



State of Oregon  
Department of  
Environmental  
Quality

# Annual Report

## MS4 Phase II General Permit

National Pollutant Discharge Elimination System

MS4 Stormwater Discharge Permit

**Monitoring Year: 2022-2023**

**Permit Registrant: City of Central Point**

**Date Prepared/Submitted: October 25, 2023**

**DEQ File No.: 12614**

### Certification and Signature

1. Permit Registrant(s): City of Central Point
2. Legally Authorized Representative: Mike Ono
3. Title: Environmental Services / GIS Coordinator
4. Email: mike.ono@centralpointoregon.gov
5. Phone: 541-423-1030

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations (40 CFR 122.22(d)).

Signature

10/25/2023

Date

# Table of Contents

<b>Certification and Signature</b> .....	<b>1</b>
<b>General Information</b> .....	<b>4</b>
Registrant Information .....	4
Municipal Separate Storm Sewer System (MS4) Information.....	4
MS4 Stormwater Discharge Information .....	4
Coordination Among Registrants and Joint Agreements.....	5
Stormwater Management Program Information .....	5
<b>Stormwater Management Program Control Measures</b> .....	<b>7</b>
Public Education and Outreach .....	7
Public Involvement and Participation .....	8
Illicit Discharge Detection and Elimination .....	10
Construction Site Runoff Control .....	16
Post-Construction Site Runoff for New Development and Redevelopment .....	19
Pollution Prevention and Good Housekeeping for Municipal Operations.....	23
<b>Monitoring</b> .....	<b>26</b>
Wood Village Monitoring Requirements.....	26
<b>Water Quality Standards</b> .....	<b>27</b>



# Instructions

At least once per year, the permit registrant must evaluate compliance with the requirements of the MS4 Phase II general permit using this Annual Report template. This self-evaluation includes assessment of progress made towards implementing the SWMP control measures in Schedule A, and implementation of actions to comply with any additional requirements identified pursuant to Schedule D.1 (Requirements for Discharges to Impaired Waterbodies).

For each SWMP control measure or activity listed below, please answer all the questions and in the comments field cite any relevant information and/or statistics that helps to illustrate implementation or compliance. If your answer is “No,” in the comments field explain the reasons and outline the anticipated implementation timeline. If the requirement does not apply, explain why it is not applicable in the comments field.

No later than November 1 each year, beginning in 2020, the permit registrant must submit an Annual Report to DEQ. One signed copy and one electronic copy must be submitted to DEQ using the address provided in permit. DEQ can provide an FTP site for submittal of the electronic copy, upon request.

## General Information

### Registrant Information

6. Permit Registrant(s): City of Central Point		
7. Type(s): <input checked="" type="checkbox"/> City / <input type="checkbox"/> County / <input type="checkbox"/> Special District / <input type="checkbox"/> Other:		
8. Registrant Type: Existing Registrant: <input checked="" type="checkbox"/> New Registrant: <input type="checkbox"/>		
9. Community Type: Large Community: <input checked="" type="checkbox"/> Small Community: <input type="checkbox"/>		
10. DEQ Permit No: ORS126214		
11. EPA File No: 126214		
12. Physical Address: 104 S. 3 <sup>rd</sup> Street		
City: Central Point	State: OR	Zip: 97502
13. Point of Contact: Mike Ono		
Title: Environmental Services Coordinator	Email: mike.ono@centralpointoregon.gov	Phone: 541-423-1030
14. Mailing Address ( <i>if different</i> ):		
City:	State:	Zip:

### Municipal Separate Storm Sewer System (MS4) Information

15. Estimate the area in square mileage served by the MS4: 3.9 square miles
16. Estimate the population served by the MS4: 17,895

### MS4 Stormwater Discharge Information

*Identify the names of all known waters that receive a discharge from your MS4.*

Receiving Waterbody	# of Outfalls	Impaired waterbody				Impairment(s)
		303d listed		TMDL issued		
a. Bear Creek	6	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Algae, Chlorophyll, E. Coli, Fecal, Nutrients, Phosphorus, Sedimentation, Temp., pH.
b. Daisy Creek	17	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
c. Elk Creek	3	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
d. Griffin Creek	26	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	DO, E. Coli, Fecal, Nutrients, Sedimentation, Temp., pH
e. Horn Creek	3	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
f. Jackson Creek	11	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	E. Coli, Fecal, Temp., pH
g. Mingus Creek	26	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
h.		Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
i.		Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
j.		Yes <input type="checkbox"/>	No <input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

### Coordination Among Registrants and Joint Agreements

Required for permit registrants relying on another entity to satisfy one or more of the requirements of the permit.

17. Is there a joint agreement in place for the implementation of one or more stormwater management program control measures? *Schedule A.2* Yes  No

18. If yes, has there been any change to the joint agreement(s) submitted previously? Yes  No   
If yes, include, as an attachment, a summary of the changes.

**The summary must identify the other co-registrants/co-implementers or other entities**

### Stormwater Management Program Information

19. Discuss the status and overall progress of establishing legal authority to control pollutant discharges into and discharges from the MS4 and to implement and enforce the conditions of this permit. *Schedule A.2.c*

The City has in place Ordinance Chapter 8.05 Storm Drain Protection which addresses illicit discharges to the MS4 stormdrain systems. It gives the city the ability to fine and shut down any illegal discharges that are being put into the City's stormdrain system.

### Stormwater Management Program Information

20. Is an updated SWMP Document attached? *Schedule A.2.c*

Yes  No  (*must be submitted with the second Annual Report*)

If necessary, provide an explanation:

The SWMP is included.

21. Identify the publicly accessible website where the SWMP Document is posted. *Schedule 2.c & A.3.b.ii*

https://

If necessary, provide an explanation:

City Website – Stormwater Quality Documents & Information Page.

<https://www.centralpointoregon.gov/publicworks/page/stormwater-quality-documents-information>

22. Does the SWMP Document include an implementation schedule for control measures that have yet to be or are partially implemented? *Schedule A.2.c*

Yes  No

If necessary, provide an explanation:

The document has implementation schedules for the Control Measures.

23. Describe the method used to gather, track, and use SWMP information to set priorities or assess compliance: *Schedule A.2.*  
We will be using different methods of keeping track of the activities through spreadsheets, software programs, maps, forms and reports.

24. Have finances, staff, equipment and other support capabilities been provided to implement the permit? *Schedule A.2.e*

Yes  No

If necessary, provide an explanation:

We have 2 FTE and a separate stormwater fund that the City collects in the monthly billings.

25. During this monitoring year was compliance with the requirements of this permit evaluated? *Schedule B.1*

Yes  No

If necessary, provide an explanation:

The City used the DEQ annual report template to evaluate our progress.

26. During this monitoring year was it determined or reported that discharge from the MS4 caused or contributed to an excursion of an applicable water quality standard? *Schedule A.1.b*

Yes  No

***If "Yes", complete Water Quality Standards section (p. 21) of this template.***

## Stormwater Management Program Control Measures

### Public Education and Outreach

Provide a brief summary of the ongoing public education and outreach program. *Schedule A.3.a*

The City publishes at least 4-5 articles a year in the monthly newsletter that address pet waste, fertilizers impacts, storm drain education, and litter and trash control. Our goal is to try to educate and change the thinking and behavior of our customers to be more aware of what they do and how it impacts the environment. We also use brochures, flyers, social media, websites and other printed materials as tools to get the word out to residents and contractors in the field.

We are very short staffed so we have contracted with the Rogue Valley Council of Governments (RVCOG) to help with our local and regional outreach programs. They are a great partner for offering Public Education and Public Involvement and Participation programs.

27. Were the required components in place by the implementation date? *Schedule A.3.a.i*

Yes  No  (Implementation date: Feb. 28, 2020 for Existing Registrant, Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner)

28. Provide the number of education and outreach activities conducted: *Schedule A.3.a.iii*

During this reporting year: 13

29. During the permit term: 37

If necessary, provide an explanation:

See PEO and PIP Packet.pdf for more information.

30. Indicate target audiences addressed during this reporting year: *Schedule A.3.a.iv*

- General public, homeowners, homeowner association, schoolchildren, and businesses
- Local elected officials, land use planners and engineers
- Construction site operators

31. Have each target audience been addressed during the permit term? *Schedule A.3.a.iv*

Yes  No

32. Indicate target topics addressed during this reporting year: *Schedule A.3.a.iv*

- Impacts of illicit discharges on receiving waters and how to report them
- Impacts from impervious surfaces and appropriate techniques to avoid adverse impacts
- BMPs for proper use, application and storage of pesticides and fertilizer
- BMPs for litter and trash control
- BMPs for recycling programs
- BMPs for power washing, carpet cleaning and auto repair and maintenance
- Low impact development/green infrastructure
- Information pertaining to maintenance of septic systems
- Watershed awareness and how storm drains lead to local creeks and rivers, and potential impacts to fish and other wildlife
- Other: Pet waste and leaves and how they affect our streams.

33. Describe the types of educational messages or activities distributed and/or offered during this reporting year. *Schedule A.3.a.iii*

We developed several educational brochures to hand out to contractors, residents, and business owner to help them understand what chemicals, sediment, concrete and other harmful things can do to our streams. We also ran articles in the City newsletter and social media that informed our residents about pet poop, fertilizers and where stormdrains go and how these things affect the streams. We have a City website and a regional website that is collaborated with the other agencies in the valley. We have contracted with the RVCOG to help the City out with many local and regional educational and environmental programs.

See PEO and PIP Packet.pdf for more information.

34. Was outreach to construction site operators working within your community offered during this reporting year?  
*Schedule A.3.a.v*

Yes  No

35. Total number during the permit term: 5

36. Identify and describe the assessment/evaluation of, at least, one education and outreach activity that occurred during this reporting year. Include the assessment process or metric for evaluation, and why this activity was considered successful. *Schedule A.3.a.vi*

#### BEAR CREEK STEWARDSHIP DAY

Twice a year the City participates in the Bear Creek Stewardship Day Clean up. This is a regional event with Medford, Rogue Valley Sewer Services, Rogue River Keepers, the Council of Governments and others. There are usually 7-10 locations along the Bear Creek and Greenway Trail that volunteers come and help pick up trash, clear weeds and blackberry bushes, water plants and other helpful tasks. This is a very successful event that gets usually around 110-140 volunteers and last year removed 4,385 pounds of trash and 3,700 square feet of branches and blackberries.

37. Will the assessment be used to inform future stormwater education and outreach efforts? *Schedule A.3.a.vi*

Yes  No

38. Provide an explanation:

We can use the data to track the progress of how the event goes and publish it on websites to encourage others to participate.

### Public Involvement and Participation

39. Provide a brief summary of the overall progress towards implementation of this control measure. *Schedule A.3.b*

We have upgraded our City and regional website (Stream Smart) to meet all the provision in this chapter. We have an ongoing agreement with the local school and other agencies to provide stewardship opportunities every year including stream team activities, riparian plantings, low impact development activities, adopt-a-street and stream litter pickup. We have a contract with the Rogue Valley Council of Governments (RVCOG) to help with other local and regional programs.

The City was approved to issue the 1200CN permit to local contractors, so the City Erosion Prevention and Sediment control web page has been updated with all the new information needed to apply for the City EPSC permit. Below is a link to the page.

<https://www.centralpointoregon.gov/publicworks/page/erosion-prevention-and-sediment-control-requirements-2020>

40. Were the required components in place by the implementation date? *Schedule A.3.b.i*

Yes  No  (Implementation date: Feb. 28, 2020 for Existing Registrant, Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner)

41. Is the SWMP Document posted on a publicly accessible website? *Schedule A.3.b.ii*

Yes  No

<https://www.centralpointoregon.gov/publicworks/page/stormwater-quality-documents-information>

42. Was the publicly accessible website updated during this reporting year? *Schedule A.3.b.ii*

Yes  No

If necessary, provide an explanation:

The City was approve to issue the 1200CN permit to local contractors, so the City Erosion Prevention and Sediment control web page has been updated with all the new information needed to apply for the City EPSC permit. Below is a link to the page.

<https://www.centralpointoregon.gov/publicworks/page/erosion-prevention-and-sediment-control-requirements-2020>

43. Does the publicly accessible website include illicit discharge complaint/reporting information or procedures? *Schedule A.3.b.ii.A*

Yes  No

If necessary, provide an explanation:

City's Reporting a Spill Web Page

<https://www.centralpointoregon.gov/publicworks/page/reporting-spill>

44. Does the publicly accessible website include draft documents issued for public comment, final reports, plans and other official SWMP policy documents? *Schedule A.3.b.ii.B*

Yes  No

If necessary, provide an explanation:

We do not usually publish draft documents for the public to comment on.

<https://www.centralpointoregon.gov/publicworks/page/stormwater-quality-documents-information>

45. Does the publicly accessible website include links to all ordinances, policies and/or guidance documents related to the construction and post-construction stormwater management control programs, including education, training, licensing, and permitting? *Schedule A.3.b.ii.C*

Yes  No

If necessary, provide an explanation:

We provide provide a link to the Rogue Valley Stormwater Manual that is the regional guide for stormwater quality treatment and standards for this area. We also provide a link to the regional maintained "Stream Smart" website that includes educational material, event dates, and cultural enlightenment of what pollution is such as Pet poop, Pervious materials and Pesticides.

<https://www.centralpointoregon.gov/publicworks/page/stormwater-quality-documents-information>

46. Does the publicly accessible website include contact information for relevant staff, including phone numbers, mailing addresses and email addresses? *Schedule A.3.b.ii.D*

Yes  No

If necessary, provide an explanation:

Both FTE and after hour phone numbers are listed.

<https://www.centralpointoregon.gov/publicworks/page/reporting-spill>

47. During this reporting year, was a stewardship opportunity created or partnered with another entity? *Schedule A.3.b.iii*

Yes  No

If "Yes", summarize the stewardship opportunity(s).

Listed below are some of the local and regional events:

Arbor Day events - Local

Bear Creek Stewardship Day - Regional

Rogue Valley Earth Day - Regional

Salmon Watch - Local and Regional

Leaf Collection - Local and Regional

Tree USA – Local

Leaf Collection – Local

Adopt-a-Street - Local

See Highlights 2021-2022 document also Stream Smart webpage for more events and information.

<https://www.stream-smart.com/what-is-stream-smart/>

## Illicit Discharge Detection and Elimination

48. Provide a brief summary of the overall progress towards implementation of this control measure. *Schedule A.3.c*

The City's is making good progress to make sure that everything is in place that is needed to comply with DEQ's requirements. We take any illicit discharges seriously because there are 7 stream that flow through the City so any kind of pollutant that enters the streams can harm the fish and its other inhabitants.

- MS4 Mapping – The City currently has all the stormdrain lines and infrastructure in the Cities GIS mapping program, which includes all the outfalls and chronic illicit discharge areas. We are currently assigning an identifier codes for each asset, we plan to have this complete by the end of the implementation date.
- Ordinance or Regulatory Mechanism- Central Point Municipal Code (CPMC) 8.05 provides the health and safety of the residents through the regulation of non-stormwater discharges to the storm drain system. Below are some of the chapters with a brief description.
- CPMC 8.05.020 Discharge prohibitions – A lists of illicit discharges are prohibited in the City.
- CPMC 8.05.045 Watercourse protection – Owners along creek or streams are responsible to keep their property free of trash and debris and maintain structures that can become hazards to the water.
- CPMC 8.05.055 Right of entry – Inspection and sampling – Provided that the City gives 24 hr. notice the city shall be granted permission to enter and inspect or set up testing if there is suspected illicit discharging coming from the property.



- CPMC 8.05.060 Requirement to prevent, control, and reduce stormwater pollutants by the use of best management practices.
- CPMC 8.05.065 Low impact development – refers to using the Rogue Valley Stormwater Development Guidelines for post construction guidelines to construction.
- CPMC 8.05.070 Violation, enforcement and penalties – The violation penalties are set up in an escalating enforcement so that they start with a warning and go up to suspension or stop work order.
- CPMC 8.05.075 Appeal of notice of violation.
- CPMC 8.05.085 Civil penalties - monetary fines for violations up to \$1,000 per day.

Program to Detect and Eliminate Illicit Discharges – the City will use their website to be able to respond to public comments and concerns or to report and illicit discharges.

The City has contracted with the RVCOG to sample the creeks and monitor for Temperature, Conductivity, E. coli, pH, Turbidity, Ammonia, Phosphorous, BOD5 and Flow.

CPMC Chapter 8.05

<https://www.codepublishing.com/OR/CentralPoint/#!/CentralPoint08/CentralPoint0805.html#8.05>

49. Were the required components in place by the implementation date? *Schedule A.3.c.i*

Yes  No  (Implementation date: Feb. 28, 2022 for Existing Registrant, Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner)

50. Is the MS4 map(s) current? *Schedule A.3.c.ii.A*

Yes  No

51. Describe the MS4 map(s) format(s):

ArcMap GIS

52. Is the MS4 map(s) included as attachment? Yes  No

Or are the digital shapefiles available for electronic submittal? Yes  No

(Implementation date: Feb. 28, 2022 for Existing Registrant, Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner)

If necessary, provide an explanation:

53. Is the digital inventory of all known outfalls, with the associated receiving waterbody current? *Schedule A.3.c.ii.B*

Yes  No

If necessary, provide an explanation:

They are based on as-built plans and inspections.

54. Indicate if the following features are included on your MS4 map:

- Location of all known outfalls, including the requirements in *Schedule A.3.c.ii.B*
- Stormwater collection and conveyance system, including the requirements in *Schedule A.3.c.ii.C*
- Stormwater structural controls, including the requirements in *Schedule A.3.c.ii.C*
- Location of known chronic discharges *Schedule A.3.c.ii.D*

If necessary, provide an explanation:

Data and maps are available if needed.

55. Have non-stormwater discharges into the MS4 been prohibited through enforcement of an ordinance or other regulatory mechanism? *Schedule A.3.c.iii*

Yes  No

If necessary, provide an explanation:

CPMC Chapter 8.05 of our City code prohibits any illicit connections or discharges to our City streams.

<https://www.codepublishing.com/OR/CentralPoint/#!/CentralPoint08/CentralPoint0805.html#8.05>

56. Indicate which of the following have an ordinance or other regulatory mechanism to prohibit discharge to the MS4: *Schedule A.3.c.iii*

- Septic, sewage, and dumping or disposal of liquids or materials other than stormwater into the MS4
- Discharges of washwater resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities
- Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility, including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.
- Discharges of washwater from mobile operations, such as mobile automobile or truck washing, steam cleaning, power washing, and carpet cleaning, etc.
- Discharges of washwater from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, or residential areas (including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.) where detergents are used and spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed)
- Discharges of runoff from material storage areas, which contain chemicals, fuels, grease, oil, or other hazardous materials from material storage areas
- Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water
- Discharges of sediment, unhardened concrete, pet waste, vegetation clippings, or other landscape or construction-related wastes
- Discharges of trash, paints, stains, resins, or other household hazardous wastes
- Discharges of food-related wastes (grease, restaurant kitchen mat and trash bin washwater, etc.)

If necessary, provide an explanation:

CPMC Chapter 8.05 of our City code prohibits any illicit connections or discharges to our City streams

<https://www.codepublishing.com/OR/CentralPoint/#!/CentralPoint08/CentralPoint0805.html#8.05>

57. Is the written escalating enforcement and response procedure included as an attachment? *Schedule A.3.c.iv*

Yes  No

(For Existing Registrant must be submitted with the third Annual Report, Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner)

If necessary, provide an explanation:

See *Stormwater Enforcement Response Plan* – See IDDE Packet.pdf

58. Is there a phone number, webpage, and/or other communication channel publicized for the public use to report illicit discharges? *Schedule A.3.c.v.A*

Phone number(s)

Webpage(s)

Other communication channels

If necessary, provide an explanation:

<https://www.centralpointoregon.gov/publicworks/page/reporting-spill>

59. Provide the number of complaints received during this reporting year. *Schedule A.3.c.v.D*

Number: 2 (*complaints related to IDDE*)

60. On average, how long did it take to respond to complaints? *Schedule A.3.c.v.B*

In working days: 1

61. Provide the number of complaints that included notification of the Oregon Emergency Response System during this reporting year. *Schedule A.3.c.v.B*

Number of notification: 0

62. Provide the number of complaints where staff performed an investigation during this reporting year. *Schedule A.3.c.v*

Number: 1 (*investigations related to IDDE*)

63. On average, how long did it take to conduct an initial investigation? *Schedule A.3.c.v.B*

In working days: 1

64. Provide the number of illicit discharges discovered and eliminated during this reporting year. *Schedule A.3.c.v*

Number: 2

65. On average, how long did it take to eliminate an illicit discharge? *Schedule A.3.c.v.B*

In working days: 1

66. Provide the number times escalating enforcement procedure was used to eliminate illicit discharge during this reporting year. *Schedule A.3.c.v.D*

Number of times: 0

Do any of the illicit discharges involve the repair or replacement of the wastewater and/or storm sewer conveyance systems? *Schedule A.3.c.v.B*

Yes  No  NA

If necessary, provide an explanation:

We had no Illicit discharges in the MS4 system.

67. Provide the number of illicit discharges that were referred to another entity during this reporting year. *Schedule A.3.c.v.C*

Number: 0

68. On average, how long did it take to notify the entity(s)?

In working days: 0

if necessary, provide an explanation:

We handled them within our City limits.

69. Indicate which of the following are included in the complaints or reports tracking documentation: *Schedule A.3.c.v.D*

- Date the complaint was received and, if available, the complainant's name and contact information
- Name of staff responding to the complaint
- Date the investigation was initiated
- The outcome of the staff investigation
- Corrective action(s) taken to eliminate the illicit discharge
- The responsible party for the corrective action(s)
- The status of enforcement procedure(s), when necessary
- The date the corrective action(s) was completed and staff who evaluated final compliance

If necessary, provide an explanation:

We use a modified DEQ Hotline Tracking Incident Tracking Form called the *CP Illicit Discharge Tracking Sheet*.  
See IDDE Packet.pdf

70. Provide percentage of outfalls inspected. *Schedule A.3.c.vi.A/B*

Known outfalls screened this reporting year: 23

71. Known outfalls screened during the permit term: 63

If necessary, provide an explanation:

We use GIS information to locate either the outfall or the next upstream manhole or inlet to see if there is any flow in the pipes. Total number of outfalls is 98.

See *Central Point Stormdrain Outfall Map* in IDDE Packet.pdf

72. Provide percentage of outfalls inspected as part of field screening of priority location. *Schedule A.3.c.vi.C*

Priority location outfalls screened this reporting year:

11

73. Priority location outfalls screened during the permit term:

11

If necessary, provide an explanation:

There are 12, but one is on private property.

74. Indicate which of the following dry-weather field screening activities have been performed in the last year: *Schedule A.3.c.vi*

- General observation
- Field Screening and Analysis
- Pollutant Parameter Action Levels
- Laboratory Analysis

If necessary, provide an explanation:

We have not encountered any outfalls or inlets that needed to be investigated.

75. If flow is observed and the source is unknown, provide a brief description of the field investigation and analysis process. *Schedule A.3.c.vi.D-G*

- If flow is observed and the source is unknown we would check smell, color, and any other relevant identification to find the possible source.
- If the source is not locatable and there is visible discoloration or odor we can take a sample to the nearest testing lab for analysis

76. Have pollutant parameter action levels been established and are they included as an attachment? *Schedule A.3.c.vi.F*

Yes  No

(For Existing Registrant must be submitted with the third Annual Report. New Registrants must submit by September 1, 2023 and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner))

If necessary, provide an explanation:

RVSS has allowed the Stormwater Advisory Team members to use their Pollution Parameters

See *RVSS proposed Pollutant Parameter Action Levels for dry weather sampling in the Bear Creek Watershed* in IDDE Packet.pdf

77. Are all persons responsible for investigating and eliminating illicit discharges and illicit connections into the MS4 appropriately trained to conduct such activities? *Schedule A.3.c.vii*

Yes  No

If necessary, provide an explanation:

Both of our FTE have training and been through training. Ongoing training is always looked for.

78. Are all new staff working to implement the IDDE program trained within 30 days of their assignment to this program? *Schedule A.3.c.vii*

Yes  No

If necessary, provide an explanation:

Any new staff member that will be involved with the IDDE program will be trained in some type of illicit discharge or sediment control management class.

## Construction Site Runoff Control

79. Provide a brief summary of the overall progress towards implementation of this control measure. *Schedule A.3.d*  
The City has made great progress in implementing this program. This year the City has been issued a 1200CN permit through DEQ. This will allow the City to regulate the MS4 so the City and the developers can work together in making sure nothing gets down the storm drains.

Below are some of the forms and documents we have developed to for this permit.

- Central Point Erosion Prevention and Sediment Control Permit
- EPSC Plan Submittal Requirement 7k- 1 Acre.
- EPSC Plan Check list 1-5 Acres.
- DEQ 1200 EPSC Plan template/example.
- Commercial Process EPSC handout.
- Residential Process EPSC handout.

80. Were the required components in place by the implementation date? *Schedule A.3.d.i*

Yes  No  (Implementation date: Feb. 28, 2023 for Existing Registrants, Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner)

They are implemented now.

81. Do ordinances or other regulatory mechanisms require erosion controls, sediment controls, and waste materials management controls to be used and maintained at all qualifying construction projects? *Schedule A.3.d.ii*

Yes  No  NA

If necessary, provide an explanation:

Regulatory Ord. and Manuals

- City Ordinance 8.05.
- Rogue Valley Stormwater Quality Design Manual.
- City Public Works Standard Spec. and Uniform Detail Manual. Chapter 800
- 1200CN Permitting.

82. Indicate the minimum land disturbance where construction site operators are required to complete and implement an Erosion and Sediment Control Plan (ESCP) for construction project sites: *Schedule A.3.d.ii*

In square feet or portion of an acre: 7,000 ft<sup>2</sup> , acres

If necessary, provide an explanation:

The City will issue an Erosion Prevention and Sediment Control Permit for any land disturbance over 7,000 square feet up to 5 acres.

See attached 1200CN material listed in 79

83. 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), provide a brief description how these projects are referred to DEQ or the appropriate DEQ agent, to obtain a NPDES Construction Stormwater General Permit. *Schedule A.3.d.iii*

Through the following process or regulatory control.

- Planning Application meeting
- Public Works Staff Reports
- The City website.

- Chapter 800 of the City of Central Point Public Works Department Standard Specifications and Uniform Standard Details for Construction.
- Small lot Erosion control Permit for lots less than 1 acre.
- 1200CN materials listed in 79

84. Provide the written specifications that address the proper installation and maintenance of such controls during all phases of construction activity as an attachment *Schedule A.3.d.iv*

Attached: Yes  No

If necessary, provide an explanation:

EPSC Plan Permit Requirement for Sites 7K- 1acre

DEQ 1200C ESCP template/example

Section 810 of the Public Works Standard Spec. Manual address erosion control and sediment prevention.

<https://www.centralpointoregon.gov/publicworks/page/standard-specifications-details>

85. Provide the Erosion and Sediment Control Plan template as an attachment. *Schedule A.3.d.iv.A*

Attached: Yes  No

If necessary, provide an explanation:

We will be using DEQ Erosion and Sediment Control Plan template and it will be included in the next revision of the Public Works Standard Spec. Manual. It's currently available at the City website to download.

<https://www.centralpointoregon.gov/publicworks/page/erosion-prevention-and-sediment-control-requirements-2020>

86. Indicate which of the following are required for qualifying construction projects: *Schedule A.3.d.iv*

Site operator required to complete a ESCP template or worksheet prior to beginning construction/land disturbance

Site operator required to keep the ESCP on site

Site operator required to maintain and update the ESCP as site conditions change, or as needed.

Site operator required to provide the ESCP to the permit registrant, DEQ, or another administrating entity

If necessary, provide an explanation:

City is issuing Erosion and Sediment Control Permit in the City (1200CN).

87. ESCPs [from construction projects that will result in land disturbance of 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)] are reviewed using a checklist or similar document to determine compliance. *Schedule A.3.d.v*

Yes  No

88. Provide the ESCP review template or checklist as an attachment. *Schedule A.3.d.v*

Attached: Yes  No

89. Indicate the minimum land disturbance where you require the ESCP to be reviewed, if different than one acre:

7,000 ft<sup>2</sup> , acres

If necessary, provide an explanation:

The City has started issuing permits for land disturbances starting at 7,000 sq. ft. to be in compliance with Feb. 2023 deadline.

90. All construction projects [that will result in land disturbance of 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)] are expected or scheduled to be inspected at least once per permit term. *Schedule A.3.d.vi.A.1*

Indicate the number of inspections completed to comply with this requirement during this reporting year: 8

Indicate the number of inspections completed to comply with this requirement during the permit term: 28

If necessary, provide an explanation:

We inspect 100% of construction projects in Central Point.

91. Are construction projects with visible sediment in stormwater/dewatering discharge or when a complaint is received inspected? *Schedule A.3.d.vi.A.2*

Yes  No

92. Indicate number of projects that were inspected based on this inspection trigger: 2

If necessary, provide an explanation: The City was informed of 2 discharges and followed up with the complaints and was able to inform the people that it was against the law to let pollutants into the storm drains. The offenders were given a warning.

93. Indicate the total number of construction projects that were inspected this monitoring year: 18

94. Indicate the total number of construction projects that were inspected during the permit term: 83

95. Indicate which of the following are documented during an inspection: *Schedule A.3.d.vi.B*

- That the ESCP is reviewed to determine if the described
- Control measures were installed, implemented, and maintained appropriately
- Assessment of the site's compliance with the ordinances or requirements
- Visual observation of any existing or potential non-stormwater discharges, illicit connections, and/or discharge of pollutants from the site
- Recommendations to the construction site operator for follow-up
- Education or instruction provided to the site operator related to stormwater pollution prevention practices

If necessary, provide an explanation:

See *Form1. Construction Site BMP Inspection Report* in the Construction Site Runoff Control Packet.pdf

96. If available, provide a copy of the written or electronic inspection report form. *Schedule A.3.d.vi.B*

Attached: Yes  No

97. For Existing Large Communities: Indicate the number of new construction projects inspected that disturb less one acre during this monitoring year. Is this number at least 25% of the qualifying new construction sites? *Schedule A.3.d.vi.C*

If necessary, provide an explanation:

Yes Central Point is small, we have a full time inspector so we can inspect 100% of construction sites in the City.

98. Provide the written escalating enforcement and response procedure as an attachment. *Schedule A.3.d.vii*

Yes  No

(For Existing Registrant must be submitted with the third Annual Report. Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner)

If necessary, provide an explanation:

See *Stormwater Enforcement Response Plan* in the Construction Site Runoff Control Packet.pdf

99. Was the escalating enforcement procedure used to achieve compliance at any construction projects? *Schedule A.3.d.vii*



<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Indicate number of times during this reporting year: 2</p> <p>100. Indicate number of times during the permit term: 5</p> <p>If necessary, provide an explanation:</p> <p>All violations were solved with verbal warnings and contractors were very cooperative.</p>
<p>101. Were all persons responsible for ESCP reviews, site inspections, and enforcement appropriately trained to conduct such activities? <i>Schedule A.3.d.viii</i></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>If necessary, provide an explanation:</p> <p>The City's field inspector is certified through the National Stormwater Center and the ESCP is reviewed by a Professional Engineer. We are currently looking for more training and budgets are tight.</p>
<p>102. Were all new staff working to implement the construction site runoff control program appropriately trained within 30 days of their assignment to this program? <i>Schedule A.3.d.viii</i></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>

**Post-Construction Site Runoff for New Development and Redevelopment**

<p>103. Provide a brief summary of the overall progress towards implementation of this control measure. <i>Schedule A.3.e</i></p> <p>The City of Medford, Ashland, Central Point, Phoenix, Talent and Jackson County have developed a regional manual called the Rogue Valley Stormwater Quality Design Manual (RVSQDM) that contactors can use as a guide for developing stormwater quality facilities and flow control here in the Rogue Valley. Most of the Cities in the Rogue Valley have adopted the manual to ensure that there is consistency in stormwater management and treatment in our area.</p>
<p>104. Were the required components in place by the implementation date? <i>Schedule A.3.e.i</i></p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> ((Implementation date: Feb. 28, 2023 for Existing Registrant, Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner)</p>
<p>105. For projects creating or replacing impervious area, indicate the area (or threshold) where the site is required to implement the post-construction site runoff program requirements: <i>Schedule A.3.e.ii</i></p> <p>In square feet: 5,000 ft<sup>2</sup></p> <p>If necessary, provide an explanation:</p> <p>See Section 1.5 in the RVSDM in the Post Construction Site Runoff Packet.pdf</p>
<p>106. Indicate which of the following are required at qualifying sites: <i>Schedule A.3.e.ii</i></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The use of structural stormwater controls</li> <li><input checked="" type="checkbox"/> A site-specific stormwater management approach that targets natural surface or predevelopment hydrological function through the installation and long-term operation and maintenance of stormwater controls</li> <li><input checked="" type="checkbox"/> Long-term O&amp;M of stormwater controls at project sites that are under the ownership of a private entity</li> </ul> <p>If necessary, provide an explanation:</p> <p>See Section 2.1 the RVSDM in the Post Construction Site Runoff Packet.pdf</p>
<p>107. Were ordinance(s), code(s) and development standards reviewed to identify, minimize or eliminate barriers that inhibit design and implementation techniques intended to minimize impervious surfaces and reduce stormwater runoff? <i>Schedule A.3.e.iii</i></p>

Yes  No

108. If barriers were identified or if necessary, provide an explanation:  
No barriers were found.

109. Provide an explanation of the timeline for removal of barriers or if removal is outside your authority:  
Complete

110. Indicate which of the following technical standards are used to determine the retention requirement: *Schedule A.3.e.iv.A*

- Volume-based method  
 Storm event percentile-based method  
 Annual average runoff-based method

If necessary, provide an explanation:

See Section 2.2 the RVSDM in the Post Construction Site Runoff Packet.pdf

111. For projects that are unable to meet the retention requirement, is the remainder of the rainfall/runoff treated prior to discharge with a structural stormwater control? *Schedule A.3.e.iv.B*

Yes  No

112. Was the stormwater structural control designed to remove, at minimum, 80 percent of the total suspended solids?

Yes  No

If necessary, provide an explanation:

See Section 2.4 the RVSDM in the Post Construction Site Runoff Packet.pdf

113. Are the allowable structural stormwater controls and specifications available for review? *Schedule A.3.e.iv.C*

Yes  No

114. Indicate if they are attached or the location where they can be viewed:

Attached

Location:

See Section 3.1 the RVSDM in the Post Construction Site Runoff Packet.pdf

115. Have alternatives for projects complying with the retention requirement been approved? *Schedule A.3.e.iv.D*

Yes  No

116. If yes, are the written technical justifications evaluated? *Schedule A.3.e.iv.D*

Yes  No

117. Provide a brief description of the factors of technical infeasibility or site constraints that prevented the on-site management of the runoff amount stipulated in the stormwater retention requirement or a portion thereof.  
*Schedule A.3.e.iv.D*

Some of the Technical Infeasibility Factor will be;

- Separation distance from seasonal high groundwater and bedrock
- Steep slopes
- Distance to drinking well water
- Land use planning
- Transportation related projects
- Infiltration Rate
- Contaminated soils

- Mitigation alternatives
- Other requirements

If necessary, provide an explanation:

See Section 2.4.3 in the Post Construction Site Runoff Packet.pdf

118. Before the allowance of alternative compliance, were mitigation options established? *Schedule A.3.e.iv.D*

Yes  No

If necessary, provide an explanation:

See Section 2.2 in the RVSDM in the Post Construction Site Runoff Packet.pdf

119. If applicable, indicate which of the following mitigation options have been used and provide a narrative description of the implementation of the mitigation option? *Schedule A.3.e.iv.D*

- Off-Site Mitigation  
 Off-Site Groundwater Replenishment Projects

If necessary, provide an explanation:

If the water that cannot be retained on site it will be treated before leaving the site and detained in another location or the City would be open to a payment-in-lieu for developing offsite retention if there is open space opportunities.

120. Was a procedure developed for the review and approval of structural stormwater control plans for new development and redevelopment projects? *Schedule A.3.e.v*

Yes  No

If necessary, provide an explanation:

The City has been approve for a 1200CN permit from DEQ. The City has contracted with a private Engineering firm to review all commercial plans submitted to the City for approval, City staff will also be reviewing the plans.

Indicate the minimum land disturbance or creation of new impervious area where plans are required to be reviewed: 5,000 ft<sup>2</sup> , acres  of land disturbance  creation of new impervious area

See Section 1.5 RVSDM in the Post Construction Site Runoff Packet.pdf

121. Are all sites that use alternative compliance to meet the retention requirement reviewed?

Yes  No

If necessary, provide an explanation:

122. Indicate if an inventory and implementation strategy is used to ensure that all stormwater controls are operated and maintained to meet the site performance standard in Schedule A.3.e.iv of the permit? *Schedule A.3.e.vi*

Yes  No

If necessary, provide an explanation:

All the LID, Green Infrastructures, Detention/Retention ponds, underground detention facilities, Water Quality devices and other stormwater control are entered in the City GIS system. Each year we inspect as many as we can and make sure they are working and maintained. The City owned features will be stored in Cartegraph which will keep track of them as assets and will track the maintenance.

All LID facilities must submit an *Operation and Maintenance Manual* and sign and record with the County a *Declaration of Covenants for the Operation and Maintenance of Stormwater Facilities* for the property. See *Declaration of Cov. & Stormwater O&M* in the Post Const. Site Runoff Packet.pdf

123. Indicate which of the following strategies have been developed to ensure that all stormwater controls are operated and maintained to meet the site performance standard in Schedule A.3.e.iv. *Schedule A.3.e.vi*

- Legal authority to inspect and require effective operation and maintenance of privately owned and operated stormwater controls
- Inspection procedures and an inspection schedule to ensure compliance with the O&M requirements of each stormwater control operated by the permit registrant and by other private entities
- A tracking mechanism for documenting inspections and the O&M requirements for each stormwater control
- Reporting requirements for privately owned and operated stormwater controls that document compliance with the O&M requirement in Schedule A.3.f.

If necessary, provide an explanation:

See *Declaration of Cov. & Stormwater O&M* in the Post Const. Site Runoff Packet.pdf

124. Are the location of all public and private stormwater controls installed during this permit term documented on the MS4 Map? *Schedule A.3.e.vi*

Yes  No

If necessary, provide an explanation:

All stormwater controls and facilities are entered into the City GIS system.

125. Were all persons responsible for performing post-construction runoff site plan reviews, administrating the alternative compliance program, or performing O&M practices or evaluating compliance with long-term O&M requirements appropriately trained to conduct such activities? *Schedule A.3.e.vii*

Yes  No

If necessary, provide an explanation:

We have a contract with an outside Engineering Firm to review and check all hydraulic calculation that are submitted to the City for compliance.

126. Were all new staff working to implement the post-construction site runoff for new development and redevelopment program appropriately trained within 30 days of their assignment to this program? *Schedule A.3.e.vii*

Yes  No

If necessary, provide an explanation:

All FTE that work in the stormwater quality control are.

**Pollution Prevention and Good Housekeeping for Municipal Operations**

127. Provide a brief summary of the overall progress towards implementation of this control measure. *Schedule A.3.f*

The City has a new Public Works Operations Yard and best management practices are incorporated into the design, such as:

- Covered or contained areas that prevent contaminants from getting into storm drains or the environment.
- Recycling of used products.
- Cleaning vehicle and equipment practices.
- Product and waste storage.
- Spill preventions.

Everyday operations are also being reviewed to see if pollutants can be reduced by better procedures or technology. City stormwater asset are entered into software that keeps tracks of the operations and maintenance of the inlets, manholes and pipes and are also enter into a GIS data base

128. Were the required components in place by the implementation date? *Schedule A.3.f.i*

Yes  No  (*Implementation date: Feb. 28, 2022 for Existing Registrants, Sept. 1, 2023 for New Registrants and February 28, 2024 for Albany, Corvallis, Millersburg, Springfield and Turner*)

They are implemented.

129. Were O&M strategies for existing controls developed for both permit registrant-owned controls and controls owned and operated by another entity discharging to the MS4? *Schedule A.3.f.ii*

Yes  No  N/A

If necessary, provide an explanation:

The City owned controls are maintained and inspected each year and privately owned controls are required to submit a signed Operation and Maintenance agreement and are also inspected each year by City inspectors. We are in the process in putting the stormwater controls in Cartegraph software to keep track of the maintenance of them.

130. Indicate the percentage of catch basins inspected/cleaned: *Schedule A.3.f.iii*

Percentage inspected this reporting year: 297 ; Percentage cleaned: 25

If known, estimate of material removed: 18 Units Cu.Yds

131. Percentage inspected during the permit term: 1100 ; Percentage cleaned: 75

132. If known, estimate of material removed: 28. Units Cu.Yds

If necessary, provide an explanation:

The City Stormdrain system is cleaned on a regular basis so not a lot of debris is recovered.

133. Indicate if a catch basin inspection prioritization system and/or an alternate inspection frequency has been established. *Schedule A.3.f.iii*

Yes  No

If necessary, provide an explanation:

Parts of the city get more traffic than others so those areas will get cleaned more often, also there are storm drains systems that have bigger drainage areas which means more sediment and will require more frequent cleaning. Public Works (PW) uses Cartegraph, a software that keeps tracks of city infrastructure and will track of the value and maintenance of them. Stormdrain lines and inlets are cleaned and inspected through this software. The PW crews also use the Storm Drain Maintenance Area map to determine what section will be done or have been done.

See *Storm Drain Maintenance Area Map* in the PP and GH Packet.pdf

134. During the permit term were existing procedures for inspection and maintenance schedules reviewed/updated to ensure pollution prevention and good housekeeping practices were conducted for the following activities? *Schedule A.3.f.iv*

- Pipe cleaning for stormwater and wastewater conveyance systems
- Cleaning of culverts conveying stormwater in roadside ditches
- Ditch maintenance
- Road and bridge maintenance
- Road repair and resurfacing including pavement grinding
- Dust control for roads and municipal construction sites
- Winter road maintenance, including salt or de-icing storage areas
- Fleet maintenance and vehicle washing
- Building and sidewalk maintenance including washing
- Solid waste transfer and disposal areas
- Municipal landscape maintenance
- Material storage and transfer areas, including fertilizer and pesticide, hazardous materials, used oil storage, and fuel
- Firefighting training activities
- Maintenance of municipal facilities including public parks and open space, golf courses, airports, parking lots, swimming pools, marinas, etc.

If necessary, provide an explanation:

With the crews in the new facilities there is an ongoing review of what can make things better and more efficient.

135. Do any permit registrant-owned facilities have coverage under DEQ's 1200-Z Industrial Stormwater Discharge Permit? *Schedule A.3.f.v*

Yes  No  NA

If "Yes", provide DEQ File Number(s):

If necessary, provide an explanation:

136. Are practices in place to reduce the discharge of pollutants to the MS4 associated with the application and storage of pesticides and fertilizers? *Schedule A.3.f.vi*

Yes  No

If necessary, provide an explanation:

With the crews in the new facilities there is an ongoing review of what can make things better and more efficient.

137. Are methods/practices in place to reduce the discharge of litter within the jurisdiction? *Schedule A.3.f.vii*

Yes  No

If necessary, provide an explanation:

The City has place over 100 garbage cans throughout the city so people can deposit their garbage in the proper place. The cans are checked and emptied on a regular schedule.

138. Are practices in place to ensure that collected material or pollutants removed in the course of maintenance are managed and disposed of in a manner such as to prevent such pollutants from entering the waters of the state in accordance with state and federal rules? *Schedule A.3.f.viii*

Yes  No

If necessary, provide an explanation:

All waste material collected from the street sweeper, vac trucks, trash cans, scrap metal and any other collected materials are taken to the proper place of disposal and discarded.

139. Were all persons responsible for evaluating O&M practices, evaluating compliance with long-term O&M requirements or ensuring pollution prevention at facilities and during operations appropriately trained to conduct such activities? *Schedule A.3.f.ix*

Yes  No

If necessary, provide an explanation:

Not sure of what kind of training is available for this.

140. Were all new staff working to implement the pollution prevention and good housekeeping for municipal operations program appropriately trained within 30 days of their assignment to this program? *Schedule A.3.f.ix*

Yes  No

If necessary, provide an explanation:

The new employees have to go through the safety training course that shows them the proper use of all equipment and what things to look for in pollution prevention around the yard.

## Monitoring

If the requirement does not apply, mark "NA" and explain why it does not apply to you in the comments field.

141. Was municipal stormwater monitoring performed at outfall locations, in the receiving waterbody, or to demonstrate compliance with this permit? *Schedule B.3*

Yes  No

142. If "Yes" is the data included in the Annual Report?

Yes  No

If necessary, provide an explanation:

See attachment *Quarterly TMDL Report - October - December 2020* in PP and GH Packet.pdf

### Wood Village Monitoring Requirements

143. Provide a summary of the following to evaluate the control strategies established for the Lower Columbia Slough Phosphate, Lead, and Bacteria TMDLs: *Schedule D.1.b*

Phosphate:

Lead:

Bacteria:

144. Indicate which of the following were completed:

- For phosphate, monitor influent and effluent dissolved orthophosphate concentrations and total phosphate concentrations at a representative site in Fairview Lake (Reach 4) and Fairview Creek (Reach 5)
- For lead, estimates of the effectiveness of controls to remove TSS
- For bacteria, measuring E. coli concentrations and its distribution over flows (for example, flow duration intervals) to demonstrate compliance with E. coli criteria

If necessary, provide an explanation:



## Water Quality Standards

145. During this monitoring year was it determined or reported that the MS4 discharge caused or contributed to an exceedance of an applicable water quality standard? *Schedule A.1.b*

Yes  No

If necessary, provide an explanation:

146. How and when did the exceedance of an applicable water quality standard occur? *Schedule A.1.b*

If necessary, provide an explanation:

There was no excursion identified.

147. Was the exceedance self-reported or did DEQ send written notification? *Schedule A.1.b*

Self-reported: Yes  No

If necessary, provide an explanation:

NA – There was no exceedance identified.

148. Within 48 hours was an investigation started into the cause of the water quality exceedance? *Schedule A.1.b.i*

Yes  No

If necessary, provide an explanation:

NA – There was no exceedance identified.

149. Within 30 days of becoming aware of the exceedance, was DEQ notified in writing, if self-reporting? *Schedule A.1.b.ii*

Yes  No

If necessary, provide an explanation:

NA – There was no exceedance identified.

150. Within 60 days of becoming aware of or being notified of the exceedance, was a report submitted to DEQ that documents the following? *Schedule A.1.b.iii*

The results of the investigation, including the date the exceedance was discovered

A brief description of the conditions that triggered the exceedance or the cause

Corrective actions taken or planned, including the date corrective action was completed or is expected to be completed

If necessary, provide an explanation:

NA – There was no exceedance identified.

151. Were the corrective actions implemented in accordance with the schedule approved by DEQ? *Schedule A.1.b*

Yes  No

If necessary, provide an explanation:

NA – There was no exceedance identified.

152. Provide any additional comments or narrative description, if necessary:

PUBLIC EDUCATION AND OUTREACH  
AND  
PUBLIC INVOLVEMENT AND  
PARTICIPATION



**CITY OF CENTRAL POINT  
PROFESSIONAL SERVICES CONTRACT**

**Stormwater Quality Program Assistance**

This contract is made between the City of Central Point (City) and Rogue Valley Council of Governments (Consultant).

**Consultant Information:**

Full Legal name or business name: Rogue Valley Council of Governments

Address: P.O. Box 3275 City: Central Point Zipcode: 97502

Telephone: 541-664.6674 FAX: 541-664-7927


City and Consultant agree:

1. **Services to be provided.** Consultant will provide to the City the services set forth in Exhibit B.
2. **Effective Date or Duration.** This contract is effective on the date at which every party has signed this contract. This contract shall expire, unless otherwise terminated or extended, on June 30, 2023.
3. **Compensation.** City agrees to pay Consultant a sum not to exceed \$9,411.81 for the services to be provided. A written approval in the form of an amendment of this contract will be obtained where there will be changes in the scope of work, amount of contract or time. Payment will be made:
  - Upon completion; or,
  - City shall pay Consultant for services and reimburse Consultant for expenses incurred by Consultant in performance of services in accordance with the payment schedule provided in Exhibit C. No reimbursement will be made for expenses that are not specifically itemized in this payment schedule without prior approval by City. Consultant shall submit monthly invoices to City for Consultant's services on the 20<sup>th</sup> day of the month after the end of the month covered by the invoice. Total payments under this contract or any amendments shall not exceed the sum specified in this section 3.
4. **Authorized Consultant Representative.** The authorized representative for Consultant is Greg Stabach.
5. **Standard Contract Provisions.** Consultant shall comply with the City's Standard Contract Provisions for Professional Services as modified for this contract, a copy of which is attached as Exhibit A.

CITY OF CENTRAL POINT

CONSULTANT

By: 

By: 

Title: Parks & Public Works Director

Title: Executive Director

Date: 11-14-22

Date: 11/9/2022

SSN/Tax Id. No.: 93-0611406

CP Business License No.: N/A

Form 1099: On file:  Attached:

## EXHIBIT A

### CITY OF CENTRAL POINT CONTRACT PROVISIONS FOR PROFESSIONAL SERVICES

1. **Qualified Personnel.** Consultant has represented, and by entering into this contract now represents, that all personnel assigned to the services required under this contract are fully qualified to perform the service to which they will be assigned in a skilled and worker-like manner and, if required to be registered, licensed or bonded by the State of Oregon, are so registered, licensed and bonded.
2. **Contract Renewal.** The City shall have the option to renew this contract annually after the initial term has expired. Each renewal shall be with such modifications as may be agreed to by the parties in a written amendment of the contract, provided that the amendments made for any renewal term may not increase the total compensation to be paid to Consultant by more than 10 percent or increase the rate of compensation for any contract Service by more than 5 percent.
3. **Authorized Representative for City.** The City's authorized representative is either the City Manager, the Parks & Public Works Director, or a duly authorized representative.
4. **Notices.** Any notice permitted or required by this contract shall be deemed given when personally delivered or upon deposit in the United States mail, postage fully prepaid, certified, and with return receipt requested, to the persons and addresses shown below. In addition, if directions for telephonic transmission ("FAX") are set forth below, notices may be delivered by FAX. Notices sent by certified mail will be deemed delivered three business days after placement in the mail and notices sent by FAX will be deemed delivered when successful transmission is electronically confirmed. Except as expressly provided in the contract, required notices must be signed by the person designated to receive notices, or that person's designee or attorney.

Consultant: Authorized Representative named on pages 1 and 2 at address for Consultant listed on pages 1 and 2.

City: Authorized Representative (see section 3 of this page), 140 South Third Street, Central Point, Oregon 97502

Each party shall notify the other of any change in the name, address or FAX instructions to be used for delivery of notices.

5. **Termination.** Notwithstanding any other provision to the contrary, this contract may be terminated as follows:
  - 5.1. The parties, by mutual written agreement, may terminate this contract at any time.
  - 5.2. Either party may terminate this contract in the event of a breach of the contract by the other party.
  - 5.3. The City may terminate this contract at any time or for any reason, upon not less than ten days' notice in advance of the termination date.
  - 5.4. City may terminate this contract immediately upon Consultant's failure to have in force any insurance required by this contract.

Except as provided in section 6, in the event of a termination, City shall pay Consultant for work performed to the date of termination.

#### 6. Remedies.

- 6.1. In the event of a termination of this contract by City because of a breach by Consultant, City may complete the Services either by itself or by contract with other persons, or any combination. Consultant shall be liable to City for any costs or losses incurred by City arising out of or related to the breach, including costs incurred in selecting other contractors, time-delay losses, attorney fees and the like, less the remaining unpaid balance of the consideration provided in this contract. City may

withhold payment of sums due Consultant for work performed to the date of termination until City's costs and losses have been determined, at which time City may offset any such amount due Consultant against the costs and losses incurred by City.

- 6.2. The foregoing remedies provided to City for breach of this contract by Consultant shall not be exclusive. City shall be entitled to exercise any one or more other legal or equitable remedies available because of Consultant's breach.
  - 6.3. In the event of breach of this contract by City, Consultant's remedy shall be limited to termination of this contract and payment for work performed to the date of termination.
  - 6.4. The Consultant shall be allowed to remedy a breach of this agreement by curing such breach or making reasonable progress toward its cure within 15 days after City has given written notice of alleged breach to Consultant.
  - 6.5. The City shall be allowed to remedy a breach of this agreement by curing such breach or making reasonable progress toward its cure within 15 days after Consultant has given written notice of the alleged breach to the City or upon five days' notice if work under this Agreement has been suspended by either City or Consultant for more than 30 days in the aggregate.
7. **Records/Inspection.** Consultant shall maintain records of its charges to City under this contract for a period of not less than 3 (three) full fiscal years following Consultant's completion of this contract. Upon reasonable advance notice, City or its authorized representatives may from time to time inspect, audit and make copies of any of Consultant's records that relate to this contract. If any audit by City discloses that payments to the Consultant were in excess of the amount to which Consultant was entitled under this contract, Consultant shall promptly pay to City the amount of such excess. If the excess is greater than one percent of the contract amount, Consultant shall also reimburse City its reasonable costs incurred in performing the audit.
8. **Ownership of Work Product.** All work product of Consultant that results from this Agreement (the work product) is the exclusive property of City, once the Consultant has been paid for services rendered. City and Consultant intend that such work product be deemed "work made for hire" of which City shall be deemed the author. If for any reason the work product is not deemed "work made for hire," Consultant irrevocably assigns to City all its right, title, and interest in and to any and all of the work product, whether arising from copyright, patent, trademark, trade secret, or any other state or federal intellectual property law or doctrine. Consultant shall execute such further documents and instruments as City may reasonably request in order to fully vest such rights in City. Consultant forever waives any and all rights relating to the work product, including without limitation, any and all rights arising under 17 USC 106A or any other rights of identification of authorship or rights of approval, restriction or limitation on use or subsequent modifications. The City agrees to hold harmless and indemnify the Consultant from any and all liability whatsoever, associated with any reuse of work products generated by this work project, beyond the original purpose intended by this contract.
9. **Indemnification.** Except for claims that relate to professional liability, Consultant shall defend, indemnify and save City, its officers, employees and agents harmless from any and all losses, claims, actions, costs, expenses, judgments, subrogations, or other damages resulting from injury to any person (including injury resulting in death,) or damage (including loss or destruction) to property, of whatsoever nature arising out of or incident to the performance of this agreement by Consultant (including but not limited to, Consultant's employees, agents, and others designated by Consultant to perform work or services attendant to this agreement). Consultant shall not be held responsible for damages caused by the negligence of City. If the claim or liability results from error or omissions in the products, results, analyses, opinions, recommendations, directions, designs, or other manifestation of Consultant's professional services, including any other professional act, error or omission that is subject to professional standards of care, the obligation of Consultant hereunder shall only exist to the extent of Consultant's negligence or willful misconduct.
10. **Workers' Compensation.** If Consultant will perform the work with the help of others, Consultant shall comply with the Oregon Workers' Compensation law by qualifying as a carrier-insured employer or as a self-insured employer and shall strictly comply with all other applicable provisions of such law. Consultant shall provide the City with such further assurances as City may require from time to time that Consultant is in compliance with these Workers' Compensation coverage requirements and the Workers' Compensation law.

- 11. Insurance.** Consultant shall have and maintain the insurance policies specified below. Each policy of insurance shall be written as a primary policy, not contributing with or in excess of any coverage which City may carry. A copy of each policy or a certificate satisfactory to City shall be delivered to City prior to commencement of the Services. The adequacy of all insurance policies for compliance with this Section 11 shall be subject to approval by City's Risk Manager. Failure to maintain any insurance coverage required by the contract shall be cause for immediate termination of the contract by City.

Unless otherwise specified, each policy shall be written on an "occurrence" form with an admitted insurance carrier licensed to do business in the state of Oregon; and shall contain an endorsement entitling City to not less than 30 days prior written notice of any material change, non-renewal or cancellation. In the event the statutory limit of liability of a public body for claims arising out of a single accident or occurrence is increased above the combined single limit coverage requirements specified below, City shall have the right to require that Consultant increase the coverage limits of all liability policies by the amount of the increase in the statutory limit.

- 11.1. Commercial General Liability. Consultant shall maintain a broad form commercial general liability insurance policy with coverage of not less than \$1,000,000 combined single limit per occurrence, and as an annual aggregate, for bodily injury, personal injury or property damage. The policy shall have a contractual liability endorsement to cover Consultant's indemnification obligations under the contract. The policy shall also contain an endorsement naming City as an additional insured, in a form satisfactory to City, and expressly providing that the interest of City shall not be affected by Consultant's breach of policy provisions.
- 11.2. Workers' Compensation Insurance. Unless Consultant is exempt, Consultant shall comply with the Oregon Workers' Compensation law by qualifying as a carrier-insured employer or as a self-insured employer and shall strictly comply with all other applicable provisions of such law. Consultant shall provide City with such assurances as City may require from time to time that Consultant is in compliance with these Workers' Compensation coverage requirements and the Workers' Compensation law.
- 11.3. Comprehensive Automobile Liability. If Consultant will use a motor vehicle on a regular basis in the performance of the Services, Consultant shall maintain automobile liability insurance coverage of not less than \$1,000,000 combined single limit per occurrence for bodily injury, personal injury or property damage for each motor vehicle owned, leased or operated under the control of Consultant for, or in the performance of, the services.
- 11.4. Professional Liability. If Consultant is required to be licensed by the State of Oregon to perform the Services, Consultant shall maintain a professional liability insurance policy with coverage limits of not less than \$1,000,000 per claim, and a deductible or self-insured retention of not more than \$250,000 per claim to protect Consultant from claims by City or others for injury, loss or damage arising from or resulting from the wrongful or negligent performance or non-performance of, the Services. The policy shall contain an endorsement entitling City to not less than 60 days prior written notice of any material change, non-renewal or cancellation of such policy. This policy may be written on a "claims made" form, provided that continuous coverage is maintained to cover claims made within two years after completion of the Services.
- 12. Assignment/Subcontracting.** Consultant shall not assign this contract, in whole or in part, or any right or obligation, without City's prior written approval. Consultant shall require any approved subcontractor to agree, as to the portion subcontracted, to comply with all obligations of Consultant specified in this contract. Notwithstanding City's approval of a subcontractor, Consultant shall remain obligated for full performance of this contract and City shall incur no obligation to any subcontractor. Consultant shall indemnify, defend and hold City harmless from claims of subcontractors related to the performance of the Consultant's duties under this agreement.
- 13. Independent Contractor.** Whether Consultant is a corporation, partnership, other legal entity or an individual, Consultant is an independent contractor. If Consultant is an individual, Consultant's duties will be performed with the understanding that Consultant is a self-employed person, has special expertise as to the services which Consultant is to perform and is customarily engaged in the independent performance of the same or similar services for others. The manner in which the services are performed shall be controlled by Consultant; however, the nature of the services and the results to be achieved shall be specified by City.

Consultant is not to be deemed an employee or agent of City and has no authority to make any binding commitments or obligations on behalf of City except to the extent expressly provided in this contract.

- 14. Compliance with Laws/Business License.** Consultant shall comply with all applicable Federal, State and local laws, rules, ordinances and regulations at all times and in the performance of the Services, including, but not limited to those laws pertaining in nonresident contractors in ORS 279A.120 and all applicable provisions of ORS 279B.220, 279B.225, 279B.230, 279B.235, and 279B.240. Consultant shall obtain a City of Central Point business license as required by the city municipal code prior to beginning work under this contract. The Contractor shall provide a business license number in the space provided on pages one and two of this contract.
- 15. Governing Law.** This agreement shall be governed and construed in accordance with the laws of the State of Oregon. Any claim, action, or suit between City and Consultant that arises out of or relates to performance of this agreement shall be brought and conducted solely and exclusively within the Circuit Court for Jackson County, for the State of Oregon. Provided, however, that if any such claim, action, or suit may be brought only in a federal forum, it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon.
- 16. Attorney Fees.** In the event of any action to enforce or interpret this contract, the prevailing party shall be entitled to recover from the losing party reasonable attorney fees incurred in the proceeding, as set by the court, at trial, on appeal or upon review.
- 17. Integration.** This contract embodies the entire agreement of the parties. There are no promises, terms, conditions or obligations other than those contained in this contract. This contract shall supersede all prior communications, representations or agreements, either oral or written, between the parties. This contract shall not be amended except in writing, signed by both parties.





## EXHIBIT B

### Stormwater Quality Program Assistance

#### 2022-2023 Scope of Work

##### **Task 1. Salmon Watch Program Implementation. Total Task Cost = \$2,220.00**

###### Subtask 1: Schedule Classes and Coordinate Logistics.

Schedule the Salmon Watch program with Scenic Middle School in the Fall of 2022 or the Spring of 2023 depending on social distancing restrictions from COVID19 and school scheduling. Logistics include coordinating field days, instructors, and materials. In addition, Central Points program will be coordinated with the regional program as well.

Estimated time = 4 hours

Estimated cost = \$320.00

###### Subtask 2: Implement the 2022 Salmon Watch Program (Fall 2022 or Spring 2023).

Teach classroom and/or field modules as part of the Salmon Watch program field days. In addition, work with Scenic to implement the curriculum in the classroom.

Estimated time = 16 hours plus 2 contracted instructors

Estimated cost = \$1,580.00

###### Subtask 3: Program Evaluation

Conduct a program evaluation which will include one or more of the following: before and after program surveys of students, teachers and field instructors to gather information on the program success and to obtain feedback regarding improvement needs. Any program modification suggestions will be incorporated into subsequent year's Salmon Watch program.

Estimated time = 4 hours

Estimated cost = \$320.00

##### **Task 2. Riparian Restoration, Invasive Species Management, Volunteer Opportunities, and LID Program Coordination – Total Cost - \$2,880.00**

Subtask 1: Coordinate with City staff to identify priority reaches for restoration and invasive species management, priorities for LID programs, mapping, and areas for volunteer programs. Estimated time = 4 hours

Estimated cost = \$320.00

Subtask 2: Provide technical assistance and other needs for projects potentially including but not limited to site visits, project meetings, developing planting prescriptions/planting plans, obtaining landowner agreements for program participation, applying for funding, and maintenance and monitoring requirements.

Estimated time = 16 hours

Estimated cost = \$1,280.00

Subtask 4: Collaborate with local partners to implement LID workshops, Streamside Gardening workshop(s), volunteer activities, and/or other workshops meeting the needs of the TMDL program for Central Point residents and other area residents. Track attendees.

Estimated time = 8 hours.

Estimated cost = \$640.00

Subtask 6: Coordinate with City staff to organize and implement volunteer blackberry removal and restoration planting(s), LID implementation project(s), and/or volunteer activities.

Estimated time = 8 hours.

Estimated cost = \$640.00

**Task 3. Regional Stormwater Program Activities (subtasks numbered based on Regional MS4 Scope numbering). Estimated hours and cost reflect participation in the regional program where appropriate. Total Cost = \$4,025.76**

Subtask 1: Stream Smart Program management, development, and administration. Activity includes organizing the Stream Smart Advisory Committee, maintaining and updating the page, and continuing to promote and expand the program.

Estimated time = 12.25 hours plus contracted services for maintenance as needed

Estimated Cost = \$1,065.98

Subtask 2: Stream Smart Website technical support and website updates. Funding for technical support and updates including resolving the ongoing mapping updates and/or repairing the code behind the pledge forms to connect them up to the new Google Geocode and Pledge Database or update the CSS of the old Pledge pages to make those pages resemble the new Wordpress Theme style.

Estimated time = 1.25 hours plus contracted services for designer

Estimated Cost = \$448.98

Subtask 3: Bear Creek Stewardship Days/Adopt-A-River. Goal is to hold two stream clean-up events (one in September 2022, one in April 2023) throughout the watershed. Activities include assisting in coordinating the organizing committee of the event, assisting with registration and advertising, recruiting volunteers, obtaining donations for the event, setting up the event, assisting with day of logistics, and staffing a check in location.

Estimated time = 10 hours

Estimated Cost =\$702.39

Subtask 5: Brochures, Erosion Prevention and Sediment Control Handout, and tracking of distribution. Activity includes working with MS4s to revise, customize, develop, revise, and/or print brochures. Work on this activity was started in 2019-2020 and was delayed by COVID and the fires. All materials are with GoldStreet and a proof should be produced in the first quarter of the new fiscal year and full printing in the second quarter.

Estimated time = 2.25 hours plus anticipated contracted services for brochure development including editing, printing and shipping

Estimated Cost =\$356.61

Subtask 8: Stormwater Advisory Team. Continued active participation in the Stormwater Advisory Team Meetings.

Estimated time = 1 hour

Estimated Cost =\$66.06

Subtask 9: Tracking and Reporting. RVCOG will provide each MS4 permit holder with an annual summary report of all activities completed.

Estimated time = 3.75 hours

Estimated Cost =\$257.88

Subtask 10: Work with local schools and education groups. Activity includes meeting with schools, providing in class presentations and instruction, promoting lending of resources program, reporting equipment use, and meeting with education groups.

Estimated time = 10 hours

Estimated Cost =\$700.00

Subtask 11: Presentations and updates. Provide presentations and updates to interested parties, e.g., civic organizations, City Council, and others on stormwater and related water quality issues as directed by the City.

Estimated time = 4.25 hours

Estimated Cost =\$300.00

Subtask 12: Media contact. Distribute news releases and serve as Media Contact for release(s). Work with local media outlets to promote news releases, interviews, and/or story on content related to the stormwater program.

Estimated time = 2 hours

Estimated Cost =\$127.86

**Miscellaneous (mileage, supplies, printing, reporting, etc.)= \$286.05**

**Total Cost Estimate = \$9,411.81**

**EXHIBIT C**

**STORMWATER QUALITY PROGRAM ASSISTANCE  
PAYMENT SCHEDULE**

The following payment schedule outlines the invoice submittal deadlines for work performed in accordance with the scope of work set forth in Exhibit B throughout the contract period.

<b>Invoice Period</b>	<b>Invoice Submittal Date</b>
<b>July 1 – August 31, 2022</b>	September 20, 2022
<b>September 1 – 30, 2022</b>	October 20 <sup>th</sup> , 2022
<b>October 1 – 30, 2022</b>	November 20 <sup>th</sup> , 2022
<b>November 1 – 30, 2022</b>	December 20, 2022
<b>December 1 - 31, 2022</b>	January 20, 2023
<b>January 1 – 31, 2023</b>	February 20, 2023
<b>February 1 – 28, 2023</b>	March 20, 2023
<b>March 1 – 31, 2023</b>	April 20, 2023
<b>April 1 – 30, 2023</b>	May 20, 2023
<b>May 1 – 31, 2023</b>	June 20, 2023

## Salmon Watch Fall 2022 Activity Report

---



### Fall 2022 Program Summary

In the fall of 2022, the Rogue Valley Council of Governments working on behalf of the NPDES Phase II Stormwater Communities (Ashland, Central Point, Jackson County, Medford, Phoenix, and Talent), Rogue Valley Sewer Services (RVSS), and local water quality programs (TMDLs-including Grants Pass, Josephine County, Phoenix, Talent, and Jacksonville) partnered with the Jackson Soil and Water Conservation District, Bear Creek Watershed Education Partners (BCWEP), the Rogue River Watershed Council, and others to implement the Salmon Watch Program. Classes were conducted primarily in September, October, and early November (week ending November 4<sup>th</sup>) of 2022. We also held a special session (hybrid class) in December 2022 in partnership with a class from Logos School who participated in the eggs to fry program and released fry as part of the Salmon module into the Rogue River. Overall, 28 field days were conducted with 48 classes and over 1,250 students. Classes represented schools from the Bear Creek Valley, Greater Jackson County, and Grants Pass/Josephine County.

In addition, representatives from 15 organizations, agencies, and municipalities donated their time to the program and provided in kind match to the program. The match reduces program costs and also allows us to leverage grant funding for the program. Details on the class dates, field locations, schools involved, number of students, and other information (e.g., volunteer instructors) can be found in Table 1.

The 2022 Salmon Watch Program received financial support from the Jackson Soil and Water Conservation District in addition to the Bear Creek DMAs and MS4s, Josephine County, and the City of Grants Pass. We also continued our partnership with the Army Corps of Engineers operating under the MOU established for the program, and with parks (Oregon State Parks and Jackson County) to waive fees for park use (Tou Velle, Valley of the Rogue, and Cantrall Buckely). ODFW has also continued to provide fish for the dissection module in addition to donating time for training and instruction.

In addition to the field days, there are other program activities that are conducted annually as part of program implementation. Examples include an instructor training held on September 14<sup>th</sup> and 15<sup>th</sup> for both contracted educators and volunteer instructors, recruiting schools and instructors

## Salmon Watch Fall 2022 Activity Report

---

through emails, personal contacts, and at events, advertising the program, completing before and after program surveys, providing in school presentations (limited outside of RVSS' jurisdictions), coordinating logistics for the program (schools, sites, programs, and instructors), obtaining permits for site use at state parks (Tou Velle), managing contracts for instructors, providing reimbursements for program expenses (transportation, parking fees, and program equipment and supplies), maintaining and stocking kits, and other logistics.

In 2022, the program was impacted by the lingering effects of COVID with availability of volunteer instructors being more limited and restrictions in availability of buses resulting in shorter programs, especially for schools heading to McGregor. We also had several schools cancel programs. We were able to fill 2 of the 4 cancellations.

### **Salmon Watch Field Day**

For most classes, the same general format is used for the day. There are exceptions for classes making special arrangements to accommodate more students, students that are outside of the recommended age levels, and/or to switch field locations.

Salmon Watch field days are scheduled for approximately 4.5 hours (time of classes on site) at field locations throughout Bear Creek and the Middle Rogue Watershed. Field sites include (although not all are used every year) Cantrall Buckley Park, Griffin Creek at Scenic Middle School, McGregor Park, Tou Velle State Park, Valley of The Rogue State Park, Reinhardt Park, Fish Hatchery Park, Palmerton Park, and numerous sites along Bear Creek (Bear Creek Park, Blue Heron Park, Coyote Trails Nature Center, Lynn Newbry Park, at Cascade Christian High School and North Mountain Park).

The "classic" four module model is used from the Salmon Watch Curriculum for the programs. Instructors are assigned stations to discuss Salmon Biology/Salmon Life Cycle (station 1), Water Quality (station 2), Macroinvertebrates (station 3), and Riparian Areas (station 4). Each station also has activities for students, including salmon viewing (when spawning), salmon dissection, water quality testing, macroinvertebrate sampling, native plant identification, drawing riparian cross sections and longitudinal profiles, scavenger hunts, and shade surveys. Classes are divided up into 4 groups and rotated through the stations at approximately 35 minutes, allowing every student to participate in each of the four stations. Examples of completed activity forms are included in Appendix A and an example schedule is presented below:

### *Schedule*

Class arrives onsite at 9:30 a.m.  
9:30 am - 9:35 am busses arrive Logistics Check-in  
9:35 am - 9:45 am Intro (lead instructor)  
9:45 am - 10:20 Rotation #1  
10:25 am - 11:00 am Rotation #2  
11:05 am - 11:40 am Lunch  
11:45 am - 12:20 am Rotation #3  
12:25 pm - 1:00 pm Rotation #4

## Salmon Watch Fall 2022 Activity Report

---

12:25 pm - 1:00 pm Closing Activities  
 1:05 pm - 1:15 Wrap up (lead instructor)  
 1:30 pm Busses leave for the day.

There are exceptions to the field day schedule, most notably at Scenic Middle School. Due to the size of the class, the program is structured over 8 days where one module (e.g., Salmon is taught to all 5 of the 8<sup>th</sup> grade periods for the class). In addition, for smaller classes (30 students or less), we have adjusted the schedule to use only 2 or 3 instructors teaching the four sessions. Sessions are shared or the instructors teach multiple modules.

### 2022 Field Day Statistics

Table 1 summarizes the Salmon Watch classes completed in the fall of 2022. Information on the dates, field locations, schools/districts, number of students, grade levels, number of classes, and contributing partner organizations (volunteer instructors) are included in the table.

**Table 1.1: 2022 Salmon Watch Field Trip Information**

Class Number (Field Days)	Date	Location	School	Grade	Number of students	Partners (organizations providing match instructor time)
1	9/20/2022	McGregor (MG)	Abraham Lincoln Elementary	6th	52	Rogue Valley Council of Governments (RVCOG), Southern Oregon Land Conservancy (SOLC), The Freshwater Trust (TFT)
2	9/22/2022	MG	Butte Falls Charter	4th/5th	61	RVCOG, SOLC, Kid Time (KT), and Rogue Valley Sewer Services (RVSS)
3	9/27/2022	MG	Talent and Bellview Elementary	4th/5th	63	RVCOG, RVSS
4	9/28/2022	MG	Shady Cove Charter	4th/5th	39	RVCOG, RVSS
5	9/29/2022	Palmerton Park	Rogue River Elementary	5th	60	RVCOG, RVCOG, Rogue River Keeper (RRK)
6	10/3/2022	MG	Shady Cove Elementary	3rd	26	RVSS, RVCOG
7	10/4/2022	MG	Talent Elementary	4th	46	City of Rogue River and Gold Hill
8	10/5/2022	MG	Ruch Outdoor Community School	7th/8th	56	Oregon Department of Fish and Wildlife (ODFW), TFT
9	10/6/2022	MG	Roosevelt Elementary	5th	54	ODFW, RVCOG
10	10/11/2022	Tou Velle State Park (TV)	Oak Grove Elementary	4th	64	RVSS, BCWEP*
11	10/12/2022	Bear Creek at CCHS	Cascade Christian High School (CCHS)	7th/8th	56	RVCOG



## Salmon Watch Fall 2022 Activity Report

12	10/13/2021	MG	Walker Elementary in Ashland	4th	45	RVCOG, RVSS
13	10/18/2022	MG	Sams Valley Elementary	5th	44	Medford Water Commission (MWC)
14	10/19/2022	Blue Heron Park	Phoenix Elementary	4th	46	RVCOG
15	10/20/2022	MG	Phoenix Elementary	5th	55	RVSS, Kid Time
16	10/24/2022	Griffin Creek at SMS (GC-SMS)	Scenic Middle School (SMS)	8th	125	City of Central Point (CP)
17	10/24/2022	GC-SMS	SMS	8th	125	RVCOG
18	10/25/2022	GC-SMS	SMS	8th		CP
19	10/25/2022	GC-SMS	SMS	8th		RVCOG
20	10/25/2022	Reinhardt Park	Allendale Elementary	5th	69	RVCOG, Bureau of Land Management (BLM)
21	10/26/2022	Bear Creek at Sports Park Nature Center	Talent Elementary	4th/5th	28	BLM, SOLC
22	10/27/2022	GC-SMS	SMS	8th		RVCOG
23	10/27/2022	GC-SMS	SMS	8th		
24	10/28/2022	GC-SMS	SMS	8th		RVCOG
25	10/28/2022	GC-SMS	SMS	8th		
26	11/1/2022	TV	Kennedy Elementary	5th	69	TFT, Jackson County
27	11/3/2022	Bear Creek Park	Kids Unlimited	6th	54	TFT
28	12/15/2022	TV	Logos		30	RVCOG, RVCOG, ODFW, Rogue River Watershed Council

28

1267 Totals

### Color Legend

<b>MS4 or DMA</b>
<b>All. Regional Enrollment.</b>
<b>Medford</b>
<b>Phoenix/Talent</b>
<b>Central Point</b>
<b>Ashland</b>
<b>Josephine County/Grants Pass</b>
<b>Other Schools – Jackson County</b>

## Salmon Watch Fall 2022 Activity Report

---

**Table 2: Key to Instructional Partners**

Abbreviation	Organization Name	Support Detail
ACOE	Army Corps of Engineers	Site access/facility use, hand washing stations, fee waivers
BLM	U.S. Dept. of Interior, Bureau of Land Management	Module Instruction, Training Video Production, Program Site (Provolt)
CP	City of Central Point	Module Instruction
CPRTY	Central Point Rotary	Funding Support
GH	Gold Hill	City of Gold Hill
JC	Jackson County	Site Access, Fee waivers (Cantrall Buckley), Module Instruction
JSWCD	Jackson Soil & Water Conservation District	Match Funding, Module Instruction
MWC	Medford Water Commission	Module Instruction
ODFW	Oregon Dept. of Fish & Wildlife	Module Instruction, Supplies
OSPK	Oregon State Parks	Fee waivers
KT	Kid Time	Module Instruction
SOLC	Southern Oregon Land Conservancy	Module Instruction
RR	City of Rogue River	Module Instruction
RRK	Rogue Riverkeeper	Module Instruction
RRWC	Rogue River Watershed Council	Module Instruction
RVCOG	Rogue Valley Council of Governments	Module Instruction, Coordination, Administration, Management
RVS	Rogue Valley Sewer Services	Module Instruction, Coordination,
TFT	The Freshwater Trust	Module Instruction
BCWEP*	Bear Creek Watershed Education Partners (*Volunteers – Former Board Members)	Module Instruction

### Pre and Post Program Surveys

Surveys evaluate what students learn in the program and provide a measure of the effectiveness of the overall program. Surveys are provided to classes prior to and after attending the field. Changes in survey scores provide an indicator of how effective the instructors were.

A general survey is sent out to all participants and a separate survey is provided to Scenic Middle School classes.

*Survey Results (as of 11/18/22)*

#### *General Program Results*

Before and after surveys were conducted with students from all schools except Scenic Middle School. 600 students responded to the pre-program survey and 421 responded to the post-

## Salmon Watch Fall 2022 Activity Report

program survey. Average scores increased from 2.82/16 (17.6% correct answers) to 5.16/16 (32.3%). Details on the results and questions frequently missed can be found below.

### *Pre-program*

📌 Frequently missed questions ?	
Question	Correct responses
1. What is a watershed?	257 / 600
2. Which items below can make streams unhealthy?	94 / 600
3. What is a macroinvertebrate?	244 / 600
4. What kinds of fish in the Rogue River are born in freshwater and travel to the ocean to grow to be adults and back to freshwater to reproduce?	38 / 600
5. What do salmon need to be healthy in our streams?	45 / 600
6. What is a riparian area?	176 / 600
7. Riparian areas are good for streams because:	81 / 600

### *Post-Program Results*

📌 Frequently missed questions ?	
Question	Correct responses
2. Which items below can make streams unhealthy?	142 / 421
4. What kinds of fish in the Rogue River are born in freshwater and travel to the ocean to grow to be adults and back to freshwater to reproduce?	35 / 421
5. What do salmon need to be healthy in our streams?	89 / 421
7. Riparian areas are good for streams because:	107 / 421

# Salmon Watch Fall 2022 Activity Report

## Scenic Middle School

291 students responded to the pre-program survey and 123 responded to the post-program survey. Scores increased from 6.48/22 (29.5% correct answers) to 9.68/22 (44%). Details on the results and questions frequently missed can be found below. It should be noted that the questions for the Scenic survey and general survey are different, although there is considerable overlap in the questions asked.

### Pre-Program Scenic Middle School

Frequently missed questions ?	
Question	Correct responses
What is the term for a fish that spends part of it's life cycle in salt water and part in fresh water	59 / 289
3. Which items below can make streams unhealthy?	55 / 291
4. What is a macroinvertebrate?	136 / 291
6. What kinds of fish in the Rogue River (and local creeks including Griffin) are born in freshwater and travel to the ocean to grow to be adults and back to freshwater to reproduce?	8 / 291
7. What is a riparian area?	123 / 291
8. Riparian areas are good for streams because:	40 / 291
9. What do salmon need to be healthy in our streams?	10 / 291
10. What is the name of the watershed we live in and Scenic Middle school is located in?	113 / 291

### Post Surveys

## Salmon Watch Fall 2022 Activity Report

### Frequently missed questions

Question	Correct responses
What is the term for a fish that spends part of it's life cycle in salt water and part in fresh water	52 / 121
3. Which items below can make streams unhealthy?	38 / 123
6. What kinds of fish in the Rogue River (and local creeks including Griffin) are born in freshwater and travel to the ocean to grow to be adults and back to freshwater to reproduce?	9 / 123
8. Riparian areas are good for streams because:	17 / 123
9. What do salmon need to be healthy in our streams?	29 / 123
10. What is the name of the watershed we live in and Scenic Middle school is located in?	55 / 123

### Next Steps and Recommended Program Changes

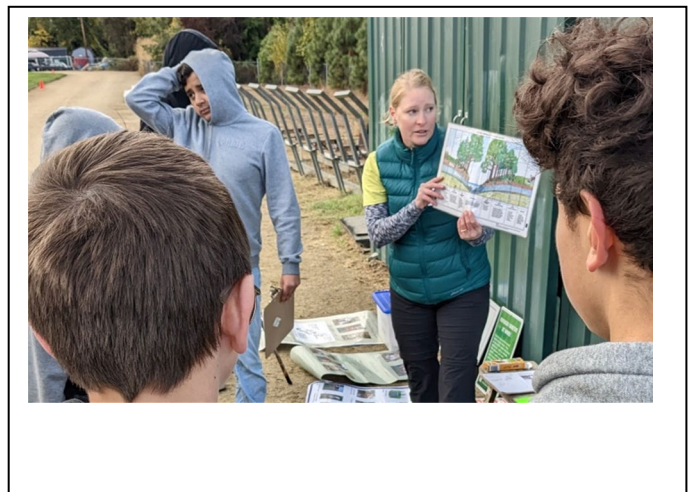
- Continue to work with municipal separate storm sewer systems (MS4), designated management agencies (DMA), Jackson SWCD, Stream Smart, partners, and volunteers to continue and expand the program.
- Work with regional (e.g., Rogue Basin Partnership) and statewide groups (e.g., World Salmon Council) to expand the program in the Rogue Basin and tie in with statewide programs.
- Continue to add programs later in the season and in the spring as time and resources allow. Timing is to allow better coordination with ODFW in class fish program where schools grow salmon from eggs and release them later in the year.
- Continue to expand the program by adding back in service-learning programs and bringing back the Student Education Symposium if possible (phasing programs back in).
- Use survey results to refine the program as needed.
- Continue to highlight the program as an important Regional Stream Smart Program that meets the educational program goals of multiple programs.
- Establish geocaches at field site locations.
- Establish permanent locations for the modules at the established field locations (in development):
  - Map locations of sites, and
  - Flag areas and/or map locations of the class layouts for each field site.



# Salmon Watch Fall 2022 Activity Report

---

## Program Photos





Appendix A: Data Sheet/Activity Examples



Salmon Watch\*

RIPARIAN AREA MAPPING DATA FORM

School: BCCNLC

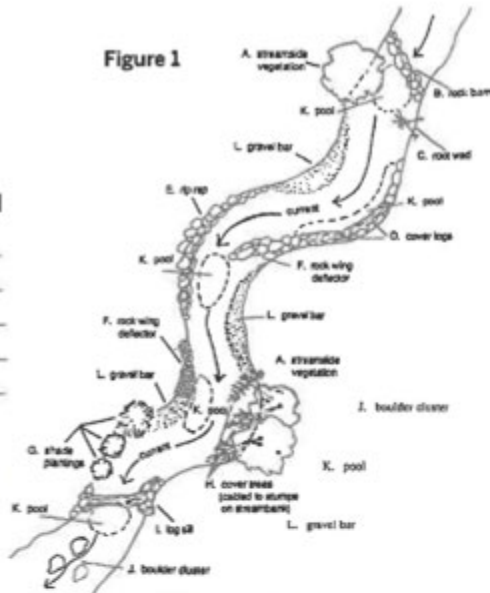
Date: 10/27 Time: 12:12

Weather: Cold but Sunny

Stream/Site Name: \_\_\_\_\_

**Directions:** Use this space to make a map of the part of the stream that you think is important (imagine the stream from a "bird's-eye-view"). Be sure to map both the aquatic and riparian zones. Draw in all the features you think are important (see Figure 1).

Turn over for profile activity. →

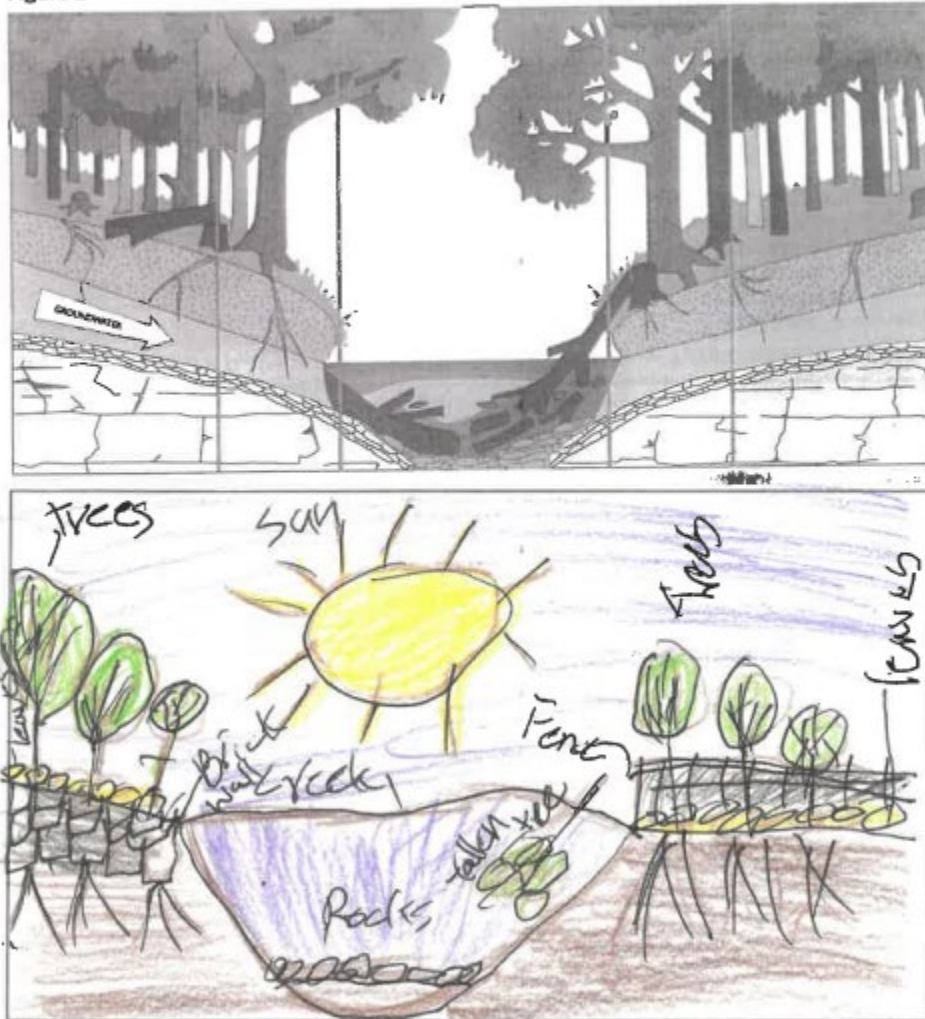


# Salmon Watch Fall 2022 Activity Report

## RIPARIAN AREA PROFILE DATA FORM

**Directions:** Pick a place along the stream that you particularly like. Draw a profile (cross-section, see Figure 2) of this place. Include the near bank, stream, and opposite bank in your drawing. If you aren't sure how to do this, ask your adult group leader. Show the water level in your drawing. Now, draw in features of the riparian zone that you think are important to salmon.

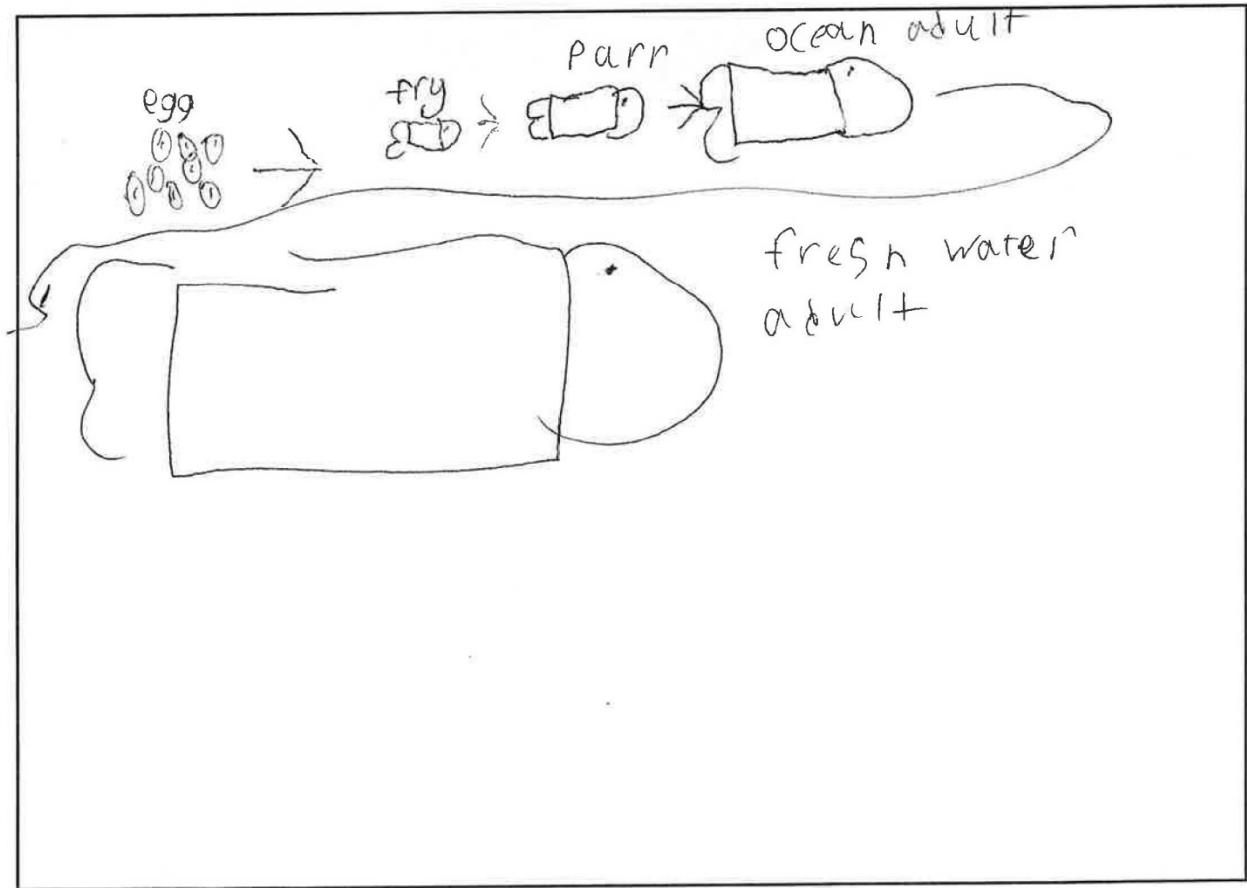
Figure 2





# Salmon Watch Fall 2022 Activity Report

---



## Appendix B: Report Highlight Summary Fall 2022



### Salmon Watch Program Summary Fall 2022

#### Another Successful Year in the Books!

With some continuing challenges including limited hours for bus drivers for some districts, and instructor shortage, and cancellations, we provided field trips over seven weeks, bringing students outdoors to learn about their local watersheds. Thanks to funding from the Jackson Soil & Water Conservation District, Central Point Rotary, and contributions from the water quality programs of local cities (Jacksonville, Ashland, Phoenix, Talent, Medford, Central Point, Grants Pass) and counties (Jackson and Josephine) as well as fourteen additional partner organizations we were able to provide no-cost field trips to students in grades 3rd-8th from nine school districts and five private/charter schools in the Rogue basin. Collaboration and partnership make it happen.

We could not do it without your support. Thank you!

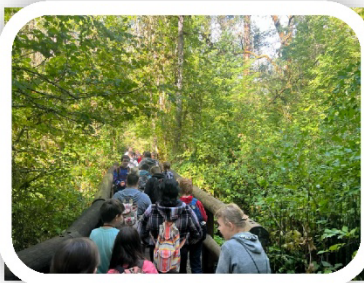
**# of students served: over 1260**

**# of schools participating: 19**

**# of individual instructors contributing:**

**24**

Students learning about the importance of healthy riparian areas



#### Students learn at four stations:

- Salmon Biology
- Riparian Ecology
- Water Quality
- Macroinvertebrates

#### Coordinating agencies:



Students observing salmon and salmon behavior at McGregor Park

### Thank you to our Salmon Watch Partners!



Southern Oregon  
**LAND**  
CONSERVANCY





## Bear Creek Stewardship Day: September 24<sup>th</sup>, 2022

The Bear Creek Stewards is a collaboration of individuals and organizations that promote a thriving Bear Creek Greenway corridor through the convergence of art, environmental stewardship, and recreation. Since 2015, the group has organized a Bear Creek Stewardship Day clean-up every April and September, with the exceptions of the April 2020 event (which was canceled due to COVID-19) and the September 2020 event (which was canceled due to the Almeda Fire).

The Bear Creek Stewards hosted a Stewardship Day on September 24<sup>th</sup>, 2022 as part of the Stop Oregon Litter and Vandalism (SOLVE)-sponsored spring clean-up. We want to thank the 118 volunteers that removed **4,385 pounds** of trash and **3,700 square feet** of branches, blackberry, and other invasive species during the event.

While SOLVE is the state-wide sponsor, we had several local donors for the event including Extreme Terrain, The Gordon Elwood Foundation, Jackson Soil and Water Conservation District, Lithia & Driveway, Medford Food Co-op, Recology, Rogue Disposal, and Starbucks.

The event ran from 9:00 am-12:00 pm and had 7 check-in locations scheduled along or near Bear Creek from Central Point to Ashland.

1. Pine Street, Central Point (Rogue Valley Council of Governments and Stream Smart)
2. McAndrews Road, Medford (Rogue Basin Partnership) (Canceled)
3. Hawthorne Park, Medford (City of Medford)
4. Alba Dr., Medford (Medford Food Co-op)
5. Coyote Trails Nature Center, Medford (Rogue River Watershed Council)
6. Northridge Terrace, Phoenix (Rogue Valley Sewer Services)
7. Lynn Newbry Park, Talent (Rogue Riverkeeper)
8. Wranglers Arena, North Ashland (Southern Oregon Geocaching)

Since 2015, the Bear Creek Stewards have removed more than 60,000 pounds of trash from the Bear Creek corridor. This would not have been possible without the tireless effort of volunteers. For more information about the Bear Creek Stewards visit: <http://www.bearcreekstewards.org>.





Fall 2022 Clean-Up Event Registration						
Location/Date:	Attended	Adults	Minors	Pounds of Trash	Pounds of Recycling	Invasive Species Removed
Pine Street	8	8	0	500	10	0
McAndrews Road	<b>Canceled</b>					
Hawthorne Park	35	32	3	2000		
Alba Drive	15	15	0	870		
Coyote Trails Nature Center	21	15	6	255		2100
Northridge Terrace	7	7	0	180	40	500
Lynn Newbry Park	7	6	1	180		1000
Wranglers Arena	25	18	7	400		
<b>Total</b>	<b>118</b>	<b>101</b>	<b>17</b>	<b>4,385</b>	<b>50</b>	<b>3,700 sq. ft</b>

<b>118%</b>	<b>86%</b>	<b>14%</b>
<b>Attended vs registered</b>	<b>were adults</b>	<b>were under 18</b>

Our efforts resulted in nearly 120 participants removing over 2 tons of trash and 3,700 square feet of dead plants/invasive species from approximately 9 miles of the Bear Creek Greenway corridor. Not only do these tasks lead to a more aesthetically-pleasing Bear Creek Greenway, but also the potential for water quality improvements, an increase in biodiversity due to invasive species removal and native plantings, and a bolstered sense of environmental stewardship.





Changes noted between the previous 5 events:

- The percentage of children participating in events:
  - 31% were under 18 in 2019
  - 14% were under 18 in April 2021
  - 23% were under 18 in September 2021
  - 20% were under 18 in April 2022
  - 14% were under 18 in September 2022
- There are fluctuations between events with the participation no-show rates:
  - In September 2019, more people than registered participated (123%)
  - In April 2021, less people than registered participated (88%)
  - In September 2021, again, less people than registered participated (71%)
  - In April 2022, more people than registered participated (104%)
  - In September 2022, more people than registered participated (118%)



## Summary of Clean-Up Efforts: April 2015 – September 2022

Date	Participants	Check in locations	Miles clean up	Pounds of trash	Other tasks	Location
April 2015	81	1	1	2,000		Medford
September 2015	32	2	2	1,200		Medford
April 2016	101	3	3	1,500		Medford
September 2016	52	3	3	2,000		Medford
April 2017	118	5	5	4,800		Medford and Phoenix
September 2017	81	7	6.5	4,500		Central Point, Medford, Phoenix, and Talent
April 2018	191	8	7	5,100	0.25 acres of blackberry removed	Medford, Phoenix, Talent, and Ashland
September 2018	93	8	7	4,000	0.5 acres of blackberry removed	Medford, Phoenix, Talent, and Ashland
April 2019	232	9	8	5,600	1 acre of blackberry removed	Central Point, Medford, Phoenix, Talent, and Ashland
September 2019	167	11	10	3,345	Planted 420 plants and removed 10 cubic yards of blackberries	Central Point, Medford, Phoenix, Talent, and Ashland
April 2021	215	8	10	6,960	100 plants mulched, 480 lbs of dead juniper removed, over 1/3 acre of blackberries removed, and 500 lbs of metal recycled	Central Point, Medford, Phoenix, Talent, and Ashland

September 2021	173	9	10.5	7,605	Weeded, 1000 square feet of invasive plants removed, 20 plants mulched, removed dead pine branches and limbs, Trees of Heaven (invasive species), and blackberry brambles and vines	Central Point, Medford, Phoenix, Talent, and Ashland
April 2022	180	9 scheduled *2 canceled	9	7,860	Pollinator garden planted and maintained, invasive plant removal, weeding, mulching, and graffiti removal	Central Point, Medford, Phoenix, Talent, and Ashland
September 2022++	118	8 scheduled *1 canceled	9	4,385	Pollinator garden weed removal, watering planted conifers, invasive plant removal, mulching, trash removal	Central Point, Medford, Phoenix, Talent, and Ashland

++Attendance was lower at this year's event, however there were two other events going on locally at the same time. Ride the Rogue and the Greater Medford Multicultural Fair were both being held at the same time and it impacted attendance. We will look to move our event to the week earlier next year as to not conflict with both events in the future.





# BEAR CREEK STEWARDSHIP DAY

Volunteer!

Saturday  
April 22nd  
9am–12pm



Join an **Earth Day** stewardship event  
in Central Point, Medford, Talent, or  
Ashland. Find the event closest to you at  
[bearcreekstewards.org](http://bearcreekstewards.org)



# BEAR CREEK STEWARDSHIP DAY

Volunteer:

Saturday  
September 24th  
9am–12pm

Join a **Public Lands Day** stewardship event in Central Point, Medford, Phoenix, Talent, or Ashland. Find the event closest to you at

[bearcreekstewards.org](http://bearcreekstewards.org)



# DÍA DE CUIDADO DEL ARROYO BEAR CREEK

Voluntario:

sábado  
24 de septiembre  
9 a.m. - 12 p.m.

Únase a un evento de limpieza y cuidado del **Día de Tierras Públicas** en Central Point, Medford, Phoenix, Talent, o Ashland. Encuentra el evento más cercano a ti en [bearcreekstewards.org](http://bearcreekstewards.org)





## How concrete affects water quality



The EPA considers concrete in its liquid state to be an environmentally-hazardous material. Concrete has an extremely high alkaline content (has a high pH value), and can seriously damage the municipal storm sewer system, streams, rivers and lakes if not properly discarded. It is illegal to wash out concrete trucks in an area where liquid concrete or concrete dust could enter a storm drain.

It is against the law to put any kind of contaminate or debris into the City stormdrain system (CP Municipal Code 8.05) fineable up to \$1,000 a day.



City of Central Point  
**STORMWATER**  
**HOTLINE (541) 423-1030**  
Afterhours  
**(541)-326-3682**



City of Central Point Public  
Works Department  
140 S. 3rd St  
Central Point OR 97502

Office (541) 423-1030  
Fax (541) 664-6384



**GUIDELINES FOR  
CONCRETE TRUCK  
WASHOUTS,  
DEWATERING AND  
CONCRETE SAW  
CUTTING**

**STORMWATER**  
**Division**



## Concrete truck washout guidelines

Washout facilities should be located a minimum of 50 feet away from any storm drain inlets, open drainage ditches, and water courses.

A sign should be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.

Washout of concrete trucks should be performed in designated areas only.

Only concrete from mixer truck chutes should be washed into the concrete washout facility.

Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout areas, or properly disposed of off site.

Once concrete wastes are washed into the designated facility and allowed to harden, the concrete can be broken up and safely discarded.



## Concrete Saw Cutting



Concrete saw cutting can result in a large amount of hazardous material entering the stormdrain system. Sweep or vacuum dust so it doesn't enter the stormdrain system.

Best management practices (BMPs) must be implemented to protect the stormdrain system and reduce pollutants from entering the system.

## Dewatering Activities



EPA, DEQ, and The City of Central Point requires that all discharged water associated with dewatering activities must be processed through a filtering device before entering a storm sewer system. Filter bags, (as pictured above) gravel, fiber rolls, or grassy areas may be utilized to improve water quality.

## What you can do

Concrete company owners and managers should educate their operators on concrete washout rules and techniques.

Work with your clients. Ask them, prior to delivery, if they have a designated washout area.

Try to pinpoint the washout area prior to the pour so that time won't be wasted searching while the concrete in the chute hardens.

If no washout facility is provided, have a simple bermed washout area constructed.

*Help us keep the creeks and streams the most beautiful in the country!*

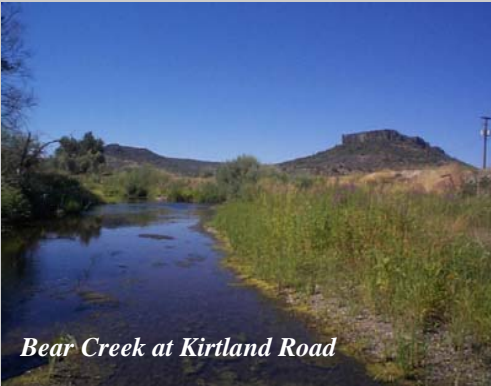


## Why is it Important?

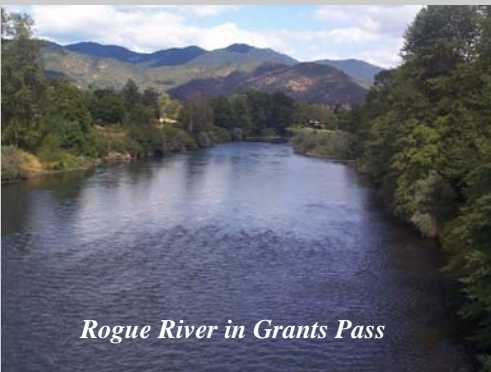
Protecting the storm drain system is important because most of the runoff that enters the storm drain system ends up in Bear Creek and the Rogue River. **Runoff entering storm drains is not routed to or treated by a wastewater treatment plant.**



*Wetland along the Bear Creek Greenway*



*Bear Creek at Kirtland Road*



*Rogue River in Grants Pass*

**For more information or to report concerns contact:**

The City of Central Point  
Public Works Dept.  
Cental Point, OR 97502  
(541) 423-1030

### Agency Contact Information

DEQ Hazardous Waste Technical Assistance - (541) 776-6010 ext. 239

DEQ Solid Waste Issues - (541) 776-6010 ext. 242

**Spills** - Oregon Emergency Response (OERS) - 1-800-452-0311

### Additional Contacts

Rogue Valley Sewer Services- (541)664-6300  
Ashland - (541)488-5587 or (541)488-5305  
Medford - (541)774-2100 or (541)774-2380  
RVCOG Natural Resources Department  
(541)-664-6674



# Creeks and Concrete Don't Mix





## Impacts of Concrete

Fresh concrete and cement-related mortars that wash into Bear Creek and the Rogue River are toxic to fish and the aquatic environment. In addition, concrete waste can solidify or build up in stormwater facilities, blocking the drainage flow, and causing localized flooding.

The lime found in cement and concrete products easily dissolves in water. Lime is alkaline, so as a result concrete slurry or water that comes into contact with cement or uncured concrete becomes strongly alkaline (pH 11-13). **This is deadly to aquatic life.** High pH solutions such as slurry or concrete washwater will attack the sensitive membranes of fish, including the gills and skin.

Other impacts include high amounts of suspended sediments from concrete washwater, and increases in sedimentation or turbidity from materials disturbed or tracked out by trucks.

**Runoff entering storm drains is not routed to or treated by a wastewater treatment plant prior to entering Bear Creek and the Rogue River.**



## What can be done?

### Sidewalk and Concrete Construction Best Management Practices (BMPs)

Best management practices (BMPs) can prevent or reduce the discharge of pollutants to stormwater from concrete construction work .

Using BMPs such as washing out equipment off-site, using on-site washouts located in designated areas, and training employees and subcontractors to consider how their work can affect water quality will reduce pollution entering storm drains and local waterways.

### Things You Can Do

- Don't mix more fresh concrete or cement than you will use in a day.
- Set up and operate small mixers on tarps or heavy plastic drop cloths.
- When cleaning up after driveway or sidewalk construction, wash sediment onto dirt areas, not down the driveway or into the street or storm drains.
- When cutting concrete vacuum or sweep cutting dust to make sure it doesn't reach the storm drain.
- Recycle large chunks of broken concrete.

## General Practices

- Always store dry and wet materials under cover, protected from rain and runoff at both your yard and the construction site.
- Protect dry materials from wind.
- Schedule projects to avoid wet weather as much as possible.
- Seal and protect bags of cement once they are open to prevent exposure to rainfall. Be sure to keep wind-blown cement powder away from gutters, storm drains, and runoff.
- Install and use concrete washouts or place concrete in formed areas or plastic bags.
- Keep wash water out of storm drain systems and streams.



*An example of a properly designed concrete washout. Washouts can be scaled down for use on smaller projects.*

## Why is it important?

Proper disposal of paint waste is important to help keep Bear Creek, the Rogue River, wetlands, and other waterbodies clean.



Bear Creek at Kirkland Road

### Local Disposal Options

#### **Jackson/ Josephine Counties**

Jackson and Josephine Counties hold an annual collection event. For more information contact:

**Rogue Disposal & Recycling, Inc.** at 541-779-4161

**Ashland Sanitary & Recycling** at 541-482-1471

**Southern Oregon Sanitation** at 1-800-922-1025

**Grants Pass Sanitation** at 541-479-3371

Additional resources:

**Jackson County Recycling Partnership**

[www.jcrecycle.org](http://www.jcrecycle.org)

**Jackson County Recycling Directory**

<http://www.roguesmart.org/directory.html>

For more information or to report concerns contact:

City of Central Point

Public Works Dept.

541-423-1030

Additional Contacts

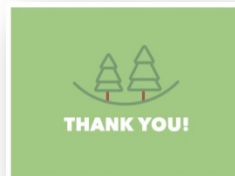
Rogue Valley Sewer Services

541-664-6300

Ashland - 488-5587 or 488-5305

Medford - 774-2100 or 774-2380

RVCOG Natural Resources Department -  
664-6674



**PAINTING**  
**WITHOUT**  
**POLLUTING**



## Impacts of Paint



Paints contain toxic substances that can pollute any waterbody including Bear Creek and the Rogue River. These substances include heavy metals and suspended solids.

Effects of paint include:

- Irritating, clogging or destroying the gills of fish.
- Poisoning other animals and plants.
- Contaminating soil and groundwater (if discharged onto land).
- Preventing light from entering the water, making it difficult for animals to find food and for plants to get energy through photosynthesis.

## Protecting Storm Drains

Storm drains are located outdoors and intended to collect and transport only relatively unpolluted runoff from rainfall and snowmelt. **Storm drain systems do not treat water before it is discharged directly into streams and rivers.**



## Regulations

Polluted discharges from any property that enter the local storm drain systems in the City are considered an illicit discharge violation. It is against the law to put any kind of contaminate or debris into the City storm drain system (CP Municipal Code 8.05) and fineable up to \$1,000 a day.

It is the property owner's responsibility to keep pollutants from cleaning activities from entering the storm drain system, even if someone else is hired to do the work.

## Clean up Do's

Allow paint solids in used paint solvents to settle. Pour off the clear portion and reuse.

- Dispose of solvents and paint waste at a permitted hazardous waste management facility.

- Pour latex cleanup water down an inside drain that is connected to the wastewater collection system for cleanup.
- Use the least toxic cleanup solvent available.
- Left-over latex paints can be solidified and taken to the landfill or the latex paint can be dried in the sun on plastic, and then disposed of at the landfill or in the trash.

## Clean up Don'ts!

- **Don't** pour oil-based or latex waste paint or clean-up materials onto the ground. Groundwater resources need to be protected.
- **Don't** clean paint equipment or pour paint into storm drains, ditches, street gutters, catch basins, dry wells, local creeks, wetlands, or other waterways.
- **Don't** put liquid paint, solvent, or clean-up waste in garbage cans or dumpsters.
- **Don't** pour oil-based paints or solvents down drains.





## Vehicle pressure washing:

- Start with the first three steps in the sidewalks and driveways section of this sheet.
- Businesses that wash less than eight vehicles per week are permitted provided NO chemicals, soaps, detergents, steam or hot water are used if runoff from site flows to a storm drain.
- Vehicle washing by private citizens is permitted. Biodegradable phosphate-free cleaners are recommended and should be used sparingly.
- Non-profit fund-raising groups are permitted once a month and should use the Fish Friendly Car Wash Kits that are available at the City Hall call 541-423-1030 for more details.
- Cleaning is restricted to exterior of vehicle only and never allowed for engines, transmissions or undercarriages.



For more information about BMPs and pollution prevention for pressure washing activities or stormwater regulations contact the following:

City of Central Point  
Public Works Department  
140 S. 3rd St  
Central Point OR 97502  
Office (541) 423-1030  
Fax (541) 664-6384



## PRESSURE WASHING Protect waterways while cleaning up.



## Chemicals are pollutants which include phosphates, particulates, oil, fertilizer, heavy metals and paint chips.

**P**olluted runoff is the one of the most common threats to local waterways. As water flows over streets, driveways, lawns, and sidewalks, it can pick up debris, chemicals, dirt, and other pollutants that empty into the storm drain system or directly to a lake, stream, river, or wetland. Storm drains carry run-off—untreated—into waterbodies we use for swimming, fishing, and drinking water and can have adverse effects on plants, fish, animals, and people



As pressure washers have become more affordable, pressure washing has gained in popularity as a common cleaning method. Pressure washing surfaces such as driveways and houses can release oil and grease, pesticides, paints, solvents, toxic chemicals and contaminants into our storm drains, even if there's no stream or river directly in sight. Less obvious problems are changes to surface water and groundwater. Heat can raise the temperature of the water, dirt can make the water turbid, and soaps (even biodegradable ones) can cause low oxygen levels in the water.

### How pollutants harm water quality

Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.

- Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- Bacteria and other pathogens can wash into swimming areas and create health hazards.
- Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.
- Polluted water often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

### Regulations

Polluted discharges from any property that enter the local storm drain systems in the City are considered an illicit discharge violation. It is against the law to put any kind of contaminate or debris into the City stormdrain system (CP Municipal Code 8.05) and fineable up to \$1,000 a day.

It is the property owner's responsibility to keep pollutants from cleaning activities from entering the stormdrain system, even if someone else is hired to do the work.

### Prevent pollution with these best management practices

To prevent polluted discharges from leaving your property, it is best to use BMPs, or best management practices. BMPs are simple steps that you or someone you hire can follow to keep common pollutants like pesticides, sediment, pet waste, grass clippings, and automotive fluids off

the street and out of stormwater system.

Here are some BMPs and pollution prevention practices to use at your home or business:

### For sidewalk and driveway cleaning:

- Start with dry cleanup methods first, such as sweeping up, vacuuming or blowing into piles for pick up and disposal in the trash system. Do not use a hose to rinse off surfaces allowing wash water to enter the street or stormwater system.
- Use dry absorbents (cat litter) to clean up oily spots and other fluids.
- Block gutters or storm drains to keep out pollutants. Select the right product to prevent pollution. There are different products used to capture particles (sediment, paint chips) and petroleum products. If possible, direct runoff to a lawn or landscaped area.
- Do not use soaps or household cleansers.

### Building surfaces, wood decks, etc.:

- Start with same first three steps for sidewalks and driveways.
- An often overlooked way to ease clean up and capture pollutants from building cleaning is to use tarps to collect debris. Dispose of debris properly into trash disposal system. Collect water and pump to the sanitary sewer. See below for details about discharging wastewater to the sanitary sewer system.



# Citywide Leaf Collection Program



roguedisposal.com

January 19, 2023

Matt Samitore  
Public Works Department City of Central Point  
140 S. Third St.  
Central Point, OR 97502

Dear Mr. Samitore,

Thank you for allowing Rogue Disposal and Recycling, Inc. the opportunity to provide leaf collection service to the City of Central Point.

As requested, Rogue provided a two-pass collection program, first pickup beginning Tuesday, November 22<sup>nd</sup> and the second event Monday, December 19, 2022.

Rogue collected **141.03** tons of leaves this year, ran three collection crews making two complete passes through the city. This year, the program cost was less than the approved not-to-exceed price of \$13,500.00. This year's cost was **\$13,430.91**. Enclosed, you will find an invoice for this amount.

Again, thank you for allowing us to provide this service to the City of Central Point. If you have any questions, please feel free to give me a call at 541-941-8257.

Respectfully,

A handwritten signature in black ink, appearing to be "S. Fowler", written over a horizontal line.

Scott Fowler  
District Manager  
Rogue Disposal and Recycling, Inc.

**CITY OF CENTRAL POINT  
PUBLIC WORKS DEPARTMENT  
MR. MATT SAMITORE  
140 S. THIRD STREET  
CENTRAL POINT, OR 97502**

**INVOICE:** CITY OF CENTRAL POINT - 2022 LEAF PROGRAM

**DATE:** January 19, 2023

**DESCRIPTION:**

**AMOUNT:**

CITY OF CENTRAL POINT RESIDENTIAL 2022 LEAF COLLECTION.	\$	13,430.91
--	----	-----------

---

<b>INVOICE TOTAL</b>	\$	<b>13,430.91</b>
----------------------	----	------------------

---





# Central Point City News

## From the Desk of City Manager Chris Clayton Central Point Bear Creek Greenway Maintenance and Beautification

Following the September 2020 wildfires, the City of Central Point faced new challenges concerning management of the Bear Creek Greenway. First, we needed to institute new maintenance procedures and hazard mitigation planning to prevent future regional fire events from threatening people and property throughout Central Point. Second, we needed to develop a concept to improve Central Point's Bear Creek Greenway section to create a more park-like setting that would promote the connection of people, place, and recreational opportunities.

If you are not already aware, Central Point's jurisdictional control of the Bear Creek Greenway extends from the Table Rock Road overpass on the south to Pine Street on the north (near Pilot Travel Center). If you have visited this area recently, you have likely noticed that phase one of this process described above (maintenance and hazard mitigation) has already begun. From removing dangerous debris and materials, reseeding burned areas, and treating the soil to prevent the reemergence of invasive plant species, we are well on our way to preventing future destructive wildfires from emerging from this area again. These short-term improvements have been a collaboration between Central Point, Jackson County, the Oregon Department of Transportation, FEMA, and the Oregon Department of Fish and Wildlife.

Although under the jurisdictional control of Central Point, our greenway area includes tax lots owned by both the City of Medford and Jackson County. Fortunately, both local government agencies are long-standing partners of the City, and we are now in the process of completing agreements with both to convey all surrounding properties to Central Point ownership. Ultimately, owning these properties surrounding our greenway section will allow for complete autonomy in improving, maintaining, and regulating the area.

*Continued on page 3*



## Central Point Events

Central Point Parks and Recreation is committed to providing our community with beautiful parks, exciting recreation classes and amazing events. In these uncertain times we appreciate the support and flexibility of our community. With that we know that some classes, events and parks will see schedule changes or closures. We will update all changes on our social media accounts as well as the City's Website. We are also available by email at [parcs@centralpointoregon.gov](mailto:parcs@centralpointoregon.gov) and during our business hours by phone at 541-664-3321 x130.



## What if the Bells Rang and Nobody Came?

Nationwide, the fire service remains a largely volunteer organization. Many communities attempt to augment dwindling numbers with paid on call or career members. Often, this is at a budgetary tradeoff and can reduce the ability to fund needed apparatus and equipment upgrades.



Fire District 3 is a combination department, meaning it has both full time career firefighters and volunteers. The District relies on volunteers to expand the response capabilities within the rural environments. The stations in outlying areas of the District, Dodge Bridge, Sams Valley, Gold Hill and Agate Lake are all staffed by community volunteers. Additionally, the Upper Rogue communities of Shady Cove, Lake Creek, Butte Falls, and Prospect require the engagement of volunteers to ensure that the fire engine rolls out the door when the alarm sounds.

The face of the volunteer is different today. The emphasis is not to train everyone to crawl into a burning building. Actually, this is one of the more removed skills that your local fire department seeks. Volunteers are needed to drive water tenders, respond to medical emergencies, provide public education, serve on boards, budget committees or auxiliaries and simply provide assistance and support in postfire environments.

The fire service is not the only entity feeling the effects of reduced volunteerism. Many of the missions within our communities are largely dependent on the efforts of volunteers. Our youth sports, senior organizations, grange halls, community clubs and boosters are all experiencing recruitment / retention challenges. They need your help. If you have a few hours to give, a special skill set, or even feel a tug to social responsibility, please reach out to one of the various service organizations within your community or your city service providers to see where you can contribute and improve the quality of life with your community.

If you would like to learn more about how you can help your local fire department, please call 541-826-7100.

Mike Hussey FD3 Deputy Chief of Operations

## Bear Creek Greenway Continued...

In terms of long-term maintenance and beautification of Central Point's greenway section, we have a two-part strategy: First, the City will increase our park's maintenance fee by 85 cents per month beginning July 1, 2021. By all standards, this is a modest increase. These funds will immediately allow us to begin maintaining the Central Point Greenway at a level that the community deserves. Additionally, a small portion of these funds will be used to improve conditions at the Central Point Cemetery. Part two of our strategy will include significant capital improvements to the greenway area, which could include park open space, a dog park, frisbee golf, a walking/running/biking trail system, etc. Identifying the final recreational components and beautification of this area will be a process that will include significant public input, with the city council making the final choices on what makes the most sense for our City.



In terms of cost for these improvements, they will be substantial. However, I am pleased to report that we already have a financial mechanism in our Urban Renewal District capable of funding these greenway capital investments. Although we will use the earlier described 85 cents per month to maintain whatever features and landscapes are constructed in this area, we do not anticipate needing our citizens to participate further financially in the funding of our future greenway beautification project. We will provide additional information to you as these projects proceed. Please let us know if you have any questions or concerns.

# Anti-Camping Ordinances

From the Central Point City Attorney's Office

Communities throughout Oregon are all struggling with issues associated with un-housed individuals including safety, fire risks, refuse, and availability of services. In response to the crisis, a number of jurisdictions have attempted to deal with the issue by banning sleeping or camping in public spaces. However, there is growing caselaw and pending legislation that is making it more difficult or illegal to simply ban homelessness.



*Central Point Greenway prior to 2018*

In particular, in 2018, the Ninth Circuit Court of Appeals issued an opinion in *Martin v. Boise*, holding that criminalizing sitting, lying, or sleeping on public property is a violation of the Eighth Amendment's prohibition against imposing excessive fines or cruel and unusual punishment if the prohibition is jurisdiction-wide and there are not an adequate number of shelter beds in that jurisdiction. <https://cdn.ca9.uscourts.gov/datastore/opinions/2018/09/04/15-35845.pdf>.

On July 22, 2020, the United States District Court for the District of Oregon, Medford Division, issued an opinion in *Blake v. Grants Pass*, which is now under appeal. The Blake Court held that the Eighth Amendment "prohibits a City from punishing homeless people for taking necessary minimal measures to keep themselves warm and dry while sleeping when there are no alternative forms of shelter available." The Court clarified that the Eighth Amendment prohibition against cruel and unusual punishment applies to both criminal matters and violations because the issue is whether "involuntarily homeless people are punished for engaging in the unavoidable acts of sleeping or resting in a public place when they have nowhere else to go." The court also found the fines in Grants Pass violated the excessive fines clause of the Eighth Amendment given that they were imposed as a penalty and were excessive in amount for people that primarily have no ability to pay. However, the Blake Court did not fully restrict a city's ability to adopt anti-camping ordinances and allows a jurisdiction to adopt reasonable time, place and manner restrictions. <https://casetext.com/case/blake-v-city-of-grants-pass-1>

There are also bills in the Oregon legislature currently pending. HB 3115, the Kotek bill, is similar to the Martin and Blake cases and states that local government cannot prohibit "sitting, lying, sleeping or keeping warm and dry outdoors on public property that is open to the public" but can adopt reasonable time, place, manner restrictions. If approved, this legislation would become operative on July 1, 2023. <https://olis.oregonlegislature.gov/liz/2021R1/Downloads/MeasureDocument/HB3115/Introduced>

A second bill, the "Lively bill," deals with how property is handled when an unlawful encampment is cleared. It increases the duration that such property must be held from 30-days to 90-days. Both bills are anticipated to pass in some form.

In an effort to deal with Blake, and the anticipated legislation, the City of Medford recently approved an ordinance which: restricts camping, sleeping, or lying in the Greenway or Prescott Park during fire season (May 1 to October 31) as a fire safety measure; prohibits camping lying or sleeping on playgrounds, sports facilities (during hours of closure), under bridges, near railroad tracks and on publicly owned property not open to the general public at all times; prohibits structure camping such as in cars, tents, or with campfires at all times and on all public property and; in keeping with the time, place, manner restrictions, permits individuals to lie or sleep in other areas of parks, along sidewalks so long as it does not block pedestrian traffic or block entrances to businesses, and on other public property that is generally open to the public, for up to 24-hours. Individuals can use sleeping bags, bed rolls, etc. but are prohibited from setting up tents or other similar structures or from having campfires.



*Central Point Greenway Prior to 2018*

## Anti-Camping Ordinance continued...

In response to the City of Medford's adoption of its new anti-camping ordinance, the City of Medford was informed that it would be sued on behalf of homeless people who could be punished or displaced by the new ordinance.

The City of Central Point has been reviewing its ordinances and the anticipated future legislation to determine whether to make revisions to City Code at this time. Currently, the City's code regulates uses in various sections.



*Central Point Greenway prior to 2018*

For example, Chapter 8.32 regulates the Greenway and provides that the Greenway is closed from 10 pm to 6 am, prohibits fires anywhere within the Greenway, littering and camping, and allows the greenway authority to "eject" any person in violation of these regulations year-round. Removal of individuals in violation of the camping provisions is subject to state law, ORS 203.077, which requires at least 24-hour advance notice of removal and requires the City to hold any property collected for 30-days.

Given the uncertain future of the foregoing legislation and caselaw, and the potential for litigation in adopting an ordinance at this time, the City is likely to hold off on further revisions to its code at this time to await clearer direction on permissible legislation.

## The Importance of Scooping your dog's poop

Pet waste is smelly, unsightly and messy and attracts bugs and rodents. It is also a health risk to both people and other pets, and it adversely affects water quality. In many locales, it is required by law to pick up your pet's poop and dispose of it properly. It's also just the neighborly thing to do. Nobody likes stepping in poop or having to clean up other people's dog messes in their yards.

There are many diseases that can be spread in a pet's fecal matter. These can include dangerous bacteria, such as coliforms, Campylobacter, Salmonella and more. Giardia and Cryptosporidia are a couple of other nasty intestinal parasites that can be potentially spread via your pet's feces to other animals or humans. Some pets may also be harboring intestinal parasites, such as roundworms or hookworms. The eggs of these parasites are shed in an infected pet's stool and then can be easily picked up by our children when they play in the yard or by you when you do yard work.



Water is a precious resource, and water quality is of the utmost concern for all of us. Pet waste left in yard or by the curb gets washed down the storm drains and into the area waterways, such as a local stream, rivers or lake. As the fecal material decays, it uses up the oxygen in the water and may release ammonia. When this chemical process takes place in high quantities, the resulting decrease in oxygen levels and increase in ammonia, especially during warmer time of the year, can lead to algae blooms and fish die-off. The bacteria released during the decay of the stool may also make the water unsafe for swimmers, divers, fishermen and boaters. Let's keep our water safe for everyone by properly disposing of pet poop.

So how can you best deal with pet waste? To start with, if you're walking your dog, pick up after him or her, it's the right thing to do. If your concerned about your kids or you getting something from your yard, pick up the poop with a scooper or a plastic bag slipped over your hand, then either flush it down the toilet or tie it off and put it in the trash.

Take care of your health, your kids' health and your pet's health, be a good neighbor and protect our waterways and water quality by picking up your pet's poop and disposing of it properly.



# Keep Our Streams Clean

Summer 2022

With the warmer weather, many of us are considering home and landscape improvement projects. When dreaming about your next project, remember that what you do on your property may impact stream habitats, water quality and increase flood risks downstream. Residents of Central Point have an opportunity to help improve water quality of the stream corridors, whether they live along streams or not.

## Stream Setback Requirements

The City requires setbacks from all creeks and streams. Stream setbacks, also called riparian setbacks, establish a buffer between development and the local waterways. It is important to keep these areas clear of obstructions, debris, and other pollutants because of the benefits they provide, including flood storage, channel stability, natural stormwater treatment, and increased habitat for fish and wildlife.



### Riparian Buffer: Right Plant - Right Place!

Deep-rooted native plants and trees have long root systems to keep soil in place, absorb runoff, and filter out pollutants. When ground and banks are left bare, soil erodes and washes into our streams.

- Remove invasive plants from your yard & riparian buffers.
- Use deep-rooted native plants in your landscaping - less water is required.

## Home Improvement Best Management Practices – What to Know

### Construction Projects & Obstructions

When dirt and debris from construction sites winds up in the channel, it can reduce the capacity in the channel leading to additional flood risks, erosion, reduce water quality and impact aquatic habitat.

- Don't dump sediment or debris in streams.
- Prevent dirt from leaving the site.
- It is your responsibility to ensure water and materials do not leave the site.

### Yard Maintenance & Water Quality

Yard waste, fertilizer and other chemicals in our streams and creeks can lead to excess algae growth. As algae decays, it uses up oxygen in the water that fish and other aquatic species need.

- Don't dump yard waste in streams.
- Don't overwater and fertilize sparingly.
- Be Phosphorous free with your fertilizer.
- Don't fertilize the riparian buffer.

## More Information:

### City of Central Point - Floodplain Information

If you have questions or would like more information, contact the Community Planner at 541.664.3321, Ext. 245 or the Environmental Services Coordinator: 541.664.3321, Ext. 243

Information is also available on our website: <http://www.centralpointoregon.gov/floodplain>



## The Importance of Scooping your dog's poop

Pet waste is smelly, unsightly and messy and attracts bugs and rodents. It is also a health risk to both people and other pets, and it adversely affects water quality. In many locales, it is required by law to pick up your pet's poop and dispose of it properly. It's also just the neighborly thing to do. Nobody likes stepping in poop or having to clean up other people's dog messes in their yards.

There are many diseases that can be spread in a pet's fecal matter. These can include dangerous bacteria, such as coliforms, Campylobacter, Salmonella and more. Giardia and Cryptosporidia are a couple of other nasty intestinal parasites that can be potentially spread via your pet's feces to other animals or humans. Some pets may also be harboring intestinal parasites, such as roundworms or hookworms. The eggs of these parasites are shed in an infected pet's stool and then can be easily picked up by our children when they play in the yard or by you when you do yard work.

Water is a precious resource, and water quality is of the utmost concern for all of us. Pet waste left in yard or by the curb gets washed down the storm drains and into the area waterways, such as a local stream, rivers or lake. As the fecal material decays, it uses up the oxygen in the water and may release ammonia. When this chemical process takes place in high quantities, the resulting decrease in oxygen levels and increase in ammonia, especially during warmer time of the year, can lead to algae blooms and fish die-off. The bacteria released during the decay of the stool may also make the water unsafe for swimmers, divers, fishermen and boaters. Let's keep our water safe for everyone by properly disposing of pet poop.

So how could you best deal with pet waste? To start, if you're walking your dog, always pick up after him or her as it's the right thing to do! Additionally, the best way to prevent yourself from contracting an illness from handling pet waste would be to use a scooper or a plastic bag slipped over your hand to collect the poop; next, dispose of the waste in a trash can or by flushing it down the toilet (do not flush anything but the waste itself down the toilet)."

Take care of your health, your kids' health and your pet's health, be a good neighbor and protect our waterways and water quality by picking up your pet's poop and disposing of it properly.

**Local Authentic • Handcrafted**

Celebrate and support artisans from throughout Southern Oregon, while enjoying food, music and so much more!

<p>WHEN</p> <p><b>New Date!</b></p> <p><b>05.07.22</b></p> <p>9:00am - 4:00pm</p>	<p>WHERE</p> <p><b>Downtown Pine Street</b></p> <p>Central Point, OR</p>
---	--

Vendor Space Available!  
Visit [centralpointoregon.gov/madeinsouthernoregon](http://centralpointoregon.gov/madeinsouthernoregon)





*A message from your*  
**CENTRAL POINT POLICE DEPARTMENT**

## **Crime Watch Video Surveillance Registration**

Having outdoor private security cameras in your home is a great option to keep your home or business, and potentially your neighborhood, safe. They can also help your local police department identify criminals and the crimes they may have committed. Every day criminals are “caught on camera” without even realizing it! The Central Point Police Department’s Crime Watch program is an opportunity for citizens and business owners to ensure the scenario of a criminal getting away with their crimes is less likely to happen. Your participation in our program will help investigators build a list of camera locations and perhaps find the critical video evidence needed to put criminals behind bars!

If you or someone you know would like to register your cameras in our Crime Watch program, you can access the registration form on our website listed below or by coming to our lobby to request a form. Please note that if you do elect to register, the Central Point Police Department will not have direct access to your private security cameras. Access will only be requested if there is a crime in proximity to your location and camera footage could be useful to solve it. This is a voluntary registration program and can be refused at any time.

Here is the link to register your cameras through the Central Point Police Department’s website <https://docs.centralpointoregon.gov/Forms/Crime-WatchRegistration>

For more information on the specifics of our Crime Watch program, please contact us at (541) 664-5578.

### **Leaf Pick-up November 22nd and December 17th**

The temperatures are dropping and so are the leaves. In an effort to keep the storm drains and streets clear, Rogue Disposal has partnered up with the City of Central Point again to pick up leaves on Monday November 22nd and Friday December 17th. Please allow a couple of days for them to get to everyone before calling. Residents within the City limits can bag their leaves in heavy duty yard bags and place tied bags on the curb or just off the roadway prior to 6:30 am on the day of pick up. Bags over 40 pounds or that contain any other lawn debris or trash will not be picked up.

For more information, visit [www.roguedisposal.com](http://www.roguedisposal.com) or call 541-779-4161.



**November, 2021**

*[www.centralpointoregon.gov](http://www.centralpointoregon.gov)*







# City of Central Point, Oregon

## STORMWATER QUALITY DOCUMENTS & INFORMATION

### Stormwater Quality Documents & Information

This page is to provide links to documents, policies, reports, ordinances, educational material and other information.



---

### STORMWATER QUALITY PERMITS AND REPORTS

- [City of Central Point Storm Water Management Plan \(SWMP\)](#)
- [National Pollutant Discharge Elimination System MS4 Phase II General Permit](#)
- **Annual Reports**
  - [Annual Report FY 2021](#)
  - [Annual Report FY 2020](#)
  - [Annual Report FY 2019](#)
  - [Annual Report FY 2018](#)
  - [Annual Report FY 2017](#)
  - [Annual Report FY 2016](#)
- [Storm Drain Protection Municipal Code Chapter 8.05](#)

---

### STORMWATER DEVELOPMENT GUIDELINES - RVSWDM

The [Rogue Valley Stormwater Design Manual](#) applies to the cities of Central Point, Medford, Phoenix, Talent and urbanized unincorporated Jackson County. Projects that will develop or redevelop more than 5,000 square feet of impervious surfaces (buildings, roads, parking lots, etc.) on a site must manage stormwater runoff in compliance with the Rogue Valley Stormwater Quality Design Manual (RVSWDM) found below.

In 2023 the RVSWDM was revised and approved by the Stormwater Advisory Team to meet the MS4 Phase 2 permit requirements. The requirements were to establish a Site Performance Standard with a numeric stormwater retention requirement to target natural surface or predevelopment hydrologic function to retain rainfall on-site and minimize the offsite discharge of precipitation utilizing stormwater controls that infiltrate, capture and/or evapotranspiration of stormwater."

Based on these requirements, Retention of stormwater runoff using infiltration is the priority method of stormwater management and can be accomplished through the use of Low Impact Development or Green Infrastructure.

[Rogue Valley Stormwater Quality Design Manual \(RVSQDM\)](#)

[Revised RVSQDM - July 2023](#)

## **EROSION PREVENTION AND SEDIMENT CONTROL REQUIREMENTS AND PERMITS**

For information on Erosion and Sediment control Click on the link above.

### Supporting Documents

-  [MS4 General Permit \(395 KB\)](#)
-  [City of Central Point Storm Water Management Plan 2021 \(980 KB\)](#)
-  [2019 Annual Report \(6 MB\)](#)
-  [2020 Annual Report \(18 MB\)](#)
-  [Rogue Valley Quality Design Manual \(16 MB\)](#)
-  [2021 Annual Report \(27 MB\)](#)
-  [Revised July 2023 Rogue Valley Quality Design Manual \(16 MB\)](#)
-  [RVSS 2016 Annual Report \(4 MB\)](#)
-  [RVSS 2017 Annual Report \(9 MB\)](#)
-  [RVSS 2018 Annual Report \(13 MB\)](#)



Search

SUBMIT SEARCH

Streets

Water

Floodplain Management

Stormwater Management

### **Reporting a Spill**

---

### **Stormwater Quality Documents & Information**

---

### **Low Impact Development**

Bids/RFPs

Standard Specifications & Details

I Would Like To....

Maps/GIS

Documents

Forms

Bear Creek Watershed Water Quality

National Pollution Discharge Elimination System

Recycling

System Development Charges

Night Roadwork Scheduled

Road Detour for Stormwater Upgrade

## *Contact Information*

City of Central Point  
Public Works Department  
140 So. 3rd Street  
Central Point, OR 97502  
**Telephone : 541-664-3321**  
Fax: 541-665-6000

**AFTER HOURS:** For **Water, Streets, Parks** related issues **after 5:00 PM** on weekdays or weekends and holidays, please call **541-326-3682.**

[View Full Contact Details](#)

City of Central Point | 140 S. 3rd Street | Central Point, OR 97502

[Home](#) [Contact Us](#) [Staff Login](#) [Subscribe](#) [Webmail](#)



MAKE  
A MOVE  
FOR  
WATER



## An Adopt-A-Greenway Event: **Worldwide Walk for Water**

Saturday, March 18th, 2023

10:00 AM - 12:00 PM

Join *Stream Smart* and the *Rogue Drinking Water Partnership* to learn more about where your drinking water comes from while we walk and pick up trash along a 5-mile section of the Bear Creek Greenway.

The walk and clean-up will begin and end at the Pine Street Greenway entrance.

Participate in this local effort to show your support for clean water *worldwide!*

Trash bags, pickers, gloves, snacks, and water will be provided.

**To register, visit:**

**<https://runsignup.com/Race/CA/YourTown/WorldwideWalkforWater>.**

Join the **Stream Smart - Rogue Drinking Water Partnership (RDWP) Team**, and log your miles for this event and others throughout the month of March!

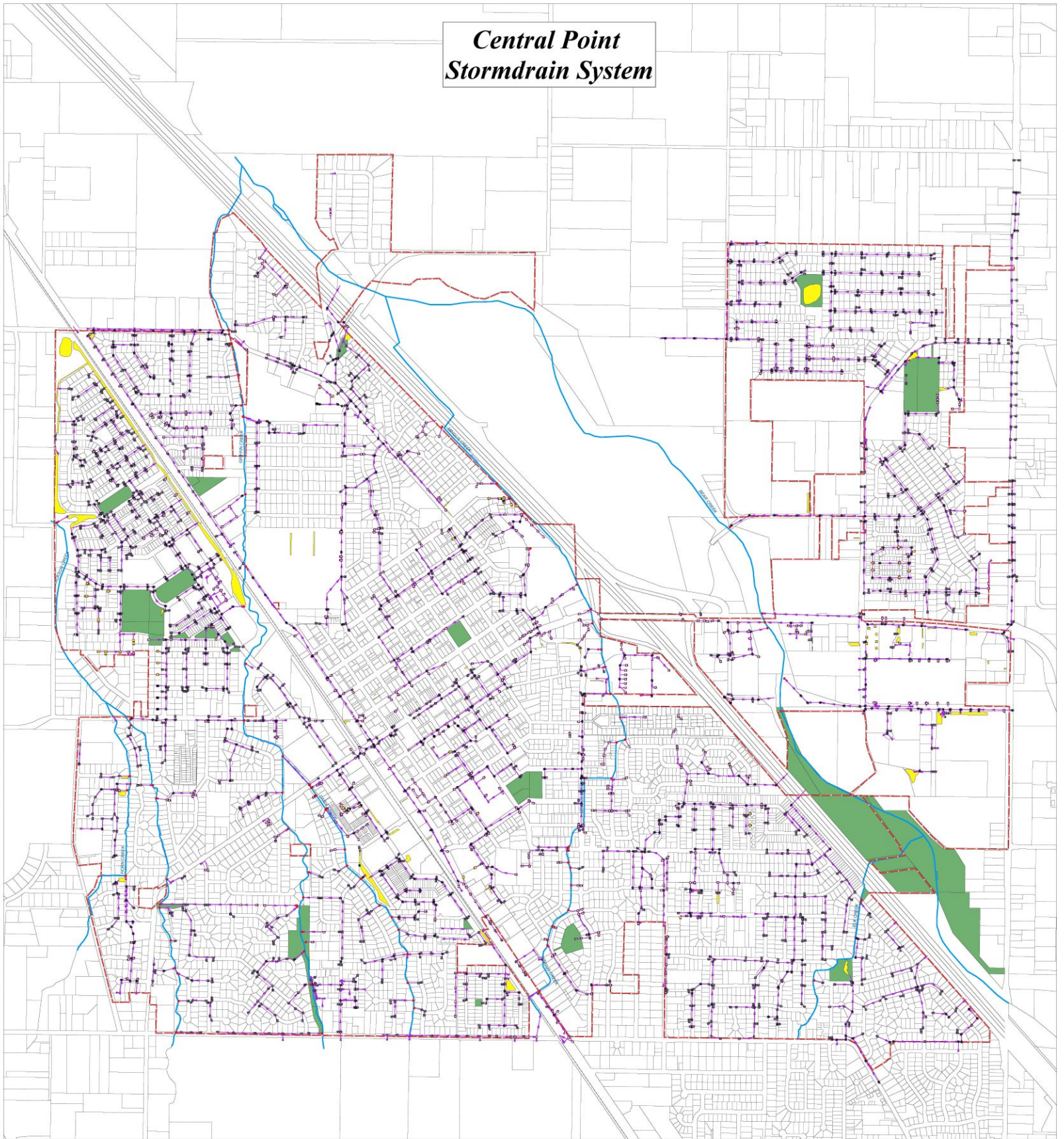


ILLICIT DISCHARGE DETECTION AND  
ELIMINATION

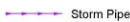












# Central Point Stormdrain System



## LEGEND

- |  |   |   |  |   |
|--|---|---|--|---|
|  Storm Pipe |  storm_retention_areas |  CB    |  CI |  OUTFALL |
|  Streams    |  parks                 |  LYNCH |  MH |   |

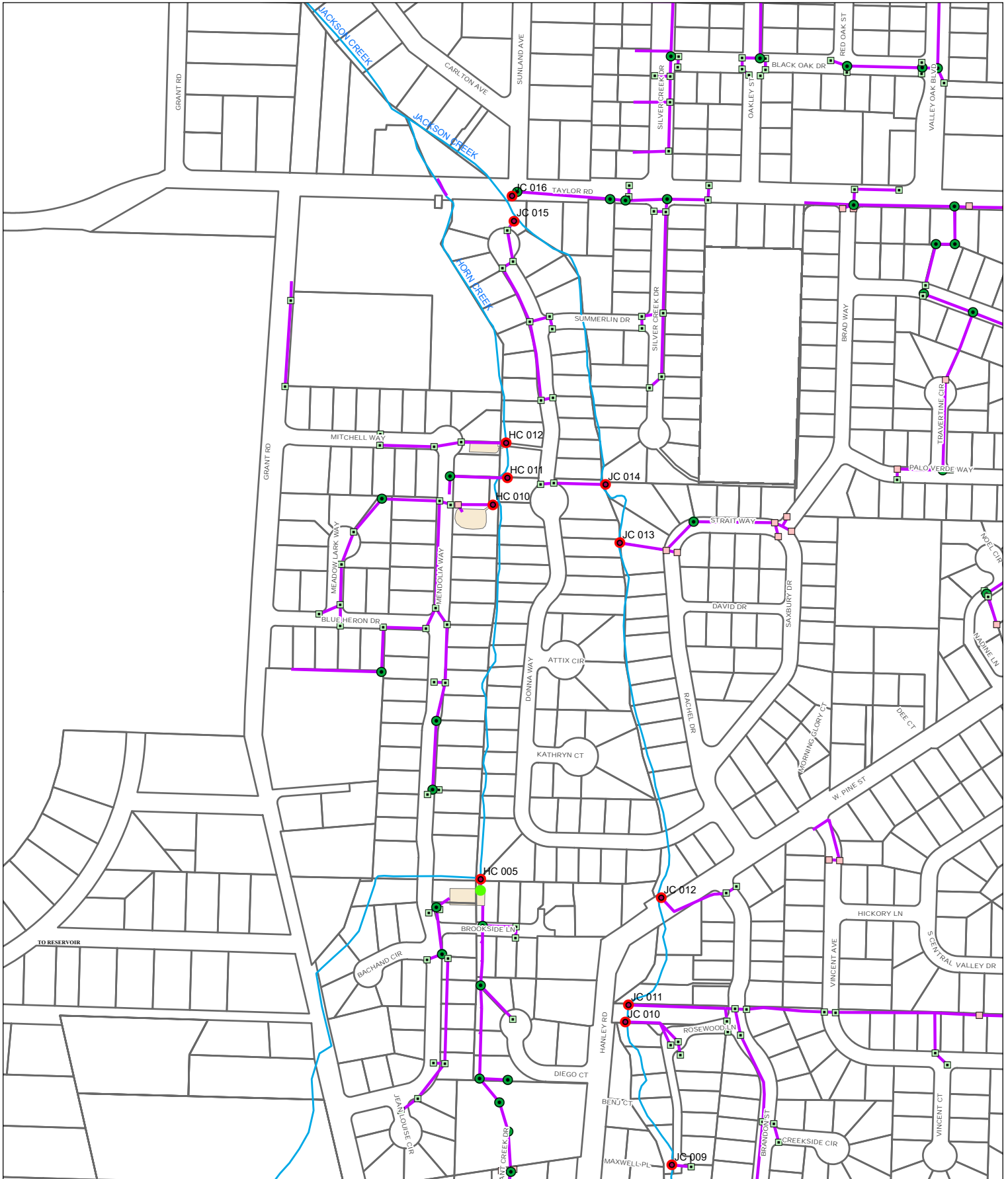
This map is designed for graphic display and reference purposes only and should be used to locate utilities.  
MHO 7 June 2021  
CITYWIDE STORMDRAINS.mxd







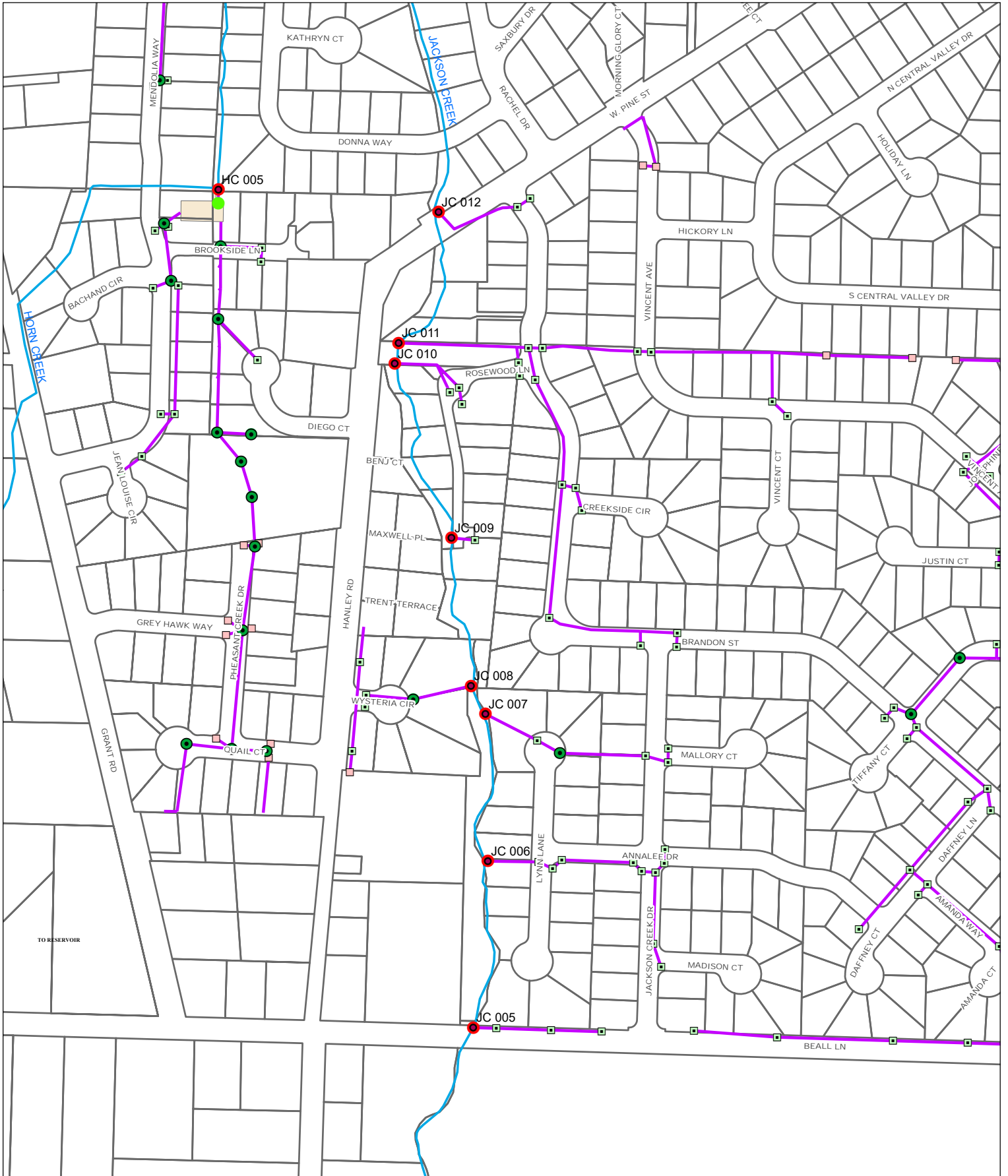
# Central Point City Stormdrain Outfalls



## Legend

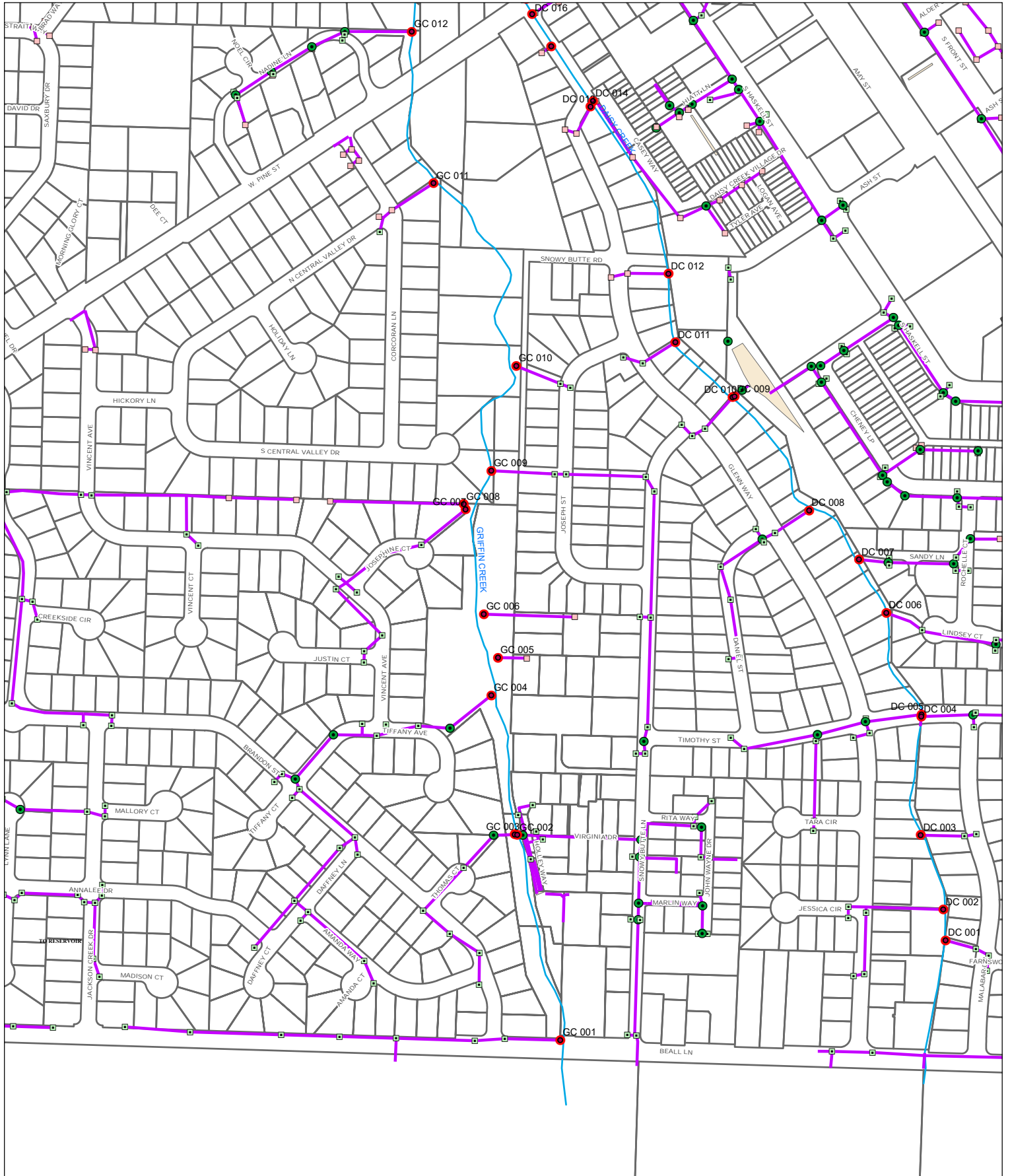
- Stormdrain Lines
- Catch Basin
- Manhole
- Outfall
- Pond Out

# Central Point City Stormdrain Outfalls



- Legend**
- Stormdrain Lines
  - Catch Basin
  - Curb Inlet
  - Manhole
  - Outfall
  - Pond Out

# Central Point City Stormdrain Outfalls

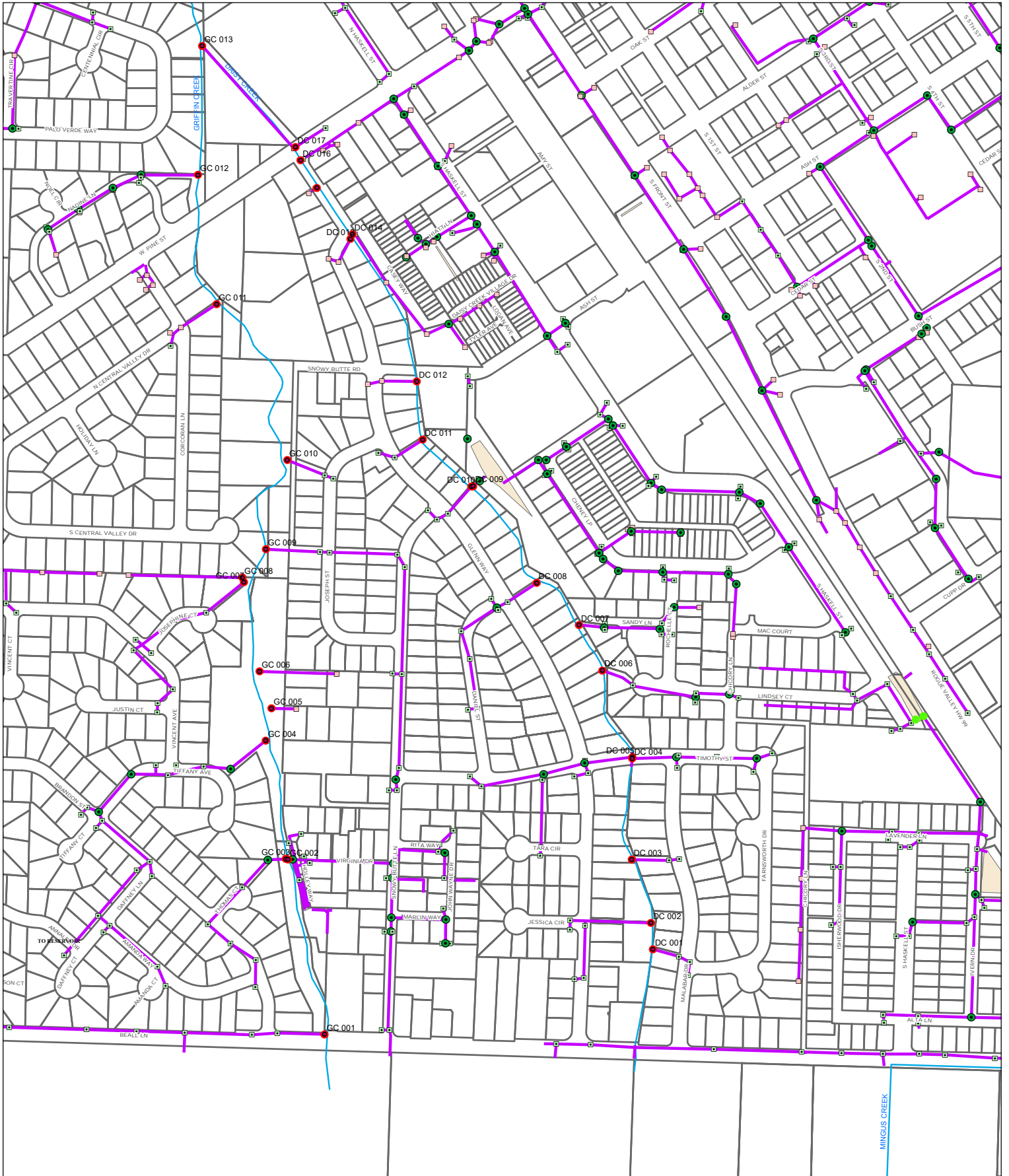


## Legend

- Stormdrain Lines
- Catch Basin
- Curb Inlet
- Outfall
- Manhole
- Pond Out



# Central Point City Stormdrain Outfalls

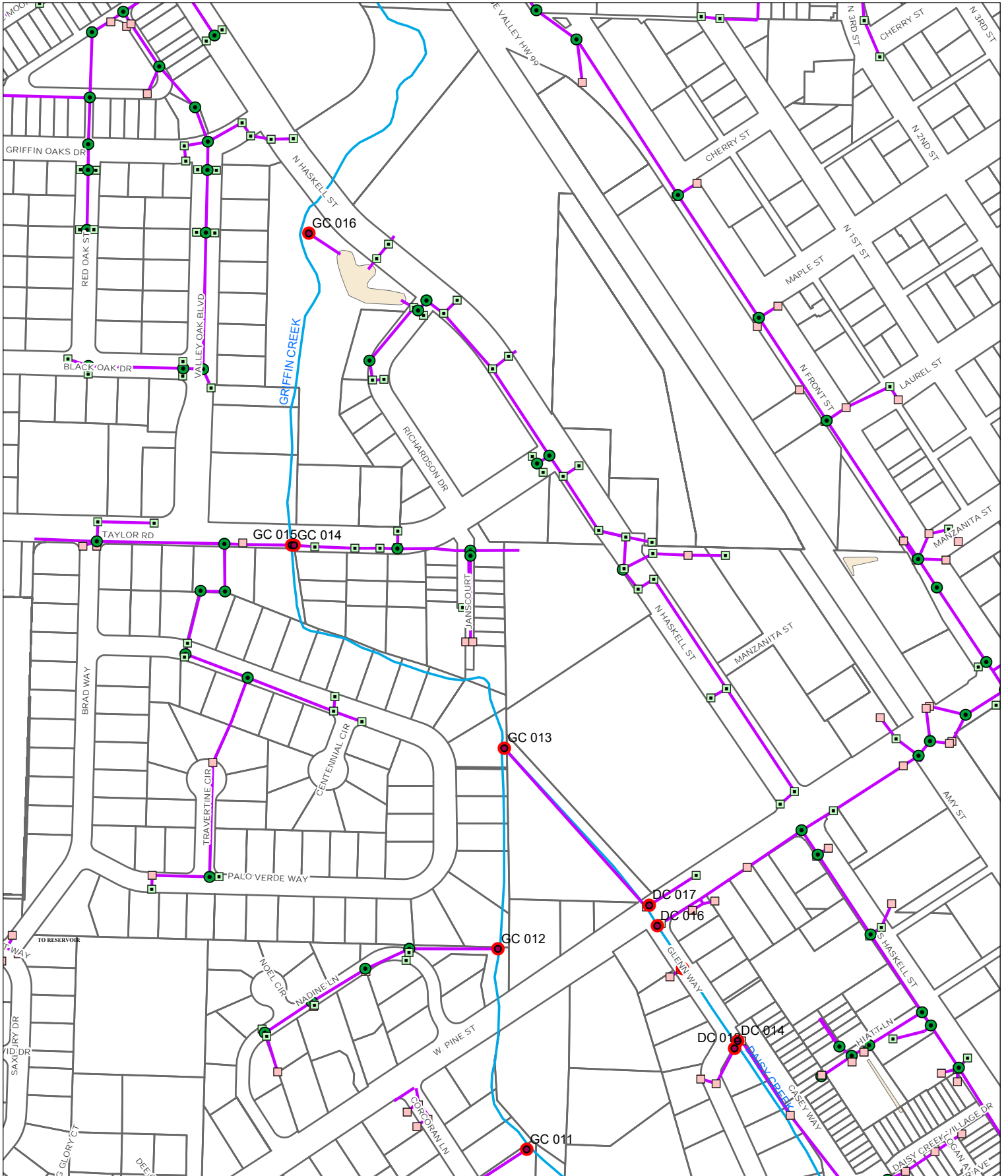


## Legend

- Stormdrain Lines
- Curb Inlet
- Outfall
- Catch Basin
- Manhole
- Pond Outfall



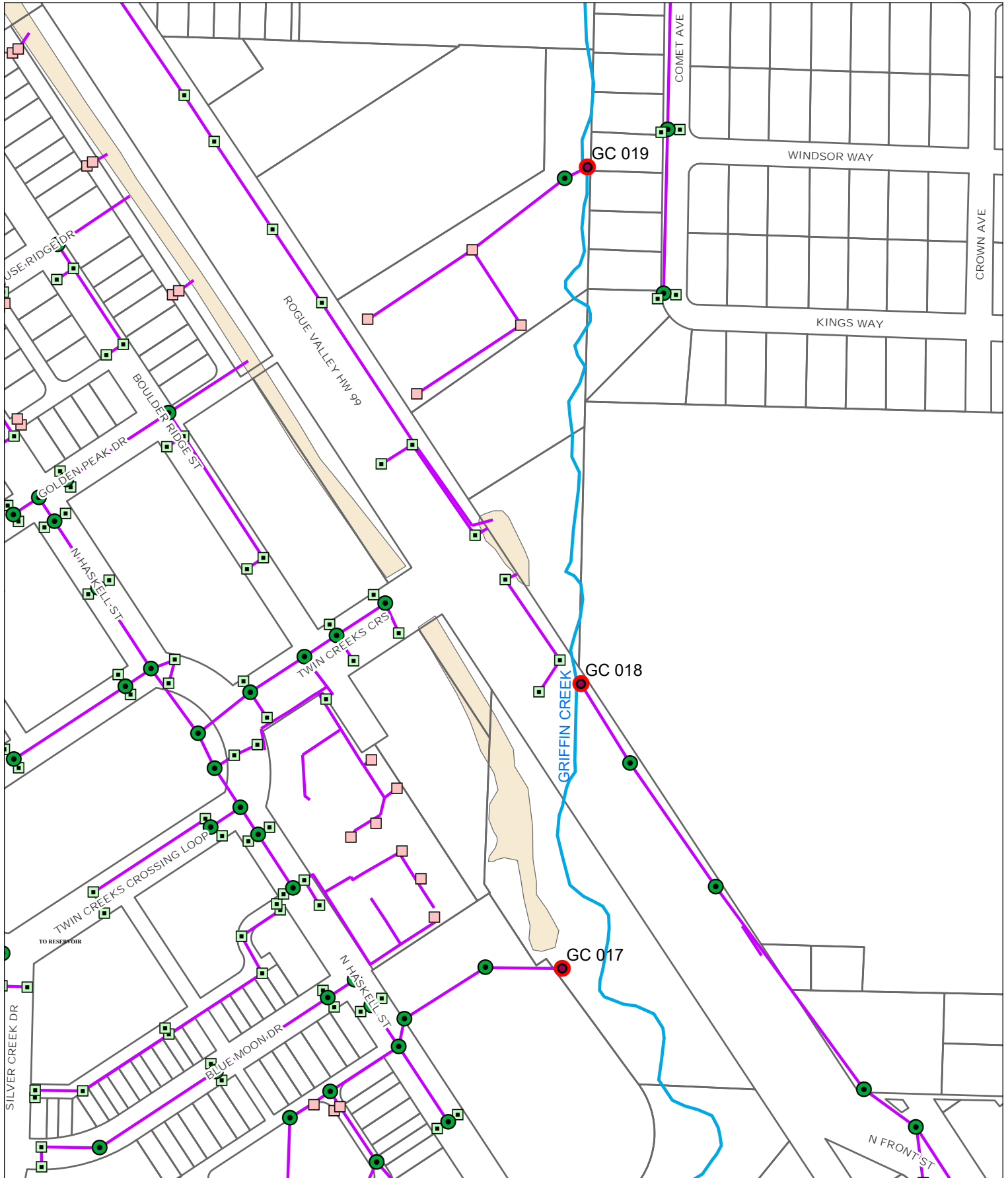
# Central Point City Stormdrain Outfalls



## Legend

- Stormdrain Lines
- Catch Basin
- Curb Inlet
- Outfall
- Manhole
- Pond Out

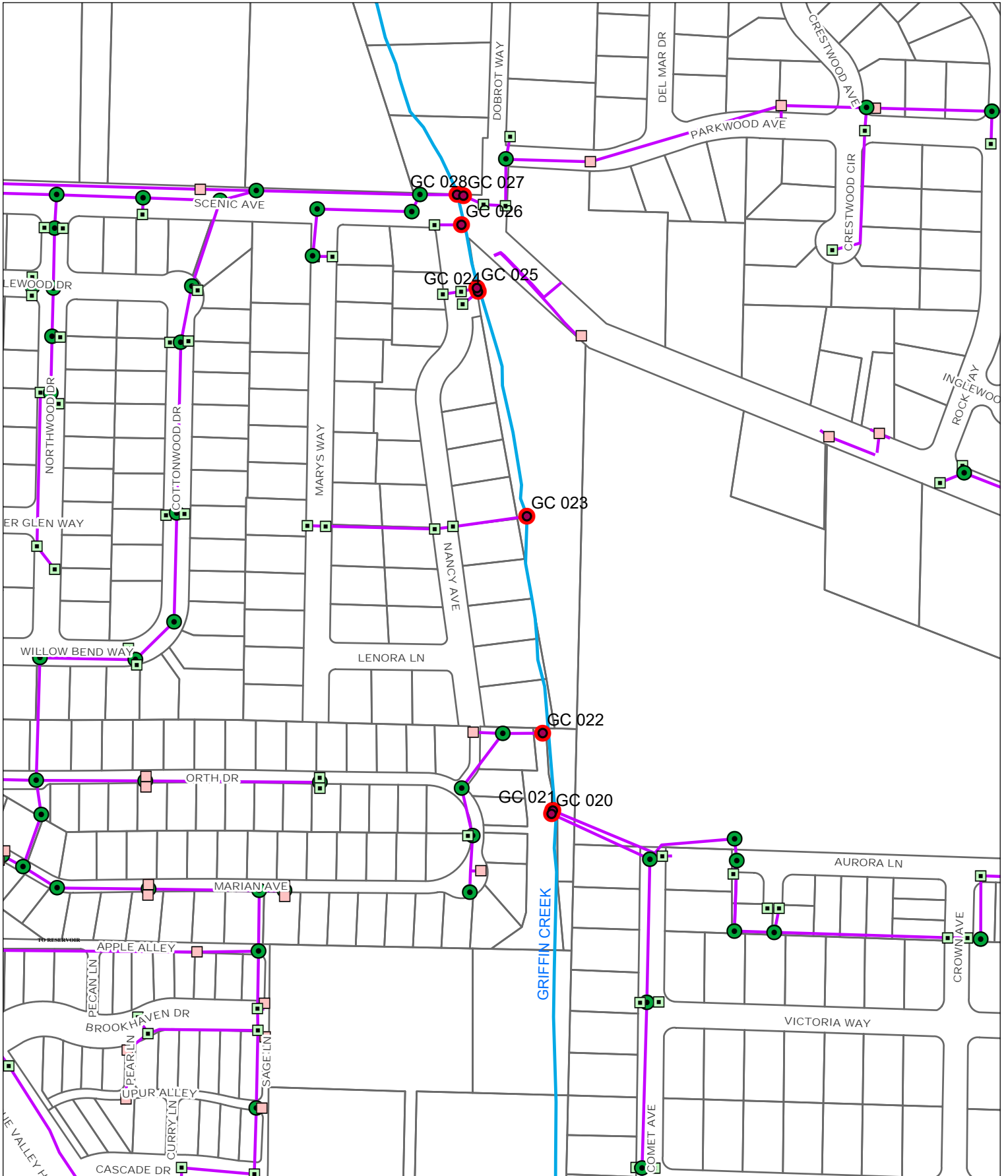
# Central Point City Stormdrain Outfalls



## Legend

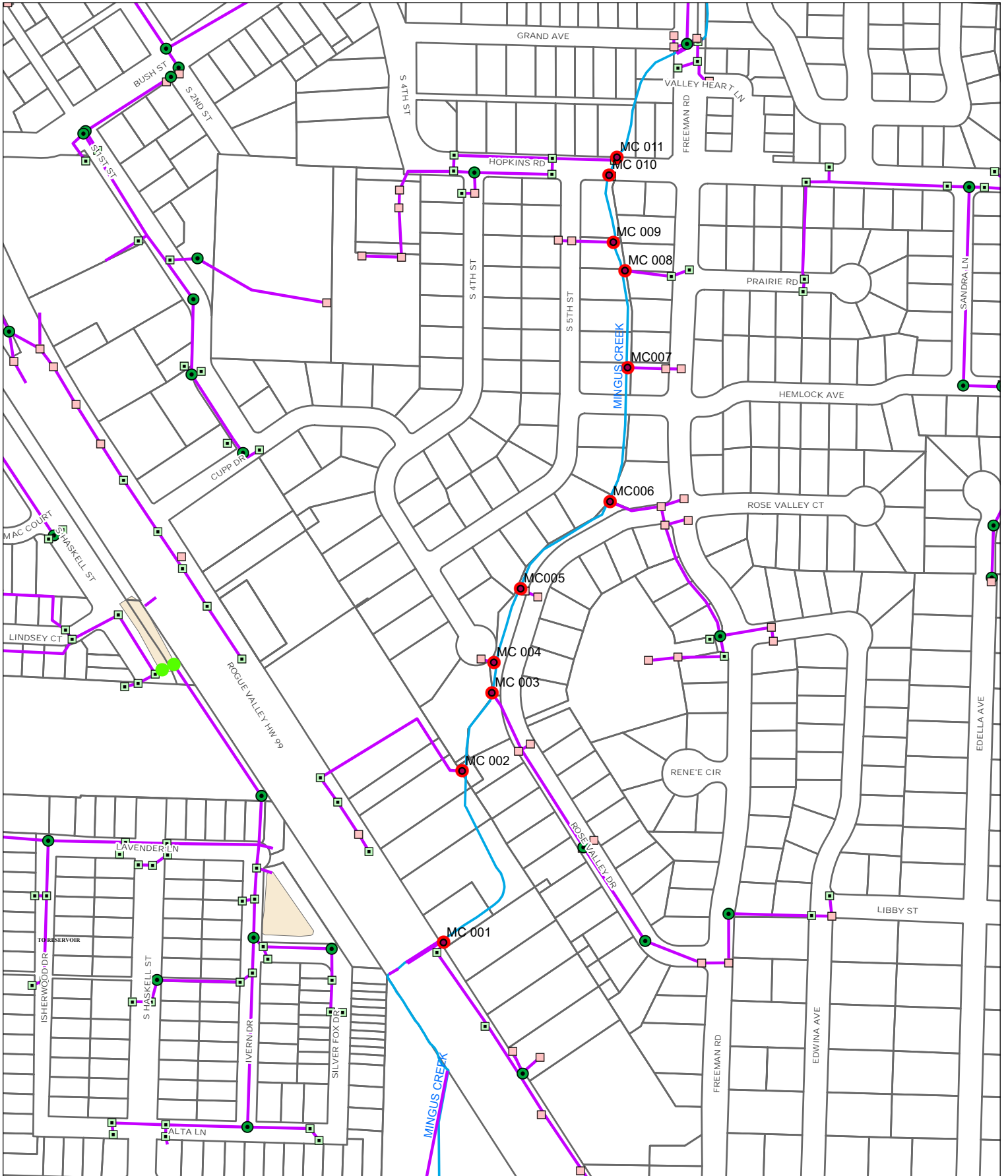
- Stormdrain Lines
- Catch Basin
- Curb Inlet
- Manhole
- Outfall
- Pond Out

# Central Point City Stormdrain Outfalls



- Legend**
- Stormdrain Lines
  - Catch Basin
  - Curb Inlet
  - Outfall
  - Manhole
  - Pond Out

# Central Point City Stormdrain Outfalls

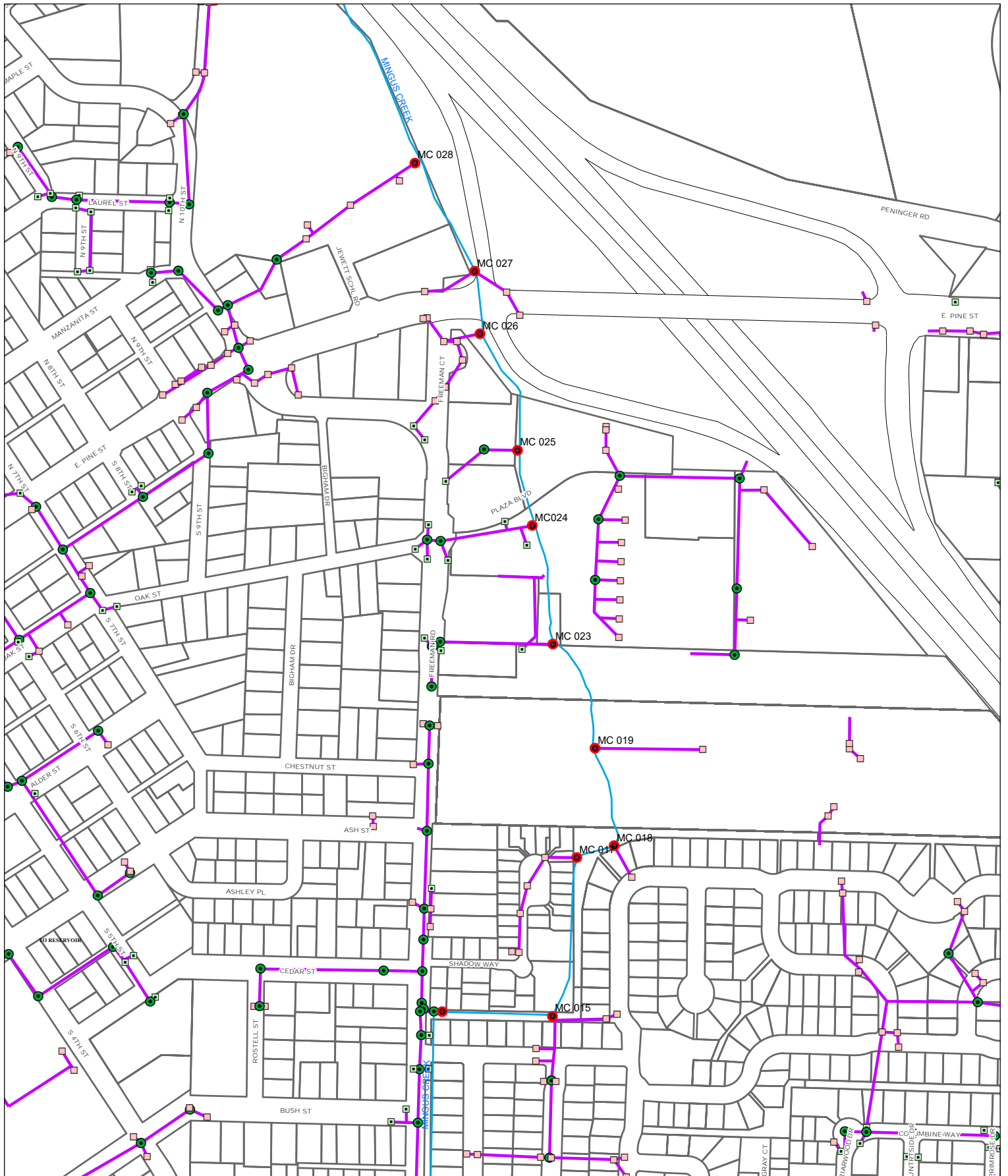


## Legend

- Stormdrain Lines
- Catch Basin
- Curb Inlet
- Manhole
- Outfall
- Pond Out



# Central Point City Stormdrain Outfalls

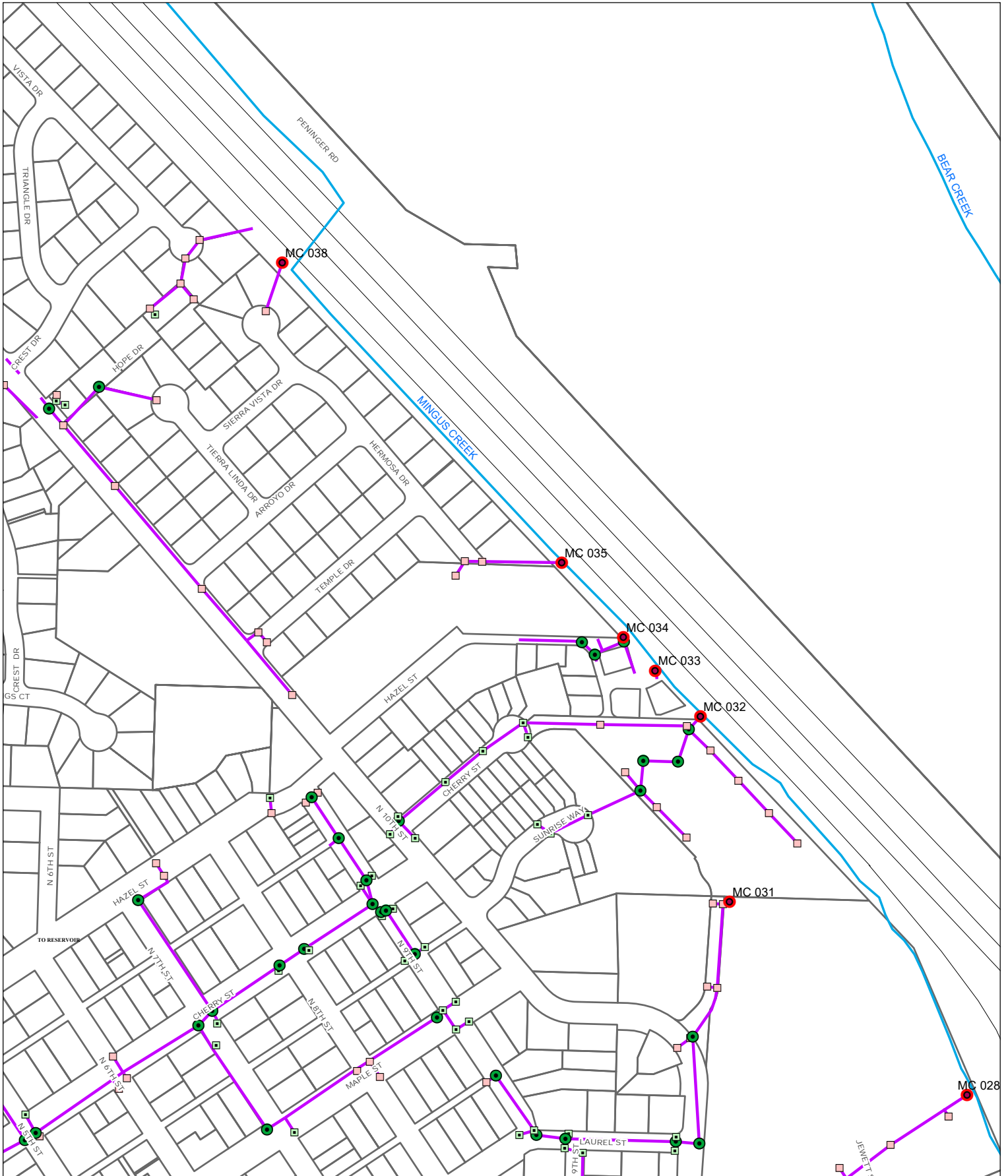


## Legend

- Stormdrain Lines
- Curb Inlet
- Outfall
- Catch Basin
- Manhole
- Pond Out



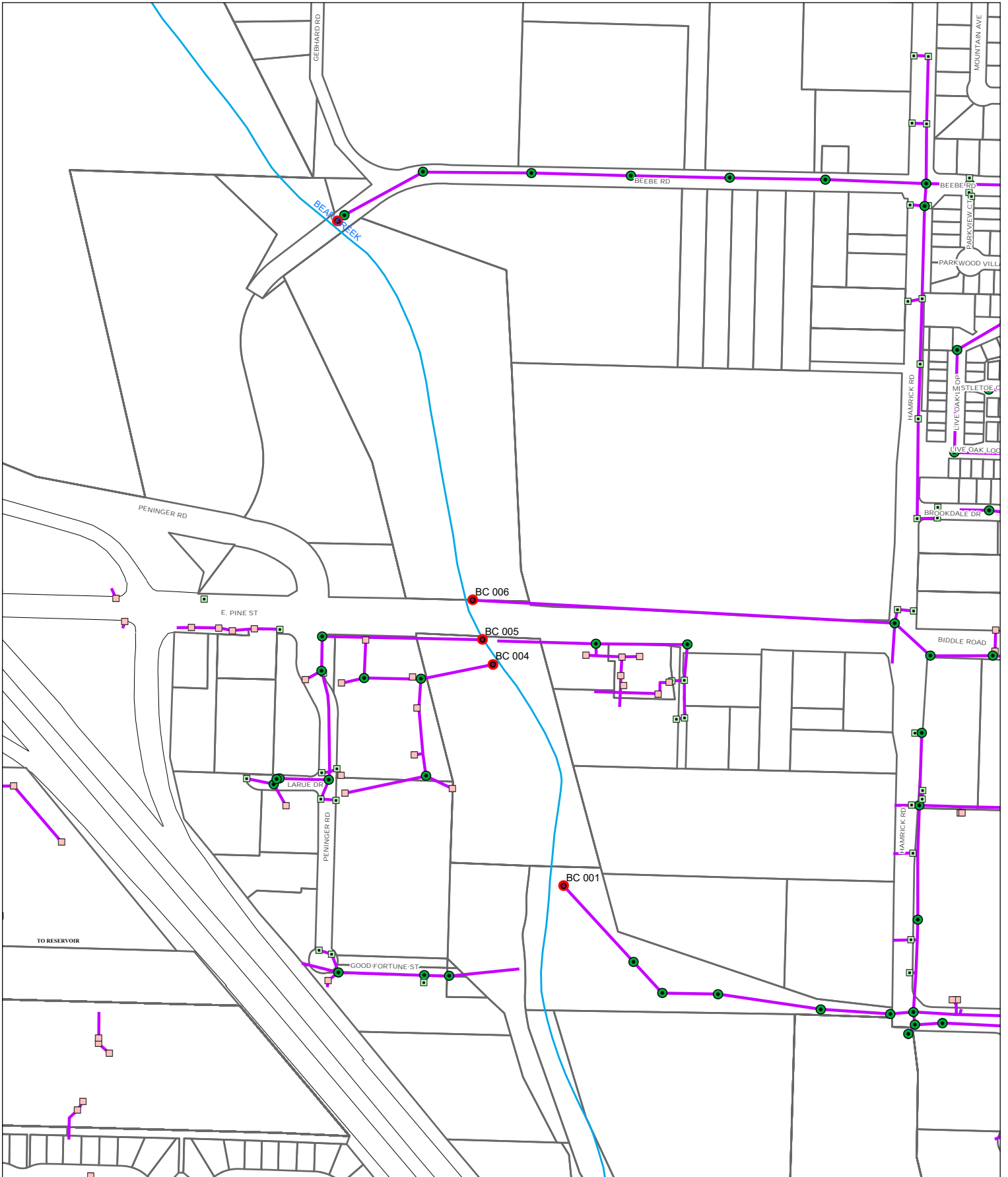
# Central Point City Stormdrain Outfalls



## Legend

- Stormdrain Lines
- Catch Basin
- Manhole
- Outfall
- Pond Out

# Central Point City Stormdrain Outfalls



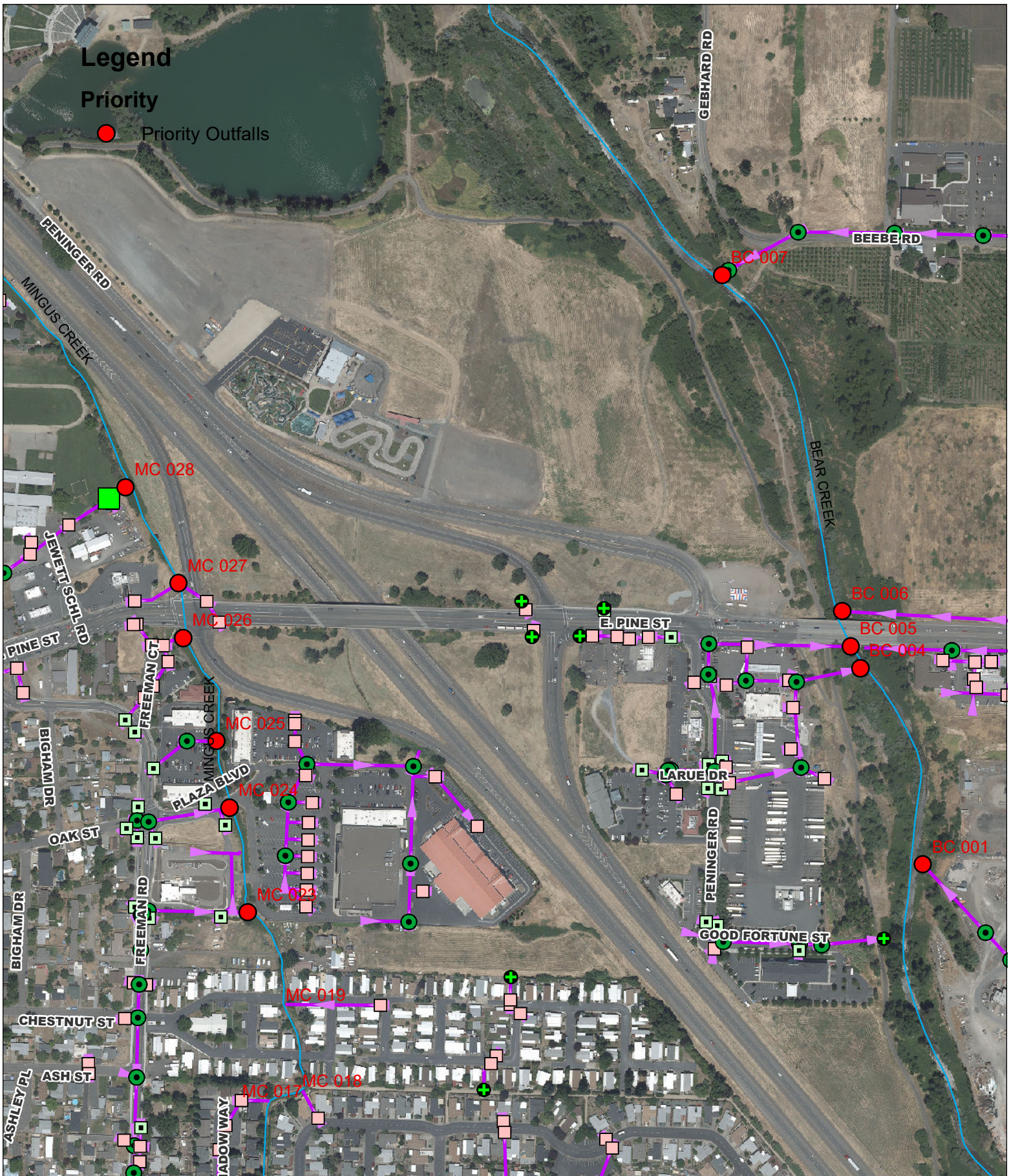
## Legend

- Stormdrain Lines
- Curb Inlet
- Outfall
- Catch Basin
- Manhole
- Pond Out









N



0 0.05 0.1 0.2 Miles

# Priority Outfalls







**Central Point Municipal Code**  
**Chapter 8.05**  
**STORM DRAIN PROTECTION**

Sections:

- 8.05.005 Purpose.**
- 8.05.010 Definitions.**
- 8.05.015 Applicability.**
- 8.05.020 Discharge prohibitions.**
- 8.05.025 Compatibility with other regulations.**
- 8.05.030 Designation of public works director or his/her designee.**
- 8.05.035 Ultimate responsibility.**
- 8.05.045 Watercourse protection.**
- 8.05.055 Right of entry--Inspection and sampling.**
- 8.05.060 Requirement to prevent, control, and reduce stormwater pollutants by the use of best management practices.**
- 8.05.065 Low impact development.**
- 8.05.070 Violations, enforcement, and penalties.**
- 8.05.075 Appeal of notice of violation.**
- 8.05.085 Civil penalties.**
- 8.05.090 Enforcement measures after appeal.**
- 8.05.095 Cost of abatement of the violation.**
- 8.05.100 Violations deemed a public nuisance.**
- 8.05.105 Remedies not exclusive.**
- 8.05.110 Severability.**

Prior legislation: Ord. 1847.

### **8.05.005 Purpose.**

The purpose of this chapter is to provide for the health, safety, and general welfare of the citizens of Central Point through the regulation of nonstormwater discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This chapter establishes methods for controlling the introduction of pollutants into the municipal separate storm sewer system (MS4) in order to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process. The objectives of this chapter are:

- A. To regulate the contribution of pollutants to the MS4 by stormwater discharges by any user.
- B. To prohibit illicit connections and discharges to the MS4.
- C. To establish legal authority to carry out all inspections, surveillance, monitoring, and enforcement procedures necessary to ensure compliance with this chapter. (Ord. 2056 §1(part), 2019).

### **8.05.010 Definitions.**

For the purposes of this chapter, the following shall mean:

- A. “Best management practices (BMPs)” means schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.
- B. “City” means city of Central Point.
- C. “Construction activities” means activities subject to NPDES construction permits. These include construction projects resulting in land disturbance of one acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.
- D. “Hazardous materials” means any material, including any substance, waste, or combination thereof, which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.
- E. “Illegal discharge” means any direct or indirect nonstormwater discharge to the storm drain system, except as exempted in Section [8.05.020](#)(B).
- F. “Illicit connections” are defined as either of the following:

1. Any drain or conveyance, whether on the surface or subsurface that allows an illegal discharge to enter the storm drain system including but not limited to any conveyances that allow any nonstormwater

discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency, or

2. Any drain or conveyance connected from a commercial or industrial land use to the storm drain system that has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

G. "Municipal separate storm sewer system (MS4)" means the system of conveyances (including sidewalks, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned and operated by the city and designed or used for collecting or conveying stormwater, and that is not used for collecting or conveying sewage.

H. "Nonstormwater discharge" means any discharge to the storm drain system that is not composed entirely of stormwater.

I. "Person" means any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

J. "Pollutant" means anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; nonhazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

K. "Premises" means any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

L. "Storm drainage system" means publicly owned facilities by which stormwater is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

M. "Stormwater" means any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation and resulting from such precipitation. (Ord. 2056 §1(part), 2019).

#### **8.05.015 Applicability.**

This chapter shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by the city. (Ord. 2056 §1(part), 2019).

## **8.05.020 Discharge prohibitions.**

A. Prohibition of Illegal Discharges. No person shall throw, drain, or otherwise discharge, cause, or allow others under its control to throw, drain, or otherwise discharge into the MS4 any pollutants or waters containing any pollutants, other than stormwater. Pollutants include, but are not limited to:

1. Septic, sewage, and dumping or disposal of liquids or materials other than stormwater into the MS4;
2. Discharges of washwater resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;
3. Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility, including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;
4. Discharges of washwater from mobile operations, such as mobile automobile or truck washing, steam cleaning, power washing, and carpet cleaning, etc.;
5. Discharges of washwater from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, or residential areas (including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.) where detergents are used and spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed);
6. Discharges of runoff from material storage areas, which contain chemicals, fuels, grease, oil, or other hazardous materials from material storage areas;
7. Discharges of pool or fountain water containing chlorine, biocides, or other chemicals;
8. Discharges of sediment, unhardened concrete, pet waste, vegetation clippings, or other landscape or construction-related wastes;
9. Discharges of trash, paints, stains, resins, or other household hazardous wastes;
10. Discharges of food-related wastes (grease, restaurant kitchen material and trash bin washwater, etc.).

B. Exemptions from Prohibitions. The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

1. The following discharges are exempt from discharge prohibitions established by this chapter: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped groundwater, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.



2. Discharges or flow from firefighting, and other discharges specified in writing by the city as being necessary to protect public health and safety.
3. Discharges associated with dye testing, however this activity requires a verbal notification to the city prior to the time of the test.
4. Any nonstormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the United States Environmental Protection Agency (EPA); provided, that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations; and provided, that written approval has been granted for any discharge to the storm drain system. (Ord. 2056 §1(part), 2019).

#### **8.05.025 Compatibility with other regulations.**

This chapter is not intended to modify or repeal any other ordinance, rule, regulation, or other provision of law. The requirements of this chapter are in addition to the requirements of any other ordinance, rule, regulation, or other provision of law, and where any provision of this chapter imposes restrictions different from those imposed by any other ordinance, rule, regulation, or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human health or the environment shall control. (Ord. 2056 §1(part), 2019).

#### **8.05.030 Designation of public works director or his/her designee.**

The public works director, or his/her designee, is appointed to administer and implement this chapter and the requirements/restrictions thereof. Any powers granted or duties imposed upon the public works director may be delegated in writing by the director to persons or entities acting in the beneficial interest of or in the employ of the agency. (Ord. 2056 §1(part), 2019).

#### **8.05.035 Ultimate responsibility.**

The standards set forth herein and promulgated pursuant to this chapter are minimum standards; therefore this chapter does not intend or imply that compliance by any person will ensure that there will be no contamination, pollution, or unauthorized discharge of pollutants. (Ord. 2056 §1(part), 2019).

#### **8.05.045 Watercourse protection.**

Every person owning property through which a watercourse passes, or such person's lessee or agent, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner, lessee or agent shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse. (Ord. 2056 §1(part), 2019).

#### **8.05.055 Right of entry--Inspection and sampling.**

Provided the city gives twenty-four-hours' advance notice, the city shall be permitted to enter and inspect premises subject to regulation under this chapter as often as may be necessary when entrance is deemed by the city to be necessary to determine compliance with this chapter. However, in cases of emergency or ongoing discharge, the city shall be given immediate access.

- A. Facility operators shall allow the city ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge stormwater, and the performance of any additional duties as defined by state and federal law.
- B. The city shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the public works director to conduct monitoring and/or sampling of the facility's stormwater discharge.
- C. The city has the right to require the discharger to install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.
- D. Unreasonable delays in allowing the city access to a permitted facility is a violation of a stormwater discharge permit and of this chapter. A person who is the operator of a facility with an NPDES permit to discharge stormwater associated with industrial activity commits an offense if the person denies the city reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this chapter.
- E. The city may seek issuance of an administrative search warrant from any court of competent jurisdiction if it has been refused access to any part of the premises from which stormwater is discharged, and (1) is able to demonstrate probable cause to believe that there may be a violation of this chapter, or (2) that there is a need to inspect and/or sample as part of a routine inspection and such sampling program is designed to verify compliance with this chapter or any order issued hereunder, or (3) to protect the overall public health, safety, and welfare of the community. (Ord. 2056 §1(part), 2019).

#### **8.05.060 Requirement to prevent, control, and reduce stormwater pollutants by the use of best management practices.**

The city will adopt requirements identifying best management practices for any activity, operation, or facility which may cause or contribute to pollution or contamination of stormwater, the storm drain system, or waters of the United States. The owner or operator of such activity, operation, or facility shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and nonstructural BMPs. Further, any person responsible for a property or premises that is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and nonstructural BMPs to prevent the further discharge of pollutants to the MS4. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be

deemed compliance with the provisions of this section. These BMPs shall be part of a stormwater management plan (SWMP) as necessary for compliance with requirements of the NPDES permit. (Ord. 2056 §1(part), 2019).

#### **8.05.065 Low impact development.**

A. Low impact development (LID) is a term used to describe a land planning and engineering design approach to manage stormwater runoff as part of green infrastructure. LID emphasizes conservation and use of on-site natural features to protect water quality.

B. Post-Construction Stormwater Development/Management Guidelines. Refer to most current version of the “Rogue Valley Stormwater Quality Design Manual.”

C. Maintenance Agreement. Stormwater treatment practices shall have an enforceable operation and maintenance agreement to ensure the system functions as designed. This agreement will include:

1. Access to stormwater treatment facilities at the site by the city for the purpose of inspection and repair.
2. A legally binding document specifying the parties responsible for the proper maintenance of the stormwater treatment facilities. The agreement will be recorded and run with the land.
3. For stormwater controls that include vegetation and/or soil permeability, the operation and maintenance manual must include maintenance of these elements to maintain the functionality of the feature.
4. The person responsible for the operation and maintenance of the stormwater facility shall have the operation and maintenance manual on site and available at all times. Records of the maintenance and repairs shall be retained and available for the last five years and available for inspection by the city.

D. Violation of this section shall be subject to the provisions of Section [8.05.070](#). (Ord. 2056 §1(part), 2019).

#### **8.05.070 Violations, enforcement, and penalties.**

A. Violations.

1. It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this chapter. Any person who has violated or continues to violate the provisions of this chapter may be subject to the enforcement actions outlined in this section or may be restrained by injunction or otherwise abated in a manner provided by law.
2. In the event the violation constitutes an immediate danger to public health or public safety, the city is authorized to enter upon the subject private property, without giving prior notice, to take any and all measures necessary to abate the violation and/or restore the property. The city is authorized to seek costs of the abatement as outlined in Section [8.05.095](#)

B. Warning Notice. When the city finds that any person has violated, or continues to violate, any provision of this chapter or any order issued hereunder, the city may serve upon that person a written warning notice, specifying

the particular violation believed to have occurred and requesting the offender to immediately investigate the matter and to seek a resolution to correct the violation. Investigation and/or resolution of the matter in response to the warning notice in no way relieves the alleged violator of liability for any violations occurring before or after receipt of the warning notice. Nothing in this subsection shall limit the authority of the city to take any action, including emergency action or any other enforcement action, without first issuing a warning notice. In addition to serving the alleged violator, such warning shall be mailed to the last known address of the owner as shown on the county assessor's records.

C. Notice of Violation. Whenever the city finds that a person has violated a prohibition or failed to meet a requirement of this chapter, the city may order compliance by written notice of violation to the responsible person. In the event the responsible person is someone other than the owner of the property, such notice shall also be mailed to the last known address of the owner as shown on the county assessor records.

The notice of violation shall contain:

1. The name and address of the alleged violator;
2. The address when available or a description of the building, structure or land upon which the violation is occurring, or has occurred;
3. A statement specifying the nature of the violation;
4. A description of the remedial measures necessary to restore compliance with this chapter and a time schedule for the completion of such remedial action;
5. A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed;
6. A statement that the determination of violation may be appealed to the city manager by filing a written notice of appeal within ten days of service of notice of violation; and
7. A statement specifying that, should the violator fail to restore compliance within the established time schedule, the work will be done by a designated governmental agency or a contractor and the expense thereof shall be charged to the violator and assessed as a lien against the property.

Such notice may require without limitation:

8. The performance of monitoring, analyses, and reporting;
9. The elimination of illicit connections or discharges;
10. That violating discharges, practices, or operations shall cease and desist;

11. The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property; and

12. The implementation of source control or treatment BMPs.

D. Stop Work Order. When the city finds that construction activity has resulted in violations of any provision of this chapter or any order issued hereunder, or that the person's past violations are likely to recur, the city may issue a stop work order to such person, directing such person committing the alleged violations to stop work immediately and directing that no further work be performed until compliance with this chapter is demonstrated.

E. Emergency Cease and Desist Orders. When the city finds that any person has violated, or continues to violate, any provision of this chapter or any order issued hereunder, or that the person's past violations are likely to recur, and that the person's violation(s) has (have) caused or contributed to an actual or threatened discharge to the MS4 or waters of the state which reasonably appears to present an imminent or substantial endangerment to the health or welfare of persons or to the environment, the city may issue an order to the violator directing it immediately to cease and desist all such violations.

F. Suspension Due to Illicit Discharges in Emergency Situations. The city may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge that presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or waters of the state. If the violator fails to comply with a suspension order issued in an emergency, the city may take such steps as it deems necessary to prevent or minimize damage to the MS4 or waters of the state.

G. Suspension Due to the Detection of Illicit Discharge. Any person discharging to the MS4 in violation of this chapter may have its MS4 access suspended if such suspension would abate or reduce an illicit discharge. The city will notify the violator of the proposed suspension of its MS4 access. The person may petition the city for reconsideration and hearing as provided in Section [8.05.075](#). A person commits an offense if the violator reinstates MS4 access to premises suspended pursuant to this chapter, without the prior approval of the city. A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this section, without the prior approval of the public works director. (Ord. 2056 §1(part), 2019).

#### **8.05.075 Appeal of notice of violation.**

Any person receiving a notice of violation or suspension of permit may appeal to the city manager for relief within ten days after service of notice. The petition shall include the facts upon which the petitioner relies for relief from the obligations of this chapter in relation to the property. If the city manager finds that it would work a real and unnecessary hardship upon the petitioner to comply with the terms of this chapter, then the city manager may relieve the petitioner of the obligations of the chapter in relation to the particular property, but nothing therein shall be construed as obligating the city to remove or abate the nuisance without charging the cost as a lien against the said property. (Ord. 2056 §1(part), 2019).



### **8.05.085 Civil penalties.**

For each violation of this chapter a civil penalty may be assessed in the amount of up to five hundred dollars per stormwater feature, not to exceed one thousand dollars per day. Each day a violation exists shall be considered a separate violation. The city shall consider the following criteria in determining the amount of any civil penalty to be assessed under this section:

- A. Amount of pollutant discharged.
- B. The type of pollutant discharged.
- C. Whether the discharge was intentional or accidental.
- D. The magnitude and seriousness of the impact of the discharge. (Ord. 2056 §1(part), 2019).

### **8.05.090 Enforcement measures after appeal.**

If the violation has not been corrected pursuant to the requirements set forth in the notice of violation, or, in the event of an appeal, within ten days of the decision of the city manager upholding the decision of the public works director, then representatives of the public works director shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent or person in possession of any premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above. (Ord. 2056 §1(part), 2019).

### **8.05.095 Cost of abatement of the violation.**

A. Within fifteen calendar days after abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The notice will provide that the costs of abatement, including administrative costs, is a special assessment against the property and will become a lien against the property unless paid within sixty days of the date of such notice. The property owner may file a written protest objecting to the amount of the assessment within thirty days from the date of notice. Objections to the proposed assessment shall be heard and determined by the council in its regular course of business.

B. An assessment for the cost of abatement as determined by the council shall be made by resolution of the council and shall thereupon be entered in the docket of city liens and, upon such entry being made, it shall constitute a lien upon the property from which the illicit discharge was abated.

C. The lien shall be enforced in the same manner as liens for street improvements are enforced and shall bear interest at the rate of six percent per year. Such interest shall commence to run thirty days after the entry of the lien in the lien docket.

D. An error in the name of the owner or agent in charge of the property shall not void the assessment nor will a failure to receive the notice of the assessment render the assessment void, but it shall remain a valid lien against the property. (Ord. 2056 §1(part), 2019).

### **8.05.100 Violations deemed a public nuisance.**

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken. (Ord. 2056 §1(part), 2019).

### **8.05.105 Remedies not exclusive.**

The remedies listed in this chapter are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the city to seek cumulative remedies.

The city may recover all attorneys' fees, court costs and other expenses associated with enforcement of this chapter, including sampling and monitoring expenses. (Ord. 2056 §1(part), 2019).

### **8.05.110 Severability.**

The provisions of this chapter are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this chapter or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this chapter. (Ord. 2056 §1(part), 2019).

---

The Central Point Municipal Code is current through Ordinance 2098, passed April 13, 2023.

Disclaimer: The City Recorder's office has the official version of the Central Point Municipal Code. Users should contact the City Recorder's office for ordinances passed subsequent to the ordinance cited above.

Pursuant to the charter and Ordinance 1969, all references throughout the code to "city administrator" have been changed to "city manager."

City Website: <https://www.centralpointoregon.gov/>

City Telephone: (541) 664-3321

[Code Publishing Company](#)





# City of Central Point, Oregon

## REPORTING A SPILL

### How do I report a spill or an illicit discharge in the City's stormdrain system or creek?

Remember, what goes down the storm drain goes to the nearest creek or stream and eventually into the Rogue River. Unfortunately, some people use storm drains to dump hazardous waste which kills fish and pollutes our watershed. If you see someone dumping paint, oil, soap, fertilizer or other waste into a storm drain, report it to our Environmental Service Department.



**For Central Point Public Works Department, call Mike Blake 541-664-7602 or Mike Ono 541-423-1030.**

**For after hours 541-326-3682.**

**Please remember to leave a contact name and number so we can call back if we need more information.**

Medford Call 541-774-2600

Ashland Call 541-552-2419

Phoenix, Talent, White City and Unincorporated Jackson County Call 541-779-4186

### Emergency Notification for Businesses

If a commercial business has a spill, slug discharge, unauthorized discharge, or any other discharge beyond the normal permitted operation, the City must be notified as soon as possible

### Business Hours Procedure

Follow these procedures for discharges occurring between the hours of 8 am and 5 pm Monday through Friday, with the exception of legal holidays:

- Immediately notify the City, be sure to state that a potential emergency exists.
- Be ready to give the following information if possible:

1. Date, time, and location of the spill.
2. Type, volume and concentration of waste discharged.
3. What corrective action has been taken if any.
4. Industrial contact person's name and telephone number

## After Hours Procedure

Follow these procedures for discharges occurring after normal business hours, during holidays or on weekends:

- Call the afterhours number listed above and let the answering service know that a potential emergency exist, giving them items 1-4 above. This will ensure that the oncall person is contacted as quickly as possible.



Search

SUBMIT SEARCH

Streets

Water

Floodplain Management

Stormwater Management

### **Reporting a Spill**

---

## **Stormwater Quality Documents & Information**

---

### **Low Impact Development**

Bids/RFPs

Standard Specifications & Details

I Would Like To....

Maps/GIS

Documents

Forms

Bear Creek Watershed Water Quality

National Pollution Discharge Elimination System

Recycling

System Development Charges



## *Contact Information*

City of Central Point  
Public Works Department  
140 So. 3rd Street  
Central Point, OR 97502  
**Telephone : 541-664-3321**  
Fax: 541-665-6000

**AFTER HOURS:** For **Water, Streets, Parks** related issues **after 5:00 PM** on weekdays or weekends and holidays, please call **541-326-3682.**

[View Full Contact Details](#)

City of Central Point | 140 S. 3rd Street | Central Point, OR 97502

[Home](#) [Contact Us](#) [Staff Login](#) [Subscribe](#) [Webmail](#)



# City of Central Point

## Stormwater Enforcement Response Plan

### 1. INTRODUCTION

#### a. PURPOSE AND APPROACH -

The City of Central Point is subject to the National Pollution Discharge Elimination System (NPDES) Water Quality Order for Small Municipal Separate Storm Sewer Systems (Phase 2 MS4 Permit). As a result, in compliance with Section A.3.c.iv the City is required to develop and implement an Enforcement Response Plan (ERP).

The City adopted the existing Storm Drain Protection Ordinance, Central Point Municipal Code (CPMC) Chapter 8.05, which incorporates several enforcement mechanisms that can be employed to escalate the level of enforcement depending on the circumstances, including notices of violations; cease and desist orders; abatement; administrative citations and civil penalties.

The purpose of this document is to formally establish consistency with the City's enforcement procedures and follow-up action for non-compliance with the City's Storm Drain Protection Ordinance. The City's approach to ensuring compliance with the CPMC and the ERP is based on progressive enforcement. In general, the City will initially use the least stringent enforcement action available for the subject violation, with each successive enforcement action based on the violator's responsiveness and the type of violation. In some cases, the City may need to escalate the enforcement actions noted in the ERP based on the severity of violation, history of violations and responsiveness of the violation. The enforcement official noted herein means the Public Works Director for the City of Central Point or designee or any agent of the City authorized to enforce the City Codes.

### 2. ENFORCMENT RESPONSES

#### a. VEBAL / WRITTEN WARNINGS –

The City will issue verbal and/or written warnings as an optional first level of enforcement response. City staff has the discretion to issue either a verbal warning or a written notice of correction, depending on the circumstances. Verbal warnings are primarily consultative in nature, specify the nature of the violation, and require corrective action.

Triggers	Enforcement Action	Implementation Description
<ul style="list-style-type: none"> <li>• First-time violator (minor environmental violations or threat)</li> <li>• No active or imminent threat of significant contamination to the storm drain system or the environment</li> <li>• Ability for violator to immediately correct situation.</li> <li>• Conditions that may result in a violation of CPMC Chapter 8.05 due to poor housekeeping or management practices.</li> <li>• Violator is cooperative and willing to remedy situation.</li> </ul>	Verbal / Written Warnings (Notice of Correction)	<ul style="list-style-type: none"> <li>• Specify the nature of the violation(s) or potential violation(s), document and photograph.</li> <li>• Specify required corrective actions.</li> <li>• Recommend (on the spot) appropriate BMPs to correct or prevent violation(s).</li> <li>• Follow up with written inspection summary, and photograph.</li> <li>• Violator shall take all reasonable steps to comply with required corrective actions and recommendations.</li> <li>• City will conduct a follow-up inspection within four weeks to verify corrections, document in writing, and photograph.</li> </ul>

**b. WRITTEN NOTICE (NOTICE OF VIOLATION) -**

The City will issue written notices as a typical first level of enforcement response to minor violations with minimal environmental impact. City staff will have the discretion to determine whether a written notice is appropriate for the scenario and whether escalated enforcement measures should be used.

Triggers	Enforcement Action	Implementation Description
<ul style="list-style-type: none"> <li>• First-time violators (moderate threat or isolated incident).</li> <li>• Failure to implement appropriate BMPS after receiving a verbal/written warning.</li> <li>• Minor infractions with minimal impact on the storm drain system and the environment.</li> <li>• Seasonal and recurrent non-storm water nuisance flows onto public right of way.</li> <li>• Violator is cooperative and willing to remedy situation.</li> </ul>	Written Notices Notice of Violation (NOV), Cease and Desist Order CPMC 8.05.070.B	<ul style="list-style-type: none"> <li>• Issue written NOV. Complete NOV specifying code section violations, corrective actions and compliance dates. Include photographs.</li> <li>• City will impose deadlines for violator to comply with specified corrective actions.</li> <li>• Conduct follow-up inspection after compliance deadline; document in writing, and photograph.</li> <li>• Violator may appeal the notice and order within 10 days after service of notice CPMC 8.05.075</li> </ul>

**3. ESCALATED ENFORCEMENT MEASURES -**

Escalated enforcement measures may be required in order to achieve compliance and/or adequate mitigation when violations pose a significant impact on the storm drain system and environment, or violators are uncooperative and fail to comply with written notices. The City has established legal authority, pursuant to CPMC Chapter 8.05 establishing different methods of enforcement actions, which allow the City to escalate enforcement responses when necessary to correct persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm. The City Enforcement official will have the discretion to determine the appropriate level of enforcement based on the nature and type of violation.

Triggers	Enforcement Actions	Implementation Description
<ul style="list-style-type: none"> <li>• Failure to comply with Notice and Order to Abate.</li> <li>• Violations with significant impacts on the storm drain system and the environment.</li> <li>• Violator economically benefits from the violation.</li> <li>• Violator is non-cooperative or minimally cooperative to remedy situation.</li> </ul>	<p>Administrative Civil Citation CPMC 8.05.070.C</p>	<ul style="list-style-type: none"> <li>• Issue administrative civil citation.</li> <li>• Follow service procedure</li> <li>• Conduct follow-up inspection after deadline to implement corrective actions; document, photograph concerns.</li> <li>• Violator may appeal the notice and order within 10 days after service of notice CPMC 8.05.075</li> </ul>
<ul style="list-style-type: none"> <li>• Failure to respond appropriately to written notices.</li> <li>• Failure to comply with notice and order and/or citations.</li> <li>• Violator is not cooperative.</li> <li>• Activities when, in the opinion of the enforcement official, cause an illicit discharge or cause or potentially cause uncontrolled pollutants to enter the stormwater conveyance system and present an imminent danger to the public health, safety, welfare or environment, or a violation of a NPDES permit</li> </ul>	<p>Stop Work Orders CPMC 8.05.070.D</p>	<ul style="list-style-type: none"> <li>• Notify Violator of unsafe condition, if possible.</li> <li>• Immediate cessation of any activities causing pollutants to enter the storm water systems that present imminent danger to the public health, safety, welfare, environment or that could violate an NPDES permit per CPMC 8.05.070.F</li> <li>• Conduct follow-up inspection after completion date for corrective actions; document, photograph concerns prior to allowing cessation to be lifted.</li> </ul>



Triggers	Enforcement Action	Implementation Description
<ul style="list-style-type: none"> <li>• First-time violator (minor environmental violations or threat)</li> <li>• No active or imminent threat of significant contamination to the storm drain system or the environment</li> <li>• Ability for violator to immediately correct situation.</li> <li>• Conditions that may result in a violation of CPMC Chapter 8.05 due to poor housekeeping or management practices.</li> <li>• Violator is cooperative and willing to remedy situation.</li> </ul>	Verbal / Written Warnings (Notice of Correction)	<ul style="list-style-type: none"> <li>• Specify the nature of the violation(s) or potential violation(s), document and photograph.</li> <li>• Specify required corrective actions.</li> <li>• Recommend (on the spot) appropriate BMPs to correct or prevent violation(s).</li> <li>• Follow up with written inspection summary, and photograph.</li> <li>• Violator shall take all reasonable steps to comply with required corrective actions and recommendations.</li> <li>• City will conduct a follow-up inspection within four weeks to verify corrections, document in writing, and photograph.</li> </ul>

**b. WRITTEN NOTICE (NOTICE OF VIOLATION) -**

The City will issue written notices as a typical first level of enforcement response to minor violations with minimal environmental impact. City staff will have the discretion to determine whether a written notice is appropriate for the scenario and whether escalated enforcement measures should be used.

Triggers	Enforcement Action	Implementation Description
<ul style="list-style-type: none"> <li>• First-time violators (moderate threat or isolated incident).</li> <li>• Failure to implement appropriate BMPS after receiving a verbal/written warning.</li> <li>• Minor infractions with minimal impact on the storm drain system and the environment.</li> <li>• Seasonal and recurrent non-storm water nuisance flows onto public right of way.</li> <li>• Violator is cooperative and willing to remedy situation.</li> </ul>	Written Notices Notice of Violation (NOV), Cease and Desist Order CPMC 8.05.070.B	<ul style="list-style-type: none"> <li>• Issue written NOV. Complete NOV specifying code section violations, corrective actions and compliance dates. Include photographs.</li> <li>• City will impose deadlines for violator to comply with specified corrective actions.</li> <li>• Conduct follow-up inspection after compliance deadline; document in writing, and photograph.</li> <li>• Violator may appeal the notice and order within 10 days after service of notice CPMC 8.05.075</li> </ul>

Triggers	Enforcement Actions	Implementation Description
<p>Any violation of CPMC Chapter 8.05, including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Failure to respond appropriately to written notices.</li> <li>• Failure to comply with notice and order and/or citations.</li> <li>• Violator is not cooperative.</li> <li>• Multiple offenses of similar nature.</li> <li>• Minor to moderate infractions with minimal to moderate impact on the storm drain system and the environment.</li> <li>• Third serious violation within a 12- month period.</li> <li>• Ongoing discharges of pollutants to the storm drain system or to the roadways, including flooding over a city roadway.</li> </ul>	<p>Civil Penalties CPMC 8.05.085</p>	<ul style="list-style-type: none"> <li>• For each violation, a civil penalty may be assessed in the amount of up to \$500 per stormwater feature, not to exceed \$1,000 per day. Each day a violation exists shall be considered a separate violation.</li> <li>• The city shall consider the following criteria in determining the amount of any civil penalty to be assessed under this section: <ul style="list-style-type: none"> <li>A. Amount of pollutant discharged.</li> <li>B. The type of pollutant discharged.</li> <li>C. Whether the discharge was intentional or accidental.</li> <li>D. The magnitude and seriousness of the impact of the discharge. (Ord. 2056 §1(part), 2019).</li> </ul> </li> </ul>

**4. METHOD OF SERVICES-**

The enforcement official, shall cause the NOV, and /or administrative civil citation to be served on the person(s) owning or occupying the premises, or upon the person(s) responsible for or committing the violation. Service of the notice and order to abate may be made in the following manner:

- a. By personal service; or
- b. By registered or certified mail.

**5. ENFORCEMENT TRACKING-**

Implementation of the enforcement actions identified in this plan will be tracked electronically in the City’s Stormwater Management database. Each enforcement action

will be documented with the following information being recorded.

- a. Name of owner/operator;
- b. Location of construction project or industrial facility;
- c. Proper address or County Maplot number;
- d. Description of violation;
- e. Required schedule for returning to compliance;
- f. Description of enforcement response used, including escalated responses if repeat violations occur or violations are not resolved within the time specified in the enforcement action;
- g. Accompanying documentation of enforcement response (e.g., notice of noncompliance, notice of violation, etc.);
- h. Any referral(s) to other city departments or outside agencies.



# SPILL/RELEASE REPORT

## 1 - GENERAL INFORMATION

OERS No. \_\_\_\_\_

- a. Company/Individual Name: \_\_\_\_\_
- b. Address: \_\_\_\_\_  
\_\_\_\_\_
- c. Company Contact Person: \_\_\_\_\_
- d. Phone Number(s): \_\_\_\_\_
- e. Report Prepared by: \_\_\_\_\_ Phone: \_\_\_\_\_
- f. Specific on-site location of the release (and address if different from above):  
\_\_\_\_\_  
\_\_\_\_\_

**Please provide a map of the site showing area(s) where the release occurred, any sample collection locations, location of roads/ditches/surface water bodies, etc.**

## 2 - RELEASE INFORMATION

- a. Date/Time Release started: \_\_\_\_\_ Date/Time stopped: \_\_\_\_\_
- b. Release was reported to (specify Date/Time/Name of Person contacted where applicable):  
 ODEQ \_\_\_\_\_  
 OERS \_\_\_\_\_  
 NRC \_\_\_\_\_  
 Other (describe): \_\_\_\_\_
- c. Person(s) reporting release: \_\_\_\_\_
- d. Name, quantity and physical state (gas, liquid, solid or semi-solid) of material(s) released:  
\_\_\_\_\_  
\_\_\_\_\_

**Please attach copies of material safety data sheets (MSDS) or constituent profiles for released material(s).**

- e. The release affected: \_\_\_ Air \_\_\_ Groundwater \_\_\_ Surface Water \_\_\_ Soil \_\_\_ Sediment
- f. Name and distance to nearest surface water body(s), even if unaffected (include locations of creeks, streams, rivers and ditches that discharge to surface water on maps):  
\_\_\_\_\_

Has the release reached the surface water identified above?: \_\_\_ Yes \_\_\_ No  
 Could the release potentially reach the surface water identified above? \_\_\_ Yes \_\_\_ No

Explain: \_\_\_\_\_  
\_\_\_\_\_

- g. Depth to nearest aquifer/groundwater: \_\_\_\_\_  
 Is nearest aquifer/groundwater potable (drinkable)? \_\_\_ Yes \_\_\_ No  
 Has the release reached the nearest aquifer/groundwater? \_\_\_ Yes \_\_\_ No  
 Explain: \_\_\_\_\_  
\_\_\_\_\_

h. Release or potential release to the air occurred?  Yes  No

Explain: \_\_\_\_\_  
\_\_\_\_\_

i. Was there a threat to public safety?  Yes  No

j. Is there potential for future releases?  Yes  No

Explain: \_\_\_\_\_  
\_\_\_\_\_

k. Describe other effects/impacts from release (emergency evacuation, fish kills, etc.):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

l. Describe how the release occurred. Include details such as the release source, cause, contributing weather factors, activities occurring prior to or during the release, dates and times of various activities, first responders involved in containment activities, etc.:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 3 - SITE INFORMATION

a. Adjacent land uses include (check all that apply and depict on site maps):

Residential  Commercial  Light Industrial  Heavy Industrial  
 Agricultural  Other (describe): \_\_\_\_\_

b. What is the population density surrounding the site: \_\_\_\_\_

c. Is the site and/or release area secured by fencing or other means?  Yes  No

d. Soil types (check all that apply):  alluvial  bedrock  clay  sandy  
 silt  silty loam  artificial surface (cement/asphalt/etc.)

e. Describe site topography: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### 4 - CLEANUP INFORMATION

a. Was site cleanup performed?  Yes  No

If No, explain: \_\_\_\_\_  
\_\_\_\_\_

b. Who performed the site cleanup?

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Cleanup Supervisor: \_\_\_\_\_

Phone Number(s): \_\_\_\_\_



c. Has all contamination been removed from the site?  Yes  No  
If No, explain: \_\_\_\_\_

d. Estimated volume of contaminated soil removed: \_\_\_\_\_

e. Estimated volume of contaminated soil left in place: \_\_\_\_\_

f. Was a hazardous waste determination made for cleanup materials?  Yes  No

g. Based on the determination, are the cleanup materials hazardous wastes?  
 Yes  No If Yes, list all waste codes: \_\_\_\_\_

h. Was contaminated soil or water disposed of at an off-site location?  Yes  No

**If yes, attach copies of receipts/manifests/etc., and provide the following information:**

Facility Name: \_\_\_\_\_

Address: \_\_\_\_\_

Facility Contact: \_\_\_\_\_

Phone Number(s): \_\_\_\_\_

i. Is contaminated soil or water being stored and/or treated on-site?  Yes  No  
If yes, please describe the material(s), storage and/or treatment area, and methods utilized  
(attach additional sheets if necessary):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

j. Describe cleanup activities including what actions were taken, dates and times actions were initiated and completed, volumes of contaminated materials that were removed, etc. (attach additional sheets or contractor reports if necessary or more convenient):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## 5 - SAMPLING INFORMATION

**Attach copies of all sample data and indicate locations of sample collection on maps.**

a. Were samples of contaminated soil collected?  Yes  No  N/A

b. Were samples of contaminated water collected?  Yes  No  N/A

c. Were samples collected to show that all contamination had been removed?  
 Yes  No  N/A

d. Describe sampling activities, results and discuss rationale for sampling methods:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**6 - ADDITIONAL INFORMATION**

- a. Provide a description or plan outlining the list of actions to be taken to prevent future releases from occurring.

---

---

---

---

**7 - SPILL REPORT CHECKLIST**

**To ensure that you have gathered all the information requested by the Department in this Spill/Release Report, please complete the following checklist:**

- \_\_\_\_\_ Map(s), pre and post cleanup photos of the site showing buildings, roads, surface water bodies, ditches, waterways, point of the release, extent of contamination, areas of excavation and sample collection locations attached.
- \_\_\_\_\_ Material Safety Data Sheet (MSDS), or constituent profiles for released material(s) attached. **Note: an MSDS is not required for motor fuels.**
- \_\_\_\_\_ Sampling data/analytical results attached.
- \_\_\_\_\_ Receipts/manifests (if any) for disposal of cleanup materials attached.
- \_\_\_\_\_ Contractor reports (if any) attached.

If you would like to submit your report by e-mail an electronic version can be downloaded on the internet at this link: <http://www.oregon.gov/deq/filterdocs/SpillReleaseReportForm.pdf>. This form can then be submitted by e-mail to [DOSPILLS@deq.state.or.us](mailto:DOSPILLS@deq.state.or.us). Please ensure that emails submitted to DEQ are less than 8 MB each. Multiple emails can be submitted to the DEQ if a report has to be divided into smaller sections for transmittal.

I certify that based on information and belief formed after reasonable inquiry, the statements and information contained in this submittal are true, accurate and complete.

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

## Illicit Discharges in Central Point

**Incident ID:** 450 S 2nd st

**Responder Information**

Call taken by: mike blake

Call date: 5-10-22

Call time: 5:45 pm

Precipitation (inches) in past 24-48 hrs:

**Reporter Information**

Incident time: 4:30 pm

Incident date: 5/10/22

Caller contact information (*optional*): Mark Brindle ( public works department )

**Incident Location** (*complete one or more below*)

Stream:

Closest street address: 450 S 2nd st , School District

Nearby landmark:

**Primary Location Description**

**Secondary Location Description:**

Stream corridor  
(*In or adjacent to stream*)

Outfall

In-stream flow

Along banks

Upland area  
(*Land not adjacent to stream*)

Near storm drain

Near other water source (storm water pond, wetland, etc.):

Narrative description of location:

Contractor dishcharging water truck into S/D train at New school being built

**Upland Problem Indicator Description**

Dumping

Oil/solvents/chemicals

Sewage

Wash water, suds, etc.

Other: \_\_\_\_\_

**Stream Corridor Problem Indicator Description**

Odor  None  Sewage  Rancid/Sour  Petroleum (gas)

Sulfide (rotten eggs);  
natural gas

Other: Describe in "Narrative" section

Appearance  "Normal"

Oil sheen

Cloudy

Suds

Other: Describe in "Narrative" section

Floatables  None:

Sewage (toilet paper, etc)

Algae

Dead fish

Other: Describe in "Narrative" section

Narrative description of problem indicators:

Un- Chlorinated water to S/D system

Suspected Violator (name, personal or vehicle description, license plate #, etc.):

SOS construction

**Investigation Notes**

Initial investigation date: <b>5-11-22</b>	Investigators: <b>mike blake</b>
<input checked="" type="checkbox"/> No investigation made <b>yes</b>	Reason: <b>follow up</b>
<input type="checkbox"/> Referred to different department/agency:	Department/Agency:
<input type="checkbox"/> Investigated: No action necessary	
<input type="checkbox"/> Investigated: Requires action	Description of actions:
Hours between call and investigation: <b>13 hrs</b>	Hours to close incident: <b>1</b>
Date case closed: <b>5-11-22</b>	

Notes:

Mark Brindle drove by and Noticed contractor dishcharging into system & stopped him, asked if water was dechlorinated , driver did not know what that ment . Mark did not let driver continue process. Mark then called me and left Vicemail, i responded the next morning & talked to contractor & explained Violation of discharge to S/D system . Contractor did not it was a violation and stated that it would not happen again

Signature: Mike Blake

## Illicit Discharges in Central Point

**Incident ID:** glengrove rd

**Responder Information**

Call taken by: Mike blake

Call date: 6-22-22

Call time: 8:40

Precipitation (inches) in past 24-48 hrs:

**Reporter Information**

Incident time: 8:30

Incident date: 6-22-22

Caller contact information (optional): Hunter - Public Works Dept

**Incident Location** (complete one or more below)

Stream: Bear cr

Closest street address: 1050 Glengrove

Nearby landmark:

**Primary Location Description**

Stream corridor  
(In or adjacent to stream)

Upland area  
(Land not adjacent to stream)

**Secondary Location Description:**

Outfall

Near storm drain

In-stream flow

Near other water source (storm water pond, wetland, etc.):

Along banks

Narrative description of location:

Glengrove ave @ Juanita way

**Upland Problem Indicator Description**

Dumping

Wash water, suds, etc.

Oil/solvents/chemicals

Other: \_\_\_\_\_

Sewage

**Stream Corridor Problem Indicator Description**

Odor

None

Sulfide (rotten eggs);  
natural gas

Sewage

Other: Describe in "Narrative" section

Rancid/Sour

Petroleum (gas)

Appearance

"Normal"

Other: Describe in "Narrative" section

Oil sheen

Cloudy

Suds

Floatables

None:

Other: Describe in "Narrative" section

Sewage (toilet paper, etc)

Algae

Dead fish

Narrative description of problem indicators:

green color

Suspected Violator (name, personal or vehicle description, license plate #, etc.):

Gary Tillery - flooring contractor  
Tillery floors ( 541-224-5240 )



**Investigation Notes**

Initial investigation date:	Investigators:
<input type="checkbox"/> No investigation made	Reason:
<input type="checkbox"/> Referred to different department/agency:	Department/Agency:
<input type="checkbox"/> Investigated: No action necessary	
<input checked="" type="checkbox"/> Investigated: Requires action X	Description of actions: issued verble warning
Hours between call and investigation: 10 minutes	Hours to close incident: 30 minutes

Date case closed: 6-22-22

Notes:

contractor was washing water soluble glue from tools into the street , I sttopped him and explained to him where the water goes and what the effects are . talked to him about the violations of the water quality act and issued him a verble warning at this time

Signature: Mike blake

**Dry Weather Outfall Inspection June 2023**

Inspection Date	Out Fall ID	Nearest MH or Inlet ID	Pipe Material	Inspected by:	Observations	Field Analysis if needed
7/14/2023	MC003	CB17	Concrete	MB	Dry	
7/14/2023	MC004	CB14	Concrete	MB	Dry	
7/14/2023	MC005	CB98	Concrete	MB	Dry	
7/14/2023	DC017	CB1904	Concrete	MB	Dry	
7/14/2023	DC016	CI905	Concrete	MB	Dry	
7/14/2023	DC015	CB137	Concrete	MB	Dry	
7/14/2023	DC013	CB143	Concrete	MB	Dry	
7/14/2023	DC014	CB495	Concrete	MB	Dry	
7/14/2023	GC012	MH287	HDPE	MB	Dry	
7/14/2023	GC026	CI755	CMP	MB	Dry	
7/14/2023	GC027	CI523	Concrete	MB	Dry	
7/14/2023	GC028	MH378	Concrete	MB	Dry	
7/14/2023	HC012	CI681	HDPE	MB	Dry	
7/14/2023	HC011	MH798	HDPE	MB	Dry	
7/14/2023	HC010	CB568	PVC	MB	Dry	
7/14/2023	HC005	PONDOUT4	HDPE	MB	Dry	
7/15/2023	BC009	MH1695	HDPE	MB	Dry	
7/15/2023	BC008	MH854	Concrete	MB	Dry	
7/15/2023	DC009	MH618	HDPE	MB	Dry	
7/15/2023	DC 010	CI579	Concrete	MB	Dry	
7/15/2023	GC018	MH405	Concrete	MB	Dry	
7/15/2023	GC019	MH409	PVC	MB	Dry	



**RVSS proposed Pollutant Parameter Action Levels for dry weather sampling in the  
Bear Creek Watershed**

Indicator monitoring is used to confirm illicit discharges, and provides clues about their source or origin. The following indicators can be used during dry weather outfall inspections to determine whether or not an upstream investigation is warranted.

Parameter	Bear Creek Basin Action Level	Rationale
E. coli	406 MPN/100mL	Single sample standard for fresh water.
pH	6.5-8.5	OAR 340-041-0275 water quality standard for the Rogue Basin.
Temperature	NA	Not a useful parameter as outfalls are only visited one time.
Conductivity	>450 uS/cm	Based on sample values from Bear Creek OFs, see explanation below.
Turbidity	15 NTU	Based on recommendation of Rogue Basin Coordinator.
Total Chlorine residual	Not measuring.	

**Conductivity Pollutant Parameter Action Level**

RVSS has a very small dataset from dry season sampling of flowing outfalls over the past 9 years, from which the average conductivity is 455 with a standard deviation of 145 us/cm. The OFs have not had any other parameters that would indicate a pollutant issue. RVSS' data corroborates with data collected at stormwater outfalls by RVCOG from 2013 to 2018 during dry weather. RVCOG's average conductivity during dry weather sampling is 426 with a standard deviation of 341 us/cm.

DEQ had suggested a pollutant parameter action level of >325uS/cm for the Willamette Valley, and the Rogue Basin TMDL coordinator thought this was appropriate. However, based on data collected from stormwater outfalls in the Bear Creek watershed, this value seems too conservative. I am proposing a pollutant parameter action level of 450 uS/cm for dry weather sampling in the Bear Creek Valley.





# Public Works Inspection and Maintenance

**From:** [Kenneth Parent](#)  
**To:** [Mike Ono](#); [Cyndi Weeks](#); [Mark Brindle](#)  
**Cc:** [Mike McClenathan](#); [Doug Norman](#)  
**Subject:** RE: Stormwater Report Gathering  
**Date:** Tuesday, July 18, 2023 4:49:30 PM  
**Attachments:** [image001.png](#)

---

If you need anything else let me know

Inspected 267 storm pipes  
Cleaned 20,235 ft. of storm pipe  
Inspected 297 inlets and manholes  
Mowed 40 acres of water quality assets  
Cleaned 5 water quality structures  
Swept 3672 miles

Kenneth Parent, Water/Storm Supervisor  
Public Works Department  
City of Central Point  
140 South Third Street  
Central Point, OR 97502  
Desk: 541-664-3321 (x264)  
Fax: 541-665-6000  
[www.centralpointoregon.gov](http://www.centralpointoregon.gov)

---

**From:** Mike Ono <Mike.Ono@centralpointoregon.gov>  
**Sent:** Tuesday, July 18, 2023 8:27 AM  
**To:** Kenneth Parent <Kenneth.Parent@centralpointoregon.gov>; Cyndi Weeks <Cyndi.Weeks@centralpointoregon.gov>; Mark Brindle <Mark.Brindle@centralpointoregon.gov>  
**Cc:** Mike McClenathan <Mike.McClenathan@centralpointoregon.gov>; Doug Norman <Doug.Norman@centralpointoregon.gov>  
**Subject:** Stormwater Report Gathering

Good morning,  
It's that time of year when I will be needing to gather information for the City's end of the year TMDL and MS4 Phase 2 Stormwater reports.  
Below are is the information I will need and from whom.  
If we did any other stormwater related activities please let me know and I can include them.

Kenny – Stormdrain inlet and pipe inspection.  
How many and how much  
Stormwater Quality features – How many did we maintain.

Mark - Herbicide Applications

How much did we use, including outsourced sprayers.

Cyndi- Landfill amounts for street sweeper

Adopt a street program information on what groups did what.

Pet station dog bags and did we add any stations?

Thank you,

*Mike Ono*

Mike Ono, CFM

Environmental Services/ GIS Coordinator

Public Works Department

City of Central Point

140 South Third Street

Central Point, OR 97502

Desk: 541-664-3321 (x243)

Fax: 541-664-6384

[www.centralpointoregon.gov](http://www.centralpointoregon.gov)



# TMDL Monitoring IGA with RVCOG

## INTERAGENCY COOPERATIVE FUNDING AGREEMENT FOR A BEAR CREEK WATERSHED NON-POINT SOURCE POLLUTION (TMDL) MONITORING AND IMPLEMENTATION PROJECT

THIS INTERAGENCY COOPERATIVE FUNDING AGREEMENT is made and entered into by and between the Rogue Valley Council of Governments, a voluntary intergovernmental association, hereinafter referred to as RVCOG, and the City of Central Point, hereinafter referred to as AGENCY, both of which are hereinafter referred to collectively as the PARTIES.

The DESIGNATED MANAGEMENT AGENCIES (DMAs) include the Rogue Valley Council of Governments, Jackson County, City of Ashland, City of Central Point, City of Jacksonville, City of Medford, City of Phoenix, City of Talent, Oregon State Department of Agriculture, and the Oregon State Department of Forestry.

### WITNESSETH:

**WHEREAS**, the DMAs have been placed under an Implementation and Compliance Schedule by the Oregon State Department of Environmental Quality which directs that the DMAs correct non-point source pollution problems in the Bear Creek Watershed in order to meet the requirements of the U.S. Clean Water Act; and

**WHEREAS**, the Department of Environmental Quality's directive includes requirements that the DMAs work collectively by using a watershed approach to resolve the non-point source pollution problems within the Bear Creek Watershed; and

**WHEREAS**, the DMAs have agreed to collectively employ the RVCOG to administer and manage the implementation of a TMDL Program including water quality testing which targets the identification of and reduction in non-point pollution within the Bear Creek watershed.

NOW THEREFORE, in consideration of the mutual terms, conditions, stipulations, and covenants herein contained, the PARTIES to hereby agree to the following:

#### 1. SCOPE OF SERVICES

- a. The scope of services shall include administration and management of a TMDL Program (see Exhibit A).

#### 2. EFFECTIVE DATE AND DURATION

- a. This Agreement shall become effective on July 1, 2022. Unless earlier terminated or extended, this Agreement shall expire on June 30<sup>th</sup>, 2023, or when RVCOG's completed performance has been accepted by AGENCY, whichever event occurs first. However, such expiration shall not extinguish or prejudice AGENCY's right to enforce this Agreement with respect to any breach of RVCOG's warranty; or any default or defect in RVCOG's performance that has not been cured.

#### 3. COMPENSATION

- a. Payment for all work performed under this AGREEMENT shall be made as set forth below from available and authorized AGENCY funds and shall not exceed the maximum sum of \$6,310.40 (Six thousand, three hundred and ten dollars and forty cents) to complete the work outlined in the attached Scope of Work (Exhibits A and B).

- b. AGENCY shall make payment to RVCOG in full. Total payment shall be received by RVCOG prior to September 30<sup>th</sup>, 2022, unless other arrangements are mutually agreed upon prior to that date.
- c. RVCOG shall not submit billings for, and AGENCY will not pay, any amount in excess of the maximum compensation amount of this contract, including travel and other expenses when noted in the Scope of Work. If the maximum compensation amount is increased by amendment of this Agreement, the amendment must be fully effective before RVCOG performs work subject to the amendment.

4. AGREEMENT DOCUMENTS

- a. This Agreement consists of this INTERAGENCY COOPERATIVE FUNDING AGREEMENT and the Scope of Work (Exhibit A), which contain all of the terms and conditions of this Agreement.
- b. This Agreement constitutes the entire Agreement between the PARTIES and no other Agreement exists between them, either stated or implied. Any amendments or changes to the provisions of this Agreement shall be in writing and signed by both PARTIES.

5. CONTACT INFORMATION

City of Central Point

Name: Mike Ono, Environmental Services/GIS Coordinator, CFM, Public Works Department

Address: 140 South 3<sup>rd</sup> St, Central Point, OR. 97502

Phone: (541) 552-2410

- a. RVCOG Representative

Name: Greg Stabach

Address: PO Box 3275, 155 N 1<sup>st</sup> Street

Phone: 541-423-1370

Email: gstabach@rvcog.org

6. INSURANCE

- a. Prior to performing any work under this contract, RVCOG, at RVCOG’s expense, shall obtain the insurance coverages specified below and maintain the insurance in full force throughout the duration of this Agreement. All insurance coverage shall be provided by insurers authorized to do business in Oregon and having an A.M. Best rating of no less than A-VII. Required if checked.

**Worker’s Compensation Insurance** in compliance with ORS 656.017 and Employer’s Liability Insurance with limits of not less than \$1,000,000 per accident for bodily injury or disease.

**Professional Liability Insurance** in an amount of not less than \$1,000,000 combined single limit per occurrence/\$2,000,000 general annual aggregate for error, omission, or any negligent acts related to the services to be provided under this contract. Coverage shall be sufficiently broad to respond to all of the duties and obligations undertaken by AGENCY in this contract.

**General Liability Insurance** at least as broad as ISO form CG 00 01 covering Bodily Injury and Property Damage on an “occurrence” form in an amount of not less than \$2,000,000 per occurrence/\$4,000,000 annual aggregate for the protection of RVCOG and its elected officials, officers, agents, employees, and volunteers. This coverage shall

include Contractual Liability insurance for the indemnity provided under this contract.

**Automobile Liability Insurance** in a form at least as broad as ISO form CA 00 01 covering all owned, hired, and non-owned vehicles. The combined Single Limit per occurrence shall be not less than \$1,000,000. This coverage may be written in combination with the Commercial General Liability Insurance (with separate limits for “Commercial General Liability” and “Automobile Liability”).

- b. **Notice of cancellation or change.** Each insurance policy required herein shall not be canceled, except with not less than 30 days written notice to AGENCY.
- c. **Additional Insured.** The General Liability Insurance and Commercial Automobile Liability Insurance must include AGENCY and its elected officials, officers, employees, agents, and volunteers as Additional Insureds but only with respect to RVCOG’s activities to be performed under this contract.
- d. **Primary Coverage.** For any claims related to this contract, RVCOG’s insurance coverage shall be primary coverage as least as broad as ISO form CG 20 01 04 13 as respects AGENCY, and its elected officials, officers, agents, employees, and volunteers. Any insurance or self- insurance maintained by AGENCY shall be excess of RVCOG’s insurance and shall not contribute with it.
- e. **Waiver of Subrogation.** RVCOG hereby grants AGENCY a waiver of any right to subrogation which any insurer of RVCOG may acquire against AGENCY by virtue of the payment of any loss under such insurance. RVCOG agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether or not AGENCY has received a waiver of subrogation endorsement from the insurer.
- f. **“Tail” Coverage.** If any of the required insurance policies is on a “claims made” basis, such as Professional Liability Insurance, RVCOG shall maintain either “tail” coverage or continuous “claims made” liability coverage, provided the effective date of the continuous “claims made” coverage is on or before the effective date of the contract, for a minimum of 24 months following the later of: (i) RVCOG’s completion and AGENCY’s acceptance of all services required under this contract; or (ii) the expiration of all warranty periods provided under this contract. Notwithstanding the foregoing 24-month requirement, if RVCOG elects to maintain “tail” coverage and if the maximum time period “tail” coverage reasonably available in the marketplace is less than the 24-month period described above, then RVCOG may request and AGENCY may grant approval of the maximum “tail” coverage period reasonably available in the marketplace. If AGENCY approval is granted, RVCOG shall maintain “tail” coverage for the maximum time period that “tail” coverage is reasonably available in the marketplace.
- g. **Verification of Coverage.** RVCOG shall furnish AGENCY with original Certificates of Insurance including all required amendatory endorsements (or copies of applicable policy language effecting coverage required by this contract) and a copy of the Declarations and Endorsement Page of the General Liability policy listing all policy endorsements to AGENCY before the effective date of this contract. AGENCY reserves the right to require complete, certified copies of all insurance policies, including the endorsements required by these specifications, at any time.
- h. **Failure to Maintain Required Insurance.** If at any time RVCOG fails maintain the insurance coverages required under this section 17, AGENCY may, at its option, (i) terminate this contract upon written notice to RVCOG, or (ii) secure the required insurance at RVCOG’s sole cost and expense.



7. TERMINATION

- a. This Agreement will remain in effect until terminated by either party in accordance with this Section (7). Either party may terminate this Agreement, by:
  - i. AGENCY's Convenience. This contract may be terminated at any time by AGENCY upon 30 days' notice in writing and delivered by certified mail or in person. If terminated for convenience, any work performed up to the termination date shall be eligible for payment under this agreement.
  - ii. For Cause. AGENCY may terminate or modify this contract, in whole or in part, effective upon delivery of written notice to RVCOG, or at such later date as may be established by AGENCY, under any of the following conditions:
    - 1. If AGENCY funds from federal, state, or other sources are not obtained and continued at levels sufficient to allow for the work specified in the Scope of Work; or
    - 2. If federal or state regulations or guidelines are modified, changed, or interpreted in such a way that the services are no longer allowable or appropriate for funding under this Agreement or are no longer eligible for the funding proposed for payments authorized by this Agreement; or
    - 3. If any license or certificate required by law or regulation to be held by RVCOG to provide the services required by this Agreement is for any reason denied, revoked, suspended, or not renewed.
  - iii. For Default or Breach. Either RVCOG or AGENCY may terminate this contract in the event of a breach of the Agreement by the other. Prior to such termination the party seeking termination shall give to the other party written notice of the breach and intent to terminate. If the party committing the breach has not entirely cured the breach within 15 days of the date of the notice, or within such other period as the party giving the notice may authorize or require, then the Agreement may be terminated at any time thereafter by a written notice of termination by the party giving notice.
  - iv. Time is of the essence for RVCOG's performance of each and every obligation and duty under this Agreement. AGENCY, by written notice to RVCOG of default or breach, may at any time terminate the whole or any part of this Agreement if RVCOG fails to provide services called for by this Agreement within the time specified herein or in any extension thereof.
  - v. The rights and remedies of RVCOG and AGENCY are not exclusive and are in addition to any other rights and remedies provided by law or under this contract.
  - vi. RVCOG and AGENCY agree that all disputes between them arising out of or relating to this Agreement shall be submitted to mediation unless the parties mutually agree otherwise.
- b. Such termination shall be without prejudice to any claims, obligations, or liabilities either party may have incurred prior to such termination.
- c. Conditions of Financial Non-Participation – The costs shown in Exhibit A, Table 1, are allocated to DMA based upon the receipt of full funding provided by all DMAs listed. If in the event that a DMA decides to not participate and full funding for the program are not realized, the agreement will need to be amended.

8. INDEPENDENT COUNTY, RESPONSIBILITY for TAXES and WITHHOLDING;  
RETIREMENT SYSTEM STATUS

- a. RVCOG shall perform the work required by this Agreement as an independent contractor. Although AGENCY reserves the right to request records associated with the project, AGENCY cannot and will not control the means and manner of RVCOG's performance. RVCOG is responsible for determining the appropriate means and manner of performing the work.
- b. RVCOG represents and warrants that RVCOG is not an employee of AGENCY or currently employed by the federal government.
- c. RVCOG shall be responsible for all federal or state taxes applicable to any compensation or payments paid to RVCOG under this Agreement. RVCOG is not eligible for any federal Social Security, unemployment insurance, or workers' compensation benefits from compensation or payments paid to RVCOG under this Agreement.

#### 9. SUBCONTRACTS AND ASSIGNMENT

- a. RVCOG shall not assign this Agreement or subcontract any portion of the SCOPE of WORK without the prior written consent of AGENCY which consent shall not be unreasonably withheld. Any attempted assignment or subcontract without AGENCY's written consent shall be void. RVCOG shall be fully responsible for the acts or omissions of any of the assigns or subcontracts and of all persons employed by them. The approval by AGENCY of any assignment or subcontract shall not create any contractual relation between the assignee or subcontractor and AGENCY.

#### 10. SUCCESSORS AND ASSIGNS

- a. Neither PARTY shall subcontract, assign, or transfer its interest in this Agreement without the express written consent of all parties, and such consent shall not be unreasonably withheld. In addition to any other provisions, RVCOG shall include in any permitted subcontract under this Agreement a requirement that the subcontractor be bound to the same provisions herein as if the subcontractor were RVCOG. The provisions of this Agreement shall be binding upon and shall inure to the benefit of the parties hereto, and their respective successors and assigns. Consent of AGENCY given to a subcontractor does not relieve RVCOG of any obligations and responsibilities under this Agreement, including RVCOG's responsibility for any goods and services to be provided by and subcontracted.

#### 11. NO THIRD-PARTY BENEFICIARIES

- a. RVCOG and AGENCY are the only parties to this Agreement and are the only parties entitled to enforce its terms. Nothing in this Agreement gives, is intended to give, or shall be construed to give or provide, any benefit or right, whether directly, indirectly, or otherwise, to third persons unless such persons are individually identified by name herein and expressly described as intended beneficiaries of the terms of this Agreement.

#### 12. COMPLIANCE WITH LAWS

- a. RVCOG shall comply with all federal, state, and local laws and ordinances as applicable to the work under this Agreement. Failure to comply with such requirements is a default for which AGENCY may terminate this Agreement and seek damages and other relief available under the terms of this Agreement or under applicable law.

#### 13. LIMITATIONS

- a. This Agreement in no way restricts RVCOG or AGENCY from participating in similar Agreements with other public or private agencies, organizations, or individuals with regard to any aspect of this Agreement, so long as the same do not unreasonably interfere with each parties' performance herein.

14. RECORDS MAINTENANCE AND OWNERSHIP OF WORK PRODUCT:

- a. Records Maintenance; Access. RVCOG shall maintain all fiscal records relating to this contract in accordance with generally accepted accounting principles, and federal circulars (as applicable). In addition, RVCOG shall maintain any other records pertinent to this contract in such a manner as to clearly document RVCOG's performance hereunder. RVCOG acknowledges and agrees that AGENCY and its duly authorized representatives shall have access to such fiscal records and to all other books, documents, electronic files, papers, plans and writings of RVCOG that are pertinent to this contract for the purpose of performing examinations and audits, and making excerpts and transcripts. RVCOG further acknowledges records generated as a result of this Contract may be subject to disclosure pursuant to the Oregon Public Records Act.
- b. Ownership of Work Product; License. All work products of RVCOG that result from this contract ("the work products") are the exclusive property of RVCOG. AGENCY shall not publish, re-publish, display or otherwise use any work or work product resulting from this contract without the prior written agreement and consent of RVCOG. In addition, if any of the work products contain intellectual property of RVCOG that is or could be protected by federal copyright, patent, or trademark laws, or state trade secret laws, RVCOG hereby grants AGENCY a perpetual, royalty-free, fully paid-up, nonexclusive and irrevocable license to copy, reproduce, deliver, publish, perform, dispose of, use and re-use, in whole or in part, and to authorize others to do so, all such work products, including but not limited to any information, designs, plans or works provided or delivered to AGENCY or produced by RVCOG under this contract.

15. GOVERNING LAW; JURISDICTION; VENUE:

- a. This contract shall be governed and construed in accordance with the laws of the State of Oregon without resort to any jurisdiction's conflict of laws, rules or doctrines. Any claim, action, suit or proceeding (collectively, "the claim") between RVCOG and the AGENCY that arises from or relates to this contract shall be brought and conducted solely and exclusively within the Circuit Court of Jackson County for the State of Oregon. If, however, the claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon filed in Jackson County, Oregon. RVCOG, by the signature herein of its authorized representative, hereby consents to the *in personam* jurisdiction of said courts. In no event shall this section be construed as a waiver by AGENCY of any form of defense or immunity, based on the Eleventh Amendment to the United States Constitution, or otherwise, from any claim or from the jurisdiction.

16. INDEMNIFICATION

- a. Subject to the limitations and conditions of the Oregon Tort Claims Act, ORS 30.260-300, the Oregon Constitution, Article XI, Section 7 and the terms of any applicable policies of insurance, the parties agree to save, hold harmless and indemnify each other, including their officers, agents and employees, from any loss, damage, injury, claim, or demand by a third party against either party to this Agreement arising from the activities of the other party in connection with this Agreement. Neither party shall be liable for any loss, damage, injury, claim or demand against each other arising from their respective activities in connection with this Agreement, except as otherwise expressly set forth herein.

17. DISCRIMINATION

- a. The Parties agree to maintain a non-discrimination policy or plan that does not discriminate on the basis of race, color, creed, religion, gender, national origin, age, marital status, veteran

status, sexual orientation, status as a person experiencing a disability, or any other class protected by law.

## 18. LOBBYING

- a. By signing this Agreement, RVCOG certifies, to the best of their knowledge and belief that:
  - i. No federal appropriated funds have been paid or will be paid, by or on behalf of RVCOG, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any federal contract, grant, loan or cooperative agreement.
  - ii. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this federal contract, grant, loan or cooperative agreement, RVCOG shall complete and submit Standard Form LLL, "Disclosure Form to Report Lobbying" in accordance with its instructions.
  - iii. RVCOG shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients and subcontractors shall certify and disclose accordingly.
  - iv. This certification is a material representation of fact upon which reliance was placed when this Agreement was made or entered into. Submission of this certification is a prerequisite to making or entering into this Agreement imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
  - v. No part of any federal funds paid to RVCOG under this Agreement shall be used, other than for normal and recognized executive legislative relationships, for publicity or propaganda purposes, for the preparation, distribution, or use of any kit, pamphlet, booklet, publication, electronic communication, radio, television, or video presentation designed to support or defeat the enactment of legislation before the United States Congress or any State or local legislature itself, or designed to support or defeat any proposed or pending regulation, administrative action, or order issued by the executive branch of any State or local government itself.
  - vi. No part of any federal funds paid to Recipient under this Agreement shall be used to pay the salary or expenses of any grant or contract recipient, or agent acting for such recipient, related to any activity designed to influence the enactment of legislation, appropriations, regulation, administrative action, or Executive order proposed or pending before the United States Congress or any State government State legislature or local legislature or legislative body, other than for normal and recognized executive-legislative relationships or participation by an agency or officer of a State, local or tribal government in policymaking and administrative processes within the executive branch of that government.
  - vii. The prohibitions in subsections (v.) and (vi.) of this Section shall include any activity to advocate or promote any proposed, pending, or future Federal, state, or local tax increase, or any proposed, pending, or future requirement or restriction on any legal Consumer

product, including its sale or marketing, including but not limited to the advocacy or promotion of gun control.

- viii. No part of any federal funds paid to Recipient under this Agreement may be used for any activity that promotes the legalization of any drug or other substance included in schedule I of the schedules of controlled substances established under section 202 of the Controlled Substances Act except for normal and recognized executive congressional communications. This limitation shall not apply when there is significant medical evidence of a therapeutic advantage to the use of such drug or other substance of that federally sponsored clinical trials are being conducted to determine therapeutic advantage.

#### 19. NON-WAIVER OF RIGHTS

- a. AGENCY's right to require strict performance by RVCOG shall not be affected by any previous waiver, forbearance, or course of dealing.
- b. The failure of AGENCY to enforce any provision of this Agreement shall not constitute a waiver by AGENCY of that or any other provision.

#### 20. FORCE MAJEURE

- a. Neither RVCOG nor AGENCY shall be held responsible for delay or default caused by fire, riot, acts of God, or war where such cause was beyond, respectively, RVCOG's or AGENCY's reasonable control. RVCOG shall, however, make all reasonable efforts to remove or eliminate such a cause of delay or default and shall, upon the cessation of the cause, diligently pursue performance of its obligations under this Agreement.

#### 21. SEVERABILITY

- a. The PARTIES agree that if any term or provision of this Agreement is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular term or provision held to be invalid.

#### 22. SURVIVAL

- a. The terms, conditions, representations, and all warranties contained in this Agreement shall survive the termination or expiration of this Agreement.

#### 23. MERGER CLAUSE

- a. This Agreement and attached exhibits constitute the entire Agreement between the parties. No waiver, consent, modification or change of terms of this Agreement shall bind either party unless in writing, and signed by both parties. Such waiver, consent, modification, or change, if made, shall be effective only in the specific instance and for the specific purpose given. There are no understandings, Agreements, or representations, oral or written, not specified herein regarding this Agreement. AGENCY, by signature of its authorized representative, hereby acknowledges that he/she has read this Agreement, understands it, and agrees to be bound by its terms and conditions.

**IN WITNESS WHEREOF, THE PARTIES OF THIS AGREEMENT, HEREBY  
ACKNOWLEDGE THAT THEY HAVE READ THIS AGREEMENT, UNDERSTAND IT, AND  
AGREES TO BE BOUND BY THE TERMS AND CONDITIONS:**

**City of Central Point**

\_\_\_\_\_  
Central Point Representative Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title

\_\_\_\_\_  
Organization/Individual Legal Name

\_\_\_\_\_  
Address, City, State, Zip

**ROGUE VALLEY COUNCIL of GOVERNMENTS**

\_\_\_\_\_  
Ann Marie Alfrey, Executive Director  
155 N 1<sup>st</sup> Street, PO Box 3275, Central Point, OR 97502  
(541) 664-6674

\_\_\_\_\_  
Date



## Scope of Work

### Exhibit A

The Project shall be named “**TMDL Monitoring & Implementation Project**” and the contract number shall be 220-2022-08. The Project Name and contract number shall be referenced on each invoice submitted for payment under this AGREEMENT.

#### **DMAs RESPONSIBILITIES**

1. Each **DMA** will make payment to the **RVCOG** the amount allocated in the *Total Cost* column (*Table 1 below*).
2. Each **DMA** will make payment in full for 100% of the amount shown in the *Total Cost* column as designated for their jurisdiction (*Table 1 below*). **Total payment should be received by RVCOG prior to September 30th, 2022 unless other arrangements are made prior to that date.**
3. Each **DMA** will support the **RVCOG** in its administration and management of the Bear Creek Non-point Pollution (**TMDL**) Sampling Project by providing advisory and technical information concerning their jurisdictional area and in developing/establishing watershed based policy decisions.
4. Each **DMA** will send an authorized representative to the **RVCOG** regularly scheduled meetings to discuss the progress and the needs of the **TMDL** program. In addition, each **DMA** will send a representative to any additional meetings deemed necessary by the **TMDL** Committee.
5. The participation of the **DMAs** in this program does not negate their individual responsibilities under the **TMDL** program. Rather this program is designed to assist the **DMAs** to meet their individual responsibilities.

#### **RVCOG RESPONSIBILITIES**

1. **RVCOG** will receive, administer, and expend funds to hire and supervise the number of individual(s) necessary to complete the project as described in Attachment A to this document.
2. **RVCOG** will be responsible for daily administration and oversight of the project.
3. **RVCOG** will complete the work program as described in Attachment A to the satisfaction of the **DMAs**.
4. **RVCOG** will provide periodic and/or written reports.
5. **RVCOG** will be granted ownership of all equipment purchased under this agreement but will make the equipment available to the **DMAs** on an as-available, on-going basis upon request of individual **DMAs**.
6. **RVCOG** will notify the **DMAs** of any problems occurring with the project which require departure from the work program described in Attachment A; this notification will allow the **PARTIES** to cooperate in addressing how any necessary changes will be made.

**Table 1**  
**Year 2022-2023 Budget**  
**for the TMDL Monitoring and Implementation Program**

<b>DMA</b>	<b>2022/2023 Storm Drain<sup>3</sup></b>	<b>2022/2023 Monitoring/ Implementation/ Personnel/ Materials</b>	<b>Other</b>	<b>2022/2023 Implementation (Regional Management)<sup>4</sup></b>	<b>2022/2023 Total Cost</b>
Ashland	\$1,463.63		\$4,341.45	\$6,987.40	\$12,792.48
Central Point <sup>1</sup>	\$976.44		\$3,605.00	\$589.02	\$5,170.46
Jacksonville	\$976.44		\$2,936.53	\$4,833.12	\$8,746.09
Medford	\$1,951.85		\$8,067.99	\$11,779.92	\$21,799.76
Phoenix	\$976.44		\$3,035.41	\$4,922.17	\$8,934.02
Talent	\$976.44		\$2,873.70	\$4,745.94	\$8,596.08
Jackson County <sup>2</sup>	\$0.00		\$6,318.02 <sup>2</sup>	\$679.62	\$6,997.64
Dept. of Agriculture	\$0.00		\$1,000.00	\$ -	\$1,000.00
Dept. of Forestry	\$0.00		\$0.00	\$ -	\$0.00
<b>Totals</b>	<b>\$7,321.24</b>		<b>\$32,178.10</b>	<b>\$34,537.19</b>	<b>\$74,036.53</b>

<sup>1</sup> Central Points Floodplain/ Stormwater Coordinator is implementing Central Point's plan. Additional assistance will be on an as-needed basis. Central Point will participate in, support, and promote ongoing regional efforts.

<sup>2</sup> Jackson County has combined all of their TMDLs into a single plan for the Applegate, Rogue, and Bear Creek. Implementation funding will be applied to all TMDLs, which includes the Bear Creek portions.

<sup>3</sup> Cost based on \$488.22 per storm drain tested.

<sup>4</sup> Includes ongoing support of the Stream Smart program and implementation of regional items in TMDL plans.

**MONITORING - LOCATIONS**

1. In this study **RVCOG** will conduct instream water quality monitoring at the following sites contingent upon being able to access the sites:

- a. Bear Creek (11 sites) at: S. Valley View Road, Lynn Newbry Park, Fern Valley Road, Ninth Street, Pine Street, Kirtland Road, along the Greenway (in Talent, Phoenix, and Central Point), in Medford near I-5, and at Table Rock Road.
  - b. Other Creeks: Neil Creek at Dead Indian Road, Ashland Creek below the Wastewater Treatment Plant, Griffin Creek at I-5, Jackson Creek at Blackwell Road, Walker Creek at Dead Indian Road, Emigrant Creek at Mouth, Neil Creek at Mouth, Ashland Creek at Granite Street, Griffin Creek at Beall Lane, Jackson Creek at Highway 238, and Jackson Creek at Jacksonville.
  - c. The Irrigation Diversions for the Talent and Medford Irrigation Districts.
2. The total number of projected regular monitoring locations is detailed below. These monitoring locations will be reviewed on approximately an annual basis with changes made only through agreement of all the **PARTIES**.
    - Phosphorus – 22
    - Ammonia – 2
    - E. coli – 24
    - Turbidity, pH, and conductivity – 24
    - Macroinvertebrates – 10
    - Temperature – 24 spot samples, number of continuous stations will vary based on equipment purchased/available.
  3. Additional "hot spot" monitoring will be completed on those tributaries which exhibit any unusual high readings of the parameters being measured or following report of concerns. The purpose of the "hot spot" monitoring will be limited to identifying the general location of the source of pollution contamination only. The appropriate **DMA** will be notified of the problem and its general location in order to take action to correct the contributing problem. Concerns will also be forwarded to the appropriate DMA, agency, and/or entity (e.g., RVSS).
  4. This program will also include the monitoring of storm drains. The numbers of sites per **DMA** are as follows: City of Ashland (3), City of Central Point (2), City of Jacksonville (2), City of Medford (4), City of Phoenix (2), and City of Talent (2). Locations can be changed annually, but the number of sites per city is the set unless additional funding is added. Visual inspections are conducted as part of the monitoring. Exact locations of sites will be determined between each **DMA** and **RVCOG**. The scope of this contract agreement does not include follow-up monitoring for identified problems. Any additional monitoring by **RVCOG** will need to be negotiated on a case by case basis.

#### **MONITORING - SAMPLING FREQUENCY**

1. Sampling will be performed monthly at the sites for E. coli, pH, conductivity, and turbidity. The total number of sampling runs under this contract will be 12.
2. Sampling will be performed for phosphorus monthly from May through October at sites E1-E16, E18 or E19 (depending on flow), and E20-E24. Total number of sampling runs will be 6.
3. "Hot Spot" monitoring will occur on an as needed basis.
4. The Storm Drain monitoring program will visit each sample collection site a maximum of 3 times and samples will be collected if effluent is flowing from the site. Samples will be taken during dry weather to evaluate the contributions of the systems without any

precipitation. Another set of samples will be collected as soon possible after an early season storm event that creates surface runoff to evaluate what is being flushed from the system, and the third sample will be taken during the rainy season to evaluate what is being flushed during storm events.

### **MONITORING - PARAMETERS SAMPLED**

1. Sites will be analyzed for E. coli, pH, conductivity, temperature, and turbidity.
2. Sampling will be performed for phosphorus monthly from May through October at sites E1-E16, E18 or E19 (depending on flow), and E20-E24.
3. Storm Drain monitoring program will sample and analyze for total phosphate, BOD5, pH, conductivity, temperature, turbidity, and E. coli. Where practical, flow will be estimated at each site.

### **MONITORING - METHODS**

1. The sampling and testing procedures used will be approved by the Department of Environmental Quality. The program will operate under a QA/QC program in collaboration with the DEQ. The equipment used in the testing of these parameters has been received under a DEQ grant and approved by DEQ. The lab used for analysis will be provided by the City of Medford Wastewater Treatment Laboratory. *This contract is conditional upon the availability of this lab.*
2. The general analysis methods that will be employed are:
  - a. Temperature - measured by meter, calibrated thermometers and/or continuous in-stream recorders.
  - b. Conductivity - measured by conductivity meter.
  - c. *E. coli* testing will be made with the Colilert system
  - d. pH - measured by pH meter.
  - e. Turbidity - using calibrated turbidity meter.
  - f. Ammonia - phenate method with final concentration determined using spectrophotometer.
  - g. Phosphorous-modified ascorbic acid method with final concentration determined using a spectrophotometer
  - h. BOD5 - 5 day incubation at 68F using Poly Seed inoculum as described in *Standard Methods*
  - i. Flow - determined using calibrated staff gauges placed in the stream bed or by use of a calibrated collection device in the case of storm drain sampling.

### **MONITORING – QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**

1. QA/QC samples will be collected per the QA/QC plan which details internal measures (duplicates) and external measures (splits with DEQ staff).

### **IMPLEMENTATION**

1. Serve as the Regional Manager and implement portions of the TMDL Implementation Matrix as outlined in each DMAs plan submittal.

2. Implement on a regional basis may include, but is not limited to, coordination of (or assisting) the Quarterly TMDL Meetings and other TMDL related meetings, participation in water quality events, providing technical assistance and resources to restore and protect riparian areas including management of invasive species, mapping of implementation activities, identifying and prioritizing projects, facilitating or managing on the ground implementation projects, completing the matrix summarizing regional manager activities, education and outreach activities including events and Salmon Watch, working with local media to promote program activities and events, securing funding for implementation projects, maintaining program websites, providing copies of TMDL deliverables for submittal with reports as needed, tracking, reporting, and coordinating other implementation actions.
3. Work with the DMAs, partner organizations, and others to implement the Stream Smart Program. Activities will include hosting of the Stream Smart website, coordination of the Stream Smart Advisory Committee, website updates, and other activities as directed by the DMAs.

## **REPORTS**

1. Reporting will be done annually. Formats may include updates at meetings (approximately quarterly) with the **DMAs**, **DEQ**, and **RVCOG**, ongoing technical meetings will be performed in conjunction with **DEQ** and others, and provided as per Section C(4), **RVCOG RESPONSIBILITIES**.

## ATTACHMENT B

### I. LOCATIONS MONITORED

1. In this study RVCOG will conduct in stream water quality monitoring at Jackson Creek @ Beall Lane and add a stormdrain sampling location at Highway 99 and Griffin Creek at Crater High School.

### II. SAMPLING FREQUENCY

1. Sampling will be performed monthly at the stream site for E. coli, pH, conductivity, and turbidity. The total number of sampling runs under this contract will be 12.
2. The Storm Drain will be monitored a maximum of 3 times and samples will be collected if effluent is flowing from the site. The first samples will be taken during dry weather flows before the first rains of the season. The second set of samples will be collected soon after the first storm event of the season that creates surface runoff and the third sample will be taken during a larger storm event that generates runoff.

### III. PARAMETERS SAMPLED

1. The general analysis methods that will be employed are:
  - \* Temperature - continuous instream recorder (stream site) and spot sampling for the storm drain.
  - \* Conductivity - measured by conductivity meter.
  - \* *E. coli* testing will be made with the Colilert system
  - \* pH - measured by pH meter.
  - \* Turbidity - using calibrated turbidity meter.
  - \* BOD5 - 5 day incubation at 68F using Poly Seed inoculum as described in *Standard Methods*
  - \* Flow - determined using calibrated staff gauges placed in the stream bed or by use of a calibrated collection device in the case of storm drain sampling.

### IV. METHODS



1. The sampling and testing procedures and equipment used are approved by the Department of Environmental Quality. The program operates under a QA/QC program in collaboration with the DEQ and the results from the program will meet or exceed the requirements of the DEQ. The lab used for analysis will be provided by the City of Medford Wastewater Treatment Laboratory. This contract is conditional upon the availability of this lab.

## **V. REPORTS & PAYMENT**

1. A summary of the data will be included with the data from the TMDL sampling program, or provided to the City in a separate summary.

2. RVCOG will invoice CITY for the full amount of the contract, \$6,310.40. Total payment must be received by RVCOG by September 30<sup>th</sup>, 2022.





# Quarterly TMDL Report for September 2022

Site Description	Site #	Jurisdictions Affected	Sample Date	Time of Day	Temp. (Celsius)	Temp. (Fahrenheit)	pH	Conductivity (uS/cm)	Turbidity (NTU)	E. coli (MPN)	Total Phosphorus (mg/L)	Ammonia-Nitrate (mg/L)	Notes
Walker Creek @ Belle Fior	E1	ASH, CNTY	9/22/2022										
Neil Creek @ Dead Indian Memoria	E3	ASH, CNTY	9/22/2022	13:00	15.1	59.2	7.34	319.3	6.35	166.4	-		
Ashland Creek @ Granite St.	E4	ASH, CNTY	9/22/2022	12:35	14.9	58.8	7.19	84.8	2.46	78.9	-	0.091	
Ashland Creek below STF	E5	ASH, CNTY	9/22/2022	11:45	20.0	68.0	7.24	319.7	6.23	260.2	-	0.136	
TID Canal @ Eagle Mill Rd.	E6	TID, ASH, CNTY	9/22/2022										
Bear Ck. @ S. Valley View Rd.	E7	ASH, CNTY	9/22/2022	11:30	17.2	63.0	7.54	294.9	11.42	128.1	-		
Bear Ck. @ Greenway (S. Talent)	E8	TAL, CNTY	9/22/2022	11:10	16.6	61.9	7.33	317.4	7.66	248.1	-		
Bear Ck. @ Lynn Newbry Park	E9	TAL, CNTY	9/22/2022										
MID Diversion @ Suncrest Rd.	E10	MID, CNTY	9/22/2022										
Bear Ck. @ B.H. Park (Phoenix)	E11	PHO, CNTY	9/22/2022	10:35	16.1	61.0	7.48	339.5	10.98	224.7	-		
Bear Ck. @ Fern Valley Rd.	E12	PHO, CNTY	9/22/2022	10:10	16.1	61.0	7.63	341.3	6.69	125.9	-		
Bear Ck. @ CTNC (S. Medford)	E13	MED, CNTY	9/22/2022	9:30	16.0	60.8	7.47	348.0	12.76	209.8	-		
Bear Ck. @ 9th St. in Medford	E14	MED, CNTY	9/22/2022	14:15	18.8	65.8	8.08	375.3	10.18	1046.2	-		
Bear Ck. @ Table Rock Rd.	E15	MED, CNTY	9/22/2022	14:40	19.4	66.9	8.24	365.1	8.05	613.1	-		
Griffin Creek @ Beall Ln.	E16	JVLLE, CPT, CNTY	9/22/2022	8:35	14.5	58.1	7.57	304.7	48.8	1046.2	-		
Jackson Creek @ Beall Ln	E17	JVLLE, CPT, CNTY	9/22/2022	8:50	14.6	58.3	7.39	360.9	113.0	>2419.2	-		
Jackson Creek @ Jacksonville	E18	JVLLE, CPT, CNTY	9/22/2022										
Jackson Creek @ W. Ross Ln.	E19	JVLLE, CPT, CNTY	9/22/2022	9:05	15.1	59.2	7.46	288.0	12.99	547.5	-		
Bear Ck. @ Pine St. (CP)	E20	CPT, CNTY	9/22/2022	14:55	20.1	68.2	8.31	361.2	8.63	461.1	-		
Bear Ck. above Griffin (CP)	E21	CPT, CNTY	9/22/2022										
Griffin Creek @ I-5	E22	CPT, CNTY	9/22/2022	15:20	17.6	63.7	7.73	345.0	17.17	517.2	-		
Jackson Creek @ Dean Creek Rd.	E23	JVLLE, CPT, CNTY	9/22/2022	15:10	18.2	64.8	7.64	324.0	17.0	1986.3	-		
Bear Ck. @ Kirtland Rd.	E24	CNTY, All	9/22/2022	15:35	20.1	68.2	7.99	350.8	14.55	150.0	-		
Griffin Creek @ Beall Ln.	DUP 1	JVLLE, CPT, CNTY	9/22/2022	8:37	14.5	58.1	7.59	304.8	49.7	1119.9	-		
Jackson Creek @ Beall Ln	DUP 2	JVLLE, CPT, CNTY	9/22/2022	8:52	14.6	58.3	7.40	360.9	113.0	>2419.2	-		
Bear Ck. @ Kirtland Rd.	QA/QC1	CNTY, All	9/21/2022	12:35	17.9	64.2	7.55	400.0	23.1	1553.1	-		Specific conductance.
Rogue River, Hwy 234 in GH	QA/QC2	CNTY, All	9/21/2022	13:05	15.6	60.1	7.02	90.0	5.91	224.7	-		Specific conductance









## Quarterly TMDL Report for January 2023

Site Description	Site #	Jurisdictions Affected	Sample Date	Time of Day	Temp. (Celsius)	Temp. (Fahrenheit)	pH	Conductivity (uS/cm)	Turbidity (NTU)	E. coli (MPN)	Total Phosphorus (mg/L)	Ammonia-Nitrate (mg/L)	Notes
Walker Creek @ Belle Fior	E1	ASH, CNTY	1/26/2023	13:15	3.9	39.0	7.79	157.3	0.68	6.3	-	-	
Neil Creek @ Dead Indian Memoria	E3	ASH, CNTY	1/26/2023	13:05	4.2	39.6	7.69	128.1	0.00	25.9	-	-	
Ashland Creek @ Granite St.	E4	ASH, CNTY	1/26/2023	12:40	2.5	36.5	7.69	44.4	0.00	5.1	-	ND	
Ashland Creek below STF	E5	ASH, CNTY	1/26/2023	11:55	5.3	41.5	7.77	123.3	0.00	156.5	-	0.023	
TID Canal @ Eagle Mill Rd	E6	TID, ASH, CNTY	1/26/2023										Off-season.
Bear Ck. @ S. Valley View Rd	E7	ASH, CNTY	1/26/2023	11:40	3.5	38.3	8.12	165.0	0.00	24.6	-	-	
Bear Ck. @ Greenway (S. Talent)	E8	TAL, CNTY	1/26/2023	11:25	3.0	37.4	7.96	164.9	0.46	37.9	-	-	
Bear Ck. @ Lynn Newbury Park	E9	TAL, CNTY	1/26/2023	11:10	3.1	37.6	7.93	171.7	0.94	20.3	-	-	
MID Diversion @ Suncrest Rd	E10	MID, CNTY	1/26/2023										Off-season.
Bear Ck. @ B.H. Park (Phoenix)	E11	PHO, CNTY	1/26/2023	10:50	3.1	37.6	7.92	184.3	0.00	1413.6	-	-	
Bear Ck. @ Fern Valley Rd.	E12	PHO, CNTY	1/26/2023	10:35	3.0	37.4	8.07	185.3	0.00	84.2	-	-	
Bear Ck. @ CTNC (S. Medford)	E13	MED, CNTY	1/26/2023	9:45	2.8	37.0	7.97	196.5	0.00	67.7	-	-	
Bear Ck. @ 9th St. in Medford	E14	MED, CNTY	1/26/2023	13:45	4.7	40.5	8.39	217.6	0.84	69.7	-	-	
Bear Ck. @ Table Rock Rd.	E15	MED, CNTY	1/26/2023	14:30	5.3	41.5	8.27	226.1	0.98	69.5	-	-	
Griffin Creek @ Beall Ln	E16	JVLL, CPT, CNTY	1/26/2023	8:50	4.9	40.8	7.91	246.3	2.76	238.2	-	-	
Jackson Creek @ Beall Ln	E17	JVLL, CPT, CNTY	1/26/2023	9:00	3.2	37.8	7.96	251.0	1.75	410.6	-	-	
Jackson Creek @ Jacksonville	E18	JVLL, CPT, CNTY	1/26/2023	9:30	5.1	41.2	7.88	250.3	0.68	261.3	-	-	
Jackson Creek @ W. Ross Ln.	E19	JVLL, CPT, CNTY	1/26/2023	9:15	3.8	38.8	7.95	217.2	0.00	64.4	-	-	
Bear Ck. @ Pine St. (CP)	E20	CPT, CNTY	1/26/2023	14:45	5.3	41.5	8.19	209.1	2.44	71.7	-	-	
Bear Ck. above Griffin (CP)	E21	CPT, CNTY	1/26/2023										
Griffin Creek @ I-5	E22	CPT, CNTY	1/26/2023	15:15	6.4	43.5	8.07	285.5	1.20	74.9	-	-	
Jackson Creek @ Dean Creek Rd.	E23	JVLL, CPT, CNTY	1/26/2023	15:00	5.2	41.4	8.36	280.7	1.37	28.8	-	-	
Bear Ck. @ Kirtland Rd.	E24	CNTY, All	1/26/2023	15:30	5.7	42.3	8.06	223.5	0.22	78.0	-	-	
Bear Ck. @ CTNC (S. Medford)	DUP 1	MED, CNTY	1/26/2023	9:47	2.7	36.9	7.96	191.8	0.00	55.6	-	-	
Bear Ck. @ B.H. Park (Phoenix)	DUP 2	PHO, CNTY	1/26/2023	10:52	3.1	37.6	7.91	185.3	0.00	1119.9	-	-	
Bear Ck. @ Kirtland Rd.	QA/QC1	CNTY, All	-	-	-	-	-	-	-	-	-	-	-
Rogue River, Hwy 234 in GH	QA/QC2	CNTY, All	-	-	-	-	-	-	-	-	-	-	-

\* The summer temperature standard of 18.0 C (64.4 F) is based on a seven day consecutive average high temperature for the months of May 16th to October 14th. The winter temperature standard is 13.0 C (55.4 F) for the months of October 15th to May 15th.

Therefore, grab sample results are generally not used to determine exceedence based on this standard.

\*\* An absolute standard of 50 ntus has been previously used for comparison purposes. The 1999 OWEB Watershed Assessment Manual recommends 50 NTUs above the background. Turbidity at this level interferes with the sight-feeding of salmonids and therefore provides a direct indicator of the biological effect (page VIII-15). ODEQ is currently working on revising the turbidity criteria.

\*\*\* Exceedence of the turbidity standard outlined in the Oregon Administrative Rules (OAR 340) is based on a greater than a 10 % increase in turbidity levels upstream and downstream of a source input or project.

\*\*\* Numeric Criteria: (i.) A 30-day log mean of 126 E.coli organisms per 100 ml, based on a minimum of five (5) samples; (ii.) No single sample shall exceed 406 E. Coli organisms per 100 ml.

n/a indicates no current applicable standard.

^ Daily average discharge measurements from Bureau of Reclamation (<http://www.usbr.gov/pn-bin/rtindex.pl?cfg=rogue>)

**Red indicates values at upper limit of quantification for test method. (example: e.coli 2419.2 =>2419.2)**

Red indicates values that exceed state standards.

LE = Lab Error

FE = Field Error

ND = not detectable

# Quarterly TMDL Report for Febuary 2023

Site Description	Site #	Jurisdictions Affected	Sample Date	Time of Day	Temp. (Celsius)	Temp. (Fahrenheit)	pH	Conductivity (uS/cm)	Turbidity (NTU)	E. coli (MPN)	Total Phosphorus (mg/L)	Ammonia-Nitrate (mg/L)	Notes
Walker Creek @ Belle Fior	E1	ASH, CNTY	2/23/2023	13:05	3.5	38.3	8.09	158.0	2.53	4.0	-	-	
Neil Creek @ Dead Indian Memoria	E3	ASH, CNTY	2/23/2023	12:55	3.4	38.1	8.37	131.0	2.09	59.1	-	-	
Ashland Creek @ Granite St.	E4	ASH, CNTY	2/23/2023	12:20	3.0	37.4	7.94	49.6	1.44	4.1	-	ND	
Ashland Creek below STF	E5	ASH, CNTY	2/23/2023	11:55	5.9	42.6	8.41	145.3	1.89	178.5	-	0.02	
TID Canal @ Eagle Mill Rd	E6	TID, ASH, CNTY	2/23/2023										
Bear Ck. @ S. Valley View Rd	E7	ASH, CNTY	2/23/2023	11:35	3.5	38.3	8.99	159.9	4.75	36.9	-	-	
Bear Ck. @ Greenway (S. Talent)	E8	TAL, CNTY	2/23/2023	11:20	3.1	37.6	8.90	159.3	8.40	25.3	-	-	
Bear Ck. @ Lynn Newbry Park	E9	TAL, CNTY	2/23/2023	11:10	3.2	37.8	8.76	166.9	4.57	13.2	-	-	
MID Diversion @ Suncrest Rd	E10	MID, CNTY	2/23/2023										
Bear Ck. @ B.H. Park (Phoenix)	E11	PHO, CNTY	2/23/2023	10:45	3.6	38.5	8.59	183.9	3.92	52.0	-	-	
Bear Ck. @ Fern Valley Rd.	E12	PHO, CNTY	2/23/2023	10:30	3.6	38.5	8.67	185.9	5.28	54.6	-	-	
Bear Ck. @ CTNC (S. Medford)	E13	MED, CNTY	2/23/2023	10:05	3.4	38.1	8.30	189.7	3.96	49.6	-	-	
Bear Ck. @ 9th St. in Medford	E14	MED, CNTY	2/23/2023	13:40	4.8	40.6	9.01	205.2	3.54	24.3	-	-	
Bear Ck. @ Table Rock Rd.	E15	MED, CNTY	2/23/2023	14:10	4.7	40.5	9.02	209.2	3.66	35.0	-	-	
Griffin Creek @ Beall Ln	E16	JVLL, CPT, CNTY	2/23/2023	9:10	5.5	41.9	8.05	252.2	2.46	410.6	-	-	
Jackson Creek @ Beall Ln	E17	JVLL, CPT, CNTY	2/23/2023	9:15	3.0	37.4	8.03	247.2	2.23	67.6	-	-	
Jackson Creek @ Jacksonville	E18	JVLL, CPT, CNTY	2/23/2023	9:45	5.2	41.4	7.99	249.7	1.02	27.5	-	-	
Jackson Creek @ W. Ross Ln.	E19	JVLL, CPT, CNTY	2/23/2023	9:30	3.5	38.3	8.09	210.3	3.72	209.8	-	-	
Bear Ck. @ Pine St. (CP)	E20	CPT, CNTY	2/23/2023	14:25	4.9	40.8	9.08	203.4	2.72	29.2	-	-	
Bear Ck. above Griffin (CP)	E21	CPT, CNTY	2/23/2023										
Griffin Creek @ I-5	E22	CPT, CNTY	2/23/2023	14:50	5.5	41.9	8.23	248.5	6.11	48.7	-	-	
Jackson Creek @ Dean Creek Rd.	E23	JVLL, CPT, CNTY	2/23/2023	14:40	3.8	38.8	8.59	266.4	3.62	27.8	-	-	
Bear Ck. @ Kirtland Rd.	E24	CNTY, All	2/23/2023	15:00	4.8	40.6	8.85	198.6	3.38	17.1	-	-	
Jackson Creek @ W. Ross Ln.	DUP 1	JVLL, CPT, CNTY	2/23/2023	9:32	3.6	38.5	8.09	211.3	2.99	186.0	-	-	
Bear Ck. @ B.H. Park (Phoenix)	DUP 2	PHO, CNTY	2/23/2023	10:47	3.7	38.7	8.60	187.0	3.77	42.6	-	-	
Bear Ck. @ Kirtland Rd.	QA/QC1	CNTY, All	-	-	-	-	-	-	-	-	-	-	
Rogue River, Hwy 234 in GH	QA/QC2	CNTY, All	-	-	-	-	-	-	-	-	-	-	

\* The summer temperature standard of 18.0 C (64.4 F) is based on a seven day consecutive average high temperature for the months of May 16th to October 14th. The winter temperature standard is 13.0 C (55.4 F) for the months of October 15th to May 15th.

Therefore, grab sample results are generally not used to determine exceedence based on this standard.

\*\* An absolute standard of 50 ntus has been previously used for comparison purposes. The 1999 OWEB Watershed Assessment Manual recommends 50 NTUs above the background. Turbidity at this level interferes with the sight-feeding of salmonids and therefore provides a direct indicator of the biological effect (page VIII-15). ODEQ is currently working on revising the turbidity criteria.

\*\*\* Exceedence of the turbidity standard outlined in the Oregon Administrative Rules (OAR 340) is based on a greater than a 10 % increase in turbidity levels upstream and downstream of a source input or project.

\*\*\* Numeric Criteria: (i.) A 30-day log mean of 126 E.coli organisms per 100 ml, based on a minimum of five (5) samples; (ii.) No single sample shall exceed 406 E. Coli organisms per 100 ml.

n/a indicates no current applicable standard.

^ Daily average discharge measurements from Bureau of Reclamation (<http://www.usbr.gov/pn-bin/rtindex.pl?cfg=rogue>)

**Red indicates values that exceed state standards.**

**Red indicates values that exceed state standards.**

LE = Lab Error

FE = Field Error

ND = not detectable

# Quarterly TMDL Report for March 2023

Site Description	Site #	Jurisdictions Affected	Sample Date	Time of Day	Temp. (Celsius)	Temp. (Fahrenheit)	pH	Conductivity (uS/cm)	Turbidity (NTU)	E. coli (MPN)	Total Phosphorus (mg/L)	Ammonia-Nitrate (mg/L)	Notes
Walker Creek @ Belle Fior	E1	ASH, CNTY	3/30/2023	13:00	5.5	41.9	7.79	116.3	9.84	8.4	-	-	
Neil Creek @ Dead Indian Memoria	E3	ASH, CNTY	3/30/2023	12:50	5.5	41.9	7.73	130.3	2.97	21.3	-	-	
Ashland Creek @ Granite St.	E4	ASH, CNTY	3/30/2023	12:20	3.8	38.8	7.80	50.0	2.78	3.1	-	0.024	
Ashland Creek below STF	E5	ASH, CNTY	3/30/2023	12:00	5.9	42.6	8.24	114.3	3.43	19.9	-	0.020	
TID Canal @ Eagle Mill Rd	E6	TID, ASH, CNTY	3/30/2023										
Bear Ck. @ S. Valley View Rd	E7	ASH, CNTY	3/30/2023	11:40	4.8	40.6	8.28	143.9	6.11	17.3	-	-	
Bear Ck. @ Greenway (S. Talent)	E8	TAL, CNTY	3/30/2023	11:30	4.9	40.8	8.11	146.4	6.92	25.9	-	-	
Bear Ck. @ Lynn Newbry Parl	E9	TAL, CNTY	3/30/2023	11:10	4.4	39.9	8.12	145.3	6.40	21.3	-	-	
MID Diversion @ Suncrest Rd	E10	MID, CNTY	3/30/2023										
Bear Ck. @ B.H. Park (Phoenix)	E11	PHO, CNTY	3/30/2023	10:50	4.7	40.5	8.16	154.9	5.73	201.4	-	-	
Bear Ck. @ Fern Valley Rd.	E12	PHO, CNTY	3/30/2023	10:35	4.7	40.5	8.12	156.8	10.5	143.9	-	-	
Bear Ck. @ CTNC (S. Medford)	E13	MED, CNTY	3/30/2023	10:20	5.0	41.0	8.04	162.8	7.64	108.1	-	-	
Bear Ck. @ 9th St. in Medford	E14	MED, CNTY	3/30/2023	13:40	7.1	44.8	8.26	183.3	6.64	72.3	-	-	
Bear Ck. @ Table Rock Rd.	E15	MED, CNTY	3/30/2023	13:55	7.8	46.0	8.25	191.7	6.64	65.7	-	-	
Griffin Creek @ Beall Ln	E16	JVLL, CPT, CNTY	3/30/2023	9:10	7.1	44.8	8.06	247.3	20.6	44.8	-	-	
Jackson Creek @ Beall Ln	E17	JVLL, CPT, CNTY	3/30/2023	9:20	5.4	41.7	8.16	218.6	3.68	77.1	-	-	
Jackson Creek @ Jacksonville	E18	JVLL, CPT, CNTY	3/30/2023	9:40	5.5	41.9	8.15	203.3	2.48	613.1	-	-	
Jackson Creek @ W. Ross Ln.	E19	JVLL, CPT, CNTY	3/30/2023	9:30	5.8	42.4	8.13	210.6	3.43	161.6	-	-	
Bear Ck. @ Pine St. (CP)	E20	CPT, CNTY	3/30/2023	14:25	7.7	45.9	8.30	188.4	5.79	82.0	-	-	
Bear Ck. above Griffin (CP)	E21	CPT, CNTY	3/30/2023										
Griffin Creek @ I-5	E22	CPT, CNTY	3/30/2023	14:50	9.7	49.5	8.45	303.4	5.11	36.8	-	-	
Jackson Creek @ Dean Creek Rd.	E23	JVLL, CPT, CNTY	3/30/2023	14:40	8.8	47.8	8.79	256.4	5.19	29.8	-	-	
Bear Ck. @ Kirtland Rd.	E24	CNTY, All	3/30/2023	15:10	8.6	47.5	8.41	208.6	6.36	47.2	-	-	
Bear Ck. @ Lynn Newbry Parl	DUP 1	TAL, CNTY	3/30/2023	11:15	4.4	39.9	8.13	145.6	5.91	40.4	-	-	
Bear Ck. @ S. Valley View Rd	DUP 2	ASH, CNTY	3/30/2023	11:45	4.8	40.6	8.28	144.0	6.36	26.2	-	-	
Bear Ck. @ Kirtland Rd.	QA/QC1	CNTY, All	3/21/2023	9:25	5.9	42.6	7.92	163.7	12.0	39.3	0.104	-	
Rogue River, Hwy 234 in GH	QA/QC2	CNTY, All	3/21/2023	8:35	6.0	42.8	7.63	63.0	11.2	218.7	0.086	-	

\* The summer temperature standard of 18.0 C (64.4 F) is based on a seven day consecutive average high temperature for the months of May 16th to October 14th. The winter temperature standard is 13.0 C (55.4 F) for the months of October 15th to May 15th. Therefore, grab sample results are generally not used to determine exceedence based on this standard.

\*\* An absolute standard of 50 ntus has been previously used for comparison purposes. The 1999 OWEB Watershed Assessment Manual recommends 50 NTUs above the background. Turbidity at this level interferes with the sight-feeding of salmonids and therefore provides a direct indicator of the biological effect (page VIII-15). ODEQ is currently working on revising the turbidity criteria.

\*\*\* Exceedence of the turbidity standard outlined in the Oregon Administrative Rules (OAR 340) is based on a greater than a 10 % increase in turbidity levels upstream and downstream of a source input or project.

\*\*\* Numeric Criteria: (i.) A 30-day log mean of 126 E.coli organisms per 100 ml, based on a minimum of five (5) samples; (ii.) No single sample shall exceed 406 E. Coli organisms per 100 ml.

n/a indicates no current applicable standard.

^ Daily average discharge measurements from Bureau of Reclamation (<http://www.usbr.gov/pn-bin/rtindex.pl?cfg=rogue>)

**Red indicates values at upper limit of quantification for test method. (example: e.coli 2419.2 =>2419.2)**

Red indicates values that exceed state standards.

LE = Lab Error  
FE = Field Error  
ND = not detectable

# Construction Site Runoff Control





**Central Point Public Works Standard  
Specifications For Construction  
800 – EROSION CONTROL and SEDIMENT PREVENTION**

**810.00.00 – General**

***810.01.01 – Description***

All construction sites of any size, included but not limited to, commercial or residential developments, lot(s), utilities, streets, or other types of construction related activities that may produce any soil erosion, sediments or other undesirable substances shall implement and maintain erosion and sedimentation prevention best management practices for preventing and minimizing such erosion, or sedimentation that may adversely affect storm water quality and adjacent property.

This work consists of installation, maintenance and removal of erosion and sediment prevention measures such as berms, dikes, swales, weirs, dams, sediment traps, sediment basins, erosion matting, temporary and permanent seeding, sodding, temporary and permanent mulching, slope drains, sediment fences and other sediment barriers, gravel construction accesses used to prevent erosion and off-site sedimentation.

**No construction work may proceed until the Public Works Department has issued an “Erosion Prevention Permit” in combination with a “Public Works Construction Permit”.**

***810.10.01 – References***

Oregon Administrative Rules (OAR) and Oregon Revised Statutes (ORS) current standards and revisions as may apply to Erosion and Sediment Control.

Oregon Department of Fish and Wildlife (ODFW) current standards and revisions as may apply to Erosion and Sediment Control.

Oregon Department of State Lands (ODL) current standards and revisions as may apply to Erosion and Sediment Control.

Oregon Standard Specifications for Construction and Standard Drawings, latest edition, as they may apply to Erosion and Sediment Control.

Oregon Department of Environmental Quality current standards and revisions as may apply to Erosion and Sediment Control.

American Society for Testing and Materials (ASTM) as they may apply to Erosion and Sediment Control materials.

American Public Works Association (APWA), latest edition, “Standard Specifications for Public Works Construction” as may apply to Erosion and Sediment Control.

City of Central Point Municipal Code (CPMC) as may apply to Erosion and Sediment Control Public Storm Water Systems.

Rogue Valley Sanitary Services, Standards and Specifications as may apply to Erosion and Sediment Control and Storm Water systems.

City of Central Point, Department of Public Works, Standards and Specifications as may apply to Erosion and Sediment Control and Storm Water systems.

Rogue Valley Stormwater Quality Design Manual, February 2023

Illicit Discharge Detection and Elimination Manual, Oct. 2004

## **820.00.00 – CONSTRUCTION SITE MANAGEMENT PLAN (CSMP)**

### **820.10.01 – Submittals**

The Construction Site Management Plan (CSMP) shall be prepared for all projects.

The Applicant shall submit a CSMP for approval to the Public Works Department in conjunction with any commercial or private development plans prior to issuance of a Public Works Department Construction Permit.

Contractors shall submit a CSMP developed in coordination with the project work schedule not less than 10 working days prior to the start of construction for all other work not included in the development process noted above. This would normally include but not be limited to utility work projects, publicly funded construction or re-construction projects and maintenance projects.

The Construction Site Management Plan shall contain sufficient information to describe the site development and the system(s) intended to control erosion and prevent off-site damage from erosion and sedimentation. The CSMP shall include, but not be limited to, the following:

1. A site location and vicinity map.
2. A site development drawing at a standardized engineering scale, such as 1"=40', containing the following site conditions:
  - a) Soil type
  - b) On-site elevations and/or topographic information adequate to determine drainage patterns and slopes.
  - c) Hydrology, including surface drainage and wetlands.
  - d) Existing vegetation.
  - e) Natural resource sites and designated buffer areas.
3. Plans that show site control measures for preventing erosion and sedimentation into the City's storm water sewer systems and related resources, including supporting calculations, such as hydraulics and soil loss equation, and assumptions for a 5-year or 10-year storm event as required by City design policy.
4. Off-site and on-site access routes for construction and maintenance vehicles.

5. Borrow and waste disposal areas.
6. Debris and garbage disposal areas.
7. Vegetation specifications for temporary and permanent stabilization.
8. Construction schedule, including the implementation of construction site management practices and expected time period of land disturbance activities.
9. Manners of storage and disposal of materials (e.g., sand, lumber, insulation, paints, thinners, fertilizers, fuels).
10. Temporary and permanent storm drainage facilities.
11. Measures to be undertaken to minimize the extent of exposed soils.
12. Areas where construction vehicles' wheels will be washed.
13. Methods and places for concrete-wash disposal.
14. Disturbed areas and other areas that are physically protected from potential disturbance, such as fencing.

The PWD will provide a written evaluation of the submitted CSMP to the applicant indicating any required modifications within 15 business days of receipt. During the life of the contract, the Applicant or Contractor shall submit any proposed changes to the approved CSMP to the PWD for approval before implementing the changes.

PWD approval of the CSMP does not necessarily reflect concurrence by the City of Central Point that the proposed measures will work. The Engineer or Contractor shall inspect, maintain, and adjust the erosion and sedimentation control measures in place to prevent and minimize negative impacts to storm water quality. Inspecting, maintaining, and adjusting the erosion control measures in place, is considered incidental work and no separate payment will be made.

The Contractor shall install additional measures to the CSMP as directed by the Engineer to improve the functionality of the CSMP.

## **820.20.00 – Site Monitoring**

### ***820.20.01 – Erosion and Sedimentation Control Manager (ESCM)***

The contractor shall designate one employee, thoroughly experienced in all aspects of construction, as Erosion and Sedimentation Control Manager (ESCM). Any change in the appointment of this individual during the term of the contract requires written submission and approval by the Engineer. The ESCM duties include:

1. Inspect erosion controls on active construction sites daily.
2. Inspect erosion controls on inactive sites at least monthly.
3. Inspect erosion controls during rainy periods on both inactive and active sites at least daily.
4. Immediately correct and modify erosion and sedimentation controls, maintaining compliance with the approved CSMP at all times.
5. Update the CSMP on a weekly basis to reflect necessary changes made.
6. Accompany the Engineer and/or the PWD on inspections and, if requested, on inspections made by other regulating agency representatives.
7. Mobilize crews to make immediate repairs to the controls or install controls during

working and nonworking hours.

No work shall start until the CSMP and ESCM have been approved by the PWD and a Public Works Construction Permit has been issued.

## **820.30.00 – Erosion Prevention Permits**

### **820.30.01 – Requirements**

Erosion Prevention Permits in combination with Public Works Construction Permits are required for all construction related activity that will:

1. Disturb any area of land being developed or constructed upon, which has the potential for erosion, production of sediment or production of other undesirable materials that may adversely affect storm water. Or:
2. is located in a sensitive area.

#### Criteria for a Sensitive Area:

- a. The slope of the parcel in the area of disturbance is greater than 10%
- b. The site contains highly erodible soils or soils that produce sediment; or
- c. The parcel or tax lot of record has the potential to directly drain into a water or wetland feature, or its designated buffer area.
- d. Is located in such a manner as to adversely affect the City storm water sewer system.
- e. Is located in such a manner as to erode soil material from or deposit sediment on adjacent property.

The Contractor shall have a certified professional prepare the permit application and the CSMP. The Contractor shall be responsible for performing all construction activities in accordance with the approved Erosion Prevention Permit and the CSMP.

#### Non Compliance

The Contractor's operation will be suspended whenever construction related activities are being done contrary to and in violation of applicable requirements of Central Point Municipal Code (CPMC), these specifications or the Erosion Prevention Permit.

Upon determination that the Contractor is violating (CPMC), these specifications, or the Erosion Prevention Permit, the City may issue a citation and/or penalty. Where such citation is issued, the Contractor shall pay to the City or property owner(s), or both if deemed by the court of jurisdiction, the penalties for each and every such day in violation. The Contractor shall also be required to promptly repair and remedy any damages to property at his own expense.

## **830.00.00 – MATERIALS**

### ***830.10.01 – Plastic Sheeting***

Plastic sheeting shall be Polyethylene plastic with a minimum thickness of 6 mils.

### **830.20.00 – Erosion Control Matting**

#### ***830.20.01 – Jute Matting***

The yarn shall be loosely twisted construction and shall not vary in thickness by more than one half of its normal diameter. The weave shall provide openings of about 1 square inch.

Furnish the matting in widths of 45" or more, continuous lengths of not less than 150 feet, and weigh not less than 0.9 pounds per square yard.

Use 12 gauge staples or heavier steel wire that is bent to a U-shape 2" wide. Staples shall not be less than 10" long unless the Engineer allows a shorter length for hardpan soil conditions.

#### ***830.20.02 – Excelsior Matting***

Excelsior matting shall consist of a machine-produced blanket of curled-wood fibers, of which 80% are 6" or longer. Furnish a blanket of uniform thickness, with the fiber evenly distributed over the entire area of the mat.

Cover the topside of the matting with a maximum 3" x 3" size mesh of high wet-strength, twisted Kraft paper, or a maximum 2" x 2" biodegradable, extended plastic mesh. Make the matting smolder-resistant without the use of chemical additives.

Excelsior matting shall have a minimum dry weight of 0.8 pounds per square yard ( $\pm 10\%$ ). Furnish in minimum 36" wide rolls.

Wire staples for excelsior matting shall be the same as specified for jute matting.

#### ***830.20.03 – Alternate Matting Material***

Submit any proposed alternate material with specifications, costs, and manufacturer's literature to the Engineer for consideration. Alternate material may be used only if approved by the Engineer.

**830.30.00 – Silt Fences**

The Geo-textile Fabric shall conform to Section 940, Geo-Textile Construction Fabric and the following:

	Test Methods	Units	Requirements		
			Supported Silt Fence	Unsupported Silt Fence	
				Geotextile Elongation >50%(I)	Geotextile Elongation <50%(I)
Grab Strength	ASTM	Lbs	90	124	124
MD	D 4632	force	90	100	100
CD					
Permeability (1)	ASTM D 4491	Sec	0.05	0.05	0.05
Apparent Opening Size	ASTM D 4751	In.	0.20 max. Avg. roll value	0.20 max. Avg. roll value	0.20 max. Avg. roll value
Ultraviolet Stability (Retained Strength)	ASTM D 4355	%	70% after 500 hrs of exposure		70% after 500 hrs of exposure

**830.30.01 – Field Fabricated Silt Fence**

As a basis of acceptance, furnish either a manufacturer’s brochure or a manufacturer’s certification. The silt fence system shall be able to withstand sediment, water, and wind loads associated with the intended use.

**830.30.02 – Manufactured Silt Fence**

Submit catalog descriptions of the silt fence system to the Engineer for approval prior to installation. As a minimum the silt fence system shall have post pockets and be able to withstand sediment, water, and wind loads associated with the intended use.

**830.40.00 – Other Silt Barrier Materials**

**830.40.01 – Straw Bales**

Standard 40 to 60 pound rectangular bales of cereal grain straw or grass seed straw which are wire-bound or string-tied.



### **830.40.02 – Bio-bags**

18" x 8" x 30" bags made of ½" plastic mesh, weighing approx. 45 pounds, and filled with clean, 100 percent recycled wood product waste.

### **830.40.03 – Sandbags**

24" X 12" X 6" tightly woven sacks of durable weather-resistant material filled with sand filler material.

### **830.50.00 – Seed**

#### **830.50.01 – Seed Certification**

All rates are for pure live seed. Submit bag tags for verification.

Deliver all grass seed in standard, sealed containers. Label each container with the following:

- a) The kind and variety of the seed.
- b) The kind and variety of each seed in a mixture, of 3 % or more.
- c) Percent of germination (each kind).
- d) Percent of pure seed (each kind).
- e) Percent and kind of other crop.
- f) Percent of inert (not to exceed 1.5%).
- g) Percent of weed seed.
- h) Percent of noxious weed seed.
- i) Date of test.

In addition, tag all grass seed "Oregon Certified Seed" or the equivalent tag from another state, and be from the most recent crop available. Test and label each kind according to the Oregon Seed Law and Federal Seed Act. Test the seed within 9 months of the delivery date and shall not be sprouted, moldy, or show evidence of having been wet or otherwise damaged.

The minimum requirements of Oregon certified seed are as published in the current year's [Oregon Certified Seed Handbook](#) available from County Extension Offices or Oregon State University.

Each lot of seed shall be subject to inspection, sampling, and testing upon delivery to the project. Reject seed that is not labeled or that does not conform to specifications replace at the providers expense.

### **830.50.02 – Seed Type**

Erosion control seed will be mixed and applied in accordance to the following:

Temporary application: Annual rye grass or perennial rye grass at 200 pounds per acre.  
Permanent application: Perennial rye grass at 200 pounds per acre.

### **830.60.00 – Mulching**

#### **830.60.01 – Hydro Mulch**

A cellulose fiber produced from virgin wood, grass straw, or a paper fiber product. Product shall be approved by City PWD.

#### **830.60.02 – Grass Straw Mulch**

Straw mulch for non-hydro seeding applications shall be grass straw from bent grass, bluegrass, fescue or ryegrass, singly or in combination. The straw shall not be moldy, caked, decayed or of otherwise low quality. Use a straw binder or tackifier.

1. Tracer - Approved Hydro mulch fibers.
2. Tackifier(s) - Approved commercial tackifier per Oregon Standard Specifications for Construction, latest edition, Section 00280.44(d).

### **830.70.00 – Fertilizer**

#### **830.70.01 – Requirements**

General Use - 22-16-8 inorganic fertilizer shall be analyzed to contain 22% nitrogen, 16% available phosphoric acid, 8% soluble potash, and include a minimum of 2% sulfur. The fertilizer shall contain not less than 30% available water-insoluble nitrogen derived by incorporating one of the following:

1. A minimum 800 lbs. of urea formaldehyde per ton of fertilizer that has a minimum Activity Index (AI) of 40. The AI will be determined by the Association of Official Agricultural Chemists method.
2. A minimum of 500 lbs. of Isobutylidene Diurea (IBDU) per ton of fertilizer.
3. Non-phosphorous - Polymer coated-sulfur coated urea, PCSCU, (39-0-0)

### **830.80.00 – Protection Fence**

The Fence shall be a minimum of 4' high of poly construction or snow fencing capable of protecting the area from foot traffic. Other suitable barriers or warning devices shall be installed where required to warn or prevent vehicular traffic from entering the area.

## **840.00.00 – Construction and Workmanship**

### **840.10.01 – General**

Install the erosion and sedimentation control measures prior to all clearing, grading, and other land alteration activities, ensuring that erosion and sediment-laden water does not enter the drainage system or waterways or violate applicable water standards. Disturbed areas will be limited to the amount that the Contractor can effectively control. Incorporate all permanent erosion and sedimentation control features into the project prior to construction. During construction activities, all erosion and sedimentation control measures shown on the plans shall be maintained to prevent and minimize negative impacts to water quality and related natural resources. Correct operational procedures and repair equipment that cause erosion, sedimentation, and/or contamination such as fueling operations and leaking equipment. Remove and dispose of contaminated soils.

No construction activities shall be performed which result in:

1. The deposit or discharge of sediment from a site onto adjacent properties or into water features and related natural resources.
2. Degradation of water features due to removal of stream bank vegetation from construction sites.
3. The deposition of mud, dirt, sediment, concrete washout, trash, or other similar construction related material exceeding one-half cubic foot in volume for every 1,000 square feet of disturbed area onto public rights of way and private streets, and into the City's storm water system and related natural resources, either by direct deposit, dropping, discharge, erosion, or tracking by construction vehicles. Any such discharge shall be cleaned-up at the end of the current work shift in which the deposit occurred, or at the end of the current workday, whichever comes first.
4. Exposure of soils and stockpile areas to storm water runoff without secondary containment and treatment measures.
5. Earth slides, mudflows, earth sloughing, or other earth movement that may leave the project limits.
6. The discharge of runoff containing construction related contaminants into the City's storm water system or related natural resources.
7. Release onto the site of hazardous substances, such as paints, thinners, fuels, and other chemical due to improper handling or storage.

Design and implement management measures to meet the above outcomes with the seasonal variation of rainfall, temperature, and other climatic factors relative to the timing of land disturbance activities.

Adjust management measures to meet increased storm water runoff flows and velocities between November 1 and April 30.

No permit or other approval issued by the City shall be deemed to authorize any violation of the above prohibitions.

#### **840.10.02 – Construction Site Practices**

The Contractor shall establish and implement construction site management practices that will prevent toxic materials and other debris from entering the City's storm drainage and waterway systems. The Contractor shall:

1. Properly store chemicals (pesticides, fertilizers, fuels, paints, thinners, etc.) at the construction site;
2. Properly dispose of construction waste materials, garbage, rubbish, and sanitary waste
3. Immediately clean up spills of toxic materials
4. Wash excess concrete material in an approved disposal site;
6. Cover stockpiles;
7. Clean construction vehicles before entering streets or public rights of way.
8. Clean up "Track-out" mud and debris resulting from construction vehicles at each end of shift daily.

#### **840.10.04 – Wet Season (November to May) and Temporary Work Suspension**

Prior to the wet season (November 1 through April 30) and temporary work suspension the Contractor shall meet with the Engineer to review and update the CSMP to assure that appropriate controls are in place and maintained during the wet season work and temporary work suspension periods.

#### **840.10.05 – Disturbance Limits**

Construction site clearing limits will be clearly flagged by the Engineer and/or Contractor. No ground disturbance shall be permitted beyond the flagged boundary. The contractor shall maintain the flagging for the duration of the construction.

#### **840.10.06 – Perimeter Controls**

Install all appropriate perimeter controls prior to any site grubbing operation. Perimeter controls include side ditches or berms in fill areas, silt fence along the banks of existing streams, streets, toes of slopes and construction accesses.

#### **840.10.07 – Soil and slope Protection and Stabilization**

The Contractor shall temporarily or permanently protect and stabilize all soils that are exposed and disturbed during construction.

Protection and stabilization shall consist of any method or combination of methods that will produce the desired end result.

#### **840.10.08 – Temporary Protection and Stabilization**

The Contractor shall immediately protect and stabilize all exposed or disturbed soils which will not be disturbed by grading or other earthwork activities for 14 calendar days or longer. Exemptions to temporary protection and stabilization include areas of embankment sub-grade

or excavation where pavement will be placed.

From September 1 to May 1, there are no exemptions to temporary protection and stabilization requirements.

#### **840.10.09 – Permanent Protection and Stabilization**

The Contractor shall complete permanent protection and stabilization within 7 calendar days following the completed construction of finished grades.

Permanent protection and stabilization methods include permanent seeding and mulching, riprap protection, engineered slope protection and stabilization as shown on the plans or as directed by the Engineer.

Permanent seeding work done in conjunction with permanent mulching outside the spring and fall seeding dates shall be considered temporary until 3 weeks into the next permanent seeding season. A suitable stand of grass consists of a uniform stand having a 3" minimum height with bare spots not larger than 6" square will be allowed to a maximum of 3 percent of the seeded area. If a suitable stand of grass has not been achieved by the seeding dates, fertilize and reseed.

Seeding dates are as follows:

- a.) February 1 to April 30 (spring seeding)
- b.) September 1 to October 15 (fall seeding).

During the seeding dates, use Hydro mulch or straw mulch. For all other seeding, use straw mulch.

#### **840.20.00 – Seeding**

##### **840.20.01 – Requirements**

These specifications apply to all temporary and permanent protection and stabilization. Uniformly apply seed and fertilizer at the rates indicated and by one of the following kinds of equipment as the Contractor elects.

Thoroughly mix seeds when more than one kind of seed is to be used. Seed and fertilizer may be combined in water for application by hydraulic means. When fertilizer and seed are to be applied in dry condition, apply them separately. Applied from separate compartments, the application may be done in one operation.

Place the seed and fertilizer before placing the mulch, except the fertilizer and seed may be applied after mulching under the following conditions:

1. If the mulch is punched into the soil by mechanized means.
2. If it is necessary to hold down the mulch with netting or like material.
3. On 1-½:1 or steeper slopes where a slurry mixture would tend to run down the slope
4. Double the rate of application and add a green dye to visibly aid in uniform application.

Prevent the seed and fertilizer from falling or drifting onto areas occupied by rock base, rock shoulders, plant beds or other areas where grass is detrimental or undesirable.

#### **840.20.02 – Application Methods**

For both temporary and permanent protection and stabilization seeding work, apply seed and fertilizer using one of the following kinds of equipment.

1. Grass seed drills or seeders that work fertilizer into the soil and place the seed under about a ¼" soil cover.
2. Hydraulic equipment that continuously mixes and agitates the slurry and applies the mixture uniformly through a pressure-spray system providing a continuous, non-fluctuating delivery. Apply the materials using a sweeping, horizontal motion of the nozzle.

Add a nontoxic tracer to the seed and fertilizer mixture to visibly aid uniform application. Do not exceed 250 pounds per acre when wood cellulose fiber is used as a tracer.

3. Blower equipment using air pressure and an adjustable spout that uniformly applies dry fertilizer and dry seed in separate and successive applications at constant measured rates. Apply the materials using a sweeping, horizontal motion of the spout.
4. Hand-operated mechanical spreaders that uniformly apply dry fertilizer and dry seed separately and successively in prescribed quantities.

Regardless of equipment methods used, prevent drift and displacement of seed and fertilizer. If equipment and methods of application results in wasting material, make corrections as directed.

Do not disturb areas previously completed. If areas are disturbed, re-treat as directed at the Contractor's expense.

#### **Area Preparation:**

1. On cut slopes 1-1/2:1 or flatter, roughen the surface parallel with slope contours and loosen soil to a depth of 3" to 5".
2. On cut slopes steeper than 1-1/2:1, when seedbed preparation is difficult, cut furrows along the contours or stair-step during construction. On fill slopes 3:1 or steeper, make dozer tracks so that the ridges run parallel to slope contours.
3. Remove rocks, weeds, debris and other matter detrimental or toxic to the growth of grass from areas to be seeded. On slopes 3:1 or less, remove all loose stones larger than 2" in areas that will be maintained by mowing equipment.
5. When topsoil is specified, loosen existing ground surface to a depth of 4" to 6" before placing topsoil.



Application rate

Uniformly apply at the rate of 200 pounds of seed per acre.

Fertilizer

Apply as specified. The contractor shall notify the Engineer at least 2 calendar days in advance of starting operations, and keep the Engineer advised of the operations.

1. General-Use - Apply general use fertilizer at distances greater than 50' from permanent bodies of water, creek channels, or other running streams including irrigation channels at a rate of 400 pounds per acre.
2. Non-phosphorous - Apply non-phosphorous fertilizers within 50' of permanent bodies of water, creek channels, or other running streams including irrigation channels at a rate of 200 pounds per acre.

**840.30.00 – Mulching**

**840.30.01 – Requirements**

These specifications apply to all temporary and permanent stabilization. Evenly apply mulch material according to these provisions and the special provisions within 48 hours after seeding and fertilizing.

Place mulch after seeding and fertilizing, except for those conditions such as hydro seeding allowing the seed and mulch to be applied together.

Replace material that becomes displaced before acceptance of the work.

Mulch areas not accessible to heavy equipment by approved methods.

Prevent damage to prepared areas and to fertilizer, seed and mulch in place.

Prevent mulch material from plants, roadways, gravel shoulders, structures, areas where mulching is not specified, or which collects at the ends of culverts or accumulates to excessive depths, as directed.

If tacking agents are used with mulch, use protective covering on structures and objects where coverage and stains would be objectionable. Protect vehicles and persons from drifting spray.

Apply one of the following mulches at the rate indicated:

1. Place grass straw mulch to a reasonably uniform thickness of 1-1/2" to 2-1/2", and average approximately 2" in loose condition. This rate requires between 2 and 3 tons of dry mulch per acre. The grass straw mulch shall be loose enough for sunlight to penetrate and air to circulate; but dense enough to shade the ground, reduce water evaporation, and

materially reduce soil erosion. Retain grass straw mulch in place, with the addition of one of the following tackifiers.

- J-TAC, 40 pounds per acre on slopes of 2:1 or less and 80 pounds per acre on slopes greater than 2:1. Green-colored wood cellulose fiber may be added after the tackifier has been mixed.
  - Wood or grass straw cellulose fiber, 750 pounds per acre.
2. Place waterborne mulch as specified in Oregon Standard Specifications for Construction, latest edition, Section 280.44(d), where fibers are uniformly suspended in water, to the seeded areas using hydraulic pressure equipment. Unless otherwise specified apply at least 2,000 pounds per acre, based on dry fiber weight. On slopes steeper than 1-1/2:1, use Hydro mulch, at 1-½ times the specified rate with tackifier at 80 pounds per acre. If wood or grass cellulose fiber is used as a tracer for seed application, this weight may be included as part of the required 2,000 pounds per acre minimum.

## **840.40.00 – Plastic Sheet Covering**

### ***840.40.01 – Requirements***

Cover and secure tightly in place. Overlap seams 12". For seams parallel to the slope contour, lap the uphill sheet over the downhill sheet. Control drainage from areas covered by plastic sheeting so that no discharge occurs directly onto uncontrolled disturbed areas of the construction site. Direct water away from areas above the plastic to prevent erosion and undermining beneath the plastic sheeting.

## **840.50.00 – Erosion Control Matting**

### ***840.50.01 – Requirements***

Prepare soil for seeding. Apply matting so it is in complete contact with the soil to prevent erosion occurring beneath it. Place and securely anchor erosion matting to the slope per manufacturer's recommendations.

## **840.60.00 – Silt Fence**

### ***840.60.01 – Requirements***

Supported (mesh) and unsupported are as follows:

1. Field-Fabricated Silt Fence  
Install supported fence by fastening mesh and geo-textile securely to the up-slope side of the posts. Use stitched loops over posts for unsupported silt fence. Eliminate the mesh for unsupported fence. Only manufacturer's factory seams are acceptable; field-sewn seams are not. When using geo-textile and wire fabric, use a continuous roll of geo-textile cut to the length of the barrier to avoid joints. When joints are necessary,

splice geo-textile only at a support post and use a minimum 6' overlap. Securely fasten each end of the fence to the end post. Bury the silt fence a minimum on 6".

2. Manufactured Silt Fence System

Install in accordance with plans, special provisions, and manufacturer's recommendations.

	Requirements		
	Supported Silt Fence	Unsupported Silt Fence	
		Geo-textile Elongation > 50% (1)	Geo-textile Elongation < 50% (1)
Maximum Post Spacing	4 ft	4 ft	6.5 ft

(1) As measured in accordance with ASTM D4632

**850.00.00 – Construction Access and Control**

**850.10.01 – Requirements**

Place and arrange controls as shown in the CSMP or as directed by the Engineer. Install temporary gravel construction entrance/exit structures for construction traffic moving directly onto a public road or rights of way.

Track-out of mud, dirt, debris or other undesirable materials onto streets or sidewalks is not allowed and will not be permitted. Prompt cleanup of such materials is required.

**850.10.02 – Straw Bales, Bio-bags, and Sand bags**

Place and arrange controls as shown in the CSMP or as directed by the Engineer.

**850.10.03 – Storm Water System Inlet Protection**

Construct controls as required for directing the flow of water through the filters to the inlet in such a manner as to prevent inlet bypass or blockage.

**850.10.04 – Protection Fencing**

Construct protection fencing as shown in the CSMP or as directed by the Engineer. The fence supports shall have a maximum spacing of ten feet.

## **860.00.00 – Maintenance and Removal**

### **860.10.01 – Requirements**

The Contractor shall maintain installed erosion and sedimentation controls in good working order at all times and retain the controls until the project is completed, stabilized, and final acceptance is issued. Should a control measure not function effectively, the Contractor shall perform one of the following:

1. Immediately repair the control.
2. Remove and restore the control.
3. Provide additional controls.

Remove and re-grade sediment into slopes or remove and dispose of sediment off site. Do not flush sediment-laden water into the downstream system.

### **860.10.02 – Maintenance**

1. Catch Basins - Maintain catch basins (inlets with sumps or inverted siphons) so that no more than one-half foot sediment depth accumulates within traps or sumps.
2. Sediment Controls - Remove sediment from controls such as silt fences, straw bale barriers, check dams and sediment ponds once it has reached 1/3 of the exposed height of the control.
3. Paved Areas - Keep all paved areas and gutters clean until the notice of completion is issued.
4. Construction Access Points - Add and remove gravel, aggregate or other material specified as needed to maintain proper function of the access pad.
5. Permanent Vegetative Stabilization - At the Contractors expense, reestablish permanent stabilized areas disturbed by Contractor's operations or other activities within 7 calendar days from the time of disturbance. At the Contractor's expense, repair anchored straw displaced by wind, water, or Contractors operations within 2 days of displacement.

### **860.10.03 – Removal**

The contractor shall remove all temporary protection measures and any sediment at the completion of the work. Immediately shape and permanently protect and stabilize the areas affected by the removal process.

All materials associated with temporary erosion and sedimentation control that are not incorporated into the permanent work become the property of the Contractor.

Remove the materials from the area and dispose of materials in accordance with local, State, and Federal laws and to a suitable offsite location.



# Erosion Prevention and Sediment Control

## Plan Submittal Requirement for Sites

7,000 Sq. Ft. to 1 Acre

### Overview

To expedite your permit process, follow this guide to preparing an Erosion Prevention and Sediment Control (EPSC) site plan showing how soil erosion will be minimized and sediment contained on-site during residential construction activities.

### What do I need to submit?

You must submit a completed *Erosion Prevention and Sediment Control* permit application along with 2 copies of an EPSC site plan. Follow the checklist below to create the EPSC site plan.

### EPSC site plan checklist

*Start with a copy of your site plan, showing the following:*

- Property lines, easements, and north arrow
- Existing and proposed contour lines at 2-foot intervals
- Footprint of all structures (including decks, porches, retaining walls, etc.)
- Location of driveway and sidewalks

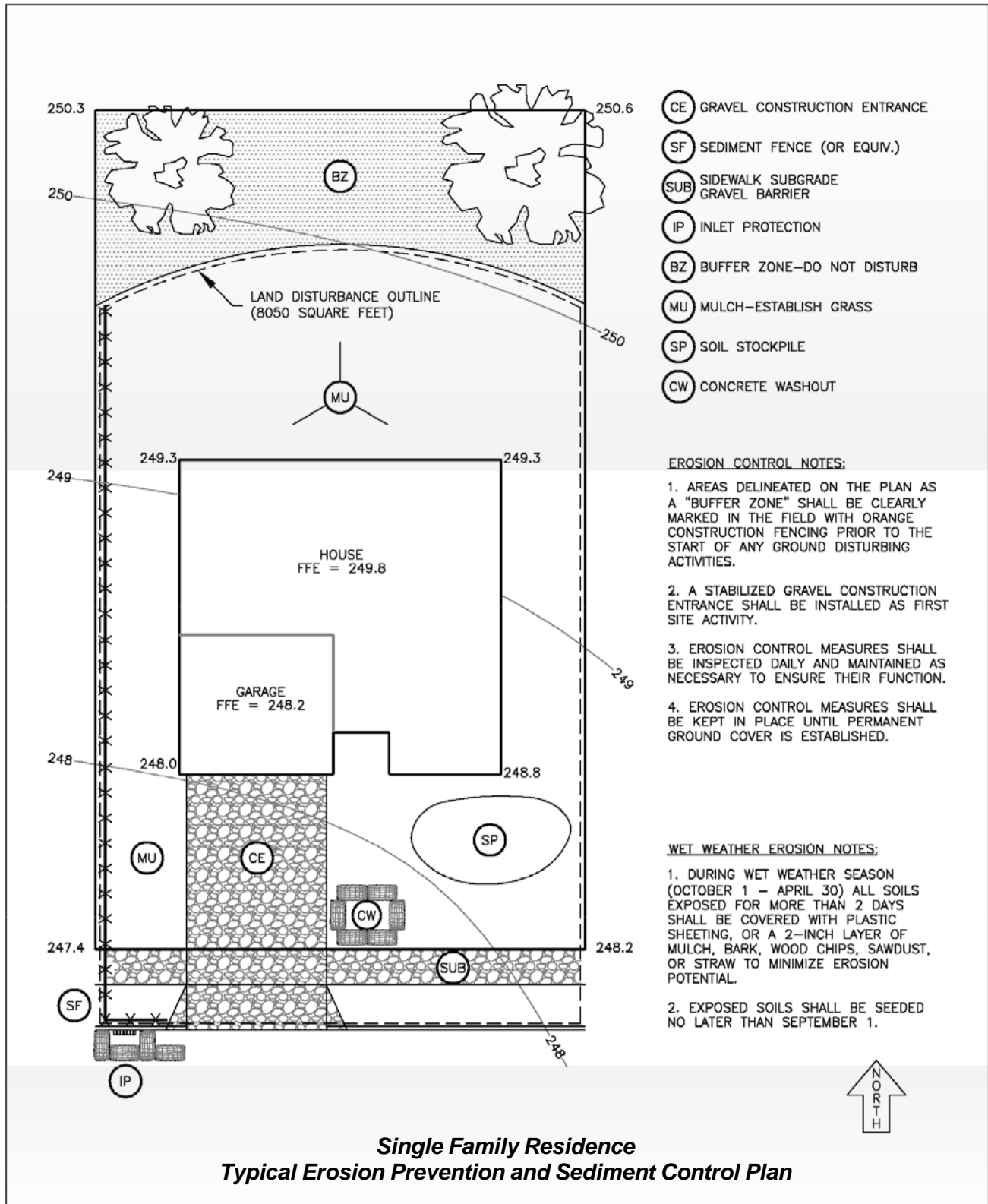
*Add the following EPSC information:*

- Gravel construction entrance/exit (*20-foot length x 20-foot width minimum, 8-inches of gravel*).
- Location for any temporary stockpiling of soil during construction.
- Outline all areas of land disturbance on the site, including areas that will be cleared, graded, or excavated during any phase of construction.
- Place erosion control measures on the downhill side of all disturbed areas on the construction site.

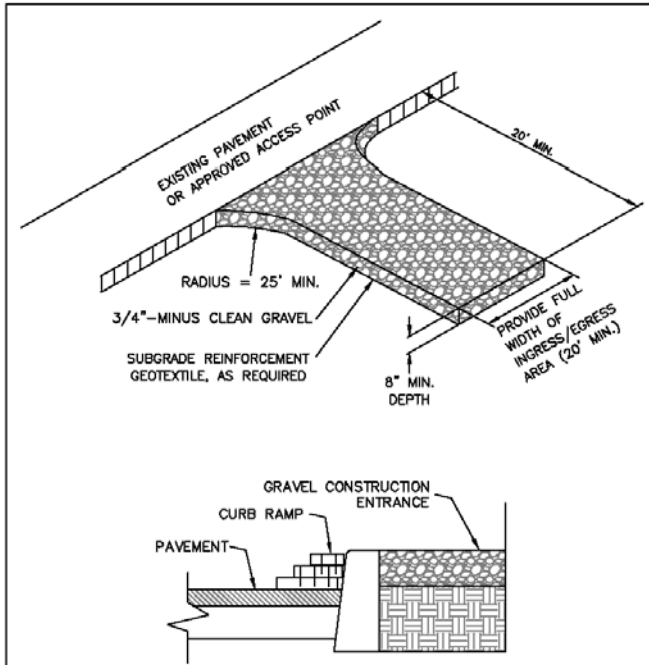
Appropriate measures include:

- Sediment fence
  - Rice straw/coconut fiber (coir)/excelsior wattle
  - Excavated sidewalk (*4-foot width x 4-inch depth minimum for slopes < 10%, 2-inches of gravel*)
  - Mulch or gravel berm
  - Undisturbed buffer zone (*10-foot minimum width for slopes < 10%, fence off with orange construction fencing*)
- Provide curb gutter filtration and inlet protection for all downhill storm sewer inlets.  
Appropriate measures include:
    - Biobags (*for curb inlets, catch basins, and area drains in low-traffic areas*)
    - Curb inlet sediment filters (*for curb inlets in high-traffic areas*)
    - Provide a concrete wash-out facility for all concrete truck, mortar, and concrete tool wash out:
      - Wash-out facilities must be clearly marked and located away from the street, storm sewer inlets, and water quality facilities.

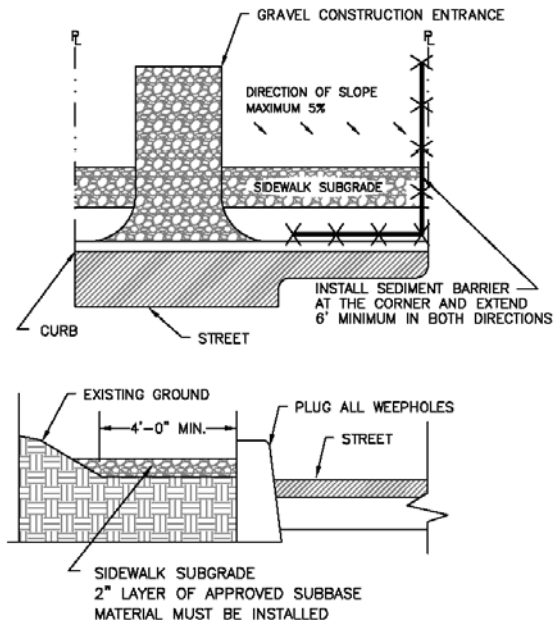
# EPSC site plan example



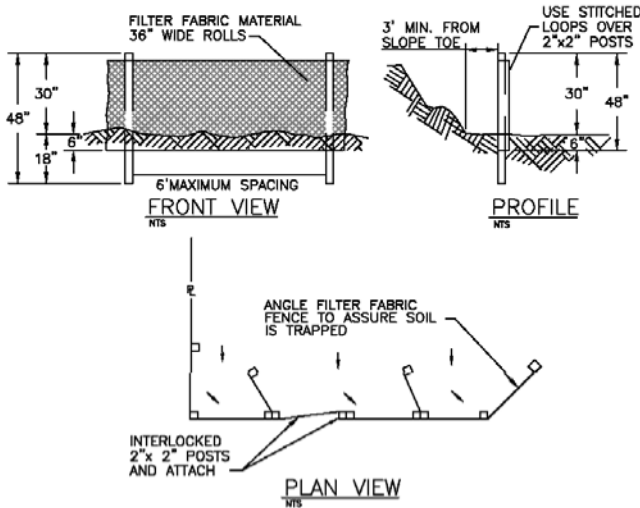
# Commonly used residential erosion control measures



**Residential Gravel Construction Entrance**

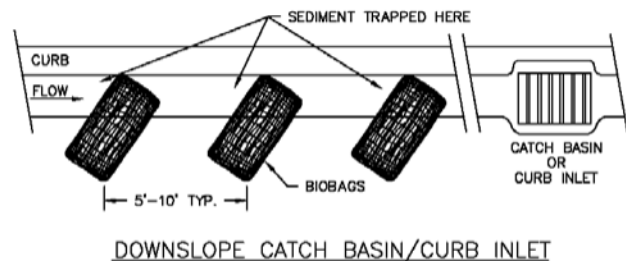
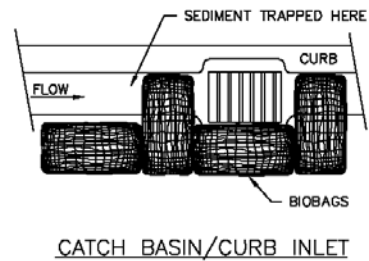


**Excavated Sidewalk Gravel Barrier**



- NOTES:
1. EXCAVATE A 4" X 8" TRENCH.
  2. USE 36" WIDE FILTER FABRIC WITH STITCHED STAKE POCKETS.
  3. STAKE WITH 2" X 2" FIR, PINE, OR STEEL FENCE POSTS.
  4. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
  5. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
  6. WHERE JOINTS ARE NECESSARY, INTERLOCK POSTS.
  7. BACKFILL AND COMPACT BOTH SIDES OF FILTER FABRIC IN TRENCH.

**Sediment Fence**



**Downslope Catch Basin/Curb Inlet**

**BioBag Inlet Protection**





# Erosion Prevention and Sediment Control

## Permit Process for *Commercial Construction*

### Overview

To protect local waterways, all ground-disturbing commercial construction sites in Central Point must comply with water quality standards. This includes developing and implementing a plan to limit soil erosion and contain sediment and other pollutants on-site during construction activities.

### What constitutes commercial construction?

All land disturbance *except* for construction of one single-family or duplex dwelling on a site is considered commercial construction.

Construction of one single-family or duplex dwelling on a site disturbing less than 1 acre of land surface is considered residential construction, and applicants should refer to the *EPSC Permit Process for Residential Construction* handout.

### When is a permit required?

An Erosion Prevention and Sediment Control (EPSC) permit is required for all construction sites that disturb *7,000 square feet or more* of land surface. Sites that disturb less than 7,000 square feet of land surface are not required to obtain a permit, but property owners must protect water quality.

In addition, an NPDES 1200-C permit from the Oregon Department of Environmental Quality (DEQ) is required for all construction sites that disturb *5 acre or more* of land surface. Applicants should refer to the *DEQ 1200-C Fact Sheet*.

### What constitutes a land disturbing activity?

Any activity that exposes soil, including but not limited to grading, excavating, filling, vegetation removal, or logging.

### What is required to obtain an erosion prevention permit?

Applicants must submit a completed EPSC application form and 2 copies of an EPSC site plan, details, and notes showing how soil erosion will be minimized and sediment contained on-site during construction activities.

Sample plans, details, and notes are available in the *City of Central Point Erosion Prevention and Sediment Control application*, available online at [www.centralpointoregon.com](http://www.centralpointoregon.com)

### Are there special qualifications to prepare this plan?

Yes. For commercial construction a professional design must be submitted by a person licensed in Oregon as a civil engineer, environmental engineer, landscape architect, geologist, or a certified professional in erosion and sediment control (CPESC).

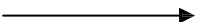
### Where can I get assistance?

We are here to help you. Staff is typically available from 8:00 am to 4:00 pm weekdays to answer your questions by phone (541) 423-1030 and at the Public Works front counter in City Hall, 140 S 3<sup>rd</sup> Street.

We also encourage you to call and make arrangements for a free on-site consultation.

### Are fees required?

Yes, the amount varies depending on the size of the land disturbance.

Over 

### Why are construction sites a problem?

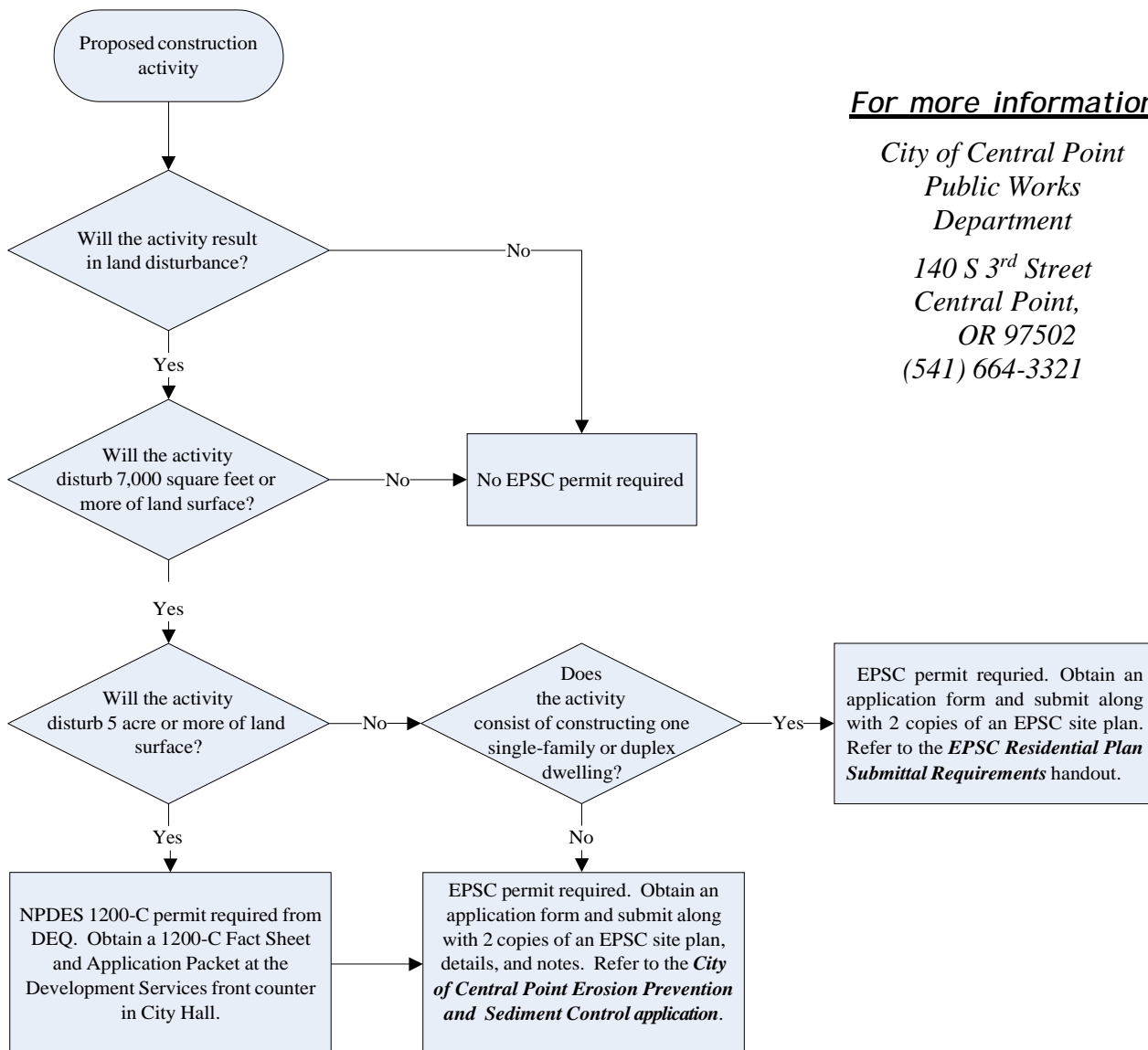
The City’s stormwater system consists of open channels, creeks, wetlands, and pipes that carry untreated runoff to the local creeks.

Construction activities can cause erosion and sedimentation, which reduces the capacity of the storm water system to convey water away from homes and businesses and reduces water quality. This can lead to drainage and flood problems, polluted drinking water sources, can harm fish and other aquatic life, and otherwise reduce beneficial uses.

### What are examples of stormwater pollutants?

Anything other than rain that enters the stormwater system is considered a pollutant. This includes soil sediment, fertilizer, paint, oil, solvents, concrete-washout, and any other garbage, trash or debris.

### When is a permit required?



# DEQ 1200-CN ESC Plan Checklist

## *Cover Sheet 1-5 Acres*

- Site Map
- Vicinity Map
- Project Location including Latitude & Longitude
- Property Description
- Developer Name
- Planning/Engineering/Surveying Firm

Narrative Site Description which includes:

- Existing Site Conditions
- Developed Conditions
- Nature of Construction Activity and Estimated Time Table
- An estimate of the permitted site area
- An estimate of total area of disturbance (includes offsite work and all phases of the onsite work, i.e. house construction, final lot landscaping, etc.)
- Site Soil Characterization – including soil classifications and soil erosive potential
- Names of receiving water(s) for stormwater runoff
- Permittee's Site Inspector – name of knowledgeable person responsible for ESC inspections including contact information and description of his/hers experience and training pertaining to ESC work
- Inspection Frequency
- Standard ESC notes and permit references for a 1200-CN.
- BMP Matrix for Construction Phases – Proposed BMP's listed by categories, i.e., Erosion Prevention, Runoff Control, Sediment Control, and Pollution Prevention
- Initialed (hand written) Rationale Statement

## Standard permit conditions

1. **Prior to any ground disturbing activity on the site, an initial inspection by City staff is required.** Erosion Prevention and Sediment Control (EPSC) measures should be in place prior to the inspector arriving. Call Mike Blake at (541) 414-7365 to schedule your inspection.
2. EPSC measures must be constructed in conjunction with, and prior to, all clearing and grading activities and in a manner as to ensure that sediment and sediment-laden water does not enter the drainage system, roadways, or violate applicable water quality standards.
3. EPSC measures shown on the plans are minimum requirements for anticipated site conditions. During the construction period, the EPSC measures shall be upgraded as needed for unexpected storm events and to ensure that sediment and sediment-laden water does not leave the site.
4. EPSC measures shall be inspected daily by the permit holder, and maintained as necessary to ensure their function.
5. Stabilized gravel construction entrances shall be installed at the beginning of construction and maintained for the duration of the project. Additional measures may be required to ensure that all paved areas are kept clean for the duration of the project.
6. EPSC measures shall be kept in place until permanent ground cover is established.
7. All exposed soil must be permanently stabilized against wind and water erosion before the EPSC permit can be closed. Once the site is stabilized, schedule a final inspection by calling (541) 414-7365. Permanent soil stabilization includes landscaping, seeding, or covering exposed soil with a minimum 2-inch layer of bark or wood chips. For residential construction, where areas of the lot have a final grade less than 10% slope, a 5-foot wide strip of perimeter stabilization may be substituted in lieu of complete site stabilization.

## Where can I get assistance?

We are here to help you. Staff is typically available from 8:00 am to 4:00 pm weekdays to answer your questions by phone (541) 423-1030 and at the Public Works front counter in City Hall, 140 S 3<sup>rd</sup> Street. We encourage you to call and make arrangements for a free on-site consultation.

### For more information

*City of Central Point*

*Public Works*

*Department 140 S 3<sup>rd</sup>  
Street.*

*Central Point Oregon  
97502*

*(541)664-3321*

*Fax (541) 664-6384*

*www.centralpointoregon  
.gov*

***Clearing, Demolition, and Mass Grading Sheet***  
***(ESC plan to start construction activity)***

- Total property boundary including surface area of development
- Location of springs, wetlands, or other sensitive areas on or adjacent to site
- Boundary of the 100 year flood plain, if information is available
- Clearly define (show and label) Sensitive Areas and Vegetated Corridors
- Identify areas where vegetation is to remain undisturbed. Delineate this boundary with ESC base measures and orange construction fencing.
- Drainage patterns before grading clearly identified by contour lines and flow drainage direction arrows
- Location of all ESC measures used during the clearing, demolition, and mass grading phase including but not limited to: gravel construction entrance, perimeter control, protection of existing inlets
- Legend for BMP symbols used on this phase of project
- Location of existing buildings to be removed
- Location of septic tanks and drain fields
- Location of existing drywells or other UIC's if applicable
- Location of drinking water wells
- Site and phase specific ESC construction notes
- Show location of existing discharge points to receiving streams or buffers

## *Utility, Street Construction, Completion of Grading, and Final Stabilization Sheet*

- Show onsite development boundary and any offsite work associated with the development. Include ESC for offsite areas
- Clearly identify areas of cuts and fills as well as pre and post development elevation contours
- Drainage patterns after grading clearly identified by contour lines and flow direction arrows. Show appropriate interior sediment control BMP's downslope of all disturbed areas above streets, parking areas, and water quality facilities
- Designate area for solid waste, hazardous waste, concrete washout, fuel storage areas, fueling areas, and method of control
- Designate area for soil stockpiles and method of control
- Location of springs, wetlands, or other sensitive areas on or adjacent to site
- Boundary of the 100 year flood plain, if information is available
- Clearly define (show and label) Sensitive Areas and Vegetated Corridors
- Identify areas where vegetation is to remain undisturbed. Delineate this boundary with ESC base measures and orange construction fencing.
- Indicate additional BMP's to be used when project boundary is within 50 feet of water of the state including but not limited to compost berms, compost blankets, compost socks, two parallel rows of sediment fence
- Show proposed storm system including all inlets and outlets
- Indicate BMP's to be used to protect inlets and outlets
- Show location of post development discharge points to receiving streams or buffers
- Include phase specific notes for dust control
- Show location of sediment ponds, conveyance channels, and water quality facilities and how they are to be protected from erosion
- Legend for BMP symbols used on this phase of project
- Location of proposed drywells or other UIC's if applicable

- If seeding is specified as a BMP, specify dates in which seed is to be applied to ensure that vegetation becomes established prior to wet weather period
- Site and phase specific ESC construction notes and site and phase specific ESC BMP implementation notes

***Detail Sheet***

- Show details for all proposed BMP's and installation techniques
- See Clean Water Services ESC planning and design manual for guidance on design criteria
- If non-structural BMP's are proposed, include a note describing the BMP and its method of use

***Prior to submittal, check that all the following are included:***

- Appropriate BMP's have been used
- One set of approvable plans
- Copy of this checklist

ESC Plan Designed by: \_\_\_\_\_ Date: \_\_\_\_\_

Checklist Completed/Verified by: \_\_\_\_\_ Date: \_\_\_\_\_



**1200-CN PERMITTED SITES**  
**EROSION PREVENTION AND SEDIMENT CONTROL VISUAL MONITORING LOG**

1200-CN Project Name \_\_\_\_\_ Permit # \_\_\_\_\_ Insp. Date: \_\_\_\_\_  
 Inspector Name, Title & Contact Info: \_\_\_\_\_

I am the designated Erosion and Sediment Control Inspector named on the ESC Plan:  Yes  No  
 (If No, provide the City with updated inspector information immediately.)

General Contractor & Contact Info: \_\_\_\_\_

Current Weather: Temp: \_\_\_\_\_  Clear  Cloudy  Light Drizzle  Raining  Storming  Other \_\_\_\_\_

APPROX. RAINFALL IN LAST 24 HOURS:  None or List amount: \_\_\_\_\_

REQUIRED INSPECTION FREQUENCY: Weekly when runoff occurs, monthly when no run off occurs, 30 days for inactive sites

BMP INSPECTION TYPE:  Initial Inspection  Regular Inspection  Re-Inspection  Storm Event  Other \_\_\_\_\_

- Inspect site after installation of ESC measures.
- Regular inspections should be done at the frequency stated on the ESC Plans. (Also in table on pg 6 of 1200-CN permit)
- Use the "Notes" section to describe any maintenance or corrective actions or other information

Item No.	<u>Item Description</u>	Yes	No	N/A
1	Is stormwater discharge going offsite now, or is there evidence that SW runoff has occurred? <b>If Yes, complete Stormwater (SW) discharge section on page 3.</b>			
Notes				
2	Is a copy of the approved Site map, ESC plans and any revisions, and all visual monitoring records (completed copies of this Inspection report) available on site?			
Notes				
2a	Were any changes made to the ESC Plans since the last Inspection? If Yes, modify the onsite ESC Plan and submit a copy to the City.			
Notes				
3	Is the project being Phased per the approved ESC Plan?			
Notes				
4	Are all perimeter sediment controls in place, properly installed and well maintained where required by the ESC Plan?			
Notes				
5	Are all erosion prevention measures in place, properly installed and well maintained where required by the ESC Plan?			
Notes				
6	Are all storm drain inlets, creeks, etc. properly protected and well maintained where required by the ESC Plan?			
Notes				

Item No.	<u>Item Description</u> Check Yes, No, or NA if not Applicable. If any answer is No, describe needed maintenance and/or corrective actions in the space provided or on an attached sheet.	Yes	No	N/A
7	Are construction site entrances and exits properly protected (e.g. using stabilized entrance, tire wash, street sweeping, etc.) to control off site tracking of sediment and construction related pollutants?			
Notes				
8	Is construction site track-out evident? If Yes, list the maintenance and/or corrective action required to clean-up and prevent future track-out.			
Notes				
9	Are all stockpiles covered, protected and/or located in an area where eroded material is unable to reach a storm drain or stream?			
Notes				
10	Are all material handling, equipment storage, maintenance areas and storage areas clean and free of spills, leaks, or other deleterious materials?			
Notes				
11	Are dust control and debris & waste control measures being appropriately implemented?			
Notes				
12	After initial site grading, have all stormwater facilities (ponds, swales, rain gardens, etc) been fenced off to prevent construction vehicles from entering and to prevent stockpiling of material and supplies in the area?			
Notes				
13	Are all natural buffer zones, and any trees to be protected on site, delineated and marked off with orange construction fencing (or equivalent) where required by the ESC Plan?			
Notes				
14	Are all other BMPs identified in the ESCP (such as concrete washout containment structures, settling basins, dewatering pumps, other dewatering activities) functioning properly?			
Notes				

Notes:

1. Please refer to the ACWA Construction Site SW guide, or the 1200-CN permit or DEQ's manual for help completing this form.
2. Significant amounts of sediment are described in Schedule A as: earth slides or mud flows leaving the construction site; concentrated flows that cause erosion not filtered prior to discharge; turbid flows not filtered prior to discharge; sediment deposits that drain to unprotected or poorly maintained storm drains or catch basin; sediment deposits on public or private streets outside of permitted construction area; and sediment deposits on any adjacent property outside of the permitted construction area.

**Visual Monitoring Observations of the Offsite Stormwater (SW) Discharge or Evidence Thereof**

**Identify and answer questions below for each stormwater discharge location that has either, active offsite stormwater discharge, or evidence that stormwater discharge has occurred recently. Attach additional sheets as needed.**

***Description of Discharge Location:*** \_\_\_\_\_

(a) For SW discharging offsite, describe any apparent color and the clarity of the discharge, and any apparent difference in comparison with the surface waters or if no active discharge, describe the observed evidence of previous offsite SW flows and maintenance or corrective actions taken:

\_\_\_\_\_  
\_\_\_\_\_

(b) Is any oily sheen or floating material observed in the SW discharge? Yes / No If Yes, describe the floating material and/ or oily sheen and locate possible sources and maintenance or corrective action(s) taken:

\_\_\_\_\_  
\_\_\_\_\_

***Description of Discharge Location:*** \_\_\_\_\_

(a) For SW discharging offsite, describe any apparent color and the clarity of the discharge, and any apparent difference in comparison with the surface waters or if no active discharge, describe the observed evidence of previous offsite SW flows and maintenance or corrective actions taken:

\_\_\_\_\_  
\_\_\_\_\_

(b) Is any oily sheen or floating material observed in the SW discharge? Yes / No If Yes, describe the floating material and/ or oily sheen and locate possible sources and maintenance or corrective action(s) taken:

\_\_\_\_\_  
\_\_\_\_\_

***Description of Discharge Location:*** \_\_\_\_\_

(a) For SW discharging offsite, describe any apparent color and the clarity of the discharge, and any apparent difference in comparison with the surface waters or if no active discharge, describe the observed evidence of previous offsite SW flows and maintenance or corrective actions taken:

\_\_\_\_\_  
\_\_\_\_\_

(b) Is any oily sheen or floating material observed in the SW discharge? Yes / No If Yes, describe the floating material and/ or oily sheen and locate possible sources and maintenance or corrective action(s) taken:

\_\_\_\_\_  
\_\_\_\_\_

***Description of Discharge Location:*** \_\_\_\_\_

(a) For SW discharging offsite, describe any apparent color and the clarity of the discharge, and any apparent difference in comparison with the surface waters or if no active discharge, describe the observed evidence of previous offsite SW flows and maintenance or corrective actions taken:

\_\_\_\_\_  
\_\_\_\_\_

(b) Is any oily sheen or floating material observed in the SW discharge? Yes / No If Yes, describe the floating material and/ or oily sheen and locate possible sources and maintenance or corrective action(s) taken:

\_\_\_\_\_  
\_\_\_\_\_





# Notice of Termination

## For NPDES General Permit to Discharge Stormwater Associated With Construction Activity

**Use this form to end permit coverage once all soil disturbance activities have been completed and final stabilization of exposed soils has occurred. Please print in ink or type.**

**Submit photos that depict site stabilization, unless the site has been inspected by DEQ or Agent.**

### PERMIT REGISTRANT

Name (authorized person meeting the signature requirements on the application):	Telephone:
---	------------

Company (Legal Name - Permit Registrant):

Mailing Address:	City, State, Zip Code:
------------------	------------------------

E-mail Address:	File Number (located on face page of permit):
-----------------	---

### SITE LOCATION/ADDRESS

### STATUS OF CONSTRUCTION ACTIVITY

Site Common Name:

Street Address (or Location Description):

City (or nearest city):

County:

- All soil disturbance activities by or for the registrant have been completed.
- The site has undergone stabilization of all exposed soils through vegetation, paving, or building construction (for a common plan of development or sale, all remaining disturbed areas are covered by either a small lot permit or the 1200-CN).
- All stormwater discharges from construction activities that are authorized by this permit are eliminated.
- All temporary erosion and sediment controls have been removed and properly disposed, unless local ordinance requires otherwise in the completion of the project.

Date above items were completed: \_\_\_\_\_

**OR**

- Project was cancelled with no disturbance taking place.

### CERTIFICATION

**Please read the certification statement carefully before signing.**

I certify under penalty of law that all stormwater discharges associated with construction activity from this site that are authorized by this NPDES general permit have been eliminated. By submitting this Notice of Termination, I understand that I am no longer authorized to discharge stormwater associated with construction activity under this general permit, and that discharging pollutants to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that submittal of this Notice of Termination does not release a permittee from liability for any violations of this permit or the Clean Water Act.

\_\_\_\_\_  
Signature of Legally Authorized Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Legally Authorized Representative (type or print)

# INSTRUCTIONS FOR COMPLETING THE NOTICE OF TERMINATION FORM FOR THE NPDES GENERAL PERMIT TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION

This Notice of Termination Form is for a registrant that currently is assigned coverage under Oregon's NPDES general permit for the discharge of stormwater associated with construction activity. Use this form to end permit coverage once all soil disturbance activities have been completed by and for the registrant and stabilization of exposed soils has occurred. Please print in ink or type.

**I. Permit Registrant**

Complete as indicated. The permit registrant is the name of the company or person as it appears on the permit. Only the registrant or the registrant's legally authorized representative has authority to terminate permit coverage.

*Note: If you are not the current registrant but should be, you need to transfer the permit. Please use the Transfer of Ownership form at <http://www.deq.state.or.us/wq/stormwater/constappl.htm> or contact DEQ at one of the offices listed below.*

**II. Site Address/Location**

Complete as indicated. Also provide the city (or nearest city) and county for the construction site.

**III. Construction Activity**

Check the "boxes" to indicate that all stormwater discharges associated with construction activity have been eliminated, stabilization of the site is complete, and temporary erosion and sediment control measures have been properly disposed unless local codes require that they remain. Also, provide the date of completion for these activities. As an alternative to the preceding, if the site work was never started you can check the last box only. Your permit will not be terminated if these activities have not been completed or the construction activities started but the project was cancelled without completing the activities.

**Photo-Documentation**

Submit photo-documentation that depicts site stabilization, unless the site has been inspected by DEQ or Agent.

**Certification**

This statement should be read carefully by the registrant, owner or legally authorized representative. The person signing this form must print or type their name for clarity then sign and date the document on the lines provided.

Definition of Legally Authorized Representative:	
See 40 CFR 122.22 for more detail. Also, please also provide the information requested in brackets [ ]	
◆	<b>Corporation</b> - President, secretary, treasurer, vice-president, or any person who performs principal business functions; or a manager of one or more facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million that is authorized in accordance to corporate procedure to sign such documents
◆	<b>Partnership</b> - General partner <i>[list of general partners, their addresses and telephone numbers]</i>
◆	<b>Sole Proprietorship</b> - Owner(s) <i>[each owner must sign the application]</i>
◆	<b>City, County, State, Federal, or other Public Facility</b> - Principal executive officer or ranking elected official
◆	<b>Limited Liability Company</b> - Member <i>[articles of organization]</i>
◆	<b>Trusts</b> - Acting trustee <i>[list of trustees, their addresses and telephone numbers]</i>

<b>Form Submittal and For More Information</b>	Submit this form along with photo-documentation that depicts site stabilization to the appropriate regional office. There is no fee required for this action. If you have any questions, please contact the appropriate regional offices listed below.
--	--

DEQ Northwest Region	DEQ Western Region	DEQ Eastern Region
700 NE Multnomah St., Suite 600, Portland, OR 97232 503-229-5438	165 East 7th Avenue, Suite 100 Eugene, OR 97401 541-686-7930	800 SE Emigrant Ave, Suite 330 Pendleton, OR 97801 541-278-4605
Clackamas	Benton	Baker
Clatsop	Coos	Hood River
Columbia	Curry	Sherman
Multnomah	Douglas	Umatilla
Tillamook	Jackson	Union
Washington	Josephine	Wallowa
		Wasco
		Wheeler



**EROSION PREVENTION AND SEDIMENT CONTROL PERMIT APPLICATION**

CENTRAL POINT PUBLIC WORKS DEPARTMENT  
 140 S 3rd St., Central Point, OR 97502  
 541-664-3321/ Fax 541-664-6384

Department Use Only

Permit No:  
 Date:  
 GL #57-00-00-4473

For projects from 7,000 Sq. Ft. up to 4.99 acres.

**CATEGORY OF CONSTRUCTION**

1 & 2 Family Dwelling

Commercial or Multifamily

**Project Name and Location**

Project Name: Scenic Middle School Parking Lot Improvements

Address: 1955 Scenic Ave

City: Central Point State: OR Zip: 97502

Tax Lot: 37-2W-03AB

Maplot No.: 4300

**Applicant Information (Responsible person or entity legally responsible for permit)**

Contact Name: Jackson County School District #6  
 Contact: Spencer Davenport

Address: 300 Ash Street

City: Central Point State: OR Zip: 97502

Phone: (541) 494-6200

Email: spencer.davenport@district6.org

**General Contractor**

Name: S+B James Construction Co.

Project Manager: Craig Langseth

CCB No. 51471

Phone: 541-826-5668 Fax:

**Architect/Engineer Firm E&S Control Plan**

Name: Powell Engineering and Consulting

Project Manager: Todd Powell, PE

Phone: 541-613-0723

Email: todd@powellengineeringconsulting.com

**Site Information**

Total Site Acreage: 13.58

Building Footprint: 7613 sq. ft

Total Impervious Area: 17722 sq. ft.

Total potential disturbance area (include structure, excavation, site grading, sidewalks, driveways, temporary access, soil/material storage area, and landscaping - typically the entire lot for new construction.

2.61 (acres) Acres or sq-ft

**Applicants Designated Erosion and Sediment Control Inspector Information**

(24 Hour erosion emergency contact)

Name: Todd Powell, PE

Company Name: Powell Engineering and Consulting

Phone: 541-613-0723

Qualification program, certification number and expiration date.

RVSS Certification # 171 expires 12/03/2024

**I the applicant hereby certify that the information in this application is true and correct to the best of my knowledge. In addition, I do hereby agree to construct and maintain ESC measures per approved plans and to contain all sediment and pollutants in the construction site. Work may not start until plans are reviewed and approved by the City.**

Spencer Davenport for  
 Jackson County School District No. 6

7/5/2022

Applicant's Signature

Print Name

Date



**FOR DEPARTMENT USE ONLY**

**Type of Erosion Control Permit Applying For:**

- 2,000-6,999sq-ft                      No Fee
- 7,000sq. ft. – .99Acre
- 1 – 5 Acres 1200CN
- Over 5 Acres - Apply to DEQ for 1200-C Permit.

**Erosion Prevention and Sediment Control Permit Fees.**

- 7,000 - .99 acres                      \$250.00
- 1200-CN                                      \$1,500
- Annual Renewal Fee                      \$750.00

**Stormwater Management Plan Review and Inspection Fees:**

**Plan Review**

- 7,000- .99 acres                      \$125.00
- 1 to 5 acres                                      \$500.00

**Inspection**

- 7,000- .99 acres                      \$125.00
- 1 to 5 acres                                      \$500.00

- Private Stormwater Facility Maintenance Agreements \$8,500.00 20 year term.

**Permit Fees**

Application Fee	\$
Plan review Fee	\$
Inspection Fee	\$
Other Fees	\$
<b>Total Fees</b>	<b>\$</b>



**EROSION PREVENTION AND SEDIMENT CONTROL PERMIT APPLICATION**

CENTRAL POINT PUBLIC WORKS DEPARTMENT  
 140 S 3rd St., Central Point, OR 97502  
 541-664-3321/ Fax 541-664-6384

Department Use Only

Permit No:  
 Date:  
 GL #57-00-00-4473

**For projects from 7,000 Sq. Ft. up to 4.99 acres.**

**CATEGORY OF CONSTRUCTION**

1 & 2 Family Dwelling	Commercial or Multifamily																																				
<table border="1"> <tr><td colspan="3"><b>Project Name and Location</b></td></tr> <tr><td colspan="3">Project Name:</td></tr> <tr><td colspan="3">Address:</td></tr> <tr> <td>City: Central Point</td> <td>State: OR</td> <td>Zip: 97502</td> </tr> <tr><td colspan="3">Tax Lot:</td></tr> <tr><td colspan="3">Maplot No.:</td></tr> </table>	<b>Project Name and Location</b>			Project Name:			Address:			City: Central Point	State: OR	Zip: 97502	Tax Lot:			Maplot No.:			<table border="1"> <tr><td colspan="3"><b>Applicant Information (Responsible person or entity legally responsible for permit)</b></td></tr> <tr><td colspan="3">Contact Name:</td></tr> <tr><td colspan="3">Address:</td></tr> <tr> <td>City:</td> <td>State:</td> <td>Zip:</td> </tr> <tr><td colspan="3">Phone:</td></tr> <tr><td colspan="3">Email:</td></tr> </table>	<b>Applicant Information (Responsible person or entity legally responsible for permit)</b>			Contact Name:			Address:			City:	State:	Zip:	Phone:			Email:		
<b>Project Name and Location</b>																																					
Project Name:																																					
Address:																																					
City: Central Point	State: OR	Zip: 97502																																			
Tax Lot:																																					
Maplot No.:																																					
<b>Applicant Information (Responsible person or entity legally responsible for permit)</b>																																					
Contact Name:																																					
Address:																																					
City:	State:	Zip:																																			
Phone:																																					
Email:																																					
<table border="1"> <tr><td colspan="2"><b>General Contractor</b></td></tr> <tr><td colspan="2">Name:</td></tr> <tr><td colspan="2">Project Manager:</td></tr> <tr><td colspan="2">CCB No.</td></tr> <tr> <td>Phone:</td> <td>Fax:</td> </tr> </table>	<b>General Contractor</b>		Name:		Project Manager:		CCB No.		Phone:	Fax:	<table border="1"> <tr><td colspan="2"><b>Architect/Engineer Firm E&amp;S Control Plan</b></td></tr> <tr><td colspan="2">Name:</td></tr> <tr><td colspan="2">Project Manager:</td></tr> <tr><td colspan="2">Phone:</td></tr> <tr><td colspan="2">Email:</td></tr> </table>	<b>Architect/Engineer Firm E&amp;S Control Plan</b>		Name:		Project Manager:		Phone:		Email:																	
<b>General Contractor</b>																																					
Name:																																					
Project Manager:																																					
CCB No.																																					
Phone:	Fax:																																				
<b>Architect/Engineer Firm E&amp;S Control Plan</b>																																					
Name:																																					
Project Manager:																																					
Phone:																																					
Email:																																					
<table border="1"> <tr><td colspan="2"><b>Site Information</b></td></tr> <tr><td colspan="2">Total Site Acreage:</td></tr> <tr><td colspan="2">Building Footprint:</td></tr> <tr><td colspan="2">Total Impervious Area:</td></tr> <tr> <td colspan="2">Total potential disturbance area (include structure, excavation, site grading, sidewalks, driveways, temporary access, soil/material storage area, and landscaping - typically the entire lot for new construction.</td> </tr> <tr> <td colspan="2" style="text-align: right;">_____ Acres or sq-ft</td> </tr> </table>	<b>Site Information</b>		Total Site Acreage:		Building Footprint:		Total Impervious Area:		Total potential disturbance area (include structure, excavation, site grading, sidewalks, driveways, temporary access, soil/material storage area, and landscaping - typically the entire lot for new construction.		_____ Acres or sq-ft		<table border="1"> <tr><td colspan="2"><b>Applicants Designated Erosion and Sediment Control Inspector Information</b></td></tr> <tr><td colspan="2">(24 Hour erosion emergency contact)</td></tr> <tr><td colspan="2">Name:</td></tr> <tr><td colspan="2">Company Name:</td></tr> <tr><td colspan="2">Phone:</td></tr> <tr><td colspan="2">Qualification program, certification number and expiration date.</td></tr> </table>	<b>Applicants Designated Erosion and Sediment Control Inspector Information</b>		(24 Hour erosion emergency contact)		Name:		Company Name:		Phone:		Qualification program, certification number and expiration date.													
<b>Site Information</b>																																					
Total Site Acreage:																																					
Building Footprint:																																					
Total Impervious Area:																																					
Total potential disturbance area (include structure, excavation, site grading, sidewalks, driveways, temporary access, soil/material storage area, and landscaping - typically the entire lot for new construction.																																					
_____ Acres or sq-ft																																					
<b>Applicants Designated Erosion and Sediment Control Inspector Information</b>																																					
(24 Hour erosion emergency contact)																																					
Name:																																					
Company Name:																																					
Phone:																																					
Qualification program, certification number and expiration date.																																					

**I the applicant hereby certify that the information in this application is true and correct to the best of my knowledge. In addition, I do hereby agree to construct and maintain ESC measures per approved plans and to contain all sediment and pollutants in the construction site. Work may not start until plans are reviewed and approved by the City.**

	Ines Llosa	4/11/23
Applicant's Signature	Print Name	Date

**FOR DEPARTMENT USE ONLY**

**Type of Erosion Control Permit Applying For:**

2,000-6,999sq-ft	No Fee
7,000sq. ft. – .99Acre	
1 – 5 Acres 1200CN	
Over 5 Acres - Apply to DEQ for 1200-C Permit.	

**Erosion Prevention and Sediment Control Permit Fees.**

7,000 - .99 acres	\$250.00
1200-CN	\$1,500
Annual Renewal Fee	\$750.00

**Stormwater Management Plan Review and Inspection Fees:**

**Plan Review**

7,000- .99 acres	\$125.00
1 to 5 acres	\$500.00

**Inspection**

7,000- .99 acres	\$125.00
1 to 5 acres	\$500.00

Private Stormwater Facility Maintenance Agreements \$8,500.00 for a 20year term.

**Permit Fees**

Application Fee	\$
Plan review Fee	\$
Inspection Fee	\$
Other Fees	\$
Total Fees	\$



# CITY OF CENTRAL POINT

Oregon DEQ

(From: DEQ Inspector Guidance Booklet For Construction Site Erosion And Sediment Control, April 28, 2005.  
At DEQ Website: <http://www.deq.state.or.us/wq/stormwater/escmanual/escinspectorguide.pdf>)

## FORM 1. CONSTRUCTION SITE BMP INSPECTION REPORT

**BMP INSPECTION TYPE:**  
 Initial Inspection     Re-Inspection     Final     Special  
 (Note type of special inspection – e.g., complaint response, corrective action, etc.):

WEATHER: partly cloudy

DATE: 4/18/22

RAINFALL IN LAST 24 HOURS: 0

RECEIVING WATER /DISCHARGE LOCATION (Note whether site discharges to UIC, 303(d)-listed or otherwise impaired water body and identify if special requirements apply):

White Hawk Subdivision

INSPECTED BY: Mike Blake  
(print name)

CSI  
(title)

Mike Blake  
(signature)

Check "Yes," "No" or "N/A" if not applicable. If any answer is "no," describe needed correction(s) in the space provided below each question or on an attached sheet. For self-inspections, the Contractor should indicate the location of needed correction(s), along with the date corrections are made, on the working ESCP Site Map, posted on-site.

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
1	Are the project ESCP and Site Map up to date, available on-site and being properly implemented?	§3.5.7 §3.5.10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Notes:					
2	Are BMPs being inspected by the contractor in accordance with permit required frequencies and maintained based on inspections?	§8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Notes:					
3	Are all discharge points free of any apparent pollutant discharges? Observe and document visual observations of turbidity, color, sheen and floating materials in discharge and if possible in receiving water upstream and downstream within 30 feet of the discharge from the site.	General Permit 1200-C Schedule B, Item 7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					



Oregon DEQ

### FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
4	Are all perimeter sediment controls in-place where required by the ESCP, properly installed and well maintained?	§6.2.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Notes:	<i>SE, S side of Lot - Silt fence is NOT properly installed</i>				
5	Are all storm drain inlets properly protected where required by the ESCP, and well maintained?	§6.2.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
6	Are construction site entrances and exits properly protected (i.e., using stabilized entrance, tire wash, street sweeping, etc.) to control off-site tracking of sediment and construction related pollutants?	§6.2.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
7	Are all sediment traps, barriers, and basins constructed in accordance with the ESCP, well maintained and functioning properly?	§6.2.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
8	Have all disturbed soil areas not being actively worked been temporarily stabilized to protect against erosion in accordance with the ESCP?	§5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
9	Are all other erosion prevention measures in-place and functioning in accordance with the ESCP?	§5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Notes:	<i>Silt fence</i>				
10	Are all stockpiles located in designated areas and properly protected (inactive - covered or perimeter controls; active - properly located away from storm drains)?	§7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					



Oregon DEQ

**FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT**

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
11	Are construction materials and equipment properly stored in dedicated areas away from storm drain discharge locations with secondary containment where appropriate?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes:</i>					
12	Are all material handling and storage areas clean and free of spills, leaks, or other deleterious materials?	§7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Notes:</i>					
13	Are all equipment storage and maintenance areas clean and free of spills, leaks, or any other deleterious materials?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes:</i>					
14	Are dust control measures being appropriately implemented?	§5.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes:</i>					
15	Is the site generally free of litter and debris and do construction wastes appear to be properly managed?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes:</i>					
16	Are hazardous materials and wastes properly stored, including being covered and stored within berms to provide secondary containment?	§7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Notes:</i>					
17	Have spills or discharges occurred on-site (since the last inspection) that require notification to DEQ (i.e., visible sheen on public waters, over 42 gallons of oil on ground, wastewater overflows, or significant quantities of sediment)? DEQ must be notified orally within 24-hours of reportable discharges.	§ General Permit 1200-C Sch. A, Item 1 Sch. F, B.3 Sch F, B.6 Sch F, D.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Notes:</i>					







# CITY OF CENTRAL POINT

Oregon DEQ

(From: DEQ Inspector Guidance Booklet For Construction Site Erosion And Sediment Control, April 28, 2005.  
At DEQ Website: <http://www.deq.state.or.us/wq/stormwater/escmanual/escinspectorguide.pdf>

## FORM 1. CONSTRUCTION SITE BMP INSPECTION REPORT

**BMP INSPECTION TYPE:**  
 Initial Inspection    Re-Inspection    Final    Special  
 (Note type of special inspection – e.g., complaint response, corrective action, etc.):

WEATHER: partly cloudy

DATE: 5, 1, 22

RAINFALL IN LAST 24 HOURS: 0

RECEIVING WATER /DISCHARGE LOCATION (Note whether site discharges to UIC, 303(d)-listed or otherwise impaired water body and identify if special requirements apply):

White Hawk Subdivision

INSPECTED BY: Mike Blake CSI  
(print name) (title)

*Mike Blake*  
(signature)

Check "Yes," "No" or "N/A" if not applicable. If any answer is "no," describe needed correction(s) in the space provided below each question or on an attached sheet. For self-inspections, the Contractor should indicate the location of needed correction(s), along with the date corrections are made, on the working ESCP Site Map, posted on-site.

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
1	Are the project ESCP and Site Map up to date, available on-site and being properly implemented?	§3.5.7 §3.5.10	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Notes				
2	Are BMPs being inspected by the contractor in accordance with permit required frequencies and maintained based on inspections?	§8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	Notes				
3	Are all discharge points free of any apparent pollutant discharges?  Observe and document visual observations of turbidity, color, sheen and floating materials in discharge and if possible in receiving water upstream and downstream within 30 feet of the discharge from the site.	General Permit 1200-C Schedule B, Item 7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Notes				



Oregon DEQ

### FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
4	Are all perimeter sediment controls in-place where required by the ESCP, properly installed and well maintained?	§6.2.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Notes:	<i>Silt fence is still not complete on project</i>				
5	Are all storm drain inlets properly protected where required by the ESCP, and well maintained?	§6.2.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
6	Are construction site entrances and exits properly protected (i.e., using stabilized entrance, tire wash, street sweeping, etc.) to control off-site tracking of sediment and construction related pollutants?	§6.2.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
7	Are all sediment traps, barriers, and basins constructed in accordance with the ESCP, well maintained and functioning properly?	§6.2.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
8	Have all disturbed soil areas not being actively worked been temporarily stabilized to protect against erosion in accordance with the ESCP?	§5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
9	Are all other erosion prevention measures in-place and functioning in accordance with the ESCP?	§5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Notes:	<i>Silt fence</i>				
10	Are all stockpiles located in designated areas and properly protected (inactive - covered or perimeter controls; active - properly located away from storm drains)?	§7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					



Oregon DEQ

### FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
11	Are construction materials and equipment properly stored in dedicated areas away from storm drain discharge locations with secondary containment where appropriate?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes:</i>					
12	Are all material handling and storage areas clean and free of spills, leaks, or other deleterious materials?	§7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Notes:</i>					
13	Are all equipment storage and maintenance areas clean and free of spills, leaks, or any other deleterious materials?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes:</i>					
14	Are dust control measures being appropriately implemented?	§5.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes:</i>					
15	Is the site generally free of litter and debris and do construction wastes appear to be properly managed?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes:</i>					
16	Are hazardous materials and wastes properly stored, including being covered and stored within berms to provide secondary containment?	§7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Notes:</i>					
17	Have spills or discharges occurred on-site (since the last inspection) that require notification to DEQ (i.e., visible sheen on public waters, over 42 gallons of oil on ground, wastewater overflows, or significant quantities of sediment)? DEQ must be notified orally within 24-hours of reportable discharges.	§ General Permit 1200-C Sch. A, Item 1 Sch. F, B.3 Sch F, B.6 Sch F, D.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Notes:</i>					





# CITY OF CENTRAL POINT

Oregon DEQ

(From: DEQ Inspector Guidance Booklet For Construction Site Erosion And Sediment Control, April 28, 2005. At DEQ Website: <http://www.deq.state.or.us/wq/stormwater/escmanual/escinspectorguide.pdf>)

## FORM 1. CONSTRUCTION SITE BMP INSPECTION REPORT

**BMP INSPECTION TYPE:**  
 Initial Inspection     Re-Inspection     Final     Special  
 (Note type of special inspection – e.g., complaint response, corrective action, etc.):

WEATHER: cloudy

DATE: 8/17/22

RAINFALL IN LAST 24 HOURS:

RECEIVING WATER /DISCHARGE LOCATION (Note whether site discharges to UIC, 303(d)-listed or otherwise impaired water body and identify if special requirements apply):

Jewette School Parking Lot

INSPECTED BY: Mike Blake CSI  
(print name) (title)

Mike Blake  
(signature)

Check "Yes," "No" or "N/A" if not applicable. If any answer is "no," describe needed correction(s) in the space provided below each question or on an attached sheet. For self-inspections, the Contractor should indicate the location of needed correction(s), along with the date corrections are made, on the working ESCP Site Map, posted on-site.

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
1	Are the project ESCP and Site Map up to date, available on-site and being properly implemented?	§3.5.7 §3.5.10	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Notes</i>					
2	Are BMPs being inspected by the contractor in accordance with permit required frequencies and maintained based on inspections?	§8	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes</i>					
3	Are all discharge points free of any apparent pollutant discharges? Observe and document visual observations of turbidity, color, sheen and floating materials in discharge and if possible in receiving water upstream and downstream within 30 feet of the discharge from the site.	General Permit 1200-C Schedule B, Item 7	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Notes</i>					



Oregon DEQ

### FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
4	Are all perimeter sediment controls in-place where required by the ESCP, properly installed and well maintained?	§6.2.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
5	Are all storm drain inlets properly protected where required by the ESCP, and well maintained?	§6.2.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
6	Are construction site entrances and exits properly protected (i.e., using stabilized entrance, tire wash, street sweeping, etc.) to control off-site tracking of sediment and construction related pollutants?	§6.2.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
7	Are all sediment traps, barriers, and basins constructed in accordance with the ESCP, well maintained and functioning properly?	§6.2.3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
8	Have all disturbed soil areas not being actively worked been temporarily stabilized to protect against erosion in accordance with the ESCP?	§5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
9	Are all other erosion prevention measures in-place and functioning in accordance with the ESCP?	§5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
10	Are all stockpiles located in designated areas and properly protected (inactive - covered or perimeter controls; active - properly located away from storm drains)?	§7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					



Oregon DEQ

**FORM 1. SAMPLE CONSTRUCTION SITE BMP INSPECTION REPORT**

NO.	DESCRIPTION	Reference (ESC Manual unless noted)	YES	NO	N/A
11	Are construction materials and equipment properly stored in dedicated areas away from storm drain discharge locations with secondary containment where appropriate?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
12	Are all material handling and storage areas clean and free of spills, leaks, or other deleterious materials?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
13	Are all equipment storage and maintenance areas clean and free of spills, leaks, or any other deleterious materials?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
14	Are dust control measures being appropriately implemented?	§5.3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
15	Is the site generally free of litter and debris and do construction wastes appear to be properly managed?	§7.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Notes:					
16	Are hazardous materials and wastes properly stored, including being covered and stored within berms to provide secondary containment?	§7.2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					
17	Have spills or discharges occurred on-site (since the last inspection) that require notification to DEQ (i.e., visible sheen on public waters, over 42 gallons of oil on ground, wastewater overflows, or significant quantities of sediment)? DEQ must be notified orally within 24-hours of reportable discharges.	§ General Permit 1200-C Sch. A, Item 1 Sch. F, B.3 Sch F, B.6 Sch F, D.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Notes:					







# City of Central Point

## Stormwater Enforcement Response Plan

### 1. INTRODUCTION

#### a. PURPOSE AND APPROACH -

The City of Central Point is subject to the National Pollution Discharge Elimination System (NPDES) Water Quality Order for Small Municipal Separate Storm Sewer Systems (Phase 2 MS4 Permit). As a result, in compliance with Section A.3.c.iv the City is required to develop and implement an Enforcement Response Plan (ERP).

The City adopted the existing Storm Drain Protection Ordinance, Central Point Municipal Code (CPMC) Chapter 8.05, which incorporates several enforcement mechanisms that can be employed to escalate the level of enforcement depending on the circumstances, including notices of violations; cease and desist orders; abatement; administrative citations and civil penalties.

The purpose of this document is to formally establish consistency with the City's enforcement procedures and follow-up action for non-compliance with the City's Storm Drain Protection Ordinance. The City's approach to ensuring compliance with the CPMC and the ERP is based on progressive enforcement. In general, the City will initially use the least stringent enforcement action available for the subject violation, with each successive enforcement action based on the violator's responsiveness and the type of violation. In some cases, the City may need to escalate the enforcement actions noted in the ERP based on the severity of violation, history of violations and responsiveness of the violation. The enforcement official noted herein means the Public Works Director for the City of Central Point or designee or any agent of the City authorized to enforce the City Codes.

### 2. ENFORCMENT RESPONSES

#### a. VEBAL / WRITTEN WARNINGS –

The City will issue verbal and/or written warnings as an optional first level of enforcement response. City staff has the discretion to issue either a verbal warning or a written notice of correction, depending on the circumstances. Verbal warnings are primarily consultative in nature, specify the nature of the violation, and require corrective action.

Triggers	Enforcement Action	Implementation Description
<ul style="list-style-type: none"> <li>• First-time violator (minor environmental violations or threat)</li> <li>• No active or imminent threat of significant contamination to the storm drain system or the environment</li> <li>• Ability for violator to immediately correct situation.</li> <li>• Conditions that may result in a violation of CPMC Chapter 8.05 due to poor housekeeping or management practices.</li> <li>• Violator is cooperative and willing to remedy situation.</li> </ul>	Verbal / Written Warnings (Notice of Correction)	<ul style="list-style-type: none"> <li>• Specify the nature of the violation(s) or potential violation(s), document and photograph.</li> <li>• Specify required corrective actions.</li> <li>• Recommend (on the spot) appropriate BMPs to correct or prevent violation(s).</li> <li>• Follow up with written inspection summary, and photograph.</li> <li>• Violator shall take all reasonable steps to comply with required corrective actions and recommendations.</li> <li>• City will conduct a follow-up inspection within four weeks to verify corrections, document in writing, and photograph.</li> </ul>

**b. WRITTEN NOTICE (NOTICE OF VIOLATION) -**

The City will issue written notices as a typical first level of enforcement response to minor violations with minimal environmental impact. City staff will have the discretion to determine whether a written notice is appropriate for the scenario and whether escalated enforcement measures should be used.

Triggers	Enforcement Action	Implementation Description
<ul style="list-style-type: none"> <li>• First-time violators (moderate threat or isolated incident).</li> <li>• Failure to implement appropriate BMPS after receiving a verbal/written warning.</li> <li>• Minor infractions with minimal impact on the storm drain system and the environment.</li> <li>• Seasonal and recurrent non-storm water nuisance flows onto public right of way.</li> <li>• Violator is cooperative and willing to remedy situation.</li> </ul>	Written Notices Notice of Violation (NOV), Cease and Desist Order CPMC 8.05.070.B	<ul style="list-style-type: none"> <li>• Issue written NOV. Complete NOV specifying code section violations, corrective actions and compliance dates. Include photographs.</li> <li>• City will impose deadlines for violator to comply with specified corrective actions.</li> <li>• Conduct follow-up inspection after compliance deadline; document in writing, and photograph.</li> <li>• Violator may appeal the notice and order within 10 days after service of notice CPMC 8.05.075</li> </ul>

**3. ESCALATED ENFORCEMENT MEASURES -**

Escalated enforcement measures may be required in order to achieve compliance and/or adequate mitigation when violations pose a significant impact on the storm drain system and environment, or violators are uncooperative and fail to comply with written notices. The City has established legal authority, pursuant to CPMC Chapter 8.05 establishing different methods of enforcement actions, which allow the City to escalate enforcement responses when necessary to correct persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm. The City Enforcement official will have the discretion to determine the appropriate level of enforcement based on the nature and type of violation.

Triggers	Enforcement Actions	Implementation Description
<ul style="list-style-type: none"> <li>● Failure to comply with Notice and Order to Abate.</li> <li>● Violations with significant impacts on the storm drain system and the environment.</li> <li>● Violator economically benefits from the violation.</li> <li>● Violator is non-cooperative or minimally cooperative to remedy situation.</li> </ul>	<p>Administrative Civil Citation CPMC 8.05.070.C</p>	<ul style="list-style-type: none"> <li>● Issue administrative civil citation.</li> <li>● Follow service procedure</li> <li>● Conduct follow-up inspection after deadline to implement corrective actions; document, photograph concerns.</li> <li>● Violator may appeal the notice and order within 10 days after service of notice CPMC 8.05.075</li> </ul>
<ul style="list-style-type: none"> <li>● Failure to respond appropriately to written notices.</li> <li>● Failure to comply with notice and order and/or citations.</li> <li>● Violator is not cooperative.</li> <li>● Activities when, in the opinion of the enforcement official, cause an illicit discharge or cause or potentially cause uncontrolled pollutants to enter the stormwater conveyance system and present an imminent danger to the public health, safety, welfare or environment, or a violation of a NPDES permit</li> </ul>	<p>Stop Work Orders CPMC 8.05.070.D</p>	<ul style="list-style-type: none"> <li>● Notify Violator of unsafe condition, if possible.</li> <li>● Immediate cessation of any activities causing pollutants to enter the storm water systems that present imminent danger to the public health, safety, welfare, environment or that could violate an NPDES permit per CPMC 8.05.070.F</li> <li>● Conduct follow-up inspection after completion date for corrective actions; document, photograph concerns prior to allowing cessation to be lifted.</li> </ul>

Triggers	Enforcement Actions	Implementation Description
<p>Any violation of CPMC Chapter 8.05, including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Failure to respond appropriately to written notices.</li> <li>• Failure to comply with notice and order and/or citations.</li> <li>• Violator is not cooperative.</li> <li>• Multiple offenses of similar nature.</li> <li>• Minor to moderate infractions with minimal to moderate impact on the storm drain system and the environment.</li> <li>• Third serious violation within a 12- month period.</li> <li>• Ongoing discharges of pollutants to the storm drain system or to the roadways, including flooding over a city roadway.</li> </ul>	<p>Civil Penalties CPMC 8.05.085</p>	<ul style="list-style-type: none"> <li>• For each violation, a civil penalty may be assessed in the amount of up to \$500 per stormwater feature, not to exceed \$1,000 per day. Each day a violation exists shall be considered a separate violation.</li> <li>• The city shall consider the following criteria in determining the amount of any civil penalty to be assessed under this section: <ul style="list-style-type: none"> <li>A. Amount of pollutant discharged.</li> <li>B. The type of pollutant discharged.</li> <li>C. Whether the discharge was intentional or accidental.</li> <li>D. The magnitude and seriousness of the impact of the discharge. (Ord. 2056 §1(part), 2019).</li> </ul> </li> <li>•</li> </ul>

**4. METHOD OF SERVICES-**

The enforcement official, shall cause the NOV, and /or administrative civil citation to be served on the person(s) owning or occupying the premises, or upon the person(s) responsible for or committing the violation. Service of the notice and order to abate may be made in the following manner:

- a. By personal service; or
- b. By registered or certified mail.

**5. ENFORCEMENT TRACKING-**

Implementation of the enforcement actions identified in this plan will be tracked electronically in the City’s Stormwater Management database. Each enforcement action

will be documented with the following information being recorded.

- a. Name of owner/operator;
- b. Location of construction project or industrial facility;
- c. Proper address or County Maplot number;
- d. Description of violation;
- e. Required schedule for returning to compliance;
- f. Description of enforcement response used, including escalated responses if repeat violations occur or violations are not resolved within the time specified in the enforcement action;
- g. Accompanying documentation of enforcement response (e.g., notice of noncompliance, notice of violation, etc.);
- h. Any referral(s) to other city departments or outside agencies.



**Erosion and Sediment Control Inspectors Certified by Rogue Valley Sewer Services**

Updated November 2022

Last Name	First Name	Organization	email	certification #	Phone	Expiration Date YYYY-MM-DD
Metcalf	Chance	City of Ashland	<a href="mailto:chance.metcalf@ashland.or.us">chance.metcalf@ashland.or.us</a>	15		2025-11-03
Blake	Michael	City of Central Point	<a href="mailto:mike.blake@centralpointoregon.gov">mike.blake@centralpointoregon.gov</a>	245		2024-12-03
Casaday	Ed	City of Central Point	<a href="mailto:Ed.Casaday@centralpointoregon.gov">Ed.Casaday@centralpointoregon.gov</a>	376		2024-12-06
DeHaan	Josh	City of Central Point	<a href="mailto:Josh.Dehaan@centralpointoregon.gov">Josh.Dehaan@centralpointoregon.gov</a>	378		2024-12-06
Ono	Mike	City of Central Point	<a href="mailto:mike.ono@centralpointoregon.gov">mike.ono@centralpointoregon.gov</a>	255		2024-12-03
Qualls	Corey	City of Central Point	<a href="mailto:Corey.Qualls@centralpointoregon.gov">Corey.Qualls@centralpointoregon.gov</a>	390		2024-12-06
LaFord	Dustin	City of Eagle Point	<a href="mailto:dustinl@cityofeaglepoint.org">dustinl@cityofeaglepoint.org</a>	417		2025-05-05
Kell Dell	Bryan	City of Eagle Point	<a href="mailto:bryank@cityofeaglepoint.org">bryank@cityofeaglepoint.org</a>	456	541-621-5267	5/4/2026
Robertson	Levi	City of Eagle Point	<a href="mailto:levi@cityofeaglepoint.org">levi@cityofeaglepoint.org</a>	465	5419510824	5/4/2026
LeBret	Dean	City of Eagle Point Public Works	<a href="mailto:deanlebret@cityofeaglepoint.org">deanlebret@cityofeaglepoint.org</a>	415		2025-05-05
Howland	Kellen	City of Grants Pass		292		2025-05-06
Huntley	Levi	City of Grants Pass	<a href="mailto:lhuntley@grantspassoregon.gov">lhuntley@grantspassoregon.gov</a>	416		2025-05-05
Kight	Craig	City of Grants Pass	<a href="mailto:ckight@grantspassoregon.gov">ckight@grantspassoregon.gov</a>	235		2025-05-06
Kimler	Trevor	City of Grants Pass	<a href="mailto:tkimler@grantspassoregon.gov">tkimler@grantspassoregon.gov</a>	345		2026-05-05
McIntyre	Brenndon	City Of Grants Pass	<a href="mailto:bmccintyre@grantspassoregon.gov">bmccintyre@grantspassoregon.gov</a>	414		2025-05-05
Murry	Nancy	City of Grants Pass	<a href="mailto:Nancy.Murry@grantspassoregon.gov">Nancy Murry &lt;nmurry@grantspassoregon.gov&gt;</a>	237		2024-05-20
Rhodes	Jason	City of Grants Pass	<a href="mailto:ssichter@grantspassoregon.gov">ssichter@grantspassoregon.gov</a>	303		2025-05-06
Stichter	Shelly	City of Grants Pass	<a href="mailto:ssichter@grantspassoregon.gov">ssichter@grantspassoregon.gov</a>	344		2023-11-19
Stichter	Chad	City of Grants Pass	<a href="mailto:cstichter@grantspassoregon.gov">cstichter@grantspassoregon.gov</a>	426		11/10/2025
Gerrick	Tannen	City of Grants Pass Streets & Drainage D	<a href="mailto:tgerrick@grantspassoregon.gov">tgerrick@grantspassoregon.gov</a>	336		2025-05-06
Schoenemann	Ray	City of Klamath Falls	<a href="mailto:ray@klamathfalls.city">ray@klamathfalls.city</a>	21	(541) 883-5291	2024-05-20
Jones	Gwen	City of Klamath Falls	<a href="mailto:gdjones@Klamathfalls.city">gdjones@Klamathfalls.city</a>	342		2023-11-19
Tacata	Brock	City of Klamath Falls	<a href="mailto:btacata@klamathfalls.city">btacata@klamathfalls.city</a>	346	541-883-5369	2023-11-19
Adkins	Blake	City of Medford	<a href="mailto:blake.adkins@cityofmedford.org">blake.adkins@cityofmedford.org</a>	449		11/10/2025
Dwire	Jeff	City of Medford	<a href="mailto:jeff.dwire@cityofmedford.org">jeff.dwire@cityofmedford.org</a>	118	541-821-1624	2025-11-03
Hoyt	Justin	City of Medford	<a href="mailto:justin.hoyt@cityofmedford.org">justin.hoyt@cityofmedford.org</a>	450		11/10/2025
Ribeiro	Michael	City of Medford	<a href="mailto:michael.ribeiro@cityofmedford.org">michael.ribeiro@cityofmedford.org</a>	240		2024-05-20
Ketterman	Keith	City of Phoenix	<a href="mailto:chris.stephenson@phoenixoregon.gov">chris.stephenson@phoenixoregon.gov</a>	382		2024-12-06
Macias	Ricardo	City of Phoenix	<a href="mailto:ricardo.macias@phoenixoregon.gov">ricardo.macias@phoenixoregon.gov</a>	441		11/10/2025

Post Construction Site Runoff  
for New Development and Redevelopment



# Rogue Valley Stormwater Quality Design Manual



**February 2023**

**Revised July 2023**



# **Rogue Valley Stormwater Quality Design Manual**

## **Adopted by:**

City of Ashland

City of Central Point

City of Medford

Rogue Valley Sewer Services: serving

City of Phoenix

City of Talent

Jackson County

## **Prepared by the Stormwater Advisory Team Post-Construction Working Group:**

**Alena Beltz, City of Medford**

**James Philp, Jackson County**

**Jennie Morgan, Rogue Valley Sewer Services**

**Mike Ono, City of Central Point**

**Nick Bakke, Rogue Valley Sewer Services**

**Tyler Duncan, RH2**

## **Acknowledgements:**

Ben Wewerka, DOWL

Carl Tappert, Rogue Valley Sewer Services

Michael Ribeiro, City of Medford

Roger Thom, ODOT





# Table of Contents

## Chapter 1 – Introduction and General Information

1.1	INTRODUCTION .....	1-1
1.2	MANUAL OBJECTIVES.....	1-1
1.3	JURISDICTIONS ADOPTING THE DESIGN MANUAL .....	1-2
1.4	AUTHORITY.....	1-3
1.5	DESIGN MANUAL APPLICABILITY .....	1-3
1.6	RELATIONSHIP TO OTHER REQUIREMENTS AND STANDARDS .....	1-3
1.7	REVISION AND AMENDMENT PROCESS.....	1-3

## Chapter 2 – Water Quality and Peak Flow Control Requirements

2.1	INTRODUCTION .....	2-1
2.2	RETENTION REQUIREMENTS.....	2-1
2.2.1	Retention Design Storm .....	2-1
2.2.2	Retention Exemptions.....	2-2
2.3	TREATMENT REQUIREMENTS .....	2-2
2.3.1	Treatment Design Storm .....	2-2
2.3.2	Treatment Exemptions.....	2-2
2.3.3	Pollutant Parameters .....	2-2
2.4	WATER QUALITY REQUIREMENTS: RETENTION AND TREATMENT.....	2-3
2.4.1	Design Storms .....	2-3
2.4.2	Mitigation Alternatives .....	2-3
2.4.3	Retention Requirement Technical Infeasibility Criteria.....	2-5
2.5	PEAK FLOW CONTROL: DETENTION STANDARDS .....	2-6
2.5.1	Detention Design Storms .....	2-6
2.6	Exemptions from Retention, Treatment and Detention.....	2-7
2.7	OPERATION AND MAINTENANCE REQUIREMENTS .....	2-7
2.8	PROJECT PLANNING, FACILITY AND APPROACH SELECTION.....	2-7
2.8.1	Approach Selection .....	2-8
2.9	Credits .....	2-9

## Chapter 3 – Simplified Approach Structural Stormwater Controls (BMPs) and Design Standards

3.1	APPLICABILITY .....	3-1
3.2	APPROVED SIMPLIFIED APPROACH BMPs .....	3-1

3.2.1 Ponded Retention (Rain Garden/ Retention Ponds or Stormwater Planters).....	3-1
3.2.2 Pervious Surface Retention.....	3-3
3.2.3 Dispersion (Vegetated Filter Strips).....	3-3
3.2.4 Dispersion (Disconnected Downspouts to Pervious Area or Infiltration Trench).....	3-6

## Chapter 4 – Performance Approach Structural Stormwater Controls (BMPs) and Design Standards

4.1 INTRODUCTION.....	4-1
4.2 GENERAL HYDROLOGIC CALCULATION CRITERIA.....	4-1
4.3 GENERAL SITING, GEOMETRIC, AND MATERIAL DESIGN STANDARDS.....	4-2
4.3.1 General BMP Design Standards: Retention.....	4-2
4.3.2 General BMP Design Standards: All Facilities.....	4-3
4.4 RETENTION BMPS.....	4-8
4.4.1 Ponded Retention BMP (Rain Garden/ Retention Ponds and Stormwater Planters).....	4-8
4.4.2 Pervious Surface Retention BMP.....	4-10
4.4.3 Underground Retention BMP.....	4-12
4.5 TREATMENT BMPS.....	4-13
4.5.1 Soil Filtration BMP (Rain Gardens and Stormwater Planters with Underdrains).....	4-13
4.5.2 Water Quality Swale BMP.....	4-14
4.5.3 Dispersion BMP (Vegetated Filter Strips & Disconnected Downspouts).....	4-15
4.5.4 Water Quality Settling Basin BMP (formerly Extended Detention).....	4-18
4.5.5 Proprietary Treatment BMP.....	4-19
4.5.6 Vegetated Roof BMP.....	4-21
4.6 DETENTION BMP (FLOW CONTROL).....	4-22

## Chapter 5 - Stormwater Facility Maintenance and Operation Requirements

5.1 OPERATION AND MAINTENANCE ENFORCEMENT.....	5-1
5.2 REVISIONS TO APPROVED STORMWATER FACILITY.....	5-1
5.3 REMOVAL OF STORMWATER FACILITY DUE TO REDEVELOPMENT.....	5-1
5.4 POLLUTION PREVENTION/SPILL RESPONSE.....	5-1
5.5 OPERATION AND MAINTENANCE MANUAL CONTENTS.....	5-1

## Chapter 6 – Performance Approach Submittal Requirements

6.1 INTRODUCTION.....	6-1
6.2 PLAN REQUIREMENTS.....	6-1
6.3 LANDSCAPE SUBMITTAL REQUIREMENTS.....	6-2
6.4 STORMWATER CALCULATION REPORT.....	6-2

6.5	PROPRIETARY SYSTEMS .....	6-3
6.6	OPERATIONS AND MAINTENANCE PLAN .....	6-4
6.7	STORMWATER FACILITY EASEMENT .....	6-4

## Definitions

### Tables

Table 1.1	Design Manual Applicability for Development or Redevelopment.....	1-3
Table 2.1	Allowed Design Approach, Standards, and Green Infrastructure Applicability .....	2-8
Table 4.1	Soil Gradation Requirements .....	4-5
Table 4.2	Plant Number and Spacing Requirements for Herbaceous Plants and Shrubs Mix.....	4-6
Table 4.3	Plant Number and Spacing Requirements for Herbaceous Plants, Small and Large Shrubs ....	4-6
Table 4.4	Tree Density Recommendations .....	4-7
Table 4.5	Vegetated Filter Strip Treatment Capacity vs. Design Slope .....	4-17

### Figures

Figure 1.1.	MS4 Permittees Map .....	1-2
Figure 2.1.	Flow Chart Determining Management Requirements for Development or Redevelopment	2-4
Figure 2.2.	Required Separation Distance from Seasonal High Groundwater or Bedrock .....	2-5
Figure 3.1.	Above-Ground Stormwater Planter .....	3-1
Figure 3.2.	Stormwater Planter.....	3-2
Figure 3.3	Pervious Surface Not Intended for Vehicle Use.....	3-3
Figure 3.4	Vegetated Filter Strip .....	3-4
Figure 3.5	Schematic of a Vegetated Filter Strip .....	3-5

Figure 3.5 Disconnected Downspout Discharging to Pervious Area.....	3-5
Figure 3.6 Schematic of Disconnected Downspout Discharging to Infiltration Trench .....	3-6
Figure 3.7 Schematic of a Disconnected Downspout discharging to an infiltration trench. ....	3-6
Figure 4.1 Established Rain Garden on Commercial Lot.....	4-8
Figure 4.2 Single Basin In Ground Stormwater Planter and In-Ground Planter with Separate Cells .....	4-9
Figure 4.3 Permeable Pavers with Catch Basin.....	4-10
Figure 4.4 Underground Retention Chambers.....	4-12
Figure 4.5 Above-Ground Stormwater Planters .....	4-13
Figure 4.6 Water Quality Swale with Dense Mature Vegetation.....	4-14
Figure 4.7 Schematic of Vegetated Filter Strip .....	4-15
Figure 4.8 Vegetated Filter Strip General Layout Along Roadway.....	4-16
Figure 4.9 Disconnected Downspout to Pervious Surface .....	4-17
Figure 4-10 Extended Detention Basin with Vegetated Baffle System.....	4-18
Figure 4.11 Proprietary Treatment Devices with Filterra Units.....	4-19
Figure 4.12 Vegetated Roof Example.....	4-21
Figure 4.13 Detention Basin.....	4-22

## Appendices

- Appendix A Infiltration Testing Methodology  
Falling Head Test Report Form
- Appendix B Simplified Approach Procedure and Details
- Appendix C Santa Barbara Urban Hydrograph Spreadsheet Example  
SBUH Excel spreadsheet for download
- Appendix D NRCS Table of Curve Numbers and Time of Concentration Calculation  
Medford IDF Curves
- Appendix E Plant Specifications  
Plant Material Source List
- Appendix F Standard Drawings Index  
General Construction Notes and Material Specifications  
PDF Standard Drawings  
DWG Standard Drawings
- Appendix G SWAT Pre-Approved Proprietary SW Treatment Technologies
- Appendix H Stormwater Operation and Maintenance Plan Templates  
O&M Manual Template (fillable pdf)  
Section B: RVSS Declaration of Covenants  
Medford Declaration of Covenants  
Section D: Medford Subdivision O&M Agreement  
Section F: SW Facility Inspection and Maintenance Checklists
- Appendix I RVSS Stormwater Credits

## Abbreviations

BMPs	Best Management Practices
CEG	Certified Engineering Geologist
CN	Curve number
CULD	Conditional Use Level Designation
DEQ	Oregon Department of Environmental Quality
DoC	Declaration of Covenants
EPDM	Ethylene Propylene Diene Terpolymer
GRP	Green Roof Professional
GULD	General Use Level Designation
HDPE	High Density Polyethylene
IA	Impervious Area
IPM	Integrated pest management
MS4	Municipal Separate Storm Sewer System
NPSO	Native Plant Society of Oregon
NRCS	Natural Resources Conservation Service
NWCB	Noxious Weed Control Board
O&M	Operation and Maintenance
ODOT	Oregon Department of Transportation
PA	Pervious Area
PE	Professional Engineer
PNW	Pacific Northwest
RA	Roof Area
RVSS	Rogue Valley Sewer Service's
SBUH	Santa Barbara Urban Hydrograph
SF	Square Feet
SLOPES	Standard Local Operating Procedures for Endangered Species
SW	Stormwater
SWAT	Stormwater Advisory Team
SWF	Stormwater Facility
SWMPs	Stormwater Management Programs
TAPE	Technology Assessment Protocol- Ecology
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
UIC	Underground Injection Control

# Chapter 1 – Introduction and General Information

---

## 1.1 INTRODUCTION

Managing stormwater is an essential part of maintaining livability in an urban area. Urbanization results in vegetation removal, soil compaction, and impervious surface creation. Impervious surfaces collect precipitation, often increasing the temperature and amount of pollutants, from which runoff is quickly discharged into the closest water body. The quality, quantity, and rate of stormwater discharged can detrimentally impact aquatic ecosystems, drinking water quality, and recreation opportunities. Stormwater management attempts to mitigate these impacts by removing pollutants from runoff and reducing the quantity and rate of runoff.

To address impacts of urbanization on water quality, [Municipal Separate Storm Sewer System \(MS4\) Phase II permits](#) have been issued to urbanized jurisdictions (Permittees) in the Rogue Valley by the Oregon Department of Environmental Quality (DEQ). Permittees are required to develop Stormwater Management Programs (SWMPs) to reduce discharges of pollutants and address stormwater runoff from new and redevelopment projects that meet or exceed impervious area thresholds set by DEQ. The Permittee developed SWMPs must also include requirements for Permittee review and inspection of stormwater management plans for new and redevelopment projects. Permittees must submit their SWMPs to DEQ for review and approval and must report to DEQ annually on the implementation of the SWMPs.

The Rogue Valley Stormwater Design Manual (Design Manual) was jointly developed by jurisdictions in the Rogue Valley. This Design Manual was created to establish stormwater management standards and facilitate the design, review, and implementation of stormwater management facilities compulsory for site development. The requirements described herein were developed in accordance with DEQ's MS4 Phase II General Permit effective March 2019, and are based on local climatology, geography, soils, and other regional conditions.

## 1.2 MANUAL OBJECTIVES

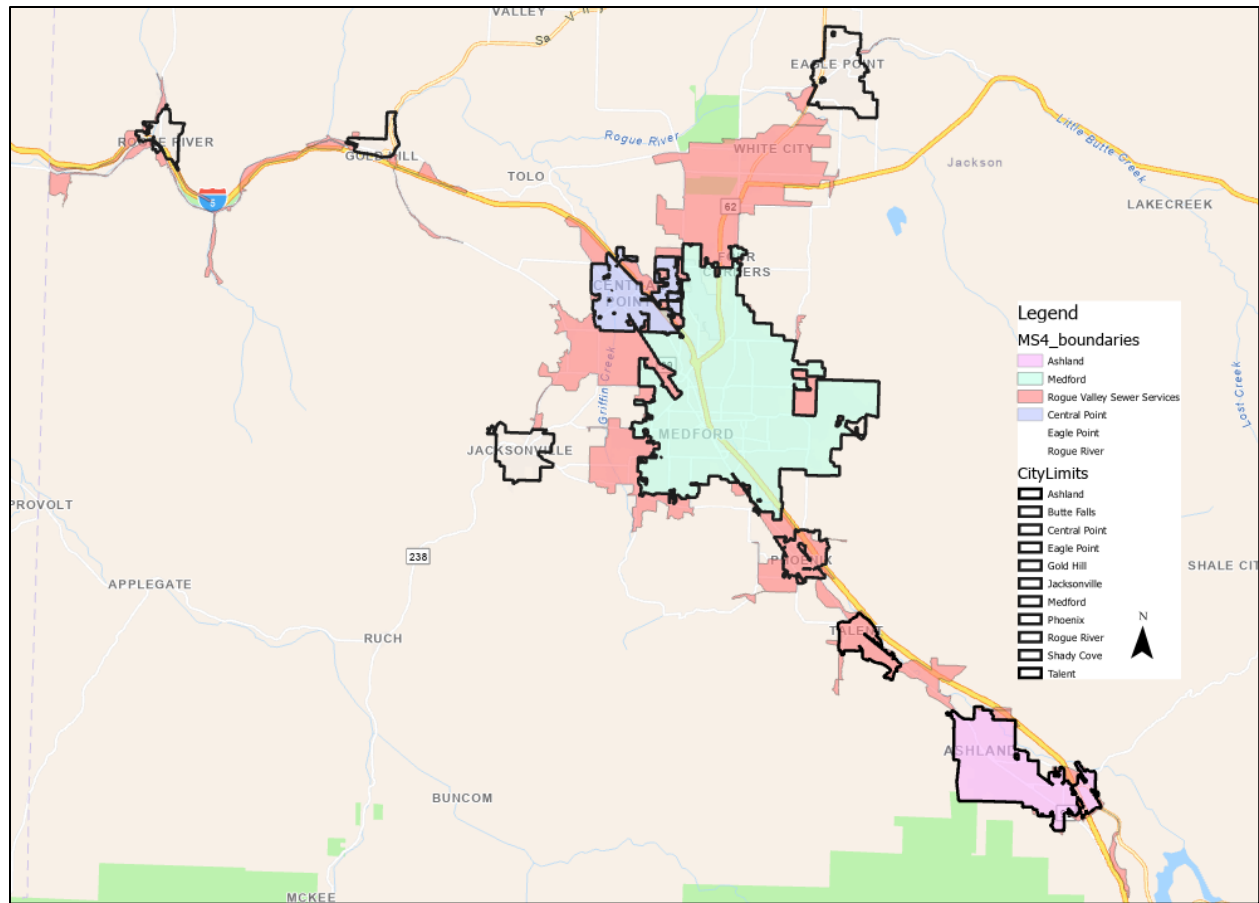
For the purposes of the Design Manual, Stormwater Management is Retention, Treatment, and Detention of site runoff. The purpose of this Design Manual is to establish stormwater management standards to satisfy local development ordinances and the Post-Construction Stormwater Management Requirements (Schedule A.3.e) of the MS4 Phase II permit. Numeric stormwater management requirements were developed for this Design Manual that target predevelopment hydrologic function and meet the intent of the MS4 permit. More specifically, this Design Manual intends to:

- 1) Establish stormwater management standards for public and private developments in the Rogue Valley;
- 2) Identify Best Management Practices (BMPs) that meet Retention, Treatment, and Detention standards;
- 3) Describe Operation and Maintenance Requirements for BMPs; and,
- 4) Establish submission criteria for stormwater management plans.



### 1.3 JURISDICTIONS ADOPTING THE DESIGN MANUAL

The Design Manual is a regional manual, first implemented in 2006, that has been adopted by many MS4 jurisdictions within the Rogue Valley. Rogue Valley Sewer Service’s (RVSS) [service map](#), linked here shows the boundaries of the MS4 jurisdictions. The jurisdictions that formally adopt the Design Manual become voting members of the Stormwater Advisory Team (SWAT), which oversees development of the Design Manual. As of the publication date, the Design Manual was adopted by the following jurisdictions: City of Ashland, City of Central Point, City of Medford, and RVSS (Figure 1.1). RVSS holds the MS4 permit for the cities of Phoenix and Talent as well as the urbanized, unincorporated portions of Jackson County. Project designers will need to submit to the appropriate approving jurisdiction for compliance with the Design Manual.



**Figure 1.1.** MS4 Permittees that have adopted the Rogue Valley Stormwater Quality Design Manual, at the time of this issuance, are shown in shaded colors.

Initial drafting of the Design Manual began in 2004, when DEQ advised communities that they would soon be required to comply with MS4 permits. The Design Manual has been amended many times since 2006 to clarify and provide better guidance to designers. A revised Design Manual was issued in 2018 with completely updated design details and standard drawings for each of the BMPs. In 2019, a new MS4 permit became effective that included many new requirements for post-construction stormwater management, necessitating revisions to the design storms and a new edition of the Design Manual.

## 1.4 AUTHORITY

Authority for the requirements in this Design Manual come from the MS4 permit, as well as the applicable development ordinances and codes of the municipalities and RVSS that have adopted this Design Manual.

## 1.5 DESIGN MANUAL APPLICABILITY

The requirements of this Design Manual apply to Development and Redevelopment, within the limits of any jurisdiction that has adopted the manual. The thresholds are outlined in Table 1.1.

**Table 1.1** Design Manual applicability for Development or Redevelopment.

Location	Impervious Surface Area	Requirements
Within city limits	< 5,000 sf	None from this Design Manual
	≥ 5,000 sf	Retention and/ or Treatment
	≥ 10,000 sf	Detention
Outside city limits but inside MS4	≥ 10,890 sf	Retention and/ or Treatment and Detention*

\* No Detention within the White City Residential boundary, see [RVSS' website](#).

## 1.6 RELATIONSHIP TO OTHER REQUIREMENTS AND STANDARDS

Projects may also need to comply with other requirements established by local, state or federal agencies. It is the responsibility of the project designer to ensure all applicable requirements are met and to resolve potential conflicts. The following are local requirements that may apply:

- Bear Creek and the Rogue River both have water quality that does not meet state water quality standards. To work toward improvement, DEQ has established [Total Maximum Daily Loads \(TMDLs\)](#) that stipulate the amount of pollution that can be contributed to the water bodies. Each jurisdiction that discharges into the water bodies is required to develop a TMDL Implementation Plan to address the pollution; a large number of required TMDL plan elements relate to post-construction stormwater management, and are addressed by this manual, or local codes.
- Riparian ordinances established by local jurisdictions.
- Construction activities must follow local jurisdiction ordinances and may require obtainment of erosion prevention and sediment control permits.
- Drainage, planning, and design ordinances established by local jurisdictions.
- Design standards for conveyance systems are not included in this Design Manual, refer to the local jurisdiction for these requirements.

## 1.7 REVISION AND AMENDMENT PROCESS

The SWAT is the approving body for any revisions to the Design Manual. Typically, the SWAT attempts to approve necessary minor amendments once a year and have them go into effect on July 1. Larger revisions to the Design Manual are undertaken as required by the MS4 permit, developed through a working group, and brought to the SWAT for approval. All proposed changes to the Design Manual are required to be noticed to the SWAT for 30 days prior to a vote. The public may attend SWAT meetings and provide comment on proposals but does not vote.

## Chapter 2 – Water Quality and Peak Flow Control Requirements

---

### 2.1 INTRODUCTION

The MS4 Phase II permit requires permittees to “...establish a Site Performance Standard with a numeric stormwater retention requirement to target natural surface or predevelopment hydrologic function to retain rainfall on-site and minimize the offsite discharge of precipitation utilizing stormwater controls that infiltrate, capture and/or evapotranspire stormwater.” Based on these requirements, Retention of stormwater runoff using infiltration is the priority method of stormwater management and can be accomplished through the use of Low Impact Development or Green Infrastructure.

*“Low Impact Development (LID) is a stormwater management approach that seeks to mitigate the impacts of increased runoff and stormwater pollution using a set of planning, design and construction approaches and stormwater management practices that promote the use of natural systems for infiltration, evapotranspiration, and reuse of rainwater, and can occur at a wide range of landscape scales (i.e., regional, community and site). Low Impact Development is a comprehensive land planning and engineering design approach to stormwater management with a goal of mimicking the pre-development hydrologic regime of urban and developing watersheds”.<sup>1</sup>*

*“Green Infrastructure is a specific type of stormwater control using vegetation, soils, and natural processes to manage stormwater, ... designed to mimic nature by reducing and/or storing stormwater through infiltration, evaporation and transpiration.”<sup>2</sup>*

Retention Facilities are designed to collect and hold site runoff to limit the volume of downstream discharge. The volume of downstream discharge from a Retention Facility may not exceed pre-developed levels and all runoff above the pre-developed runoff volume must leave the facility via infiltration, evapotranspiration, absorption by vegetation, or reuse on-site.

The MS4 Phase II permit also requires Permittees to establish Treatment standards. Treatment Facilities are designed to capture, filter and/or hold runoff for the length of time needed for suspended particles to settle out of the water column, runoff is then released downstream.

Local ordinance requires the implementation of peak flow control or Detention to attenuate the downstream impact of peak flow rates generated by an increase in impervious surfaces. Detention Facilities are designed to hold and release runoff at a rate no larger than the pre-developed peak runoff rate.

### 2.2 RETENTION REQUIREMENTS

Retention Facilities function based on the ability of water to infiltrate into the ground or evapotranspire into the atmosphere.

#### 2.2.1 Retention Design Storm

Retention Facilities must be designed to Retain runoff from the 80<sup>th</sup> percentile storm event (0.46 inches). The 80<sup>th</sup> percentile rainfall event is the event with precipitation depth greater than or equal to the depth of 80% of all storm events over a given period. A 36-year period of record from 1984 to 2019 was examined using data from the Medford Airport WSO AP weather station to determine the 80<sup>th</sup> percentile event for the Rogue Valley.

---

<sup>1</sup> DEQ NPDES MS4 Phase II General Permit, March 2021.

<sup>2</sup> See Note 1.

### 2.2.2 Retention Exemptions

Many conditions, including geology and site location, may limit the ability of a Retention Facility to properly function at a site. Described in **Section 2.4.1** are technical criteria that this Design Manual acknowledges inhibit Retention, if any of these exist on the site, the site is considered infeasible for retention-based stormwater facilities. Technical justification must be provided in the form of a site-specific hydrologic or design analysis conducted or endorsed by an Oregon registered Professional Engineer (PE) or Oregon Certified Engineering Geologist (CEG) demonstrating that infeasibility factors exist on the site. The analysis must receive concurrence from the approving jurisdiction. If Retention is deemed infeasible for a site, Option 1.b (**Section 2.4**) treatment of the 95<sup>th</sup> percentile storm is still required.

## 2.3 TREATMENT REQUIREMENTS

Treatment Facilities are designed to remove total suspended solids (TSS) through filtration, infiltration, or settling of solids. Stormwater management facilities can be designed to achieve both Retention and Treatment, or a treatment train with multiple facilities may be utilized. Furthermore, when selecting a Treatment Facility, Green Infrastructure facilities must be considered first. Stormwater Facilities meeting Retention, Treatment and/or Green Infrastructure requirements are identified in **Table 2.1**.

### 2.3.1 Treatment Design Storm

Treatment Facilities must be designed to treat all runoff from the 95<sup>th</sup> percentile storm event (0.84 inches). The 95<sup>th</sup> percentile rainfall event is the event with precipitation depth greater than or equal to the depth of 95% of all storm events over a given period. A 36-year period of record from 1984 to 2019 was examined using data from the Medford Airport WSO AP weather station to determine the 95<sup>th</sup> percentile event for the Rogue Valley.

### 2.3.2 Treatment Exemptions

Refer to the Transportation paragraph in **Section 2.6** Exemptions from Retention, Treatment and Detention.

### 2.3.3 Pollutant Parameters

The Phase 2 MS4 permit requires a minimum removal of 80% of TSS from the treatment design storm. The facilities detailed in [Chapter 4](#) of this Design Manual are assumed to meet this TSS removal requirement. Any proposed alternative facility must meet or exceed this requirement.

## 2.4 WATER QUALITY REQUIREMENTS: RETENTION AND TREATMENT

Retention and Treatment requirements have been established for this Design Manual and can be met by satisfying either Option 1 or 2 below. The options are provided to allow flexibility on project sites. Option 1 has two parts; Retention and Treatment, while Option 2 only has Retention, but applies it to the entire runoff volume from newly developed and redeveloped areas. Detention requirements are covered in **Section 2.5** of this Design Manual.

### 2.4.1 Design Storms

- Retention Storm: 0.46 inches in 24 hours (80<sup>th</sup> percentile storm event)
- Treatment Storm: 0.84 inches in 24 hours (95<sup>th</sup> percentile storm event)

*Choose Option 1 or Option 2*

#### Option 1.

- a) Target natural surface or predevelopment hydrologic function by retaining all additional runoff volume generated by the Retention storm from post-developed site conditions when compared to pre-developed conditions. Refer to **Section 2.4.3** for a discussion of Technical Infeasibility Factors. If the approving jurisdiction concurs that the site is technically infeasible for Retention, only part 1.b. is required.

*And,*

- b) Treat all runoff generated by the Treatment storm from new and redeveloped impervious surfaces. Green Infrastructure must be prioritized as the treatment mechanism.

*Or,*

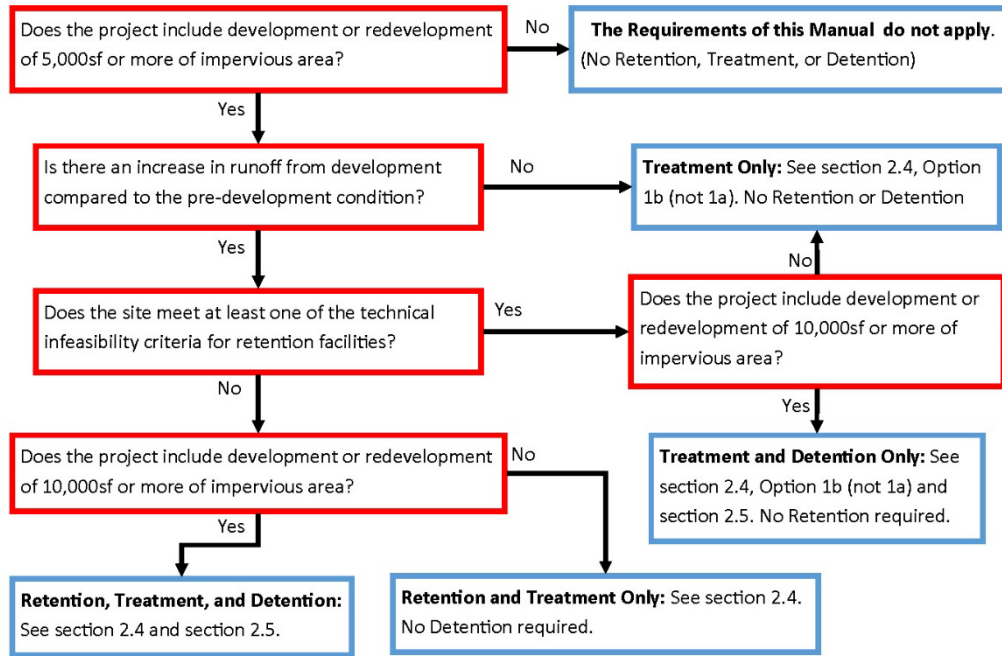
#### Option 2.

Retain 100% of the runoff volume generated by the Retention storm from newly developed and redeveloped areas. The Treatment requirement is considered satisfied with this option. Option 2 may not be used if claiming technical infeasibility for a project site.

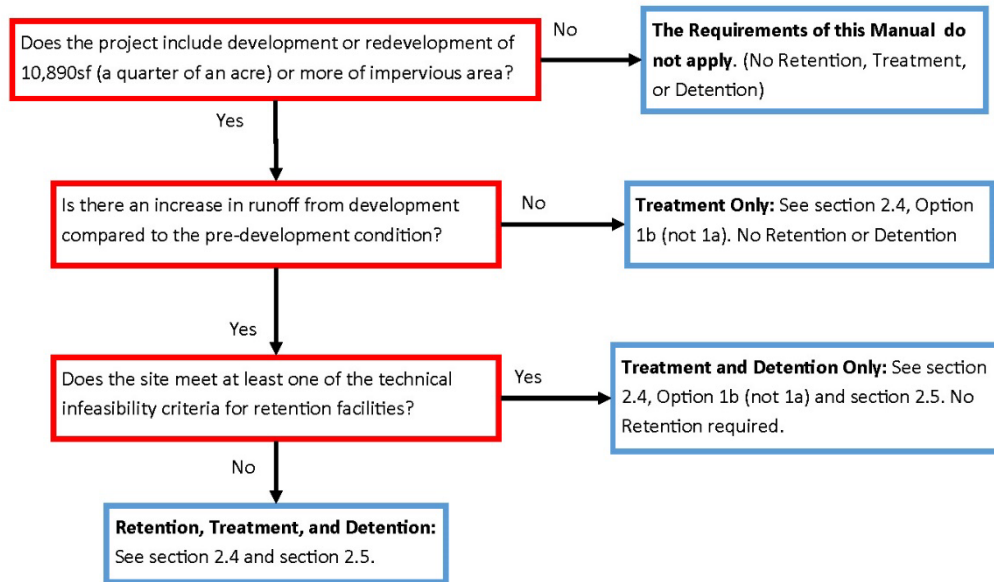
### 2.4.2 Mitigation Alternatives

If both Options 1 & 2 noted in **Section 2.4.1** are proven to be technically infeasible for the project site, designers may propose alternatives to the reviewing jurisdiction to satisfy the Retention and Treatment standards.

**FOR PROJECTS WITHIN CITY LIMITS**



**FOR PROJECTS OUTSIDE CITY LIMITS**



**Figure 2.1.** Flow chart used for determining Stormwater Management requirements for Development or Redevelopment.

### 2.4.3 Retention Requirement Technical Infeasibility Criteria

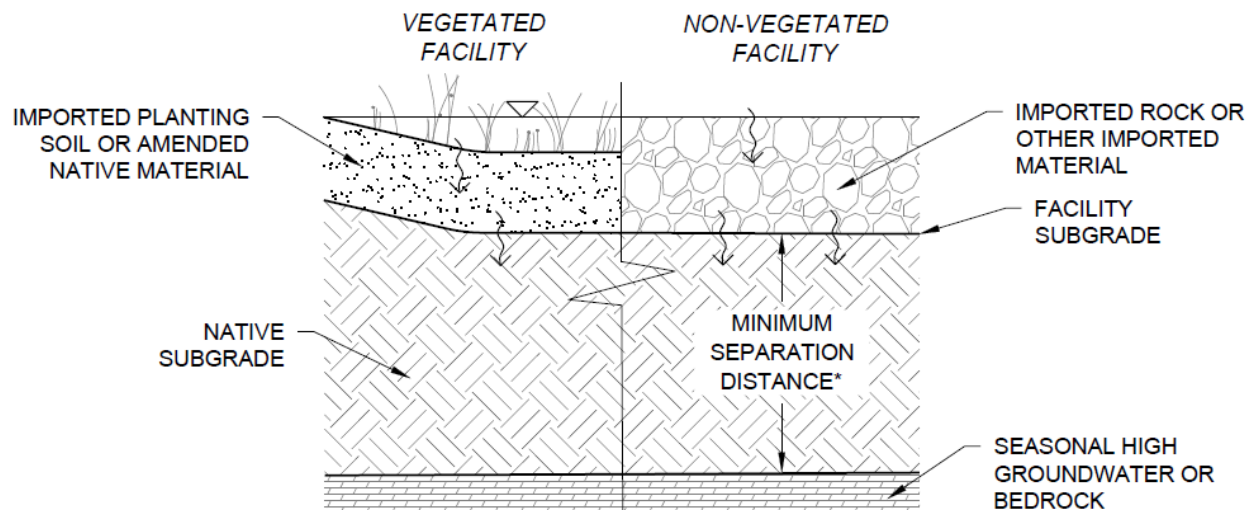
The factors discussed below make a site infeasible for Retention Facilities, if a site meets any of these infeasibility criteria, Option 1b must be followed.

#### Separation Distance from Seasonal High Groundwater and Bedrock

Depth to seasonal high groundwater and bedrock for design and determination of technical infeasibility for Retention shall utilize the best available information. Results of geotechnical investigations, well boring logs, observations during infiltration testing, and/or other site-specific studies are preferred. However, if such information is unavailable, use of the Natural Resources Conservation Service (NRCS) soil data, available via the web soil survey, is acceptable. The stormwater Calculation Report, prepared by an Oregon registered PE or CEG, shall include a discussion of the methodology and data sources used to determine depth to groundwater and/or bedrock. Separation distance shall be measured from stormwater facility subgrade as represented in **Figure 2.2**.

- 1) A separation distance of less than three feet exempts the following stormwater facilities from Retention:
  - a) Facilities that are not Underground Injection Controls (UICs) and do contain soil growth media,
  - b) Pervious paving receiving rainfall only.
- 2) A separation distance of less than five feet exempts the following facilities from Retention:
  - a) Stormwater facilities that do not have soil growth media;
  - b) Or pervious paving receiving run-on.

These facilities may be classified as UIC's by DEQ, refer to [DEQ's website](#) for the current UIC definition.



**Figure 2.2** The required separation distance from seasonal high groundwater or bedrock should be measured as illustrated.

#### Steep Slopes

Slopes of 15% or more on average across the project site will exempt the site from the Retention requirements. Or, if an Oregon registered PE or CEG recommends the avoidance of infiltration on-site due to instability, then the site will be exempt from Retention requirements.

#### Distance to Drinking Water Wells

Sites will be exempt from Retention requirements if there is less than 500 feet of separation from a UIC to a drinking water well, or less than 50 feet of separation between a stormwater (SW) facility and a



drinking water well, with the exception of lined facilities. At the time of publication of this Design Manual, the separation distance required by DEQ between UICs and drinking water wells was 500 feet; however, designers should verify with DEQ that this is still the standard.

#### **Land Use Planning**

Jurisdictional planning requirements that make infiltration stormwater facilities infeasible are considered to make Retention infeasible. If intending to use this infeasibility criteria, the designer shall seek prior approval from the local jurisdiction.

#### **Transportation**

The following public and private transportation related projects are considered infeasible for Retention:

- Any project that would require the purchase of right-of-way for a Retention Facility.

#### **Infiltration Rate**

Sites with a Measured Infiltration Rate of 1.5 inches per hour or less are exempt from Retention requirements. However, retention may be used on sites with a measured infiltration less than 1.5 inches per hour if the proposed facility is designed to meet the design standards in Chapter 4. Infiltration measurement shall follow the protocol outlined in **Appendix A**, or a protocol recommended by an Oregon registered PE or CEG.

#### **Contaminated Soils**

If DEQ has deemed that the project site has any contaminated soils, the project site will be infeasible for Retention.

#### **Other Requirements**

If other requirements are applied to the site, such as SLOPES (Standard Local Operating Procedures for Endangered Species), that may impact the ability to incorporate Retention, discuss these with the local jurisdiction prior to design.

## **2.5 PEAK FLOW CONTROL: DETENTION STANDARDS**

Detention standards are intended to prevent an increase in peak flow runoff from a developing site in order to preserve the capacity in downstream storm drains and to prevent downstream erosion. Detention Facilities are required to be installed at the time of Development and must be sized so that the post-development peak flow is less than or equal to the pre-development peak flow for the 10-year event. Detention Facilities may be required to be designed to a different standard if the local jurisdiction is aware of reduced capacity downstream.

### **2.5.1 Detention Design Storms**

- Peak Flow: 10-year event, 24-hour rainfall depth of 3.0 inches
- Auxiliary Overflow: 25-year event, 24-hour rainfall depth of 3.25 inches, if required

## 2.6 EXEMPTIONS FROM RETENTION, TREATMENT AND DETENTION

### Transportation

The following transportation activities are exempt from Retention, Treatment and Detention requirements:

- Repair of road base that does not concurrently expand the impervious surface greater than the applicable threshold from **Section 1.5**
- Widening less than a single lane for less than 1,000 linear feet,
- Shoulder additions that do not include installation of curb and/or gutter,
- Surface maintenance work, including dig outs, within the existing impervious footprint,
- Correcting substandard intersections, for reasons of function, capacity, or safety,
- Improving existing drainage systems,
- Emergency roadwork that occurs outside the normal Capital Improvement Process.
- Paving and repairing road base of existing gravel alleys.

Bike and Pedestrian Improvement Projects in the following situations:

- Exclusive bike and pedestrian projects that do not include installation of curb and/or gutter,
- The bike and pedestrian portions of a larger project, that do not include installation of curb and/or gutter.

### Utility Trenches

Utility trenches are exempt from Retention, Treatment and Detention requirements.

## 2.7 OPERATION AND MAINTENANCE REQUIREMENTS

Stormwater management facilities for Retention, Treatment, and Detention of stormwater runoff must be maintained in perpetuity. The designer shall discuss with the property owner the operation and maintenance requirements of any proposed Stormwater Management Facilities prior to choosing a facility. An Operation and Maintenance Manual must be prepared for all stormwater management facilities, in accordance with the requirements of [Chapter 5](#) and **Appendix H**, and be submitted to the approving jurisdiction for review and approval.

## 2.8 PROJECT PLANNING, FACILITY AND APPROACH SELECTION

Use of Green Infrastructure for stormwater management must be prioritized on all projects. **Table 2.1** identifies the type of stormwater facilities that are considered Green Infrastructure by this Design Manual. The basic steps below will help to characterize a site and determine applicable standards.

- 1) Evaluate the Site. Identify natural resources and trees that must be preserved, drainage patterns, and existing utilities.
- 2) Characterize Site Drainage. Evaluate drainage area, groundwater and bedrock depth, soil types, and conduct infiltration testing per **Appendix A**.
- 3) Consider:
  - a) Minimization of impervious surfaces through LID concepts such as reduced building footprints, efficient parking, and narrow streets,
  - b) Evapotranspiration through planting of trees and perennial vegetation,
  - c) Reuse of stormwater on-site.
  - d) Stormwater facilities must be operated and maintained in perpetuity, consider what will be required for maintenance. Refer to [Chapter 5](#) for a discussion of the required Operation and Maintenance Manual.
- 4) Determine Applicable Design Standards. Based on the new or redeveloped impervious square footage, and considering Retention technical infeasibility criteria, and any other exemptions, determine if stormwater facilities will need to provide Retention, Treatment, and or Detention.

- 5) Maximize Infiltration. To the extent feasible, locate stormwater facilities in areas with highly infiltrating soils. Integrate landscaping requirements with stormwater management facilities.
- 6) Select and Size Facilities. Utilize the approved design approaches described in this Design Manual.

### 2.8.1 Approach Selection

Approved structural stormwater management controls, hereafter referred to as Best Management Practices (BMPs), are provided in this Design Manual. Calculation and Design standards used to size and design BMPs in this Design Manual are approved by the SWAT and must be implemented to meet Water Quality (Retention and Treatment) and Peak Flow Control (Detention) requirements.

Two approaches are allowed by this Design Manual, Simplified and Performance. The Simplified Approach is allowed for some, generally smaller, facilities while the Performance Design Approach is acceptable for any BMP. The general methodology for each approach is outlined below. Once the required standards for a particular site are understood, and a design approach is selected, **Table 2.1** can be used to help choose appropriate stormwater facilities.

**Table 2.1** Allowed design approach, standards and green infrastructure applicability.

BMP #	BMP Name	Design Approach		Can be Designed For:		
		Simplified	Performance	Retention	Treatment	Green Infrastructure
4.4.1	<b>Ponded Retention</b> (Rain Garden/ Retention Ponds, Stormwater Planters)	Y	Y	Y	Y	Y
4.4.2	<b>Pervious Surface Retention</b>	Y*	Y	Y	Y	N
4.4.3	<b>Underground Retention</b>	N	Y	Y	Y	N
4.5.1	<b>Soil Filtration</b> (Rain Gardens and Stormwater Planters with Underdrains)	N	Y	N	Y	Y
4.5.2	<b>Water Quality Swale</b>	N	Y	N	Y	Y
4.5.3	<b>Dispersion</b> (Vegetated Filter Strip)	Y	Y	N	Y	Y
4.5.3	<b>Dispersion</b> (Disconnected Downspout)	Y	N	N	Y	Y
4.5.4	<b>Water Quality Settling Basin</b> (Extended Detention formerly)	N	Y	N	Y	Y
4.5.5	<b>Proprietary Treatment</b>	N	Y	N	Y	N**
4.5.6	<b>Vegetated Roof</b>	N	Y	N	Y	Y
4.6	<b>Detention</b> (Flow Control)***	N	Y	N	N	N

\*Only for non-vehicular pervious surfaces.

\*\*If no soil filtration medium.

\*\*\*Can be designed in combination with other facilities.

### Simplified Approach

The Simplified Approach is intended to be a streamlined stormwater management approach for small projects and is not required to be performed by an Oregon registered PE or CEG. See [Chapter 3](#) for the implementation standards of this approach.

Simplified Approach allowed when:

- a) < 10,000 square feet of impervious surface Development or Redevelopment for the entire Project, and
- b) Contributing Drainage Area of an individual BMP < 10,000 square feet

Retention and Treatment requirements are assumed to be satisfied with the Simplified Approach. Detention requirements are independent of this approach and must be determined based on the total Developed and/or Redeveloped impervious surface of the site.

Even though this approach is allowed without a PE or CEG, there may be features of the project that would be best addressed by a PE or CEG to avoid negative results such as poor site drainage, high groundwater, flooding, or impacts to neighboring properties. Additionally, liability may exist for draining water onto an adjacent property or causing water to flood onto an adjacent property. The project manager and owner should assess these risks to determine whether a PE or CEG should be hired to develop a site design including a grading, drainage, and or utility plan. The PE or CEG would still be allowed to use the Simplified Approach, thus reducing the time and effort required to comply with the requirements of this Design Manual.

### **Performance Design Approach**

The Performance approach is required for the design of BMPs with a Contributing Drainage Area of 10,000 square feet or more and may be utilized for the design of any BMP. This approach must utilize the calculation and design standards in [Chapter 4](#) and must be performed by an Oregon registered PE or CEG.

## **2.9 CREDITS**

RVSS provides credits stormwater fees and incentive funding for projects that go above and beyond the requirements of this manual. See Appendix I for information on stormwater credits and visit [RVSS' website](#) for information on incentive funding.

## Chapter 3 – Simplified Approach Structural Stormwater Controls (BMPs) and Design Standards

---

### 3.1 APPLICABILITY

The Simplified Approach is intended to be a streamlined stormwater management method for small projects to address Retention and Treatment. Implementation of this approach can be done by anyone (an Oregon registered Professional Engineer (PE), or an Oregon Certified Engineering Geologist (CEG) is not required).

Simplified Approach allowed when:

- < 10,000 square feet of impervious surface Development or Redevelopment for the entire Project
- Contributing Drainage Area of an individual BMP < 10,000 square

Even though this approach is allowed without an Oregon registered PE or an Oregon CEG, there may be features of the project that would be best addressed by a PE or CEG to avoid negative results such as poor site drainage, high groundwater, flooding, or impacts to neighboring properties. Additionally, liability may exist for draining water onto an adjacent property or causing water to flood onto an adjacent property. The project manager and owner should assess these risks to determine whether a PE or CEG should be hired to develop a site design including a grading, drainage, and/or utility plan. The PE or CEG would still be allowed to use the Simplified Approach, thus reducing the time and effort required to comply with the requirements of this Design Manual.

### 3.2 APPROVED SIMPLIFIED APPROACH BMPs

#### 3.2.1 Ponded Retention (Rain Garden/ Retention Ponds or Stormwater Planters)

Rain Gardens impound stormwater runoff aboveground in low lying areas allowing the runoff to infiltrate into the existing subgrade.



**Figure 3.1.** Rain garden six months after planting.

Stormwater Planters may either be in-ground or aboveground and have vertical sides created by curbs, walls, or containers allowing the runoff to infiltrate into the existing subgrade.



**Figure 3.2** Stormwater Planter.

#### Simplified Approach Requirements

- 1) Facility must be constructed per the applicable Standard Drawing in **Appendix B**.
- 2) Facility must be at least 10 feet from building foundations.
- 3) The post-developed Contributing Impervious Area must drain to the facility.
- 4) Bottom area must be 5% of the post-developed Contributing Impervious Area.

$$SWF A = IA \times SF$$

Where:

SWF A = Stormwater facility wetted area

IA = post-developed Contributing Impervious Area to be treated by the facility

SF = Sizing Factor of 0.05

**Example:** For a post-developed Contributing Impervious Area of 9,000 square feet, the wetted area of the facility shall be 450 square feet.

- 5) The overflow location must be identified on the site plan.



### 3.2.2 Pervious Surface Retention

Pervious surfaces (also known as permeable pavements and porous pavements) are stormwater management facilities that allow water to move through void spaces within the pavement surface and rock below and infiltrate into underlying soils.



**Figure 3.3.** Pervious surface not intended for vehicular use.

#### Simplified Approach Requirements

- 1) The surface should only receive direct rainfall, runoff from other areas cannot flow onto the pervious surface.
- 2) Pervious surface is not intended for vehicular use.
- 3) Pervious surface must be at least 10 feet away from building foundations.
- 4) Facility must be constructed per the applicable Standard Drawing in **Appendix B**.
- 5) If pavers are not themselves pervious, spacing between the pavers must be 20% of the overall surface area, per Standard Drawing 4.4.2.c.
- 6) Base rock and pavement thickness must be as recommended by the manufacturer.
- 7) General flow direction and off-site discharge locations must be shown on the site plan.

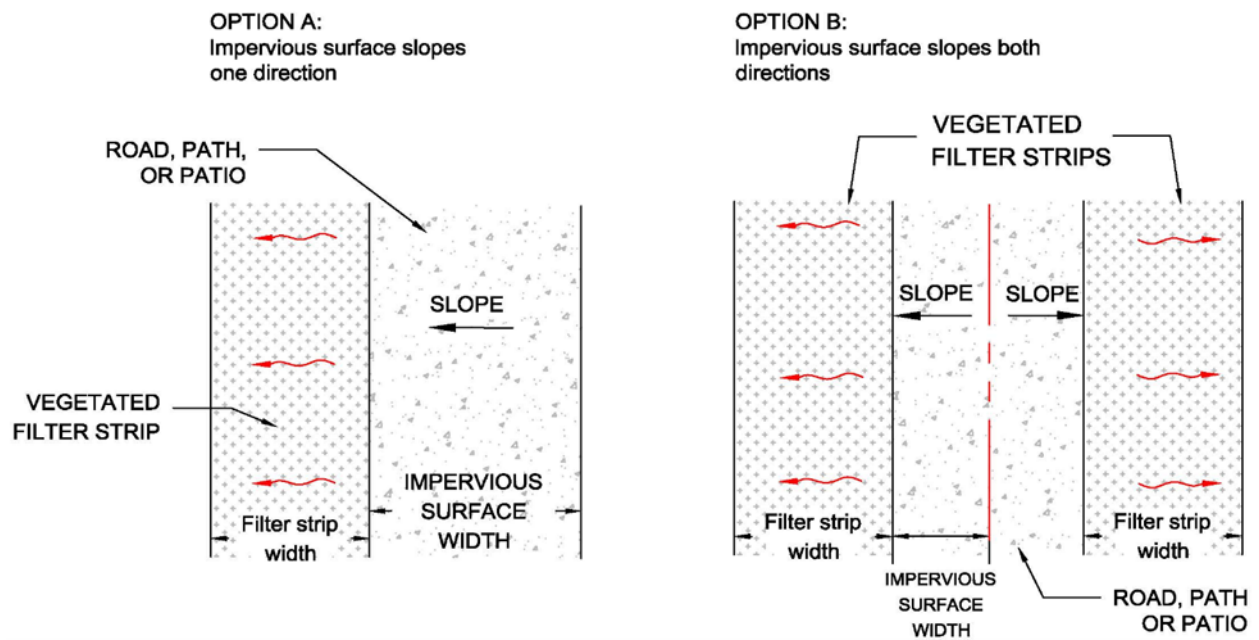
### 3.2.3 Dispersion (Vegetated Filter Strips)

Vegetated Filter Strips can be installed alongside impervious surfaces such as roadways, walkways, and patios. Vegetated filter strips run parallel to the impervious surface, are gently sloped away from the impervious surface, and must be completely vegetated to filter and reduce velocity as runoff flows through the facility.





**Figure 3.4.** A vegetated Filter Strip runs along the left side of this path.



**Figure 3.5.** Schematic of a Vegetated Filter Strip.

### Simplified Approach Requirements

- 1) Facility must be constructed per the applicable Standard Drawing in **Appendix B**.
- 2) Filter strip should not slope towards building foundations.
- 3) Impervious surface must slope towards the filter strip at a maximum slope of 5%.
- 4) Filter strip must slope away from the impervious surface with a maximum slope of 10%.
- 5) Maximum impervious surface “width” (see Figure 3.5) prior to entering the filter strip is 75 feet as measured along the cross-slope of the impervious surface draining towards the filter strip.
- 6) Maximum longitudinal slope of the impervious surface and filter strip is 4%.
- 7) Filter strip should be sized at a ratio of 1 foot of filter strip width for every 2 foot of impervious surface.

$$FS\ W = IS\ W \times SF$$

Where:

FS W = Filter strip width

IS W = Impervious surface width

SF = Sizing Factor of 0.5

**Example:** For an access road that is 10 feet wide, with a crown down the center of the road, the filter strips on each side of the road should each be at least 2.5 feet wide. Or, for an access road that is 10 feet wide, with the entire width sloping to one side (no crown), the filter strip should be at least 5 feet wide on one side.

- 8) The overflow location must be identified on the site plan.

### 3.2.4 Dispersion (Disconnected Downspouts to Pervious Area or Infiltration Trench)

#### Disconnected Downspouts to Pervious Area

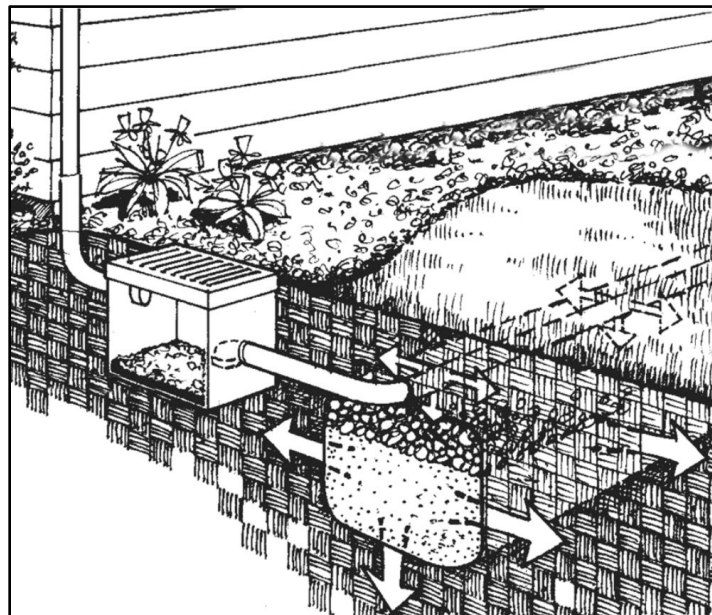
Runoff is directed from downspouts or underground drain pipe to a pervious area in-lieu of discharging directly to a storm drain system.



**Figure 3.6.** A Disconnected Downspout discharging to a pervious area.

#### Disconnected Downspouts with an Infiltration Trench

Runoff is directed from downspouts or underground drain pipe to a trench filled with gravel for infiltration in-lieu of discharging directly to a storm drain system.



**Figure 3.7.** Schematic of a Disconnected Downspout discharging to an infiltration trench.

#### Simplified Approach Requirements – Disconnected Downspouts to Pervious Area:

- 1) Not allowed on lots where the average slope is greater than 10%.
- 2) Facility must be constructed per the applicable Standard Drawings in **Appendix B**.
- 3) Splash blocks or energy dissipation is required at the end of the downspout.

- 4) Downspout extensions may be installed above ground or underground. Aboveground downspout extensions must discharge a minimum of five feet from building foundations. Belowground downspout extensions must discharge a minimum of 10 feet from building foundations. If underground, a cleanout box should be added near the building.
- 5) Downspout discharge point cannot be less 10 feet from the property line.
- 6) Discharge from downspout may not flow over an impervious surface.
- 7) General flow direction and off-site discharge locations must be shown on the site plan.
- 8) Maximum Contributing Impervious Area is 700 square feet of roof per downspout.
- 9) Pervious flow path must slope away from the building between 2% and 5%.
- 10) Pervious area must be 5% of the Contributing Drainage Area (roof area).

$$PA = RA \times SF$$

Where:

PA = Pervious area

RA = Contributing Impervious Area (roof area)

SF = Sizing Factor of 0.05

**Example:** For a roof area that is 700 square feet, the disconnected downspout should discharge to a pervious area that is at least 35 square feet.

#### Simplified Approach Requirements – Disconnected Downspouts to Infiltration Trench

- 1) Not allowed on lots where the average slope is greater than 10%.
- 2) Facility must be constructed per the applicable Standard Drawings in **Appendix B**.
- 3) Downspouts must discharge into the infiltration trench a minimum of 10 feet from building foundations, and a cleanout box should be added near the building.
- 4) Infiltration trenches must be located more than 10 feet from the property line.
- 5) Maximum Contributing Impervious Area is 700 square feet of roof per downspout.
- 6) The infiltration trench should be 10 feet long, 2 feet wide, 18 inches deep, and be perpendicular to the slope (flat).
- 7) General flow direction and off-site discharge locations must be shown on the site plan.

## Chapter 4 – Performance Approach Structural Stormwater Controls (BMPs) and Design Standards

---

### 4.1 INTRODUCTION

Chapter 4 focuses on calculation and design standards for approved BMPs. The standards in this chapter must be used when employing the Performance Design Approach outlined in [Chapter 2](#) to meet Retention, Treatment, and Detention requirements. The following points outline how the standards in this chapter are implemented:

- 1) One or multiple BMPs that provide Retention, Treatment, and Detention or a combination thereof may be incorporated at one location. For efficiency, these are referred to as Stormwater Management Facilities or SWFs in this manual.
- 2) All standards in this chapter shall apply as applicable to the design and construction of each SWF.
- 3) General Design Standards apply to all BMPs including Retention, Treatment, and Detention BMPs.
- 4) Standards specific to the design of Retention SWFs are separated from the General Design Standards and must be adhered to in the design of Retention facilities.
- 5) Design standards specific to individual BMPs are listed in the appropriate BMP section and shall govern in the case of a standard overlap or contradiction.
- 6) Alternative Retention, Treatment, or Detention systems not approved by this manual may be implemented on a case-by-case basis. However, alternative systems must comply with the applicable requirements in [Chapter 2](#) and the General Calculation and Design Standards in this chapter. Alternative system design and methodology must be submitted to and approved by the reviewing jurisdiction.

### 4.2 GENERAL HYDROLOGIC CALCULATION CRITERIA

This section outlines the methodology and parameters which are implemented for the design storms defined in [Chapter 2](#) to calculate runoff volume, storage, and peak flows.

#### Accepted Calculation Methodologies

Peak flow and runoff volume may be calculated using the Santa Barbara Urban Hydrograph Method (SBUH) (**Appendix C**), the Natural Resources Conservation Service (NRCS) Curve Number Method with a Type 1A rainfall distribution, or by any other method acceptable to the reviewing jurisdiction. Required storage volumes must be determined using hydrograph routing.

#### Contributing Drainage Area

Contributing Drainage Area is the total drainage area used to calculate peak flows and runoff volumes and includes all impervious and pervious surfaces which contribute runoff to a specific location. BMPs must be sized to accommodate all runoff from contributing drainage areas. Flows that are not required to be Retained, Treated, or Detained may be routed around a facility via a bypass structure and/or a bypass conveyance system. A contributing drainage area map must be submitted for all projects.



### Time of Concentration

For the Pre-Development Hydrologic Function, the Time of Concentration is the time it takes for water to travel from the hydraulically most distant point of the drainage basin to the location where most runoff may leave the drainage basin. For the Post-Development Condition, the Time of Concentration is the time it takes for water to travel from the hydraulically most distant point of the drainage basin to the runoff location. The NRCS TR-55 method is preferred for calculation of the Time of Concentration.

### Runoff CN

Runoff curve numbers (CNs) are used to categorize runoff potential based on soil type and land use. Curve numbers were developed by the NRCS and are published in the TR-55, **Table 2-2**, which is included in **Appendix D**. For the Pre-Development Condition, the CN(s) must be selected from the TR-55 **Table 2-2** and a statement must be provided in the stormwater report justifying how the CN applies to the site's Pre-Development Hydrologic Function, unless another method is approved by the local jurisdiction.

## **4.3 GENERAL SITING, GEOMETRIC, AND MATERIAL DESIGN STANDARDS**

This section specifies general siting, geometric, and material standards, which are used along with peak flows and storage volumes to size and design all BMPs approved by this manual.

### **4.3.1 General BMP Design Standards: Retention**

The following are general design standards that apply to facilities that provide Retention. Additional BMP specific design requirements are found in **Section 4.4** and must be followed.

- 1) **Retention Technical Infeasibility Criteria:** Retention facility design must comply with the Technical Infeasibility Criteria outlined in **Section 2.4.1**.
- 2) **Infiltration Testing:** Infiltration Testing is required for all sites. The Measured Infiltration Rate shall be determined based on infiltration testing procedures outlined in **Appendix A**, or by a protocol recommended by an Oregon registered PE or CEG.
- 3) **Design Infiltration Rates:** The Design Infiltration Rate shall be used in all calculations.
  - a) The minimum Measured Infiltration Rate for Retention facilities shall be per **Section 2.4.1**.
  - b) Design Infiltration Rates shall be determined by applying a minimum factor of safety of 3 to the Measured Infiltration Rate. An alternate factor of safety is allowed for the Pondered Retention BMP, see **Section 4.4.1**.
  - c) The Maximum Design Infiltration Rate for Retention Facilities shall be 12 inches per hour.
- 4) **Depth to Groundwater:** A site specific determination must be included in the Stormwater Calculation Report to ensure that the minimum separation distance from seasonal high groundwater will be achieved for proposed infiltration facilities, see **Section 2.4.1** for allowable methodologies.
- 5) **Retention Facility Volume:** Must be calculated using the required design storms in [Chapter 2](#) and one of the accepted methodologies outlined in **Section 4.2**. Stormwater outflow from the facility is calculated by applying the Design Infiltration Rate obtained per the Infiltration Testing standard. Retention Facility Sizing calculations must be performed using a hydrograph routing methodology.
- 6) **Isolated Retention Facilities:** If infeasible to discharge to an approved storm drain system, Retention Facilities must be designed to fully infiltrate the 25-year storm without discharge. Additionally, a designated auxiliary overflow must be provided at a safe location for storms larger than the 25-year event.

- 7) **Retention Facility Drain Time:** Retention Facilities must be designed to fully infiltrate or drain within six days, or as approved by the reviewing agency.
- 8) **Bottom Grade:** Less than 0.5% in any direction (applies to facility bottom and subgrade where infiltration is designed to occur).

#### **4.3.2 General BMP Design Standards: All Facilities**

The following are general design standards that apply to Retention, Treatment, and Detention BMPs and shall be followed when incorporating any of the items below. Additional BMP specific design standards are provided in **Sections 4.4, 4.5 and 4.6** below. BMP specific design standards shall govern in the case of standard overlap or contradiction.

#### **General Geometric and Hydraulic Design Standards:**

- 1) **Side Slope:** Maximum Grade for earth slopes within wetted area:
  - a) 3H:1V Areas not mown
  - b) 4H:1V Areas to be mown
- 2) **Maximum Depth:**
  - a) Maximum ponding depth in parking lots is 9 inches. Stormwater water may not be ponded in gravel parking areas. Ponding of stormwater in landscaped areas is allowed.
- 3) **Safety Fencing:** Safety fences shall be installed on all facilities with any of the following conditions:
  - a) Where fences are required by local building codes.
  - b) The designed ponding depth is 4 feet or greater.
  - c) Areas where small children are present, as required by the local building jurisdiction.
  - d) Where water depths either exceed 3 feet for more than 24 hours or are permanently wet and have side slopes steeper than 3H:1V.
  - e) Where slopes are equal to or steeper than 1.5H:1V.
- 4) **Overflow:** All facilities must be designed with an overflow structure to avoid flooding. The overflow structure shall be designed to convey the 10 year storm in conjunction with the Freeboard standards in this section.
- 5) **Freeboard:** Freeboard for Treatment, Retention, and Detention facilities shall be per the following:
  - a) For facilities that provide treatment and/or store less than 5,000 cubic feet of water, Freeboard shall be 6 inches measured from the maximum 10 year water surface flowing over the overflow structure assuming the orifice is plugged.
  - b) For facilities that store more than 5,000 cubic feet of water, Freeboard shall be 12 inches measured from the 10 year water surface flowing over the overflow structure. Accounting for flow through the orifice is allowable.
  - c) For underground facilities, Freeboard shall be 6 inches measured from the maximum 10 year water surface elevation flowing over the overflow structure.
- 6) **Spillways/Auxiliary Overflow:**
  - a) An analysis shall be provided for all facilities to determine the surcharge release point of the stormwater facility and up-stream drainage system assuming the overflow and orifice are inoperable. The surcharge release of stormwater shall be routed to an approved location.
  - b) Aboveground Spillways: Facilities using walls or berms constructed above the adjacent ground to impound water must have spillways constructed of non-erodible material which discharge to an approved location and are sized to convey the 10 year storm. For facilities storing over 100,000 cubic feet, the spillway shall be sized to convey the 25 year storm.



- 7) **Stormwater Facility Proximity:** The Retention or Treatment area of a Stormwater Facility must be located per the criteria below:
  - a) Minimum of 10 feet from structural foundations (Impermeable Liners may be installed in-lieu of the 10-foot separation).
  - b) Minimum of 10 feet from underground tanks (Impermeable Liners may be installed in-lieu of the 10-foot separation).
  - c) Retention BMPs located near property lines must be designed and located such that they do not adversely affect adjacent properties.
  - d) As approved by the reviewing agency.
- 8) **Energy Dissipation:** Energy dissipation must be placed at each entry and exit point to a facility, as well as any outfall. Energy dissipation must be constructed of non-erodible material such as concrete or rock. Rock apron energy dissipation must be sized appropriately and may not be constructed with material with a nominal gradation less than four inches.
- 9) **Orifice:** The minimum orifice size is 1 inch in diameter.
- 10) **Flow Control Obstruction Prevention:** A minimum 12-inch-deep concrete or rock lined sump must be provided below all orifices and weirs.
- 11) **Access:** Access for stormwater facility maintenance and inspection must be provided per the following:
  - a) Public stormwater facilities – unrestricted all-weather access including to all inlets, pipe openings, and flow control structures, or as specified by the reviewing agency.
  - b) Private stormwater facilities - unrestricted access, which must be traversable by maintenance vehicles during dry months.

#### **General Material Standards:**

- 12) **Storage Rock**
  - a) Shall be Granular Drain Backfill 1½ inch to ¾ inch and installed per the applicable standard drawing.
  - b) Storage rock shall be separated from growing media and/or facility subgrade, as specified on the standard drawings, or by non-woven geotextile fabric.
  - c) Maximum allowable void space = 35% by volume.
- 13) **Impermeable Liners:** Liners shall be a minimum 30 mil ethylene propylene diene terpolymer (EPDM), High Density Polyethylene (HDPE), approved equal, or bentonite treated subgrade. Facilities may be partially or fully lined. Underdrains must be installed on fully lined facilities.
- 14) **Non-Woven Geotextiles:** Geotextiles for separating storage material from subgrade or separation rock shall be Oregon Department of Transportation (ODOT) Drainage Geotextiles Type 1, non-woven meeting ODOT Standard Specification Section 02320. Geotextile under the road base in the Vegetated Filter Strip BMP, 4.5.3, shall be Subgrade Geotextile meeting ODOT Standard Specification Section 02320.
- 15) **Underdrains/Piping:** Underdrains and piping shall be rigid pipe in compliance with approving jurisdictional standards and/or the current version of the Oregon Specialty Plumbing Code. Facilities with perforated underdrains must have a clean out or access point at the upstream end.

16) **Observation Port:** Facilities that utilize underground vaults of any kind must install at least one observation port and/or an access for maintenance and cleaning. Observation ports shall have a maximum spacing of 200 feet, additional observation ports may be required. Observation port piping shall be a minimum six-inch diameter non-perforated pipe. Equip the end above ground with an operable cap.

17) **Curb Openings:**

- a) Curb opening width and spacing shall be sized appropriately and constructed per Standard Detail 1.01, or as required by the jurisdictional authority.
- b) Curb openings shall have a local gutter depression of two inches.

**General Natural Material Standards:**

17) **Ground Stabilization:** All ground within the facility must be stabilized with one of the options below.

- a) **Hydroseeding** – Hydroseeding with tackifier.
- b) **Matting** – ODOT Type E erosion control matting shall be used to hold the soil in place until vegetation becomes established. If seeding, place seed and then install erosion control matting. If planting, install erosion control matting and then install plants through the matting. Matting is not required on slopes 4H:1V or shallower, or on slopes that have been hydroseeded.
- c) **Mulch** – Is not allowed below the water quality ponding depth or within the flow path of an inlet or outfall. Mulch shall be either shredded wood chips, coarse compost, or gravel. Mulch must be dye, pesticide, and weed free, spread in a minimum 2-inch layer over bare soil or in a ring around plants. Ensure that mulch does not touch plant stems.

18) **Growing Media:** Growing media can be either an imported water quality mix or amended native soil and must be provided at the depths shown on the Standard Drawings provided in **Appendix F**.

- a) Imported Water Quality Mixture – Is based on the ODOT “Water Quality Mixture” and shall be comprised of soil meeting the gradation in **Table 4.1**, and compost meeting ODOT specification Section 03020. A Seal of Testing Assurance certification from the US Composting Council must be provided to the approving jurisdiction for compost.

**Table 4.1.** Soil Gradation Requirements

Sieve Size	Percent Passing (by Weight)
No. 4	100
No 10	95 - 100
No. 40	40 - 60
No. 100	10 - 25
No. 200	5 - 10

- b) Mix the soil and compost so the “Water Quality Mixture”:
  - i) Is comprised of between 20% - 25% compost and between 75% - 80% soil.

- ii) Has a pH between 5.5 and 8.0.
- iii) Does not have clumps greater than 3 inches in any direction.
- c) Amended Native Soil - If amending native soil, add compost so that the top 18 inches is roughly 30% compost. Compost must meet ODOT specification Section 03020.

19) **Vegetation:** This vegetation standard shall be implemented per the requirements in each BMP section as applicable. If this vegetation standard is not specified or implemented, all disturbed ground within a stormwater facility must be stabilized per the Ground Stabilization Standards in **Section 4.3.2.17**.

- a) Landscape plans must be submitted per the submittal requirements outlined in [Chapter 6](#).
- b) Vegetation planting density must be provided per **Table 4.2 or 4.3** below, **Table 4.4** is optional. Additional planting, siting, and plant selection guidance is provided in **Appendix A**.
- c) At the end of the three-year establishment period, 90% of the Treatment area must have vegetation cover.
- d) Temporary irrigation is required for the first three growing seasons which may consist of, but is not limited to, an in-ground system or an imported water source.
- e) Plants must be maintained per the Operation and Maintenance Manual recorded for the facility.

**Table 4.2** Plant numbers and spacing requirements for a vegetation mix consisting primarily of herbaceous plants and small shrubs.

Number of Plants	Vegetation Type	Per Square Feet of BMP	Size	Spacing Density (Average on Center)*
66	Herbaceous Plants	100	Plugs or Larger	1.5 Feet
<b>OR</b>				
58	Herbaceous Plants	100	Plugs or Larger	1.5 Feet
4	Small Shrubs	100	1 Gallon	3 Feet to 4 Feet**
<b>OR</b>				
100% Native low-mow or no-mow seed coverage (follow supplier guidelines for density)				
<b>Species***</b>				<b>PLS lbs/ac***</b>
<i>Agropyron spicatum</i> (Bluebunch Wheatgrass)				12
<i>Elymus trachycaulus</i> (Slender wheatgrass)				12
<i>Elymus elymoides</i> (Bottlebrush Squirreltail)				3
<i>Poa Sandbergii</i> (Sandberg Bluegrass)				2
Total PLS lbs/ac				29

\*An average on-center density is provided as general guidance. However, to prevent short circuiting, plants must be randomly placed throughout per Standard Drawings BMP 4.4.1.b, 4.4.1.d, 4.5.2.b.

\*\*Depending on mature spread. Shrubs may be placed farther away than the density indicated but not closer.

\*\*\*Optional/acceptable seed mix and application rate for the Rogue Valley.

**Table 4.3** Plant numbers and spacing requirements for a mix of herbaceous plants, small and large shrubs.

Number of Plants	Vegetation Type	Per Square Feet of BMP	Size	Spacing Density (Average on Center)*
58	Herbaceous Plants	100	Plugs or Larger	1.5 Feet
4	Large Shrubs	100	1 Gallon	4 Feet to 8 Feet**
<b>OR</b>				
6	Medium to Small Shrubs	100	1 Gallon	3 Feet to 8 Feet**
35	Small Shrubs	100	1 Gallon	3 Feet to 4 Feet**

\*To reduce erosion, plants should be randomly located, not placed in rows. The average on-center density is provided as general guidance.

\*\*Depending on mature spread. Shrubs may be placed farther away than density indicated but not closer.

**Table 4.4** Recommended Minimum Tree Density.

Number of Plants	Vegetation Type	Per Square Feet of BMP	Size
1	Evergreen Tree	300	6 Feet Minimum Height
<b>OR</b>			
1	Deciduous Tree	300	1.5 Inches Minimum Diameter*

\*Measured at a height 6 inches above the base.

#### 4.4 RETENTION BMPS

Retention BMPs are designed to hold and infiltrate site runoff for treatment and limit the volume of downstream discharge. Retention BMP design must comply with the Retention and Water Quality Requirements in [Chapter 2](#), Retention and General Design Standards in [Chapter 4](#), and the specific requirements in each BMP section.

##### 4.4.1 Poned Retention BMP (Rain Garden/ Retention Ponds and Stormwater Planters)



**Figure 4.1.** An established Rain Garden on a commercial lot, view from an inlet (left), and looking into the facility inlet (right).



Rain Gardens and Retention Ponds impound stormwater runoff above-ground in low lying areas allowing the runoff to infiltrate into the existing subgrade/ground beneath the facility (**Figure 4.1**). Stormwater planters may be either in-ground or above-ground (**Figure 4.2**) and have vertical sides created by curbs, walls or containers. Runoff typically enters the facility above ground via sheet flow, curb cuts, pipes, and/or gutter downspouts. The stormwater will infiltrate into the open bottom of the facility then into the existing subgrade.

A single stormwater planter cell may be installed on flat areas (as smooth as practical). On sloping ground, a stormwater planter may incorporate check dams to create a series of cells where overflow may occur in the lowest elevation cell (**Figure 4.2**).



**Figure 4.2.** A single basin in-ground Stormwater Planter (left), and an in-ground Stormwater Planter with separate cells (right) to allow the water to pond and overflow to each cell down the facility.

#### **Performance Design Approach and Specific Design Standards:**

- 1) Ponded Retention BMP design must comply with the Retention and Water Quality Requirements in [Chapter 2](#) and the Retention and General Design Standards in this chapter.
- 2) An Infiltration Rate safety factor of 2 may be applied if the ground within the Ponded Retention area is fully vegetated per the standards in **Section 4.3.2.19** of this chapter. Otherwise, if not fully vegetated, the facility must be stabilized per the Ground Stabilization standards in **Section 4.3.2.17** of this chapter and an Infiltration Rate safety factor of 3 must be applied.
- 3) Facility must be constructed per the applicable Standard Drawings provided in **Appendix F**.

#### 4.4.2 Pervious Surface Retention BMP

Pervious surfaces (also known as permeable pavements and porous pavements) are stormwater management facilities that allow water to move through void spaces within the pavement surface and rock below and infiltrate into underlying soils.



**Figure 4.3.** Permeable Pavers intercept rainfall and infiltrate it into the ground, the catch basin will only receive runoff from large storm events.

#### Pavement Surface Types Overview

**Pervious Asphalt and Pervious Concrete.** Pervious asphalt and pervious concrete are similar to their impervious counterparts but are made with “open-graded aggregate”, which includes few to no fines (*i.e.* small particles). When bound together, interconnected voids between the aggregate allow water to flow through.

**Permeable Pavers.** Permeable pavers are paver units of stone, concrete or other durable impervious material with gaps between or within the pavers that provide voids for water to reach sub-soils. Pervious commercial pavers, like pervious concrete discussed above, are now available and may not need space between them.

**Flexible Paving Systems.** Flexible paving systems are prefabricated grids made of plastics or other solid materials finished with clean sand/gravel or turf. Grids with pervious media provide a stable surface and sometimes resemble lawn.

**Pervious Gravel.** Conventional gravel surfaces (*i.e.* without a permeable sub-base) are not inherently free draining. During conventional gravel pavement installation, soil is compacted to support vehicular loads, and gravel with many small particles, usually a material like “¾-inch minus drain rock”, is installed and compacted in lifts (*i.e.* smaller portions of the total depth). This results in a low void ratio with little storage for stormwater.

Pervious gravel driveways and walkways are alternatives that can be especially helpful in retrofit situations where drainage problems exist. To create a pervious gravel pavement, specify Granular Drain



Rock ¾-inch to ½-inch, which is the same material used as base rock in other pervious surfaces and has no fine particles.

#### **Site Suitability & Other Considerations:**

Pervious surfaces should be placed on compacted soil per the manufacturer or design engineer's recommendation, and should not be located at sites with high incidence of fine aggregate materials, soils, or other materials that would readily clog the pervious surface. Sites that may be poor locations for pervious surfaces include home improvement stores, aggregate or soil supply businesses, and concrete contractor yards.

This manual covers the design of stormwater management facilities only. It is suggested that the pervious pavement structural section be designed by a professional engineer or manufacturer's representative to accommodate the anticipated loading (vehicle or otherwise) assuming a saturated sub-base. This is especially important if any heavier vehicles are expected such as delivery trucks, buses, or garbage trucks.

#### **Performance Design Approach and Specific Design Standards:**

- 1) Jurisdiction of the subject right-of-way must approve all pervious surfaces within the right-of-way.
- 2) Pervious Surface Retention BMP design must comply with the Retention and Water Quality Requirements in [Chapter 2](#) and the Retention and General Design Standards in this chapter.
- 3) Facility must be constructed per the applicable Standard Drawings provided in **Appendix F**.
- 4) Finish grade must be < 8.0%.
- 5) Pervious surfaces must be hydraulically isolated, meaning the surface only receives direct rainfall and does not receive run-on from any other areas. If the Pervious Surface receives run-on from other areas, it must be designed per the Underground Retention BMP standards.
- 6) Signage - Signs must be installed identifying the surface as pervious and indicating that stockpiling and sealing are not allowed on the surface.

### 4.4.3 Underground Retention BMP

Underground Retention occurs when stormwater is stored below the ground surface until it infiltrates into the subgrade/soil below. Stormwater can be stored within the voids of rock and/or within open bottom chambers. These facilities can be located below landscaping or paved areas.



**Figure 4.4.** Underground chambers (let) are one example of underground Retention when designed to fully infiltrate the Retention storm. Underground Retention can also be designed under a landscape area (right).

#### Performance Design Approach and Specific Design Standards:

- 1) Underground Retention BMP design must comply with the Retention and Water Quality Requirements in [Chapter 2](#) and the Retention and General Design Standards in this chapter.
- 2) Facility must be constructed per the applicable Standard Drawings provided in **Appendix F** or per the manufacturer’s standard drawings for approved proprietary facilities.
- 3) Pretreatment – To prevent clogging from sediment, pretreatment must be included. Options for pretreatment include inlet sumps, filtration through soil with geotextile separation, a proprietary system with filter media, or if runoff will only be from roofs, gutters or screens may be used.
- 4) UIC guidance – It is likely that underground retention BMPs are considered Underground Injection Control facilities and may need to be authorized by DEQ. Visit DEQ’s UIC webpage or refer to the DEQ Fact Sheet titled “Identifying an Underground Injection Control” for more information.

## 4.5 TREATMENT BMPS

### 4.5.1 Soil Filtration BMP (Rain Gardens and Stormwater Planters with Underdrains)

Soil Filtration BMPs collect stormwater and route it through facility substrate, which is typically imported soil and drain rock. The filtration capacity of this BMP is determined by the hydraulic loading of the facility and the infiltration rate of the imported soil. Runoff is captured by subsurface underdrains and routed to an approved discharge location.



**Figure 4.5.** Stormwater Planters located flush with a public building (left), a fully-lined residential above-ground Stormwater Planter with an underdrain (upper right), and a newly constructed above-ground Stormwater Planter with an underdrain (lower right).

#### Performance Design Approach and Specific Design Standards:

- 1) Soil Filtration BMP design must comply with the Treatment and Water Quality Requirements in [Chapter 2](#) and the General Design Standards in this chapter.
- 2) Facility must be constructed per the applicable Standard Drawings provided in **Appendix F**.
- 3) Soil Filtration BMP sizing calculations must be performed using hydrograph routing methodology. The facility size is determined by routing the Treatment inflow of the facility versus the infiltration rate (outflow) of the imported soil.
  - The hydraulic loading of the facility is determined per the Hydrologic Design Criteria in this chapter.
  - Soil Filtration BMP shall be sized with a maximum Design Infiltration rate of 12 inches per hour. If using the imported water quality soil mixture, it can be assumed to have an infiltration rate of 12 inches per hour.
- 4) Underdrains must be sized to accommodate the maximum design flow rate for the facility, *i.e.* peak water quality flow rate or peak detention flow rate as applicable.
- 5) Bottom Slopes must be 0 to 1% slope, SWFs with steeper slopes must use check dams to distribute the water.



#### 4.5.2 Water Quality Swale BMP

Water quality swales treat stormwater by conveying it through the substrate and vegetation. Treatment is achieved by filtration and settlement as the water slowly flows through the facility. Swales must be planted with dense vegetation in the Treatment zone to filter the stormwater.



**Figure 4.6.** A Water Quality Swale with dense mature vegetation that provides filtering of stormwater runoff.

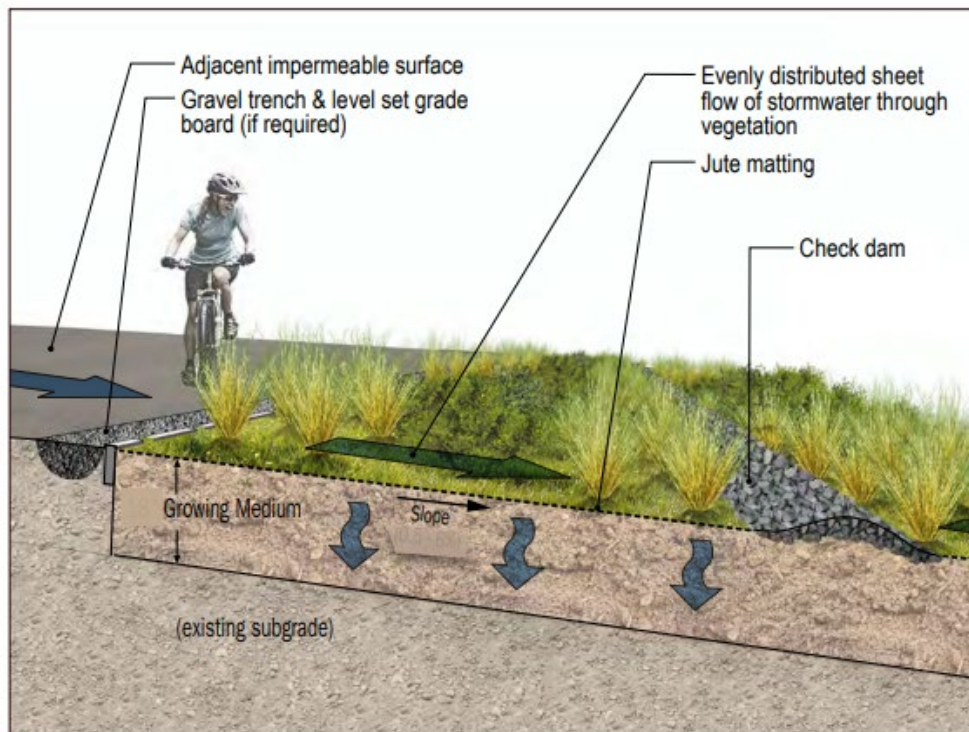
#### Performance Design Approach and Specific Design Standards:

- 1) Water Quality Swale BMP design must comply with the Treatment and Water Quality Requirements in [Chapter 2](#) and the General Design Standards in this chapter.
- 2) Facility must be constructed per the applicable Standard Drawings provided in **Appendix F**.
- 3) Vegetation - All ground within the treatment area of the Water Quality Swale BMP must be vegetated per the Vegetation standards in **Section 4.3.2.19** of this Chapter.
- 4) Swale Length - Water Quality Swale length shall be calculated based on a minimum residence time of 9 minutes. Residence time of less than 9 min may be allowed for up to 25% of the total runoff that enters the swale via sheet flow or curb cuts along the swale length. Check dams must be installed downstream of these locations per the requirements of this section.
- 5) Roughness Coefficient - Manning's  $n$  value must be a value between 0.22 and 0.24.
- 6) Flow Depth - Maximum depth of the water quality flow is 4 inches.
- 7) Bottom Width
  - a) Bottom width = 1 foot minimum and 10 foot maximum

- b) If the bottom width is wider than 4 feet, flow spreaders or check dams are required every 50 feet.
- 8) Longitudinal Slope
  - a) Minimum slope = 0.5%
  - b) Check dams must be installed on longitudinal slopes greater than 6%.
- 9) Check Dams - Must be constructed of non-biodegradable material such as concrete or rock. Check dams must have a flat top and be installed per the standard drawings in **Appendix F**.
- 10) Flow Spreaders – Must be constructed of non-biodegradable materials per the Standard Detail in **Appendix F**.

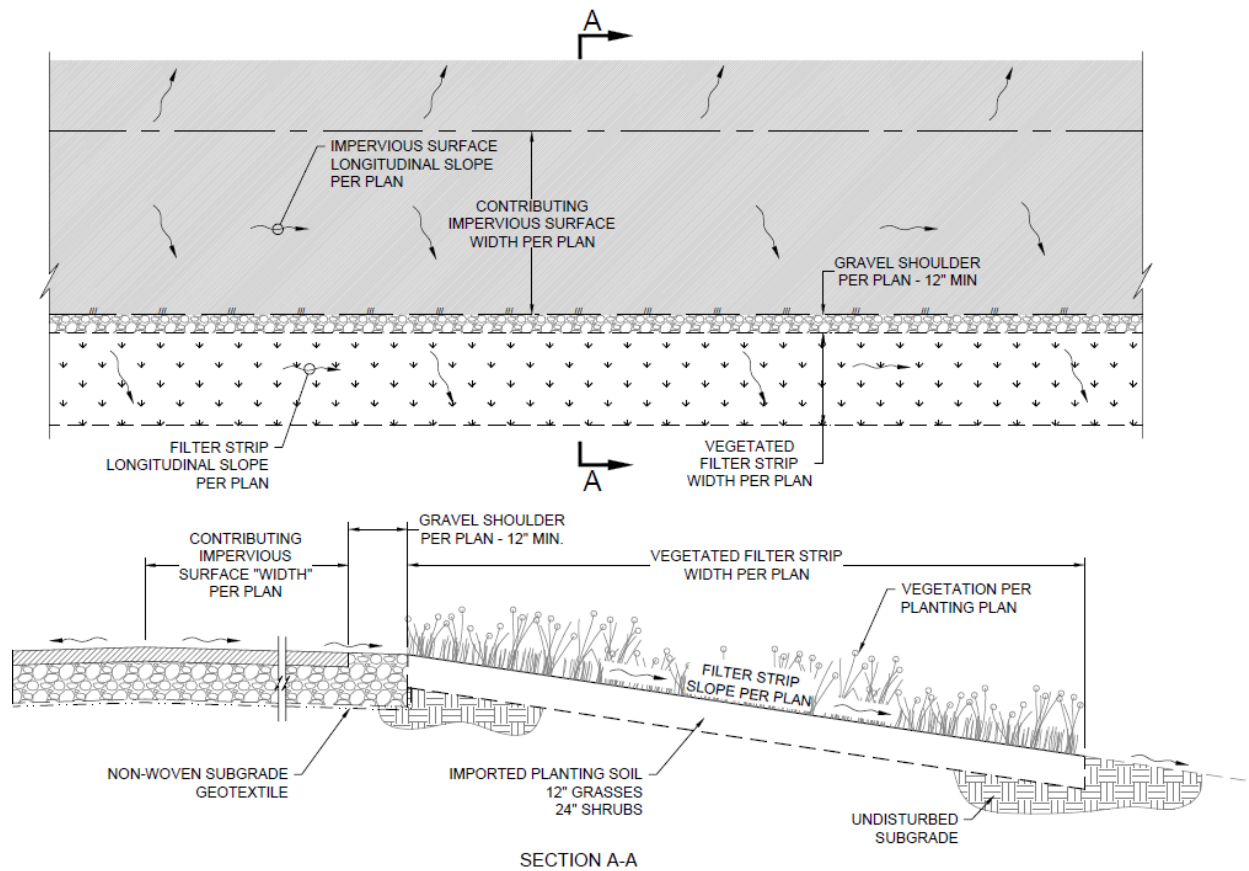
#### 4.5.3 Dispersion BMP (Vegetated Filter Strips & Disconnected Downspouts)

Dispersion is a BMP that spreads runoff over a landscape area specifically to reduce pollution and runoff velocity. Dispersion is suitable for various applications that generate relatively small amounts of runoff and/or for runoff that enters the facility in the form of sheet flow.



**Figure 4.7.** Schematic of a Vegetated Filter Strip courtesy of Clean Water Services [LIDA Handbook](#).

**Vegetated Filter Strips** can be installed along linear features such as roadways, walkways, and patios. Vegetated filter strips typically run parallel to an impervious surface, are gently sloped away from the impervious surface, and must be completely vegetated to filter and reduce velocity as runoff flows through the facility.



**Figure 4.8.** Vegetated filter strip general layout along a roadway.

**Performance Design Approach and Specific Design Standards:**

- 1) The Vegetated Filter Strip BMP design must comply with the Treatment and Water Quality Requirements in [Chapter 2](#) and the General Design Standards in this chapter.
- 2) Facility must be constructed per the applicable Standard Drawings provided in **Appendix F**.
- 3) Vegetation - All ground within the treatment area of the Vegetated Filter Strip must be vegetated per the vegetation standards in **Section 4.3.2.19** of this Chapter.
- 4) Maximum contributing impervious surface “width” prior to entering the facility is 75 feet as measured along the sheet flow drainage path or x-slope of the impervious surface draining toward the Vegetated Filter Strip.
- 5) Maximum slope of impervious surface up-stream of the facility is 5%.
- 6) Maximum longitudinal slope of impervious surface is 4%.
- 7) Maximum longitudinal slope of Vegetated Filter Strip is 2%.
- 8) The width of the Vegetated Filter Strip is sized based on the design slope of the Vegetated Filter Strip and the width of the impervious surface draining to the Vegetated Filter Strip, which is measured along the x-slope or flow path. **Table 4.5** shows treatment capacity of 1 foot of Vegetated Filter Strip at specific design slopes.
- 9) Signage – Signs must be installed identifying each end of the Vegetated Filter Strip, longitudinally. Alternatively, a decorative or utilitarian fence can be installed around the facility.



- 10) Gravel Shoulder – Minimum 12-inch gravel shoulder must be provided between the impervious surface and filter strip. Non-woven roadway geotextile fabric must extend under the shoulder from roadways.

**Table 4.5.** Vegetated Filter Strip Treatment capacity vs. design slope

Allowable Vegetated Filter Strip Slopes (%)	Treatment Capacity of 1 Foot of Vegetated Filter Strip Width, Listed in Contributing Impervious Surface Width (feet)
0.5% - 2%	4 Feet (Impervious Surface Width)
2% - 5%	3 Feet (Impervious Surface Width)
5% - 10%	2 Feet (Impervious Surface Width)
10% - 15%	1.5 Feet (Impervious Surface Width)

**Example:** A Vegetated Filter Strip with a design slope of 4% is to be installed along a standard crowned roadway. The roadway measures 30 feet from edge of asphalt to crown.

$$\text{Vegetated Filter Strip width} = \frac{\text{impervious surface width (ft)}}{\text{Treatment Capacity } \left(\frac{\text{ft}}{\text{ft}}\right)} = \frac{30\text{ft}}{3\left(\frac{\text{ft}}{\text{ft}}\right)} = 10 \text{ foot wide Vegetated Filter Strip}$$

**Disconnected Downspouts** direct runoff from downspouts or underground drain pipe to a landscaped or mulched area for infiltration and/or filtration in-lieu of discharging directly to a municipal storm drain



**Figure 4.9. Disconnected Downspout** (Picture Courtesy [Rain Check Buffalo](#))



system. The Disconnected Downspout BMP is only allowed for projects that Develop or Redevelop less than 10,000 square feet of impervious surface. See the Simplified Approach in [Chapter 3](#) for implementation standards.

#### **4.5.4 Water Quality Settling Basin BMP (formerly Extended Detention)**

The Water Quality Settling Basin BMP releases stored runoff at a controlled rate over a specified period of time and achieves longer Detention times than with standard Peak Flow Control Detention. This is accomplished by designing the Water Quality Settling Basin to achieve a minimum Detention Time rather than controlling the maximum Peak Flow Rate. Temporary ponding enables particulate pollutants to settle out and reduces the maximum peak discharge to the downstream channel.



**Figure 4.10.** Example of a Water Quality Settling Basin with a vegetated baffle system to lengthen the distance from the inlet and outlet.

#### **Performance Design Approach and Specific Design Standards:**

- 1) Water Quality Settling Basin design must comply with the Treatment and Water Quality Requirements in [Chapter 2](#) and the General Design Standards in this chapter.
- 2) Facility sizing calculations must be performed using hydrograph routing methodology.
- 3) Facility must be designed with a minimum water quality detention time of 24 hours. The water quality detention time is defined as the time to empty the pond from the maximum ponded water surface. The pond shall be considered empty when the calculated water depth is 0.5 inch.
- 4) If the Contributing Drainage Area requires a smaller orifice than 1 inch to attain a Detention Time of 24 hours, this BMP may not be used.
- 5) The minimum length-to-width ratio of the facility is 3L:1W at the maximum water surface elevation. If this ratio cannot be maintained the basin must be equipped with baffles or islands to increase the flow distance between inlet and outlet.
- 6) The distance from the inlet and outlet of the pond must be maximized to facilitate sedimentation.
- 7) The maximum ponded depth for water quality shall be 4 feet.
- 8) Forebay – Must be provided on aboveground ponds with bottom areas greater than 300 square feet. A pre-treatment (sedimentation) manhole may be used in-lieu of a forebay for ponds with

bottom areas less than 1,000 square feet. Forebays and/or pre-treatment manholes must comply with the following standards as applicable:

- a) Forebays must segregate the first 25% of the pond area directly downstream of the inflow to the pond.
- b) Forebay berms must be constructed of non-erodible material such as concrete, masonry, or rock no smaller than 4 inches.
- c) Rock Forebay berm cross section must be generally trapezoidal with a height of 12 inches, a 2-foot minimum top width, and 2H:1V front and back slopes.
- d) Pre-treatment manhole must have an oil/water separation mechanism, minimum diameter of 48 inches, and minimum sump depth of 24 inches.

#### 4.5.5 Proprietary Treatment BMP

Proprietary treatment devices provide water quality treatment by filtering stormwater, or by some other approved method, and are usually installed below grade.



**Figure 4.11.** Filterra Units (left) and Filter Cartridge Units (right) are examples of proprietary Treatment devices that meet the requirements of this Design Manual.

#### Performance Design Approach and Specific Design Standards:

- 1) The Proprietary Treatment BMP design must comply with the Treatment and Water Quality Requirements in [Chapter 2](#) and the General Design Standards in this chapter.
- 2) Justification – If a proprietary system is chosen that does not utilize growing media, a statement of why the proprietary system is chosen in-lieu of a BMP with growing media must be included in the calculation report.

- 3) Facility sizing calculations must be performed using hydrograph routing methodology or other methodology accepted by the reviewing agency.
- 4) UIC Guidance – Some proprietary treatment devices that store water underground may be considered Underground Injection Control facilities and may need to be authorized by DEQ. Visit DEQ’s UIC webpage or refer to the DEQ Fact Sheet titled “Identifying an Underground Injection Control” for more information.
- 5) The proposed treatment device must meet one of the following criteria:
  - a) On the Washington Department of Ecology’s Technology Assessment Protocol – Ecology (TAPE) Approved Stormwater Technologies List, <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies>. Devices from the TAPE approved list must meet the following criteria:
    - i. Devices must have a General Use Level Designation (GULD) or a Conditional Use Level Designation (CULD).
    - ii. Devices must comply with the Treatment Standards in **Section 2.3** of this manual. Treatment Standards for suspended solids will be considered met for devices designated by TAPE for Basic Treatment.
  - b) On the list of *Pre-Approved Proprietary Stormwater Treatment Technologies*, located in **Appendix G**.
  - c) Proprietary Treatment Systems that are not on the Washington Department of Ecology’s TAPE approved list may be evaluated by the approving jurisdiction for one time use. Data must be collected and submitted to the jurisdiction in accordance with the Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies (TAPE).



#### 4.5.6 Vegetated Roof BMP

Vegetated roofs manage stormwater by holding direct rainfall in the imported growing medium and drainage layer (if used) to be used by the associated vegetation. While the term “green roof” is a more commonly used term, the term “vegetated roof” is more appropriate for much of Oregon, which has dry summers, where some plants are dry and inactive until the rainy season begins again.



Figure 4-12. Vegetated Roof example on a convenience store.

Evaporation from the growing medium and evapotranspiration from the plants releases a high volume of the moisture back into the atmosphere, even in winter, which is unique amongst all the BMPs in this guidance. Vegetated roofs usually consist of a waterproof membrane, an optional drainage layer, an engineered growing medium or soil, a layer of plants and optional mineral mulch for non-irrigated systems.

#### Performance Design Approach and Specific Design Standards:

- 1) Facility must be designed to meet the water quality requirements in **Section 2.4**
- 2) Performance Design Approach must be performed by an Oregon registered PE or CEG.
- 3) The roof must be vegetated per the Vegetation standards in **Section 4.3.2**.

#### Vegetated Roof BMP Specific Design Considerations:

Depending on the scale and complexity of the project, the design of vegetated roofs may involve a number of licensed professionals, including a structural engineer, landscape architect, architect, and/or a “Green Roof Professional” (Green Roofs for Healthy Cities, GRP Accreditation). Refer to local building codes and jurisdiction for requirements. The final design will be determined by the licensed professional in responsible charge of the project.

## 4.6 DETENTION BMP (FLOW CONTROL)

Detention facilities are intended to prevent an increase in peak flow runoff and preserve capacity of downstream storm drains and drainage ways. Detention facilities store runoff that is then slowly released through a designed flow control mechanism such as an orifice, weir, or pump.

Many Retention and Treatment BMPs can provide Detention by incorporating a flow control structure that is typically installed to drain water above the required Retention volume. Detention may also be provided in a facility designed exclusively for storage, such as underground piping, storage rock, vaults or parking lots.



**Figure 4.13.** A Detention Basin designed to capture and temporarily hold Peak Runoff that is then slowly released through the control structure.

### Performance Design Approach and Specific Design Standards:

- 1) The Detention BMP design must comply with the Peak Flow Control: Detention Standards in [Chapter 2](#) and the General Design Standards in this chapter.
- 2) Sizing - Facility sizing calculations must be performed using hydrograph routing methodology.
- 3) Forebay – Must be provided on aboveground ponds with bottom areas greater than 300 square feet. A pre-treatment (sedimentation) manhole may be used in-lieu of a forebay for ponds with bottom areas less than 1,000 square feet. Forebays and/or pre-treatment manholes must comply with the following standards as applicable:
  - a) Forebays must segregate the first 25% of the pond area directly downstream of the inflow to the pond.

- b) Forebay berms must be constructed of non-erodible material such as concrete, masonry, or rock no smaller than 4 inches.
  - c) Rock Forebay berm cross section must be generally trapezoidal with a height of 12 inches, a 2-foot minimum top width, and 2H:1V front and back slopes.
  - d) Pre-treatment manhole must have an oil/water separation mechanism, minimum diameter of 48 inches, and minimum sump depth of 24 inches.
- 4) UIC guidance – If Detention is being provided in an underground facility, it may be considered an Underground Injection Control facility and may need to be authorized by DEQ. Visit DEQ's UIC webpage or refer to the DEQ Fact Sheet titled "Identifying an Underground Injection Control" for more information.

## **Chapter 5 - Stormwater Facility Maintenance and Operation Requirements**

---

The Stormwater Facilities Operation and Maintenance Manual (O&M Manual) provides the actions needed to keep the stormwater facility (SWF) operating as designed. The O&M Manual is to be submitted as a separate document from the Stormwater Calculation Report for review and approval. The Declaration of Covenants, contained within the O&M Manual, describes legal responsibilities of the property owner. The entire O&M Manual is to be recorded on the deed of the property and a scan of the final recorded document sent to the approving agency. Agency approval of a project will not be issued until the final O&M Manual is received.

An annual inspection of all SWFs is required, some aspects of the SWF must be inspected during a storm event, refer to the Maintenance Checklists. The property owner must keep a copy of the approved O&M Manual on the property and is responsible for ensuring that maintenance is performed, and records kept, even if maintenance is delegated to a third party.

### **5.1 OPERATION AND MAINTENANCE ENFORCEMENT**

Long term operation and maintenance of structural stormwater controls is required. Oversight inspections by the local approving jurisdiction will be carried out periodically to ensure SWFs are being maintained to function as designed. Failure to properly operate and maintain a SWF may result in financial penalty through the approving jurisdiction's ordinance.

### **5.2 REVISIONS TO APPROVED STORMWATER FACILITY**

Altering an approved SWF may require revised stormwater calculations or civil plans. If a property owner plans to change the design of an approved stormwater facility, they must contact the approving jurisdiction to determine what document revisions will be required. Revisions that must be reviewed include changes to the: inlet structure, discharge structure, facility size, facility slopes, vegetation location or vegetation quantity.

### **5.3 REMOVAL OF STORMWATER FACILITY DUE TO REDEVELOPMENT**

Prior to removing an approved SWF due to redevelopment, a new stormwater management plan and a new O&M Manual must be submitted for review and approval.

### **5.4 POLLUTION PREVENTION/SPILL RESPONSE**

Best Management Practices must be implemented on all sites to prevent stormwater contamination. Spills should be cleaned up following best management practices and should never be washed into a SWF. If a spill occurs into the SWF, contact the approving jurisdiction immediately. Document date and time, weather conditions, what spilled, approximately how much, and any corrective action taken.

### **5.5 OPERATION AND MAINTENANCE MANUAL CONTENTS**

The O&M Manual details who is responsible for maintenance, provides SWF access and design details, describes required and suggested maintenance activities, includes a log-sheet for recording



maintenance actions, and a hazardous spill response fact sheet. A fillable pdf template for the O&M Manual is provided for download and must be used.

**Contact Information Form:** The entire form must be completed. If contact information ever changes, an updated form must be provided to the reviewing jurisdiction. If a third party will be responsible for operation and maintenance, the Responsible Party Designation form must be completed.

**Declaration of Covenants (DoC):** The DoC details the legal responsibilities of the property owner. This must include a legal description or the Instrument number for the tax lot(s). The Instrument Number for a tax lot can be obtained from Jackson County's [property database](#). Enter the address or tax lot in the search criteria, then click on "Assessment and Planning Details", click on "Account Detail", scroll down to "Sales Data" to view the Instrument Number. Each jurisdiction adopting this manual will have its own DoC, which must be obtained from them. A DoC is not required for SWFs that will be publicly maintained.

**Stormwater Facility Plans:** The approved plans for the SWF, including the plan view and details, must be included in the O&M Manual. Only plan sheets pertaining to the SWF design and construction should be included. Plan sheets can be no larger than 8.5 by 14 inches for recording.

**Inspection and Maintenance Action Checklists:** Standard maintenance checklists are provided for download and are included below for reference. The checklists provide a list of conditions to look for and state whether maintenance is required or suggested should the condition exist. Select only the applicable checklists for the site's stormwater facility and include them in the O&M Manual. If a proprietary structure is used, the manufacturer's maintenance documents must be included. The date of inspection as well as whether maintenance is needed should be documented on the checklist.

**Maintenance Record:** A generic maintenance record is provided; however, a site specific one can be created as long as it documents inspection dates, items inspected, and dates of any repair work and a description of work completed. Except for trash removal, all actions specified as required on the checklists must be documented. Invoices and work orders for actions taken should be kept as documentation. Records shall be kept for five years and made available to the approving jurisdiction upon request. Whether the facility is operated and maintained by the property owner, or a third party, it is ultimately the property owner's responsibility to ensure that maintenance occurs as required and that records are kept detailing maintenance actions.

**Spill Response Guidance:** Spills should not be allowed to enter public or private stormwater facilities. A DEQ Fact Sheet for responding to spills is included in the O&M Manual.

# **STORMWATER MAINTENANCE CHECKLISTS AND RECORD**

Inspection and Maintenance Action Checklists

Stormwater Facility Maintenance Record

# STORMWATER FACILITY INSPECTION AND MAINTENANCE ACTION CHECKLISTS

## **Stormwater Facility Design Functions: (Boxes to be checked by designer only.)**

The Stormwater Facilities at this site are designed to perform specific functions indicated below, and must be maintained to perform those functions in perpetuity. Changes to the Facility that would alter its designed function require consent from the local approving jurisdiction. Check all that apply:

- Infiltration (All Retention BMP's): Runoff is captured and held only leaving the facility through infiltration into the ground, evaporation or absorption by vegetation.
  - Does the infiltration facility design require 90% vegetation coverage?  yes  no
    - If Yes, the Inspection and Maintenance Checklist for Vegetated Facilities must be included.
    - If No, the Inspection and Maintenance Checklist for Vegetated Facilities is not required.
- Flow-through Treatment (Water Quality Swale BMP and Dispersion BMPs): Runoff is captured in the facility and flows through vegetation and/or soils before flowing downstream.
  - Does the facility incorporate a Water Quality Swale or Vegetated Filter Strip?  yes  no
    - If Yes, the Inspection and Maintenance Checklist for Vegetated Facilities must be included.
    - If No, the Inspection and Maintenance Checklist for Vegetated Facilities is not required.
- Filtration Treatment (Soil Filtration BMP and Vegetated Roof): Runoff is captured in the facility and is filtered through a soil substrate before being captured in and discharged through an underdrain.
- Settlement for Treatment (Water Quality Settling Basin BMP): Runoff is captured and held for a specified amount of time to allow solids to settle before being slowly released downstream.
- Proprietary Treatment BMP: Runoff is captured in a proprietary treatment device and is treated as specified by the manufacturer. The manufacturer's maintenance documents must be included.
- Peak Flow Control (Detention BMP): Peak flow from a 10 year event is captured, held, and released at a rate no greater than the pre-developed peak flow rate.

## **Inspection and Maintenance:**

The checklists indicate recommended conditions to look for and actions to take should those conditions exist. They can assist with planning, scheduling, staffing, and budgeting for operation and maintenance of the stormwater facility.

**Inspections:** At least one inspection per year is required, some items require inspection during a storm event, refer to the Inspection Checklist. Document the date of inspection on the Inspection Checklist and list any maintenance that is needed.

**Maintenance Records:** Maintenance records must be kept on all stormwater facilities. Trash removal is required to be done, but not required to be documented. All other items listed as required maintenance items must be documented. An example Maintenance Record is provided in this packet. On the Maintenance Record, list the issue to be addressed and the date action was taken and describe the action taken. The individual who inspects and approves the completed work should initial the 'Work approved by' box. Invoices and work orders for supplies and hiring contractors to complete work should be kept on file. The property owner/owners shall keep records of facility system inspections and maintenance for five years from the date of each inspection. Records shall be made available to jurisdictional authority upon request, at no cost.

**Manufactured Treatment Structures:** These structures will have maintenance requirements from the manufacturer that are included in this packet.

**Pesticides:** Pesticides (which includes herbicides, insecticides, fungicides), are prohibited within stormwater facilities due to the potential to contaminate downstream waters. Utilize integrated pest management to assess and address pest issues.

**Fertilizers:** Avoid the use of fertilizers in stormwater facilities. Instead, mulch plants with shredded wood chips or coarse compost. Mulch must be dye, pesticide and weed free.

**Pollution Prevention:** Best Management Practices must be implemented on all sites to prevent stormwater contamination. Spills should be cleaned up following best management practices and should never be washed into a stormwater treatment facility. If a spill occurs into the stormwater facility, contact the approving jurisdiction immediately. Document time and date, weather conditions, what spilled, approximately how much, and any corrective action taken. If possible, block the inlet to the stormwater facility to prevent the material from flowing in. If the material reaches the stormwater facility, soils and vegetation may have to be replaced.

Inspection and Maintenance Action Checklist		Pervious Pavement		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>No stockpiles of soil/mulch/debris may be staged on the pervious surface and grass/leaves/debris should not be blown onto the surface. Ensure landscape contractors understand that the surface is permeable. Inform them that they cannot stage or blow material onto the surface.</li> <li>Do not seal coat the pervious surface or overlay with an impervious surface. Repair raveling or settling per manufacturer specification. 50sf or less of damage may be patched with conventional asphalt, up to 10% of the entire pervious surface.</li> <li>Snow removal with salt is prohibited. Use salt-free deicers only. Do not apply deicers to concrete &lt;1 year old. Always plow with the blade one inch above the surface.</li> </ul>				
<b>Required Actions</b>				
Surface cleaning	<ul style="list-style-type: none"> <li>Vacuum or dry sweep at least twice a year</li> <li>Or, pressure wash at a right angle to the pavement</li> </ul>			
Conditions to Check for	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Erosion from landscape areas onto pervious paving	Implement temporary erosion prevention and sediment control and a permanent fix for the erosion issue(s).	Required		
Reduced infiltration	Must inspect during a storm event. If storms are not infiltrating, contact the jurisdiction.	Required		
Weed and moss growth over 10% of area or more	Mechanically remove during the dry season. Avoid mossicides and herbicides.	Required		
Trash and Leaves	Pick up trash, blow or sweep leaves. Remove and dispose.	Required		
Signage describing Pervious Pavement in place	If a sign was specified on the plans, ensure sign is visible and legible.	Required		
Aggregate loss, potholes, cracks	Repair per manufacturer specification, 50sf or less of damage may be patched with conventional asphalt, up to 10% of the entire pervious surface.	Suggested		
Settling of pavers or loss of paver filling.	Reset pavers and replace missing fill material per original design.	Suggested		

\*The Pervious Pavement Checklist applies and must be included for the following BMPs:

- Pervious Surface Retention BMP (pervious asphalt, pervious concrete, pervious pavers)

Inspection and Maintenance Action Checklist		Flexible Paving Systems and Pervious Gravel Surfaces		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Pesticide use in stormwater facilities is prohibited.</li> <li>No Stockpiles may be located on the flexible paving system or pervious gravel. Ensure landscape contractors understand that the surface is permeable. Inform them that they cannot stage material on the surface or blow grass/leaves/etc. onto the surface.</li> </ul>				
Conditions to Check For	Action	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Erosion from landscape areas onto pervious paving	Implement temporary erosion prevention and sediment control and a permanent fix for the erosion issue(s).	Required		
Reduced infiltration	If storms are not infiltrating, contact the jurisdiction.	Required		
Trash and Leaves	Pick up trash, blow or sweep leaves. Remove and dispose.	Required		
Signage describing Pervious Pavement in place	If a sign was specified on the plans, ensure sign is visible and legible.	Required		
Aggregate loss	Replace with aggregate per original design.	Suggested		
If vegetation is required to function and coverage is poor, Inspect for bare soil, exposed rings, ruts poorly growing grass from too much shade, and thatch.	Reseed, verify irrigation system is functioning. Avoid aeration since this equipment will damage the flexible system.	Suggested		
<b>Maintenance Specific to Pervious Gravel</b>				
Reduced Infiltration	Remove the first few inches of rock and either wash in an area that does not drain to the stormwater system and replace, or replace with new washed rock matching the original aggregate specification.	Suggested		

\*The Flexible Paving Systems and Pervious Gravel Surfaces Checklist applies and must be included for facilities that incorporate the following BMPs:

- Pervious Surface Retention BMP (Flexible Paving Systems or Pervious Gravel Surfaces)**

Inspection and Maintenance Action Checklist		Vegetated Facilities*		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>• Pesticide use in stormwater facilities is prohibited.</li> <li>• Removal of vegetation to less than 90% surface cover is prohibited.</li> </ul>				
Conditions to Check For	Actions	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Vegetation covers < 90% of facility surface	<p>Possible Ways to achieve 90% vegetation cover:</p> <ul style="list-style-type: none"> <li>• Determine if irrigation system is functioning properly and fix if needed.</li> <li>• Have a soil fertility test done to determine if nutrient addition is needed, if so add compost.</li> <li>• Add mulch around plantings.</li> <li>• Revegetate following approved landscape plan to achieve at least 90% coverage.</li> </ul>	<b>Required</b>		
Sediment washing out of facility	If sediment accumulated in the facility bottom is washing out, excavate and remove. Assess side slopes and bottom for erosion, fill in any eroded areas with approved soil mix and cover with mulch or vegetation.	<b>Required</b>		
Channelization in Water Quality Swale. Flow has become channelized and does not spread across bottom width of swale.	<ul style="list-style-type: none"> <li>• Recontour to design width and elevation.</li> <li>• Replant vegetation to cover the entire facility bottom.</li> <li>• Consider installing a flow spreader device. Contact the approving jurisdiction for advice on flow spreader installation.</li> </ul>	<b>Required</b>		
Clogged or damaged inlets, outlets, pipes, check dams, perforated pipes or underdrains; if interfering with facility function	<ul style="list-style-type: none"> <li>• Remove sediment and debris to maintain adequate conveyance.</li> <li>• Repair or replace damaged pipes, inlets, outlets to match approved design.</li> </ul>	<b>Required</b>		
Energy dissipator(s) damaged/missing at inlets and outlets (where specified)**	<p>If rock is washing out, evaluate need to replace with larger rock.</p> <p>If missing, replace rock with size and at depth specified.</p>	<b>Required</b>		
Check Dams damaged (if installed)	Maintain design number, spacing and elevation, of check dams.	<b>Required</b>		

Inspection and Maintenance Action Checklist		Vegetated Facilities*		
Ponding for more than six days	In swales, check that outflow is not blocked by vegetation or debris. In infiltration facilities, remove the clogged soil then rake, till or amend the soil with the approved soil mix. Contact the approving jurisdiction to discuss soil replacement if this is insufficient.	Required		
Trash and debris.	Remove and dispose.	Required		
Odor, sludge, or color. Presence of any chemical pollutants.	Notify appropriate jurisdiction to investigate. Remove contaminant by appropriate methods and dispose of as directed by hazardous waste protocols.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		
Vegetation blocks sight lines, inlets, outlets.	<ul style="list-style-type: none"> <li>Prune vegetation that blocks sight lines, inlets, outlets. Do not string trim grasses, sedges or rushes.</li> <li>Remove dead vegetation before it covers 10% of the surface area.</li> <li>Facilities seeded with low-mow or no-mow seed mix, should be cut a maximum of three to four times a year to reduce fire risk. In infiltration facilities, utilize a weed whacker rather than a mower to reduce compaction of the facility soils.</li> <li>Maintain vegetation at 6 inches or taller in swales.</li> </ul>	Suggested		
Erosion within facility. Check inlets, slopes, energy dissipators and facility bottom.	Any erosion deeper than two inches should be addressed. Determine cause of erosion and eliminate. Refill eroded channels with approved soil media and replant. If possible, redirect flows temporarily and apply appropriate	Suggested		



Inspection and Maintenance Action Checklist		Vegetated Facilities*		
	temporary erosion control best management practices.			

\*The Vegetated Facilities Checklist applies and must be included for stormwater facilities that incorporate the following BMPs:

- **Ponded Retention BMP with Vegetation:** eg. rain gardens, stormwater planters and retention ponds designed with 90% vegetation coverage
- **Water Quality Swale BMP**
- **Dispersion BMP:** Vegetated Filter Strips only

\*\***Energy Dissipators:** Typically located below an inlet to a stormwater facility and made of rip-rap, concrete, or a proprietary structure. They prevent scouring of the stormwater facility substrate.

Inspection and Maintenance Action Checklist		Unvegetated Surface Facilities*		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Pesticide use in stormwater facilities is prohibited.</li> </ul>				
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Sediment washing out of facility	If sediment accumulated in the facility bottom is washing out, excavate and remove. Assess side slopes and bottom for erosion, fill in any eroded areas with approved soil mix and cover with mulch or vegetation.	Required		
Clogged or damaged inlets, outlets, pipes, perforated pipes or underdrains; If interfering with facility function	Remove sediment and debris to maintain adequate conveyance. Repair or replace damaged pipes, inlets, and outlets to match approved design.	Required		
Energy dissipator(s) damaged/missing at inlets and outlets (where specified)**	If rock is washing out, evaluate need to replace with larger rock. If missing, replace rock with size and at depth specified.	Required		
Ponding for more than six days	In infiltration facilities, remove the clogged soil then rake, till or amend the soil with the approved soil mix. Contact the approving jurisdiction to discuss soil replacement if this is insufficient.	Required		
Trash and debris.	Remove and dispose.	Required		
Odor, sludge, or color. Presence of any chemical pollutants.	Notify appropriate jurisdiction to investigate. Remove contaminant by appropriate methods and dispose of as directed by hazardous waste protocols.	Required		
Liner (if installed) torn or punctured	Repair or replace as necessary per manufacturer specification.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		
Erosion within facility. Check inlets, slopes, energy dissipators and facility bottom.	Any erosion deeper than two inches should be addressed. Determine cause of erosion and eliminate. Refill eroded channels with approved soil media. If possible, redirect flows temporarily and apply	Suggested		

Inspection and Maintenance Action Checklist		Unvegetated Surface Facilities*		
	appropriate temporary erosion control best management practices.			

\*The Unvegetated Surface Facilities Checklist applies and must be included for facilities that incorporate the following BMPs:

- **Ponded Retention BMP** without Vegetation: eg. rain gardens, stormwater planters and retention ponds designed without 90% vegetation coverage.
- **Soil Filtration BMP**: eg. rain gardens and stormwater planters designed as filtration facilities with underdrains.

\*\***Energy Dissipators**: Typically located below an inlet to a stormwater facility and made of rip-rap, concrete, or a proprietary structure. They prevent scouring of the stormwater facility substrate.

Inspection and Maintenance Action Checklist		Detention & Settling Basins*		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Pesticide use is prohibited in stormwater facilities.</li> </ul>				
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Clogged or damaged inlets, outlets, pipes, perforated pipes, underdrains or check dams; If interfering with facility function	Remove sediment and debris to maintain adequate conveyance. Repair or replace damaged pipes, inlets, and outlets to match approved design.	Required		
Sediment washing out of facility	If sediment accumulated in the facility bottom is washing out, excavate and remove the accumulated sediment. Assess side slopes and bottom for erosion, and stabilize to prevent erosion. If erosion persists, seek technical assistance.	Required		
Energy dissipator(s) damaged/missing at inlets and outlets (where specified)**	Replace rock of size and at depth specified. Evaluate need to replace with larger rock. Repair eroded areas as necessary. Determine cause of rock movement and replace with same size rock or larger as necessary.	Required		
Sediment accumulation exceeding 20 percent of the forebay depth or 4 inches, whichever is less.	Remove sediment.	Required		
Overflow berms or spillways exposed and either actively eroding or vulnerable to erosion.	Replace armoring or replant as directed in design plans and specifications.	Required		
Trash and debris.	Remove and dispose.	Required		
Trash rack or bar screen missing or more than 25% covered	Remove debris and dispose of waste. Repair or replace rack as necessary.	Required		
Odor, sludge, or unusual color. Presence of any chemical pollutants.	Notify appropriate jurisdiction to investigate. Remove contaminant by appropriate methods and dispose of as directed by hazardous waste protocols.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		

Inspection and Maintenance Action Checklist		Detention & Settling Basins*		
Vegetation blocks sight lines, inlets, outlets.	Prune vegetation that blocks sight lines, inlets, outlets. Do not string trim grasses, sedges or rushes.	Suggested		
Erosion within facility. Check inlets, slopes, energy dissipators and facility bottom.	Determine cause of erosion and eliminate and stabilize to prevent erosion. If possible, redirect flows temporarily and apply appropriate temporary erosion control best management practices.	Suggested		

\*The Detention & Settling Basins Checklist applies and must be included for facilities that incorporate the following BMPs:

- Water Quality Settling Basin BMP
- Detention BMP (Flow Control)

\*\***Energy Dissipators:** Typically located below an inlet to a stormwater facility and made of rip-rap, concrete, or a proprietary structure. They prevent scouring of the stormwater facility substrate.

Inspection and Maintenance Action Checklist		Disconnected Downspouts		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Discharging runoff on another property is not allowed.</li> </ul>				
<ul style="list-style-type: none"> <li>No impervious surfaces may be added within the dispersion area.</li> </ul>				
<ul style="list-style-type: none"> <li>Directly connecting downspouts to the sanitary or stormwater system or directing runoff to flow into the stormwater system is prohibited.</li> </ul>				
Conditions to Check For	Action	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Damaged or missing pipes or downspout extension	Ensure extension ends a minimum of 10 ft from structure. Repair and replace as needed.	Required		
Clogged or blocked pipes, elbows or downspout extension	Clear pipes and elbows of debris to maintain at least adequate capacity. Clear any accumulated debris at downspout extension or splash block. Verify that dispersion area is not encroached upon by other structures.	Required		
Erosion at outlet	Check that splash blocks or energy dissipation is in place and functional. Repair eroded areas as necessary. Repair or replace splash blocks. If rock energy dissipation has moved, determine cause and replace with same size rock or larger as necessary.	Required		
Vegetation blocks downspout extension or visibility.	Prune vegetation that blocks downspout extension or visibility of traffic.	Suggested		

\*The Disconnected Downspouts Checklist applies and must be included for facilities that incorporate the following BMPs:

- Dispersion BMP: Disconnected Downspouts

**\*\*Energy Dissipation:** Typically located below an inlet to a stormwater facility and made of rip-rap, concrete, or a proprietary structure. Prevents scouring of the stormwater facility substrate.

Inspection and Maintenance Action Checklist		Vegetated Filter Strips*		
<b>Prohibited Actions</b>				
<ul style="list-style-type: none"> <li>• Pesticide use within stormwater facilities.</li> <li>• Removal of vegetation to less than 90% surface cover.</li> </ul>				
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Channelization. Flow has become channelized and does not spread over entire facility.	<ul style="list-style-type: none"> <li>• Check condition of flow spreader, repair or replace as needed to evenly disperse flow.</li> <li>• If needed, re-contour facility to design elevation and replant vegetation to evenly cover facility.</li> </ul>	Required		
Vegetation covers < 90% of facility bottom	Possible Ways to achieve 90% vegetation cover: <ul style="list-style-type: none"> <li>• Determine if irrigation system is functioning properly.</li> <li>• Have a soil fertility test done to determine if nutrient addition is needed, if so add compost.</li> <li>• Add mulch around plantings.</li> <li>• Revegetate following approved landscape plan to achieve at least 90% coverage.</li> </ul>	Required		
Trash and debris.	Remove and dispose.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>• Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>• Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>• Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>• Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		
Erosion within facility.	<ul style="list-style-type: none"> <li>• Any erosion deeper than two inches should be addressed. Determine cause of erosion and eliminate. Refill eroded channels with approved soil media and replant. If possible, redirect flows temporarily and apply appropriate temporary erosion control best management practices.</li> </ul>	Required		



Inspection and Maintenance Action Checklist		Vegetated Filter Strips*		
Vegetation blocks sight lines, inflow, outlets.	<ul style="list-style-type: none"> <li>• Prune vegetation that blocks sight lines, inflow, outlets. Do not string trim grasses, sedges or rushes.</li> <li>• Remove dead vegetation before it covers 10% of the surface area.</li> <li>• Facilities seeded with low-mow or no-mow seed mix, should be cut as needed to reduce fire risk. Maintain vegetation at 6 inches or taller.</li> </ul>	<b>Suggested</b>		

\*The Vegetated Filter Strips Checklist applies and must be included for facilities that incorporate the following BMPs:

- Dispersion BMP: Vegetated Filter Strips

Inspection and Maintenance Action Checklist		Underground Structures*		
Conditions to Check For	Action	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Sediment and debris exceeding 15% of the structure height or 6" in depth, whichever is less.	Sediment should be removed and disposed of properly at a landfill or approved facility. This may require contracting with a plumbing company that has a vacuum truck. For proprietary structures, follow the manufacturer's maintenance guidelines.	Required		
Plugged or blocked catch basins, pipes, underdrains, silt traps, inlets, perforated pipes, air vents.	Remove sediment and debris to maintain adequate conveyance at all times.	Required		
Cracks in joints between tank or pipe sections that leak soil into the facility.	Manually seal all cracks with appropriate grout material.	Required		
Underground facility structurally deficient or restricting flow.	Repair or replace structure to design.	Required		
Soakage trench surface clogged	<ul style="list-style-type: none"> <li>If water infiltrates through surface, remove and clean rock on the surface. Replace the geotextile fabric on the top, being careful not to damage the fabric on the sides. Place the cleaned rock back over the geotextile fabric. Dispose of sediment in trash destined for the landfill.</li> <li>Sweeping regularly will reduce the likelihood of clogging. High traffic areas will clog faster than low traffic areas.</li> </ul>	Required		
Missing an operable manhole cover.	Replace cover or repair and reinstall.	Required		
Cleanout shear gate damaged, rusted, leaking or missing. Gate cannot be adjusted by one person. Chain or rod missing or damaged	Repair or replace to meet design standards. Repair, lubricate, or replace gate as necessary. Repair or replace chain or rod as necessary.	Required		
Odor, sludge, or unusual color. Presence of any chemical pollutants.	Notify appropriate jurisdiction to investigate. Remove contaminant by appropriate methods and dispose of as directed by hazardous waste protocols.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> </ul>	Required		

Inspection and Maintenance Action Checklist		Underground Structures*		
	<ul style="list-style-type: none"> <li>Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>			

\*The Underground Structures Checklist applies and must be included for facilities that incorporate the following BMPs:

- Underground Retention BMP: eg. Soakage trench
- Detention (Flow Control) BMP: eg. Detention pipes, vaults, chambers,

Inspection and Maintenance Action Checklist		Outlet Control Structures/Flow Restrictors*		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Cannot open valves on stormwater facility structures.</li> </ul>				
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Sediment, debris, or trash is blocking or sump is less than 50% from restrictor/orifice plate	Remove and dispose.	Required		
<ul style="list-style-type: none"> <li>Structural integrity.               <ul style="list-style-type: none"> <li>Tee-type flow restrictor is not securely attached to manhole wall and outlet pipe.</li> <li>Weir or baffle flow restrictor not securely attached to manhole.</li> <li>Flow restrictor is not plumb within 10%</li> <li>Connections to outlet pipe are leaking and show signs of rust</li> <li>Holes in plates, baffles, elbows, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Determine best method for anchoring flow restrictor based on materials and severity of situation. Replumb and realign restrictor, securing as necessary.</li> <li>Repair or replace as necessary to eliminate leakage.</li> <li>Plug or patch holes if structural integrity is not affected. Replace part if possible, replace entire structure if severely failing.</li> </ul>	Required		
Trash, sediment, or debris blocking overflow pipe.	Remove and dispose.	Required		

\*The Outlet Control Structures/Flow Restrictors Checklist applies and must be included for any facility that incorporates the following:

- Outlet Control Structure:** Located at the downstream end of a stormwater facility, it controls the rate at which stormwater can flow out through the use of a flow restrictor.
- Flow Restrictor (Orifice, weir, undersized pipe, etc...):** A designed restriction specifically sized and placed to control stormwater outflow. A flow restrictor can come in the form of a hole (orifice) cut into a plate or pipe, a notch (weir), or an undersized pipe.



Inspection and Maintenance Action Checklist		Culverts/Pipes/Underdrains*		
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Trash, debris, or sediment restricting pipe flow.	Remove to maintain adequate conveyance at all times.	Required		
Damage to pipe such as rusting through wall of pipe, dents, bent or crushed ends that affect efficient flow.	Repair or replace pipe as necessary.	Required		
Cracking or buckling of headwall. Erosion or bypassing occurring at backside or around ends of headwall.	Determine extent of problem and monitor for changes. Repair or replace as necessary.	Required		
Missing rock or riprap within upstream or downstream apron areas or side slopes. Active erosion within area.	Repair eroded areas as necessary. Determine cause of rock movement and replace with similar size rock or larger as necessary.	Required		

\*The Culverts/Pipes/Underdrains Checklist applies and must be included for any facility that incorporates underdrains, culverts, or pipes specifically for Retention, Treatment, or Detention of stormwater and does not apply to on-site conveyance pipes or catch basins.

Inspection and Maintenance Action Checklist			Vegetated Roofs	
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Pesticide use in stormwater facilities is prohibited.</li> </ul>				
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Damaged membrane	Repair or replace.	Required		
Clogged Drains	Remove sediment and debris.	Required		
Vegetation covers < 90% of roof surface	Possible Ways to achieve 90% vegetation cover: <ul style="list-style-type: none"> <li>Determine if irrigation system is functioning properly.</li> <li>Have a soil fertility test done to determine if nutrient addition is needed, if so add compost.</li> <li>Add mulch around plantings.</li> <li>Revegetate following approved landscape plan to achieve at least 90% coverage. Remove and replace per approved landscape plan. Irrigate, if planting in the summer.</li> </ul>	Required		
Erosion	Fill eroded area with approved soil, plant to prevent erosion.	Required		
Standing Water	Check for leaks in irrigation, clear drains, amend soils to restore infiltration.	Required		

## STORMWATER FACILITY MAINTENANCE RECORD

Use this record to document inspections. Keep invoices and work orders for maintenance work on file and provide upon request of the approving agency.

<b>Stormwater Facility Type:</b>			
<b>Facility Address:</b>			
<b>Business Name:</b>			
<b>Responsible Party for maintenance:</b>		Position:	
	Phone:	Email:	
<b>Organization:</b>			

Issue	Actions Taken	Date Action Taken	Work approved by:
Issue	Actions Taken	Date Action Taken	Work approved by:




## Chapter 6 – Performance Approach Submittal Requirements

---

### 6.1 INTRODUCTION

This chapter defines requirements for design calculations, construction plans, landscape plans, and operation and maintenance plans that must be submitted to ensure compliance with stormwater management requirements of this Design Manual. Stormwater management facilities (SWF) designed with the Simplified Approach (refer to **Section 2.7.1**) do not need to be prepared by a licensed engineer and can utilize the submission documents in **Appendix B**. Stormwater facilities designed with the Performance Approach (refer to **Section 2.7.1**) must follow the submission requirements outlined in this chapter.

### 6.2 PLAN REQUIREMENTS

Stormwater construction plans must be submitted for review in electronic format. Plans must include the following information:

- 1) North arrow and scale;
- 2) Site street address;
- 3) Project location map;
- 4) Grading with existing and proposed topography;
- 5) Existing and new utilities;
- 6) Existing and new storm drain conveyance, including conveyance to and from the SWF;
- 7) Site plan with existing and proposed impervious surfaces;
- 8) Erosion prevention and sediment control plans, as applicable;
- 9) Relevant standard details;
- 10) ROW, easements, property lines and setbacks;
- 11) Any areas of special note i.e., drinking water wells, contaminated soils, steep slopes, waterways, wetlands, riparian buffers;
- 12) Plan view of any SWFs; with all elevations and dimensions necessary to complete calculations in the SWF report and build the SWF;
- 13) If the site will contain multiple SWFs, each SWF must be clearly numbered/named and match the numbering/naming in the Stormwater Calculation Report;
- 14) Profile view of SWF(s) with related elevations and dimensions to complete calculations in the SWF report and build the SWF;
- 15) Detail(s) for the SWF inlet and outlet structure with related elevations and dimensions to complete calculations in the SWF report and build the SWF;
- 16) Proposed stormwater discharge location(s);
- 17) Observation ports and cleanouts, as applicable; and,
- 18) Standard Drawings, General Notes and specifications for the SWF.

### 6.3 LANDSCAPE SUBMITTAL REQUIREMENTS

Landscape specifications and plans are required for all SWFs requiring vegetation. At this time, there is no required species list for vegetated SWFs; however, species should be drought tolerant and carefully selected for the site conditions, refer to **Appendix E**, Criteria for Choosing Plants, for guidance.

Landscape specifications and plans must address all factors needed to ensure plant survival and must include:

- 1) Delineation of all vegetation to be preserved on-site;
- 2) Statement on whether imported or amended soil will be used and reference to the soil specifications from the required General Notes. The required General Notes must be included in the construction plan set;
- 3) A planting plan that indicates the size, species and location, by hydrologic zone, of all plants within the facility. See **Appendix E, Figure E.1** for guidance on hydrologic zones, as well as the standard drawings for the BMP chosen;
- 4) Plant table that contains scientific and common names, plant size, number and spacing;
- 5) If applicable, seed mix type and volume;
- 6) Irrigation plans for establishment and long term (if different); and,
- 7) Location of any proposed or existing trees to be used for SW credits.

### 6.4 STORMWATER CALCULATION REPORT

Design calculations per [Chapter 4](#) of this manual must demonstrate that Retention, Treatment, and Peak Flow control is provided for all runoff generated from developed or re-developed impervious surfaces on the subject property. A Stormwater Calculation Report must be submitted that includes the following:

- 1) Cover sheet which includes project name, property owner's name, site street address, map and tax lot, submission/revision date;
- 2) Page numbers on each page of the document (can be hand numbered);
- 3) Engineer of record's contact information, Engineer's stamp (only required for facilities treating 10,000 sf or more of impervious surface and/or providing flow control);
- 4) A short narrative to explain the project, state the type of SWF that is proposed, and how the SWF design meets the requirements of the Rogue Valley Stormwater Quality Design Manual (RVSQDM);
- 5) If the site will contain multiple SWFs, each SWF must be clearly numbered/named and match the numbering/naming on the plans;
- 6) If technical infeasibility for retention is claimed, per **Section 2.4.1**, a technical justification must be provided in the form of a site-specific hydrologic or design analysis conducted or endorsed by an Oregon registered Professional Engineer (PE) or Oregon Certified Engineering Geologist (CEG) demonstrating the presence and extent of infeasibility factors that exist on the site;
- 7) If a proprietary system, not utilizing growing media is chosen, provide a justification for the choice;
- 8) Contributing Drainage map showing on and offsite stormwater flows for each stormwater facility;

- 9) A map showing existing contours or grades a distance of 100 ft from the project area, which can be shown on the drainage map;
- 10) Site conditions including soil types, existing contours and proposed impervious surfaces;
- 11) Infiltration testing report form;
- 12) Values of impervious area acreage to be developed/redeveloped, and final pervious area acreage;
- 13) Total site disturbance area acreage;
- 14) A statement on why the chosen Curve Number is appropriate for the project site;
- 15) Pre- and Post-development Time of Concentration calculations;
- 16) Design assumptions used to size SWF including variables and their sources, design storms, and software used;
- 17) Design calculations, as required for each facility;
- 18) For each facility using the Performance Design Approach provide the following hydrographs and peak flow calculations as applicable (refer to [Chapter 2](#)):
  - a) Retention Storm: Pre-development, post-development and facility routing hydrographs,
  - b) Treatment Storm: Post-development and facility routing hydrographs,
  - c) Peak Flow Control: Pre-development, post-development and facility routing hydrographs,
  - d) Overflow: Post-development and facility routing hydrographs;
- 19) Bypass calculations (only for facilities treating 10,000 sf or more of impervious surface and/or provide flow control); and,
- 20) Statement that access is provided to the SWF for maintenance:
  - a) Public stormwater facilities: Must provide unrestricted all-weather access to all inlets, pipe openings, flow control structures, or as specified by the reviewing agency.
  - b) Private stormwater facilities: Must provide unrestricted access, which must be traversable by maintenance vehicles during dry months.

## 6.5 PROPRIETARY SYSTEMS

If a proprietary system will be used, in addition to the items in **Section 6.4**, the Stormwater Calculation Report must include the following:

- 1) Documentation from the manufacturer supporting the selected facility type and size.
- 2) Design layout and specifications from the manufacturer for any proprietary SWF.
- 3) All applicable standard drawings from the manufacturer.

## **6.6 OPERATIONS AND MAINTENANCE PLAN**

Operation and maintenance plans are required for all stormwater facilities, refer to [Chapter 5](#), the provided template must be used. A Declaration of Covenants is not required for publicly maintained facilities.

## **6.7 STORMWATER FACILITY EASEMENT**

Stormwater facilities that will be publicly maintained will require the owner to provide a Stormwater Facility Easement. The easement will allow the jurisdiction access to the property for the purpose of constructing, installing, maintaining, and/or inspecting the SWF.

## DEFINITION OF TERMS

---

**Best Management Practices (BMPs):** Schedules of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMPs also mean treatment requirements, operating procedures, and practices to control runoff, spillage, or leaks, sludge, or waste disposal, or drainage from raw material storages. See EPA 40 CFR § 122.2 and 122.44(k). For the purposes of this permit, BMPs are synonymous with structural and non-structural stormwater controls and include the schedule of activities, controls, prohibition of practices, maintenance procedures, and other management practices designed to prevent or reduce pollution.

**BMPs, Non-Structural:** Intangible methods of stormwater management including pollution removal standards, ordinances governing stormwater management, and public education on stormwater quality.

**BMPs, Structural:** The design and construction of physical structures that provide stormwater management. Structural BMPs are described in **Chapter 3** and **Chapter 4** of this Manual.

**Check Dam:** A structure constructed perpendicular to the flow path to slow water.

**Cleanout:** An access point for cleaning out a pipe.

**Common Plan of Development:** A contiguous construction project or projects where multiple separate and distinct construction activities may be taking place at different times on different schedules, but under one plan.

**Construction Activity:** Includes, but is not limited to, clearing, grading, excavation, and other site preparation work related to the construction of residential buildings and non-residential buildings, and heavy construction (for example, highways, streets, bridges, tunnels, pipelines, transmission lines, and industrial non-building structures).

**Contributing Drainage Area:** The total drainage area used to calculate peak flows and runoff volumes and includes all impervious and pervious surfaces that contribute runoff to a specific location.

**Control Structure:** A device used to hold back or direct a calculated amount of stormwater to or from a stormwater management facility. Typical control structures include vaults or manholes fitted with baffles, weirs, or orifices.

**Conveyance:** The transport of stormwater from one point to another.

**Destination:** The ultimate discharge point for the stormwater from a particular site. Destination points can include drywells and sumps, soakage trenches, ditches, drainage ways, rivers and streams, off-site storm pipes, and beneficial uses or re-uses.

**Detention:** See Peak Flow Control.

**Detention Facility:** A facility designed to receive, hold, and release stormwater at a rate no greater than the peak flow rate from the pre-developed condition. The volume of water required to achieve the detention requirement can be ponded above ground or stored underground in chambers, vaults, pipes, or available void spaces in rock or soil. The full volume of stormwater that enters the facility is eventually released.

**Detention Time:** The time to empty the pond from the maximum ponded water surface.

**Development:** Any human-induced conversion of previously undeveloped or pervious land to impervious surfaces whether public or private, including but not limited to construction, installation, or expansion of a building or other structure, land division, street construction, drilling, and site alteration such as dredging, grading, paving, parking or storage facilities, excavation, filling, or clearing.

**Energy Dissipation:** Rock, or other material, used to reduce the erosive force of water.

**Erosion:** A mechanical process of soil movement by water or wind.

**Erosion Control Matting:** A product made of various materials including straw, coconut fiber, and jute that is attached to the soil to reduce exposure of the soil to wind and precipitation, which cause erosion.

**Evapotranspiration:** The sum of evaporation and transpiration of water from the earth's surface to the atmosphere. It includes evaporation of liquid or solid water plus the transpiration from plants.

**Factor of Safety:** A sizing multiplier that evaluates the risks and values of specific conditions, including the failure mode of the construction material, unexpected construction deficiencies, and potential cost of system failure. The safety factor is applied to the maximum performance limit to calculate a risk-based design value used for sizing facilities. A safety factor must be used to provide reasonable assurance of acceptable long-term system performance.

**Flow Spreaders:** Devices installed perpendicular to the flow direction to evenly distribute flow across a stormwater facility.

**Forebay:** An area near the inlet of a stormwater facility that is designed to collect sediment and is separated from the rest of the facility by a low wall or flow spreader.

**Freeboard:** The vertical distance between the maximum ponding depth and the elevation at which overtopping of the structure or facility that contains the water would occur.

**Green Infrastructure:** A specific type of stormwater control using vegetation, soils, and natural processes to manage stormwater. At the scale of a neighborhood or site, green infrastructure refers to stormwater management systems designed to mimic nature by reducing and/or storing stormwater through infiltration, evaporation and transpiration. At the scale of a city or county, green infrastructure refers to the patchwork of natural areas that provides flood protection and natural processes that remove pollutants from stormwater.

**Growing Media:** The soil/compost mixture that supports plants and microorganisms within the stormwater facility.

**Impervious Surface:** Any surface resulting from development activities that prevents the infiltration of water. Common impervious surfaces include: building roofs; traditional concrete or asphalt paving on walkways, driveways, parking lots, gravel lots and roads; and heavily compacted earthen materials.

**Infiltration:** The percolation of water into the ground.

**Infiltration Rate, Design:** The infiltration rate measured on site and divided by a Factor of Safety of three.

**Infiltration Rate, Measured:** The infiltration rate that is measured on site using one of the methods described in **Appendix B**.



**Inlet:** The point at which stormwater from impervious surfaces or conveyance piping enters a stormwater management facility. The term “inlet” can also be used in reference to a catch basin.

**Low Impact Development (LID):** A stormwater management approach that seeks to mitigate the impacts of increased runoff and stormwater pollution using a set of planning, design and construction approaches, and stormwater management practices that promote the use of natural systems for infiltration, evapotranspiration, and reuse of rainwater, and can occur at a wide range of landscape scales (i.e., regional, community, and site). Low impact development is a comprehensive land planning and engineering design approach to stormwater management with a goal of mimicking the pre-development hydrologic regime of urban and developing watersheds.

**Maintenance Activities:** As used in the definition of Redevelopment means activities such as pavement preservation projects, restoration of impervious surfaces disturbed by construction, maintenance or repair utilities, and roof replacement projects.

**Maximum Extent Practicable (MEP):** The technology-based discharge standard for municipal separate storm sewer systems to reduce pollutants in storm water discharges that was established by Section 402(p)(3)(B)(iii) of the Clean Water Act [33 U.S.C §1342(p)(3)(B)(iii)].

**Municipal Separate Storm Sewer System (MS4):** Defined in 40 CFR §122.26(b) and means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the Clean Water Act that discharges to waters of the state; (ii) Designed or used for collecting or conveying storm water; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works as defined at 40 CFR §122.2 .

**Observation Port:** An opening through which the condition of the structure can be observed.

**Operations and Maintenance (O&M):** The continuing activities required to keep stormwater management facilities and their components functioning in accordance with design objectives.

**Orifice:** An opening in a control structure through which water flows.

**Outfall:** The point where a municipal separate storm sewer discharges to waters of the State and does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the state and are used to convey waters of the State.

**Overflow:** A point through which stormwater that exceeds the facility’s design capacity flows.

**Peak Flow Control:** The capture, holding, and slow release downstream of runoff from a site during a 10 year event. The practice is intended to protect downstream properties, infrastructure, and natural resources from the increased stormwater runoff peak flow rates and volumes resulting from development.

**Performance Approach:** Required for the design of BMPs with a Contributing Drainage Area of 10,000 square feet or more. This approach must utilize the calculation and design standards in [Chapter 4](#) and must be performed by an Oregon registered PE or CEG.

**Permittee:** In the Design Manual, a Permittee is a jurisdiction that has been issued an MS4 permit by DEQ.

**Pervious Surface:** A natural or created surface that allows water to percolate through it into subsurface drainage systems or the ground.

**Pesticide:** Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. As used in the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA); a pest is any insect, rodent, nematode, fungus, weed, or any other form of terrestrial or aquatic plant or animal life or virus, bacteria, or other micro-organism.

**Pollutant:** An elemental or physical product that can be mobilized by water or air and creates a negative impact on the environment. Pollutants include suspended solids (sediment), heavy metals (such as lead, copper, zinc, and cadmium), nutrients (such as nitrogen and phosphorus), bacteria and viruses, organics (such as oil, grease, hydrocarbons, pesticides, and fertilizers), floatable debris, and increased temperature.

**Post-Developed Condition:** As related to new or redevelopment: A site's ground cover after development.

**Predevelopment Hydrologic Function:** The hydrology of a site reflecting the local rainfall patterns, soil characteristics, land cover, evapotranspiration, and topography. The term predevelopment as used in predevelopment hydrologic function is consistent with the term predevelopment as discussed in Federal Register Volume 64, Number 235 and refers to the runoff conditions that exist onsite immediately before the planned development activities occur. Predevelopment is not intended to be interpreted as the period before any human-induced land disturbance activity has occurred.

**Proprietary Treatment Technology:** A manufactured structural facility designed to remove pollutants from stormwater.

**Redevelopment:** A project that entails Construction Activities, occurs on a previously developed site and results in the addition or replacement of impervious surface. To the extent allowable under federal law, Redevelopment does not include: Maintenance Activities; Construction Activities conducted to ameliorate a public health or safety emergency or natural disaster; and/or Construction Activities within an existing footprint to repair or replace a site or a structure damaged by a public health or safety emergency or natural disaster.

**Retention:** As defined in this manual, capture of stormwater runoff above the pre-developed volume that is only released via infiltration, evapotranspiration or reuse on-site.

**Retention Facility:** A facility designed to receive and hold stormwater runoff. Any runoff above the pre-developed volume may only leave the facility via infiltration, evapotranspiration, or absorption by surrounding vegetation. In this way, retention facilities reduce the total volume of excess water released to downstream conveyance facilities.

**Roughness Coefficient:** The resistance to flow, as represented by the Manning's n value.

**Runoff Curve Number:** A number used to categorize runoff potential based on soil types and land use. They were defined by the Natural Resources Conservation Service and are published in TR-55, Table 2.2, which is included in **Appendix D**.

**Santa Barbara Urban Hydrograph (SBUH):** A hydrologic method used to calculate runoff hydrographs.

**Sedimentation:** The process of depositing soil particles that were suspended in water or air.

**Simplified Approach:** Intended to be a streamlined stormwater management approach for small projects and is not required to be performed by an Oregon registered PE or CEG.

**Storm Event:** Any precipitation that falls within a defined time period and geographic area.

**Stormwater Management:** As used in this manual, is the combination of techniques used to reduce pollutants in stormwater through Retention, Treatment or Detention.

**Stormwater Management Facility (SWF):** A structural stormwater control designed to provide Retention, Treatment, or Detention, or a combination thereof at one location.

**Stormwater Management Program (SWMP):** A comprehensive program to manage the quality of stormwater discharged from the MS4. The SWMP consists of the actions and activities conducted by the Permittee as required by the MS4 permit.

**Stormwater Runoff:** Snow melt runoff, surface runoff and drainage, and is defined in 40 CFR §122.26(b)(13). “Stormwater” means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels, or pipes into a defined surface water channel or a constructed infiltration facility.

**Stormwater System Capacity:** The capacity of a stormwater drainage system is the flow volume or rate that a facility (e.g., pipe, pond, vault, swale, ditch, drywell) is designed to safely contain, receive, convey, reduce pollutants from or infiltrate stormwater and that meets a specific performance standard.

**Subwatershed:** A subdivision of a watershed that is the sixth-level 12-digit unit of the hydrologic unit hierarchy as defined by the National Watershed Boundary Dataset (USGS et al 2013).

**Sump:** Any volume of a facility below the point of outlet, in which water can accumulate.

**Time of Concentration (T of C):** The time it takes stormwater runoff to travel from the most distant point on a particular site or drainage basin to a particular point of interest.

**Total Suspended Solids (TSS):** A measure of solids suspended in the water column that is greater than 0.45µm in diameter.

**Transpiration:** Release of water vapor into the atmosphere through plant stomata or pores.

**Treatment:** As defined in this manual, removal of TSS from stormwater runoff.

**Treatment Facility:** A facility designed to remove TSS.

**Treatment Train:** A series of stormwater facilities designed to meet or exceed the treatment standards required by this Manual.

**Underground Injection Control (UIC):** A Federal program under the Safe Drinking Water Act, delegated to the Oregon Department of Environmental Quality (DEQ), which regulates the injection of water below

ground. The intent of the program is to protect groundwater aquifers, primarily those used as a source of drinking water, from contamination. For information on UICs see Oregon DEQ UIC page.

## Appendices

- Appendix A Infiltration Testing Methodology  
Falling Head Test Report Form
- Appendix B Simplified Approach Procedure and Details
- Appendix C Santa Barbara Urban Hydrograph Spreadsheet Example  
SBUH Excel spreadsheet for download
- Appendix D NRCS Table of Curve Numbers and Time of Concentration Calculation  
Medford IDF Curves
- Appendix E Plant Specifications  
Plant Material Source List
- Appendix F Standard Drawings Index  
General Construction Notes and Material Specifications  
PDF Standard Drawings  
DWG Standard Drawings
- Appendix G SWAT Pre-Approved Proprietary SW Treatment Technologies
- Appendix H Stormwater Operation and Maintenance Plan Templates  
O&M Manual Template (fillable pdf)  
Section B: RVSS Declaration of Covenants  
Medford Declaration of Covenants  
Section D: Medford Subdivision O&M Agreement  
Section F: SW Facility Inspection and Maintenance Checklists
- Appendix I RVSS Stormwater Credits

# Appendix A - Infiltration Testing Methodology

---

## Table of Contents

Infiltration Testing Methodology .....	A-1
Applicability .....	A-1
Infiltration Pit Timing and Layout .....	A-1
Simple Pit Falling Head Test for Simplified Approach .....	A-4
Ribbon Test for Soil Texture Identification .....	A-6
References .....	A-7

## INFILTRATION TESTING METHODOLOGY

Perform an infiltration test to determine the soil's capacity to absorb and percolate water down into the lower layers. The infiltration test establishes the measured infiltration rate. The Design infiltration rate shall be determined per the Design Infiltration Rate Standards outlined in Chapter 4.

### APPLICABILITY

**Performance Design Approach:** For projects developing or redeveloping 10,000 square feet or more, infiltration testing must be overseen by an Oregon registered Professional Engineer (PE) or Oregon Certified Engineering Geologist (CEG). One of the following methodologies must be used:

- Open pit falling head
- Encased falling head
- Double-ring infiltrometer

Documentation of the method selected, the reason for selecting the method, a map of testing locations and results must be submitted with the stormwater management report.

**Simplified Design Approach:** The Simple Pit Falling Head Infiltration Testing method described below may be used for projects developing or redeveloping less than 10,000 square feet. This testing can be performed by anyone, but the results of the test must be submitted on the provided data form.

### INFILTRATION PIT TIMING AND LAYOUT

#### Timing

Tests should not be conducted:

- In the rain
- Within 24 hours of a storm greater than 1/2 inch, or
- When the ground is frozen.

Different protocol, as described below in "Test Infiltration", apply to wet-weather versus dry-weather testing.

#### Location

The test measures infiltration of a very small and specific area. In new developments and redevelopments with generous open space, infiltration tests should be performed across the proposed development area during the planning phase. Tests must be conducted within the footprint of the proposed facility. Thus, once the location of facilities is determined, additional design phase infiltration testing may be needed if the initial tests were not conducted within the footprint of the proposed facility.

In retrofits with limited areas to choose from, infiltration testing in the planning phase isn't needed. Simply test directly within the proposed facility location.

#### Number of Tests

- When using the Simplified Design Approach, at least 1 test must be conducted for each proposed SW facility.
- The number of infiltration tests for large sites varies widely. At least 1 test per 10,000 square feet of land to be developed or redeveloped is required. More tests are needed for sites with variable soil conditions than for sites that are uniform. In urban sites, where soils may have been disturbed a number of times over many years, soil conditions may vary greatly over small distances, so more tests may be needed. A geotechnical engineer can assist with identifying soil uniformity and identifying the appropriate number of tests. The approving jurisdiction reserves the right to require additional infiltration testing.



## Testing depth

Testing depth varies with existing and final conditions, testing goals, and BMP choices.

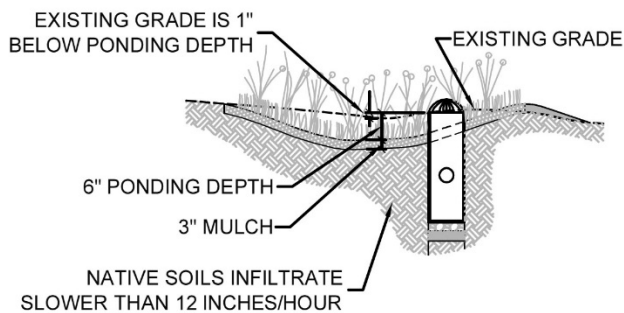
**Runoff prevention.** If fast(er) draining soils will simply be conserved, an infiltration test depth of 6 inches to 12 inches into the soil just below the ground cover vegetation and topsoil, is sufficient depth.

**Runoff reduction.** Infiltration testing should be performed at the expected depth of the bottom of the facility; however, infiltration testing may also determine the depth of the facility. Evaluate a very simple rain garden that doesn't replace or amend the native soils by testing the soils shallowly. Since the suitability at this shallow depth cannot be known until the test is completed, dig a few test holes at different elevations a few feet apart and test them simultaneously.

Existing and proposed finish grades should be used to determine appropriate testing depths for all applicable BMPs, similar to the examples below.

---

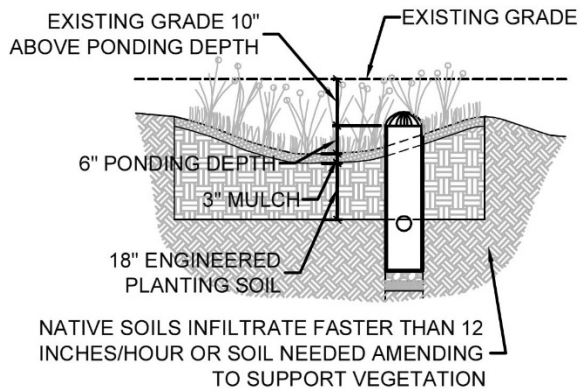
### Example A-1 Simple infiltration rain garden (existing grade elevation similar to final grade)



**Infiltration testing depth = -1" (elevation difference) + 6" (ponding depth) + 3" (mulch) = 8 inches below existing grade**

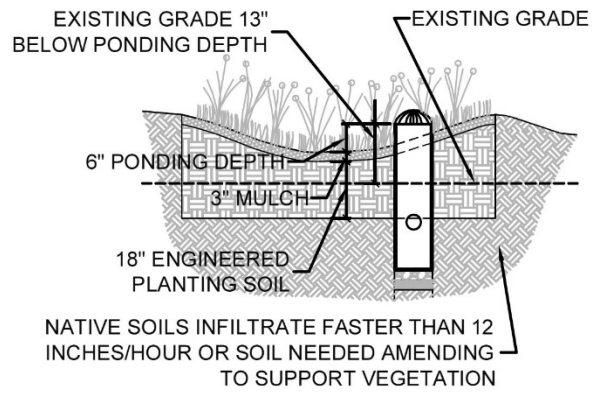
---

### Example A-2 Infiltration rain garden with imported soil (existing grade elevation higher than final grade)



**Infiltration testing depth = 10" (elevation difference) + 6" (ponding depth) + 3" (mulch) + 18" imported soil = 37 inches below existing grade**

**Example A-3** Infiltration rain garden with imported soil (existing grade elevation lower than final grade)



**Infiltration testing depth** = -13" (elevation difference) + 6" (ponding depth) + 3" (mulch) + 18" imported soil = **14 inches below existing grade**

---

## SIMPLE PIT FALLING HEAD TEST FOR SIMPLIFIED APPROACH

The Simple Pit falling head test is one of the oldest and simplest methods.

### Safety

Always call 811 (or visit <http://digsafelyoregon.com/>) to locate utilities before testing begins. Infiltration tests may require extensive excavation and can be potentially dangerous. Observe relevant Occupational Safety and Health Administration (OSHA) regulations. Excavation should never be left unsecured and unmarked, and all applicable authorities should be notified prior to any work.

### Equipment Needed

- Shovel and/or post-hole digger
- Yardstick or ruler
- Water source
- Some clean gravel (in clay soils)
- Pencil
- Paper for recording fall over time
- Falling Head Soil Infiltration Testing Report Form
- Watch or timer
- Water jug (optional)



**Figure A-1.** Anyone fit enough to dig can perform an infiltration test with commonplace tools.

Perform a Simple Pit falling head test as follows:

1. Dig a test hole with a post hole digger or a larger area with a shovel. The area of the hole doesn't matter. Dig a hole to the appropriate depth as discussed above.
2. Perform a ribbon test as described in the Ribbon Test section below.
3. If soils are clayey, roughen the sides of the hole a little (i.e. scarify). Remove the scraped material from the bottom of the hole and place an inch or so of clean gravel at the bottom; otherwise, the tiny clay particles will be suspended in the water and will form an impermeable barrier (appearing as a sheen) around the sides and bottom of the hole.
4. Push a pencil or nail into the side of the hole from which to measure the water level drop over time. The height above the bottom of the hole (or gravel if included) will determine the water level depth. Because water is so heavy, deeper water will result in faster overall infiltration rates, so this is accounted for in the following:

**Runoff Prevention.** Place the pencil or nail 6 inches above the bottom of the hole.

**Runoff Reduction.** The depth of water should reflect the amount of water that might be ponded in a runoff reduction BMP. For instance, if the ponding depth will be 9 inches, then place the pencil or nail 9 inches above the bottom of the hole. If the ponding depth is unknown, 6 inches is conservative.

5. Fill the hole with water gently to the top of the pencil or nail. Record the exact time you stop filling the hole (if soils are fast draining, measure time down to the second). Measure and record the water level at regular intervals for a minimum of one hour, or until all the water has infiltrated. Record the distance between the water surface and the pencil at each time interval.
6. If testing during the rainy season and soils are saturated, go on to step 7. If testing during the dry season and soils are dry, refill the hole again and immediately repeat steps 2 to 5 two more times.
7. To calculate the infiltration rate, divide the distance that the water dropped by the amount of time it took for it to drop. For example, if the water dropped 6 inches in 12 hours, then 6 divided by 12 equals 0.5 inches per hour. The completed data sheet must be submitted to the approving jurisdiction with the Stormwater Management Report.
8. If testing is for porous pavement managing direct rainfall only, skip to step 9. For rain gardens and stormwater planters and porous pavements managing runoff, if the slowest infiltration rate measured is less than 0.5 inches per hour, then dig another hole nearby, but 3 to 6 inches deeper, and repeat steps 1 to 5 to see if there's a faster draining soil that could be over excavated to. Repeat this process at various depths down to another 2 feet, or until you have at least 0.5 inches per hour infiltration. If you can't find a suitable area with an infiltration rate of at least 0.5 inches per hour, the Performance Design Approach must be used. Skip to step 10.
9. For porous pavements that infiltrate rainfall, if the slowest infiltration rate measured is less than 0.3 inches per hour, consider relocating the porous pavement to a faster draining soil. If this is not possible and the infiltration rate below the porous pavement managing rainfall only is less than 0.3 inches per hour, then the porous pavement must be designed using the Performance Approach.



**Figure A-2.** A shovel was used to dig most of the way then a 6" diameter post hole digger was used to reach the proposed bottom elevation of a rain garden. Measure the drop in water from a known, stable marker.

### Confirm Vertical Separation

Two conditions for vertical separation should be met:

10. After infiltration testing is complete, dig the hole another 2 feet of depth from the bottom of the BMP (*i.e.* the elevation where water will begin to pond) to uncover bedrock or other impermeable subsurface layers, such as compacted ash, that may impede infiltration. If the soil is pretty consistent all the way down then one criteria for vertical separation is met.
11. If testing during the winter, dig the hole one foot deeper to discover groundwater. If water doesn't seep into the hole, then groundwater is sufficiently deep and the second vertical separation criteria is met. If not testing during the winter, hire a registered soil scientist, licensed geotechnical engineer, registered geologist, or other qualified licensed professional to assist with assessing the depth of the seasonal high groundwater table.
12. Fill the hole back up, and leave the site in a safe condition (*i.e. prevent a tripping hazard*).

## RIBBON TEST FOR SOIL TEXTURE IDENTIFICATION

As indicated above, to properly implement an infiltration facility, you need to approximately identify the soil texture of your existing native soils, which may range from more sandy to more clayey.

Determine soil texture:

1. Take a handful of the soil you have excavated from your infiltration test. Pulverize it in your hand and remove any bits of organic matter or obvious rocks.
2. Wet it with a small amount of water and rub it between your thumb and index finger. Don't saturate it until it is runny mud. You might feel stickiness, grittiness, or smoothness. The grittier the feel, the more sand is present in your soil. The slicker the soil, the more clay in it. Smooth soils are sometimes an indicator of a fine silt or loam. Discard the soil.
3. Next, take another sample in your hand. Wet it until it has the consistency of dough. You should be able to form a ball that holds together with the soil in your palm. If you cannot get the ball to form, then your soil is very sandy. In most soils, however, you should be able to create a rough ball.



**Figure A-3.** Step 3 of the ribbon test.

4. Knead the soil together between your thumb and fingers and attempt to form a ribbon. As you build the ribbon, it will either hold together or break off.



**Figure A-4.** Step 4 of the ribbon test.

**Interpret Your Results.** If the soil forms a ribbon:

- Less than 1 inch in length before it breaks, the soil is sandy or silty.
- 1 to 2 inches in length before it breaks, the soil is clayey (i.e. has some clay).
- Greater than 2 inches before it breaks, the soil is clay.

## REFERENCES

City of Portland Stormwater Management Manual (2016). Chapter 2: Stormwater Facility and Conveyance Design, Submittal Requirements. Retrieved from:  
<https://www.portlandoregon.gov/bes/index.cfm?&c=64040>

## Simple Pit Falling Head Test Report Form

Project Name: \_\_\_\_\_ Project number: \_\_\_\_\_

Individual conducting test: \_\_\_\_\_ Email: \_\_\_\_\_

Phone: \_\_\_\_\_

1. Follow the protocol provided in Appendix B of the Rogue Valley Stormwater Design Manual for the Falling Head Test.
2. The bottom of the test pit should be located at the proposed final grade for the stormwater facility bottom.
3. Three repetitions are required. Do not average the results. The third test provides the best representation of infiltration rate under saturated conditions.
4. Attach an aerial map or drawing of the site showing the location of the soil test pits.

<b>Pit 1</b>				
Date of Test				Pit Location Description:
Depth of Excavation				
	<b>Test 1</b>	<b>Test 2</b>	<b>Test 3</b>	
Time of Day				
Duration (hours)				
Initial Water Depth (inches)				
Final Water Depth (inches)				
Infiltration Rate (inches/hr)				

<b>Pit 2</b>				
Date of Test				Pit Location Description:
Depth of Excavation				
	<b>Test 1</b>	<b>Test 2</b>	<b>Test 3</b>	
Time of Day				
Duration (hours)				
Initial Water Depth (inches)				
Final Water Depth (inches)				
Infiltration Rate (inches/hr)				

<b>Pit 3</b>				
Date of Test				Pit Location Description:
Depth of Excavation				
	<b>Test 1</b>	<b>Test 2</b>	<b>Test 3</b>	
Time of Day				
Duration (hours)				
Initial Water Depth (inches)				
Final Water Depth (inches)				
Infiltration Rate (inches/hr)				

Attach more sheets if additional soil pits are needed.



## Appendix B – Simplified Approach

---

### TABLE OF CONTENTS

Appendix B – Simplified Approach.....	B-1
Simplified Approach.....	B-1
Procedure Outline:.....	B-1
Option Descriptions: .....	B-2
Rain Garden. ....	B-2
Stormwater Planter.....	B-2
Pervious surface.....	B-3
Vegetated Filter Strip.....	B-3
Disconnected Downspouts to Pervious Area.....	B-4
Disconnected Downspouts to Infiltration Trench.....	B-4
Submission Forms and Standard Drawings	

## Simplified Approach

---

Installing water quality treatment facilities is a required component of any project that adds or redevelops more than 5,000 square feet of impervious area (asphalt, concrete, roofs, etc). Stormwater pipes generally dump directly into the local creeks and therefore it is important to treat the water for pollutants before it flows off the site.

### PROCEDURE OUTLINE:

1. **Impervious Area:** Determine the area (square footage) of the new or redeveloped impervious surfaces associated with the project. Impervious surfaces include roofs, asphalt, concrete, gravel used by vehicles, and other surfaces that prevent rain from soaking in to the ground. This Simplified Approach is only allowed if the project has less than 10,000 square feet of new or redeveloped impervious area.
2. **Treatment Option and Location:** Select one of the treatment options listed below and determine where the facility should be placed so that it can receive and treat all water that runs off the new or redeveloped impervious surface during a rainstorm.
3. **Drainage Area:** Check to make sure that additional water won't drain into the new treatment facility, such as from an existing parking lot or building. If this is the case, work with the local jurisdiction to make sure the treatment facility is sized correctly, or plan on changes to the site so that this water doesn't enter the treatment facility.
4. **Form:** Fill out the form for the treatment facility selected.
5. **Site Plan:** Create the site plan (see requirements on the form).
6. **Operations and Maintenance Plan:** Fill out the Operations and Maintenance Plan for the treatment facility selected.
7. **Submittal:** Submit the Form, Site Plan, Operations and Maintenance plan and Declaration of Covenants to the local jurisdiction for approval.
8. **Declaration of Covenants:** Execute the Declaration of Covenants for continued maintenance of the facility.
9. **Record Documents:** Record the Operations and Maintenance Plan and the Declaration of Covenants on the property.

## OPTION DESCRIPTIONS:

### Rain Garden.

Rain gardens hold rainwater in low lying areas allowing the water to soak into the ground.



### Stormwater Planter.

Stormwater planters may either be in-ground or above-ground and have vertical sides created by curbs, walls, or containers. The planter needs to have an open bottom that allows water to soak into the ground.



### **Pervious surface.**

Pervious surfaces allow water to move through openings within the pavement surface so that the water can soak into the rock and soil below. These surfaces can be porous pavers (stones), pervious concrete, or porous asphalt.



### **Vegetated Filter Strip.**

Vegetated filter strips can be placed alongside impervious surfaces such as roadways, walkways, and patios, where rainwater drains off the pavement, filters through the vegetation and then soaks into the ground. Vegetated filter strips run along the paved surface, are gently sloped away from the surface, and must be completely vegetated.



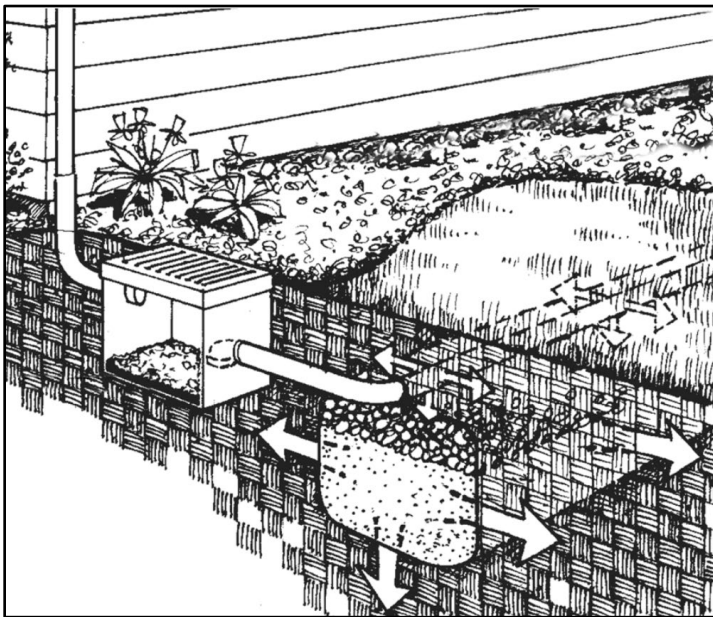
### Disconnected Downspouts to Pervious Area.

Rainfall from the roof flows through downspouts or underground drain pipe to a pervious (not paved) area so that the water can soak into the ground instead of draining to the public storm drain system.



### Disconnected Downspouts to Infiltration Trench.

Rainfall from the roof flows through downspouts or underground drain pipe to a trench filled with gravel so that the water can soak into the ground instead of draining to the public storm drain system.



# RAIN GARDEN – SIMPLIFIED APPROACH

*This form should be used when there are no civil plans for the project.*

Project Name: \_\_\_\_\_ Permit / Project #: \_\_\_\_\_

Address: \_\_\_\_\_ Map and Taxlot: \_\_\_\_\_ Building Permit: \_\_\_\_\_

Property Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

Project Description: \_\_\_\_\_

## RAIN GARDEN SIZE

New or Redeveloped Impervious Area = \_\_\_\_\_ square feet

Rain Garden Size ( 0.05 x New or Redeveloped Impervious Area) = \_\_\_\_\_ square feet

## RAIN GARDEN LOCATION

Site Description (**attach a site plan**): \_\_\_\_\_

Proposed Location of Facility (**indicate on attached site plan**): \_\_\_\_\_

## RAIN GARDEN DRAINAGE

How will stormwater enter the rain garden?

Flow across ground surface (**show slope direction on the attached site plan**)

Pipe (**show pipes and catch basins on attached site plan**)

Spillway: During heavy rainstorms, when the rain garden fills up, where will any excess water go if the rain garden overflows? (**show drainage path on attached site plan**) \_\_\_\_\_

## REQUIREMENTS

Property Owner to provide initials:

\_\_\_\_\_ Rain garden will be the size calculated above, or larger

\_\_\_\_\_ Rain garden will be planted with vegetation

\_\_\_\_\_ During heavy rainstorms, rain garden will not overflow onto a neighboring property

\_\_\_\_\_ Rain garden will be at least 10 feet away from building foundations

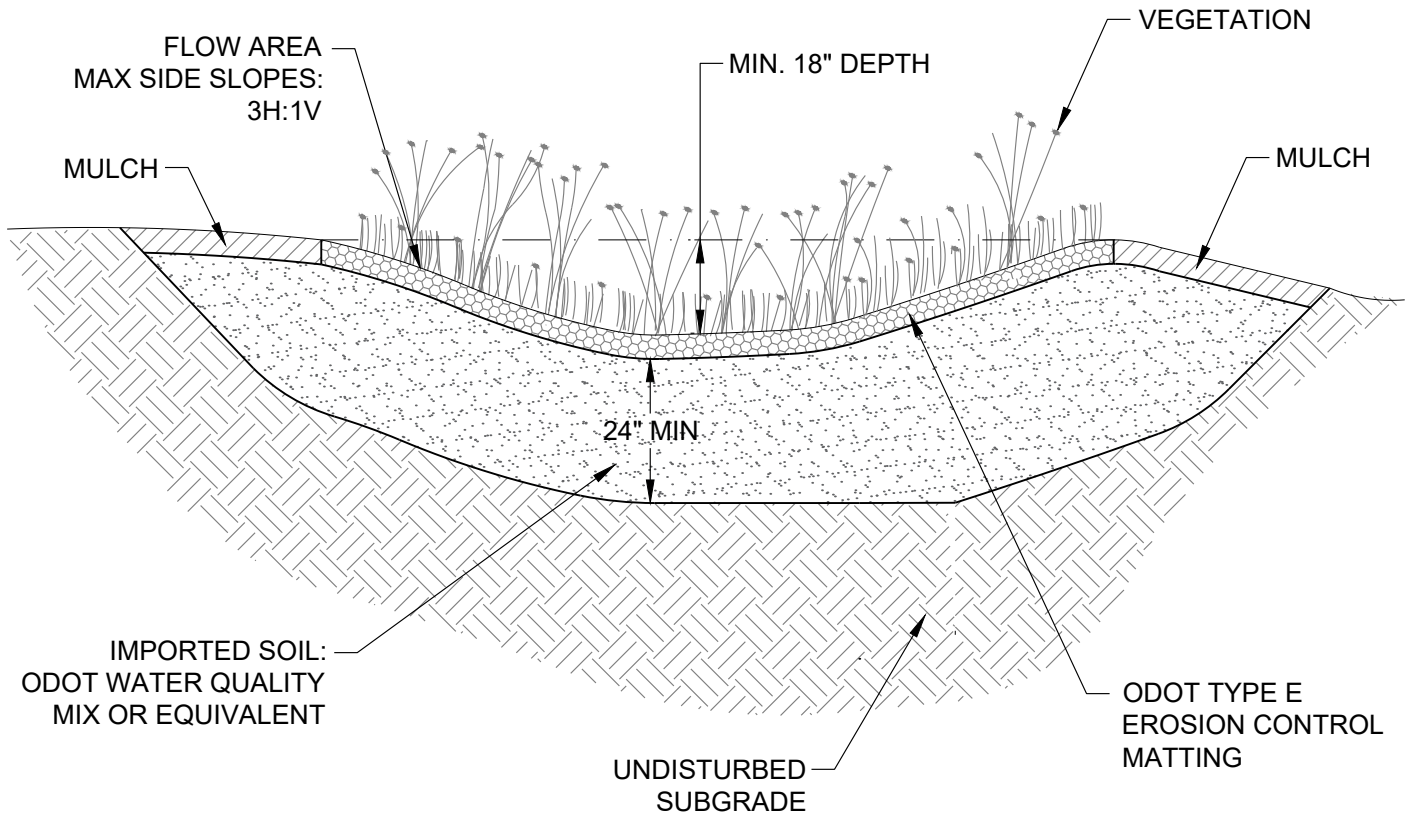
\_\_\_\_\_ All new or redeveloped impervious area will drain to the rain garden(s)

\_\_\_\_\_ I have read and understood the following: Even though this approach is allowed without an Oregon registered Professional Engineer (PE) or an Oregon Certified Engineering Geologist (CEG), there may be features of the project that would be best addressed by a PE or CEG to avoid negative results such as poor site drainage, high groundwater, or flooding. The project manager and owner should assess these risks to determine whether a PE or CEG should be hired to develop a site design including a grading, drainage, and or utility plan.

Owner Name: \_\_\_\_\_ Date: \_\_\_\_\_

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





NOTE: MUST INCLUDE SIMPLIFIED APPROACH FORM

SEE SITE PLAN FOR SIZE AND LOCATION

<p>Rogue Valley Stormwater Design Manual</p>	<p>Simplified Approach Rain Garden</p>	<p>Scale: NTS</p>
--	--	-------------------



# STORMWATER PLANTER – SIMPLIFIED APPROACH

*This form should be used when there are no civil plans for the project.*

Project Name: \_\_\_\_\_ Permit / Project #: \_\_\_\_\_

Address: \_\_\_\_\_ Map and Taxlot: \_\_\_\_\_ Building Permit: \_\_\_\_\_

Property Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

Project Description: \_\_\_\_\_

## STORMWATER PLANTER SIZE

New or Redeveloped Impervious Area = \_\_\_\_\_ square feet

Stormwater Planter Size ( 0.05 x New or Redeveloped Impervious Area) = \_\_\_\_\_ square feet

## STORMWATER PLANTER LOCATION

Site Description (**attach a site plan**): \_\_\_\_\_

Proposed Location of Facility (**indicate on attached site plan**): \_\_\_\_\_

## STORMWATER PLANTER DRAINAGE

How will stormwater enter the stormwater planter?

Flow across ground surface (**show slope direction of Drainage Area on the attached site plan**)

Pipe (**show pipes and catch basins on attached site plan**)

Spillway: During heavy rainstorms, when the stormwater planter fills up, where will any excess water go if the stormwater planter overflows? (**show drainage path on attached site plan**) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

## REQUIREMENTS

Property Owner to provide initials:

\_\_\_\_\_ Planter will be the size calculated above, or larger

\_\_\_\_\_ Planter will be planted with vegetation

\_\_\_\_\_ During heavy rainstorms, planter will not overflow onto a neighboring property

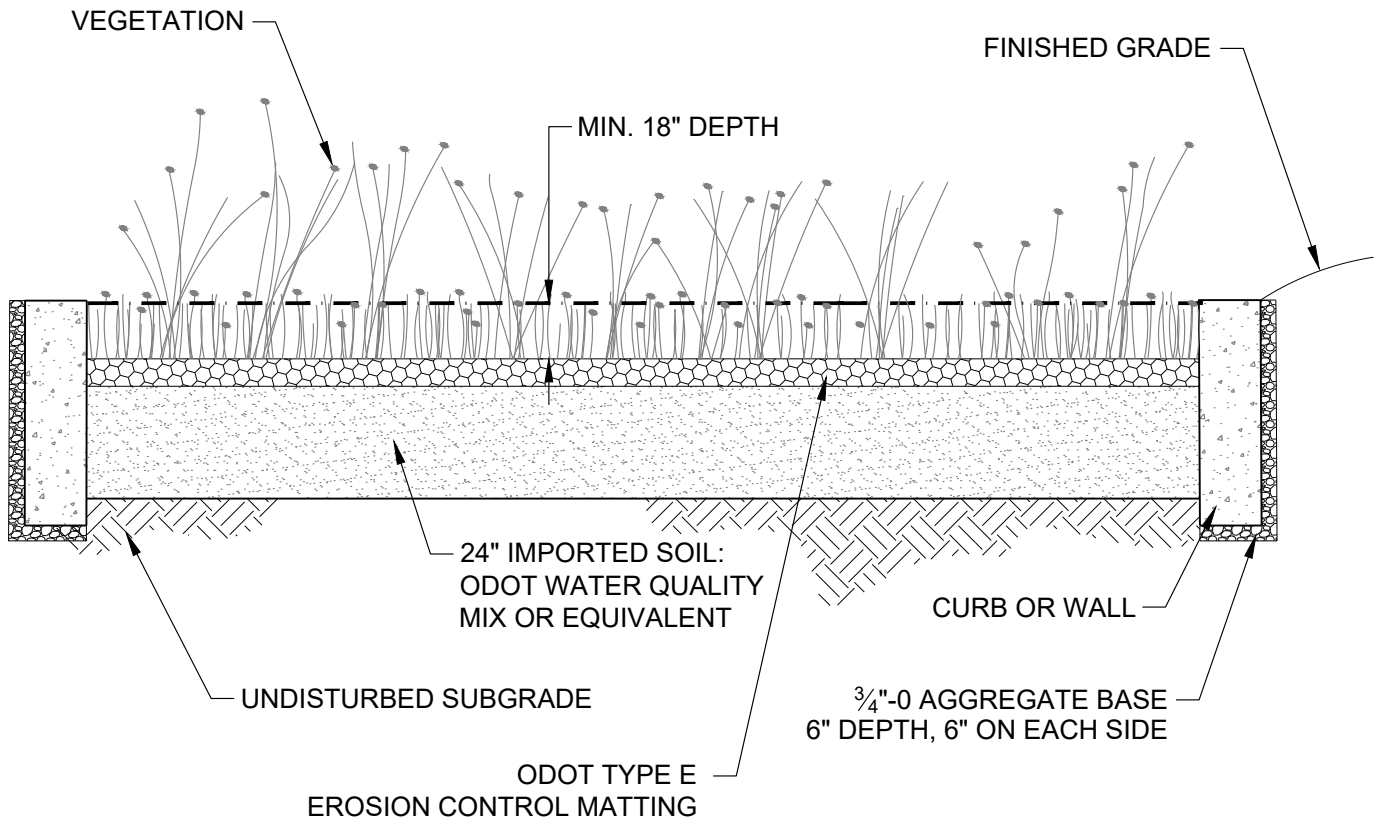
\_\_\_\_\_ Planter will be at least 10 feet away from building foundations

\_\_\_\_\_ All new or redeveloped impervious area will drain to the planter(s)

\_\_\_\_\_ I have read and understood the following: Even though this approach is allowed without an Oregon registered Professional Engineer (PE) or an Oregon Certified Engineering Geologist (CEG), there may be features of the project that would be best addressed by a PE or CEG to avoid negative results such as poor site drainage, high groundwater, or flooding. The project manager and owner should assess these risks to determine whether a PE or CEG should be hired to develop a site design including a grading, drainage, and or utility plan.

Owner Name: \_\_\_\_\_ Date: \_\_\_\_\_

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



NOTE: MUST INCLUDE SIMPLIFIED APPROACH FORM

SEE SITE PLAN FOR SIZE AND LOCATION

<p>Rogue Valley Stormwater Design Manual</p>	<p>Simplified Approach Stormwater Planter</p>	<p>Scale: NTS</p>
--	---	-------------------

# PERVIOUS SURFACE – SIMPLIFIED APPROACH

*This form should be used when there are no civil plans for the project.*

Project Name: \_\_\_\_\_ Permit / Project #: \_\_\_\_\_

Address: \_\_\_\_\_ Map and Taxlot: \_\_\_\_\_ Building Permit: \_\_\_\_\_

Property Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

Project Description: \_\_\_\_\_

## PERVIOUS SURFACE LOCATION, USE AND TYPE

Site Description (**attach a site plan**): \_\_\_\_\_

Proposed Location of Facility (**indicate on attached site plan**): \_\_\_\_\_

Pervious surface type:  Pavers  Porous Concrete  Porous Asphalt  Gravel/rock

Other: \_\_\_\_\_

Purposed use of pervious surface (patio, walkway, etc): \_\_\_\_\_

## PERVIOUS SURFACE DRAINAGE

During heavy rainstorms, where will any excess water go if rainwater can't soak into the pervious surface?

(**Show drainage path on attached site plan**) \_\_\_\_\_

## REQUIREMENTS

Property Owner to provide initials:

\_\_\_\_\_ Pervious surface will not be constructed in an area intended for vehicular use

\_\_\_\_\_ Construction of pervious surfaces will follow all manufactures recommendations/requirements, including base rock and surface thicknesses

\_\_\_\_\_ During heavy rainstorms, pervious surfaces will not cause water to flow onto a neighboring property

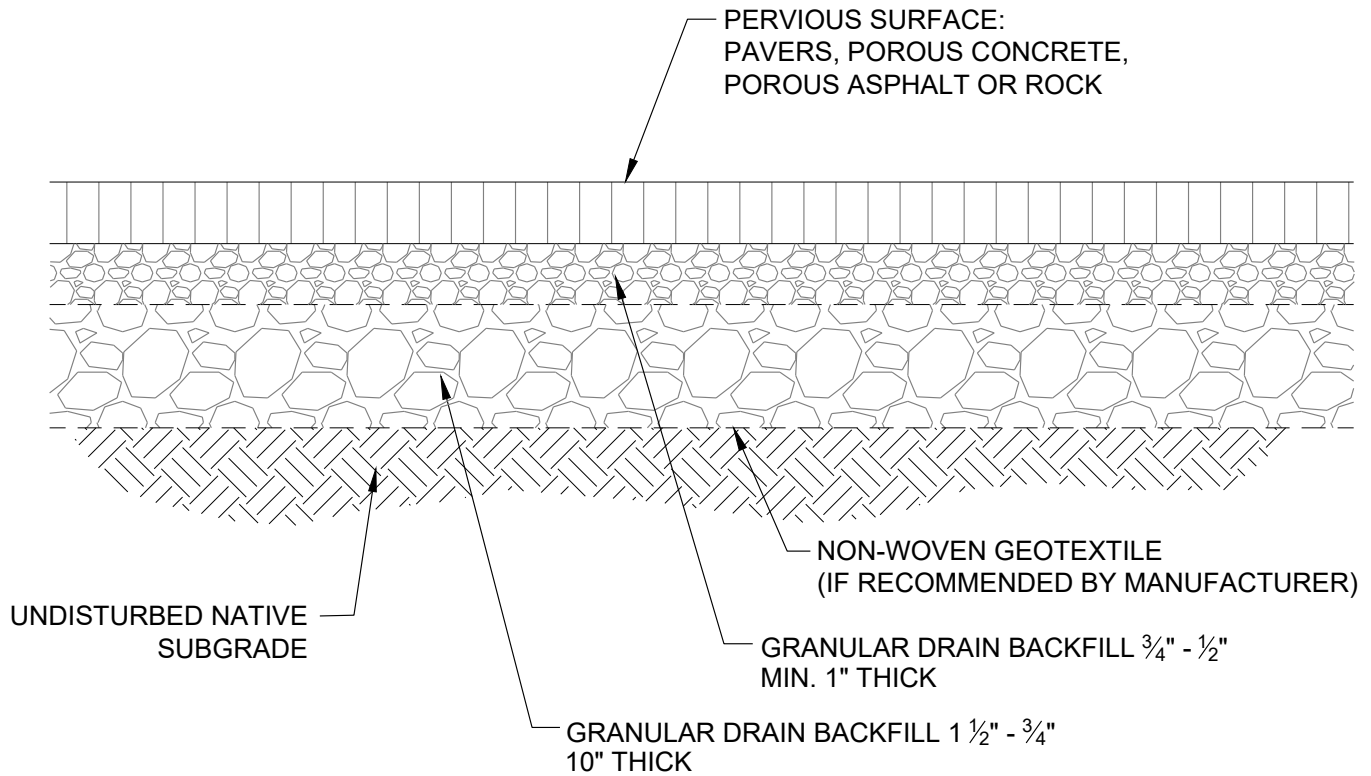
\_\_\_\_\_ Pervious surfaces will be at least 10 feet away from building foundations

\_\_\_\_\_ Pervious surface will only receive direct rainfall, runoff from other areas will not flow onto the pervious surface.

\_\_\_\_\_ I have read and understood the following: Even though this approach is allowed without an Oregon registered Professional Engineer (PE) or an Oregon Certified Engineering Geologist (CEG), there may be features of the project that would be best addressed by a PE or CEG to avoid negative results such as poor site drainage, high groundwater, or flooding. The project manager and owner should assess these risks to determine whether a PE or CEG should be hired to develop a site design including a grading, drainage, and or utility plan.

Owner Name: \_\_\_\_\_ Date: \_\_\_\_\_

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



### NOTES

1. STRUCTURAL AND INSTALLATION SHOULD BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND REQUIREMENTS
2. UNLESS OTHERWISE APPROVED, GRANULAR DRAIN BACKFILL SHALL BE NO LARGER THAN  $1\frac{1}{2}$ ".

SEE SITE PLAN FOR SURFACE, LOCATION, AND DIMENSIONS

Rogue Valley  
Stormwater Design  
Manual

Simplified Approach  
Pervious Surface

Scale: NTS

# VEGETATED FILTER STRIP – SIMPLIFIED APPROACH

*This form should be used when there are no civil plans for the project.*

Project Name: \_\_\_\_\_ Permit / Project #: \_\_\_\_\_

Address: \_\_\_\_\_ Map and Taxlot: \_\_\_\_\_ Building Permit: \_\_\_\_\_

Property Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

Project Description: \_\_\_\_\_

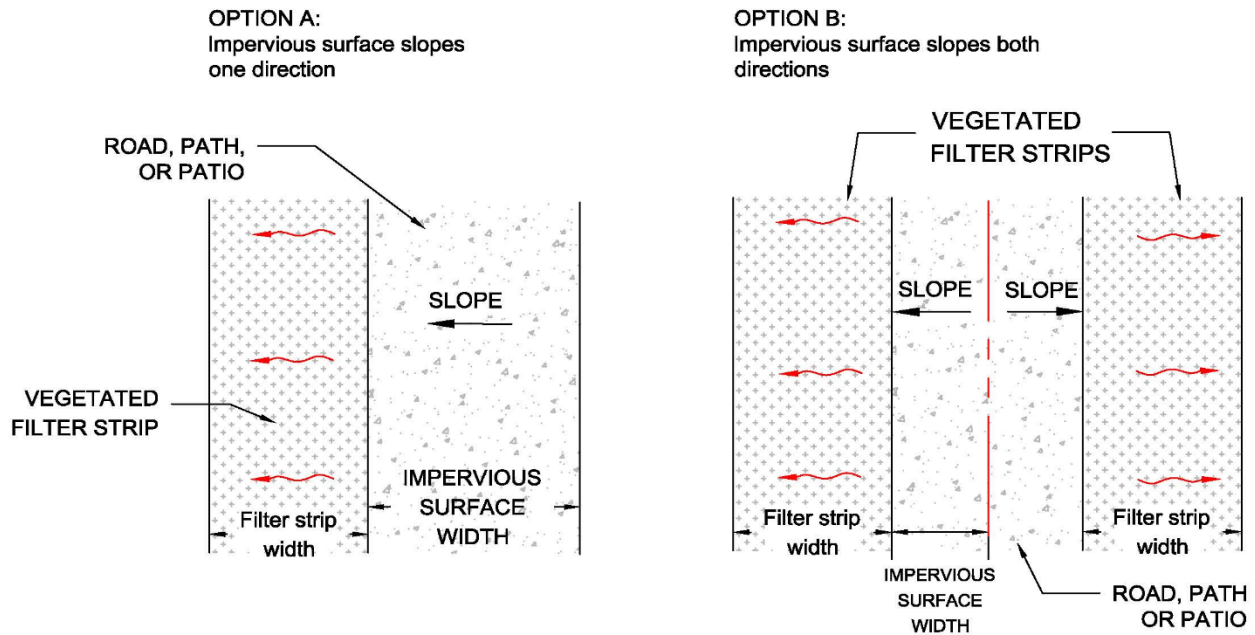
## VEGETATED FILTER STRIP LOCATION AND USE

Site Description (attach a site plan): \_\_\_\_\_

Vegetated filter strips are installed alongside impervious surfaces such as roadways, walk ways, and patios. What type of surface is being built?  Road  Path  Patio  Other: \_\_\_\_\_

Proposed Location of Facility (indicate on attached site plan): \_\_\_\_\_

## VEGETATED FILTER STRIP SIZE



Impervious surface width: \_\_\_\_\_ feet (Maximum of 75 feet)

Impervious surface slope to Filter Strip: \_\_\_\_\_ (Max 5%)

Filter strip slope away from impervious surface \_\_\_\_\_ (Max 10%)

Maximum longitudinal slope of impervious surface and filter strip \_\_\_\_\_ (Max 4%)

Vegetated filter strip width Calculation: Impervious surface width \_\_\_\_\_ feet x 0.5 = \_\_\_\_\_ feet

## REQUIREMENTS

Property Owner to provide initials:

\_\_\_\_\_ Vegetated filter strip will be the size calculated above, or larger

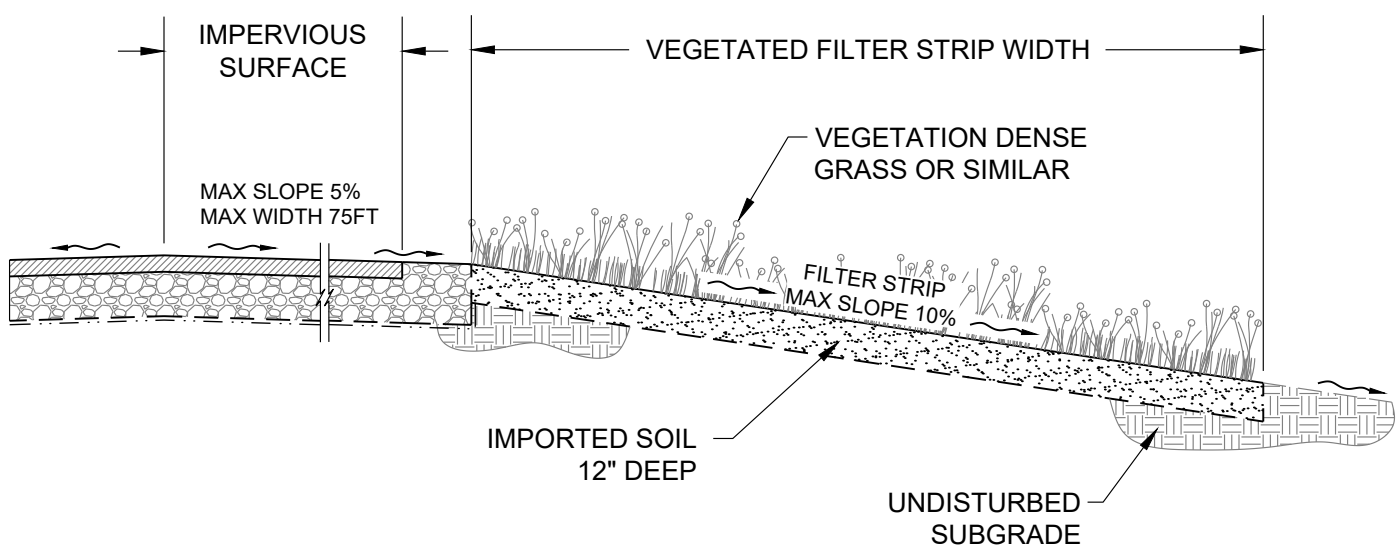
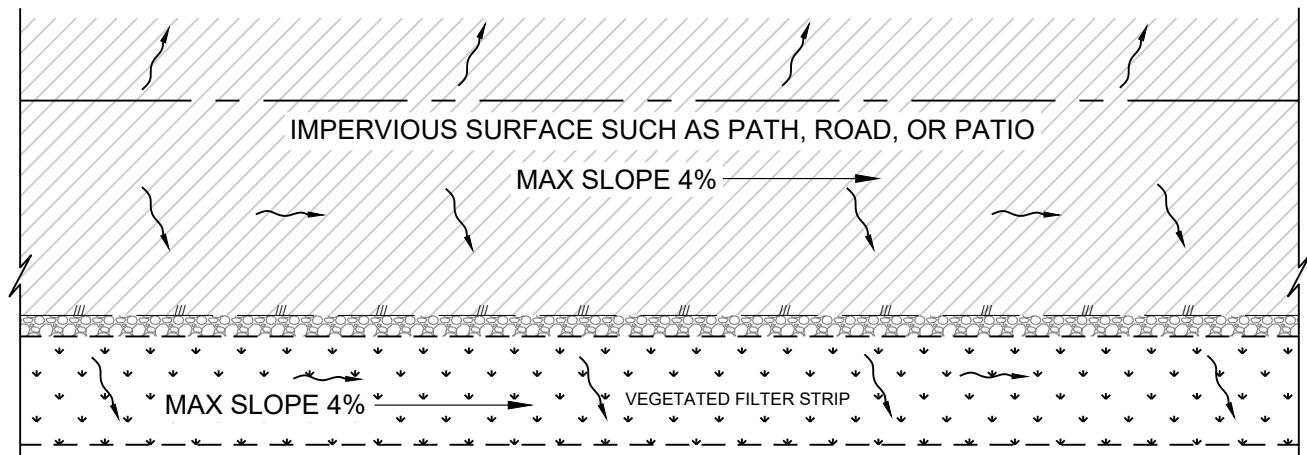
\_\_\_\_\_ Vegetated filter strip will not slope toward building foundations

\_\_\_\_\_ Maximum slopes of the impervious surfaces and filter strips do not exceed maximums stated.

\_\_\_\_\_ I have read and understood the following: Even though this approach is allowed without an Oregon registered Professional Engineer (PE) or an Oregon Certified Engineering Geologist (CEG), there may be features of the project that would be best addressed by a PE or CEG to avoid negative results such as poor site drainage, high groundwater, or flooding. The project manager and owner should assess these risks to determine whether a PE or CEG should be hired to develop a site design including a grading, drainage, and or utility plan.

Owner Name: \_\_\_\_\_ Date: \_\_\_\_\_

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



SEE SITE PLAN FOR SIZE AND LOCATION

<p>Rogue Valley Stormwater Design Manual</p>	<p>Simplified Approach Vegetated Filter Strip</p>	<p>Scale: NTS</p>
--	---	-------------------



# DISCONNECTED DOWNSPOUTS – TO PERVIOUS AREA

## SIMPLIFIED APPROACH

*This form should be used when there are no civil plans for the project.*

Project Name: \_\_\_\_\_ Permit / Project #: \_\_\_\_\_

Address: \_\_\_\_\_ Map and Taxlot: \_\_\_\_\_ Building Permit: \_\_\_\_\_

Property Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

Project Description: \_\_\_\_\_

Site Description (**attach a site plan**): \_\_\_\_\_

### PERVIOUS AREA(S) SIZE AND LOCATION(S)

Total roof area = \_\_\_\_\_

Number of downspouts = \_\_\_\_\_ (**maximum roof area per downspout = 700 square feet**)

Pervious area required (roof area x 0.05) = \_\_\_\_\_

Describe downspout location and pervious surface locations:

\_\_\_\_\_  
\_\_\_\_\_

### PROJECT SITE DRAINAGE

Average lot slope: \_\_\_\_\_ (**must be less than 10%**)

Spillway: During heavy rainstorms, if water can't soak into the ground, where will any excess water go? (**show drainage path on attached site plan**) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

### REQUIREMENTS

Property Owner to provide initials:

\_\_\_\_\_ Discharge from downspouts will not flow over an impervious surface (such as pavement)

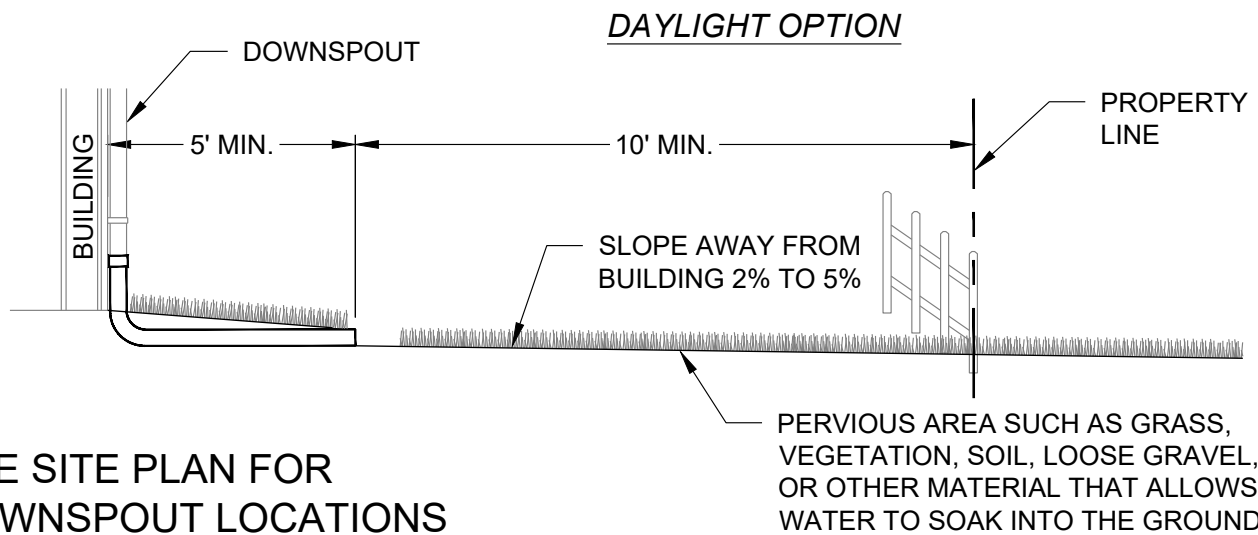
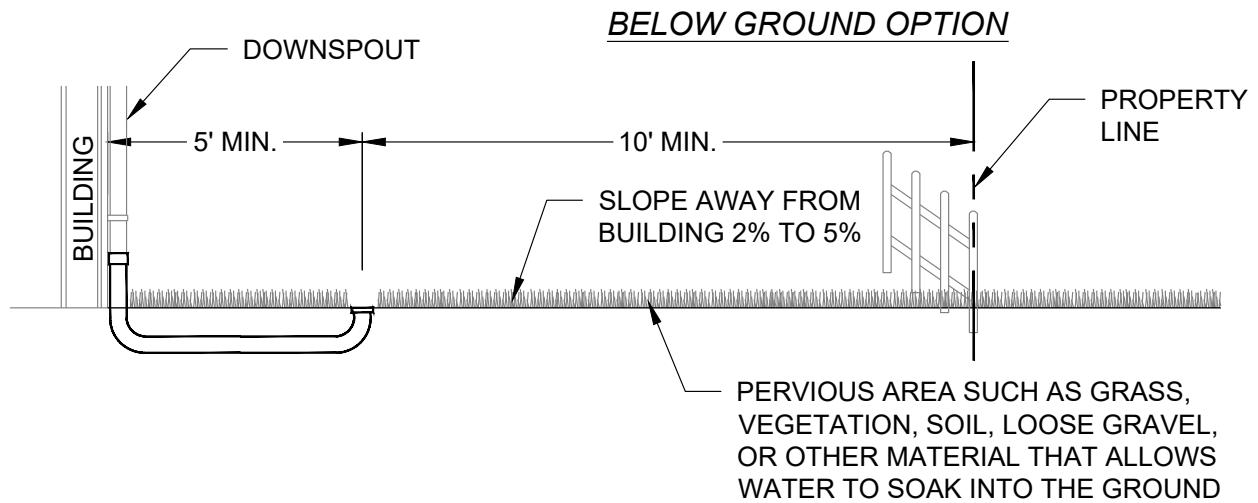
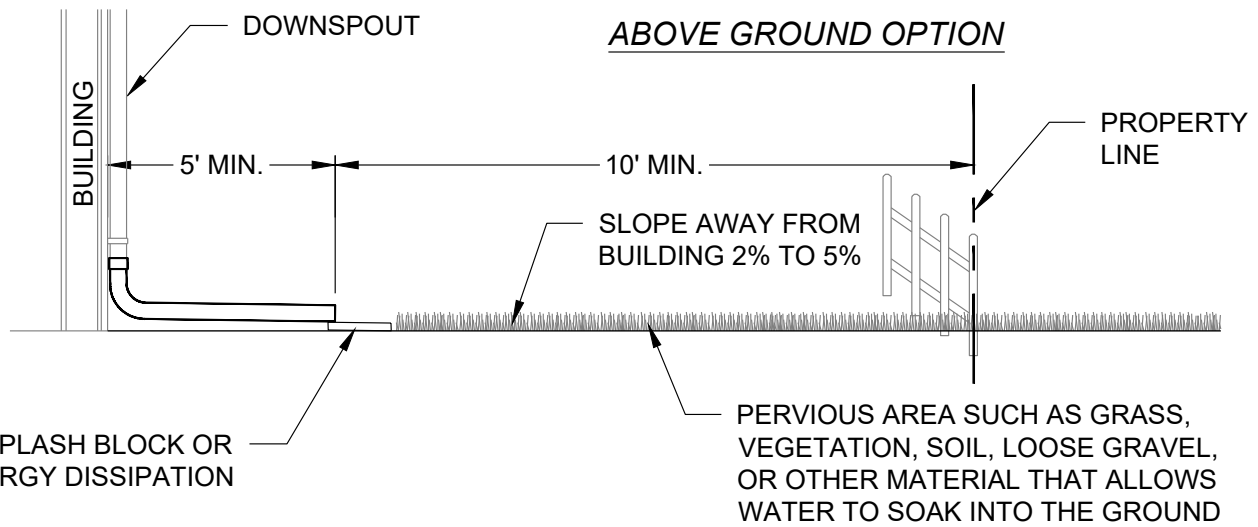
\_\_\_\_\_ Downspouts will discharge at least five feet away from building foundations and property lines

\_\_\_\_\_ Downspouts and pervious area will be installed per the attached detail

\_\_\_\_\_ I have read and understood the following: Even though this approach is allowed without an Oregon registered Professional Engineer (PE) or an Oregon Certified Engineering Geologist (CEG), there may be features of the project that would be best addressed by a PE or CEG to avoid negative results such as poor site drainage, high groundwater, or flooding. The project manager and owner should assess these risks to determine whether a PE or CEG should be hired to develop a site design including a grading, drainage, and or utility plan.

Owner Name: \_\_\_\_\_ Date: \_\_\_\_\_

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



SEE SITE PLAN FOR  
DOWNSPOUT LOCATIONS

<p>Rogue Valley Stormwater Design Manual</p>	<p>Simplified Approach Disconnected Downspout to Pervious Area</p>	<p>Scale: NTS</p>
--	--	-------------------

# DISCONNECTED DOWNSPOUTS – TO INFILTRATION TRENCH

## SIMPLIFIED APPROACH

*This form should be used when there are no civil plans for the project.*

Project Name: \_\_\_\_\_ Permit / Project #: \_\_\_\_\_

Address: \_\_\_\_\_ Map and Taxlot: \_\_\_\_\_ Building Permit: \_\_\_\_\_

Property Owner: \_\_\_\_\_ Phone: \_\_\_\_\_

Project Description: \_\_\_\_\_

Site Description (**attach a site plan**): \_\_\_\_\_

### PERVIOUS AREA(S) SIZE AND LOCATION(S)

Total roof area = \_\_\_\_\_

Number of downspouts = \_\_\_\_\_ (**maximum roof area per downspout = 700 square feet**)

### PROJECT SITE DRAINAGE

Average lot slope: \_\_\_\_\_ (**must be less than 10%**)

Spillway: During heavy rainstorms, if water can't soak into the ground, where will any excess water go? (**show drainage path on attached site plan**) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

### REQUIREMENTS

Property Owner to provide initials:

\_\_\_\_\_ Downspouts and infiltration trench will be installed per the attached detail

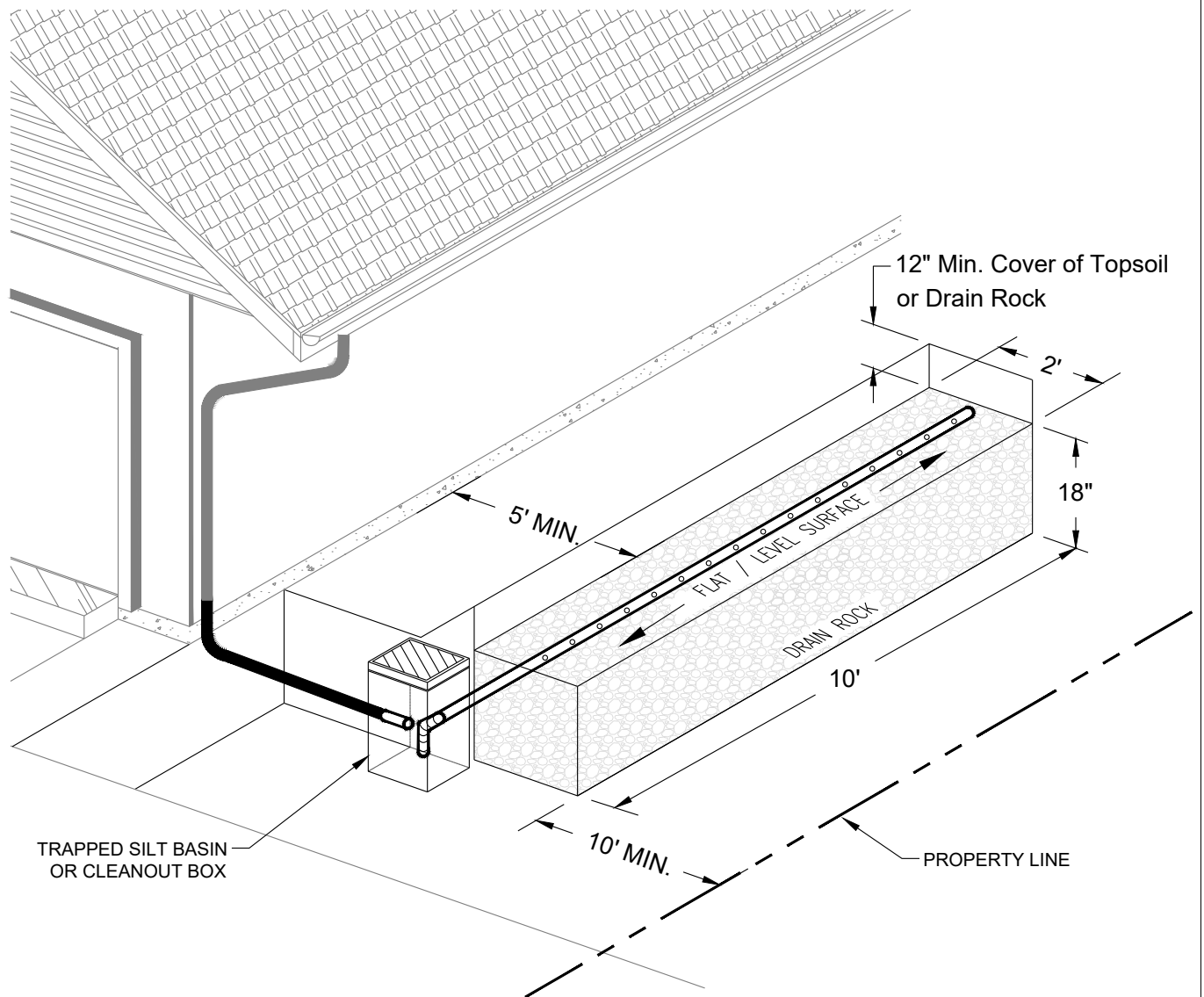
\_\_\_\_\_ Downspouts will discharge into the infiltration trench at least 10 feet away from building foundations and property lines

\_\_\_\_\_ A clean out box will be added near the building

\_\_\_\_\_ I have read and understood the following: Even though this approach is allowed without an Oregon registered Professional Engineer (PE) or an Oregon Certified Engineering Geologist (CEG), there may be features of the project that would be best addressed by a PE or CEG to avoid negative results such as poor site drainage, high groundwater, or flooding. The project manager and owner should assess these risks to determine whether a PE or CEG should be hired to develop a site design including a grading, drainage, and or utility plan.

Owner Name: \_\_\_\_\_ Date: \_\_\_\_\_

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



**NOTES**

- 1. Without prior approval, rock shall be clean 3/4" to 2" uniformly graded drain rock.
- 2. Non-woven geotextile required around infiltration trench.

**SEE SITE PLAN FOR LOCATION**

<p>Rogue Valley Stormwater Design Manual</p>	<p>Simplified Approach Disconnected Downspout to Infiltration Trench</p>	<p>Scale: NTS</p>
--	--	-------------------

## Appendix C - Santa Barbara Urban Hydrograph Example

---

### 2.3.3 Hydrograph Synthesis – Santa Barbara Urban Hydrograph

The Santa Barbara Urban Hydrograph (SBUH) method is described below. It is given here as a guideline only, as it is only one of the many SCS-based hydrograph methods that are available for use.

The SBUH method, like the Soil Conservation Service Unit Hydrograph (SCSUH) method, is based on the curve number (CN) approach, and also uses SCS equations for computing soil absorption and precipitation excess. The SCSUH method works by converting the incremental runoff depths (precipitation excess) for a given basin and design storm into a runoff hydrograph via application of a dimensionless unit hydrograph. The shape of the SCS unit hydrograph (time to peak, time base, and peak) are determined by a single parameter - the basin time of concentration. The SBUH method, on the other hand, converts the incremental runoff depths into instantaneous hydrographs that are then routed through an imaginary reservoir with a time delay equal to the basin time of concentration.

The SBUH method was developed by the Santa Barbara County Flood Control and Water Conservation District, California. The SBUH method directly computes a runoff hydrograph without going through an intermediate process (unit hydrograph) as the SCSUH method does. By comparison, the calculation steps of the SBUH method are much simpler and can be programmed on a calculator or a spreadsheet program.

The SBUH method uses two steps to synthesize the runoff hydrograph:

- Step one - computing the instantaneous hydrograph, and
- Step two - computing the runoff hydrograph.

The instantaneous hydrograph,  $I(t)$ , in cfs, at each time step,  $dt$ , is computed as follows:

$$I_t = 60.5 R_t A / d_t$$

Where  $R_t$  = total runoff depth (both impervious and pervious runoffs) at time increment  $dt$ , in inches (also known as precipitation excess)

$A$  = area in acres

$d_t$  = time interval in minutes\*

\*NOTE: A maximum time interval of 10 minutes should be used for all design storms of 24-hour duration. A maximum time interval of 60 minutes should be used for the 100-year, 7-day design storm.

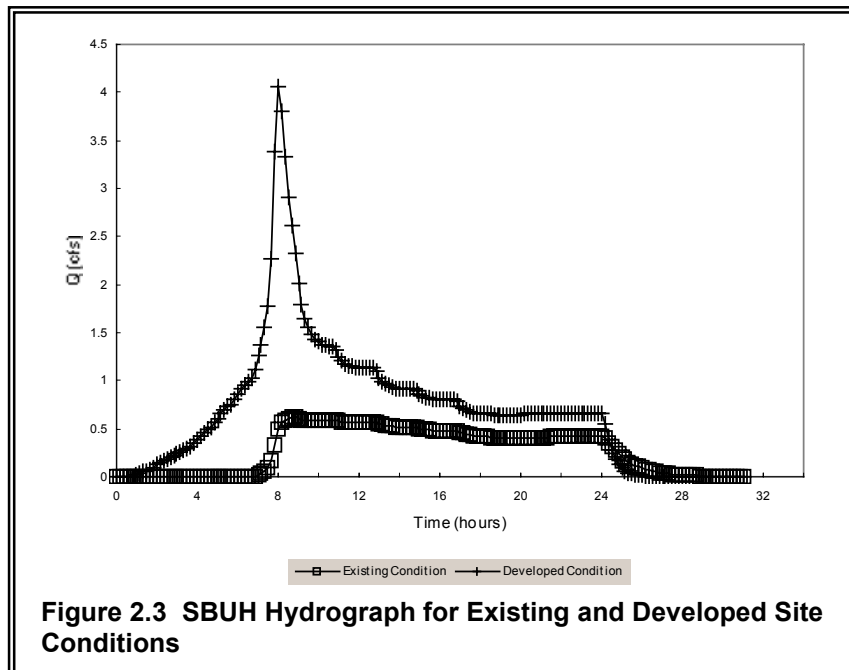
The runoff hydrograph,  $Q_t$ , is then obtained by routing the instantaneous hydrograph  $I_t$ , through an imaginary reservoir with a time delay equal to the time of concentration,  $T_c$ , of the drainage basin. The following equation estimates the routed flow,  $Q_t$ :

$$Q_{t+1} = Q_t + w[I_t + I_{t+1} - 2Q_t]$$

$$\text{Where: } w = d_t / (2T_c + d_t)$$

$$d_t = \text{time interval in minutes}$$

Example: To illustrate the SBUH method, Tables 2.6 and 2.7 show runoff hydrograph values computed by this method for both existing and developed conditions. Figure 2.3 illustrates the hydrographs for existing and developed conditions. Note, this example was prepared using the Excel 5.0 spreadsheet program and illustrates how the method can be used with a personal computer. Copies of this program and a Fortran version are available (with minimal documentation) from King County Surface Water Management Division.





**Table 2.6**  
**SBUH Values for Existing Site Condition**

Given: Area = 10 acres      P = 2.9 inches (10-yr, 24-hr. event)      dt = 10 minutes  
 PERVIOUS AREA:      Area = 10 acres      CN = 74      S = 3.513514      0.2S = 0.70  
 IMPERVIOUS AREA:      Area = 0 acres      CN = 98      S = 0.204082      0.2S = 0.04  
 Tc = 73 minutes      w = 0.064103      where S = potential maximum natural detention (as defined earlier)

- Column (1) = Time Increment
- Column (2) = Time (min)
- Column (3) = Type IA Storm Distribution
- Column (4) = Column (3) \* P
- Column (5) = Accumulated sum of Column (4)
- Column (6) = If (P < 0.2S) = 0, If (P > 0.2S) = (Column (5) - 0.2S)^2 / (Column (5) + 0.8S), where the PERVIOUS AREA S value is used
- Column (7) = Column (6) of the present step - Column (6) of the previous step
- Column (8) = Same as Column (6) except use IMPERVIOUS AREA S value
- Column (9) = Column (8) of the present step - Column (8) of the previous step
- Column (10) = (PERVIOUS AREA/TOTAL AREA)\*Column (7)+(IMPERVIOUS AREA/TOTAL AREA)\*Column (9)
- Column (11) = (60.5\*Column (10)\*Total Area)/dt, where dt = 10 or 60 minutes
- Column (12) = Column (12) of previous time step + w \* [(Column (11) of previous time step + Column (11) of present time step) - (2 \* Column (12) of previous time step)] where w = routing constant = dt/(2Tc + dt) = 0.0641

(1) Time Increment	(2) Time (minute)	(3) Rainfall Distrib. (fraction)	(4) Incre. Rainfall (inches)	(5) Accumul. Rainfall (inches)	(6) PERVIOUS (7)		(8) IMPERVIOUS (9)		(10) Total Runoff (inches)	(11) Instant Flowrate (cfs)	(12) Design Flowrate (cfs)
					Accum. Runoff (inches)	Incr. Runoff (inches)	Accum. Runoff (inches)	Incr. Runoff (inches)			
1	0	0	0	0	0	0	0	0	0	0.0	0.0
2	10	0.004	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.0	0.0
3	20	0.004	0.012	0.023	0.000	0.000	0.000	0.000	0.000	0.0	0.0
4	30	0.004	0.012	0.035	0.000	0.000	0.000	0.000	0.000	0.0	0.0
5	40	0.004	0.012	0.046	0.000	0.000	0.000	0.000	0.000	0.0	0.0
6	50	0.004	0.012	0.058	0.000	0.000	0.001	0.001	0.000	0.0	0.0
7	60	0.004	0.012	0.070	0.000	0.000	0.004	0.002	0.000	0.0	0.0
8	70	0.004	0.012	0.081	0.000	0.000	0.007	0.003	0.000	0.0	0.0
9	80	0.004	0.012	0.093	0.000	0.000	0.011	0.004	0.000	0.0	0.0
10	90	0.004	0.012	0.104	0.000	0.000	0.015	0.005	0.000	0.0	0.0
11	100	0.004	0.012	0.116	0.000	0.000	0.020	0.005	0.000	0.0	0.0
12	110	0.005	0.015	0.131	0.000	0.000	0.027	0.007	0.000	0.0	0.0
13	120	0.005	0.015	0.145	0.000	0.000	0.035	0.008	0.000	0.0	0.0
14	130	0.005	0.015	0.160	0.000	0.000	0.044	0.008	0.000	0.0	0.0
15	140	0.005	0.015	0.174	0.000	0.000	0.053	0.009	0.000	0.0	0.0
16	150	0.005	0.015	0.189	0.000	0.000	0.062	0.009	0.000	0.0	0.0
17	160	0.005	0.015	0.203	0.000	0.000	0.072	0.010	0.000	0.0	0.0
18	170	0.006	0.017	0.220	0.000	0.000	0.084	0.012	0.000	0.0	0.0
19	180	0.006	0.017	0.238	0.000	0.000	0.097	0.013	0.000	0.0	0.0
20	190	0.006	0.017	0.255	0.000	0.000	0.110	0.013	0.000	0.0	0.0
21	200	0.006	0.017	0.273	0.000	0.000	0.123	0.013	0.000	0.0	0.0
22	210	0.006	0.017	0.290	0.000	0.000	0.137	0.014	0.000	0.0	0.0
23	220	0.006	0.017	0.307	0.000	0.000	0.151	0.014	0.000	0.0	0.0
24	230	0.007	0.020	0.328	0.000	0.000	0.168	0.017	0.000	0.0	0.0
25	240	0.007	0.020	0.348	0.000	0.000	0.185	0.017	0.000	0.0	0.0
26	250	0.007	0.020	0.368	0.000	0.000	0.202	0.017	0.000	0.0	0.0
27	260	0.007	0.020	0.389	0.000	0.000	0.219	0.017	0.000	0.0	0.0
28	270	0.007	0.020	0.409	0.000	0.000	0.237	0.018	0.000	0.0	0.0
29	280	0.007	0.020	0.429	0.000	0.000	0.255	0.018	0.000	0.0	0.0
30	290	0.008	0.024	0.453	0.000	0.000	0.276	0.021	0.000	0.0	0.0
31	300	0.008	0.024	0.477	0.000	0.000	0.297	0.021	0.000	0.0	0.0
32	310	0.008	0.024	0.501	0.000	0.000	0.318	0.021	0.000	0.0	0.0
33	320	0.008	0.024	0.524	0.000	0.000	0.340	0.022	0.000	0.0	0.0
34	330	0.008	0.024	0.548	0.000	0.000	0.362	0.022	0.000	0.0	0.0
35	340	0.008	0.024	0.572	0.000	0.000	0.384	0.022	0.000	0.0	0.0
36	350	0.010	0.028	0.599	0.000	0.000	0.409	0.026	0.000	0.0	0.0
37	360	0.010	0.028	0.627	0.000	0.000	0.435	0.026	0.000	0.0	0.0
38	370	0.010	0.028	0.655	0.000	0.000	0.461	0.026	0.000	0.0	0.0

(1) Time Increment	(2) Time (minute)	(3) Rainfall Distrib. (fraction)	(4) Incre. Rainfall (inches)	(5) Accumul. Rainfall (inches)	(6) PERVIOUS		(7) IMPERVIOUS		(10) Total Runoff (inches)	(11) Instant Flowrate (cfs)	(12) Design Flowrate (cfs)
					Accum. Runoff (inches)	Incre. Runoff (inches)	Accum. Runoff (inches)	Incre. Runoff (inches)			
39	380	0.010	0.028	0.682	0.000	0.000	0.486	0.026	0.000	0.0	0.0
40	390	0.010	0.028	0.710	0.000	0.000	0.512	0.026	0.000	0.0	0.0
41	400	0.010	0.028	0.737	0.000	0.000	0.539	0.026	0.000	0.0	0.0
42	410	0.013	0.039	0.776	0.001	0.001	0.575	0.037	0.001	0.1	0.0
43	420	0.013	0.039	0.815	0.003	0.002	0.613	0.037	0.002	0.1	0.0
44	430	0.013	0.039	0.854	0.006	0.003	0.650	0.037	0.003	0.2	0.0
45	440	0.018	0.052	0.906	0.011	0.005	0.700	0.050	0.005	0.3	0.1
46	450	0.018	0.052	0.958	0.017	0.006	0.750	0.050	0.006	0.4	0.1
47	460	0.034	0.099	1.057	0.032	0.015	0.846	0.096	0.015	0.9	0.2
48	470	0.054	0.157	1.213	0.065	0.032	0.999	0.153	0.032	2.0	0.3
49	480	0.027	0.078	1.292	0.085	0.020	1.075	0.077	0.020	1.2	0.5
50	490	0.018	0.052	1.344	0.099	0.014	1.127	0.051	0.014	0.9	0.6
51	500	0.013	0.039	1.383	0.110	0.011	1.165	0.038	0.011	0.7	0.6
52	510	0.013	0.039	1.422	0.122	0.012	1.203	0.038	0.012	0.7	0.6
53	520	0.013	0.039	1.460	0.134	0.012	1.241	0.038	0.012	0.7	0.6
54	530	0.009	0.026	1.486	0.143	0.008	1.266	0.025	0.008	0.5	0.6
55	540	0.009	0.026	1.511	0.151	0.009	1.291	0.025	0.009	0.5	0.6
56	550	0.009	0.026	1.537	0.160	0.009	1.317	0.025	0.009	0.5	0.6
57	560	0.009	0.026	1.563	0.169	0.009	1.342	0.025	0.009	0.5	0.6
58	570	0.009	0.026	1.588	0.178	0.009	1.367	0.025	0.009	0.6	0.6
59	580	0.009	0.026	1.614	0.188	0.009	1.392	0.025	0.009	0.6	0.6
60	590	0.009	0.026	1.639	0.197	0.010	1.417	0.025	0.010	0.6	0.6
61	600	0.009	0.026	1.665	0.207	0.010	1.442	0.025	0.010	0.6	0.6
62	610	0.009	0.026	1.690	0.217	0.010	1.468	0.025	0.010	0.6	0.6
63	620	0.009	0.026	1.716	0.227	0.010	1.493	0.025	0.010	0.6	0.6
64	630	0.009	0.026	1.741	0.237	0.010	1.518	0.025	0.010	0.6	0.6
65	640	0.009	0.026	1.767	0.247	0.010	1.543	0.025	0.010	0.6	0.6
66	650	0.007	0.021	1.788	0.256	0.009	1.564	0.021	0.009	0.5	0.6
67	660	0.007	0.021	1.808	0.265	0.009	1.585	0.021	0.009	0.5	0.6
68	670	0.007	0.021	1.829	0.274	0.009	1.605	0.021	0.009	0.5	0.6
69	680	0.007	0.021	1.850	0.283	0.009	1.626	0.021	0.009	0.5	0.6
70	690	0.007	0.021	1.871	0.292	0.009	1.647	0.021	0.009	0.5	0.6
71	700	0.007	0.021	1.892	0.301	0.009	1.667	0.021	0.009	0.6	0.6
72	710	0.007	0.021	1.913	0.310	0.009	1.688	0.021	0.009	0.6	0.6
73	720	0.007	0.021	1.934	0.319	0.009	1.709	0.021	0.009	0.6	0.6
74	730	0.007	0.021	1.955	0.329	0.009	1.729	0.021	0.009	0.6	0.6
75	740	0.007	0.021	1.975	0.338	0.010	1.750	0.021	0.010	0.6	0.6
76	750	0.007	0.021	1.996	0.348	0.010	1.771	0.021	0.010	0.6	0.6
77	760	0.007	0.021	2.017	0.358	0.010	1.791	0.021	0.010	0.6	0.6
78	770	0.006	0.017	2.034	0.366	0.008	1.808	0.016	0.008	0.5	0.6
79	780	0.006	0.017	2.050	0.374	0.008	1.824	0.016	0.008	0.5	0.6
80	790	0.006	0.017	2.067	0.382	0.008	1.841	0.016	0.008	0.5	0.5
81	800	0.006	0.017	2.083	0.389	0.008	1.857	0.016	0.008	0.5	0.5
82	810	0.006	0.017	2.100	0.398	0.008	1.873	0.016	0.008	0.5	0.5
83	820	0.006	0.017	2.116	0.406	0.008	1.890	0.016	0.008	0.5	0.5
84	830	0.006	0.017	2.133	0.414	0.008	1.906	0.016	0.008	0.5	0.5
85	840	0.006	0.017	2.149	0.422	0.008	1.923	0.016	0.008	0.5	0.5
86	850	0.006	0.017	2.166	0.430	0.008	1.939	0.016	0.008	0.5	0.5
87	860	0.006	0.017	2.183	0.439	0.008	1.955	0.016	0.008	0.5	0.5
88	870	0.006	0.017	2.199	0.447	0.008	1.972	0.016	0.008	0.5	0.5
89	880	0.006	0.017	2.216	0.455	0.008	1.988	0.016	0.008	0.5	0.5
90	890	0.005	0.015	2.230	0.463	0.007	2.003	0.014	0.007	0.4	0.5
91	900	0.005	0.015	2.245	0.470	0.007	2.017	0.014	0.007	0.5	0.5
92	910	0.005	0.015	2.259	0.478	0.008	2.031	0.014	0.008	0.5	0.5
93	920	0.005	0.015	2.274	0.485	0.008	2.046	0.014	0.008	0.5	0.5
94	930	0.005	0.015	2.288	0.493	0.008	2.060	0.014	0.008	0.5	0.5
95	940	0.005	0.015	2.303	0.501	0.008	2.075	0.014	0.008	0.5	0.5

(1) Time Increment	(2) Time (minute)	(3) Rainfall Distrib. (fraction)	(4) Incre. Rainfall (inches)	(5) Accumul. Rainfall (inches)	(6) PERVIOUS		(8) IMPERVIOUS		(10) Total Runoff (inches)	(11) Instant Flowrate (cfs)	(12) Design Flowrate (cfs)
					Accum. Runoff (inches)	Incre. Runoff (inches)	Accum. Runoff (inches)	Incre. Runoff (inches)			
96	950	0.005	0.015	2.317	0.508	0.008	2.089	0.014	0.008	0.5	0.5
97	960	0.005	0.015	2.332	0.516	0.008	2.103	0.014	0.008	0.5	0.5
98	970	0.005	0.015	2.346	0.524	0.008	2.118	0.014	0.008	0.5	0.5
99	980	0.005	0.015	2.361	0.532	0.008	2.132	0.014	0.008	0.5	0.5
100	990	0.005	0.015	2.375	0.539	0.008	2.147	0.014	0.008	0.5	0.5
101	1000	0.005	0.015	2.390	0.547	0.008	2.161	0.014	0.008	0.5	0.5
102	1010	0.004	0.012	2.401	0.554	0.006	2.173	0.012	0.006	0.4	0.5
103	1020	0.004	0.012	2.413	0.560	0.006	2.184	0.012	0.006	0.4	0.5
104	1030	0.004	0.012	2.424	0.566	0.006	2.196	0.012	0.006	0.4	0.4
105	1040	0.004	0.012	2.436	0.573	0.006	2.207	0.012	0.006	0.4	0.4
106	1050	0.004	0.012	2.448	0.579	0.006	2.219	0.012	0.006	0.4	0.4
107	1060	0.004	0.012	2.459	0.585	0.006	2.230	0.012	0.006	0.4	0.4
108	1070	0.004	0.012	2.471	0.592	0.006	2.242	0.012	0.006	0.4	0.4
109	1080	0.004	0.012	2.482	0.598	0.006	2.253	0.012	0.006	0.4	0.4
110	1090	0.004	0.012	2.494	0.605	0.007	2.265	0.012	0.007	0.4	0.4
111	1100	0.004	0.012	2.506	0.611	0.007	2.276	0.012	0.007	0.4	0.4
112	1110	0.004	0.012	2.517	0.618	0.007	2.288	0.012	0.007	0.4	0.4
113	1120	0.004	0.012	2.529	0.625	0.007	2.299	0.012	0.007	0.4	0.4
114	1130	0.004	0.012	2.540	0.631	0.007	2.311	0.012	0.007	0.4	0.4
115	1140	0.004	0.012	2.552	0.638	0.007	2.322	0.012	0.007	0.4	0.4
116	1150	0.004	0.012	2.564	0.644	0.007	2.334	0.012	0.007	0.4	0.4
117	1160	0.004	0.012	2.575	0.651	0.007	2.346	0.012	0.007	0.4	0.4
118	1170	0.004	0.012	2.587	0.658	0.007	2.357	0.012	0.007	0.4	0.4
119	1180	0.004	0.012	2.598	0.664	0.007	2.369	0.012	0.007	0.4	0.4
120	1190	0.004	0.012	2.610	0.671	0.007	2.380	0.012	0.007	0.4	0.4
121	1200	0.004	0.012	2.622	0.678	0.007	2.392	0.012	0.007	0.4	0.4
122	1210	0.004	0.012	2.633	0.685	0.007	2.403	0.012	0.007	0.4	0.4
123	1220	0.004	0.012	2.645	0.691	0.007	2.415	0.012	0.007	0.4	0.4
124	1230	0.004	0.012	2.656	0.698	0.007	2.426	0.012	0.007	0.4	0.4
125	1240	0.004	0.012	2.668	0.705	0.007	2.438	0.012	0.007	0.4	0.4
126	1250	0.004	0.012	2.680	0.712	0.007	2.449	0.012	0.007	0.4	0.4
127	1260	0.004	0.012	2.691	0.719	0.007	2.461	0.012	0.007	0.4	0.4
128	1270	0.004	0.012	2.703	0.726	0.007	2.472	0.012	0.007	0.4	0.4
129	1280	0.004	0.012	2.714	0.732	0.007	2.484	0.012	0.007	0.4	0.4
130	1290	0.004	0.012	2.726	0.739	0.007	2.496	0.012	0.007	0.4	0.4
131	1300	0.004	0.012	2.738	0.746	0.007	2.507	0.012	0.007	0.4	0.4
132	1310	0.004	0.012	2.749	0.753	0.007	2.519	0.012	0.007	0.4	0.4
133	1320	0.004	0.012	2.761	0.760	0.007	2.530	0.012	0.007	0.4	0.4
134	1330	0.004	0.012	2.772	0.767	0.007	2.542	0.012	0.007	0.4	0.4
135	1340	0.004	0.012	2.784	0.774	0.007	2.553	0.012	0.007	0.4	0.4
136	1350	0.004	0.012	2.796	0.781	0.007	2.565	0.012	0.007	0.4	0.4
137	1360	0.004	0.012	2.807	0.788	0.007	2.576	0.012	0.007	0.4	0.4
138	1370	0.004	0.012	2.819	0.795	0.007	2.588	0.012	0.007	0.4	0.4
139	1380	0.004	0.012	2.830	0.803	0.007	2.599	0.012	0.007	0.4	0.4
140	1390	0.004	0.012	2.842	0.810	0.007	2.611	0.012	0.007	0.4	0.4
141	1400	0.004	0.012	2.854	0.817	0.007	2.623	0.012	0.007	0.4	0.4
142	1410	0.004	0.012	2.865	0.824	0.007	2.634	0.012	0.007	0.4	0.4
143	1420	0.004	0.012	2.877	0.831	0.007	2.646	0.012	0.007	0.4	0.4
144	1430	0.004	0.012	2.888	0.838	0.007	2.657	0.012	0.007	0.4	0.4
145	1440	0.004	0.012	2.900	0.845	0.007	2.669	0.012	0.007	0.4	0.4

**Table 2.7**  
**SBUH Values for Developed Site Condition**

Given: Area = 10 acres      P = 2.9 inches (10-yr., 24-hr. event)      dt = 10 minutes  
 PERVIOUS AREA:      Area = 6.1 acres      CN = 89      S = 1.235955      0.2S = 0.25  
 IMPERVIOUS AREA:      Area = 3.9 acres      CN = 98      S = 0.204082      0.2S = 0.04  
 Tc = 28 minutes      w = 0.151515      where S = potential maximum natural detention (as defined earlier)

Column (1) = Time Increment  
 Column (2) = Time (min)  
 Column (3) = Type IA Storm Distribution  
 Column (4) = Column (3) \* P  
 Column (5) = Accumulated sum of Column (4)  
 Column (6) = If (P < 0.2S) = 0, If (P > 0.2S) = (Column (5) - 0.2S)<sup>2</sup> / (Column (5) + 0.8S), where the PERVIOUS AREA S value is used  
 Column (7) = Column (6) of the present step - Column (6) of the previous step  
 Column (8) = Same as Column (6) except use IMPERVIOUS AREA S value  
 Column (9) = Column (8) of the present step - Column (8) of the previous step  
 Column (10) = (PERVIOUS AREA/TOTAL AREA)\*Column (7)+(IMPERVIOUS AREA/TOTAL AREA)\*Column (9)  
 Column (11) = (60.5\*Column (10)\*Total Area)/dt, where dt = 10 or 60 minutes  
 Column (12) = Column (12) of previous time step + w \* [(Column (11) of previous time step + Column (11) of present time step) - (2 \* Column (12) of previous time step)] where w = routing constant = dt/(2Tc + dt) = 0.0641

(1) Time Increment	(2) Time (minute)	(3) Rainfall Distrib. (fraction)	(4) Incre. Rainfall (inches)	(5) Accumul. Rainfall (inches)	PERVIOUS		IMPERVIOUS		(10) Total Runoff (inches)	(11) Instant Flowrate (cfs)	(12) Design Flowrate (cfs)
					(6) Accum. Runoff (inches)	(7) Incre. Runoff (inches)	(8) Accum. Runoff (inches)	(9) Incre. Runoff (inches)			
1	0	0	0	0	0	0	0	0	0	0.0	0.0
2	10	0.004	0.012	0.012	0.000	0.000	0.000	0.000	0.000	0.0	0.0
3	20	0.004	0.012	0.023	0.000	0.000	0.000	0.000	0.000	0.0	0.0
4	30	0.004	0.012	0.035	0.000	0.000	0.000	0.000	0.000	0.0	0.0
5	40	0.004	0.012	0.046	0.000	0.000	0.000	0.000	0.000	0.0	0.0
6	50	0.004	0.012	0.058	0.000	0.000	0.001	0.001	0.000	0.0	0.0
7	60	0.004	0.012	0.070	0.000	0.000	0.004	0.002	0.001	0.1	0.0
8	70	0.004	0.012	0.081	0.000	0.000	0.007	0.003	0.001	0.1	0.0
9	80	0.004	0.012	0.093	0.000	0.000	0.011	0.004	0.002	0.1	0.0
10	90	0.004	0.012	0.104	0.000	0.000	0.015	0.005	0.002	0.1	0.1
11	100	0.004	0.012	0.116	0.000	0.000	0.020	0.005	0.002	0.1	0.1
12	110	0.005	0.015	0.131	0.000	0.000	0.027	0.007	0.003	0.2	0.1
13	120	0.005	0.015	0.145	0.000	0.000	0.035	0.008	0.003	0.2	0.1
14	130	0.005	0.015	0.160	0.000	0.000	0.044	0.008	0.003	0.2	0.1
15	140	0.005	0.015	0.174	0.000	0.000	0.053	0.009	0.003	0.2	0.2
16	150	0.005	0.015	0.189	0.000	0.000	0.062	0.009	0.004	0.2	0.2
17	160	0.005	0.015	0.203	0.000	0.000	0.072	0.010	0.004	0.2	0.2
18	170	0.006	0.017	0.220	0.000	0.000	0.084	0.012	0.005	0.3	0.2
19	180	0.006	0.017	0.238	0.000	0.000	0.097	0.013	0.005	0.3	0.2
20	190	0.006	0.017	0.255	0.000	0.000	0.110	0.013	0.005	0.3	0.3
21	200	0.006	0.017	0.273	0.001	0.000	0.123	0.013	0.006	0.3	0.3
22	210	0.006	0.017	0.290	0.001	0.001	0.137	0.014	0.006	0.4	0.3
23	220	0.006	0.017	0.307	0.003	0.001	0.151	0.014	0.006	0.4	0.3
24	230	0.007	0.020	0.328	0.005	0.002	0.168	0.017	0.008	0.5	0.4
25	240	0.007	0.020	0.348	0.008	0.003	0.185	0.017	0.008	0.5	0.4
26	250	0.007	0.020	0.368	0.011	0.003	0.202	0.017	0.009	0.5	0.4
27	260	0.007	0.020	0.389	0.015	0.004	0.219	0.017	0.009	0.5	0.5
28	270	0.007	0.020	0.409	0.019	0.004	0.237	0.018	0.009	0.6	0.5
29	280	0.007	0.020	0.429	0.023	0.005	0.255	0.018	0.010	0.6	0.5
30	290	0.008	0.024	0.453	0.029	0.006	0.276	0.021	0.012	0.7	0.6
31	300	0.008	0.024	0.477	0.036	0.007	0.297	0.021	0.012	0.7	0.6
32	310	0.008	0.024	0.501	0.043	0.007	0.318	0.021	0.013	0.8	0.7
33	320	0.008	0.024	0.524	0.051	0.008	0.340	0.022	0.013	0.8	0.7
34	330	0.008	0.024	0.548	0.059	0.008	0.362	0.022	0.013	0.8	0.7
35	340	0.008	0.024	0.572	0.068	0.009	0.384	0.022	0.014	0.8	0.8
36	350	0.010	0.028	0.599	0.078	0.011	0.409	0.026	0.016	1.0	0.8
37	360	0.010	0.028	0.627	0.089	0.011	0.435	0.026	0.017	1.0	0.9
38	370	0.010	0.028	0.655	0.101	0.012	0.461	0.026	0.017	1.0	0.9

(1)	(2)	(3)	(4)	(5)	(6) (7)		(8)	(9)	(10)	(11)	(12)
Time Increment	Time (minute)	Rainfall Distrib. (fraction)	Incre. Rainfall (inches)	Accumul. Rainfall (inches)	PERVIOUS		IMPERVIOUS		Total Runoff (inches)	Instant Flowrate (cfs)	Design Flowrate (cfs)
					Accum. Runoff (inches)	Incre. Runoff (inches)	Accum. Runoff (inches)	Incre. Runoff (inches)			
39	380	0.010	0.028	0.682	0.113	0.012	0.486	0.026	0.018	1.1	1.0
40	390	0.010	0.028	0.710	0.126	0.013	0.512	0.026	0.018	1.1	1.0
41	400	0.010	0.028	0.737	0.139	0.013	0.539	0.026	0.018	1.1	1.0
42	410	0.013	0.039	0.776	0.158	0.019	0.575	0.037	0.026	1.6	1.1
43	420	0.013	0.039	0.815	0.179	0.020	0.613	0.037	0.027	1.6	1.3
44	430	0.013	0.039	0.854	0.200	0.021	0.650	0.037	0.027	1.7	1.4
45	440	0.018	0.052	0.906	0.229	0.029	0.700	0.050	0.037	2.3	1.6
46	450	0.018	0.052	0.958	0.260	0.031	0.750	0.050	0.038	2.3	1.8
47	460	0.034	0.099	1.057	0.320	0.061	0.846	0.096	0.074	4.5	2.3
48	470	0.054	0.157	1.213	0.424	0.103	0.999	0.153	0.123	7.4	3.4
49	480	0.027	0.078	1.292	0.478	0.054	1.075	0.077	0.063	3.8	4.1
50	490	0.018	0.052	1.344	0.516	0.037	1.127	0.051	0.043	2.6	3.8
51	500	0.013	0.039	1.383	0.544	0.028	1.165	0.038	0.032	1.9	3.3
52	510	0.013	0.039	1.422	0.572	0.028	1.203	0.038	0.032	2.0	2.9
53	520	0.013	0.039	1.460	0.601	0.029	1.241	0.038	0.032	2.0	2.6
54	530	0.009	0.026	1.486	0.620	0.019	1.266	0.025	0.021	1.3	2.3
55	540	0.009	0.026	1.511	0.639	0.019	1.291	0.025	0.022	1.3	2.0
56	550	0.009	0.026	1.537	0.659	0.019	1.317	0.025	0.022	1.3	1.8
57	560	0.009	0.026	1.563	0.678	0.019	1.342	0.025	0.022	1.3	1.7
58	570	0.009	0.026	1.588	0.698	0.020	1.367	0.025	0.022	1.3	1.5
59	580	0.009	0.026	1.614	0.717	0.020	1.392	0.025	0.022	1.3	1.5
60	590	0.009	0.026	1.639	0.737	0.020	1.417	0.025	0.022	1.3	1.4
61	600	0.009	0.026	1.665	0.757	0.020	1.442	0.025	0.022	1.3	1.4
62	610	0.009	0.026	1.690	0.777	0.020	1.468	0.025	0.022	1.3	1.4
63	620	0.009	0.026	1.716	0.797	0.020	1.493	0.025	0.022	1.3	1.4
64	630	0.009	0.026	1.741	0.818	0.020	1.518	0.025	0.022	1.3	1.4
65	640	0.009	0.026	1.767	0.838	0.020	1.543	0.025	0.022	1.3	1.4
66	650	0.007	0.021	1.788	0.855	0.017	1.564	0.021	0.018	1.1	1.3
67	660	0.007	0.021	1.808	0.871	0.017	1.585	0.021	0.018	1.1	1.3
68	670	0.007	0.021	1.829	0.888	0.017	1.605	0.021	0.018	1.1	1.2
69	680	0.007	0.021	1.850	0.905	0.017	1.626	0.021	0.018	1.1	1.2
70	690	0.007	0.021	1.871	0.922	0.017	1.647	0.021	0.018	1.1	1.2
71	700	0.007	0.021	1.892	0.939	0.017	1.667	0.021	0.018	1.1	1.1
72	710	0.007	0.021	1.913	0.956	0.017	1.688	0.021	0.018	1.1	1.1
73	720	0.007	0.021	1.934	0.973	0.017	1.709	0.021	0.019	1.1	1.1
74	730	0.007	0.021	1.955	0.990	0.017	1.729	0.021	0.019	1.1	1.1
75	740	0.007	0.021	1.975	1.008	0.017	1.750	0.021	0.019	1.1	1.1
76	750	0.007	0.021	1.996	1.025	0.017	1.771	0.021	0.019	1.1	1.1
77	760	0.007	0.021	2.017	1.042	0.017	1.791	0.021	0.019	1.1	1.1
78	770	0.006	0.017	2.034	1.056	0.014	1.808	0.016	0.015	0.9	1.1
79	780	0.006	0.017	2.050	1.070	0.014	1.824	0.016	0.015	0.9	1.0
80	790	0.006	0.017	2.067	1.084	0.014	1.841	0.016	0.015	0.9	1.0
81	800	0.006	0.017	2.083	1.097	0.014	1.857	0.016	0.015	0.9	1.0
82	810	0.006	0.017	2.100	1.111	0.014	1.873	0.016	0.015	0.9	0.9
83	820	0.006	0.017	2.116	1.125	0.014	1.890	0.016	0.015	0.9	0.9
84	830	0.006	0.017	2.133	1.139	0.014	1.906	0.016	0.015	0.9	0.9
85	840	0.006	0.017	2.149	1.153	0.014	1.923	0.016	0.015	0.9	0.9
86	850	0.006	0.017	2.166	1.167	0.014	1.939	0.016	0.015	0.9	0.9
87	860	0.006	0.017	2.183	1.181	0.014	1.955	0.016	0.015	0.9	0.9
88	870	0.006	0.017	2.199	1.195	0.014	1.972	0.016	0.015	0.9	0.9
89	880	0.006	0.017	2.216	1.209	0.014	1.988	0.016	0.015	0.9	0.9
90	890	0.005	0.015	2.230	1.222	0.012	2.003	0.014	0.013	0.8	0.9
91	900	0.005	0.015	2.245	1.234	0.012	2.017	0.014	0.013	0.8	0.9
92	910	0.005	0.015	2.259	1.246	0.012	2.031	0.014	0.013	0.8	0.8
93	920	0.005	0.015	2.274	1.259	0.012	2.046	0.014	0.013	0.8	0.8
94	930	0.005	0.015	2.288	1.271	0.012	2.060	0.014	0.013	0.8	0.8
95	940	0.005	0.015	2.303	1.284	0.012	2.075	0.014	0.013	0.8	0.8

(1)	(2)	(3)	(4)	(5)	(6) PERVIOUS		(8) IMPERVIOUS		(10)	(11)	(12)
Time Increment	Time (minute)	Rainfall Distrib. (fraction)	Incr. Rainfall (inches)	Accumul. Rainfall (inches)	Accum. Runoff (inches)	Incr. Runoff (inches)	Accum. Runoff (inches)	Incr. Runoff (inches)	Total Runoff (inches)	Instant Flowrate (cfs)	Design Flowrate (cfs)
96	950	0.005	0.015	2.317	1.296	0.012	2.089	0.014	0.013	0.8	0.8
97	960	0.005	0.015	2.332	1.309	0.012	2.103	0.014	0.013	0.8	0.8
98	970	0.005	0.015	2.346	1.321	0.012	2.118	0.014	0.013	0.8	0.8
99	980	0.005	0.015	2.361	1.334	0.013	2.132	0.014	0.013	0.8	0.8
100	990	0.005	0.015	2.375	1.346	0.013	2.147	0.014	0.013	0.8	0.8
101	1000	0.005	0.015	2.390	1.359	0.013	2.161	0.014	0.013	0.8	0.8
102	1010	0.004	0.012	2.401	1.369	0.010	2.173	0.012	0.011	0.6	0.8
103	1020	0.004	0.012	2.413	1.379	0.010	2.184	0.012	0.011	0.6	0.7
104	1030	0.004	0.012	2.424	1.389	0.010	2.196	0.012	0.011	0.6	0.7
105	1040	0.004	0.012	2.436	1.399	0.010	2.207	0.012	0.011	0.6	0.7
106	1050	0.004	0.012	2.448	1.409	0.010	2.219	0.012	0.011	0.6	0.7
107	1060	0.004	0.012	2.459	1.419	0.010	2.230	0.012	0.011	0.6	0.7
108	1070	0.004	0.012	2.471	1.429	0.010	2.242	0.012	0.011	0.6	0.7
109	1080	0.004	0.012	2.482	1.439	0.010	2.253	0.012	0.011	0.6	0.7
110	1090	0.004	0.012	2.494	1.449	0.010	2.265	0.012	0.011	0.6	0.7
111	1100	0.004	0.012	2.506	1.460	0.010	2.276	0.012	0.011	0.6	0.7
112	1110	0.004	0.012	2.517	1.470	0.010	2.288	0.012	0.011	0.6	0.6
113	1120	0.004	0.012	2.529	1.480	0.010	2.299	0.012	0.011	0.6	0.6
114	1130	0.004	0.012	2.540	1.490	0.010	2.311	0.012	0.011	0.6	0.6
115	1140	0.004	0.012	2.552	1.500	0.010	2.322	0.012	0.011	0.6	0.6
116	1150	0.004	0.012	2.564	1.510	0.010	2.334	0.012	0.011	0.6	0.6
117	1160	0.004	0.012	2.575	1.521	0.010	2.346	0.012	0.011	0.6	0.6
118	1170	0.004	0.012	2.587	1.531	0.010	2.357	0.012	0.011	0.6	0.6
119	1180	0.004	0.012	2.598	1.541	0.010	2.369	0.012	0.011	0.6	0.6
120	1190	0.004	0.012	2.610	1.551	0.010	2.380	0.012	0.011	0.6	0.6
121	1200	0.004	0.012	2.622	1.562	0.010	2.392	0.012	0.011	0.6	0.6
122	1210	0.004	0.012	2.633	1.572	0.010	2.403	0.012	0.011	0.7	0.6
123	1220	0.004	0.012	2.645	1.582	0.010	2.415	0.012	0.011	0.7	0.6
124	1230	0.004	0.012	2.656	1.592	0.010	2.426	0.012	0.011	0.7	0.7
125	1240	0.004	0.012	2.668	1.603	0.010	2.438	0.012	0.011	0.7	0.7
126	1250	0.004	0.012	2.680	1.613	0.010	2.449	0.012	0.011	0.7	0.7
127	1260	0.004	0.012	2.691	1.623	0.010	2.461	0.012	0.011	0.7	0.7
128	1270	0.004	0.012	2.703	1.633	0.010	2.472	0.012	0.011	0.7	0.7
129	1280	0.004	0.012	2.714	1.644	0.010	2.484	0.012	0.011	0.7	0.7
130	1290	0.004	0.012	2.726	1.654	0.010	2.496	0.012	0.011	0.7	0.7
131	1300	0.004	0.012	2.738	1.664	0.010	2.507	0.012	0.011	0.7	0.7
132	1310	0.004	0.012	2.749	1.675	0.010	2.519	0.012	0.011	0.7	0.7
133	1320	0.004	0.012	2.761	1.685	0.010	2.530	0.012	0.011	0.7	0.7
134	1330	0.004	0.012	2.772	1.695	0.010	2.542	0.012	0.011	0.7	0.7
135	1340	0.004	0.012	2.784	1.706	0.010	2.553	0.012	0.011	0.7	0.7
136	1350	0.004	0.012	2.796	1.716	0.010	2.565	0.012	0.011	0.7	0.7
137	1360	0.004	0.012	2.807	1.726	0.010	2.576	0.012	0.011	0.7	0.7
138	1370	0.004	0.012	2.819	1.737	0.010	2.588	0.012	0.011	0.7	0.7
139	1380	0.004	0.012	2.830	1.747	0.010	2.599	0.012	0.011	0.7	0.7
140	1390	0.004	0.012	2.842	1.758	0.010	2.611	0.012	0.011	0.7	0.7
141	1400	0.004	0.012	2.854	1.768	0.010	2.623	0.012	0.011	0.7	0.7
142	1410	0.004	0.012	2.865	1.778	0.010	2.634	0.012	0.011	0.7	0.7
143	1420	0.004	0.012	2.877	1.789	0.010	2.646	0.012	0.011	0.7	0.7
144	1430	0.004	0.012	2.888	1.799	0.010	2.657	0.012	0.011	0.7	0.7
145	1440	0.004	0.012	2.900	1.810	0.010	2.669	0.012	0.011	0.7	0.7

### 2.3.4 Hydrograph Routing (Sizing Detention Facilities)

A methodology is presented here for routing a hydrograph through an existing retention/detention facility or closed depression, and for sizing a new retention/detention facility using hydrograph analysis.

**Storage Routing Technique:** The “level pool routing” technique presented here is one of the simplest and most commonly used hydrograph routing methods. This method is described in “Handbook of Applied Hydrology,” Chow, V. Te, 1964, and elsewhere, and is based on the continuity equation:

Inflow - Outflow = Change in Storage

$$\left[ \frac{I_1 + I_2}{2} - \frac{O_1 + O_2}{2} \right] = \frac{\Delta S}{\Delta t} = \frac{S_2 - S_1}{\Delta t}$$

Where  $I$  = Inflow at time 1 and time 2

$O$  = Outflow at time 1 and time 2

$S$  = Storage at time 1 and time 2

$\Delta t$  = Time interval, 2-1

The time interval,  $\Delta t$ , must be consistent with the time interval used in developing the inflow hydrograph. The time interval used for a 24-hour storm is 10 minutes while the time interval used for a 7-day storm is 60 minutes. The  $\Delta t$  variable can be eliminated by dividing it into the storage variables to obtain the following rearranged equation:

$$I_1 + I_2 + 2S_1 - O_1 = O_2 + 2S_2$$

If the time interval,  $\Delta t$ , is in minutes and the units of storage ( $S$ ) are in cubic feet (cf), this can be converted to cubic feet per second (cfs) by dividing by 60.

The terms  $I_1$ ,  $I_2$ ,  $O_1$ , and  $S_1$  are known from the inflow hydrograph and from the storage and outflow values of the previous time step. The unknowns  $O_2$  and  $S_2$  can be solved interactively from the given stage-storage and stage-discharge curves.



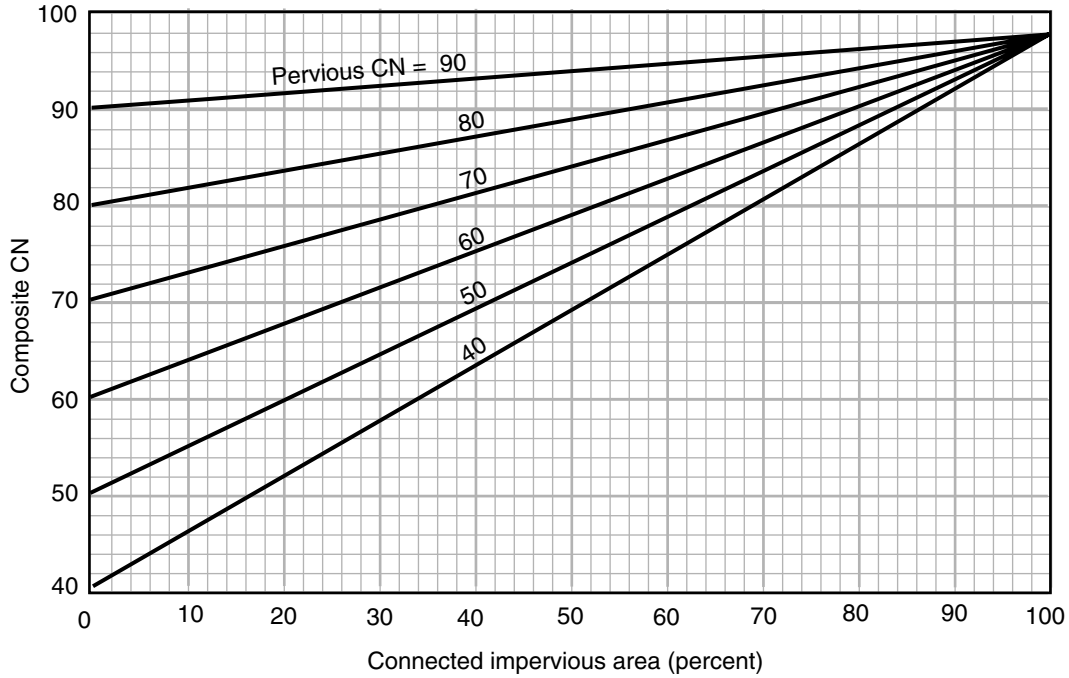
## **Appendix D –**

---

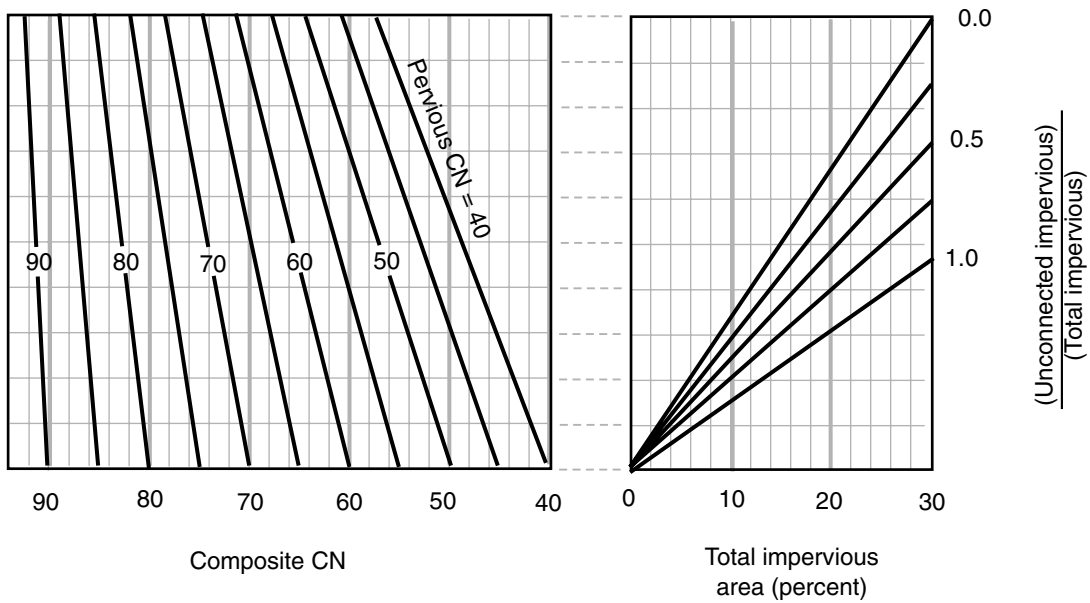
**NRCS Table of Curve Numbers**

**Time of Concentration Calculation**

**Figure 2-3** Composite CN with connected impervious area.



**Figure 2-4** Composite CN with unconnected impervious areas and total impervious area less than 30%.



**Table 2-2a** Runoff curve numbers for urban areas <sup>1/</sup>

Cover description	Average percent impervious area <sup>2/</sup>	Curve numbers for hydrologic soil group			
		A	B	C	D
<b>Fully developed urban areas (vegetation established)</b>					
Open space (lawns, parks, golf courses, cemeteries, etc.) <sup>3/</sup> :					
Poor condition (grass cover < 50%) .....		68	79	86	89
Fair condition (grass cover 50% to 75%) .....		49	69	79	84
Good condition (grass cover > 75%) .....		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way) .....		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way) .....		98	98	98	98
Paved; open ditches (including right-of-way) .....		83	89	92	93
Gravel (including right-of-way) .....		76	85	89	91
Dirt (including right-of-way) .....		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) <sup>4/</sup> .....		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders) .....		96	96	96	96
Urban districts:					
Commercial and business .....	85	89	92	94	95
Industrial .....	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses) .....	65	77	85	90	92
1/4 acre .....	38	61	75	83	87
1/3 acre .....	30	57	72	81	86
1/2 acre .....	25	54	70	80	85
1 acre .....	20	51	68	79	84
2 acres .....	12	46	65	77	82

**Developing urban areas**

Newly graded areas  
(pervious areas only, no vegetation) <sup>5/</sup> .....

	77	86	91	94
--	----	----	----	----

Idle lands (CN's are determined using cover types  
similar to those in table 2-2c).

<sup>1/</sup> Average runoff condition, and  $I_a = 0.2S$ .

<sup>2/</sup> The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

<sup>3/</sup> CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

<sup>4/</sup> Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

<sup>5/</sup> Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

**Table 2-2b** Runoff curve numbers for cultivated agricultural lands <sup>1/</sup>

Cover description			Curve numbers for hydrologic soil group			
Cover type	Treatment <sup>2/</sup>	Hydrologic condition <sup>3/</sup>	A	B	C	D
Fallow	Bare soil	—	77	86	91	94
	Crop residue cover (CR)	Poor	76	85	90	93
		Good	74	83	88	90
Row crops	Straight row (SR)	Poor	72	81	88	91
		Good	67	78	85	89
	SR + CR	Poor	71	80	87	90
		Good	64	75	82	85
	Contoured (C)	Poor	70	79	84	88
		Good	65	75	82	86
	C + CR	Poor	69	78	83	87
		Good	64	74	81	85
	Contoured & terraced (C&T)	Poor	66	74	80	82
		Good	62	71	78	81
C&T+ CR	Poor	65	73	79	81	
	Good	61	70	77	80	
Small grain	SR	Poor	65	76	84	88
		Good	63	75	83	87
	SR + CR	Poor	64	75	83	86
		Good	60	72	80	84
	C	Poor	63	74	82	85
		Good	61	73	81	84
	C + CR	Poor	62	73	81	84
		Good	60	72	80	83
	C&T	Poor	61	72	79	82
		Good	59	70	78	81
C&T+ CR	Poor	60	71	78	81	
	Good	58	69	77	80	
Close-seeded or broadcast legumes or rotation meadow	SR	Poor	66	77	85	89
		Good	58	72	81	85
	C	Poor	64	75	83	85
		Good	55	69	78	83
	C&T	Poor	63	73	80	83
		Good	51	67	76	80

<sup>1</sup> Average runoff condition, and  $I_a=0.2S$

<sup>2</sup> Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

<sup>3</sup> Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good  $\geq 20\%$ ), and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

**Table 2-2c** Runoff curve numbers for other agricultural lands <sup>1/</sup>

Cover description	Hydrologic condition	Curve numbers for hydrologic soil group			
		A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. <sup>2/</sup>	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. <sup>3/</sup>	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 <sup>4/</sup>	48	65	73
Woods—grass combination (orchard or tree farm). <sup>5/</sup>	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. <sup>6/</sup>	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 <sup>4/</sup>	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

<sup>1</sup> Average runoff condition, and  $I_a = 0.2S$ .

<sup>2</sup> **Poor:** <50% ground cover or heavily grazed with no mulch.

**Fair:** 50 to 75% ground cover and not heavily grazed.

**Good:** > 75% ground cover and lightly or only occasionally grazed.

<sup>3</sup> **Poor:** <50% ground cover.

**Fair:** 50 to 75% ground cover.

**Good:** >75% ground cover.

<sup>4</sup> Actual curve number is less than 30; use CN = 30 for runoff computations.

<sup>5</sup> CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

<sup>6</sup> **Poor:** Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

**Fair:** Woods are grazed but not burned, and some forest litter covers the soil.

**Good:** Woods are protected from grazing, and litter and brush adequately cover the soil.

**Table 2-2d** Runoff curve numbers for arid and semiarid rangelands <sup>1/</sup>

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition <sup>2/</sup>	A <sup>3/</sup>	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

<sup>1</sup> Average runoff condition, and  $I_a = 0.2S$ . For range in humid regions, use table 2-2c.

<sup>2</sup> Poor: <30% ground cover (litter, grass, and brush overstory).

Fair: 30 to 70% ground cover.

Good: > 70% ground cover.

<sup>3</sup> Curve numbers for group A have been developed only for desert shrub.

# Worksheet 2: Runoff curve number and runoff

Project	By	Date
Location	Checked	Date

Check one:  Present  Developed

## 1. Runoff curve number

Soil name and hydrologic group <small>(appendix A)</small>	Cover description  <small>(cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)</small>	CN <sup>1/</sup>			Area  <input type="checkbox"/> acres <input type="checkbox"/> mi <sup>2</sup> <input type="checkbox"/> %	Product of CN x area
		Table 2-2	Figure 2-3	Figure 2-4		

<sup>1/</sup> Use only one CN source per line

**Totals** ➡

CN (weighted) =  $\frac{\text{total product}}{\text{total area}}$  = \_\_\_\_\_ = \_\_\_\_\_ ;

**Use CN** ➡

## 2. Runoff

	Storm #1	Storm #2	Storm #3
Frequency ..... yr			
Rainfall, P (24-hour) ..... in			
Runoff, Q ..... in			

(Use P and CN with table 2-1, figure 2-1, or equations 2-3 and 2-4)



### TR 55 Worksheet 3: Time of Concentration (T<sub>c</sub>) or Travel Time (T<sub>t</sub>)

Project: \_\_\_\_\_ Designed By: \_\_\_\_\_ Date: \_\_\_\_\_

Location: \_\_\_\_\_ Checked By: \_\_\_\_\_ Date: \_\_\_\_\_

Circle one: Present      Developed

Circle one: T<sub>c</sub>    T<sub>t</sub>    through subarea \_\_\_\_\_

*NOTES: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.*

Sheet Flow (Applicable to T<sub>c</sub> only)

Segment ID

1. Surface description (Table 3-1) .....
2. Manning's roughness coeff., n (Table 3-1) .....
3. Flow length, L (total L ≤ 100 ft) ..... ft
4. Two-year 24-hour rainfall, P<sub>2</sub>..... in
5. Land slope, s ..... ft/ft
6.  $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$       Compute T<sub>t</sub> ..... hr

+	= <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span>

Shallow Concentrated Flow

Segment ID

7. Surface description (paved or unpaved) .....
8. Flow length, L ..... ft
9. Watercourse slope, s ..... ft/ft
10. Average velocity, V (Figure 3-1) ..... ft/s
11.  $T_t = \frac{L}{3600 V}$       Compute T<sub>t</sub> ..... hr

+	= <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span>

Channel Flow

Segment ID

12. Cross sectional flow area, a ..... ft<sup>2</sup>
13. Wetted perimeter, P<sub>w</sub> ..... ft
14. Hydraulic radius,  $r = \frac{a}{P_w}$  Compute r ..... ft
15. Channel Slope, s ..... ft/ft
16. Manning's Roughness Coeff., n .....
17.  $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$       Compute V ..... ft/s
18. Flow length, L ..... ft
19.  $T_t = \frac{L}{3600 V}$       Compute T<sub>t</sub> ..... hr
20. Watershed or subarea T<sub>c</sub> or T<sub>t</sub> (add T<sub>t</sub> in steps 6, 11, and 19) ..... hr

+	= <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span>
+	= <span style="border: 1px solid black; display: inline-block; width: 40px; height: 15px;"></span>

# Appendix E - Plant Specifications

---

## TABLE OF CONTENTS

Criteria for Choosing Plants.....	E-1
Recommendations for Stormwater Management.....	E-1
Soil Depth Influences Plant Choice.....	E-1
Plant Spacing, Density & Container Size.....	E-2
Safety & Crime.....	E-3
Choosing Plants from Plant Lists Generated Using USDA PLANTS Database.....	E-3
Planting Techniques.....	E-10
Planting in Containers.....	E-11
Planting in the Ground.....	E-11
Establishment Period Maintenance.....	E-11
Irrigation.....	E-11
Integrated Pest Management.....	E-12
Sourcing Plants.....	E-13
References.....	E-13

## Appendix E - Plant Specifications

---

### CRITERIA FOR CHOOSING PLANTS

Above all, plants should be chosen using the motto “Right Plant, Right Place”. Plants in BMPs provide many ecological, hydraulic, and social functions, which must be considered. When choosing the best plants as stormwater managers, first consider water quality function of the facility. A diverse assembly of long-lived plants should be chosen according to the guidance provided throughout this appendix. Varying heights and rooting depths are also beneficial, if feasible.

### Recommendations for Stormwater Management

Natives, non-natives, and invasives are not interchangeable terms. Their differences and the reasons for the following recommendations are provided below.

**Suitable Plants Hierarchy.** When choosing suitable plants, use the following hierarchy:

- Due to the availability of a variety of suitable species at nurseries (NPSO [a]), we recommend using native plants (groundcover, forbs (flowers), shrubs, and trees) wherever possible. In the case of street trees, if soils are highly degraded, avoid native trees.
- Use non-native plants only with the following research:
  - Avoid plants that reproduce readily. These are plants that spread by seeds (*e.g.* grasses), rhizomes (when a piece of broken off root will start a new plant, *e.g.* Yellow flag iris), or culms (when a piece of a stem is able to re-root, *e.g.* English Ivy), etc.
  - Avoid plants listed for “Exotic Gardening and Landscaping Plants” on the Native Plant Society’s Emerald Chapter website (NPSO [b]) that are emerging as problematic. Avoid plants listed on the invasive plant lists of Washington (Washington State NWCB) and California (ISCC).
- Avoid invasive plants listed on the Oregon Department of Agriculture “Oregon Noxious Weed List” (Oregon Department of Agriculture, 2016).
- A list of native plant and seed suppliers in Oregon is available on Rogue Valley Sewer Services website under [Appendix E](#).

### Soil Depth Influences Plant Choice

Generally, the more soil, the better it will be for the plant. Choose plants that, at maturity, will still have enough soil to be low maintenance. Too little soil can stunt the size of the plant or, in the case of trees, cause it to be unhealthy and drop limbs. For plants to reach their full size at maturity and be low maintenance, soil depth requirements vary with the plant type. Generally, soil depth minimums are as follows:

- Sedums: 2”
- Grasses: 12”. Generally, the roots of grasses and grass-like plants will be as deep as the plant is tall so some species may benefit from deeper soil.
- Shrubs: 18”, but 24” is preferable.
- Trees: 36”, but depending on the species, trees also need a minimum volume of soil, 400 to 1,000 cubic feet. Since tree roots often don’t extend much deeper than 3 feet, the minimum area needed is 133 to 333 square feet (see Chapter 3 of the LID Guide “Tree Planting BMP”).

**Lined Vegetated Stormwater Facilities.** Trees are not suitable for lined facilities unless additional cost is incurred to incorporate adequate soil depths.

# Appendix E - Plant Specifications

## PLANT SPACING, DENSITY & CONTAINER SIZE

**Applicability.** The information in this section applies to the following BMPs:

- Restored Soils BMP
- Vegetated Roofs (Green Roofs) BMP
- Rain Garden BMP
- Stormwater Planter BMP
- LID Swale BMP
- Water Quality Conveyance Swale BMP
- Vegetated Filter Strip BMP

The BMPs above rely on good vegetative cover to optimize water quality treatment and reduce maintenance needs, such as weeding.

Plant spacing and pot size needed to achieve the coverage goals -- provided in the detailed guidance for each BMP in Chapter 4 – vary based on the type of plant, as follows. This section does not apply to street tree planting.

**Suggested Plant Tables for Combining Plant Types.** Plant densities that exceed the following tables may be desired for initial aesthetic reasons. For a cost- and environmentally-effective facility, minimum required plant quantities are as follows:

**Table E-1.** Plant numbers and spacing requirements for a vegetation mix consisting primarily of herbaceous plants and small shrubs.

Number of plants	Vegetation type	Per square feet of BMP	Size	Spacing density (average on center)*
66	Herbaceous plants	100	plugs or larger	1.5'
OR				
58	Herbaceous plants	100	plugs or larger	1.5'
4	Small shrubs	100	1 gallon	3' to 4'**
OR				
100% Native low-mow or no-mow seed coverage (follow supplier guidelines for density)				

\* An average on-center density is provided as general guidance. However to prevent short circuiting, plants must be randomly placed throughout per Standard Drawings BMP 1.04, 2.05, 3.03.

\*\* Depending on mature spread. Shrubs may be placed farther away than the density indicated but not closer.

## Appendix E - Plant Specifications

**Table E-2.** Plant numbers and spacing requirements for a mix of herbaceous plants, small and large shrubs.

Number of plants	Vegetation type	Per square feet of BMP	Size	Spacing density (average on center)*
58	Herbaceous plants	100	plugs or larger	1.5'
4	Large shrubs	100	1 gallon	4' to 8'**
OR				
6	Medium to small shrubs	100	1 gallon	3' to 8'**
35	Small shrubs	100	1 gallon	3' to 4'**

\* To reduce erosion, plants should be randomly located. The average on-center density is provided as general guidance.

\*\* Depending on mature spread. Shrubs may be placed farther away than density indicated but not closer.

**Table E-3.** Trees may be added to any of the above planting configurations, if appropriate. The recommended minimum density for trees is as follows.

Number of plants	Vegetation type	Per square feet of BMP	Size
1	Evergreen tree	300	6' minimum height
OR			
1	Deciduous tree	300	1.5" minimum diameter*

\* Measured at a height 6 inches above the base.

### SAFETY & CRIME

Regardless of the land use, vegetation should not block ground floor views either to or from a property (sometimes referred to as “eyes on the street”) or provide hiding places for unauthorized users. Shrubs that grow excessively dense and/or tall should be planted with care. Some questions to ask about chosen plants when they reach their mature height and spread are as follows.

Will this plant (or associated landscape elements such as rocks, benches, etc):

- Obstruct traffic or block road signs? Check for setbacks and height limitations in rights of ways.
- Create a hazard? Does the plant have weak branches or does it tend to create excessively slippery or otherwise hazardous debris?
- Block views of ground floor windows or doors?
- Provide a place for unauthorized users to hide?
- Provide unauthorized access to a roof?
- Redirect foot traffic away from access points with the use of short, impenetrable hedges or thorny shrubs?

### CHOOSING PLANTS FROM PLANT LISTS GENERATED USING USDA PLANTS DATABASE


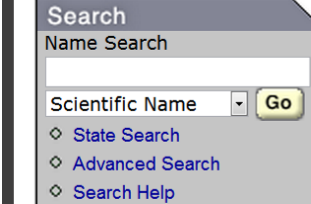
Moisture is considered one of the most important factors in choosing successful plants for your BMPs. Consider the drying effects of sunlight and wind when determining the moisture available at your site. As a result of buildings and other shading infrastructure, even very small sites may have a combination of light and moisture

# Appendix E - Plant Specifications

availability.

The USDA has online guidance for finding plants native to your state and even your county. As the search is more and more narrowed, fewer plants will be on the final list. Where you need more detailed guidance, a qualified landscape architect, landscape designer, or horticulturist can assist with narrowing the palette for your region.

**Table E-4.** The following tutorial with screen shots should help you use their website to identify suitable plants for your project. You may want to visit a nearby native plant nursery to check plant availability. If no native plant nursery is nearby, native plants are still likely to be available in your region, but cross-reference what’s available in your area with this database.

Tutorial Directions & Related Information:	What To Look For OR What You’ll See:
Generate a List of Native Plants in Your County:	
<p>1. Go online to the USDA PLANTS Database at: <a href="http://plants.usda.gov">plants.usda.gov</a></p>	
<p>2. In the upper left hand corner click on “Advanced Search”.</p>	
<p>3. We’re going to pick and choose a few different items on the “Advanced Search and Download” web page. Not all search options need attention. For any of these scroll menus, you may have to click outside the box in white space to get your choice to “stick”.</p> <p>Start by scrolling down under “Part A: PLANTS Core Data” to “1. Distribution” to “County Distribution” and choose your county. For this example, we’ll use Coos County.</p>	<p><b>I. Distribution</b></p> <p>PLANTS Floristic Area or Not include: Any, PLANTS Floristic Area, --North America, --Lower 48 U.S. States, --Alaska, --Canada</p> <p>Note: PLANTS Floristic Area or Not cannot be used with the next two search boxes.</p> <p>State and Province include: Any, U.S. States, --Alabama, --Alaska, --Arizona, --Arkansas</p> <p>Note: County results are added to State and Province results. See About the Advanced Search and Download for details.</p> <p>County Distribution (Select a maximum of 256) include: Oregon: Clatsop, Oregon: Columbia, <b>Oregon: Coos</b>, Oregon: Crook, Oregon: Curry, Oregon: Deschutes</p>

## Appendix E - Plant Specifications

<p>4. Scroll down under “Part A: PLANTS Core Data” to “2. Taxonomy” to “National Common Name” and click the checkbox to the right that says “Display”</p>	<p>National Common Name include: <input type="text"/> <input checked="" type="checkbox"/> Display Wild cards are permitted.</p>																				
<p>5. Scroll down under “Part A: PLANTS Core Data” to “3. Ecology” to “Duration” and choose “Perennial”</p>	<p><b>3. Ecology</b> Duration include: <input type="text" value="Any"/> Annual Biennial Perennial</p>																				
<p>6. Scroll down to the next item under “Part A: PLANTS Core Data” to “3. Ecology” to “Native Status” and choose “--L48 Native”</p>	<p><b>3. Ecology</b> Duration include: <input type="text" value="Any"/> Annual Biennial Perennial Growth Habit include: <input type="text" value="Any"/> Forb/herb Graminoid Lichenous Native Status include: <input type="text" value="Any"/> Native to PLANTS Floristic Area --North America Native --L48 Native --AK Native --CAN Native</p>																				
<p>7. A list (partially shown here) is generated of all perennial plants native to your county with their common names. To the right is the beginning of the list for Coos County.</p>	<table border="0"> <thead> <tr> <th>Scientific Name</th> <th>Common Name</th> </tr> </thead> <tbody> <tr> <td><i>Abies grandis</i></td> <td>grand fir</td> </tr> <tr> <td><i>Abronia latifolia</i></td> <td>coastal sand verbena</td> </tr> <tr> <td><i>Abronia umbellata</i></td> <td>pink sand verbena</td> </tr> <tr> <td><i>Abronia umbellata ssp. breviflora</i></td> <td>pink sand verbena</td> </tr> <tr> <td><i>Acer circinatum</i></td> <td>vine maple</td> </tr> <tr> <td><i>Acer glabrum</i></td> <td>Rocky Mountain maple</td> </tr> <tr> <td><i>Acer macrophyllum</i></td> <td>bigleaf maple</td> </tr> <tr> <td><i>Achillea millefolium</i></td> <td>common yarrow</td> </tr> <tr> <td><i>Achillea millefolium var. littoralis</i></td> <td>coast yarrow</td> </tr> </tbody> </table>	Scientific Name	Common Name	<i>Abies grandis</i>	grand fir	<i>Abronia latifolia</i>	coastal sand verbena	<i>Abronia umbellata</i>	pink sand verbena	<i>Abronia umbellata ssp. breviflora</i>	pink sand verbena	<i>Acer circinatum</i>	vine maple	<i>Acer glabrum</i>	Rocky Mountain maple	<i>Acer macrophyllum</i>	bigleaf maple	<i>Achillea millefolium</i>	common yarrow	<i>Achillea millefolium var. littoralis</i>	coast yarrow
Scientific Name	Common Name																				
<i>Abies grandis</i>	grand fir																				
<i>Abronia latifolia</i>	coastal sand verbena																				
<i>Abronia umbellata</i>	pink sand verbena																				
<i>Abronia umbellata ssp. breviflora</i>	pink sand verbena																				
<i>Acer circinatum</i>	vine maple																				
<i>Acer glabrum</i>	Rocky Mountain maple																				
<i>Acer macrophyllum</i>	bigleaf maple																				
<i>Achillea millefolium</i>	common yarrow																				
<i>Achillea millefolium var. littoralis</i>	coast yarrow																				
<p>Displaying Additional Information</p>																					
<p>7. Instead of narrowing the list, you can also choose to display information about a particular plant.</p> <p>Scroll down to the next item under “Part B: Characteristics Data” to “2. Growth Requirements” and click the display button next to “Adapted to Coarse Textured Soils”, “Adapted to Medium Textured Soils”, and “Adapted to Fine Textured Soils”. Soil texture is an important consideration for choosing plants when a BMP will have native or</p>	<p><b>2. Growth Requirements</b></p> <p>Adapted to Coarse Textured Soils include: <input type="text" value="Any"/> Yes No <input checked="" type="checkbox"/> Display</p> <p>Adapted to Medium Textured Soils include: <input type="text" value="Any"/> Yes No <input checked="" type="checkbox"/> Display</p> <p>Adapted to Fine Textured Soils include: <input type="text" value="Any"/> Yes No <input checked="" type="checkbox"/> Display</p>																				

## Appendix E - Plant Specifications

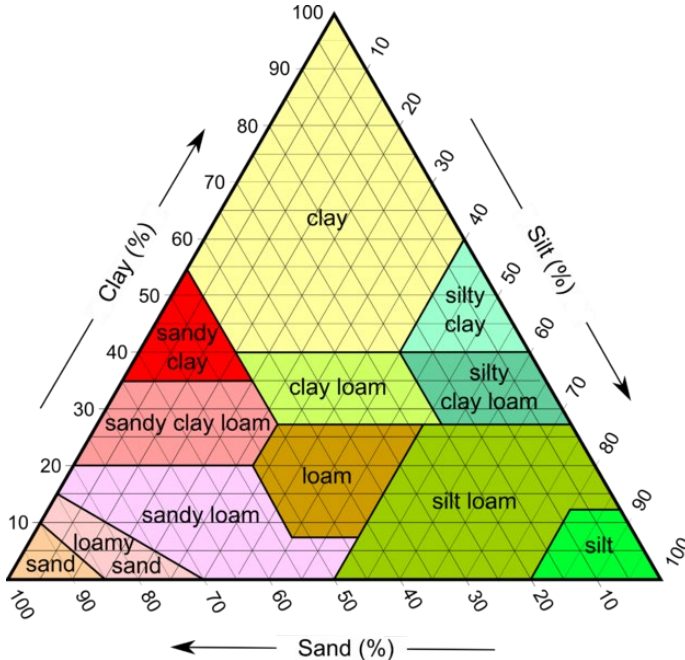
amended planting soil.

According to the PLANTS database website, coarse, medium, and fine soils correspond to the USDA soil texture classes as follows:

Characteristics soil texture groups and corresponding soil texture classes.

Characteristics soil texture group	Corresponding soil texture classes from the Soil Texture Triangle		
<b>Coarse</b>	Sand	Coarse sand	Fine sand
	Loamy coarse sand	Loamy fine sand	Loamy very fine sand
	Very fine sand	Loamy sand	
<b>Medium</b>	Silt	Sandy clay loam	Very fine sandy loam
	Silty clay loam	Silt loam	Loam
	Fine sandy loam	Sandy loam	Coarse sandy loam
	Clay loam		
<b>Fine</b>	Sandy clay	Silty clay	Clay

Source: The soil texture classes are from the Soil Science Society of America, <http://www.soils.org/>. An NRCS team partitioned the soil textures into the three groups.



Courtesy of wikimedia user: Mikenorton. Adapted from the USDA.

For a rough field estimate of texture, see Ribbon Testing in Appendix B.

8. Scroll down (or up) to the “Display Results” button and click on it.

**Display Results**

**Review Selections or Sort Report**

Display Results runs the entire search, Parts A and B



## Appendix E - Plant Specifications

9. A list (partially shown here) is generated of all perennial plants native to your county with their common names including the criteria (when data exists) requested by clicking the display button.

Additional data (when it exists) under “Part B: Characteristics Data” that you may want to know about when choosing plants includes:

- \* “Active Growth Period”
- \* C:N Ratio (Carbon to Nitrogen Ratio)
- \* Fire Resistant
- \* Height at Base Age (Base age is 20 years for our region. This info is equivalent to the mature height.)
- \* Nitrogen fixation
- \* Drought tolerance
- \* pH, minimum
- \* pH, maximum
- \* Precipitation, minimum
- \* Precipitation, maximum
- \* Shade tolerance
- \* Vegetative Spread Rate
- \* Many other choices on aesthetics

Click the display check box to see the data of interest.

Scientific Name	Active Growth Period	Adapted to Coarse Textured Soils	Adapted to Medium Textured Soils	Adapted to Fine Textured Soils
<i>Abronia latifolia</i>				
<i>Abronia umbellata</i>				
<i>Abronia umbellata ssp. breviflora</i>				
<i>Achillea millefolium</i>	Spring	No	Yes	No
<i>Achillea millefolium var. littoralis</i>				
<i>Achlys triphylla</i>				
<i>Actaea rubra</i>				
<i>Actaea rubra ssp. arauta</i>				

Narrow the Search for a Particular Plant Type:

10. To narrow the search to certain types of plant click on the “Back” button or back arrow of your internet browser. Selections that might be appropriate to plant in the BMPs presented here are:

- Forb/herb (flowering plants that aren’t grasses, sedges, & rushes)
- Graminoid (grasses, sedges, & rushes)
- Shrub
- Subshrub
- Tree
- Vine



11. Scroll down to “3. Ecology” and “Growth Habit”. For this example, choose “Forb/herb”. (To choose more than one selection at a time in any of these lists, hold down the “Ctrl” button on your computer while scrolling and clicking. Once you’re done selecting, you can double check your selections by letting go of the Ctrl button and scrolling around to see if more than one selection is highlighted. )

**3. Ecology**

**Duration** include: Any, Annual, Biennial, Perennial

**Growth Habit** include: Any, Forb/herb, Graminoid, Lichenous

**Native Status** include: Any, Native to PLANTS Floristic Area, --North America Native, --L48 Native, --AK Native, --CAN Native

12. Your previous choices should still be selected. Scroll to “Review Selections or Sort Report” button in the middle or bottom of the page and click this to see what criteria you’ve entered so far.

**Display Results**      **Review Selections or Sort Report**

Display Results runs the entire search, Parts A and B

13. After you click, you’ll see all your criteria listed.

**Review Selections or Sort Report**

Search and display criteria are listed below. Review your selections, and choose optional sort options if you plan to Display Report. Or, Modify Selections to change your criteria.

**Items Selected for Part A: PLANTS Core Data**

**1. Distribution**  
 County include: Oregon:Coos

**2. Taxonomy**  
 Scientific Name include: Accepted Names and Synonyms Display in Report

**3. Ecology**  
 Duration include: Perennial  
 Growth Habit include: Forb/herb  
 Native Status include: L48 Native

14. Now click the “Display Results” button at the bottom of this page.

**Display Results**      **Review Selections or Sort Report**

Display Results runs the entire search, Parts A and B

15. A new list (partially shown) is now

narrowed to native, perennial forbs (flowers) in Coos County.	<b>Scientific Name</b>	<b>Active Growth Period</b>	<b>Adapted to Coarse Textured Soils</b>	<b>Adapted to Medium Textured Soils</b>	<b>Adapted to Fine Textured Soils</b>
	<i>Abronia latifolia</i>				
	<i>Abronia umbellata</i>				
	<i>Abronia umbellata ssp. breviflora</i>				
	<i>Achillea millefolium</i>	Spring	No	Yes	No
	<i>Achillea millefolium var. littoralis</i>				
	<i>Achlys triphylla</i>				
	<i>Actaea rubra</i>				

**Finding Plants for Moisture Zones in BMPs**

16. Moisture zones vary with grades and the location of inlets and outlets in rain gardens, stormwater planters, and swales. The different moisture zones (base, slope, top) can be correlated to National Wetland Indicator Status (Emmanuel, 2010) as indicated in Figure E-2 below.

To narrow your search to find plants appropriate for moderate moisture zones (per Figure E-2 below), scroll down to the next item under “Part A: PLANTS Core Data” to “4. Legal Status” and look for “National Wetland Indicator Status”. Choose FAC+

(For zones with more than one possible wetland status indicator, hold down the “Ctrl” button on your keyboard, click on FAC+, FACW, FAC, and/or FAC-. (At the time of this publication, simply clicking on the display button did not display any information, even though most plants have a wetland status assigned.)

**National Wetland Indicator Status** include: --FACW? (Possibly Facultative Wetland)  
 --FACW- (Facultative Wetland-)  
 --FACW-? (Possibly Facultative Wetland-)  
 --FAC+ (Facultative+)

17. Click on the “Display Results” button at the bottom of this page.

**Display Results** **Modify Selections**

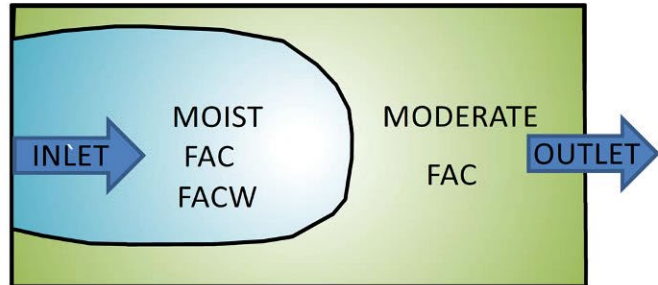
Display Results runs the entire search, Parts A and B

18. You’ll see all the flowering, perennial plants native to Coos County, OR that are appropriate for the moist zones of a rain garden, stormwater planter or swale (as indicated in Figure E-2 below)

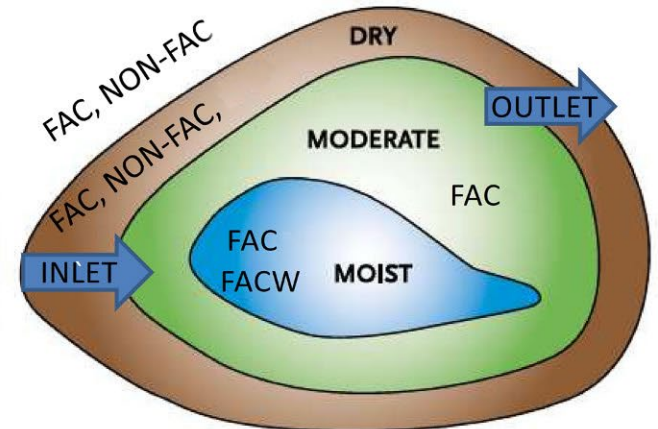
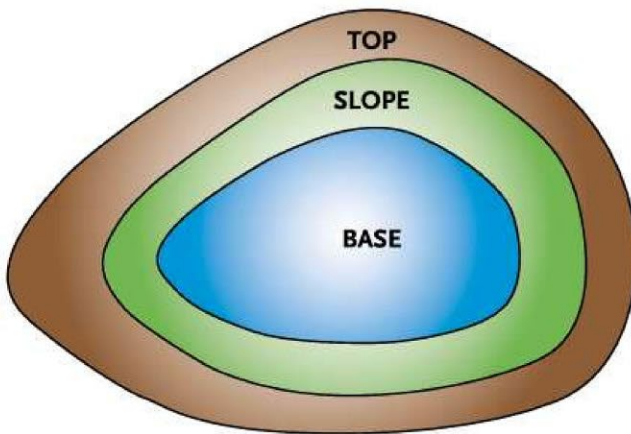
TOPOGRAPHIC ZONES CREATED BY GRADING PLAN

MOISTURE ZONES CREATED BY GRADING PLAN AND INLET & OUTLET LOCATIONS

STORMWATER PLANTERS



RAIN GARDENS



SWALES

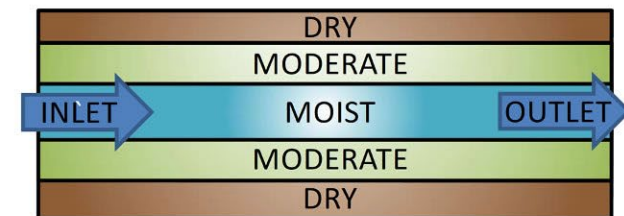


Figure A-1. Wetland status indicator for the moisture zones found in a vegetated stormwater BMP.

PLANTING TECHNIQUES

Plants from nurseries can often be root-bound in their pots. If the roots aren't loosened and unwound, the roots will continue to twist around in the planting hole instead of growing downwards and outwards, causing poor plant establishment and high maintenance. Another key to low maintenance plants is to ensure that the roots have good contact with the soil.

To plant a tree, see the Standard Details in Appendix F.

## Planting in Containers

To properly install plants in Contained Planters:

1. Fill your container with soil to within 4 to 5 inches of the top of the container.
2. Dig a hole twice the size of the pot the plant comes in. Keep the soil pile nearby and clear of leaves and other surface debris.
3. Take note of where the potting soil from the nursery level is compared to the stem of the plant. Many plants have a different color and texture on the section that sits below the soil than on the sections that sit above ground.
4. Gently shake the potting soil off as much of the roots as possible. The nutrition from the potting soil is likely to be exhausted.
5. For balled and burlapped trees, the soil may be left in. However, ensure that burlap or any other confining material will not impede root growth by removing at least the bottom half of the material.
6. Loosen the roots. For 4" root-bound plugs, use hand clippers to cut an X into the bottom of the root wad, then pull it apart to loosen the roots.
7. Taking some of the soil you dug out, create a mound at the bottom of the hole and lightly tamp it down.
8. Drape the plant roots around the mound so that they're touching the mound on the bottom and pointing downwards. There are two kinds of roots, larger structural roots and tiny feeder roots, which is where the plant "drinks" and "eats". In pot-bound plants, some roots may be really long and will just continue winding around the other plant roots. If they're very small feeder roots, shorten them by pulling them off to be a similar length as the other roots. A few of the bigger structural roots can be cut, but it's better to dig a deeper hole and get them pointed downward.
9. As you backfill the hole by pushing soil in around the tops of the roots, hold the plant so that the point at which the plant came out of the soil in its original pot will be the level where the final grade of soil in the contained planter will be (level of soil on the stem is the same). Plants that are planted too deep may drown or the stem may rot. Plants that are too high may not have enough feeder roots in the soil to survive.
10. When finished, tamp down the soil. If the container is very large, step around the stem of the plant. This, combined with previous steps, will ensure good root contact with the soil.
11. Place an organic mulch that meets the specifications in General Notes for Vegetated Facilities to a depth of 2 to 3 inches. For woody stems on shrubs or trees, push the mulch a few inches away or the stems could rot.

## Planting in the Ground

To properly install plants in a Rain Garden, Stormwater Planter, LID Swale, Dispersion Facility, or Conveyance Swale, follow steps 2-11 for installing plants in a Contained Planter described above.

## ESTABLISHMENT PERIOD MAINTENANCE

Native plants should be allowed to reseed before cutting the plant. When reseeding will occur depends on the chosen plant palette. As a general rule, most spring and summer blooming plants have seeded by August, and fall and winter blooming plants will have set their seed by January. Generally, most plants don't respond well when cut down to less than 6 inches high.

Timing of pruning is important. While common and correct horticultural practices might prune a shrub in the fall, when this is done to a shrub used for stormwater management, the shrub no longer has leaves to evapotranspire stormwater. This reduces the effectiveness of the BMP in reducing runoff.

## Irrigation Guidelines

The goal during the establishment period is to make plants as "drought proof" as possible by watering deeply and infrequently. To establish perennial plants, you'll need to irrigate more in the first year and less to much less in

subsequent years. In addition, plants benefit from varying irrigation seasonally. At the beginning of summer, after the rains stop, water a little. Increase irrigation volume as the summer/dry season continues. Taper off irrigation as the rains start to come back.

The volume of water and frequency of watering varies with the type of plant, general guidelines:

- Trees: 5-10 gallons, once/week
- Shrubs: 3-5 gallons once/week
- Groundcover: 1-2 gallons, once or twice/week
- Perennial herbs: ½ gallon, twice/week.

After the 3 year establishment period, irrigation would theoretically not be needed; however plantings surrounded by impervious pavement or hot roofs will probably require occasional irrigation beyond the establishment period, indefinitely.

The City of Medford has put together a Plant Resource List that categorizes the amount of water required by different species from low to high, they also have irrigation system design requirements in their “Landscape and Irrigation Plan Processing Information Packet”. Both documents can be accessed here, <http://www.ci.medford.or.us/Page.asp?NavID=3066>

## **INTEGRATED PEST MANAGEMENT**

Short and long-term maintenance of all landscape areas should be done using integrated pest management techniques.

According to the Oregon Department of Agriculture:

“Integrated pest management (IPM) refers to a coordinated decision-making and action process that uses the most appropriate pest control methods and strategies in an environmentally and economically sound manner to meet agency pest management objectives.

The elements of integrated pest management include the following:

- Preventing pest problems by focusing on developing healthy plant environments (fostering healthy soils, maintaining air flow and utilizing right plant right place techniques)
- Monitoring for the presence of pests and pest damage
- Establishing the density of the pest population, which may be set at zero, that can be tolerated or correlated with a damage level sufficient to warrant treatment of the problem based on health, public safety, economic, or aesthetic thresholds
- Treating pest problems to reduce populations below those levels established by damage thresholds using strategies that may include biological, cultural, mechanical, and chemical control methods and that shall consider human health, ecological impact, feasibility, and cost effectiveness
- Evaluating the effects and efficacy of pest treatments

Pest refers to any vertebrate or invertebrate animal, pathogen, parasitic plant, weed, or similar organism that can cause disease or damage to crops, trees, shrubs, grasses or other plants, humans, animals, or property” (Oregon Department of Agriculture [a]).

For additional resources including the PNW Insect Handbook, PNW Plant Disease Handbook, and the PNW Weed Handbook, visit the Oregon Department of Agriculture website:

<http://www.oregon.gov/ODA/programs/Pesticides/RegulatoryIssues/Pages/IPM.aspx>.



## Weeding

Weeding frequency is generally recommended to be a minimum of twice a year in May and October, but should also be timed to pull whatever invasive plants are on-site before they go to seed. Hand pulling or other mechanical removal technique is preferred. In particular, pesticides, herbicides, and fertilizers should generally be avoided in maintaining any of the BMPs in this guidance as these are pollutants that are easily conveyed in stormwater runoff.



**Figure A-2.** Since weeds need water in the summer but the right natives won't, substantial irrigation beyond the establishment period will only increase maintenance.

## SOURCING PLANTS

Plants may be sourced from a variety of nurseries. Choosing healthy, appropriate specimens is key to high functioning facilities. Some tips for sourcing plants are as follows:

- A list of native plant nurseries can be found on Rogue Valley Sewer Services website: <http://www.rvss.us/pilot.asp?pg=phase2Plants> should be from seeds adapted to either clayey or sandy soil type, according to the on-site soils.
- Plants should be from seeds gathered as locally as possible. For instance, a native alder grown from seed collected in Tillamook County will not be as well adapted to the Rogue Valley.
- An informative slide show on southwest Oregon species by Linda McMahan of OSU Extension is available <http://www.slideshare.net/lindamcmahan/native-plants-for-southwestern-oregon>.

## REFERENCES

Emmanuel, R., Ph.D., Clean Water Services, Hillsboro, OR, personal communication. (2010).

Invasive Species Council of California (ISCC). The California Invasive Species List. Retrieved from: <http://www.iscc.ca.gov/species.html>

Native Plant Society of Oregon (NPSO) [a]. Retrieved from: <http://www.npsoregon.org/landscaping5.php>

Native Plant Society of Oregon (NPSO) [b]. Exotic Gardening and Landscaping Plants Invasive in Native Habitats of the Southern Willamette Valley. Retrieved from: [http://emerald.npsoregon.org/inv\\_ornmtls.html](http://emerald.npsoregon.org/inv_ornmtls.html)

Oregon Department of Agriculture [a]. Integrated Pest Management (IPM). Retrieved from: <http://www.oregon.gov/ODA/programs/Pesticides/RegulatoryIssues/Pages/IPM.aspx>

Oregon Department of Agriculture. (2016). Oregon Noxious Weed Profiles. Retrieved from: <http://www.oregon.gov/ODA/programs/Weeds/OregonNoxiousWeeds/Pages/AboutOregonWeeds.aspx>

Washington State Noxious Weed Control Board (NWCB). Retrieved from: <http://www.nwcb.wa.gov/>

## **Appendix F: General Notes, Standard Drawings and Standard Details**

---

Details are currently available in pdf and AutoCAD format and may be downloaded from [Rogue Valley Sewer Services website](#).

### **Construction Notes and Material Specifications for Stormwater Facilities**

These notes must be included on the plans for all BMPs.

#### **List of Standard Drawings**

BMP 4.4.1.a Poned Retention: Rain Garden

BMP 4.4.1.b Poned Retention: Rain Garden Planting Schematic

BMP 4.4.1.c Poned Retention: Stormwater Planter with Area Drain

BMP 4.4.1.d Poned Retention: Stormwater Planter Planting Schematic

BMP 4.4.2.a Pervious Surface: Pervious Concrete Pavement

BMP 4.4.2.b Pervious Surface: Pervious Asphalt Pavement

BMP 4.4.2.c Pervious Surface: Permeable Pavers

BMP 4.4.2.d Pervious Surface: Vehicular Permeable Paver Edges

BMP 4.4.3.a Underground Retention: Soakage Trench in Landscape Area

BMP 4.4.3.b Underground Retention: Soakage Trench under Impervious Pavement Surface

BMP 4.5.1. Soil Filtration

BMP 4.5.2.a Water Quality Swale

BMP 4.5.2.b Water Quality Swale: Planting Schematic

BMP 4.5.3 Vegetated Filter Strip with Amended Planting Soil

#### **Standard Details**

1.01 Roadway Curb Opening

1.02 Check Dam

1.03 Flow Spreader

1.04 Forebay

1.05 Tree Protection

1.06 Tree Protection – Temporary Access Road

1.07 Tree Planting

1.08 Tree Planting on Slope



**CONSTRUCTION NOTES AND MATERIAL SPECIFICATIONS FOR STORMWATER FACILITIES**  
THESE NOTES MUST ACCOMPANY ALL STANDARD DRAWINGS.

**GENERAL STORMWATER CONSTRUCTION NOTES**

1. All Stormwater facilities must be constructed per the Design Manual, or as approved by the local jurisdiction.
2. Call the reviewing agency 48 hours in advance of constructing this facility so construction observation may be performed to identify variations in the field that may affect design and verify proper construction.
3. For infiltration facilities, exposed facility subgrade shall be fenced to prohibit impacts from construction (including materials and equipment storage). If unprotected subgrade has been exposed to rainfall, scarify the surface to a depth of 4 inches to restore filtration capacity.
4. Placement of amended native or imported soil mix shall occur as follows:
  - o Conduct excavation, fine grading and placement work only when the facility and soil to be placed is dry. Do not place if soil is saturated.
  - o Place soil in 8 inch maximum lifts.
  - o Lightly compact each lift, (e.g. a water filled landscape roller) to achieve 85% compaction. Do not compact with heavy machinery or vibratory compaction.
5. All ground within the facility must be stabilized with one of the options below, also see Material Specifications for Stormwater Facilities.
  - o **Hydroseeding** – Hydroseeding with tackifier.
  - o **Matting** – Matting shall be used to hold the soil in place until vegetation becomes established. If hand seeding, place seed and then install erosion control matting. If planting, install erosion control matting and then install plants through the matting. Matting is not required on slopes 4H:1V or shallower, or on slopes that have been hydroseeded.
  - o **Mulch** – Mulch is not allowed below the water quality ponding depth or within the flow path of an inlet or outfall. Mulch shall be spread over bare soil or in a ring around plants. Ensure that mulch does not touch plant stems.
6. If soil is placed during the wet season the facility must be stabilized within one week of soil installation.

**CONSTRUCTION NOTES FOR VEGETATED STORMWATER BMPS**

7. Build and vegetate as early as possible to establish plantings prior to directing stormwater runoff to the BMP.
8. Contact approving jurisdiction 48 hours in advance of planting so that the jurisdiction can review soil installation and plant placement prior to plant installation.

**CONSTRUCTION NOTES FOR PERVIOUS SURFACE STORMWATER BMPS**

9. Contact the approving agency 48 hours prior to placing geotextile fabric. The approving agency may call the engineer of record in advance of constructing this facility so construction observation may be performed to identify variations in the field that may affect design and verify proper construction.

**MATERIAL SPECIFICATIONS FOR STORMWATER FACILITIES**

1. Growing media must be Imported Planting Soil or Amended Native Soil at the depths shown on the Standard Drawings and meet the following specifications:
  - a) **Imported Water Quality Mixture** – Is based on the ODOT “Water Quality Mixture” 01012, and shall be comprised of soil meeting the gradation in the table below and compost meeting ODOT Standard Specification Section 03020.

<b>Soil Gradation Requirements</b>	
Sieve Size	Percent Passing (by Weight)

No. 4	100
No 10	95 - 100
No. 40	40 - 60
No. 100	10 - 25
No. 200	5 - 10

Mix the soil and compost so the Imported **Water Quality Mixture**:

- Is comprised of between 20%-25% compost and between 75%-80% soil.
- Has a pH between 5.5 and 8.0.
- Does not have clumps greater than 3 inches in any direction.

b) **Amended Native Soil** – Add compost so that the top 18 inches is roughly 30% compost meeting ODOT Standard Specification Section 03020.

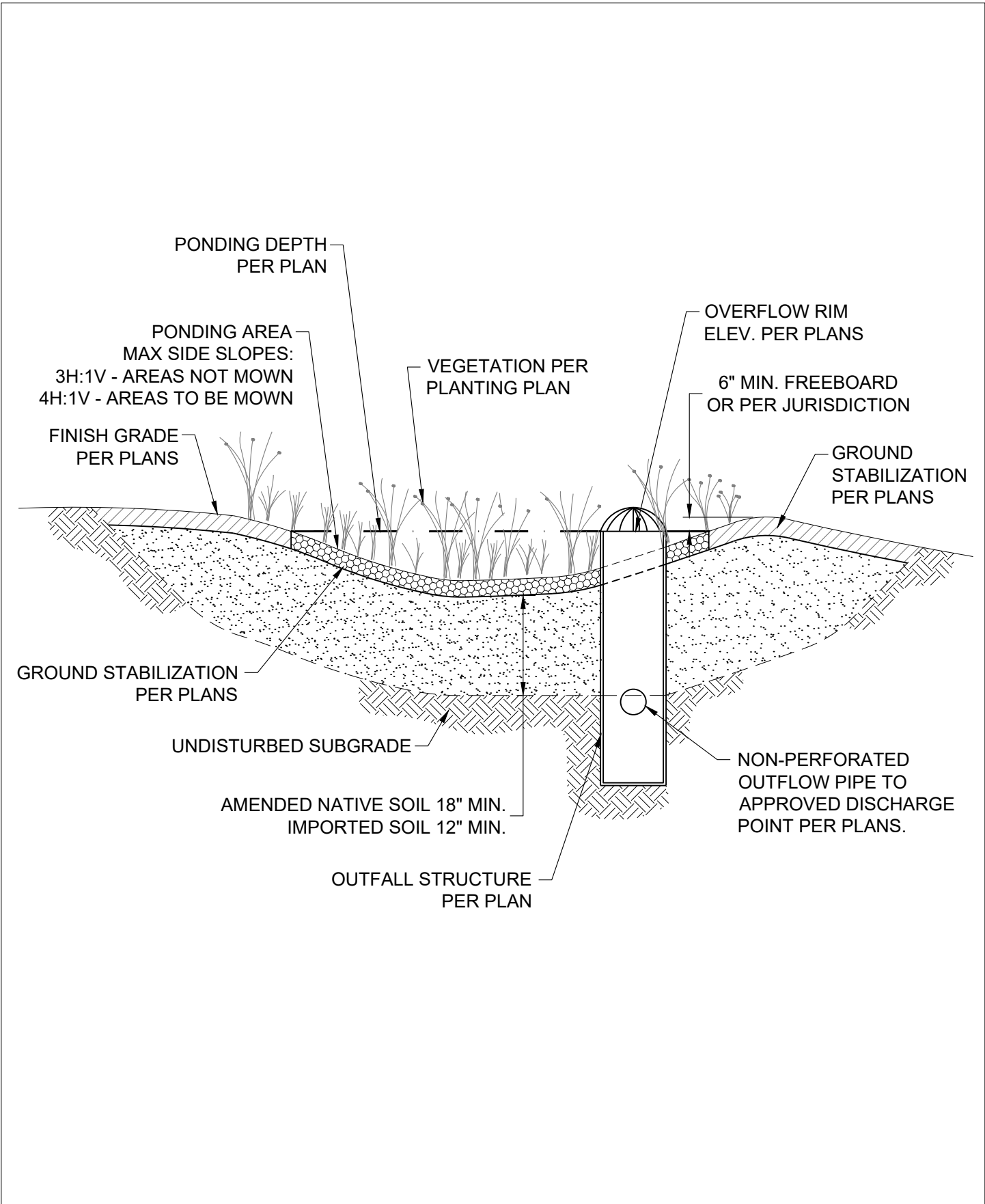
i) The approving jurisdiction may request evidence that the Amended Native Soil or Imported Water Quality Mixture meets specification prior to placement. If requested, test data for the soil mix shall be provided by an accredited laboratory with current certification. The date of the analyses must be no more than 90 days prior to submittal. The report must include the following:

- Name and address of the laboratory
- Phone, contact and email address of the laboratory
- Test data, including date and name of the test procedure
- Source of the topsoil

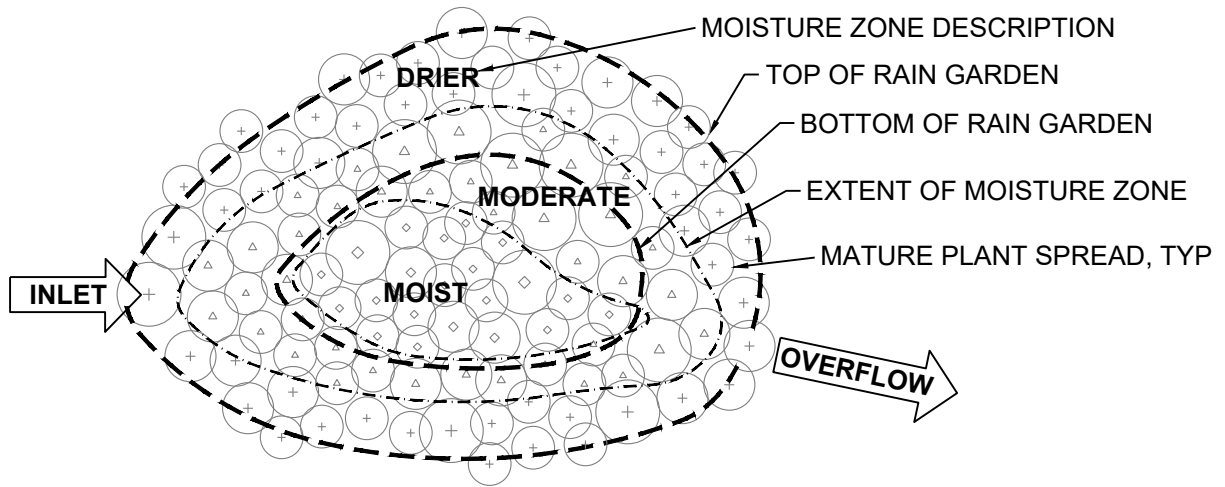
2. Matting shall be ODOT Type E erosion control matting.
3. Mulch shall be a 2 inch thick layer of dye, pesticide, and weed free shredded wood chips or coarse compost.
4. Stormwater facility geotextiles shall be ODOT Drainage Geotextiles Type 1, non-woven, per Standard Specification Section 03020. Geotextile under the road base in 4.5.3 shall be Subgrade Geotextile meeting ODOT Standard Specification Section 02320.
5. Impermeable liners may be a 30 mil (minimum) low density polyethylene (ldpe), 30 mil (minimum) ethylene propylene diene monomer (epdm) or bentonite clay mat per manufacturer guidance.
  - a. Stormwater facilities with liners that are planted with shrubs must have 24 inches of imported soil.
6. Unless otherwise approved, rock for Pervious Surface BMP's and Stormwater Facilities shall be crushed rock per ODOT Standard Specification Sections 00430.11 (Granular Drain Backfill Material) or 02690.20 (Course Aggregate) and meet the following gradations:

Sieve Size	Percent Passing (by weight)		
	Designated Sizes		
	Granular Drain Backfill	Granular Drain Backfill	Course Aggregate
	1 1/2" - 3/4"	3/4" - 1/2"	3/8" – No. 8
2"	100	-	-
1 1/2"	95 - 100	-	-
1"	-	100	-
3/4"	0 - 15	90 - 100	-
1/2"	0 - 2	0 - 15	100
3/8"	-	-	85 - 100
1/4"	-	0 - 3	-

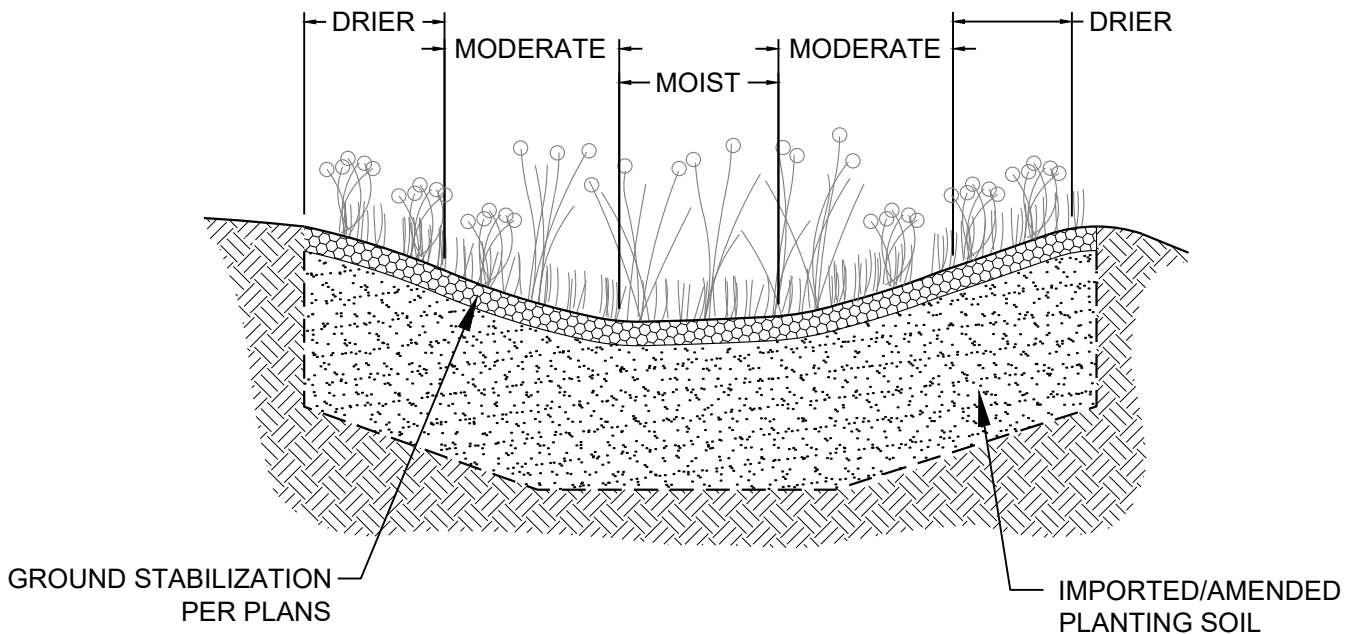
No. 4	-	-	10 - 30
No. 8	-	-	0 - 10
No. 16	-	-	0 - 5



<p>Rogue Valley Stormwater Design Manual</p>	<p>Pondered Retention: Rain Garden</p>	<p>BMP 4.4.1.a 1 of 1 Scale: NTS</p>
--	--	--



**PROFILE VIEW**



**LEGEND:**

— — CONTOUR LINE

- · - MOISTURE ZONE

PLANT SPECIES APPROPRIATE FOR MOISTURE ZONE:

⊕ DRIER

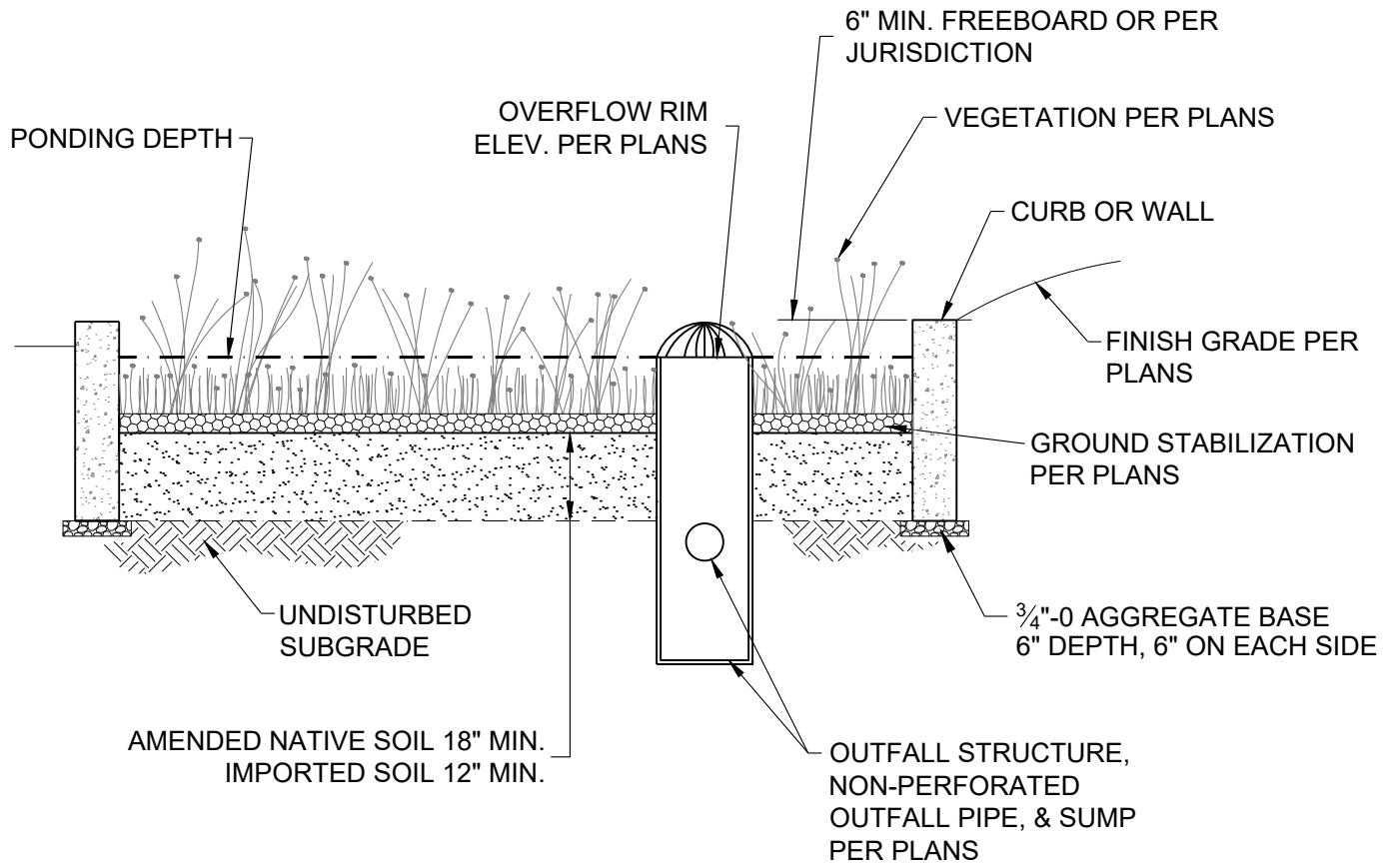
△ MODERATE

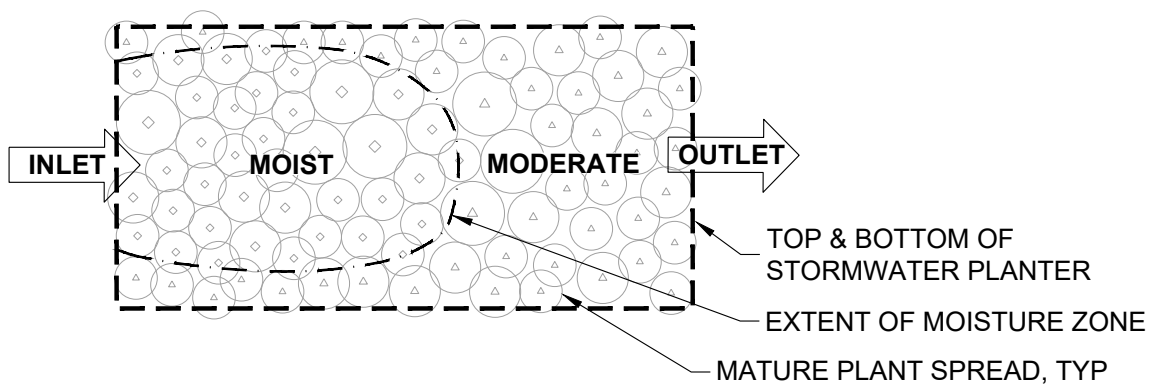
◊ MOIST

**NOTES:**

1. THIS DETAIL IS PROVIDED AS A SCHEMATIC EXAMPLE OF THE RANDOM PLANT PLACEMENT AND 95% COVERAGE AFTER ESTABLISHMENT PERIOD DESIRED TO REDUCE EROSION AND WEEDS.
2. INSTALL PLANTS PER PLANS, ACCORDING TO LANDSCAPE DESIGN PLANT TABLE, WHICH SHOULD INCLUDE PLANT SPECIES, SPACING, AND QUANTITIES IN EACH MOISTURE ZONE.
3. MOISTURE ZONES VARY FROM THOSE SHOWN DEPENDING ON GRADING PLAN, LOCATION OF INLET (S) AND OUTLET(S) AND FACILITY SHAPE.

<p>Rogue Valley Stormwater Design Manual</p>	<p>Ponded Retention: Rain Garden Planting Schematic</p>	<p>BMP 4.4.1.b 1 of 1 Scale: NTS</p>
--	---	--





**LEGEND:**

— — CONTOUR LINE

- · - MOISTURE ZONE

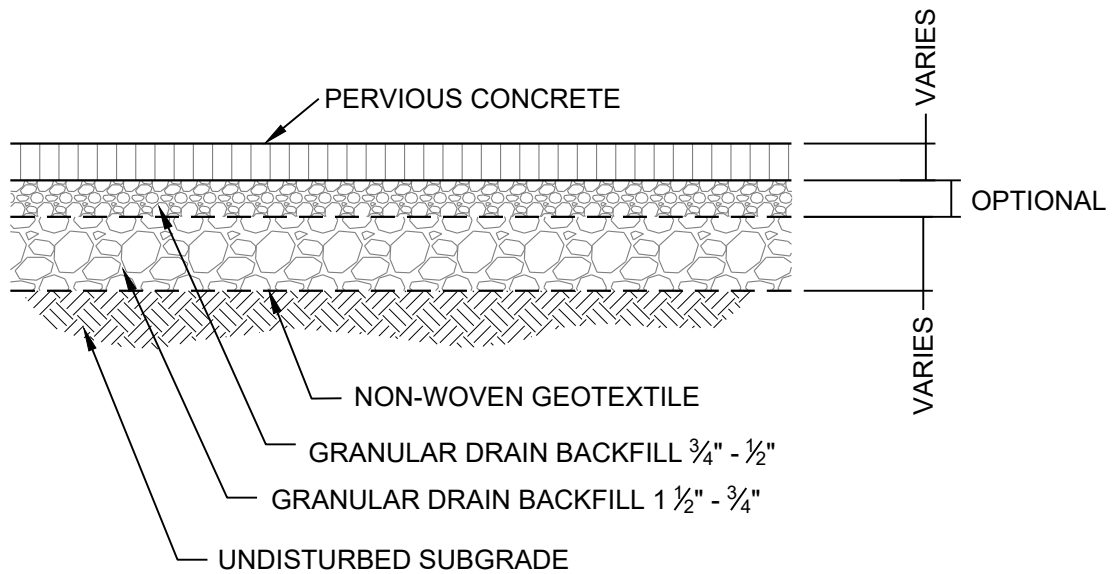
PLANT SPECIES APPROPRIATE FOR MOISTURE ZONE:

△ MODERATE

◇ MOIST

**NOTES:**

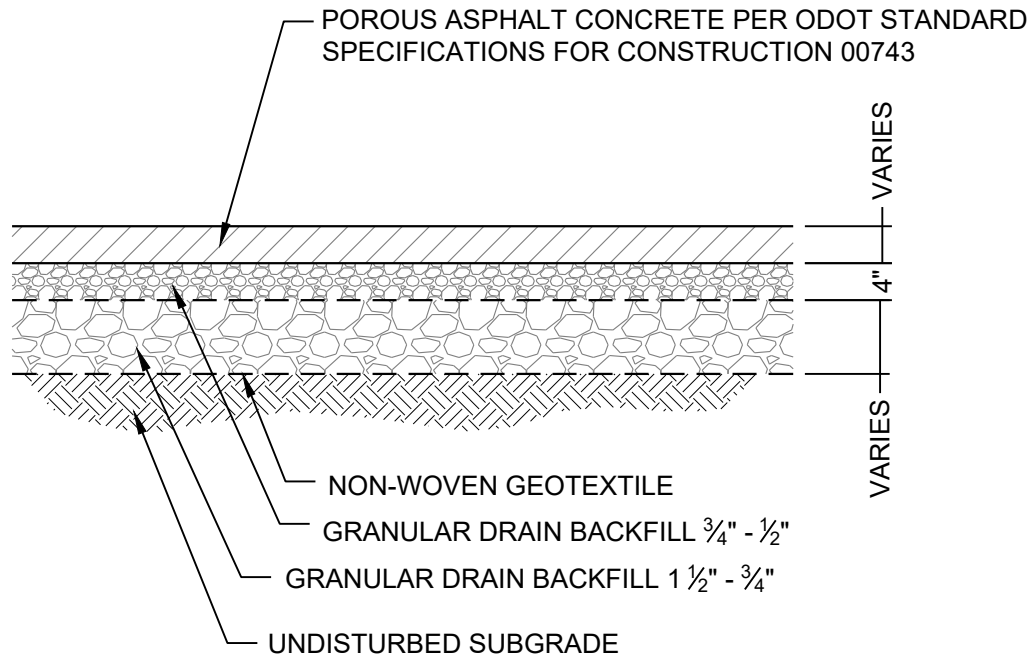
1. THIS DETAIL IS PROVIDED AS A SCHEMATIC EXAMPLE OF THE RANDOM PLANT PLACEMENT AND 95% COVERAGE AFTER ESTABLISHMENT PERIOD DESIRED TO REDUCE EROSION AND WEEDS.
2. INSTALL PLANTS PER PLANS, ACCORDING TO LANDSCAPE DESIGN PLANT TABLE , WHICH SHOULD INCLUDE PLANT SPECIES, SPACING, AND QUANTITIES IN EACH MOISTURE ZONE.
3. MOISTURE ZONES VARY FROM THOSE SHOWN DEPENDING ON GRADING PLAN, LOCATION OF INLET (S) AND OUTLET(S) AND FACILITY SHAPE.



**NOTES**

- DESIGN AND INSTALL PERVIOUS CONCRETE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE SPECIFICATION 522 AND THE NATIONAL READY MIXED CONCRETE ASSOCIATIONS (NRMCA) RECOMMENDATIONS.

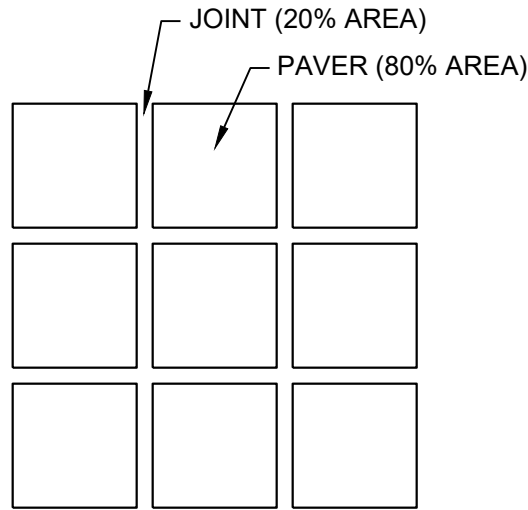
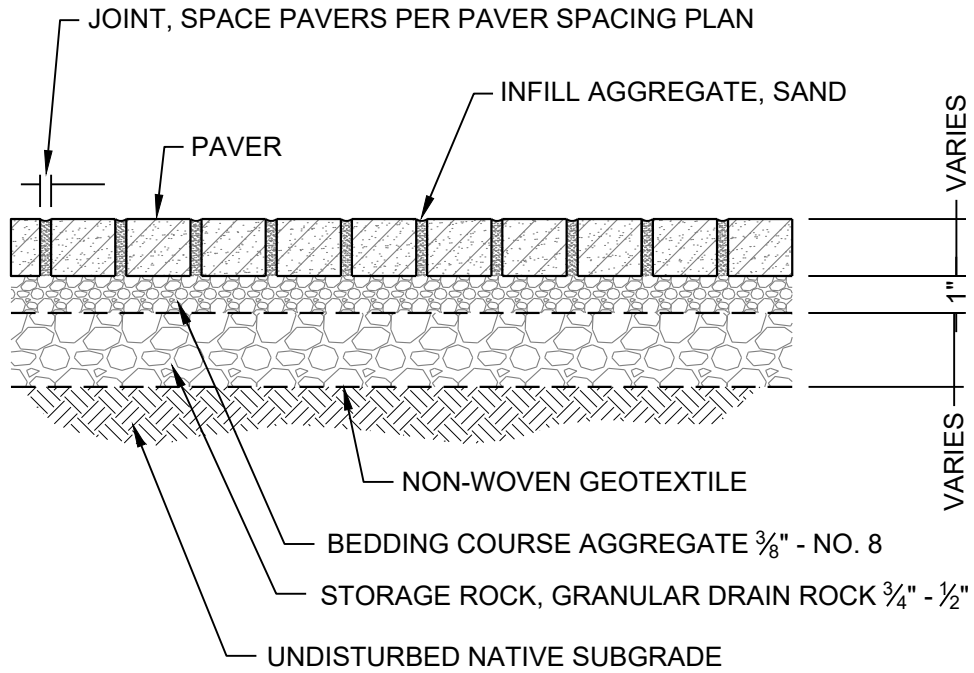




**NOTES**

1. FOLLOW ODOT SPECIFICATION 00743 POROUS ASPHALT CONCRETE.
2. MUST USE ELASTOMERIC BINDER PG7022ER, OR APPROVED EQUAL.
3. MUST PROVIDE THE JOB MIX FORMULA TO THE APPROVING AGENCY PRIOR TO CONSTRUCTION.

<p>Rogue Valley Stormwater Design Manual</p>	<p>Pervious Surface: Pervious Asphalt Pavement</p>	<p>Dwg BMP 4.4.2.b 1 of 1</p>
--	--	---------------------------------------

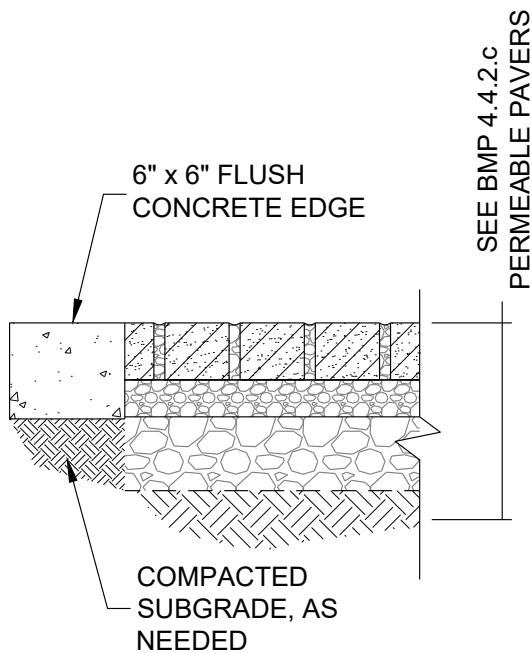


Paver Spacing Plan

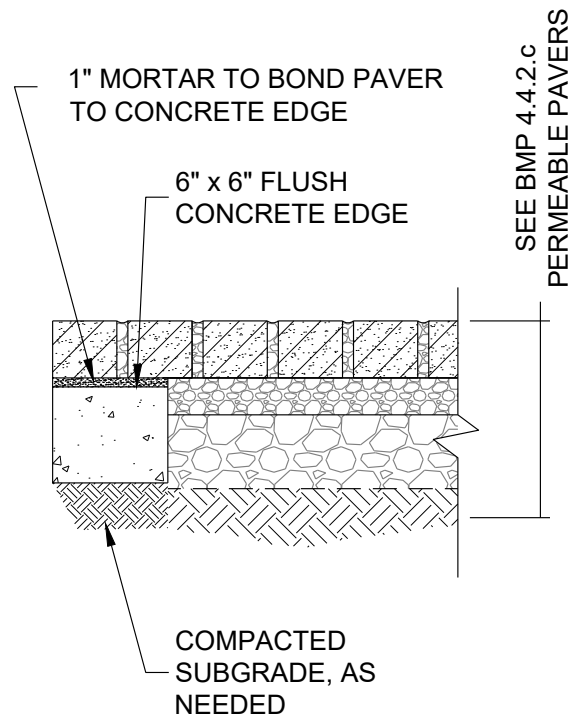
**NOTES**

1. DESIGN & INSTALL CONCRETE PAVERS IN ACCORDANCE WITH THE INTERLOCKING CONCRETE PAVEMENT INSTITUTE (ICPI) SPECIFICATIONS & THE MANUFACTURER'S RECOMMENDATIONS.
2. IF USING SALVAGED AND POURED CONCRETE PAVERS, CONFIRM THAT THE PAVER MATERIAL AND CONDITION IS SUITABLE FOR ITS INTENDED USE.

Rogue Valley Stormwater Design Manual	Pervious Surface: Permeable Pavers	Dwg BMP 4.4.2.c 1 of 1
---	---------------------------------------	------------------------------



FLUSH CURB



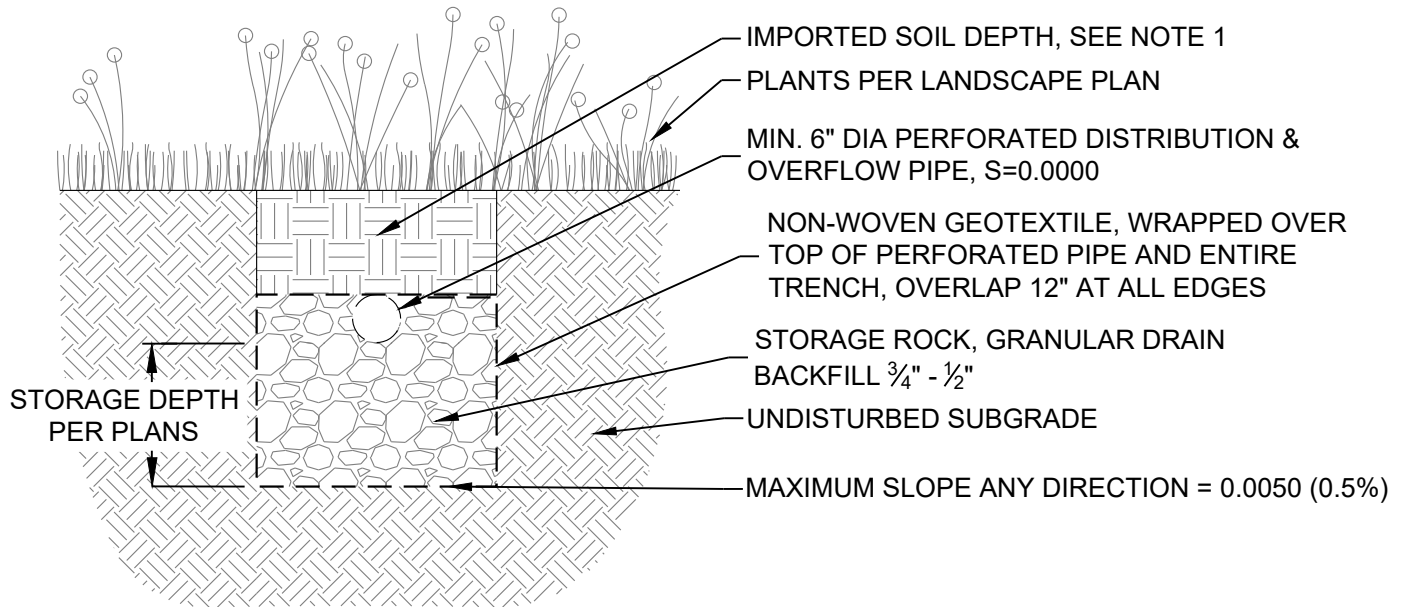
HIDDEN CURB

NOTES

1. DURING INSTALLATION OF CURB, PROTECT PERMEABLE PAVER AREA FROM COMPACTION.

<p>Rogue Valley Stormwater Design Manual</p>	<p>Pervious Surface: Vehicular Permeable Paver Edges</p>	<p>Dwg BMP 4.4.2.d 1 of 1</p>
--	--	---------------------------------------

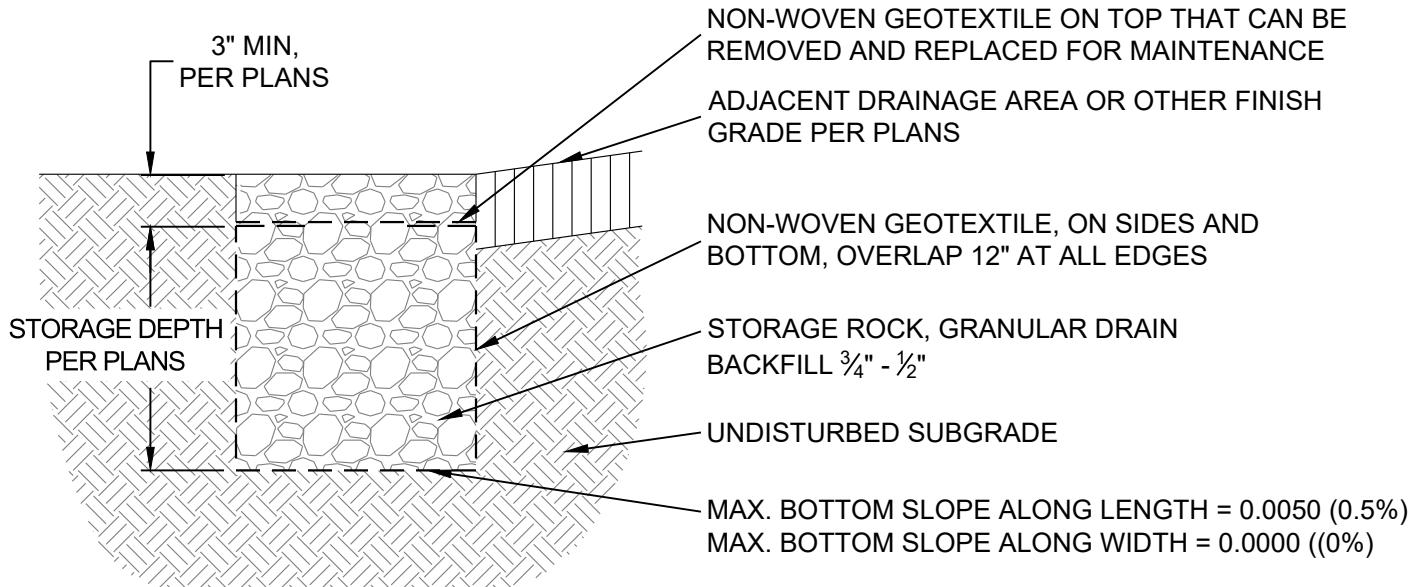
## Soakage Trench in Landscape Area



### NOTES

1. DEPTH TO PIPE MUST BE 12" MINIMUM FOR ADEQUATE SOIL DEPTH PER PLANT CHOICES:  
 12" FOR GRASSES/FORBS  
 24" FOR SHRUBS  
 36" FOR MOST TREES

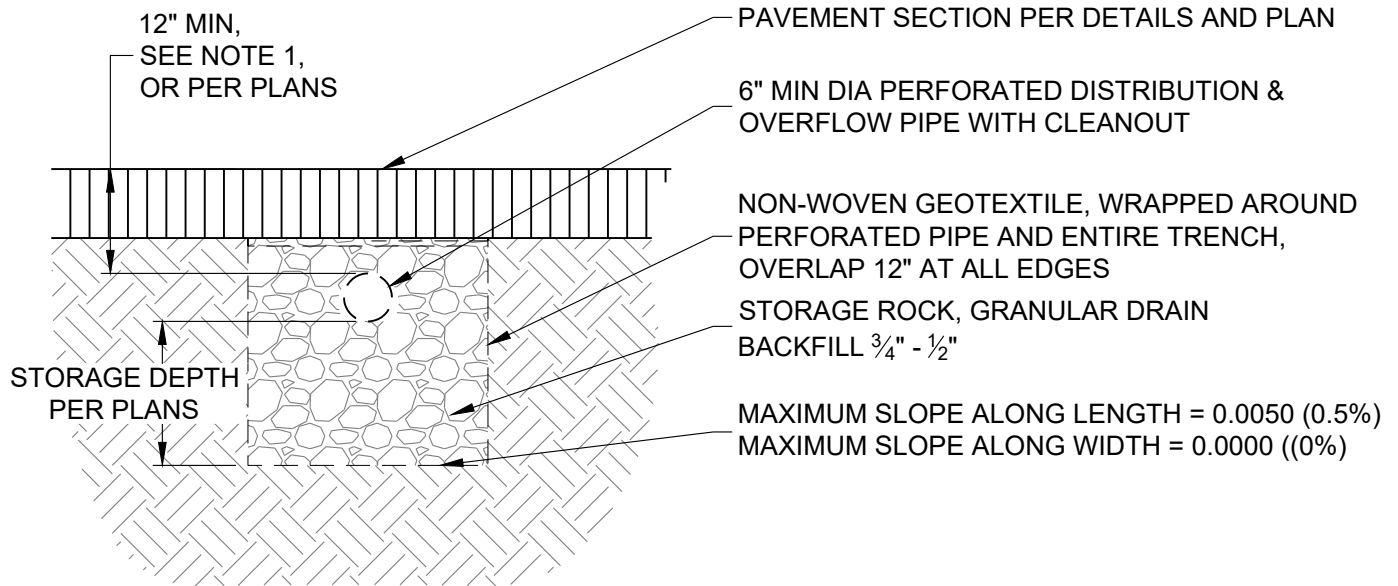
## Soakage Trench at Surface



### UIC AUTHORIZATION (NOT ALWAYS REQUIRED):

IF WATER IS DIRECTLY DISCHARGED TO THE SUBSURFACE, THE FACILITY MAY BE CONSIDERED A UIC AND MIGHT REQUIRE DEQ AUTHORIZATION. CONTACT DEQ TO FIND OUT ABOUT CURRENT UIC REGULATIONS AND WHETHER AUTHORIZATION WILL BE REQUIRED. DEQ'S UIC WEBPAGE: [HTTP://WWW.OREGON.GOV/DEQ/WQ/WQPERMITS/PAGES/UIC.ASPX](http://www.oregon.gov/deq/wq/wqpermits/pages/uic.aspx).

<p>Rogue Valley Stormwater Design Manual</p>	<p>Underground Retention: Soakage Trench in Landscape Area</p>	<p>BMP 4.4.3.a 1 of 1 Scale: NTS</p>
--	--	--

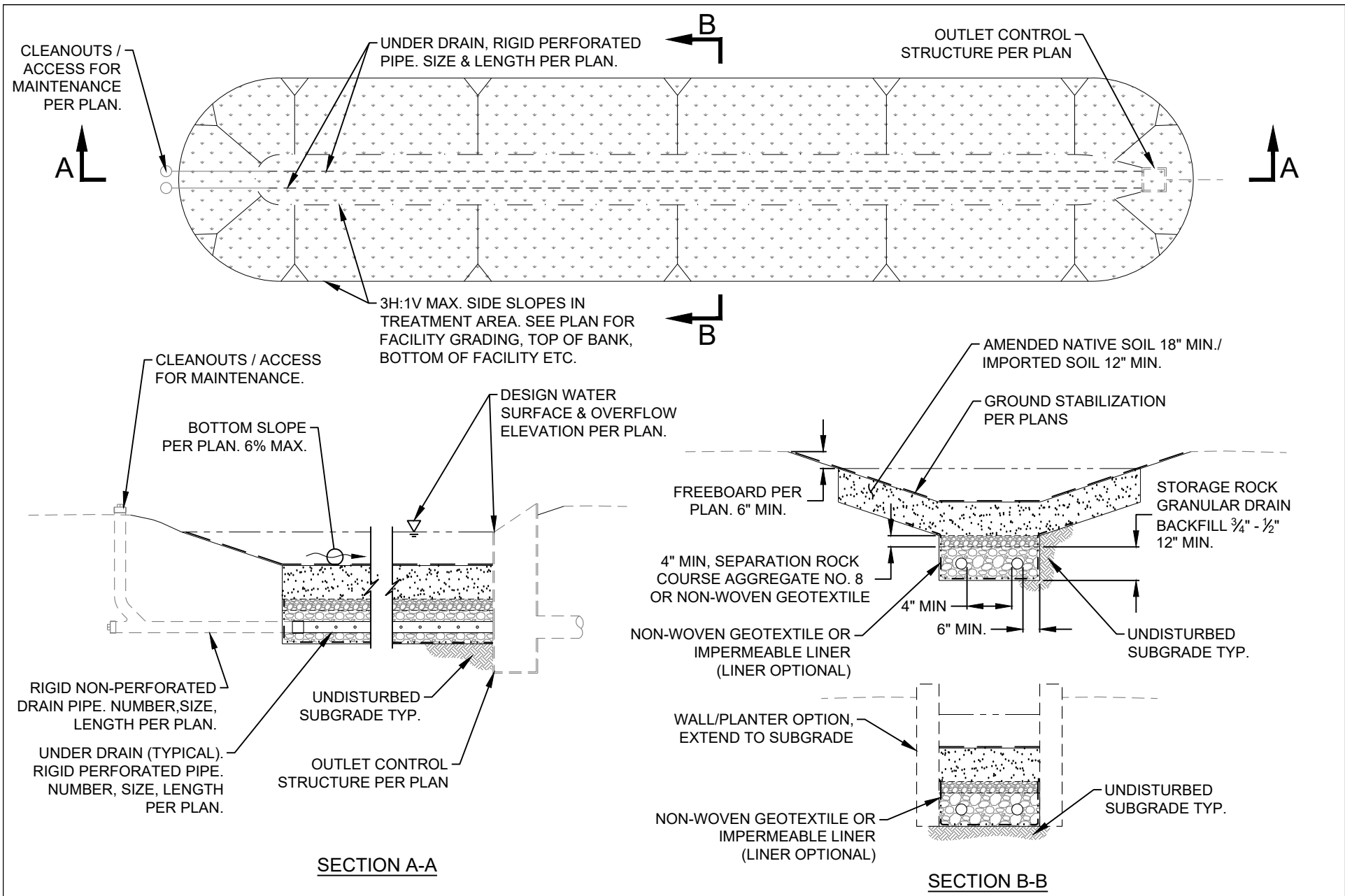


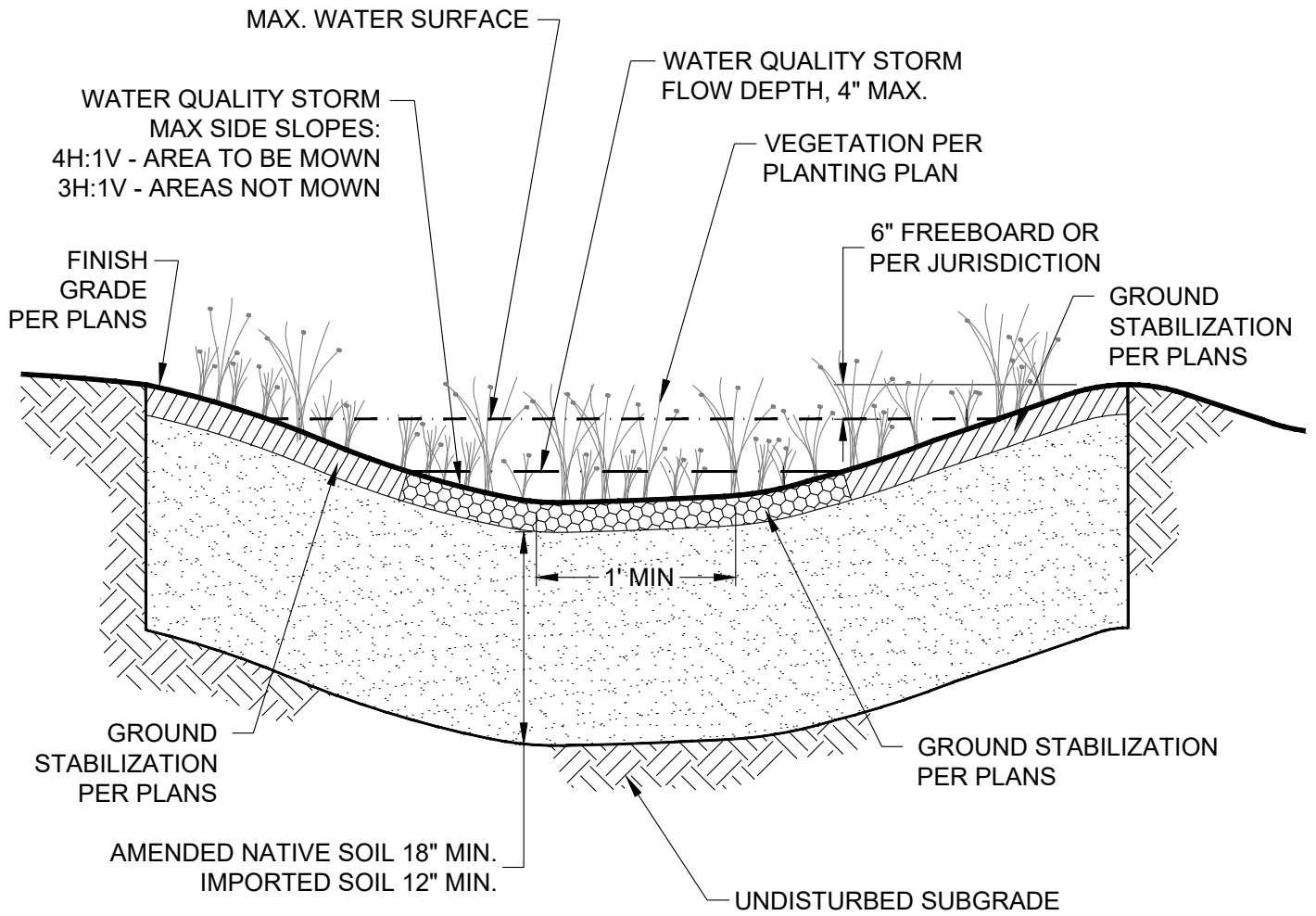
## NOTES

1. PROVIDE DEPTH TO PIPE NEEDED FOR ADEQUATE COVER BASED ON VEHICULAR LOADING, WHICH VARIES WITH PIPE MANUFACTURER.

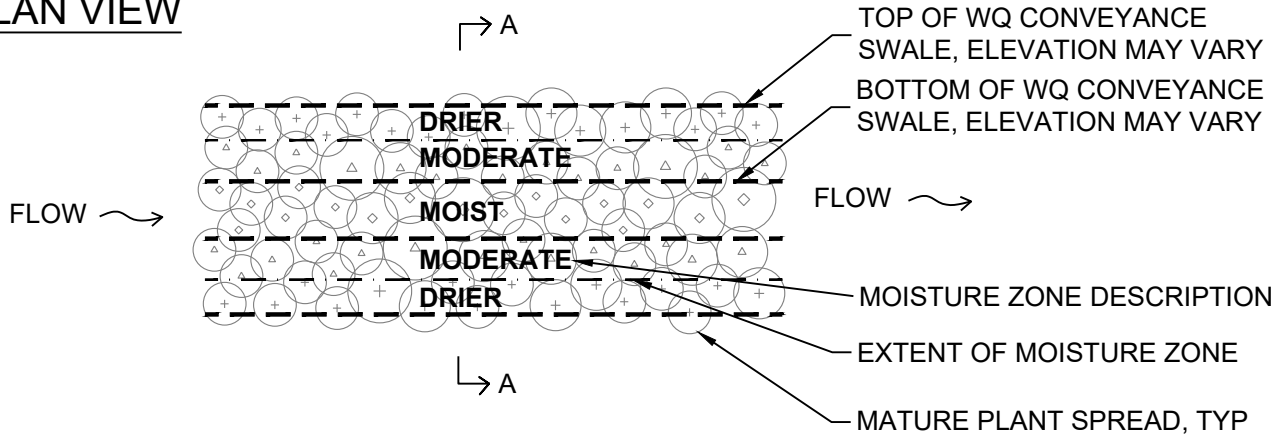
### **UIC AUTHORIZATION (NOT ALWAYS REQUIRED):**

IF WATER IS DIRECTLY DISCHARGED TO THE SUBSURFACE, THE FACILITY MAY BE CONSIDERED A UIC AND MIGHT REQUIRE DEQ AUTHORIZATION. CONTACT DEQ TO FIND OUT ABOUT CURRENT UIC REGULATIONS AND WHETHER AUTHORIZATION WILL BE REQUIRED. DEQ'S UIC WEBPAGE: [HTTP://WWW.OREGON.GOV/DEQ/WQ/WQPERMITS/PAGES/UIC.ASPX](http://www.oregon.gov/deq/wq/wqpermits/pages/uic.aspx).

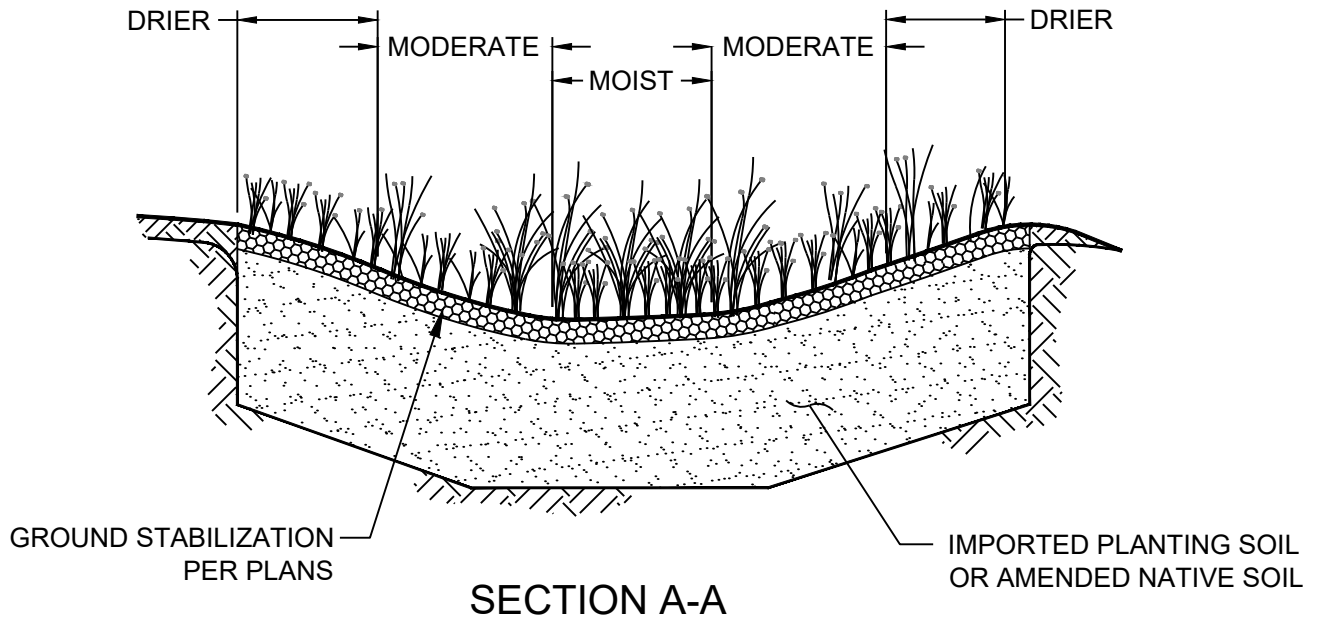




**PLAN VIEW**



**PROFILE VIEW**



**LEGEND:**

— — INDICATES GRADE BREAK

- - - MOISTURE ZONE

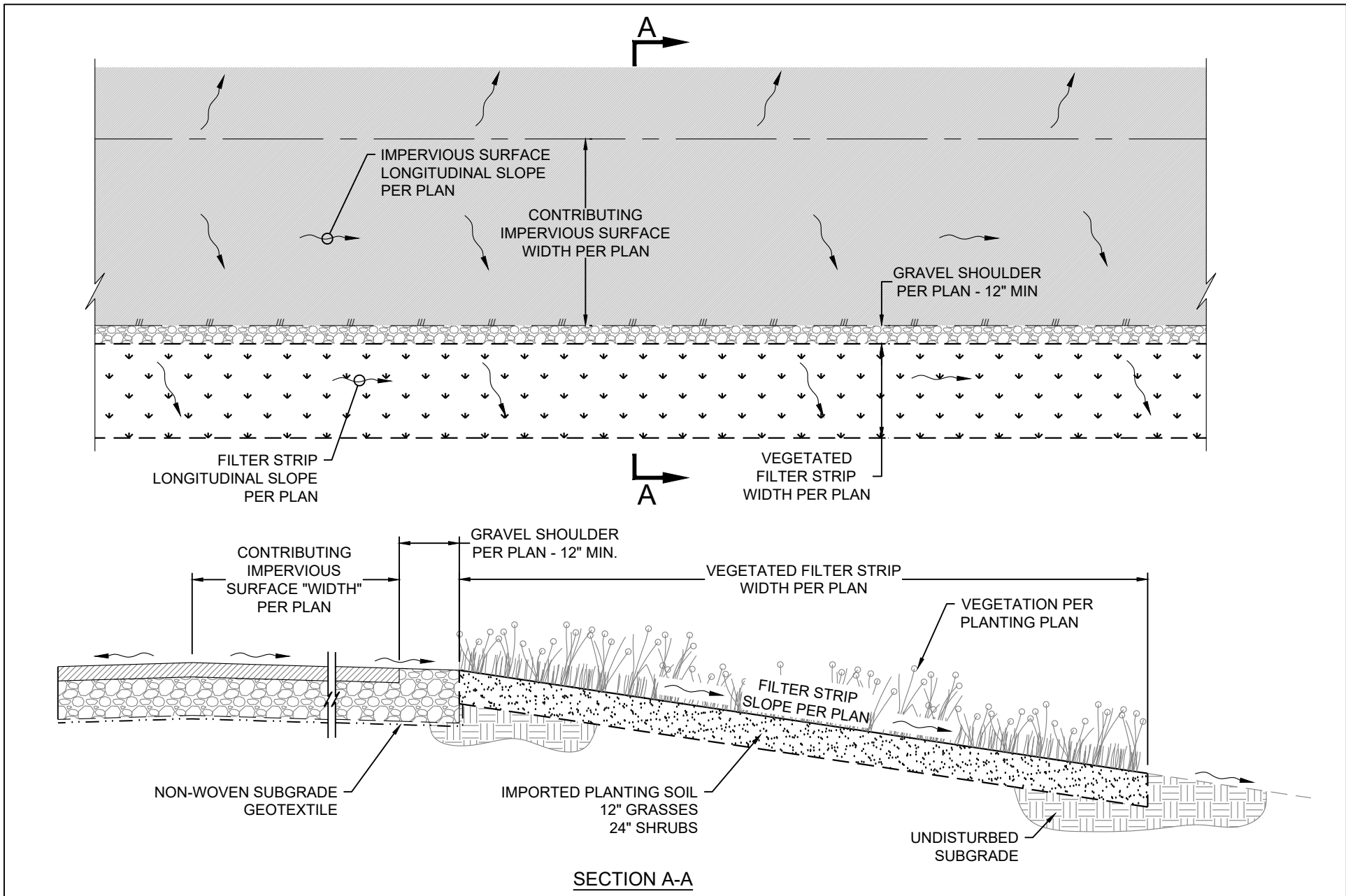
PLANT SPECIES APPROPRIATE FOR MOISTURE ZONE:

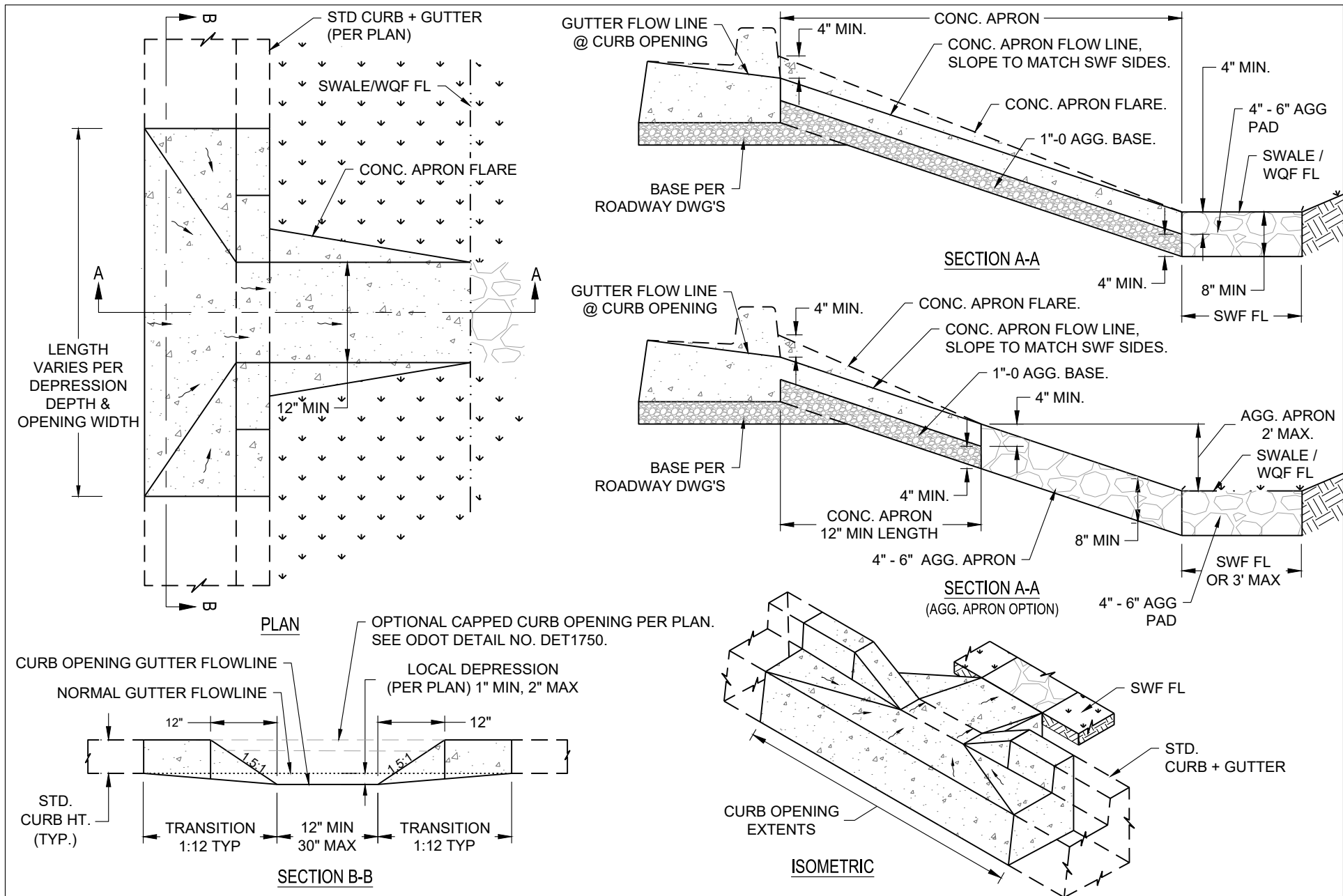
- ⊕ DRIER
- △ MODERATE
- ◇ MOIST

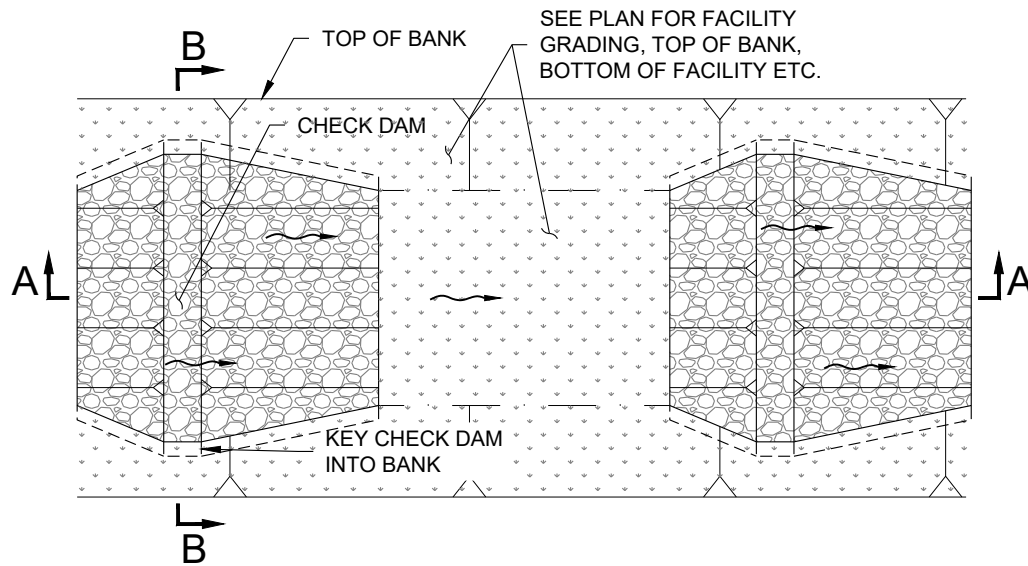
**NOTES:**

1. THIS DETAIL IS PROVIDED AS A SCHEMATIC EXAMPLE OF THE RANDOM PLANT PLACEMENT AND 90% COVERAGE AFTER ESTABLISHMENT PERIOD DESIRED TO REDUCE EROSION AND WEEDS.
2. INSTALL PLANTS PER PLANS, ACCORDING TO LANDSCAPE DESIGN PLANT TABLE, WHICH SHOULD INCLUDE PLANT SPECIES, SPACING, AND QUANTITIES IN EACH MOISTURE ZONE.
3. MOISTURE ZONES VARY FROM THOSE SHOWN DEPENDING ON GRADING PLAN, LOCATION OF INLET(S) AND OUTLET(S) AND FACILITY SHAPE.



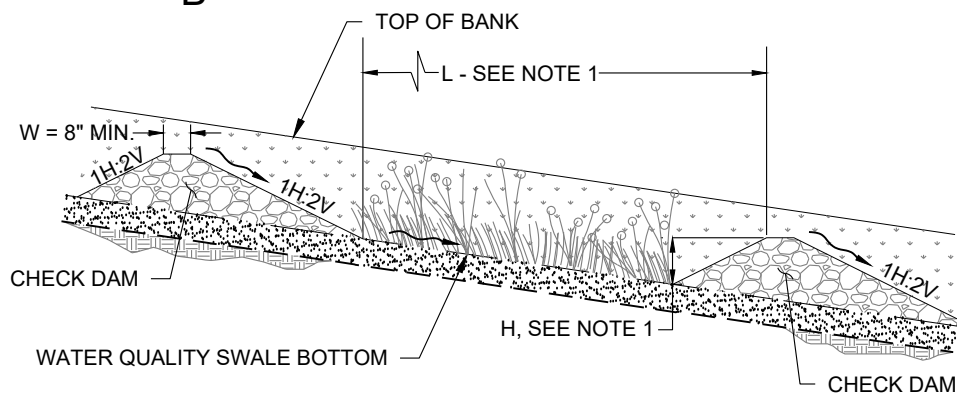




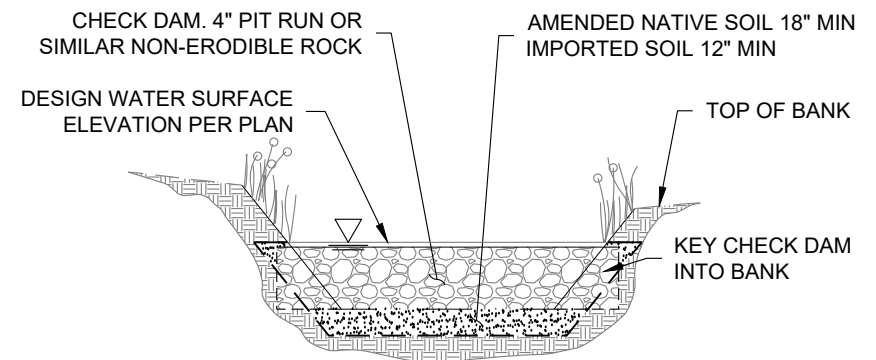


MAXIMUM CHECK DAM SPACING "L"		
SWALE GRADE	H = 18"	H = 24"
	10%	15'
9%	16'	22'
8%	18'	25'
7%	21'	28'
6%	25'	33'

H = MIN. DAM HEIGHT



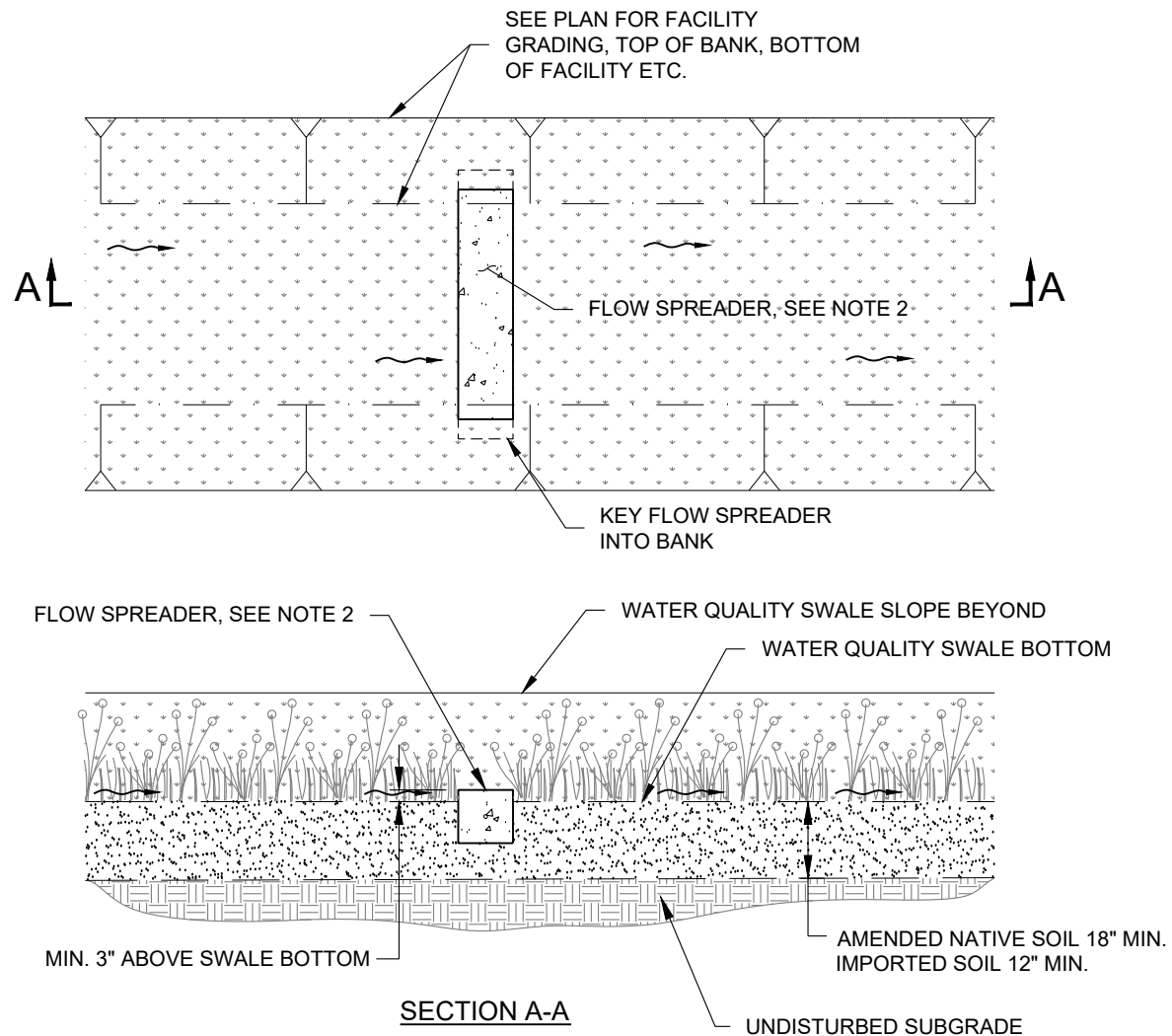
SECTION A-A



SECTION B-B

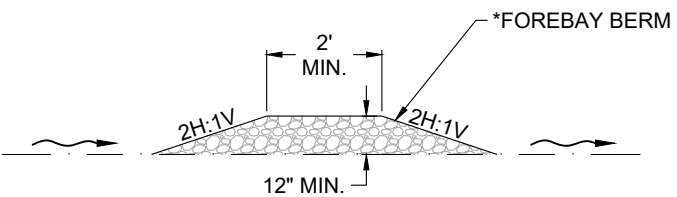
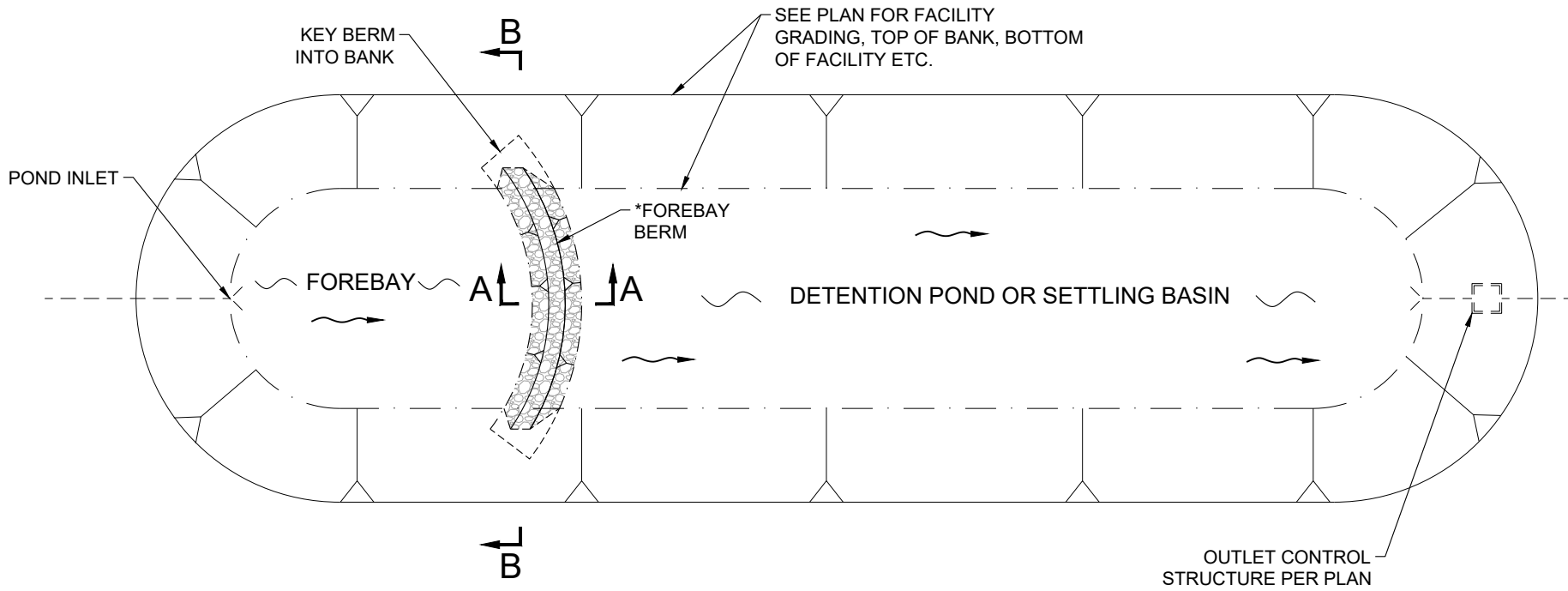
**NOTES:**

1. ELEVATION AT TOP OF DOWNSTREAM CHECK DAM SHALL BE EQUAL TO TOE OF UPSTREAM CHECK DAM. REFER TO TABLE FOR MINIMUM CHECK DAM SPACING AND HEIGHT REQUIREMENTS.

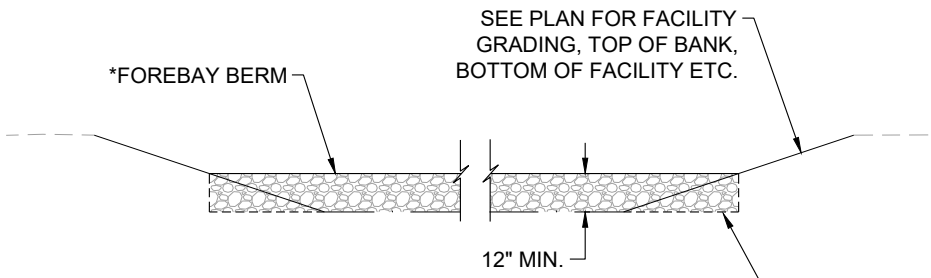


**NOTES**

1. FLOW SPREADERS SHALL BE INSTALLED WITHIN ALL WATER QUALITY SWALES WHICH HAVE A BOTTOM WIDTH OF FOUR FEET OR GREATER.
2. FLOW SPREADER SHOWN IS AN 8" x 8" CONCRETE SECTION. ALTERNATIVELY, 4" PIT RUN OR SIMILAR NON-ERODIBLE ROCK MAY BE USED.



SECTION A-A

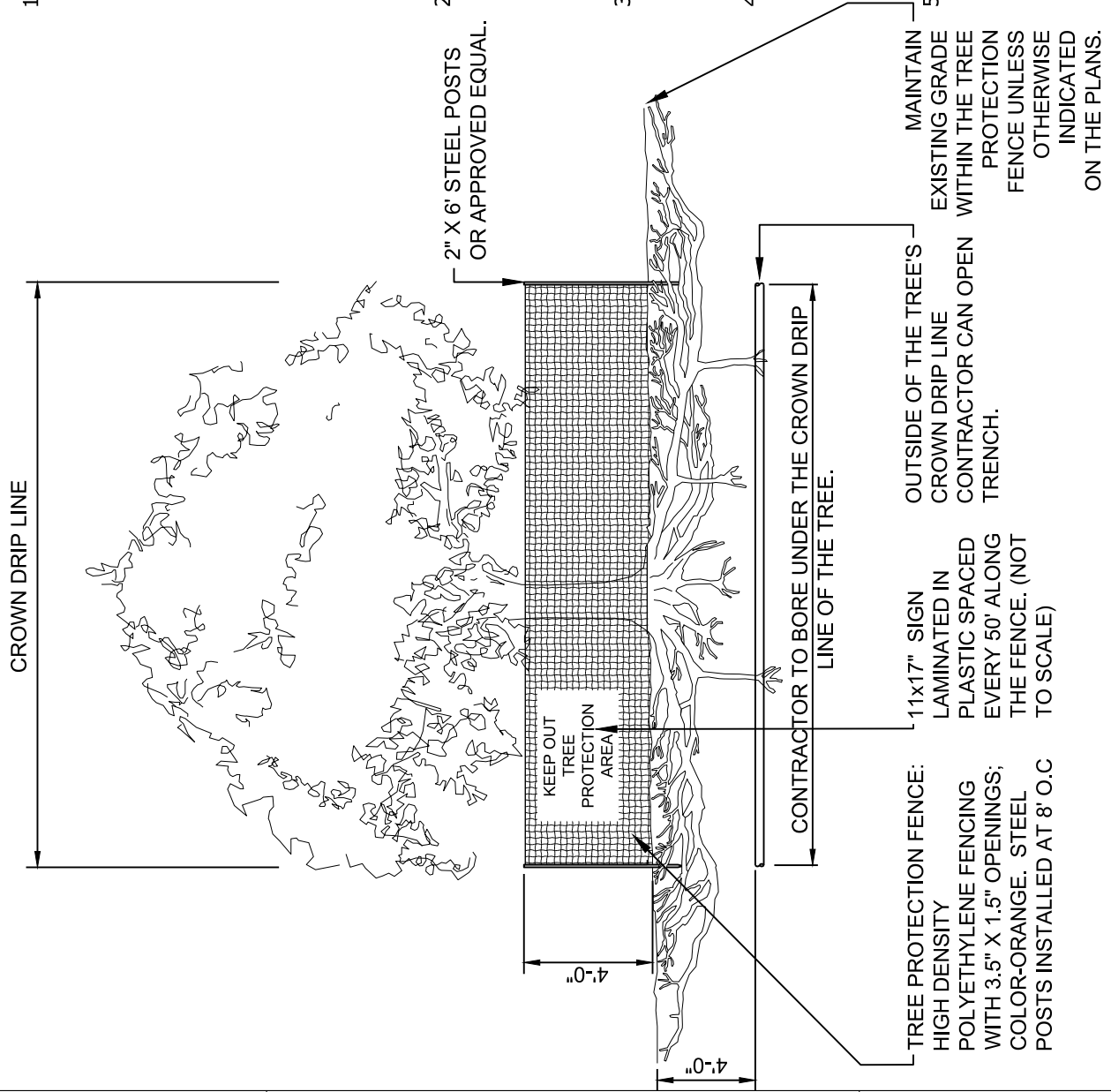


SECTION B-B

\*FOREBAY BERMS/DAMS SHALL BE CONSTRUCTED OF NON-ERODIBLE MATERIAL NO SMALLER THAN 4"-Ø OR SIMILAR.

**TREE PROTECTION NOTES:**

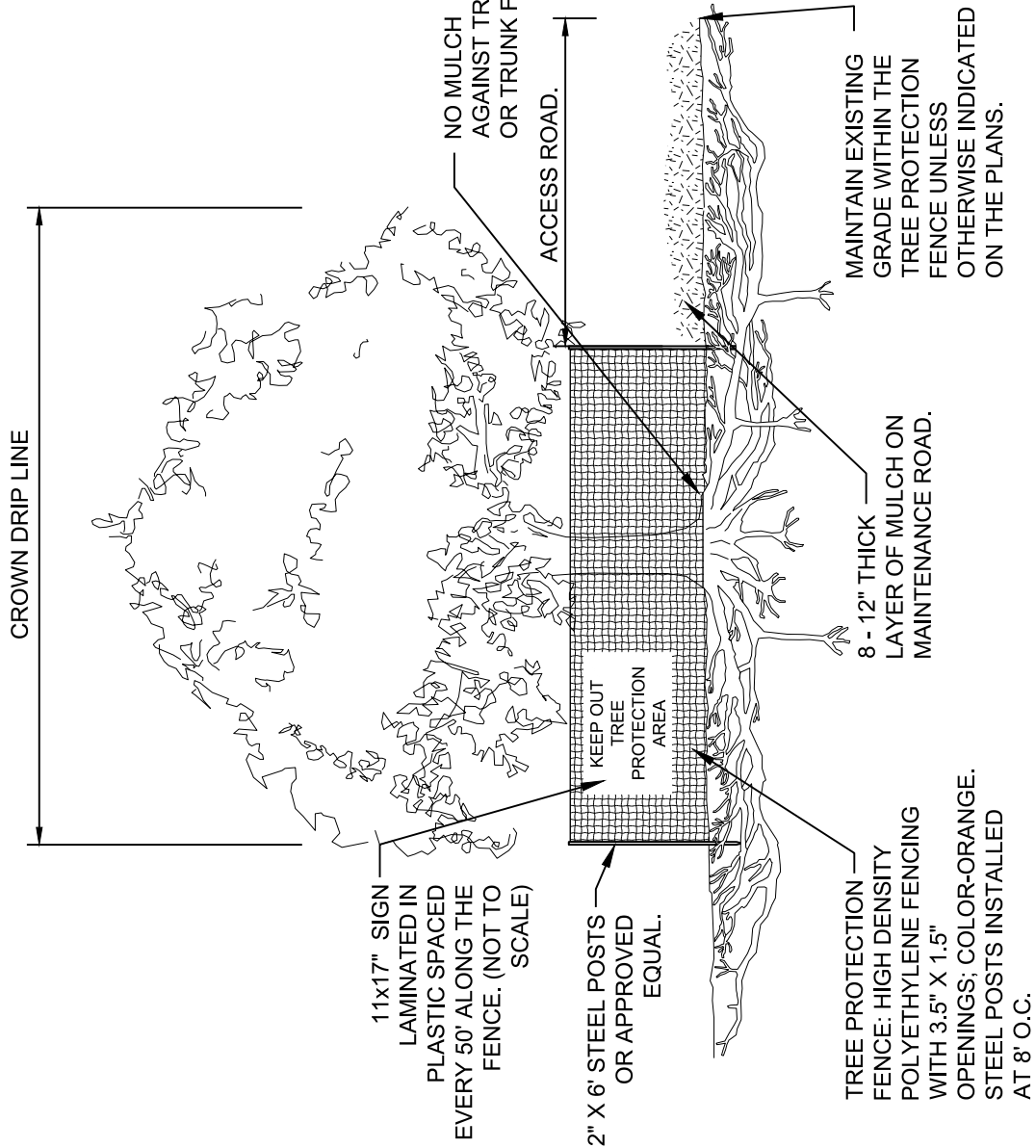
1. EXISTING TREES SHOWN TO REMAIN ARE TO BE PROTECTED DURING CONSTRUCTION. CHAINLINK FENCING (MIN. 4'-0" HEIGHT) SHALL BE INSTALLED AT THE DRIP LINE OF ALL TREES OR TREE GROUPS TO REMAIN. PARKING OF VEHICLES OR PERFORMING WORK WITHIN THESE AREAS OTHER THAN SHOWN ON THE PLAN, WILL NOT BE ALLOWED. THE TREE PROTECTION SHALL REMAIN DURING CONSTRUCTION. OTHER TREE PROTECTION MEASURES SHALL BE IN ACCORDANCE WITH THE CITY'S STANDARDS AND ORDINANCES.
2. DISPOSAL OF ANY WASTE MATERIAL SUCH AS, BUT NOT LIMITED TO, PAINT, ASPHALT, OIL SOLVENTS, CONCRETE, MORTAR, ETC. WITHIN THE CANOPY AREA OF THE EXISTING TREES SHALL NOT BE ALLOWED.
3. NO ATTACHMENTS OR WIRES OF ANY KIND OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY TREE.
4. NO FILL OR EXCAVATION OF ANY NATURE SHALL OCCUR WITHIN THE DRIP LINE OF A TREE TO BE PRESERVED, UNLESS THERE IS A SPECIFIED WELL OR RETAINING WALL SHOWN ON THE GRADING PLAN.
5. NO MATERIALS SHALL BE STORED WITHIN THE DRIP LINE AREA OF A TREE TO BE PRESERVED.



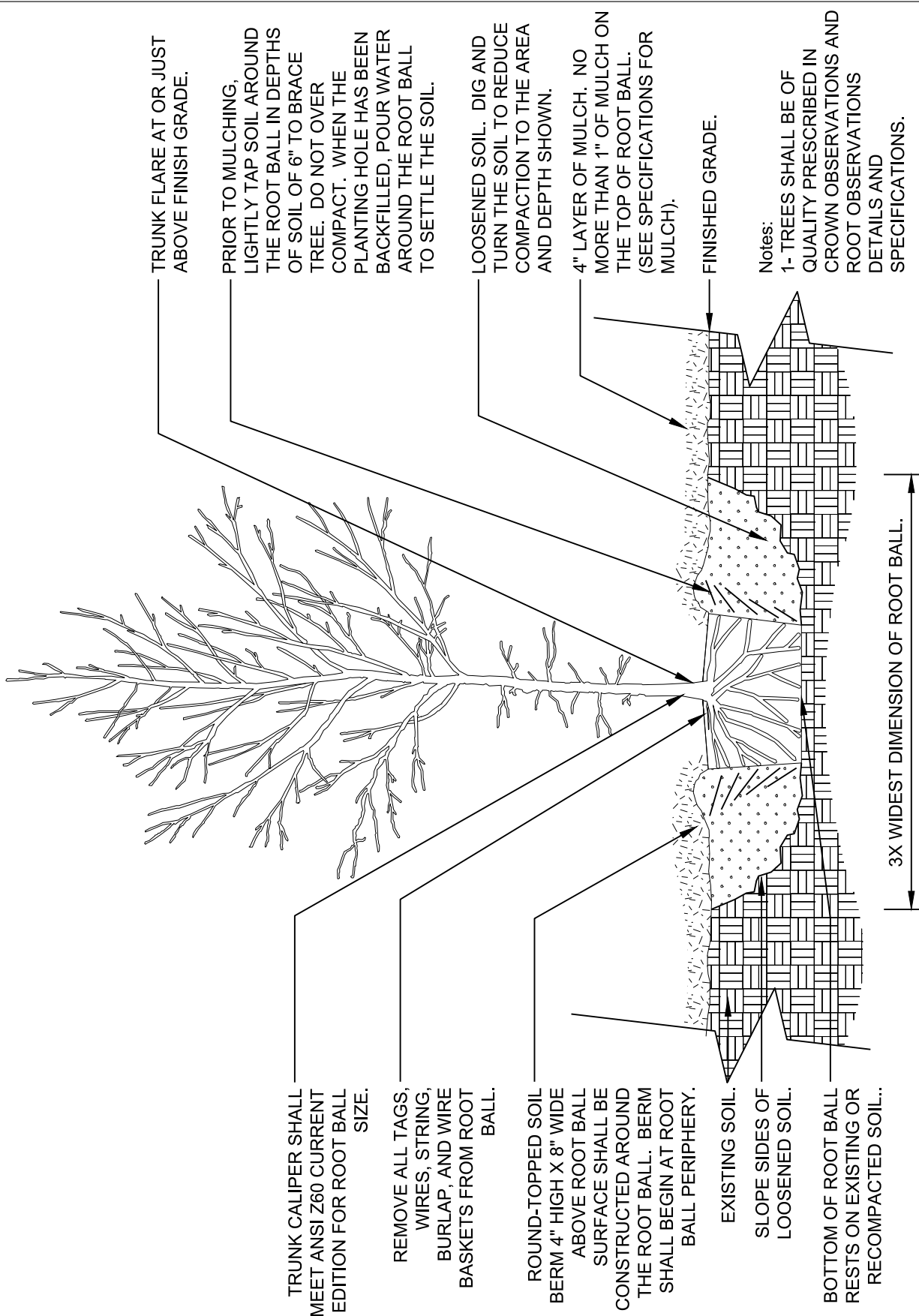
**SECTION VIEW**

**TREE PROTECTION NOTES:**

1. EXISTING TREES SHOWN TO REMAIN ARE TO BE PROTECTED DURING CONSTRUCTION. CHAINLINK FENCING (MIN. 4'-0" HEIGHT) SHALL BE INSTALLED AT THE DRIP LINE OF ALL TREES OR TREE GROUPS TO REMAIN. PARKING OF VEHICLES OR PERFORMING WORK WITHIN THESE AREAS OTHER THAN SHOWN ON THE PLAN, WILL NOT BE ALLOWED. THE TREE PROTECTION SHALL REMAIN DURING CONSTRUCTION. OTHER TREE PROTECTION MEASURES SHALL BE IN ACCORDANCE WITH THE CITY'S STANDARDS AND ORDINANCES.
2. DISPOSAL OF ANY WASTE MATERIAL SUCH AS, BUT NOT LIMITED TO, PAINT, ASPHALT, OIL SOLVENTS, CONCRETE, MORTAR, ETC. WITHIN THE CANOPY AREA OF THE EXISTING TREES SHALL NOT BE ALLOWED.
3. NO ATTACHMENTS OR WIRES OF ANY KIND OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY TREE.
4. NO FILL OR EXCAVATION OF ANY NATURE SHALL OCCUR WITHIN THE DRIP LINE OF A TREE TO BE PRESERVED, UNLESS THERE IS A SPECIFIED WELL OR RETAINING WALL SHOWN ON THE GRADING PLAN.
5. NO MATERIALS SHALL BE STORED WITHIN THE DRIP LINE AREA OF A TREE TO BE PRESERVED.



**SECTION VIEW**



TRUNK FLARE AT OR JUST ABOVE FINISH GRADE.

PRIOR TO MULCHING, LIGHTLY TAP SOIL AROUND THE ROOT BALL IN DEPTHS OF SOIL OF 6" TO BRACE TREE. DO NOT OVER COMPACT. WHEN THE PLANTING HOLE HAS BEEN BACKFILLED, POUR WATER AROUND THE ROOT BALL TO SETTLE THE SOIL.

LOOSENED SOIL. DIG AND TURN THE SOIL TO REDUCE COMPACTION TO THE AREA AND DEPTH SHOWN.

4" LAYER OF MULCH. NO MORE THAN 1" OF MULCH ON THE TOP OF ROOT BALL. (SEE SPECIFICATIONS FOR MULCH).

FINISHED GRADE.

Notes:

1- TREES SHALL BE OF QUALITY PRESCRIBED IN CROWN OBSERVATIONS AND ROOT OBSERVATIONS DETAILS AND SPECIFICATIONS.

2- SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

TRUNK CALIPER SHALL MEET ANSI Z60 CURRENT EDITION FOR ROOT BALL SIZE.

REMOVE ALL TAGS, WIRES, STRING, BURLAP, AND WIRE BASKETS FROM ROOT BALL.

ROUND-TOPPED SOIL BERM 4" HIGH X 8" WIDE ABOVE ROOT BALL SURFACE SHALL BE CONSTRUCTED AROUND THE ROOT BALL. BERM SHALL BEGIN AT ROOT BALL PERIPHERY.

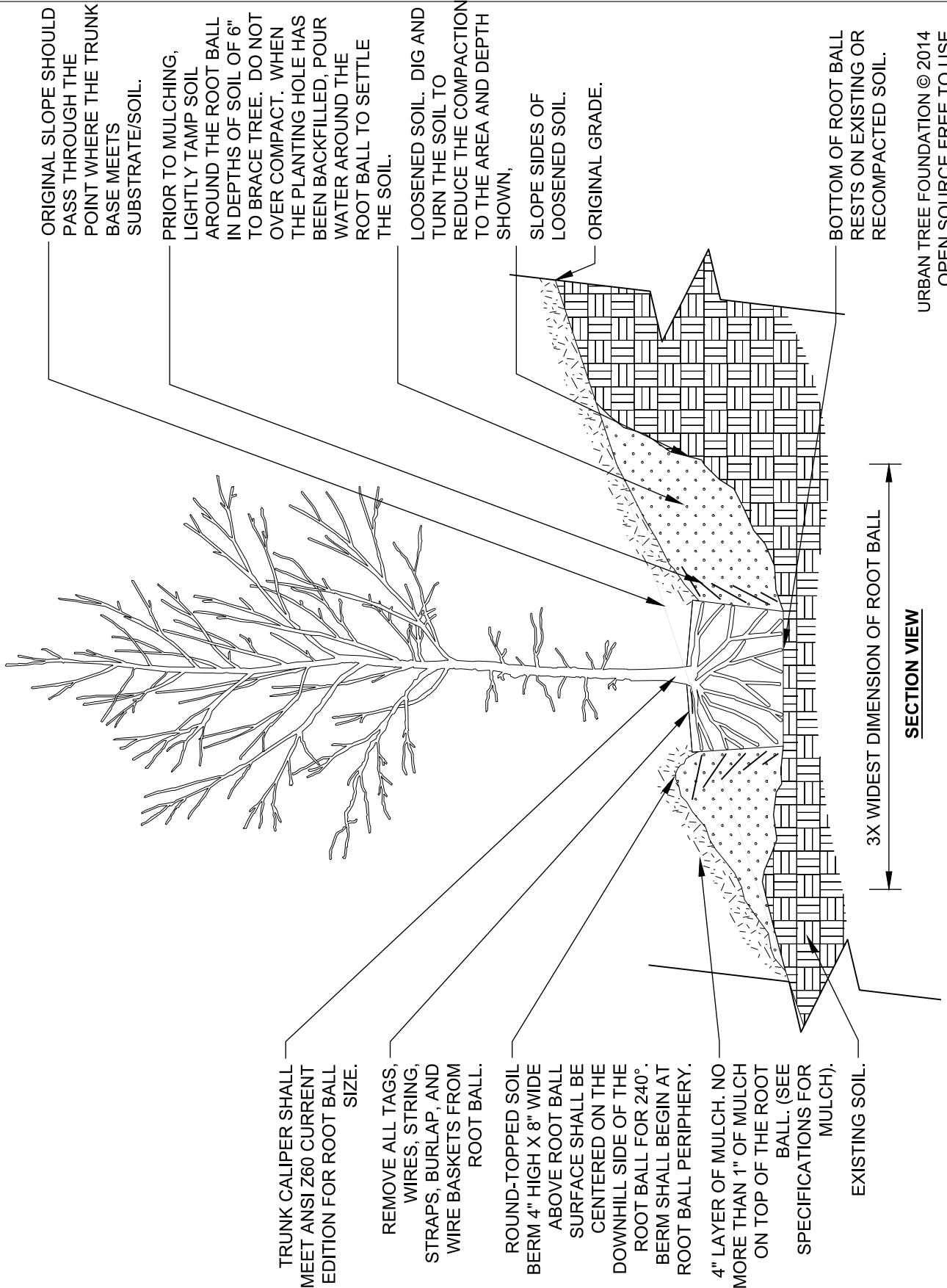
EXISTING SOIL.

SLOPE SIDES OF LOOSENED SOIL.

BOTTOM OF ROOT BALL RESTS ON EXISTING OR RECOMPACTED SOIL.

3X WIDEST DIMENSION OF ROOT BALL.





## Appendix G: Pre-Approved Proprietary Stormwater Treatment Technologies

---

When requested, the Stormwater Advisory Team (SWAT) will review proprietary stormwater treatment and detention devices that are not already approved or under review by the Washington Department of Ecology’s Technology Assessment Protocol (TAPE). Per section 5.4 of the Rogue Valley Stormwater Design Manual, data must be collected and submitted to the jurisdiction in accordance with the Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies (TAPE).

The devices listed in Table G-1 have been evaluated by the SWAT and determined to meet the treatment requirements of the Rogue Valley Stormwater Design Manual.

**Table G-1. Pre-Approved Proprietary Stormwater Treatment Technologies**

<b>Manufacturer</b>	<b>Model</b>	<b>Date Approved by SWAT</b>
Stormtech LLC	Stormtech Isolator Row	2-17-16

## Appendix H – Stormwater Operation and Maintenance

---

Stormwater Operation and Maintenance Plan Templates

O&M Manual Template (fillable pdf)

Section B: RVSS Declaration of Covenants

Medford Declaration of Covenants

Section D: Medford Subdivision O&M Agreement

Section F: SW Facility Inspection and Maintenance Checklists

# Instructions for Completing the Stormwater O&M Manual

**Delete this page prior to finalizing.**

Stormwater management facilities for treatment and detention of stormwater runoff must be maintained in perpetuity. The Operation and Maintenance Manual describes how to maintain the facilities and the Declaration of Covenants contained within the Manual describes legal responsibilities of the property owner. The Stormwater Facilities Operations and Maintenance Manual is to be submitted as separate document from the Stormwater Calculation Report.

## Detailed Instructions:

1. Fill in the required information throughout the Operation and Maintenance Manual.
2. Insert the appropriate Inspection and Maintenance Worksheets from the Section F template. Only include the worksheets that apply to this project.
3. Have the property owner sign the Declaration of Covenants in the presence of a notary. The Declaration of Covenants is not required for facilities that will be publicly maintained.
4. Bring the Declaration of Covenants to the approving authority to have them sign the document.
  - a. If receiving approval through RVSS, signed documents may be scanned and emailed to the Stormwater Program Manager, Jennie Morgan at [jmorgan@rvss.us](mailto:jmorgan@rvss.us).
5. The property owner, or their agent, must take the approved O&M Manual and the fully signed and notarized Declaration of Covenants to the Jackson County recorder office and have the documents recorded on the deed of the property. The address, parking information and hours of operation of the Recorders office is available here: <https://jacksoncountyor.org/clerk/Contact/Recording>.
6. Provide the recorded documents to the approving authority.

**Business Name:** \_\_\_\_\_

**Map + TL:** \_\_\_\_\_

**Business Address:** \_\_\_\_\_

# **Stormwater Facilities Operation & Maintenance Manual**

Date O&M Document Prepared:

\_\_\_\_\_

Prepared by:

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

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

## TABLE OF CONTENTS

Contact Information, Responsible Party Designation .....	Section A
Declaration of Covenants .....	Section B
Stormwater Facility Plans .....	Section C
SW Inspection and Maintenance Checklists and Forms.....	Section D
Proprietary Stormwater Components Operation and Maintenance Information (If Used).....	Section E
DEQ Spill Response Fact Sheet.....	Section F

**Stormwater Facilities Operation and Maintenance Manual**  
**Section Descriptions**

- A. Contact Information, which is to be updated, and an updated copy of the form provided to the approving authority, whenever information changes, Section A.
- B. A copy of the signed “Declaration of Covenants for the Operation and Maintenance of Stormwater Facilities”, Section B. If the project is located in the City of Medford, a Subdivision Operation and Maintenance Agreement, is required for any portion of the subdivision that drains into a privately maintained stormwater facility. The Subdivision agreement replaces the Declaration of Covenants and must include copies of all recorded easements associated with the stormwater facility including a map of the tax lot(s) showing the location of the easement(s).
- C. A description and diagram showing the location of the stormwater facility(ies) on site and the proposed access route for inspection and maintenance. Approved stormwater facility construction plans, including the plan view and details, in Section C.
- D. The Inspection and Maintenance Worksheets for the specific type of facility(ies) shall be attached as part of the O&M Plan, Section D.
- E. For proprietary stormwater systems, include the manufacturer’s maintenance documents, Section E.
- F. The DEQ Fact Sheet for responding to a spill, Section F.

## **Section A**

### **Contact Information**



# Contact Information

Print or type the following information:

Project Name \_\_\_\_\_ Building Permit # \_\_\_\_\_

Site Information: Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_ Map and Tax Lot(s) \_\_\_\_\_

---

## Legal Owner Information

Name(s) \_\_\_\_\_

Address (mailing) \_\_\_\_\_ City/State/Zip \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

---

## Responsible Party for Maintenance

Property Owner  Property Management Company  Homeowner's Association  Tenant

Other  \_\_\_\_\_

## Contact Information for Responsible Party

Contact Name/Position \_\_\_\_\_

Contact Organization \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

---

## EMERGENCY CONTACT

Contact Name/Position \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

---

## Stormwater Facility Type

List each stormwater treatment and detention facility associated with this project, if a proprietary facility provide the manufacturer and model.

---

---

---

# Responsible Party Designation Form

This form to be used if designating a third party as responsible for operation and maintenance.

The undersigned, Property Owner(s) \_\_\_\_\_,  
owners of property with a site address of: \_\_\_\_\_,  
Jackson County, Oregon, do hereby declare that as of \_\_\_\_\_, 20\_\_\_\_,  
\_\_\_\_\_ will be the responsible party for  
operating and maintaining the stormwater management facility described in the Declaration of  
Covenants for the Operation and Maintenance of Stormwater Facilities in accordance with all  
measures prescribed in the Covenants. They will remain the responsible party until the property owner  
signs a new Responsible Party Designation Form with a new entity. Nothing herein in any way  
alleviates or diminishes Property Owner's primary and ultimate responsibility and liability to comply  
with RVSS ordinances and regulations and to perform as required per the Declaration of Covenants  
executed the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

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

\_\_\_\_\_  
Responsible Party Printed Name

\_\_\_\_\_  
Owner Signature

\_\_\_\_\_  
Responsible Party Signature

## **Section B**

### **Declaration of Covenants / Subdivision Agreement**

## **Section C**

### **Stormwater Facility Plans**

## **Section D**

### **STORMWATER MAINTENANCE CHECKLISTS AND RECORD**

Inspection and Maintenance Action Checklists

Stormwater Facility Maintenance Record

## **Section E**

### **Proprietary Stormwater Components Operation and Maintenance Information (If Used)**

## **Section F**

### **Spill Response Plan**

**Declaration of Covenants for the  
Operation & Maintenance of  
Stormwater Facilities  
For**

---

Declaration of covenants affecting the real property(ies) described in Exhibit "A" (legal description) or by Instrument Number: \_\_\_\_\_, also known as: \_\_\_\_\_  
\_\_\_\_\_ (Map & Tax Lot), with a site address of: \_\_\_\_\_  
\_\_\_\_\_, (hereinafter referred to as the "property"), for the express purpose of causing the owners of said property to be subject to performing the operation and maintenance of the stormwater facility located on the property:

NOW THEREFORE, the undersigned, \_\_\_\_\_,  
owners of said property, do hereby declare that they, their heirs, successors and assigns, will manage, operate, and maintain the stormwater facility including any catch basins, piping, and treatment and detention facilities described as  
\_\_\_\_\_  
\_\_\_\_\_ (hereinafter collectively referred to as "Facility"), as prescribed below:

1. This Covenant, and all components of the Operation and Maintenance Manual (hereafter referred to as O&M Manual) that it is contained within, shall remain in full force and effect unless canceled or modified with the written consent of RVSS and the property owner/owners.
2. The property owner/owners shall keep a copy of the jurisdiction approved Stormwater Facilities Operation and Maintenance Manual, dated \_\_\_\_\_, available on the premises,. These shall be made available to RVSS staff upon request.
3. The property owner/owners agree to contact RVSS with updated names, addresses, and phone numbers for owner's, and responsible parties should the information on the Contact Form, Section A, change.
4. The property owner/owners shall inspect and maintain the approved Facility, and easements associated with the Facility, in accordance with the approved Inspection and Maintenance Worksheets within the O&M Manual to ensure it is functioning properly.
5. Modifications of physical features within the Facility shall not be made by property owner/owners or their without receiving prior written authorization from RVSS.



6. The property owner/owners shall keep records of Facility system inspections and maintenance for five years from the date of each inspection. Records shall note inspection dates, any conditions requiring maintenance actions, and maintenance conducted. Records shall be made available to RVSS staff upon request at no cost to RVSS.
7. RVSS staff shall have the right to enter upon owner's property, using the maintenance access routes specified in the O&M Manual, for the purpose of inspecting the Facility subject to regulation under Chapter 4.05.120 of RVSS' code, as often as may be necessary to determine compliance.
8. If RVSS determines that the Facility or any part thereof is not functioning properly, the owner will either take corrective actions, or will submit a plan of action that is approved within 14 calendar days, unless other arrangements are made with RVSS.
9. If Owner fails or refuses to timely and/or faithfully perform any obligation required of Owner as set forth herein, RVSS may make or perform such maintenance, repair, or other work or other task and charge the actual costs thereof to Owner. Such expenditures by RVSS shall be reimbursed by Owner on demand together with interest at the rate of 12% per annum from the date of expenditure by RVSS.
10. If all, or any part, of the Facility is located within a Public Utility Easement (PUE.), the property owner/owners shall bear all responsibility and cost to remove and replace any portion or affected portion of the Facility located within any PUE located on the subject property at such time when the benefitting agency deems it necessary for access, maintenance and/or other activities as permitted by the PUE.
11. In the event suit, action, or other proceeding is instituted to enforce or interpret this Agreement, the prevailing party shall be entitled to recover from the non-prevailing party the prevailing party's costs, disbursements and attorney fees incurred through trial and upon any appeal therefrom.

The above covenants shall run with the land, be enforceable by the Rogue Valley Sewer Services, and shall be binding upon the property owner/owners, their heirs, successors, and assigns.



## Legal Description of Property

# **STORMWATER MAINTENANCE CHECKLISTS AND RECORD**

Inspection and Maintenance Action Checklists

Stormwater Facility Maintenance Record

# STORMWATER FACILITY INSPECTION AND MAINTENANCE ACTION CHECKLISTS

## **Stormwater Facility Design Functions: (Boxes to be checked by designer only.)**

The Stormwater Facilities at this site are designed to perform specific functions indicated below, and must be maintained to perform those functions in perpetuity. Changes to the Facility that would alter its designed function require consent from the local approving jurisdiction. Check all that apply:

- Infiltration (All Retention BMP's): Runoff is captured and held only leaving the facility through infiltration into the ground, evaporation or absorption by vegetation.
  - Does the infiltration facility design require 90% vegetation coverage?  yes  no
    - If Yes, the Inspection and Maintenance Checklist for Vegetated Facilities must be included.
    - If No, the Inspection and Maintenance Checklist for Vegetated Facilities is not required.
- Flow-through Treatment (Water Quality Swale BMP and Dispersion BMPs): Runoff is captured in the facility and flows through vegetation and/or soils before flowing downstream.
  - Does the facility incorporate a Water Quality Swale or Vegetated Filter Strip?  yes  no
    - If Yes, the Inspection and Maintenance Checklist for Vegetated Facilities must be included.
    - If No, the Inspection and Maintenance Checklist for Vegetated Facilities is not required.
- Filtration Treatment (Soil Filtration BMP and Vegetated Roof): Runoff is captured in the facility and is filtered through a soil substrate before being captured in and discharged through an underdrain.
- Settlement for Treatment (Water Quality Settling Basin BMP): Runoff is captured and held for a specified amount of time to allow solids to settle before being slowly released downstream.
- Proprietary Treatment BMP: Runoff is captured in a proprietary treatment device and is treated as specified by the manufacturer. The manufacturer's maintenance documents must be included.
- Peak Flow Control (Detention BMP): Peak flow from a 10 year event is captured, held, and released at a rate no greater than the pre-developed peak flow rate.

## **Inspection and Maintenance:**

The checklists indicate recommended conditions to look for and actions to take should those conditions exist. They can assist with planning, scheduling, staffing, and budgeting for operation and maintenance of the stormwater facility.

**Inspections:** At least one inspection per year is required, some items require inspection during a storm event, refer to the Inspection Checklist. Document the date of inspection on the Inspection Checklist and list any maintenance that is needed.

**Maintenance Records:** Maintenance records must be kept on all stormwater facilities. Trash removal is required to be done, but not required to be documented. All other items listed as required maintenance items must be documented. An example Maintenance Record is provided in this packet. On the Maintenance Record, list the issue to be addressed and the date action was taken and describe the action taken. The individual who inspects and approves the completed work should initial the 'Work approved by' box. Invoices and work orders for supplies and hiring contractors to complete work should be kept on file. The property owner/owners shall keep records of facility system inspections and maintenance for five years from the date of each inspection. Records shall be made available to jurisdictional authority upon request, at no cost.

**Manufactured Treatment Structures:** These structures will have maintenance requirements from the manufacturer that are included in this packet.

**Pesticides:** Pesticides (which includes herbicides, insecticides, fungicides), are prohibited within stormwater facilities due to the potential to contaminate downstream waters. Utilize integrated pest management to assess and address pest issues.

**Fertilizers:** Avoid the use of fertilizers in stormwater facilities. Instead, mulch plants with shredded wood chips or coarse compost. Mulch must be dye, pesticide and weed free.

**Pollution Prevention:** Best Management Practices must be implemented on all sites to prevent stormwater contamination. Spills should be cleaned up following best management practices and should never be washed into a stormwater treatment facility. If a spill occurs into the stormwater facility, contact the approving jurisdiction immediately. Document time and date, weather conditions, what spilled, approximately how much, and any corrective action taken. If possible, block the inlet to the stormwater facility to prevent the material from flowing in. If the material reaches the stormwater facility, soils and vegetation may have to be replaced.

Inspection and Maintenance Action Checklist		Pervious Pavement		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>No stockpiles of soil/mulch/debris may be staged on the pervious surface and grass/leaves/debris should not be blown onto the surface. Ensure landscape contractors understand that the surface is permeable. Inform them that they cannot stage or blow material onto the surface.</li> <li>Do not seal coat the pervious surface or overlay with an impervious surface. Repair raveling or settling per manufacturer specification. 50sf or less of damage may be patched with conventional asphalt, up to 10% of the entire pervious surface.</li> <li>Snow removal with salt is prohibited. Use salt-free deicers only. Do not apply deicers to concrete &lt;1 year old. Always plow with the blade one inch above the surface.</li> </ul>				
<b>Required Actions</b>				
Surface cleaning		<ul style="list-style-type: none"> <li>Vacuum or dry sweep at least twice a year</li> <li>Or, pressure wash at a right angle to the pavement</li> </ul>		
Conditions to Check for	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Erosion from landscape areas onto pervious paving	Implement temporary erosion prevention and sediment control and a permanent fix for the erosion issue(s).	Required		
Reduced infiltration	Must inspect during a storm event. If storms are not infiltrating, contact the jurisdiction.	Required		
Weed and moss growth over 10% of area or more	Mechanically remove during the dry season. Avoid mossicides and herbicides.	Required		
Trash and Leaves	Pick up trash, blow or sweep leaves. Remove and dispose.	Required		
Signage describing Pervious Pavement in place	If a sign was specified on the plans, ensure sign is visible and legible.	Required		
Aggregate loss, potholes, cracks	Repair per manufacturer specification, 50sf or less of damage may be patched with conventional asphalt, up to 10% of the entire pervious surface.	Suggested		
Settling of pavers or loss of paver filling.	Reset pavers and replace missing fill material per original design.	Suggested		

\*The Pervious Pavement Checklist applies and must be included for the following BMPs:

- Pervious Surface Retention BMP (pervious asphalt, pervious concrete, pervious pavers)

Inspection and Maintenance Action Checklist		Flexible Paving Systems and Pervious Gravel Surfaces		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>• Pesticide use in stormwater facilities is prohibited.</li> <li>• No Stockpiles may be located on the flexible paving system or pervious gravel. Ensure landscape contractors understand that the surface is permeable. Inform them that they cannot stage material on the surface or blow grass/leaves/etc. onto the surface.</li> </ul>				
Conditions to Check For	Action	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Erosion from landscape areas onto pervious paving	Implement temporary erosion prevention and sediment control and a permanent fix for the erosion issue(s).	Required		
Reduced infiltration	If storms are not infiltrating, contact the jurisdiction.	Required		
Trash and Leaves	Pick up trash, blow or sweep leaves. Remove and dispose.	Required		
Signage describing Pervious Pavement in place	If a sign was specified on the plans, ensure sign is visible and legible.	Required		
Aggregate loss	Replace with aggregate per original design.	Suggested		
If vegetation is required to function and coverage is poor, Inspect for bare soil, exposed rings, ruts poorly growing grass from too much shade, and thatch.	Reseed, verify irrigation system is functioning. Avoid aeration since this equipment will damage the flexible system.	Suggested		
<b>Maintenance Specific to Pervious Gravel</b>				
Reduced Infiltration	Remove the first few inches of rock and either wash in an area that does not drain to the stormwater system and replace, or replace with new washed rock matching the original aggregate specification.	Suggested		

\*The Flexible Paving Systems and Pervious Gravel Surfaces Checklist applies and must be included for facilities that incorporate the following BMPs:

- **Pervious Surface Retention BMP (Flexible Paving Systems or Pervious Gravel Surfaces)**

Inspection and Maintenance Action Checklist		Vegetated Facilities*		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>• Pesticide use in stormwater facilities is prohibited.</li> <li>• Removal of vegetation to less than 90% surface cover is prohibited.</li> </ul>				
Conditions to Check For	Actions	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Vegetation covers < 90% of facility surface	<p>Possible Ways to achieve 90% vegetation cover:</p> <ul style="list-style-type: none"> <li>• Determine if irrigation system is functioning properly and fix if needed.</li> <li>• Have a soil fertility test done to determine if nutrient addition is needed, if so add compost.</li> <li>• Add mulch around plantings.</li> <li>• Revegetate following approved landscape plan to achieve at least 90% coverage.</li> </ul>	<b>Required</b>		
Sediment washing out of facility	If sediment accumulated in the facility bottom is washing out, excavate and remove. Assess side slopes and bottom for erosion, fill in any eroded areas with approved soil mix and cover with mulch or vegetation.	<b>Required</b>		
Channelization in Water Quality Swale. Flow has become channelized and does not spread across bottom width of swale.	<ul style="list-style-type: none"> <li>• Recontour to design width and elevation.</li> <li>• Replant vegetation to cover the entire facility bottom.</li> <li>• Consider installing a flow spreader device. Contact the approving jurisdiction for advice on flow spreader installation.</li> </ul>	<b>Required</b>		
Clogged or damaged inlets, outlets, pipes, check dams, perforated pipes or underdrains; if interfering with facility function	<ul style="list-style-type: none"> <li>• Remove sediment and debris to maintain adequate conveyance.</li> <li>• Repair or replace damaged pipes, inlets, outlets to match approved design.</li> </ul>	<b>Required</b>		
Energy dissipator(s) damaged/missing at inlets and outlets (where specified)**	<p>If rock is washing out, evaluate need to replace with larger rock.</p> <p>If missing, replace rock with size and at depth specified.</p>	<b>Required</b>		
Check Dams damaged (if installed)	Maintain design number, spacing and elevation, of check dams.	<b>Required</b>		



Inspection and Maintenance Action Checklist		Vegetated Facilities*		
Ponding for more than six days	In swales, check that outflow is not blocked by vegetation or debris. In infiltration facilities, remove the clogged soil then rake, till or amend the soil with the approved soil mix. Contact the approving jurisdiction to discuss soil replacement if this is insufficient.	Required		
Trash and debris.	Remove and dispose.	Required		
Odor, sludge, or color. Presence of any chemical pollutants.	Notify appropriate jurisdiction to investigate. Remove contaminant by appropriate methods and dispose of as directed by hazardous waste protocols.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		
Vegetation blocks sight lines, inlets, outlets.	<ul style="list-style-type: none"> <li>Prune vegetation that blocks sight lines, inlets, outlets. Do not string trim grasses, sedges or rushes.</li> <li>Remove dead vegetation before it covers 10% of the surface area.</li> <li>Facilities seeded with low-mow or no-mow seed mix, should be cut a maximum of three to four times a year to reduce fire risk. In infiltration facilities, utilize a weed whacker rather than a mower to reduce compaction of the facility soils.</li> <li>Maintain vegetation at 6 inches or taller in swales.</li> </ul>	Suggested		
Erosion within facility. Check inlets, slopes, energy dissipators and facility bottom.	Any erosion deeper than two inches should be addressed. Determine cause of erosion and eliminate. Refill eroded channels with approved soil media and replant. If possible, redirect flows temporarily and apply appropriate	Suggested		

Inspection and Maintenance Action Checklist		Vegetated Facilities*		
	temporary erosion control best management practices.			

\*The Vegetated Facilities Checklist applies and must be included for stormwater facilities that incorporate the following BMPs:

- **Ponded Retention BMP with Vegetation:** eg. rain gardens, stormwater planters and retention ponds designed with 90% vegetation coverage
- **Water Quality Swale BMP**
- **Dispersion BMP:** Vegetated Filter Strips only

\*\***Energy Dissipators:** Typically located below an inlet to a stormwater facility and made of rip-rap, concrete, or a proprietary structure. They prevent scouring of the stormwater facility substrate.

Inspection and Maintenance Action Checklist		Unvegetated Surface Facilities*		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Pesticide use in stormwater facilities is prohibited.</li> </ul>				
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Sediment washing out of facility	If sediment accumulated in the facility bottom is washing out, excavate and remove. Assess side slopes and bottom for erosion, fill in any eroded areas with approved soil mix and cover with mulch or vegetation.	Required		
Clogged or damaged inlets, outlets, pipes, perforated pipes or underdrains; If interfering with facility function	Remove sediment and debris to maintain adequate conveyance. Repair or replace damaged pipes, inlets, and outlets to match approved design.	Required		
Energy dissipator(s) damaged/missing at inlets and outlets (where specified)**	If rock is washing out, evaluate need to replace with larger rock. If missing, replace rock with size and at depth specified.	Required		
Ponding for more than six days	In infiltration facilities, remove the clogged soil then rake, till or amend the soil with the approved soil mix. Contact the approving jurisdiction to discuss soil replacement if this is insufficient.	Required		
Trash and debris.	Remove and dispose.	Required		
Odor, sludge, or color. Presence of any chemical pollutants.	Notify appropriate jurisdiction to investigate. Remove contaminant by appropriate methods and dispose of as directed by hazardous waste protocols.	Required		
Liner (if installed) torn or punctured	Repair or replace as necessary per manufacturer specification.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		
Erosion within facility. Check inlets, slopes, energy dissipators and facility bottom.	Any erosion deeper than two inches should be addressed. Determine cause of erosion and eliminate. Refill eroded channels with approved soil media. If possible, redirect flows temporarily and apply	Suggested		

Inspection and Maintenance Action Checklist		Unvegetated Surface Facilities*		
	appropriate temporary erosion control best management practices.			

\*The Unvegetated Surface Facilities Checklist applies and must be included for facilities that incorporate the following BMPs:

- **Ponded Retention BMP** without Vegetation: eg. rain gardens, stormwater planters and retention ponds designed without 90% vegetation coverage.
- **Soil Filtration BMP**: eg. rain gardens and stormwater planters designed as filtration facilities with underdrains.

\*\***Energy Dissipators**: Typically located below an inlet to a stormwater facility and made of rip-rap, concrete, or a proprietary structure. They prevent scouring of the stormwater facility substrate.

Inspection and Maintenance Action Checklist		Detention & Settling Basins*		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Pesticide use is prohibited in stormwater facilities.</li> </ul>				
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Clogged or damaged inlets, outlets, pipes, perforated pipes, underdrains or check dams; If interfering with facility function	Remove sediment and debris to maintain adequate conveyance. Repair or replace damaged pipes, inlets, and outlets to match approved design.	Required		
Sediment washing out of facility	If sediment accumulated in the facility bottom is washing out, excavate and remove the accumulated sediment. Assess side slopes and bottom for erosion, and stabilize to prevent erosion. If erosion persists, seek technical assistance.	Required		
Energy dissipator(s) damaged/missing at inlets and outlets (where specified)**	Replace rock of size and at depth specified. Evaluate need to replace with larger rock. Repair eroded areas as necessary. Determine cause of rock movement and replace with same size rock or larger as necessary.	Required		
Sediment accumulation exceeding 20 percent of the forebay depth or 4 inches, whichever is less.	Remove sediment.	Required		
Overflow berms or spillways exposed and either actively eroding or vulnerable to erosion.	Replace armoring or replant as directed in design plans and specifications.	Required		
Trash and debris.	Remove and dispose.	Required		
Trash rack or bar screen missing or more than 25% covered	Remove debris and dispose of waste. Repair or replace rack as necessary.	Required		
Odor, sludge, or unusual color. Presence of any chemical pollutants.	Notify appropriate jurisdiction to investigate. Remove contaminant by appropriate methods and dispose of as directed by hazardous waste protocols.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		

Inspection and Maintenance Action Checklist		Detention & Settling Basins*		
Vegetation blocks sight lines, inlets, outlets.	Prune vegetation that blocks sight lines, inlets, outlets. Do not string trim grasses, sedges or rushes.	Suggested		
Erosion within facility. Check inlets, slopes, energy dissipators and facility bottom.	Determine cause of erosion and eliminate and stabilize to prevent erosion. If possible, redirect flows temporarily and apply appropriate temporary erosion control best management practices.	Suggested		

\*The Detention & Settling Basins Checklist applies and must be included for facilities that incorporate the following BMPs:

- Water Quality Settling Basin BMP
- Detention BMP (Flow Control)

\*\***Energy Dissipators:** Typically located below an inlet to a stormwater facility and made of rip-rap, concrete, or a proprietary structure. They prevent scouring of the stormwater facility substrate.

Inspection and Maintenance Action Checklist		Disconnected Downspouts		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Discharging runoff on another property is not allowed.</li> </ul>				
<ul style="list-style-type: none"> <li>No impervious surfaces may be added within the dispersion area.</li> </ul>				
<ul style="list-style-type: none"> <li>Directly connecting downspouts to the sanitary or stormwater system or directing runoff to flow into the stormwater system is prohibited.</li> </ul>				
Conditions to Check For	Action	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Damaged or missing pipes or downspout extension	Ensure extension ends a minimum of 10 ft from structure. Repair and replace as needed.	Required		
Clogged or blocked pipes, elbows or downspout extension	Clear pipes and elbows of debris to maintain at least adequate capacity. Clear any accumulated debris at downspout extension or splash block. Verify that dispersion area is not encroached upon by other structures.	Required		
Erosion at outlet	Check that splash blocks or energy dissipation is in place and functional. Repair eroded areas as necessary. Repair or replace splash blocks. If rock energy dissipation has moved, determine cause and replace with same size rock or larger as necessary.	Required		
Vegetation blocks downspout extension or visibility.	Prune vegetation that blocks downspout extension or visibility of traffic.	Suggested		

\*The Disconnected Downspouts Checklist applies and must be included for facilities that incorporate the following BMPs:

- Dispersion BMP: Disconnected Downspouts

**\*\*Energy Dissipation:** Typically located below an inlet to a stormwater facility and made of rip-rap, concrete, or a proprietary structure. Prevents scouring of the stormwater facility substrate.

Inspection and Maintenance Action Checklist		Vegetated Filter Strips*		
<b>Prohibited Actions</b>				
<ul style="list-style-type: none"> <li>• Pesticide use within stormwater facilities.</li> <li>• Removal of vegetation to less than 90% surface cover.</li> </ul>				
Conditions to Check For	Action	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Channelization. Flow has become channelized and does not spread over entire facility.	<ul style="list-style-type: none"> <li>• Check condition of flow spreader, repair or replace as needed to evenly disperse flow.</li> <li>• If needed, re-contour facility to design elevation and replant vegetation to evenly cover facility.</li> </ul>	Required		
Vegetation covers < 90% of facility bottom	Possible Ways to achieve 90% vegetation cover: <ul style="list-style-type: none"> <li>• Determine if irrigation system is functioning properly.</li> <li>• Have a soil fertility test done to determine if nutrient addition is needed, if so add compost.</li> <li>• Add mulch around plantings.</li> <li>• Revegetate following approved landscape plan to achieve at least 90% coverage.</li> </ul>	Required		
Trash and debris.	Remove and dispose.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>• Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>• Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>• Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> <li>• Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>	Required		
Erosion within facility.	<ul style="list-style-type: none"> <li>• Any erosion deeper than two inches should be addressed. Determine cause of erosion and eliminate. Refill eroded channels with approved soil media and replant. If possible, redirect flows temporarily and apply appropriate temporary erosion control best management practices.</li> </ul>	Required		



Inspection and Maintenance Action Checklist		Vegetated Filter Strips*		
Vegetation blocks sight lines, inflow, outlets.	<ul style="list-style-type: none"> <li>• Prune vegetation that blocks sight lines, inflow, outlets. Do not string trim grasses, sedges or rushes.</li> <li>• Remove dead vegetation before it covers 10% of the surface area.</li> <li>• Facilities seeded with low-mow or no-mow seed mix, should be cut as needed to reduce fire risk. Maintain vegetation at 6 inches or taller.</li> </ul>	<b>Suggested</b>		

\*The Vegetated Filter Strips Checklist applies and must be included for facilities that incorporate the following BMPs:

- Dispersion BMP: Vegetated Filter Strips

Inspection and Maintenance Action Checklist		Underground Structures*		
Conditions to Check For	Action	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Sediment and debris exceeding 15% of the structure height or 6" in depth, whichever is less.	Sediment should be removed and disposed of properly at a landfill or approved facility. This may require contracting with a plumbing company that has a vacuum truck. For proprietary structures, follow the manufacturer's maintenance guidelines.	Required		
Plugged or blocked catch basins, pipes, underdrains, silt traps, inlets, perforated pipes, air vents.	Remove sediment and debris to maintain adequate conveyance at all times.	Required		
Cracks in joints between tank or pipe sections that leak soil into the facility.	Manually seal all cracks with appropriate grout material.	Required		
Underground facility structurally deficient or restricting flow.	Repair or replace structure to design.	Required		
Soakage trench surface clogged	<ul style="list-style-type: none"> <li>If water infiltrates through surface, remove and clean rock on the surface. Replace the geotextile fabric on the top, being careful not to damage the fabric on the sides. Place the cleaned rock back over the geotextile fabric. Dispose of sediment in trash destined for the landfill.</li> <li>Sweeping regularly will reduce the likelihood of clogging. High traffic areas will clog faster than low traffic areas.</li> </ul>	Required		
Missing an operable manhole cover.	Replace cover or repair and reinstall.	Required		
Cleanout shear gate damaged, rusted, leaking or missing. Gate cannot be adjusted by one person. Chain or rod missing or damaged	Repair or replace to meet design standards. Repair, lubricate, or replace gate as necessary. Repair or replace chain or rod as necessary.	Required		
Odor, sludge, or unusual color. Presence of any chemical pollutants.	Notify appropriate jurisdiction to investigate. Remove contaminant by appropriate methods and dispose of as directed by hazardous waste protocols.	Required		
Access to facility is restricted	<ul style="list-style-type: none"> <li>Public facilities must have unrestricted all weather access to all inlets, pipe openings, flow control structures</li> </ul>	Required		

Inspection and Maintenance Action Checklist		Underground Structures*		
	<ul style="list-style-type: none"> <li>Private facilities must have unrestricted access that is traversable by maintenance vehicles during dry months.</li> </ul>			

\*The Underground Structures Checklist applies and must be included for facilities that incorporate the following BMPs:

- Underground Retention BMP: eg. Soakage trench
- Detention (Flow Control) BMP: eg. Detention pipes, vaults, chambers,

Inspection and Maintenance Action Checklist		Outlet Control Structures/Flow Restrictors*		
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Cannot open valves on stormwater facility structures.</li> </ul>				
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Sediment, debris, or trash is blocking or sump is less than 50% from restrictor/orifice plate	Remove and dispose.	Required		
<ul style="list-style-type: none"> <li>Structural integrity.               <ul style="list-style-type: none"> <li>Tee-type flow restrictor is not securely attached to manhole wall and outlet pipe.</li> <li>Weir or baffle flow restrictor not securely attached to manhole.</li> <li>Flow restrictor is not plumb within 10%</li> <li>Connections to outlet pipe are leaking and show signs of rust</li> <li>Holes in plates, baffles, elbows, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Determine best method for anchoring flow restrictor based on materials and severity of situation. Replumb and realign restrictor, securing as necessary.</li> <li>Repair or replace as necessary to eliminate leakage.</li> <li>Plug or patch holes if structural integrity is not affected. Replace part if possible, replace entire structure if severely failing.</li> </ul>	Required		
Trash, sediment, or debris blocking overflow pipe.	Remove and dispose.	Required		

\*The Outlet Control Structures/Flow Restrictors Checklist applies and must be included for any facility that incorporates the following:

- Outlet Control Structure:** Located at the downstream end of a stormwater facility, it controls the rate at which stormwater can flow out through the use of a flow restrictor.
- Flow Restrictor (Orifice, weir, undersized pipe, etc...):** A designed restriction specifically sized and placed to control stormwater outflow. A flow restrictor can come in the form of a hole (orifice) cut into a plate or pipe, a notch (weir), or an undersized pipe.



Inspection and Maintenance Action Checklist		Culverts/Pipes/Underdrains*		
Conditions to Check For	Action	Required/Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Trash, debris, or sediment restricting pipe flow.	Remove to maintain adequate conveyance at all times.	Required		
Damage to pipe such as rusting through wall of pipe, dents, bent or crushed ends that affect efficient flow.	Repair or replace pipe as necessary.	Required		
Cracking or buckling of headwall. Erosion or bypassing occurring at backside or around ends of headwall.	Determine extent of problem and monitor for changes. Repair or replace as necessary.	Required		
Missing rock or riprap within upstream or downstream apron areas or side slopes. Active erosion within area.	Repair eroded areas as necessary. Determine cause of rock movement and replace with similar size rock or larger as necessary.	Required		

\*The Culverts/Pipes/Underdrains Checklist applies and must be included for any facility that incorporates underdrains, culverts, or pipes specifically for Retention, Treatment, or Detention of stormwater and does not apply to on-site conveyance pipes or catch basins.

Inspection and Maintenance Action Checklist			Vegetated Roofs	
<b>PROHIBITIONS</b>				
<ul style="list-style-type: none"> <li>Pesticide use in stormwater facilities is prohibited.</li> </ul>				
Conditions to Check For	Action	Required/ Suggested	Inspection Date	Maintenance Needed (if none, state none needed)
Damaged membrane	Repair or replace.	Required		
Clogged Drains	Remove sediment and debris.	Required		
Vegetation covers < 90% of roof surface	Possible Ways to achieve 90% vegetation cover: <ul style="list-style-type: none"> <li>Determine if irrigation system is functioning properly.</li> <li>Have a soil fertility test done to determine if nutrient addition is needed, if so add compost.</li> <li>Add mulch around plantings.</li> <li>Revegetate following approved landscape plan to achieve at least 90% coverage. Remove and replace per approved landscape plan. Irrigate, if planting in the summer.</li> </ul>	Required		
Erosion	Fill eroded area with approved soil, plant to prevent erosion.	Required		
Standing Water	Check for leaks in irrigation, clear drains, amend soils to restore infiltration.	Required		

## STORMWATER FACILITY MAINTENANCE RECORD

Use this record to document inspections. Keep invoices and work orders for maintenance work on file and provide upon request of the approving agency.

<b>Stormwater Facility Type:</b>			
<b>Facility Address:</b>			
<b>Business Name:</b>			
<b>Responsible Party for maintenance:</b>		Position:	
	Phone:	Email:	
<b>Organization:</b>			

Issue	Actions Taken	Date Action Taken	Work approved by:
Issue	Actions Taken	Date Action Taken	Work approved by:




# Appendix I – Rogue Valley Sewer Services Stormwater Credits

---

## TABLE OF CONTENTS

Appendix I - Rogue Valley Sewer Services Stormwater Credits..... 1

    Introduction ..... 1

    Volume Control ..... 1

    Trees..... 1

    Combined Credit ..... 2

    RVSS STORMWATER QUALITY MANAGEMENT FEE CREDIT WORKSHEET ..... 3

## Appendix I - Rogue Valley Sewer Services Stormwater Credits

---

### INTRODUCTION

Rogue Valley Sewer Services (RVSS) collects a monthly stormwater quality management fee of \$1 for a single family residence. Multi-family residences, commercial, and industrial uses are charged \$1 per 3,000 square feet of impervious area. RVSS code specifies that properties that take measures above and beyond the minimum requirements to protect water quality are entitled to a reduction in the monthly stormwater quality management fee. Two methods for earning credits are described below. The onus of demonstrating that a property is entitled to stormwater credit is on the property owner and is subject to review and approval by RVSS. Stormwater credits cannot reduce the monthly rate below the base rate for a single family home. Stormwater credits do not negate the need for Retention or Treatment per Section 2.4.

In addition to Stormwater credits on the monthly fee, incentive funding is available to cover engineering and construction costs associated with going above and beyond the requirements of the Rogue Valley Stormwater Quality Design Manual (Design Manual). Information on incentive funding can be found on RVSS' website.

### VOLUME CONTROL

The Rogue Valley Stormwater Quality Design manual requires flow control measures to prevent an increase in the *peak runoff* from a property. The Design Manual does not require limitations on the *total volume* of stormwater runoff from a property. However, credit for volume control can be earned by reducing the total volume of stormwater that flows off of the subject property. This can be done for the total volume of runoff through Retention, as defined in the Design Manual, or Detention. To qualify for this credit, the applicant must show the calculated peak runoff both with and without volume control measures. The total credit is equal to the percentage reduction in runoff volume over 24-hours using the 10-year event design storm, Section 2.5.

**Example 1:** A 10-acre commercial facility has 5-acres of impervious surface area. The monthly charge would be \$72.60 with no volume control. The calculated total runoff during a water quality design storm is 38,738 cubic feet in 24-hours. The property owner designs the stormwater system to retain and infiltrate 10,000 cubic feet per day which reduces the total runoff volume by 25.8%. The reduced monthly fee is  $\$72.60 \times (1 - 0.258)$ , or \$53.87.

**Example 2:** The same 10-acre commercial facility instead decides to install an extended detention basin with a maximum outflow of 0.30-cfs. The average daily runoff for the property is 0.45-cfs. The extended detention basin is therefore a 66.6% reduction in runoff over 24-hours which qualifies the project for a credit equal to 33.3% of the monthly charge. The total monthly charge would therefore be  $\$72.60 \times (1 - 0.333)$ , or \$48.42.

### TREES

The amount of impervious surface area used to calculate the monthly fee can be reduced through protection of some existing tree cover and by planting new trees. Tree credits can amount to a maximum of 25% of the total impervious surface area. Calculations for determining the impervious area reduction associated with trees are shown in the worksheet below.

**Example 3:** A 2-acre commercial facility will have 60,000 square feet of impervious surface area, which would result in a \$20 per month service charge. As part of their development plan they are able to preserve 10,000 square feet of existing tree canopy, all within 30-feet of the impervious surface. They are also planting 30 evergreen trees and 30 deciduous trees as part of their landscaping plans. The reduction in impervious area calculated for the fee is as follows:

Area of Protected Existing Tree Canopy  $10,000 \text{ SF} \div 2 = 5,000 \text{ SF}$

Number of new Deciduous Trees	$30 \times 100 \text{ SF} = 3,000 \text{ SF}$
Number of new Evergreen Trees	$30 \times 200 \text{ SF} = 6,000 \text{ SF}$
Total Area Reduction for Tree Credit	$= 14,000 \text{ SF}$

The full Stormwater credit applies since the calculated tree credit area (14,000 SF) is less than 25% of the total impervious surface area.

$$(60,000 \text{ SF} * 0.25 = 15,000 \text{ SF}),.$$

The impervious surface used to calculate the monthly fee will be:

$$60,000 \text{ SF} - 14,000 \text{ SF} = 46,000 \text{ SF}$$

The total monthly fee would be \$15.33.

$$\$1 * (46,000 \text{ SF} / 3,000 \text{ SF}) = \$15.33 .$$

### COMBINED CREDIT

Both volume control credit and tree credit can apply to the same property. When this happens, each credit is calculated independently and is added together for the total credit.

**Example 4:** A 5-acre development has 3-acres (130,680 SF) of impervious surface, which creates 22,000 cubic feet per day of runoff during a 10-year storm. The standard monthly stormwater quality fee would be \$43.56.

$$\$1 * (130,680 \text{ SF} / 3,000 \text{ SF}) = \$43.56$$

The project uses an extended detention basin with a maximum outflow of 0.17 cubic feet per second, which is 66.6% of the average daily runoff. The assessed impervious area would be reduced by 33.3%, or 43,516 SF. The project also preserves existing trees and plants new trees, as in Example 3, for a tree credit area reduction of 14,000 SF. The total assessed area is calculated below:

Impervious Surface Area	130,680 SF
Volume Control credit	- 43,560 SF
Tree credit	<u>14,000 SF</u>
Assessed Impervious Surface Area	<b>73,120 SF</b>

By taking these measures, the monthly stormwater quality fee would be reduced from \$43.56 to \$24.37 ( $\$1 * (73,120 \text{ SF} / 3,000 \text{ SF})$ ), a monthly savings of \$19.19.

## RVSS STORMWATER QUALITY MANAGEMENT FEE CREDIT WORKSHEET

The standard stormwater quality management fee is \$1 per 3,000 square feet of impervious surface on the site. This fee may be reduced by limiting the volume of stormwater that leaves the site in 24-hours or by planting new trees and protecting existing tree canopy. NOTE: Units are in square feet (SF) and cubic feet per day (CF/DAY).

- A. Total Site Area \_\_\_\_\_ SF
- B. Total Impervious Area \_\_\_\_\_ SF
- C. Monthly Stormwater Base Rate  $B \times \$1 \div 3,000 \text{ SF} =$  \$ \_\_\_\_\_

### VOLUME CONTROL CREDIT

- D. Calculated Runoff with no Volume Control \_\_\_\_\_ CF/DAY
- E. Calculated Runoff with Volume Control \_\_\_\_\_ CF/DAY
- F. Percent Reduction from Volume Control  $E \div D =$  \_\_\_\_\_ %
- G. Assessed Impervious Surface Reduction  $B \times (1 - F) =$  \_\_\_\_\_ SF

### TREE CREDIT

- H. Area of Protected Existing Tree Canopy \_\_\_\_\_ SF  $\div 2 =$  \_\_\_\_\_ SF
- I. Number of new Deciduous Trees \_\_\_\_\_  $\times 100 \text{ SF} =$  \_\_\_\_\_ SF
- J. Number of new Evergreen Trees \_\_\_\_\_  $\times 200 \text{ SF} =$  \_\_\_\_\_ SF
- K. Total Area for Tree Credit  $H + I + J =$  \_\_\_\_\_ SF
- J. Maximum Credit Allowable  $B \times 0.25 =$  \_\_\_\_\_ SF
- L. Smaller of K or J \_\_\_\_\_ SF

### TOTAL STORMWATER CREDIT

- M. Total Impervious Area (**B**) \_\_\_\_\_ SF
- N. Volume Control Credit (**G**) \_\_\_\_\_ SF
- O. Tree Credit (**L**) \_\_\_\_\_ SF
- P. Assessed Impervious Area  $M - N - O =$  \_\_\_\_\_ SF
- Q. Adjusted Stormwater Fee  $P \times \$1 \div 3,000 \text{ SF} =$  \$ \_\_\_\_\_

## LOW IMPACT DEVELOPMENT PROJECTS IN CENTRAL POINT

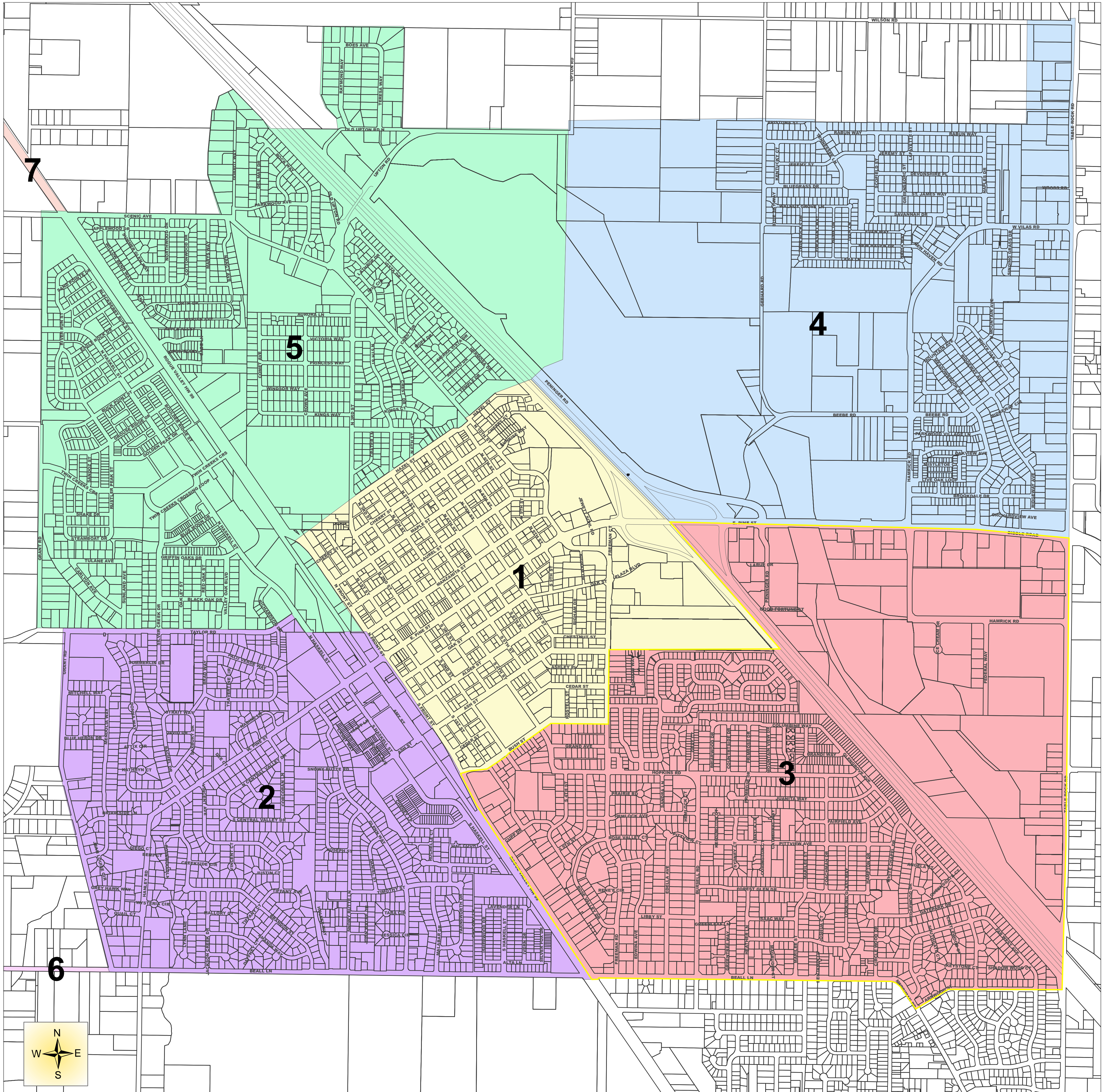
Name	Location	1200C Permit	Storage/ Filter Type	Status
Creekside Apartments	200 S Haskell St	Yes	Bioswale	Complete
Smith Crossing Ph 2	900-680 N Haskell St	Yes	Bioswale	Construction
Broeder Law Offices	780 Front St		Bioswale	Complete
ODOT Corp. Yard	4141 Hamrick Rd		Bioswale	Complete
Crater Maker Space	419 N Front St		Bioswale	Complete
Fire Dist 3	1909 Scenic Ave	Yes	Bioswale	Complete
Medical Offices	547 E Pine		Bioswale	Complete
Dominos Pizza	30 Freeman Ct		Storm Tech	Complete
Chicory Village Subdivision	South Haskell	Yes	Bioswale	Complete
Parkview Ct	507-531 Parkview Ct		Bioswale	In Progress
Crater Parking Lot	4410 Rogue Valley Hwy	Yes	Bioswale	Complete
View Crest Subdivision	794 Pittview Ave		Bioswale	Complete
Nelson Building	98 Freeman	Yes	Bioswale	Complete
Paramount Est	4618 N Pacific Hwy		Bioswale	Infill SFD
Southern Oregon Spine & Rhab	1800 E Pine St		Bioswale	Complete
Premier Car Wash	4535 Biddle Rd	Yes	Storm Tech	Complete
Human Bean	Biddle Rd		Storm Tech	Complete
Tail Lite Building	4801 Biddle Rd	Yes	Storm Tech	Complete
Microdevices	4951 Biddle Rd	Yes	Storm Tech	In Progress
Les Schwab	4749 Biddle Rd	Yes	Storm Tech	Complete
Firestone Tire	4235 Table Rock Rd		Bioswale	Complete
Mayberry Place Sub	3664 Grant Rd	Yes	Bioswale	Infill SFD
Public Works Building	235 S Haskell	Yes	Bioswale	Complete
Early Learning Center	615 S 2nd St	Yes	Bioswale	Complete
Storage R Us Expansion	157 S Haskell	Yes	Bioswale & Stormtech	Complete
Hamrick Road Appt	4475 Hamrick Rd	Yes	Storm Tech	Complete
Jewett School Expansion	1001 Manzanita	Yes	Bioswale	Complete
Central Point Station Ph2	900 N Haskell	Yes	Bioswale	Construction
Covington Village Sub	Covington Ct	Yes	Bioswale	In Progress
Willow Bend Sub	Gebhard Rd	Yes	Storm Tech	Infill SFD
Crater Modulars	4410 Rogue Valley Hwy		Bioswale	Complete
Scenic Middle School Parking Lot	1955 Scenic Ave		Storm Tech	Complete
OSP Remodel	4500 Rogue Valley Hwy	Yes	Bioswale	Construction
Project Murphy (Amazon)	601 Federal Way	Yes	Forebay	Construction

# Pollution Prevention and Good Housekeeping for Municipal Operations



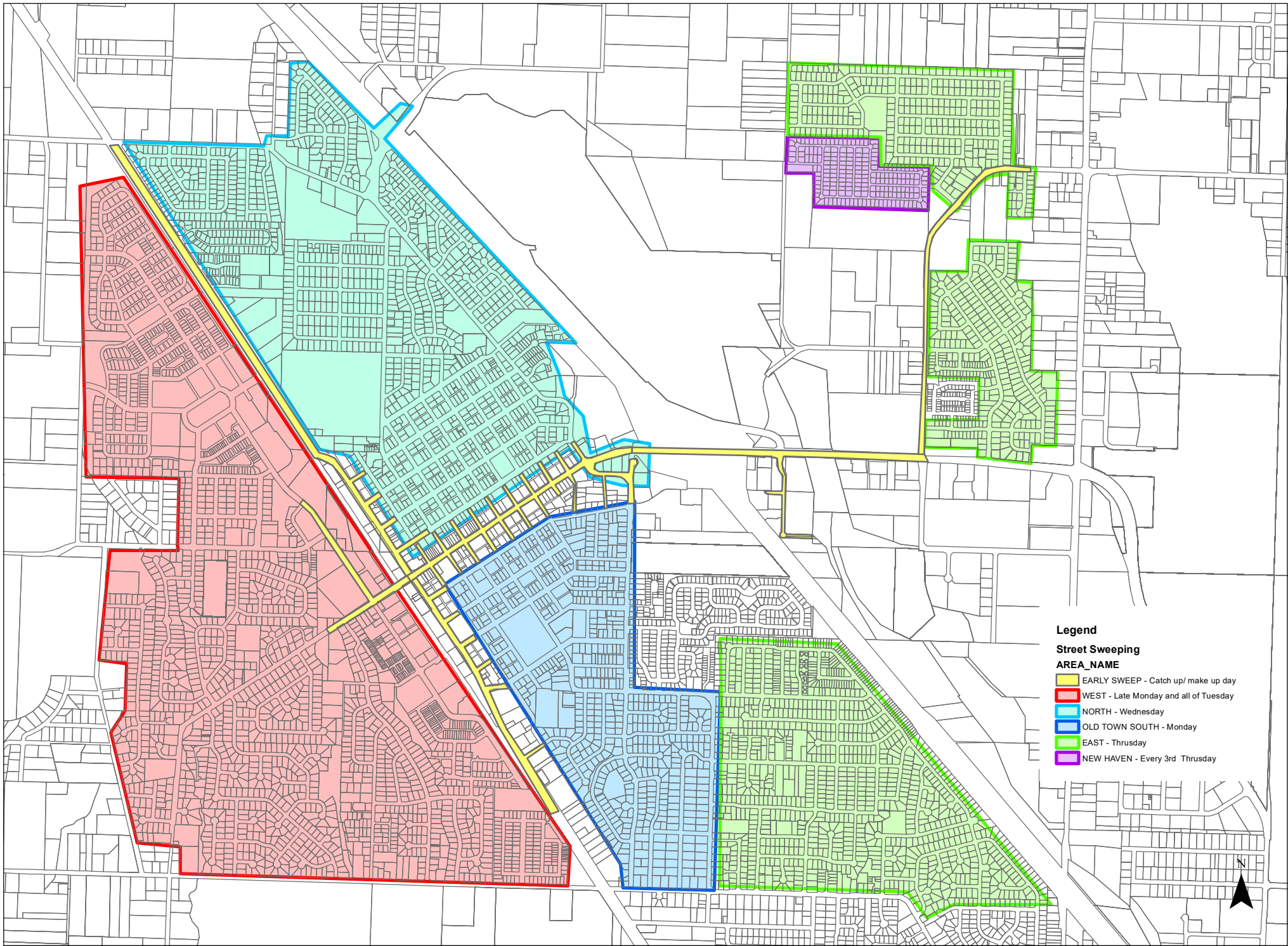


# Utility Section Map









Central Point Street Sweeping Map





**From:** [Kenneth Parent](#)  
**To:** [Mike Ono](#); [Cyndi Weeks](#); [Mark Brindle](#)  
**Cc:** [Mike McClenathan](#); [Doug Norman](#)  
**Subject:** RE: Stormwater Report Gathering  
**Date:** Tuesday, July 18, 2023 4:49:30 PM  
**Attachments:** [image001.png](#)

---

If you need anything else let me know

Inspected 267 storm pipes  
Cleaned 20,235 ft. of storm pipe  
Inspected 297 inlets and manholes  
Mowed 40 acres of water quality assets  
Cleaned 5 water quality structures  
Swept 3672 miles

Kenneth Parent, Water/Storm Supervisor  
Public Works Department  
City of Central Point  
140 South Third Street  
Central Point, OR 97502  
Desk: 541-664-3321 (x264)  
Fax: 541-665-6000  
[www.centralpointoregon.gov](http://www.centralpointoregon.gov)

---

**From:** Mike Ono <Mike.Ono@centralpointoregon.gov>  
**Sent:** Tuesday, July 18, 2023 8:27 AM  
**To:** Kenneth Parent <Kenneth.Parent@centralpointoregon.gov>; Cyndi Weeks <Cyndi.Weeks@centralpointoregon.gov>; Mark Brindle <Mark.Brindle@centralpointoregon.gov>  
**Cc:** Mike McClenathan <Mike.McClenathan@centralpointoregon.gov>; Doug Norman <Doug.Norman@centralpointoregon.gov>  
**Subject:** Stormwater Report Gathering

Good morning,  
It's that time of year when I will be needing to gather information for the City's end of the year TMDL and MS4 Phase 2 Stormwater reports.  
Below are is the information I will need and from whom.  
If we did any other stormwater related activities please let me know and I can include them.

Kenny – Stormdrain inlet and pipe inspection.  
How many and how much  
Stormwater Quality features – How many did we maintain.

Mark - Herbicide Applications

How much did we use, including outsourced sprayers.

Cyndi- Landfill amounts for street sweeper

Adopt a street program information on what groups did what.

Pet station dog bags and did we add any stations?

Thank you,

*Mike Ono*

Mike Ono, CFM

Environmental Services/ GIS Coordinator

Public Works Department

City of Central Point

140 South Third Street

Central Point, OR 97502

Desk: 541-664-3321 (x243)

Fax: 541-664-6384

[www.centralpointoregon.gov](http://www.centralpointoregon.gov)



## Dog Waste Bag Stations 2022-23

Bag Buddy Sponsor	Park	Dog Park Locations
Celebrity Pets	Don Jones Park	By War Memorial
Crater Animal Clinic	Don Jones Park	By Mountain Ave.
None	Don Jones Park	By Water Reservoir
Hap-E-Dog Pet Grooming	Don Jones Park	Water Park / Tennis Court
None	Don Jones Park	By Basketball Court
None	Don Jones Park	North East Path
Crater Animal Clinic	Willie Mott Park	Jeremy Street
None	Willie Mott Park	Tennessee Ln.
Mountain View Veterinary Clinic	Pfaff Park	North East Side
Mountain View Veterinary Clinic	Pfaff Park	South West Side
Mountain View Veterinary Clinic	Twin Creeks Park	North Side
Crater Animal Clinic	Civic Park	South West Side
Crater Animal Clinic	Civic Park	South East Side
Mountain View Veterinary Clinic	Civic Park	North West Side
Mountain View Veterinary Clinic	Civic Park	North East Side
None	Pocket Park	N. Haskell & Griffith Oaks
Crater Animal Clinic	Flanagan	Entry at Tiffany Ave
Crater Animal Clinic	Flanagan	Pathway at Beall Lane
None	Flanagan	Pathway near Joseph Street
None	Van Horn	Edwina Ave
None	Van Horn	Pathway - Rose Valley
None	Forest Glen	Gatepark Drive
None	Bohnert Park	Pathway
None	Bohnert Park	Pathway
None	Skyrman Park	Parking lot

## Dog Bag Usage

2022/2023	# of Bags	Cost
Jul-14	10000	\$ 375.00
Aug-14	10000	\$ 375.00
Sep-14	10000	\$ 375.00
Oct-14	10000	\$ 375.00
Nov-14	10000	\$ 375.00
Dec-14	10000	\$ 375.00
Jan-15	10000	\$ 375.00
Feb-15	10000	\$ 375.00
Mar-15	10000	\$ 375.00
Apr-15	10000	\$ 375.00
May-15	10000	\$ 375.00
Jun-15	10000	\$ 375.00
Total	120000	\$ 4,500.00



New Public Works Facility





Washout Area



Large Covered Areas for Equipment



More Covered Area



Stormwater Swale





**Public Works Spray Application Log 2021**

Gallons	%	Chemicals	oz	Where	Hours	# people	Total Hrs
1	2	Liberate,Saber,Suregard,BignTuff	8.0	4-21-20 / Nancy Ave. R.O.W. 600sqft	0.5	1	0.50
1	2	Liberate,Saber,Suregard,BignTuff	8.0	4-21-20 / Rose Valley R.O.W. 650sqft	1	1	1.00
2	2	liberate,Saber,Suregard,BignTuff	16.0	4-27-2020 / Cascade Meadows Pathway R.O.W. 800sqft	1.5	1	1.50
3	2	Liberate,Saber,Suregard,BignTuff,Activate90	24.5	4-27-2020 / Van Horn fence lines, parking lot, pathway 2500sqft	1.5	1	1.50
1	2	Liberate,Saber,Suregard,BignTuff,Activate90	10.5	4-28-2020 / Cascade Meadows W. pathway R.O.W. 200sqft	0.5	1	0.50
3	2	Liberate,Saber,Suregard,BignTuff,Activate90	31.5	4-28-2020/ Don jones fence lines,pathway,tree wells 2000sqft	1.3	1	1.30
3	2	Liberate,Saber,Suregard,BignTuff,Activate90	31.5	4-28-2020 / Hamrick Rd R.O.W. 1800sqft	0.75	1	0.75
3	2	Liberate,Saber,Suregard,BignTuff,Activate90	31.5	4-28-2020 / Forest Glen park fence line,pathway,tree wells 1700sqft	1.5	1	1.50
2	2	Liberate,Saber,Suregard,BignTuff,Activate90	16.0	4-28-2020 / Willie Mott park fence line,pathway,tree wells 1200sqft	1.5	1	1.50
2	2	Liberate,Saber,Suregard,BignTuff,Activate90	16.0	4-28-2020 / Hazel St R.O.W. detention/bioswale 700sqft	0.5	1	0.50
1	2	Liberate,Saber,Suregard,BignTuff,Activate90	10.5	5-19-2020 / Mendolia ponds R.O.W. 300sqft	0.5	1	0.50
1	2	Liberate,Saber,Suregard,BignTuff,Activate90	10.5	5-19-2020 / Don Jones spray park 300sqft	0.75	1	0.75
3	2	Liberate,Saber,Suregard,BignTuff	24.0	5-20-2020 / Scenic Ave sidewalk 2500sqft	1.5	1	1.50
5	2	Liberate,Saber,Suregard,BignTuff	38.0	5-20-2020 / Hwy 99 fence line 2500sqft	2	1	2.00
2	1.5	Liberate,Saber,Suregard,BignTuff	13.0	5-20-2020 / Flanagan fence line 900sqft	0.75	1	0.75
2	1.5	Liberate,Saber,Suregard,BignTuff	13.0	5-20-2020 / Nadine fence line 600sqft	0.5	1	0.50
3	1.5	Liberate,Saber,Suregard,BignTuff	19.5	5-21-2020 / Flanagan pathway 1900sqft	1.75	1	1.75
1	1.5	Liberate,Saber,Suregard,BignTuff	6.5	5-21-2020 / Upton overpass sidewalk/curb 400sqft	1	1	1.00
1	1.5	Liberate,Saber,Suregard,BignTuff	6.5	5-21-2020 / Pfaff park restroom and tennis court 700sqft	0.75	1	0.75
1	1.5	Liberate,Saber,Suregard,BignTuff	6.5	5-21-2020 / Mendolia middle & S. ponds fence line, pwr ped 500sqft	1.25	1	1.25
4	1.5	Liberate,Saber,Suregard,BignTuff	26.0	5-21-2020 / Skrman fence lines,pathway 2000sqft	2.25	1	2.25
2	2	Liberate,Speed Zone,BignTuff,Vastlan	19.0	5-27-2020 / Skyrman Hwy99 sidewalk,pathway 500sqft	1.5	1	1.50
3	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	31.5	5-28-2020 / Menteer fence line,gazebo,pathway,tree well 1000sqft	1.25	1	1.25
2	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	21.0	5-28-2020 / E & W side Hamrick, S of Beebe R.O.W. 700sqft	0.5	1	0.50
0.5	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	6.3	5-28-2020 / E. side 10th St R.O.W. N. of ditches 200sqft	0.25	1	0.25
1.5	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	16.8	5-28-2020 / Pfaff park pathway,tree wells,stage 300sqft	0.25	1	0.25
3	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	31.5	5-28-2020 / Comm. Park Soccar Field fence line 2400sqft	0.75	1	0.75
2	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	21.0	6-2-2020 / N Mendolia pond R.O.W. fence line,spill way 800sqft	0.75	1	0.75
2	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	21.0	6-2-2020 / Skyrman path,fence,rock boarder,foundation 800sqft	1.5	1	1.50
2	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	21.0	6-2-2020 / Pfaff pwr peds,lights,fence,ball courts 600sqft	1	1	1.00
2	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	21.0	6-4-2020 / N. 5th&N. 3rd R.O.W. pathway,fence line 600sqft	0.5	1	0.50
1	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	10.5	6-24-2020 / Bohnert around tennis,pickle ball courts 300sqft	0.5	1	0.50
3	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	31.5	6-24-2020 / Sub Station R.O.W. 1000sqft	2.25	1	2.25
2	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	21.0	6-24-2020 / Skyrman spot spray kudzu&black berries 600sqft	1.25	1	1.25
2	2	Liberate,SpeedZone,BignTuff,Vastlan,Suregard	21.0	6-25-2020 / Rose Valley R.O.W. Fence,sidewalk,blk berries 600sqft	1.5	1	1.50
			<b>661.5</b>				0.00

**73 Total spray gallons**

**35,150 total square feet**

**37.25**

- oz Glystar +
- 96 floz Saber herbicide EPA # 34704-803
- oz Amine 4
- oz Diuron 4L
- 188 floz Liberator CA#34704-50030, WA#34704-04006
- 23 oz SureGuard EPA # 59639-120
- oz Credit 41 Extra
- 189 floz Big-n-Tuff EPA # 42750-61-2217
- 81 floz Speed Zone EPA # 2217-833
- 75 floz Vastlan EPA # 62719-687
- 7 floz Activator 90,CA#34704-50034,WA#34704-04001
- 2 floz Rodeo EPA # 524-343







# City Employees with Applicator Licences

**OREGON  
DEPARTMENT OF  
AGRICULTURE**

<b>AG-L0165230PPA</b>	<b>COREY L QUALLS CENTRAL POINT OR 97502 Jackson</b>	<b>COREY L QUALLS CENTRAL POINT OR 97502 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Right of Way</b>
<b>AG-L1001629PPA</b>	<b>DANIEL D ETHRIDGE CENTRAL POINT OR 97502 Jackson</b>	<b>DANIEL D ETHRIDGE MEDFORD OR 97501 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Aquatic</b>
<b>AG-L1030900PPA</b>	<b>DARCY WELLINGTON EAGLE POINT OR 97524 Jackson</b>	<b>DARCY WELLINGTON EAGLE POINT OR 97524 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Ornamental &amp; Turf Herbicide Right of Way</b>
<b>AG-L1031910PPA</b>	<b>DAVID BURGESS GOLD HILL OR 97525 Jackson</b>	<b>DAVID BURGESS MEDFORD OR 97504 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Agriculture Vertebrate Pests</b>
<b>AG-L1028074PPA</b>	<b>DAVID K HERING ASHLAND OR 97520 Jackson</b>	<b>DAVID K HERING ASHLAND OR 97520 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Aquatic</b>
<b>AG-L0147514PPA</b>	<b>DAVID L THAMES CENTRAL POINT OR 97502 Jackson</b>	<b>DAVID L THAMES CENTRAL POINT OR 97502 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Agriculture Soil Fumigation Aquatic Forest</b>
<b>AG-L1082475PPA</b>	<b>DAVID MAYNARD TALENT OR 97540 Jackson</b>	<b>DAVID MAYNARD TALENT OR 97540 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Ornamental &amp; Turf Herbicide</b>
<b>AG-L1086008PPA</b>	<b>DENNEN ADAMS WHITE CITY OR 97503 Jackson</b>	<b>DENNEN ADAMS WHITE CITY OR 97503 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Industrial, Institutional, Health &amp; Struct. (IIHS) General Pests Public Health</b>
<b>AG-L1085035PPA</b>	<b>DEREK J LANDMANN WHITE CITY OR 97503 Jackson</b>	<b>DEREK J LANDMANN WHITE CITY OR 97503 Jackson</b>	<b>Public Pesticide Applicator Active 31-DEC-23</b>	<b>Ornamental &amp; Turf Herbicide Right of Way</b>
<b>AG-L1079458PPA</b>	<b>ED CASADAY CENTRAL POINT OR 97502 Jackson</b>	<b>ED CASADAY CENTRAL POINT OR 97502 Jackson</b>	<b>Public Pesticide Applicator</b>	<b>Right of Way</b>



AG-L1008853PPA	KEN A STEBBINS CENTRAL POINT OR 97502 Jackson	KEN A STEBBINS CENTRAL POINT OR 97502 Jackson	Public Pesticide Applicator Active 31-DEC-23	Public Health
AG-L1049192PPA	KYLE A CHARLEBOIX GOLD HILL OR 97525 Jackson	KYLE A CHARLEBOIX GOLD HILL OR 97525 Jackson	Public Pesticide Applicator Active 31-DEC-23	Ornamental & Turf Herbicide
AG-L1011841PPA	LELAND LEE SIEBERT MEDFORD OR 97501 Jackson	LELAND LEE SIEBERT CENTRAL POINT OR 97502 Jackson	Public Pesticide Applicator Active 31-DEC-23	Right of Way
AG-L1002453PPA	LEVI O CLYBURN EAGLE POINT OR 97524-7925 Jackson	LEVI O CLYBURN EAGLE POINT OR 97524 Jackson	Public Pesticide Applicator Active 31-DEC-23	Ornamental & Turf Herbicide
AG-L0175218PPA	LON D STOCKEBRAND PROSPECT OR 97536 Jackson	LON D STOCKEBRAND PROSPECT OR 97536 Jackson	Public Pesticide Applicator Active 31-DEC-23	Right of Way
AG-L1024967PPA	LORELEI KAYE PHILLIPS MEDFORD OR 97504 Jackson	LORELEI KAYE PHILLIPS MEDFORD OR 97501 Jackson	Public Pesticide Applicator Active 31-DEC-23	Right of Way
AG-L1080102PPA	LUCAS WREN CENTRAL POINT OR 97502 Jackson	LUCAS WREN CENTRAL POINT OR 97502 Jackson	Public Pesticide Applicator Active 31-DEC-23	Right of Way
AG-L1038397PPA	MARK EDWARD HANSON MEDFORD OR 97504 Jackson	MARK EDWARD HANSON CENTRAL POINT OR 97502 Jackson	Public Pesticide Applicator Active 31-DEC-23	Ornamental & Turf Herbicide
AG-L1042208PPA	MARK HAMLIN BRINDLE CENTRAL POINT OR 97502 Jackson	MARK HAMLIN BRINDLE CENTRAL POINT OR 97502 Jackson	Public Pesticide Applicator Active 31-DEC-23	Right of Way
AG-L1054546PPA	MATTHEW A MERZ ROGUE RIVER OR	MATTHEW A MERZ ROGUE RIVER OR	Public Pesticide Applicator	Agriculture Herbicide Insecticide & Fungicide

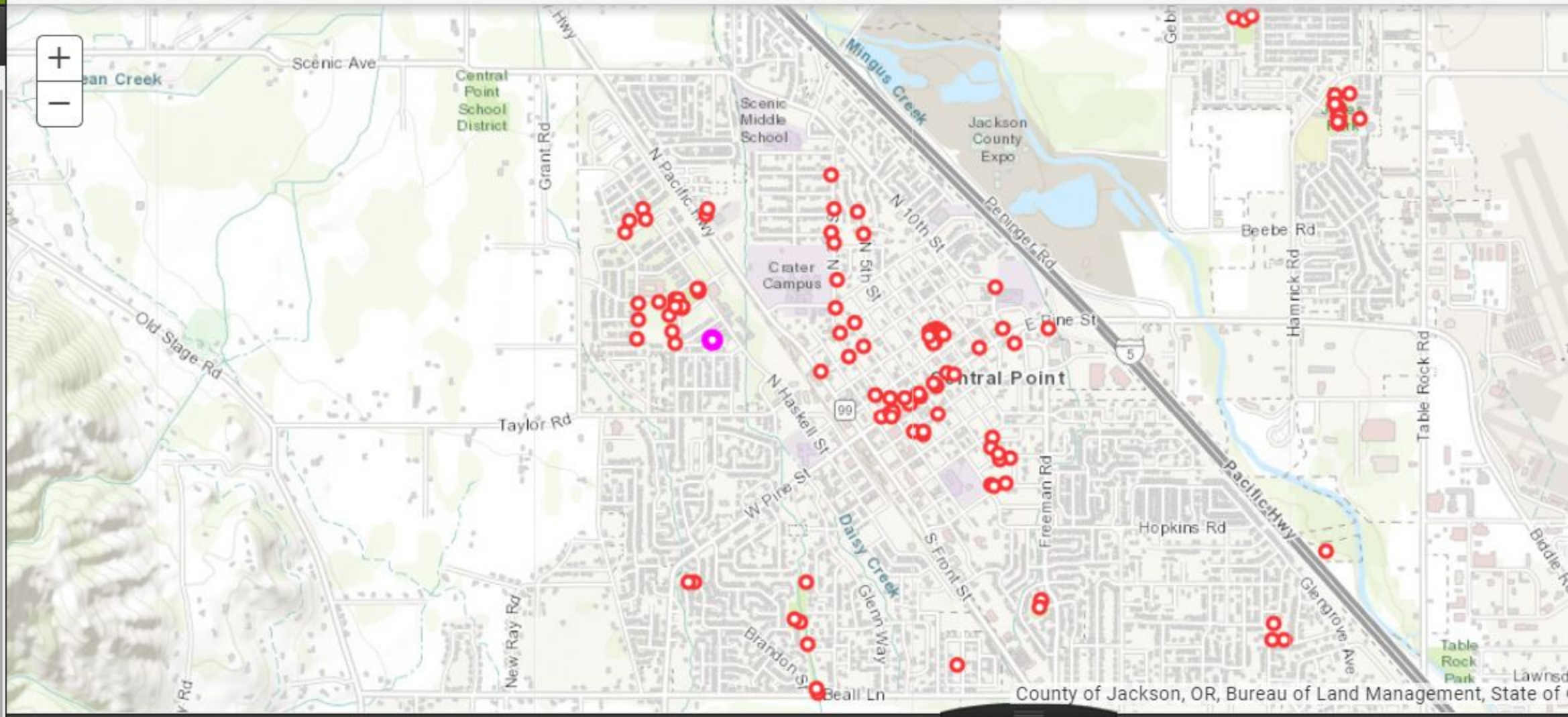
## Public Works Litter Management

### Assets

Add layer +

- All Garbage Cans 117
- All CP Creeks
- All Water Quality Assets
- All Light Fixtures
- All Water Backflows
- All Storm Manholes
- All Storm Inlets
- All Storm Pipes
- All Water Meters
- All Water Valves
- All Water Hydrants
- All Water Mains

Map Filter



ID	Street	Estimated ...	Criticality Fa...
42			1
43	Manzanita St		1
44	Manzanita St		1





# Waste Material Disposal

## DRY CREEK LANDFILL

2022-2023

DRY001

MONTH	DATE	QUANTITY	AMOUNT	PO#
July	07/06/22	6.84	\$82.76	Amt:
	07/06/22	7.28	\$88.09	Paid: \$4,442.15
	07/06/22	7.45	\$90.15	Bal:
	07/06/22	6.59	\$79.74	
	07/06/22	5.33	\$64.49	
	08/22/22	10.69	\$129.35	
	08/22/22	8.33	\$100.79	
	08/23/22	7.91	\$95.71	
	09/09/22	9.31	\$112.65	
	09/09/22	13.59	\$164.44	
	09/27/22	7.20	\$87.12	
	09/27/22	8.04	\$97.26	
	09/27/22	6.90	\$83.49	
	11/04/22	11.31	\$136.85	
	11/08/22	6.25	\$75.63	
	11/08/22	6.50	\$78.65	
	11/08/22	4.95	\$59.90	
	11/08/22	5.42	\$65.58	
	11/10/22	6.40	\$77.44	
	11/10/22	6.36	\$76.96	
	11/15/22	3.62	\$43.80	
	11/16/22	7.56	\$91.48	
	11/29/22	5.36	\$64.86	
	11/29/22	2.43	\$29.40	
	11/29/22	4.25	\$51.43	
	12/02/22	3.90	\$47.19	
	12/02/22	5.24	\$63.40	
	12/12/22	3.19	\$38.60	
	12/13/22	3.64	\$44.04	
	12/13/22	3.23	\$39.08	
	12/13/22	3.88	\$46.95	
	12/13/22	4.87	\$58.93	
	12/15/22	3.85	\$46.59	
	12/08/22	1.71	\$20.69	
	12/02/22	3.73	\$45.13	
	12/21/22	1.79	\$21.66	
	12/21/22	2.34	\$28.31	
	01/03/23	7.23	\$87.48	
	01/03/23	5.71	\$69.09	
	01/03/23	7.66	\$92.69	
	01/20/23	7.77	\$94.02	
	01/20/23	7.68	\$92.93	
	02/22/23	2.41	\$29.16	
	03/08/23	7.91	\$95.71	
	03/08/23	7.64	\$92.44	
	03/13/23	10.19	\$123.30	
	03/14/23	10.56	\$127.78	
	03/14/23	9.63	\$116.52	
	04/27/23	11.79	\$142.66	
	04/27/23	10.76	\$130.20	
	04/27/23	11.08	\$134.07	
	05/30/23	7.80	\$94.38	
	05/30/23	13.09	\$158.39	
	05/30/23	10.97	\$132.74	
<b>Totals</b>		<b>367.12</b>	<b>\$4,442.15</b>	



# Training

**From:** [Heather Ashwill](#)  
**To:** [Mike Ono](#)  
**Subject:** Rain Check Training 2.15.23  
**Date:** Friday, February 24, 2023 2:18:13 PM  
**Attachments:** [Stormwater MS4 Quiz.pdf](#)  
[Rain Check Training Roster 2.15.23.pdf](#)

---

Mike,

Attached is the roster, copy of the quiz for the Rain Check training and below are trainings PW employees receive at hire. Rain Check training is on that list.

PUBLIC WORKS TRAINING 2023
<b>At Hire</b>
Asbestos Awareness (Video)
Back Injury Prevention
Bloodborne Pathogens
Fire Extinguisher
Harassment, Discrimination & Unconscious Bias
Hazard Communication Awareness
Hazard Recognition
Hazardous Energy Control (LOTO)
Hearing Conservation
Slips, Trips & Falls
Workplace Violence Awareness & Active Shooter
Stop Work Authority
Above Ground Storage Tanks
Construction Safety: New Hire Orientation
Rain Check Storm Water Pollution Prevention
In Person Training
Online Training
Already provided in 2023 (Don't assign)

Sincerely,

*Heather Ashwill*

Safety & Risk Manager

City of Central Point

140 S. 3rd St.

Central Point, OR 97502

P: 541.423.1039 F: 541.664.4225

heather.ashwill@centralpointoregon.gov





## MS4 Stormwater 'Rain Check'

\$595.00

Format

Select ▼

Quantity

1

[ADD TO CART](#)

### Details

- Video lengths (19 mins to 31 mins)
- Trainer's Guide
- Employee Quiz
- PowerPoint template
- (5) Pocket Reference Booklets
- Acknowledgment of Training forms

"Rain Check" - Stormwater Pollution Prevention for MS4s

Regulated municipalities and other municipal separate storm sewer system (MS4) operators must prevent pollutants from entering their storm drainage systems. One element of this requirement is preventing stormwater pollution by municipal facilities such as fleet maintenance shops, bus barns, sanitation facilities, parks and street sweeping operations. The US EPA has published a "National Menu of BMPs" that describes the Best Management Practices (BMPs) that can be used to accomplish this task. Training MS4 employees on these BMPs is crucial to any effective program. "Rain Check - Stormwater Pollution Prevention for MS4s" shows employees how to practice good housekeeping, spill response, materials management, vehicle fueling and washing and the other BMPs profiled in the "National Menu".

Available in English.

We use cookies on our website to see how you interact with it. By accepting, you agree to our use of such cookies. [See Privacy Policy](#)

[Cookie Settings](#)

[Decline All](#)

[Accept](#)



### SOCIAL LINKS



### SERVICE AND SUPPORT

Call Toll Free: 1-888-925-6554  
Email: [support@excalvisual.com](mailto:support@excalvisual.com)

### QUICK LINKS

- [About Us](#)
- [Contact Us](#)
- [Privacy Notice](#)
- [Certifications](#)



# RAINcheck

STORMWATER POLLUTION PREVENTION FOR MS4s

## Acknowledgment of Training

*(This top section should be filled in by the trainer)*

Signature(s) below are acknowledgment that on (date) 2/15/2023,  
these individuals participated in a training session at the:

Location Name: OPERATIONS CENTER

Address: 235 S. HASKELL ST. CENTRAL POINT, OR

Given by: (trainer's name) HEATHER ASHWILL

(title) SAFETY AND RISK MGR.

This training session presented information on stormwater pollution prevention for MS4s.  
During this session, the individuals listed below viewed the training video:

### **RAINcheck:** STORMWATER POLLUTION PREVENTION FOR MS4s

The participants' signatures below affirm they were given adequate time to ask questions about  
their particular job activities and how they could best conduct these activities.

*Please read the above paragraph before signing below.*

PRINT NAME HERE

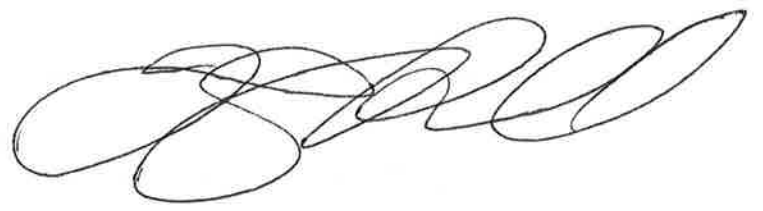
SIGNATURE HERE

Isaiah Alarcon  
Taylor Tibbets  
Mitchell Reagles  
Wade McCreedy  
Mike Reese  
Wil Bateman  
Dylan Bridges  
Kenny Parent  
Corey Plath  
Chris Doss  
Mark Brindle

[Signature]  
[Signature]  
[Signature]  
[Signature]  
[Signature]  
[Signature]  
[Signature]  
[Signature]  
[Signature]  
[Signature]  
[Signature]



Doug Norman



Chris Painter



Hunter Crog



Tih. Munillo



Lucas Wren



Name \_\_\_\_\_

STORMWATER POLLUTION PREVENTION FOR MS4s Dept. \_\_\_\_\_ Date \_\_\_\_\_

*The following questions all have multiple choice answers and are related to Basic BMPs Training (questions 1-26) and Specialty BMPs Training (questions 27-40). Circle the best answer for each question. Your trainer will direct you as to which questions you should complete. Trainees that have been trained on all BMPs may be asked to complete the entire quiz.*

### BASIC BMPs

1. If weatherproof containers of liquids are stored outdoors, they should always be stored...
  - a. under a tarp or cover.
  - b. inside of secondary containment.
  - c. near a storm drain inlet.
  - d. as far as possible from any buildings or structures.
2. When transferring or pouring any liquid outdoors, you should...
  - a. wear a respirator.
  - b. use the largest sized container available.
  - c. use a drip pan or bucket to catch drips.
  - d. remove the labels from any containers before starting the transfer.
3. Which of the following statements is **not** true about outdoor use of containers?
  - a. Keep lids and tops closed unless using the container.
  - b. Make sure all containers are clearly labeled.
  - c. Put portable containers away (preferably indoors) after use.
  - d. Empty residues from containers into the nearest storm drain.
4. When you finish working in a specific location outdoors for the day, you should always...
  - a. sweep or clean up any wastes or scraps.
  - b. put on the proper personal protective equipment for that work.
  - c. dispose of any wastes or scrap in the nearest open space.
  - d. hose down any wastes or excess materials.
5. If you find rainwater accumulated inside of secondary containment for bulk storage tanks, it may only be drained if...
  - a. there is less than 50 gallons of rainwater.
  - b. it is not raining.
  - c. the drain valve discharges into a stream or river.
  - d. the rainwater is clean and uncontaminated.
6. If you discover an uncontrolled spill of hazardous materials, who should be notified immediately?
  - a. Dept. of Public Works
  - b. Dept. of Health
  - c. Hazardous Materials Response Team (Fire Dept.)
  - d. EPA
7. If you plan to clean up a controlled spill of non-hazardous material, which of the following procedures would **not** be correct?
  - a. Locate the nearest spill response locker or kit.
  - b. Put on the proper personal protective equipment.
  - c. Place a barrier or cover to protect any nearby storm drain inlets.
  - d. Hose the spill down to dilute it.
8. Hosing down a spill or release outdoors, is OK under what circumstances?
  - a. never
  - b. when it is already raining
  - c. when the spilled material is water soluble
  - d. when the spilled material is not water soluble
9. Why is it important to clean up a leak, spill or release quickly?
  - a. It is easier than waiting for several spills to occur in the same area.
  - b. The spill response supplies may not be available later.
  - c. It prevents the spread of the spill by wind, rain and traffic.

10. If you drip or leak a small amount of diesel fuel during vehicle fueling, you should...
  - a. 'spot clean' it immediately.
  - b. dispose of any clean-up wastes in the appropriate waste receptacle.
  - c. spread absorbent or treatment chemicals over and around the spill.
  - d. all of the above.
11. When positioning your vehicle for fueling, you should...
  - a. get as far away from the fuel pump as the hose will reach.
  - b. activate the emergency shut-off switch before starting to pump.
  - c. get as close to the pump as you can.
  - d. leave the engine running while fueling.
12. While fueling a vehicle, which of the following are correct procedures?
  - a. Stay with the equipment during the entire fueling process.
  - b. Handle the fuel nozzle in a vertical position.
  - c. Do not 'top off' the tank after the pump stops.
  - d. All of the above.
13. Which is the best place for vehicle and equipment maintenance?
  - a. indoors or under a roof
  - b. outdoors
  - c. under a tarp
  - d. near a water hose
14. If a vehicle must be worked on outdoors, what is the first thing to do?
  - a. Drain all fluids onto the pavement.
  - b. Bring all available tools and supplies out to the vehicle.
  - c. Park the vehicle near a storm drain inlet.
  - d. Place drip pans or buckets under any connections that are leaking.
15. If a drip pan or bucket is placed under a leaking vehicle, what must be done regularly?
  - a. Check it periodically and empty it into the proper waste or recycling container.
  - b. Empty it onto the ground when it is close to overflowing.
  - c. Move it away from the leak if it is close to overflowing.
  - d. Remove it if it starts to rain.
16. If a small drip or spill occurs while working on a piece of equipment outdoors, you should...
  - a. spread some absorbent on it and leave it alone.
  - b. ignore it.
  - c. 'spot clean' it immediately.
  - d. hose it down.
17. Vehicles should only be washed with detergents...
  - a. in the designated wash rack or wash bay.
  - b. in the wash rack/bay or in the maintenance area.
  - c. outdoors.
  - d. over a storm drain or near a drainage ditch.
18. If you have a cleaner or detergent that works better than the one supplied in the designated wash rack, it is OK to bring it in under what conditions?
  - a. if your cleaner is compatible with the cleaner supplied at the rack
  - b. if your vehicle has tar or grease on its exterior
  - c. if the vehicle operator OK's it
  - d. never
19. It is OK to top up engine fluids in the designated wash area if...
  - a. you only top up coolant.
  - b. you add less than 1 quart of fluid.
  - c. the vehicle is being taken out of service after the wash.
  - d. never
20. Where is the best location to store materials?
  - a. outdoors
  - b. indoors or under a roof
  - c. a refrigerated room
  - d. close to delivery door

21. If materials must be stored outdoors, the containers should be...
  - a. made of plastic.
  - b. at least 1/8" thick.
  - c. not stacked on top of one another.
  - d. closed, leak-tight and weatherproof.
22. How should materials in non-weatherproof containers be stored outdoors?
  - a. as far as possible from heavy traffic
  - b. with enough room between containers to allow inspection and easy movement
  - c. fitted with weatherproof coverings
  - d. all of the above
23. If a tarp or waterproof cover is used to protect materials stored outdoors, which of the following procedures are **incorrect**?
  - a. Secure the tarp to avoid loosening by the wind.
  - b. Check it regularly for loosening or tearing.
  - c. If you find problems on 2 inspections, find another storage method.
  - d. Remove the tarp or cover if rain is not expected in the next few days.
24. Lids or covers on waste receptacles outdoors should always be...
  - a. made of steel.
  - b. on the side of the container rather than on top.
  - c. kept closed unless adding or removing material.
  - d. left open.
25. It is OK to dispose of waste in a storm drainage system if...
  - a. it is never OK.
  - b. the waste is a floatable.
  - c. less than 1 pound is disposed.
  - d. it is not raining.
26. Which of the following wastes are OK to dispose along with standard facility trash like waste paper, plastic and food scraps?
  - a. hazardous wastes
  - b. liquids
  - c. used oil
  - d. scrap aluminum
  - e. none of the above

---

## SPECIALTY BMPs

---

### MUNICIPAL FACILITY MAINTENANCE

27. When painting outdoors, which of the following steps should be taken?
  - a. Spread a drop cloth or tarp under the work.
  - b. Mix and thin paints on a paved surface like a parking lot.
  - c. Clean tools and equipment over a grassy area.
  - d. Dispose of scraps and empty containers down the nearest storm drain.
28. What should be done with a drop cloth or tarp after the work is finished?
  - a. Nothing
  - b. Shake it off over a grassy area.
  - c. Shake it off over a storm drain.
  - d. Shake it off inside of a waste receptacle.

### PARKING LOTS & STREETS

29. Where is the proper place to dispose of street sweeping debris?
  - a. in a secure landfill or disposal site
  - b. in a drainage ditch
  - c. near a stream or river
  - d. in a lake or other surface water body
30. When performing wet concrete sawing, which of the following measures are useful in protecting stormwater?
  - a. Add disinfectant to the saw cooling water.
  - b. Use a wet vac to collect the excess cooling water.
  - c. Hose down the area when work is completed.
  - d. All of the above.

31. If an oil stained area of a parking lot must be wet swept/scrubbed and there are storm drain inlets in or around the lot, you should first...
- remove all waste receptacles.
  - place secondary containment around the wet sweeper.
  - use as much soap or detergent in the wash waste as possible.
  - place a barrier or absorbent around the drain inlets.

### **STORM DRAIN SYSTEM CLEANING**

32. At what percentage of a catch basin's capacity does accumulated debris begin to interfere with basin's effectiveness?
- 10%
  - 40%
  - 50%
  - 80%
33. How should excess water from collected storm drainage debris be handled?
- Discharge it back into the storm drainage system.
  - Discharge it into a drainage ditch.
  - Pump it into a lake or stream.
  - Discharge it into a sanitary sewer or holding pond.

### **LANDSCAPING & GROUNDS MAINTENANCE**

34. What is the best way to handle grass clippings?
- compost them
  - dump in a drainage ditch
  - dump into a stream
  - spread them back on the areas from where they were cut
35. What can be said about the application of fertilizers?
- The more fertilizer used, the better.
  - Read and follow the manufacturer's application instructions exactly.
  - If, while spreading, some fertilizer winds up on a paved area, hose it down.
  - All of the above.
36. At a minimum, how often should applicator equipment be calibrated?
- weekly
  - monthly
  - annually
  - no regular calibration is needed
37. Where can you usually obtain information about the correct use of landscaping chemicals?
- the EPA
  - Dept. of Public Works
  - product advertisements
  - container label
38. Landscape chemicals can be applied in which of the following conditions?
- during a rain storm
  - during high winds
  - on or near surface waters
  - none of the above

### **WORKING OVER OR NEAR SURFACE WATERS**

39. If a life preserver ring that normally hangs on a dock, needs to be stenciled, you should...
- use water-based paint.
  - put a tarp down on the dock and then stencil the ring.
  - hold the paint sprayer as close as possible to the life ring while spraying.
  - take the life ring onshore and stencil it there.
40. When doing painting on a bridge over water, what precautions should be taken?
- Use secondary containment for the paint containers.
  - Sling a tarp or canvas under the bridge.
  - Use the most environmentally friendly paints and thinners available.
  - All of the above.