OPERATION & MAINTENANCE MANUAL

Water Quality Filter Strip

Manual prepared: July 2019

DFI No. D00560 & D00562

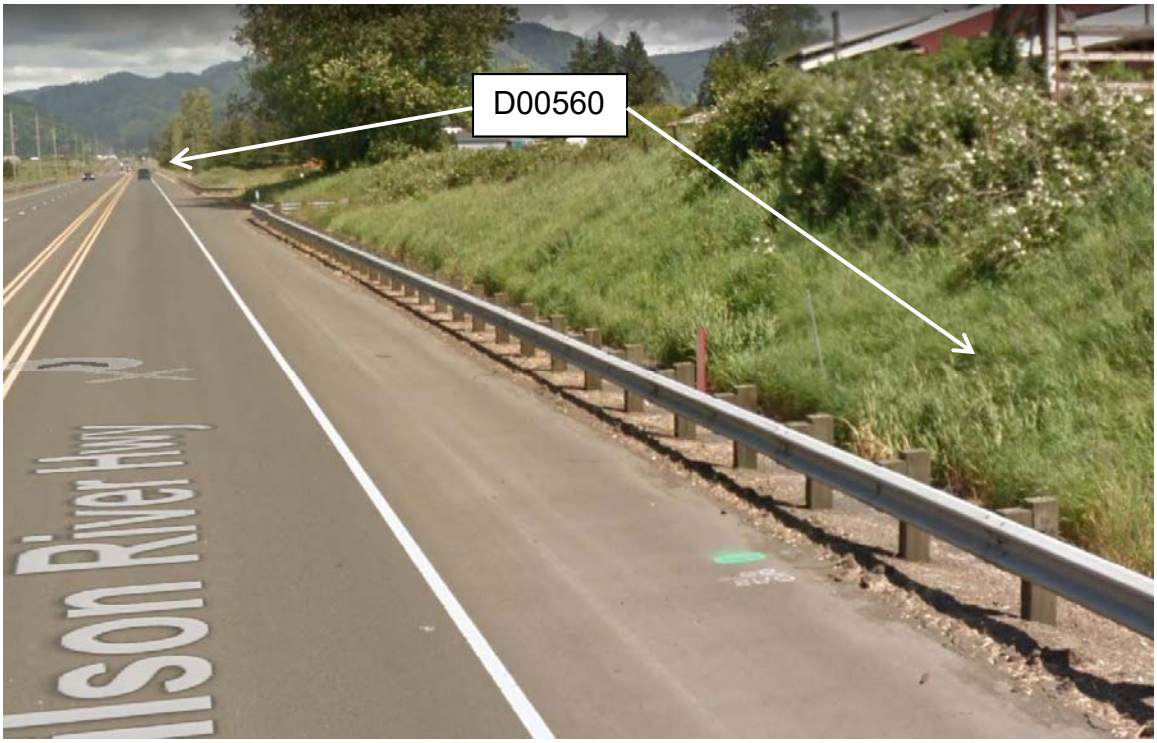


Figure 1: DFI No. D00560, looking East

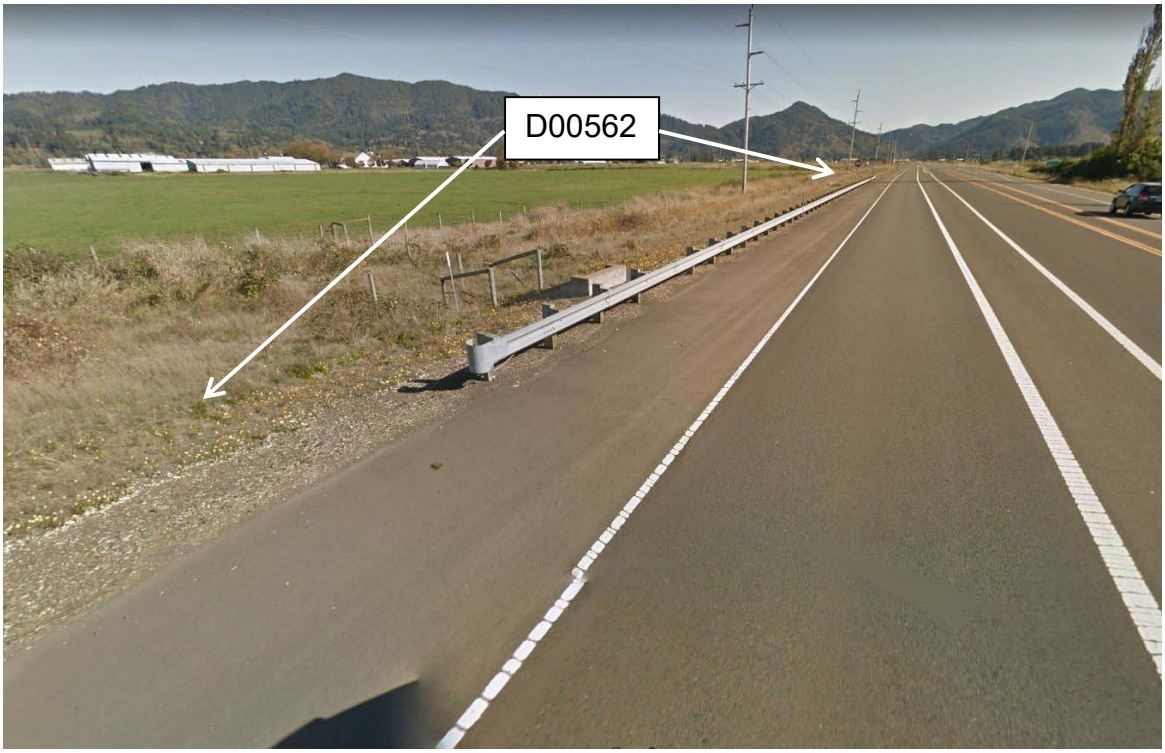


Figure 2: DFI No. D00562, looking East

1. Identification

Drainage Facility ID (DFI):	D00560
Facility Type:	Water Quality Filter Strip
Construction Drawings:	(V-File Numbers) 45V-035
Location:	District: 1
	Highway No.: 037
	Mile Post: 1.0 to 1.8, [Right]

Drainage Facility ID (DFI):	D00562
Facility Type:	Water Quality Filter Strip
Construction Drawings:	(V-File Numbers) 45V-035
Location:	District: 1
	Highway No.: 037
	Mile Post: 1.64 to 1.90, [Left]

2. Manual Purpose

The purpose of this manual is to outline inspection needs and summarize maintenance actions.

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. **NOTE: Mile posts are based off of the V-File, and may vary from TransGIS mile posts.**

Facility location type: **Roadway shoulder**

Flow direction: East to West

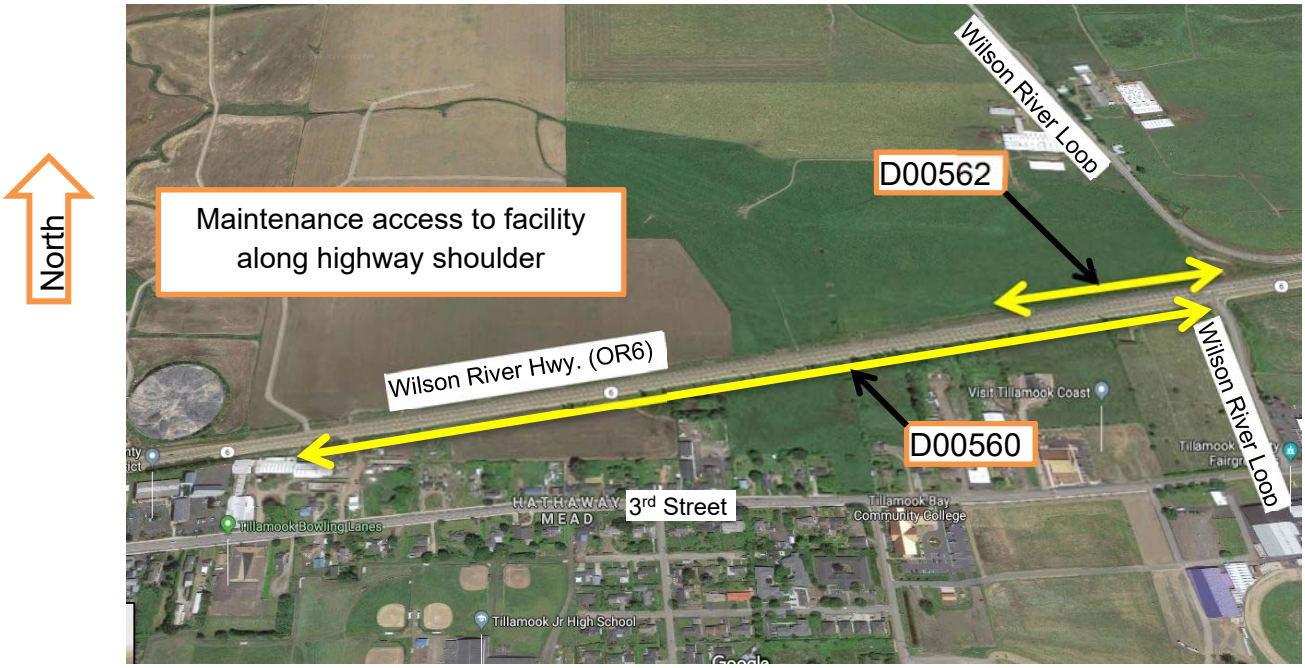


Figure 3: D00560 & D00562 facility location map

4. Facility Summary

The width is measured perpendicular to the edge of pavement and is equivalent to the flow length. The length is measured parallel to the edge of pavement and is equivalent to the length of the contributing impervious area.

The length and width of the applicable facility components are:

Component	Length (feet)	Width (feet)
D00560	**4,244**	**4**
D00562	**1,352**	**4**

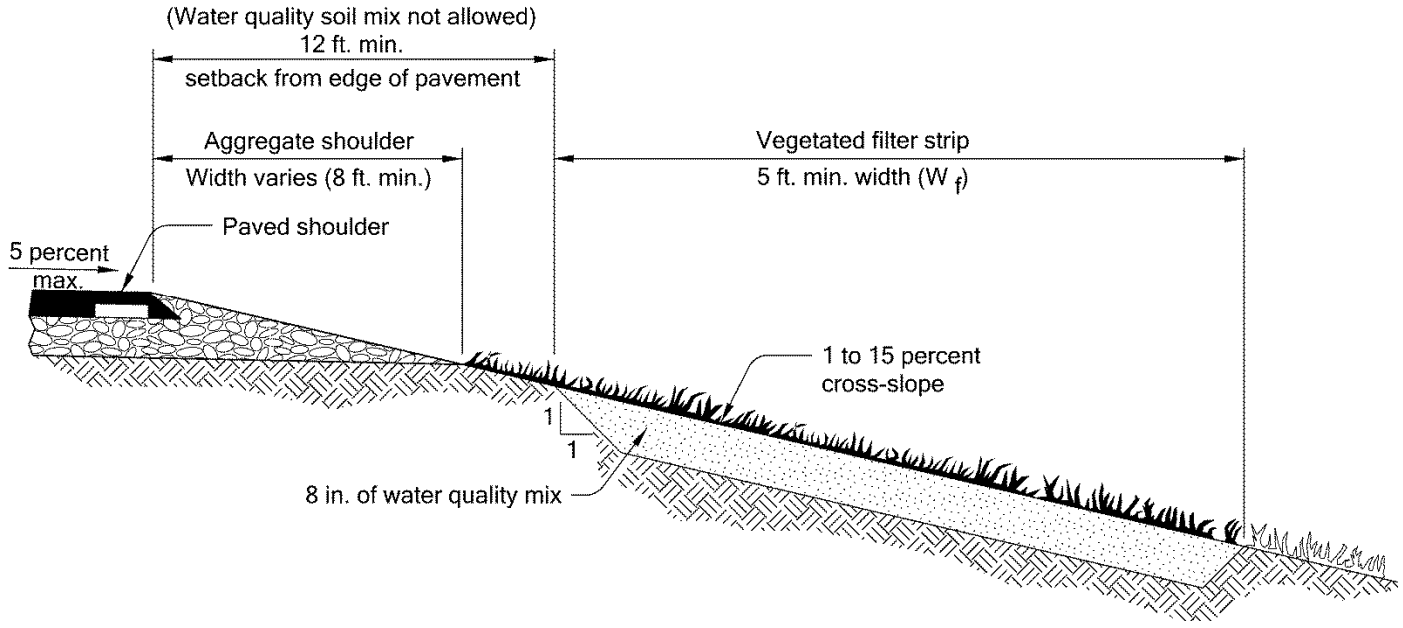


Figure 2: Filter Strip Section

The slope of the facility is presented by a vertical distance (rise) followed by the horizontal distance (run).

Side Slope	Rise (feet)	Run (feet)
D00560	**1**	**7 to 4**
D00562	**1**	**7 to 4**

Site Specific Information: Sheet flow runoff will drain toward the highway shoulders and filter strips in these areas where it will receive treatment.

5. Facility Access

Maintenance access to the facility:

☐Roadside pad	☒Roadside shoulder
☐Access road with Gate	☐Access road without Gate

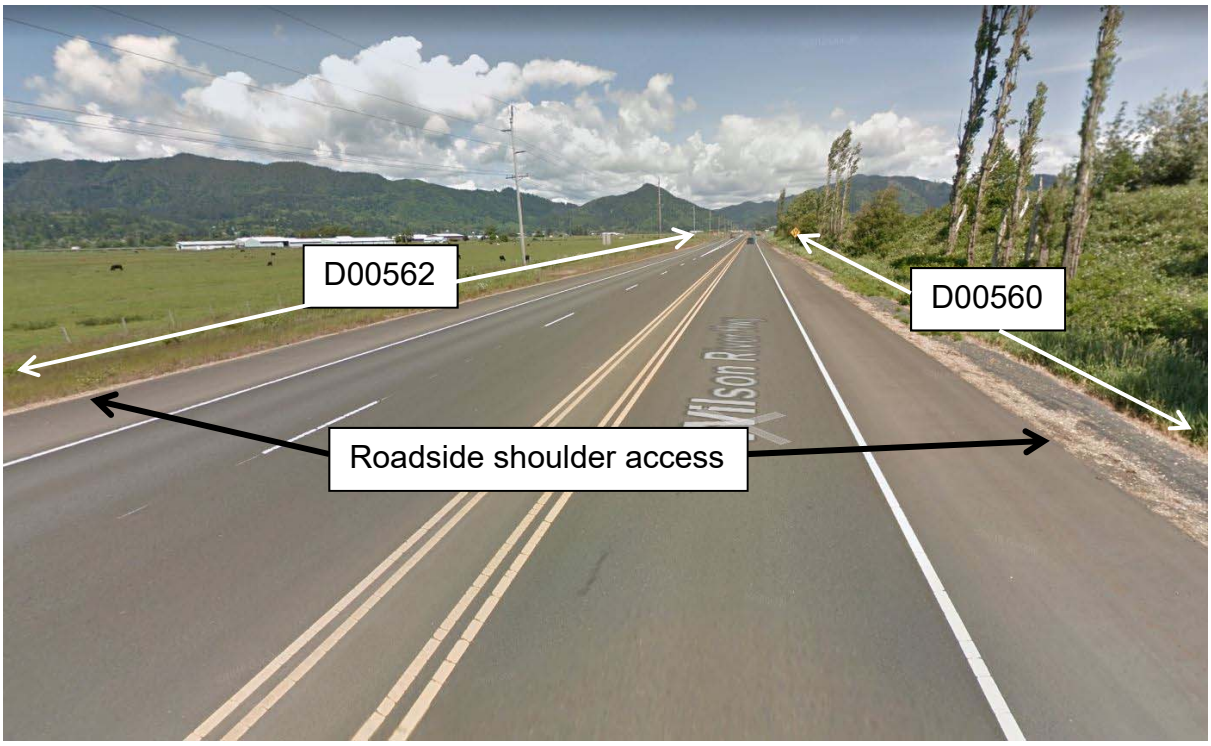


Figure 3: Roadside shoulder access

6. Operational Components / Maintenance Items

Classification and Standard Operational (Op) Plan:

This facility is classified as a:

☒ Filter Strip (Op Plan A)	☐ Bioslope (Op Plan B)
A filter strip consists of a vegetated or media slope located parallel to the edge of pavement. It maintains sheet flow of stormwater runoff over the width of the strip.	A bioslope consists of a filter strip and treatment zone. It is a flow-through stormwater treatment facility located along roadside embankments.
A standard operational plan illustrates the general facility footprint configuration and explains the purpose of each facility component. Operational plans (A, B) are provided in the Standard Operation Manual.	

See Appendix A for the site specific operational plan.

Operational Components

Filter strips have many components that assist with treatment, conveyance, and infiltration of stormwater runoff. The components in use can vary depending on the facility design. 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 Filter Strips (implemented May 2019) 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: Filter Strip Components		ID #
Facility Inlet		
Pavement Sheet Flow	☒	**B1**
Shoulder Aggregate	☐	**B2**
Ground Cover		
Vegetated Slope	☒	**B3**
Aggregate Media Slope	☐	**B4**
Underground Components		
Water Quality Mix	☐	**B5**
Ecology Mix	☒	**B6**
Granular Drain Backfill Material	☐	**B7**
Geotextile Fabric	☐	**B8**
Geocell Grid	☐	**B9**
Structures		
Curb/Berm	☐	**B10**
Check Dam	☐	**B11**
Cleanout	☐	**B12**
Facility Outlet		
Perforated Drain Pipe	☐	**B13**
Open Slope Outlet	☐	**B14**
Open Channel Outlet	☐	**B15**
Storm Drain Outlet Pipe	☐	**B16**
Outfall Type		
Waterbody (**C**reek/**L**ake/**O**cean)	☐ **C** ☐ **L** ☐ **O**	**B17**
Outfall Channel	☐	**B18**
Storm Drain System	☐	**B19**
Outfall Components		
Pervious Berm	☐	**B20**
Riprap Pad	☐	**B21**

7. Maintenance

Maintenance Frequency/Maintain Records

a. Inspect annually. Preferably prior to the rainy season.
b. Clean and maintain as necessary. Refer to Activity 125 for conditions when maintenance is needed.
c. Keep a record of inspections, maintenance, and repairs.

Maintenance Guide/Maintenance Actions

The ODOT Routine Road Maintenance Water Quality and Habitat Guide (the *Blue Book*) 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 filter strips:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities
- Table 4 (Water Quality Filter Strips)

The ODOT Maintenance Guide can be viewed at the following website:
http://www.oregon.gov/ODOT/HWY/OOM/pages/mguide.aspx

The *Blue Book* can be viewed at the following website:
http://www.oregon.gov/ODOT/Maintenance/Documents/blue_book.pdf

8. Limitations

Filter strips are NOT designed to allow the use of heavy equipment. Vehicles entering the facility can create depressions (tire ruts), damage vegetation, and damage structural components (e.g. flow spreaders). These conditions may result in poor treatment and drainage performance.

9. 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

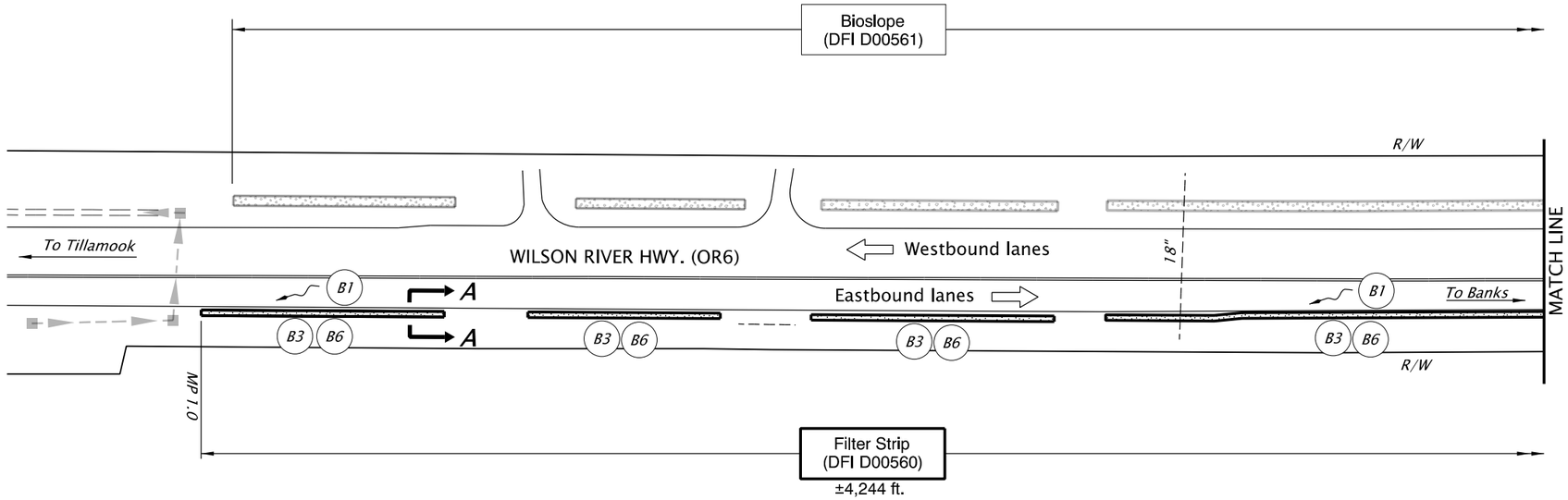
Contact any of the following for more detailed information about management of waste materials found on site:

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:

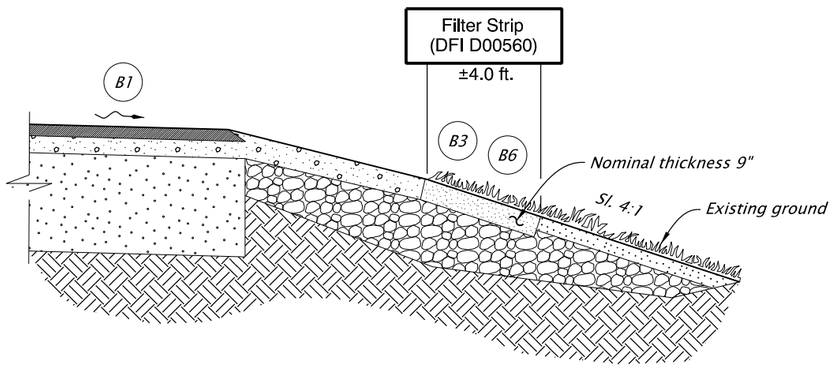
Operational Plan: DFI D00560 & D00562



PLAN
N.T.S.

LEGEND:

- *B#* — *Facility Component (see table 1 in O&M Manual)*
- *and / or* — *Manhole*
- *and / or* — *Inlet*
- *Storm Pipe (Facility)*
- *Storm Pipe*
- *Ditch Line*
- *Filter Strip Boundary*
- *Bioslope Boundary*
- *Conveyance Direction*
- *Pavement / Facility Flow Path*
- *Traffic Flow Direction*



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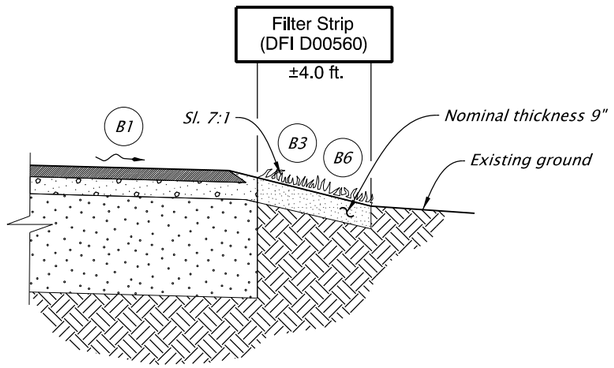


SECTION A–A (Cut)
N.T.S.

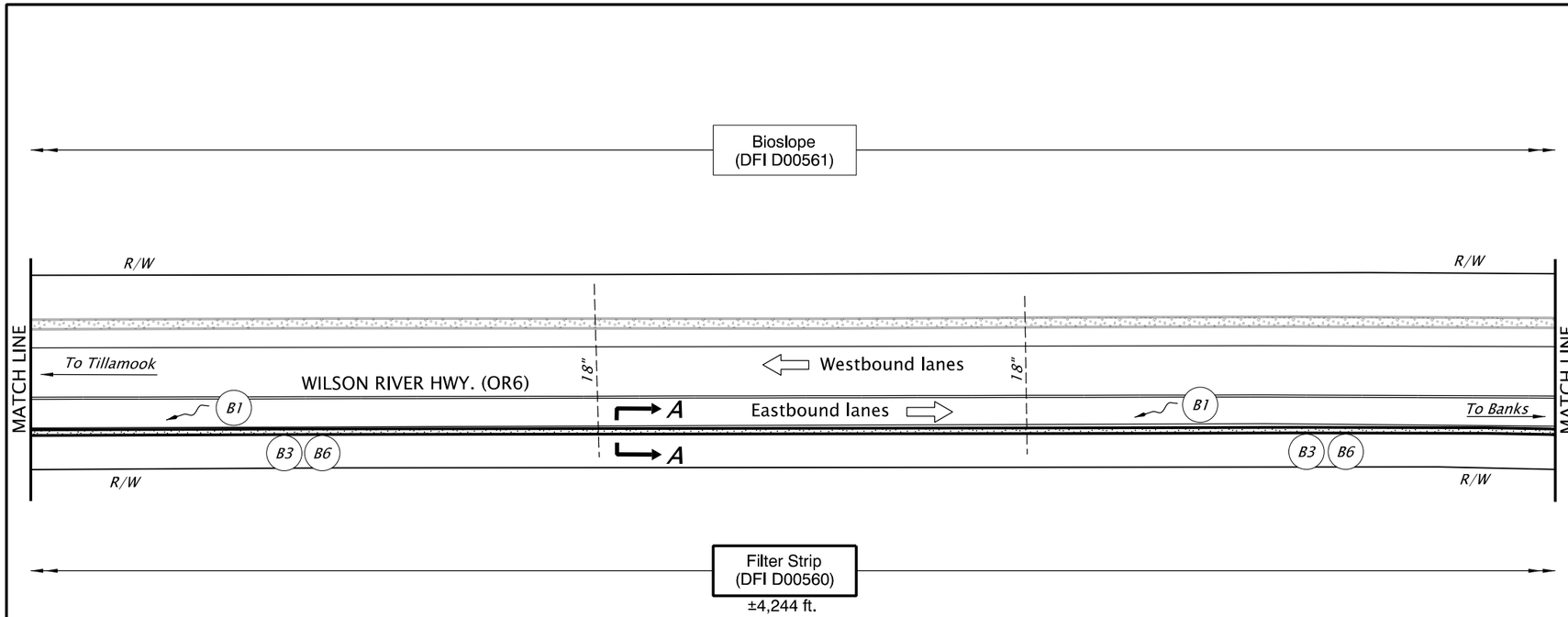
OREGON DEPARTMENT OF TRANSPORTATION

Sht. 1 of 4

Prepared By: Ramiro Perez

Drafted By: Jeff Coon

DFI D00560
MAINTENANCE DISTRICT 1 HWY 37
WATER QUALITY FILTER STRIP
WILSON RIVER HIGHWAY MP 1.0
TILLAMOOK COUNTY



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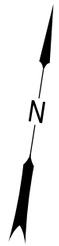

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- *Traffic Flow Direction*

Note:
See sheet 1 of 4 (DFI D00560) for "SECTION A-A" details.

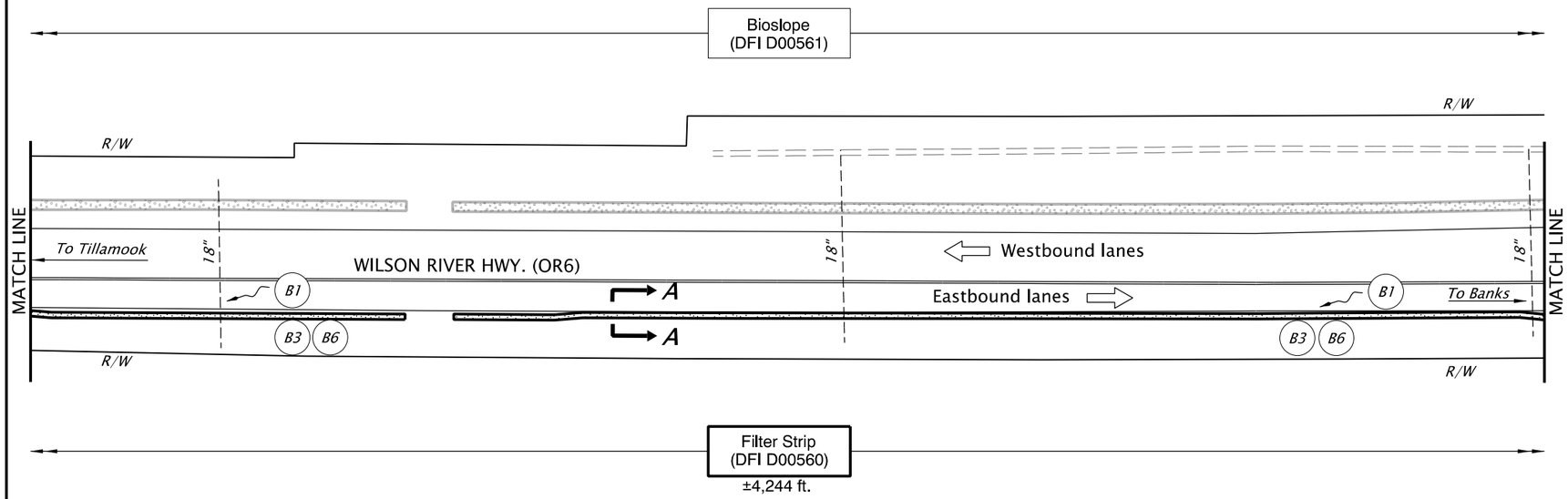
OREGON DEPARTMENT OF TRANSPORTATION

Sht. 2 of 4

Prepared By: Ramiro Perez

Drafted By: Jeff Coon

DFI D00560
MAINTENANCE DISTRICT 1 HWY 37
WATER QUALITY FILTER STRIP
WILSON RIVER HIGHWAY MP 1.0
TILLAMOOK COUNTY



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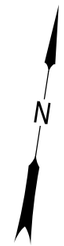

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Note:
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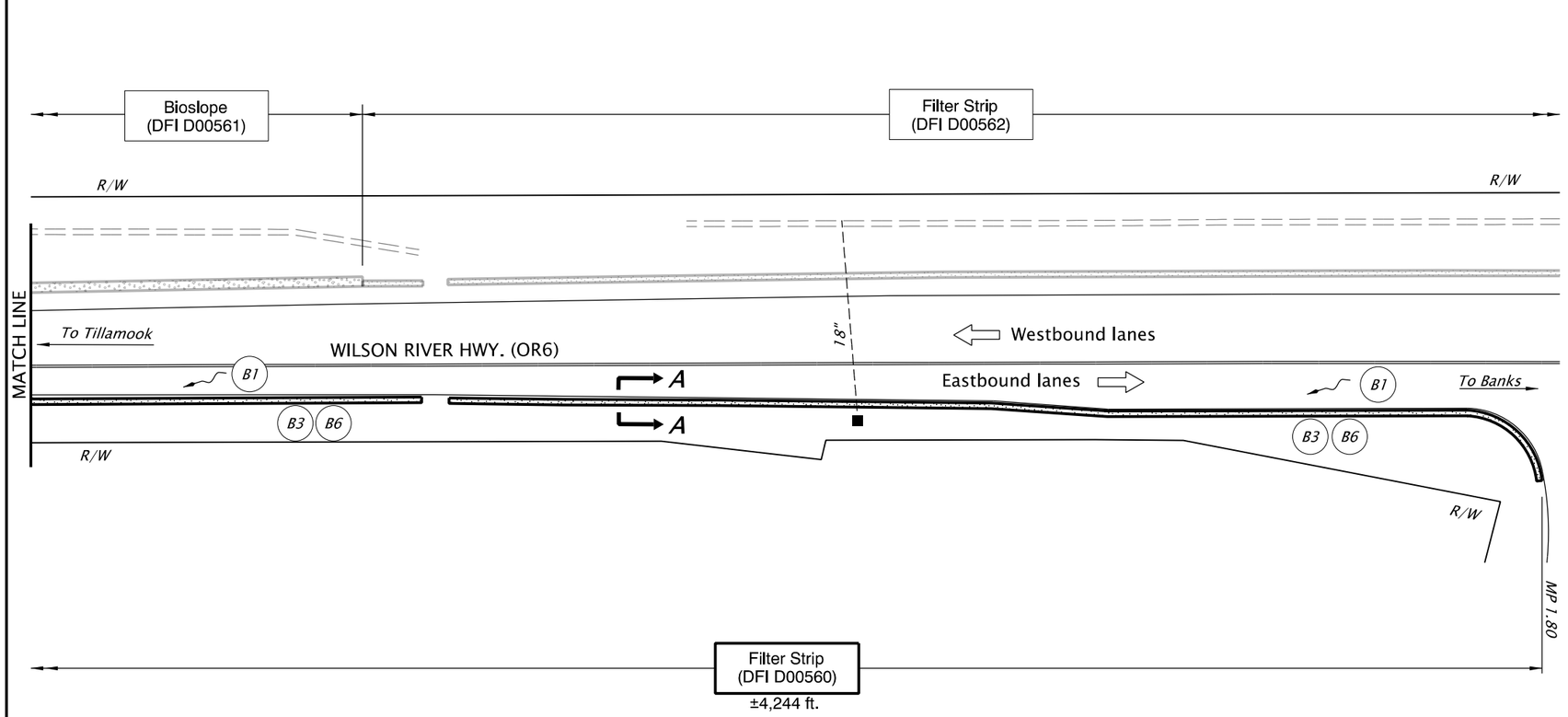
OREGON DEPARTMENT OF TRANSPORTATION

Sht. 3 of 4

Prepared By: Ramiro Perez

Drafted By: Jeff Coon

DFI D00560
MAINTENANCE DISTRICT 1 HWY 37
WATER QUALITY FILTER STRIP
WILSON RIVER HIGHWAY MP 1.0
TILLAMOOK COUNTY



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Note:
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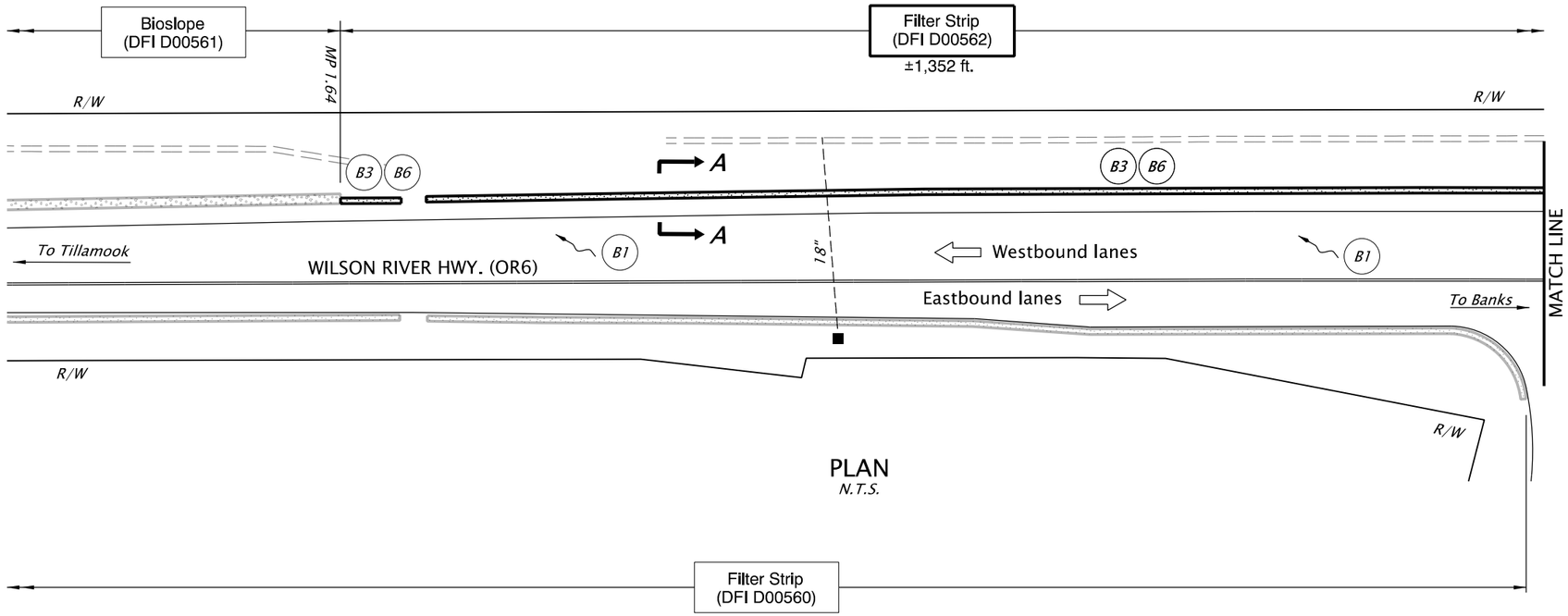
OREGON DEPARTMENT OF TRANSPORTATION

Sht. 4 of 4

Prepared By: Ramiro Perez

Drafted By: Jeff Coon

DFI D00560
MAINTENANCE DISTRICT 1 HWY 37
WATER QUALITY FILTER STRIP
WILSON RIVER HIGHWAY MP 1.0
TILLAMOOK COUNTY



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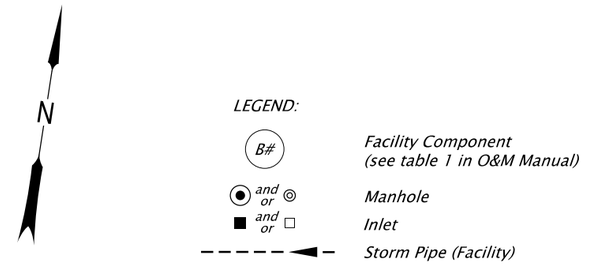

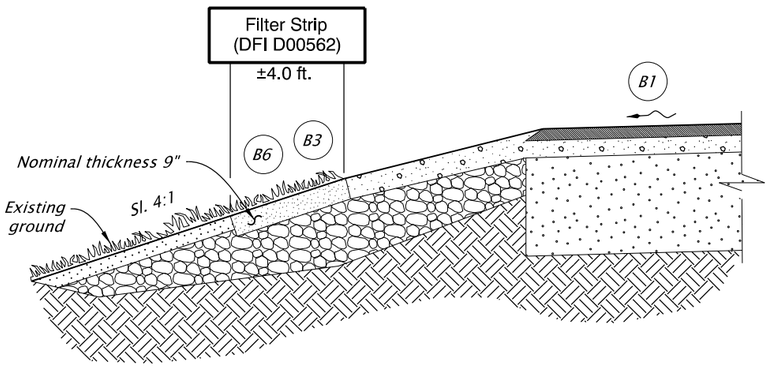

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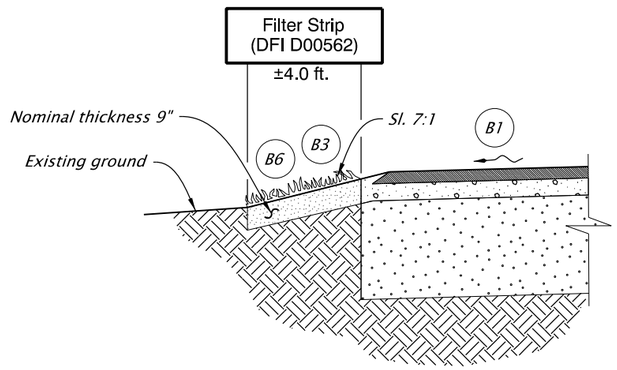


SECTION A–A (Cut)
N.T.S.

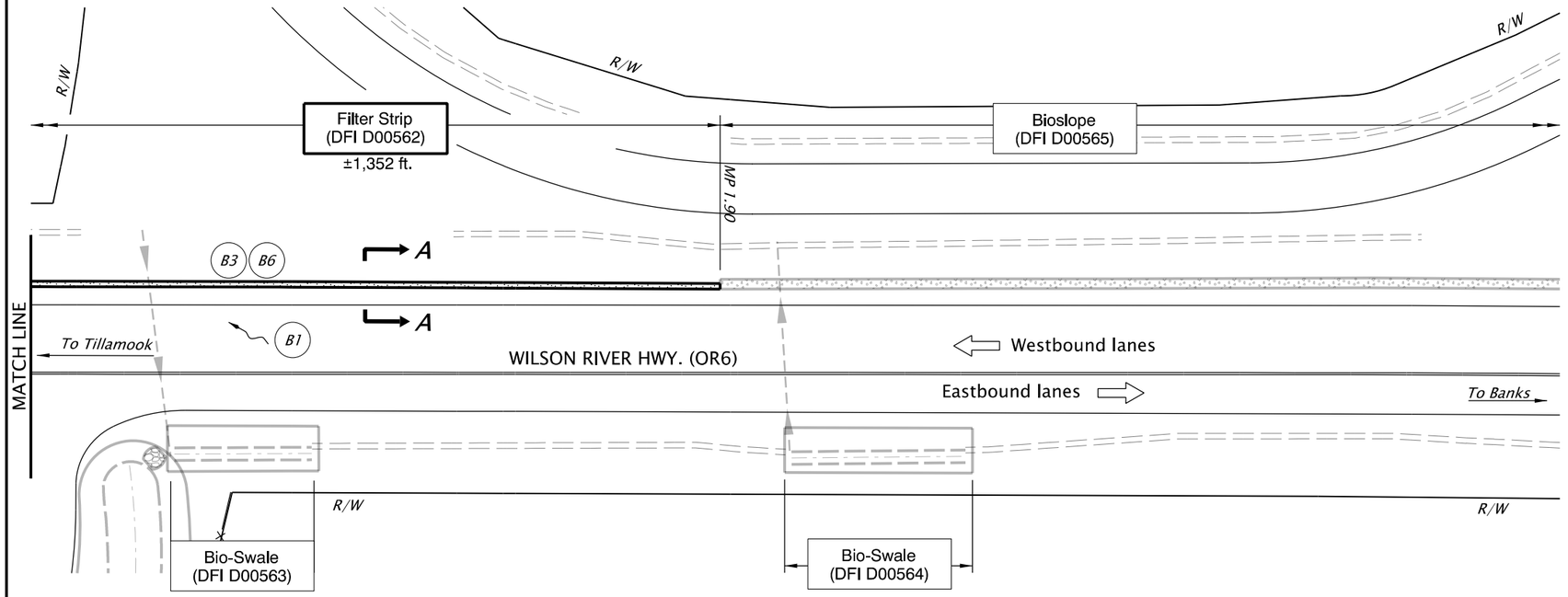
Sht. 1 of 2

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By:
Ramiro Perez

Drafted By:
Jeff Coon

DFI D00562
MAINTENANCE DISTRICT 1 HWY 37
WATER QUALITY FILTER STRIP
WILSON RIVER HIGHWAY MP 1.64
TILLAMOOK COUNTY



PLAN
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- *Storm Pipe*
- *Ditch Line*
- *Swale Bottom*
- *Filter Strip Boundary*
- *Bioslope Boundary*
- *Swale Boundary*
- *Conveyance Direction*
- *Pavement / Facility Flow Path*
- *Traffic Flow Direction*

Note:
See sheet 1 of 2 (DFI D00562) for "SECTION A-A" details.

OREGON DEPARTMENT OF TRANSPORTATION

Sht. 2 of 2

Prepared By: Ramiro Perez

Drafted By: Jeff Coon

DFI D00562
MAINTENANCE DISTRICT 1 HWY 37
WATER QUALITY FILTER STRIP
WILSON RIVER HIGHWAY MP 1.64
TILLAMOOK COUNTY

B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 45V-035

45V-035

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

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

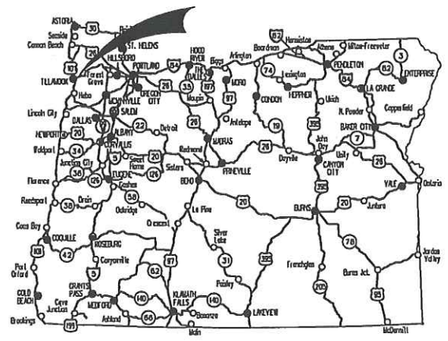
PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, AND ROADSIDE DEVELOPMENT

OR6 @ WILSON RIVER LOOP ROAD SEC.

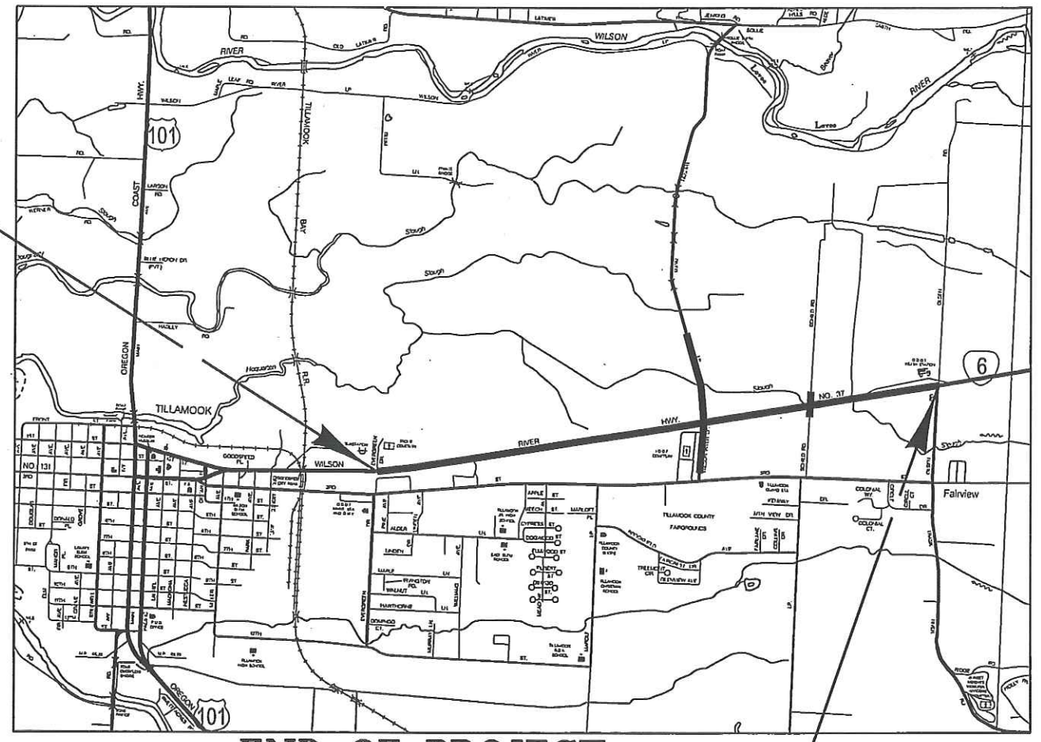
WILSON RIVER HIGHWAY

TILLAMOOK COUNTY
JUNE 2012



Overall Length Of Project - 1.78 Miles

BEGINNING OF PROJECT
NH-S037(026)
STA. "L" 39+50 (M.P. 0.75)



END OF PROJECT
NH-S037(026)
STA. "L" 133+35 (M.P. 2.52)

T. 1 S., R. 9 W., W.M.

EXPIRES: 6-30-2014

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.)

PLANS PREPARED FOR
OREGON DEPARTMENT OF TRANSPORTATION
BY:

WHPacific
3470 Pipebend Place
Suite 170
Salem, OR 97301
t: 503.362.4675 f: 503.362.5078

OREGON TRANSPORTATION COMMISSION

Pat Egan	CHAIR
Mary F. Olson	COMMISSIONER
David Lohman	COMMISSIONER
Mark Frohnmayer	COMMISSIONER
Tommy Baney	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.

Approving Authority: 4/25/12
Signature & date

Ed Chamberland, Sr. P.M.
Print name and title

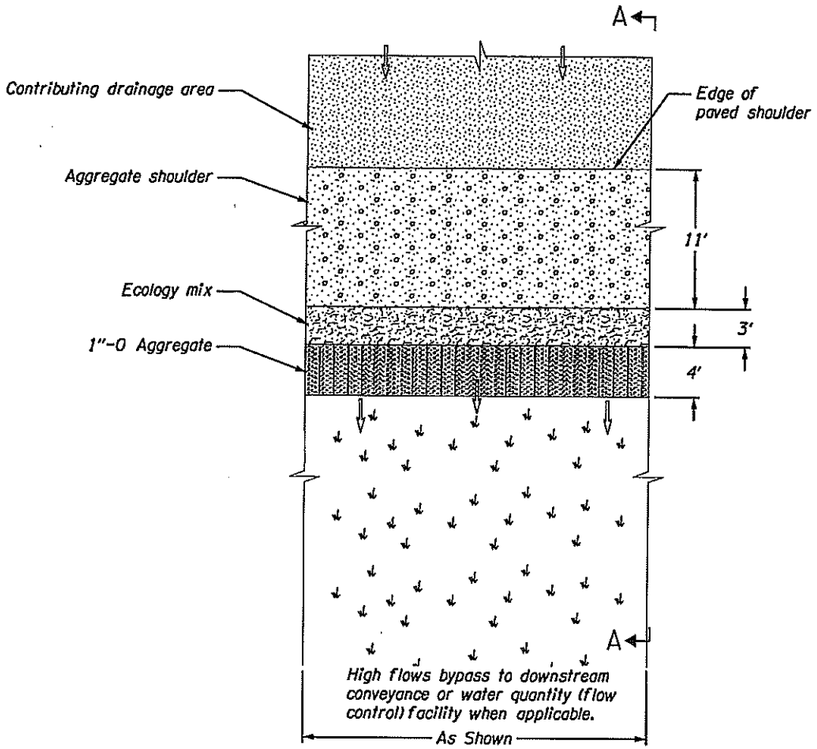
Concurrence by ODOT Chief Engineer

OR6 @ WILSON RIVER LOOP ROAD SEC.
WILSON RIVER HIGHWAY
TILLAMOOK COUNTY

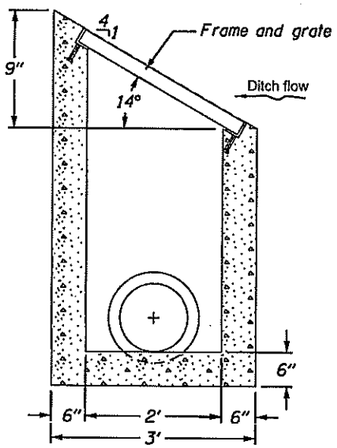
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	NH-S037(026)	1

P:\ODOT\034870\Design\Drawings\Civil\12817fd.csl :: Default 4/24/2012 3:18:09 PM lfoote

1:200 - 1

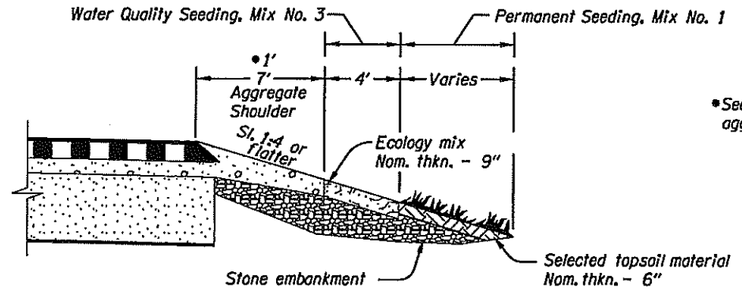


BIOSLOPE - PLAN VIEW
N.T.S.



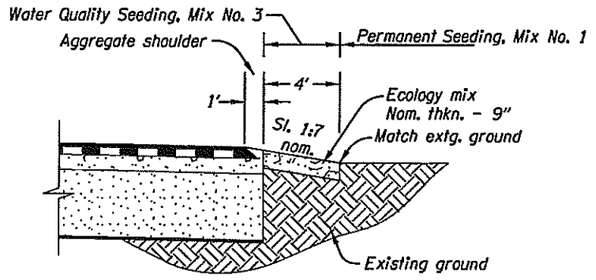
Note: Reduce standard grate and frame lengths by 4". For all other details, see drg. no. RD370.

MODIFIED TYPE D DITCH INLET
N.T.S.



•See shts. 2 thru 2A-9 for aggregate shoulder width.

BIOFILTER STRIP
"L" LINE (FILL AREAS)
N.T.S.



BIOFILTER STRIP
"L" LINE (CUT AREAS)
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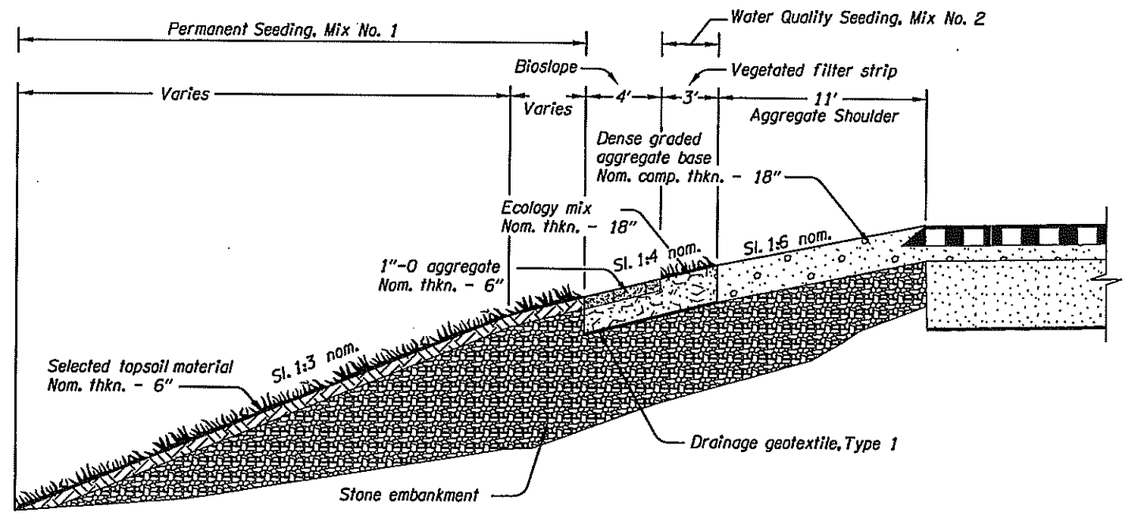

SECTION A-A
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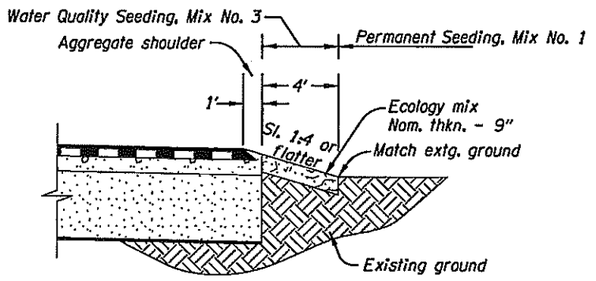


BIOFILTER STRIP
"WRLN" LINE
N.T.S.

Note: See GN series for seed mix in ditches, wetland mitigation areas, bioslopes, bioswales, biofilter strips, and biofiltration pond.

REGISTERED PROFESSIONAL ENGINEER
17810PE
Edward J. Chamberland II
OREGON
JUL 25, 1995
EDWARD J. CHAMBERLAND II
RENEWS: 12-31-2013

OREGON DEPARTMENT OF TRANSPORTATION

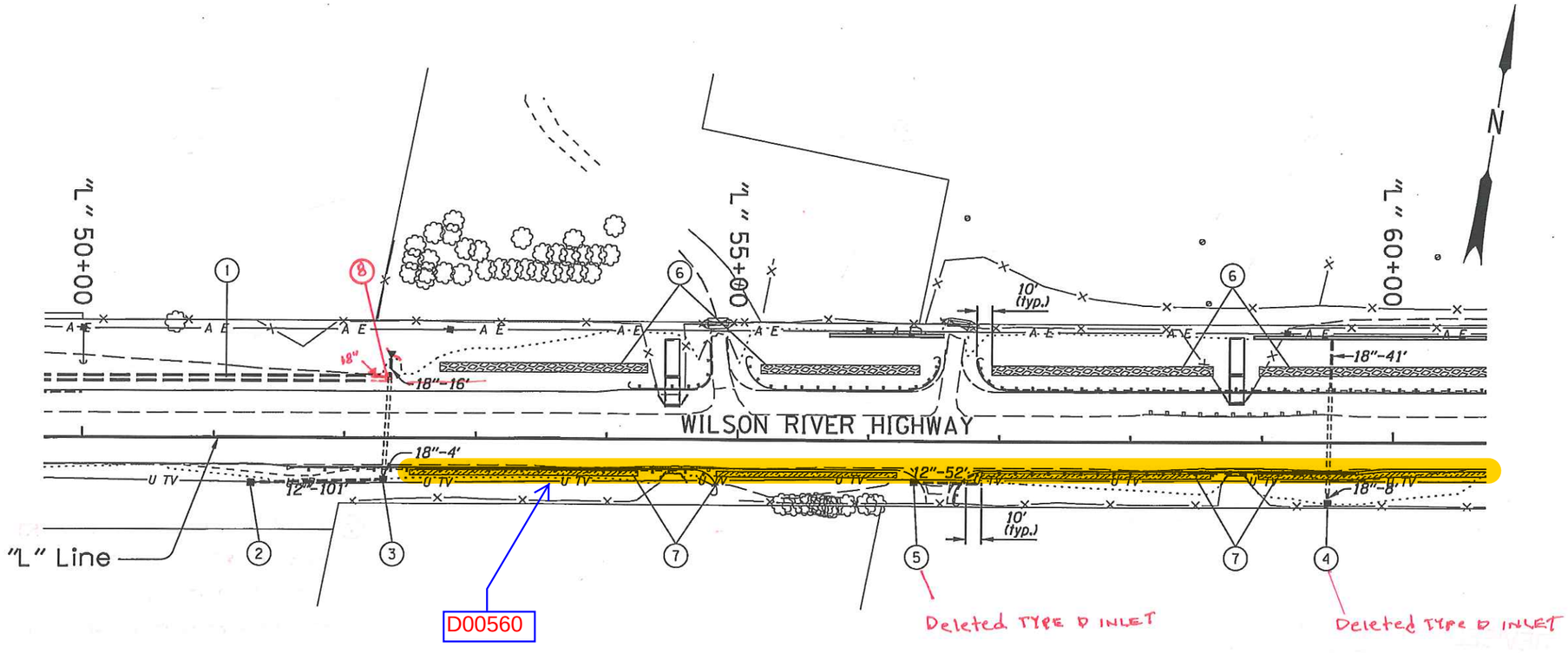
WHPacific
3470 Pipebend Place Suite 170
Salem, OR 97301
t: 503.362.4675 f: 503.362.5078

OR6 @ WILSON RIVER
LOOP ROAD SEC.
WILSON RIVER HIGHWAY
TILLAMOOK COUNTY

Design Team Leader - Ed Chamberland
Designed By - Calvin Larwood, Devin Doring
Drafted By - Linda Foote

STORMWATER DETAILS

SHEET NO. GJ



(1) See Sht. GJ-6, note 1
Const. ditch

(2) Sta. "L" 51+28, 34.3' Lt.
Const. modified Type D ditch inlet
Inst. 12" storm sewer pipe - 101', 5' depth
Rim=23.6'
Sl.=0.78%
I.E.=22.60' (W)
I.E.=21.81' (E) (field verify)
(For details, see sht. GJ)

(3) Sta. "L" 52+34
Const. modified Type D ditch inlet
Extend 18" culv. pipe - ~~16' Lt., 5' depth~~
- 4' Rt., 5' depth
Rim=23.8'
Match extg. slope
Const. paved end slope, Lt. - 30 sq.ft.
(Field verify)
(For details, see sht. GJ)

(4) Sta. "L" 59+52
~~Const. modified Type D ditch inlet~~
Extend 18" culv. pipe - 41' Lt., 5' depth
- 8' Rt., 5' depth
Rim=18.2'
Match extg. slope
(Field verify)
(For details, see sht. GJ)

(5) Sta. "L" 53+34.80, 31.3' Rt. to
Sta. "L" 56+87, 32.5' Rt.
~~Const. modified Type D ditch inlet~~
Inst. 12" storm sewer pipe - 52', 5' depth
Rim=25.4'
Sl.=0.4%
I.E.=23.90' (W)
I.E.=23.70' (E)
Regrade slope on downstream end to drain
Trench resurf. - 17.3 sq.yd.
(For details, see sht. GJ)

(6) Sta. "L" 52+70 to Sta. "L" 86+48, Lt.
Const. bioslope, DF1# D00561
(For details, see sht. GJ)

(7) Sta. "L" 52+50 to Sta. "L" 94+94, Rt.
Const. biofilter strip, DF1# D00560
(For details, see sht. GJ)

(8) Sta "L" 52+34 Lt.
Construct modified Type D ditch Inlet
Extend 18" CMP pipe West to Sta 52+33
5' depth

REVISED AS CONSTRUCTED
CONTRACT 14479

Dave True, Project Manager DATE: 2/26/14

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JUL 25, 1995
EDWARD J. CHAMBERLAND II
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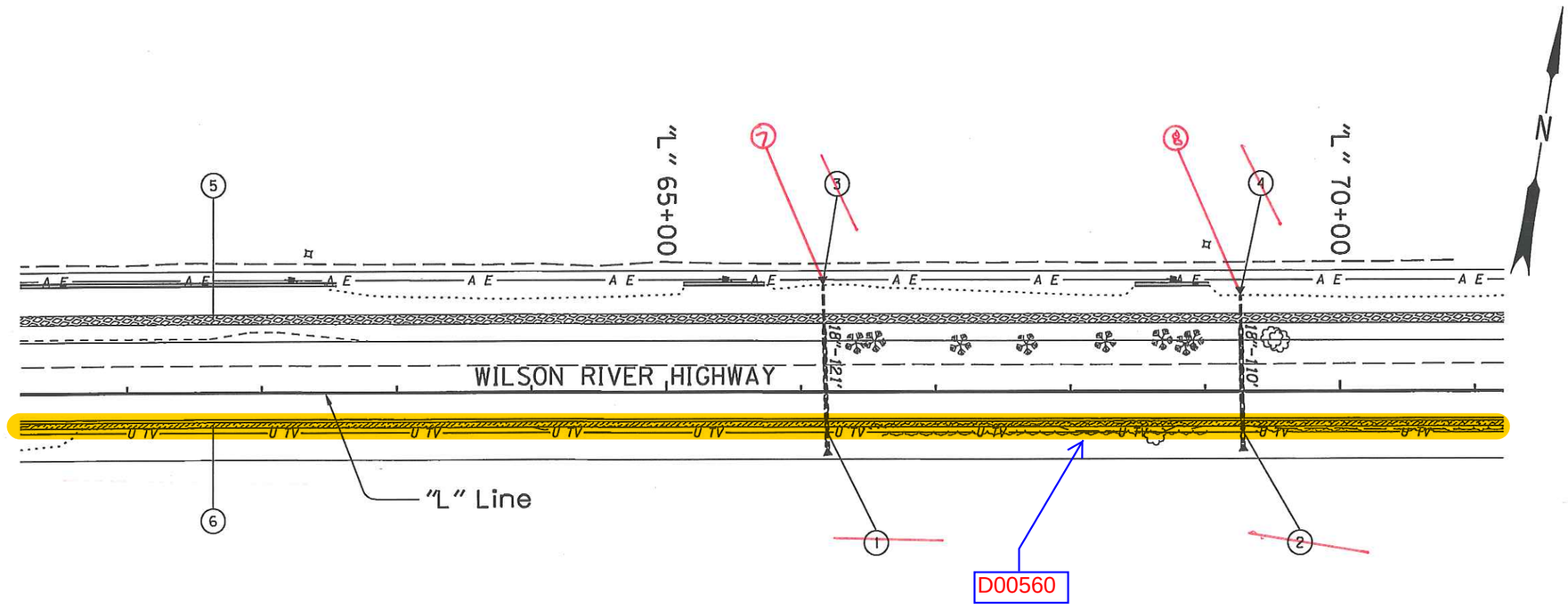
OR6 @ WILSON RIVER
LOOP ROAD SEC.
WILSON RIVER HIGHWAY
TILLAMOOK COUNTY

Design Team Leader - Ed Chamberland
Designed By - Calvin Larwood, Devin Doring
Drafted By - Linda Foote

STORMWATER PLAN

SHEET NO. GJ-7



1. ~~Sta. "L" 66+17~~
   ~~Remove 18" pipe - 92'~~
2. ~~Sta. "L" 69+26~~
   ~~Remove 18" pipe - 92'~~
3. Sta. "L" 66+17, 80' Lt. to 41' Rt.
   Inst. 18" culv. pipe - 121', 5' depth
   Sl.=2.08%
   I.E.=13.40' (N)
   I.E.=15.92' (S)
   Const. paved end slope, Lt. & Rt. - 55 sq.ft.
4. Sta. "L" 69+26, 71.5' Lt. to 38.5' Rt.
   Inst. 18" culv. pipe - 110', 5' depth
   Sl.=0.5%
   I.E.=15.68' (N)
   I.E.+16.22' (S)
   Const. paved end slope, Lt. & Rt. - 55 sq.ft.
5. See Sht. GJ-7, note 6
   Const. bioslope
6. See Sht. GJ-7, note 7
   Const. biofilter strip
7. STA "L" 66+17. 80' LT to 41' RT
   EXTEND 18" CULVERT 20' Left
   And Extend 10' RT
   Construct paved End Slope Lt & RT
8. Sta "L" 69+26 71.5' Lt to 38.5' Rt
   Extend 18" Culvert 20' LEFT
   Extend 10' Rt
   Construct Paved End Slopes Lt & RT

REVISED AS CONSTRUCTED
CONTRACT 14479

Dave True, Project Manager DATE: 2/26/14

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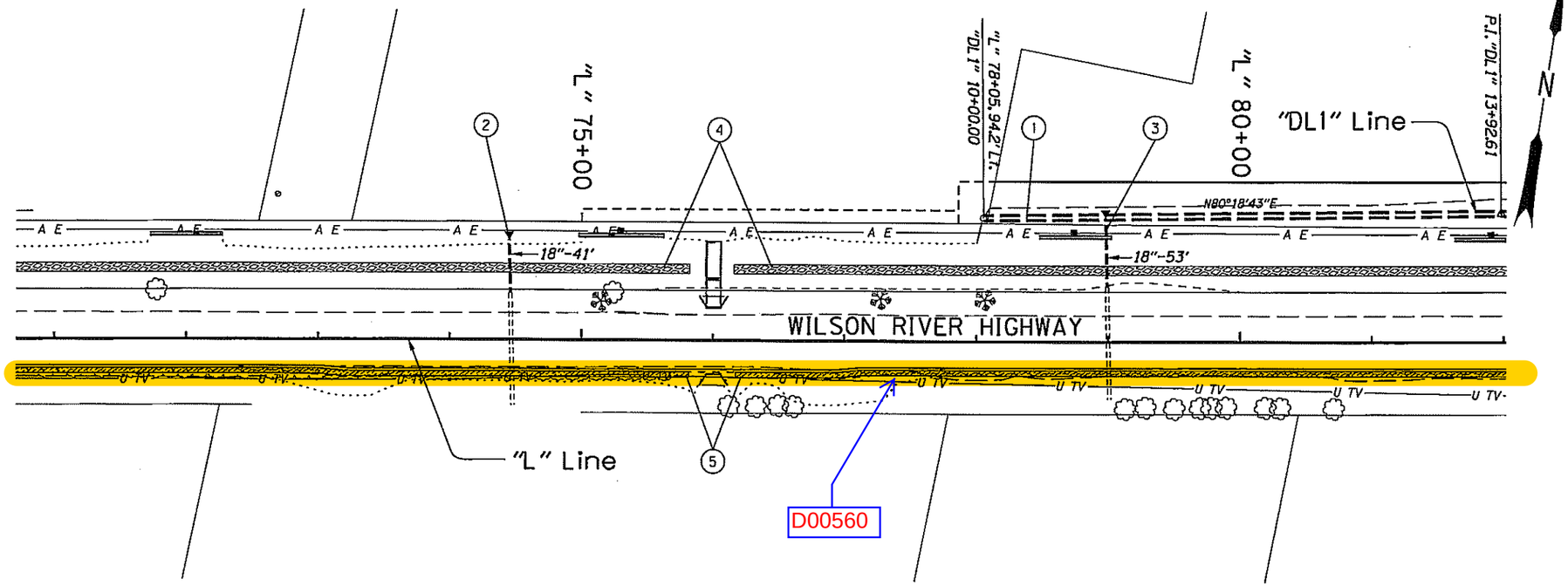
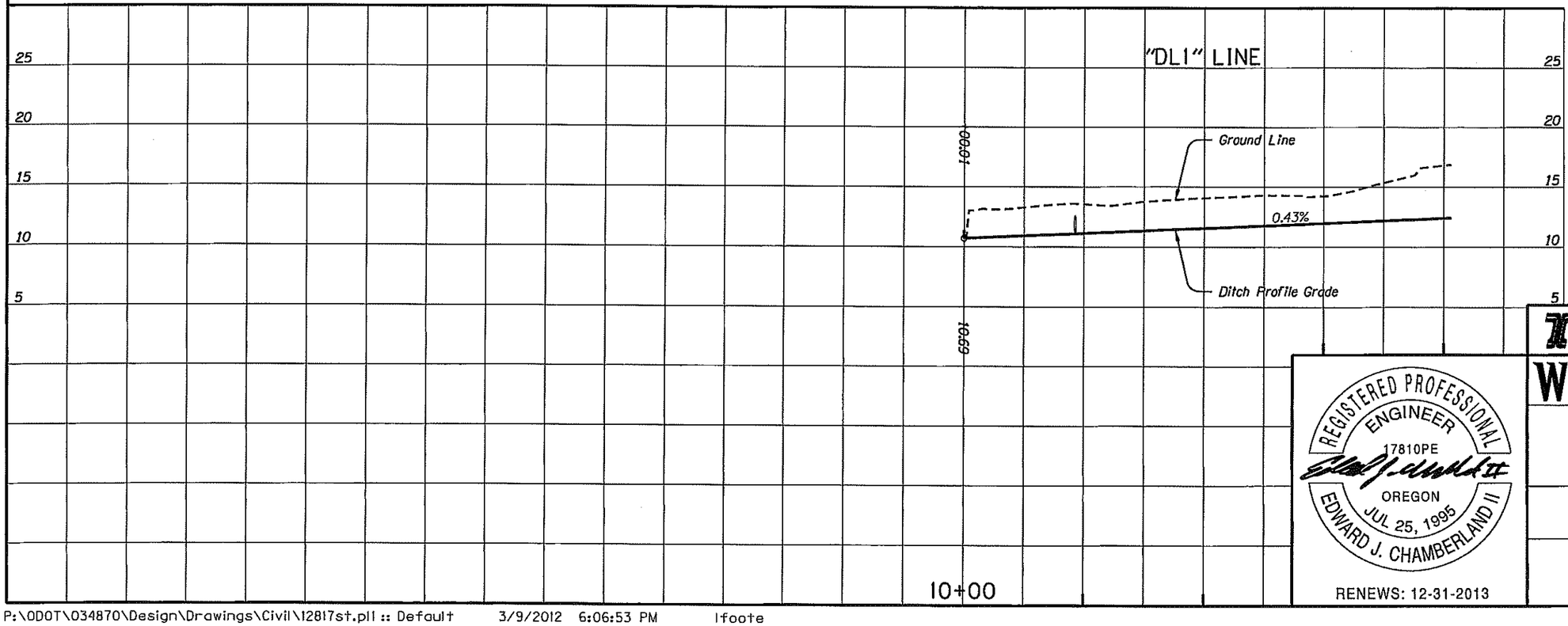
STORMWATER PLAN

SHEET NO. GJ-8

45V-035



1. Sta. "DL 1" 10+00 to Sta. "DL 1" 19+09.53
   Const. ditch
   3' flat bottom, 1:2 slopes
2. Sta. "L" 74+46
   Extend 18" culv. pipe 41' Lt., 5' depth
   Match extg. slope
   Const. paved end slope, Lt.- 30 sq.ft.
3. Sta. "L" 78+99
   Extend 18" culv. pipe 53' Lt., 5' depth
   Match extg. slope
   Const. paved end slope, Lt.- 25 sq.ft.
4. See Sht. GJ-7, note 6
   Const. bioslope
5. See Sht. GJ-7, note 7
   Const. biofilter strip



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STORMWATER PLAN & PROFILE

SHEET NO. GJ-9

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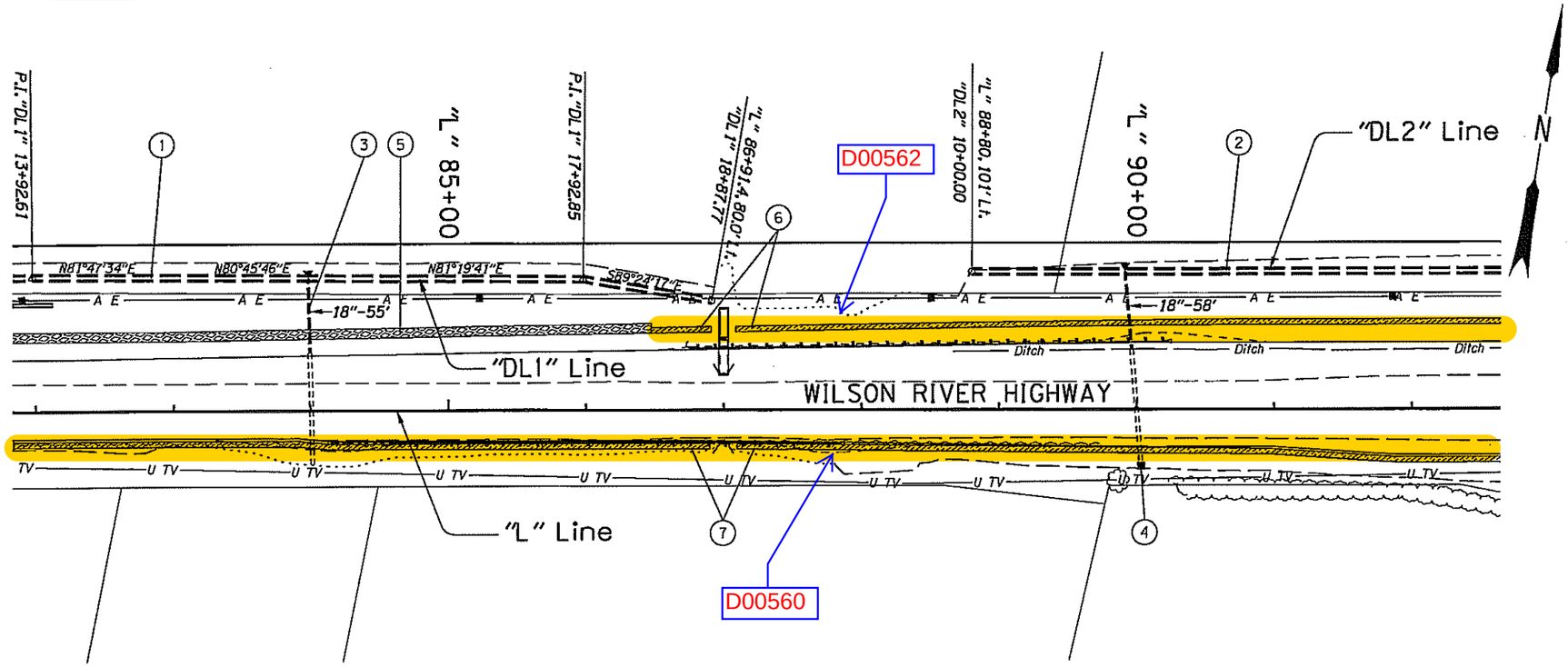
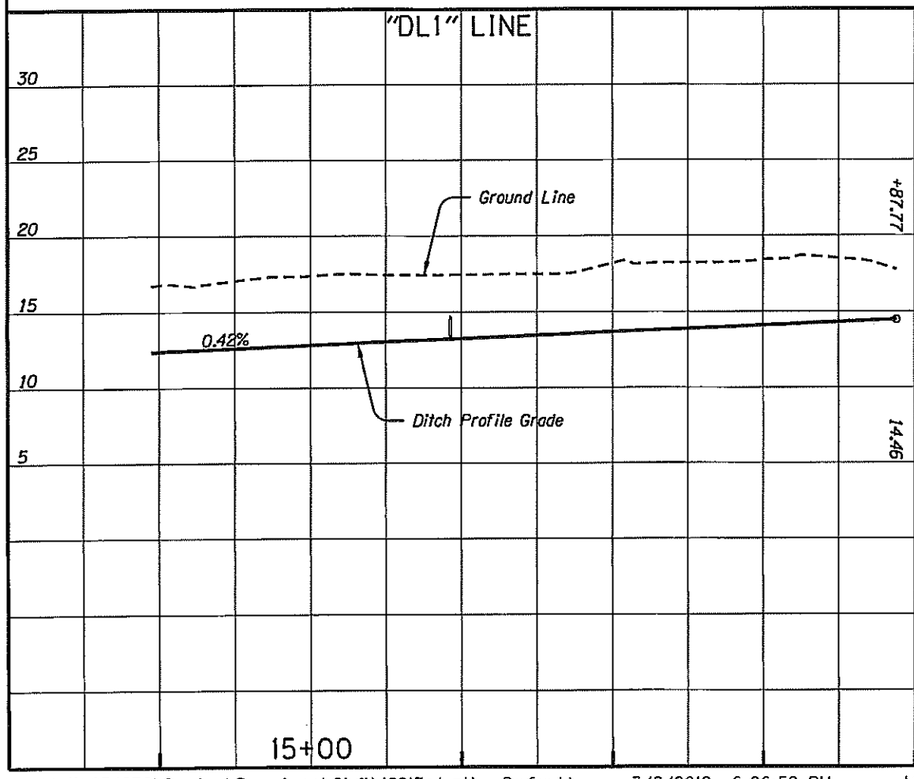
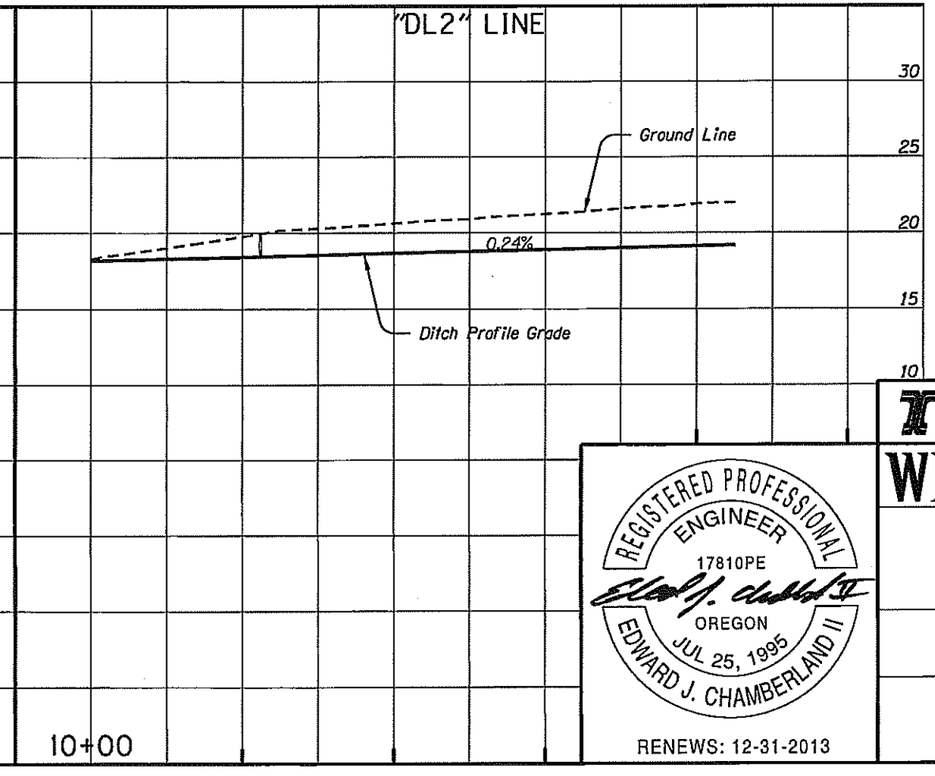
1:1200 - GJ9



1. See Sht. GJ-9, note 1
   Const. ditch
2. Sta. "DL2" 10+00 to Sta. "DL2" 17+05
   Const. ditch
   "V" bottom, 1:4 slopes
3. Sta. "L" 83+98
   Extend 18" culv. pipe 55' Lt., 5' depth
   Match extg. slope
   Const. paved end slope, Lt. - 35 sq.ft.
4. Sta. "L" 89+96
   Const. modified Type D ditch inlet
   Extend 18" culv. pipe 58' Lt., 5' depth
   Rim=20.3'
   Match extg. slope
   Const. paved end slope, Lt. - 35 sq.ft.
   (For details, see sht. GJ)
5. See Sht. GJ-7, note 6
   Const. bioslope
6. Sta. "L" 86+48 to Sta. "L" 100+00, Lt.
   Const. biofilter strip, DF1* D00562
   (For details, see sht. GJ)
7. See Sht. GJ-7, note 7
   Const. biofilter strip





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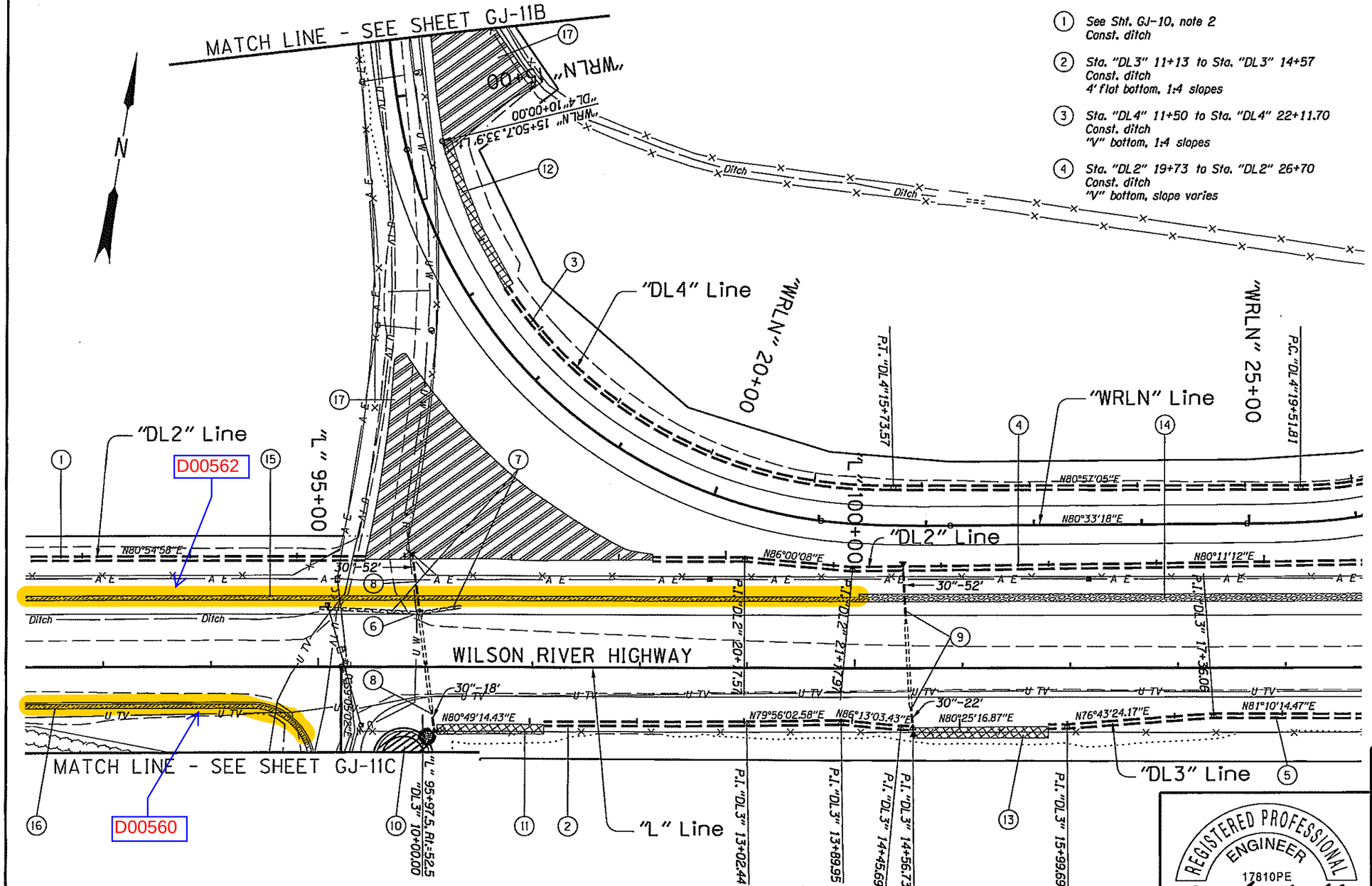
STORMWATER PLAN & PROFILE

SHEET NO. GJ-10



1. See Sht. GJ-10, note 2
   Const. ditch
2. Sta. "DL3" 11+13 to Sta. "DL3" 14+57
   Const. ditch
   4' flat bottom, 1:4 slopes
3. Sta. "DL4" 11+50 to Sta. "DL4" 22+11.70
   Const. ditch
   "V" bottom, 1:4 slopes
4. Sta. "DL2" 19+73 to Sta. "DL2" 26+70
   Const. ditch
   "V" bottom, slope varies
5. Sta. "DL3" 15+82 to Sta. "DL3" 21+05
   Const. ditch
   4' flat bottom, 1:4 slopes
6. Sta. "L" 95+94, 50' Lt.
   Remove storm junction box
7. Sta. "L" 95+01, 54.4' Lt.
   Remove 36" pipes - 133'
8. Sta. "L" 96+00
   Extend 30" culv. pipe - 52' Lt., 5' depth
   - 18' Rt., 5' depth
   Match extg. slope
   Const. paved end slope, Lt.& Rt.- 70 sq.ft.
9. Sta. "L" 100+50
   Extend 30" culv. pipe - 52' Lt., 5' depth
   - 22' Rt., 5' depth
   Match extg. slope
   Const. paved end slope, Lt.& Rt.- 110 sq.ft.
10. Const. biofiltration pond, DFI# D00572
    (For details, see sht. GJ-3)
11. Sta. "DL3" 10+00 to Sta. "DL3" 11+13
    Const. bioswale, DFI# D00563
    (For details, see sht. GJ-2)
12. Sta. "DL4" 10+00 to Sta. "DL4" 11+50
    Const. bioswale, DFI# D00570
    (For details, see sht. GJ-2)
13. Sta. "DL3" 14+57 to Sta. "DL3" 15+82
    Const. bioswale, DFI# D00564
    (For details, see sht. GJ-2)
14. Sta. "L" 100+00 to Sta. "L" 109+00. Lt.
    Const. bioslope, DFI# D00565
    (For details, see sht. GJ)
15. See Sht. GJ-10, note 6
    Const. biofilter strip
16. See Sht. GJ-7, note 7
    Const. biofilter strip
17. Const. wetlands shown thus
    (For drg. nos., see sht. 1A)

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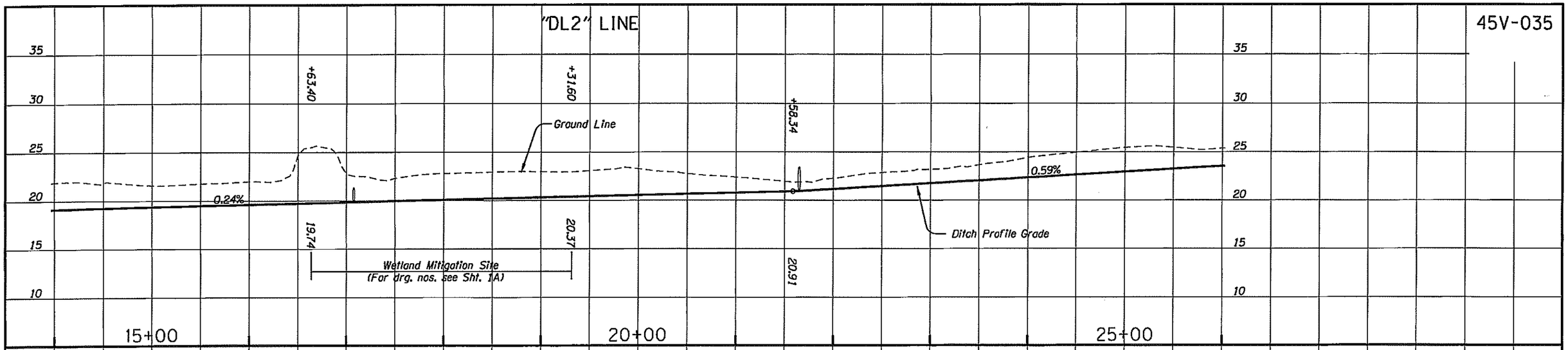
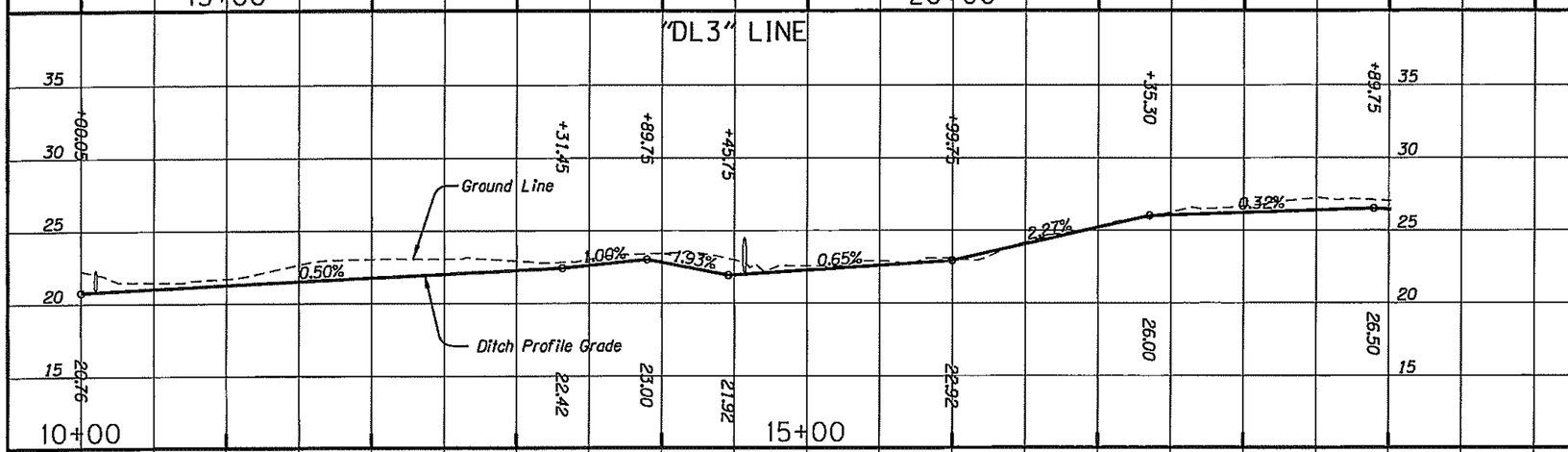
STORMWATER PLAN

SHEET NO. GJ-11

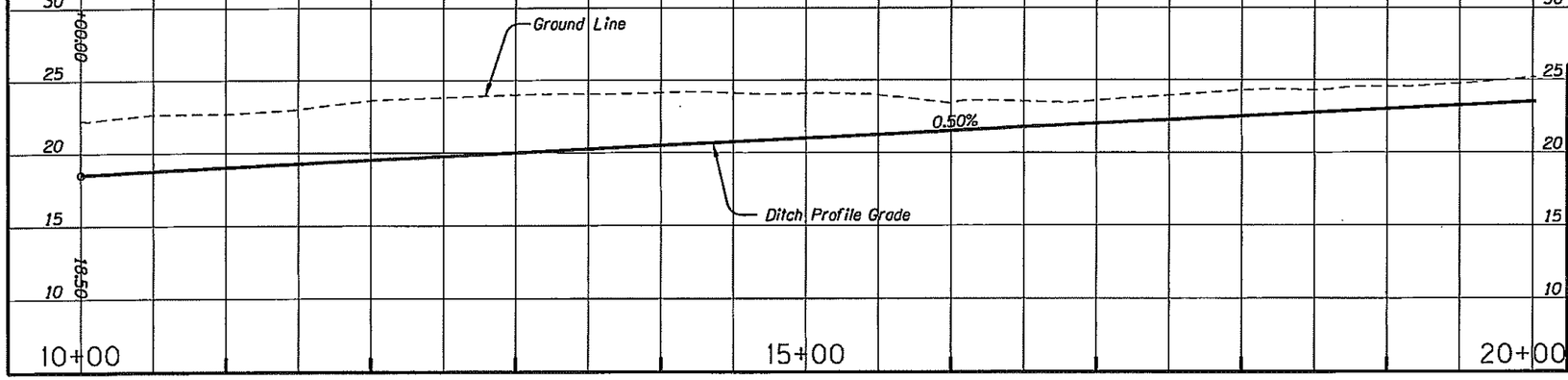
"DL2" LINE



"DL3" LINE



"DL4" LINE



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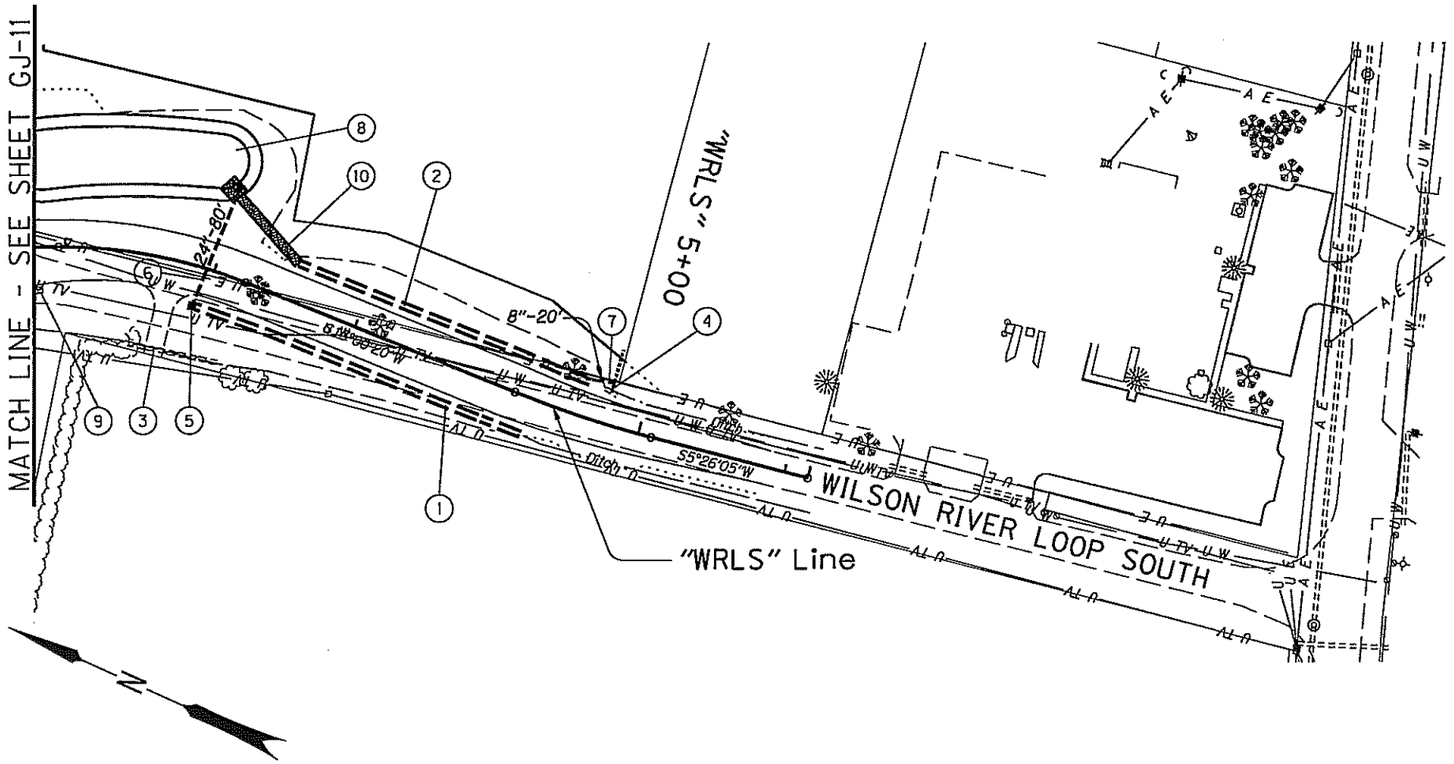
STORMWATER PROFILES

SHEET NO. GJ-11A



(1) *Sta. "WRLS" 2+02 to Sta. "WRLS" 4+30, Rt.*
Const. ditch with 6" of 2 inch-4 inch granular drain backfill material
Width varies, 1:4 slope Lt., slope varies Rt.
Inst. Type 1 riprap geotextile
(For details, see sht. GJ-2)

(2) *Sta. "WRLS" 2+50.50 to Sta. "WRLS" 4+67, Lt.*
Const. ditch with 6" of 2 inch-4 inch granular drain backfill material
"V" bottom, 1:4 slopes
Inst. Type 1 riprap geotextile
(For details, see sht. GJ-2)

(3) *Sta. "WRLS" 1+52, 60' Rt.*
Remove 12" pipe - 60'

(4) *Sta. "WRLS" 4+75, 21.5' Lt.*
Remove 8" pipe - 6'
(Field verify)

(5) *Sta. "WRLS" 1+92.60, 26.4' Rt.*
Const. modified Type D ditch inlet
Rim=28'
Connect to storm sewer pipe
(For details, see sht. GJ)

(6) *Sta. "WRLS" 1+92.60, 26.4' Rt. to Sta. "WRLS" 1+98.80, 53.3' Lt.*
Inst. 24" culv. pipe - 80', 5' depth
Const. paved end slope, Lt. - 44 sq.ft.
Sl.=1.25%
I.E.=23.00' (E)
I.E.=24.00' (W)

(7) *Sta. "WRLS" 4+55.90, 24.7' Lt. to Sta. "WRLS" 4+75.20, 27.7' Lt.*
Inst. 8" storm sewer pipe - 20', 5' depth
Inst. 90° elbow
Inst. 8" Tee fitting with cleanout
Connect to exig. storm sewer pipe
I.E.(out)=44.00'
(Field verify)
(See sht. 2B-8 for details)

(8) *Const. biofiltration pond*
(For details, see sht. GJ-3)

(9) *See Sht. GJ-7, note 7*
Const. biofilter strip

(10) *Const. loose riprap blanket (Class 50) - 28 cu.yd.*
Inst. Type 1 riprap geotextile - 460 sq. ft.
(For details, see sht. GJ-3)

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STORMWATER PLAN

SHEET NO. GJ-11C