

**LINN COUNTY ROAD DEPARTMENT**  
**ROUTINE ROAD MAINTENANCE AND CONSTRUCTION**  
**WATER QUALITY AND HABITAT GUIDE**  
**BEST MANAGEMENT PRACTICES**



**OCTOBER 2021**

# **LINN COUNTY ROAD DEPARTMENT**

## **BEST MANAGEMENT PRACTICES**

### **TABLE OF CONTENTS**

*Routine Road Maintenance and Construction*

*Water Quality and Habitat Guide*

**OCTOBER 2021**

**Linn County Road, Bridge Maintenance, and Engineering will follow the following Guidance for Maintenance and Construction Activities:**

#### **A. Linn County Road Department Policy and Forms**

- 1) General Instruction Documentation – Confirmation of Compliance
- 2) Best Management Practices Process and Documentation for All County Roads
- 3) Routine Road Maintenance Guidance Policy – Maintenance and Repair of Road Shoulders
- 4) Best Management Practices Form – For All Linn County Roads
- 5) Erosion Control Monitoring Report – Linn County Road Department
- 6) Protection of Birds, Bats, and Other Migratory Animals Linn County Road Department General Guidance
- 7) Migratory Bird Monitoring Report – Linn County Road Department
- 8) Pollution Control Plan
- 9) Fill Permission Form – Linn County Road Department
- 10) Driveway Access Form – Special Permit Conditions For Permit
- 11) Driveway Access Permit – Sight Distance Evaluation Form
- 12) Environmental Requirements – Linn County Review of Application for Capital Projects, Maintenance Projects, Developments and Access and Driveway Permit

#### **B. Development, Construction, and Documentation of Maintenance of Stormwater Collection, Retention, and Treatment Facilities.**

- Linn County Best Management Practices Maintenance Table

#### **C. NPDES 1200-CA General Permit – Linn County Road Department**

#### **D. Linn County Threatened or Endangered Plants - Oregon Dept of Agriculture**

**LINN COUNTY ROAD DEPARTMENT  
BEST MANAGEMENT PRACTICES**

**REFERENCES**

- **ODOT Routine Road Maintenance, Water Quality and Habitat Guide, Best Management Practices-** (June 2020) See Oregon Department of Transportation Website
- **ODOT Erosion Control Manual, Geo-Environmental Section** (Version 2.0, March 2019)
- **Environmentally Sensitive Road Maintenance Practices for Dirt and Gravel Roads-** US Forest Service; Department of Agriculture (April 2012)
- **ODEQ Construction Stormwater Best Management Practices Manual** (February 2021)
- **NMFS SLOPES V (2014) Programmatic Biological Opinion ...** for Maintenance or Improvement of Road, Culvert, Bridge and Utility Line Actions

# LINN COUNTY ROAD DEPARTMENT

## POLICIES AND FORMS



## GENERAL INSTRUCTION DOCUMENTATION



### Activity: Confirmation of Compliance

I have received a copy of the 2021 Linn County BMP Guide and received general instruction in the use of this Guide. I will follow and direct others under my supervision to follow the guidance provided by this Linn County Guide. The Linn County Road Department Roadmaster, Supervisor of Operations, or the Linn County Engineer may approve deviation from this guide in writing. I realize following this Guide is necessary to comply with State and Federal requirements and failure to follow this Guide has liabilities associated with these actions both personally as well as for the Linn County Road Department.

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_


Employee Number: \_\_\_\_\_

Date: \_\_\_\_\_

**Note: a copy is filed in the individuals training documentation file**

**LINN COUNTY ROAD DEPARTMENT SUPERVISORS  
BEST MANAGEMENT PRACTICES PROCESS AND DOCUMENTAION  
FOR ALL COUNTY ROADS**

- Review the Linn County Road Department BMP Manual
- Adopt and implement Best Management Practices as designed, permitted, and provided by Linn County Engineering for Road and Bridge Improvement Projects.
- Evaluate each road in your district determine documentation for best management practices to be applied as maintenance is required. (See Example for Upper Calapooia Drive that has been prepared)
- Determine and Complete a Best Management Practices form for each road in your district as planned maintenance is conducted.
- Input information into IRIS for Best Management Practices to be used each road in your district
- Keep all hard copies of each road BMP for the roads in your district in a Maintenance Area BMP notebook
- Monitor each road in your district during maintenance and provide documentation by completion of the Erosion Control Report. File the Erosion Control Report that will be accessible to outside environmental agencies during an inspection and audit of your records.
- Fill out erosion control report for each applicable maintenance activity. This may also be required for recently constructed projects when a heavy rain event happens.
- Keep all hard copies of each road in a BMP notebook

Issued:  October 14, 2021  
By: C. R. Knoll, PE, (Civil, Env.)

Accepted by: \_\_\_\_\_ Date \_\_\_\_\_  
(Print Name)  
  
\_\_\_\_\_  
(Signature)

LINN COUNTY ROAD DEPARTMENT  
ROUTINE ROAD MAINTENANCE GUIDANCE POLICY  
MAINTENANCE AND REPAIR OF ROAD SHOULDERS



As a general rule, road shoulders will be repaired and maintained to their existing condition. In completing repair and maintenance, consideration will be provided to improve the road shoulder to meet Linn County standards for road construction according to Linn County Standard Drawings as to width, depth, slope, and materials of construction.

In cases where excessive storm water hydraulics and road flooding are experienced, a larger rock aggregate may be incorporated into the construction of the road shoulder as well as the use of a surface layer of HMA (Hot mix Asphaltic Concrete) or CS (Concrete Slurry) to bind the shoulder rock together to withstand the scour experienced by previous events. This will result in Best Management Practices for Erosion Control as it will minimize and prevent future scour of road shoulders and the generation of detrimental sediments and gravels in receiving streams.

This policy is to be considered a standard operating procedure based on past and present history, experience, and practice. A continued reduction in future costs associated with the repair and maintenance of road shoulders is expected by following this standard operating procedure.

Wayne Mink, PE  
Roadmaster  
October 13, 2021

***Supplemental Policy for:  
Linn County Road Department  
Water Quality and Habitat Guide  
Best Management Practices***

**BEST MANAGEMENT PRACTICES  
ROAD NAME**

\_\_\_\_\_

<b>ROAD FEATURE</b>	<b>EXISTING CONDITIONS</b>	<b>BEST MANAGEMENT PRACTICES</b>

DESIGNED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_



**Best Management Practices Resources**  
**Linn County Road Department**

**Technical Guidance Manuals:**

- Routine Road Maintenance and Construction Water Quality and Habitat Guide – Best Management Practices (2020 Rev.)
- Erosion Control Manual – Guidelines for Developing and Implementing Erosion and Sediment Controls (ODOT Version 2.0 3/7/2019)
- Environmentally Sensitive Road Maintenance Practices for Dirt and Gravel Road, United States Department of Agriculture, Forest Service, April 2013

**Technical Guidance Documents:**

- Standard Specifications – Sections 280.00, 290.00 and 1030.0
- ODOT Standard Drawings and Details
- Sheet Plans, Notes
- Erosion Control Plans
- Permit Guidelines

## UPPER CALAPOOIA DRIVE - BEST MANAGEMENT PRACTICES

MILE POST	EXISTING CONDITIONS (September 2019)	BEST MANAGEMENT PRACTICES
8.5 to 8.79	Rock and soil berm on south side of road; A 10+ foot existing natural vegetated bioslope adjacent to the Calapooia River; Ditch on north side of road is in good condition	<ul style="list-style-type: none"> <li>• Reincorporate rock into road without staging a rock and soil berm</li> <li>• Maintain existing natural vegetated bioslope</li> </ul>
8.80 to 9.49	Rock and soil berm on south side of road; A good vegetated buffer adjacent to the Calapooia River; Ditch on north side of road is in good condition	<ul style="list-style-type: none"> <li>• Reincorporate rock into road without staging a rock and soil berm</li> <li>• Maintain existing vegetated filter strip</li> </ul>
9.50 to 9.79	Rock and soil berm on south side of road; Ditch on north side of road in good condition	<ul style="list-style-type: none"> <li>• Reincorporate rock into road without staging a rock and soil berm</li> <li>• Construct vegetative filter strip with planted native grass seed mix by October 15</li> </ul>
9.80 to 10.4	Rock and soil berm on south side of road; A good vegetated buffer adjacent to the Calapooia River; Ditch on north side of road is in good condition	<ul style="list-style-type: none"> <li>• Reincorporate rock into road without staging a rock and soil berm</li> <li>• Maintain existing vegetated filter strip</li> </ul>
10.5 to 10.6	No buffer between the road and the Calapooia	<ul style="list-style-type: none"> <li>• Construct vegetative filter strip with planted native grass seed mix by October 15.</li> </ul>
10.7 to 10.8	Rock and soil berm on south side of road; A good vegetated buffer adjacent to the Calapooia River; Ditch on north side of road is in good condition	<ul style="list-style-type: none"> <li>• Maintain existing natural vegetated bioslope</li> <li>• Reincorporate rock into road without staging a rock and soil berm</li> </ul>
10.9 to 11.0	No buffer between the road and the Calapooia River	<ul style="list-style-type: none"> <li>• Construct vegetative filter strip with planted native grass seed mix by October 15.</li> </ul>
11.1 to 11.2	No buffer between the road and the Calapooia River; Road is narrow going around corner	<ul style="list-style-type: none"> <li>• Construct vegetative filter strip with planted native grass seed mix by October 15</li> </ul>



# EROSION CONTROL MONITORING REPORT

PROJECT NAME (SECTION)						CONTRACT NO.		
ROAD NAME, NO & MP				EROSION CONTROL AND SEDIMENT MANAGER				
CONTRACTOR OR SUBCONTRACTOR								
<b>EROSION AND SEDIMENT CONTROL MEASURES IMPLEMENTED (ATTACH ADDITIONAL SHEETS AS NECESSARY)</b>								
LOCATIONS	DESCRIPTIONS			EFFECTIVENESS			DATE(S)	
<b>VISIBLE OR MEASURABLE EROSION AND SEDIMENT LEAVING THE CONSTRUCTION SITE</b>								
LOCATIONS	DESCRIPTIONS, CORRECTIVE, AND CLEANUP MEASURES			EFFECTIVENESS			DATE(S)	
<b>VISUALLY COMPARE COLOR AND CLARITY 30 FT UPSTREAM (U) AND 100FT DOWNSTREAM (D)</b>								
RECEIVING WATER: NAME OF CREEK RIVER OR LAKE, ETC.								
LOCATIONS	OBSERVATIONS TAKEN					DATE(S)		
COMMENTS AND GENERAL SITE CONDITIONS								
RAINFALL REPORTING STATION		24 HOUR						
		ENDING						
PREPARED BY:		TELEPHONE NUMBER:	MONITORING PERIOD:					
<small>MINIMUM MONITORING AND REPORTING REQUIREMENTS: Inspect all erosion facilities at least every 7 calendar days. Inspect within 24 hours after more than 5/8 inches of rain per 24 hour period. Inspect daily during stormy periods or periods of snow melt when runoff occurs daily. See ODOT specifications and contract subsection 00170.30 for additional information. Furnish copy to DEQ upon their request.</small>								

**EROSION CONTROL MONITORING (SITE DRAWING OR ADDITIONAL NOTES)**

**Protection of Birds, Bats, and Other Migratory Animals**  
**Linn County General Guidance**  
**October 4, 2021**

Linn County Road Department will conduct construction and maintenance activities so as not to harm birds, and bats and other migratory animals. It is recommended to complete work that may harm these species that are protected by State and Federal regulation in periods when these species are not present.

As provided by APHIS Biologist, based on migratory activity, the following periods of maintenance and construction are recommended for the following activities:

- Vegetation removal/cleaning: Mid-October to mid-January
- Bridge demolition: August 30 to March 15
- Roadside Tree Removal, Vegetation and Brush Removal – October 1 to March 1

Outside of these areas and time periods require inspection and monitoring by someone who is qualified. Linn County Staff may complete this inspection and monitoring as long as they know the species to look for and be able to identify that species. Some of these birds and bats are difficult to see and they are also very persistent. One example, if you leave a bridge alone for just a few days a nest is set and eggs are laid. The same is true for roadside maintenance.

Inspection and monitoring for bird and bats and other migratory animals is a State and Federal requirement to ensure regulatory species are not harmed. Whoever is in charge of the project or maintenance activity is responsible to get it done. This person as well as Linn County is liable for any violations of federal and state laws regarding this activity.

For federally funded projects under ODOT oversight, Linn County staff are not allowed by ODOT to do this inspection and monitoring - a biologist recognized by ODOT Environmental is required.

This monitoring and inspection will be arranged and coordinated by the Linn County Engineer. Linn County Road Department has an Intergovernmental Agreement and contract with APHIS (USDA) to provide this service.

Linn County Road Department also has a Migratory Bird Wildlife Permit issued by the US Department of Fish and Wildlife. Linn County Road Department will follow the requirements of the Permit Application and Permit issued in management of migratory birds, bats and other migratory animals.



C, R, Knoll, PE  
Linn County Road Department



## MIGRATORY BIRD MONITORING REPORT

PROJECT NAME \_\_\_\_\_

ROAD DISTRICT \_\_\_\_\_

ROAD NAME \_\_\_\_\_ ROAD NO \_\_\_\_\_

MILEPOST (FROM \_\_\_\_\_ TO \_\_\_\_\_)

MAINTENANCE SUPR/PROJECT MANAGER \_\_\_\_\_

	PROJECT ACTIVITY (CHECK AS THEY APPLY)	Additional Description if Needed	DATE(S)
<input type="checkbox"/>	Road Grading		
<input type="checkbox"/>	Shoulder Work		
<input type="checkbox"/>	Ditch Excavation		
<input type="checkbox"/>	Vegetation Removal (Clearing and Grubbing)		
<input type="checkbox"/>	Vegetation Spraying		
<input type="checkbox"/>	Tree Trimming		
<input type="checkbox"/>	Tree Removal		
<input type="checkbox"/>	Bridge Removal		
<input type="checkbox"/>	Bridge Maintenance		
<input type="checkbox"/>	Other		

**INSPECTION FOR MIGRATORY BIRDS WITH MAINTENANCE WORK AREA OR CONSTRUCTION SITE  
(Complete Every Two Days and Two Days before Maintenance or Construction Activity)**

Date	DESCRIPTION OF INSPECTION (Walking, Drive through, APHIS, Other)	BIRDS PRESENT (Yes/No)	DESCRIPTION AND TYPE

**ACTION TAKEN TO AVOID MIGRATORY BIRDS (NESTING OR OTHER) -**

**For removal, Relocation, or Take - Written approval must be obtained from Linn County Engineer or Roadmaster**

DATE	ACTION TAKEN FOR AVOIDANCE (ENTER NA OR DESCRIBE)	MIGRATORY BIRD TAKE (YES/NO)

COMMENTS AND GENERAL SITE CONDITIONS

REPORT COMPLETED BY (NAME) \_\_\_\_\_ (INITIALS) \_\_\_\_\_



# POLLUTION CONTROL PLAN

PROJECT NAME	HIGHWAY	MILEPOST - TO	MILEPOST - FROM	CONTRACT NUMBER
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**1. On-call spill response team:**

COMPANY	CALL NUMBER	TRIGGERS FOR CALLING
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**2. Emergency contacts:**

AGENCY PROJECT MANAGER	OFFICE PHONE NUMBER	MOBILE PHONE NUMBER	PROJECT MANAGER'S SECONDARY CONTACT	OFFICE PHONE NUMBER	MOBILE PHONE NUMBER
CONTRACTOR	OFFICE PHONE NUMBER	MOBILE PHONE NUMBER	CONTRACTOR'S SECONDARY CONTACT	OFFICE PHONE NUMBER	MOBILE PHONE NUMBER

If the quantity released exceeds the State or Federal reportable quantities, or if the release impacts or threatens to impact any surface water body, immediately notify DEQ by the Oregon Emergency Response System (OERS) at 1-800-452-0311 and the EPA and USCG through the National Response Center (NRC) at 1-800-424-8802 (Federal reportable quantities or spills impacting or potentially impacting water only). If the quantity released is unknown, proceed with OERS and NRC notifications. Reportable quantities are listed at 40 CFR 302.4 and OAR 340 142 0040 to OAR 340-142-0050.

**3. Identify contractor activities:**

ACTIVITY	DESCRIBE THE POLLUTANT PREVENTION MEASURES*

\* Include any information about soil disturbance in the Erosion and Sediment Control Plan.

**4. Hazardous substances inventory (Provide information as specified in 00290.30(c)):**

SUBSTANCE	STORAGE/CONTAINMENT	USE	MONITORING

**5. Project waste inventory (Identify any waste that will be generated):**

PROJECT WASTE	HAZARDOUS?	REDUCTION	STORAGE/CONTAINMENT	RECYCLE, RE-USE OR DISPOSE, EXPLAIN WHY	DISPOSAL DOCUMENTATION

**6. How will the contractor ensure all employees on the job site comply with the pollution control plan?**

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**7. Per 00290.30(b), attach scaled site plans showing locations for hazardous substance storage, spill response equipment, communications equipment and fire suppression equipment**

NOTE FILE NAMES OF PLAN DOCUMENTS IN THIS FIELD

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# Fill Permission Form

File: \_\_\_\_\_

I hereby request and authorize the Linn County Road Department to place approximately \_\_\_\_\_ cubic yards of material on my property, which is located at: \_\_\_\_\_

I have shown the specific location to the Road Department Supervisor and it is Generally described as follows: \_\_\_\_\_

This authorization shall remain in effect from \_\_\_\_\_ (begin date) to \_\_\_\_\_ (end date).

I understand and agree that all damages and claims arising from placing material shall be the sole responsibility of the owner of the above-designated property. It is further agreed that Linn County shall do no grading, leveling, or shaping of any fill material unless specified above. All fill material shall be unclassified and may contain deleterious materials and/or vegetation.

Printed Name \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

*The site has been evaluated by Linn County Road Department to meet the following criteria to receive Fill Material (Initial by Reviewer):*

*Above the 100 Year Flood Plain* \_\_\_\_\_

*Not in Inventoried Wetlands* \_\_\_\_\_

*Not over Soils Listed as Hydric* \_\_\_\_\_

*Outside of Drainage way* \_\_\_\_\_

APPROVED: \_\_\_\_\_

Roadmaster

Linn County Road Department 3010 Ferry Street SW Albany, OR 97322 541-967-3919



**SPECIAL PERMIT CONDITIONS FOR PERMIT #:** \_\_\_\_\_

**Road Name:** \_\_\_\_\_ **Road #:** \_\_\_\_\_

This permit is for a new or improved access and driveway to a \_\_\_\_\_ structure

**The following conditions and requirements are required for this permit:**

**DRIVEWAY:**

- The driveway width shall be a width of \_\_\_\_\_ feet (**minimum 12 feet**) and \_\_\_\_\_ constructed with a **minimum of 6 inches of compacted quarry run rock and topped with a minimum of 6 inches of compacted one inch minus crushed rock**
- The driveway shall support gross vehicle weights of **60,000 pounds** during all times of the year
- The driveway shall be provided with an unobstructed vertical clearance of at least **13 feet 6 inches**, and an unobstructed **horizontal clearance of 20 feet** and a **minimum curve radius of 48 feet** as measured on the outer edge of the driveway
- The **slope** of the driveway **shall not exceed 10 %** at any location
- If the slope exceeds 10%, then written **approval from the local fire district is required** - a copy of this approval will be provided to the County Engineer. In any case, the **maximum slope allowed will be 15%**
- A **40 foot radius turnaround** as measured from the center of the road or a hammerhead turnaround with equivalent dimensions of **70 feet long by 20 feet wide with 10 foot turning radius at the corners will be placed within 150 feet** of the residence or structure to provide access for emergency vehicles
- Turnouts shall be provided every **400 feet** by widening the drive to **20 feet for a distance of 40 feet**
- Other \_\_\_\_\_

**COUNTY ROAD ACCESS:**

- The road base and gravel shoulder for the access onto the County Road shall be constructed with a **minimum of 6 inches of quarry rock and topped with 6 inches of one inch minus crushed rock**
- The access will have a **paved surface** - the **pavement will be a minimum of 4 inches thick** placed in **two – 2 inch lifts** and shall be \_\_\_\_\_ feet wide (**minimum 12 feet**) and extend back from the paved surface of the County Road a **minimum of \_\_\_\_\_ feet** - the paved surface shall have a \_\_\_\_\_ feet radius (**minimum 10 feet**) as it connects to the County Road - there will be a \_\_\_\_\_ feet gravel shoulder (**minimum 2 feet**) on each side of the paved surface
- The access shall approach the County Road perpendicular to the road to allow safe access and entrance from both directions - the access shall extend straight back from the edge of the paved surface of the County Road for a **minimum distance of 15 feet** before turning to the direction required of the location of the driveway - the outside radius of the curve shall be a **minimum of 48 feet**
- Other \_\_\_\_\_

**ACCESS DRAINAGE:**

- The existing drainage is acceptable and no culvert is required
- The access will include an \_\_\_\_\_ inch diameter Class V concrete or M294 - Type S plastic culvert - the ditch will be cleaned out and bedded with **4 inches of one inch minus compacted gravel** so the bottom of the culvert is equal to the flow line of the ditch - the culvert will be backfilled and covered with a **minimum of 12 inches compacted one inch minus gravel** - the length of the culvert will be sufficient so the end of each culvert will extend \_\_\_\_\_ feet beyond the road base as measured at the top of the pipe
- Other \_\_\_\_\_

**EROSION AND SEDIMENT CONTROL (Best Management Practices):**

- The following erosion control and sediment control will be provided: \_\_\_\_\_

- BMP STORMWATER MANAGEMENT AND TREATMENT REQUIREMENTS:** \_\_\_\_\_

**CONTACT:** The LCRD  prior to starting work and  for final inspection when work is completed

**LINN COUNTY ROAD DEPARTMENT**  
**Driveway Access Permit Sight Distance Evaluation**

Access Permit No. \_\_\_\_\_ Name of Owner \_\_\_\_\_

**Access Location**

Co. Road No. \_\_\_\_\_ Name of Road \_\_\_\_\_ Milepost \_\_\_\_\_  
 Address of Access \_\_\_\_\_

**Access and Road Conditions:**

Speed Limit \_\_\_\_\_ mph Observed Road Speed \_\_\_\_\_ mph  
 Road Grade to Left \_\_\_\_\_ % Road Grade to Right \_\_\_\_\_ %  
 Type of Road Surface \_\_\_\_\_ Width of Road Surface \_\_\_\_\_ ft  
 Vehicles to Use Intersection Yes \_\_\_\_\_ No \_\_\_\_\_  
 Single Unit or Combination Trucks to Use Intersection Yes \_\_\_\_\_ No \_\_\_\_\_

**Access Pavement Length Requirements for access to an existing paved road surface:**

Commercial access will be paved a minimum of 10 ft from edge of existing pavement  
 Driveway access will be paved a minimum of 10 ft from edge of existing pavement

**Evaluation of Sight Distance:**

Stopping Sight Distance from Left \_\_\_\_\_ ft Greater than Chart (A) Below? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Stopping Sight Distance from Right \_\_\_\_\_ ft Greater than Chart (A) Below? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Intersection Sight Distance to Right \_\_\_\_\_ ft Greater than Chart (B) Below? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Intersection Sight Distance to Left \_\_\_\_\_ ft Greater than Chart (C) Below? Yes \_\_\_\_\_ No \_\_\_\_\_

Note: If all Items 1 to 4 are all checked Yes, then Sight Distance is Acceptable for Access  
 If Items are checked No, then improvements to the access or access location will be required until all sight distance criteria is met.

Road Speed	(A) Stopping Sight Distance for Passenger Vehicle (ft)			(B) Intersection Sight Distance Required for Left Turn onto Two Lane Highway (ft)		(C) Intersection Sight Distance Required for Right Turn onto Two Lane Highway (ft)	
	mph	Level Grade	9% Downgrade	9% Upgrade	Passenger Vehicle	Combination Truck	Passenger Vehicle
25	155	173	140	280	430	240	390
30	200	227	179	335	520	290	470
35	250	287	222	390	600	335	540
40	305	354	269	445	690	385	620
45	360	427	320	500	770	430	700
50	425	507	375	555	850	480	780
55	495	593	433	610	940	530	860
60	570	686	495	665	1020	575	930
65	645	785	561	720	1110	625	1010

Reference: AASHTO A Policy on Geometric Design of Highways and Streets 2004 -  
 Exhibit 3-1, Exhibit 3-2, Exhibit 3-2, Exhibit 9-55, Exhibit 9-54, Exhibit 9-58, Exhibit 9-57

Access Evaluated By: \_\_\_\_\_

Date of Evaluation: \_\_\_\_\_

## DECISION SIGHT DISTANCE

**Stopping Sight Distances** are usually sufficient to allow reasonably competent and alert drivers to come to a hurried stop under ordinary circumstances. However, these distances are often inadequate when drivers must make complex or instantaneous decisions, when information is difficult to perceive, or when unexpected or unusual maneuvers are required. Limiting sight distance to those provided for stopping may also preclude drivers from performing evasive maneuvers, which are often less hazardous and otherwise preferable to stopping. Even with an appropriate complement of standard traffic control devices in accordance with MUTCD (Manual of Uniform Traffic Control Devices), stopping sight distances may not provide sufficient visibility distances for drivers to corroborate advance warning and to perform the necessary maneuvers. It is evident that there are many locations where it would be prudent to provide longer sight distances. In these circumstances, decision sight distance provides the greater length that drivers need.

**Decision Sight Distance** is the distance required for a driver to detect an unexpected or otherwise difficult-to-perceive information source or hazard in a roadway environment that may be visually cluttered, recognize the hazard or its threat potential, select an appropriate speed and path, and initiate and complete the required safety maneuver safely and efficiently.

Five (5) avoidance maneuvers are covered under “Decision Sight Distance”

- Avoidance Maneuver A: Stop on rural road.
- Avoidance Maneuver B: Stop on urban road.
- Avoidance Maneuver C: Speed/Path/Direction change on rural road
- Avoidance Maneuver D: Speed/Path/Direction change on suburban road
- Avoidance Maneuver E: Speed/Path/Direction change on urban road

### DECISION SIGHT DISTANCE (Feet)

DESIGN SPEED (MPH)	DISTANCE FOR AVOIDANCE MANEUVER A	DISTANCE FOR AVOIDANCE MANEUVER B	DISTANCE FOR AVOIDANCE MANEUVER C	DISTANCE FOR AVOIDANCE MANEUVER D	DISTANCE FOR AVOIDANCE MANEUVER E
30	220	500	450	500	625
40	345	725	600	725	825
50	500	975	750	900	1025
60	680	1300	1000	1150	1275
70	900	1525	1100	1300	1450

Adapted from 1990 AASHTO “A Policy on Geometric Design of Highways and Streets, Table III-3

**Environmental Requirements – Linn County Review of Applications for  
Capital Projects, Maintenance Projects, and Developments and Access and Driveway Permit**

Any development or improvements to an existing development consisting of or the addition of new driveways, parking areas, roads or other improvements such as maintenance that disturb the land are required to meet the following requirements prior to construction. Check all items applicable to the project and provide a note or use this checklist to obtain required documents prior to issuing acceptance and approval.

Review completed by \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Comments \_\_\_\_\_

Copy: Completed copy to be submitted to Linn County Engineer.

Check All Requirements that apply:

**50 foot Riparian Clearance Restriction** - No development may be within 50 feet of a riparian area without written approve from Linn County Building and Planning. Riparian area is determined to be an ordinary high water level (2 year storm event).

**100 year flood Zone Restriction** - No development may be within the 100 year flood zone as shown on the Linn County GIS Maps without a flood permit issued by Linn County Planning

**Floodway Restriction** - No Development maybe within the floodway as shown on the Linn County GISMaps without a flood permit issued by Linn County Planning

**Wetlands Restriction** - No development may occur within a wetland. Wetlands are determined to be any Hydric Soil in a location that also has water conditions that support wetlands and wetland plants. Soil with water within 12 inches of the surface in March is a wetland. Soil identification numbers and names are obtained from the Linn County GIS Maps. For any soil listed as Hydric (See Attached List) a written wetland determination by a professional engineer or specialist knowledgeable in wetland determination is required. If wetlands are determined, no combined fill and excavation in excess of 50 cubic yards is allowed without a permit issued by the United States Army Corps of Engineers and the Oregon Division of State Lands and approved by Linn County Planning.

**Note:** If soil for proposed work area is hydric, indicate the Soil Number and Name \_\_\_\_\_

**Geological Hazard Area Restriction** - No development may occur within a Geological hazard area without a report of compatibility from a registered professional geotechnical engineer to indicate development in a hazard area will not create unsafe conditions to the property owner of the public. Geological Hazard Area is indicated on the Linn County GIS Website as a Geological Hazard Area and/or on the Oregon Landslide Maps as an area with High or Extreme Landslide Risk

**Impervious Surface Disturbance or Addition Requirement** - No development within the Urban Growth Boundary of the Cities of Albany, Tangent, that create or replace 5,000 Square Feet of more of new impervious surface may occur without a stormwater collection, retention and treatment management plan approved by both the Linn County Engineer and Linn County Roadmaster.

**Erosion and Sediment Control Plan is Required** for any disturbance of soil greater than 5,000 square feet. Linn County requires all construction site operators whether it is the County completing maintenance or a project under contract, a contractor or private landowner to complete and implement an Erosion and Sediment Control Plan (ESCP) subject to approval of the County Engineer. Periodic inspections are required to be completed as part of the plan.

**Post Construction Stormwater Plan is Required** for all construction project sites whether is the County or a contractor or private landowner. to be approved by the Linn County Engineer that results in a minimum land disturbance of: 10,890 square feet (a quarter of an acre) for any area within an Urban Growth Boundary and one acre for all other areas, and 5,000 square feet of new or reconstructed impervious surface.

**Pollution Control Plan is Required** to be completed which includes waste materials management controls. The plan is to be used for and maintained at all qualifying construction projects from initial clearing through final stabilization to reduce pollutants in stormwater discharges from construction sites. The plan is to be approved by the Linn County Engineer.

**Post Construction Stormwater Plan** - Linn County requires all construction site operators whether it is the County or a contractor or private landowner to complete and implement a Post Construction Stormwater Plan for construction project sites that results in a minimum land disturbance of: 10,890 square feet (a quarter of an acre) for any area within an Urban Growth Boundary and one acre for all other areas and 5,000 square feet of new or repaired impervious surface.

**DEQ NPDES Construction Stormwater General Permit** - For construction projects that disturb one or more acres (or that disturb less than one acre, if it is part of a “common plan of development or sale” disturbing one or more acres), the owner is required to obtain NPDES Construction Stormwater Permit from the DEQ.

#### **Compliance and Permits Required for Other Federal and State Programs**

Permits must be obtained from the United States Army Corps of Engineers (USACE) and the Oregon Division of State Lands (ODSL) and 401 Water Quality Certification Approval from the DEQ and provided to the Linn County Engineer before any of the following construction activities may occur:

- **Excavation and fill of more than 50 cubic yards in a wetland, drainage, stream or river** for any project, maintenance, or work requires permits from the USACE, ODSL, and 401 Certification.
- **Essential Salmon Habitat Requirements** - Any project that includes excavation and fill of any amount in a stream up to the stream bank (OHW) containing essential salmon habitat (see Oregon Division of State Lands Essential Salmon Habitat Map) requires permits from USACE, ODSL, and ODFW (Oregon Department of Fish and Wildlife).
- **401 Water Quality Certification from the DEQ** - projects that provide impacts to waters and wetlands may also be required to obtain 401 Water Quality Certification from the ODEQ if that project adds or re-constructs any impervious surface. This requires submittal of a post-construction SWMP to the ODEQ unless the following applies since the water quality impact will be minor:
  - Utility line installation with no new impervious surface area
  - Small, localized repairs with no new impervious surface area
  - Pavement preservation that does not expose gravels, aggregate or soil
  - Exterior remodeling with no new surface area.

Note: **For projects completed under contract by Linn County**, the ECSP, SWMP, PCP and WMP are developed and implemented by the Linn County Engineer through contracts or the Road Maintenance Operations. These plans and completed inspections are administered through the Linn County Engineers Office. Records of this activity are also maintained by the Linn County Engineer’s office.

**For Road Maintenance Operations**, the plans and inspections are administered through the office of the Manager of Road Maintenance. Records of these activities are also maintained by the office of the Manager of Road Maintenance.

**Effective Date of Implementation** - The 1200 CA permit issued to Linn County in 2001 and the MS4 NPDES Permit issued to Linn County in 2019 and other state and federal requirements previously established require the implementation and enforcement of a construction site runoff control program to reduce discharges of pollutants from construction sites in its coverage area.

## Hydric Soils Listed for Linn County Oregon – 2021

**Note:** Wetlands Consist of Hydric Soils Supported by Water Hydraulic Features and Wetland Plants. If a soil is listed as Hydric for location, a site investigation by a qualified professional is required to determine if the area is considered a wetland due to the presence of water within one foot of the surface during the beginning of the growing season (March) and the presence of wetland vegetation (unless vegetation was removed/replaced). The list below is to be used in reviewing soils identified in maps on the Linn County GIS Website to determine if Hydric Soils are present in the area considered.

Soil Identification Number	Soil Name	Abbreviated Name	Landform where Hydric Soil is Typically Found
100	Whiteson silt loam	Whiteson	flood plains
100	Whiteson silt loam	Waldo	flood plains
100	Whiteson silt loam	Bashaw	flood plains
100	Whiteson silt loam	Wapato	flood plains
102	Willamette silt loam	Dayton	terraces
102	Willamette silt loam	Concord	terraces
103C	Witham silty clay, 2 to 12 percent slopes	Bashaw	flood plains
106A	Woodburn silt loam, 0 to 3 percent slopes	Dayton	terraces
106A	Woodburn silt loam, 0 to 3 percent slopes	Concord	terraces
106C	Woodburn silt loam, 3 to 12 percent slopes	Concord	terraces
106C	Woodburn silt loam, 3 to 12 percent slopes	Dayton	terraces
16B	Briedwell silt loam, 0 to 7 percent slopes	Courtney	stream terraces
18	Camas gravelly sandy loam	Riverwash	flood plains
1A	Abiqua silty clay loam, 0 to 3 percent slopes	Waldo	flood plains
1B	Abiqua silty clay loam, 3 to 5 percent slopes	Waldo	flood plains
20C	Chehalem silt loam, 3 to 12 percent slopes	Panther	swales
20C	Chehalem silt loam, 3 to 12 percent slopes	Wapato	flood plains
2205A	Conser silty clay loam, 0 to 3 percent slopes	Conser	depressions, stream terraces
2205A	Conser silty clay loam, 0 to 3 percent slopes	Awbrig	depressions, terraces
2205A	Conser silty clay loam, 0 to 3 percent slopes	Courtney	drainageways, stream terraces
2212A	Awbrig silty clay loam, 0 to 2 percent slopes	Awbrig	depressions, terraces
2212A	Awbrig silty clay loam, 0 to 2 percent slopes	Courtney	drainageways, stream terraces
2212A	Awbrig silty clay loam, 0 to 2 percent slopes	Bashaw	depressions, stream terraces
2224A	Courtney gravelly silty clay loam, 0 to 3 % slopes	Courtney	drainageways, stream terraces
2224A	Courtney gravelly silty clay loam, 0 to 3 % slopes	Awbrig	drainageways, stream terraces
2224A	Courtney gravelly silty clay loam, 0 to 3 % slopes	Bashaw	depressions, stream terraces
2224A	Courtney gravelly silty clay loam, 0 to 3 % slopes	Conser	depressions, stream terraces
23	Clackamas gravelly silt loam	Courtney	stream terraces
23	Clackamas gravelly silt loam	Conser	stream terraces
23	Clackamas gravelly silt loam	Awbrig	stream terraces
24	Clackamas variant silt loam	Awbrig	stream terraces
24	Clackamas variant silt loam	Conser	stream terraces
24	Clackamas variant silt loam	Courtney	stream terraces
26	Coburg silty clay loam	Awbrig	stream terraces
26	Coburg silty clay loam	Conser	stream terraces
26	Coburg silty clay loam	Courtney	stream terraces
27	Concord silt loam	Concord	terraces
27	Concord silt loam	Dayton	terraces
3	Amity silt loam	Concord	terraces
3	Amity silt loam	Dayton	terraces
32D	Cumley silty clay loam, 2 to 20 percent slopes	Minniece	depressions
33	Dayton silt loam	Dayton	terraces
33	Dayton silt loam	Concord	terraces

33	Dayton silt loam	Dayton, gravelly clay substratum	terraces
36D	Dupee silt loam, 3 to 20 % slopes	Panther	swales
39	Fluents-Fluvaquents complex, nearly level	Fluents	bars, flood plains, islands, overflow stream channels, oxbows, sloughs
39	Fluents-Fluvaquents complex, nearly level	Fluvaquents	bars, flood plains, islands, overflow stream channels, oxbows, sloughs
39	Fluents-Fluvaquents complex, nearly level	Riverwash	flood plains
39	Fluents-Fluvaquents complex, nearly level	Waldo	flood plains
43B	Hazelair silty clay loam, 2 to 7 percent slopes	Panther	swales
43D	Hazelair silty clay loam, 7 to 20 percent slopes	Panther	swales
46	Holcomb silt loam	Dayton	terraces
46	Holcomb silt loam	Concord	terraces
57E	Kinney cobbly loam, slump, 3 to 30 % slopes	Aquepts, poorly drained	depressions
65B	Marcola cobbly silty clay loam, 2 to 7 % slopes	Panther	swales
66B	McAlpin silty clay loam, 3 to 6 percent slopes	Waldo	flood plains
67	McBee silty clay loam	Wapato	flood plains
69B	Minniece silty clay loam, 0 to 8 percent slopes	Minniece	depressions, drainageways, mountains
74H	Ochrepts, very steep	Aquepts, seeps	mountain slopes
75C	Panther silty clay loam, 2 to 12 percent slopes	Panther	low hills
77A	Pengra silt loam, 1 to 4 percent slopes	Pengra	alluvial fans, hills
77A	Pengra silt loam, 1 to 4 percent slopes	Panther	swales
77A	Pengra silt loam, 1 to 4 percent slopes	Natroy	terraces
8	Bashaw silty clay	Bashaw	alluvial fans, flood plains, terraces
8	Bashaw silty clay	Awbrig	stream terraces
8	Bashaw silty clay	Conser	stream terraces
8	Bashaw silty clay	Courtney	stream terraces
8	Bashaw silty clay	Dayton	terraces
85	Riverwash	Riverwash	flood plains
85	Riverwash	Fluents	bars, flood plains, islands, overflow stream channels, oxbows, sloughs
85	Riverwash	Fluvaquents	flood plains
87	Salem gravelly silt loam	Courtney	stream terraces
89B	Santiam silt loam, 3 to 6 percent slopes	Dayton	terraces
89B	Santiam silt loam, 3 to 6 percent slopes	Pengra	alluvial fans
90B	Saturn clay loam, 0 to 5 percent slopes	Fluents	bars, flood plains, islands, overflow stream channels, oxbows, sloughs
90B	Saturn clay loam, 0 to 5 percent slopes	Fluvaquents	flood plains
90B	Saturn clay loam, 0 to 5 percent slopes	Minniece	depressions
91	Saturn variant silt loam	Courtney	stream terraces
98	Waldo silty clay loam	Waldo	depressions, flood plains, terraces
98	Waldo silty clay loam	Bashaw	flood plains
99	Wapato silty clay loam	Wapato	flood plains
99	Wapato silty clay loam	Waldo	flood plains

Developed by: C. R. Knoll, PE October 12, 2021

**LINN COUNTY ROAD DEPARTMENT**  
**DEVELOPMENT, CONSTRUCTION, AND DOCUMENTED**  
**MAINTENANCE OF STORMWATER COLLECTION,**  
**RETENTION, AND TREATMENT FACILITIES**





Date: April 4, 2021

To: Road Maintenance Supervisors, Linn County Road Department

Re: Development, Construction, and Documented Maintenance of Stormwater Collection, Retention and Treatment Facilities

Stormwater Collection, Retention and Treatment Facilities have been routinely designed and constructed for road and bridge improvement projects by the Linn County Road Department as required by applicable regulations, and as required of the 1200 CA Stormwater Permit and the Total Maximum Daily Load Permit and issued by the Oregon Department of Environmental Quality to the Linn County Road Department.

As a condition of approval by state and federal agencies, Linn County Road Department is required to provide applicable maintenance to these facilities as provided by the permit application and permit conditions. This maintenance is required to be documented.

These conditions are consistent with the attached BMP (Best Management Practices) Table for Maintenance that has been developed for Linn County Road Department.

This memo and attached table will be inserted into the Linn County Road Department BMP Manual as a reference document. It may also be used as a guide to select, determine, and document Best BMP to be used for each road and bridge under the jurisdiction of Linn County which is a requirement of our TMDL Permit and MS4 Permit issued by the Oregon Department of Environmental Quality.

Other BMP Manuals are incorporated into or referenced by the Linn County BMP Manual should a better maintenance option be determined.



Chuck Knoll, PE  
Linn County Engineer

LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES

<b>Table 1: General Maintenance</b>			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
Annual Visual Inspection and Maintenance	Routine inspection	<p><b>Inspected Facilities annually prior to Wet Season.</b></p> <p>If appropriate, also inspect the facility after the first significant rain event following dry spell (e.g. the first 24-hour rainfall greater than 0.5 inches after summer)</p>	<p>Identify existing and potential operational problems.</p> <p>Repair damaged components that are critical to the operation of the feature (e.g. flow control valves, liners, underdrains, and pipes) as soon as practical.</p> <p>Schedule routine maintenance such as mowing, sump cleanout, lube moving parts, repairs, etc.</p> <p>If the facility is problematic, schedule additional inspections or maintenance.</p> <p>Repair or replace facility field markers according to Technical Bulletin GE10-01(B). A marked facility has an O&amp;M Plan.</p>
	<p>Maintenance of ancillary structures, if present</p> <p>Examples include</p> <ul style="list-style-type: none"> <li>• Flow splitter manhole</li> <li>• Diversion manhole</li> <li>• Catch basin</li> <li>• Shut-off valve assembly</li> <li>• Pretreatment or primary treatment manhole</li> <li>• Large detention pipe</li> <li>• Vault</li> <li>• Outfall</li> </ul>	When damaged facility or structure, etc. When Problems are observed or anticipated during the annual inspection.	<p>Grease moving parts to ensure proper operation.</p> <p>Remove sediment from sumps, vaults, catch basins, and structures to prevent the release of oil or sediment. Annual cleaning recommended. The use of a Vactor® truck is allowed unless prohibited in the facility's O&amp;M manual</p> <p>Repair or replace damaged orifice assembly/riser pipe. Restore to design standards. Be aware of possible confined space requirements.</p> <p>Repair or replace damaged gates, locks, chains, etc. that are used to secure valves and access points to prevent vandalism</p>
General	Temporary erosion control hampers maintenance	Erosion control remains from project construction (contractor did not remove)	Contact contractor to complete work OR remove temporary erosion control not specified in the O&M Plan.

LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES

<b>Table 1: General Maintenance</b>			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
General	Spilled material has entered the pond or structures	Oil, fuel, or other pollutants are evident following a spill event or accident.	Utilize valves or other features, if present, to contain the spilled material.  Remove and properly manage spilled material and contaminated soil.  Contact Region HazMat or spill response company for spill cleanup assistance where appropriate.  Contact a Region Hydraulic Engineer for technical assistance with pond restoration, if necessary.
	Litter (trash and debris)	Trash poses a hazard, inhibits function, or is aesthetically unacceptable (e.g. evidence of dumping).	Remove problematic trash and debris as soon as practical. There should be no evidence of dumping.  Remove non-problematic trash in accordance with District litter practices.
	Insects	Insects interfere with maintenance activities.	Implement vector control in accordance with County Health and District practices.
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity.	Mow access, berms, bottom, and side-slopes of the facility as noted in the District Integrated Vegetation Management (IVM) Plan.  Remove vegetation in or around grates that obstruct (or could obstruct) flow.  Avoid mowing or removing vegetation that does not need to be controlled.  Avoid removing vegetation too low to the ground. NOTE: Removing vegetation too near to the ground may result in scalping of the soil, unwanted damaged to vegetation, or growth of unwanted plant species.  Unless access restrictions are in the O&M Manual, heavy equipment can be within aboveground water quality and detention facilities.
	Noxious weed growth	Control of noxious weeds is required by law or prescribed in the District IVM Plan	Remove noxious weeds in accordance with the District IVM Plan.  Follow Environmental Protection Agency (EPA) label and ODOT policies on herbicide usage.

**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

<b>Table 1: General Maintenance</b>			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
General	Hazard trees	Trees are found to be weakened, unsound, undermined, leaning, or exposed and may fall across the highway	Remove hazard trees as soon as practical.  Where appropriate, consult an ODOT Forester for help identifying or removing hazard trees.
	Tree growth	Tree growth restricts access, obstructs function, jeopardizes infrastructure, or interferes with maintenance actions.	Prune or remove as needed to maintain access, function, and tree health.  Manage potentially problematic woody material before the trees reach 6 inches diameter at breast height (DBH).  Consult an ODOT Forester for the removal or management of trees greater than 6 inches DBH. Obtain permits where appropriate.  Refer to the District IVM Plan for the management of smaller trees.  Avoid removing trees that will not interfere with the operation or maintenance of the facility.

<b>Table 2: Maintenance of Stormwater Ponds</b> Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth in <b>dry ponds</b> (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity.  Collected water should drain.	Dry ponds need vegetation on the bottom and sides. Vegetation management typically occurs around and within the facility.  Mow access, berms, bottom, and side-slopes as noted in the District Integrated Vegetation Management (IVM) Plan. (typically annually)  Unless access restrictions are in the O&M Manual, heavy equipment can be on dry pond bottoms.

LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES

<b>Table 2: Maintenance of Stormwater Ponds</b> Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
Maintenance Component	Defect or Problem	Condition When Maintenance is needed	Recommended Maintenance to Correct Problem
	Vegetation growth in <b>wet ponds</b> (mowing and brushing)  NOTE: Wet ponds are not typical.	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity.  Water may be stored year-round without draining.	Wet ponds need vegetation on the bottom and sides. Vegetation management typically occurs around the facility.  Mow access and berms as noted in the District Integrated Vegetation Management (IVM) Plan.  Ponds bottoms capture and store water. Vegetation removal from pond bottoms is infrequent.
	Sediment accumulation in pre-treatment features (e.g. fore bays, basins, or fully exposed impermeable liners)  NOTE: Exposed liners are not typical.	Sediment affects flow.  Sediment jeopardizes infrastructure.	Remove sediment from ponds and pipe ends as needed to ensure adequate drainage into treatment pond (grassy or wet pond).  Use methods that minimize disturbance to surrounding vegetation.  Unless access restrictions are in the O&M Manual, heavy equipment can be on dry pond bottoms.  Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment. Note: Pollutant concentrations may increase if sediment is not routinely removed.
Storage areas	Sediment accumulation along bottom of grassy ponds	Sediment inhibits the flow of water through the grass (>12 inches deep).  Sediment inhibits grass growth.	Where practical use a Vactor® truck to remove sediment from grassy areas. When Vactoring® is not practical, follow ditch cleaning practices.  Restore slope and geometry to design standards, if necessary.  Reseed grass cover where needed.  Stormwater should infiltrate or flow toward outlet once inflow has ceased.  Refer to the general section of this table for side-slope mowing and other routine maintenance actions.

**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

<b>Table 2: Maintenance of Stormwater Ponds</b> Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
	<p>Sediment accumulation in wet ponds or channels.</p> <p>NOTE: Currently there is limited use of wet ponds to treat stormwater.</p>	<p>Capacity has noticeably decreased (examples below)</p> <ul style="list-style-type: none"> <li>• low and medium flows go through the bypass,</li> <li>• the ordinary high water level has increased,</li> <li>• flooding occurs when the outflows are not blocked,</li> <li>• Pond bottom is level with outlets.</li> </ul>	<p>Remove sediment build-up from pipe ends as needed to ensure flow. Use methods that minimize disturbance to surrounding vegetation.</p> <p>Remove sediment to restore designed shape and depth.</p> <p>In high ADT areas, pond dredging may be required every 5 to 10 years to restore the capacity.</p> <p>Cease sediment removal when riprap or liner is encountered.</p> <p>Reseed if necessary to control erosion.</p>
	Erosion	Side slopes show evidence of erosion greater than 4 inches deep and the potential for continued erosion is evident.	<p>Promptly address erosion that causes immediate problems (e.g. damage to highway or highway structure)</p> <p>Schedule non-urgent repairs with routine work.</p> <p>Stabilize slope using appropriate erosion control and repair methods.</p> <p>Repair the cause of the erosion where possible.</p> <p>If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.</p>
Storage areas	Beaver dams	Dam inhibits function or jeopardizes the infrastructure.	<p>Dispose of dam debris offsite or outside of the riparian area.</p> <p>Coordinate the removal or relocation of beaver with Oregon Department of Fish and Wildlife (ODFW). Consider installing deterrents where appropriate.</p>
	Flooding	Water is flowing over or is approaching the top of the pond	<p>Check storm drainpipes and structures for blockage. Ensure valves are open. Remove obstructions to restore flow.</p> <p>Evaluate and remove excessive sediment from pond storage areas.</p> <p>Contact the Region Hydraulic Engineer to evaluate the source of flooding or provide design modifications.</p>

**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

<b>Table 2: Maintenance of Stormwater Ponds</b> Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
Treatment Components	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of pond bottom.	<p>Repair and reseed as appropriate to restore coverage.</p> <p>Install erosion control measures as needed.</p> <p>Trim overhanging limbs and remove brushy vegetation that limit grass growth (provide too much shade).</p>
	Missing or eroded amended soil mix	Bare soil is observed over 10 percent of the amended area.	<p>Identify and resolve erosion problem</p> <p>Add amended soil. Contact a Region Hydraulics Engineer for required material specifications.</p>
	Amended soil mix along pond bottom is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	<p>Remove and replace amended soil mix. Contact a Region Hydraulics Engineer for required material specifications.</p> <p>Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.</p>
	Granular drain backfill material for underdrain pipe plugged	Amended soil mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	<p>Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications.</p> <p>Install new drainage geotextile over new granular drain backfill material.</p> <p>Replace amended soil mix.</p>
Treatment Components	<p>Impermeable liner damage</p> <p>NOTE: Liners (if installed) are typically below the grass surface and may not be visible.</p>	Liner is damaged (e.g. during sediment removal or by motoring public). Liner is damaged when condition allows potential contamination to be released to the subsurface.	<p>Repair or replace the liner with similar material.</p> <p>In many cases, rigid plastic liners may be repaired by welding a similar material over the damaged portion or using a non-toxic, waterproof epoxy.</p> <p>If necessary, contact a Region Hydraulics Engineer for technical assistance regarding permanent repair.</p>

**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

<b>Table 2: Maintenance of Stormwater Ponds</b> Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
Berms and Dikes	Settlement	Any part of the berm has settled 4 inches or lower.  Note: Settlement may indicate potential problems with the facility.	Repair berm to design height with similar materials.  Contact a Region Hydraulics and Geotechnical Engineer as needed to evaluate the source of the settlement and determine repair options.
	Flow-through	Water is flowing through the pond berm.	Correct cause of flow through (e.g. eliminate burrowing rodents)  Install erosion control measures where appropriate.  Repair berm with similar materials.  If necessary, contact a Region Geotechnical Engineer to evaluate the condition.
	Sloughing	Ongoing erosion is observed with potential for erosion to continue.	Where possible correct the cause of the erosion. Install or replace energy dissipaters where appropriate.  Install erosion control measures where appropriate  Repair berm with similar materials.  If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.
Structures and piping  Includes • flow splitters • vaults • inlets	Damaged or missing components	Flow control assembly is not working properly (e.g. loose, bent, unattached, etc.).	Repair or replace valves, gates, orifices, and pipes as necessary with similar components.  Divert flows when needed.



**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

<b>Table 2: Maintenance of Stormwater Ponds</b> Stormwater ponds should retain water and slowly release by either infiltration or outflow.			
Maintenance Component	Defect or Problem	Condition When Maintenance is needed	Recommended Maintenance to Correct Problem
<ul style="list-style-type: none"> <li>• bypasses</li> <li>• valves</li> <li>• catch basins</li> <li>• gates</li> </ul>	Obstruction or blockage	Water does not flow in, though, or out of the structure or piping.	<p>If valves are part of the flow control assembly, verify the valves are open. Refer to the O&amp;M for the location of control valves.</p> <p>Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary).</p> <p>Jet rudders may be used to clean piping unless specifically prohibited in the O&amp;M plan.</p>
Outfalls	Insufficient rock armoring at outlets <ul style="list-style-type: none"> <li>• along channel side slopes and bottom</li> <li>• pipe outlet</li> <li>• along the length of spillway</li> </ul>	Minimal layer of rock exists  Rock missing along armored area  Flow channelization or high flows exposed native soil around the rock armored area	Install erosion control measures  Repair or replace rock armoring to original design standard  Repair, re-grade, and reseed eroded areas adjacent to rock armoring.  Contact a Region Hydraulics Engineer for technical assistance if rock armoring problems continue or a highway structure is at risk

<b>Table 3: Maintenance of Water Quality or Biofiltration Swales</b> Swales should provide even sheet flow that moves water from the inlet to the outlet.			
Maintenance Component	Defect or Problem	Condition When Maintenance is needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity.  <b>Swales should be mowed annually.</b>	Mow access, berms, swale, and side-slopes as noted in the District Integrated Vegetation Management (IVM) Plan.  The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.

**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

<b>Table 3: Maintenance of Water Quality or Biofiltration Swales</b> Swales should provide even sheet flow that moves water from the inlet to the outlet.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
Swale Components	Sediment accumulation in pre-treatment areas or ancillary structures (e.g. manholes)	Sediment affects flow.  Sediment jeopardizes infrastructure.	Remove sediment that prevents adequate drainage into swale.  Use methods that minimize disturbance to surrounding vegetation.  The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.  Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment.  Note: Pollutant concentrations may increase if sediment is not routinely removed.
	Sediment accumulation along swale bottom	Sediment inhibits the flow of water through the grass (e.g., water is ponding or cutting a channel).	Remove sediment from grassy areas. The use of a Vactor® truck is allowed unless access restrictions are listed in the O&M Manual.  Restore slope and geometry to design standards, if necessary.  Reseed grass cover where needed.  Stormwater should infiltrate or flow toward outlet once inflow has ceased.
Swale Components	Erosion	Side slopes show evidence of erosion greater than 2 inches deep and the potential for continued erosion is evident.	Promptly address erosion that causes immediate problems (e.g. damage to highway or highway structure)  Schedule non-urgent repairs with routine work.  Stabilize slope using appropriate erosion control and repair methods.  Repair the cause of the erosion where possible.  If necessary, contact the ODOT Erosion Control Coordinator to evaluate the condition.

**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

**Table 3: Maintenance of Water Quality or Biofiltration Swales**

Swales should provide even sheet flow that moves water from the inlet to the outlet.

<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of swale.  NOTE: A single incident (e.g. vehicle accident) typically effects less than 10 percent of the area and is unlikely to trigger a repair.	Repair and reseed as appropriate to restore coverage.  Install erosion control measures as needed.  Trim overhanging limbs and remove brushy vegetation that limit grass growth (provide too much shade).
	Missing or eroded amended soil mix	Bare soil is observed over 10 percent of the amended area.	Identify and resolve erosion problem  Add amended soil. Contact a Region Hydraulics Engineer for required material specifications.
	Amended soil mix along swale bottom is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace amended soil mix. Contact a Region Hydraulics Engineer for required material specifications.  Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Granular drain backfill material for underdrain pipe plugged	Amended soil mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications.  Install new drainage geotextile over new granular drain backfill material.  Replace amended soil mix.
Swale Components	Impermeable liner damage  NOTE: Liners may not be visible.  If present, liners are typically below the grass surface along the bottom of the swale  Fabric wrapped around underdrains is not a liner.	Liner is damaged (e.g. during sediment removal or by mowing public). Liner is damaged when condition allows potential contamination to be released to the subsurface.	Repair or replace the liner with similar material. Replace top soil and grass as appropriate.  Features with liners, typically have maintenance option limitations; check the O&M Manual.  If necessary, contact a Region Hydraulics Engineer for technical assistance.

LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES

<b>Table 3: Maintenance of Water Quality or Biofiltration Swales</b> Swales should provide even sheet flow that moves water from the inlet to the outlet.			
Maintenance Component	Defect or Problem	Condition When Maintenance is needed	Recommended Maintenance to Correct Problem
	Obstruction or blockage of pipes	Water does not flow in, though, or out of the swale.	Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary).  Jet rudders may be used to clean piping unless specifically prohibited in the O&M plan.
	Flow spreader is uneven or clogged	Water does not flow evenly across the structure	Clean sump or forebay as needed to maintain capacity.  Clean or repair spreader as needed to provide a uniform flow and prevent erosion. Level portions of the flow spreader that have settled.

<b>Table 4: Filter Strips</b> Filter strips should provide even sheet flow that moves water from edge of pavement toward a downslope conveyance.			
Maintenance Component	Defect or Problem	Condition When Maintenance is needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity.  <b>Filter strips should be mowed annually.</b>	Mow as noted in the District Integrated Vegetation Management (IVM) Plan.  The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.
Filter Strip Components	Sediment accumulation	Sediment inhibits the flow of water through the grass (e.g., water is ponding or cutting a channel).	Remove sediment from grassy areas. The use of a Vector® truck is allowed unless access restrictions are listed in the O&M Manual.  Restore slope and geometry to design standards, if necessary.  Reseed grass cover where needed.

**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

<b>Table 4: Filter Strips</b> Filter strips should provide even sheet flow that moves water from edge of pavement toward a downslope conveyance.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
	Missing or eroded amended soil mix	Bare soil is observed over 10 percent of the amended area.	Identify and resolve erosion problem  Add amended soil. Contact a Region Hydraulics Engineer for required material specifications.
	Amended soil mix is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace amended soil mix. Contact a Region Hydraulics Engineer for required material specifications.  Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Flow spreader is uneven or clogged	Water does not flow evenly across the structure	Clean or repair spreader as needed to provide a uniform flow and prevent erosion. Level portions of the flow spreader that have settled.
	Erosion or rutting	Areas have eroded or channelized due to high flows or vehicular damage	Repair, regrade, and reseed (as needed) to restore uniform flow across grass.
	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10% of the strip. NOTE: A single incident is unlikely to trigger a repair.	Repair and reseed as appropriate to restore coverage.  Install erosion control measures as needed.

<b>Table 5: Bioslopes</b> Bioslopes should provide even sheet flow that moves water from edge of pavement.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
	Vegetation growth (mowing and brushing)	Vegetation growth restricts access, limits sight distance, obstructs water flow, or interferes with maintenance activity.  <b>Slopes should be mowed annually.</b>	Mow as noted in the District Integrated Vegetation Management (IVM) Plan.  The use of heavy equipment is allowed unless access restrictions are listed in the O&M Manual.

**LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES**

<b>Table 5: Bioslopes</b> Bioslopes should provide even sheet flow that moves water from edge of pavement.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
Bioslope Components	Sediment accumulation	Sediment inhibits the flow of water to the Bioslope (e.g., water is ponding or cutting a channel).	Remove sediment from grassy areas. The use of a Vactor® truck is allowed unless access restrictions are listed in the O&M Manual.  Restore slope and geometry to design standards, if necessary.  Reseed grass cover where needed.
	Ecology mix is clogged	Standing water is observed for seven (7) consecutive days or longer from May through October.	Remove and replace ecology mix. Contact a Region Hydraulics Engineer for required material specifications.  Replace or repair damaged underlying drainage geotextile, impermeable liner, drain piping, and granular drain backfill material when applicable.
	Granular drain backfill material for underdrain pipe plugged	Ecology mix has been replaced and standing water is still observed for seven (7) consecutive days or longer from May through October.	Remove and replace granular drain backfill material. Contact a Region Hydraulics Engineer for required material specifications.  Install new drainage geotextile over new granular drain backfill material.  Replace amended soil mix.
	Poor vegetation coverage	Vegetation (grass) is sparse or eroded patches occur in more than 10 percent of the strip	Repair and reseed as appropriate to restore coverage.  Install erosion control measures as needed.

<b>Table 6: Detention Vaults</b> Detention vaults should temporarily hold water and slowly release through the outlet.  Tanks and pipes may be classified as confined space. Refer to the ODOT Confined Space program (PRO96003) before entering.			
<b>Maintenance Component</b>	<b>Defect or Problem</b>	<b>Condition When Maintenance is needed</b>	<b>Recommended Maintenance to Correct Problem</b>
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		

LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES

**Table 6: Detention Vaults**

Detention vaults should temporarily hold water and slowly release through the outlet.

**Tanks and pipes may be classified as confined space. Refer to the ODOT Confined Space program (PRO96003) before entering.**

Maintenance Component	Defect or Problem	Condition When Maintenance is needed	Recommended Maintenance to Correct Problem
Components	Sediment accumulation	<p>Sediment exceeds (or could exceed) the capacity of the sump.</p> <p>Sediment is observed at the outlet.</p>	<p>Remove sediment from sump and bottom of tank floor.</p> <p><b>Annual cleaning is recommended.</b></p> <p>The use of a Vactor® truck is allowed unless prohibited in the facility's O&amp;M manual.</p> <p>Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment.</p> <p>Note: Pollutant concentrations may increase if sediment is not routinely removed.</p>
	Damaged or missing components	Flow control assembly is not working properly (e.g. loose, bent, unattached, etc.).	<p>Repair or replace valves, gates, orifices, and pipes as necessary with similar components.</p> <p>Divert flows when needed.</p>
	Obstruction or blockage	Water does not flow in, though, or out of the structure or piping.	<p>If valves are part of the flow control assembly, verify the valves are open. Refer to the O&amp;M for the location of control valves.</p> <p>Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary).</p> <p>Jet rudders may be used to clean piping unless specifically prohibited in the O&amp;M plan.</p>
	Structure or access is hidden	Site condition conceal the location of the facility	Mark facilities that may become hidden
	Clogged air vent	Pressure or a vacuum is created within the tank.	Clean air vents as needed to ensure air flows into and out of the tank.

LINN COUNTY BEST MANAGEMENT PRACTICES  
MAINTENANCE TABLES

<b>Table 7: Detention Tank (or Large Diameter Pipe)</b> Detention tanks should temporarily hold water and slowly release through the outlet. Detention tanks and pipes may be classified as confined space. Refer to the ODOT Confined Space program (PRO96003) before entering.			
Maintenance Component	Defect or Problem	Condition When Maintenance is needed	Recommended Maintenance to Correct Problem
General	Follow applicable Guidance from Table 1 AND applicable guidance from this table.		
Components	Sediment accumulation	Sediment exceeds (or could exceed) the capacity of the sump.  Sediment is observed at the outlet.	Remove sediment from sump and bottom of tank floor.  <b>Annual cleaning is recommended.</b>  The use of a Vactor® truck is allowed unless prohibited in the facility's O&M manual.  Sediment may contain oil and other pollutants, especially in areas with high ADT. Refer to the ODOT Maintenance Environmental Management System (EMS) Manual for the disposal of contaminated sediment.  Note: Pollutant concentrations may increase if sediment is not routinely removed.
	Damaged or missing components	Flow control assembly is not working properly (e.g. loose, bent, unattached, etc.).	Repair or replace valves, gates, orifices, and pipes as necessary with similar components.  Divert flows when needed.
	Obstruction or blockage	Water does not flow in, though, or out of the structure or piping.	If valves are part of the flow control assembly, verify the valves are open. Refer to the O&M for the location of control valves.  Remove obstructions to restore flow (e.g. remove trash, debris, sediment, or vegetation as necessary).  Jet rudders may be used to clean piping unless specifically prohibited in the O&M plan.
	Structure or access is hidden	Site condition conceal the location of the facility	Mark facilities that may become hidden
	Clogged air vent	Pressure or a vacuum is created within the tank.	Clean air vents as needed to ensure air flows into and out of the tank.



# LINN COUNTY ROAD DEPARTMENT

## LINN COUNTY THREATENED OR ENDANGERED PLANTS



OCTOBER 2021

- Golden paintbrush
- Willamette daisy
- Wayside aster
- Bradshaw's desert parsley
- Kincaid's lupine
- White-topped aster
- Nelson's checkermallo

## Nelson's checkermallow (*Sidalcea nelsoniana*)



### THREATENED



Flowers (left), habit (center), and habitat (right) of Nelson's checkermallow. Photos by Rhiannon Thomas. If downloading images from this website, please credit the photographer.

### Family

Malvaceae

### Taxonomic notes

Interspecific hybridization is known to occur between Nelson's checkermallow and the other species of *Sidalcea* that occur within or near its range in the Willamette Valley. However, ecological and genetic barriers appear to limit hybridization among existing populations of these species. Though sexually compatible, *Sidalcea nelsoniana* flowers later in the year than *S. malviflora* ssp. *virgata* in sites where the species co-occur; *S. nelsoniana* and *S. cusickii* are fully sexually compatible and share flowering times and pollinators, but their ranges are narrowly separated by less than a mile and the species do not currently co-occur within any known sites; *S. nelsoniana* and *S. campestris* co-occur in many sites, but the two species exhibit low sexual compatibility, likely because of chromosomal pairing problems due to differing ploidy levels in the two species.

### Plant description

Nelson's checkermallow is an erect perennial arising from a stout taproot, the stems 40-100 cm tall and glabrous or with short, simple hairs. Leaf blades are glabrous above and sparsely covered with small, stiff hairs beneath. Basal leaves are round and palmately lobed, the lobes toothed; upper leaves are increasingly deeply cleft. The species is gynodioecious, with plants that are either pistillate (female, lacking stamens) or perfect (having both male and female parts). Racemes are somewhat spikelike, but elongate and open, bearing many flowers. Petals are pinkish lavender, calyces usually purplish tinged. Petals of perfect flowers are 9-15 mm long, the calyx 4.5-7 mm long; petals of pistillate flowers are 5-9 mm long, the calyx 4-6 mm long. Carpels are approximately 3 mm long and lightly reticulate on the sides, the beak less than 0.5 mm long.

### Distinguishing characteristics

Four other *Sidalcea* species occur within or near the range of Nelson's checkermallow: *S. campestris*, *S. cusickii*, *S. hirtipes*, and *S. malviflora* ssp. *virgata*. *Sidalcea campestris* is distinguished from Nelson's checkermallow by its typically taller stature

### **Oregon counties**

Benton, Clackamas, Clatsop, Columbia, Linn, Marion, Polk, Tillamook, Washington, Yamhill

### **Federal status**

Threatened

### **Threats**

Major threats to this species include habitat loss due to agricultural and urban development, ecological succession resulting in the encroachment of trees and woody shrubs into open prairie habitats, and exotic weed invasions. Seed survival in many populations of Nelson's checkermallow is severely limited by pre-dispersal seed predation by native, host-specific weevils (*Macrorhoptus sidalceae*). The weevils seem to be restricted to the Willamette Valley, southwestern Washington, and lower Coast Range; there are no reports of the parasite from Coast Range populations of Nelson's checkermallow in Yamhill, Tillamook, and Washington Counties. Additional threats include possible inbreeding depression due to small population sizes and habitat fragmentation, and interspecific hybridization.

### **Conservation planning**

A U.S. Fish and Wildlife Service Recovery Plan for the threatened Nelson's checkermallow (*Sidalcea nelsoniana*) was released in 1998.

A U.S. Fish and Wildlife Service [Recovery Plan for prairie species of western Oregon and southwestern Washington](#) (pdf document, 9.63 MB) was released in 2010 and addresses updated conservation needs of Nelson's checkermallow.

### **Did you know?**

Nelson's checkermallow is strongly outcrossing, as perfect-flowered plants are protandrous (in individual flowers, pollen matures before the stigmas are receptive), and female plants are obligately outcrossed (they must be fertilized with pollen from other plants, as they produce no pollen of their own). Most Willamette Valley populations have a far greater number of female plants than perfect plants.

The species can also spread vegetatively by rhizomes that form multiple crowns with distinct clusters of stems, making it difficult to distinguish individual plants.

### **Current/Recent ODA projects**

Developing population density estimates for nine rare Willamette Valley prairie species

### **References**

Currin, R., M. Carr, and R. Meinke. 2008. Developing population density estimates for nine rare Willamette Valley prairie species. Report prepared for U.S. Fish and Wildlife Service, Region 1, Portland, Oregon. Oregon Department of Agriculture, Salem, Oregon.

Halse, R. R., B. A. Rottink, and R. Mishaga. 1989. Studies in *Sidalcea* taxonomy. Northwest Science 63:154-161.

Hitchcock, C. L., A. Cronquist, M. Ownbey, and J. W. Thompson. 1961. Vascular plants of the Pacific Northwest. Part 3: Saxifragaceae to Ericaceae. University of Washington Press, Seattle.

## Golden paintbrush (*Castilleja levisecta*)



**Oregon**  
Department  
of Agriculture

### ENDANGERED



Inflorescences (left), habit (center), and habitat (right) of golden paintbrush. Photos by Thomas Kaye. If downloading images from this website, please credit the photographer.

### Family

Orobanchaceae

### Taxonomic notes

The genus *Castilleja* was formerly included within the Schrophulariaceae.

### Plant description

Golden paintbrush is a perennial with many stems growing from a short branching base. Stems are usually simple, erect, or slightly decumbent at the base, 10-50 cm tall, and softly viscid-villous. Leaves are viscid-villous to hispidulous, 2-4 cm long, closely ascending, the lower leaves linear-lanceolate and entire, the upper leaves oblong-ovate or -obovate with 1-4 pairs of shallow lobes toward the apex. The inflorescences are straight and erect, with flowers remote and mostly hidden by overlapping bracts. Bracts are golden yellow, sometimes tinged with reddish-orange, about equal to the width of the upper leaves, oblong, obtuse, and usually lobed at the apex. The calyx is 1.5-1.8 cm long, externally pubescent, deeply and subequally cleft above and below, the primary lobes again deeply 2-lobed with linear obtuse segments. The corolla is 2.0-2.3 cm long, the slender galea 0.6-0.9 cm long, puberulent, and about 3-4 times longer than the unpouched lower lip.

### Distinguishing characteristics

The bright golden to yellow floral bracts of golden paintbrush distinguish it from all other *Castilleja* species that occur within its range.

### When to survey

Surveys for golden paintbrush should be completed from late April to early June when the species is flowering.

### Habitat

Extant populations of golden paintbrush occur in sandy, well-drained soils of glacial origin, in areas influenced by sea spray. The species inhabits flat grasslands, mounded prairies, and steep, grassy bluffs.

## Willamette daisy (*Erigeron decumbens*)



### ENDANGERED



Flowers (left), habit (center), and habitat (right) of Willamette daisy. Photos by Melissa Carr (left and right) and ODA staff (center). If downloading images from this website, please credit the photographer.

### Family

Asteraceae

### Taxonomic notes

Synonyms: *Erigeron decumbens* var. *decumbens*\*

\*This taxon was formerly recognized as variety *decumbens*. Recent treatment of the genus in *Flora of North America North of Mexico* elevated the other variety of *E. decumbens* (var. *robustior*) to species rank, and consequently, there is no longer need to recognize Willamette daisy at the varietal level.

### Plant description

Willamette daisy is a tap-rooted perennial species growing from a crown or slightly branched caudex. Stems are decumbent, moderately strigose, 15-70 cm tall, and often purplish at the base. The leaves are numerous, sparsely to moderately strigose, linear or linear-lanceolate, the basal leaves and most of the cauline leaves triple-nerved. Basal leaves are up to 25 cm long, including the long petiole, and 1 cm wide, with cauline leaves becoming gradually reduced above. Flowering heads number from 1-20, the disk 0.8-1.5 cm wide, the involucre 0.35-0.6 cm high, and the 20-50 blue-purple to pale pink ray flowers 0.6-1.2 cm long by 0.1-0.2 cm wide. The pappus consists of 12-16 fragile bristles.

### Distinguishing characteristics

Willamette daisy is the only species of *Erigeron* with pink-purple rays that occurs in Willamette Valley prairies. It is further distinguished by its gradually reduced cauline leaves, triple-nerved basal leaves, and decumbent, spreading habit. *Erigeron eatonii* is morphologically similar, but occurs east of the Cascade Mountains. *Symphyotrichum hallii* co-occurs with Willamette daisy at many sites, but its rays are usually white (although sometimes pale violet), it flowers later in the summer (July to August), and it is more branched than Willamette daisy. Small vegetative individuals of these two species are very similar, but are distinguishable based on stem color: *S. hallii* typically

## Wayside aster (*Eucephalus vialis*)



### THREATENED



Flowers (left), habit (center), and habitat (right) of wayside aster. Photos by ODA staff. If downloading images from this website, please credit the photographer.

### Family

Asteraceae

### Taxonomic notes

Synonym: *Aster vialis*

Putative hybrids between wayside aster and *Eucephalus tomentellus* have been collected within the southern portion of the threatened taxon's range, and hybridization may also occur between these species and *E. glabratus* and *E. breweri*. Species boundaries in the *Eucephalus* group tend to be weak, and further work is needed to elucidate taxonomic boundaries.

### Plant description

Wayside aster is an erect perennial mostly 60-120 cm tall, growing from a stout caudex. The lowermost leaves are reduced and scale-like; those above are elliptic or broadly lanceolate, sessile, entire or with a few irregular teeth, 5-9 cm long by 1.5-3 cm wide and gradually reduced toward the inflorescence. Leaves are glabrous to glandular above and glandular-pubescent beneath. Several to many turbinate flowering heads are arranged in a leafy bracteate inflorescence. Disks are 1-1.5 cm wide, disk flowers yellow; ray flowers are typically lacking. Involucres are 0.8-1 cm high, the bracts imbricate, sharp-pointed with a strong midvein, somewhat keeled, and greenish above.

### Distinguishing characteristics

Wayside aster is similar in appearance to a few other species that occur within its range: *Eucephalus tomentellus*, *E. glabratus*, *E. breweri*, and *Sericocarpus oregonensis*. *Eucephalus tomentellus* is distinguished from wayside aster by its flowering heads, which bear (0-) 1-3 (-6) violet-purple rays (versus usually rayless heads), and typically smaller mid leaves, 2.5-6 cm long and densely woolly to cottony beneath (versus 5-9 cm long and glandular-pubescent beneath); *E. glabratus* is shorter (30-60 cm tall versus 60-120 cm tall), with smaller mid leaves that are 3-6 cm long by 0.5-1.5 cm wide and more or less glabrous throughout (versus 5-9 cm long by 1.5-3 cm wide and

## Bradshaw's desert parsley (*Lomatium bradshawii*)



**ENDANGERED**



Flowers (left), habit (center), and habitat (right) of Bradshaw's desert parsley. Photos by Melissa Carr. If downloading images from this website, please credit the photographer.

### Family

Apiaceae

### Taxonomic notes

Synonyms: Bradshaw's lomatium

### Plant description

Bradshaw's desert parsley is a low, more or less erect perennial species that grows from a long slender taproot. It is nearly acaulescent and glabrous or slightly puberulent, with leaves 10-15 cm long on petioles as long to much longer. Leaves are ternate then pinnately dissected, the ultimate segments linear and 0.6-1.2 cm long. The peduncles are 15-60 cm high, the small light yellow flowers arranged in umbels with 7-16 rays, generally only 1-4 of the rays fertile. The involucels are comprised of about 10 bracts 0.2-0.6 cm long and ternately or biternately divided. The glabrous fruit is oblong, 1.0-1.3 cm long, the lateral wings corky and thickened.

### Distinguishing characteristics

The conspicuously ternately or biternately divided involucel bracts of Bradshaw's desert parsley distinguish it from other members of the genus. *Lomatium utriculatum* closely resembles Bradshaw's desert parsley and the species overlap in range, but *L. utriculatum* involucel bracts are scarious cuneate or broadly spatulate, and its fruit is thinly winged (versus thick-winged).

### When to survey

Surveys should be completed when the species is flowering, from mid April through May.

### Habitat

Bradshaw's desert parsley occurs in wet prairie habitats in clay soils or substrates having a dense clay layer below the surface. The majority of populations are located in the southern Willamette Valley in seasonally saturated or flooded prairies near creeks and small rivers. Some populations occur near the Santiam River in shallow, well-

## Kincaid's lupine (*Lupinus oregonus*)



### THREATENED



Flowers (left), habit (center), and habitat (right) of Kincaid's lupine. Photos by Melissa Carr. If downloading images from this website, please credit the photographer.

### Family

Fabaceae

### Taxonomic notes

Synonyms: *Lupinus sulphureus* ssp. *kincaidii*, *Lupinus sulphureus* var. *kincaidii*, *Lupinus oregonus* var. *kincaidii*, Oregon lupine

The genus *Lupinus* poses many taxonomic challenges due to the extremely variable nature of the species and intergradations between recognized taxa, a situation that in many instances is likely the result of or complicated by free interbreeding that has obscured species boundaries. Hybridization is known to occur between Kincaid's lupine and *Lupinus arbustus*.

### Plant description

Kincaid's lupine is a perennial arising from a branched crown, usually with numerous unbranched stems (30) 40-80 (100) cm tall, with whitish or brownish stiff to silky pubescence. Basal leaves are usually persistent until after flowering, with petioles (2) 3-5 times the length of the blades; upper cauline leaves have petioles sometimes shorter than the blades. Leaflets typically number 7-12, are narrowly oblanceolate, usually somewhat acute, 2.5-5 cm long, often remaining somewhat folded, and usually glabrous above and sparsely to copiously hairy beneath. Inflorescences are slender, the flowers numerous and arranged in interrupted whorls. Flowers are fragrant and range in color from bluish or purple to yellowish or creamy white, quickly turning orange-brown with age. The banner is distinctively ruffled (markedly concave on the lateral faces), glabrous, and only somewhat reflexed from the glabrous keel. Pods are 3-4 cm long, with 1-6 pinkish-brown to black seeds.

### Distinguishing characteristics

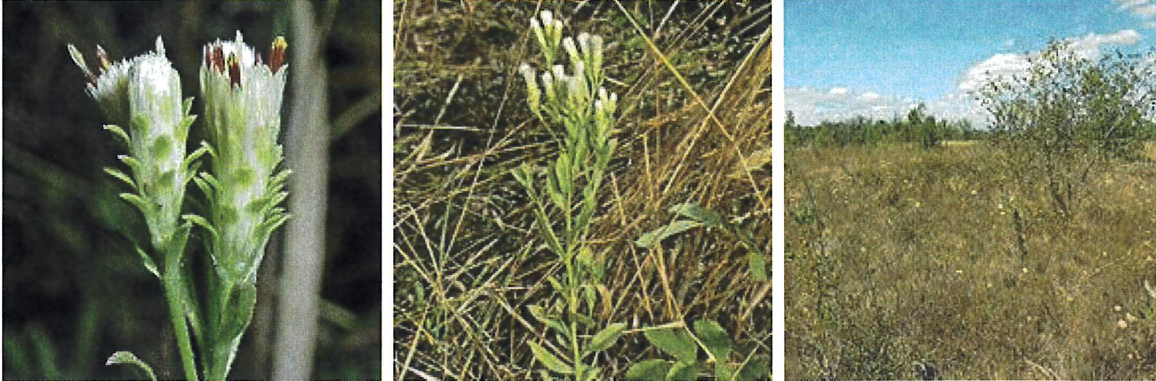
Several other perennial species of *Lupinus* overlap in range with Kincaid's lupine: *L. arbustus*, *L. polyphyllus*, *L. albicaulis*, *L. albifrons*, *L. lepidus*, *L. latifolius*, and *L. rivularis*. *Lupinus arbustus* is distinguished by its distinctly spurred calyx (versus calyx not spurred) and flowers with banners that are hairy on the back (versus glabrous) and



## White-topped aster (*Sericocarpus rigidus*)



### THREATENED



Flowers (left), habit (center), and habitat (right) of white-topped aster. Photos by Melissa Carr (left and center) and Rebecca Currin (right). If downloading images from this website, please credit the photographer.

### Family

Asteraceae

### Taxonomic notes

Synonym: *Aster curtus*

### Plant description

White-topped aster is a perennial herb from slender creeping rhizomes, with generally unbranched stems topped by terminal clusters of flowering heads. Flowering stems are 10-30 cm tall, non-flowering stems about half as tall. Plants are glabrous except for scabrous-ciliolate leaf margins. Leaves are alternate and evenly distributed along the stem, oblanceolate, tapering to an essentially sessile base, with the upper and lowermost leaves reduced and the largest leaves (2.5-3.5 cm long) occurring along the center third of the stem. Flowers are arranged in compact clusters of 5-20 small heads. Ray flowers are typically two (1-3), 0.1-0.3 cm long, white, and shorter than the pappus; disk flowers are mostly 9-21 and are white to pale yellow with purple anthers. Involucres are 0.7-0.9 cm high and narrow, the bracts imbricate in several series, with a strong midrib or slight keel, chartaceous below and with spreading light green herbaceous tips.

### Distinguishing characteristics

White-topped aster co-occurs with *Symphyotrichum hallii* and overlaps in range with other related species, including *Sericocarpus oregonensis*. The rare white-topped aster is distinguished from these species by its more compact cluster of flower heads, fewer (1-3) and smaller (shorter than the pappus) ray flowers, its abundance of creeping rhizomes, and its generally smaller habit (*S. rigidus* is 10-30 cm tall, whereas *S. hallii* is 20-100 cm tall and *S. oregonensis* is 40-120 cm tall). Additionally, *Sericocarpus rigidus* is restricted to prairie habitats, while *S. oregonensis* usually occupies more upland, woodland habitats.

## Nelson's checkermallow (*Sidalcea nelsoniana*)



### THREATENED



Flowers (left), habit (center), and habitat (right) of Nelson's checkermallow. Photos by Rhiannon Thomas. If downloading images from this website, please credit the photographer.

### Family

Malvaceae

### Taxonomic notes

Interspecific hybridization is known to occur between Nelson's checkermallow and the other species of *Sidalcea* that occur within or near its range in the Willamette Valley. However, ecological and genetic barriers appear to limit hybridization among existing populations of these species. Though sexually compatible, *Sidalcea nelsoniana* flowers later in the year than *S. malviflora* ssp. *virgata* in sites where the species co-occur; *S. nelsoniana* and *S. cusickii* are fully sexually compatible and share flowering times and pollinators, but their ranges are narrowly separated by less than a mile and the species do not currently co-occur within any known sites; *S. nelsoniana* and *S. campestris* co-occur in many sites, but the two species exhibit low sexual compatibility, likely because of chromosomal pairing problems due to differing ploidy levels in the two species.

### Plant description

Nelson's checkermallow is an erect perennial arising from a stout taproot, the stems 40-100 cm tall and glabrous or with short, simple hairs. Leaf blades are glabrous above and sparsely covered with small, stiff hairs beneath. Basal leaves are round and palmately lobed, the lobes toothed; upper leaves are increasingly deeply cleft. The species is gynodioecious, with plants that are either pistillate (female, lacking stamens) or perfect (having both male and female parts). Racemes are somewhat spikelike, but elongate and open, bearing many flowers. Petals are pinkish lavender, calyces usually purplish tinged. Petals of perfect flowers are 9-15 mm long, the calyx 4.5-7 mm long; petals of pistillate flowers are 5-9 mm long, the calyx 4-6 mm long. Carpels are approximately 3 mm long and lightly reticulate on the sides, the beak less than 0.5 mm long.

### Distinguishing characteristics

Four other *Sidalcea* species occur within or near the range of Nelson's checkermallow: *S. campestris*, *S. cusickii*, *S. hirtipes*, and *S. malviflora* ssp. *virgata*. *Sidalcea campestris* is distinguished from Nelson's checkermallow by its typically taller stature

# **LINN COUNTY ROAD DEPARTMENT**

## **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM STORM WATER DISCHARGE PERMIT**



**GENERAL PERMIT  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
STORM WATER DISCHARGE PERMIT**

Oregon Department of Environmental Quality  
811 SW Sixth Avenue, Portland, OR 97204, (503) 229-5279  
Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

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ISSUED TO:

All public agencies responsible for construction activities with storm water discharges that are covered by this permit. The submittal of an approved application and payment of applicable fees are required.

COPY

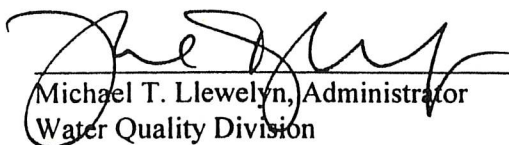
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SOURCES COVERED BY THIS PERMIT:

All Construction activities including clearing, grading, excavation, and stockpiling activities under the authority or jurisdiction of a public agency that will result in the disturbance of five or more acres. Also included are activities that disturb a total of five or more acres if part of a larger common plan of development.

Effective December 1, 2002 the previously described construction activities will include land disturbance of one acre or more, and will also include activities that disturb a total of one or more acres if part of a larger common plan of development.

This permit does not authorize in-water or riparian work. These activities are regulated by the Oregon Division of State Lands, US Army Corp of Engineers, and/or the DEQ Section 401 certification program.

  
Michael T. Llewelyn, Administrator  
Water Quality Division

2/20/2001  
Date

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PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify, or operate erosion and sediment control measures, and storm water treatment and control facilities, and to discharge storm water to public waters in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

	<u>Page</u>
Schedule A - Limitations and Controls for Storm Water Discharges	2
Schedule B - Minimum Monitoring Requirements	7
Schedule C - Compliance Schedule	9
Schedule D - Special Conditions	10
Schedule F - General Conditions	11

Unless specifically authorized by this permit, by another NPDES or WPCF permit, or by Oregon Administrative Rule, any other direct or indirect discharge to waters of the state is prohibited, including discharges to an underground injection control system.

**SCHEDULE A**  
**LIMITATIONS AND CONTROLS FOR STORM WATER DISCHARGES**

1. **Performance Limitations** An Erosion and Sediment Control Plan (ESCP) shall be developed and implemented to prevent the discharge of significant amounts of sediment to surface waters. The following conditions describe significant amounts of sediment and shall be prevented from occurring.
  - a. Earth slides or mud flows that leave the construction site and are likely to discharge to surface waters.
  - b. Evidence of concentrated flows\* of water causing erosion when such flows are not filtered or settled to remove sediment prior to leaving the construction site and are likely to discharge to surface waters. Evidence includes the presence of rills, rivulets or channels.
  - c. Turbid flows\* of water that are not filtered or settled to remove turbidity prior to leaving the construction site and are likely to discharge to surface waters.
  - d. Deposits of sediment at the construction site in areas that drain to unprotected storm water inlets or catch basins that discharge to surface waters. Inlets and catch basins with failing sediment controls due to lack of maintenance or inadequate design will be considered unprotected.
  - e. Deposits of sediment from the construction site on public or private streets outside of the permitted construction activity that are likely to discharge to surface waters.
  - f. Deposits of sediment from the construction site on any adjacent property outside of the permitted construction activity that are likely to discharge to surface waters.

\* Flow to storm water inlets or catch basins located on the site will be considered "leaving the site" if there are no sediment control structures designed for expected construction flows downstream of the inlets or catch basins that are under the permittee's control.

2. **Erosion and Sediment Control Plan Preparation and Submittal** The permittee shall ensure that a comprehensive ESCP is prepared and implemented for the construction activity regulated by this permit.
  - a. A copy of the ESCP shall be retained on-site and made available to the Department upon request. During inactive periods of greater than seven (7) consecutive calendar days, the ESCP shall be retained by the permittee.
  - b. The Department may request modifications to the ESCP at any time if the ESCP is ineffective at preventing the discharge of significant amounts of sediment and turbidity to surface waters.
  - c. The ESCP shall include any procedures necessary to meet local erosion and sediment control requirements or storm water management requirements.
  - d. If possible, during the period of October through May, construction activities should avoid or minimize excavation and bare ground activities. If the operator chooses to continue land disturbance activities within this period, additional wet weather requirements (refer to A.3.d) are required in the ESCP. Specifically, if construction activity occurs during the winter season

where slopes are greater than five (5) percent and the soils have medium to high erosion potential additional erosion controls will be required.

- e. The following non-storm water discharges are allowed as long as they are identified in the ESCP and all necessary controls are implemented to minimize sediment transport. These include: firefighting activity, hydrant flushing and potable waterline flushing (DEQ guidance must be followed), air conditioning condensate, dewatering activities of uncontaminated groundwater or spring water, and uncontaminated foundation or footer drain water.
3. **Erosion and Sediment Control Plan Requirements** The ESCP shall, at a minimum, include the following elements.
- a. **Site Description** A description of the following:
    - i. Nature of the construction activity, including a proposed timetable for major activities.
    - ii. Estimates of the total area of the permitted site and the area of the site that is expected to undergo clearing, grading and/or excavation.
    - iii. Nature of the fill material to be used, the insitu soils, and the erosion potential of such soils.
    - iv. Names of the receiving water(s) for storm water runoff.
  - b. **Site Map** Indicating the following: (Note: In order to provide all the required information, a general location map in addition to the site map is required.)
    - i. Areas of total development
    - ii. Drainage patterns
    - iii. Areas of total soil disturbance (including, but not limited to, showing cut and fill areas and pre and post development elevation contours)
    - iv. Areas used for the storage of soils or wastes
    - v. Areas where vegetative practices are to be implemented. Include type of vegetation seed mix.
    - vi. Location of all erosion and sediment control measures or structures
    - vii. Location of impervious structures after construction is completed. Include buildings, roads, parking lots, outdoor storage areas, etc., if any.
    - viii. Springs, wetlands and other surface waters located on-site
    - ix. Boundaries of the 100-year flood plain if determined
    - x. Location of storm drainage outfalls to receiving water(s) if applicable
    - xi. Location of drinking water wells and underground injection controls
    - xii. Details of sediment and erosion controls
    - xiii. Details of detention ponds, storm drain piping, inflow and outflow details
  - c. **Required Controls and Practices** The following controls and practices are required:
    - i. Each site shall have graveled, paved, or constructed entrances, exits and parking areas, prior to beginning any other work, to reduce the tracking of sediment onto public or private roads.
    - ii. All unpaved roads located on-site shall be graveled. Other effective erosion and sediment control measures either on the road or down gradient may be used in place of graveling.
    - iii. When trucking saturated soils from the site, either water-tight trucks shall be used or loads shall be drained on-site until dripping has been reduced to minimize spillage on roads.
    - iv. A description of procedures that describe controls to prevent the discharge of all wash water from concrete trucks.
    - v. A description of procedures for correct installation or use of all erosion and sediment control measures.

- vi. A description of procedures for prompt maintenance or repair of erosion and sediment control measures utilized on-site (refer to A.4).
- d. Additional Controls and Practices Additional controls and practices shall be developed that are appropriate for the site. At a minimum the following shall be considered:

- i. A description of clearing and grading practices, including a schedule of implementation, that will minimize the area of exposed soil throughout the life of the project. Whenever practicable, clearing and grading shall be done in a phased manner to prevent exposed inactive areas from becoming a source of erosion.
- ii. A description of vegetative erosion control practices, including a schedule of implementation, designed to preserve existing vegetation where practicable and re-vegetate open areas when practicable after grading or construction.

In developing vegetative erosion control practices, at a minimum the following shall be considered: temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, and protection of trees with protective construction fences.

- iii. A description of additional erosion control practices, including a schedule of implementation, designed to protect exposed areas and prevent soil from being eroded by storm water.

In developing additional erosion control practices, at a minimum the following shall be considered: mulching with straw or other vegetation, use of erosion control blankets, and application of soil tackifiers.

- iv. A description of sediment control practices, including a schedule of implementation, that will be used to divert flows from exposed soil, store flows to allow for sedimentation, filter flows, or otherwise reduce soil laden runoff. All temporary sediment control practices shall not be removed until permanent vegetation or other cover of exposed areas is established.

In developing sediment control practices, at a minimum the following shall be considered: use of silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drains, pipe slope drains, rock outlet protection, sediment traps, and temporary or permanent sedimentation basins.

- v. A description of erosion and sediment control practices that will be used to prevent stockpiles from becoming a source of erosion. Stockpiles located away from the construction activity but still under the control of the permittee shall also be protected to prevent significant amounts of sediment from discharging to surface waters. At the end of each workday the soil stockpiles must be stabilized or covered.

In developing these practices, at a minimum the following shall be considered: diversion of uncontaminated flows around stockpiles, use of cover over stockpiles, and installation of silt fences around stockpiles.

- vi. A description of the best management practices that will be used to prevent or minimize storm water from being exposed to pollutants from spills, cleaning and maintenance activities, and waste handling activities. These pollutants include fuel, hydraulic fluid, and other oils from vehicles and machinery, as well as debris, leftover paints, solvents, and

glues from construction operations. The reuse and recycling of construction wastes should be promoted.

In developing these practices, at a minimum the following shall be considered: written spill prevention and response procedures; employee training on spill prevention and proper disposal procedures; regular maintenance schedule for vehicles and machinery; and covered storage areas for waste and supplies.

**4. Maintenance Requirements** The following maintenance activities shall be implemented.

- a. Significant amounts of sediment that leave the site shall be cleaned up within 24 hours and placed back on the site or properly disposed. Any in-stream clean up of sediment shall be performed according to Oregon Division of State Lands' required timeframe.
- b. Under no conditions shall sediment be intentionally washed into storm sewers or drainageways unless it is captured by a BMP before entering receiving waters.
- c. For a filter fence, the trapped sediment shall be removed before it reaches one third of the above ground fence height.
- d. For catch basin protection, cleaning must occur when design capacity has been reduced by fifty percent.
- e. For a sediment basin, removal of trapped sediments shall occur when design capacity has been reduced by fifty percent.
- f. All erosion and sediment controls not in the direct path of work shall be installed before any land disturbance.
- g. If fertilizers are used to establish vegetation, the application rates shall follow manufacture's guidelines and the application shall be done in such a way to minimize nutrient-laden runoff to receiving waters.
- h. If construction activities cease for thirty (30) days or more, the entire site must be stabilized, using vegetation or a heavy mulch layer, temporary seeding, or another method that does not require germination to control erosion.
- i. Any use of toxic or other hazardous materials shall include proper storage, application, and disposal.
- j. The permittee shall manage abandoned hazardous wastes, used oils, contaminated soils or other toxic substances discovered during construction activities in a manner approved by the Department.
- k. If a storm water treatment system for construction activities is employed, the operation and maintenance plan shall be submitted to the Department for approval.

**5. Additional Requirements**

a. **Water Quality Standards:**

The ultimate goal for permittees is to comply with water quality standards in OAR 340-41. In instances where a storm water discharge adversely impacts water quality, the Department may



require the facility to implement additional management practices, apply for an individual permit, or take other appropriate action.

b. **Turbidity (Nephelometric Turbidity Units, NTU) Water Quality Standard:**

No more than a ten percent cumulative increase in natural stream turbidities shall be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity. However, limited duration activities necessary to address an emergency or to accommodate essential dredging, construction or other legitimate activities and which cause the standard to be exceeded may be authorized provided all practicable turbidity control techniques have been applied and one of the following has been granted:

(A) **Emergency activities:** Approval coordinated by DEQ with the Department of Fish and Wildlife under conditions they may prescribe to accommodate response to emergencies or to protect public health and welfare;

(B) **Dredging, Construction or other Legitimate Activities:** Permit or certification authorized under terms of Section 401 or 404 (Permits and Licenses, Federal Water Pollution Control Act) or OAR 141-085-0100 et seq. (Removal and Fill Permits, Division of State Lands), with limitations and conditions governing the activity set forth in the permit or certificate.

[see OAR 340-041-(basin)(2)(c)]

c. **Water Quality Limited Streams:**

The Department may establish additional controls on construction activities that discharge storm water runoff to water quality limited streams if Total Maximum Daily Loads are established and construction activities are determined to be a significant contributor to these loads. The Department may also require application for individual permit or develop a watershed-based general permit for the activity.

**SCHEDULE B**  
**MINIMUM MONITORING REQUIREMENTS**

**All Sites**

1. A person with knowledge and experience in construction storm water controls and management practices shall conduct the inspections. The ESCP shall identify the person(s) and/or title of the personnel that will conduct the inspections and provide a contact phone number for such person(s).

**Active Sites**

2. Frequency of inspections shall be daily during storm water runoff or snowmelt runoff and at least once every seven (7) calendar days and within 24 hours after any storm event of greater than 0.5 inches of rain per 24-hour period.

**Inactive Sites**

3. During inactive periods of greater than seven (7) consecutive calendar days, inspections shall only be required once every two (2) weeks.
4. Prior to discontinuing activities at the site, any exposed area shall be stabilized to prevent erosion. Stabilization may occur by applying appropriate cover (mulch, erosion control blanket, soil tackifier, etc.) or establishing adequate vegetative cover.
5. When a site is inaccessible due to adverse weather conditions, inspections shall not be required. Adverse weather condition shall be recorded on the inspection sheet.
6. Prior to leaving an inactive site or in anticipation of site inaccessibility, existing erosion and sediment control measures shall be inspected to ensure that they are in working order. Any necessary maintenance or repair shall be made prior to leaving the site.

**Written Records**

7. All visual inspections must document the following information:
  - a. Inspection date, inspector's name, weather conditions, and rainfall amount for past 24 hours (inches). (Rainfall information can be obtained from the nearest weather recording station.)
  - b. List observations of all BMPs: erosion and sediment controls, chemical and waste controls, locations where vehicles enter and exit the site, status of areas that employ temporary or final stabilization control, soil stockpile area, and nonstormwater controls.
  - c. At representative discharge location(s) from the construction site conduct observation and document the quality of the discharge for any turbidity, color, sheen, or floating materials. If possible, in the receiving stream, observe and record color and turbidity or clarity upstream and downstream within 30 feet of the discharge from the site. For example, a sheen or floating material could be noted as present/absent, if observation is yes, it could indicate concern about a possible spill and/or leakage from vehicles or materials storage. For turbidity and color an observation would describe any apparent color and the clarity of the discharge, and any apparent difference in comparison with the receiving stream.

- d. If significant amounts of sediment are leaving the property, briefly explain the corrective measures taken to reduce the discharge and/or clean it up and describe efforts to prevent future releases. The ESCP shall be amended accordingly.
  - e. If a site is inaccessible due to inclement weather the inspection shall include observations at a relevant discharge point or downstream location, if practical.
8. All inspection records for an active site shall be kept on-site or be maintained with the permittee, and shall made available to the Department, its Agent, or local municipality upon request.
  9. A written record of inspections for an inactive site shall be maintained with the permittee and made available to the Department, its Agent, or local municipality upon request.
  10. Retention of all inspection records shall be for a period of one year from project completion.

**SCHEDULE C**  
**COMPLIANCE SCHEDULE**

1. Registration of Underground Injection Systems (40 CFR 144 and OAR 340-044). The permittee shall submit to DEQ a registration form if construction activities include disposal of storm water or other wastewater discharges to an injection system. These types of disposal systems are classified under the Underground Injection Control Program as a Class V well, require registration, and must meet Division 44 standards.
  - a. A new permittee shall register any applicable underground treatment systems **prior to the construction of a new facility.**
  - b. For facilities covered by the previous 1200-CA permit the registration form is due within **thirty (30) days** after receipt of this new 1200-CA permit.

**SCHEDULE D  
SPECIAL  
CONDITIONS**

1. Issuance of this permit does not relieve the permittee from all other permitting and licensing requirements. Prior to beginning construction activities, all other necessary approvals shall be obtained.
2. The permit will remain in effect after the expiration date or until another permit is issued if the permittee has paid all fees and has filed a renewal application.
3. Any permittee that does not want to be covered or limited by this general permit may make application for an individual NPDES permit in accordance with the procedures in OAR 340-45-030.
4. Permit Specific Definitions:

*Best Management Practices (BMPs)* Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, erosion and sediment control, source control, and operating procedures and practices to control: site runoff, spillage or leaks, and waste disposal.

*Dewatering* The removal and disposal of surface water or groundwater for purposes of preparing a site for construction.

*Erosion* The movement of soil particles resulting from the tracking, flow or pressure from storm water or wind.

*Grade* Construction activity that causes the disturbance of the earth. This shall include but not be limited to any excavating, filling, stockpiling of earth materials, grubbing, root mat or topsoil disturbance, or any combination of them.

*Hazardous Materials* As defined in 40 CFR 302 Designation, Reportable Quantities, and Notification. Available on the web at <http://www.epa.gov>.

*Phasing* Clearing a parcel of land in distinct phases, with the stabilization of each phase before clearing of the next phase; including soil stockpiling.

*Stabilization* The completion of all soil disturbance activities at the site and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as riprap, gabions, geotextiles, or bioengineering methods) that will prevent erosion.

*Start of Construction* The first land-disturbing activity associated with a development, including land preparation such as clearing, grading, excavation, and filling; installation of streets and walkways; erection of temporary forms; and installation of accessory buildings such as garages.

*Storm Water* Storm water runoff, snow melt runoff, and surface runoff associated with a storm event.

*Turbidity* An expression of the optical property of a sample which causes light to be scattered and absorbed rather than transmitted in a straight line through the sample. It is caused by the presence of suspended matter in a liquid.

**SCHEDULE F**  
**NPDES GENERAL CONDITIONS**

**SECTION A. STANDARD CONDITIONS**

1. **Duty to Comply**  
The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025 and is grounds for enforcement action; for permit termination, suspension, or modification; or for denial of a permit renewal application.
2. **Penalties for Water Pollution and Permit Condition Violations**  
Oregon Law (ORS 468.140) allows the Director to impose civil penalties up to \$10,000 per day for violation of a term, condition, or requirement of a permit.  
Under ORS 468.943, unlawful water pollution, if committed by a person with criminal negligence, is punishable by a fine of up to \$25,000 or by imprisonment for not more than one year, or by both. Each day on which a violation occurs or continues is a separately punishable offense.  
Under ORS 468.946, a person who knowingly discharges, places or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state, is subject to a Class B felony punishable by a fine not to exceed \$200,000 and up to 10 years in prison.
3. **Duty to Mitigate**  
The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permittee shall correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.
4. **Duty to Reapply**  
If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application shall be submitted at least 180 days before the expiration date of this permit.  
The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.
5. **Permit Actions**  
This permit may be modified, suspended, revoked and reissued, or terminated for cause including, but not limited to, the following:
  - a. Violation of any term, condition, or requirement of this permit, a rule, or a statute;
  - b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts; or
  - c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the permittee for a permit modification or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
6. **Toxic Pollutants**  
The permittee shall comply with any applicable effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
7. **Property Rights**  
The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.
8. **Permit References**  
Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

**SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS**

1. **Proper Operation and Maintenance**  
The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with

the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities

a. Definitions

- (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not include nonuse of singular or multiple units or processes of a treatment works when the nonuse is insignificant to the quality and/or quantity of the effluent produced by the treatment works. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation.
- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.

- (1) Bypass is prohibited unless:
  - (a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;
  - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and
  - (c) The permittee submitted notices and requests as required under General Condition B.3.c.
- (2) The Director may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the Director determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.

- (1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior written notice, if possible at least ten days before the date of the bypass.
- (2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset

- a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of General Condition B.4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - (1) An upset occurred and that the permittee can identify the causes(s) of the upset;
  - (2) The permitted facility was at the time being properly operated;
  - (3) The permittee submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and
  - (4) The permittee complied with any remedial measures required under General Condition A.3 hereof.
- d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. **Treatment of Single Operational Event**  
For purposes of this permit, A Single Operational Event which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation. A single operational event is an exceptional incident which causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational event does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational event is a violation.
6. **Overflows from Wastewater Conveyance Systems and Associated Pump Stations**
  - a. **Definitions**
    - (1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
    - (2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
    - (3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.
  - b. **Prohibition of overflows.** Overflows are prohibited unless:
    - (1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
    - (2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and
    - (3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.
  - c. **Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.**
  - d. **Reporting required.** Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.
7. **Public Notification of Effluent Violation or Overflow**  
If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permittee shall take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.
8. **Removed Substances**  
Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in such a manner as to prevent any pollutant from such materials from entering public waters, causing nuisance conditions, or creating a public health hazard.

## SECTION C. MONITORING AND RECORDS

1. **Inspection and Entry**  
The permittee shall allow the Director, or an authorized representative upon the presentation of credentials to:
  - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
  - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
  - d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

## SECTION D. REPORTING REQUIREMENTS

1. **Planned Changes**  
The permittee shall comply with Oregon Administrative Rules (OAR) 340, Division 52, "Review of Plans and Specifications". Except where exempted under OAR 340-52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers shall be commenced until



the plans and specifications are submitted to and approved by the Department. The permittee shall give notice to the Department as soon as possible of any planned physical alternations or additions to the permitted facility.

2. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit shall be transferred to a third party without prior written approval from the Director. The permittee shall notify the Department when a transfer of property interest takes place.

4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office shall be called. Outside of normal business hours, the Department shall be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. If the permittee is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, and in which case if the original reporting notice was oral, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days.

The written submission shall contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected;
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
- e. Public notification steps taken, pursuant to General Condition B.7.

The following shall be included as information which must be reported within 24 hours under this paragraph:

- a. Any unanticipated bypass which exceeds any effluent limitation in this permit.
- b. Any upset which exceeds any effluent limitation in this permit.
- c. Violation of maximum daily discharge limitation for any of the pollutants listed by the Director in this permit.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports shall contain:

- a. A description of the noncompliance and its cause;
- b. The period of noncompliance, including exact dates and times;
- c. The estimated time noncompliance is expected to continue if it has not been corrected; and
- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information.

8. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified in accordance with 40 CFR 122.22.

9. **Falsification of Reports**  
Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed \$100,000 per violation and up to 5 years in prison.
10. **Changes to Indirect Dischargers - [Applicable to Publicly Owned Treatment Works (POTW) only]**  
The permittee must provide adequate notice to the Department of the following:
- Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants and;
  - Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
  - For the purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
11. **Changes to Discharges of Toxic Pollutant - [Applicable to existing manufacturing, commercial, mining, and silvicultural dischargers only]** The permittee must notify the Department as soon as they know or have reason to believe of the following:
- That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - One hundred micrograms per liter (100 g/l);
    - Two hundred micrograms per liter (200 g/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 g/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1mg/l) for antimony;
    - Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
    - The level established by the Department in accordance with 40 CFR 122.44(f).
  - That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - Five hundred micrograms per liter (500 g/l);
    - One milligram per liter (1 mg/l) for antimony;
    - Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
    - The level established by the Department in accordance with 40 CFR 122.44(f).

#### SECTION E. DEFINITIONS

- BOD means five-day biochemical oxygen demand.
- TSS means total suspended solids.
- mg/l means milligrams per liter.
- kg means kilograms.
- m<sup>3</sup>/d means cubic meters per day.
- MGD means million gallons per day.
- Composite sample means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
- FC means fecal coliform bacteria.
- Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-41.
- CBOD means five day carbonaceous biochemical oxygen demand.
- Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.
- Quarter means January through March, April through June, July through September, or October through December.
- Month means calendar month.
- Week means a calendar week of Sunday through Saturday.
- Total residual chlorine means combined chlorine forms plus free residual chlorine.
- The term "bacteria" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.
- POTW means a publicly owned treatment works.

# LINN COUNTY ROAD DEPARTMENT

## REFERENCES



- **ODOT ROUTINE ROAD MAINTENANCE | WATER QUALITY AND HABITAT GUIDE - BEST MANAGEMENT PRACTICES (2020)**  
[https://www.oregon.gov/odot/Maintenance/Documents/blue\\_book.pdf](https://www.oregon.gov/odot/Maintenance/Documents/blue_book.pdf)
- **ODOT EROSION CONTROL MANUAL - GUIDELINES FOR DEVELOPING AND IMPLEMENTING EROSION AND SEDIMENT CONTROLS (MARCH 2019)**  
<https://www.oregon.gov/odot/GeoEnvironmental/Pages/Erosion-Manual.aspx>
- **USFS ENVIRONMENTALLY SENSITIVE ROAD MAINTENANCE PRACTICES FOR DIRT AND GRAVEL ROADS – DEPARTMENT OF AGRICULTURE (APRIL 2012)** <https://www.fs.fed.us/eng/pubs/pdf/11771802.pdf>
- **ODEQ CONSTRUCTION STORMWATER BEST MANAGEMENT PRACTICES MANUAL - 1200-C NPDES GENERAL PERMIT (FEBRUARY 2021)**  
<https://www.oregon.gov/deq/FilterPermitsDocs/BMPManual.pdf>
- **NMFS SLOPES V PROGRAMMATIC BIOLOGICAL OPINION – FOR MAINTENANCE OR IMPROVEMENT OF ROAD, CULVERT, BRIDGE AND UTILITY LINE ACTIONS** <http://www.co.linn.or.us/Roads/Downloads.asp>