# OPERATION & MAINTENANCE MANUAL

## DFI No. 00064
## Facility Type: Bioslope

Prepared: June, 2016

## INDEX

## 1. Identification

| | |
|---|---|
| Drainage Facility ID (DFI): | D00064 |
| Facility Type: | Bioslope |
| Construction Drawings: | (V-File Number) 44V-024 |
| Location: | District: 4 |
| | Highway Number: 210 |
| | Mile Post: 1.03 to 1.17 |
| | Description: Bioslope is adjacent to north side of highway between M.P. 1.03 and M.P. 1.17. |

## 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's Senior Hydraulics Engineer (503) 986-3365.

## 3. Construction

Engineer of Record:
ODOT Designer -- Region 2 Hydraulics, Bo Miller, (503) 986-2738
Facility construction year: 2011
Contractor: R & R Construction

## 4. Bioslope Overview

Road runoff from OR34 flows across the shoulder and onto the bioslope where it percolates downward through the media filter drain mix. The pollutants are removed by the mix and the treated water collects in a gravel filled toe trench. It is stored in the voids within the trench gravels until it percolates into the surrounding soil. There are no subsurface drain pipes in the trenches under these bioslopes. The bioslope is shown, looking from the east and west respectively, in Photos 1 and 2. Photos 3-7 illustrate the facility's foot print. A plan view, cross section view, and profile view of the bioslope is shown in Appendix A and the construction plans are in Appendix B.

A. Maintenance equipment access:

The bioslope is easily reached from the highway shoulder. The shoulder slopes are between four to six units horizontal to one unit vertical (4H : 1V). Maintenance equipment can park on these slopes near the facility. There are no guardrails at the road edge.

B. Heavy equipment access into facility:

☐ Allowed (no limitations)
☒ Allowed (with limitations)
☐ Not allowed
Heavy equipment is allowed along the perimeter of the facility and along the road side. Entering the facility with heavy equipment, such as a large mower while wet, may cause damage to the facility.

A. Special Features:

☐ Amended Soils
☐ Porous Pavers
☐ Liners
☐ Underdrains


Photo 1: Bioslope looking east, taken in 2011


Photo 3: Facility foot print looking east, taken in 2016


Photo 4: Facility foot print looking east, taken in 2016


Photo 5: Facility foot print looking east, taken in 2016


Photo 6: Facility foot print looking east


Photo 7: Facility footprint looking east, taken in 2016

## 5. Facility Haz Mat Spill Feature

The bioslope can capture small spills. The contaminated bioslope materials must be removed and the facility reconstructed as shown on the attached plans.

## 6. Cell Overflow

Runoff that is not captured by the bioslope flows down the roadway embankment slopes and into the roadway drainage ditches.

The overflow outlets for this facility are:

□ Designed into facility:

■Other, as noted below:

The roadside ditches.

## 7. Maintenance Recommendations

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 recommendations in addition to the routine recommendations are noted below when applicable.

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

http://www.oregon.gov/ODOT/HWY/OOM/MGuide.shtml

Maintenance recommendations for proprietary structures, such as underground water quality manholes and/or vaults with filter media are noted in Appendix C when applicable.

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 recommendations 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:

**Special Maintenance Recommendations**

The bioslope is near the pavement edge and it is covered with shoulder aggregate. Vegetation will be sparse and there are no requirements for its establishment or maintenance.

## 8. Waste Material Handling

Contaminated 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

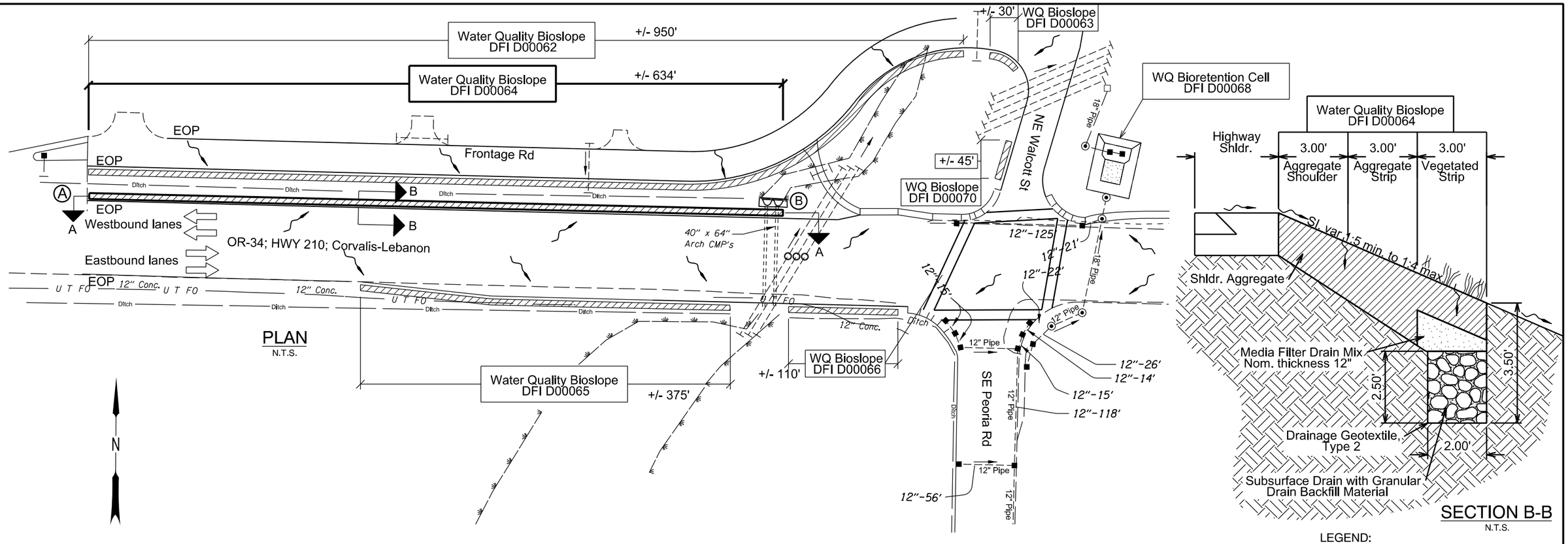
Contact any of the following for more detailed information about management of waste materials found on site:

| | |
|---|---|
| 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 Drawing**


Water Quality Bioslope
DFI D00062
+/- 950'
Water Quality Bioslope
DFI D00064
+/- 634'
+/- 30'
WQ Bioslope
DFI D00063
WQ Bioretention Cell
DFI D00068
EOP
Frontage Rd
EOP
Ditch
Ditch
Ditch
Ditch
A
B
EOP
Westbound lanes
OR-34; HWY 210; Corvalis-Lebanon
Eastbound lanes
EOP
U T FO
12" Conc.
U T FO
12" Conc.
U T FO
Ditch
Ditch
Ditch
Ditch
40" x 64"
Arch CMP's
+/- 45'
NE Walcott St
WQ Bioslope
DFI D00070
18" Pipe
12"-125'
12"-21'
12"-22'
12"-16'
18" Pipe
12" Pipe
12" Conc.
Ditch
12" Pipe
12"-26'
12"-14'
12"-15'
12"-118'
WQ Bioslope
DFI D00066
+/- 110'
SE Peoria Rd
Ditch
12" Pipe
12" Pipe
12" Pipe
12"-56'
12" Pipe
Water Quality Bioslope
DFI D00065
+/- 375'
PLAN
N.T.S.
N
Water Quality Bioslope
DFI D00064
Highway
Shldr.
3.00'
Aggregate
Shoulder
3.00'
Aggregate
Strip
3.00'
Vegetated
Strip
Sl. var. 1:5 min. to 1:4 max.
Shldr. Aggregate
Media Filter Drain Mix
Nom. thickness 12"
2.50'
3.50'
Drainage Geotextile,
Type 2
2.00'
Subsurface Drain with Granular
Drain Backfill Material
SECTION B-B
N.T.S.
LEGEND:
and or Manhole
and or Inlet
Storm Pipe (Facility)
Storm Pipe
Conveyance Direction
Pavement / Facility Flow Path
Media Filter Drain Mix (Ecology Mix)
Granular Drain Backfill Material
Shoulder Aggregate
Existing Soil
Vegetation
A Facility Start
B Facility End
M.P
1.03
A
Water Quality Bioslope
DFI D00064
B
M.P
1.14
Exist Ground
6"-8"
4"-6"
1.0'
2.5'
Bottom of Facility
SECTION A-A
N.T.S.
OREGON DEPARTMENT OF TRANSPORTATION
Prepared By: Scott Sooter
Drafted By: Scott Sooter
DFI D00064
MAINTENANCE DISTRICT 04 HWY 210
WATER QUALITY BIOSLOPE
HIGHWAY MP 1.03-1.14
LINN COUNTY
DFI_D00064.dgn

# Appendix B

**Content:**

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

44V-24

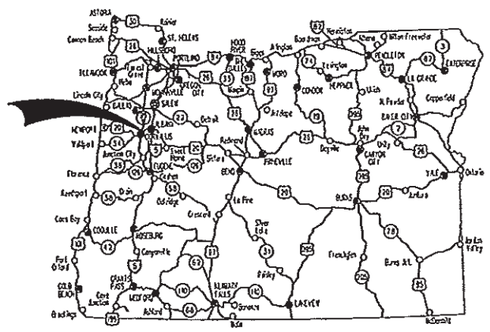
| INDEX OF SHEETS | |
|---|---|
| SHEET NO. | DESCRIPTION |
| 1 | Title Sheet |
| 1A | Index Of Sheets Cont'd. |
| 1A-2 | Std. Drg. Nos. |

OR34: Roche Street - Wolcott Rd
Corvallis-Lebanon Hwy 210 Linn
C14326 CON03172 K#12580
X_HPP-S210(013)
BI Note Est Date

STATE OF OREGON
# DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED PROJECT

## GRADING, DRAINAGE, STRUCTURE, PAVING, SIGNING, SIGNALS & ROADSIDE DEVELOPMENT

# OR34: ROCHE STREET - WOLCOTT ROAD SEC.
## CORVALLIS - LEBANON HIGHWAY
## LINN COUNTY
## FEBRUARY 2011

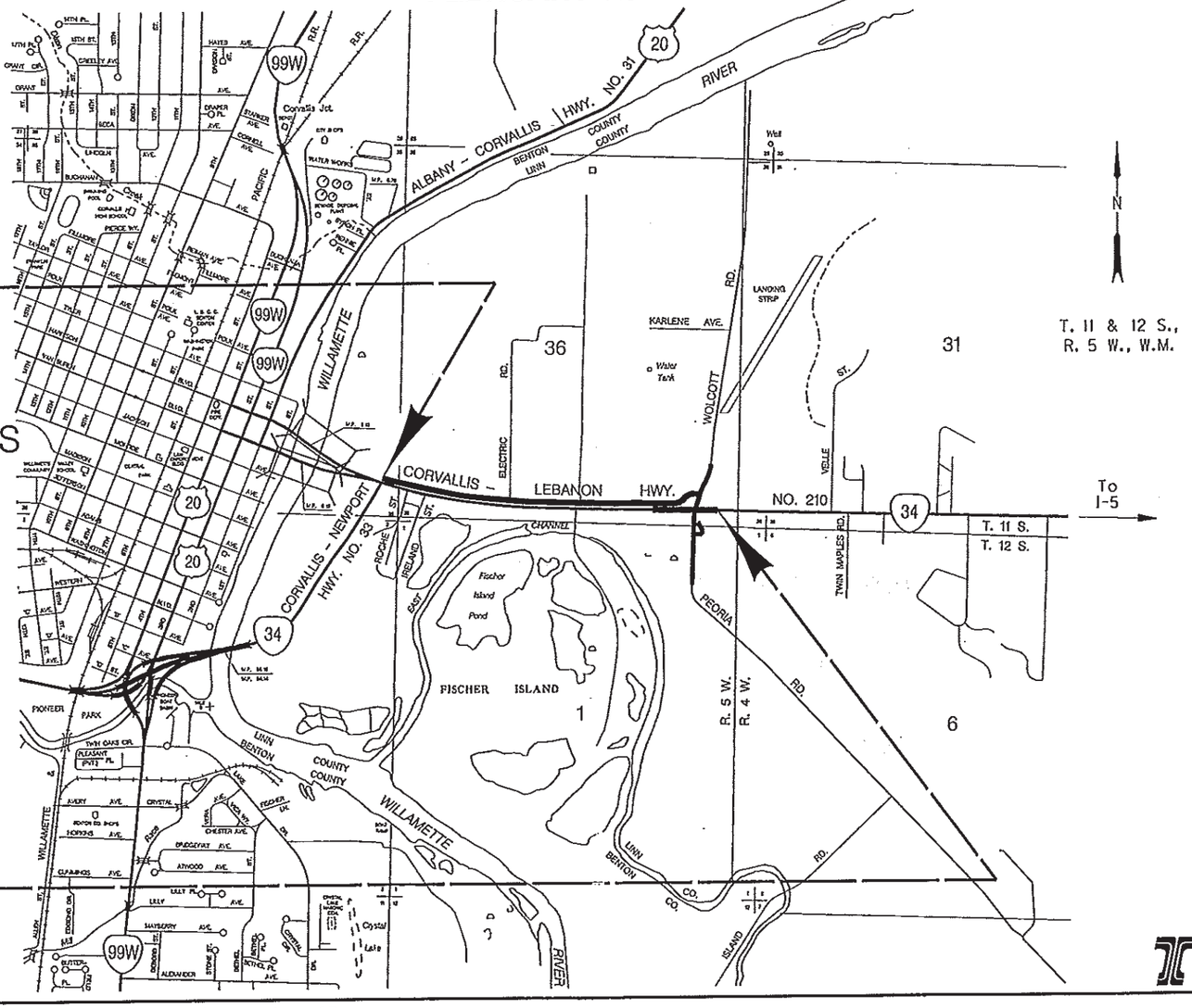


*Overall Length Of Project - 0.92 Miles*

**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

**X-HPP-S210(013)**
**BEGINNING OF PROJECT**
**STA. "SP" 1+20 (M.P. 0.34)**




T. 11 & 12 S.,
R. 5 W., W.M.

**X-HPP-S210(013)**
**END OF PROJECT**
**STA. "L" 77+00 (M.P. 1.26)**

ORIGINAL

NOT REVISED AS CONSTRUCTED

RAY CRANSTON, P.L.S.

DATE 2-14-2012

OREGON TRANSPORTATION COMMISSION

| | |
|---|---|
| Gail Achterman | CHAIR |
| Michael Nelson | VICE-CHAIR |
| Mary F. Olson | COMMISSIONER |
| Alan Brown | COMMISSIONER |
| David Lohman | 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 1/10/11
Signature & date

*Carol Cartwright - R2 Tech Center Manager*
Print name and title

Concurrence by ODOT Chief Engineer

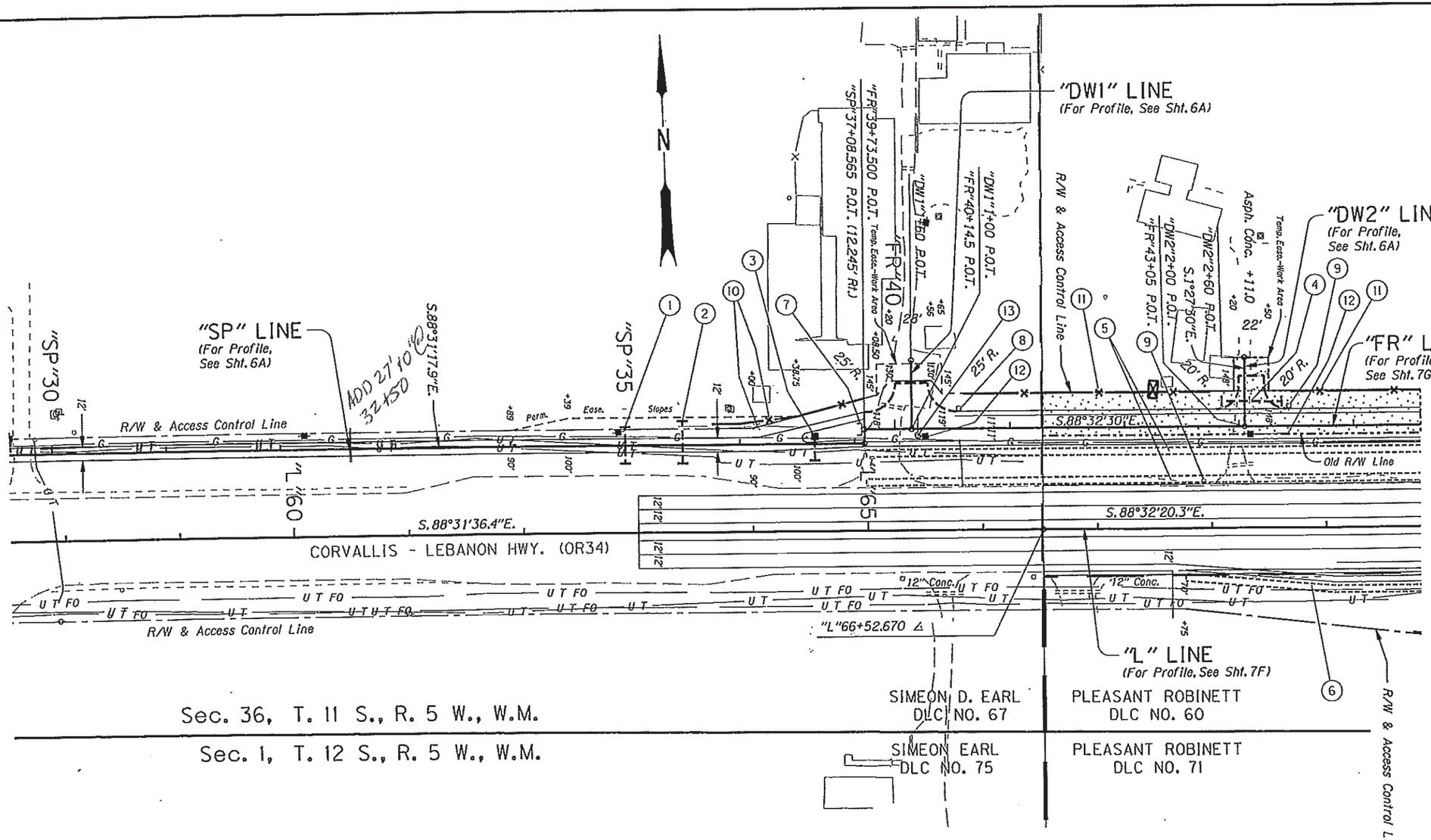
**OR34: ROCHE STREET - WOLCOTT ROAD SEC.**
CORVALLIS - LEBANON HIGHWAY
LINN COUNTY

| FEDERAL HIGHWAY ADMINISTRATION | PROJECT NUMBER | SHEET NO. |
|---|---|---|
| OREGON DIVISION | X-HPP-S210(013) | 1 |

PE000743

F:\ODOT_DATA\Projects\12580Roche\12580R2.tsl :: Default 12/29/2010 10:46:53 AM hwye07x

1/263




1. Sta. "SP"35+00
   Inst. 12" Culv. Pipe - 32'
   5' Depth
   (For Details, See Sht. GE-5)
   (See Drg. Nos. RD300, RD316, RD318, RD326, RD380 & RD386)
2. Sta. "SP"35+50
   Inst. 12" Culv. Pipe - 37'
   5' Depth
   (For Details, See Sht. GE-5)
3. Sta. "SP"36+65, 6.5' Lt.
   Const. Type "G-2MA" Mod. Inlet
   Inst. Type 2 Grates
   Inst. 10" Culv. Pipe (D.I.) - 21'
   5' Depth
   (For Details, See Sht. GE-5)
   (See Drg. No. RD364)
4. Sta. "DW2"2+21.5
   Remove Extg. Pipe
   Inst. 12" Culv. Pipe - 52'
   5' Depth
5. Sta. "FR"39+75 To Sta. "FR"49+00, Rt.
   "L"65+00 To "L"72+00, Lt.
   Const. Bioslope
   (For Details, See Sht. GJ & GJ-9)
6. Sta. "L"67+75 To Sta. "L"71+50, Rt.
   Const. Bioslope
   (For Details, See Sht. GJ & GJ-9)
7. Sta. "SP"37+06, Lt.
   Inst. Barricade
   (For Details, See Sht. S-10)
8. Remove Extg. Mailbox Support
   Inst. Single Mailbox Support With Newspaper Box
   (See Drg. Nos. RD100 & RD101)
9. Remove Extg. Mailbox Support
   Inst. Multiple Mailbox Support With Newspaper Box
10. Remove Extg. Fence
    Const. Type 2 Fence
    (See Drg. No. RD810)
11. Remove Temp. Orange Plastic Mesh Fence
    Const. Temp. Orange Plastic Mesh Fence
12. Relocate Power Pole - 2
    (By Others)
13. Relocate Power Box
    (By Others)

REVISED AS CONSTRUCTED

RAY CRANSTON, P.L.S.

DATE 2-14-2012

Remove Building Shown Thus: ☒
(By Others)

Contractor May Not Occupy Area Prior To 1 May 2011 Shown Thus:

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT

RENEWS: 12-31-2011

OREGON DEPARTMENT OF TRANSPORTATION

**REGION 2 TECH CENTER**

**OR34: ROCHE STREET - WOLCOTT ROAD SEC.**
CORVALLIS - LEBANON HIGHWAY
LINN COUNTY

Design Team Leader - Carol Cartwright
Designed By - Kathy Fry
Drafted By - Jeff Larson

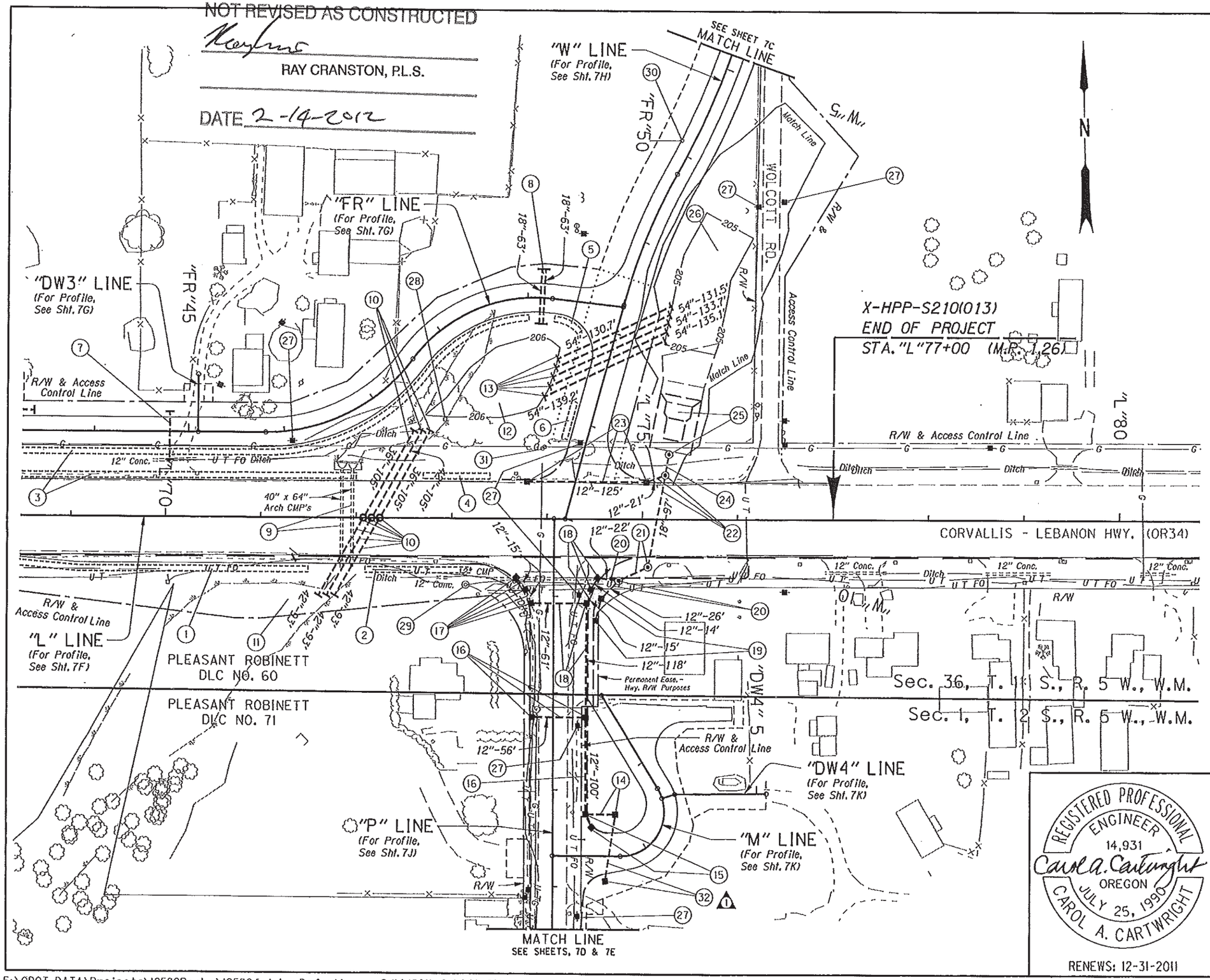
**GENERAL CONSTRUCTION**

SHEET NO. 6

NOT REVISED AS CONSTRUCTED

RAY CRANSTON, P.L.S.

DATE 2-14-2012




| No. | DATE | REVISIONS | BY |
|---|---|---|---|
| 1 | 02-14-11 | Added Pipe & Inlet | K.F. |
| | | | |

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

OR34: ROCHE STREET - WOLCOTT ROAD SEC.
CORVALLIS - LEBANON HIGHWAY
LINN COUNTY

Design Team Leader - Carol Cartwright
Designed By - Kathy Fry
Drafted By - Jeff Larson

DRAINAGE & UTILITIES

SHEET NO. 7B

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT

RENEWS: 12-31-2011

(1) See Sht. 6, Note 6

(2) Sta. "L" 72+10 To Sta. "L" 73+20, Rt.
Const. Bioslope
(For Details, See Sht. GJ & GJ-9)

(3) See Sht. 6, Note 5

(4) Sta. "L" 72+70 To Sta. "L" 73+40, Lt.
Const. Bioslope
(For Details, See Sht. GJ & GJ-9)

(5) Sta. "FR" 49+30 To Sta. "FR" 49+60, Rt.
Const. Bioslope
(For Details, See Sht. GJ & GJ-9)

(6) Sta. "W" 8+80 To Sta. "W" 9+20, Rt.
Const. Bioslope
(For Details, See Sht. GJ & GJ-9)

(7) Sta. "FR" 44+80
Inst. 10" Culv. Pipe (DI) - 50'
5' Depth
(For Details, See Sht. GE-5)

(8) Sta. "FR" 49+13 To Sta. "FR" 49+17
Inst. 18" Culv. Pipes - 126' (Total)
5' Depth
(For Details, See Sht. GE-5)
(See Drg. No. RD300)

(9) Remove Extg. Pipes - 2
Trench Resurfacing - 138 Sq. Yd.
(For Details, See Sht. 2B-8)
(See Drg. No. RD302)

(10) Sta. "L" 72+07.5
Sta. "L" 72+16
Sta. "L" 72+24.5
Const. Shallow Manhole - 3
Inst. 42" Culv. Pipe - 384' (Total)
10' Depth
Inst. 36" Culv. Pipe - 210' (Total)
5' Depth
Const. Paved End Slope - 740 Sq. Ft.
Const. Riprap (Class 100) - 10 Cu. Yd.
Inst. Riprap Geotextile (Type 1) - 21 Sq. Yd.
Trench Resurf. - 211 Sq. Yd.
(For Details, See Shts. GE, GE-5 & 2B-8)
(See Drg. Nos. RD300, RD320, RD342, RD356
RD388, RD390 & RD391)

(11) Side Slope At Pipes
Contour Grading Plan
(For Details, See Sht. GN)

(12) Loop Depression
Contour Grading Plan
(For Details, See Sht. GN)

(13) Sta. "W" 7+98 To Sta. "W" 8+37.2
Inst. 54" Culv. Pipes - 671' (Total)
10' Depth
Const. Paved End Slope - 1,770 Sq. Ft.
(For Details, See Shts. GE-3 & GE-5)
Const. Riprap (Class 100) - 15 Cu. Yd.
Inst. Riprap Geotextile (Type 1) - 38 Sq. Yd.
(See Drg. No. RD300)

(14) Sta. "P" 3+25, Lt.
Const. Type "G-2MA" Mod. Inlet
Inst. 12" Sew. Pipe - 31.5'
5' Depth
(For Details, See Sht. 2B-3)

(15) Sta. "P" 3+25, Lt.
Const. Type "CG-2" Inlet - 2
Inst. 12" Sew. Pipe - 15'
5' Depth

(16) Sta. "P" 2+25, Lt. & Rt.
Const. Type "CG-2" Inlet - 2
Inst. 12" Sew. Pipe - 156'
5' Depth
Trench Resurfacing - 9 Sq. Yd.

(17) Sta. "P" 1+07, Rt.
Const. Type "CG-2" Inlet - 3
Inst. 12" Sew. Pipe - 30'
5' Depth

(18) Sta. "P" 1+07, Lt.
Const. Type "CG-2" Inlet - 3
Inst. 12" Sew. Pipe - 208'
5' Depth

(19) Sta. "P" 1+25 To Sta. "P" 1+01.8, Lt.
Const. Type "G-2" Inlet - 2
Inst. 12" Sew. Pipe - 24'
5' Depth

(20) Sta. "P" 0+83.4, 68' Lt.
Const. Manhole With Inlet
Inst. 12" Sew. Pipe - 48'
5' Depth
(See Drg. No. RD348)

(21) Sta. "P" 0+69, Lt.
Const. Manhole
Inst. 18" Sew. Pipe - 34'
5' Depth

REVISED AS CONSTRUCTED

RAY CRANSTON, P.L.S.

DATE 2-14-2012

(22) Sta. "L" 75+23.7, Lt.
Const. Manhole
Inst. 12" Sew. Pipe - 21'
5' Depth
Inst. 18" Sew. Pipe - 97'
5' Depth
Trench Resurfacing - 30 Sq. Yd.
(For Details, See Sht. 2B-8)

(23) Sta. "P" 73+79, Lt.
Const. Type "G-2" Inlet - 2
Inst. 12" Sew. Pipe - 125'
5' Depth

(24) Sta. "L" 75+23.7 To Sta. "B1" 3+99
Inst. 18" Sew. Pipe - 22'
5' Depth

(25) Const. Bioretention Cell
Const. Diversion M.H.
(For Details, See Sht. GJ-2, Note 2)

(26) Wolcott Road Depression
Contour Grading Plan
(For Details, See Sht. GN)

(27) Relocate Power Pole - 7
(By Others)

(28) Relocate Communication Riser
(By Others)

(29) Relocate Telephone M.H.
(By Others)

Left in Place
Not Necessary

(30) Relocate Water Valve
(By Others)

(31) Adjust Gas Valve Boxes - 2
(By Others)

(1) (32) Sta. "M" 1+55, Rt.
Const. Type "D" Inlet
Inst. 12" Sew. Pipe - 70'
5' Depth

| No. | DATE | REVISIONS | BY |
|---|---|---|---|
| 1 | 02-14-11 | Added Note | K.F. |
| | | | |

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT

RENEWS: 12-31-2011

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

OR34: ROCHE STREET - WOLCOTT ROAD SEC.
CORVALLIS - LEBANON HIGHWAY
LINN COUNTY

Design Team Leader - Carol Cartwright
Designed By - Kathy Fry
Drafted By - Jeff Larson

NOTES

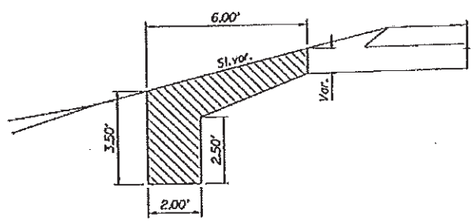
SHEET NO. 7B-2

REVISED AS CONSTRUCTED

RAY CRANSTON, P.L.S.

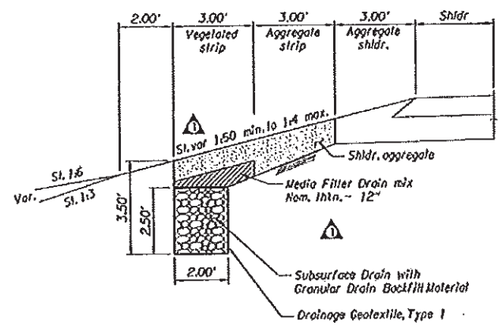
DATE 2-21-12

44V-024




Pay Limits of Bioslope Excavation

BIOSLOPE EXCAVATION




BIOSLOPE SECTION
1:50 MIN. SLOPE

NOTE:
Side-slopes are shown as vert. to horiz.

| No. | DATE | REVISIONS | BY |
|---|---|---|---|
| 1 | 04-12-11 | Modified detail, removed note | BU |
| | | | |
| | | | |
| | | | |

REGISTERED PROFESSIONAL ENGINEER
14475
Bo Miller
OREGON
JULY 26, 1989
BO MILLER
RENEWS: 12-31-2012

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

OR34: ROCHE STREET - WOLCOTT ROAD SEC,
CORVALLIS - LEBANON HIGHWAY
LINN COUNTY

Reviewed By - Bruce Carmichael, P.E.
Designed By - Bo Miller, P.E.
Drafted By - Sandra Glah

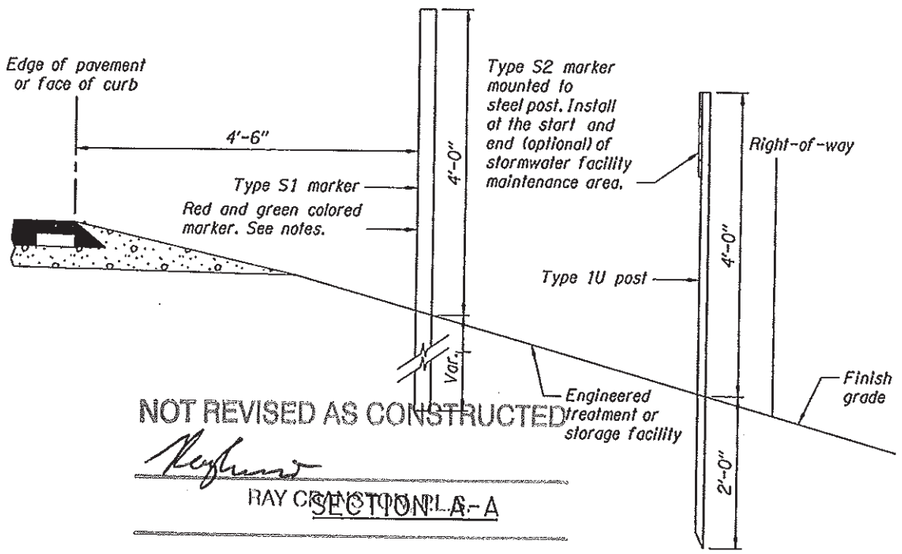
STORMWATER
BIOSLOPE DETAILS

SHEET NO. GJ

\\Scdata2\2610drafting\Projects\12580_roche-wolcott\Sandra_Glah\12580f.gjl :: Default 4/12/2011 10:43:44 AM hwye947

1:1200_BL - 001

Attachment 1
OR34: Roche Street - Wolcott Road
C14326, CCO 01
Page 4 of 6

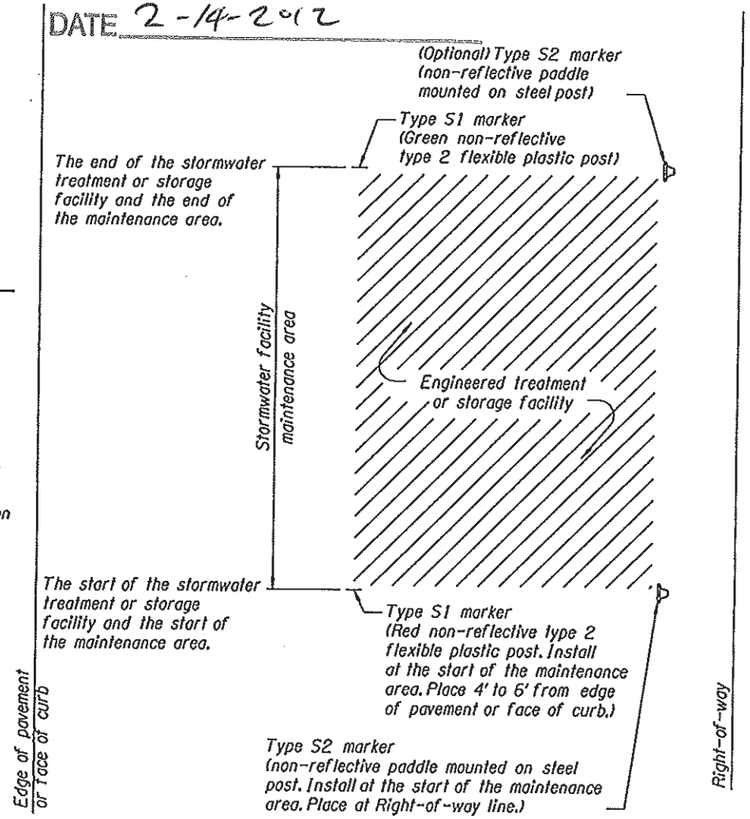



NOT REVISED AS CONSTRUCTED

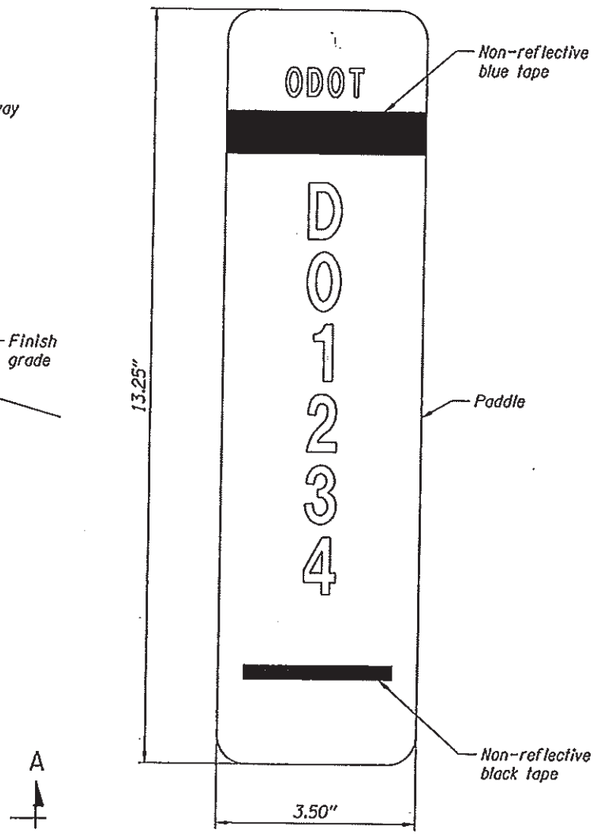
RAY CHRISTOPHER L.A.-A

SECTION L.A.-A

DATE 2-14-2012

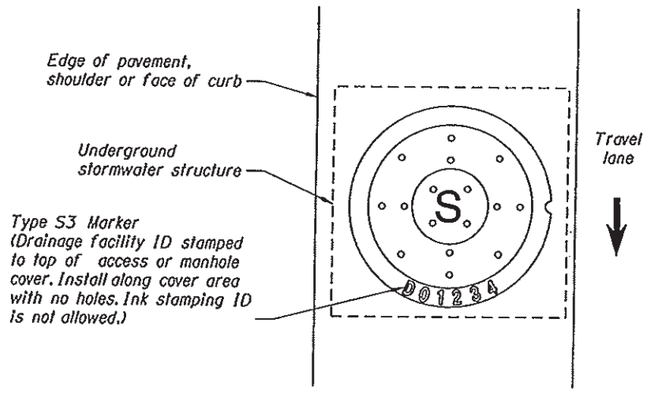



TYPE S1 & S2 MARKERS INSTALLATION DETAIL




TYPE S2 MARKER

(STATE SUPPLIED ITEM)




TYPE S3 MARKER INSTALLATION DETAIL

MARKER TABLE

| FACILITY LOCATION | | DFI NO. | TYPE S2 MARKER LOCATION | | TYPE S1 MARKER | | TYPE S3 MARKER |
|---|---|---|---|---|---|---|---|
| STATION | HWY MP, OFFSET | | BEGIN | END | RED | GREEN | |
| "FR" 39+75 | 1.03, 67.15' Lt | D00062 | ✓ | | ✓ | | |
| "FR" 49+00 | 1.20, 209.17' Lt | D00062 | | ✓ | | ✓ | |
| "FR" 49+30 | 1.20, 207.96' Lt | D00063 | ✓ | | ✓ | | |
| "FR" 49+60 | 1.21, 191.63' Lt | D00063 | | ✓ | | ✓ | |
| "L" 65+00 | 1.03, 41.85' Lt | D00064 | ✓ | | ✓ | | |
| "L" 72+00 | 1.17, 43.49' Lt | D00064 | | ✓ | | ✓ | |
| "L" 67+75 | 1.08, 42.67' Rt | D00065 | ✓ | | ✓ | | |
| "L" 71+50 | 1.15, 53.79' Rt | D00065 | | ✓ | | ✓ | |
| "L" 72+10 | 1.17, 53.78' Rt | D00066 | ✓ | | ✓ | | |
| "L" 73+20 | 1.19, 53.28' Rt | D00066 | | ✓ | | ✓ | |
| "L" 72+70 | 1.18, 43.55' Lt | D00067 | ✓ | | ✓ | | |
| "L" 73+40 | 1.19, 43.81' Lt | D00067 | | ✓ | | ✓ | |
| "L" 75+28 | 1.23, 67.16' Lt | D00068 | | | | | ✓ |
| "P" 9+20 | 1.19, 900.65' Rt | D00069 | | | | | ✓ |
| "W" 8+80 | 1.21, 121.87' Lt | D00070 | ✓ | | ✓ | | |
| "W" 9+20 | 1.21, 83.25' Lt | D00070 | | ✓ | | ✓ | |

✓ Check where appropriate
Red = Beginning of facility
Green = End of facility

NOTES:

Stormwater Facility Field Marker Type S1:
1. See Standard Drawing TM570 for Type 2 flexible plastic post dimensions. Do not mount reflective sheeting to flexible plastic post.
2. A red Type S1 marker is used to mark the start of a stormwater facility maintenance area. A green Type S1 marker is used to mark the end of a stormwater facility maintenance area.
3. Place 4 to 6 feet from edge of pavement or face of curb.
4. See marker table for installation locations.

Stormwater Facility Field Marker Type S2:
1. Paddle:
   - Aluminum sheet, nominal thickness 0.050"
   - White non-reflective background
   - Mount paddle to one (1) Type 1U steel post using 3/16" diameter aluminum blind rivets and washers. See Standard Drawing TM 570 detail labeled "Steel Posts" for mounting a traffic target. Install paddle onto Type 1U steel post using the same hole pattern.
   - Text and numbers are Type C font in non-reflectorized black
   - Band is non-reflective blue tape
   - Do not mount paddle to other highway signing posts
   - Install paddle parallel to travel lane
   - Prepare paddle for each "DFI" noted in the marker table
2. Steel Posts:
   - See Standard Drawing TM571 for Type 1U steel post dimensions

Stormwater Facility Field Marker Type S3:
1. The top of access or manhole cover shall be stamped with the drainage facility ID. Ink stamping ID is not allowed.

REGISTERED PROFESSIONAL ENGINEER
14475
Bo Miller
OREGON
JULY 26, 1989
BO MILLER

RENEWS: 12-31-2010

OREGON DEPARTMENT OF TRANSPORTATION

REGION 2 TECH CENTER

OR34: ROCHE STREET - WOLCOTT ROAD SEC.
CORVALLIS - LEBANON HIGHWAY
LINN COUNTY

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Designed By - Taundra Mortensen
Drafted By - Jeff Larson

STORMWATER DETAILS

SHEET NO. GJ-9