# OPERATION & MAINTENANCE MANUAL

# Water Quality Planter

**Manual prepared: May 2019**

**DFI No. D00913**


**Figure 1: DFI No D00913, looking South**

## Identification

| | |
|---|---|
| Drainage Facility ID (DFI): | D00913 |
| Facility Type: | Water Quality Planter |
| Construction Drawings: | 47V-081 |
| Locations: | District: 1 |
| | Highway No.: 92 |
| | Mile Post: 46.96 (Left) |

## 1. Manual Purpose

The purpose of this manual is to outline inspection needs and summarize maintenance actions for water quality planters.

## 2. Facility Location

The location map below details the facility location. The highway, mile posts, side streets, access location, and stormwater flow directions are noted on the map.

Facility location type: In Sidewalk

Flow direction: East

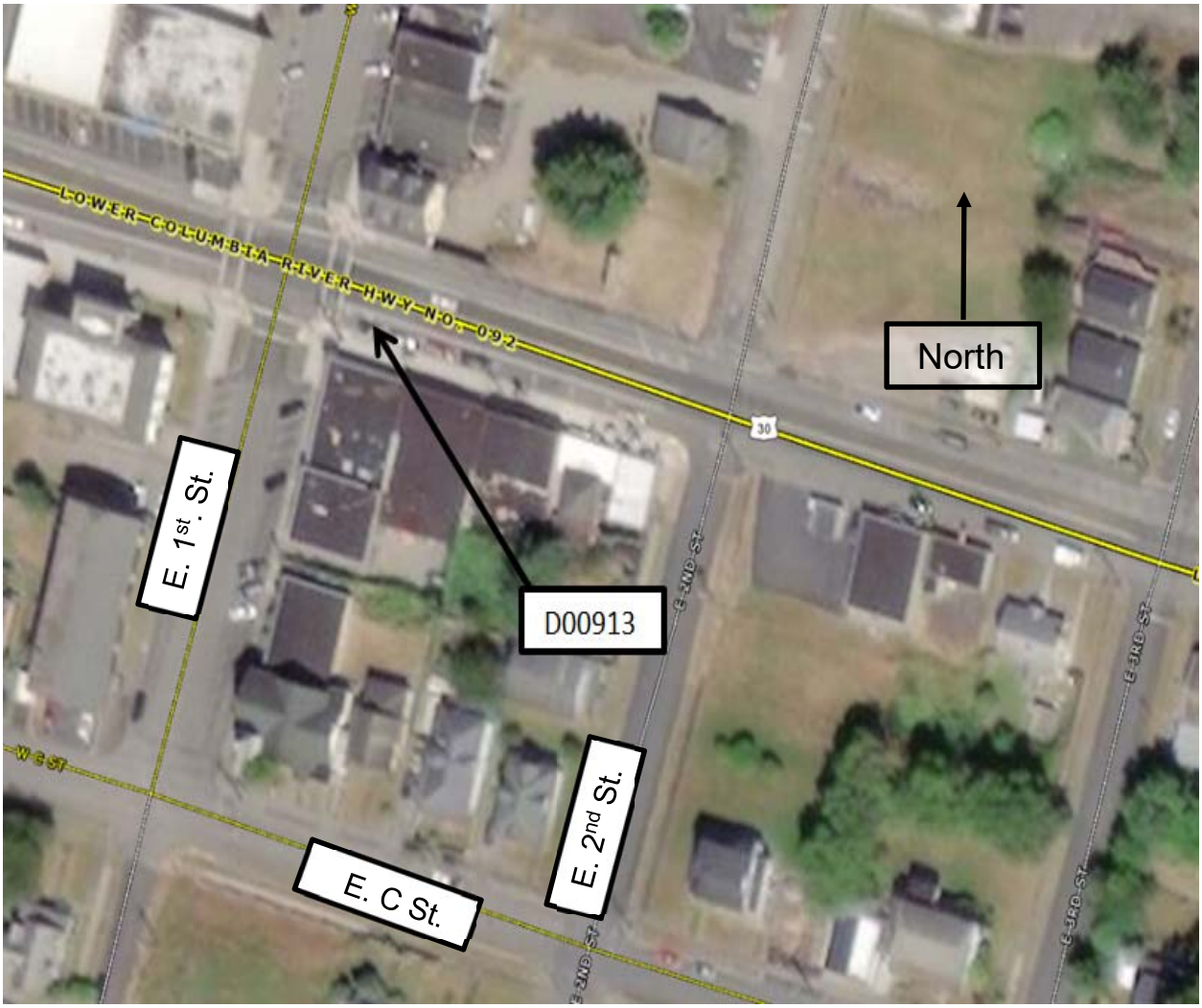


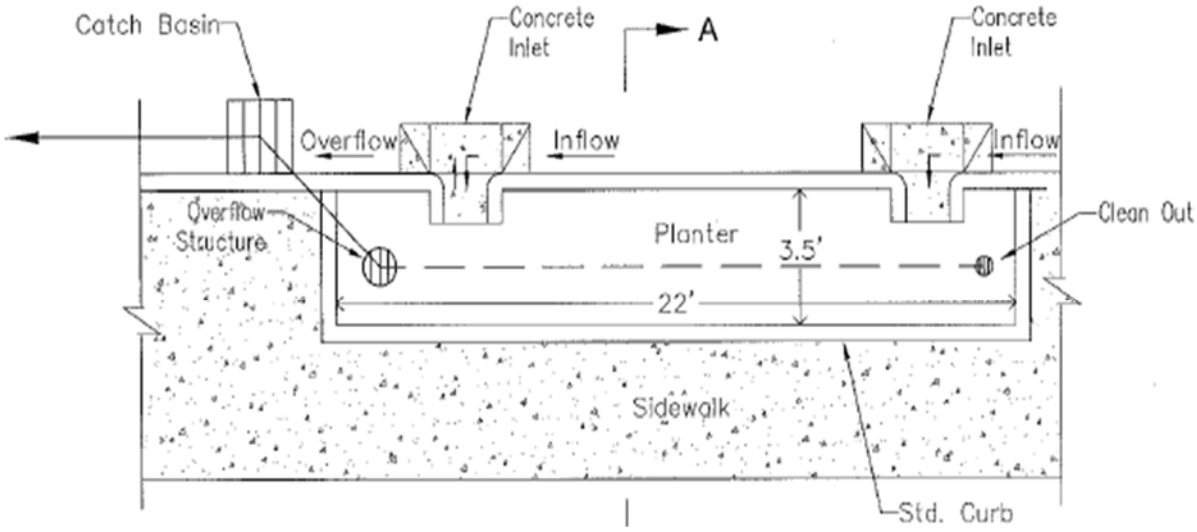

**Figure 2: Facility Location Map**

## 3. Facility Summary

The length and width of the WQ Planter is based on the dimensions of the inside of the treatment cell.

The length and width of the WQ Planters are:

| Facility DFI | Length (Feet) | Width (Feet) |
|---|---|---|
| D00913 | 22 | 3.5 |

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**Site Specific Information:** The planters have two curb inlets. The second downstream inlet serves as a high flow bypass going into the storm drain system.

## 4. Facility Access

Maintenance access to the facility: Curb and gutter (travel lane)

**☒ Lane Closure Needed**

Water quality planters do not typically have access roads/access pads, nor are they gated, as they are located in urban areas alongside sidewalks and curbs. Use caution when accessing these facilities as there may be pedestrians or cyclists in the vicinity.


Figure 3: [Looking south at the SE corner of US30 and 1st St.]

## 5. Operational Components / Maintenance Items

**Classification and Standard Operational (Op) Plan:**

This facility is classified as a:

| ☐ Filterra<br>(Op Plan A) | ☒ WQ Planter<br>(Op Plan B) | ☐ MWS<br>(Op Plan C) |
|---|---|---|
| A Filterra is a single chamber treatment cell that utilizes filter media, a plant, and a perforated underdrain. | A WQ Planter is a single chamber treatment cell that utilizes plants, filter media, and a perforated underdrain. The auxiliary outlet is located inside of the treatment cell. | A Modular Wetland System is a three chamber treatment cell that utilizes plants, filter media, filter media cartridges, and a perforated underdrain network. |
| **A standard operational plan illustrates the general facility footprint configuration and explains the purpose of each facility component. Operational plans (A and B) are provided in the Standard Operation Manual.** | | |

See Appendix A for the site specific operational plan.

### Operational Components

The facility components table (**Table 1)** has been provided to highlight the applicable components for this facility. The component is in use when the box contains an "x" (e.g. ☒ ).

The Standard Operation Manual for Water Quality Planters (implemented April 2018) outlines facility operation, typical footprint configuration, and component definitions and details. A link to the manual is attached to the feature marker in TransGIS.

https://gis.odot.state.or.us/TransGIS/

### Maintenance Items

Operational components marked in **Table 1** should be inspected and maintained according to Section 7. Each facility component is defined and detailed in the Standard Operation Manual using the associated ID number indicated below.

| Table 1: Facility Components | | ID # |
|---|---|---|
| **Facility Inlet** | | |
| Inlet Grate | ☐ | P1 |
| Curb Inlet | ☒ | P2 |
| Sidewalk Chute | ☐ | P3 |
| Bypass Inlet | ☒ | P4 |
| **Treatment** | | |
| Plants (Tree or Shrub) | ☐ | P5 |
| Grass | ☐ | P6 |
| Filter Media | ☒ | P7 |
| Filter Media Cartridge | ☐ | P8 |

| Planter Components | | |
|---|---|---|
| Perforated Pipe | ☒ | P9 |
| Outlet Grate | ☐ | P10 |
| **Outfall Type** | | |
| Waterbody (Creek/Lake/Ocean) | ☐ | P11 |
| Ditch | ☐ | P12 |
| Storm Drain System | ☒ | P13 |

## 6. Maintenance

### Maintenance Frequency/Maintain Records

a. Full inspection annually. Preferably prior to the rainy season.
b. Clean and maintain as necessary. Refer to Activity 125 for conditions when maintenance is needed.
c. Keep a record of inspections, maintenance, and repairs.

### Maintenance Guide/Maintenance Actions

The ODOT Routine Road Maintenance Water Quality and Habitat Guide (the *Blue Book*) outlines the standard maintenance actions for water quality facilities under Activity 125.

There are standard maintenance tables for standard ODOT designs. The maintenance tables describe the maintenance component, the defect or problem, the condition when maintenance is needed, and the recommended maintenance to correct the problem. Use the following tables to maintain these water quality planters:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities. Maintenance of inlets, outlets, trash removal and noxious weeds is recommended seasonally.
- Table 3 (Maintenance of Water Quality or Biofiltration Swales): Contains maintenance information for swales. The planted area of these planters should be maintained as described for the bottom and sides of swales, by using equipment other than mowers to control plant height. Replant if needed with plants from the original plans, or as recommended by ODOT landscaping and stormwater staff.

The *Blue Book* can be viewed at the following website:
http://www.oregon.gov/ODOT/Maintenance/Documents/blue_book.pdf

## 7. Limitations

Vactors may be used at the inlet, outlet, and grated areas. No heavy equipment may be used in the planted areas.

## 8. Waste Material Handling

Material removed from the facility is defined as waste by the Department of Environmental Quality (DEQ). Refer to the road waste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options:

http://www.oregon.gov/ODOT/HWY/OOM/pages/ems.aspx

Contact any of the following for more detailed information about management of waste materials found on site:

| | |
|---|---|
| ODOT Clean Water Unit | (503) 986-3008 |
| ODOT Statewide Hazmat Coordinator | (503) 667-7442 |
| ODOT Region 1 Hazmat Coordinator | (503) 731-8290 |
| ODOT Region 2 Hazmat Coordinator | (503) 986-2647 |
| ODOT Region 3 Hazmat Coordinator | (541) 957-3594 |
| ODOT Region 4 Hazmat Coordinator | (541) 388-6186 |
| ODOT Region 5 Hazmat Coordinator | (541) 963-1590 |
| ODEQ Northwest Region Office | (503) 229-5263 |

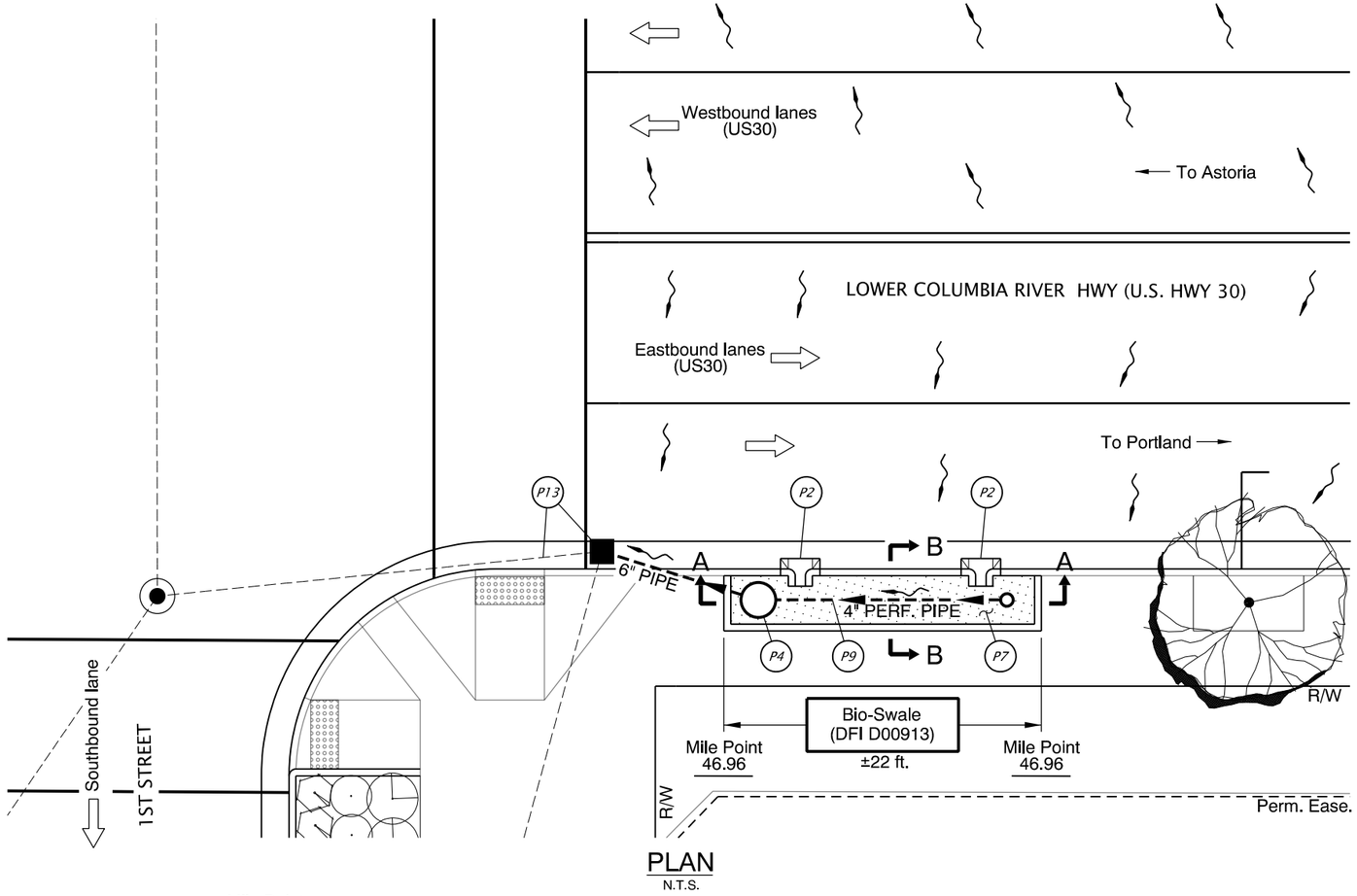
# A Appendix A – Site Specific Operational Plan

## Contents:

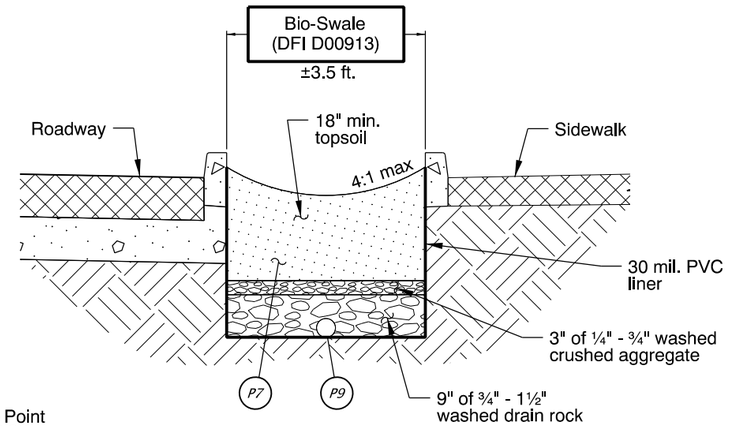
**Operational Plan: DFI D00913**

LEGEND:

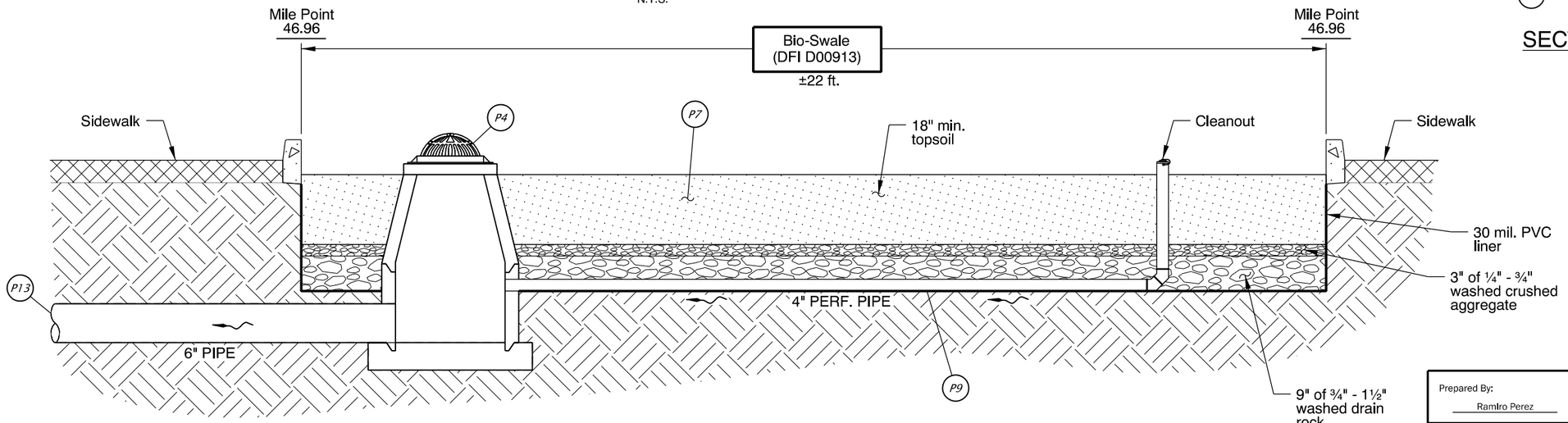
- Photo Location / Direction
- P# — Facility Component (see table 1 in O&M Manual)
- and / or — Manhole
- and / or — Inlet
- Storm Pipe (Facility)
- Conveyance Direction
- Pavement / Facility Flow Path




PLAN
N.T.S.




SECTION B-B
N.T.S.




SECTION A-A
N.T.S.

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Ramiro Perez

Drafted By: Michael Skelton

**DFI D00913**
**MAINTENANCE DISTRICT 1 US30**
**WATER QUALITY PLANTER**
**LOWER COLUMBIA HIGHWAY MP 46.96**
**COLUMBIA COUNTY**

# B Appendix B – Project Contract Plans

## Contents:

**Site Specific Subset of Project Contract Plan 47V-081**

| INDEX OF SHEETS | |
|---|---|
| SHEET NO. | DESCRIPTION |
| 1 | Title Sheet |
| 1A | Index Of Sheets Cont'd. & Std. Drg. Nos. |

REVISED AS CONSTRUCTED
7-15-15 CONTRACT C14753
PROJ. MGR. GREG HAFFNER

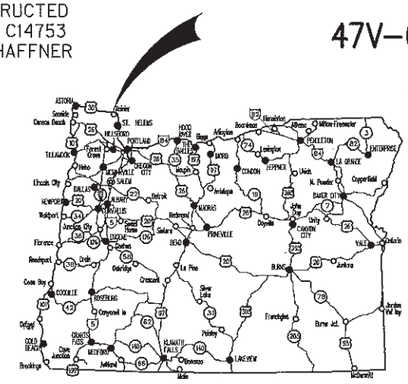
47V-081

STATE OF OREGON
# DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED PROJECT

## GRADING, DRAINAGE, STRUCTURES, PAVING, STRIPING, SIGNING, ILLUMINATION, SIGNALS, & ROADSIDE DEVELOPMENT

# US30: B STREET BIKE/PED PATH SEC.

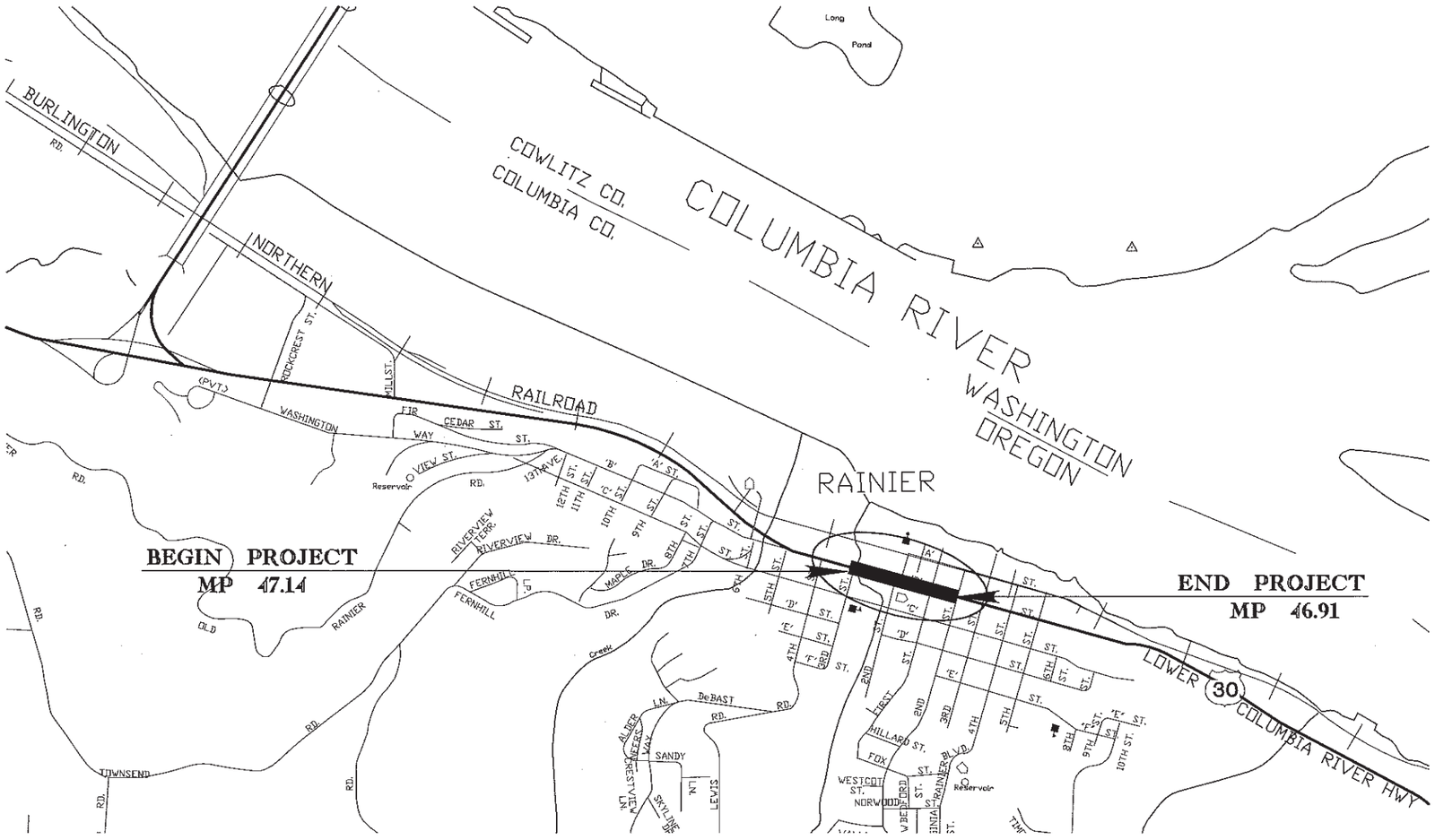
## LOWER COLUMBIA RIVER HIGHWAY
## COLUMBIA COUNTY
## OCTOBER 2014



*Overall Length Of Project - 0.23 Miles*

**ATTENTION:**
Oregon Law Requires You To Follow Rules Adopted By The Oregon Utility Notification Center. Those Rules Are Set Forth In OAR 952-001-0010 Through OAR 952-001-0090. You May Obtain Copies Of The Rules By Calling The Center. (Note: The Telephone Number For The Oregon Utility Center Is (503) 232-1987.)

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE




N

T. 7 N., R. 2 W., W.M.

**OREGON TRANSPORTATION COMMISSION**

| | |
|---|---|
| Catherine Mater | CHAIR |
| David Lohman | COMMISSIONER |
| Susan Morgan | COMMISSIONER |
| Alando Simpson | COMMISSIONER |
| Tammy Baney | COMMISSIONER |
| Matthew L. Garrett | DIRECTOR OF TRANSPORTATION |

These plans were developed using AASHTO design standards. Exceptions to these standards, if any, have been submitted and approved by the ODOT Chief Engineer or their delegated authority.

Approving Authority: _____ 7/15/15
Signature & date

Brady Berry, P.E., Project Manager
Print name and title

Concurrence by ODOT Chief Engineer

**US30: B STREET BIKE/PED PATH SEC.**
LOWER COLUMBIA RIVER HIGHWAY
COLUMBIA COUNTY

| FEDERAL HIGHWAY ADMINISTRATION | PROJECT NUMBER | SHEET NO. |
|---|---|---|
| OREGON DIVISION | STATE | 1 |

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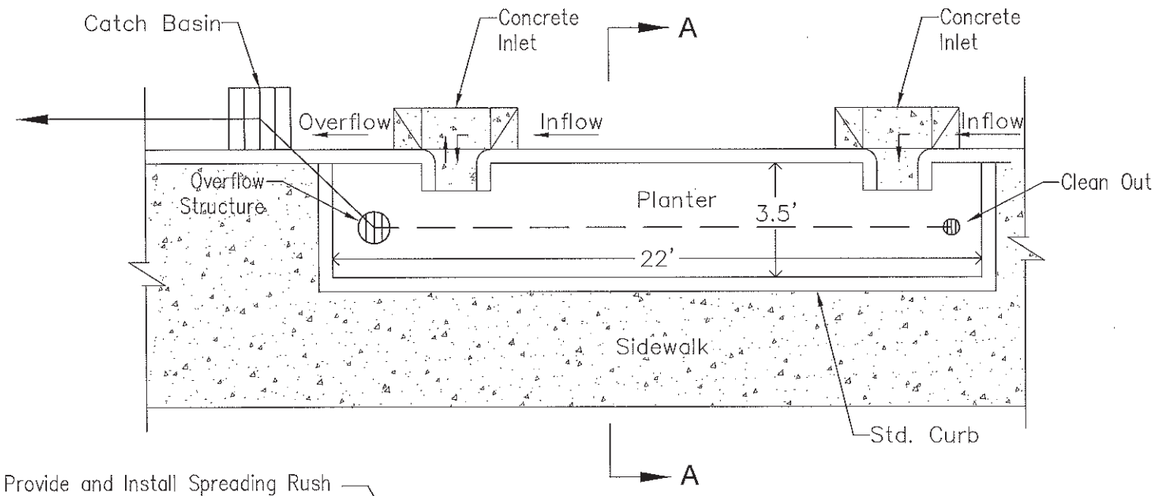
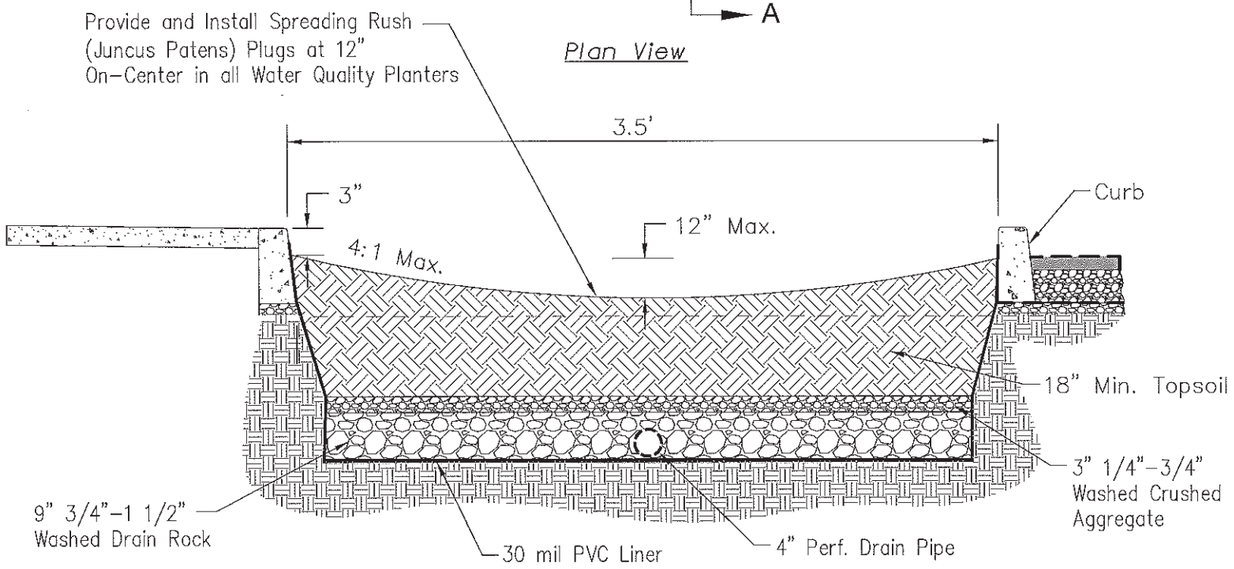
REVISED AS CONSTRUCTED
7-15-15 CONTRACT 14753

47V-081

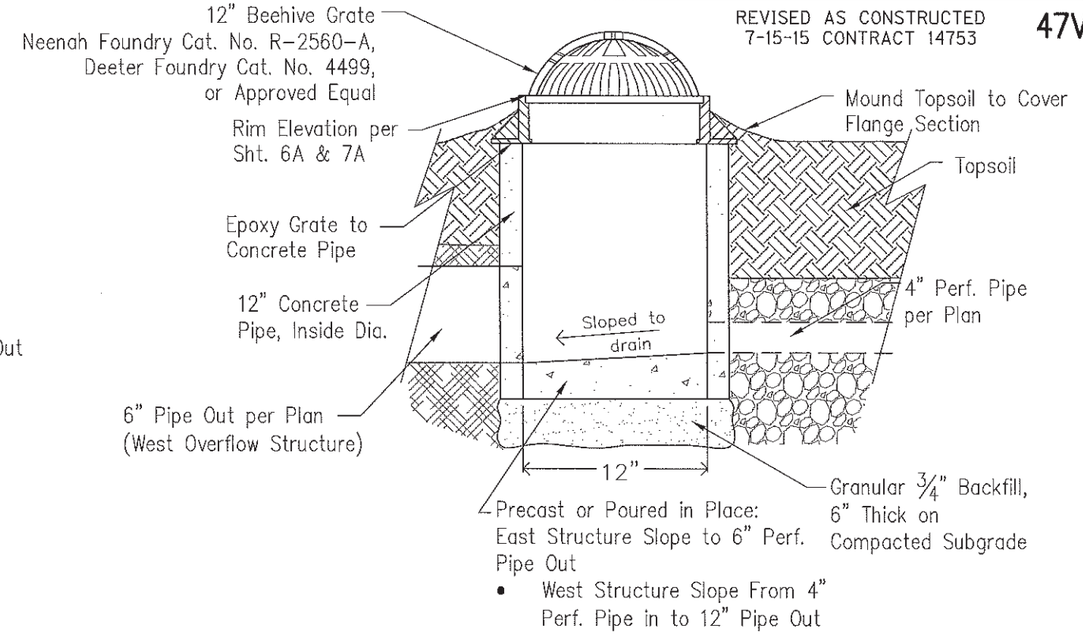



Plan View

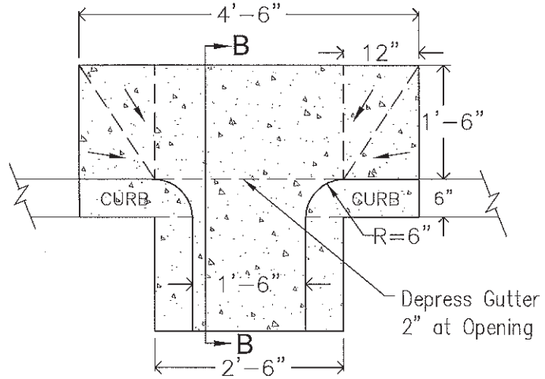



Section A-A

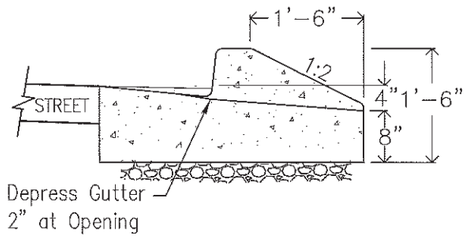
Water Quality Planter
N.T.S




Overflow Structure




Plan View




Section B-B

Concrete Inlet
N.T.S.

OREGON DEPARTMENT OF TRANSPORTATION

WHPacific
9755 S.W. Barnes Road Suite 300
Portland, OR 97225
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**US30: B STREET BIKE/PED PATH SEC.**
LOWER COLUMBIA RIVER HIGHWAY
COLUMBIA COUNTY

Reviewed By - Brady Berry
Designed By - Sarah Jones
Drafted By - Sarah Jones

**DRAINAGE DETAILS**

SHEET NO. 2B-2

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REVISED AS CONSTRUCTED
7-15-15 CONTRACT 14753

47V-081

Columbia River Carpet

Luigi's Pizza

1st St.

LOWER COLUMBIA RIVER HWY (US 30, 'B' STREET)

"B" Line

"1" Line

Paving Limits

Sawcut Line

"B" Sta. 2388+18.46 = "1" Sta. 33+00.00

2387+00

2388+00

2389+00

Country Companies Insurance

Rainier City Hall

Bell Studios

XXX Archery

Sidewalk Esmt.

Slope Esmt.

Const. Esmt.

Extg. Slope Esmt.

R/W

NOTE:

1) Station / offset is to center of structure unless otherwise noted.

2) Grate Elevation Call-outs For Type "G-1", "G-2", "CG-1" and "CG-2" Inlets Include 1½" Drop at Flow Line.

3) For Scoring See Typical Scoring Detail, Sheet 2B.

Plant Materials Listing - Sheet 6

| Sym. | Qty. | Botanical Name | Common Name | Size |
|---|---|---|---|---|
| Tree | | | | |
| | 1 | Quercus Alba X Robur 'Crimschmidt' | Crimson Spire Oak | 3" CAL. B&B. |
| Shrubs | | | | |
| | 23 | Rhododendron 'PJM' | PJM Rhododendron | 24"-30" B&B |
| | 26 | Mahonia aquifolium 'Compacta' | Compact Oregon Grape | 3 Gal. Cont. |
| | 28 | Pennisetum alopecuroides 'Hameln' | Dwarf Fountain Grass | 1 Gal. Cont. |

OREGON DEPARTMENT OF TRANSPORTATION

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**US30: B STREET BIKE/PED PATH SEC.**
LOWER COLUMBIA RIVER HIGHWAY
COLUMBIA COUNTY

Reviewed By - Brady Berry
Designed By - Sarah Jones
Drafted By - Sarah Jones

GENERAL CONSTRUCTION

SHEET NO. 6

## CONSTRUCTION NOTES

1. Const. Standard Curb
   7" Exposure
   (See Drg. No. RD700)
2. Const. Standard Curb
   5" Exposure
   (See Drg. No. RD700)
3. Const. P.C. Conc. Walk
   (For Details, See Sht. 2B)
   (See Drg. No. RD720)
4. Const. Perpendicular Sidewalk Ramp - 4
   (For Details, See Sht. 2B-7, 2B-8 & 2B-9)
   (See Drg. No. RD755)
5. Const. Perpendicular Sidewalk Ramp
   With Single Flare - 4
   (For Details, See Sht. 2B-7, 2B-8 & 2B-9)
   (See Drg. No. RD755)
6. Const. 3" PVC Rain Drain. Const. Thru
   Face of Curb.
7. Sta. "B" 2386+94.58, 27.35' Rt.
   Const. Commercial Driveway, Reinforced - 32' Wide
   (See Drg. No. RD735, Option 'G')
8. Const. Stairs and Handrail
   (See Drg. No. RD120)
9. Install Deciduous Tree - 3" Cal.
   (For Street Tree Legend, See Sht. 5)
10. Const. P.C. Conc. Transition Between Extg. Pavement
    and New Walk (For Details, See Sht. 2B-7)
11. Const. Paving Wedge Behind New Sidewalk. Daylight
    Paving at 3:1
12. Existing Bin Wall Found 10-12" from Building Face.
    Cantilever Sidewalk Constructed. No. 4 Reinforcement
    Installed with Thickened Concrete Edge and Stay in
    Place Metal form.
13. (remove note and number)
14. (remove note and number)
15. Sta. "B" 2387+82.11, 41.76' Rt.
    Adjust Hydrant to Finished Sidewalk Grade
16. (remove note and number)
17. (remove note and number)
18. (remove note and number)
19. (remove note and number)
20. (remove note and number)
21. Sta. "B" 2387+92.50, 64.60' Rt.
    Const. Type G-1 Inlet (No Sump)
    Over Extg. Pipe
    Top Grate Elev. at F.L. = 49.84
    Adjust I.E. (Out) as Required
    (See Drg. No. RD364)
22. Sta. "B" 2388+45.30, 56.88' Rt.
    Const. Type G-1 Inlet (No Sump)
    Top Grate Elev. at F.L. - 49.53
    (See Drg. No. RD364)
23. Sta. "B" 2388+54.61, 22.74' Rt.
    Const. Type G-2 Inlet (No Sump)
    Top Grate Elev. at F.L. - 47.38
    Inst. 12" Sew. Pipe - 35'
    5' Depth
    Inst 6" Sew. Pipe - 12'
    5' Depth
    I.E. (12" Out) - 46.10
    Sl. 6.00%
    (See Drg. No. RD364)
24. Sta. "B" 2388+22.4, 26.0' Rt.
    Connect To Extg. Manhole
    Inst. 12" Sew. Pipe - 84'
    5' Depth
    (For Profiles, See Sht. 6C)
25. Sta. "B" 2388+61.00, 21.98' Lt.
    Const. Type G-2 Inlet (No Sump)
    Top Grate Elev at F.L. - 45.64.
    I.E. (12" Out)=42.19.
    (See Drg. No. RD364)
26. Sta. "B" 2388+22.3, 37.9' Lt.
    Connect to Extg. Manhole
    Inst. 12" Sew. Pipe - 42'
    5' Depth
27. (remove note and number)
28. (remove note and number)
29. (remove note and number)
30. Sta. "B" 2388+65.94, 26.25' Rt.
    Inst. Overflow Structure
    Rim Elevation Per Detail - 47.87
    Inst. 4" Perf. Sew. Pipe - 18'
    (For Details, See Sht. 2B-2)
31. Sta. "B" 2388+63.94 to 2388+85.94, Rt.
    Const. Water Quality Planter
    (For Details, See Sht. 2B-2)
32. Install Plant Materials.
    (See Plant Materials List, Sht. 6)
33. Sta. "B" 2388+83.94, 26.25' Rt.
    Inst. Overflow Structure
    Rim Elevation Per Detail - 49.38

| Tree Well Data Table | |
|---|---|
| Station | Offset |
| "B" 2389+01.47 | 26.43' Rt. |

OREGON DEPARTMENT OF TRANSPORTATION

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**US30: B STREET BIKE/PED PATH SEC.**
LOWER COLUMBIA RIVER HIGHWAY
COLUMBIA COUNTY

Reviewed By - Brady Berry
Designed By - Sarah Jones
Drafted By - Sarah Jones

**CONSTRUCTION NOTES**

SHEET NO. 6A