

Best Management Practices Field Guide

**for
ESA § 4 (d) Habitat Protection**

March 2004

**Maintenance and Operations Division
Maintenance Office**



Washington State Department of Transportation

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Glossary of Acronyms

BMPs	Best Management Practices
ESA	Endangered Species Act
HPA	Hydraulic Project Approval
LWM	Large Woody Material
PDA	Personal Data Assistant
RMEC	Regional Maintenance Environmental Coordinator
RRMP	Regional Road Maintenance ESA Program Guidelines
ROW	Right-of-Way
WDFW	Washington State Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation

Introduction

This guide is intended for WSDOT maintenance crews and regional maintenance environmental coordinators who work within sensitive priority areas (red). The guide was developed to train and alert staff as to when and where to apply and report implementation of the Regional Road Maintenance Endangered Species Act (ESA) Program Guidelines (RRMP) Best Management Practices (BMPs).

Knowing the location of aquatic habitat within the Right-of-Way (ROW) and using BMPs during maintenance activities in these sensitive priority areas (red) will conserve listed ESA threatened salmonids species habitat. The BMPs are not prescriptive, but are outcome based. The best professional judgment of **trained** maintenance personnel is instrumental in meeting the BMP outcomes (minimize erosion and sedimentation, contain pollutants and minimize impacts to vegetation root zone).

This guide provides instructions for filling out the Personal Data Assistant (PDA) checklist documenting WSDOT compliance with ESA § 4(d) "take" limits for the RRMP. This checklist constitutes the proof of your compliance with RRMP.

Following the Guide will not only conserve listed salmonids, but help protect water quality and quantity, aquatic and shoreline habitats and the traveling public safety.

Failure to document compliance could result in a violation under the ESA.

Maintenance Crews PDA Checklist Instructions

Determine the location of proposed work. Is work located within a **Red** sensitive area? If yes start a record. If no you're done, go to work. (Consult Roadside-Sensitive Management Area Atlas or fish sticks.)

Yes = PDA record.

1. Enter organization code number.
2. Enter name (last and first).
3. Enter beginning date work will be conducted.
4. Enter estimated ending date work will be completed.
5. Enter location (Highway # and mile post (beginning & ending)).
6. Enter work operation number.
7. Does the work have the potential to disturb/expose soils, discharge pollutants or disturb vegetation root systems? If no, record is complete, go to work.
8. Is work covered under a General Permit? If yes select from the pull down menu the general permit used. If no, contact regional maintenance environmental coordinator and secure permits if necessary.
9. Write in waterbody name.
10. Choose one Regional Road Maintenance ESA Program Guidelines (RRMP) Maintenance Category from the pull down menu that most closely fits your work. Review and implement routine and site specific BMPs for that maintenance category.

#1 Roadway Surface

Activities include the following: pothole and square cut patching; removing paved surface or roadway base; repairing roadway base; repaving; adding gravel or grading roads, access roads, or ROW surfaces; dust control; extending pavement edge; paving gravel shoulder; crack sealing; overlay; chip seal; resurfacing; pavement marking and traffic channelization; traffic control features.

#2 Enclosed Drainage Systems

Enclosed drainage systems include the following: facilities, retention/detention facilities, pollution control devices, manholes, catch basins, vaults, pipes, access roads and inlets/outlets.

#3 Cleaning Enclosed Drainage Systems

Removing debris, sediments and liquids from enclosed drainage systems using a vacuum/flush truck ("Vactor") by hand or other mechanical means. Enclosed drainage systems include the following: facilities, retention/ detention facilities, manholes, catch basins, vaults, pipes, access roads, pollution control devices and inlets.

#4 Open Drainage Systems

Systems include facilities, retention/detention facilities, swales, pollution control devices, manholes, catch basins, vaults, pipes, culverts, ditches, and inlets/outlets. Open drainage system includes stormwater conveyance systems that were created entirely by artificial means, such as roadside ditches and storm or surface water runoff facilities. These structures are not watercourses, streams or wetlands.

#5 Watercourses and Streams

Repair, replacement, installation and maintenance tasks performed on watercourses or streams. Activities may include structural repair/replacement, slope stabilization, sediment removal, vegetation management, debris removal, access road maintenance, habitat maintenance and improvements (for example fish ladders, weirs and large woody material).

#6 Stream Crossings

Repair, cleaning, maintenance, installation or replacement/upgrade of stream crossing facilities, such as pipes, arch pipes, box culverts, fish ladders, weirs, sediment pools, access roads and bridges.

#7 Gravel Shoulders

Maintenance tasks performed on gravel shoulders improve drainage, restore proper grade, restore filtering capability, maintain vegetation to provide adequate site distance, smooth rutting and remove buildup of sediment before entering drainage system.

#8 Street Surface Cleaning

Removing soil, organic material, dust, trash and other debris.

#9 Bridge Maintenance

Activities include inspecting, testing, repairing, replacing, maintaining, painting or resurfacing components of the bridge; such as the electrical system, substructure, superstructure, surface footings, piers, supports, access roads, abutments, ramps and vegetation management.

#10 Snow and Ice Control

Activities include snow blowing, plowing, drift removal, winter sand cleanup, sanding, anti-icing and de-icing application.

#11 Emergency Slide/Washout Repair

Activities include removal of slide/washout material from ROW; backfilling or stabilizing slope, reestablishment of damaged roadway structures; repairing and cleaning drainage system, restoring access road, revegetating, and/or armoring with rock.

#13 Sewer Systems

Repair, replace, install and maintain operating components of sewer facilities, including, but not limited to, treatment facilities, lift stations, pump stations, main lines, collection lines, trunk lines, interceptors, lake lines, access roads, associated ROW and storage/detention facilities.

#14 Water Systems

Repair, replace, install and maintain operating components of water system facilities, including, but not limited to, treatment plants, transmission mains, distribution lines, fire flow systems, reservoirs, tunnels, pump stations, meters, flushing, dewatering, services, access roads and associated ROWs or water system structures.

#15 Vegetation

Activities include repair, replacement, installation, removal and/or maintenance of the vegetation with the ROW.

11. Does maintenance work involve concrete? If yes, check box. Review routine and site specific BMPS.

#12 Concrete

Maintenance activities performed on the concrete structures, such as concrete roadways, sidewalks, driveways, curb and gutter sections include the following: removal or repair of damaged sections and installation of new structures.

12. Select the appropriate Site Specific BMPs from pull down menu.
13. Write in other site specific BMPs used that aren't listed in the pull down menu.
14. Write in any comments regarding process or observations on BMPs that can improve the program.

ESA Field Guide PDA Checklist for Maintenance Crews

Is work located within any **Red** sensitive areas? If yes start record. If no, you're done, go to work. (Consult Roadside Sensitive Management Areas Atlas or fish sticks.)

Work Information	
1. Org Code: _____	5. Location: _____
2. Name (last and first): _____	Highway # _____
3. Beginning Date: _____	Beginning Mile Post _____
4. Estimated Ending Date: _____	Ending Mile Post _____

6. Work Operation Number: _____

Checklist		
Steps	Yes/No	Comments
7. Does work have the potential to disturb/expose soils, discharge pollutants, or disturb vegetation root system?		
8. Is work covered under a General Permit? If yes, check the appropriate general permit that will be used to conduct the work. If no, contact Regional Maintenance Environmental Coordinator and secure permits if necessary.		<ul style="list-style-type: none"> <input type="checkbox"/> Removal of Beaver Dams HPA Control # GH-D9450-01 <input type="checkbox"/> Debris Removal/Relocation HPA Control # GH-D9416-03 <input type="checkbox"/> Bridge Cleaning & Washing HPA Control # GH-D9448-01 <input type="checkbox"/> Bridge Painting, Including Preparatory Cleaning, Washing, and Abrasive Blasting. HPA Control # GH-D9448-01 <input type="checkbox"/> Bridge General Maintenance & Repair HPA Control # GH-D9448-01 <input type="checkbox"/> Bridge Deck Overlay Replacement HPA Control # GH-D9448-01 <input type="checkbox"/> No general permit, contact the RMEC and secured permits if necessary.

9. Identify waterbody being impacted.		
10. Review and select Regional Road Maintenance ESA Program Guidelines maintenance category that most closely fits the work. Check the box of maintenance category selected. Review and implement routine and site specific BMPs for that maintenance category.		<ul style="list-style-type: none"> <input type="checkbox"/> #1 Roadway Surface <input type="checkbox"/> #2 Enclosed Drainage Systems <input type="checkbox"/> #3 Cleaning Enclosed Drainage Systems <input type="checkbox"/> #4 Open Drainage Systems <input type="checkbox"/> #5 Watercourses and Streams <input type="checkbox"/> #6 Stream Crossings <input type="checkbox"/> #7 Gravel Shoulders <input type="checkbox"/> #8 Street Surface Cleaning <input type="checkbox"/> #9 Bridge Maintenance <input type="checkbox"/> #10 Snow and Ice Control <input type="checkbox"/> #11 Emergency Slide/Washout Repair <input type="checkbox"/> #13 Sewer Systems <input type="checkbox"/> #14 Water Systems <input type="checkbox"/> #15 Vegetation
11. Does work involve concrete? If yes, check box. Review and implement routine and site specific BMPs.		<ul style="list-style-type: none"> <input type="checkbox"/> #12 Concrete
12. Check the appropriate boxes for the site specific BMPs that were utilized.		<ul style="list-style-type: none"> <input type="checkbox"/> Aqua Barrier <input type="checkbox"/> Back of Slope Planting <input type="checkbox"/> Cofferdam <input type="checkbox"/> Coir Fabric <input type="checkbox"/> Coir Log <input type="checkbox"/> Concrete Containment (1) <input type="checkbox"/> Concrete Containment (2) <input type="checkbox"/> Construction Access Road <input type="checkbox"/> Continuous Berm <input type="checkbox"/> Curb Inlet Sediment Trap <input type="checkbox"/> Dewatering <input type="checkbox"/> Diaper Netting <input type="checkbox"/> Ditch Lining <input type="checkbox"/> Diversion Berm <input type="checkbox"/> Diversion Channel <input type="checkbox"/> Dust Control <input type="checkbox"/> Excelsior Filled Log <input type="checkbox"/> Filter Fabric <input type="checkbox"/> Grass Lined Channel

		<ul style="list-style-type: none"> <input type="checkbox"/> Gravel Filled Sump <input type="checkbox"/> Half Round Filter <input type="checkbox"/> Hand Seeding <input type="checkbox"/> Hydroseeding <input type="checkbox"/> Inlet Protection <input type="checkbox"/> Kimble Filter Pipe <input type="checkbox"/> Large Woody Material <input type="checkbox"/> Live Staking <input type="checkbox"/> Mulching <input type="checkbox"/> Plastic Covering <input type="checkbox"/> Plywood Work Platform <input type="checkbox"/> Rip Rap <input type="checkbox"/> Rock Check Dam <input type="checkbox"/> Sandbag <input type="checkbox"/> Sedimentation Sump <input type="checkbox"/> Silt Fence <input type="checkbox"/> Silt Mat <input type="checkbox"/> Siltation Pond/Settling Tank <input type="checkbox"/> Soil Stabilization (Blankets/Matting) <input type="checkbox"/> Straw Bale Barrier (1) <input type="checkbox"/> Straw Bale Barrier (2) <input type="checkbox"/> Straw Bale Barrier (3) <input type="checkbox"/> Straw Log <input type="checkbox"/> Stream Bank Stabilization <input type="checkbox"/> Stream Bypass <input type="checkbox"/> Streambed Gravel <input type="checkbox"/> Surface Roughening <input type="checkbox"/> Sweeping <input type="checkbox"/> Temporary Sediment Trap <input type="checkbox"/> Triangular Silt Dike <input type="checkbox"/> Turbidity Curtain <input type="checkbox"/> Vactoring <input type="checkbox"/> Vegetative Buffer <input type="checkbox"/> Washed Rock
<p>13. Write in any additional site specific BMPs that were utilized, but not listed in 7 above.</p>		
<p>14. Write any comments regarding process or BMPs that can improve the program.</p>		

RMEC Field Guide Instruction

1. Maintenance notifies RMEC with proposed in water work activity or potential work activity that could impact water. The notification will include maintenance contact and location (Highway # and mile post). Go to Step 2.
2. RMEC or appropriate individual submits individual permit application. Go to Step 3.
3. RMEC or appropriate individual receives permit approval. Go to Step 4.
4. RMEC or appropriate individual contacts maintenance crew to inform them that work is covered under an individual permit. Provide a copy of the applicable permit to the crews. Go to Step 5.
5. Maintenance fills out PDA checklist and goes to work with copies of the appropriate permits on site.

#1: Roadway Surface

Activities:

Activities include the following: pothole and square cut patching; removing paved surface or roadway base; repairing roadway base; repaving; adding gravel or grading roads, access roads, or ROW surfaces; dust control; extending pavement edge; paving gravel shoulder; crack sealing; overlay; chip seal; resurfacing; pavement marking and traffic channelization; traffic control features.

BMP Table:

Routine BMPs	
BMPs	Description
Maintenance of Roadway Surfaces	Perform repairs, replacement and maintenance of roadway surface.
Shoulder Work	Maximize opportunities for shoulder work, which will increase infiltration or bio-filtration. (See also Maintenance Category #7, Gravel Shoulders)
Equipment/ Tools	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> • Routinely inspect equipment, tools and vehicles for leaks or damage. • Keep clean up materials, such as dry absorbent materials, on site to allow prompt clean up of spills. • Promptly repair or replace leaking connections, pipes, hoses and/or valves. <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools offsite in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/ Debris Disposal</p>	<p>After repairs are completed, remove construction/ maintenance waste materials from work site and dispose of and/or recycle.</p> <p>If area is swept with a pickup sweeper, the material will be hauled out of the area to appropriate disposal site.</p>
<p>Painting/ Marking</p>	<p>Follow state and federal guidelines for handling paint and other traffic marking material.</p> <p>Stripe roadways in dry weather.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p>Site Specific BMPs</p>	
<p>BMPs</p>	<p>Description</p>
<p>Are you disturbing soils?</p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> • During winter season – October through June – no soils shall remain exposed and unworked for more than two days. • During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days. • These conditions apply to all soils on site, whether or not at final grade. <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>

Site Specific BMPs

Continued from preceding page.

Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes or other waterbodies:

“Filter/Perimeter Protection”

- | | |
|--------------------------|------------------------|
| Coir Log | Kimble Filter Pipe |
| Continuous Berm | Silt Fence |
| Curb Inlet Sediment Trap | Silt Mat |
| Excelsior Filled Log | Straw Bale Barrier (1) |
| Filter Fabric | Straw Bale Barrier (2) |
| Gravel Filled Sump | Straw Bale Barrier (3) |
| Half Round Filter | Straw Log |
| Inlet Protection | Washed Rock |

“Reduce Potential for Soil Erosion”

- | | |
|--------------------------|--|
| Back of Slope Planting | Live Staking |
| Construction Access Road | Mulching |
| Ditch Lining | Plastic Covering |
| Dust Control | Soil Stabilization
(Blankets/Matting) |
| Filter Fabric | Surface Roughening |
| Grass Lined Channel | Sweeping |
| Hand Seeding | Vegetative Buffer |
| Hydroseeding | |

“Reduce Water Velocity/Erosive Forces”

- | | |
|------------------------|---------------------------|
| Back of Slope Planting | Sandbag |
| Coir Fabric | Silt Fence |
| Coir Log | Silt Mat |
| Continuous Berm | Straw Bale Barrier (1) |
| Ditch Lining | Straw Bale Barrier (2) |
| Excelsior Filled Log | Straw Bale Barrier (3) |
| Hand Seeding | Straw Log |
| Hydroseeding | Stream Bank Stabilization |
| Large Woody Material | Surface Roughening |
| Live Staking | Triangular Silt Dike |
| Mulching | Turbidity Curtain |
| Rip Rap | Vegetative Buffer |
| Rock Check Dam | |

Go to <http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf>

RRMP Part 2 BMPs for installation guidelines.

#2: Enclosed Drainage Systems

Activities:

Enclosed drainage systems include the following: facilities, retention/detention facilities, pollution control devices, manholes, catch basins, vaults, pipes, access roads and inlets/outlets.

BMP Table:

Routine BMPs	
BMPs	Description
Maintaining Enclosed Drainage Systems	Perform repairs, replacement and maintenance of enclosed drainage systems.
Equipment/Tools	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> • Routinely inspect equipment, tools and vehicles for leaks or damage. • Keep clean up materials, such as dry absorbent materials, on site to allow prompt clean up of spills. • Promptly repair or replace leaking connections, pipes, hoses and/or valves. <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>				
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p>				
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>				
<p>Site Specific BMPs</p>					
<p>BMPs</p>	<p>Description</p>				
<p>Are you disturbing soils?</p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> • During winter season – October through June – no soil shall remain exposed and unworked for more than two days. • During the summer season – July through September – no soil shall remain exposed and unworked for more than seven days. • These conditions apply to all soils on site, whether or not at final grade. <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>				
<p>Site Specific BMPs</p> <p><i>Continued on next</i></p>	<p>Use any of the following three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes, or other waterbodies:</p> <p>“Filter/Perimeter Protection”</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Coir Log</td> <td style="width: 50%;">Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence
Coir Log	Kimble Filter Pipe				
Continuous Berm	Silt Fence				

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<p>Site Specific BMPs <i>Continued from preceding page.</i></p>	<p>“Filter/Perimeter Protection” (Con’t)</p> <table border="0"> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p>“Reduce Potential for Soil Erosion”</p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Live Staking</td> </tr> <tr> <td>Construction Access Road</td> <td>Mulching</td> </tr> <tr> <td>Ditch Lining</td> <td>Plastic Covering</td> </tr> <tr> <td>Dust Control</td> <td>Soil Stabilization (Blankets/Matting)</td> </tr> <tr> <td>Filter Fabric</td> <td>Surface Roughening</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Sweeping</td> </tr> <tr> <td>Hand Seeding</td> <td>Vegetative Buffer</td> </tr> <tr> <td>Hydroseeding</td> <td></td> </tr> </table> <p>“Keep Water from Work Area”</p> <table border="0"> <tr> <td>Aqua Barrier</td> <td>Plastic Covering</td> </tr> <tr> <td>Cofferdam</td> <td>Sandbag</td> </tr> <tr> <td>Dewatering</td> <td>Stream Bypass</td> </tr> <tr> <td>Diversion Berm</td> <td>Vactoring</td> </tr> <tr> <td>Diversion Channel</td> <td></td> </tr> </table> <p>Go to http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf RRMP Part 2 BMPs for installation guidelines.</p>	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Back of Slope Planting	Live Staking	Construction Access Road	Mulching	Ditch Lining	Plastic Covering	Dust Control	Soil Stabilization (Blankets/Matting)	Filter Fabric	Surface Roughening	Grass Lined Channel	Sweeping	Hand Seeding	Vegetative Buffer	Hydroseeding		Aqua Barrier	Plastic Covering	Cofferdam	Sandbag	Dewatering	Stream Bypass	Diversion Berm	Vactoring	Diversion Channel	
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#3: Cleaning Enclosed Drainage Systems

Activities:

Removing debris, sediments and liquids from enclosed drainage systems using a vacuum/flush truck ("Vactor"), by hand or other mechanical means. Enclosed drainage systems include the following: facilities, retention/detention facilities, manholes, catch basins, vaults, pipes, access roads, pollution control devices and inlets.

BMP Table:

Routine BMPs	
BMPs	Description
Cleaning Enclosed Drainage Systems	Maintain drainage systems.
Pre-Activity	<p>Cleaning Enclosed Drainage Systems: Use BMPs that include, but are not limited to:</p> <ul style="list-style-type: none"> • Blocking facility outlet. • Using less water. • Blocking downgradient end of pipe.
Equipment/Tools	<p>When using high-pressure flushing equipment, vacuum out solids to reduce sediment and turbidity from moving downgrade throughout the drainage system.</p> <p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> • Routinely inspect equipment, tools and vehicles for leaks or damage. • Keep clean up materials, such as dry absorbent materials, on site to allow prompt clean up of spills. • Promptly repair or replace leaking connections, pipes, hoses and/or valves. <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping.

Continued on next page.

<p>Equipment/ Tools <i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>Remove and dispose of collected materials and liquids off site.</p> <p>Solid materials removed from the site will be taken to a disposal or recycling area.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>

#4: Open Drainage Systems

Activities:

These systems include facilities, retention/detention facilities, swales, pollution control devices, manholes, catch basins, vaults, pipes, culverts, ditches and inlets/outlets. (Open drainage systems that are part of the watercourses and streams systems are covered in Maintenance Category #5, Watercourses and Streams.)

BMP Table:

Routine BMPs	
BMPs	Description
Maintaining Open Drainage Systems	Maintain drainage systems.
Permits	Maintenance activities within waters of the state will be covered under Maintenance Category #5, Watercourses and Streams.
Scheduling	Plan and schedule work in dry conditions, except in emergency situations.
Equipment/ Tools	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations.</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater. • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filter, antifreeze, cleaning solutions lead-acid batteries, tires, hydraulic and transmission fluid.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> Surfaces shall be cleaned following the discharge or spill incident. <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move equipment and tools off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>Remove and dispose of collected materials and liquids off site.</p> <p>Solid materials removed from the site will be taken to a disposal or recycling area.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p>Site Specific BMPs</p>	
<p>BMPs</p>	<p>Description</p>
<p>Are you disturbing soils?</p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect the soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> During winter season – October through June – no soils shall remain exposed and unworked for more than two days. During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days. These conditions apply to all soils on site, whether or not at final grade. <p>Leave vegetative buffer outside of work zone to provide biofiltration and shading outside of the back slope of ditch.</p> <p>Leave vegetative buffer of grasses and small forbs between the shoulder and ditch if the area is wide enough.</p> <p>Leave vegetated sections of grasses and small forbs in ditchline where sediment buildup does not impede flow or infiltration.</p> <p>After removal of sediments from ditch line, replant disturbed soils with grasses and small forbs.</p> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>

Site Specific BMPs

Continued from preceding page.

Use any of the four BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:

“Filter/Perimeter Protection”

- | | |
|--------------------------|------------------------|
| Coir Log | Kimble Filter Pipe |
| Continuous Berm | Silt Fence |
| Curb Inlet Sediment Trap | Silt Mat |
| Excelsior Filled Log | Straw Bale Barrier (1) |
| Filter Fabric | Straw Bale Barrier (2) |
| Gravel Filled Sump | Straw Bale Barrier (3) |
| Half Round Filter | Straw Log |
| Inlet Protection | Washed Rock |

“Keep Water from Work Area”

- | | |
|-------------------|------------------|
| Aqua Barrier | Plastic Covering |
| Cofferdam | Sandbag |
| Dewatering | Stream Bypass |
| Diversion Berm | Vactoring |
| Diversion Channel | |

“Reduce Potential for Soil Erosion”

- | | |
|--------------------------|--|
| Back of Slope Planting | Filter Fabric |
| Construction Access Road | Live Staking |
| Ditch Lining | Mulching |
| Dust Control | Plastic Covering |
| Filter Fabric | Soil Stabilization
(Blankets/Matting) |
| Grass Lined Channel | Surface Roughening |
| Hand Seeding | Sweeping |
| Hydroseeding | Vegetative Buffer |

“Reduce Water Velocity/Erosive Forces”

- | | |
|------------------------|------------------------|
| Back of Slope Planting | Sandbag |
| Coir Fabric | Silt Fence |
| Coir Log | Silt Mat |
| Continuous Berm | Straw Bale Barrier (1) |
| Ditch Lining | Straw Bale Barrier (2) |

Continued on next page.

<p>Site Specific BMPs</p> <p><i>Continued from preceding page.</i></p>	<p>Excelsior Filled Log Grass Lined Channel Hand Seeding Hydroseeding Large Woody Material Live Staking Mulching Rip Rap Rock Check Dam</p> <p>Go to http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf RRMP Part 2 BMPs for installation guidelines.</p>	<p>Straw Bale Barrier (3) Straw Log Stream Bank Stabilization Surface Roughening Triangular Silt Dike Turbidity Curtain Vegetative Buffer</p>
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#5: Watercourses and Streams

Activities:

These activities may include structural repair/replacement, slope stabilization, sediment removal, vegetation management, debris removal, access road maintenance, habitat maintenance and improvements (for example, fish ladders, weirs and large woody material).

BMP Table:

Routine BMPs	
BMPs	Description
Maintenance of Watercourses & Streams	Maintain drainage systems that are watercourses and/or streams.
Permits	Maintenance activities within waters of the state will be reviewed by WDFW and permitted with an HPA, as necessary. When required, habitat restoration will be designed and constructed in accordance with applicable permits.
Scheduling	Plan and schedule work in dry conditions or when flows are anticipated to be at their lowest when possible.
Fish Exclusion	Follow "Fish Exclusion Protocol" (RRMP Appendix E) and permit conditions during maintenance activities. Fish will be excluded from the construction area using appropriate methods such as the use of nets, dewatering at a controlled rate and removal of stranded fish according to HPA permit conditions.
Equipment/ Tools	Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations: <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p>Site Specific BMPs</p>	
<p>BMPs</p>	<p>Description</p>
<p>Are you disturbing soils?</p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> • During winter season – October through June – no soil shall remain exposed and unworked for more than two days. • During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days.

<p>Are you disturbing soils?</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • These conditions apply to all soils on site, whether or not at final grade. <p>Minimize disturbance to riparian vegetation:</p> <ul style="list-style-type: none"> • Mark job site. • Flag work area. • Operate equipment to minimize damage to riparian habitat. <p>Leave vegetative buffer of grasses and small forbs between the shoulder and ditch if the area is wide enough.</p> <p>Leave vegetated section in ditchline, where sediment buildup does not impede flow or infiltration.</p> <p>Leave vegetative buffer outside of work zone to provide biofiltration and shading outside of the back slope of ditch.</p> <p>Monitor water quality in accordance with permit requirements.</p> <p>Monitor plantings in accordance with permit requirements.</p> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>																				
<p>Site Specific BMPs</p> <p><i>Continued on next page.</i></p>	<p>Use any of the four BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:</p> <p>“Filter/Perimeter Protection”</p> <table border="0"> <tr> <td>Coir Log</td> <td>Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p>“Keep Water from Work Area”</p> <table border="0"> <tr> <td>Aqua Barrier</td> <td>Plastic Covering</td> </tr> <tr> <td>Cofferdam</td> <td>Sandbag</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Aqua Barrier	Plastic Covering	Cofferdam	Sandbag
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<p>Site Specific BMPs <i>Continued from preceding page.</i></p>	<p>“Keep Water from Work Area” (con’t)</p> <p>Dewatering Diversion Berm Diversion Channel</p> <p>Stream Bypass Vactoring</p> <p>“Habitat Protection/Maintenance”</p> <p>Coir Fabric Coir Log Excelsior Filled Log Hand Seeding</p> <p>Hydroseeding Large Woody Material Live Staking Streambed Gravel</p> <p>“Reduce Water Velocity/Erosive Forces”</p> <p>Back of Slope Planting Coir Fabric Coir Log Continuous Berm Ditch Lining Excelsior Filled Log Grass Lined Channel Hand Seeding Hydroseeding</p> <p>Large Woody Material Live Staking Mulching Rip Rap</p> <p>Rock Check Dam Sandbag Silt Fence Silt Mat Straw Bale Barrier (1) Straw Bale Barrier (2) Straw Bale Barrier (3) Straw Log Stream Bank Stabilization Surface Roughening Triangular Silt Dike Turbidity Curtain Vegetative Buffer</p> <p>Go to: http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf RRMP Part 2 BMPs for installation guidelines.</p>
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#6: Stream Crossings

Activities:

Repair, cleaning, maintenance, installation or replacement/upgrade of stream crossing facilities, such as pipes, arch pipes, box culverts, fish ladders, weirs, sediment pools, access roads and bridges. Maintenance within waters of the state will be reviewed by the WDFW.

BMP Table:

Routine BMPs	
BMPs	Description
Permits	<p>Maintenance activities within waters of the state will be reviewed by WDFW and permitted with an HPA, as necessary.</p> <p>When required, habitat restoration will be designed and constructed in accordance with applicable permits.</p>
Scheduling	<p>If seasonal watercourses or stream, schedule work during dry conditions.</p> <p>Plan and schedule work in dry conditions or low flow conditions except in emergency situations if possible (HPA).</p>
Fish Exclusion	<p>Follow “Fish Exclusion Protocol” (See RRMP Appendix E) and permit conditions during maintenance activities.</p> <p>Fish will be excluded from the construction area using appropriate methods such as the use of nets, dewatering at a controlled rate and removal of stranded fish according to HPA permit conditions.</p>
Equipment/ Tools	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment.
<i>Continued on next page.</i>	
Equipment/	<ul style="list-style-type: none"> • Perform equipment and vehicle maintenance in

<p>soils?</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Mark job site. • Flag work area. • Position equipment to protect riparian habitat. <p>Monitor water quality.</p> <p>Restore vegetation appropriate for site conditions within riparian areas.</p> <p>Protect outflows by bio-vegetation techniques or armoring to reduce erosion.</p> <p>Monitor vegetation and stream habitat in accordance with permit conditions.</p> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>																																		
<p>Site Specific BMPs</p> <p><i>Continued on next page.</i></p>	<p>Use any of the four BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies.</p> <p>“Filter/Perimeter Protection”</p> <table border="0"> <tr> <td>Coir Log</td> <td>Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p>“Keep Water from Work Area”</p> <table border="0"> <tr> <td>Aqua Barrier</td> <td>Plastic Covering</td> </tr> <tr> <td>Cofferdam</td> <td>Sandbag</td> </tr> <tr> <td>Dewatering</td> <td>Stream Bypass</td> </tr> <tr> <td>Diversion Berm</td> <td>Vactoring</td> </tr> <tr> <td>Diversion Channel</td> <td></td> </tr> </table> <p>"Habitat Protection/Maintenance"</p> <table border="0"> <tr> <td>Coir Fabric</td> <td>Hydroseeding</td> </tr> <tr> <td>Coir Log</td> <td>Large Woody Material</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Live Staking</td> </tr> <tr> <td>Hand Seeding</td> <td>Streambed Gravel</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Aqua Barrier	Plastic Covering	Cofferdam	Sandbag	Dewatering	Stream Bypass	Diversion Berm	Vactoring	Diversion Channel		Coir Fabric	Hydroseeding	Coir Log	Large Woody Material	Excelsior Filled Log	Live Staking	Hand Seeding	Streambed Gravel
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#7: Gravel Shoulders

Activities:

Maintenance tasks performed on gravel shoulders improve drainage, restore proper grade, restore filtering capability, maintain vegetation to provide adequate site distance, smooth rutting and remove buildup of sediment before entering drainage system.

BMP Table:

Routine BMPs	
BMPs	Description
Maintenance of Gravel Shoulders	<p>Perform maintenance. Remove built-up sediment and sod. Restore gravel shoulder. Roll shoulder material to ensure proper grade and retention of sediment control qualities.</p>
Scheduling	<p>Periodically remove sediment deposits and vegetation during the dry season when possible with a motor grader.</p>
Equipment/ Tools	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly.

Continued on next page.

<p>Equipment/Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained. If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p> <p>Use pickup sweepers to remove materials from roadway in assigned areas.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>

Site Specific BMPs

BMPs	Description
<p>Are you disturbing soils?</p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> • During winter season – October through June – no soil shall remain exposed and unworked for more than two days. • During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days. • These conditions apply to all soils on site, whether or not at final grade. <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p> <p>Minimize disturbance to vegetation outside of shoulder area. Leave vegetative strip where possible between the gravel and ditch line for biofiltration.</p>

Site Specific BMPs

Continued from preceding page.

Use the BMP outcome category listed below at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:

“Filter/Perimeter Protection”

Coir Log	Silt Fence
Continuous Berm	Silt Mat
Curb Inlet Sediment Trap	Straw Bale Barrier (1)
Excelsior Filled Log	Straw Bale Barrier (2)
Gravel Filled Sump	Straw Bale Barrier (3)
Filter Fabric	Inlet Protection
Half Round Filter	Straw Log
Kimble Filter Pipe	Washed Rock

Go to
<http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf>

RRMP Part 2 BMPs for installation guidelines.

#8: Street Surface Cleaning

Activities:

Removing soil, organic material, dust, trash and other debris to keep road surfaces clean and remove sediment from the roadway before it enters the storm drain system, surface water system, watercourses, streams or other waterbodies. The removal of dust also reduces airborne pollution and sediment loading.

BMP Table:

Routine BMPs	
BMPs	Description
Pre-Activity	Use clean up procedures that protect water quality.
Equipment/ Tools	<p>Control speed of sweeper to minimize airborne particulates and remove maximum amount of debris.</p> <p>Use water spray system on sweeper to reduce dust.</p> <p>Use pickup sweepers to remove materials from roadway in assigned areas.</p> <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible.</p> <p>Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly.
<i>Continued on next page.</i>	

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, hydraulic and transmission fluids and tires. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/ maintenance waste materials from work site and dispose of and/or recycle.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>

#9: Bridge Maintenance

Activities:

Bridge maintenance activities include inspecting, testing, repairing, replacing, maintaining, painting or resurfacing components of the bridge such as the electrical system, substructure, superstructure, surface footing, piers, supports, access roads, abutments, ramps and vegetation management.

BMP Table:

Routine BMPs	
BMPs	Description
Permits	Bridge maintenance activities requiring an HPA will be reviewed with the WDFW and permitted prior to construction in accordance with the HPAs.
Scheduling	If bridge maintenance is to be performed in a seasonal watercourse or stream, schedule the work during dry conditions if possible.
Habitat Measures	Maintain or add areas of spawning, migration, feeding, or rearing habitat as directed by WDFW (HPA) permit, public safety and ROW structure conditions allow. Place appropriate streambed material (HPA).
Equipment/ Tools	Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations: <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/ maintenance waste materials from work site and dispose of and/or recycle.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p>Site Specific BMPs</p>	
<p>BMPs</p>	<p>Description</p>
<p>Are you disturbing soils?</p> <p><i>Continued on next page.</i></p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> • During winter season – October through June – no soil shall remain exposed and unworked for more than two days. • During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days. • These conditions apply to all soils on site, whether or not at final grade. <p>Minimize disturbance to riparian vegetation:</p> <ul style="list-style-type: none"> • Mark job site. • Flag work area.

<p>Are you disturbing soils?</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> Operate equipment to minimize damage to riparian habitat. <p>Monitor water quality in accordance with permit requirements.</p> <p>Restore vegetation where appropriate for site conditions within riparian areas (HPA).</p> <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>																																				
<p>Site Specific BMPs</p> <p><i>Continued on next page.</i></p>	<p>Use any of the five BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:</p> <p>“Filter/Perimeter Protection”</p> <table border="0"> <tr> <td>Coir Log</td> <td>Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p>“Reduce Potential for Contaminants Falling into Water”</p> <table border="0"> <tr> <td>Diaper Netting</td> <td>Plywood Work Platform</td> </tr> </table> <p>"Settling"</p> <table border="0"> <tr> <td>Coir Fabric</td> <td>Silt Mat</td> </tr> <tr> <td>Continuous Berm</td> <td>Siltation Pond/ Settling Tank</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Rock Check Dam</td> <td>Straw Log</td> </tr> <tr> <td>Sandbag</td> <td>Temporary Sediment Trap</td> </tr> <tr> <td>Sedimentation Sump</td> <td>Triangular Silt Dike</td> </tr> <tr> <td>Silt Fence</td> <td>Turbidity Curtain</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Diaper Netting	Plywood Work Platform	Coir Fabric	Silt Mat	Continuous Berm	Siltation Pond/ Settling Tank	Curb Inlet Sediment Trap	Straw Bale Barrier (1)	Excelsior Filled Log	Straw Bale Barrier (2)	Filter Fabric	Straw Bale Barrier (3)	Rock Check Dam	Straw Log	Sandbag	Temporary Sediment Trap	Sedimentation Sump	Triangular Silt Dike	Silt Fence	Turbidity Curtain
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<p>Site Specific BMPs <i>Continued from preceding page.</i></p>	<p>"Habitat Protection/Maintenance"</p> <table border="0"> <tr> <td>Coir Fabric</td> <td>Hydroseeding</td> </tr> <tr> <td>Coir Log</td> <td>Large Woody Material</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Live Staking</td> </tr> <tr> <td>Hand Seeding</td> <td>Streambed Gravel</td> </tr> </table> <p>"Reduce Water Velocity/Erosive Forces"</p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Rock Check Dam</td> </tr> <tr> <td>Coir Fabric</td> <td>Sandbag</td> </tr> <tr> <td>Coir Log</td> <td>Silt Fence</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Mat</td> </tr> <tr> <td>Ditch Lining</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Hand Seeding</td> <td>Straw Log</td> </tr> <tr> <td>Hydroseeding</td> <td>Stream Bank Stabilization</td> </tr> <tr> <td>Large Woody Material</td> <td>Surface Roughening</td> </tr> <tr> <td>Live Staking</td> <td>Triangular Silt Dike</td> </tr> <tr> <td>Mulching</td> <td>Turbidity Curtain</td> </tr> <tr> <td>Rip Rap</td> <td>Vegetative Buffer</td> </tr> </table> <p>Go to http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf RRMP Part 2 BMPs for installation guidelines.</p>	Coir Fabric	Hydroseeding	Coir Log	Large Woody Material	Excelsior Filled Log	Live Staking	Hand Seeding	Streambed Gravel	Back of Slope Planting	Rock Check Dam	Coir Fabric	Sandbag	Coir Log	Silt Fence	Continuous Berm	Silt Mat	Ditch Lining	Straw Bale Barrier (1)	Excelsior Filled Log	Straw Bale Barrier (2)	Grass Lined Channel	Straw Bale Barrier (3)	Hand Seeding	Straw Log	Hydroseeding	Stream Bank Stabilization	Large Woody Material	Surface Roughening	Live Staking	Triangular Silt Dike	Mulching	Turbidity Curtain	Rip Rap	Vegetative Buffer
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Rip Rap	Vegetative Buffer																																		

#10: Snow and Ice Control

Activities:

Activities include snow blowing, plowing drift removal, winter sand cleanup, sanding anti-icing and de-icing application.

BMP Table:

Routine BMPs	
BMPs	Description
Operational	<p>Minimize use of salt by reducing salt-to-sand ratios.</p> <p>Treat sand clean up as part of the emergency: remove sand as a priority in order to remove sediments.</p> <p>Plow snow in areas that allow vegetation to filter and contain sand.</p> <p>Prioritize clean up efforts to aquatic habitat areas to minimize impacts.</p> <p>Prioritize clean up in areas <u>without</u> sediment collection systems.</p>
Equipment/ Tools	<p>Tool and Equipment clean up procedures:</p> <ul style="list-style-type: none"> • Routinely inspect equipment, tools and vehicles for leaks or damage. • Keep clean up materials, such as dry absorbent materials, onsite to allow prompt clean up of spills. • Promptly repair or replace leaking connections, pipes, hoses and/or valves. <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move equipment and tools off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>Remove construction/maintenance waste materials from work site and dispose of and/or recycle.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>

#11: Emergency Slide/Washout Repair

Activities:

Slides and washout repair activities may include the following: removal of slide/washout material from ROW; backfilling or stabilizing slope, reestablishment of damaged roadway structures; repairing and cleaning drainage system; restoring access road; revegetating and/or armoring with rock.

BMP Table:

Routine BMPs	
BMPs	Description
Permits	<p>Follow regions notification procedures. Maintenance within waters of the state will be reviewed by WDFW and permitted with an HPA, as necessary.</p> <p>When required habitat restoration will be designed and constructed in accordance with applicable permits.</p>
Fish Exclusion	<p>Where practical and without jeopardizing the emergency response, in a timely manner, "Fish Exclusion Protocol" (See RRMP Appendix E) and permit conditions will be followed during maintenance activities.</p> <p>Fish will be excluded from the construction area using appropriate methods such as the use of net, dewatering at a controlled rate and removal of stranded fish according to HPA permit conditions.</p>
Equipment/ Tools	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible.</p> <p>Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field.

Continued on next page.

<p>Equipment/ Tools <i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/maintenance waste materials from site for disposal or recycling.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p>Site Specific BMPs</p>	
<p>BMPs</p>	<p>Description</p>
<p>Are you disturbing soils?</p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> • During winter season – October through June – no soil shall remain exposed and unworked for more than two days. • During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days. • These conditions apply to all soils on site, whether or not at final grade. <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>
<p>Site Specific BMPs <i>Continued on next page.</i></p>	<p>Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:</p>

Site Specific BMPs

Continued from preceding page.

“Filter/Perimeter Protection”

- | | |
|--------------------------|------------------------|
| Coir Log | Kimble Filter Pipe |
| Continuous Berm | Silt Fence |
| Curb Inlet Sediment Trap | Silt Mat |
| Excelsior Filled Log | Straw Bale Barrier (1) |
| Filter Fabric | Straw Bale Barrier (2) |
| Gravel Filled Sump | Straw Bale Barrier (3) |
| Half Round Filter | Straw Log |
| Inlet Protection | Washed Rock |

“Keep Water from Work Area”

- | | |
|-------------------|------------------|
| Aqua Barrier | Plastic Covering |
| Cofferdam | Sandbag |
| Dewatering | Stream Bypass |
| Diversion Berm | Vactoring |
| Diversion Channel | |

“Reduce Water Velocity/Erosive Forces”

- | | |
|------------------------|---------------------------|
| Back of Slope Planting | Rock Check Dam |
| Coir Fabric | Sandbag |
| Coir Log | Silt Fence |
| Continuous Berm | Silt Mat |
| Ditch Lining | Straw Bale Barrier (1) |
| Excelsior Filled Log | Straw Bale Barrier (2) |
| Grass Lined Channel | Straw Bale Barrier (3) |
| Hand Seeding | Straw Log |
| Hydroseeding | Stream Bank Stabilization |
| Large Woody Material | Surface Roughening |
| Live Staking | Triangular Silt Dike |
| Mulching | Turbidity Curtain |
| Rip Rap | Vegetative Buffer |

Go to
<http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf>

RRMP Part 2 BMPs for installation guidelines.

#12: Concrete

Activities:

Maintenance activities performed on the concrete structures, such as concrete roadways, sidewalks, driveways, curb and gutter sections include the following: removal or repair of damaged sections and installation of new structures.

BMP Table:

Routine BMPs	
BMPs	Description
Equipment/ Tools	<p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas. Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<i>Continued on next page.</i>	

<p>Material/Debris Disposal</p> <p><i>Continued from preceding page.</i></p>	<p>After repairs are complete, remove construction/ maintenance waste materials from site for disposal or recycling.</p>																
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>																
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<p>Site Specific BMPs</p> <p><i>Continued on next page.</i></p>	<p>Use any of the two BMP outcomes categories at or around the work site to reduce turbidity, sediment and/or worksite pollutants from entering watercourses or streams, wetlands, lakes or other waterbodies:</p> <p>“Filter/Perimeter Protection”</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Coir Log</td> <td style="width: 50%;">Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock
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Half Round Filter	Straw Log																
Inlet Protection	Washed Rock																

<p>Site Specific BMPs</p> <p><i>Continued from preceding page.</i></p>	<p>"Containment"</p> <p>Concrete Containment (1) Vactoring</p> <p>Concrete Containment (2)</p> <p>Go to http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf RRMP Part 2 BMPs for installation guidelines.</p>
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#13: Sewer Systems

Activities:

Repair, replace, install and maintain operating components of sewer facilities, including, but not limited to, treatment facilities, lift stations, pump stations, main lines, collection lines, interceptors, lake line, access roads, associated ROW and storage/detention facilities.

BMP Table:

Routine BMPs	
BMPs	Description
Maintenance of Sewer Systems	Maintain sewer system.
Equipment/ Tools	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> • Routinely inspect equipment, tools and vehicles for leaks or damage. • Keep clean up materials, such as dry absorbent materials; on site to allow promptly clean up of spills. • Promptly repair or replace leaking connections, pipes, hoses and/or valves. <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/ maintenance waste materials from site for disposal or recycling.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p>Site Specific BMPs</p>	
<p>BMPs</p>	<p>Description</p>
<p>Are you disturbing soils?</p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> • During winter season – October through June – no soil shall remain exposed and unworked for more than two days. • During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days. • These conditions apply to all soils on site, whether or not at final grade. <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>
<p>Site Specific BMPs</p> <p><i>Continued on next page.</i></p>	<p>Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes or other waterbodies:</p>

Site Specific BMPs

Continued from preceding page.

“Filter/Perimeter Protection”

- | | |
|--------------------------|------------------------|
| Coir Log | Kimble Filter Pipe |
| Continuous Berm | Silt Fence |
| Curb Inlet Sediment Trap | Silt Mat |
| Excelsior Filled Log | Straw Bale Barrier (1) |
| Filter Fabric | Straw Bale Barrier (2) |
| Gravel Filled Sump | Straw Bale Barrier (3) |
| Half Round Filter | Straw Log |
| Inlet Protection | Washed Rock |

“Keep Water from Work Area”

- | | |
|-------------------|------------------|
| Aqua Barrier | Plastic Covering |
| Cofferdam | Sandbag |
| Dewatering | Stream Bypass |
| Diversion Berm | Vactoring |
| Diversion Channel | |

“Reduce Potential for Soil Erosion”

- | | |
|--------------------------|--|
| Back of Slope Planting | Live Staking |
| Construction Access Road | Mulching |
| Ditch Lining | Plastic Covering |
| Dust Control | Soil Stabilization
(Blankets/Matting) |
| Filter Fabric | Surface Roughening |
| Grass Lined Channel | Sweeping |
| Hand Seeding | Vegetative Buffer |
| Hydroseeding | |

Go to
<http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf>
RRMP Part 2 BMPs for installation guidelines.

#14: Water Systems

Activities:

Repair, replace, install and maintain operating components of water system facilities including, but not limited to, treatment plant, transmission mains, distribution lines, fire flow systems, reservoirs, tunnels, pump stations, meters, flushing, dewatering, services, access roads and associated ROWs or water system structures.

BMP Table:

Routine BMPs	
BMPs	Description
Water Systems	Maintain sewer system.
Operational	Develop protocols for dechlorination of water. Develop a flushing program.
Equipment/ Tools	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> • Routinely inspect equipment, tools and vehicles for leaks or damage. • Keep clean up materials, such as dry absorbent materials; on site to allow promptly clean up of spills. • Promptly repair or replace leaking connections, pipes, hoses and/or valves. <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system. • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/maintenance waste materials from site for disposal or recycling.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p>Site Specific BMPs</p>	
<p>BMPs</p>	<p>Description</p>
<p>Are you disturbing soils?</p>	<p>Exposed and unworked soils shall be stabilized by application of BMPs that protect soil from the erosive forces of raindrop impact and flowing water:</p> <ul style="list-style-type: none"> • During winter season – October through June – no soil shall remain exposed and unworked for more than two days. • During the summer season – July through September – no soils shall remain exposed and unworked for more than seven days. • These conditions apply to all soils on site, whether or not at final grade. <p>Prior to BMP removal, clean up accumulated sediments and seed or replant disturbed area.</p>
<p>Site Specific BMPs</p> <p><i>Continued on next page.</i></p>	<p>Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes or other waterbodies:</p>

<p>Site Specific BMPs <i>Continued from preceding page.</i></p>	<p>“Filter/Perimeter Protection”</p> <table border="0"> <tr><td>Coir Log</td><td>Kimble Filter Pipe</td></tr> <tr><td>Continuous Berm</td><td>Silt Fence</td></tr> <tr><td>Curb Inlet Sediment Trap</td><td>Silt Mat</td></tr> <tr><td>Excelsior Filled Log</td><td>Straw Bale Barrier (1)</td></tr> <tr><td>Filter Fabric</td><td>Straw Bale Barrier (2)</td></tr> <tr><td>Gravel Filled Sump</td><td>Straw Bale Barrier (3)</td></tr> <tr><td>Half Round Filter</td><td>Straw Log</td></tr> <tr><td>Inlet Protection</td><td>Washed Rock</td></tr> </table>		Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock
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#15: Vegetation

Activities:

Activities include repair, replacement, installation, removal and/or maintenance of the vegetation within the ROW. Vegetation is an integral part of the road ROW structure. Vegetation maintenance includes, but is not limited to, mechanical, chemical, cultural and biological control. It also includes the systems and structures that support the vegetation.

BMP Table:

Routine BMPs	
BMPs	Description
Maintenance of ROW	Perform repairs, replacement and maintenance of roadway vegetation.
Maintenance of Shoulder Work	Maximize opportunities for shoulder work, which will increase infiltration or bio-filtration. (See also Category #7, Gravel Shoulders.)
Equipment/ Tools	<p>Tools and equipment clean up procedures:</p> <ul style="list-style-type: none"> • Routinely inspect equipment, tools and vehicles for leaks or damage. • Keep clean up materials, such as dry absorbent materials; on site to allow promptly clean up of spill. • Promptly repair or replace leaking connections, pipes, hoses and/or valves. <p>Vehicle and equipment maintenance, repair and/or service will be performed at designated repair facilities whenever possible. Use the following practices to reduce the potential for discharge of pollutants to watercourses or streams from vehicle and equipment maintenance, service and repair operations:</p> <ul style="list-style-type: none"> • Prohibit discharge of any wastewaters to stormwater drains. Do not pour material down drains or hose down work areas. Use either dry sweeping or damp mopping. • Remove buildup of oils and grease on equipment. • Perform equipment and vehicle maintenance in areas that prevent discharges to the storm drain system.

Continued on next page.

<p>Equipment/ Tools</p> <p><i>Continued from preceding page.</i></p>	<ul style="list-style-type: none"> • Use drip pans under equipment when maintaining, repairing or servicing in the field. • Use non-toxic solvents whenever possible. • Clean maintenance area storm drain grates regularly. • Collect and properly manage (recycle or dispose of) used materials: grease, oil, oil filters, antifreeze, cleaning solutions, lead-acid batteries, tires, hydraulic and transmission fluids. • Surfaces shall be cleaned following any discharge or spill incident. <p>At the end of shift, park equipment in designated areas.</p> <p>Clean equipment and tools off site in an area where pollutants can be contained.</p> <p>If unable to move tools and equipment off site, control and remove cleaning by-products.</p>
<p>Material/Debris Disposal</p>	<p>After repairs are completed, remove construction/ maintenance waste materials from site for disposal or recycling.</p> <p>If area is swept with a pickup sweeper, the material will be hauled out of the area to appropriate disposal site.</p>
<p>Spill Prevention & Control</p>	<p>Carry spill kit used for small spills related to equipment failure. At a minimum, WSDOT will carry a five-gallon capacity spill kit designed for petroleum products that will be carried on vehicle or with equipment. Desired outcome is to control, absorb or contain spill for clean up and disposal.</p>
<p>Site Specific BMPs</p>	
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<p>Site Specific BMPs</p> <p><i>Continued on next page.</i></p>	<p>Use any of the three BMP outcome categories at or around the work site to reduce turbidity, sediment and/or pollutants from entering watercourses, streams, wetlands, lakes or other waterbodies:</p> <p>“Filter/Perimeter Protection”</p> <table border="0"> <tr> <td>Coir Log</td> <td>Kimble Filter Pipe</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Fence</td> </tr> <tr> <td>Curb Inlet Sediment Trap</td> <td>Silt Mat</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Filter Fabric</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Gravel Filled Sump</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Half Round Filter</td> <td>Straw Log</td> </tr> <tr> <td>Inlet Protection</td> <td>Washed Rock</td> </tr> </table> <p>“Reduce Potential for Soil Erosion”</p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Live Staking</td> </tr> <tr> <td>Construction Access Road</td> <td>Mulching</td> </tr> <tr> <td>Ditch Lining</td> <td>Plastic Covering</td> </tr> <tr> <td>Dust Control</td> <td>Soil Stabilization (Blankets/Matting)</td> </tr> <tr> <td>Filter Fabric</td> <td>Surface Roughening</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Sweeping</td> </tr> <tr> <td>Hand Seeding</td> <td>Vegetative Buffer</td> </tr> <tr> <td>Hydroseeding</td> <td></td> </tr> </table> <p>“Reduce Water Velocity/Erosive Forces”</p> <table border="0"> <tr> <td>Back of Slope Planting</td> <td>Rock Check Dam</td> </tr> <tr> <td>Coir Fabric</td> <td>Sandbag</td> </tr> <tr> <td>Coir Log</td> <td>Silt Fence</td> </tr> <tr> <td>Continuous Berm</td> <td>Silt Mat</td> </tr> <tr> <td>Ditch Lining</td> <td>Straw Bale Barrier (1)</td> </tr> <tr> <td>Excelsior Filled Log</td> <td>Straw Bale Barrier (2)</td> </tr> <tr> <td>Grass Lined Channel</td> <td>Straw Bale Barrier (3)</td> </tr> <tr> <td>Hand Seeding</td> <td>Straw Log</td> </tr> </table>	Coir Log	Kimble Filter Pipe	Continuous Berm	Silt Fence	Curb Inlet Sediment Trap	Silt Mat	Excelsior Filled Log	Straw Bale Barrier (1)	Filter Fabric	Straw Bale Barrier (2)	Gravel Filled Sump	Straw Bale Barrier (3)	Half Round Filter	Straw Log	Inlet Protection	Washed Rock	Back of Slope Planting	Live Staking	Construction Access Road	Mulching	Ditch Lining	Plastic Covering	Dust Control	Soil Stabilization (Blankets/Matting)	Filter Fabric	Surface Roughening	Grass Lined Channel	Sweeping	Hand Seeding	Vegetative Buffer	Hydroseeding		Back of Slope Planting	Rock Check Dam	Coir Fabric	Sandbag	Coir Log	Silt Fence	Continuous Berm	Silt Mat	Ditch Lining	Straw Bale Barrier (1)	Excelsior Filled Log	Straw Bale Barrier (2)	Grass Lined Channel	Straw Bale Barrier (3)	Hand Seeding	Straw Log
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<p>Site Specific BMPs</p> <p><i>Continued from preceding page</i></p>	<p>Hydroseeding</p> <p>Large Woody Material</p> <p>Live Staking</p> <p>Mulching</p> <p>Rip Rap</p> <p>Go to http://www.wsdot.wa.gov/biz/maintenance/pdf/Guidelines/Part2.pdf</p> <p>RRMP Part 2 BMPs for installation guidelines.</p>	<p>Stream Bank Stabilization</p> <p>Surface Roughening</p> <p>Triangular Silt Dike</p> <p>Turbidity Curtain</p> <p>Vegetative Buffer</p>
<p>Mowing</p>	<p>Grass mowing finished height of two to six inches to minimize scalping of soil surface.</p> <p>Do not mow below ordinary high water mark of streams or waterways.</p>	
<p>Brush Cutting</p>	<p>Grass cutting finished height two to six inches to minimize scalping of soil surface.</p> <p>Native brush vegetation cutting finished height of 12 inches to maximize growth of desirable vegetation.</p> <p>Do not brush cut below the ordinary high water mark of streams and waterways.</p>	
<p>Hand Cutting</p>	<p>Grass cutting length of two to six inches to minimize scalping of soil surface.</p> <p>Do not mow below the ordinary high water mark of streams or waterways.</p>	
<p>Seeding</p>	<p>Avoid overspray into streams, ponds, lakes or wetlands.</p> <p>Cover all exposed soil within project limits to avoid erosion.</p>	
<p>Chipping</p>	<p>Spread chips evenly along Zones 2 or 3.</p> <p>Remove chips from project site.</p>	
<p>Chemical Application</p>	<p>Follow state and federal requirements, along with product label instructions.</p>	

