OPERATION & MAINTENANCE MANUAL

Water Quality Bioslope

Manual prepared: January 2019

DFI No. D00873

Figure 1: DFI No. D00873, looking east.

1. Identification

Drainage Facility ID (DFI):	D00873
Facility Type:	Water Quality Bioslope
Construction Drawings:	WASHINGTON CO: NW CORNELIUS PASS RD: NW CORNELL RD TO US 26 (FEB 2015) (WPW X0162/PROJECT 100204)
Location:	District: 2B Highway No.: 047 Mile Post: 62.54-62.72, [Right side]

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.

This bioslope was built on ODOT ROW as part of a Washington County project.

Facility location type: **On ramp**

Flow direction: Varies (See Appendix A)

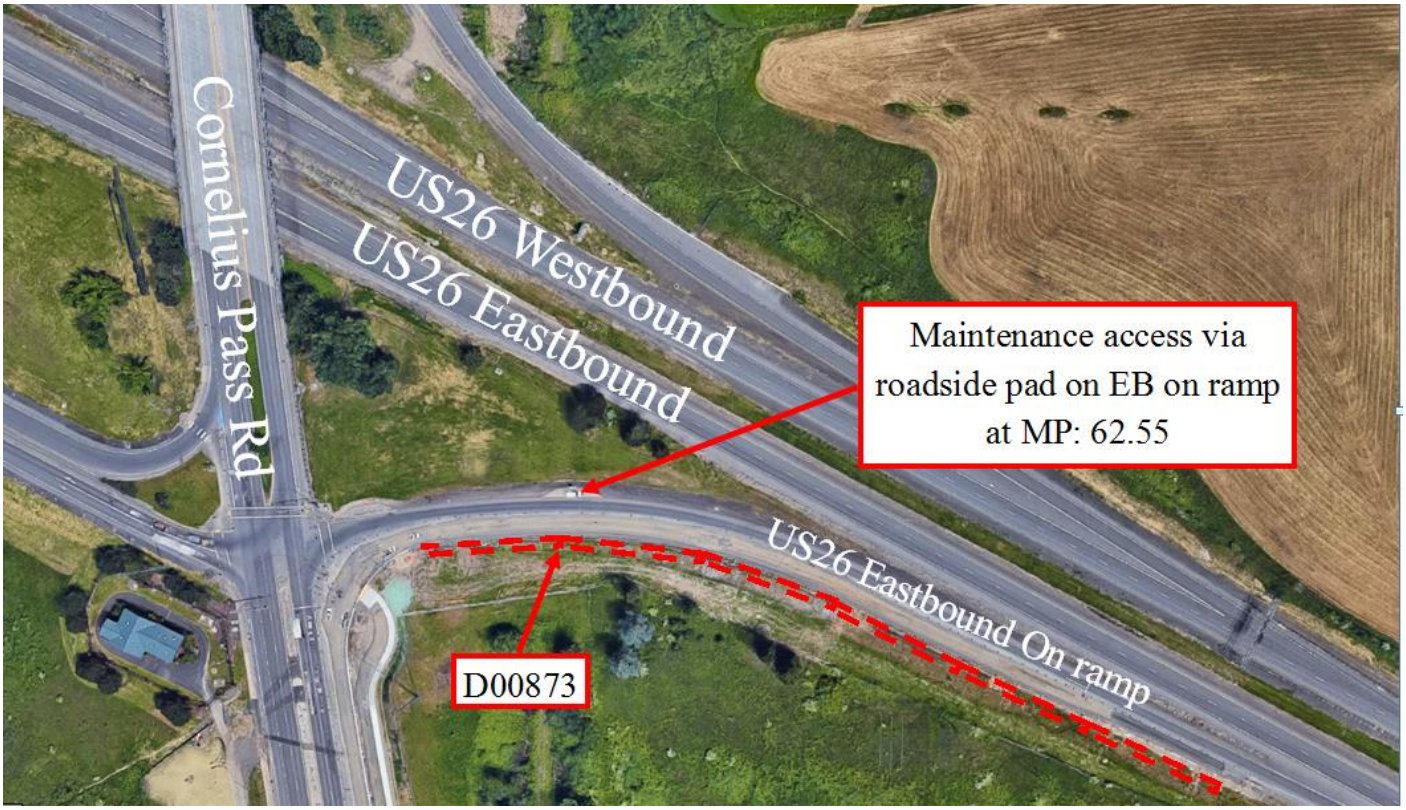


Figure 2: Facility map

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:

Length (feet)	Width (feet)
1000	7 minimum (Varies)

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

Rise (feet)	Run (feet)
1	6

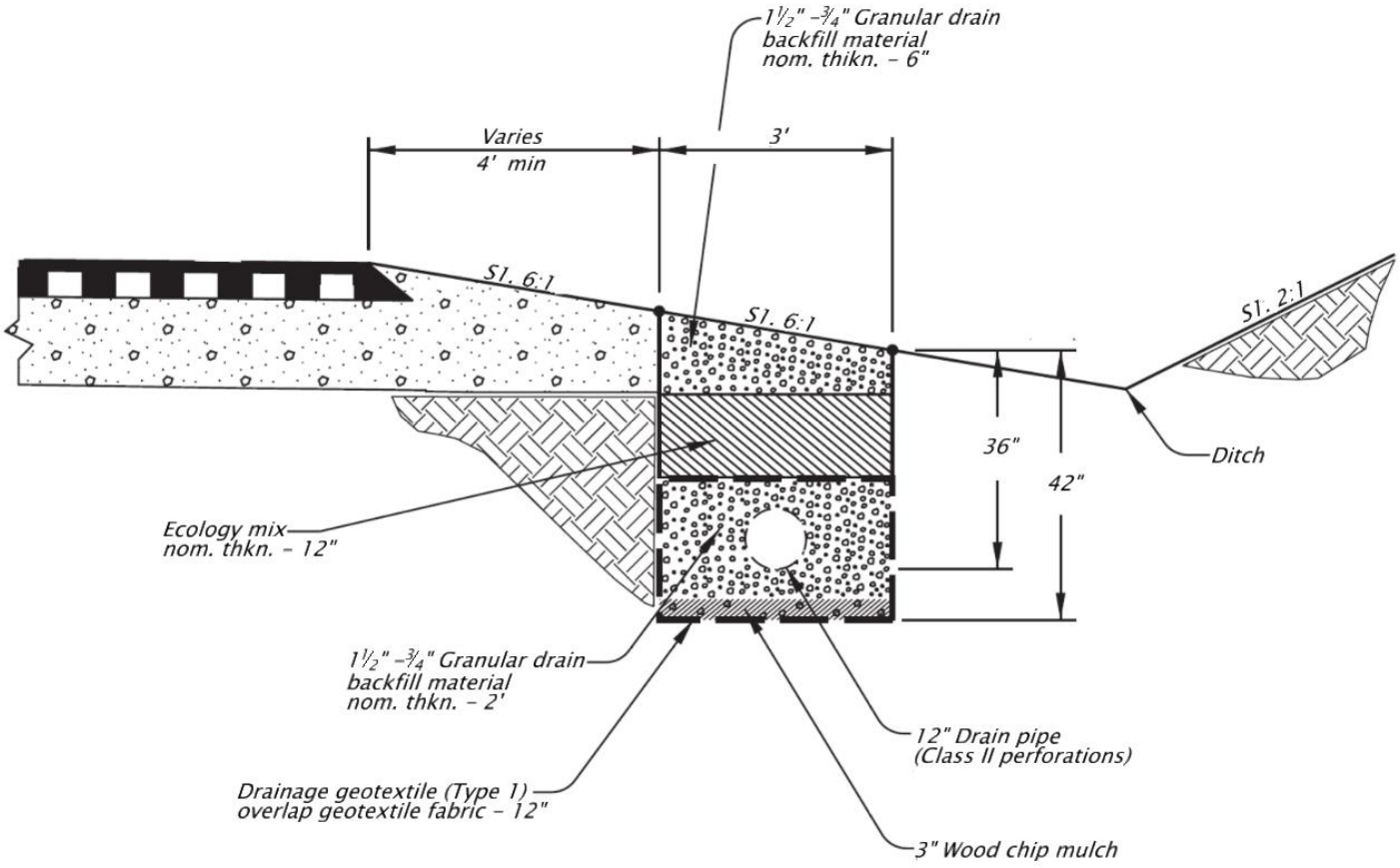


Figure 3: BioSlope Section

Site Specific Information: Bioslopes are flow-through stormwater treatment facilities incorporated into roadside embankments and placed between pavement and a downstream conveyance system. The facility will utilize physical filtration, sorption, carbon precipitation, and microbial degradation to provide stormwater treatment. Stormwater runoff will infiltrate into the bioslope and is then collected in a 12-inch perforated drain pipe. The adjacent ditch will provide additional capacity for large storm events. The ditch will be collected in three ditch inlets (See Appendix A). The bioslope will provide some detention and an opportunity for infiltration.

The bioslope has been designed to be three feet wide with four layers of material. The top layer material is granular drain backfill material and has a 6:1 slope to meet the clear zone requirements. The granular drain backfill is a minimum of six inches thick. The second layer is 12 inches of ecology mix, the third layer is 24 inches of granular drain backfill material, and the bottom layer is three inches of wood chip mulch material. The wood chip mulch material has been added to treat for copper. The bottom layer is a granular drain backfill and the wood fiber material is wrapped in a Type 1 drainage geotextile to keep the fines out.

The detail used for the proposed bioslope is not the standard ODOT bioslope detail. The standard detail normally incorporates shoulder aggregate for the top layer, but here granular drain backfill is used instead. The three foot wide vegetated section shown on the standard detail was omitted and a design exception was submitted. Removing the vegetated portion will reduced the cuts to the sideslope and thus reduced the impacts of the existing 48-inch high pressure water line to the south of the bioslope.

5. Facility Access

Maintenance access to the facility:

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

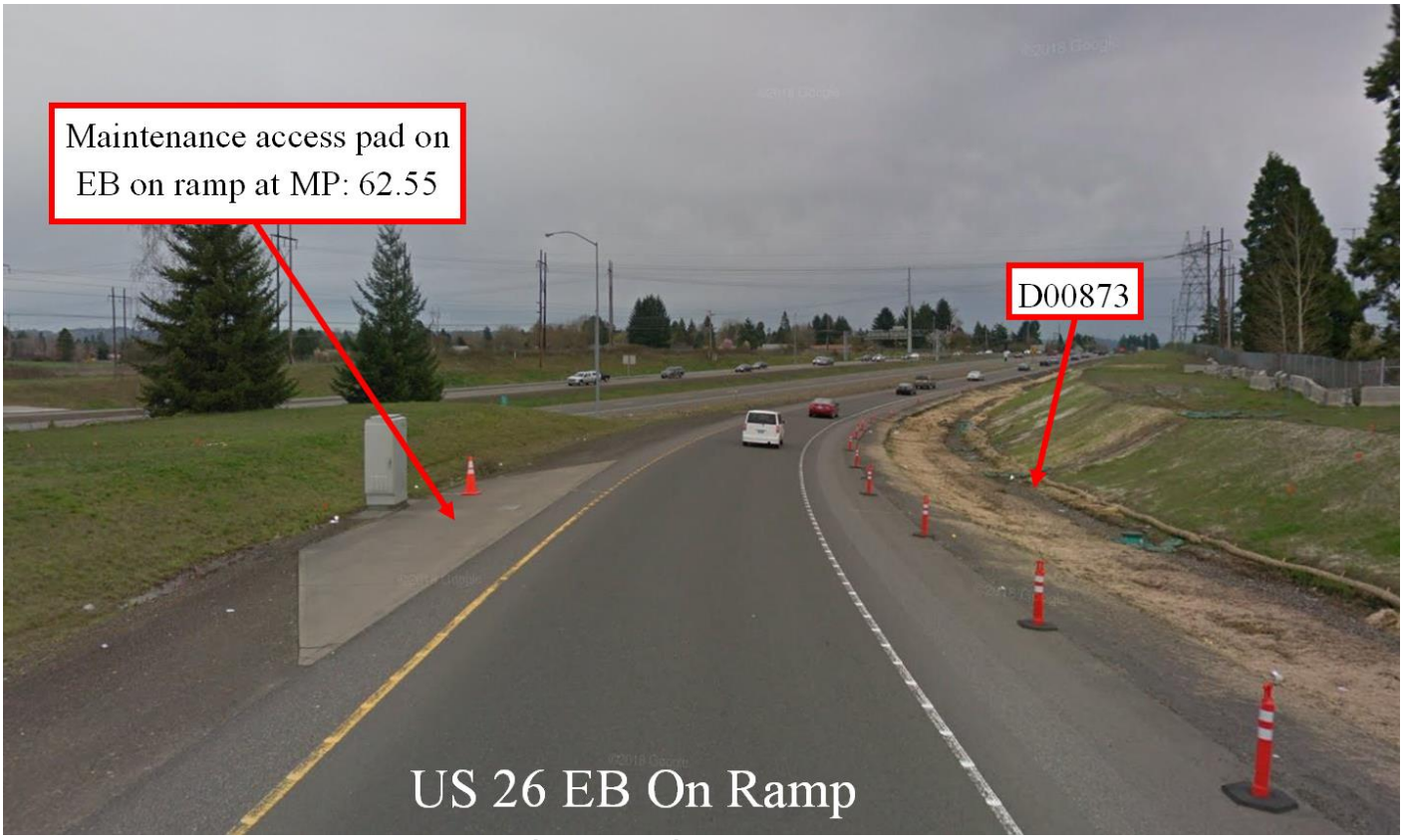


Figure 4: Maintenance access

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 and bioslopes 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 and Bioslopes (implemented January 2018) 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: Bioslope/Filter Strip Components		ID #
Facility Inlet		
Pavement Sheet Flow	☒	**B1**
Flow Spreader	☐	**B2**
Ground Cover		
Vegetated Slope	☐	**B3**
Aggregate Media Slope	☐	**B4**
Underground Components		
3-inch Wood Chip Mulch	☒	**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**

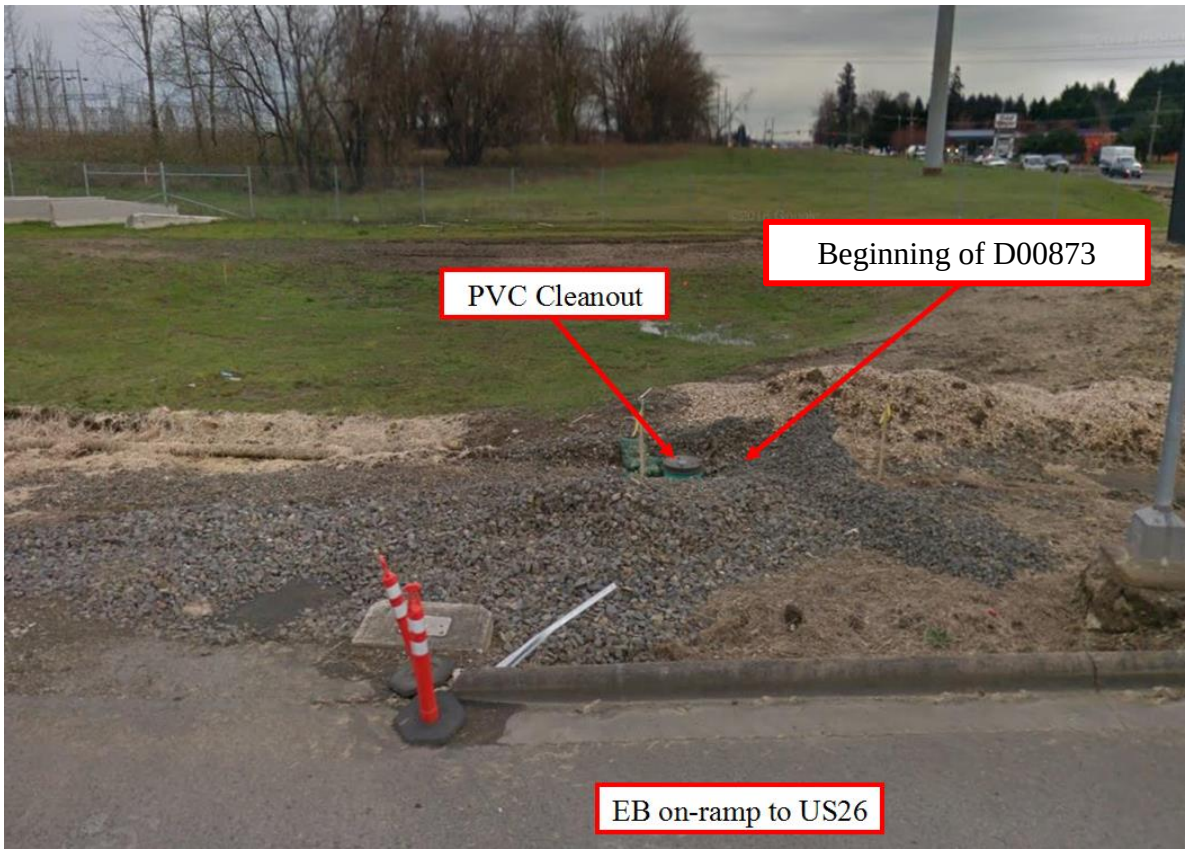


Figure 5: Components at the beginning of D00873

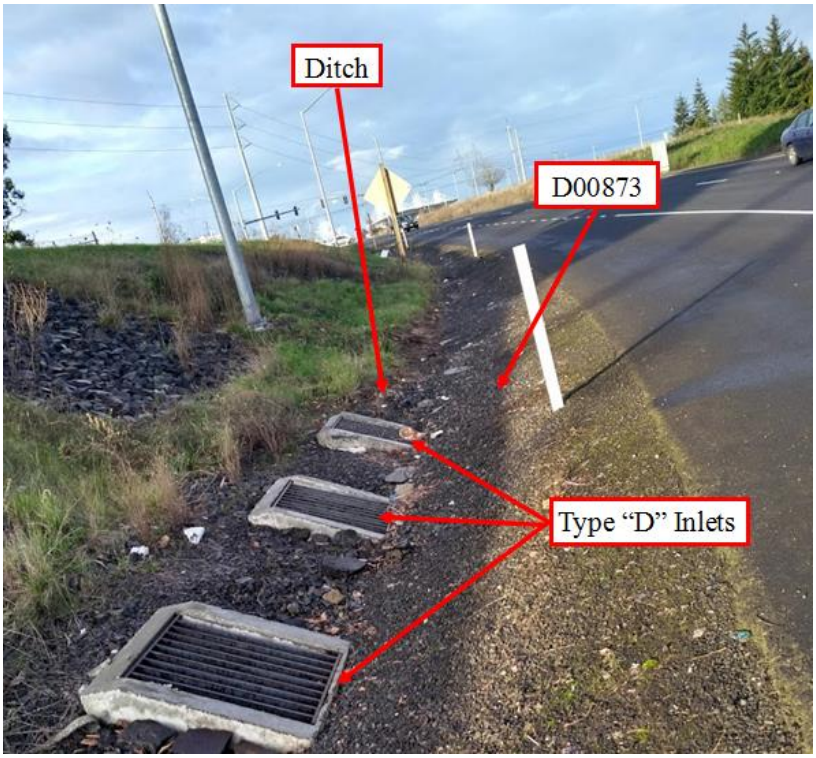


Figure 6: Components of D00873

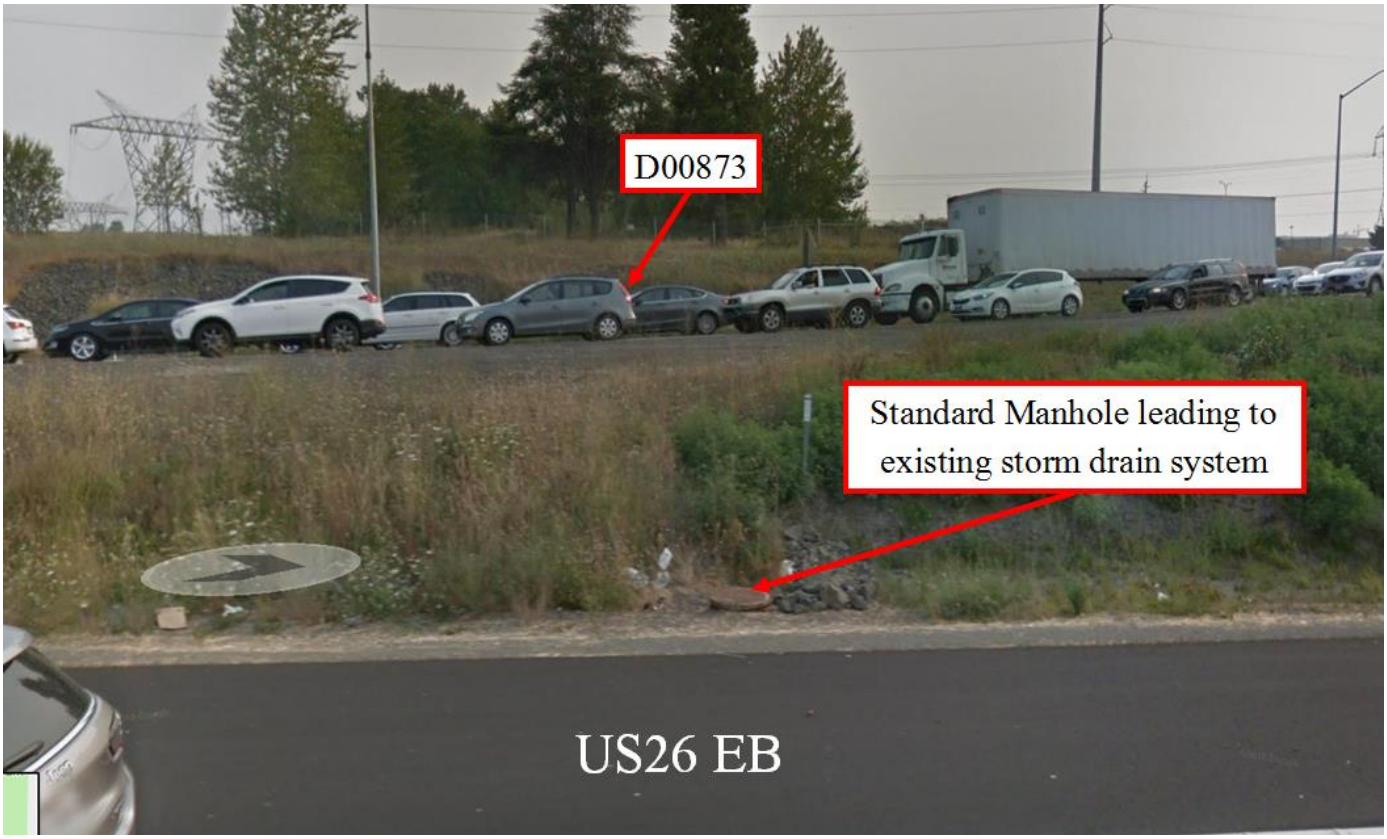


Figure 7: Facility outlet components

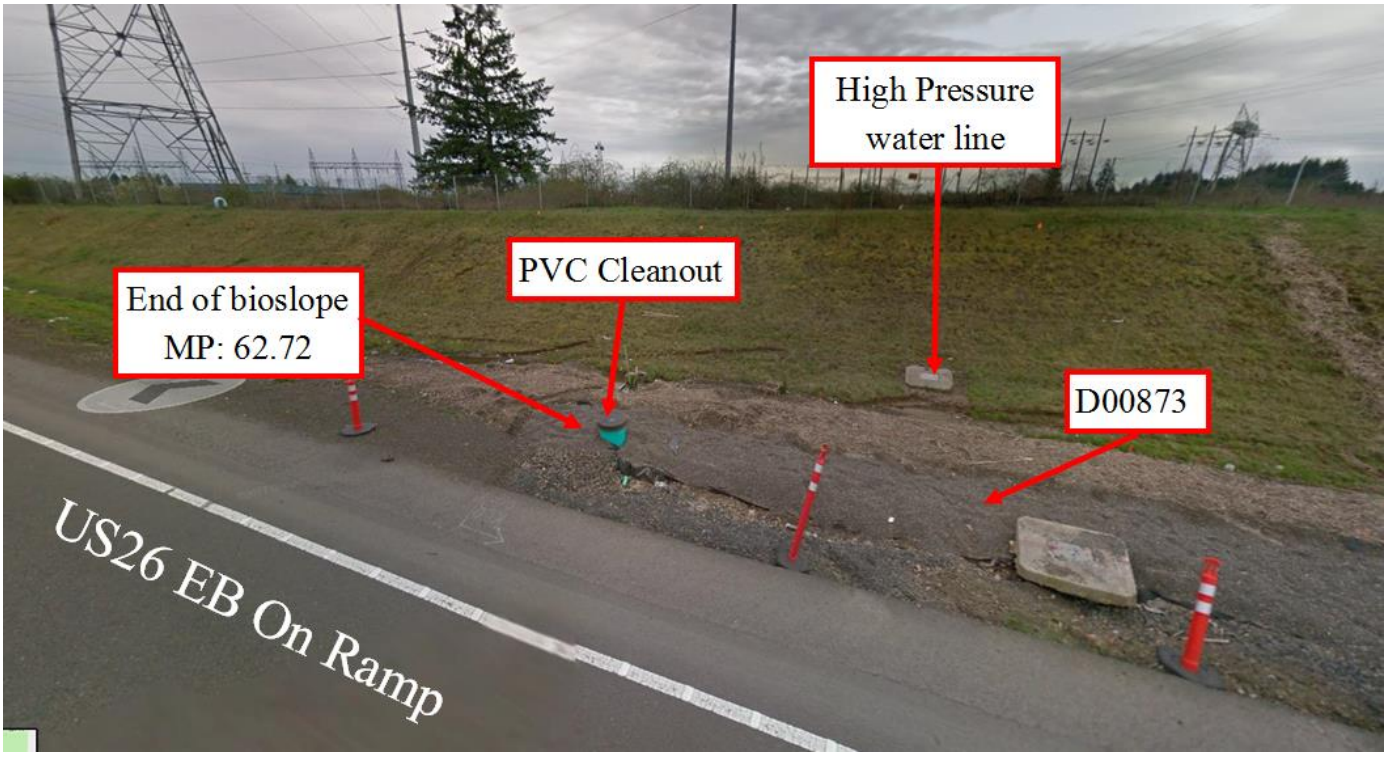


Figure 8: Components at end of bioslope

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 and bioslopes:

- Table 1 (General Maintenance): Contains general maintenance and inspection guidelines that are applicable to all ODOT water quality facilities
- Table 5 (Water Quality Bioslopes)

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 and bioslopes 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:

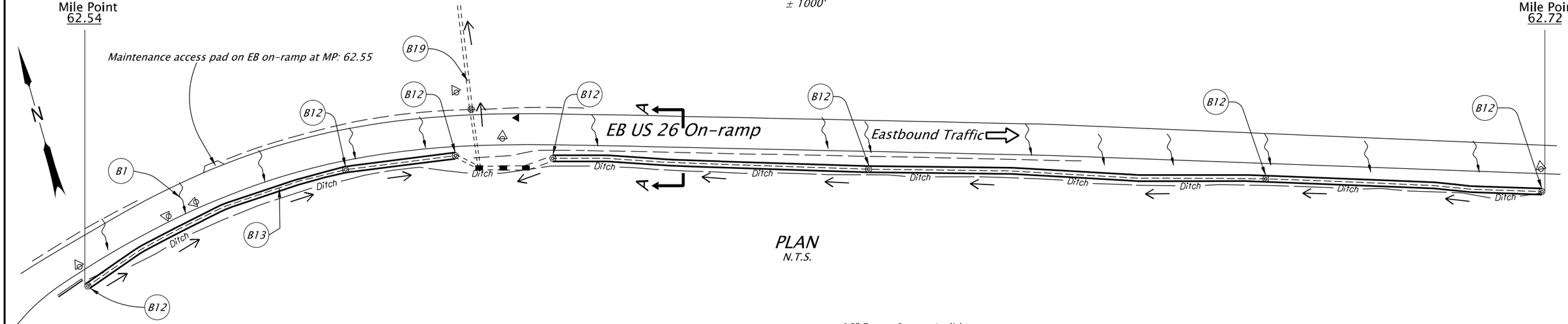
Operational Plan: DFI D00873

Water Quality Bioslope
(DFI D00873)

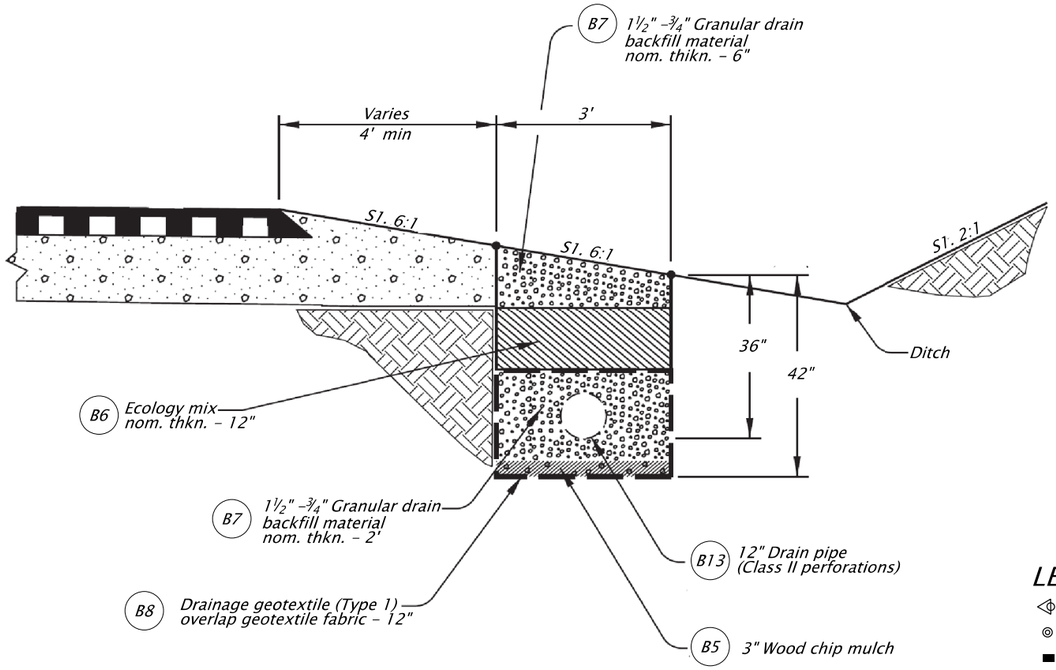
± 1000'

Mile Point
62.54

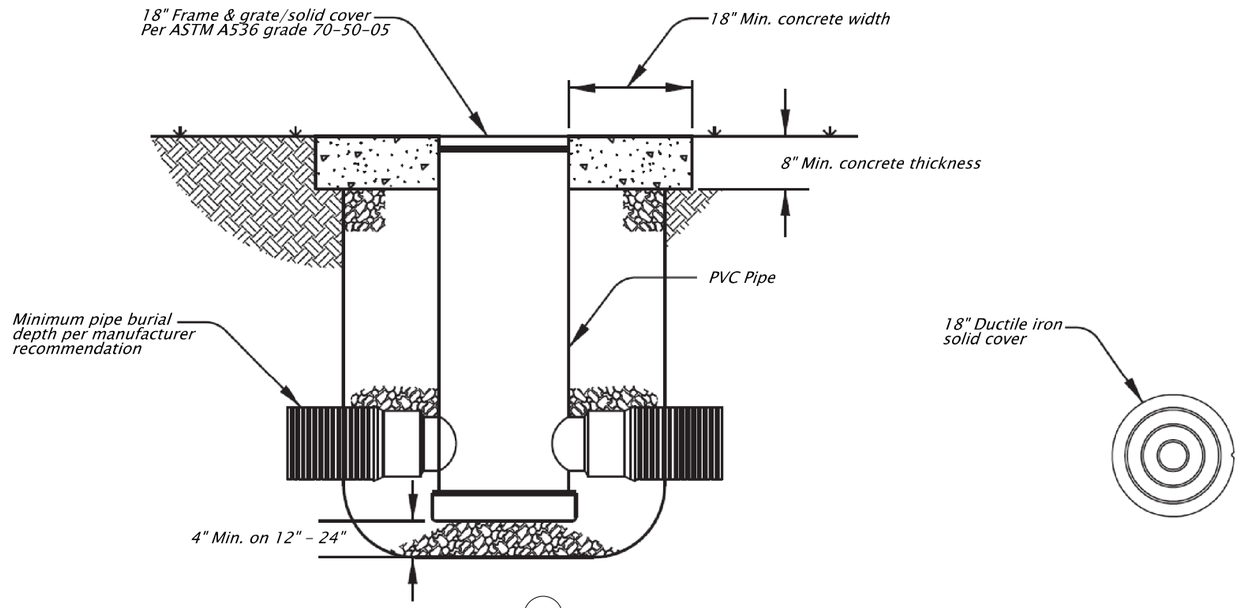
Mile Point
62.72



PLAN
N.T.S.



SECTION A-A
N.T.S.



B12 "PVC" CLEANOUT

LEGEND:

- Photo Location/Direction
- Manhole
- Inlet
- 12" Diameter Perforated Pipe
- Pipe (Facility)
- Conveyence Direction
- Water Flow Direction
- Traffic Direction

OREGON DEPARTMENT OF TRANSPORTATION

Sht. 01 of 01

Prepared By: Katrina Sepulveda

Drafted By: Katrina Sepulveda

DFI D00873
MAINTENANCE DISTRICT 2B HWY 047
Water Quality Bioslope
Sunset Highway MP 62.54 - 62.72
Washington County

B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan:

WASHINGTON CO: NW CORNELIUS PASS RD: NW CORNELL RD TO US 26 (FEB 2015) (WPW X0162/PROJECT 100204)

Partial Plan Set

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet, Index Of Sheets
1A	Standard Drawings
1A-2	Sheet Layout
1A-3	Project Funding Boundaries
1B	Legend
1C Thru 1C-11	Survey Monumentation Plans
2 Thru 2A-15	Typical Sections
2B Thru 2B-3	Details
2B-4 Thru 2B-5	Details - Sidewalk Layout
2B-6 Thru 2B-8	Details
2B-9	Details - Maintenance Access Road, Monument Box
2B-10 Thru 2B-12	Details - Traffic Separator, Concrete Islands
2B-13 Thru 2B-13C	Details - Intersection: Cornell Road
2B-14 Thru 2B-14C	Details - Intersection: Ronler Drive
2B-15 Thru 2B-15A	Details - Intersection: Evergreen Parkway (West)
2B-16 Thru 2B-16B	Details - Intersection: Evergreen Parkway (East)
2B-17 Thru 2B-17A	Details - Intersection: 215th Ave
2B-18 Thru 2B-18A	Details - Intersection: Imbrie Drive
2B-19 Thru 2B-19A	Details - Intersection: US 26 Eastbound On-Ramp
2B-20 Thru 2B-22	Details - Driveways
2B-23 Thru 2B-25	Details - HMAC Leveling & Cold Plane Pavement Removal
2B-26 Thru 2B-28	Details - Median Islands
2B-29 Thru 2B-31	Details - Curb Layout
2B-32 Thru 2B-33	Details - Retaining Walls
2C Thru 2C-19	Traffic Control Plans
2D Thru 2D-6	Pipe Data Sheets
3 Thru 17	Construction Notes, Plans, And Profiles
GA Thru GA-20	Erosion Control Plans And Details
GJ Thru GJ-26	Water Quality And Storm Sewer Details
GN Thru GN-23	Planting Plans And Details
IL Thru IL-19	Illumination Plans And Details
SS Thru SS-16	Signing And Striping Plans And Details
TS Thru TS-32	Signal And Detector Plans And Details

WASHINGTON COUNTY, OREGON

DEPARTMENT OF LAND USE AND TRANSPORTATION

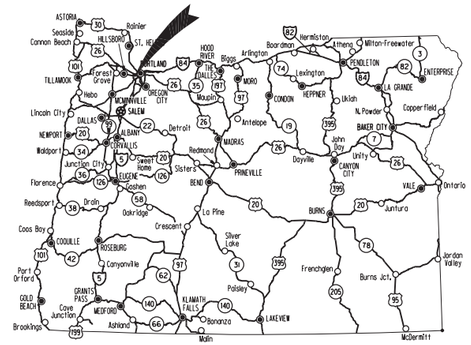
PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, PAVING, SIGNING, STRIPING, ILLUMINATION, SIGNALS & LANDSCAPING

NW CORNELIUS PASS ROAD:

NW CORNELL ROAD TO US 26

WASHINGTON COUNTY
FEBRUARY 2015



Overall Length Of Project - 1.63 Miles

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

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.)

END OF PROJECT
STA. "F" 2850+24.84

BEGINNING OF PROJECT
STA. "CP" 207+17.00

BASIS OF BEARINGS AND ELEVATIONS:

The bearing for these plans are based on Oregon State Plane Coordinates, North Zone, NAD 83/98, then scaled to Local Datum Plane (LDP) Coordinate System with a combined scale factor of 0.99991. Elevations shown are Washington County Datum based on NGVD 29/47 Datum by holding Washington County CORS station WACO, elevation 244.58'.

N

Sec. 23, T. 1N, R. 2W., W.M.
Sec. 26, T. 1N, R. 2W., W.M.
Sec. 35, T. 1N, R. 2W., W.M.

100%
SUBMITTAL
12/19/2014

This design complies with ORS 92.044 (7) in that no utility infrastructure is designed to be within one (1) foot of a survey monument location shown on a subdivision or partition plat. No design exceptions nor final field location changes shall be permitted if that change would cause any utility infrastructure to be placed within the prohibited area.

PROJECT NUMBER 100204

NO.	REVISION	DATE	BY	APP.

DWG: WPWX0162.TSI

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJH	12/14
BPM	ZW	12/14
EA		

DAVID EVANS AND ASSOCIATES INC.
2100 SW River Parkway
Portland, OR 97201
Phone: 503.223.6663

WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

TITLE SHEET

SHEET NO. 1

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PROJECT NUMBER
100204

NO.	REVISION	DATE	BY	APP.

DWG: WPWX0162.TSI

	BY	DATE
DRAWN	CABE	12/14
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Portland, Oregon 97201
Phone: 503.223.6663

WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

STANDARD DRAWINGS

SHEET NO.
1A

Standard Drg. Nos. (Washington County)

6010 - Street Barricades Type III, Steel Posts End Of Road
6050 - Sign Post Installation In P.C. Concrete Or Asphalt
6051 - Sign Post Installation, Sidewalk Surface Mount, Square
6911 - Traffic Signal Supports, Notes, And Design Criteria
6912 - Traffic Signal Supports General Details
6913 - Traffic Signal Supports Steel Details
6921 - Traffic Signal Supports Foundation Standard (Square)
6922 - Traffic Signal Supports Foundation Standard (Round)

Standard Drg. Nos. (ODOT)

RD130 - Bollards

RD300 - Trench Backfill, Bedding, Pipe Zone And Mult. Installations
RD302 - Street Cut
RD360 - Manhole Frame Adjustment
RD370 - Ditch Inlet Type D
RD386 - Fill Height Tables For Circular Concrete Pipe
RD388 - Fill Height Tables For PVC Pipe
RD390 - Fill Height Tables For Corrugated HDPE Pipe
RD391 - Fill Height Tables For Steel Reinforced HDPE Pipe
RD393 - Fill Height Tables For Polypropylene Pipe
RD399 - Stormwater Treatment and Storage Facility Field Markers

RD701 - Drainage Curbs
RD705 - Islands
RD710 - Accessible Route Islands
RD755 - Sidewalk Ramp Details

RD1000 - Construction Entrances
RD1005 - Check Dams
RD1010 - Inlet Protection (Type 1, 2 & 3)
RD1015 - Inlet Protection (Type 4) Biofilter Bags
RD1035 - Sediment Barrier (Type 3)
RD1040 - Sediment Fence, Supported Sediment Fence, Unsupported
RD1055 - Matting

TM200 - Sign Installation Details
TM211 - Sign Details US & Interstate Route Shields
TM223 - Conventional Roads Directional Sign Layout Street Name Signs
TM224 - Freeway/Expressway Directional Sign Layout
TM230 - Mounting Details for Removable Legend (4" Through 8" Letters/Numbers)

TM450 - Mast Arm Pole Details
TM457 - Vehicle, Pedestrian Signal And Push Button Mounting Option Details
TM458 - Pedestrian Ramp Placement Details
TM460 - Vehicle Signal Details
TM462 - Adjustable Signal Head Mounting Details
TM465 - Overhead Sign, Fire Preemption And Photoelectronic Control Details
TM467 - Pedestrian Signal And Pedestrian Push Button Details
TM470 - Color Code Charts
TM472 - Traffic Signal Junction Boxes/Hand Holes
TM475 - Loop Details
TM480 - Loop Entrance Details
TM482 - Controller Cabinet And Foundation Details
TM485 - Service Cabinets And Service Cabinet Wiring Details
TM488 - Terminal Cabinet Detail
TM490 - Crosswalk Closure Detail
TM492 - Ramp Meter Pedestal Details
TM497 - Ramp Meter Layout And Details

Standard Drg. Nos. (ODOT) Cont'd.

TM500 - Pavement Marking Standard Detail Blocks
TM501 - Pavement Marking Standard Detail Blocks
TM503 - Pavement Marking Standard Detail Blocks
TM521 - Durable Pavement Markings Method "A" & Method "B" Surface & Groove Installed Non-Profiled
TM530 - Intersection Pavement Markings (Crosswalk, Stop Bar & Bike Lane Stencil)
TM531 - Turn Arrow Marking Details
TM547 - Freeway Entrance Ramp Pavement Markings
TM560 - Alignment Layout: General
TM561 - Alignment Layout: Left Turn Lane, Centerline & Medians
TM570 - Traffic Delineators
TM575 - Traffic Delineator Installation For Freeways

TM635 - Breakaway Sign and Luminaire Supports (Location Guidelines)
TM650 - Traffic Signal Supports General Details & Design Criteria
TM651 - Traffic Signal Supports Notes And Reactions
TM652 - Traffic Signal Supports Steel Details
TM653 - Traffic Signal Supports Foundation Requirements
TM670 - Wood Post Sign Supports
TM671 - 3 Second Gust Wind Speed Map
TM675 - Extruded Aluminum Panels
TM676 - Sign Attachments
TM678 - Secondary Sign Mounting Details
TM679 - Signal Mast Arm Street Name Sign Mounts
TM681 - Perforated Steel Square Tube (PSST) Sign Support Installation
TM689 - Temporary PSST Vane Anchor Installation

TM800 - Tables, Abrupt Edge And PCMS Details
TM810 - Temporary Pavement Markings
TM820 - Temporary Barricades
TM821 - Temporary Sign Supports
TM830 - Temporary Concrete Barrier And Rumble Strip Details
TM831 - Temporary Impact Attenuators
TM832 - Temporary Impact Attenuators
TM840 - Closure Details
TM841 - Intersection Work Zone Details
TM842 - Signalized Intersection Details
TM843 - Multi-Lane Signalized Intersection Details
TM844 - Temporary Pedestrian Access Routing
TM850 - 2-Lane, 2-Way Roadways
TM851 - Non-Freeway Multi-Lane Sections
TM852 - Non-Freeway Multi-Lane Sections
TM860 - Freeway Sections
TM861 - Freeway Sections
TM862 - Freeway Sections
TM880 - Freeway Or Divided Highway Speed Reduction (Moving Operations)

100%
SUBMITTAL
12/19/2014

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PROJECT NUMBER
100204

NO.	REVISION	DATE	BY	APP.

DWG:WPWX0162.NT3

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJH	12/14
EPM	ZW	12/14
EA		

DAVID EVANS AND ASSOCIATES INC.
2100 SW River Parkway
Portland, Oregon 97201
Phone: 503.223.6663

WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

CONSTRUCTION NOTES
NW CORNELIUS PASS RD.
STA. 280+20 TO STA. 282+00 & EB ON RAMP STA. 2838+00 TO STA. 2840+24.04

SHEET NO.
13

Construction Notes

(1) *Construct mountable curb and gutter*
(For details, see sht. 2B)

(2) *Construct low profile mountable curb, modified*
(For details, see sht. 2B-2)
(2A) *Construct low profile mountable curb, modified transition to reverse 2%*
(For details, see shts. 2B-3 & 2B-19A)

(3) *Construct mountable curb*
(For details, see shts. 2B-2 & 2B-19A)

(4) *Construct sidewalk ramp - 2*
Install truncated domes
(See drg. no. RD710)
(For details, see shts. 2B-5, 2B-12, & 2B-19A)

(5) *Construct conc. walks*
(For details, see sht. 2B-3)

(6) *Construct bike path*
(For details, see Typical Sections)

(7) *Construct type "C" concrete island (mountable)*
(Lowered island design)
(See drg. nos. RD705 & RD710)
(For details, see sht. 2B-12)

(8) *Adjust water valve box - 1*
(By others)

(9) *Adjust gas valve - 1*
(by others)

(10) *Protect extg. utility*

(11) *Install monument box - 1*
(For details, see sht. 2B-9)

Drainage Notes

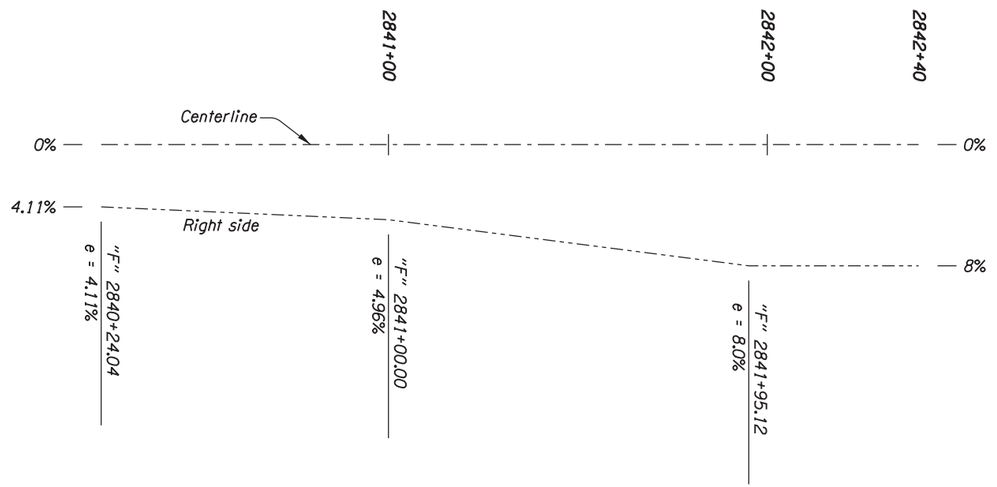
[1] *Sta. "CP" 280+40.00, (0.07' Rt.)*
Construct large precast manhole (72" diameter)
Connect extg. 18" storm sewer pipe
Install 18" storm sewer pipe - 179', Sl.=0.45%
Rim elev. 214.92
I.E. 204.51 in (S) (Extg.)
I.E. 204.51 in (SW)
I.E. 204.51 out (N) (Extg.)
(For details, see shts. GJ-20 & GJ-21)

[2] *Sta. "CP" 280+25.00, (61.29' Rt.)*
Construct CG-48
(For details, see sht. GJ-22)

[3] *Sta. "F" 2840+24.04, (38.51' Rt.)*
Construct "PVC" cleanout
(For details, see sht. GJ)

[4] *Sta. "F" 2840+24.04 to Sta. "F" 2850+24.84, Rt.*
Construct water quality bioslope
(For details, see sht. GJ)

[5] *Sta. "F" 2841+85.00, (38.51' Rt.)*
Construct "PVC" cleanout
Install 12" drain pipe - 155'
(For details, see sht. GJ)



SUPERELEVATION - "F" LINE

100%
SUBMITTAL
12/19/2014

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Sec. 23, T. 1N, R. 2W., W.M.

0 20 40 80
FEET

N

"CP" 284+00
"CP" 283+00
"CP" 282+00
"CP" 281+00
"CP" 281+94.63 P.O.T.
"F" 2838+26.97 P.O.T.

NW CORNELIUS PASS RD.

"F" 2838+00
"F1" 2839+00
"F" 2839+00
"F" 2840+00
"F1" 2840+00
"F" 2841+00
"F" 2842+00

P.C. "F" 2836+91.96
P.I. "F" 2837+78.10
P.S. "F" 2839+45.12
P.O.S. "F" 2840+15.02
P.C.S. "F1" 2840+15.02
P.S.C. "F" 2841+95.12

"F" 2837+00
"F" Line
(For profile, see sht 13B)
"CP" Line
(For profile, see sht 13B)
"F1" Line
(For profile, see sht 13B)

"F" 44°00'00" C.L.
Δ 35°15'45"
T 41.38
R 130.22'
S. 60°47'47" E.

"CP" 083°00' C.R.
Δ 3°47'35"
T 379.45'
R 11459.16'

"F1" 38°11'50" C.R.
Δ 9°34'14"
T 154.17'
R 150.00'

N. 83°56'30" E.

US26 EB ON RAMP

Extg. R/W
Extg. RR R/W
Paving limits
Sawcut
Edge of pavement
3' high jersey barrier
Ditch
Cut slope
Proposed ditch
Extg. access easement
Extg. donation land claim
Extg. ~~R/W~~ 2841+00
Sig. Cont. Box
Sig. cont. box
Ped. pole
Ped. pole w/ Traffic Signal
E. meter
Transformer
Comm. vault
Sig. pole
Inlet Top 216.86 12" S.W.F.L. 212.01
Inlet Top 216.19 12" E.F.L. 212.54
Inlet Top 214.69 12" N.E.F.L. 210.89
M.H. Top 216.48 12" N.E.F.L. 210.48 12" N.W.F.L. 209.98 12" N.F.F.L. 209.48 18" S.F.F.L. 202.78 24" D.I.(R) 202.58
PGE #7453 w/ 9 drops & 1 transformer
(2) Coast Com. vaults
MCI M.H. (R)
MCI standpipe
AT&T (R) MCI (R)
Coast Com
U T FO
U W
CCI
48" C.C.P.
6' ch. link
4' hog wire w/ barbed wire
Toe
Plot 2
"F" 250.00' Sp. S 10°00'00" a 3.20
12"-155'
18"-179'
Poly
MATCH LINE STA. "CP" 280+20
SEE SHEET 12A
MATCH LINE STA. "F" 2842+40
SEE SHEET 14A

FILE 25
4375 NW Cornelius Pass Rd.
TL 1N2230000910

FILE 22
4540 NW Cornelius Pass Rd.
TL 1N2230001000

FILE 6
NSA
TL 1N2020002700

FILE 16
21255 NW Evergreen Pkwy.
TL 1N2230001200

P.C.C. "F1" 2837+75.29
P.C.C. "CP" 280+45.96
P.O.S. "F" 2840+15.02
P.C.S. "F1" 2840+15.02

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PROJECT NUMBER
100204

NO.	REVISION	DATE	BY	APP.

DWG: WPWX0162.PL3

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJHJ	12/14
EPM	ZM	12/14
EA		

DAVID EVANS AND ASSOCIATES INC.
2100 SW River Parkway
Portland, Oregon 97201
Phone 503.223.6663

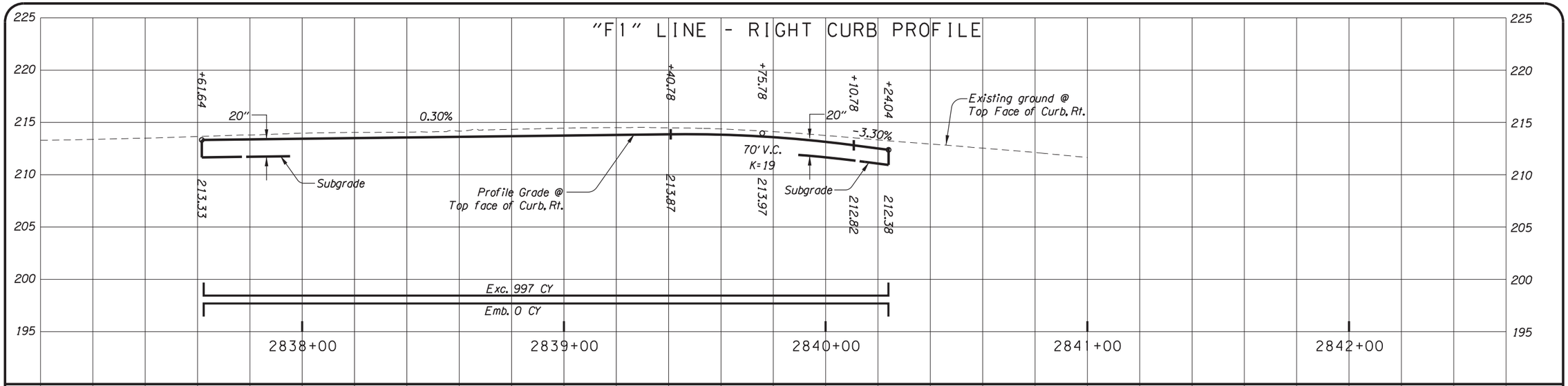
WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

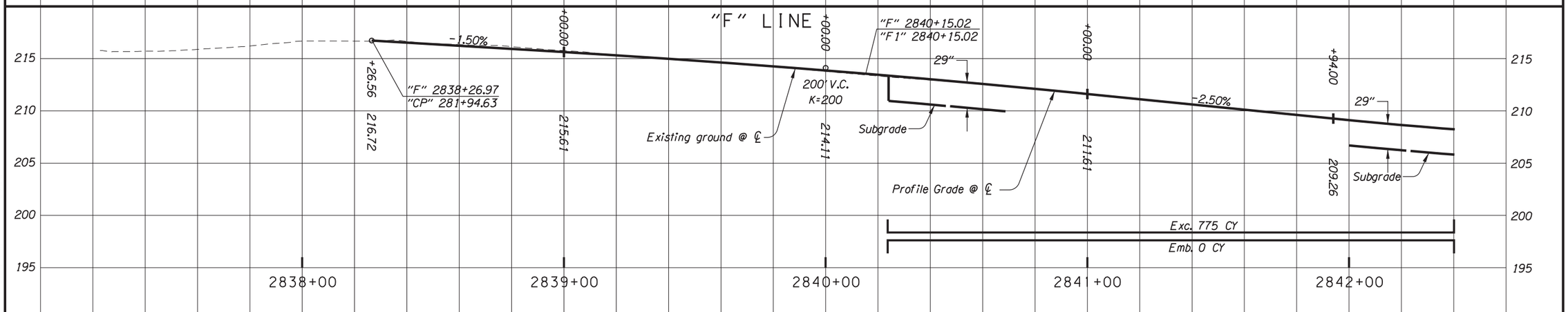
PLAN - NW CORNELIUS PASS RD. & RAMP
STA. "CP" 280+20 TO STA. "CP" 282+00
STA. "F" 2838+00 TO STA. "F" 2840+24.04

SHEET NO.
13A

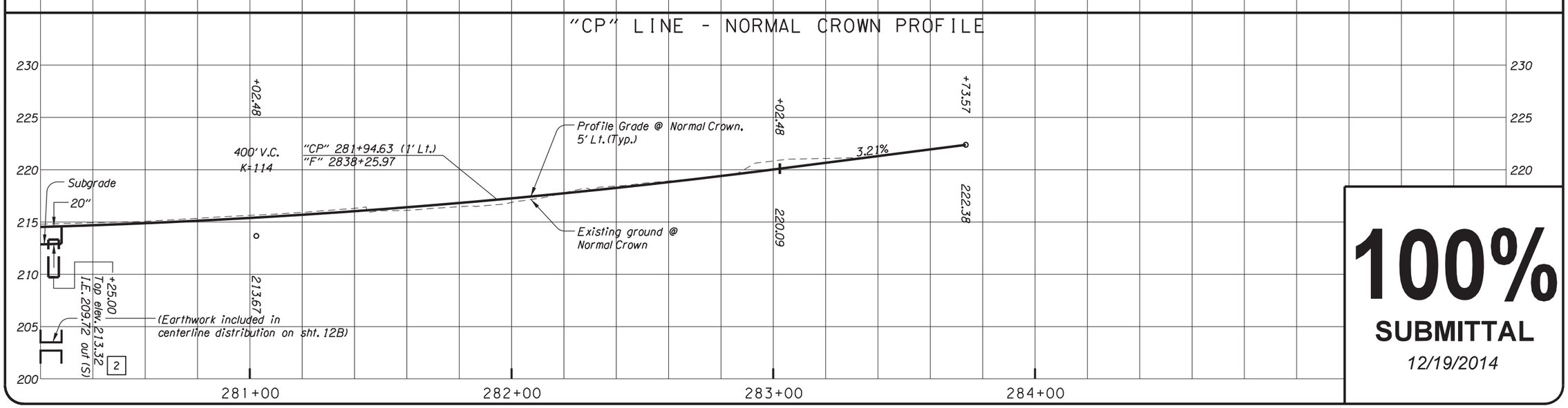
"F1" LINE - RIGHT CURB PROFILE



"F" LINE



"CP" LINE - NORMAL CROWN PROFILE



100%

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12/19/2014

PROJECT NUMBER
100204

NO.	REVISION	DATE	BY	APP.

DWG: WPWX0162.PF3

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJHL	12/14
EPM	ZM	12/14
EA		

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Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

PROFILE - NW CORNELIUS PASS RD. STA. 280+20 TO STA. 282+40 & EB ON RAMP STA. 2838+00 TO STA. 2840+24.04

SHEET NO.
13B

PROJECT NUMBER
100204

NO.	REVISION	DATE	BY	APP.

DWG:WPWX0162.NT3

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJHJ	12/14
EPM	ZW	12/14
EA		

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WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY
CONSTRUCTION NOTES
EB ON RAMP
STA. 2842+40 TO STA. 2847+80

SHEET NO.
14

Drainage Notes

1 *Sta. "F" 2843+43.34, (18.74' Rt.)*
Minor adjust manhole
Connect to extg. manhole
Install 12" storm sewer pipe - 23', Sl.= 1.00%
Rim elev. 205.39
I.E. 198.79 in (S)
I.E. 198.59 out (N) (Extg.)
(See drg. no. RD360)

2 *Sta. "F" 2843+45.00, (41.50' Rt.)*
Construct ditch inlet type D
Grate to be on side of embankment and flush with finished grade
Install 12" storm sewer pipe - 10', Sl.= 1.00%
Install 12" storm sewer pipe - 9'
(See drg. no. RD370)

3 *Sta. "F" 2843+55.00, (41.50' Rt.)*
Construct ditch inlet type D
Grate to be on side of embankment and flush with finished grade
Install 12" storm sewer pipe - 9'
(See drg. no. RD370)

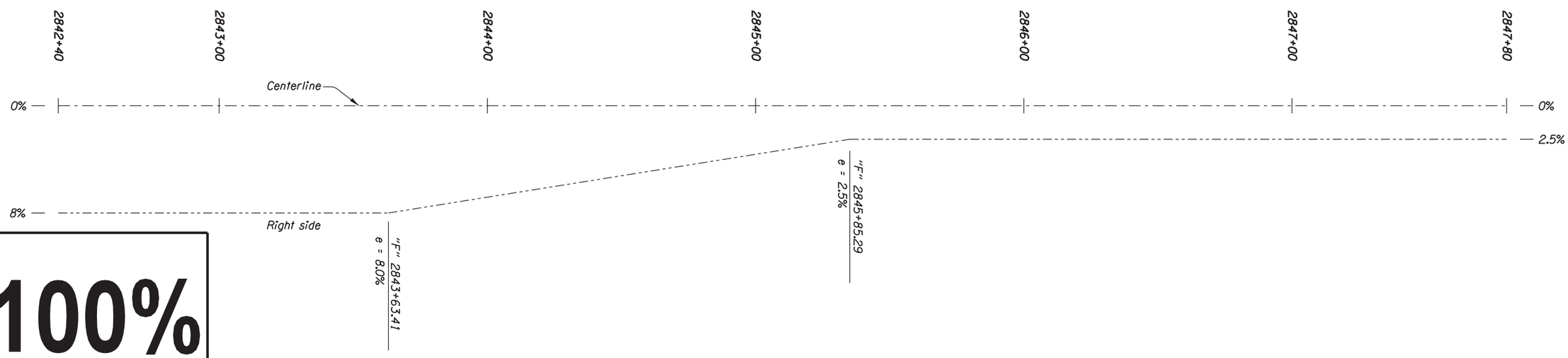
4 *Sta. "F" 2843+65.00, (41.50' Rt.)*
Construct ditch inlet type D
Grate to be on side of embankment and flush with finished grade
Install 12" ductile iron storm sewer pipe - 10', Sl.= 1.00%
(See drg. no. RD370)

5 *See sht. 13, note 4*
Sta. "F" 2840+24.04 to Sta. "F" 2850+24.84, Rt.
Construct water quality bioslope
(For details, see sht. GJ)

6 *Sta. "F" 2843+35.00, (38.51' Rt.)*
Construct "PVC" cleanout
Install 12" drain pipe - 142'
(For details, see sht. GJ)

7 *Sta. "F" 2843+75.00, (38.51' Rt.)*
Construct "PVC" cleanout
Install 12" drain pipe - 229'
(For details, see sht. GJ)

8 *Sta. "F" 2846+10.00, (38.50' Rt.)*
Construct "PVC" cleanout
Install 12" drain pipe - 201'
(For details, see sht. GJ)



SUPERELEVATION - "F" LINE

100%
SUBMITTAL
12/19/2014

Remove extg. inlet, shown thus:
Remove extg. pipe, shown thus:

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Sec. 23, T. 1N, R. 2W., W.M.

0 20 40 80
FEET

N

MATCH LINE STA. "F" 2842+40
SEE SHEET 13A

MATCH LINE STA. "F" 2847+80
SEE SHEET 15A

"F" 2843+00
"F" 2844+00
"F" 2845+00
"F" 2846+00
"F" 2847+00

"F" 8°00'00" C.R.
Δ 33°27'50"
Ts 341.27'
R 716.20'
e 8.00%

P.C.S. "F" 2843+63.41
P.T. "F" 2846+13.41

"F" 250' Sp. S 10°00'00" a 3.20

"F" Line
(For profile, see sht 14B)
S.62°35'40" E.

US26 EB ON RAMP

Paving limits
Sawcut
Taper rate 50:1
Taper rate 10:1
Begin Taper "F" 2846+63.00
Begin Taper "F" 2847+23.00
Edge of pavement
Proposed ditch
Cut slope
Fill slope
Extg. R/W
2 Pole Structure Use For Position Only
FILE 16
21255 NW Evergreen Pkwy.
TL 1N2230001200

3' high jersey barrier
Ditch
U T FO
ODOT
WCI,TYCO
U W
A E
48" C.C.P.
Water M.H.
6' ch. link

M.H. Top 205.39
12" E.F.L. 200.29
~~12"~~ S.F.L. 198.79
15" N.F.L. 198.59
Inlet 204.57
Top 205.97

12"-23'
12"-10'
12"-229'
12"-201'
12"-10'
12"-9'
12"-9'
12"-142'

Plot 1

1 2 3 4 5 6 7 8

100%
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12/19/2014

PROJECT NUMBER
100204

NO.	REVISION	DATE	BY	APP.

DWG:WPWX0162.PL3

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJH	12/14
BPM	ZM	12/14
EA		

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2100 SW River Parkway
Portland, Oregon 97201
Phone 503.223.6663

WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

PLAN
EB ON RAMP
STA. "F" 2842+40 TO STA. "F" 2847+80

SHEET NO.
14A

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"F" LINE

260 255 250 245 240 235 230 225 220 215 210 205 200 195 190 185 180 175 170 165 160

29"

Subgrade

Sl.= 1.00%
12"-9'

Sl.= 1.00%
12"-9'

206.68

204.25

Low
+99.69
+94.00

400' V.C.
K=82

Existing ground @ ℄

+94.00

208.98

2.36%

29"

Subgrade

Profile Grade @ ℄

+45.00
Grate elev. 202.60
I.E. 200.10 in (W)
I.E. 199.49 in (E)
I.E. 199.02 out (N)
2

+55.00
Grate elev. 202.54
I.E. 199.78 in (E)
I.E. 199.58 out (W)
3

+65.00
Grate elev. 202.57
I.E. 200.07 in (E)
I.E. 199.87 out (W)
4

Exc. 1915 CY

Emb. 16 CY

2843+00 2844+00 2845+00 2846+00 2847+00

100%
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12/19/2014

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PROJECT NUMBER
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DWG: WPWX0162.PF3

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJHL	12/14
EPM	ZM	12/14
EA		

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WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

PROFILE
EB ON RAMP
STA. "F" 2842+40 TO STA. "F" 2847+80

SHEET NO.
14B

PROJECT NUMBER
100204

NO.	REVISION	DATE	BY	APP.

DWG:WPWX0162.NT3

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJH	12/14
EPM	ZM	12/14
EA		

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WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY
CONSTRUCTION NOTES
EB ON RAMP
STA. 2847+80 TO STA. 2851+75

SHEET NO.
15

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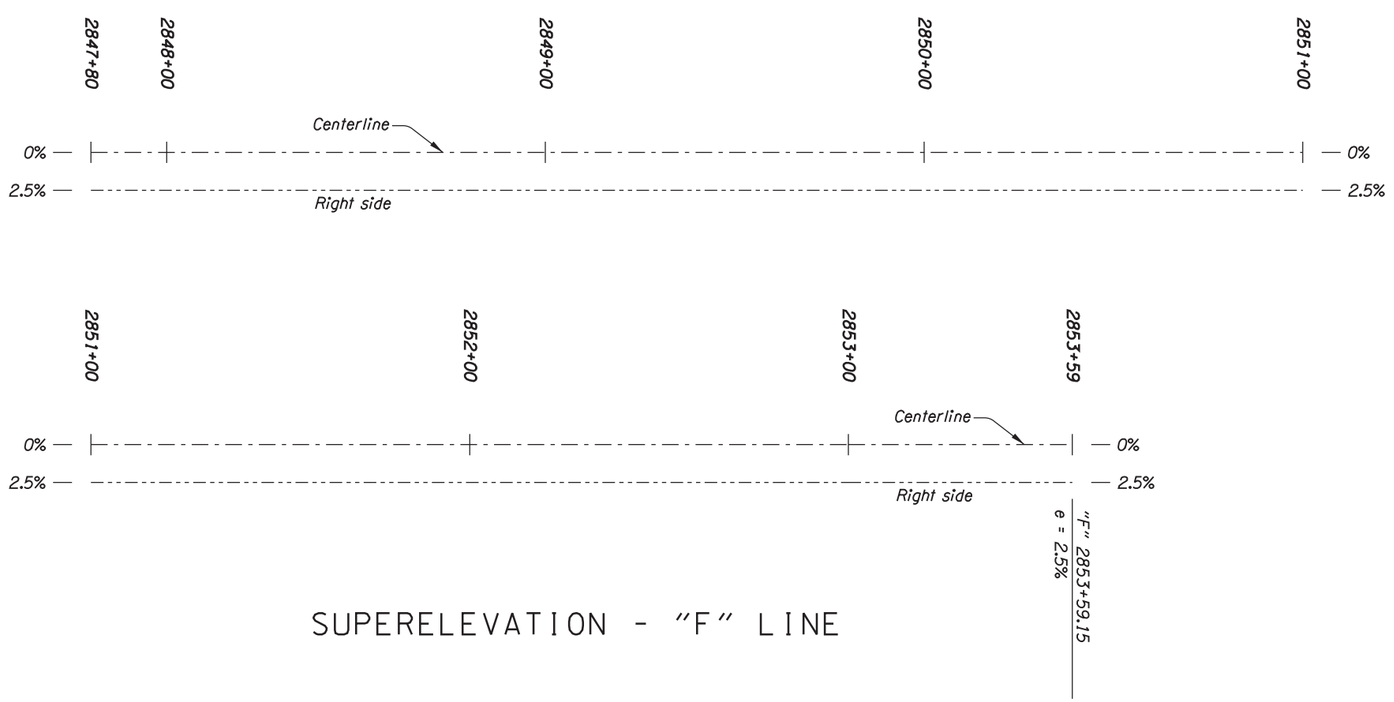
12/19/2014

Drainage Notes

1 *Sta. "F" 2848+10.00, (28.60' Rt.)*
Construct "PVC" cleanout
Install 12" drain pipe - 215'
(For details, see sht. GJ)

2 *See sht. 13, note 4*
Sta. "F" 2840+24.04 to Sta. "F" 2850+24.84, Rt.
Construct water quality bioslope
(For details, see sht. GJ)

3 *Sta. "F" 2850+24.84, (24.26' Rt.)*
Construct "PVC" cleanout
(For details, see sht. GJ)



SUPERELEVATION - "F" LINE

Sec. 23, T. 1N, R. 2W., W.M.

0 20 40 80
FEET

MATCH LINE STA. "F" 2847+80
SEE SHEET 14A

"F" 2848+00 "F" 2849+00 "F" 2850+00 "F" 2851+00 "F" 2852+00 "F" 2853+00

Ramp signal
"F" Line
(For profile, see sht 15B)
US26 EB ON RAMP
S.62°35'40" E.
Sawcut
Paving limits
Taper rate 50:1
12"-215'
Fill slope
Edge of pavement
Begin Taper "F" 2848+10.48
End Taper "F" 2850+24.84
End Of Project
Sta. "F" 2850+24.84
1
2
3
Ramp signal
Ditch
U T FO
WCI,TYCO
U W
48" C.C.P.
Extg. R/W
Extg. donation land claim
P.W. blowoff valve
P.W. vault
6' ch. link
BPA Tower Position Only
2 Pole Structure Position Only
Pole Structure Position Only
Structure Position Only

FILE 16
21255 NW Evergreen Pkwy.
TL 1N2230001200

100%
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12/19/2014

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PROJECT NUMBER
100204

NO.	REVISION	DATE	BY	APP.

DWG: WPWX0162.PL3

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJHJ	12/14
EPM	ZM	12/14
EA		

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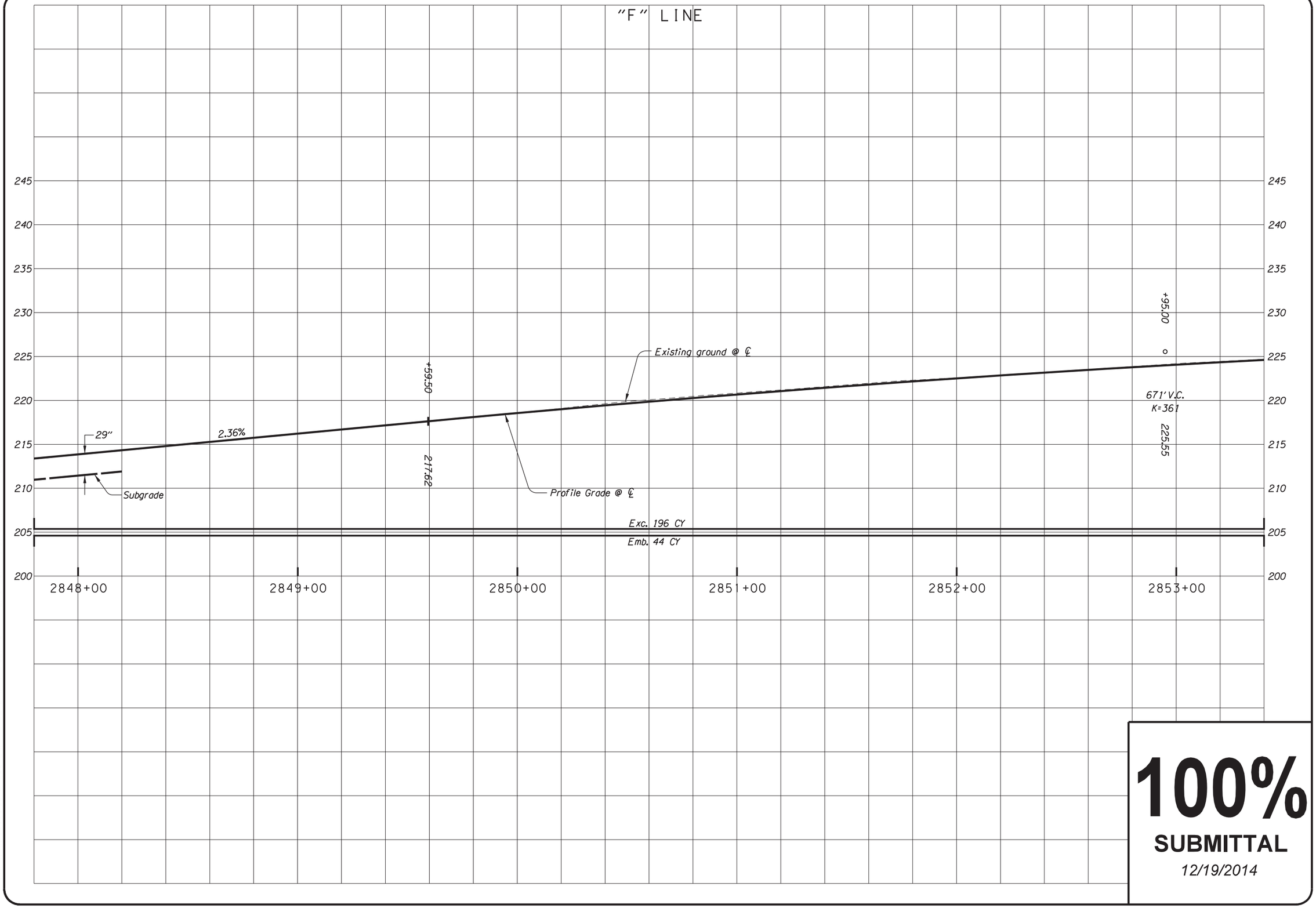
WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

PLAN
EB ON RAMP
STA. "F" 2847+80 TO STA. "F" 2851+75

SHEET NO.
15A

"F" LINE



PROJECT NUMBER
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	BY	DATE
DRAWN	CABE	12/14
DESIGNED	JEJO	12/14
CHECKED	MJHL	12/14
EPM	ZM	12/14
EA		

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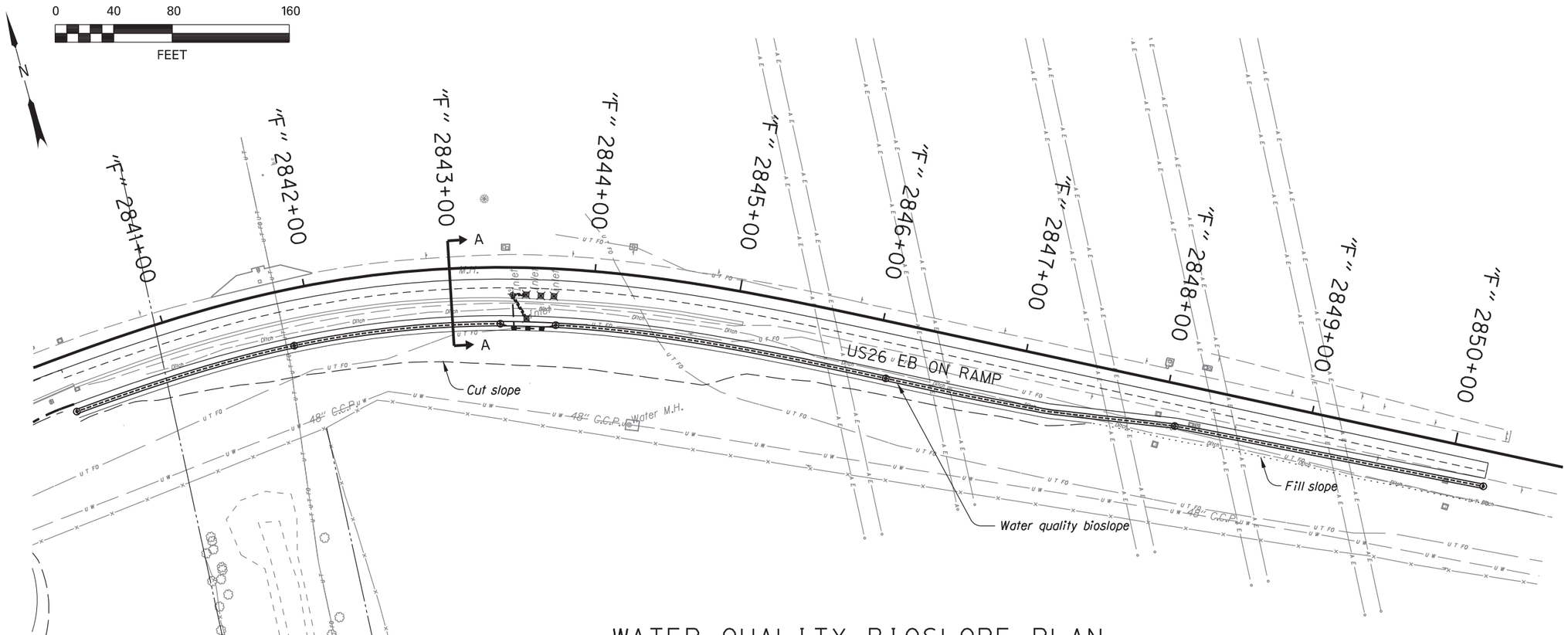
WASHINGTON COUNTY OREGON
Department of Land Use & Transportation

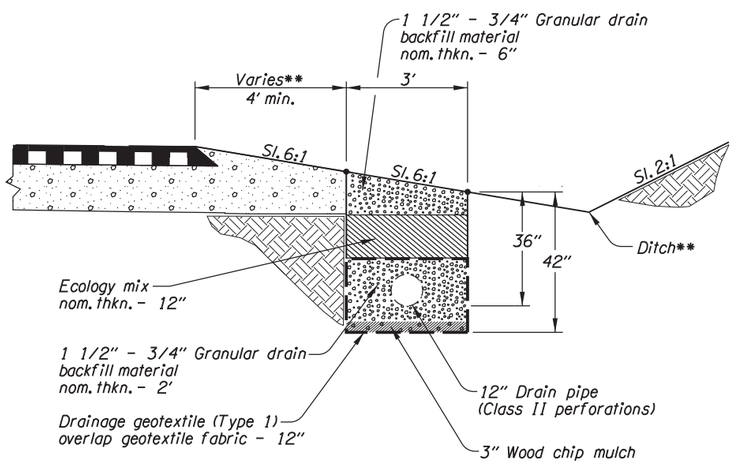
NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

PROFILE
EB ON RAMP
STA. "F" 2847+80 TO STA. "F" 2851+75

SHEET NO.
15B



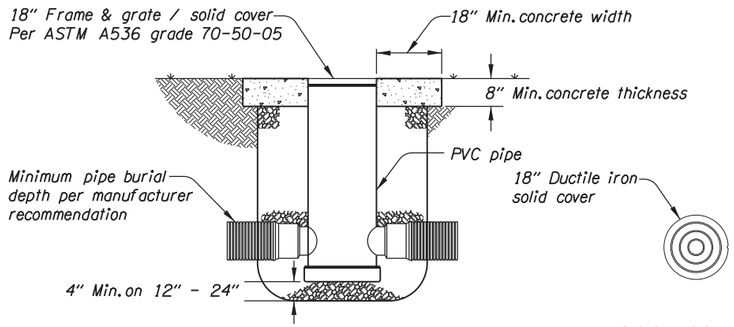
WATER QUALITY BIOSLOPE PLAN



**See roadway typical section

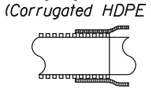
SECTION A-A

WATER QUALITY BIOSLOPE
Sta. "F" 2840+24.04 to Sta. "F" 2850+24.84



"PVC" CLEANOUT

Soiltight joint
(Corrugated HDPE shown)



General Notes

1. Grates/solid cover shall be ductile iron per astm A536 grade 70-50-05.
2. Frames shall be ductile iron per ASTM A536 grade 70-50-05.
3. Drain basin to be custom manufactured according to plan details.
4. Drainage connection stub joint tightness shall conform to ASTM D3212 for corrugated hdpe (ADS N-12/Hancor dual wall), N-12hp, & PVC sewer.

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

MARKER TABLE

FACILITY LOCATION		DFI #	TYPE S2 MARKER LOCATION		TYPE S1 MARKER	
STATION	MP		BEGIN	END	RED	GREEN
"F" 2840+24.04 Rt.	NA	D00873	✓		✓	
"F" 2850+24.84 Rt.	NA	D00873		✓		✓

See ODOT std. drg. no. RD399 for placement

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12/19/2014

PROJECT NUMBER 100204

NO.	REVISION	DATE	BY	APP.

DWG: WPWX0162.GJI

	BY	DATE
DRAWN	CABE	12/14
DESIGNED	KRN	12/14
CHECKED	MXG	12/14
EPM	ZM	12/14
EA		

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Department of Land Use & Transportation

NW CORNELIUS PASS ROAD:
NW CORNELL ROAD TO US 26
WASHINGTON COUNTY

WATER QUALITY SWALE No. 2

SHEET NO.
GJ

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