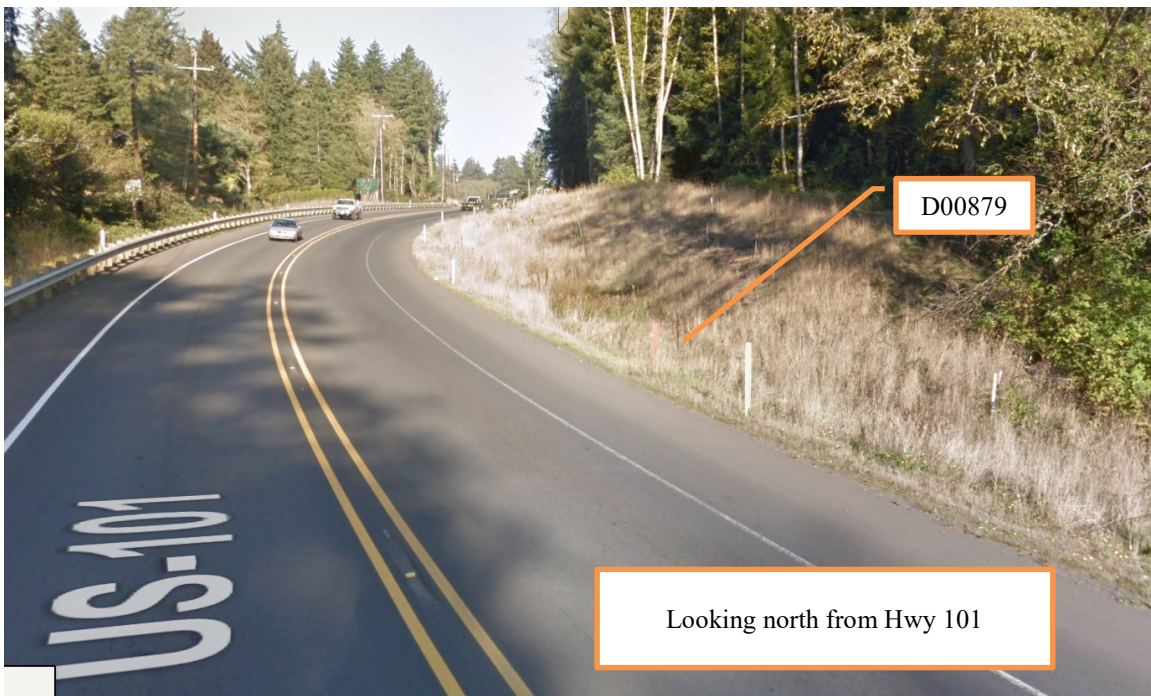


OPERATION & MAINTENANCE MANUAL

DFI No. : D00879

**Facility Type: Water Quality
Biofiltration Swale**



[July, 2016]

INDEX

1. IDENTIFICATION 1

2. FACILITY CONTACT INFORMATION 1

3. CONSTRUCTION..... 1

4. STORM DRAIN SYSTEM AND FACILITY OVERVIEW 2

5. FACILITY HAZ MAT SPILL FEATURE(S) 3

6. AUXILIARY OUTLET (HIGH FLOW BYPASS) 3

7. MAINTENANCE REQUIREMENTS..... 3

8. WASTE MATERIAL HANDLING..... 4

APPENDIX A: Operational Plan and Section Drawing(s)

APPENDIX B: ODOT Project Plan Sheets

1. Identification

Drainage Facility ID (DFI): **D00878**
Facility Type: Water Quality Biofiltration Swale
Construction Drawings: (V-File Number) 49V-009
Location: District: 4
Highway No.: 009
Mile Post: 111.52 to 111.54, Left
Description:
The facility is located on the west side of Hwy 101, north of NE East Devils Lake Road. The facility can be accessed via the shoulder of southbound Hwy 101.

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: JRT Construction LLC

4. Storm Drain System and Facility Overview

The swale is located 0.22 miles south of East Devils Lake Road on the east 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 northbound 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_waterqualityfacil andtables.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

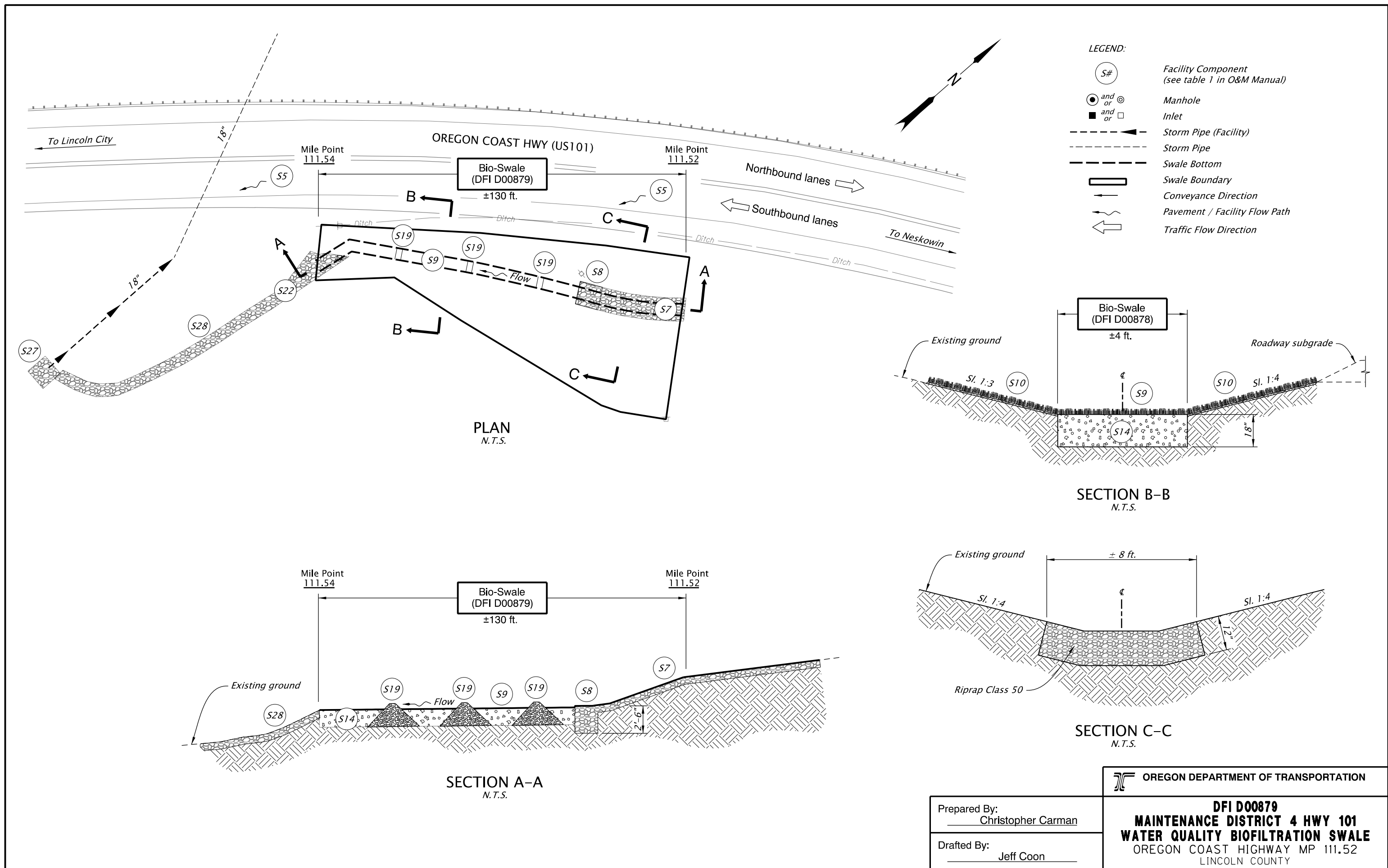
Contact any of the following for more detailed information about management of waste materials found on site:

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)**



- LEGEND:**
- S# Facility Component (see table 1 in O&M Manual)
 - and ⊙ Manhole
 - and 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.

SECTION C-C
N.T.S.

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By:
Christopher Carman

Drafted By:
Jeff Coon

DFI D00879
MAINTENANCE DISTRICT 4 HWY 101
WATER QUALITY BIOFILTRATION SWALE
OREGON COAST HIGHWAY MP 111.52
LINCOLN COUNTY

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

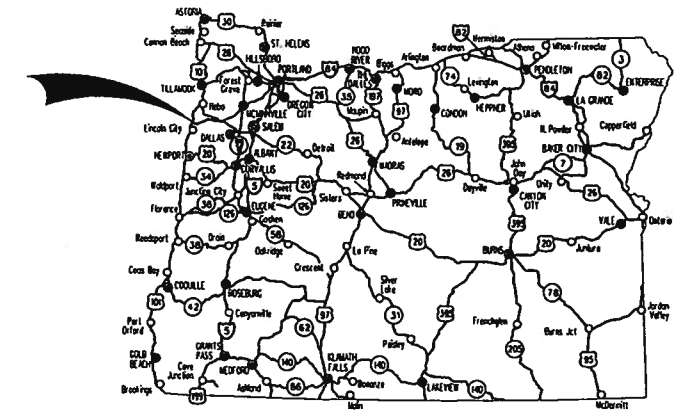
GRADING & PAVING

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

OREGON COAST HIGHWAY

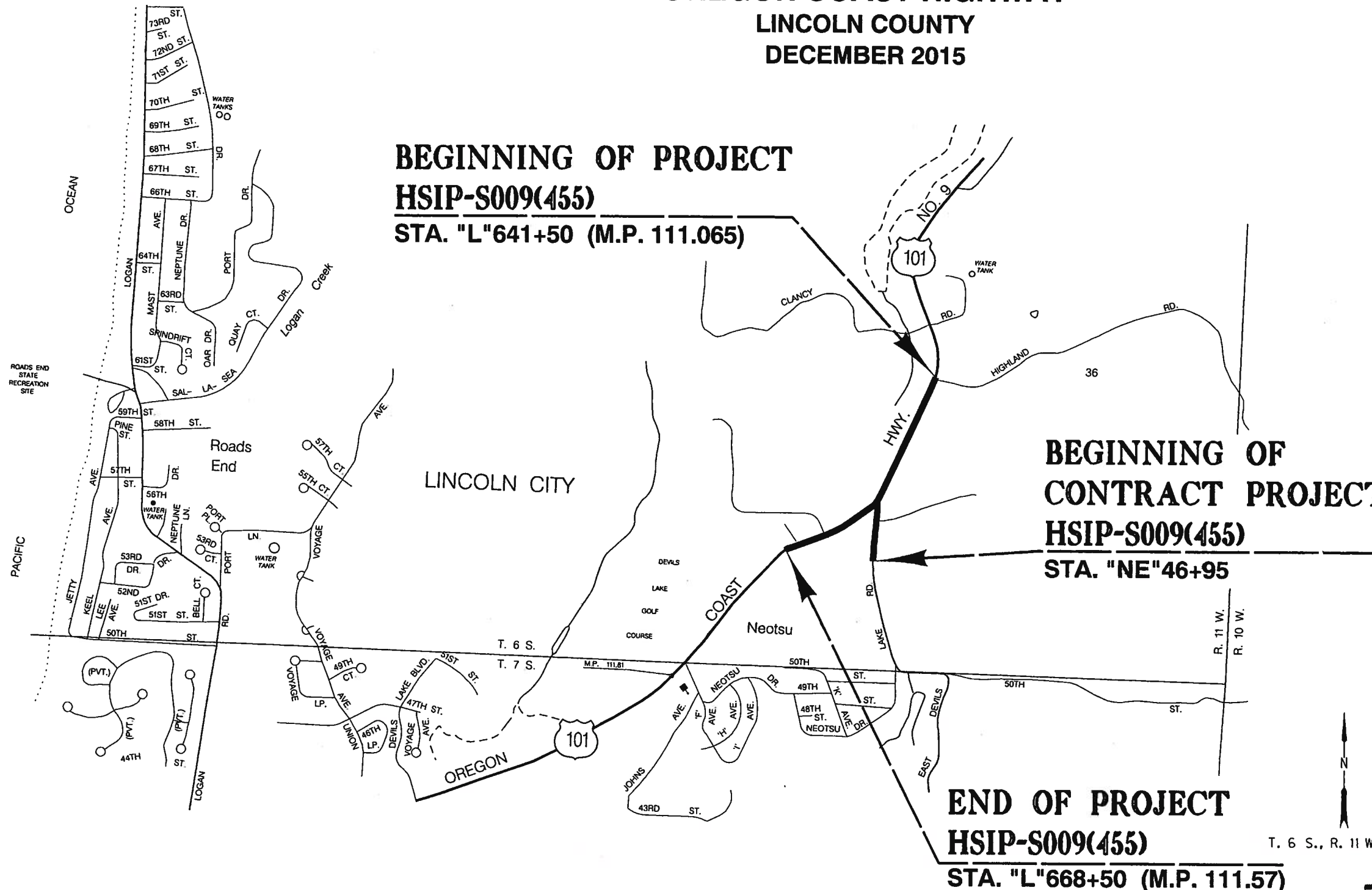
LINCOLN COUNTY

DECEMBER 2015



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.)



BEGINNING OF PROJECT

HSIP-S009(455)

STA. "L"641+50 (M.P. 111.065)

BEGINNING OF CONTRACT PROJECT

HSIP-S009(455)

STA. "NE"46+95

END OF PROJECT

HSIP-S009(455)

STA. "L"668+50 (M.P. 111.57)

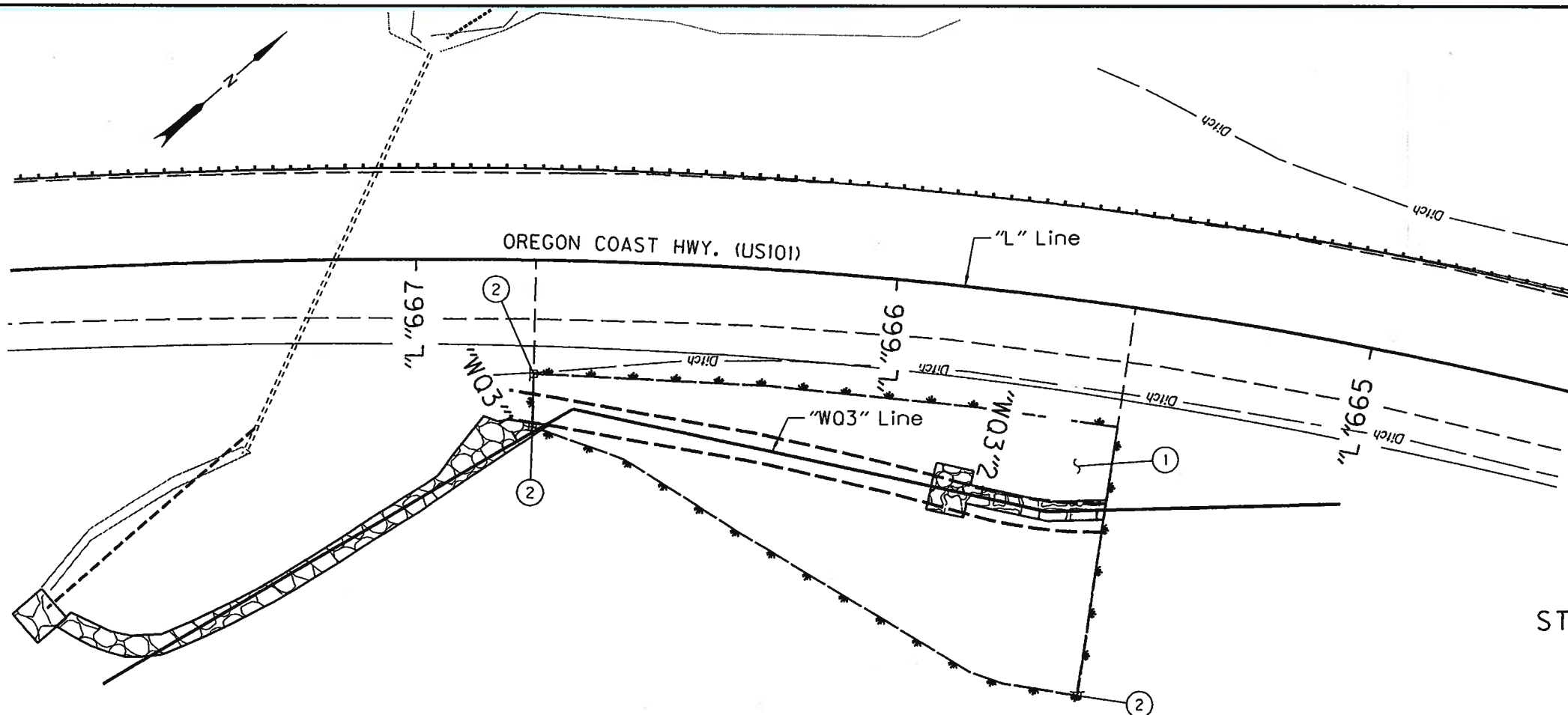
OREGON TRANSPORTATION COMMISSION
 Tammy Baney CHAIR
 David Lohman COMMISSIONER
 Susan Morgan COMMISSIONER
 Alando Simpson COMMISSIONER
 Sean O'Halloran COMMISSIONER
 Matthew L. Garrett DIRECTOR OF TRANSPORTATION

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: *[Signature]* 10-22-15
 Signature & date
 James E. West - R2 Tech Center Manager
 Print name and title
[Signature]
 Concurrence by ODOT Chief Engineer

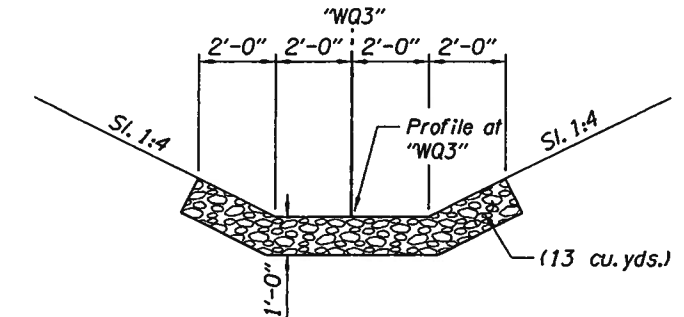
US101 @ N.E. DEVILS LAKE RD. SEC. OREGON COAST HIGHWAY LINCOLN COUNTY		
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	HSIP-S009(455)	1

PE002192 000

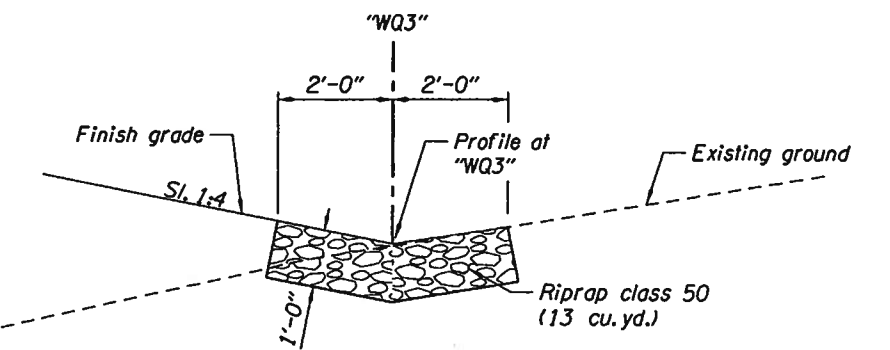


PLAN

- ① Sta. "WQ3" 0+95.6 to Sta. "WQ3" 2+26.2
Construct water quality biofiltration swale no.00879
Water Quality Mixture - 10 cu.yd.
General excavation - 606 cu.yd.
Construct Riprap (Class 50) - 17.5 cu.yd.
- ② Stormwater Facility Marker Types 1 and 2
DFI no.00879
(See dwg. RD399)



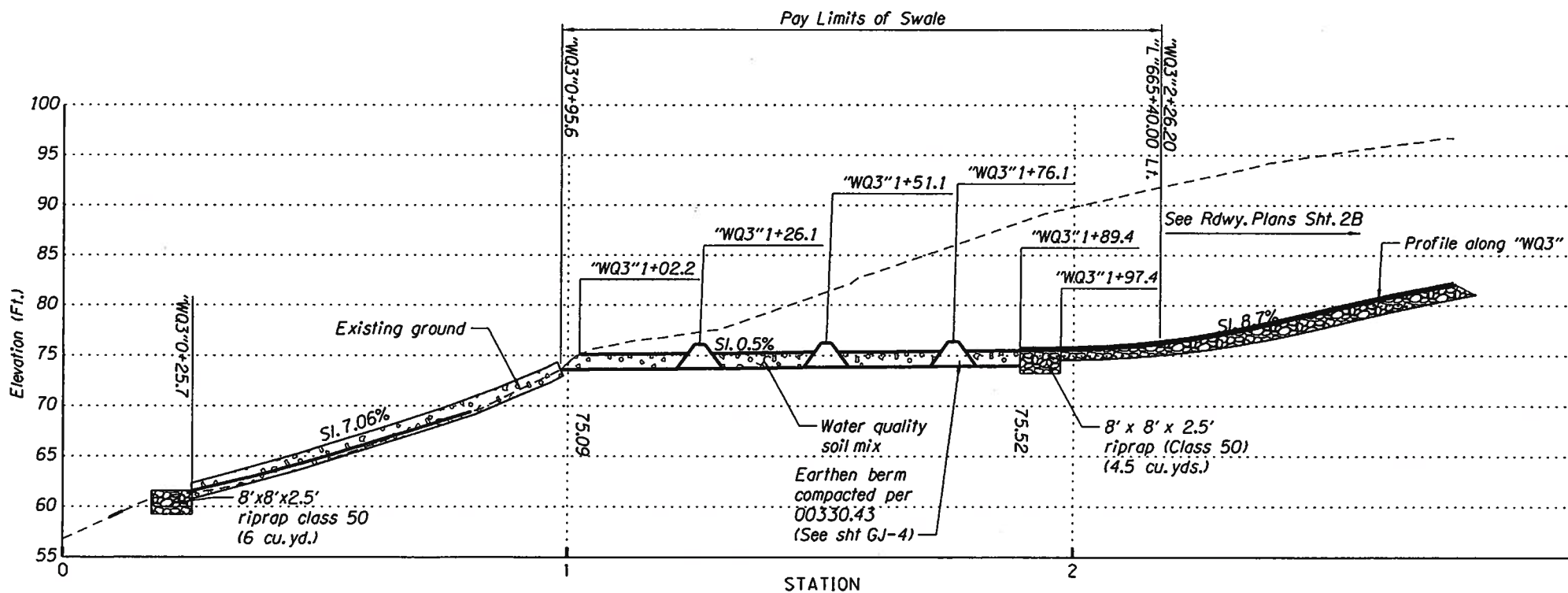
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STA. "WQ3" 0+25.7 TO STA. "WQ3" 0+95.6

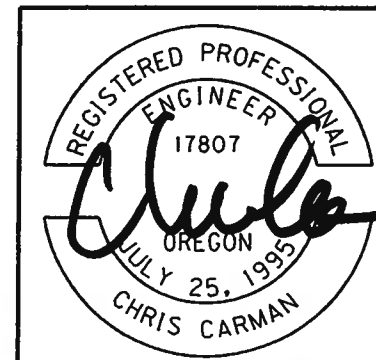
TYPICAL SECTIONS

Note:
Slopes shown as vertical to horizontal.

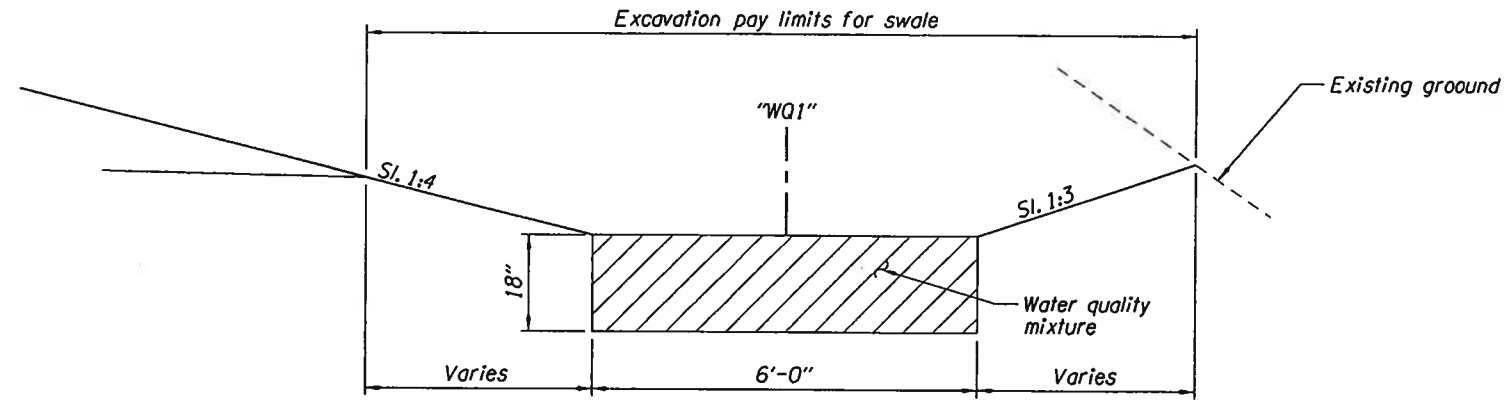


PROFILE AT "WQ3" LINE

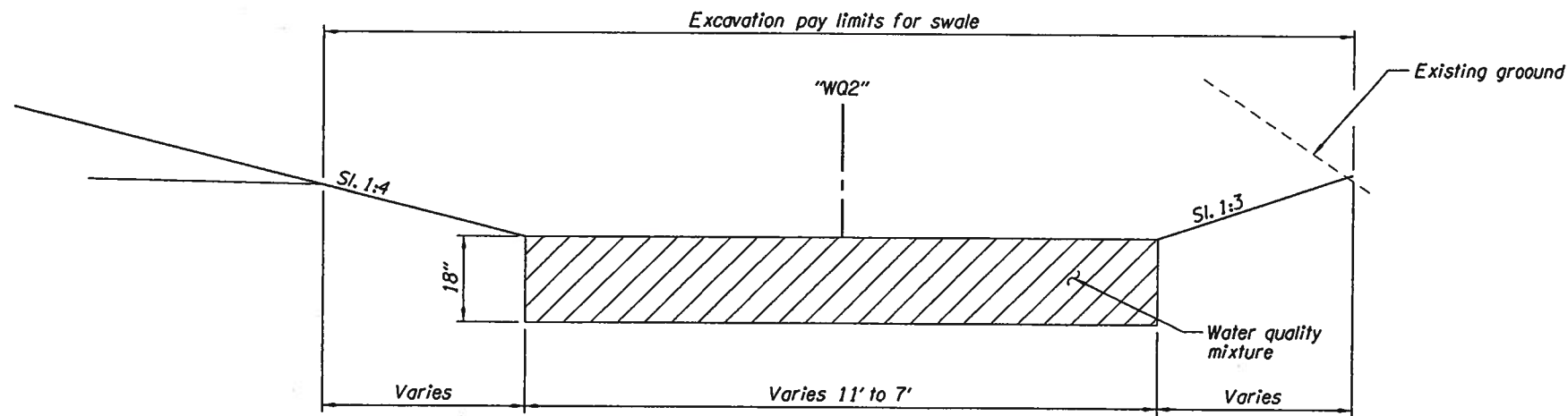
OREGON DEPARTMENT OF TRANSPORTATION	
REGION 2 TECH CENTER	
US101 @ N.E. DEVILS LAKE RD. SEC. OREGON COAST HIGHWAY LINCOLN COUNTY	
Reviewer - Bruce Cormichael Designed By - Christopher Carman Drafted By - Julie Rentz	
STORMWATER PLAN	SHEET NO. GJ-3



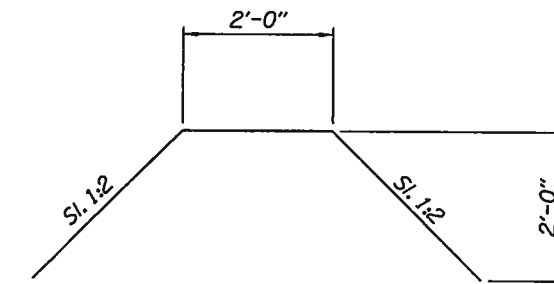
RENEWS: 12-31-2015



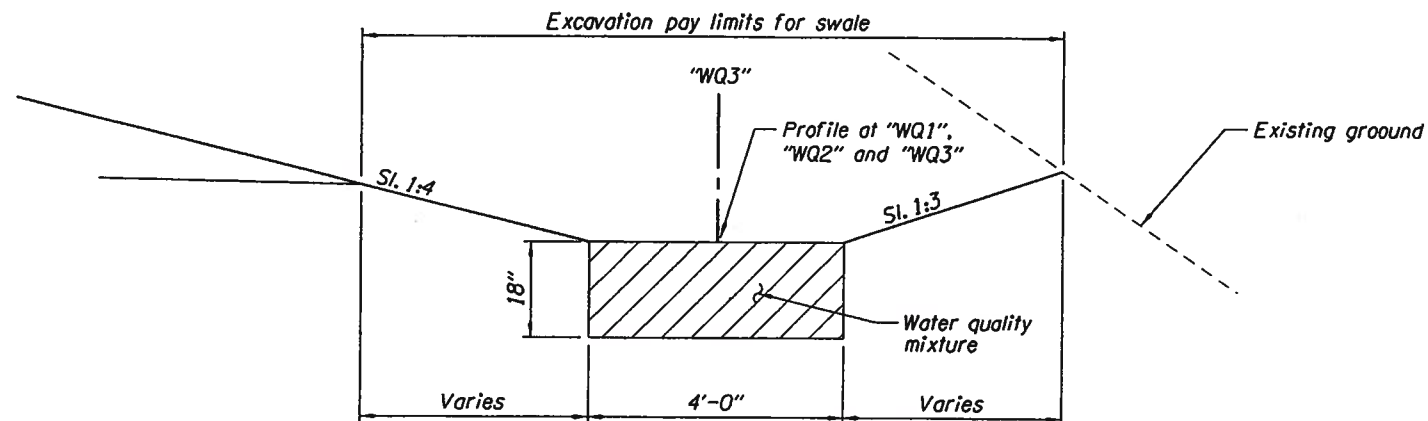
STA. "WQ1" 0+24.1 TO STA. "WQ1" 1+23.5



STA. "WQ2" 0+40.2 TO STA. "WQ2" 1+29.4



EARTHEN BERM DETAIL



STA. "WQ3" 0+95.6 TO STA. "WQ3" 1+89.4

SWALE TYPICAL SECTION

Note:
Slopes shown as vertical to horizontal.

OREGON DEPARTMENT OF TRANSPORTATION

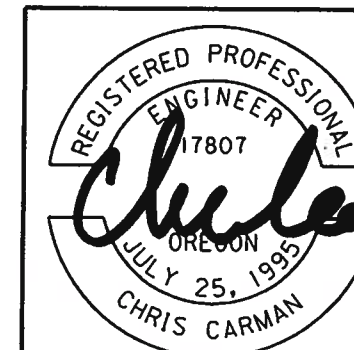
REGION 2 TECH CENTER

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-4



RENEWS: 12-31-2015

Rotation: 0° Scale: 1"=30'