

## Herrera Environmental Consultants

We recently worked with Ecology on the 2018/2019 update to the SWMMEW. Please see the attached comments and recommendations for consistency between the SWMMWW and the SWMMEW. I also attached our Style Guide for the 2018/2019 SWMMEW with some recommendations regarding terminology, hyphens, number formatting, etc. Please let me know if you have any questions.

Thanks,  
Rebecca Dugopolski  
Herrera

Comments on the Draft 2019 SWMMWW		
Draft 2019 SWMMWW Section (select from drop down)	Comment	Comment Made By
(General Comment)	Recommend adding equation names and numbers to all equations. See SWMMEW for examples.	Rebecca Dugopolski (Herrera)
(General Comment)	Recommend defining variables under each equation. See SWMMEW for examples.	Rebecca Dugopolski (Herrera)
(General Comment)	<p>Recommend updating headings in Chapter 8 for consistency:</p> <ul style="list-style-type: none"> <li>- Applicable Operational BMPs</li> <li>- Applicable Structural Source Control BMPs</li> <li>- Recommended Operational BMPs</li> <li>- Applicable Treatment BMPs</li> </ul> <p>Modify the following headings to fit the 4 categories listed above:</p> <ul style="list-style-type: none"> <li>- Recommended Additional BMPs</li> <li>- Optional Operational BMPs</li> <li>- Optional Treatment BMPs</li> <li>- Additional Applicable BMPs</li> <li>- Suggested Operational BMPs</li> </ul>	Rebecca Dugopolski (Herrera)
(General Comment)	Consider updating "waterways" to "drainage ways" or "drainage paths." This change was considered for the SWMMEW, but not yet implemented.	Rebecca Dugopolski (Herrera)
(General Comment)	Instead of referring to specific section numbers and a specific date of the WSDOT standard specs which can be updated and reorganized with new versions, the SWMMEW update uses the following language: "See the latest version of WSDOT's Standard Specifications for Road, Bridge, and Municipal Construction."	Rebecca Dugopolski (Herrera)
(General Comment)	Updated "dissipator" to "dissipater" in the final version of the SWMMEW. Recommend updating in the SWMMWW for consistency between the SWMMWW and the SWMMEW.	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "aboveground" instead of "above ground" or "above-ground"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "anti-icing chemicals" instead of "anti-icer chemicals"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "applicant" instead of "applicant/contractor"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "backup" (noun and adj) or "back up" (verb) instead of "back-up"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "base flow" instead of "baseflow"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "belowground" instead of "below ground" or "below-ground"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "biofiltration" instead of "biofilter"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "catch basin" instead of "catchbasin"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "clean-out" (noun and adj.) or "clean out" (verb) instead of "cleanout"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "cleanup" (noun and adj.) or "clean up" (verb) instead of "clean-up"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "cross section" instead of "cross-section"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "deicers" instead of "de-icers," "deicers," "de-icer chemicals," or "de-icing chemicals"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW: "designer" instead of "design engineer" or "engineer"	Rebecca Dugopolski (Herrera)

(General Comment)	Terminology recommendation from the SWMMEW: "drainage system" instead of: "storm drainage system" "storm drain system" "stormwater drainage system" "stormwater conveyance system" "storm sewer" "storm sewer system" "drainage ways"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "gauge" instead of "gage"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "level spreader" instead of "level-spreader"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW: "licensed engineer in the state of Washington" instead of: licensed civil engineer licensed professional engineer licensed engineer registered in the state of Washington professional engineer professional engineer licensed to practice in the state of Washington qualified engineer	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW: "licensed engineer in the state of Washington with geotechnical expertise" instead of "registered professional engineer with geotechnical expertise"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW: "licensed engineer in the state of Washington with structural expertise" instead of: licensed civil engineer with structural expertise structural engineer	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW: "local jurisdiction" instead of "local government"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "maintenance hole " instead of "manhole"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "pollution-generating " instead of "pollutant-generating"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW: "project proponent" instead of "developer/owner/engineer" and "owner/developer"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "sheet flow" instead of "sheetflow"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "sidewall" instead of "side wall" or "side-wall"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW: "storm drain" instead of: "stormwater drain" "storm inlet" "stormwater inlet"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "upgradient" instead of "up-gradient"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "upslope" instead of "up-slope"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "washwater" instead of "wash water" or "wash-water"	Rebecca Dugopolski (Herrera)

(General Comment)	Terminology recommendation from the SWMMEW technical editor: "web page" instead of "webpage"  Also, a global edit from the SWMMEW technical editor: Ecology has a main website, but all of the other pages within the website are considered to be "web pages"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "website" instead of "web site"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "windthrow" instead of "wind-throw"	Rebecca Dugopolski (Herrera)
(General Comment)	Terminology recommendation from the SWMMEW technical editor: "wing wall" instead of "wingwall" or "wing-wall"	Rebecca Dugopolski (Herrera)
BMP C103: High Visibility Fence	Added a hyphen between "High" and "Visibility" from the SWMMEW. Recommend updating in the SWMMWW for consistency.	Rebecca Dugopolski (Herrera)
BMP C125: Topsoiling / Composting	Change "Mulch planting beds with 2 inches of organic material" (under Design and Installation Specifications) to a main bullet. It doesn't belong as a sub bullet under "Topsoil shall have..." This change has been implemented in the SWMMEW.	Rebecca Dugopolski (Herrera)
BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection	Under "Alternative Application Method," please clarify if the "areas less than 5 to 10 acres" should be "less than 5 acres" or "less than 10 acres." This clarification was considered for the SWMMEW, but not yet implemented.	Rebecca Dugopolski (Herrera)
BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection	Under "Safety and Toxicity," the existing reference to ANSI/NSF should be flipped to list NSF first (NSF/ANSI Standard 60). This change has been implemented in the SWMMEW.	Rebecca Dugopolski (Herrera)
BMP C140: Dust Control	During the SWMMEW update, the CSWGP Implementation team recommended adding "PAM should not be directly applied to water or allowed to enter a water body" to the following bullet as a reminder. This change has been implemented in the SWMMEW: "PAM (BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection) added to water at a rate of 0.5 pounds per 1,000 gallons of water per acre and applied from a water truck is more effective than water alone. This is due to increased infiltration of water into the soil and reduced evaporation. In addition, small soil particles are bonded together and are not as easily transported by wind. Adding PAM may reduce the quantity of water needed for dust control. Note that the application rate specified here applies to this BMP, and is not the same application rate that is specified in BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection, but the downstream protections still apply."	Rebecca Dugopolski (Herrera)
BMP C140: Dust Control	Recommend adding a link to the local Air Pollution Control Agency map in the following bullet. This change has been implemented in the SWMMEW: "Contact your local Air Pollution Control Authority for guidance and training on other dust control measures. Compliance with the local Air Pollution Control Authority constitutes compliance with this BMP."	Rebecca Dugopolski (Herrera)
BMP C151: Concrete Handling	During the SWMMEW update, the CSWGP Implementation team recommended deleting the words "minimize and" under the Purpose. This change has been implemented in the SWMMEW: "Use this BMP to minimize and eliminate concrete, concrete process water, and concrete slurry from entering waters of the State."	Rebecca Dugopolski (Herrera)
BMP C151: Concrete Handling	The technical editor for the SWMMEW recommended changing "washdown" to "washwater" in the following bullet since "washdown" is not a noun. This change has been implemented in the SWMMEW: "Do not allow washdown from areas, such as concrete aggregate driveways, to drain directly to natural or constructed stormwater conveyances."	Rebecca Dugopolski (Herrera)
BMP C151: Concrete Handling	During the SWMMEW update, the CSWGP Implementation team recommended adding "(process wastewater)" after "concrete washwater" and replacing the following text with the word "properly." This change has been implemented in the SWMMEW: "shall be disposed of in a manner that does not violate ground water or surface water quality standards"	Rebecca Dugopolski (Herrera)
BMP C151: Concrete Handling	Delete the word "engineered" in the following bullet. This change has been implemented in the SWMMEW: "The use of engineered soils amended with (but not limited to) Portland cement-treated base, cement kiln dust or fly ash."	Rebecca Dugopolski (Herrera)
BMP C151: Concrete Handling	During the SWMMEW update, the CSWGP Implementation team recommended deleting the following bullet. This change has been implemented in the SWMMEW: "Discharging stormwater to segments of water bodies on the 303(d) list (Category 5) for high pH."	Rebecca Dugopolski (Herrera)
BMP C160: Certified Erosion and Sediment Control Lead	Added a definition for WebDMR (electronic discharge monitoring reports) into the following bullet in the SWMMEW. This change has been implemented in the SWMMEW: "Completing any sampling requirements including reporting results using WebDMR."	Rebecca Dugopolski (Herrera)

BMP C203: Water Bars	<p>2019 Draft SWMMWW: "Install the water bar as soon as the clearing and grading is complete. Reconstruct the water bar when construction is complete on a section when utilities are being installed."</p> <p>Recommended language from the SWMMEW: "Install the water bar as soon as the clearing and grading is completed. When utilities are being installed, reconstruct the water bar as construction is completed on each section."</p>	Rebecca Dugopolski (Herrera)
BMP C204: Pipe Slope Drains	<p>Recommend updating the lead-in sentence and bulleted list starting with "Pipe slope drains can be:" to the following text from the SWMMEW: "Pipe slope drains can serve the following purposes: - Connection to new catch basins and temporarily use until all permanent piping is installed. - Drainage of water collected from aquifers exposed on cut slopes and conveyance of the water to the base of the slope. - Collection of clean runoff from plastic sheeting and routing the runoff away from exposed soil. - Installation in conjunction with silt fence to drain collected water to a controlled area. - Diversion of small seasonal streams away from construction. They have been used successfully on culvert replacement and extension jobs. Large flex pipe can be used on larger streams during culvert removal, repair, or replacement. - Connection to existing downspouts and roof drains and diversion of water away from work areas during building renovation, demolition, and construction projects."</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Added lead-in sentence under "Excavated Drop Inlet Protection" and prior to bulleted list in the SWMMEW that states: "Design and installation specifications for excavated drop inlet protection include:" Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Added lead-in sentence under "Block and Gravel Filter" and prior to bulleted list in the SWMMEW that states: "Design and installation specifications for block and gravel filters include:" Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Added lead-in sentence under "Gravel and Wire Mesh Filter" and prior to bulleted list in the SWMMEW that states: "Design and installation specifications for gravel and wire mesh filters include:" Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Removed reference to "inserts" in the first sentence under "Catch Basin Filters" in the SWMMEW. Rephrased to: "Catch basin filters are designed by manufacturers for construction sites." Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Added lead-in sentence under "Catch Basin Filters" and prior to bulleted list in the SWMMEW that states: "Design and installation specifications for catch basin filters include:" Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Added lead-in sentence under "Curb Inlet Protection With Wooden Weir" and prior to bulleted list in the SWMMEW that states: "Design and installation specifications for curb inlet protection with wooden weirs include:" Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Added lead-in sentence under "Block and Gravel Curb Inlet Protection" and prior to bulleted list in the SWMMEW that states: "Design and installation specifications for block and gravel curb inlet protection include:" Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Added lead-in sentence under "Curb and Gutter Sediment Barrier" and prior to bulleted list in the SWMMEW that states: "Design and installation specifications for curb and gutter sediment barriers include:" Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Maintenance Standards: Updated "stone" terminology to "rock" for consistency with "rock and gravel filters" in the SWMMEW. Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Maintenance Standards: Updated "inserts" to "catch basin filters" in the SWMMEW. Recommend updating in the SWMMWW for consistency.</p>	Rebecca Dugopolski (Herrera)
BMP C220: Inlet Protection	<p>Storm Drain Inlet Protection Table: Add "Paved or earthen" in the blank cell under "Gravel and wire drop inlet protection" and "Applicable for Paved/Earthen Surfaces." Add "Not applicable" under "Culvert inlet sediment trap" and "Emergency Overflow" and "Applicable for Paved/Earthen Surfaces."</p>	Rebecca Dugopolski (Herrera)
BMP C233: Silt Fence	<p>Design and Installation Specifications: Recommend changing "Engineer" to "licensed professional."</p>	Rebecca Dugopolski (Herrera)

BMP C233: Silt Fence	<p>2019 Draft SWMMWW: "Wood with dimensions of 2-inches by 2-inches wide min. and a 3-foot min. length. Wood posts shall be free of defects such as knots, splits, or gouges."</p> <p>Recommended language from the SWMMEW: "Wood with minimum dimensions of 2 inches by 2 inches by 3 feet. Wood shall be free of defects such as knots, splits, or gouges."</p>	Rebecca Dugopolski (Herrera)
BMP C234: Vegetated Strip	Maintenance Standards (3rd bullet): Change "surface water controls" to "stormwater runoff controls."	Rebecca Dugopolski (Herrera)
BMP C235: Wattles	<p>2019 Draft SWMMWW: "Wooden stakes should be approximately 3/4 x 3/4 x 24 inches min."</p> <p>Recommended language from the SWMMEW: "Wooden stakes should be 0.75 by 0.75 by 24 inches minimum."</p>	Rebecca Dugopolski (Herrera)
BMP C236: Vegetative Filtration	<p>2019 Draft SWMMWW: "Monitor the vegetated spray field all the way down to the nearest surface water, or furthest spray area, to ensure that the water has not caused overland or concentrated flows, and has not created erosion around the spray nozzle(s)."</p> <p>Change "furthest" to "farthest" per SWMMEW technical editor recommendations.</p>	Rebecca Dugopolski (Herrera)
BMP C236: Vegetative Filtration	<p>2019 Draft SWMMWW: "Do this as needed based on monitoring the spray field."</p> <p>Recommended language from the SWMMEW: "Repeat as needed based on monitoring of the spray field."</p>	Rebecca Dugopolski (Herrera)
BMP C236: Vegetative Filtration	<p>2019 Draft SWMMWW: "Install several branches of 4" schedule 20, swaged-fit common septic tight-lined sewer line, or 6" fire hose, which can convey the turbid water out to various sections of the field."</p> <p>Recommended language from the SWMMEW: "Install several branches of 4-inch-diameter Schedule 20 polyvinyl chloride (PVC), swaged-fit common septic tight-lined sewer line, or 6-inch-diameter fire hose, which can convey the turbid water out to various sections of the field."</p>	Rebecca Dugopolski (Herrera)
BMP C241: Sediment Pond (Temporary)	<p>2019 Draft SWMMWW (under Purpose): "Sediment ponds remove sediment from runoff originating from disturbed areas of the site."</p> <p>Recommended language from the SWMMEW: "Sediment ponds are temporary ponds used during construction to remove sediment from runoff originating from disturbed areas of the site."</p>	Rebecca Dugopolski (Herrera)
BMP C250: Construction Stormwater Chemical Treatment	<p>2019 Draft SWMMWW (under Maintenance Standards): Additional testing may be required by the NPDES permit based on site conditions.</p> <p>Recommended language from the SWMMEW: "Additional testing may be required by the Construction Stormwater General Permit (CSWGP), [the Phase I Municipal Stormwater NPDES Permit], or the Phase II Municipal Stormwater NPDES Permit based on site conditions."</p>	Rebecca Dugopolski (Herrera)
BMP C250: Construction Stormwater Chemical Treatment	<p>Recommend adding location information to help users find the information on Ecology's web page (under Operator Training). SWMMEW language is: "Each site using chemical treatment must have an operator trained and certified by an organization approved by Ecology. For applications of chitosan-enhanced sand filtration (CESF), organizations approved for operator training are found on Ecology's web page for guidance on contaminated water on construction sites, under frequently asked questions."</p>	Rebecca Dugopolski (Herrera)
BMP C252: Treating and Disposing of High pH Water	<p>Recommendation from the SWMMEW technical editor: Write out "CO2" in headings -&gt; "Carbon Dioxide"</p>	Rebecca Dugopolski (Herrera)
Appendix II-A: Recommended Standard Notes for Construction SWPPP Drawings	Recommend a global change from "ESC facilities" to "ESC BMPs" in this appendix.	Rebecca Dugopolski (Herrera)

Appendix II-A: Recommended Standard Notes for Construction SWPPP Drawings	<p>During the SWMMEW update, the CSWGP Implementation team recommended the following standard note revisions: 2019 Draft SWMMWW: "Inspect the ESC facilities daily by the applicant/contractor and maintained as necessary to ensure their continued functioning."</p> <p>Recommended language from the SWMMEW: The applicant shall inspect the ESC BMPs daily and maintain them as necessary to ensure their continued functionality.</p>	Rebecca Dugopolski (Herrera)
Appendix II-A: Recommended Standard Notes for Construction SWPPP Drawings	<p>2019 Draft SWMMWW: "The implementation of these ESC plans and the construction, maintenance, replacement..."</p> <p>Recommended language from the SWMMEW: "The implementation of this ESC plan and the construction, maintenance, replacement..."</p>	Rebecca Dugopolski (Herrera)
Appendix II-A: Recommended Standard Notes for Construction SWPPP Drawings	<p>During the SWMMEW update, the CSWGP Implementation team recommended the following standard note revisions: 2019 Draft SWMMWW: "Inspect and maintain the ESC facilities on inactive sites a minimum of once a month or within the 48 hours following a major storm event."</p> <p>Recommended language from the SWMMEW: Inspect and maintain the ESC BMPs on inactive sites a minimum of once a month or within the 48 hours following a major storm event (24-hour storm event with a 10 year or greater recurrence interval).</p>	Rebecca Dugopolski (Herrera)
Appendix II-A: Recommended Standard Notes for Construction SWPPP Drawings	<p>During the SWMMEW update, the CSWGP Implementation team recommended the following standard note revisions: 2019 Draft SWMMWW: "At no time shall more than one foot of sediment be allowed to accumulate within a catch basin. All catch basins and conveyance lines shall be cleaned prior to paving. The cleaning operation shall not flush sediment laden water into the downstream system."</p> <p>SWMMEW: At no time shall the sediment exceed 60 percent of the sump depth or have less than 6 inches of clearance from the sediment surface to the invert of the lowest pipe. All catch basins and conveyance lines shall be cleaned prior to paving. The cleaning operation shall not flush sediment laden water into the downstream system</p>	Rebecca Dugopolski (Herrera)
Appendix II-A: Recommended Standard Notes for Construction SWPPP Drawings	Recommended minor edit: Install stabilized construction entrances at the beginning of construction and maintained for the duration of the project. Additional measures may be required to ensure that all paved areas are kept clean for the duration of the project.	Rebecca Dugopolski (Herrera)
S406 BMPs for Deicing and Anti-Icing Operations for Streets / Highways	<p>2019 Draft SWMMWW: "Select de and anti-icers such as sand, calcium chloride, magnesium acetate, potassium acetate, or similar materials that cause less adverse environmental impact than urea and sodium chloride."</p> <p>Recommended language from the SWMMEW: "Select deicing and anti-icing chemicals that cause the least adverse environmental impact. Apply only as needed using minimum quantities."</p>	Rebecca Dugopolski (Herrera)
S406 BMPs for Deicing and Anti-Icing Operations for Streets / Highways	<p>2019 Draft SWMMWW: "Research admixtures (e.g. corrosion inhibitors, surfactants) to determine what additional pollutants may be an issue. Determine if there are any restrictions on admixtures with your local jurisdiction."</p> <p>Recommended language from the SWMMEW: "Research admixtures (e.g., corrosion inhibitors and surfactants) to determine what additional pollutants may be an issue. Verify with the local jurisdiction if there are any restrictions on admixtures."</p>	Rebecca Dugopolski (Herrera)
S433 BMPs for Pools, Spas, Hot Tubs, and Fountains	<p>2019 Draft SWMMWW: "Dechlorinated/debrominated to 0.1 ppm or less. Some guidance on dechlorination is provided in the Washington State Department of Health's Water System Design Manual (WSDOH, 2009). The Water System Design Manual (WSDOH, 2009) further references C651-99: AWWA Standard for Disinfecting Water Mains (AWWA, 1999) and C652-02: AWWA Standard for Disinfection of Water-Storage Facilities (AWWA, 2002) for more details."</p> <p>Recommended language from the SWMMEW: "Dechlorinated/debrominated to ≤ 0.1 part per million (ppm). (Some guidance on dechlorination is provided in the Water System Design Manual [DOH, 2009], which also references the American Water Works Association [AWWA] standards for disinfecting water mains [AWWA, 1999b] and water storage facilities [AWWA, 2002].)"</p>	Rebecca Dugopolski (Herrera)

S434 BMPs for Dock Washing	Removed marine-specific terminology from several bullets from the SWMMMEW. The SWMMWW would still need to retain language related to tides and marine growth, but it seems like some of these requirements should be applied more broadly to both marine and freshwater.	Rebecca Dugopolski (Herrera)
S453 BMPs for Formation of a Pollution Prevention Team	2019 Draft SWMMWW: "The team members should:"  Recommended language from the SWMMMEW: "All team members should:"	Rebecca Dugopolski (Herrera)
S454 BMPs for Preventive Maintenance / Good Housekeeping	2019 Draft SWMMWW: "Do not hose down pollutants from any area to the ground, storm drains, conveyance ditches, or receiving water unless necessary for dust control purposes to meet air quality regulations. Convey pollutants before discharge to a treatment system approved by the local jurisdiction."  Recommended language from the SWMMMEW: "Do not hose down pollutants from any area to the ground, storm drains, conveyance ditches, or receiving water. Discharges/conveyances associated with dust control to meet air quality regulations shall be conveyed to a treatment system approved by the local jurisdiction prior to discharge."	Rebecca Dugopolski (Herrera)
S454 BMPs for Preventive Maintenance / Good Housekeeping	2019 Draft SWMMWW: "Sweep all appropriate surfaces with vacuum sweepers quarterly, or more frequently as needed, for the collection and disposal of dust and debris that could contaminate stormwater."  Recommended language from the SWMMMEW: "Sweep all appropriate surfaces (e.g., paved material handling and storage areas) with vacuum sweepers quarterly or more frequently as needed for the collection and disposal of dust and debris that could contaminate stormwater."	Rebecca Dugopolski (Herrera)
S456 BMPs for Employee Training	2019 Draft SWMMWW: "Train all employees that work in pollutant source areas in:"  Recommended language from the SWMMMEW: "Train all employees that work in pollutant source areas about the following topics:"	Rebecca Dugopolski (Herrera)
S456 BMPs for Employee Training	Added the following after the bulleted list of employee training requirements in the SWMMMEW: "Additional specialized training may be needed for staff who will be responsible for handling hazardous materials." Consider incorporating into the SWMMWW for consistency.	Rebecca Dugopolski (Herrera)
S457 BMPs for Inspections	2019 Draft SWMMWW: "Inspections shall:"  Recommended language from the SWMMMEW: "The following requirements apply to inspections:"	Rebecca Dugopolski (Herrera)
S458 BMPs for Record Keeping	2019 Draft SWMMWW: "Retain the following reports for five years:"  Recommended language from the SWMMMEW: "See the applicable permit for specific record-keeping requirements and retention schedules for the following reports, at a minimum:"	Rebecca Dugopolski (Herrera)
S401 BMPs for the Building, Repair, and Maintenance of Boats and Ships	Description of Pollutant Sources: Recommend updating "anti-corrosive compounds" to "anti-corrosion compounds."	Rebecca Dugopolski (Herrera)
S402 BMPs for Commercial Animal Handling Areas	Applicable Operational BMPs (last bullet): Recommend updating "waterways" to "receiving waters."	Rebecca Dugopolski (Herrera)
S403 BMPs for Commercial Composting	NPDES and State Solid Waste Permit Regulations: Recommend updating "Solid Waste Regulations..." to "These regulations..."	Rebecca Dugopolski (Herrera)
S403 BMPs for Commercial Composting	2019 Draft SWMMWW: "See Siting and Operating Composting Facilities in Washington State: Good Management Practices (Ecology, 2013) for common sense actions that a facility can adopt to help run a successful program."  Recommended language from the SWMMMEW: "See Siting and Operating Composting Facilities in Washington State: Good Management Practices (Ecology, 2013) for common sense actions that can be implemented at a facility to help run a successful program."	Rebecca Dugopolski (Herrera)

S403 BMPs for Commercial Composting	Recommend added ISGP acronym in the following bullet to shorten the second reference to the ISGP: "Apply for coverage under the Industrial Stormwater General Permit if the facility discharges stormwater to surface water or a municipal stormwater system. If all stormwater from the facility properly infiltrates to ground water, the Industrial Stormwater General Permit is not required."	Rebecca Dugopolski (Herrera)
S404 BMPs for Commercial Printing Operations	Description of Pollutant Sources: Define TSS and COD acronyms.	Rebecca Dugopolski (Herrera)
S404 BMPs for Commercial Printing Operations	2019 Draft SWMMWW: "Try to use press washes without listed solvents, and with the lowest VOC content possible. Don't evaporate ink cleanup trays to the outside atmosphere."  Recommended language from the SWMMEW: "Try to use press washes without listed solvents, and with the lowest volatile organic compound (VOC) content possible. Do not evaporate ink cleanup trays to the outside atmosphere."	Rebecca Dugopolski (Herrera)
S404 BMPs for Commercial Printing Operations	Delete outdated reference (Ecology, 1996) and update publication title for the (Ecology, 2001) reference.  Recommended language from the SWMMEW: "For additional information on pollution prevention, the Washington State Department of Ecology recommends the following publication: A Guide for Lithographic Printers (Ecology, 2001)."	Rebecca Dugopolski (Herrera)
S408 BMPs for Dust Control at Manufacturing Areas	Recommended BMPs (3rd bullet) - Update reference name: "Use approved dust suppressants such as those listed in Methods for Dust Control (Ecology, 2016b)"	Rebecca Dugopolski (Herrera)
S409 BMPs for Fueling At Dedicated Stations	Recommend updating "lube oils" to "lubrication oils."	Rebecca Dugopolski (Herrera)
S409 BMPs for Fueling At Dedicated Stations	Delete the current heading "For new or substantially remodeled fueling stations."  Under Applicable Operational BMPs, add a lead-in sentence before the bulleted list: "For new or substantially remodeled fueling stations:"	Rebecca Dugopolski (Herrera)
S409 BMPs for Fueling At Dedicated Stations	2019 Draft SWMMWW: "Prepare an emergency spill response and cleanup plan (spill plan) per S426 BMPs for Spills of Oil and Hazardous Substances."  Recommended language from the SWMMEW: "Prepare a spill prevention control and countermeasures (SPCC) plan (per S426 BMPs for Spills of Oil and Hazardous Substances)."	Rebecca Dugopolski (Herrera)
S409 BMPs for Fueling At Dedicated Stations	Under Applicable Structural Source Control BMPs and "Design the fueling island to;" remove repetitive "to" on the second sub bullet. Revised text should read: "Control spills..."	Rebecca Dugopolski (Herrera)
S411 BMPs for Landscaping and Lawn / Vegetation Management	Draft 2019 SWMMWW: "When continued, regular pruning (more than one time/ growing season) is required to maintain visual sight lines for safety or clearance along a walk or drive, consider relocating the plant to a more appropriate location."  Recommended language from the SWMMEW: "When continued, regular pruning (more than one time during the growing season) is required to maintain visual sight lines for safety or clearance along a walk or drive, consider relocating the plant to a more appropriate location."	Rebecca Dugopolski (Herrera)
S411 BMPs for Landscaping and Lawn / Vegetation Management	Recommend deleting the abbreviations for TCIA and ASC because they are not used anywhere else in the manual.	Rebecca Dugopolski (Herrera)
S412 BMPs for Loading and Unloading Areas for Liquid or Solid Material	2019 Draft SWMMWW: "Prepare and implement an Emergency Spill Cleanup Plan for the facility (See S426 BMPs for Spills of Oil and Hazardous Substances) "  Recommended language from the SWMMEW: "Prepare and implement a spill prevention control and countermeasures (SPCC) plan for the facility (see S426 BMPs for Spills of Oil and Hazardous Substances)"	Rebecca Dugopolski (Herrera)
S412 BMPs for Loading and Unloading Areas for Liquid or Solid Material	Recommend integrating the text from Volume I, Section 2.15 in this BMP under Applicable Operational BMPs, At All Loading/ Unloading Areas: "Storage of flammable, ignitable, and reactive chemicals and materials must comply with the stricter of local zoning codes, local fire codes, the Uniform Fire Code (UFC), UFC standards, or the National Electric Code."	Rebecca Dugopolski (Herrera)

S412 BMPs for Loading and Unloading Areas for Liquid or Solid Material	<p>Draft 2019 SWMMWW: "The capacity of the spill containment sump should be a minimum of 50 gallons with additional volume provided for grit sedimentation."</p> <p>Recommended language from the SWMMEW: "The capacity of the spill containment sump should be a minimum of 50 gallons with additional capacity provided for grit sedimentation."</p>	Rebecca Dugopolski (Herrera)
S414 BMPs for Maintenance and Repair of Vehicles and Equipment	<p>Under Applicable Operational BMPs: 2019 Draft SWMMWW: "To allow for snowmelt during the winter, install a drainage trench with a sump for particulate collection. Use the drainage trench for draining the snowmelt only and not for discharging any vehicular or shop pollutants."</p> <p>Recommended language from the SWMMEW: "To allow for snowmelt during the winter, install a drainage trench with a sump for particulate collection. Use the drainage trench for draining the snowmelt only. Do not discharge any vehicular or shop pollutants to the trench drain."</p>	Rebecca Dugopolski (Herrera)
S415 BMPs for Maintenance of Public and Private Utility Corridors and Facilities	<p>2019 Draft SWMMWW: "The road should be crowned, outsloped, water barred, or otherwise left in a condition not conducive to erosion."</p> <p>"Outsloped" is not a word. Recommend changing to "sloped outward." Text has been updated from the SWMMEW.</p>	Rebecca Dugopolski (Herrera)
S417 BMPs for Maintenance of Stormwater Drainage and Treatment Systems	<p>Under Additional Applicable BMPs: 2019 Draft SWMMWW: "Select additional applicable BMPs from this Volume depending on the pollutant sources and activities conducted at the facility. Those BMPs include:"</p> <p>Recommended language from the SWMMEW: "Depending on the pollutant sources and activities conducted at the facility, select additional applicable BMPs from this list:"</p>	Rebecca Dugopolski (Herrera)
S419 BMPs for Mobile Fueling of Vehicles and Heavy Equipment	<p>2019 Draft SWMMWW: "Regulators categorize diesel fuel as a Class II Combustible Liquid, whereas they categorize gasoline as a Flammable Liquid."</p> <p>Recommended language from SWMMEW: "Diesel fuel is categorized as a Class II Combustible Liquid, whereas gasoline is categorized as a Flammable Liquid."</p>	Rebecca Dugopolski (Herrera)
S419 BMPs for Mobile Fueling of Vehicles and Heavy Equipment	<p>Under Pollutant Control Approach: 2019 Draft SWMMWW: "Operators typically need proper training of the fueling operators, and the use of spill/drip control and reliable fuel transfer equipment with backup shutoff valving."</p> <p>Recommended language from the SWMMEW: "Fueling operators need proper training of fueling operations, the use of spill/drip control, and fuel transfer procedures."</p>	Rebecca Dugopolski (Herrera)
S419 BMPs for Mobile Fueling of Vehicles and Heavy Equipment	<p>2019 Draft SWMMWW: "Organizations and individuals conducting mobile fueling operations must implement the bulleted BMPs below."</p> <p>Recommended language from the SWMMEW: "Organizations and individuals conducting mobile fueling operations must implement the BMPs in the following list. "</p>	Rebecca Dugopolski (Herrera)
S419 BMPs for Mobile Fueling of Vehicles and Heavy Equipment	<p>Update "pre-identify" to "identify" in the following text in the 2019 Draft SWMMWW: The "call down list" should also pre-identify spill response contractors available in the area to ensure the rapid removal of significant product spillage into the environment.</p>	Rebecca Dugopolski (Herrera)
S419 BMPs for Mobile Fueling of Vehicles and Heavy Equipment	<p>2019 Draft SWMMWW: "Maintain a minimum of the following spill clean-up materials in all fueling vehicles, that are readily available for use:"</p> <p>Recommended language from the SWMMEW: "In all fueling vehicles, maintain a minimum of the following spill cleanup materials:"</p>	Rebecca Dugopolski (Herrera)

S420 BMPs for Painting/Finishing/Coating of Vehicles/Boats/Buildings/Equipment	Change "Recommended Additional Operational BMPs" to "Recommended Operational BMPs."  Add the following bullet to this section from the SWMMEW: "Dispose of water-based paints by drying them out and then placing them in the garbage. Do not dump pollutants collected in portable containers that can be dumped into a sanitary sewer drain or a storm drain."	Rebecca Dugopolski (Herrera)
S421 BMPs for Parking and Storage of Vehicles and Equipment	2019 Draft SWMMWW: "If the parking lot generates high concentrations of oil due to high traffic turnover or the frequent transfer of oil, provide appropriate oil removal equipment for the contaminated stormwater runoff."  Recommended language from the SWMMEW: "If the parking lot is a high-use site for vehicles as defined under Applicable Treatment BMPs, provide appropriate oil removal equipment for the contaminated stormwater runoff."	Rebecca Dugopolski (Herrera)
S422 BMPs for Railroad Yards	2019 Draft SWMMWW: "Record the date of installation of track mats and replace them once the outdoor life of the track mats has expired, or there are signs pollutants are being transported off the mats. "  Recommended language from the SWMMEW: "Record the date of installation of track mats and replace them once the outdoor life of the track mats has been reached or there are signs that pollutants are being transported off the mats."	Rebecca Dugopolski (Herrera)
S426 BMPs for Spills of Oil and Hazardous Substances	Update "Spill Prevention and Emergency Cleanup Plan (SPECP)" to "spill prevention control and countermeasures (SPCC) plan."	Rebecca Dugopolski (Herrera)
S426 BMPs for Spills of Oil and Hazardous Substances	2019 Draft SWMMWW: "The SPECP is required if the above ground storage capacity of the facility is 1,320 gallons or more of oil."  Recommended language from the SWMMEW: "The SPCC plan is required if the facility has: - Aboveground storage of a single container > 660 gallons, - An aggregate capacity > 1,320 gallons, or - A total belowground capacity > 42,000 gallons."	Rebecca Dugopolski (Herrera)
S427 BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers	2019 Draft SWMMWW: "Storage of reactive, ignitable, or flammable liquids must comply with the Uniform Fire Code (see Uniform Fire Code Requirements)."  Recommend integrating the text from Volume I, Section 2.15 in this BMP instead of having it be a stand-alone section: "Storage of flammable, ignitable, and reactive chemicals and materials must comply with the stricter of local zoning codes, local fire codes, the Uniform Fire Code (UFC), UFC standards, or the National Electric Code."	Rebecca Dugopolski (Herrera)
S428 BMPs for Storage of Liquids in Permanent Aboveground Tanks	2019 Draft SWMMWW: "All installations shall comply with the Uniform Fire Code and the National Electric Code."  Recommend integrating the text from Volume I, Section 2.15 in this BMP instead of having it be a stand-alone section: "Storage of flammable, ignitable, and reactive chemicals and materials must comply with the stricter of local zoning codes, local fire codes, the Uniform Fire Code (UFC), UFC standards, or the National Electric Code."	Rebecca Dugopolski (Herrera)
S429 BMPs for Storage or Transfer (Outside) of Solid Raw Materials, Byproducts, or Finished Products	For "Choose one or more of the following source control BMPs:" These bullet items do not need to be connected by "or." The introductory sentence says "one or more."	Rebecca Dugopolski (Herrera)
S435 BMPs for Pesticides and an Integrated Pest Management Program	2019 Draft SWMMWW: "Follow manufactures' application guidelines and label requirements. Apply the pesticide according to label requirements."  Fix typo -> manufactures' should be manufacturers'  Consider deleting the second sentence ("Apply the pesticide according to label instructions") since it is duplicative with the first sentence.	Rebecca Dugopolski (Herrera)
S443 BMPs for Fertilizer Application	2019 Draft SWMMWW: "Use slow release fertilizers such as methylene urea, IDBU, or resin coated fertilizers when appropriate, generally in the spring. Use of slow release fertilizers is especially important in areas with sandy or gravelly soils."  Fix typo: IBDU, not IDBU. Consider replacing with "isobutylidene" since IBDU is not used again in this section.	Rebecca Dugopolski (Herrera)

Appendix IV-A: Urban Land Uses and Pollutant Generating Sources	Consider updating Appendix title to "Urban Land Uses and Pollution-Generating Sources"	Rebecca Dugopolski (Herrera)
Appendix IV-A: Urban Land Uses and Pollutant Generating Sources	2019 Draft SWMMWW: "NAICS 8123xx:Drycleaning and Laundry Servies"  Correct typo in the spelling of "Services"	Rebecca Dugopolski (Herrera)
BMP T5.15: Permeable Pavements	The language following "In addition, a local government can map..." refers to bioretention in the first bullet. This should be updated to permeable pavement.	Rebecca Dugopolski (Herrera)
V-5.3 General Design Criteria for Infiltration BMPs	Recommend removing the term "engineered soils" from the following sentence: "However, for engineered soils or for soils with very low permeability, the potential to bypass the treatment soil through the side-walls may be significant."	Rebecca Dugopolski (Herrera)
V-5.6 Site Suitability Criteria (SSC)	SSC-6 Recommend deleting the following text in the SWMMWW: "Engineered soils may be used to meet these design criteria. Field performance evaluation(s), using protocols cited in this manual, would be needed to determine feasibility and acceptability by the local jurisdiction."  and replacing with the following recommended language from the SWMMEW: "- A minimum depth of 6 inches of sand meeting the sand filter specification may be used for bioinfiltration swales. Field performance evaluation(s), using acceptable protocols, would be needed to determine feasibility and acceptability by the local jurisdiction. - Local jurisdictions may establish preapproved soil types for treatment suitability. Check locally for specific allowances and requirements."	Rebecca Dugopolski (Herrera)
BMP T10.10: Wetponds - Basic and Large	2019 Draft SWMMWW: "Embankments that impound water must comply with the Washington State Dam Safety Regulations (Chapter 173-175 WAC). If the impoundment has a storage capacity (including both water and sediment storage volumes) greater than 10 acre-feet (435,600 cubic feet or 3.26 million gallons) above natural ground level, then dam safety design and review are required by Ecology."  Recommended language from the SWMMEW (should also apply globally to other Embankment sections that may trigger Dam Safety requirements): "Embankments that impound water must comply with the Washington State Dam Safety Regulations (Chapter 173 175 WAC). If the impoundment has a storage capacity (including both water and sediment storage volumes) $\geq$ 10 acre-feet (435,600 cubic feet or 3.26 million gallons) above the natural ground level or has an embankment height of > 6 feet at the downstream toe, then dam safety design and review are required by the Washington State Department of Ecology."	Rebecca Dugopolski (Herrera)
References	2019 Draft SWMMWW: "Washington State Department of Ecology (Ecology), Alternatives to Hazardous Materials: Techniques for Dust Prevention and Suppression, Publication Number 96-433, Hazardous Waste and Toxics Reduction Program, Revised July 2016."  Recommended language from the SWMMEW: "Ecology (Washington State Department of Ecology). 2016c. Methods for Dust Control. Publication Number 96-433. Revised July 2016."	Rebecca Dugopolski (Herrera)
Glossary	Recommend deleting the term "engineered soils."	Rebecca Dugopolski (Herrera)
Glossary	Recommend adding a definition for "ground water protection area." The definition added to the SWMMEW was: "The area surrounding a drinking water source evaluated as part of Site Suitability Criterion 2 (SSC-2) that includes the wellhead protection area and may also include aquifer sensitive areas, sole source aquifers, ground water management areas, or critical aquifer recharge areas."	Rebecca Dugopolski (Herrera)
Glossary	Recommend deleting "Horton overland flow." Term is not used in the SWMMWW.	Rebecca Dugopolski (Herrera)
Glossary	Recommend updating Pretreatment definition to the following for consistency with the SWMMEW: "A BMP that removes $\geq$ 50% solids. Typically installed upstream of a UIC well or treatment BMP."	Rebecca Dugopolski (Herrera)
Glossary	Recommend adding a definition for "sanitary control area." The definition added to the SWMMEW was: "The inner circle of a wellhead protection area maintained around a drinking water source to minimize direct contamination at the wellhead and reduce the possibility of surface flows reaching the wellhead and traveling down the casing (WAC 246-290-135)."	Rebecca Dugopolski (Herrera)
Glossary	Recommend adding "SDS - Safety Data Sheet."	Rebecca Dugopolski (Herrera)
Glossary	Recommend adding "Site Suitability Criteria." The definition added to the SWMMEW was: "Eight criteria that must be considered for siting infiltration BMPs for flow control and nine criteria that must be considered for siting infiltration BMPs for runoff treatment."	Rebecca Dugopolski (Herrera)

Glossary	Recommend adding "SPCC - Spill prevention control and countermeasures."	Rebecca Dugopolski (Herrera)
Glossary	Recommend adding a definition for "susceptible drinking water source." The definition added to the SWMMEW was: "Sources rated highly susceptible by DOH and any drinking water source where a deep injection well will be placed within a ground water protection area."	Rebecca Dugopolski (Herrera)
Glossary	Recommend adding a definition for "wellhead protection area." The definition added to the SWMMEW was: "The area surrounding a drinking water source that is focused on protection from potential contamination that typically includes four or five zones: a sanitary control area, Zone 1 (1-year travel time), Zone 2 (5-year travel time, Zone 3 (10-year travel time), and an additional buffer zone (if warranted) (WAC 246-290-130 and WAC 246-290-135)."	Rebecca Dugopolski (Herrera)



# STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON UPDATE

## GENERAL GUIDELINES

- All acronyms will be spelled out at first use within each topic and the acronym used thereafter. [Topic breaks seem to vary between Heading Level 2 and Heading Level 4 in the SWMMWW, may need to adjust once we see the Flare layout.]
- Acronyms and abbreviations may be used in tables.
- Abbreviations for organization names, agency names, and company names may be used for in-text reference citations, even if not spelled out in the main text.
- Use one space between sentences in text.
- Include a period at the end of bulleted statements that are complete sentences
- Do not include a period, semicolon, comma, or other punctuation at the end of each item in a bulleted list unless it is intended to be read as part of a sentence and includes the word “and” on the second to last bullet.
- Do not include a period at the end of table and figure titles.
- Do not use a colon to introduce a series that serves as the object of a verb.
  - Incorrect use: “The cooler contained: surface water samples, groundwater samples, and seep samples.”
  - Correct use: “The cooler contained surface water samples, groundwater samples, and seep samples.”
- Capitalize the generic term in common in the plural form of proper nouns.
  - Example: “the Green and Duwamish Rivers.”
- In headings, capitalize the first word and the last word and all other major words: nouns, pronouns, verbs, adjectives, adverbs, and some conjunctions.
  - Use lowercase for the words “a,” “an,” and “the,” “and,” “but,” “for,” “or,” and “nor” and for prepositions regardless of their length.

## FINAL STYLE GUIDE – VERSION 6

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- Do not use italics for common Latin abbreviations: et al., etc., e.g., and i.e.
- Use “datum” for the singular form of “data.”
- Use “criterion” for the singular form of “criteria.”
- Do not confuse the Latin abbreviations “e.g.” and “i.e.”
  - The abbreviation “e.g.” means “for example”
  - The abbreviation “i.e.” means “that is”

## TERMINOLOGY

Table 1 summarizes the preferred Manual terminology (1st column) and alternate terminology used in the existing Manual that should be updated for the 2018 Manual (2nd column).

<b>Table 1. Preferred Manual Terminology and Alternate Terminology to be Updated.</b>	
<b>Preferred Terminology</b>	<b>Alternate Terminology (not preferred, will need to be updated)</b>
aboveground	above ground above-ground
and/or	and(or)
anti-icing chemicals	anti-icer chemicals
Appendix (when referring to a specific appendix such as “Appendix 3D”)	appendix
applicant	applicant/contractor
backup (noun and adj.) back up (verb)	back-up
bankfull (adj)	bank full
base flow	baseflow
basic treatment	Basic Treatment
basin plan	Basin Plan
belowground	below ground below-ground
Best Management Practice	best management practice
biofiltration	biofilter
biofiltration swale	biofilter (unless referring generally to biofiltration) bio-swale bioswale
bioinfiltration	bio-infiltration
blowdown (noun), blow down (verb)	blow-down

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<b>Table 1. Preferred Manual Terminology and Alternate Terminology to be Updated.</b>	
<b>Preferred Terminology</b>	<b>Alternate Terminology (not preferred, will need to be updated)</b>
borehole	bore hole bore-hole
build-out (noun)	buildout
catch basin	catchbasin
clean-out (noun and adj.), clean out (verb)	cleanout
cleanup (noun and adj.) clean up (verb)	clean-up
climate region	climatic region
Climate Region 1 (uppercase when referring to a specific Climate Region)	climate region 1 climatic region 1 Climatic Region 1 Region 1 region 1
construction plan	Construction Plan
Construction SWPPP	Construction Stormwater Pollution Prevention Plan (only spelled out at first use in each topic [see General Guidelines])
cont'd	cont. continued
contractor	Contractor
contributing area	drainage area contributing drainage area
Core Element	core element
Core Element #5	core element #5 (lowercase, # symbol) core element 5 (lowercase, no # symbol) core element no. 5 (not currently used in Manual)
Core Element #5 (Runoff Treatment)	Core Element #5 "Runoff Treatment" (quotes) Core Element #5 Runoff Treatment (no hyphen, quotes, or parentheses)
cross section	cross-section
cross-sectional area	cross sectional area
deicing chemicals	de-icers de-icer chemicals de-icing chemicals
design water surface elevation	design ponded water depth
designer	design engineer engineer
detention BMP	detention facility stormwater detention facility
dewatering	de-watering
downgradient	down-gradient

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<b>Table 1. Preferred Manual Terminology and Alternate Terminology to be Updated.</b>	
<b>Preferred Terminology</b>	<b>Alternate Terminology (not preferred, will need to be updated)</b>
downspout	down spout
drainage report	Drainage Report
drainage system	storm drainage system storm drain system stormwater drainage system stormwater conveyance system storm sewer storm sewer system drainage ways
drain field	drainfield
drywell	dry well
floodplain	flood-plain flood plain
floodwater(s)	flood water
flow control BMP	Flow Control BMP flow control facility
flow path	flowpath
flow rate	flowrate
flow-rate-based treatment BMPs (terminology used in Chapter 6)	flow-rate-based treatment facilities flow-rate-based runoff treatment facility flow-rate-based device
gauge	gage
geotextile	filter fabric
ground cover	groundcover
ground water	groundwater
handheld (adj.), handhold (noun)	hand-held hand-hold
high-use site	high use site
hydrologic soil group	hydrologic group
infiltration BMPs	infiltration facility
land-disturbing activity	land disturbing activity
level-pool routing	level pool routing
licensed engineer in the state of Washington	licensed civil engineer licensed professional engineer licensed engineer registered in the state of Washington professional engineer professional engineer licensed to practice in the state of Washington qualified engineer
licensed engineer in the state of Washington with geotechnical expertise	registered professional engineer with geotechnical expertise

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<b>Table 1. Preferred Manual Terminology and Alternate Terminology to be Updated.</b>	
<b>Preferred Terminology</b>	<b>Alternate Terminology (not preferred, will need to be updated)</b>
licensed engineer in the state of Washington with structural expertise	licensed civil engineer with structural expertise structural engineer
licensed professional	site engineer project engineer
local jurisdiction	local government
long-duration (adj.)	long duration
long-term (adj.)	long term
low impact development	low-impact development
maintenance hole	manhole
man-made	manmade
manual	Manual Stormwater Management Manual for Eastern Washington SWMMEW
mean annual precipitation	Mean Annual Precipitation
metals treatment	Metals Treatment
Municipal Stormwater Permit	NPDES Permit NPDES Phase II permit
native vegetation	natural vegetation natural vegetated cover
nonexempt	non-exempt
non-pollution-generating impervious surface (NPGIS)	non-pollutant-generating impervious surface
oil and water separator	oil/water separator oil removal separator
oil control BMP	Oil Control BMP
online	on-line
on-site	on site onsite
off-line	offline
off-site	off site offsite
O&G (no spaces on either side of "&")	O & G (spaces on either side of "&") oil & grease (only spelled out at first use in each topic [see General Guidelines])
O&M (no spaces on either side of "&")	O & M (spaces on either side of "&") operations & maintenance (only spelled out at first use in each topic [see General Guidelines])
O&M Manual	O&M plan
peak intensity factor	Peak Intensity Factor
phosphorus treatment	Phosphorus Treatment

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<b>Table 1. Preferred Manual Terminology and Alternate Terminology to be Updated.</b>	
<b>Preferred Terminology</b>	<b>Alternate Terminology (not preferred, will need to be updated)</b>
pollution-generating impervious surface (PGIS)	pollutant-generating impervious surface
pollution-generating pervious surface (PGPS)	pollutant-generating pervious surface
predeveloped (one word with no hyphen, lowercase)	pre-developed
predevelopment (one word with no hyphen, lowercase)	pre-development
presettling (one word with no hyphen, lowercase)	pre-settling
pretreatment (one word with no hyphen, lowercase)	pre-treatment
project proponent	developer/owner/engineer owner/developer
proposed development conditions	proposed-development conditions
rainfall	rain fall
rain-on-snow	rain on snow
rainwater	rain water
receiving water	waterway watercourse surface water (unless referring to surface water quality standards)
registered geologist in the state of Washington with hydrogeology specialty	registered geologist with hydrogeology specialty
ridgetop	ridge top
right-of-way (singular) rights-of-way (plural) (lowercase)	right of way rights of way ROW
riprap	rip-rap rip rap
rock	stone
rooftop	roof top
runoff	run-off

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<b>Table 1. Preferred Manual Terminology and Alternate Terminology to be Updated.</b>	
<b>Preferred Terminology</b>	<b>Alternate Terminology (not preferred, will need to be updated)</b>
runoff treatment BMPs	water quality treatment BMPs WQ facility runoff conveyance and treatment BMPs (Chapter 7) treatment BMPs (Chapter 7 and Chapter 8) treatment facility (Chapter 8)
Section (when referring to a specific appendix such as "Section 6.3.3, etc.)	section
setback (noun) set back (verb)	set back
sheet flow	sheetflow
short-duration (adj.)	short duration
short-term (adj.)	short term
sidewall	side-wall site wall
Site Suitability Criteria	site suitability criteria
snowmelt	snow melt
snowpack	snow pack
spill kit	spill cleanup kit
SSC	Site Suitability Criteria (only spelled out at first use in each topic [see General Guidelines])
SSP	Stormwater Site Plan (only spelled out at first use in each topic [see General Guidelines])
storm drain	stormwater drain storm inlet stormwater inlet
stormwater	storm water
stormwater runoff	surface water runoff storm water runoff
Stormwater Site Plan	stormwater site plan
streambank	stream bank
subbasin	sub-basin
SWMMWW	Stormwater Management Manual for Western Washington (only spelled out at first use in each topic [see General Guidelines])
SWPPP Element #2	SWPPP element #2 SWPPP Element No. 2 SWPPP element no. 2
Total Maximum Daily Load	total maximum daily load
TMDL	Total Maximum Daily Load (only spelled out at first use in each topic [see General Guidelines])
underdrain	under-drain

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<b>Table 1. Preferred Manual Terminology and Alternate Terminology to be Updated.</b>	
<b>Preferred Terminology</b>	<b>Alternate Terminology (not preferred, will need to be updated)</b>
underground	under-ground under ground
upgradient	up-gradient
upslope	up-slope
U.S. EPA	U.S. Environmental Protection Agency (only spelled out at first use in each topic [see General Guidelines]) USEPA US EPA
volume-based treatment BMPs (terminology used in Chapter 6)	volume-based facilities volume-based treatment facilities
washwater	wash water wash-water
water bodies	waterbodies
water cleanup plan	Water Cleanup Plan
water quality design flow rate	WQ design flow rate Water Quality design flow rate
web page	webpage
website	web site
wellhead	well-head well head
wetpond	wet pond
wetpool	wet pool
wetvault	wet vault
windthrow	wind-throw
wing wall	wingwall wing-wall

## SPELLING

dissipater (instead of dissipator, which is incorrect, despite its use the title of the FHWA 2006 reference for Chapter 6)

erodibility (instead of erodability); erodibility is the preferred spelling per *Merriam-Webster's Collegiate Dictionary*)

judgment (instead of judgement); both are equally acceptable per *Merriam-Webster's Collegiate Dictionary*, but one or the other should be used consistently)

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### HYPHENS

Do not use hyphens between prefixes and main words (anti, bio, de, hydro, inter, multi, non, over, pre, post, re, semi, sub, supra, ultra, and under). Exceptions: anti-icing, bio-buildup, non-endangerment, non-stormwater, and sub-daily.

Do not hyphenate modifiers that begin with a word ending in “ly.” Examples: evenly graded and gently sloping.

### MEASUREMENTS

#### Numbers

Fractions:

- Use one-half or 0.5, instead of  $\frac{1}{2}$
- Use 0.25, instead of  $\frac{1}{4}$
- Use  $\frac{1}{8}$ , instead of 0.125
- Use  $\frac{3}{8}$ , instead of 0.375

Spell out one through nine

Use numerals for 10 and above (unless preceding measurement such as 2 feet or 4%)

Do not include the numeral in parentheses after a spelled out number (e.g., five (5) feet)

year, acre, inch, foot, square feet etc. – use numerals with measurements (e.g., 1 year, 9 acres)

A number with a unit of measurement is hyphenated when it modifies a noun, open when it stands alone:

- 1 foot; 1-foot bottom width
- 12 inches; 12-inch diameter pipe
- 10 years; 10-year storm

Use “to” not a hyphen when describing a range. Example: 1- to 7-acre lots, two to six facilities

Use a comma for numbers > 999 (e.g., 5,000, not 5000)

Ratios expressed as 3:1 or 3H:1V (no spaces)

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### Symbols

% instead of “percent”

< or > (use symbol for “less than” or “more than”, do not spell out )

Slope is > 2% (with space between sign and numeral)

V > 1.0 ft/sec (with space between sign and numeral)

$y_t$  = total depth (with spaces on both sides of the equal sign)

≤ or ≥ (use symbol for “less than or equal to” or “greater than or equal to”, do not spell out)

### Units

cf (instead of “cu. ft.” or “cubic feet” or “ft<sup>3</sup>”)

ft or feet instead of apostrophe (e.g., 4') unless part of a figure or a table

ft/sec (instead of “ft./sec.”)

in/ft (instead of “in./ft.”)

in/hr (instead of “inches per hour”)

mg/L (lowercase “m” and uppercase “L”)

sf (instead of “sq. ft.” or “square feet” or “ft<sup>2</sup>”)

## REFERENCES

### Internal References

Use Flare cross references for internal section and appendix references

[Note: section and appendix numbers may be included in Word and PDF files for preliminary review drafts prior to MadCap Flare conversion]

Use “See” instead of “Refer to” when referring to a section, appendix, figure, or table (e.g., See Section 4.2)

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### External References

Use the [Chicago Manual of Style](#) (CMS) (which uses the author-date format) as the basis for citation and reference formats.

Reference lists use a period at the end of each section of information.

A space is not included between references.

References in text are Author(s) Date format with one comma between information as shown:

- One author: (Fowler, 1965)
- Two authors: (Strunk and White, 1979)
- Three or more authors: (Woolston *et al.*, 1988) (period after “al” only, italicized “*et al.*”)

All WACs and RCWs will be hyperlinked to the specific WAC/RCW website (<http://apps.leg.wa.gov/wac/> and <http://apps.leg.wa.gov/rcw/>)

Use Flare cross references to a bookmark in the reference topic:

- In the reference topic, each reference should be formatted as a drop down.
- The bookmark should be to the “head” of the drop down.

Embed the PDF of the reference (if available) in the HTML5 output:

- Permission will need to be granted by the owner of the reference.
- Use annotations in Flare to document the date that permission was received.
- Save correspondence granting permission.

### MADCAP FLARE

#### Text Styles

Body text: Arial, size 12, standard black

Heading 1: Arial Black, size 22, blue (R=0, G=76, B=153)

Heading 2: Arial Black, size 18, blue (R=0, G=76, B=153)

Heading 3: Arial Black, size 16, blue (R=0, G=76, B=153)

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Heading 4: Arial Black, size 14, blue (R=0, G=76, B=153)

Heading 5: Arial Black, size 14, italicized, blue (R=0, G=76, B=153)

Heading 6: Arial Black, size 12, bolded, blue (R=0, G=76, B=153)

Heading 7: Arial Black, size 11, italicized, blue (R=0, G=76, B=153)

Heading 8: Arial Black, size 11, italicized, standard black

Heading 9: Arial Black, size 10, standard black

Use bolded text when providing a step within a procedure (e.g., **Step 1:** Determine Location of Site Discharge)

Use italics for Latin names (e.g., *Bacillus thuringiensis*)

Use italics for external references (e.g., *Stormwater Management Manual for Western Washington*, *WSDOT Highway Runoff Manual*)

No underlined text unless it is part of the heading style

### Tables

Light blue shading (hex value #E6F2F5 or R=230, G=242, B=245) in table header row

### Figures

Figure formatting in Flare:

- Pop up with mouse hover for HTML5
- Full page for PDF and Word output

### Autonumbering

Use autonumbers for tables, figures, and topic headings

### Layout

Trippane output

No callout boxes

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### Tags

Flare condition tags used – PrintOnly and ScreenOnly:

- ScreenOnly tags used for (view) on embedded PDFs in reference section and for PDF figure downloads below each figure throughout the Manual.

### Cross Reference

Use cross reference for referencing other topics within the Manual, hyperlinks for linking to websites, etc. outside of the Manual. Assign hyperlinks to open in a new tab/window.

### File Organization

Use camel case (i.e., writing compound words or phrases such that each word or abbreviation in the middle of the phrase begins with a capital letter, with no intervening spaces or punctuation)

Use the topic title, but not the section number in the file name. (For example, Section 4.2 – Design Storm Distributions would have a file name of “DesignStormDistributions”)

Organize the topic files into folders for each chapter of the Manual

Figures will be prepared in AutoCAD:

- The names in the CAD figures should not include the figure number  
[Note: figure numbering and names will included in the Word and PDF files for the Public Review Draft prior to MadCap Flare conversion]
- Figure numbers will be included in the Flare caption using autonumbers.