OPERATION & MAINTENANCE MANUAL

DFI No. : D00877
Facility Type: Water Quality Biofiltration Swale

[July, 2016]

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1. Identification

Drainage Facility ID (DFI):	**D00877**
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	(V-File Number) 49V-009
Location:	District: 4
	Highway No.: 009
	Mile Post: 111.12 to111.14, Right
	Description:
	The facility is located on the west side of Hwy 101, between NE Highland Road and NE East Devils Lake Road. The facility can be accessed via the shoulder of southbound Hwy101.

2. Facility Contact Information

Contact the Engineer of Record (see section 3), Region Technical Center, or Geo-Environmental's Senior Hydraulics Engineer for:

- Operational clarification
- Maintenance clarification
- Repair or restoration assistance

Engineering Contacts:

Chris Carman, ODOT Hydraulics Engineer (503) 986-2691.

Or

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

3. Construction

Engineer of Record:	ODOT Designer – Region 2 Tech. Center, Chris Carman, (503) 986-2691
Facility construction:	2015
Contractor:	LRT Construciton LLC

4. Storm Drain System and Facility Overview

The swale is located 0.17 miles north of East Devils Lake Road on the west side of the Coast highway. Treatment of pollutants from the highway are achieved through sedimentation and infiltration through the water quality mix shown in section B-B in the operational plan.

A. Maintenance equipment access:

Maintenance crews and equipment can access the facility by parking on the shoulder of southbound Hwy101.

Heavy equipment access into facility:

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

Heavy equipment access is allowed with limitations. Access is allowed for light to mid weight equipment such as mowers and small excavators.

B. Special Features:

☒ Amended Soils
☐ Porous Pavers
☐ Liners
☐ Underdrains

5. Facility Haz Mat Spill Feature(s)

This facility has no Haz Mat spill features.

The swale can be used to store a volume of liquid by blocking the outlet of the swale. A barrier such as a temporary berm made of sandbags could be used to prevent liquid from draining from the swale.

6. Auxiliary Outlet (High Flow Bypass)

Auxiliary Outlets are provided if the primary outlet control structure can not safely pass the projected high flows. Broad-crested spillway weirs and over flow risers are the two most common auxiliary outlets used in stormwater treatment facility design. The auxiliary outlet feature is either a part of the facility or an additional storm drain feature/structure.

The auxiliary outlet feature for this facility is:

☐ Designed into facility

☒ Other
This facility does not contain an auxiliary outlet feature. The facility was designed to receive runoff from the road and discharge into cross pipes.

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:

https://www.oregon.gov/ODOT/HWY/OOM/mg/02/act125_waterqualityfacilandtables.pdf

The following stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual or follow the Maintenance requirements outlined in Appendix C when proprietary structure is selected below:

- ☒ 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:

https://www.oregon.gov/ODOT/HWY/OOM/EMSdoc/ems_manual.pdf

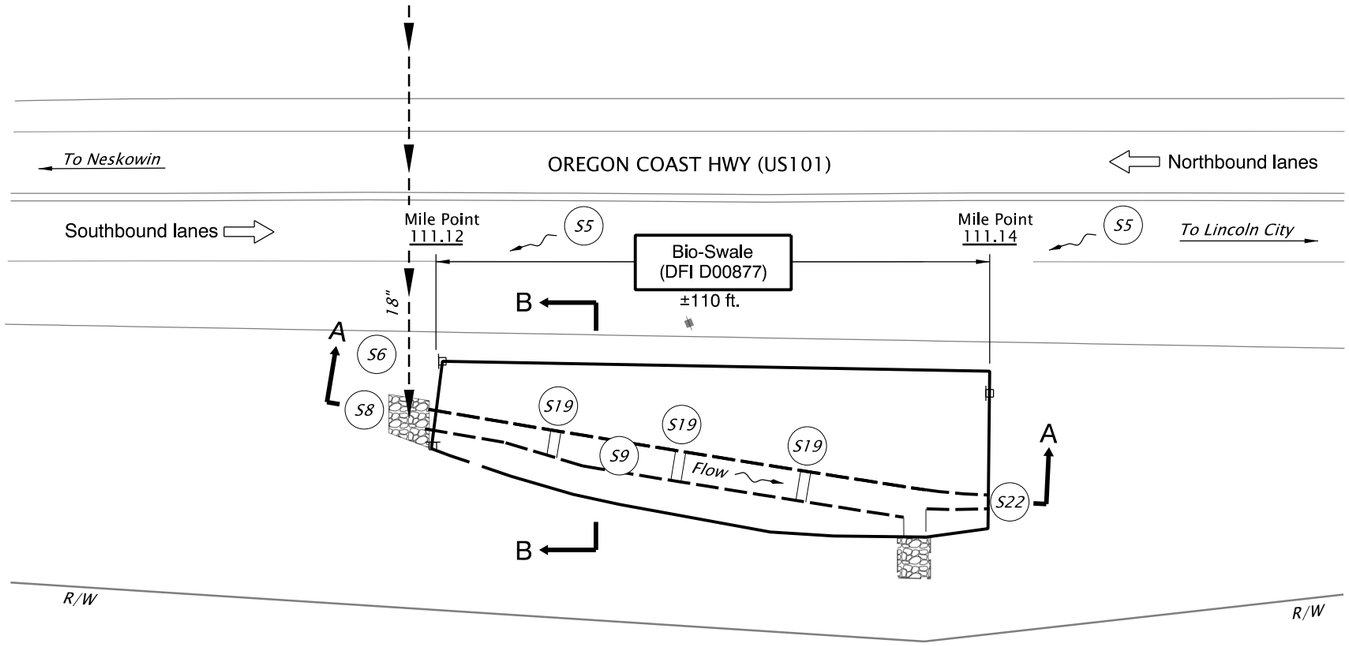
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 667-7442
ODOT Region Hazmat Coordinator	(503) 731-8290
ODEQ Northwest Region Office	(503) 229-5263

Appendix A

Content:

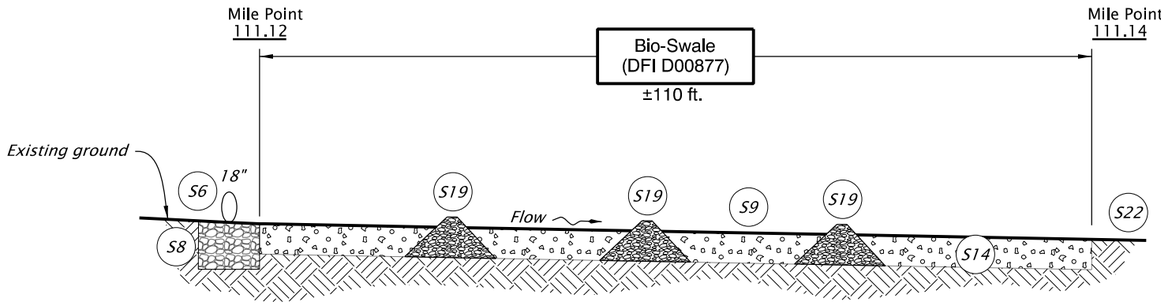
- **Operational Plan and Section Drawing(s)**



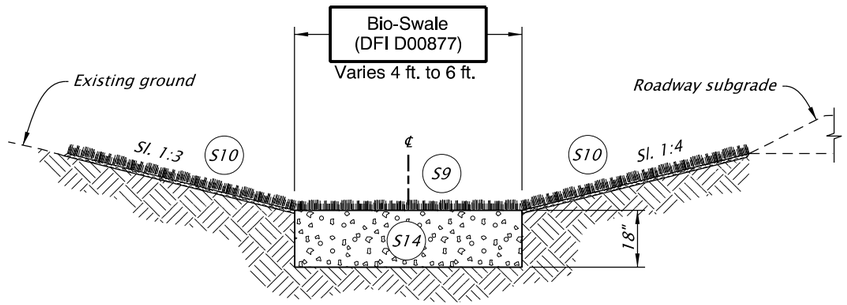
PLAN
N.T.S.

LEGEND:

- *S#* — *Facility Component (see table 1 in O&M Manual)*
- *and / or* — *Manhole*
- *and / or* — *Inlet*
- *Storm Pipe (Facility)*
- *Storm Pipe*
- *Swale Bottom*
- *Swale Boundary*
- *Conveyance Direction*
- *Pavement / Facility Flow Path*
- *Traffic Flow Direction*



SECTION A–A
N.T.S.



SECTION B–B
N.T.S.

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Christopher Carman

Drafted By: Jeff Coon

DFI D00877
MAINTENANCE DISTRICT 4 HWY 101
WATER QUALITY BIOFILTRATION SWALE
OREGON COAST HIGHWAY MP 111.12
LINCOLN COUNTY

Table 1: Swale Components		ID #
Manholes/Structures		
Pre-treatment manhole	☐	**S1**
Weir type flow splitter/flow splitter manhole	☐	**S2**
Orifice type flow splitter/flow splitter manhole	☐	**S3**
Standard manhole	☐	**S4**
Swale Inlet		
Pavement sheet flow	☒	**S5**
Inlet Pipe (s)	☒	**S6**
Open channel inlet	☐	**S7**
Riprap pad	☒	**S8**
Ground Cover		
Grass bottom	☒	**S9**
Grass side slopes	☒	**S10**
Granular drain rock	☐	**S11**
Plantings	☐	**S12**
Underground Components		
Geotextile fabric	☐	**S13**
Water quality mix	☒	**S14**
Perforated pipe	☐	**S15**
Porous pavers (access grid)	☐	**S16**
Flow Spreader		
Rock basin (used at inlet)	☐	**S17**
Anchored board (midpoint of swale or every 50 feet along swale bottom)	☐	**S18**
Other: earthen berms	☒	**S19**
Swale Outlet		
Catch basin with grate	☐	**S20**
Outlet Pipe (s)	☐	**S21**
Open channel outlet	☒	**S22**
Auxiliary Outlet: describe type	☐	**S23**
Outfall Type		
Waterbody (**C**reek/**L**ake/**O**cean)	☐ **C** ☐ **L** ☐ **O**	**S24**
Ditch	☐	**S25**
Storm drain system	☐	**S26**
Outfall Components		
Riprap pad	☐	**S27**
Riprap bank protection	☐	**S28**

Appendix B

Content:

- **ODOT Project Plan Sheets**

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

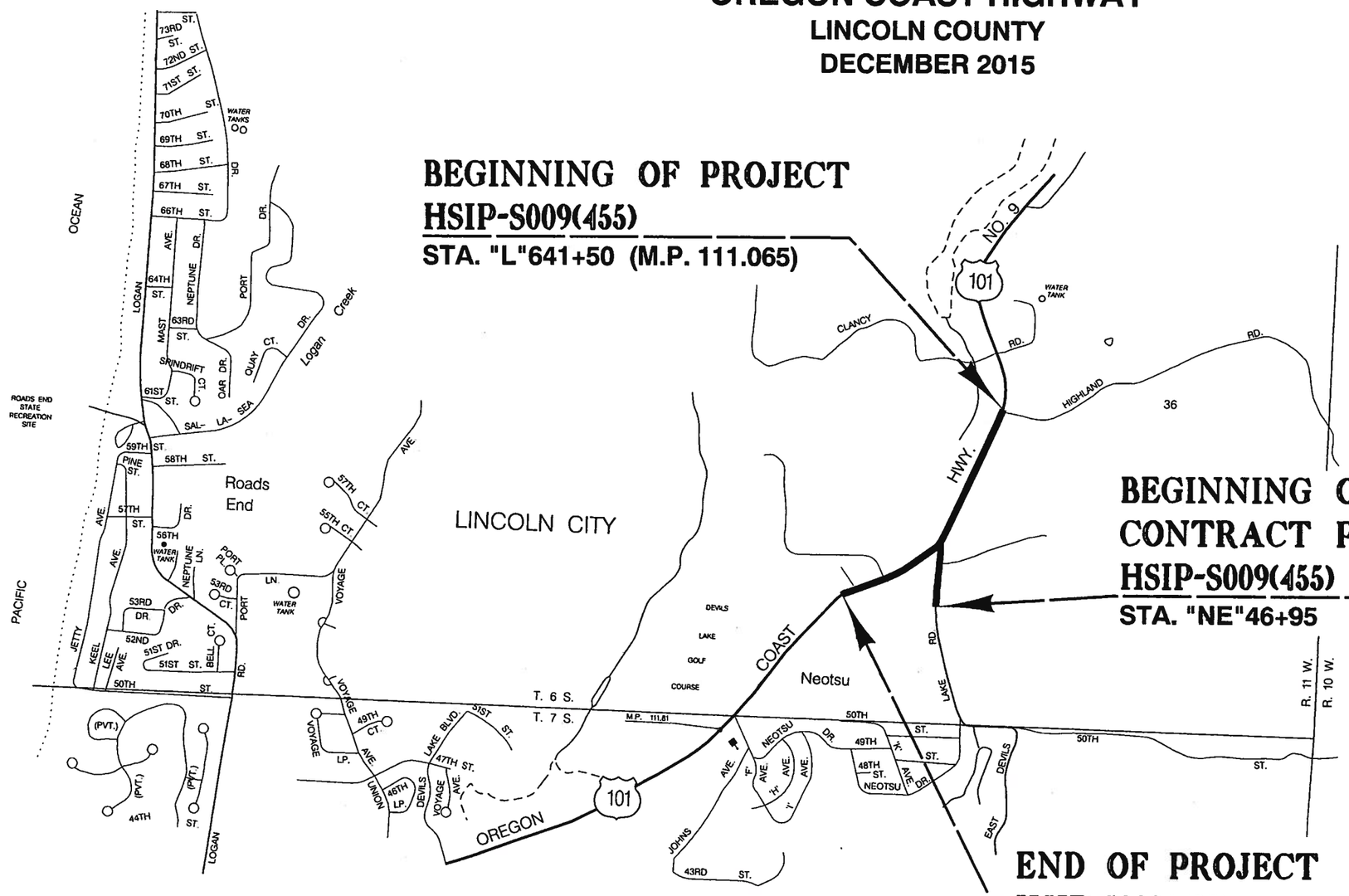
GRADING & PAVING

US101 @ N.E. DEVILS LAKE RD. SEC.

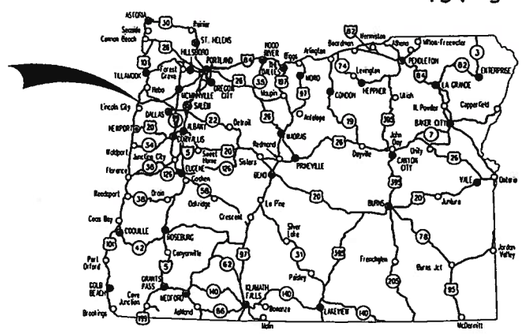
OREGON COAST HIGHWAY

LINCOLN COUNTY

DECEMBER 2015



49V-9



Overall Length Of Project - 0.51 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

OREGON TRANSPORTATION COMMISSION

Tammy Baney	CHAIR
David Lohman	COMMISSIONER
Susan Morgan	COMMISSIONER
Alando Simpson	COMMISSIONER
Sean O'Hollaren	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: _____ 10.22.15
Signature & date

James E. West - R2 Tech Center Manager
Print name and title

Concurrence by ODOT Chief Engineer

US101 @ N.E. DEVILS LAKE RD. SEC.
OREGON COAST HIGHWAY
LINCOLN COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	HSIP-S009(455)	1

PE002192 000

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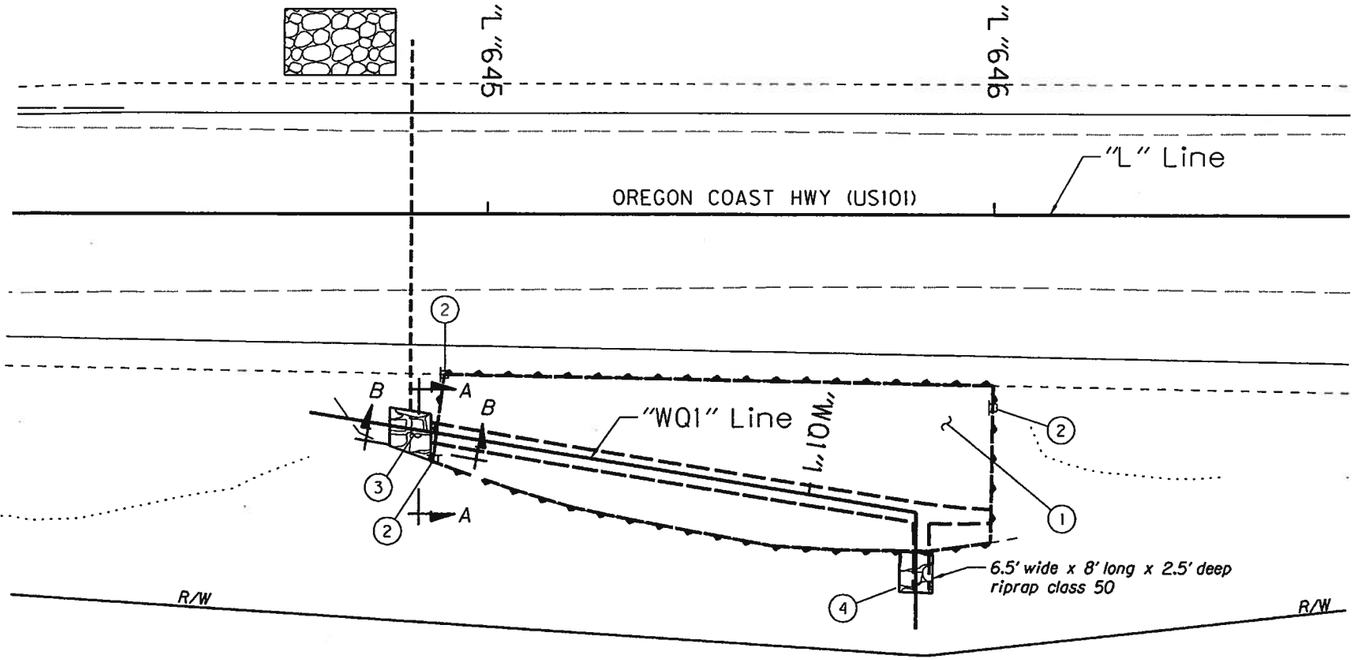
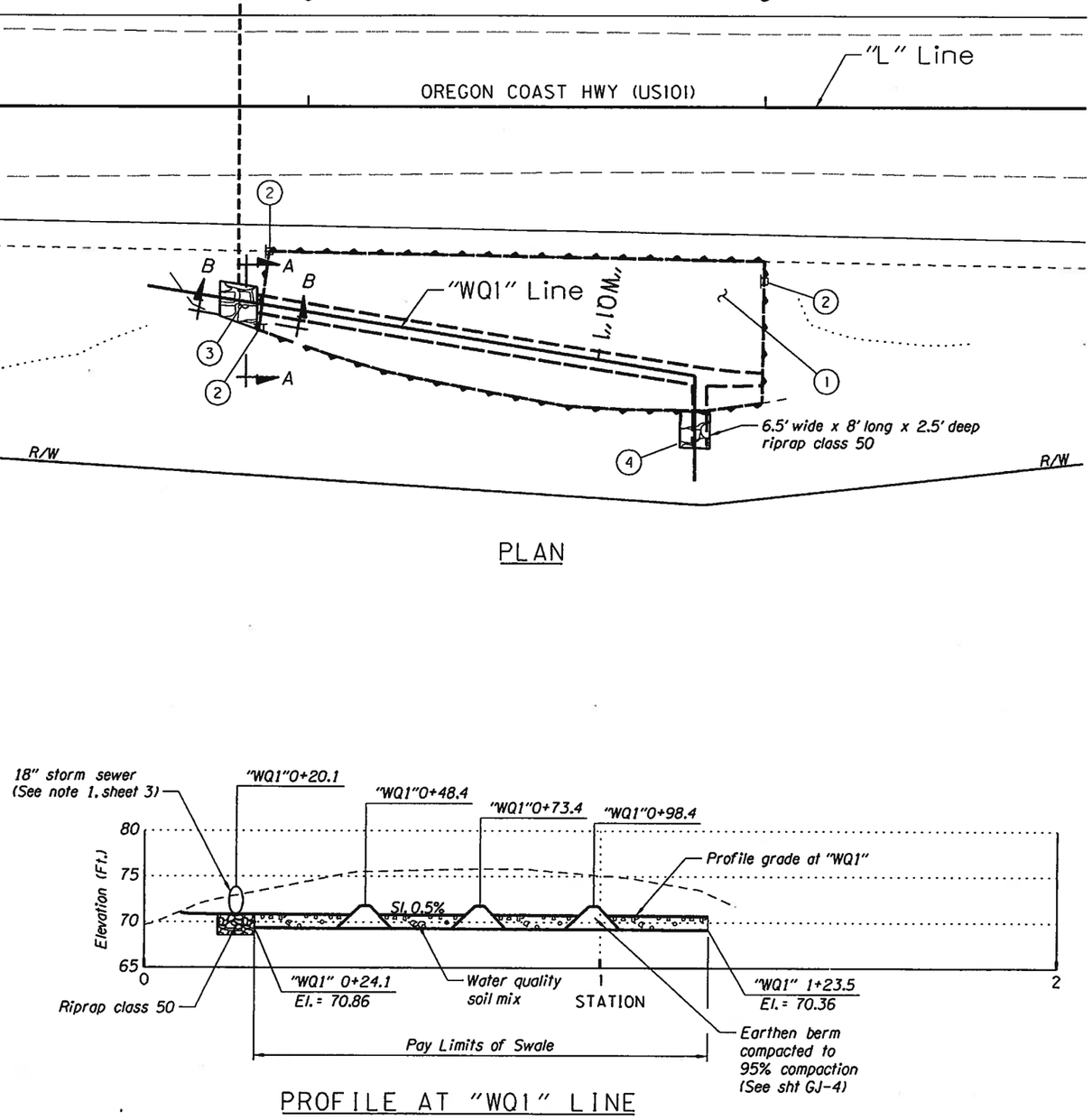


PLAN



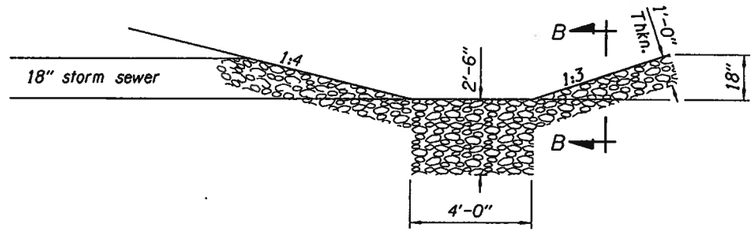
PROFILE AT "WQ1" LINE

(1) Sta. "WQ1" 0+24.1 to Sta. "WQ1" 1+23.5 Rt.
Construct water quality biofiltration swale no. 00877
Water Quality Mixture - 24 cu. yd.
General excavation - 417 cu. yd.

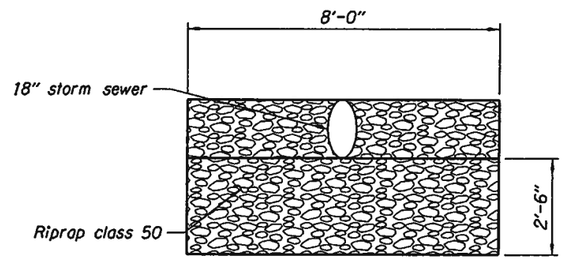
(2) Stormwater Facility Marker Types 1 and 2
DFI no. 00877
(See dwg. RD399)

(3) Construct Riprap (Class 50) - 3.5 yd.

(4) Construct Riprap (Class 50) - 4.5 yd.



SECTION A-A



SECTION B-B

Note:
Slopes shown as vertical to horizontal.

REGISTERED PROFESSIONAL ENGINEER
17807
OREGON
JULY 25, 1997
CHRIS CARMAN
RENEWS: 12-31-2015

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

US101 @ N.E. DEVILS LAKE RD. SEC.
OREGON COAST HIGHWAY
LINCOLN COUNTY

Reviewer - Bruce Carmichael
Designed By - Christopher Carman
Drafted By - Julie Rentz

STORMWATER PLAN

SHEET NO. GJ

Rotation: 0° Scale: 1"=30'