

# OPERATION & MAINTENANCE MANUAL

## **Filterra**

Manual prepared: March 2018

DFI No. D00818



Figure 1: DFI No. D00818, looking North

## 1. Identification

Drainage Facility ID (DFI): D00818  
Facility Type: **Filtterra**  
Construction Drawings: (V-File Numbers) 47V-025  
Location: District: 04  
Highway No.: 009  
Mile Post: 116.635, Left

## 2. Manual Purpose

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

## 3. 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: Curb and Gutter (bike lane)

Flow direction: South

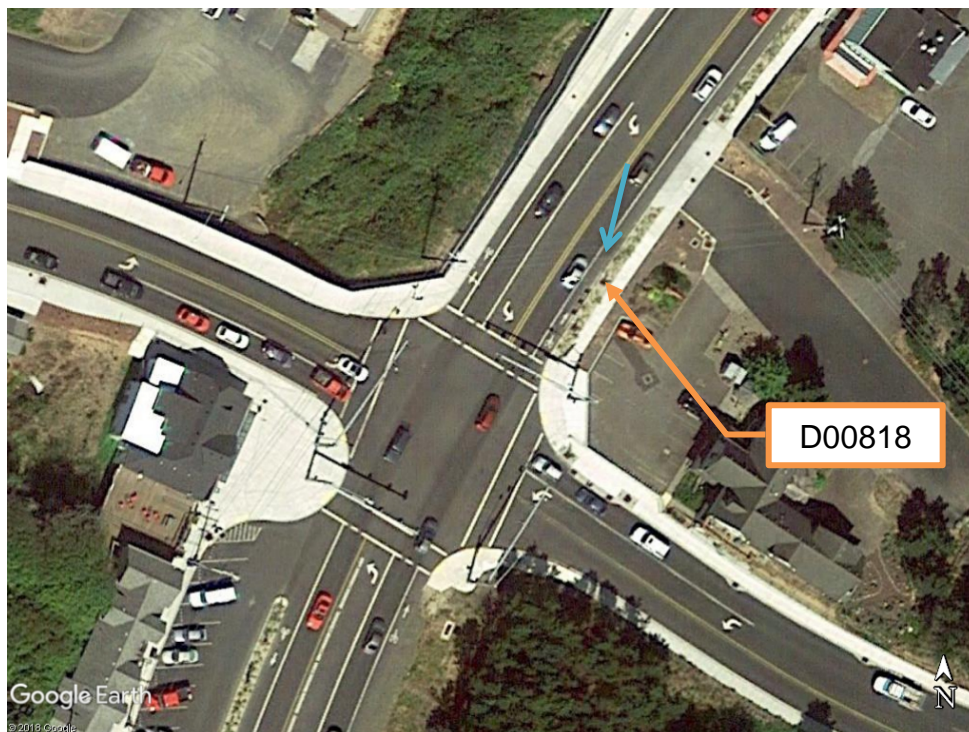


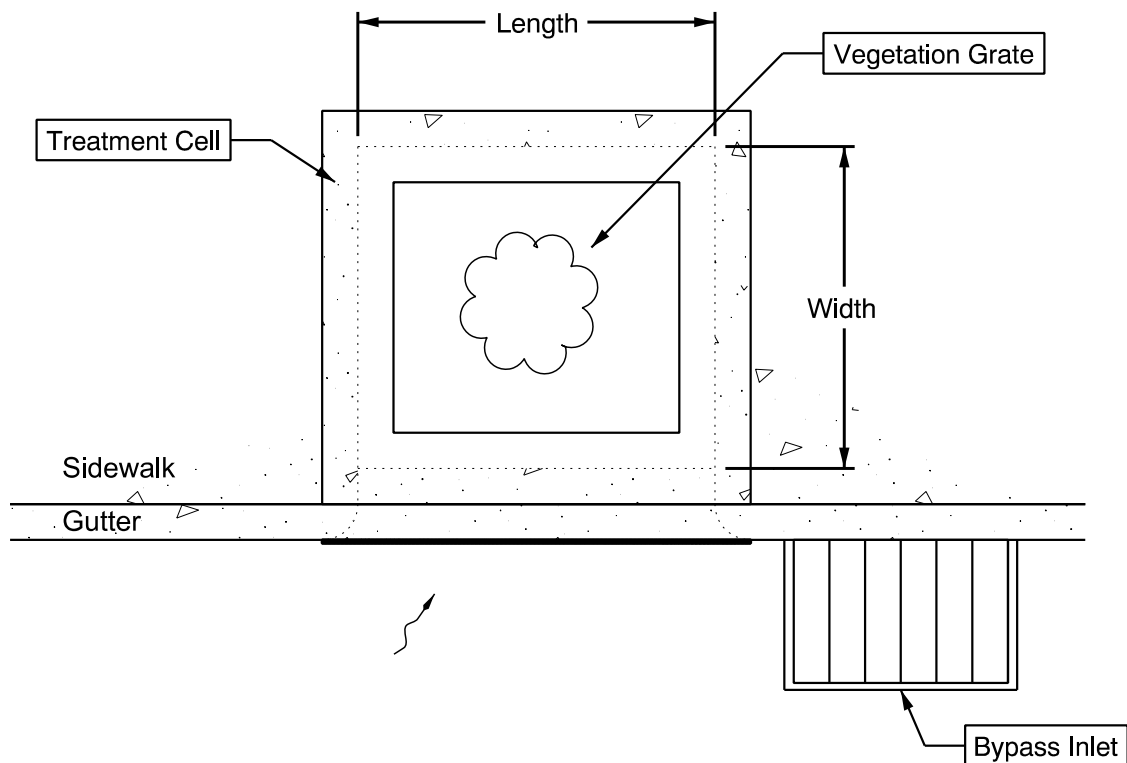
Figure 2: Facility Location Map

## 4. Facility Summary

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

The length and width of the WQ Catch Basin is:

| Length (Feet) | Width (Feet) | Designation Number <sup>1</sup> |
|---------------|--------------|---------------------------------|
| 4             | 6            | FT0604                          |



**Site Specific Information:** This facility is located along the east side of US 101 between the roadway curb and the sidewalk. See Appendix B for additional information.

<sup>1</sup> The Filterra and MWS designation number is associated with the dimensions of this type of proprietary structure. See appendix C of the Standard Operation Manual for Water Quality Catch Basins to view the Configuration Details for additional information.

## 5. Facility Access

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

**Lane Closure Needed**

Water quality catch basins 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.

## 6. Operational Components / Maintenance Items

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

This facility is classified as a:

| <input checked="" type="checkbox"/> <b>Filterra<br/>(Op Plan A)</b>   | <input type="checkbox"/> <b>WQ Planter<br/>(Op Plan B)</b>   | <input type="checkbox"/> <b>MWS<br/>(Op Plan C)</b>   |
|---|--|---|
| 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 <u>Modular Wetland System</u> is a three chamber treatment cell that utilizes plants, filter media, filter media cartridges, and a perforated underdrain network. |
| <b>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.</b> |  |   |

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 Catch Basins (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 #       |
|------------------------------|-------------------------------------|------------|
| <b>Facility Inlet</b>        |                                     |            |
| Inlet Grate                  | <input type="checkbox"/>            | <b>C1</b>  |
| Curb Inlet                   | <input checked="" type="checkbox"/> | <b>C2</b>  |
| Sidewalk Chute               | <input type="checkbox"/>            | <b>C3</b>  |
| Bypass Inlet                 | <input checked="" type="checkbox"/> | <b>C4</b>  |
| <b>Treatment</b>             |                                     |            |
| Plantings (Tree or Shrub)    | <input checked="" type="checkbox"/> | <b>C5</b>  |
| Filter Media                 | <input checked="" type="checkbox"/> | <b>C6</b>  |
| Filter Media Cartridge       | <input type="checkbox"/>            | <b>C7</b>  |
| <b>Outfall Type</b>          |                                     |            |
| Waterbody (Creek/Lake/Ocean) | <input type="checkbox"/> <b>C</b>   | <b>C8</b>  |
|                              | <input type="checkbox"/> <b>L</b>   |            |
|                              | <input type="checkbox"/> <b>O</b>   |            |
| Ditch                        | <input type="checkbox"/>            | <b>C9</b>  |
| Storm Drain System           | <input checked="" type="checkbox"/> | <b>C10</b> |

## 7. Maintenance

### Maintenance Frequency/Maintain Records

- Inspect per manufacturer requirements. Preferably prior to the rainy season.
- Clean and maintain as necessary. Refer to Activity 125 in the Maintenance Guide for conditions when maintenance is needed.
- Keep a record of inspections, maintenance, and repairs.

### Maintenance Guide/Maintenance Actions

Proprietary Water Quality Catch Basins have an operation and maintenance manual provided by the manufacturer. See Appendix C of the Standard Operational Manual for Water Quality Catch Basins. These manuals provided guidelines on maintenance procedures for the facilities. A link to the manual is attached to the feature marker in TransGIS. <https://gis.odot.state.or.us/TransGIS/>

The Maintenance Guide 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 ODOT Water Quality Catch Basins:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities

The ODOT Maintenance Guide can be viewed at the following website:

<http://www.oregon.gov/ODOT/HWY/OOM/pages/mguide.aspx>

## 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 |

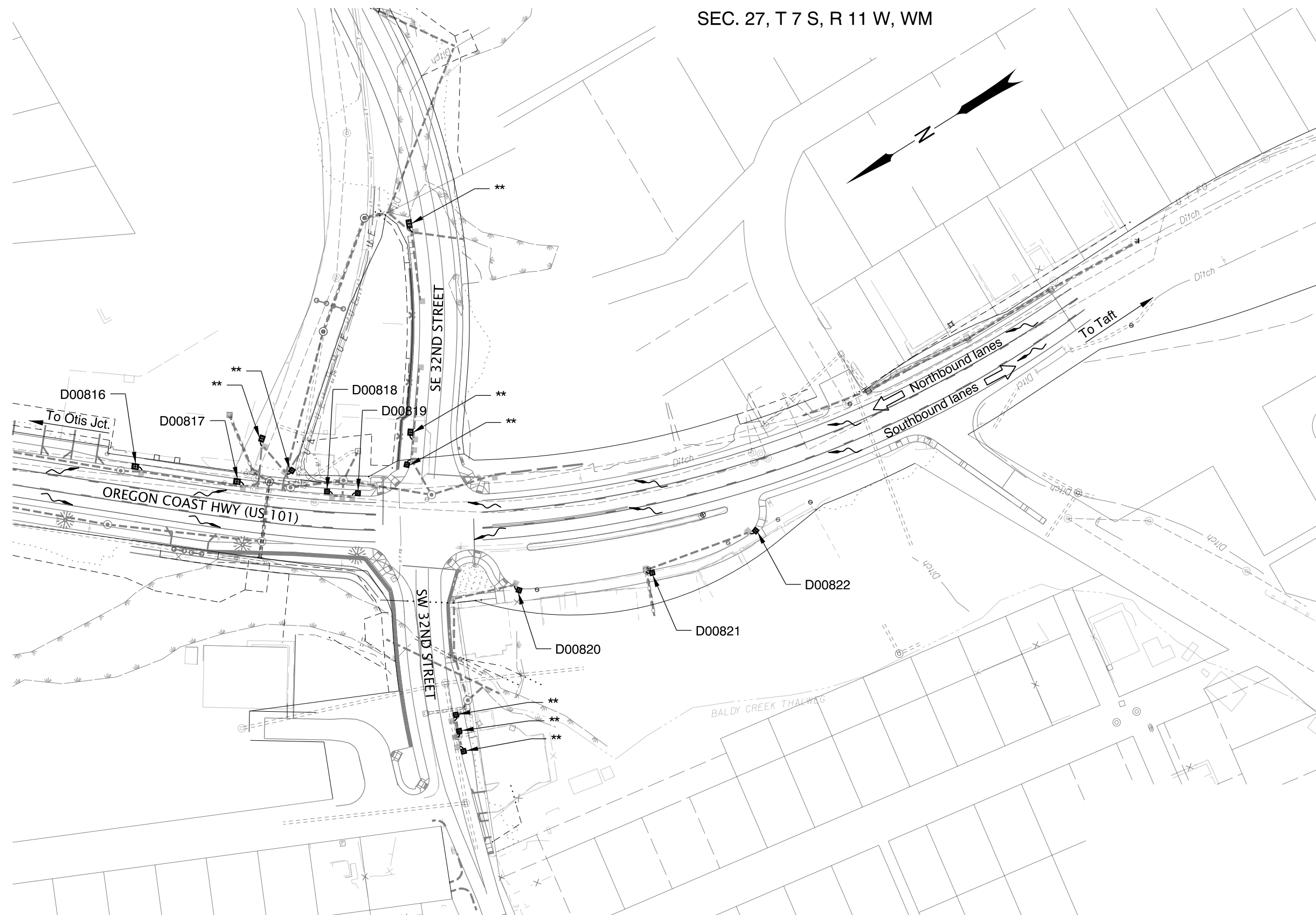
## **A Appendix A – Site Specific Operational Plan**

### **Contents:**

**Operational Plan: DFI D00818**



SEC. 27, T 7 S, R 11 W, WM



- LEGEND:**
- Pavement / Facility Flow Path
  - Water Quality Catch Basin
  - Traffic Direction
  - Manhole
  - Inlet
  - \*\*** No DFI # on City streets, City to maintain

PLAN  
NTS

Sht. 4 of 4

Prepared By:  
Christopher Carman

Drafted By:  
Jeff Coon



OREGON DEPARTMENT  
OF TRANSPORTATION

**FFO US101: S.E. 23RD DR. - S.W. 35TH ST.**  
**MAINTENANCE DISTRICT 4 US101**  
**WATER QUALITY CATCH BASIN**  
 OREGON COAST HIGHWAY  
 LINCOLN COUNTY



## **B Appendix B – Project Contract Plans**

### **Contents:**

**Site Specific Subset of Project Contract Plan 47V-025**

As Constructed Plans

| INDEX OF SHEETS |                         |
|-----------------|-------------------------|
| SHEET NO.       | DESCRIPTION             |
| 1               | Title Sheet             |
| 1A              | Index Of Sheets Cont'd. |
| 1A-2            | Std. Drg. Nos.          |

STATE OF OREGON  
DEPARTMENT OF TRANSPORTATION

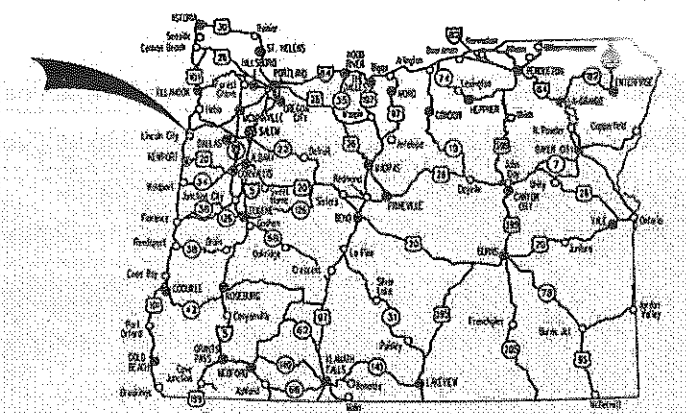
PLANS FOR PROPOSED PROJECT  
GRADING, DRAINAGE, STRUCTURE, PAVING, SIGNING,  
SIGNALS & ROADSIDE DEVELOPMENT

**FFO - US101: S.E. 23RD DR. - S.W. 35TH ST.  
(LINCOLN CITY) SEC.**

**OREGON COAST HIGHWAY  
LINCOLN COUNTY  
FEBRUARY 2014**

NOT REVISED AS CONSTRUCTED  
STEVEN SCHULTZ, PE

DATE 6/21/16



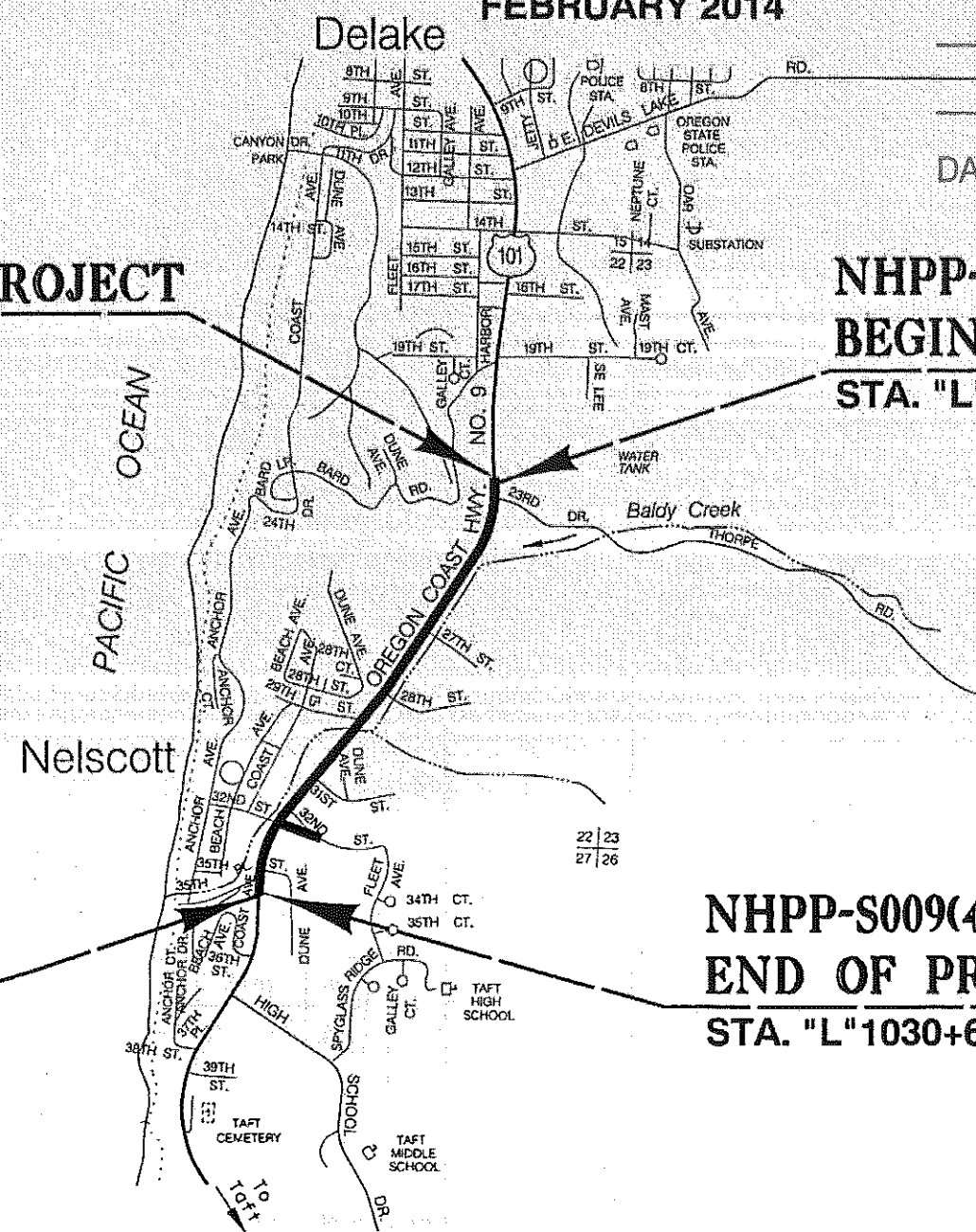
Overall Length Of Project - 0.83 Miles

**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) 232-1587.)



**NHPP-S009(419)  
BEGINNING OF CONTRACT PROJECT  
STA. "L"986+00 (M.P. 115.93)**

**NHPP-S009(419)  
BEGINNING OF PROJECT  
STA. "L"987+00 (M.P. 115.95)**



**NHPP-S009(419)  
END OF CONTRACT PROJECT  
STA. "L"1031+50 (M.P. 116.79)**

**NHPP-S009(419)  
END OF PROJECT  
STA. "L"1030+61 (M.P. 116.77)**

T. 7 S., R. 11 W., W.M.

- OREGON TRANSPORTATION COMMISSION**
- Pat Egan CHAIR
  - Mary F. Olson COMMISSIONER
  - David Lahman COMMISSIONER
  - Mark Frahmeyer COMMISSIONER
  - Tommy Boney COMMISSIONER
  - Matthew L. Garrett DIRECTOR OF TRANSPORTATION

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

By: *Carol A. Cartwright* 12/13  
Signature & Date

Carol A. Cartwright - R2 Roadway Manager

*[Signature]*  
Print name and title  
Concurrence by ODOT Chief Engineer

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LINCOLN COUNTY**

|                                |                |
|--------------------------------|----------------|
| FEDERAL HIGHWAY ADMINISTRATION | PROJECT NUMBER |
| OREGON DIVISION                | NHPP-S009(419) |



PE001

| INDEX OF SHEETS, CONT'D.  |  |
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| SHEET NO.                 | DESCRIPTION                                    |
| 2, 2A Thru<br>2A-14 Incl. | Typical Sections                               |
| 2B Thru<br>2B-12 Incl.    | Details  |
| 2C Thru<br>2C-4 Incl.     | Traffic Control Details                        |
| 2C-5 Thru<br>2C-39 Incl.  | Traffic Control Plans                          |
| 2D Thru<br>2D-7 Incl.     | Pipe Data Sheet                                |
| 3                         | Alignment                                      |
| 3A                        | General Construction                           |
| 3B                        | Drainage & Utilities                           |
| 3B-2                      | Drainage Notes                                 |
| 3C & 3D                   | "L", "23RD" & "Dwy1" Profile                   |
| 4                         | Alignment                                      |
| 4A                        | General Construction                           |
| 4B                        | Drainage & Utilities                           |
| 4B-2                      | Drainage Notes                                 |
| 4C                        | Diversion Plan                                 |
| 4D & 4E                   | "L", "Dwy2", "Dwy3" & "Dwy4" Profile           |
| 5                         | Alignment                                      |
| 5A                        | General Construction                           |
| 5A-2                      | Notes  |
| 5B                        | Drainage & Utilities                           |
| 5B-2                      | Drainage Notes                                 |
| 5C                        | Diversion Plan                                 |
| 5D, 5E,<br>5F & 5G        | "L", "Dwy5", "29TH"<br>"31ST" & "Dwy6" Profile |
| 6                         | Alignment                                      |
| 6A                        | General Construction                           |
| 6A-2                      | Notes  |
| 6B                        | Drainage & Utilities                           |
| 6B-2                      | Drainage Notes                                 |
| 6C                        | Diversion Plan                                 |
| 6D                        | Alignment                                      |
| 6E                        | General Construction                           |
| 6F                        | Drainage & Utilities                           |
| 6G, 6H, 6J,<br>6K & 6L    | "L", "32ND", "32e", "P" & "35TH" Profile       |

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| SHEET NO.                  | DESCRIPTION                               |
| <b>TYLIN INTERNATIONAL</b> |   |
| RL                         | Waterline Details                         |
| RL-2 Thru<br>RL-4 Incl.    | Waterline Relocation Plan                 |
| RL-5                       | Waterline Relocation Notes                |
| RL-6                       | 24" Waterline Relocation Profile          |
| RL-7                       | 12" Waterline Relocation Profile          |
| RL-8                       | Waterline Relocation Plan                 |
| RL-9                       | Waterline Relocation Notes                |
| RL-10                      | 12" Waterline Relocation Profile          |
| RL-11                      | 32nd St. Waterline Relocation Profile     |
| RL-12 Thru<br>RL-14 Incl.  | Sanitary Sewer Relocation Plan            |
| RL-15                      | Sanitary Sewer Relocation Notes           |
| RL-16                      | Sanitary Sewer Relocation Profile         |
| RL-17                      | Sanitary Sewer Relocation Plan            |
| RL-18                      | Sanitary Sewer Relocation Notes           |
| RL-19                      | Sanitary Sewer Relocation Profile         |
| RL-20                      | Sanitary Sewer Relocation Plan            |
| RL-21                      | Sanitary Sewer Relocation Profile         |
| RL-22                      | Pipe Data Sheet Sanitary Sewer Relocation |
| <b>GEO/HYDRO</b>           |   |
| GA                         | Erosion And Sediment Control Details      |
| GA-2 Thru<br>GA-10 Incl.   | Erosion And Sediment Control Plans        |
| GB Thru<br>GB-8 Incl.      | Geotechnical Data                         |
| GC                         | Retaining Wall Index                      |
| GC-2                       | Retaining Wall MSE Wall Details           |
| GC-3                       | Retaining Wall MSE Wall Sections          |
| GC-4                       | Retaining Wall "B" Plan And Elevation     |
| GC-5                       | Retaining Wall "B" Details                |
| GC-6                       | Retaining Wall Soldier Pile Details       |
| GC-7                       | Retaining Wall "E" Plan And Elevation     |
| GC-8                       | Retaining Wall "F" Plan And Elevation     |
| GC-9                       | Retaining Wall "F" Details                |
| GC-10                      | Retaining Wall "G" Plan And Elevation     |
| GC-11                      | Retaining Wall "H" Plan And Elevation     |
| GC-12                      | Retaining Wall "J" Plan And Elevation     |
| GC-13                      | Retaining Wall "K" Plan And Elevation     |
| GC-14                      | Retaining Wall "L" Plan And Elevation     |
| GC-15                      | Retaining Wall "L" Details                |
| GC-16                      | Miscellaneous Details                     |
| GC-17                      | Retaining Wall "M" Plan And Elevation     |

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|--------------------------|----------------------------------|
| SHEET NO.                | DESCRIPTION                      |
| GE & GE-2                | Culvert Plan And Profile         |
| GE-3                     | Culvert Details                  |
| GE-4                     | Culvert Plan And Section         |
| GG & GG-2                | Temporary Water Management Plans |
| GJ                       | Stormwater Plan                  |
| GJA                      | Stormwater Notes                 |
| GJ-2                     | Stormwater Plan                  |
| GJ-3 Thru<br>GJ-7 Incl.  | Stormwater Details               |
| <b>WHPacific</b>         |                                  |
| GN                       | Planting Notes                   |
| GN-2                     | Planting Details                 |
| GN-3                     | Planting Material Schedule       |
| GN-4                     | Planting Plan                    |
| GN-4A                    | Planting Notes                   |
| GN-5                     | Planting Plan                    |
| GN-5A                    | Planting Notes                   |
| GN-6                     | Planting Plan                    |
| GN-6A                    | Planting Notes                   |
| GN-7                     | Planting Plan                    |
| GN-7A                    | Planting Notes                   |
| GN-8                     | Planting Plan                    |
| GN-8A                    | Planting Notes                   |
| GN-8B & GN-8C            | Planting Details                 |
| GN-9                     | Planting Plan                    |
| GN-9A                    | Planting Notes                   |
| GN-10                    | Planting Plan                    |
| GN-10A                   | Planting Notes                   |
| GN-10B                   | Planting Details                 |
| GN-11                    | Planting Plan                    |
| GN-11A                   | Planting Notes                   |
| GN-12                    | Planting Plan                    |
| GN-12A                   | Planting Notes                   |

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| <b>PERMANENT PAVEMENT MARKINGS</b> |                         |
| ST Thru<br>ST-5 Incl.              | Striping Plans          |
| <b>PERMANENT SIGNING</b>           |                         |
| S-14358 Thru<br>S-14363 Incl.      | Sign Plans              |
| S-14364 &<br>S-14365               | Sign Details            |
| S-14366 Thru<br>S-14368 Incl.      | Sign & Post Data Table  |
| <b>SIGNAL PLANS</b>                |                         |
| 17524                              | Legend                  |
| 17525                              | Signal Plan             |
| 17526                              | Detection Plan          |
| 17527                              | Signal Plan Details     |
| 17528                              | Existing Utilities      |
| 17529 & 17530                      | Signal Plan Details     |
| 17531                              | Flashing Beacon Plan    |
| 17532                              | Flashing Beacon Details |

REVISED AS CONSTRUCTED  
STEVEN SCHULTZ, PE

DATE 6/21/16

| No. | DATE     | REVISIONS   | BY     |
|-----|----------|-------------|--------|
| 4   | 02-18-14 | Added sheet | T.L.M. |
|     |          |             |        |
|     |          |             |        |

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|                                   |                |              |
|-----------------------------------|----------------|--------------|
| FEDERAL HIGHWAY<br>ADMINISTRATION | PROJECT NUMBER | SHEET<br>NO. |
| OREGON<br>DIVISION                |                | 1A           |

Standard Drawings located on the web at:  
[http://www.oregon.gov/ODOT/HWY/ENGSERVICES/standard\\_drawings\\_home.shtml](http://www.oregon.gov/ODOT/HWY/ENGSERVICES/standard_drawings_home.shtml)

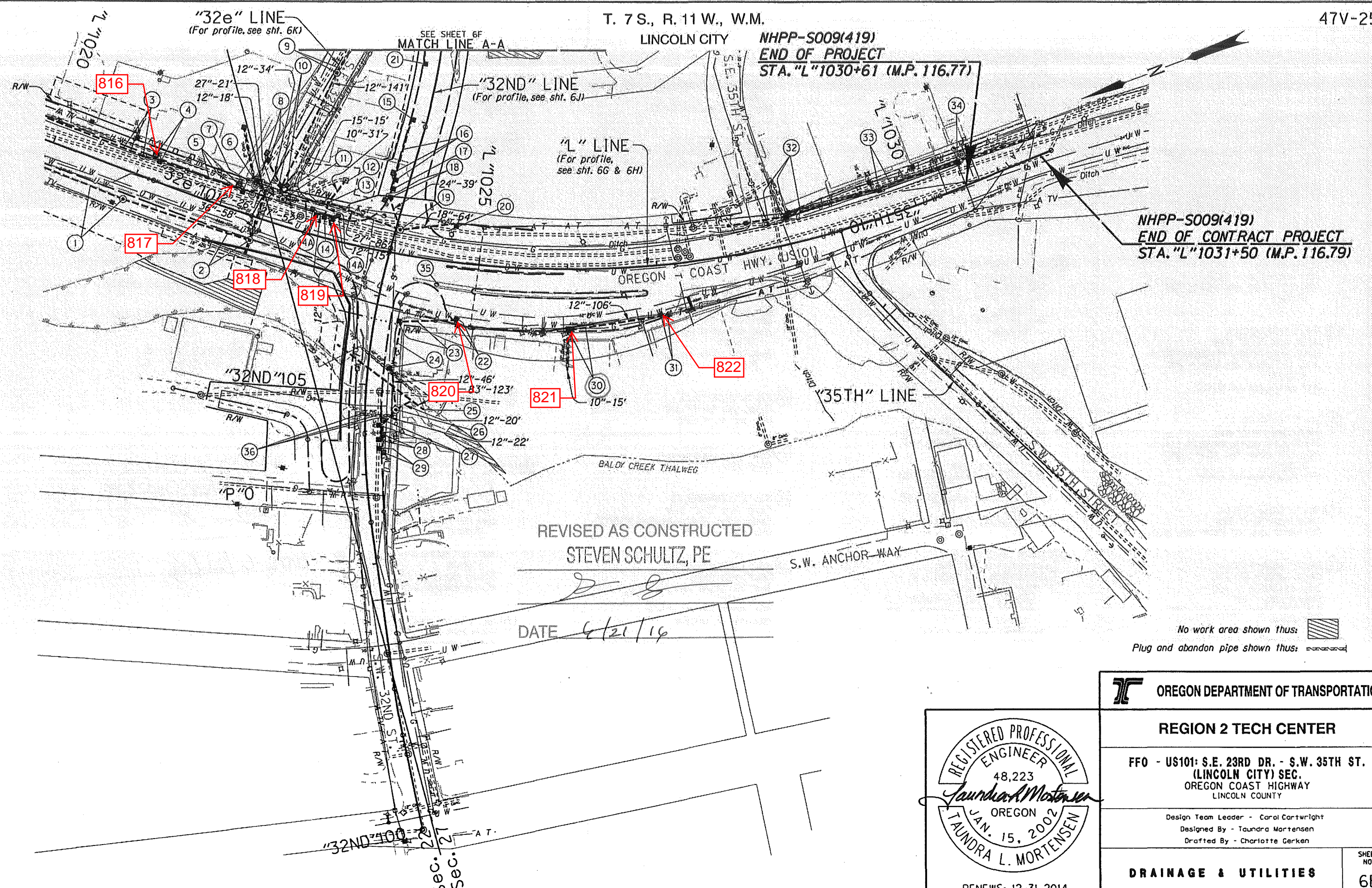


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LINCOLN CITY



NHPP-S009(419)  
END OF PROJECT  
STA. "L" 1030+61 (M.P. 116.77)

NHPP-S009(419)  
END OF CONTRACT PROJECT  
STA. "L" 1031+50 (M.P. 116.79)



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STEVEN SCHULTZ, PE

DATE 6/21/16

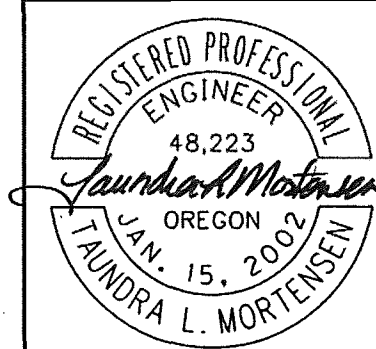
No work area shown thus:   
Plug and abandon pipe shown thus: 

 OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

FFO - US101: S.E. 23RD DR. - S.W. 35TH ST.  
(LINCOLN CITY) SEC.  
OREGON COAST HIGHWAY  
LINCOLN COUNTY

Design Team Leader - Carol Cartwright  
Designed By - Tandra Mortensen  
Drafted By - Charlotte Gerken



RENEWS: 12-31-2014

**DRAINAGE & UTILITIES** SHEET NO. 6B



- ① Sta. "L"1020+95.5, Rt.  
Const. large manhole  
Inst. 95" x 67" arch pipe - 150'  
(For details, see sht. GJ-2)
- ② Sta. "L"1022+44.3, Rt.  
Const. diversion manhole  
Remove pipe - 63'  
Inst. 95" x 67" arch pipe - 150'  
Inst. 36" storm sew. pipe - 58'  
10' depth  
Const. paved end slope, Rt.  
Trench resurf. - 49 sq.yd.  
(For details, see sht. GJ-2)  
(See drg. no. RD320)
- ③ Sta. "L"1021+00, Lt.  
Const. manhole  
Step orientation - 270°  
Inst. 12" storm sew. pipe - 124'  
5' depth
- ④ Sta. "L"1021+20, Lt.  
Const. type "G-2" inlet  
Const. water quality structure #0816  
Inst. 12" storm sew. pipe - 20'  
5' depth  
(For details, see sht. GJ-5)
- ⑤ Sta. "L"1022+20 Lt.  
Const. type "G-2" inlet  
Const. water quality structure #0817  
Inst. 12" storm sew. pipe - 99'  
5' depth  
(For details, see sht. GJ-5)
- ⑥ Sta. "L"1022+27.9, Lt.  
Const. type "G-1" inlet  
Connect to extg. 8" storm sew. pipe
- ⑦ Sta. "L"1022+44.8, Lt.  
Const. manhole 84" dia.  
Step orientation - 180°  
Remove pipe - 18'  
Inst. 12" storm sew. pipe - 44'  
5' depth  
Inst. 27" storm sew. pipe - 21'  
10' depth
- ⑧ Sta. "32e"10+36.1, Lt.  
Const. type G-1" inlet  
Const. water quality structure  
(For details, see sht. GJ-5)
- ⑨ Sta. "32e"11+86, Rt.  
Const. manhole  
Remove pipe - 117'  
Inst. 12" storm sew. pipe - 117'  
20' depth  
Trench resurf. - 39 sq.yd.
- ⑩ Sta. "32e"10+45.3, Rt.  
Const. type "G-1" inlet  
Const. water quality structure  
Inst. 12" storm sew. pipe - 34'  
5' depth  
Inst. 12" storm sew. pipe - 141'  
10' depth  
Trench resurf. - 58.3 sq.yd.  
(For details, see sht. GJ-5)
- ⑪ Sta. "L"1022+66.3, Lt.  
Const. manhole 84" dia.  
Step orientation - 205°  
Inst. 15" storm sew. pipe - 15'  
5' depth  
Inst. 27" storm sew. pipe - 52'  
10' depth
- ⑫ Sta. "L"1023+31.5, Lt.  
Adjust inlet
- ⑬ Sta. "L"1023+18.3, Lt.  
Const. manhole 72" dia.  
Step orientation - 75°  
Inst. 10" storm sew. pipe - 31'  
5' depth  
Connect to extg. inlet  
Inst. 12" storm sew. pipe - 15'  
5' depth  
Inst. 27" storm sew. pipe - 86'  
10' depth  
Trench resurf. - 10 sq.yd.
- ⑭ Sta. "L"1023+18, Lt.  
Const. type "CG-2" inlet
- ⑭A Const. type "G-2" inlet - 2  
Const. water quality structure #0818 & #0819 - 2  
Inst. 12" storm sew. pipe - 20'  
5' depth  
(For details, see sht. GJ-5)
- ⑮ Sta. "32ND"108+00, Lt.  
Const. type "CG-1" inlet
- ⑯ Sta. "L"1024+06.2, Lt.  
Const. manhole 84" dia.  
Step orientation - 245°  
Inst. 18" storm sew. pipe - 64'  
10' depth  
Inst. 24" storm sew. pipe - 39'  
5' depth
- ⑰ Sta. "32ND"107+19.7, Lt.  
Const. type "CG-1" inlet  
Inst. 18" storm sew. pipe - 10'  
5' depth  
(For details, see sht. GJ-5)
- ⑱ Sta. "L"1024+70, Lt.  
Const. type "M-E" inlet  
(See drg. no. RD368)
- ⑲ Sta. "32ND"107+09.7, Lt.  
Const. type "CG-1" inlet  
Const. water quality structure  
Inst. 18" storm sew. pipe - 10'  
5' depth  
(For details, see sht. GJ-5)
- ⑳ Sta. "L"1024+70, Lt.  
Const. type "M-E" inlet  
(See drg. no. RD368)
- ㉑ Sta. "32ND"108+65.5, Lt.  
Const. type "CG-1" inlet
- ㉒ Sta. "L"1024+80.8, Rt.  
Const. type "G-2" inlet  
Const. water quality structure #0820  
(For details, see sht. GJ-5)
- ㉓ Sta. "32ND"105+76, Rt.  
Const. area drain  
Inst. 12" storm sew. pipe - 61'  
5' depth  
(For details, see sht. 2B-3)  
(See drg. no. RD374)
- ㉔ Sta. "32ND"105+20.3, Rt.  
Const. area drain  
Inst. 12" storm sew. pipe - 54'  
5' depth  
(For details, see sht. 2B-3)
- ㉕ Sta. "32ND"105+19, Rt.  
Const. 128" x 83" arch pipe - 123'  
Inst. 12" storm sew. pipe - 20'  
5' depth  
Connect to arch pipe with saddle  
(For details, see shts. GE-2 & GE-3)
- ㉖ Sta. "32ND"104+72.6, Rt.  
Const. manhole 60" dia.  
Inst. 12" storm sew. pipe - 68'  
5' depth  
(For details, see sht. GE-3)
- ㉗ Sta. "32ND"104+55, Rt.  
Const. type "CG-3" inlet  
Const. water quality structure  
Inst. 12" storm sew. pipe - 16'  
5' depth  
(For details, see sht. GJ-5)
- ㉘ Sta. "32ND"104+38.5, Rt.  
Const. type "CG-3" inlet  
Const. water quality structure  
Inst. 12" storm sew. pipe - 10'  
5' depth  
(For details, see sht. GJ-5)
- ㉙ Sta. "32ND"104+28.5, Rt.  
Const. type "CG-3" inlet  
Const. water quality structure  
(For details, see sht. GJ-5)
- ㉚ Sta. "L"1026+01, Rt.  
Const. type "G-2" inlet  
Const. water quality structure #0821  
10" storm sew. (In pl.)  
Remove pipe - 15'  
Inst. 10" storm sew. pipe - 15'  
5' depth  
Connect to extg. storm sew.  
Inst. 12" ductile iron pipe - 106'  
5' depth  
Trench resurf. - 35.3 sq.yd.  
(For details, see sht. GJ-5)
- ㉛ Sta. "L"1027+00.7, Rt.  
Const. type "G-2" inlet  
Const. water quality structure #0822  
(For details, see sht. GJ-5)
- ㉜ Sta. "L"1028+54.6, Lt.  
Const. type "G-1" inlet  
Inst. 12" ductile iron pipe - 67'  
5' depth  
Inst. 15" storm sew. pipe - 109'  
5' depth  
Connect extg. 12" storm  
Inst. flow splitter  
(For details, see sht. GE-4)
- ㉝ Sta. "L"1029+66.6, Lt.  
Const. type "G-1" inlet  
Inst. 15" storm sew. pipe - 93'  
5' depth
- ㉞ Sta. "L"1030+61.5, Lt.  
Const. type "G-1" inlet  
Inst. 15" storm sew. pipe - 97'  
5' depth  
Const. paved end slope, Lt.
- ㉟ Remove extg. illumination
- ㊱ Remove inlet - 2  
Remove pipe - 42'

REVISED AS CONSTRUCTED  
STEVEN SCHULTZ, PE

DATE 6/21/14

**OREGON DEPARTMENT OF TRANSPORTATION**

**REGION 2 TECH CENTER**

FFO - US101: S.E. 23RD DR. - S.W. 35TH ST.  
(LINCOLN CITY) SEC.  
OREGON COAST HIGHWAY  
LINCOLN COUNTY

Design Team Leader - Carol Cartwright  
Designed By - Tandra Mortensen  
Drafted By - Charlotte Gerken

**DRAINAGE NOTES**

SHEET NO. 6B-2

REGISTERED PROFESSIONAL ENGINEER  
48,223  
JAN. 15, 2002  
TAUNDR L. MORTENSEN  
RENEW: 12-31-2014

| No. | DATE     | REVISIONS      | BY     |
|-----|----------|----------------|--------|
| 1   | 01-27-14 | Added 5' depth | T.L.M. |
|     |          |                |        |
|     |          |                |        |
|     |          |                |        |



**WATER QUALITY STRUCTURE LOCATION TABLE**

| DRAINAGE FACILITY I.D. MARKER | STATION        | LT./RT. | W x L (ft.) |
|-------------------------------|----------------|---------|-------------|
| D 00789                       | "L"989+75.0    | Rt.     | 4 x 4       |
| D 00790                       | "L"991+30.0    | Rt.     | 8 x 4       |
| D 00791                       | "L"992+40.0    | Rt.     | 6 x 4       |
| D 00792                       | "L"993+20.0    | Rt.     | 4 x 4       |
| D 00793                       | "L"994+70.0    | Rt.     | 6 x 6       |
| D 00794                       | "L"996+05.0    | Rt.     | 6 x 6       |
| D 00795                       | "L"997+70.0    | Rt.     | 6 x 6       |
| D 00796                       | "L"999+20.0    | Rt.     | 6 x 6       |
| D 00797                       | "L"1000+70.0   | Rt.     | 8 x 4       |
| D 00798                       | "L"1002+20.0   | Rt.     | 8 x 4       |
| D 00799                       | "L"1003+70.0   | Rt.     | 8 x 4       |
| D 00800                       | "L"1004+30.0   | Rt.     | 4 x 4       |
| D 00801                       | "L"1004+30.0   | Rt.     | 6 x 4       |
| D 00802                       | "L"1006+70.0   | Rt.     | 8 x 4       |
| D 00803                       | "L"1007+76.5   | Rt.     | 6 x 4       |
| D 00804                       | "L"1007+76.5   | Rt.     | 6 x 4       |
| D 00805                       | "L"1008+71.7   | Rt.     | 8 x 4       |
| D 00806                       | "L"1009+70.0   | Rt.     | 6 x 4       |
| D 00807                       | "L"1011+89.0   | Rt.     | 4 x 4       |
| D 00808                       | "L"1012+18.0   | Rt.     | 8 x 4       |
| D 00809                       | "L"1012+70.0   | Rt.     | 8 x 4       |
| D 00810                       | "L"1013+80.0   | Rt.     | 4 x 4       |
| D 00811                       | "L"1016+00.0   | Rt.     | 4 x 4       |
| D 00812                       | "L"1017+50.0   | Rt.     | 6 x 4       |
| D 00813                       | "L"1018+65.0   | Rt.     | 4 x 4       |
| D 00814                       | "L"1018+80.0   | Rt.     | 4 x 4       |
| D 00815                       | "L"1019+75.7   | Lt.     | 4 x 4       |
| D 00816                       | "L"1021+20.0   | Lt.     | 8 x 4       |
| D 00817                       | "L"1022+20.0   | Lt.     | 6 x 6       |
| D 00818                       | "L"1023+18.0   | Lt.     | 6 x 4       |
| D 00819                       | "L"1023+18.0   | Lt.     | 4 x 4       |
| D 00820                       | "L"1024+80.0   | Rt.     | 4 x 4       |
| D 00821                       | "L"1026+01.0   | Rt.     | 4 x 4       |
| D 00822                       | "L"1027+16.5   | Rt.     | 4 x 4       |
| A                             | "32e"10+45.0   | Rt.     | 4 x 4       |
| B                             | "32e"10+63.0   | Lt.     | 4 x 4       |
| C                             | "32nd"104+28.5 | Rt.     | 8 x 4       |
| D                             | "32nd"104+55.0 | Rt.     | 4 x 4       |
| E                             | "32nd"107+09.0 | Lt.     | 8 x 4       |
| F                             | "32nd"107+30.0 | Lt.     | 6 x 4       |
| G                             | "32nd"109+35.0 | Lt.     | 12 x 6      |

| No. | DATE     | REVISIONS               | BY   |
|-----|----------|-------------------------|------|
| 1   | 01-21-14 | Added and modified note | C.C. |

**OREGON DEPARTMENT OF TRANSPORTATION**

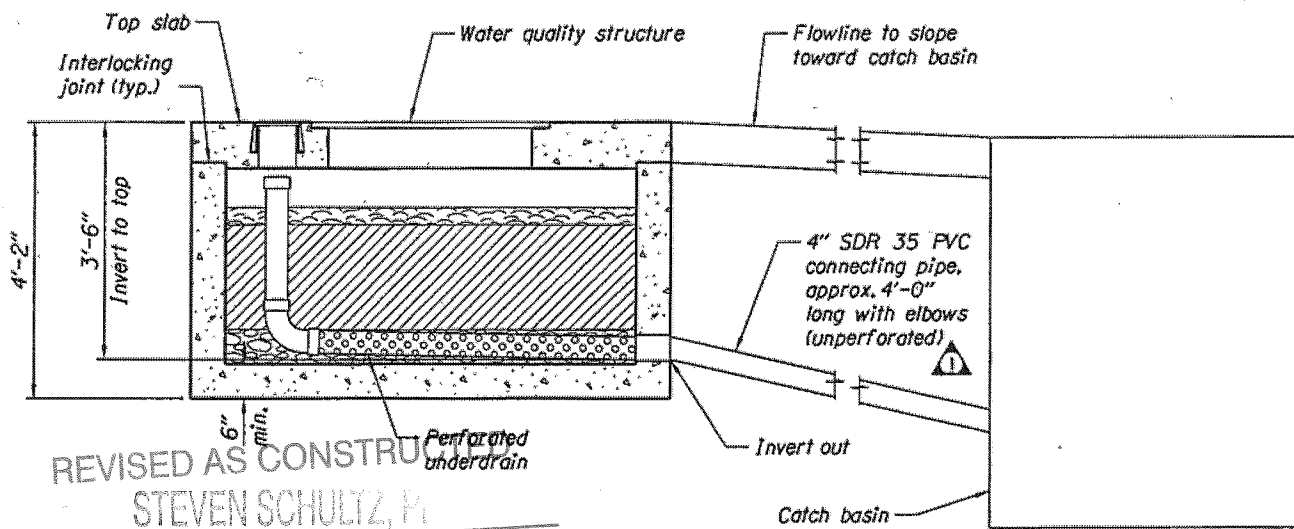
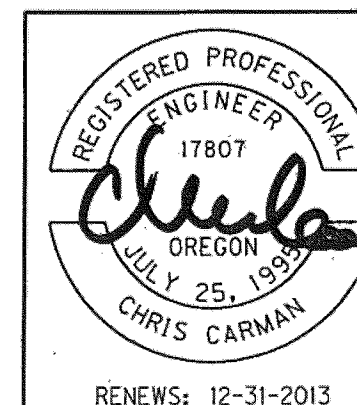
**REGION 2 TECH CENTER**

FFO - US101: S.E. 23RD DR. - S.W. 35TH ST.  
(LINCOLN CITY) SEC.  
OREGON COAST HIGHWAY  
LINCOLN COUNTY

Reviewed By - Bruce Carmichael  
Designed By - Chris Cormon, P.E.  
Drafted By - Michael Skelton

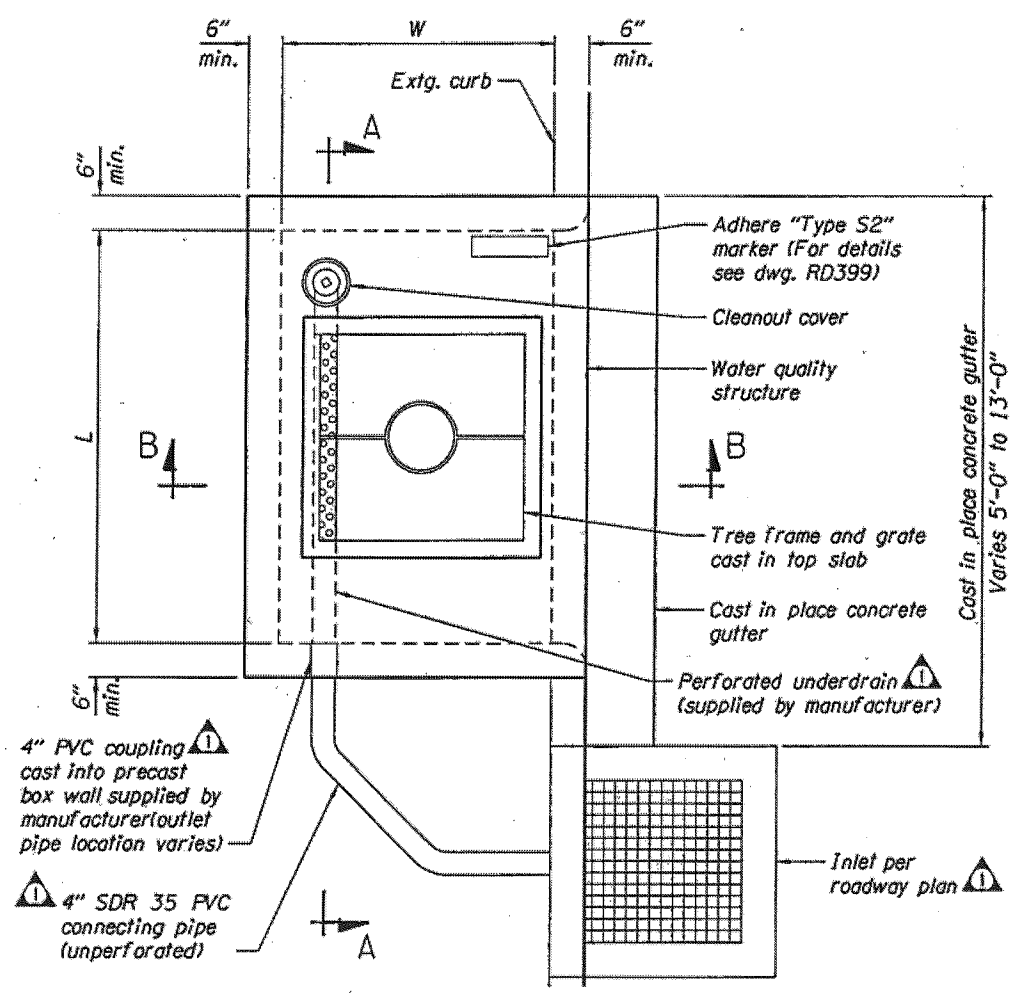
**STORMWATER DETAILS**

SHEET NO.  
GJ-5

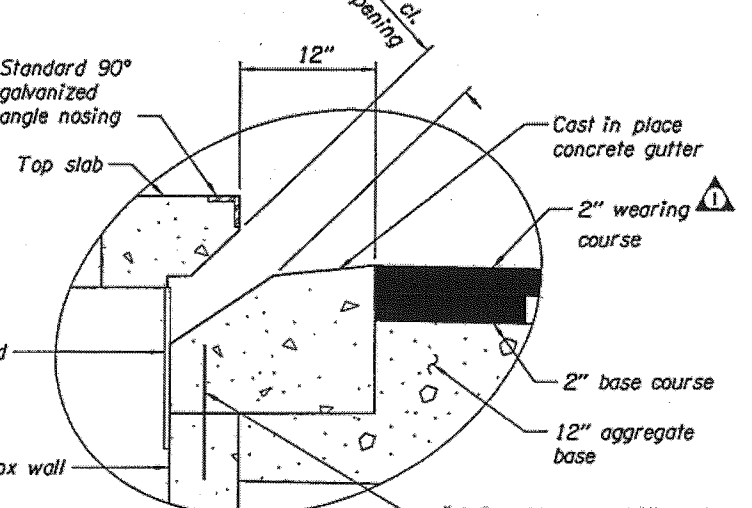


REVISED AS CONSTRUCTED  
STEVEN SCHULTZ, P.E.

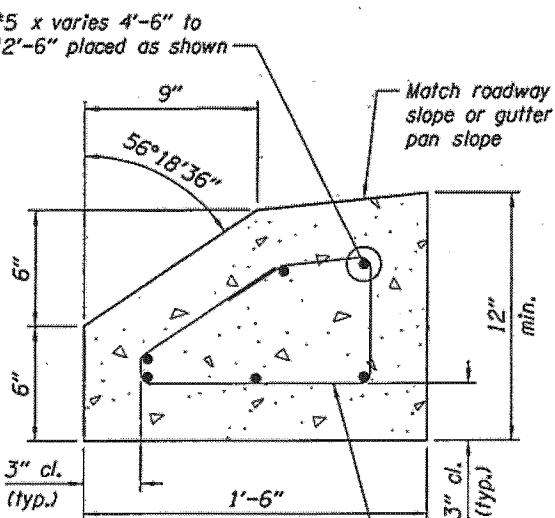
DATE 6/21/14



**WATER QUALITY STRUCTURE PLAN**

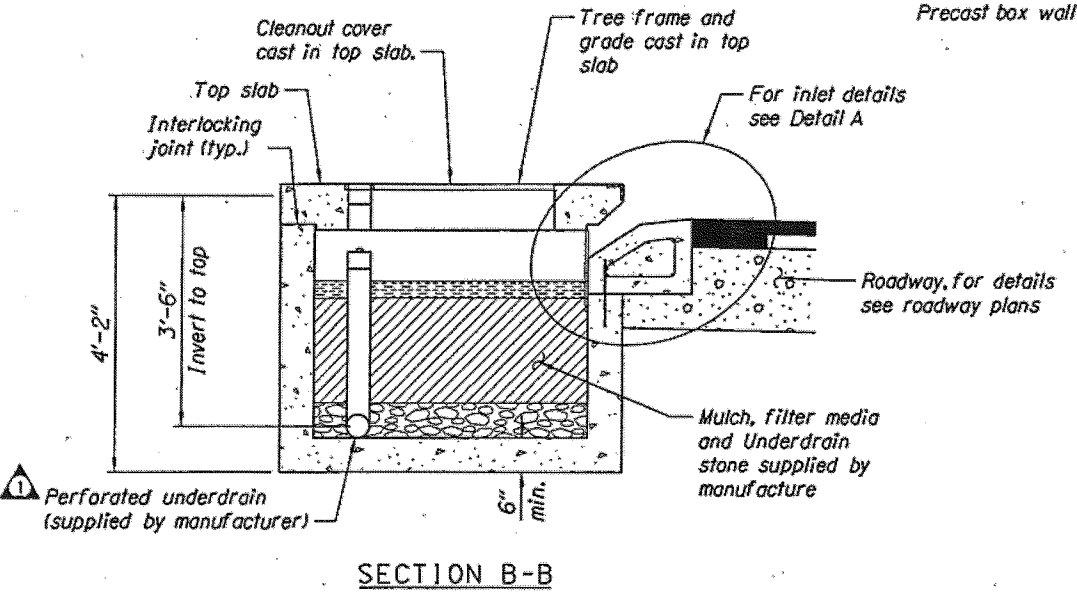


**DETAIL A**



**CAST IN PLACE CONCRETE GUTTER**

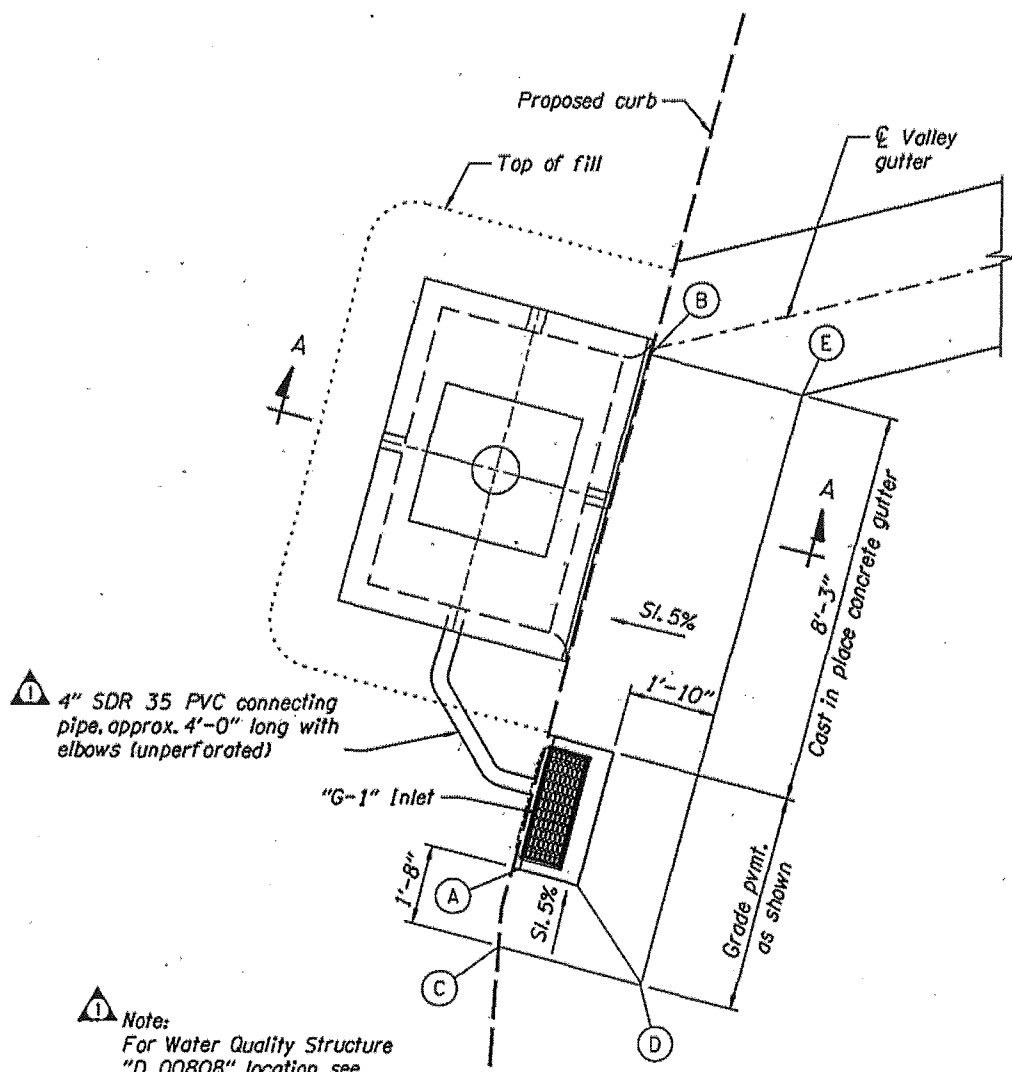
**Notes:**  
Tree not shown for clarity.  
Water quality structure shall be activated by manufacturer after project site is fully stabilized and cleaned. Activation includes installation of trees and mulch layers as necessary.  
Box and top must be lifted separately.



**SECTION B-B**

REVISED AS CONSTRUCTED  
STEVEN SCHULTZ, PE

DATE 6/21/14

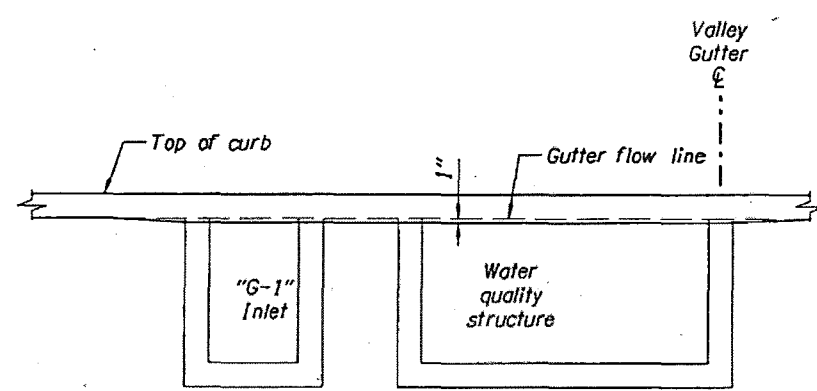


4" SDR 35 PVC connecting pipe, approx. 4'-0" long with elbows (unperforated)

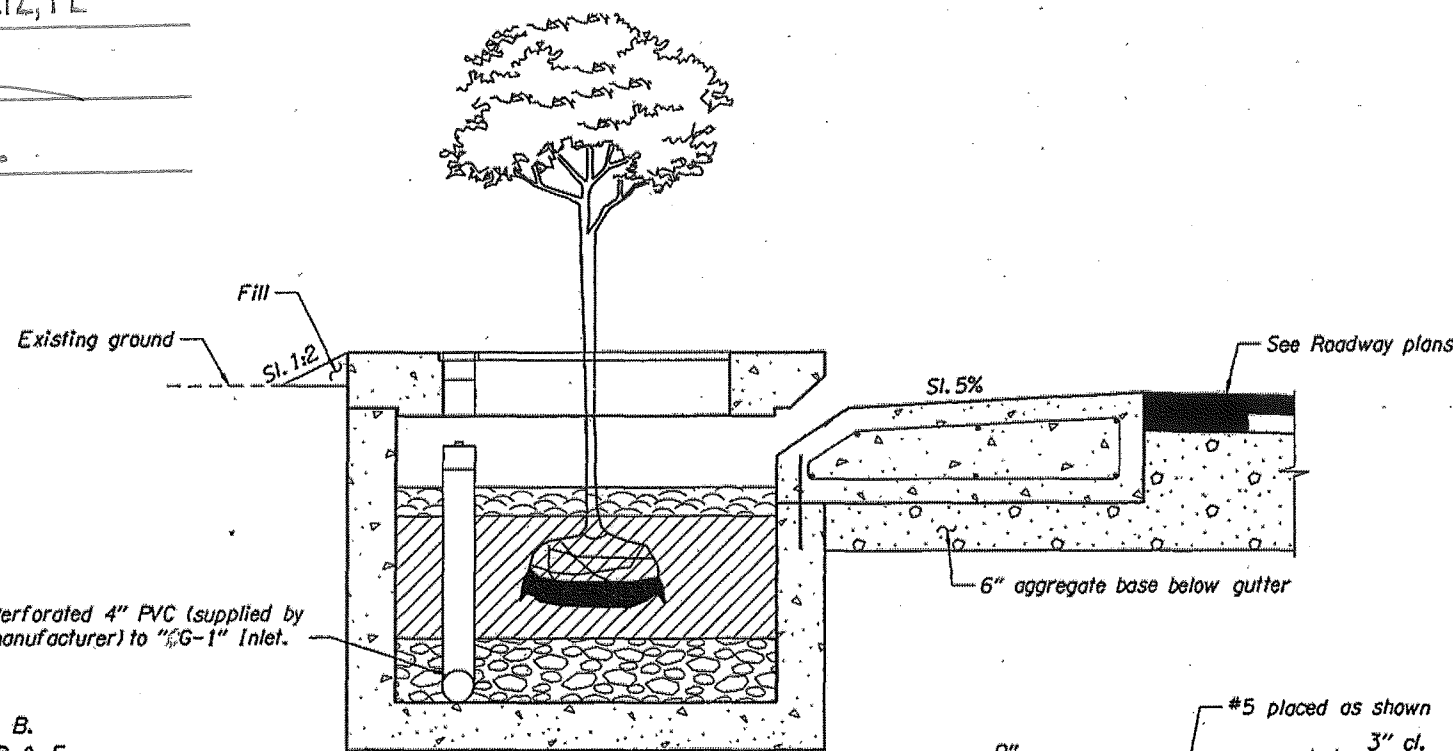
Note:  
For Water Quality Structure "D 00808" location see roadway plans.

- Notes:
1. Provide 1" local depression at points A & B.
  2. Match normal pavement grade at points C, D & E.
  3. Side slopes shown vertical to horizontal.

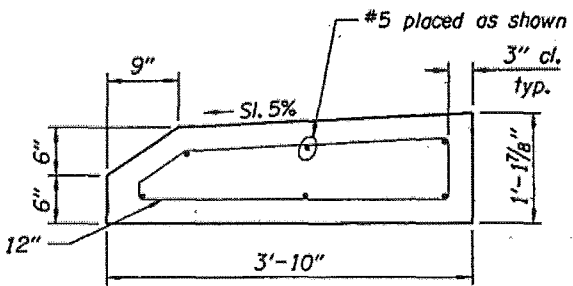
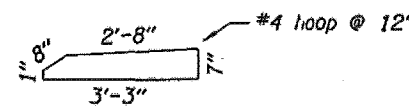
GUTTER DETAIL



ELEVATION



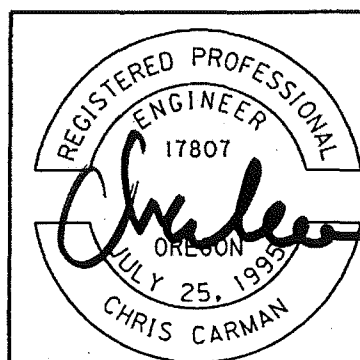
SECTION A-A



CAST IN PLACE CONCRETE GUTTER DETAIL

| No. | DATE     | REVISIONS               | BY   |
|-----|----------|-------------------------|------|
| 1   | 01-21-14 | Added and modified note | C.C. |

NOTE:  
Slopes are shown as vertical to horizontal.



RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

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(LINCOLN CITY) SEC.  
OREGON COAST HIGHWAY  
LINCOLN COUNTY

Reviewed By - Bruce Carlschauer, P.E.  
Designed By - Chris Carman, P.E.  
Drafted By - Julie Rentz

STORMWATER DETAILS

5-6