OPERATION & MAINTENANCE MANUAL

DFI No. : D00776
Facility Type: Water Quality Biofiltration Swale

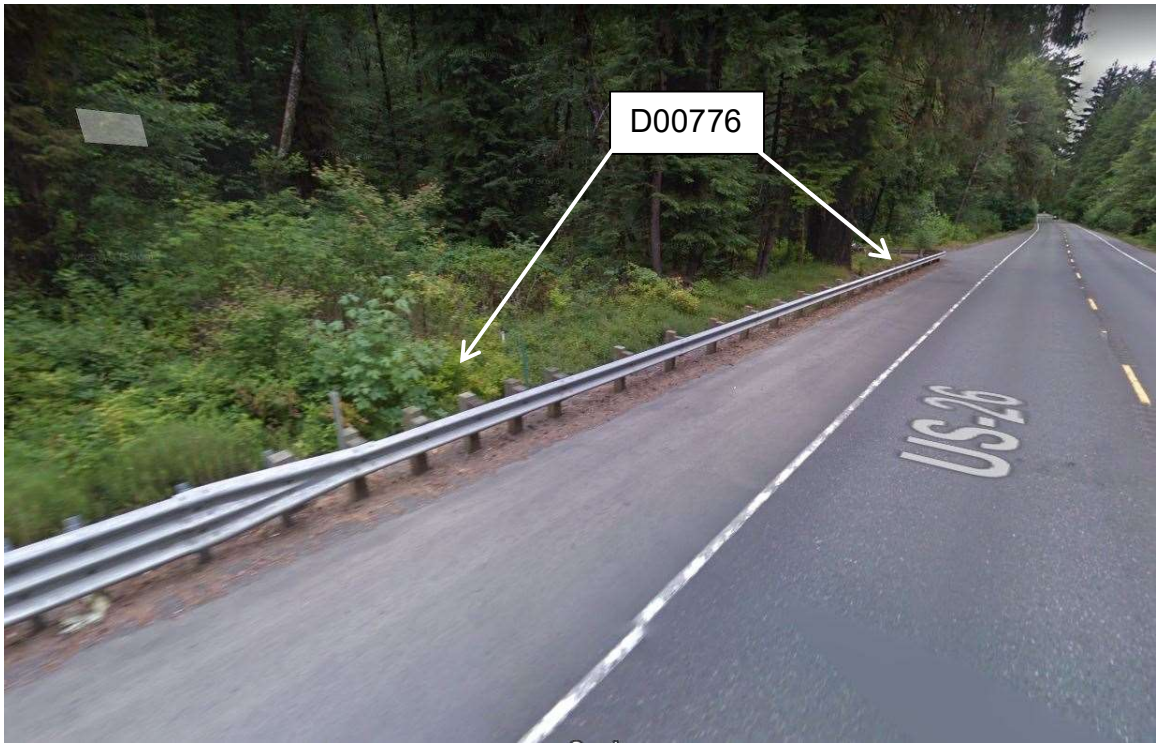

Figure 1: DFI No. D00776, Looking East

[September 2014]

INDEX

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2. FACILITY CONTACT INFORMATION 1
3. CONSTRUCTION 1
4. STORM DRAIN SYSTEM AND FACILITY OVERVIEW 2
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APPENDIX B: ODOT Project Plan Sheets

1. Identification

Drainage Facility ID (DFI):	**D00776**
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	(V-File Number) 46V-125
Location:	District: 1
	Highway No.: 047
	Mile Post: 16.28;16.30 (beg./end), Left
	Description: This facility is located on the north side of Sunset Highway (US26) at the east end of the West Humbug Creek Bridge (No. 22057).

2. Facility Contact Information

Contact the Engineer of Record, Region Technical Center, or Geo-Environmental's Senior Hydraulics Engineer for:

- Operational clarification
- Maintenance clarification
- Repair or restoration assistance

Engineering Contacts:

Region Technical Center Hydro Unit Manager

Or

Geo-Environmental Senior Hydraulics Engineer (503) 986-3365.

3. Construction

Engineer of Record: Consultant Designer – [OBEC Consulting Engineers, Amy Jones, 971-634-2005]

Facility construction: 2014

Contractor: Oregon State Bridge Construction

4. Storm Drain System and Facility Overview

A water quality swale is a flat-bottomed open channel designed to treat stormwater runoff from highway pavement areas. This type of facility is lined with grass. Treatment by trapping sedimentation occurs when stormwater runoff flows through the grass.

This biofiltration swale is designed to treat runoff from the water quality design storm and provide infiltration prior to entering West Humbug Creek. It is located on the south side of Sunset Highway, west of the bridge.

The stormwater runoff sheet flows from paved areas along the north and south sides of Sunset Highway (US 26) Alignment to a drainage curb on both sides of the roadway. Type "G-2" inlets have been constructed to direct the flows from the Highway and into the swale. The location of these are noted on the Operation Plan as points A and B in Appendix A. The inlets outfall to the swale at point C as indicated in Appendix A

Runoff exits the swale through a combination of sheet flow, infiltration, and a 6-inch underdrain pipe. See Figure 2 and Point D on the Operational Plan in Appendix A.

The receiving waterway for the runoff is West Humbug Creek.

A. Maintenance equipment access:
   The swale can be accessed directly from the shoulder of the Sunset Highway westbound lane.

B. Heavy equipment access into facility:

   ☐ Allowed (no limitations)
   ☐ Allowed (with limitations)
   ☒ Not allowed

C. Special Features:

   ☒ Amended Soils
   ☐ Porous Pavers
   ☐ Liners
   ☒ Underdrain system (6” drain, granular drain backfill & drainage geotextile)

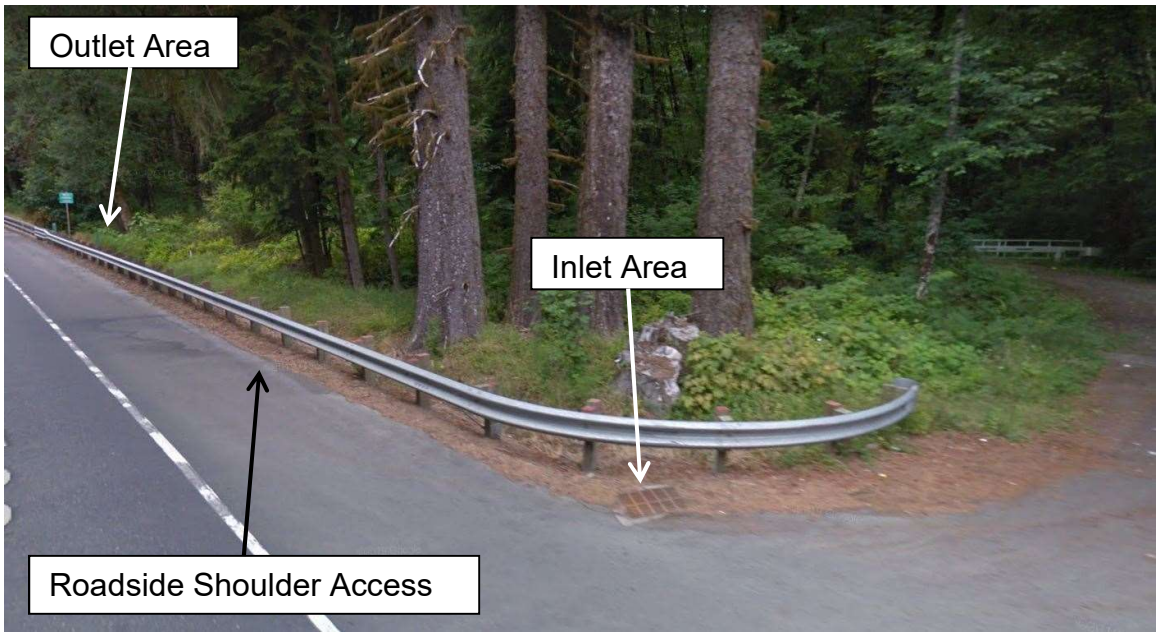


Figure 2: Looking North

5. Facility Haz Mat Spill Feature(s)

Spills along the highway can be blocked by placing a cap at the pipe outlet to the swale the inlets indicated as point C in Appendix A.

6. Auxiliary Outlet (High Flow Bypass)

There is no auxiliary outlet provided for the water quality swale. Storm events larger than the water quality storm will overtop the swale and sheet flow to the creek downstream of the swale.

7. Maintenance Requirements

Routine maintenance table for non-proprietary stormwater treatment and storage/detention facilities have been incorporated into ODOT's Maintenance Guide. These tables summarize the maintenance requirements for ponds, swales, filter strips, bioslopes, and detention tanks and vaults. Special maintenance requirements in addition to the routine requirements are noted below when applicable.

The ODOT Maintenance Guide can be viewed at the following website, under the **Operations and Maintenance Manuals and Maintenance Tables** section:

https://www.oregon.gov/ODOT/GeoEnvironmental/Pages/Stormwater.aspx

The following stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual:

- ☒ Table 1 (general maintenance)
- ☐ Table 2 (stormwater ponds)
- ☒ Table 3 (water quality biofiltration swales)
- ☐ Table 4 (water quality filter strips)
- ☐ Table 5 (water quality bioslopes)
- ☐ Table 6 (detention tank)
- ☐ Table 7 (detention vault)
- ☐ Appendix C (proprietary structure)
- ☐ Special Maintenance requirements:

8. Waste Material Handling

Material removed from the facility is defined as waste by DEQ. Refer to the roadwaste section of the ODOT Maintenance Yard Environmental Management System (EMS) Policy and Procedures Manual for disposal options: http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml

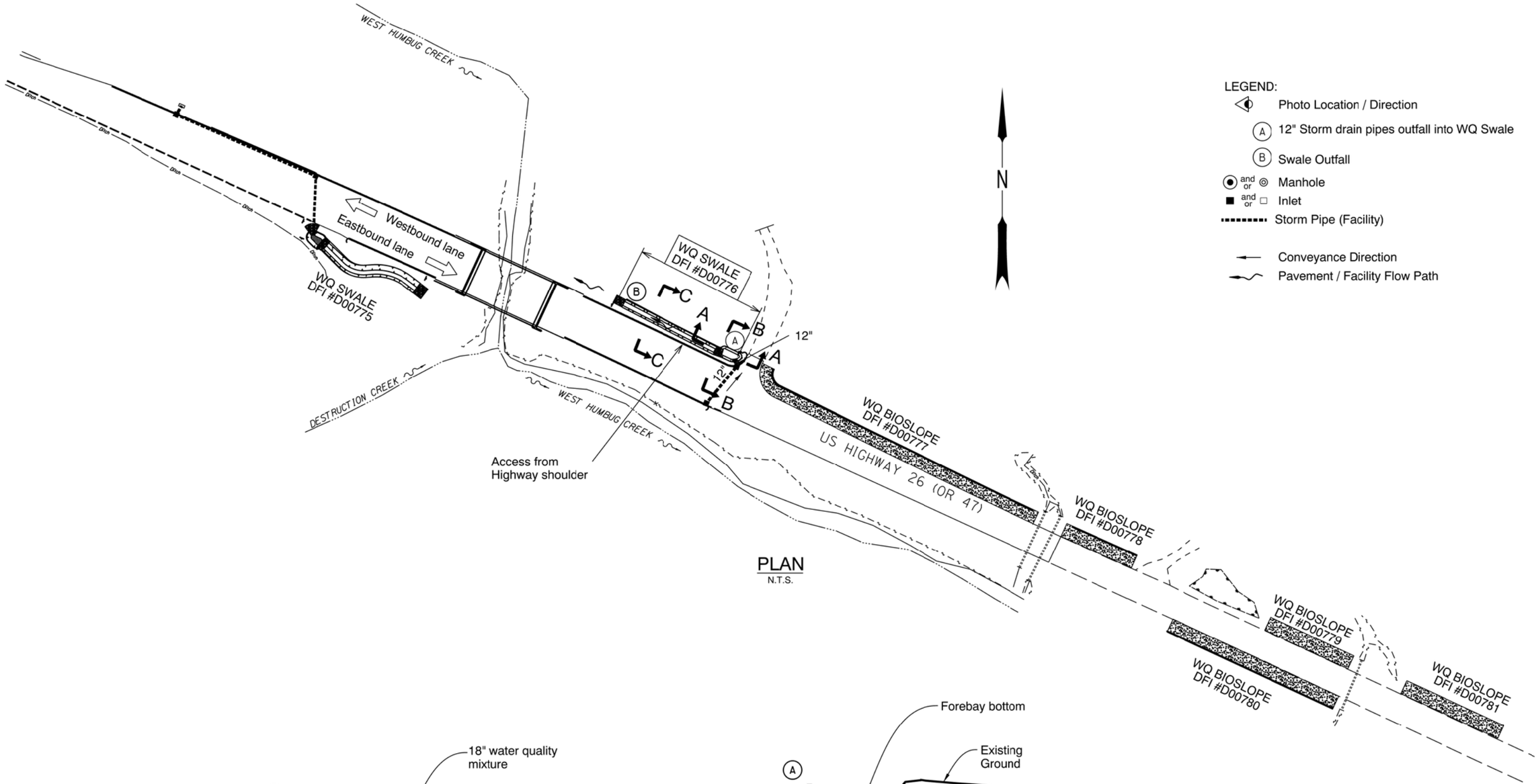
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 986-2647
ODEQ Northwest Region Office	(503) 229-5263

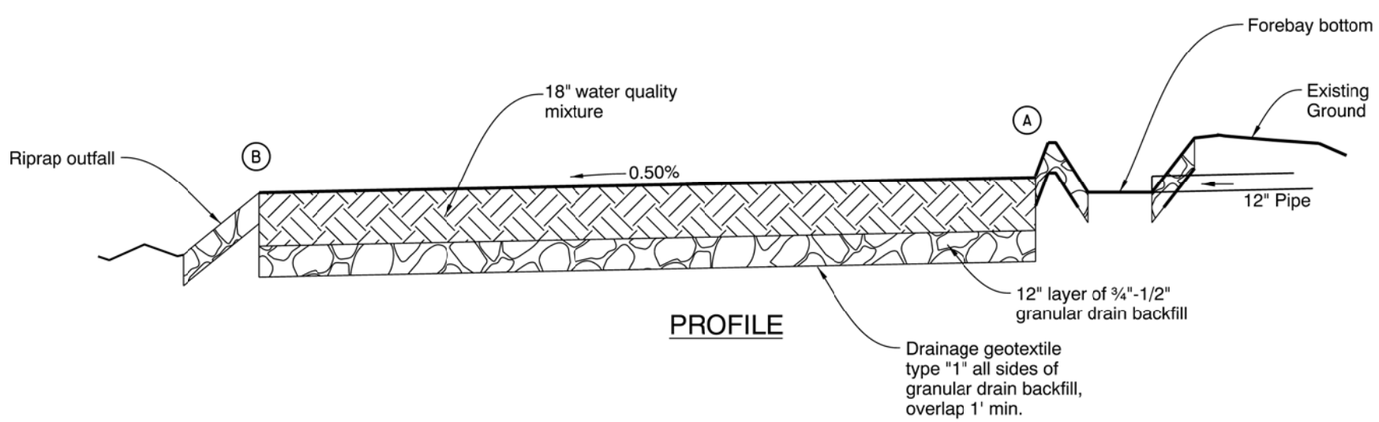
Appendix A

Content:

- **Operational Plan and Profile Drawing**



PLAN
N.T.S.



PROFILE

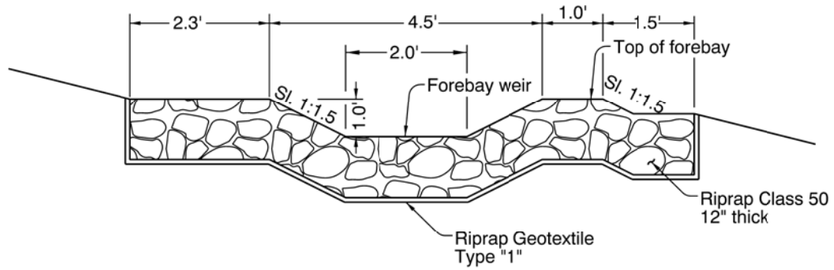
Sheet 1 of 2

OREGON DEPARTMENT OF TRANSPORTATION

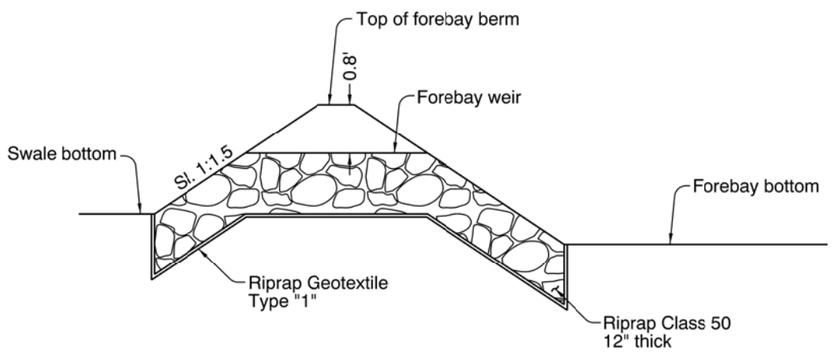
Prepared By: Amy Jones

Drafted By: Amy Jones

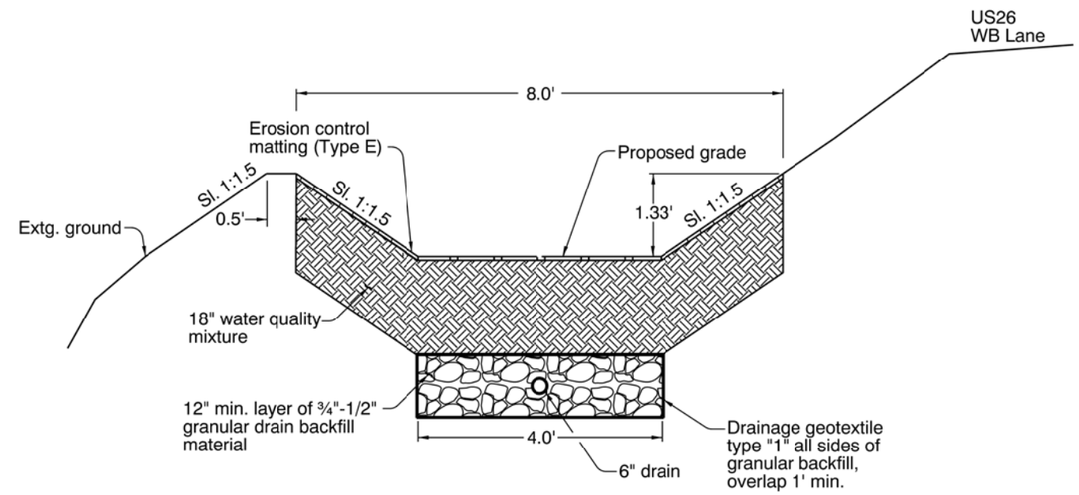
DFI D00776
MAINTENANCE DISTRICT # 1 - HWY # 47
WATER QUALITY BIOFILTRATION SWALE
HIGHWAY MP 16.28 TO MP 16.3
CLATSOP COUNTY



SECTION A-A



SECTION B-B



SECTION B-B

Sheet 2 of 2

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Amy Jones

Drafted By: Amy Jones

DFI D00776
MAINTENANCE DISTRICT # 1 - HWY # 47
WATER QUALITY BIOFILTRATION SWALE
HIGHWAY MP 16.28 TO MP 16.3
CLATSOP COUNTY

Appendix B

Content:

- **ODOT Project Plan Sheets**
  - ***Cover/Title Sheet***
  - ***Water Quality Plan Sheets***
  - ***Other Details***

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

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

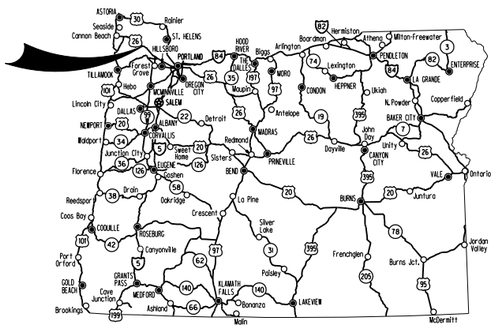
GRADING, DRAINAGE, STRUCTURES & PAVING

US26: WEST HUMBUG CREEK BRIDGE REPLACEMENT

SUNSET HIGHWAY

CLATSOP COUNTY

JANUARY 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.)

SAFETY FIRST

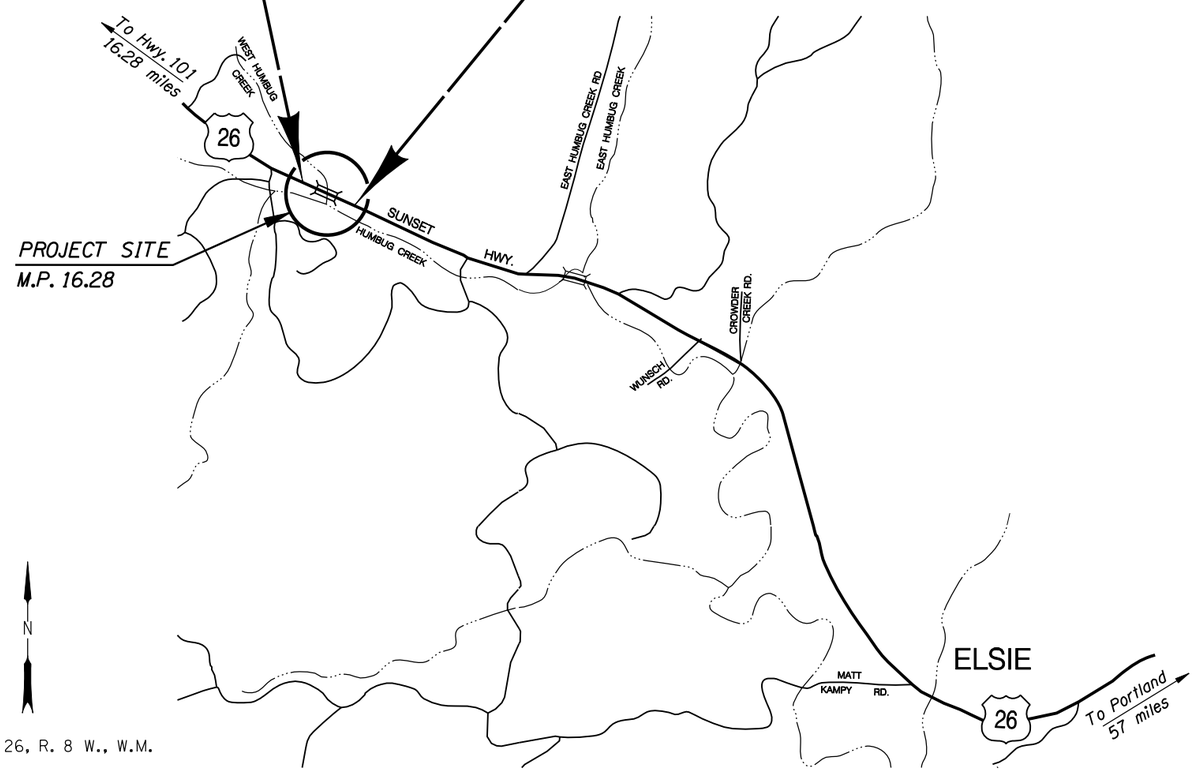
LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

BEGINNING OF PROJECT

STP-S047(108)
STA. "P" 371+00

END OF PROJECT

STP-S047(108)
STA. "P" 387+73



T. 5 N., S. 26, R. 8 W., W.M.

OREGON TRANSPORTATION COMMISSION

Pat Egan	CHAIR
David Lohman	COMMISSIONER
Mary F. Olson	COMMISSIONER
Mark Frohnmayer	COMMISSIONER
Tammy Baney	COMMISSIONER
Matthew L. Garrett	DIRECTOR OF TRANSPORTATION

PLANS PREPAIRED FOR
OREGON DEPARTMENT OF TRANSPORTATION

OBEC CONSULTING ENGINEERS
www.obec.com
CORPORATE OFFICE:
920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-8089
REGIONAL OFFICES:
LAKE OSWEGO; SALEM; MEDFORD, OREGON; VANCOUVER, WASHINGTON

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.

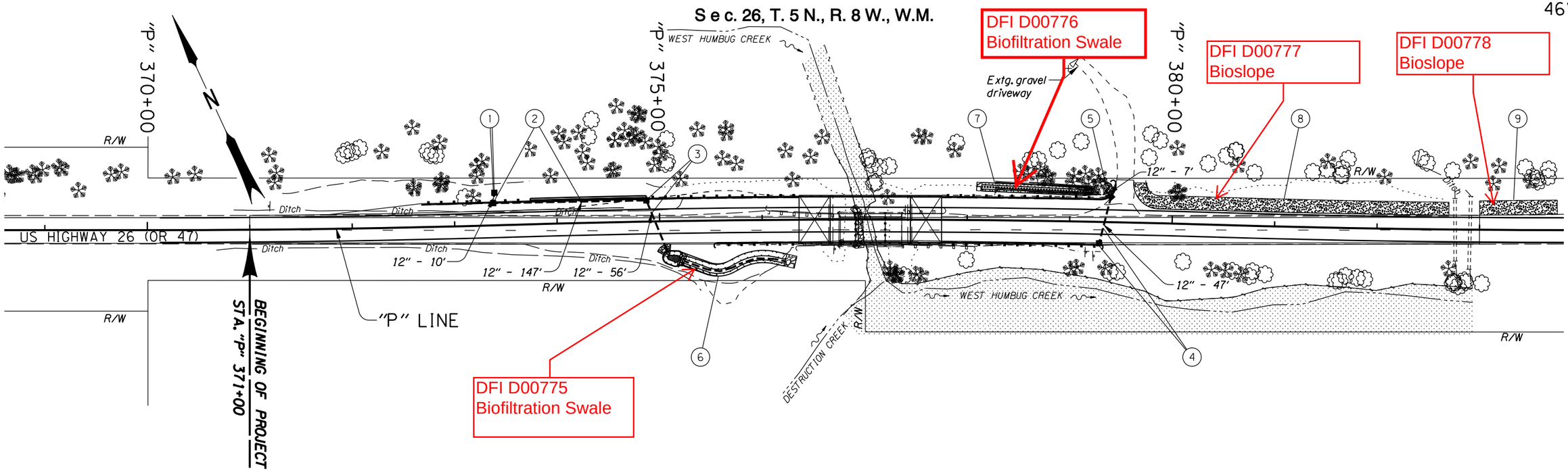
Approving Authority: _____
Signature & date

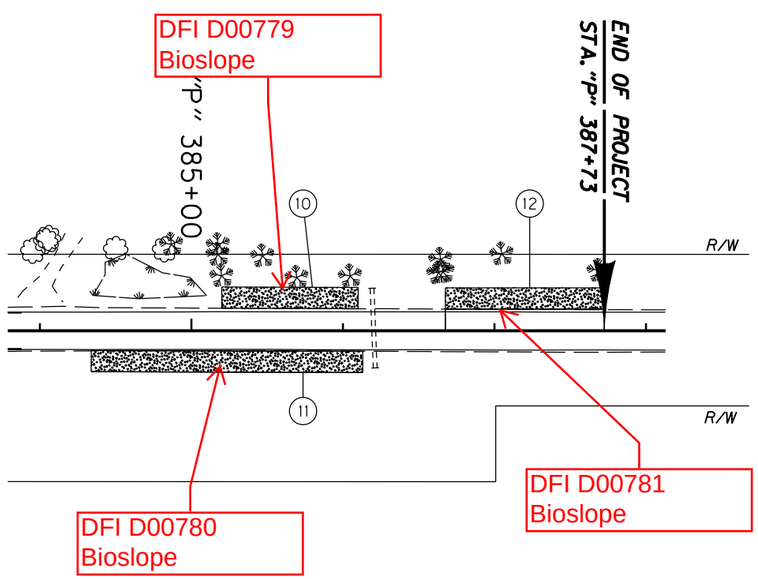
BOB GOODRICH - PROJECT MANAGER
Print name and title

_____
Concurrence by ODOT Chief Engineer

US26: WEST HUMBUG CREEK BRIDGE REPLACEMENT
SUNSET HIGHWAY
CLATSOP COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	STP-S047(108)	1





1. Sta. "P" 373+39.53, 31.9' Lt.
   Const. type "M-E" inlet
   Inst. 12" storm sew. pipe - 10'
   5' depth
   (See drg. no. RD368)

2. Sta. "P" 373+38.08, 21.7' Lt.
   Const. type "G-2" inlet
   Inst. 12" storm sew. pipe - 147'
   5' depth
   (See drg. no. RD364)

3. Sta. "P" 374+87.39, 20.7' Lt.
   Const. type "G-2" inlet
   Inst. 12" storm sew. pipe - 56'
   5' depth

4. Sta. "P" 379+29.19, 20.7' Rt.
   Const. type "G-2" inlet
   Inst. 12" storm sew. pipe - 47'
   5' depth

5. Sta. "P" 379+39.92, 24.8' Lt.
   Const. type "G-2" inlet
   Inst. 12" storm sew. pipe - 7'
   5' depth

6. Const. water quality swale, D00775
   Inst. facility field marker, type S1-2
   Inst. facility field marker, type S2
   (For details, see sht. GJ)

7. Const. water quality swale, D00776
   Inst. facility field marker, type S1-2
   Inst. facility field marker, type S2
   (For details, see sht. GJ-2)

8. Const. water quality bioslope, D00777
   Inst. facility field marker, type S1-2
   Inst. facility field marker, type S2
   (For details, see sht. GJ-3)

9. Const. water quality bioslope, D00778
   Inst. facility field marker, type S1-2
   Inst. facility field marker, type S2
   (For details, see sht. GJ-3)

10. Const. water quality bioslope, D00779
    Inst. facility field marker, type S1-2
    Inst. facility field marker, type S2
    (For details, see sht. GJ-3)

11. Const. water quality bioslope, D00780
    Inst. facility field marker, type S1-2
    Inst. facility field marker, type S2
    (For details, see sht. GJ-3)

12. Const. water quality bioslope, D00781
    Inst. facility field marker, type S1-2
    Inst. facility field marker, type S2
    (For details, see sht. GJ-3)

LEGEND

Regulated work area

REGISTERED PROFESSIONAL ENGINEER
64332
OREGON
NOVEMBER 14, 2000
AMY L. JONES
EXPIRES: 06/30/

OREGON DEPARTMENT OF TRANSPORTATION

OBEC CONSULTING ENGINEERS
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REGIONAL OFFICES:
LAKE OSWEGO; SALEM; MEDFORD, OREGON; VANCOUVER, WASHINGTON

US26: WEST HUMBUG CREEK BRIDGE REPLACEMENT

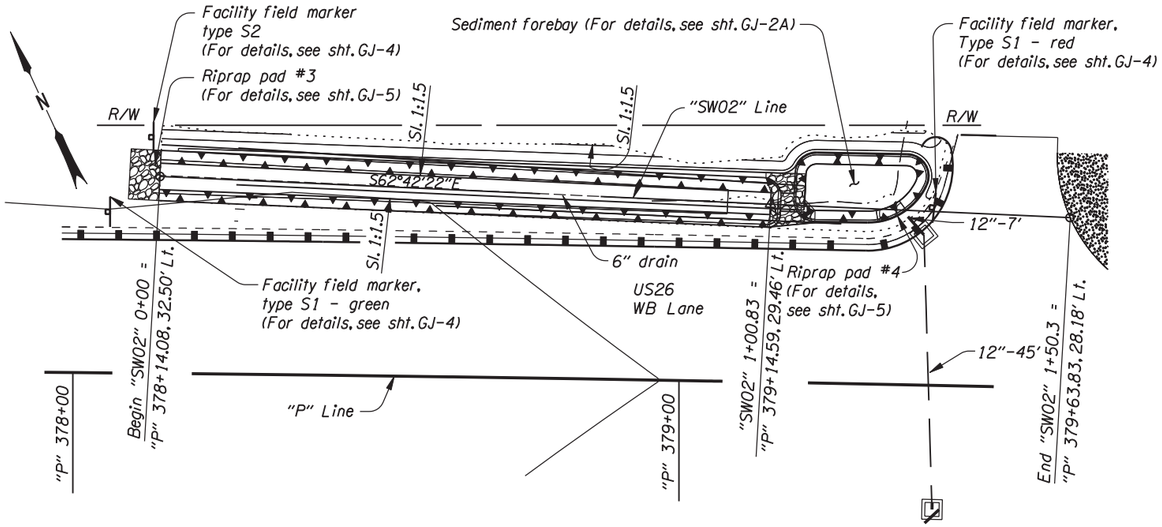
SUNSET HIGHWAY

CLATSOP COUNTY

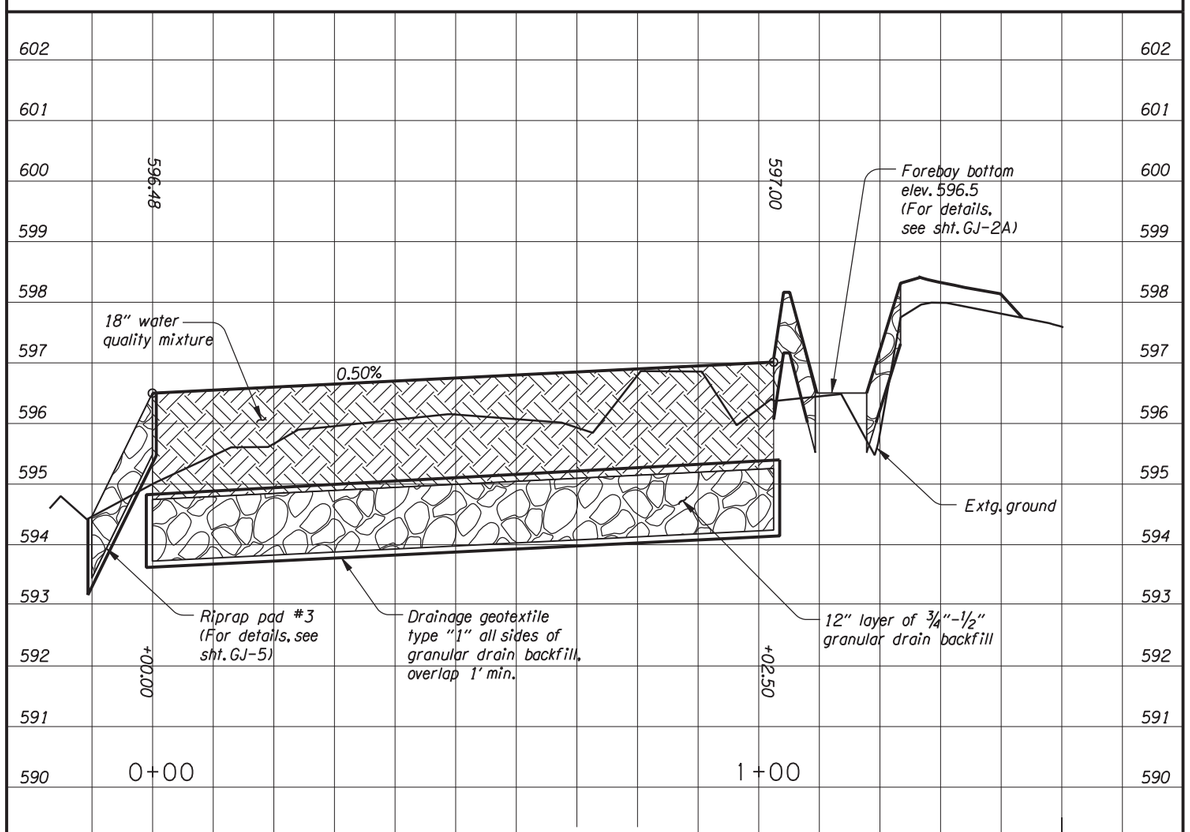
Designed By - Amy Jones
Checked By - Ben Wewerka
Drafted By - Rodney Odear/Rodney Schultz

DRAINAGE PLAN AND NOTES

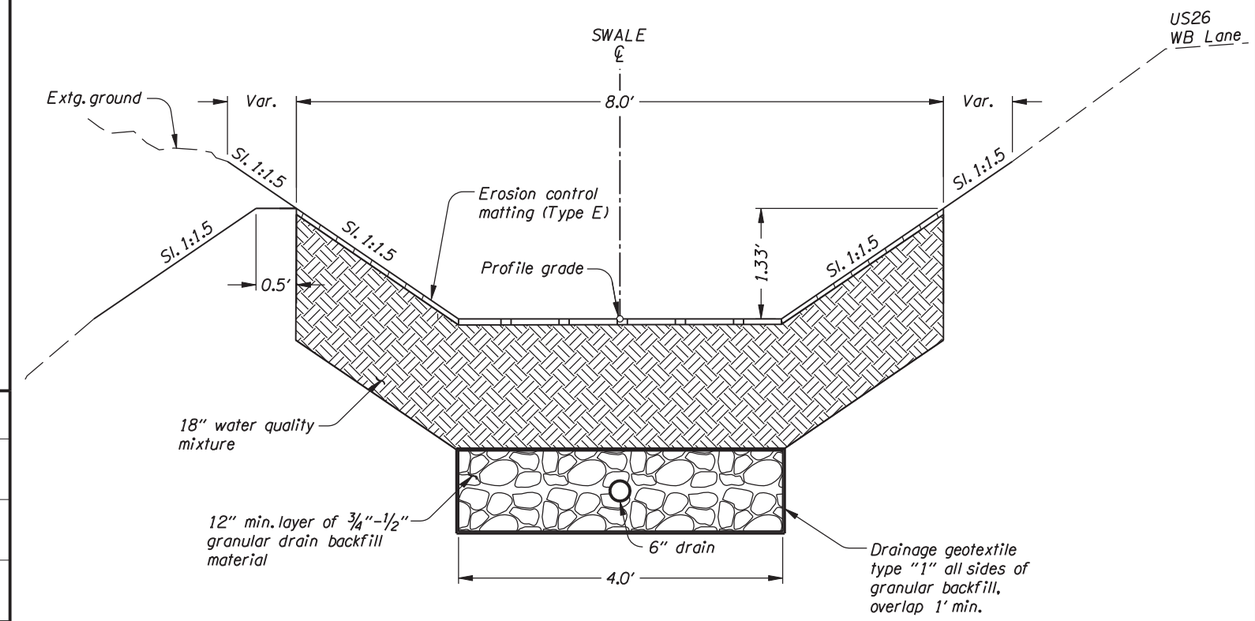
SHEET NO. 3A-2



PLAN
WATER QUALITY SWALE, DFI-D00776



PROFILE
WATER QUALITY SWALE, DFI-D00776



BIOFILTRATION SWALE TYPICAL SECTION, DFI-D00776
Not to scale

REGISTERED PROFESSIONAL ENGINEER
64332
OREGON
NOVEMBER 14, 2000
AMY L. JONES
EXPIRES: 06/30/

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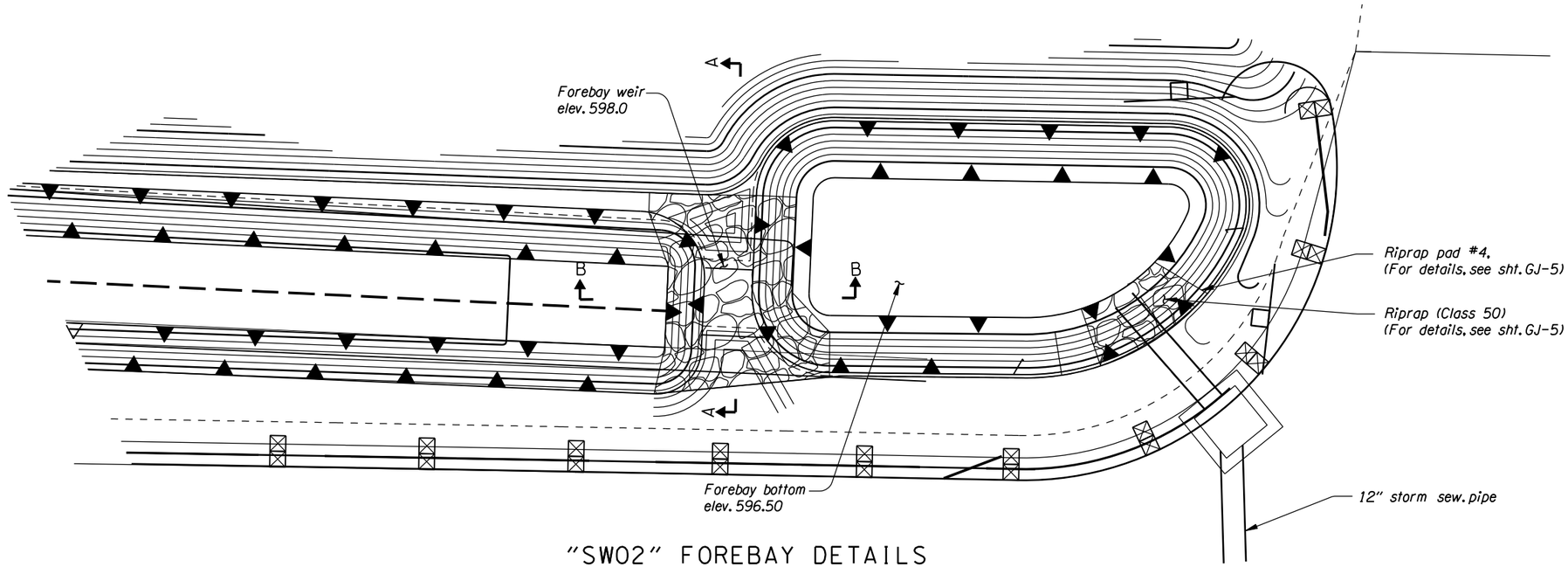
US26: WEST HUMBUG CREEK BRIDGE REPLACEMENT
SUNSET HIGHWAY
CLATSOP COUNTY

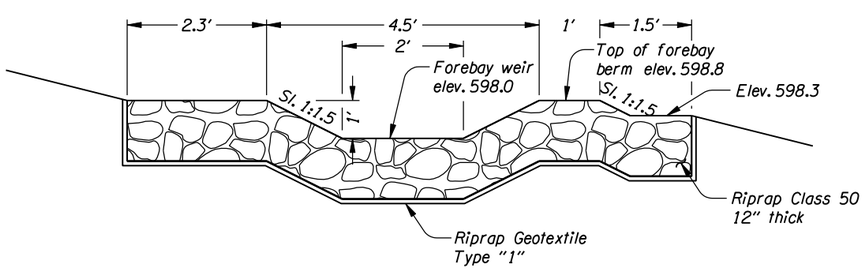
Designed By - Amy Jones
Checked By - Ben Wewerka
Drafted By - Rodney Odear/Rodney Schultz

STORMWATER DETAILS

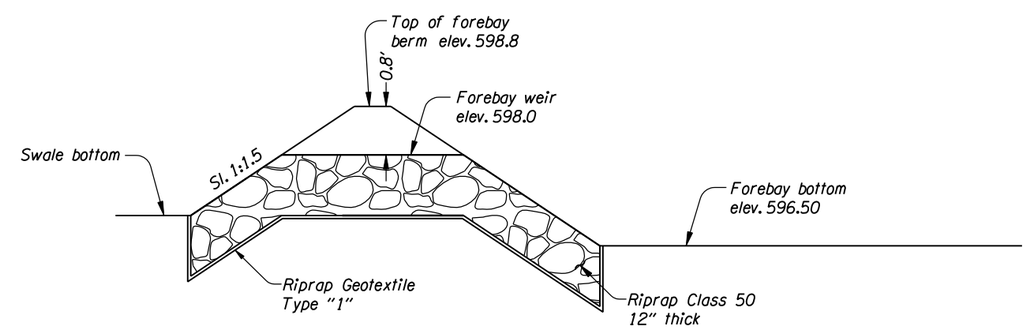
SHEET NO.
GJ-2



"SW02" FOREBAY DETAILS
WATER QUALITY SWALE, DFI-D00776



SECTION A-A



SECTION B-B

REGISTERED PROFESSIONAL ENGINEER
64332
OREGON
NOVEMBER 14, 2000
AMY L. JONES
EXPIRES: 06/30/

OREGON DEPARTMENT OF TRANSPORTATION

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CLATSOP COUNTY

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Checked By - Ben Wewerka
Drafted By - Rodney Odear/Rodney Schultz

STORMWATER DETAILS

SHEET NO.
GJ-2A