy/ezshare/wq/permits/MuniPh1Mod-2021FinalModPermit.pdf">https://fortress.wa.gov/ecy/ezshare/wq/permits/MuniPh1Mod-2021FinalModPermit.pdf</a>  <a href="https://app.leg.wa.gov/Wac/default.aspx?cite=173-200-020">https://app.leg.wa.gov/Wac/default.aspx?cite=173-200-020</a></p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 13 of 47, Section 3.1 Minimum Requirement Thresholds, last sentence - new sentence was added referencing "common plan of development or sale" is problematic and should be removed. As noted in RTC for the 2019 SWMMWW update, the term "common plan of development or sale" was removed from the western WA Municipal Stormwater Permit during the 2013 permit cycle when the minimum requirement thresholds were reduced. Based on existing Appendix 1 language, Permittees apply requirements based on "thresholds [that] apply at the time of application for the permit allowing or authorizing that activity" "at the time of application for a subdivision, plat, short plat, building permit, or other construction permit." as already stated in this Section 3.1 and consistent with State law. Additionally, Permittees do not have the authority to regulate sales of property nor can Permittees apply development-related requirements at the time of sale.</p> <p>For reference:  <a href="https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMWW/2019SWMMWW.htm#Topics/AdditionalResources/ResponseToComments/RTC_Glossary.htm?Highlight=%22common%20plan%20of%20development%22">https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMWW/2019SWMMWW.htm#Topics/AdditionalResources/ResponseToComments/RTC_Glossary.htm?Highlight=%22common%20plan%20of%20development%22</a></p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 14 of 47, Figure 2: Flow Chart of Determining Whether the Permittee Must Regulate the Project, new 2nd box - Please remove second sentence in box that states that "... The project is not required to comply with the Minimum Requirements." to match the title of Figure 2: "Flow Chart for Determining Whether the Permittee Must Regulate the Project". It is important to be clear what the Permittee is required to do versus what a project is required to do.</p>	City of Seattle

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MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 16 of 47, Figure 4 and page 18 of 47 (Section 3.4) - Does</p> <p>For Redevelopment, does Ecology intend to:</p> <p>1) only require Commercial and Industrial Sites with 5,000 sf of "new" hard surface to meet MRs #1-9?, OR</p> <p>2) Does Ecology intend to required Commercial and Industrial Sites with 5,000 sf of "new plus replaced" hard surface to meet MRs #1-9 (if the 50% exceedance occurs)?</p> <p>Currently, per Figure 4 (Page 16 of 47), Section 3.3, Redevelopment Project Thresholds, and Section 3.4, Threshold 2 (Page 18 or 47): "Additional Requirements for [Other types of] Redevelopment" (Section 3.4), Threshold 2, only applies "commercial or industrial sites" with "the new <b>plus replaced</b> hard surface total 50% or more of the existing hard surfaces" (Section 3.4) and "5,000 square feet or more of <b>new</b> hard surface" (Section 3.3 Redevelopment Project Thresholds).</p> <p>If Ecology intends to have 5,000 sf of "new <b>plus replaced</b>" hard surface apply to Threshold 2, then the first bullet from Threshold 1 (i.e., "the total of new plus replaced hard surfaces is 5,000 square feet or more, and" should be added to Threshold 2.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 18 of 47, Section 3.4 Additional Requirements for Redevelopment, 2nd to last paragraph - Do not change "Permittee" to "local jurisdiction" unless it is Ecology's intent to allow any local jurisdiction to issue exemptions and stop-loss provisions. "Local jurisdiction" is generally used in the Permit to describe coordination between other Permittees (e.g., Secondary) or when a Permittee's MS4 is located in a another jurisdiction.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 19 of 47, Section 4.1 MR#1: Preparation of a Stormwater Site Plan - Instead of referring to "local government review" consider using "local jurisdiction(al) review" or "local permitting authority" as the term "government" could be considered ambiguous. Generally, the Permit appears to mostly use the term "local jurisdiction". Typical comment that these proposed terms are not consistent throughout Appendix 1.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 19 of 47, Section 4.2 MR#2: Construction SWPPP, sentence added to end - Please revise sentence as follows: "Permittees remain responsible for site inspection and enforcement of the requirements, to ensure that construction operators follow their SWPPPs in accordance with Local Jurisdiction regulations."</p> <p>Permittees are responsible for enforcing local rules and regulations that are deemed equivalent to Ecology's Stormwater Manual. Permittees are not responsible for enforcing Ecology's CONSTRUCTION STORMWATER GENERAL PERMIT REQUIREMENTS.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	NO COMMENT (SEE TEXT TO RIGHT)	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 20 of 47, Section 4.2 MR#2: Construction SWPPP, General Requirements, Seasonal Work Limitations - Typical comment that proposed terms for local jurisdiction review (local permitting authority) are not consistent throughout Appendix 1.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 27 of 47, Section 4.2 MR#2: Construction SWPPP, Element 13: Protect Low Impact Development BMPs (Infiltration BMPs) - Should the title of this be changed to "Protect Infiltration BMPs" since the rest of the section generally now refers to "Infiltration BMPs"?</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 28 of 47, Section 4.3 MR#3: Source Control of Pollution, first sentence - Shouldn't all projects, during and following construction, apply Source Control BMPs? Therefore, consider deleting the clause "Following Construction, ".</p>	City of Seattle

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MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 34 of 47, Section 4.6 MR#6: Runoff Treatment, threshold - Seattle supports instituting more water quality treatment requirements but is concerned that relatively small residential projects will trigger MR #6 and then be subject yearly inspections by Permittee staff. These projects are already required to meet MR #5 On-site Stormwater Management which requires BMPs such as bioretention and permeable pavement installation that meet enhanced water quality treatment requirements (with proper soil suitability criteria). Therefore, if Ecology intends to apply a lower water quality treatment threshold, Seattle recommends that Ecology evaluate applying the lower threshold (2,000 sf or more pollution-generating hard surface) to only higher pollutant / AADT scenarios and leave the threshold for small residential projects at 5,000 sf.</p> <p>For example, consider only applying the 2,000 sf runoff treatment threshold to projects such as: gas-stations, drive-throughs, convenient stores; Or commercial, industrial, institutional, and high-density residential projects (e.g., apartment complexes); Or using the criteria for "Other project sites that are anticipated to generate a high pollutant loading" (e.g., fueling stations, parking areas) found in Section 3. Enhanced Treatment.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 35 of 47, Section 4.6 MR#6: Runoff Treatment, 3. Enhanced Treatment, High AADT roads - Why is there a higher AADT threshold outside of a UGA (15,000) than inside of a UGA (7,500) for when enhanced treatment is required?	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 35 of 47, Section 4.6 MR#6: Runoff Treatment, 3. Enhanced Treatment, Other project sites that are anticipated to generate high pollutant loading - please delete reference to "on-street parking areas", since on-street parking is included in the definition of "Site" for "road projects" (i.e., "the length of the project site and the right-of-way boundaries define the site.").</p> <p>Instead, it would be clearer to state that enhanced treatment is required for streets / roads adjacent to commercial or industrial areas (including parking areas) or other streets with an expected total AADT of <math>\geq 7,500</math>.</p>	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 36 of 47, Section 4.6 MR#6: Runoff Treatment, 3. Enhanced Treatment, - Given the pollutant of concerns that Ecology is focusing on during this permit cycle, does it make sense to continue to exempt enhanced treatment in: "All Salt Waterbodies" and "Rivers" and "Lakes" that meet the criteria found in Appendix III-A: Basic Treatment Receiving Waters (e.g., Green River, Lake Washington)?	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	Page 45 of 47, Section 4.9 MR#9: O&M - Permittees already requires that long-term maintenance is required and transfers "with the property to the new owner" as required per current the Permit. Permittees are not able to regulate "the long-term funding mechanism that will support proper O&M" and therefore this clause should be removed.	City of Seattle
MS4 Permit: Appendix 1 (Phase I and Western Phase II)	<p>Page 45 of 47, Section 6. Exceptions / Variances - Why was the following paragraph removed?: "Project specific design exceptions based on site specific conditions do not require prior approval from Ecology. The Permittee must see prior approval from Ecology for any jurisdiction wide exception."</p> <p>Seattle relies on this language in the Permit to clarify what type of exceptions must be reviewed by Ecology. Please include in the Permit which types of exceptions require and don't require Ecology's review.</p>	City of Seattle
MS4 Permit: Mapping	Format example provided requires latitude/longitude data. Ecology allows for state plane in EIMS and IDDE export. Seattle would prefer to use State Plane. It would be helpful if state plane were a valid value for coordinate systems to be consistent across ecology submittals.	City of Seattle
MS4 Permit: Mapping	There are several similar Ecology documents which include a list of valid values, formatted for Excel submission. Where possible, it would be beneficial to ensure consistency in valid values across these documents, so that jurisdictions may assign these values in their systems and ensure that we are meeting Ecology standards.	City of Seattle
MS4 Permit: Mapping	Preference for Excel template or shapefile formats for providing data to Ecology	City of Seattle
MS4 Permit: PCBs	The proposed adjustment to building washdown exemptions are appreciated but additional information regarding how it applies may be necessary to understand the implications. For instance, Jurisdictions may have PPPs, but business entities and property owners likely do not.	City of Seattle

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MS4 Permit: Sweeping	Appreciate the clarification/footnote regarding what is meant by direct discharge MS4 areas, but suggest reworking the text to remove the technical term (direct discharge). This is a term with a different meaning elsewhere in the permit and in regulatory documents.	City of Seattle
MS4 Permit: Sweeping	SPU has extensive experience implementing a street sweeping for water quality benefits and has learned a great deal about what improves sweeping outcomes and what challenges may exist. SPU would be happy to discuss these lessons learned with Ecology to support an effective implementation.	City of Seattle
MS4 Permit: Sweeping	There appears to be a conflict between the high priority basins discussion and the 90% sweeping requirements. The text appears to require sweeping of all high priority areas, then notes a percentage swept. There is an expressed desire for flexibility and adaptability, but the text seems fairly prescriptive. What is the intended implementation requirement.	City of Seattle
MS4 Permit: Sweeping	AADT may not be the best method to implement a street sweeping program at scale. Using modelled traffic patterns allows for targeted adjustments to programs for environmental benefit. Would Ecology allow modelled traffic flows to substitute for AADT?	City of Seattle
MS4 Permit: Tree Retention	The program implementation schedule is currently blank, as is the timeline for implementation. Providing sufficient startup time for the initial calculation of canopy cover and tree counts will ensure those without existing programs can implement. Seattle suggests initial implementation to possibly align with timelines for each Permittee's next Comprehensive Plan Update (10-year cycle), then every Permit cycle (5 year).	City of Seattle
SWMMWW Item 2: Climate Change Topic	Concern that a more active Ecology role may be needed. Jurisdictions, particularly resource constrained small to mid-size ones, need to be provided with technical assistance, guidance, and possibly requirements on sizing and locating stormwater infrastructure to meet the projected challenges.	City of Seattle
SWMMWW Item 2: Climate Change Topic	Sea level rise impacts on municipal or jurisdictional operations, such as drainage system function may need to be noted to ensure that they are being incorporated into future code and design. As a starting point, could include a link to the UW CIG Interactive Sea Level Rise Visualizations ( <a href="https://cig.uw.edu/projects/interactive-sea-level-rise-data-visualizations/">https://cig.uw.edu/projects/interactive-sea-level-rise-data-visualizations/</a> ). New analysis and research tools (see the Puget Sound Coastal Storm Modeling System project <a href="https://www.usgs.gov/centers/pcm/science/ps-cosmos-puget-sound-coastal-storm-modeling-system">https://www.usgs.gov/centers/pcm/science/ps-cosmos-puget-sound-coastal-storm-modeling-system</a> ) will provide communities with greater information and may be appropriate for Ecology to use for guidance purposes.	City of Seattle
SWMMWW Item 2: Climate Change Topic	Due to scope of impacts to BMP/system sizing from sea level rise and weather pattern changes, further investigation/discussion may be necessary. This may be a good subject for a multijurisdictional work group.	City of Seattle
SWMMWW Item 3: Stormwater Pollutants Topic	For PCBs section, I appreciate the efforts and details put into discussing PCBs in building materials. Other more traditional sources are not noted in this section though and should be added, such as electrical transformers and ballasts to ensure that these are not overlooked by those with little PCB experience.	City of Seattle
SWMMWW Item 3: Stormwater Pollutants Topic	For PCBs section, bmps are listed but would suggest omitting these here and pointing to the individual activity BMPs. Having the bmps in both locations may lead to mismatches or conflicts.	City of Seattle
SWMMWW Item 4: PCB Edits - Source Control BMPs	S451 " Do not dump any <u>substance</u> on pavement, on the ground, in the storm drain, or toward the storm drain, regardless of its content, unless it is clean water only." is a very broad statement. Suggest adding the word liquids or more directly addressing what you mean by dumping. Piling debris on site during activities is common, and this would appear to restrict those activities.	City of Seattle
SWMMWW Item 4: PCB Edits - Source Control BMPs	S451 and S438 The sentences "When working on PCB-containing building materials, prepare dumpsters or other waste storage facilities to be able to manage PCB-bulk product waste and PCB-remediation waste, as appropriate and in accordance with Federal laws" included in the remodel/repair BMP should also be added to the demolition BMP to ensure consistency.	City of Seattle
SWMMWW Item 4: PCB Edits - Source Control BMPs	S438 Demolition: "Identify, remove, and properly dispose of"... requires removal of hazardous materials (PCBs including in building material) prior to demolition work occurring. Is it intended that the PCBs be removed from the building prior to demolition of the structure? This may result in increased stormwater exposure or timelines to address the PCBs.	City of Seattle

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SWMMWW Item 4: PCB Edits - Source Control BMPs	S431/S424 Washing BMP: BMP appears to prohibit washing of any building built from 1950-1980. (Known to contain or that may contain PCBs). Many buildings require cleaning for maintenance activities or due to public health requirements. Example: Aluminum windows are required to be washed to control mold.	City of Seattle
SWMMWW Item 4: PCB Edits - Source Control BMPs	While BMP manuals are not intended to be all encompassing of regulations, we suggest that Ecology include a note that additional regulations may apply, including EPA regulations. Has Ecology considered that these bmps may conflict with EPA regulations?	City of Seattle
SWMMWW Item 4: PCB Edits - Source Control BMPs	Building/Equipment Washing: The conditionally exempt list in the permit allows for discharge of specific wash water to the stormwater system. This BMP appears to prohibit discharge of that same wash water to storm. I.e.. "If the washwater does not contain oils, soaps, or detergents, (in this case only a low pressure, clean, cold water rinse is allowed) then it could drain to soils that have a sufficient natural attenuation capacity for dust and sediment." How are these conflicting statements reconciled?	City of Seattle
SWMMWW Item 4: PCB Edits - Source Control BMPs	S431 Washing/steam cleaning: BMP covers three different activities that have very different BMPs and potential impacts. This BMP appears to have sections that apply to cleaning of vehicles and equipment (ex. wash pad requirements), and other sections that appear applicable to building cleaning. Would suggest that the three types of activities be clearly split and addressed through applicable bmps.	City of Seattle
SWMMWW Item 4: PCB Edits - Source Control BMPs	S451 Repair/remodel BMP "Identify, remove, and properly dispose of"... requires removal of hazardous materials prior to repair work occurring. Requiring removal of these materials may in certain circumstances increase stormwater risk. Suggest changing to "... removal or addressing to prevent contamination" which would allow for encapsulation or similar other means to address.	City of Seattle
SWMMWW Item 5: Bioretention BMP	Figure V-5.17. The figure shows bioretention material adjacent to the mineral aggregate Layer. Consider revising to match Seattle Standard Plan 293 (a&b) where BSM is placed above the mineral aggregate. Also, this figure is difficult to read as are many of the others in this section. Finally, it is not clear what makes this a bioretention swale (sloped?) versus a bioretention cell (flat bottom?).  For reference: <a href="https://www.seattle.gov/documents/Departments/SPU/Engineering/2020_Standard_Plans.pdf">https://www.seattle.gov/documents/Departments/SPU/Engineering/2020_Standard_Plans.pdf</a>	City of Seattle
SWMMWW Item 5: Bioretention BMP	Figure V-5.22. It is difficult to maintain the shown setbacks in dense urban environment and creates a deterrent to implementing GSI. Recommend leaving setbacks to the local jurisdiction.	City of Seattle
SWMMWW Item 5: Bioretention BMP	Figure V-5.26. Is there a recommended burial depth for the rock? Also, it is unclear why a minimum height would be called out. Seems like a maximum height would be more appropriate. Please refer to Seattle Standard Plan 141 for a recommended detail.  For reference: <a href="https://www.seattle.gov/documents/Departments/SPU/Engineering/2020_Standard_Plans.pdf">https://www.seattle.gov/documents/Departments/SPU/Engineering/2020_Standard_Plans.pdf</a>	City of Seattle
SWMMWW Item 5: Bioretention BMP	Figure V-5.28. Seattle does not typically apply aggregate filter material over the entire underside of the bioretention material, only adjacent to underdrain pipe. Consider revising to match Seattle Std. Plan 293a.  For reference: <a href="https://www.seattle.gov/documents/Departments/SPU/Engineering/2020_Standard_Plans.pdf">https://www.seattle.gov/documents/Departments/SPU/Engineering/2020_Standard_Plans.pdf</a>	City of Seattle
SWMMWW Item 5: Bioretention BMP	Page 23 of 51. The proposed SWMMWW text for HPBSM Polishing Layer specifies 90% sand and 7.5% activated, but ECY guidance document (reference below, page 15 and referred to in proposed text) specifies 91% (+/- 1%) filter sand and 6.5% (+1% / -0%) activated alumina. Which is correct? Seattle recently specified in the Longfellow project what is consistent with the ECY's guidance document (91%, 6.5%).  For reference: <a href="https://apps.ecology.wa.gov/publications/documents/2110023.pdf">https://apps.ecology.wa.gov/publications/documents/2110023.pdf</a>	City of Seattle

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SWMMWW Item 5: Bioretention BMP	<p>Page 23 of 51. Seattle is using a 6" polishing layer rather than a 12" polishing layer. It is difficult to make a facility deep and connect the underdrain into an existing system while maintaining gravity flow, therefore consider reducing polishing layer to a 6" minimum.</p> <p>The Swale on Yale project used a polishing layer less than 12" deep and monitoring shows good performance.</p>	City of Seattle
SWMMWW Item 5: Bioretention BMP	<p>Page 31 of 51: Presettling: 2" to 4" rock may be too small. Seattle has found that it is difficult to clean area with rock that is this small because it gets sucked into the vactor. Recommend using Seattle Std. Spec for Streambed Aggregate Type-4, Section 9-03.3(2) Gradations (~6" to 8" rock) &amp; Std. Plans 295</p> <p>For reference:  <a href="https://www.seattle.gov/documents/Departments/SPU/Engineering/2020_Standard_Specificatio ns.pdf">https://www.seattle.gov/documents/Departments/SPU/Engineering/2020_Standard_Specificatio ns.pdf</a></p>	City of Seattle
SWMMWW Item 5: Bioretention BMP	<p>Page 36 of 51: (con't of "General Underdrain Guidance"): The following sentence is confusing: "Underdrain systems should only be installed when the bioretention BMP is sited such that any of the following are true" Do you mean " Bioretention should only be installed with an underdrain if any of the following is true."?</p>	City of Seattle
SWMMWW Item 5: Bioretention BMP	<p>Page 40 of 51: "Orifice and Other Flow Control Structures": Seattle allows a minimum orifice of 0.25 inches. 0.5 inches does not provide much flow control unless a large basin is draining to it.</p>	City of Seattle
SWMMWW Item 5: Bioretention BMP	<p>Will Ecology work with vendors to make sure that this mix, or at least all of the components (i.e., coir, high carbon wood ash/biorchar, activated alumina, iron aggregate) are commercially available? Permittees will not be able to enforce requirements if bioretention components are not commercially available to both small and large developers.</p>	City of Seattle