Municipal Separated Storm Sewer System (MS4)

Operation and Maintenance Plan

December 2022

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1. BACKGROUND

REGULATORY

The Washington State Department of Ecology (Ecology) regulates stormwater discharges to surface waters and to groundwaters of the State from the regulated Municipal Separate Storm Sewer Systems (MS4s) owned or operated by permittees covered by the Eastern Washington Phase II Municipal Stormwater Permit (Permit). The Permit is issued to the City of Spokane Valley on a recurring five-year cycle, currently 2019-2024. The intent of the Permit is to reduce discharges of pollutants into the City's regulated small MS4 that discharge to surface waters of the state.

The MS4 is defined by the Permit as *a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, and/or storm drains which is not defined as a "large" or "medium" MS4, pursuant to 40 CFR 122.26(b)(4) & (7) or designated under 40 CFR 122.26 (a)(1)(v).*

Permit section S1.B.1.c also states that *"A regulated small MS4: discharges stormwater from the MS4 to a surface water of Washington State."*

The catchment areas that comprise the geographic limits of the City's regulated small MS4 are shown in Appendix B – Regulated Small MS4 Exhibit.

The Permit requires permittees to develop a municipal Operations and Maintenance (O&M) Program, to include the implementation of a stormwater O&M Plan that outlines a schedule of municipal O&M activities. In addition, Section S5.B.6 - Municipal Operations and Maintenance of the permit mandates that the *"Operation and maintenance standards in the O&M Plan shall be at least as protective as those included in the Stormwater Management Manual for Eastern Washington, or another technical stormwater manual approved by Ecology."* This O&M Plan addresses pollution prevention and good housekeeping procedures for municipal facilities and activities as defined in Section S5.B.6 of the Permit.

PURPOSE

The MS4 O&M Plan serves as a resource for the City of Spokane Valley departments that are responsible for implementing the plan. The MS4 O&M Plan provides documentation and scheduling of stormwater Best Management Practices (BMPs) that, when applied to those activities and facilities required, will protect water quality, reduce discharge of pollutants to the maximum extent practicable (MEP), and satisfy state all known available and reasonable methods of prevention control and treatment (AKART) requirements.

APPLICABILITY

Permit section S3.A states *"Each Permittee covered under this Permit is responsible for compliance with the terms of this Permit for the regulated small MS4s which they operate."* This O&M plan is applicable only to the regulated small MS4 the City operates. This O&M Plan is applicable to the municipal departments and staff that perform the O&M activities. This O&M plan evaluated the facilities and/or activities listed in permit section S5.B.6.a.i to identify those applicable to the City's regulated small MS4 and the associated catchment areas.

Those chapters evaluated and determined <u>not</u> to be applicable to the regulated small MS4 include chapters 5, 6, 7, 9, and 10. Those chapters were included in this plan to verify the evaluation. Those

chapters evaluated and determined to be applicable to the regulated small MS4 include chapters 3, 4, 8, 11, and 12. This O&M Plan includes the following chapters as listed in permit section S5.B.6.a.i:

Ch. 3	Stormwater Collection and Conveyance Systems	**Ch. 8**	Construction Projects
Ch. 4	Roads, Highways, and Parking Lots	**Ch. 9**	Industrial Activities
Ch. 5	Vehicle Fleets	**Ch. 10**	Material Storage Areas
Ch. 6	Municipal Buildings	**Ch. 11**	Flood Management Projects
Ch. 7	Parks and Open Spaces	**Ch. 12**	Other Facilities and Activities

The City's regulated MS4 catchment areas were identified through a hydraulic analysis using the Type 1A, 100-year, 24-hour, storm event. As a result, any drainage areas that were modeled to overflow to surfaces waters of the state were identified as MS4. **Figure 1** displays the City of Spokane Valley municipal boundary, and the surface waters of the state that receive MS4 permitted stormwater discharges.

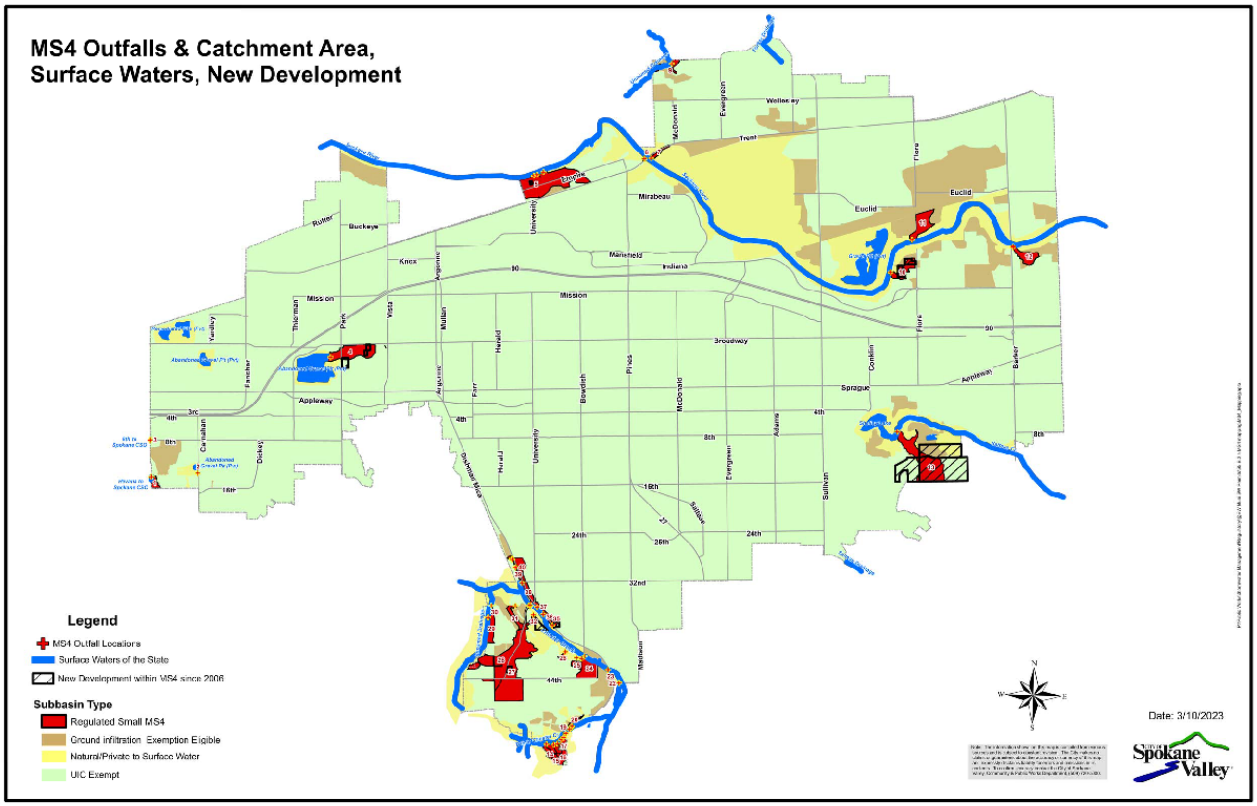

Figure 1. Regulated Small MS4 within the City of Spokane Valley

STORMWATER POLLUTION

Stormwater runoff contains pollutants that can harm human health, degrade water quality and habitat, and impair ecosystem functions. Typical urban pollutants in the City's regulated MS4 include motor oil, petroleum hydrocarbons, heavy metals, deicers, fertilizer, pesticides and herbicides, sediment, and other pollutants that are generated during the daily routines of typical urban residents. Pollutants originate from vehicles, homeowner activities, common municipal practices, among other sources, and become available for stormwater to carry downstream. **Table 1** displays sources of common stormwater pollutants and their potential impacts if left unmitigated. During rain and snowmelt events, stormwater runoff will accumulate pollutants from the ground surface and may transport them into the waters of the state.

Table 1. Common Stormwater Pollutants and Potential Impacts

Pollutant	Form	Sources	Potential Impacts
Suspended Sediment	Total suspended solids	Sediment on pavements Bare soils Sparsely vegetated soils Soil/sand stockpiles Eroded drainage channels	Flooding Affects aquatic life respiration, growth, and reproduction Interferes with photosynthesis Disrupts oxygen exchange in water Transports metals, organic chemicals, nutrients, oil & grease
Organic Debris	Grass clippings Leaves, twigs Flowers, Pollen blooms	Residential lawns Gardens	Flooding Fish kills Algal blooms Depleted oxygen Impaired water bodies
Heavy Metals	Lead Zinc Cadmium Copper Chromium Nickel	Galvanized metal structures Roofing materials Painted surfaces Maintenance activities Attached to soils/sediments Automobile tires/exhaust	Toxic to aquatic organisms Bioaccumulates in fish Poisons top of food chain Risks to human health Impaired water bodies
Organic Chemicals	Pesticides, herbicides Misc. organic chemicals	Residential lawns, gardens Right-of-ways O&M activities Soils/sediments	Toxic to aquatic organisms Bioaccumulates in fish/animals Poisons top of food chain Risks to human health Impaired water bodies
Oil & Grease	Petroleum hydrocarbons	Leaky vehicles/equipment Roads, driveways, parking lots Vehicle/equipment maintenance Fueling stations, Soils/sediments	Toxic to aquatic organisms Impaired water bodies
Nutrients	Nitrogen as ammonia and nitrate Phosphorus as phosphate	Fertilizers Pet waste/animal feces Sanitary sewage Organic debris Soils/sediments	Toxic to aquatic life Fish kills Algal blooms Depleted oxygen Impaired water bodies
Pathogens	Bacteria Viruses	Domestic pet waste Wild animal feces Municipal solid waste, Sanitary sewers	Closures of recreation areas Risks to human health Impaired water bodies
Chlorides	Calcium chloride Magnesium chloride	Road salts Deicers Water softeners	Toxic to aquatic organisms Toxic to vegetation
General Pollutants	Varied	Trash, debris Organic debris Pet waste Suspended solids Contaminated materials	Flooding Risk to human health Fish kills Algal blooms Depleted oxygen Impaired water bodies

2. STORMWATER BEST MANAGEMENT PRACTICES (BMPs)

Stormwater BMPs are **structural** and **operational** methods that aim to minimize offsite runoff pollution to avoid impacts to surface and/or ground water resources.

STRUCTURAL STORMWATER BMPS

Structural stormwater BMPs are engineered, physical controls that minimize the amount of pollution that is in stormwater runoff by either:

- Maintaining separation of stormwater and pollutants by using Structural Source Control BMPs, or
- Removing pollutants from stormwater runoff using Stormwater Treatment BMPs.

Structural Source Control BMPs are engineered physical structures or systems that minimize the contact between pollutants and stormwater runoff. Structural source control BMPs include roofing covering equipment, curbing keeping runoff separated from materials, and grading that is sloped away from pollutant source areas. At this time, there are no structural source control BMPs located in the City's MS4 areas.

Structural Stormwater Treatment BMPs are engineered components or physical systems designed to remove pollutants from stormwater prior to discharge from the MS4. Stormwater treatment BMPs typically include bioinfiltration swales, oil/water separators, modular wetlands, bioretention cells, etc. Nonstructural stormwater BMPs can be implemented to provide additional pollution prevention measures.

OPERATIONAL STORMWATER BMPS

A type of source control BMP, operational BMPs are schedules of activities, prohibition of practices, and other managerial practices to prevent or reduce pollutants from entering stormwater. They include formation of a pollution prevention team, if necessary, good housekeeping, preventive maintenance procedures, spill prevention and cleanup, employee training, inspections of pollutant sources and BMPs, and record keeping. They can also include process changes, raw material/product changes, and recycling wastes. Operational BMPs can be categorized as follows:

Operational (Nonstructural) Source Control BMPs are administrative approaches that use policy, and management techniques to limit the generation and transport of potential pollutants. Nonstructural source control BMPs include implementing job procedures, employee pollution prevention training, routine inspection programs, good housekeeping policies, and pollution prevention site planning and land uses.

Operational Source Control Stormwater BMPs are routine pollution prevention and/or pollutant recovery actions to maintain structural stormwater BMPs and implement nonstructural source control BMPs. Operational source control stormwater BMPs are a wide array of programmatic pollution prevention activities, which include good housekeeping practices, routine street sweeping and maintenance, proper materials handling and storage techniques, appropriate waste management protocols, etc. Operational source control stormwater BMPS typically supplement recommended maintenance criteria BMPs.

Operational Maintenance Criteria BMPs are conditions for determining if maintenance actions are required as identified by inspection. These criteria originate from the *Stormwater Management Manual for Eastern Washington*. The applicable maintenance criteria are referenced into the City's O&M Plan. Maintenance criteria are not intended to always be measures of the required condition of the BMP between inspections.

BMPs Applicable to Sites

Chapter 8 – Source Control in Ecology's Stormwater Management Manual for Eastern Washington requires the implementation of the following Nonstructural Source Control BMPs at sites and/or properties required by local code or by a NPDES Stormwater General Permit. Other than its public rights of way, the City of Spokane Valley does not own or operate any sites or properties within its regulated small MS4 catchment areas. Therefore, the BMPs indicated in **Table 2** are not applicable to municipal sites or properties in this O&M plan.

Table 2. Stormwater BMPs Applicable to Municipal Sites or Properties

S101E – BMPs for Formation of a Pollution Prevention Team
S102E – BMPs for Preventive Maintenance/Good Housekeeping
S104E – BMPs for Spill Prevention and Cleanup
S105E – BMPs for Employee Training
S106E – BMPs for Inspections
S107E – BMPs for Record Keeping
S108E – BMPs for Correcting Illicit Connections to Storm Drains

MUNICIPAL OPERATION AND MAINTENANCE BMPS

The BMPs applicable to the facilities and activities operated and maintained by the City are identified in **Table 3**. These represent the applicable BMPs from *the 2019 Stormwater Management Manual for Eastern Washington* associated with the City of Spokane Valley operation and maintenance programs and associated activities. Complete BMP descriptions are included in **Appendix A**. Those BMPs identified herein are grouped to align with the Permit's required categories as listed in S5.B.6.a.i (a)-(j).

Table 3. Stormwater BMPs Applicable to City Operation and Maintenance Activities

Chapter Designation	Operational Source Control BMPs	Structural Source Control BMPs	Operational Maintenance Criteria BMPS
Ch. 3 – Stormwater Collection and Conveyance System BMPs (Appendix A-3)	• Recordkeeping • Site Inspection	• Maintenance of Roadside Ditches • Maintenance of Drainage Systems and Runoff Treatment BMPs • Landscaping and Vegetation Management • Irrigation • Decant Facility	• Labeling Storm Drain Inlets • Maintaining Catch Basins • Maintaining Bioinfiltration Facilities • Maintaining Drywells • Correcting Illicit Connections to Storm Drains
Ch. 4 – Roads, Highways, and Parking Lots (Appendix A-4)	• Recordkeeping • Preventative Maintenance/Good Housekeeping	• Spill Response and Cleanup • Urban Streets • Streets and Highways • Repairing Asphalt Pavement • Snow and Ice Removal from Roadways	
Ch. 5 – Vehicle Fleets	Not Applicable		
Ch. 6 – Municipal Buildings			
Ch. 7 – Parks and Open Space			
Ch. 8 – Construction Projects			
Ch. 9 – Industrial Activities			
Ch. 10 – Material Storage Areas			
Ch. 11 – Flood Management Projects			
Ch. 12 – Other Facilities and Activities			

3. STORMWATER COLLECTION AND CONVEYANCE SYSTEM

The City's regulated small MS4 consists of catch basins, storm sewer pipes, ditches and culverts that collect and convey stormwater. This system collectively captures runoff to minimize flooding and conveys runoff to stormwater treatment facilities, discharge points (bioinfiltration swales), and flow control facilities (drywells). Bypass, overflow, and discharge of these systems within the MS4 catchment area have potential to outfall to surface water.

The City's Stormwater Utility staff, street maintenance, and administered service contracts support the operation and maintenance of its regulated small MS4. Tasks include regular inspections, cleaning of system components, and maintenance and/or replacement of the components, as necessary. Inspection forms for recording maintenance of the storm sewer system are provided in **Appendix C**.

The Stormwater Utility is responsible for the operation and maintenance of its stormwater facilities by implementing the BMPs in Table 3-1.

Table 4. Storm Collection and Conveyance System Applicable BMPs

Stormwater Collection and Conveyance System BMPs	**Operational Source Control BMPs**	Appendix A-3
	BMPs for Record Keeping	
	BMPs for Site Inspection	
	Structural Source Control BMPs	
	BMPs for Maintenance of Roadside Ditches	
	BMPs for Maintenance of Drainage Systems and Runoff Treatment BMPs	
	BMPs for Landscaping and Vegetation Management	
	BMPs for Irrigation	
	BMPs for Decant Facility	
	Operational Maintenance Criteria BMPs	
	BMPs for Labeling Storm Drain Inlets	
	BMPs for Maintaining Catch Basins	
	BMPs for Maintaining Bioinfiltration Facilities	
	BMPs for Maintaining Drywells	
	BMPs for Correcting Illicit Connections to Storm Drains	

ILLICIT DISCHARGE REPORTING

All employees must report any spills or accidental discharges to the stormwater collection and conveyance system to Stormwater Utility staff at 509-720-5005. Additional information regarding deployment of the Illicit Discharge and Elimination program can be found in the annually revised MS4 Stormwater Management Plan (SWMP) and chapter 22.150 Spokane Valley Municipal Code (SVMC).

STORM SEWER INSPECTIONS

Table 5 displays the Permit's required frequencies that the storm sewer components shall be inspected. Inspections identify cleaning, maintenance, repair and/or replacement criteria. The Stormwater Utility is responsible for performing the inspections.

Table 5. Stormwater Sewer Inspection – Regulated MS4

STORMWATER COLLECTION STRUCTURE TYPE	INSPECTION FREQUENCY/REQUIREMENT	TOTAL # (APPROX)	INSPECTION RESPONSIBILITY
Catch Basins	2 years/2 years	66	Stormwater Utility
STORMWATER CONVEYANCE FACILITY	**INSPECTION FREQUENCY/REQUIREMENT**	**TOTAL # (APPROX)**	**INSPECTION RESPONSIBILITY**
Storm Sewer Pipes	4 years/none	124	Stormwater Utility
Culverts	4 years/none	73	Stormwater Utility
Open Channels and Ditches	4 years/none	30(1.2mi)	Stormwater Utility
STORMWATER RUNOFF TREATMENT FACILITY	**INSPECTION FREQUENCY/REQUIREMENT**	**TOTAL # (APPROX)**	**INSPECTION RESPONSIBILITY**
Bio-infltration/retention Swales – City owned and maintained	2 years/2 years	8	Stormwater Utility
Swales, grassy ditches – Non-standard	2 years/none	unknown	Stormwater Utility
STORMWATER FLOW CONTROL FACILITY	**INSPECTION FREQUENCY/REQUIREMENT**	**TOTAL # (APPROX)**	**INSPECTION RESPONSIBILITY**
Drywells (UICs)	2 years/2 years	55	Stormwater Utility
Pipe Sumps (UICs – non standard)	2 years/2 years	2	Stormwater Utility
Maintenance Gravel Shoulders	2 years/2 years	3	Stormwater Utility
STORMWATER OTHER FACILITY	**INSPECTION FREQUENCY/REQUIREMENT**	**TOTAL # (APPROX)**	**INSPECTION RESPONSIBILITY**
Inlets (no sump)	4 years/none	45	Stormwater Utility
Inlets (curb, sidewalk)	4 years/none	25	Stormwater Utility
Manholes	4 years/none	7	Stormwater Utility

Note: Spot checks for potentially damaged stormwater treatment and flow control facilities shall be conducted after major storm events. (24-hour storm event with a 10-year or greater recurrence interval) Any needed repair or maintenance shall be performed as soon as practicable pursuant to the findings of regular inspection or spot check.

Stormwater Utility staff provides inspection of the above facilities. Inspections are currently documented on inspection forms. See **Appendix C**. Inspections and current inspection forms are tailored to apply the maintenance criteria discussed in the following section.

Corrective Maintenance, Repair, and Replace

Corrective maintenance, repair and replacement are triggered by observations made during facility inspections. The City utilizes five tiers (i.e., approaches) to carry out corrective actions:

1. At time of inspection, staff will provide the necessary corrective maintenance, repair, and/or replacement. If immediate resources are not available, the inspection reporting will be used by Stormwater staff to evaluate and document the outstanding corrective action necessary to conform with applicable maintenance criteria. Common corrective actions may include removal trash and debris.
2. City street maintenance staff. Common corrective actions may include repair and replace damaged or failing structures.
3. City service contracts. Corrective action by service contractors is most often triggered by the inspection reporting. Includes the following contracts:
    - Storm Drain Cleaning: removal of sediment/debris from catch basins, drywells, manholes, pipes, culverts, and ditches.
    - Roadway Landscaping: provides corrective maintenance for the maintenance criteria of bioinfiltration/retention swales.
4. Small Works contracts – Corrective maintenance, repairs or replacement requiring resources beyond what can be accomplished via tiers 1-3.
5. Capital Improvement contracts – Corrective maintenance, repairs or replacement requiring additional capital improvements or is determined to be part of a larger capital improvement project, may be delayed coordinating with the Stormwater Capital Improvement program.

Vactor Waste

Street debris and other materials recovered from catch basins, storm sewer piping, swales, and drywells via vactoring is considered street waste. Street waste must be managed in accordance with Appendix G – Street Waste Disposal of the Eastern Washington Phase II Municipal Stormwater permit.

Stormwater Utility waste is decanted at the Spokane Regional Decant Facility. This facility is owned and operated by the Washington State Department of Transportation (WSDOT). Maintenance, operation, testing, and disposal of solids at the site is provided by WSDOT. The City of Spokane Valley has an interlocal agreement to decant waste at this site through June 30, 2043.

The site is located at the Washington State Department of Transportation field maintenance yard located at 12102 E. Montgomery Ave. **See Appendix D.**

See Appendix A-3 for BMPs for Decant Facility for proper operations of this facility.

RECORDKEEPING

Stormwater Utility records stormwater inspection and maintenance activities in perpetuity for the following activities:

- Inspection schedules and completed inspection data for stormwater treatment and flow control facilities.
- Inspection schedules and completed inspection data for catch basins and inlets.
- Records of spot checks for potentially damaged stormwater treatment and flow control facilities performed following major storm events (24-hour storm event with a 10-year or greater recurrence interval).
- Spot checks (see **Table 5** footnote) conducted after a major storm event, including repairs or maintenance actions completed in response to corrective actions identified during inspections and spot checks.
- The number of facilities inspected and the amount of sediment collected annually.

4. ROADS, HIGHWAYS, AND PARKING LOTS

The City's regulated MS4 catchment areas primarily consist of residential local access streets with only a few collectors and arterials. There are no municipally owned, operated, or maintained parking lots within the City's regulated MS4 catchment area. Stormwater runoff must be managed appropriately in order to minimize the amount of pollutants that enter the MS4 and have potential to discharge to surface waters. This requires recovering sediment, debris, and other pollutants before they can enter the stormwater collection and conveyance system.

The Street Maintenance Division is responsible for maintaining the city's street network in a safe and clean condition. Tasks include, but are not limited to, periodic maintenance activities, repairs, spill response, clearing obstructions, managing snow removal, and applying sand or deicer. The City manages a contractor for street sweeping to recover accumulated pollutants before they are transported by runoff.

Per current agreement, GM-01339, the Washington State Department of Transportation provides the following maintenance of State routes/highways (27- Pines, 290-Trent) within City jurisdiction:

1. Sweeping pavement and dust control
2. Cleaning catch basins and drains.
3. Litter pick-up and noxious weeds.
4. Snow plowing, sanding, and liquid chemical deicing.
5. Winter sand cleanup, including cleaning sidewalks.

Table 6 identifies the required BMPs to operate and maintain the designated permit regulated MS4 basin area roads, highways, and parking lots.

Table 6. Roadway Applicable BMPs

Roads, Highways and parking lots	**Nonstructural Source Control BMPs**	Appendix A-4
	BMPs for Recordkeeping	
	BMPs for Preventive Maintenance/Good Housekeeping	
	Operational Source Control BMPs	
	BMPS for Spill Response and Cleanup	
	BMPs for Urban Streets (SMMEW S430E)	
	BMPs for Streets and Highways	
	BMPs for Repairing Asphalt Pavement	
	BMPs for Snow and Ice Removal from Roadways	

GENERAL ROADWAY POLLUTION PREVENTION

Minimizing stormwater runoff pollution by practicing source control pollution prevention keeps pollutants from accumulating on roadways. Controlling the source of potential pollutants with good housekeeping practices so that they do not accumulate reduces the potential for stormwater to become

contaminated. BMP documents for Preventative Maintenance/Good Housekeeping, and Spill Prevention and Cleanup are in **Appendix A-3**.

Street Sweeping

Streets are pollutant generating impervious surfaces and are routinely cleaned with regenerative air street sweepers to recover accumulated roadway pollutants from the pavement surface.

Sweeping reduces the debris load conveyed through storm events to the City's stormwater system. It is a good housekeeping practice and a key part of the City's O&M program. The City maintains and deploys three distinct Sweeping Action Plans for Spring, Arterial Maintenance, and Fall project periods. Each plan identifies specific a sweeping schedule to be completed. The City's street sweeping contractor is required to comply with the contract's specifications and City maintenance staff inspect the work to maintain quality control/quality assurance. A copy of the street sweeping action plans are included in **Appendix E**. Applicable BMPs are provided in **Appendix A-3.**

Street Waste

Debris collected from street pavements, including the water used for dust control, are deemed "street waste" once it is recovered by equipment (e.g. vactor trucks and street sweepers). Street wastes must be managed in accordance with **Appendix 6** – Street Waste Disposal of the Permit. If necessary, any liquids present should be separated from the solids with subsequent discharge to a decant station. Street debris solids are currently disposed of at the permitted solid waste landfill, Waste Management's Graham Road Landfill. Stormwater BMPs for managing street waste are incorporated into the BMP documents for urban streets in **Appendix A-4**.

Deicers

The Street Maintenance Division uses salts and liquid deicers to mitigate the impacts of snow and ice on streets. Proper selection, storage, and application of deicing materials is important to prevent negative environmental impacts to water quality and plants. Deicers and road salts must be applied to pavements in accordance with manufacturer specifications and care must be taken to avoid over application. Liquid deicer (magnesium chloride) is applied to bridges, arterial intersections and on specific hillsides when snow, ice or frost is predicted. When snow begins to accumulate on the roadway, solid granular de-icer (ice-slicer) is applied to bridges, arterial intersections, and hillsides. The BMPs for deicing are detailed in BMPs for streets in **Appendix A-4.**

Snow and Ice Disposal

Snow plowing operations occur on a prioritized basis to ensure specific streets remain open to traffic. Plowed snow from streets contain pollutants like road salts, deicers, and sand and must be staged to melt at a location that will not discharge pollutants to a surface water body. Applicable BMPs are provided **in Appendix A-4.**

Material Storage

Material storage for snow and ice removal operations is not located within the regulated MS4.

5. VEHICLE FLEETS

There are no storage, washing, maintenance and repair, or fueling of municipal vehicles in the designated permit regulated MS4 basin areas. This section is not applicable to the MS4 O&M Plan.

6. MUNICIPAL BUILDING

The City does not own, operate, or maintain Municipal buildings in the designated permit regulated MS4 basin areas. This section is not applicable to the MS4 O&M Plan.

7. PARKS AND OPEN SPACE

The City does not own, operate, or maintain any parks or open spaces in the designated permit regulated MS4 basin areas. This section is not applicable to the MS4 O&M Plan.

8. CONSTRUCTION ACTIVITIES

Construction projects have significant potential to impact stormwater. Stormwater pollution prevention BMPs must be implemented for construction activities performed by the City.

LARGE CONSTRUCTION PROJECTS

Public construction projects are required to comply with Appendix 1 of the Eastern Washington Phase II Municipal Stormwater permit or the local jurisdiction's minimum requirements approved by Ecology. The City's minimum requirements are identified in the 2008 Spokane Regional Stormwater Manual (SRSM) and includes eight basic requirements for stormwater management.

All public construction projects within the City must comply with the SRSM. The SRSM establishes standards for stormwater design and management to protect water quality. The Manual meets or exceeds applicable criteria from the Stormwater Management Manual for Eastern Washington. All projects include construction and post-construction stormwater controls designed to keep pollutants from reaching the MS4.

The following construction projects are required to have a General NPDES Permit for Stormwater Discharges Associated with Construction Activities (Construction Permit). Refer to Ecology's website or regional office for additional information.

- Clearing, grading, and/or excavation (including forest practices and off-site disturbance acreage related to construction-support activity as authorized in permit section S1.C.2) that results in the disturbance of one or more acres and discharges stormwater to surface waters of the State; or
- Cleaning, grading and/or excavation on sites smaller than one or more acres that are part of a larger common plan of development or sale that will ultimately disturb one acre or more, and discharge stormwater to surface waters of the State.

Construction projects or construction sites that are part of a common plan of development larger than one acre in size, or remove or replaces greater than 5,000 square feet (s.f.) of impervious surface must meet the eight basic requirements below:

1. Drainage submittal
2. Geotechnical site characterization
3. Water quality treatment
4. Flow control
5. Natural and constructed conveyance systems
6. Erosion and sediment control
7. Source control
8. Operation and maintenance

The SRSM and basic requirement No. 6, Erosion and Sediment Control, requires development of an Erosion Control Sediment plan that addresses at minimum the following items. BMPs suggested for these items are reference by their identification code in the *Stormwater Management Manual for Eastern Washington:*

1. Construction sequence
2. Clearing limits

3. Construction access route
4. Install sediment controls
5. Soil stabilization
6. Protection of inlets
7. Runoff from construction sites
8. Washout site for concrete trucks and equipment
9. Material storage/stockpile
10. Cut and fill slopes
11. Stabilization of temporary conveyance channels and outlets
12. Dewatering construction sites
13. Control of pollutants other than sediment on construction sites
14. Permanent BMPs
15. Maintenance of BMPs
16. Protect Low Impact Development BMPs (Infiltration BMPs)

Small Construction Projects

Small municipal construction projects are defined as projects adding or replacing less than 2,000 s.f. of impervious surface or clearing less than 7,000 s.f. to prevent the discharge of sediment and other pollutants to the maximum extent practicable. The following pollution prevention BMPs are recommended for small construction projects:

- Keep exposed areas to a minimum only clear the areas needed.
- Correct disturbed and/or compacted soil at the end of construction activity.
- Locate excavated soil a reasonable distance behind the curb.
- Backfill as soon as possible to eliminate soil mounds and provide temporary cover
- Remove excess soil from the site as soon as possible.
- Install trench or berm if soil bank is higher than the curb to reduce gully and rill erosion
- Stabilize construction site entrance
- Provide periodic street cleaning
- Backfill utility trenches that run up and down slopes within 7 days

9. INDUSTRIAL ACTIVITIES

The City has no industrial activities in the designated permit regulated MS4 basin areas. This section is not applicable to the MS4 O&M Plan.

10. STORAGE AREA

The City does not own, operate, or maintain any storage areas in the designated permit regulated MS4 basin areas. This section is not applicable to the MS4 O&M Plan.

11. FLOOD MANAGEMENT PROJECTS

Any flood management projects that would discharge to designated permit regulated MS4 basin areas are required to assess water quality impacts during the design of a project.

Since incorporation, the City has not designed or constructed any flood management projects. If flood management projects are considered, whether public or private, these projects will be designed and constructed according to the requirements of the SRSM. The SRSM establishes standard for stormwater design and management to protect water quality. The manual exceeds applicable criteria from the Stormwater Management Manual for Eastern Washington.

12. OTHER SITES OR FACILITIES

The City does not own, operate, or maintain any other sites or facilities that would reasonably be expected to discharge contaminated runoff in the designated permit regulated MS4 basin areas.

GLOSSARY

40 CFR means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

Average Daily Traffic means the expected number of vehicles using a roadway is represented by the projected ADT volume considered in designing the roadway. ADT counts must be estimated using the Trip Generation Manual published by the Institute of Transportation Engineers or a traffic study prepared by a licensed engineer in the state of Washington or a transportation specialist with expertise in traffic volume estimation. ADT counts shall be made for the design life of the project. For project sites with seasonal or varied use, the highest period of expected traffic impacts should be evaluated.

AKART is an acronym for "all known available and reasonable methods of prevention, control and treatment." AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the pollutants associated with a discharge.

Allowable Discharge means a type of illicit, non-stormwater discharge that does not cause significant contamination of surface water, stormwater, or ground water. They are allowed only when specific conditions are met pursuant to the requirements of the NPDES Permit.

Beneficial Uses those water uses identified in state water quality standards that must be achieved and maintained as required under the federal Clean Water Act. "Beneficial use" and "designated use" are often used interchangeably.

Best Management Practices are the schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by Ecology that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington State.

Bypass means the diversion of stormwater from any portion of a stormwater treatment facility.

Best Management Practices (BMP) means the utilization of methods, techniques or products that have been demonstrated to be the most effective and reliable in minimizing environmental impacts.

CFR means Code of Federal Regulation

Conveyance means the mechanism, including pipes, ditches and channels, for transporting water from one point to another.

Conveyance System means the drainage facilities, both natural and constructed that collect, contain, and provide for the flow of surface and stormwater from the highest points on the land down to a receiving water. The natural elements of the conveyance system include swales and small drainage courses, streams, rivers, lakes, and wetlands. Constructed elements of the conveyance system include gutters, ditches, pipes, channels, and most retention/detention facilities.

Discharge Point means the location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.

Drainage means the process of removing surplus ground or surface water by artificial means. The manner in which the waters of an area are removed. The area from which waters are drained; a drainage basin.

Discharge means runoff, excluding offsite flows, leaving the area being discussed through overland flow, built conveyance systems, or infiltration facilities.

Discharge Point means the location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.

Eastern Washington Phase II Municipal Stormwater Permit means the stormwater permit that regulates stormwater from MS4s in Eastern Washington.

Fully Stabilized means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions, or geotextiles) which prevents erosion.

Ground Disturbing Activity means any activity resulting in a change of the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Ground disturbing activities include, but are not limited to demolition, construction, clearing, grading, filling, logging, and excavation.

Groundwater means water in a saturated zone or stratum beneath the surface of the land or below a surface water body.

Hazardous Material means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical or biological properties described in WAC 173-303-090 or 173-303-100.

Hazardous Substance means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical, or biological properties described in WAC 173-303-090 or WAC 173-303-100.

Heavy Equipment Maintenance or Storage Yard means an uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored on a long term basis.

High Intensity Parking means lot subject to an expected average daily vehicle traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area (100 times 33.272 equals 3,327=ADT, etc.). It is also subject to having a fleet of 25 or more diesel vehicles that are over 10 tons gross weight (trucks, heavy equipment, etc.) stored at that location.

Hyperchlorinated Water means water that contains more than 10 mg/Liter chlorine.

Illicit connection means any connection to the MS4 that is not intended, permitted, or used for collection and conveying stormwater or non-stormwater discharges allowed as specified in the permit.

Illicit discharge means all nonstormwater discharges to drainage systems that cause or contribute to a violation of state water quality, sediment quality, or ground water quality standards, including, but not limited to, sanitary sewer connections, industrial process water, interior floor drains, car washing, and greywater systems.

Low Impact Development means a stormwater management and land development strategy that strives to mimic predisturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conversion, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

Material Storage Areas means and area where bulk materials (e.g. liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, etc..

Municipal Separate Storm Sewer System (MS4) means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

- owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of wastes, stormwater, or other wastes, including special districts under State Law such as a sewer district,

flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the CWA that discharges to waters of Washington State;

- designed or used for collecting or conveying stormwater;
- which is not a combined sewer; and
- which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2, which is defined as as "large" or "medium" or "small" or otherwise designated by Ecology pursuant to 40 CFR 122.26.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements of the Federal Clean Water Act for the discharge of pollutants of surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Department of Ecology.

New Development means the conversion of previously undeveloped or permeable surfaces to impervious surfaces and managed landscape areas. New development occurs on vacant land or through expansion of partially developed sites.

Non-Pollutant Generating Impervious Surfaces (NPGIS) are considered insignificant sources of pollutants in stormwater runoff. Roofs that are subjected only to atmospheric deposition or normal heating, ventilation, and air conditioning vents are considered NPGIS, unless the roofing material is uncoated metal. The following may also be considered NPGIS: paved bicycle pathways and pedestrian sidewalks that are separated from and not subjected to drainage from roads for motor vehicles, fenced fire lanes, infrequently used maintenance access roads, and "in-slope" areas of roads. Sidewalks that are regularly treated with sand, salt, or other deicing and anti-icing chemicals are not considered NPGIS..

Operational BMPs are a type of source control BMP, operational BMPs are schedules of activities, prohibition of practices, and other managerial practices to prevent or reduce pollutants from entering stormwater. They include formation of a pollution prevention team, good housekeeping, preventive maintenance procedures, spill prevention and cleanup, employee training, inspections of pollutant sources and BMPs, and record keeping. They can also include process changes, raw material/product changes, and recycling wastes.

Outfall means an opening with closed perimeter, usually sharp-edged, and of regular form in a plate, wall, or partition through which water may flow; generally used for the purpose of measurement or control of water.

Permanent Erosion and Sediment Control Measures means the combination of plants, mulch, sod, matting, erosion control blankets, and permanent structures that provide long-term soil stabilization.

Permittee means recipient of a Department of Ecology NPDES permit.

Pollutant-Generating Impervious Surfaces (PGIS) are considered significant sources of pollutants in stormwater runoff. Such surfaces include those that are subjected to use by vehicles, industrial activities, or storage of erodible or leachable materials that receive direct rainfall or run-on or blow-in of rainfall. Metal roofs are considered to be PGIS, unless coated with an inert, nonleachable material. Roofs that are subject to venting of manufacturing, commercial (such as restaurants or processing facilities where oils and other solid particles are expected to be expelled), or other indoor pollutants are also considered PGIS. A surface, whether paved or not, shall be considered PGIS if it is regularly used by motor vehicles. The following are considered regularly used surfaces: roads, unvegetated road shoulders, bike lanes within the traveled lane of a roadway, driveways, parking lots, unfenced fire lanes, vehicular equipment storage

yards, and airport runways.

Pollutant means any substance prohibited or limited by federal, state, or local regulations, released or discharged in conjunction with development. Any substance released or discharged, that causes or contributes to violation of water quality standards.

Receiving Waterbody or Receiving Waters means bodies of water or surface water systems to which surface runoff is discharged via a point source of stormwater or via sheet flow.

Replaced Impervious Surfaces means the removal and replacement of any exterior impervious surfaces or foundation; or, for other impervious surfaces, the removal down to bare soil, or base course, and replacement.

Redevelopment means the replacement or improvement of impervious surfaces on a developed site. Redevelopment occurs when existing facilities are demolished and rebuilt or substantially improved through reconstruction.

Responsible Party means the property owner or person authorized to act on the owner's behalf or any person causing or contributing to a violation of this Plan.

Runoff means water that travels across the land surface, or laterally through the ground near the land surface, and discharges to water bodies either directly or through a collection and conveyance system.

Sediment means fragmented material that originates from weathering and erosion of rocks or unconsolidated deposits and is transported by, suspended in, or deposited by water.

Site means the area defined by legal boundaries of a parcel or parcels of land that is (are) subjected to new development or redevelopment. For road projects, the length of the project site and the right of way boundaries define the site.

Soil means naturally occurring surface deposits overlaying bedrock.

Source Control BMPs are a structure or operation intended to prevent pollutants from encountering stormwater through physical separation of areas or careful management of activities that are sources of pollutants. Source control BMPs are separated into two types: structural and operational. Structural source control BMPs are physical, structural, or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. Operational source control BMPs are nonstructural practices that prevent or reduce pollutants from entering stormwater. See Chapter 8 - Source Control for details.

Stabilization means the processes of establishing and preserving soil cover of vegetation, mulch or other ground cover. In order to reduce the erosion process and the resultant transport of sediment to the maximum extent practicable.

Stormwater means runoff during and following precipitation and snowmelt events, including surface runoff, drainage, or interflow.

Stormwater Associated with Industrial and Construction Activity means the discharge from any conveyance used for collecting and conveying stormwater directly related to manufacturing, processing, or raw materials storage areas at an industrial plant, or associated with clearing, grading, and/or excavation, and required to have an NPDES permit in accordance with 40 CFR 122.26.

Stormwater Management Manual for Eastern Washington means the technical manual (Publication No. 18-10-044) published by the Department of Ecology in 2019.

Stormwater Management Program means a set of actions and activities designed to reduce the discharge of pollutants from the regulated MS4 to the maximum extent practicable and to apply all known, available, and reasonable methods of prevention, control, and treatment, to protect water

quality.

Stormwater Pollution Prevention Plan means a plan the City must develop and implement to protect water quality at each City-owned or operated facility not required to have coverage under the General NPDES Permit for Stormwater discharges Associated with Industrial Activities or another NPDES permit that covers stormwater discharges associated with the activity.

Surface Waters are all waters defined as "waters of the United States" in 40 CFR 122.2 that are within the boundaries of the state of Washington. This includes lakes, rivers, ponds, streams, inland waters, wetlands, ocean, bays, estuaries, sounds, and inlets. .

Total Maximum Daily Load (TMDL) means a calculation of the maximum amount of a pollutant that a water body can receive and still meet the water quality standards and an allocation of that amount to the sources of the pollutant. A TMDL (also known as a Water Cleanup Plan) is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the water body can be used for the purposes the state has designated. The calculation must also account for seasonable variation in water quality. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body, for example, drinking water supply, contact recreation (swimming), and aquatic-like support (fishing), and the scientific criteria to support those uses. The Clean Water Act, Section 303, establishes the water quality standards and TMDL programs.

Temporary Erosion and Sediment Control Measures means Erosion and sediment control devices used to provide temporary stabilization of a site—usually during construction or ground-disturbing devices are installed.

Trackout means depositing of sediment onto paved surfaces from the wheels of vehicles.

Unlawful discharge means any direct or indirect pollutant discharge into surface water, groundwater, stormwater, or stream channel; or any direct or indirect pollutant discharge into the MS4.

Water Body means water bodies defined as surface waters of the state or waters defined as waters of the state under RCW chapter 90.48.020

Waters of the State means a five-tier classification system of water bodies set up by the state in the Forest Practices Rules and Regulations (WAC 222).

Water Quality Standards means minimum requirements of purity of water for various uses; levels or measures of water quality considered necessary to protect a beneficial use. In Washington State, Ecology establishes water quality standards.

APPENDICES

A-3 STORMWATER COLLECTION AND CONVEYANCE BMPs

A-4 ROADS, HIGHWAYS, AND PARKING LOT BMPs

B MS4 OUTFALL & CATCHMENT AREAS, SURFACE WATERS, NEW DEVELOPMENT EXHIBIT

C INSPECTION FORMS

D DECANT FACILITY EXHIBITS

E STREET SWEEPING ACTION PLAN

APPENDIX A-3 – STORMWATER COLLECTION AND CONVEYANCE BMPS

- ✓ BMPs for Record Keeping
- ✓ BMPs for Site Inspections
- ✓ BMPs for Maintenance of Roadside Ditches
- ✓ BMPs for Maintenance of Drainage Systems and Runoff Treatment Facilities
- ✓ BMPs for Landscaping and Lawn/Vegetation Management
- ✓ BMPs for Irrigation
- ✓ BMPs for Decant Facility
- ✓ BMPs for Labeling Storm Drain Inlets
- ✓ BMPs for Maintaining Catch Basins
- ✓ BMPs for Maintaining Bioinfiltration Facilities
- ✓ BMPs for Maintaining Drywells
- ✓ BMPs for Correcting Illicit Connections to Storm Drains

BMPs FOR RECORD KEEPING

ADMINISTRATIVE APPROACH

Where inspections, monitoring, or recordkeeping are required, follow record-keeping requirements and retention schedules for the following reports, at a minimum:

Inspection Forms (facility/structure specific)

- Inspection forms should include:
    - Time and date of the inspection,
    - Location(s) inspected,
    - Condition of facility inspected,
    - Statement on status of compliance per maintenance BMPs,
    - Summary report of any remediation activities required, and
    - Name of person conducting the inspection.

- Retain inspection records in GIS database for minimum of five years

Reportable Quantity

- Notifications are required to external government agencies for spills of oil or hazardous substances in greater than the reportable quantities identified in 40 CFR 302.4 and 40 CFR Part 117.
- Report to Ecology (509-329-3400) spills of antifreeze, oil, gasoline, or diesel fuel that may cause:
    - A violation of the Washington State water quality standards,
    - A film or sheen upon or discoloration of the waters of the state or adjoining shorelines, or
    - A sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines
- Retain inspection records in department files for minimum of five years
- See Appendix F for spill response documents.

ADDITIONAL RECOMMENDED RECORDKEEPING PROCEDURE

- Maintain records of all related pollutant control and pollution-generating activities, such as training, materials purchased, material use and disposal, maintenance performed, etc.
    - Training occurs (and records are updated) as assigned duties amongst staff change, as applicable new personnel are onboarded, and as otherwise required by the Permit.

BMPs FOR SITE INSPECTIONS

ADMINISTRATIVE APPROACH

City staff should conduct visual site inspections regularly. Make and maintain a record of each inspection on-site. The following requirements apply to inspections:

- Site inspections should be conducted by someone familiar with the facility's site, operations, and BMPs.
- The inspector should assess the effectiveness of the existing stormwater facilities and associated BMPs in place. Inspector will evaluate the facilities to ensure compliance with original design intent and that it is operating in an acceptable manner that is compliant with Permit requirements.

BMPs FOR MAINTENANCE OF ROADSIDE DITCHES

DESCRIPTION OF POLLUTANT SOURCES

Common roadway pollutants include eroded soil particles, motor vehicle fluids, heavy metals, and plant debris.

POLLUTANT CONTROL APPROACH

Maintain roadside ditches to the original design conditions and use erosion and sediment control practices to minimize exposed soils and thinly vegetated ground.

Maintenance practices should provide for erosion and sediment control, see BMPs for Landscaping and Lawn/Vegetation Management.

Additional Regulations

Maintenance activities near critical areas may have additional regulatory and/or permit requirements. Consult with City of Spokane Valley planning department to determine if additional conditions apply. Examples include riverbanks, wetlands, steep slopes, or other designated critical areas.

APPLICABLE OPERATIONAL BMPS

Maintenance

- Inspect roadside ditches regularly to identify sediment accumulations and localized erosion.
- Clean ditches on a regular basis to keep them free of sediment accumulation and debris.
- Use temporary erosion and sediment control measures, or revegetate as necessary, when reshaping ditches.
- Maintain diversion ditches on cut slopes to retain their diversion shape and capability.
- Sweep, collect, and dispose of dirt and debris remaining on the pavement at the completion of ditch cleaning operations. Do not leave ditch cleanings on the roadway surfaces.
- Remove vegetation only when flow is blocked or excess sediments have accumulated.
- If necessary, conduct ditch maintenance (seeding, fertilizer application, harvesting) in late spring and/or early fall to allow vegetative cover to establish by the wet season.
- Examine culverts on a regular basis for scour or sedimentation at the inlet and outlet, and repair as necessary.

Vegetation

- Do not apply fertilizer in ditches unless absolutely necessary for vegetative growth.
- Establish grass cover from edge of the roadway pavement to top of the slope of the ditch.
- Establish grass cover on the ditch slopes if possible.

Waste

- Screen materials recovered during ditch maintenance to separate soils from vegetative materials and litter and debris, if practical.
- Dispose of roadside vegetative matter at the Waste to Energy facility.
- Manage soils determined to be uncontaminated as fill material.
- Dispose of contaminated soils at a permitted solid waste landfill. Contact Waste Management Graham Road Landfill to determine disposal options and requirements.
- Manage sediment and debris contaminated by spills or releases of hazardous materials in accordance with the Dangerous Waste Regulations (Chapter 173-303 WAC).
    - Conduct analyte testing to identify substance.
    - Coordinate with an accredited or permitted waste management broker or facility.

BMPs FOR MAINTENANCE OF DRAINAGE SYSTEMS AND RUNOFF TREATMENT FACILITIES

Description of Pollutant Sources

Roadside catch basins, drainage pipes, vaults, oil and water separators, biofiltration swales, settling basins, and infiltration systems, among others, are designed to collect materials that inherently contaminants such as oil and grease, hydrocarbons, heavy metals, sediment and debris, and dirty water.

Pollutant Control Approach

Provide maintenance and cleaning of debris, sediments, and oil from drainage systems and runoff treatment BMPs for efficient pollutant removal.

Applicable Operational BMPs

- Regularly inspect and clean runoff treatment BMPs, drainage systems, and catch basins, on a routine frequency of 2 years or less, and assess if maintenance is required.
- Promptly repair any damage that compromises the structural integrity of stormwater treatment component such as catch basins, drywells, spillways, inlets, etc.
- Prevent heavy sediment discharges to the drainage system with upstream basins or that will drop out and retain sediment.
- Pump catch basins empty if the depth of sediment and debris is greater than 18" off the bottom, or greater than ½ the distance to the outlet pipe.
- Clear woody debris in a catch basin as frequently as needed to ensure proper operation of the catch basin.
- Post drain markers adjacent to all storm drain inlets when practical (see BMPs for Labeling Storm Drain Inlets).
- Dispose of sediment recovered from the storm sewer system at the Spokane Regional Decant facility. **Note:** Disposal of sediments and liquids from catch basins must comply with Appendix 8-B: Management of Street Waste Solids and Liquids of the SWMMEW.

Additional Applicable BMPs

Depending on the pollutant sources and activities conducted at the facility, the following BMPs may be applicable:

- BMPs for Spill Response and Cleanup
- BMPs for Correcting Illicit Connections to Storm Drains
- BMPs for Urban Streets

BMPs FOR LANDSCAPING AND LAWN/VEGETATION MANAGEMENT

DESCRIPTION OF POLLUTANT SOURCES

Landscaping and lawn/vegetation management operations have the potential for excess nutrients from fertilizers and pesticides to be present due to weed control activities. Proper management of vegetation can minimize excess nutrients and pesticides, as well as exposed soils that can contribute to suspended solids in runoff.

POLLUTANT CONTROL APPROACH

Maintain appropriate vegetation to control erosion, the discharge of stormwater pollutants, and prevent debris contamination of stormwater. Grow plant species appropriate for the site or adjust the soil properties of the site to grow desired plant species.

APPLICABLE OPERATIONAL BMPS

Soils

- When necessary, amend soils to improve the infiltration and regulation of stormwater in landscaped areas.
- Aerate landscaping regularly when the soil tends to become compacted.
- Conduct aeration while the grasses in the landscape are growing most vigorously. Remove layers of thatch > 0.75 inches deep.
- In areas not designated as runoff treatment surfaces, use 2-4 inches of topsoil with ≥ 8% organic matter to provide a sufficient vegetation-growing medium.

Vegetation

- Maintain vegetative cover to prevent soil erosion. When vegetation is removed, apply mulch or other cover measures to prevent soil erosion.
- Select the right plants for the planting location based on soil conditions, sun exposure, water availability, height, sight factors, and space available.
- Select the appropriate turfgrass mixture for the climate and soil type.
- Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem- eating lawn insects.
- The fungus causes no known adverse effects on the host plant or humans.
- Tall fescues and rye grasses do not repel root-feeding lawn pests such as crane fly larvae.
- Dispose of vegetated waste (clippings, leaves, large branches) at a properly permitted waste management site; landscape material should not be disposed of in streams or stormdrains.
- Use the following seeding and planting BMPs in Chapter 7 - Construction Stormwater Pollution Prevention of the SWMMEW, or equivalent BMPs, to obtain information on grass mixtures, temporary and permanent seeding procedures, maintenance of a recently planted area, and fertilizer and pesticide application rates:
    - BMP for Temporary and Permanent Seeding
    - BMP for Mulching
    - BMP for Using Covering as Erosion Protection

    - BMP for Sodding
    - BMP for Fertilizer Applications
    - BMP for Pesticide Applications

- Allow natural revegetation in suitable areas.
- Use manual and/or mechanical methods of vegetation removal rather than applying herbicides, where practical.
- Avoid loosening the soil during weed control.
- Do not blow waste into streets, storm drains, or ditches.
- Do not dispose of collected vegetation into receiving waters or drainage systems.
- Use mulching type mowers or dispose of lawn clippings appropriately.
- Dispose of collected vegetation such as grass clippings, leaves, sticks by composting or take it to a permitted waste disposal site.
- Return natural plant debris and mulch to the soil, to continue recycling nutrients indefinitely.
- Set the mowing height at the highest acceptable level and mow at times and intervals designed to minimize stress on the turf. Generally mowing only one-third of the grass blade height will prevent stressing the turf.
    - Mowing is a stress-creating activity for turfgrass.
    - The productivity of grass decreases when it is mowed too short and there is less growth of roots and rhizomes. The turf becomes less tolerant of environmental stresses, more disease prone, and more reliant on outside means such as pesticides, fertilizers, and irrigation to remain healthy.

Noxious Weeds

- Ensure that plants selected for planting are not on the Spokane County Noxious Weed List
- Remove, bag, and dispose of class A and B noxious weeds in the garbage immediately.
- Do not compost noxious weeds as it may lead to spreading through seed or fragment if the composting process is not hot enough.

Recommended Operational BMPs

- Conduct mulch-mowing whenever practicable.
- Use native plants in landscaping. Native plants do not require extensive fertilizer or pesticide applications. Native plants may also require less watering.
- As required, improve the permeability of the soil.
- Reduce the demand for fertilizers and pesticides.

- Prune trees and shrubs in a manner appropriate for each species.
- If specific plants have a high mortality rate, assess the cause and replace with another more appropriate species.
- When working around and below mature trees, follow the most current American National Standards Institute (ANSI) A300 standards to the extent practicable (e.g., take care to minimize any damage to tree roots and avoid compaction of soil).
- Monitor tree support systems (stakes, guys, etc.) and take the following actions:
    - Repair and adjust as needed to provide support and prevent tree damage.
    - Remove tree supports after one growing season or maximum of 1 year.
    - Backfill stake holes after removal.
- 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.
- Make reasonable attempts to remove and dispose of class C noxious weeds.
- Reseed bare turf areas until the vegetation fully covers the ground surface.
- Watch for and respond to new occurrences of especially aggressive weeds such as Himalayan blackberry, Japanese knotweed, morning glory, English ivy, and reed canary grass to avoid invasions.
- Plant and protect trees per BMP F6.62: Trees from SWMMEW.

Additional BMP Information

- The ISA is a group that promotes the professional practice of arboriculture and fosters a greater worldwide awareness of the benefits of trees through research, technology, and education. ISA standards used for managing trees, shrubs, and other woody plants are the A300 standards. The ANSI A300 standards are voluntary industry consensus standards developed by the Tree Care Industry Association and written by the Accredited Standards Committee.
- Washington State University's Gardening in Washington State web page (http://gardening.wsu.edu/) contains Washington State specific information about vegetation management based on the type of landscape.
- Washington State University County Extension offices, see the following website: http://extension.wsu.edu/locations/
- See the Pacific Northwest Plant Disease Management Handbook for information on disease recognition and for additional resources.

BMPs FOR IRRIGATION

Description of Pollutant Sources

Improper and excessive watering can lead to discharges of chlorinated water into drainage systems, cause erosion, leach nutrients from soil, boost mosquito populations, create pest problems, impact plant health, and/or make a lawn completely dependent on artificial watering.

Pollutant Control Approach

Limit the amount of watering and place irrigation locations strategically to prevent offsite runoff.

Applicable Operational BMPs

- Inspect the irrigation system regularly to minimize excess watering and prevent the runoff of fertilizer.
- Irrigate in the morning or evening to conserve water.
- Monitor soil for moisture content and adjust irrigation times accordingly.
- Avoid exceeding the infiltration rate of the soil with irrigation and minimize the amount of water used.
- Maintain all irrigation systems so that water is evenly applied where it is needed.
- Minimize over spraying irrigation water so that excessive water does not discharge into the stormwater system.
- Inspect irrigated areas regularly for signs of over watering, erosion, and/or runoff discharges.
- Strategically place sprinkler systems to minimize water sprayed on impervious surfaces.
- Repair broken or leaking sprinkler nozzles as soon as they are observed or reported.
- Appropriately irrigate lawns based on the species planted, the available water holding capacity of the soil, and the efficiency of the irrigation system.
- Lawns irrigated on a daily basis only root in the top 1 inch of soil.
- Lawns irrigated less frequently develop deeper roots and more resilient grass.
- Allow as much time as possible to water after applying fertilizer to minimize fertilizer runoff.
- Allow as much time as possible to water after applying pesticides to minimize pesticide runoff.
- Reduce frequency and/or intensity of watering for the wet season (October 1 to June 30).
- Deliver irrigation water where the plants root systems will receive the water accounting for slope, adjacent vegetation, obstacles, etc.

Recommended Operational BMPs

- Add a tree bag or slow-release watering device to newly installed trees instead of irrigation lines.
- Water infrequently and sufficiently focusing on wetting the top 6 to 12 inches of the root zone.
- Deliver water in pulses to enhance soil absorption.

- Use soaker hoses or spot water with a shower-type wand if an irrigation system cannot be installed.
- Water in stages with a light first pass to premoisten soil, followed by subsequent passes for deeper watering to increase soil absorption and allow more water to infiltrate.
- Identify drought-stresses of planted vegetation and water immediately after initial signs of stress appear (e.g., leaf wilt, leaf ageing, etc.).
- Water during drought conditions, if necessary, to maintain plant cover.
- Reduce irrigation frequency/intensity as appropriate after plant establishment and monitor and adjust watering as appropriate.
- Annually inspect irrigation systems to ensure the following:
    - Sprayer nozzles are rotating as appropriate.
    - Sprayer systems are still aligned with the plant locations and root zones.
    - There are no blockages of sprayer nozzles.
- Consult with the local water utility, conservation district, or Washington State University Extension office to help determine optimum irrigation practices.
- Do not use chemigation and fertigation in irrigation systems. This will help avoid overapplication of pesticides and fertilizers.

BMPs FOR DECANT FACILITY

DESCRIPTION OF POLLUTANT SOURCES

Debris captured in roadway catchments becomes vactor waste when it is pumped by a vactor truck into a tank. Vactor waste typically contains stormwater pollutants similar to those found in street debris such as oil and grease, petroleum hydrocarbons, suspended solids, and heavy metals, etc. as is a potential source of stormwater contamination.

POLLUTANT CONTROL APPROACH

Street debris is by design captured in roadway catchments, recovered by vactor trucks, dewatered at the decant facility, and landfilled when dry. See maps in Appendix D – Decant Facility for a site layout.

APPLICABLE BMPS

Note: The Spokane Valley Regional Decant Facility is owned, operated, and maintained by the Washington State Department of Transportation.

Prohibited Discharges

Wastes specifically prohibited from being discharged at this Facility include, but are not limited to, waste collected from:

- Suspected of obviously contaminated sources
- Solid waste transfer stations
- Sites associated with the production of solvents, fuels, PCBs pesticides, or radioactive materials
- Car wash processed water vaults
- Non-authorized decant stations
- Water treatment systems (filters, filter media, etc.)
- Concrete slurries
- Stormwater drainage systems with known or historic contamination
- Sewage or industrial lift stations
- Grease traps
- Sanitary sewer or septic systems

Features

- Automated gate access with vehicle tracking through radio-frequency identification
- Elevated dump wall to a lower tipping floor allow operators to quickly discharge liquids and solid debris, while keeping truck tires cleaner and tire tracking free of debris.
- Warming floors (Bays 1 & 2) allow loads to be dumped and dried during freezing weather
- Water filling station – with frost free bib (Red valve located west of Bay 10)
- Suspect bay allows a load that is suspect to be quarantined until testing and proper disposal can be accomplished (Bay 1)
- Multiple stage treatment system for effective liquid and solids separation and disposal

Characterization of Materials in field

- Only debris from municipal and government storm drain systems are allowed at the Facility currently. No other debris is allowed.
- Operators shall not intentionally collect debris that have the following characteristics:
    - Obvious odors or heavy sheen of gasoline, solvents, or other petroleum products

- Presence of extremely acidic or alkaline materials and/or signs of chemical reaction.
- Material that does not look like or smell like typical liquids, sediment, or organic loading found in stormwater structures.

- In the event that operators inadvertently collect non-stormwater materials or debris as outlined above, the operator shall immediately quit collecting the material and notify the inspector and supervisor of the situation and wait for instructions. Suspect debris may be taken to the Decant Facility's suspect load bay; however this requires WSDOT approval.

Access

- See Appendix D for Facility Access and Traffic Flow Map
- All Eductor trucks are required to access the facility from the Montgomery Dr. automated gate.
- All vehicles accessing the facility must have a vehicle mounted "Radio-frequency identification" tag (RFID) from WSDOT facility personnel. The RFID opens the gate remotely and tracks use for billing purposes.
- Vehicles accessing the facility stop to the right side of the 24-foot wide access gate and wait for the RFID system to recognize the vehicle's assigned RFID tag.
- Gate should start beeping and open within 5-10 seconds of stopping outside the gate. If it doesn't, contact supervisor to report the problem. Facility personnel will be notified to assist with access issues.
- All eductor trucks are required to be inspected by facility personnel prior to receiving RFID.

Disposal

- After access, proceed south and back up the eductor truck into bays that do not have traffic cones placed.
- Ensure that back end of eductor truck will clear wheel stops at top of dumping wall.
- Back truck such that tires are a close to wheel stops as possible.
- Dump debris onto tipping floor.
- Use truck water to clean eductor vessel and seals.
- Ensure that cleaning water goes to tipping floor, not to facility storm drains in parking area.

Exit

- Proceed to Montgomery Drive access gate, stopping about 30 feet from gate (stop behind the West man-gate access).
- Sensors should automatically detect truck and open gate. Since the gate opens into the facility, if upon exit, a vehicle is too close to the gate, sensors will not allow the gate to swing open.
- Gate will close after vehicle enters traffic on Montgomery Drive.

In the Event of:

- **Life threatening injury: Dial 911, facility location is 12116 E. Montgomery Drive.**
- Suspect load – Contact Inspector
  - Name – Russ Humphries (WSDOT)
  - Phone – 509-953-6566 (cell)

  and, Contact City of Spokane Valley
  - Name – Chad Phillips (COSV)
  - Phone – 509-720-5013 (office)

  Note: only WSDOT authorized personnel allow the use of suspect load bay.
- **Vehicle Spill:** Utilize contents of spill kit to contain spill and keep from entering site storm drain system. Contact Inspector for further instructions.
- **Other issues or concerns,** contact inspector as listed above.

BMPs FOR LABELING STORM DRAIN INLETS

Description of Pollutant Sources

Stormwater can be severely impacted by contaminants resulting the discharge of pollutants into waters of the state that are due to waste being dumped, or pollutants being washed, into storm drains.

Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping.

Pollutant Control Approach

Signs are affixed to the inlet or on the curb near the storm sewer inlets that prohibit dumping anything into the storm sewer system, as well as identifying where the specific drain will ultimately discharge.

Applicable Operational BMPs

- Consider storm drain markers adjacent to storm drains in the regulated MS4 that have storm drains that ultimately discharge to a surface water.
- Use a brief statement and/or graphical icons to discourage illegal dumping. Examples include:
    - "No Dumping – Drains to Stream"
    - "Dump No Waste – Drains to Surface Water"
- Focus labeling efforts on areas that are most likely to experience illegal dumping, and areas that have drains that discharge directly to surface water without treatment.
- Place the marker in clear sight facing toward anyone approaching the inlet from either side.
- Monitor the drain markers over time and replace them as the imagery and writing fade and become illegible.
- Temporarily block the storm drain inlet when affixing drain markers with adhesives to ensure no pollutants enter the storm sewer system during labeling activities.

BMPs FOR MAINTAINING CATCH BASINS

DESCRIPTION OF POLLUTANT SOURCES

Catch basins act to trap roadway pollutants (oil and grease, petroleum hydrocarbons, suspended solids, and heavy metals, etc.) as stormwater enters the storm sewer system, and detain them until maintenance is performed.

POLLUTANT CONTROL APPROACH

Routinely inspect and maintain catch basins to ensure catch basins maintain functionality and remove pollutants from the storm sewer system.

APPLICABLE BMPS

Catch Basins

- Clear debris from top of cover and place into bucket or vactor
- Check condition of ring and cover for safety considerations and look for missing grates, unusual wear, cracks, chips ect. See *Table for Catch Basin Maintenance Criteria Inspections* on the next page for criteria.
- Inspect the catch basin infrastructure to ensure it is functioning properly. See *Table for Catch Basin Maintenance Criteria Inspections* on the next page for criteria.
- Inspect catch basin for signs of illicit discharges (i.e. pipes/hoses from business, oil, paints or color, smell, etc.)
    - Do not vactor if hazardous material is suspected, notify supervisor.
    - Conduct analyte testing to identify substance of the material. Erofins is a permitted service provider.
    - Wait for results from the permitted service provider before recovering the material.
- Dispose of the material appropriately, dependent on the analyte results.
    - Non-hazardous - Vactor
    - Non-hazardous – dispose in municipal solid waste dumpster
    - Hazardous – coordinate with an accredited or permitted waste management broker or facility.
- Measure amount of debris in basin. If depth of debris is 18” and greater or greater than ½ the distance to the outlet pipe, vactoring will be required.

Piping

- Inspect both incoming & outgoing pipes for debris and pipe condition.
    - If pipes need cleaned, indicate on inspection form or notify Supervisor to schedule cleaning
- Complete inspection form for all inspections
    - Include issues/repairs needed for each basin,
- Turn into supervisor for scheduling.

Debris Disposal

- Drive to the decant facility when vactor truck tank is full of debris and follow the BMPs for Decant Facility.

TABLE FOR CATCH BASIN MAINTENANCE CRITERIA INSPECTIONS (ECOLOGY)

Component	Issue	Maintenance Criteria	Maintenance Action
Catch Basin	Trash and Debris	Trash or debris that is located in front of the catch basin opening or is blocking flow to the basin	Remove the trash or debris located from in front of the catch basin or on grate opening
		Trash or debris is >18 inches deep, or greater than ½ the distance to the outlet pipe	Vactor the trash or debris from the catch basin
		Trash or debris is creating blockage in inlet/outlet pipe(s)	Remove trash or debris from Inlet/outlet pipe(s)
		Odorous organic matter, dead animals, etc. in the catch basin	Remove dead organic matter or dead animals from the catch basin.
	Sediment	Sediment and debris is >18 inches deep, or greater than ½ the distance to the outlet pipe.	Vactor the sediment and debris from the catch basin
	Structure Damage to frame or top slab	Top slab has large holes or cracks	Repair top slab holes and cracks with mortar, or replace
		Frame is significantly separated top slab, not flush or frame not securely attached	Adjust the frame so it is sitting flush on the riser rings or top slab and firmly attached. Replace if necessary
	Fractures or Cracks in Basin Walls/Bottom	Catchment structure is unsound/unsafe.	Repair the catch basin to design standards or replace
		Grout fillet has significantly separated or cracked at any joint, and/or soil is entering through the joints	Regrout the pipe and secure at basin wall
	Settlement/ Misalignment	Catchment structure is unsound/unsafe	Repair the catch basin to design standards or replace
	Vegetation	Vegetation is blocking the basin opening	Remove vegetation and unblock opening to basin
		Vegetation is growing in pipe joints	Remove vegetation or root growth from pipe joints
	Contamination and Pollution	There is evidence of oil, gasoline, contaminants or other pollutants	Recover any phase pollutants, and any impacted soil and dispose of properly
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place	Adjust or replace catch basin cover so it is closed
	Locking Mechanism Not Working	Mechanism cannot be opened individually with proper tools	Repair or replace the mechanism so it opens with proper tools.
	Cover Difficult to Remove	Lid cannot individually be opened with normal lifting force	Repair or replace the lid so it can be removed by one maintenance person.

BMPs FOR MAINTAINING BIOINFILTRATION FACILITIES

DESCRIPTION OF POLLUTANT SOURCES

Swales act to retain and treat stormwater pollutants (oil and grease, petroleum hydrocarbons, suspended solids, and heavy metals, etc.) as stormwater enters the facility and infiltrates into the subsurface.

POLLUTANT CONTROL APPROACH

Routinely inspect and maintain bioretention facilities (swales) to ensure they are functioning as designed and perform maintenance when required. One the following page, the *Table for Bioinfiltration Maintenance Criteria Inspections* contains the items that need to be inspected and maintained.

APPLICABLE BMPS

General

- Inspect the components of the bioretention facility (inlets/outlets, piping, swale, drywell overflow, etc.) to assess if it is functioning as designed. See *Table for Bioinfiltration Maintenance Criteria Inspections* for inspection criteria.
- Inspect the components for signs of illicit discharges (i.e. oil sheen, discoloration, odor, dead grass, etc.).
    - Do not remove accumulated debris if hazardous material is suspected.
    - Notify supervisor.
    - Conduct analyte testing to identify substance of the material. Erofins is a permitted service provider.
    - Wait for results from permitted service provider before recovering the material.
    - Dispose of material appropriately, dependent on analyte testing.
        - Non-hazardous – dispose in municipal solid waste dumpster.
        - Hazardous – coordinate with an accredited or permitted waste management broker or facility.
- Indicate on inspection form if any component of the bioretention facility needs maintenance.
    - Identify issues/repairs needed for each component.
    - Turn into supervisor for scheduling.

Inlets/outlets

- Inspect inlets/outlets to the bioinfiltration facility to include curb cuts, inlet pipes, outlet pipes, spillways, etc. for structural damage and debris accumulation.
    - If structural damage is present, indicate on inspection form to initiate schedule repair.
- Remove any built-up debris or overgrown vegetation from the inlets/outlets to include, ends of piping, concrete aprons, and sections of gutter immediately adjacent to inlets/outlets.
- Indicate on inspection form any structural damage that needs repair or pipes that need cleaned.

Swale Integrity

- Inspect swale area and assess if the swale is functioning by confirming the absence of signs of bypasses, flow channeling, erosion rills, sinkholes, standing water, etc.)
- Assess swale vegetation for the following:
    - Plant health.
    - Vegetation is and being mowed/trimmed regularly and not overgrown.
    - Noxious weeds are absent.
    - Minimal areas with thin vegetation or bare soil.
- Remove any built-up debris from bottom of the swale.
- Trim/mow any overgrown vegetation inside the swale.
- Indicate on inspection form to have the swale repaired/modified if there are indications that the swale may not be draining properly.

Drywell Overflow

- Inspect drywell to determine if structurally sound and functioning:
    - No large cracks or significant separation from grate.
    - No significant cracks or separation of grate from ring.
    - Free of standing water.
- Indicate on inspection form to have the drywell repaired/modified if there is significant structural damage.
- Measure amount of sediment and debris in drywell.
    - If sediment is >18" deep, vactor the sediment from the drywell.

Record Keeping

- Complete an inspection form for all inspections.
    - Include issues/repairs needed for each component of a facility.
    - Turn into Supervisor of scheduling.

Table for Bioinfiltration Maintenance Criteria Inspections (Ecology)

Components	**Issue**	**Maintenance Criteria**	**Maintenance Actions**
Inlets/Outlets	Clogs/Blockages	Inlets/outlets clogged with sediment and/or debris	Remove material so that there is no clogging or blockage in the inlets and outlets.
	Sediment Accumulation	Sediment depth > 1 inch	Remove sediment deposits from in front of inlet and from the apron.
	Vegetation Overgrowth	Grass or weeds blocking inlets/outlets	Remove blocking vegetation form in front of inlet or from apron so that water can enter the swale.
Swale	Sediment Accumulation	Sediment depth > 2 inches	Remove sediment deposits from the swale including the apron, toe of apron, and grassy bottom.
	Standing Water	Standing water between storms	Remove sediment, buildup, improve grade of swale bottom, and/or add underdrains.
	Constant Flow	Continuous stream of water flowing into swale	Add a pea-gravel drain the length of the swale, or by-pass the base flow around the swale.
	Poor Vegetation Coverage	Sparse grass, or bare or eroded patches in the bottom of swale	Determine why grass growth is poor and correct that condition. Prepare soil and reseed, lay sod, or plant other vegetation.
	Vegetation	Grass/vegetation excessively tall, nuisance vegetation/weeds	Mow/trim vegetation and remove nuisance weeds. Grass should be mowed to a height of 3 to 4 inches, and vegetation trimmed.
	Excessive Shading	Poor vegetation growth and/or bare areas	Trim back overhanging limbs if allowable, remove shade causing vegetation, and/or replant with shade tolerant vegetation.
	Trash/Debris	Trash and debris accumulation	Remove trash and debris from biofiltration swale.
	Erosion/ Scouring	Eroded or scoured swale bottom, or flow channeling from high flows	Fill in with crushed gravel or engineered soil, or regrade and reseed the swale, if significant.
Drywell	Plugged drywell	Standing water 24 hours after storm	Remove sediment, rehab drywell, or replace drywell
	Sediment Accumulation	Sediment in the basin > 18 inches deep	Remove sediment deposits from in front of inlet and from the apron.
	Vegetation Overgrowth	Grass or weeds blocking drywell grate	Remove blocking vegetation.
	Structural Damage	Large cracks in top ring of drywell barrel allowing soil to enter	Repair cracks with mortar or replace drywell
		Large cracks on the walls or floor of barrel allowing soil to enter	Repair cracks with mortar or replace drywell
	Separated Grate	Metal grate separated from drywell ring > 1 inch	Repair or replace metal grate

BMPs FOR MAINTAINING DRYWELLS

DESCRIPTION OF POLLUTANT SOURCES

Drywells assist with flow control of stormwater and have the potential to be impacted by stormwater pollutants (oil and grease, petroleum hydrocarbons, suspended solids, and heavy metals, etc.) as stormwater enters the drywell and infiltrates into the subsurface.

POLLUTANT CONTROL APPROACH

Routinely inspect and maintain drywells to ensure they are functioning as designed, and perform maintenance when required. The Table for Bioinfiltration Facility Inspections contains the items that need to be inspected and maintained.

APPLICABLE BMPS

Inspection

- Inspect drywell to determine if structurally sound and functioning:
    - No large cracks or significant separation from grate.
    - No significant separation of grate from ring.
    - Free of standing water.
    - Submit a work order to supervisor to have the drywell repaired/modified if there is significant structural damage.
- Inspect the components for signs of illicit discharges (i.e. oil sheen, discoloration, odor, dead grass, etc.):
    - Do not remove accumulated debris if hazardous material is suspected, notify supervisor.
    - Conduct analyte testing to identify substance of the material. Erofins is a permitted service provider.
    - Wait for results from permitted service provider before recovering the material.
    - Dispose of the material appropriately, dependent on the results of the analyte testing.
        - Non-hazardous – dispose in municipal solid waste dumpster.
        - Hazardous – coordinate with an accredited or permitted waste management broker or facility.

Maintenance

- Measure amount of sediment and debris in drywell.
    - If sediment is >18” deep, vactor the sediment from the drywell.
    -

Record Keeping

- Complete an inspection form for all inspections.
    - Include issues/repairs needed for each component of a facility.
- Turn into Supervisor for scheduling.

BMPs FOR CORRECTING ILLICIT CONNECTIONS TO STORM DRAINS

Description of Pollutant Sources

Illicit connections are unpermitted sanitary or process wastewater discharges to a storm drain or to surface water, rather than to a sanitary sewer, municipal process wastewater, or other appropriate facilities. They can also include swimming pool water, filter backwash, cleaning solutions and/or washwaters, cooling water, etc.

Pollutant Control Approach

Identify and eliminate unallowable discharges per the Eastern Washington Phase II Municipal Stormwater permit and chapter 22.150.110 SVMC.

Applicable Operational BMPs

- Eliminate unpermitted wastewater discharges to storm drains, ground water, or surface water.
- Convey unpermitted discharges to a sanitary sewer if allowed by the local sewer authority, or to other approved treatment.
    - Obtain appropriate state and local permits for these discharges.

Recommended Operational BMPs

At facilities with commercial and/or municipal operations activities, conduct a survey of wastewater discharge connections to storm drains and to surface water as follows:

- Generate a map of the area showing the known location of:
    - Storm drains
    - Sanitary Sewers
    - Non-stormwater discharges
    - Known side sewer connections
- Conduct a field survey of the site to locate storm drains from buildings and paved surfaces, noting where these join the public storm drain(s).
    - Inspect each storm drain for non-stormwater discharges when in dry weather and record the locations of all non-stormwater discharges.
    - Use Closed Circuit Television (CCTV) inspections, dye tests, or chemical analysis to detect connections between two conveyance systems (e.g., process water and stormwater).
- Confirm the connections from the field survey with the map and revise accordingly.
- Identify all connections to storm drains or to surface water and take the actions specified above as applicable BMPs.

APPENDIX A-4 – ROAD, HIGHWAYS, AND PARKING LOTS BMPS

- ✓ BMPS for Recordkeeping
- ✓ BMPS for Preventive Maintenance/Good Housekeeping
- ✓ BMPs for Spill Response and Cleanup
- ✓ BMPs for Urban Streets
- ✓ BMPs for Streets and Highways
- ✓ BMPs for Repairing Asphalt Pavement
- ✓ BMPs for Snow and Ice Removal from Roadways

BMPs FOR RECORDKEEPING

ADMINISTRATIVE APPROACH

Where inspections, monitoring, or recordkeeping are required, follow record-keeping requirements and retention schedules for the following reports, at a minimum:

Maintenance and Repair

- Maintenance Reports should include:
    - Time and date of the maintenance.
    - Location of maintenance.
    - Condition of facility inspected,
    - Statement on status of compliance per maintenance BMPs,
    - Summary report of any remediation activities required, and
    - Name of person conducting the work.

- Retain maintenance and repair records in department files for minimum of five years.

Sweeping

- Sweeping report should include:
    - Time and date of sweeping,
    - Location/limits of sweeping,
    - Type of sweeper used.

Reportable Quantity

- Notifications are required to external government agencies for spills of oil or hazardous substances in greater than the reportable quantities identified in 40 CFR 302.4 and 40 CFR Part 117.
- Report to Ecology (509-329-3400) spills of antifreeze, oil, gasoline, or diesel fuel that may cause:
    - A violation of the Washington State water quality standards,
    - A film or sheen upon or discoloration of the waters of the state or adjoining shorelines, or
    - A sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines
- Retain inspection records in department files for minimum of five years.
- See Appendix F for spill response documents.

ADDITIONAL RECOMMENDED RECORD-KEEPING PROCEDURE

- Maintain records of all related pollutant control and pollution-generating activities, such as training, materials purchased, material use and disposal, maintenance performed, etc.
    - Training occurs (and records are updated) as assigned duties amongst staff change, as applicable new personnel are onboarded, and as otherwise required by the Permit.

BMPs FOR PREVENTIVE MAINTENANCE/GOOD HOUSEKEEPING

DESCRIPTION

Preventive maintenance and good housekeeping practices reduce the potential for stormwater to come into contact with pollutants and can reduce maintenance intervals for the drainage system and sewer system.

APPLICABLE BMPS

- Prevent the discharge of unpermitted liquid or solid wastes, process wastewater, and sewage to ground water or surface water, or to storm drains that discharge to surface water or to the ground.
- Schedule use of wet materials that have a drying time requirement on days when it is unlikely to rain.
- Promptly contain and clean up solid and liquid pollutant leaks and spills, including oils, solvents, fuels, and dust from manufacturing operations on any publicly owned, operated, or maintained exposed soil, vegetation, or paved area.
- Do not hose down pollutants from any area to the ground, storm drains, conveyance ditches, or receiving water.
- Do not pave over contaminated soil unless it has been determined that ground water has not been and will not be contaminated by the soil. Call the Washington State Department of Ecology Eastern Regional Office for assistance at 509-329-3400.
- Construct impervious areas that are compatible with the materials handled. Portland cement concrete, asphalt, or equivalent material should be considered.

BMPs FOR SPILL RESPONSE AND CLEANUP

DESCRIPTION OF POLLUTANT SOURCES

Spills are unplanned releases of materials and are a common form of illicit discharge. Response procedures are determined by the type of spill and relationship to the City.

SPILL RESPONSE

Spill response is categorized four ways. See Appendix F – Spill Response Plans for more information.

1. Emergency or Hazardous Spill to Ground
2. Emergency or hazardous Spill to Water
3. Non-Emergency Spill that can reach the City's MS4 system
4. Non-Emergency Spill that does not reach the City's MS4 system

Emergency or hazardous spills to **ground** could include spills related to vehicle collisions, fires, intentional illicit dumping, unknown chemicals, or explosive materials. Emergency or hazardous spills on City roadways or properties that may impact the safety of the traveling public or the environment: **Call 911**. Response to this type of spill includes multi regional agencies. The level of response is dependent on the nature of the spill. See the flowchart in Appendix F – Spill Response Plans for a full response description.

Emergency or hazardous spills to **water** posing immediate threat to human health or the environment could include a tank truck spill into a surface water. If a spill of oil or hazardous material is observed in the water call immediately:

1. Call 911
2. 1-800-258-5990 (Department of Emergency Managaement)
3. 1-800-424-8802 (National Response Center)
4. 509-329-3400 (Regional Department of Ecology)

Non-Emergency spills on City roadways or properties that can reach the City's MS4 system should be reported to the Regional Department of Ecology and the City of Spokane Valley.

1. 509-329-3400 (Regional Department of Ecology)
2. 509-720-5005 (COSV Stormwater Utility)
3. 509-720-5002 (COSV Street Maintenance)

Non-Emergency spills on City roadway or properties that do not reach the City's Ms4 system should be reported to the City of Spokane Valley. Leave a message if contacting outside business hours.

1. 509-720-5005 (COSV Stormwater Utility)
2. 509-720-5002 (COSV Street Maintenance)

Spill Response for non-emergency conditions include:

1. Visually inspect all stormwater facilities within a reasonable area of the spill.
2. Identification of spills reaching stormwater facilities is by visual recognition or odor.
3. Document stormwater facility condition with pictures
4. Enter incident to City's QAlert system
5. Report incident to Department of Ecology WQWebbIDDE
6. Consider distribution of standard spill and illicit discharge letters and flyers to provide public education and outreach. Distribution should be done within the immediate area.

7. If necessary, initiate Spill Cleanup

Spill Cleanup Kits

Spill kits should include but not be limited to the following:

- Safety gloves/clothes
- Absorbent pellets/chips
- Absorbent booms
- Absorbent pads
- Containment booms
- Shovel
- Polyethylene disposal bags or containers with lids

Spill Cleanup – Non Emergency

Follow these steps to promptly contain and clean up **non-emergency** (non-hazardous) spills upon discovery. Do not wash down spills with a hose. Do not use emulsifiers or dispersants such as liquid detergents or degreasers.

1. Don necessary personal protective equipment. Gloves, eye protection, protective clothing, etc.
2. Contain and isolate the spilled materials (e.g. booms, aborbents, soil, etc.)
3. Block any downstream storm drains and catch basins with "witch's hat," booms, or similar.
4. Recover spilled materials:
    - Collect spilled materials contained on impervious surfaces with abosorbent pellets, absorbant pads, kitty litter, etc.
    - Collect non-hazardous oily liquid material that may have entered sumps or catchments with absorbent pads.
    - No recovery is necessary for non-hazardous spills to ground < 30 gallons.
5. Place used and contaminated clean-up materials in a closable container or plastic bag.
6. If necessary, conduct analyte testing to identify contaminant. Erofins is a permitted service provider.
7. Label the container/bag as "cleanup materials contaminated with <insert spill material name>"
8. Dispose of clean-up waste containers appropriately.
    - Non-hazardous solid waste – containers may be disposed in a municipal solid waste dumpster.
    - Hazardous waste – coordinate with an accredited or permitted waste management broker or facility.

Spill Cleanup – Emergency

Follow these steps to respond to an emergency condition from spill.

1. Immediately call 911.
2. Identify conditions of spill.
3. Await emergency response teams and provide known details of the spill.
4. Await and coordinate with emergency response teams, Spokane Regional Health District, and the Department of Ecology for clean-up details.
5. If coordinated for clean-up:
    - If non-hazardous material and resources are available, follow BMPs described herein.
    - If non-hazardous and resources are not available, coordinate with spill response service provider.
    - If hazardous material, coordinate with spill response service provider.

BMPs FOR URBAN STREETS

Description of Pollutant Sources

Urban streets collect vegetative debris, paper, fine dust, petroleum hydrocarbons, tire and break wear residues, heavy metals (lead and zinc), sand, soil particles, ice control salts, domestic wastes, lawn chemicals, and vehicle combustion products, among others, that contaminate stormwater and are a result of human activities, including vehicle traffic.

Pollutant Control Approach

Regenerative and mechanical street sweepers are regularly used to recover the variety of roadway pollutants from city arterials and residential streets in order to minimize the discharges of runoff pollution. Do not directly wash street debris into storm drains.

Recommended BMPs

Street Sweepers

- Conduct street sweeping operations per sweeping action plans in Appendix E – Street Sweeping Action Plans.
- Use regenerative air sweepers and mechanical sweepers to recover street debris from curbed streets operated in series behind water trucks that are used to control fugitive dust.
- Limit the amount of water applied to the roadway to only what is necessary to manage fugitive dust to minimize discharges of street debris laden water into catch basins.
- Reduce the amount of dust control water applied to the roadway if a significant amount of water is observed entering catch basin inlets.
- When practical, use tandem sweeping operations with a mechanical sweeper followed by a regenerative sweeper for moderate increases in stormwater pollutant recoveries.
- Coordinate with event planners to promptly sweep streets after large or special events that will generate higher than normal amounts of roadway pollutants.

Disposal of Street Wastes

"Street wastes" are the street debris recovered from roadways and parking lots via sweeping. Street wastes are generated upon recovery of street debris by street sweepers to include the associated dust control water.

Street Sweeper Street Waste

- Transport and temporarily store sweeping debris at approved transfer station location (11202 E. Mission Ave.).
- Allow sufficient time for the street debris solids to dry.
- Once dried, dispose of street debris solids at approved and permitted Waste Management – Graham Road Landfill located at 1820 S. Graham Road, Medical Lake, WA 99022.
- Contact Waste Management – Graham Road Landfill if the street waste generated are suspected of having higher than normal levels of contaminants to determine the appropriate management approach for the materials.

Note: Additional information and details on the disposal of street wastes is contained in the Stormwater Management Manual for Eastern Washington Appendix 8-B: Management of Street Waste Solids and Liquids.

BMPs FOR STREETS AND HIGHWAYS

Description of Pollutant Sources

This section is only applicable to the maintenance and deicing/anti-icing of streets and highways. Overuse, leaks, and spills of deicing products provides the potential for them to be conveyed to inlets/catch basins or receiving waters during storm events. Equipment and processes used during maintenance operations can contribute pollutants such as oil and grease, suspended solids, turbidity, high pH, and metals.

Pollutant Control Approach

Apply good housekeeping practices, perform preventive maintenance, properly train employees, and use materials that cause less adverse effects on the environment.

Applicable BMPs

DEICING AND ANTI-ICING OPERATIONS

- Select deicing and anti-icing chemicals that cause the least adverse environmental impact. Apply only as needed using minimum quantities.
- Where feasible and practicable, use roadway deicing chemicals that cause the least adverse environmental impact.
- Adhere to manufacturer's guidelines and industry standards of use and application.
- Store and transfer deicing/anti-icing materials on an impervious containment pad in accordance with BMPs for Outdoor Storage or Transfer of Materials.
- Sweep/clean up accumulated deicing/anti-icing materials and grit from roads as soon as practicable after the road surface clears.
- Minimize use in areas where runoff or spray from the roadway immediately enters sensitive areas, such as fish-bearing streams.

Recommended BMPs

- Intensify roadway cleaning in early spring to help remove particulates from road surfaces.
- Include limits on toxic metals in the specifications for deicing/anti-icing chemicals.
- 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.
- Install catch basin inserts to collect excess sediment and debris as necessary.
- Inspect and maintain catch basin inserts to ensure they are working correctly.

BMPs FOR REPAIRING ASPHALT PAVEMENT

Description of Pollutant Sources

Asphalts and asphalt repair materials have toxic chemicals and petroleum hydrocarbons that have the potential to impact stormwater before drying or curing.

Pollutant Control Approach

Make asphalt repairs adhering to the below stormwater BMPs.

Applicable BMPs

Crack Sealant

- Avoid applying crack sealant to street pavements during wet weather events.
- Use as little oil flow as possible when cleaning machinery.
- Dispose of dirty rags in the dumpster or flammable material waste container, as appropriate.
- Pump material into source bucket when clearing hoses, or directly into dumpsters.
- Use care to keep crack sealant out of storm drains.
- Recycle cardboard tar containers.

Asphalt Repair, Paving, and Bridge Maintenance

- Use care to keep asphalt materials and waste from storm drains during grind and overlay projects and utility cuts, including on bridges.
- Minimize the area of soils left exposed or graded and stabilize soils when finished. See Chapter 8 - CONSTRUCTION ACTIVITIES -Small Construction Projects.
- Collect any loose sand, gravel, asphalt, or other material as soon as possible after construction activities.
- Mix road stabilization materials during periods of calm, dry weather, and seal as soon as possible after dressing.
- Fill and compact soil, gravel, and asphalt in layers.
- Reuse road spoil in repairs if possible and sweep up and dispose of properly.
- Eliminate 'edge break' by fully sealing road shoulders.
- Dispose of all residual materials appropriately.

BMPs FOR SNOW AND ICE REMOVAL FROM ROADWAYS

Description of Pollutant Sources

Urban streets collect petroleum hydrocarbons, tire and break wear residues, heavy metals (lead and zinc), sand, soil particles, ice control salts, domestic wastes, and vehicle combustion products, among others, and snow and ice removed from roadways contains these pollutants and has the potential to contaminate local water bodies.

Pollutant Control Approach

Plows are regularly used to remove snow from city streets, and deicers are routinely used to minimize the formation of ice on roadways. This requires careful consideration when siting snow disposal locations and responsible use of deicers to avoid overapplication.

Applicable BMPs

Snow removal

- Remove accumulated roadway pollutants (i.e. sediments, sand, trash and road salts) from snow storage areas when the snow has melted. **See BMPs for Urban Streets**
- Snow storage areas should be maintained prior to snow season to minimize the erosion potential.
- Do not dispose of snow & ice in wetlands, creeks, and other waterways.

Deicers and Sands

- Apply deicers and sands to roadways in the winter carefully to ensure that the materials are placed on the pavements where they are intended to perform, and they remain in place.
- Avoid overapplication of road salts, liquid deicers, and sand.
- Limit the use of deicers and sand to only locations where they are necessary to create safer driving conditions.
- Recover deicer salts and sands from the roadway after winter and manage as a waste material.
- Include a cover and containment with bulk storage of deicer salts and sands, and follow the BMPs for the Outdoor Storage or Transfer of Materials document.
- Periodically inspect bulk storage areas for signs of failure.
- Use deicers without phosphorus as a chemical component.
- Ensure that all equipment is calibrated to optimum levels according to manufacturer's instruction.

APPENDIX B – REGULATED SMALL MS4 EXHIBIT

- ✓ MS4 Outfalls & Catchment Areas, Surface Waters, New Development Exhibit

APPENDIX C – INSPECTION FORMS

- ✓ Swale Inspection Form
- ✓ Drywell Inspection Form
- ✓ Catch Basin, Inlet, Manhole Inspection Form

APPENDIX D – DECANT FACILITY

- ✓ Decant Facility Vicinity Map
- ✓ Decant Facility Access Traffic Flow Map

APPENDIX E – STREET SWEEPING ACTION PLANS

- ✓ Arterial Sweeping Action Plan
- ✓ Spring Sweeping Action Plan
- ✓ Fall Sweeping Action Plan
- ✓ Arterial Sweeping Map
- ✓ Spring Sweeping Map
- ✓ Fall Sweeping Map

APPENDIX F – SPILL RESPONSE PLANS

- ✓ Emergency or Hazardous Spill Plan
- ✓ Non-Emergency Spill or Illicit Discharge Plan