

# **OPERATION & MAINTENANCE MANUAL**

**DFI No. : D01180**

**Facility Type: Drywell**

**September 2018**

**INDEX**

**1. IDENTIFICATION ..... 1**

**2. FACILITY CONTACT INFORMATION..... 1**

**3. CONSTRUCTION..... 1**

**4. STORM DRAIN SYSTEM AND FACILITY OVERVIEW ..... 2**

**5. MAINTENANCE REQUIREMENTS ..... 2**

**6. WASTE MATERIAL HANDLING ..... 3**

**Appendix A: Operational Plan and Profile Drawing(s)**

**Appendix B: ODOT Project Plan Sheets**

## 1. Identification

Drainage Facility ID (DFI): **D01180**

Facility Type: Drywell

Construction Drawings: (V-File Number) 52V-005

Location: District: 2B

Highway No.: 026

Mile Post: 7.87 (beg./end)

Description: This facility is located along the north side of SE Powell Boulevard approximately 200 feet west of the intersection with 136<sup>th</sup> Avenue.

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

## 3. Construction

Engineer of Record:

ODOT Designer – Region 1 Hydraulics, Bruce Council, PE, (503) 731-8319

Consultant Designer – HDR, Christine Higgins, PE, (503) 423-3700

Facility construction: 2019

Contractor: To be Determined

#### 4. Storm Drain System and Facility Overview

Drywells are structural subsurface facilities with perforated sides or bottom used to dispose/infiltrate stormwater into the ground. Drywells are usually configured with an upstream sedimentation manhole as a form of pretreatment. Drywells have been designed to fully store and infiltrate the volume of runoff from the 25-year, 24-hour rainfall event.

This facility is located along the north side of SE Powell Boulevard approximately 200 feet west of the intersection with 136<sup>th</sup> Avenue behind the sidewalk. This facility's access manhole lid is flush with the adjacent ground, with 3.0 feet of drain rock surrounding the precast perforated drywell sections.

The drywell is the end point for the stormwater conveyance system. Runoff is collected with a curb inlet conveyed to a sedimentation manhole, and then discharged into the drywell where the water is infiltrated into the groundwater.

A. Maintenance equipment access:

The facility can be accessed from SE Powell Boulevard.

B. Heavy equipment access into facility:

- Allowed (no limitations)
- Allowed (with limitations)
- Not allowed

C. Special Features:

- Amended Soils
- Porous Pavers
- Liners
- Underdrains

#### 5. 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/GeoEnvironmental/Pages/Stormwater.aspx>

The stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual:

Mark as Required and always include Table 1:

- 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)

## 6. 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/Maintenance/Documents/ems\\_manual.pdf](https://www.oregon.gov/ODOT/Maintenance/Documents/ems_manual.pdf)

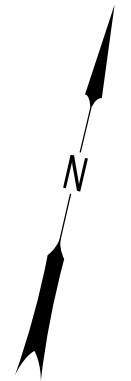
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region 1 Hazmat Coordinator	(503) 731-8290
ODEQ Northwest Region Office	(503) 229-5263

# Appendix A

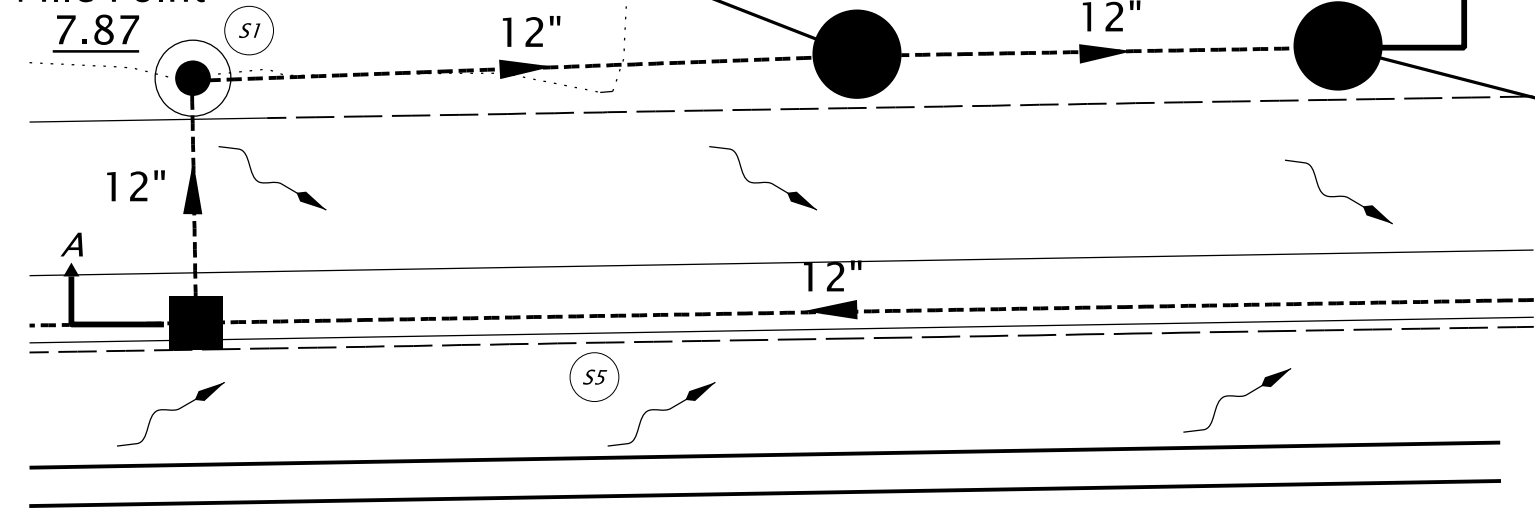
## Content:

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



Drywell  
DFI D01180

Mile Point  
7.87



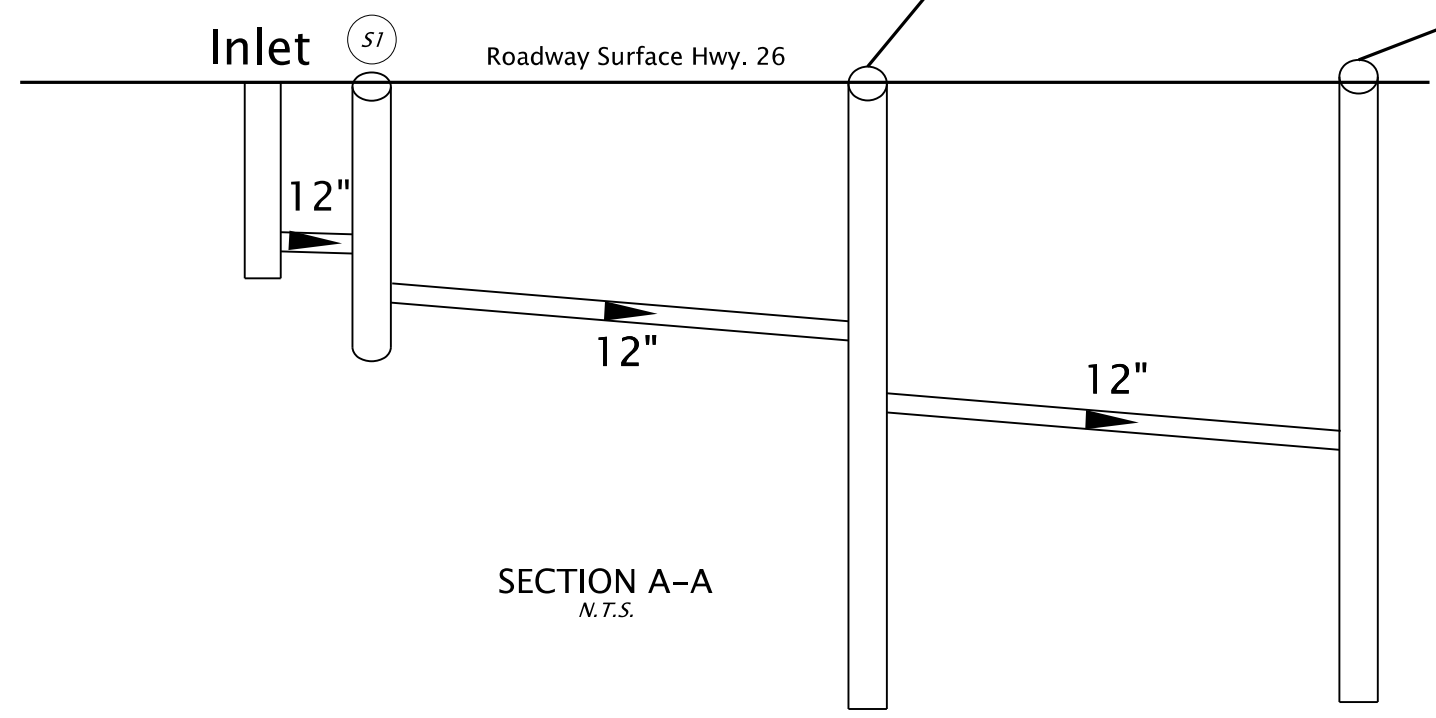
Drywell  
DFI D01181

← Westbound Lanes  
(Powell Blvd. Hwy. 26)

PLAN  
N.T.S.

Drywell  
DFI D01180

Drywell  
DFI D01181



SECTION A-A  
N.T.S.

- LEGEND:
- (S1) Pretreatment Manhole
  - (S5) Pavement Sheet Flow
  - and □ Inlet
  - and ○ Manhole
  - and ○ Drywell
  - - - Storm Pipe
  - Conveyance Direction
  - Pavement / Facility Flow Path
  - ← Traffic Flow Direction



Prepared By:  
\_\_\_\_\_ CMG \_\_\_\_\_

Drafted By:  
\_\_\_\_\_ CMG \_\_\_\_\_

**DFI D01180**  
**MAINTENANCE DISTRICT 2B HWY 026**  
**DRYWELL**  
HIGHWAY MP 7.87  
MULTNOMAH COUNTY

# Appendix B

## Content:

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



STATE OF OREGON  
DEPARTMENT OF TRANSPORTATION

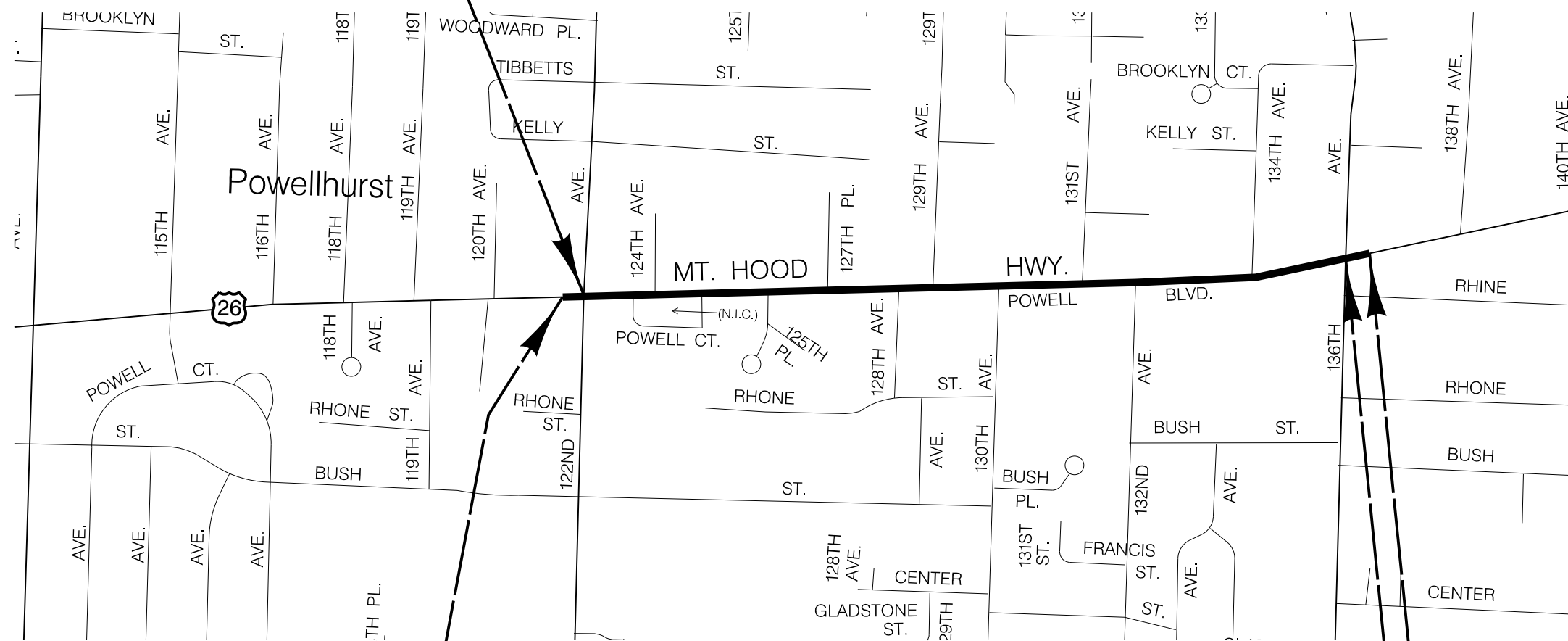
PLANS FOR PROPOSED PROJECT  
GRADING, PAVING, DRAINAGE, SIGNING,  
ILLUMINATION, SIGNALS, AND ROADSIDE DEVELOPMENT

**US26 (POWELL BLVD):  
SE 122ND AVE - SE 136TH AVE SEC.**

**MT. HOOD HIGHWAY  
MULTNOMAH COUNTY  
DECEMBER 2018**

**BEGINNING OF PROJECT**

**STA. "P" 1106+29.96 (M.P. 7.21)**



**BEGINNING OF PAVING**

**STA. "P" 1103+68.00 (M.P. 7.16)**

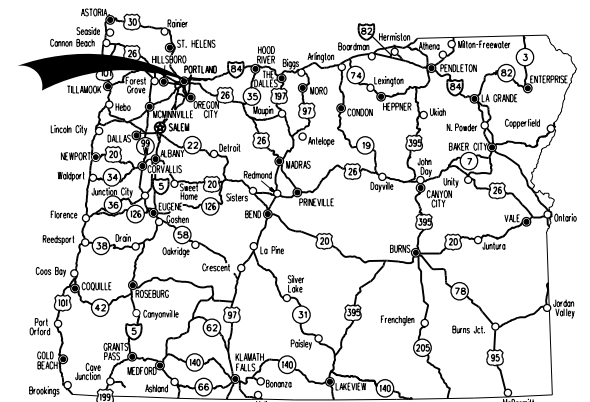
**END OF PROJECT**

**STA. "P" 1142+67.74 (M.P. 7.90)**

**END OF PAVING**

**STA. "P" 1145+25.00 (M.P. 7.95)**

T. 1 S., R. 2 E., W.M.



Overall Length Of Project - 0.93 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.)



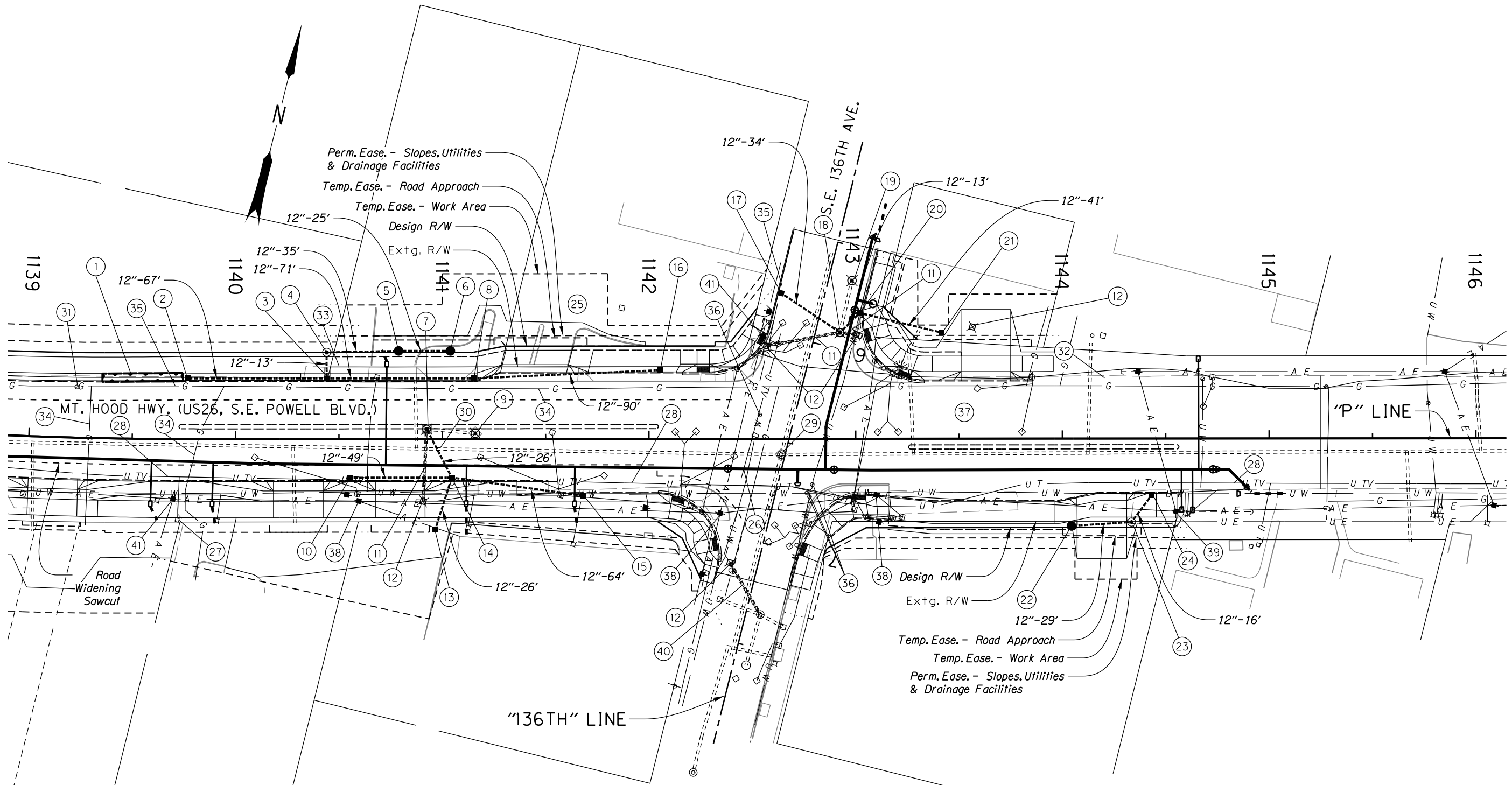
**OREGON TRANSPORTATION COMMISSION**  
Tammy Baney CHAIR  
David Lohman COMMISSIONER  
Paula Brown COMMISSIONER  
Alando Simpson COMMISSIONER  
Sean O'Hollaren COMMISSIONER  
Matthew L. Garrett DIRECTOR OF TRANSPORTATION

These plans were developed using ODOT design standards. Exceptions to these standards, if any, have been submitted and approved by the ODOT Chief Engineer or their delegated authority.

Approving Authority: \_\_\_\_\_  
Signature & date  
\_\_\_\_\_  
Print name and title  
\_\_\_\_\_  
Concurrence by ODOT Chief Engineer

**US26 (POWELL BLVD):  
SE 122ND AVE - SE 136TH AVE SEC.  
MT. HOOD HIGHWAY  
MULTNOMAH COUNTY**

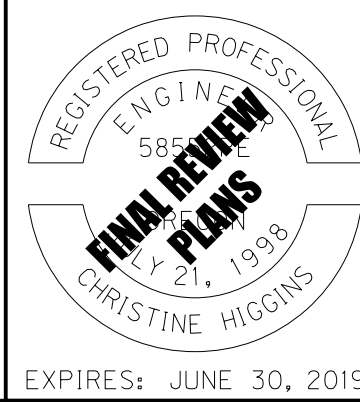
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	HSIP-S026(126)	A01



**General Notes:**

See sheets RA01 to RA14 for the relocation of the PWB water system.  
 PWB will install the water meter in the water meter box installed by the Contractor.

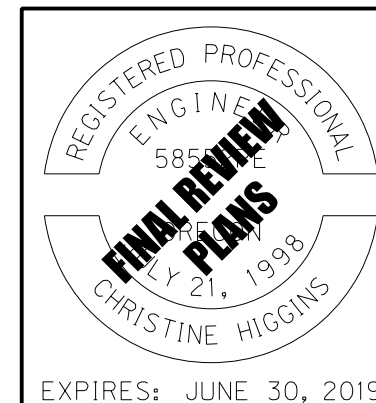
The road widening sawcut line does not reflect the sawcutting for trench resurfacing.



	HDR ENGINEERING, INC 1001 SW 5TH AVENUE, SUITE 1800 PORTLAND, OR 97204-1134 503.423.3700	
	<b>US26 (POWELL BLVD):</b> <b>SE 122ND AVE - SE 136TH AVE SEC.</b> MT. HOOD HIGHWAY MULTNOMAH COUNTY	

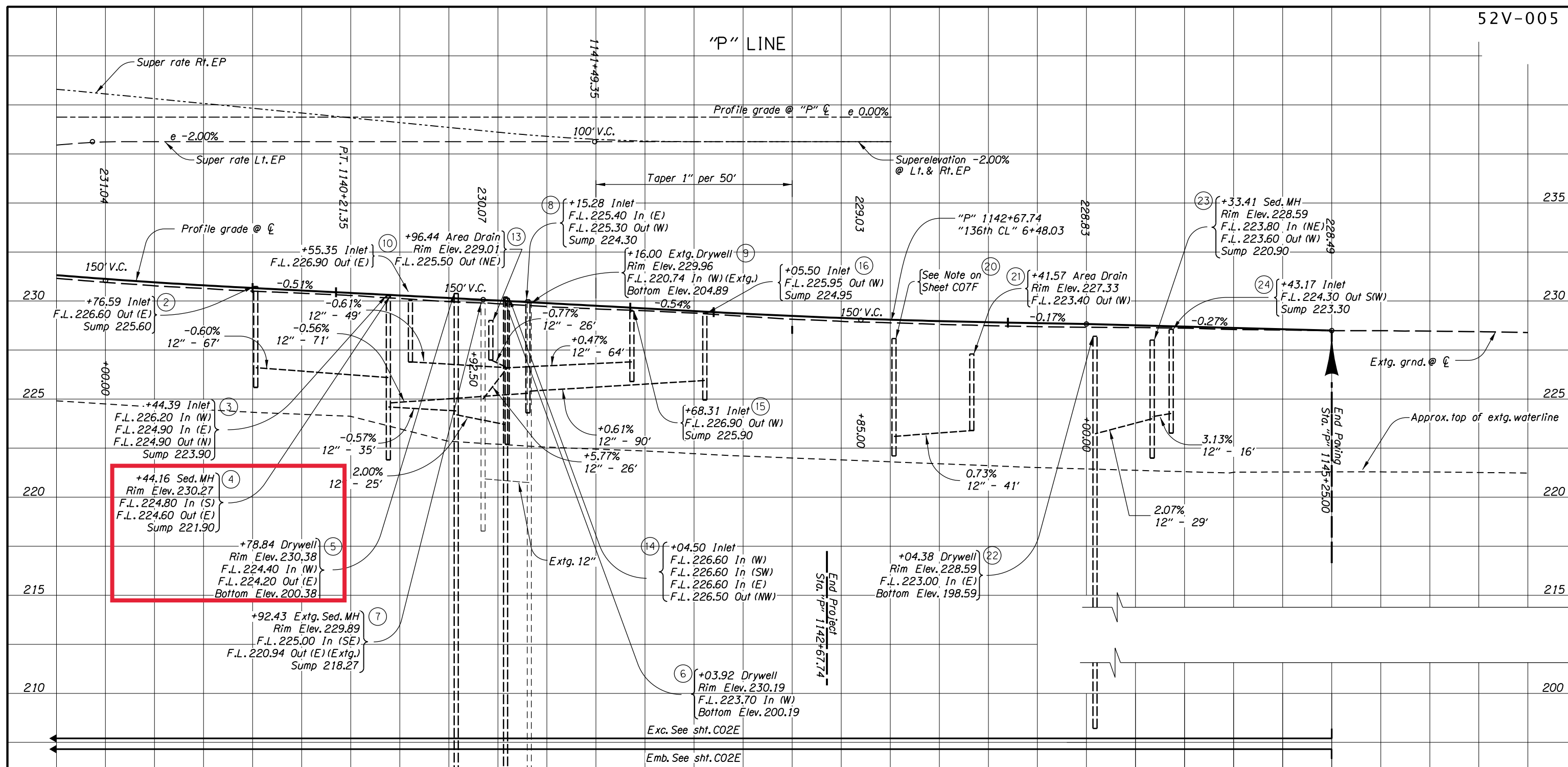
Designer: Cory Gieseke Drafter: Cory Gieseke	Reviewer: Christine Higgins Checker: Kyle Donovan	SHEET NO. <b>C07C</b>
<b>DRAINAGE AND UTILITIES - PLANS</b>		

- ① Sta. 1139+35.05 to 1139+74.05, Lt.  
Const. stormwater planter D01179  
Inst. field facility marker (Type S2) - 1  
DFI no. D01179  
(For details, see sht. HA03)
- ② Sta. 1139+76.59, Lt.  
Const. type "CG-3" inlet with sump  
Connect subdrain pipe from DFI no. D01179
- ③ Sta. 1140+44.39, Lt.  
Const. type "CG-3" inlet with sump  
Inst. 12" storm sew. pipe - 67'  
5' depth  
Inst. 12" storm sew. pipe - 71'  
10' depth
- ④ Sta. 1140+44.16, 42.00' Lt.  
Const. sedimentation manhole  
Inst. 12" storm sew. pipe - 13', S=-0.77%  
5' depth  
(For details, see sht. HA01)
- ⑤ Sta. 1140+78.84, 42.65' Lt.  
Const. drywell  
Inst. 12" storm sew. pipe - 35'  
10' depth  
Inst. field facility marker (Type S3) - 1  
DFI no. D01180  
(For details, see sht. HA02)
- ⑥ Sta. 1141+03.92, 42.67' Lt.  
Const. drywell  
Inst. 12" storm sew. pipe - 25'  
10' depth  
Inst. field facility marker (Type S3) - 1  
DFI no. D01181  
(For details, see sht. HA02)
- ⑦ Sta. 1140+92.43, 4.85' Lt.  
Minor adjust manhole  
Method "B"  
Inst. 12" storm sew. pipe - 26'  
10' depth  
Connect to extg. storm sewer manhole
- ⑧ Sta. 1141+15.28, Lt.  
Const. type "CG-3" inlet with sump  
Inst. 12" storm sew. pipe - 90'  
5' depth
- ⑨ Sta. 1141+16.00, 2.78' Lt.  
Minor adjust manhole  
Method "B"  
Inst. field facility marker (Type S3) - 1  
DFI no. D01182
- ⑩ Sta. 1140+55.35, Rt.  
Const. type "CG-2" inlet
- ⑪ Remove pipe - 78'
- ⑫ Remove inlet - 5
- ⑬ Sta. 1140+96.44, 43.57' Rt.  
Const. area drain
- ⑭ Sta. 1141+04.50, Rt.  
Const. type "CG-2" inlet  
Inst. 12" storm sew. pipe - 26'  
5' depth  
Inst. 12" storm sew. pipe - 49'  
5' depth  
Inst. 12" storm sew. pipe - 64'  
5' depth
- ⑮ Sta. 1141+68.31, Rt.  
Const. type "CG-3" inlet with sump
- ⑯ Sta. 1142+05.50, Lt.  
Const. type "CG-3" inlet with sump
- ⑰ Sta. "136TH" 5+80.56, Rt.  
Const. type "CG-2" inlet with sump
- ⑱ Sta. "136TH" 5+92.21, 11.51' Lt.  
Minor adjust manhole  
Method "B"  
Inst. 12" storm sew. pipe - 13', S=0.77%  
10' depth  
Inst. 12" storm sew. pipe - 34'  
5' depth  
Connect to extg. sedimentation manhole - 2
- ⑲ Sta. "136TH" 5+66.01, 11.30' Lt.  
Minor adjust manhole  
Method "B"
- ⑳ Sta. "136TH" 5+80.70, Lt.  
Const. type "CG-2" inlet with sump  
Inst. 12" storm sew. pipe - 41'  
5' depth
- ㉑ Sta. 1143+41.57, 51.35' Lt.  
Const. area drain
- ㉒ Sta. 1144+04.38, 42.38' Rt.  
Const. drywell  
Inst. 12" storm sew. pipe - 29'  
10' depth  
Inst. field facility marker (Type S3) - 1  
DFI no. D01183  
(For details, see sht. HA02)
- ㉓ Sta. 1144+33.41, 40.36' Rt.  
Const. sedimentation manhole  
Inst. 12" storm sew. pipe - 16'  
5' depth  
(For details, see sht. HA01)
- ㉔ Sta. 1144+43.17, Rt.  
Const. type "CG-3" inlet with sump
- ㉕ Maintain and protect PWB Conduit No. 3  
Water pipes over 12-inch in diameter are  
not shown for confidentiality. Contact  
Portland Water Bureau for locations.
- ㉖ Relocate CTL underground communication  
line (by others)
- ㉗ Relocate CTL communications riser (by others)
- ㉘ Maintain and protect extg. CTL underground  
communication line
- ㉙ Adjust BES sanitary manhole to finish grade  
Minor Adjust Manhole - 1  
Method "B"
- ㉚ Maintain and protect BES sanitary line
- ㉛ Adjust NWN gas test lead to finish grade (by others)
- ㉜ Locate buried NWN gas valve box and adjust to  
finish grade - 1
- ㉝ Adjust NWN gas valve box to finish grade - 1
- ㉞ Maintain and protect NWN gas line
- ㉟ Relocate NWN gas line (by others)
- ㊱ Adjust PWB water valve box to finish grade - 8
- ㊲ Pothole buried PWB manhole - 1
- ㊳ Relocate PGE pole (by others)
- ㊴ Maintain and protect extg. PGE pole
- ㊵ Abandon pipe - 1
- ㊶ Relocate CTL pole (by others)



	HDR ENGINEERING, INC 1001 SW 5TH AVENUE, SUITE 1800 PORTLAND, OR 97204-1134 503.423.3700	
US26 (POWELL BLVD): SE 122ND AVE - SE 136TH AVE SEC. MT. HOOD HIGHWAY MULTNOMAH COUNTY		
Designer: Cory Gleseke Drafter: Cory Gleseke	Reviewer: Christine Higgins Checker: Kyle Donovan	SHEET NO. C07D
DRAINAGE AND UTILITIES - NOTES		

"P" LINE

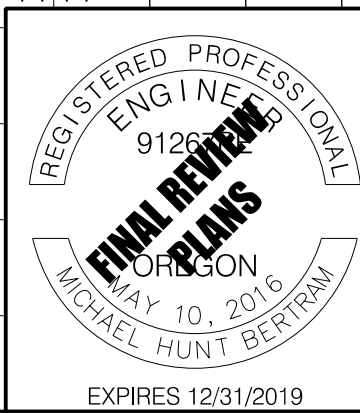


**4** +44.16 Sed. MH  
Rim Elev. 230.27  
F.L. 224.80 In (S)  
F.L. 224.60 Out (E)  
Sump 221.90

**5** +78.84 Drywell  
Rim Elev. 230.38  
F.L. 224.40 In (W)  
F.L. 224.20 Out (E)  
Bottom Elev. 200.38

**7** +92.43 Extg. Sed. MH  
Rim Elev. 229.89  
F.L. 225.00 In (SE)  
F.L. 220.94 Out (E) (Extg.)  
Sump 218.27

Note:  
Maintain and protect Portland Water Bureau conduit No. 3  
Location shown is approximate. Actual depth may vary.  
Field verify actual depth prior to excavation.  
PWB inspectors will need to be on-site prior  
to any potholing of waterlines.



**HDR** HDR ENGINEERING, INC  
1001 SW 5TH AVENUE, SUITE 1800  
PORTLAND, OR 97204-1134  
503.423.3700

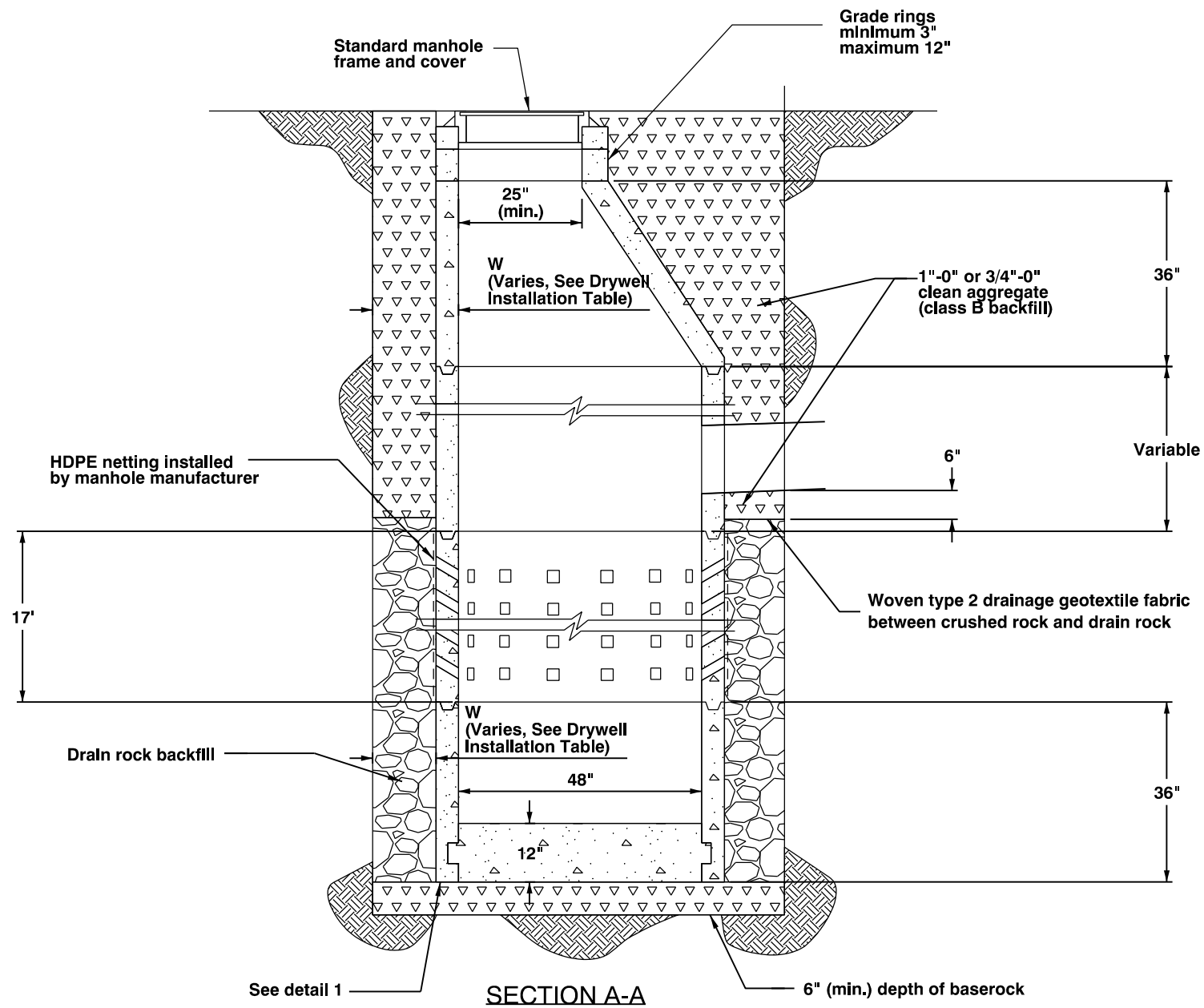
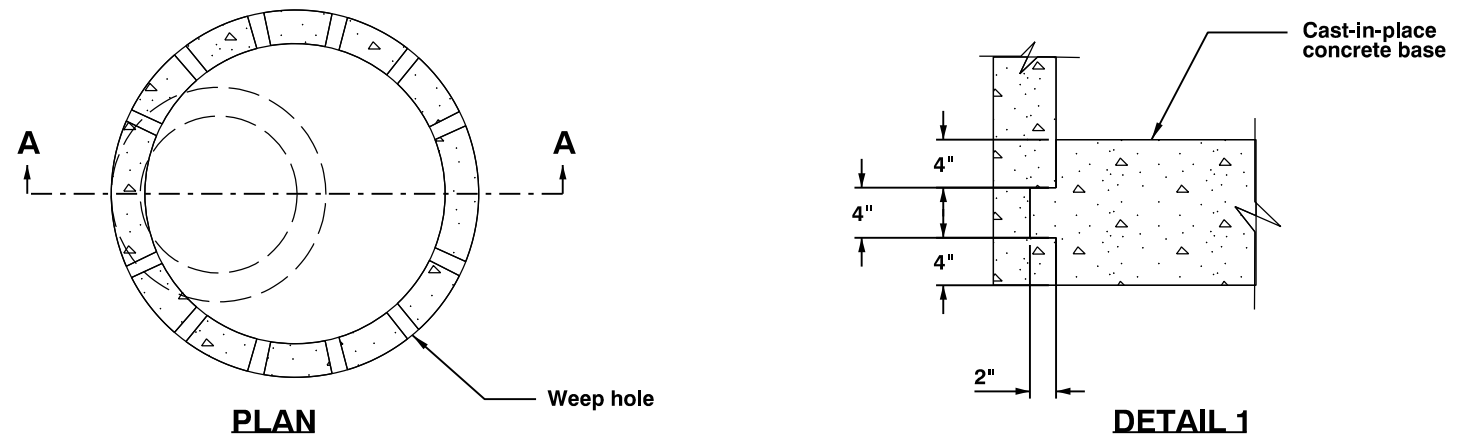
**US26 (POWELL BLVD):  
SE 122ND AVE - SE 136TH AVE SEC.  
MT. HOOD HIGHWAY  
MULTNOMAH COUNTY**

Designer: Mark Taylor      Reviewer: John Wolf  
Drafter: Mark Taylor      Checker: Dustin Cooley

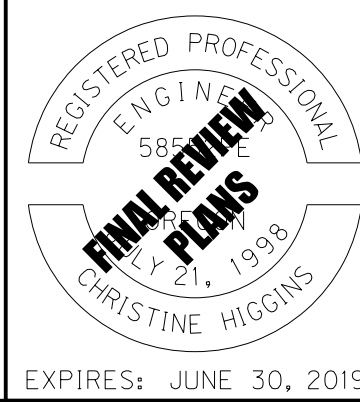
**PROFILE**      SHEET NO. C07E

DRYWELL INSTALLATION TABLE

DRAWING REFERENCE	STATIONING	OFFSET	DFI no.	W (FT)	DEPTH (FT)	MIN. INFILTRATION CAPACITY REQUIRED
C02C	Sta. 1105+22.92	51.89' Lt.	D01165	3.00	30.00	90 GPM
C02C	Sta. "122ND" 8+50.45	34.99' Rt.	N/A	4.00	30.00	110 GPM
C02C	Sta. "123RD" 15+66.59	5.51' Lt.	N/A	3.00	30.00	90 GPM
C03C	Sta. "124TH" 5+90.88	8.11' Lt.	N/A	3.00	30.00	90 GPM
C03C	Sta. 1111+36.53	26.96' Rt.	D01168	3.00	30.00	90 GPM
C03C	Sta. "125TH" 26+06.80	9.40' Lt.	N/A	3.00	30.00	90 GPM
C04C	Sta. "127TH" 7+49.75	6.69' Rt.	N/A	4.50	30.00	120 GPM
C04C	Sta. "127TH" 7+24.75	6.65' Rt.	N/A	4.50	30.00	120 GPM
C04C	Sta. 1118+85.31	13.18' Rt.	D01170	3.00	30.00	90 GPM
C04C	Sta. "128TH" 5+69.93	3.92' Rt.	N/A	3.00	30.00	90 GPM
C04C	Sta. "129TH" 10+70.21	4.91' Lt.	N/A	4.00	30.00	110 GPM
C05C	Sta. "130TH" 30+72.83	6.64' Rt.	N/A	4.00	30.00	110 GPM
C05C	Sta. "131ST" 5+43.36	6.32' Lt.	N/A	4.50	30.00	120 GPM
C06C	Sta. "132ND" 10+71.74	6.31' Lt.	N/A	3.00	30.00	90 GPM
C06C	Sta. "132ND" 10+96.94	6.30' Lt.	N/A	3.00	30.00	90 GPM
C06C	Sta. 1133+69.50	39.33' Lt.	D01174	3.00	30.00	90 GPM
C06C	Sta. 1133+94.50	39.65' Lt.	D01175	3.00	30.00	90 GPM
C06C	Sta. 1135+50.50	12.08' Rt.	D01176	3.00	30.00	90 GPM
C06C	Sta. 1136+86.40	34.93' Rt.	D01177	3.00	30.00	90 GPM
C06C	Sta. 1137+97.55	41.77' Lt.	D01178	4.50	30.00	120 GPM
C07C	Sta. 1140+78.84	42.65' Lt.	D01180	3.00	30.00	90 GPM
C07C	Sta. 1141+03.92	42.67' Lt.	D01181	3.00	30.00	90 GPM
C07C	Sta. 1144+04.38	42.38' Rt.	D01183	3.00	30.00	90 GPM



- NOTES:
1. All precast products shall conform to requirements of ASTM C478.
  2. See Std. Drg. RD336 for manhole steps details.
  3. Provide a flexible joint for all connected pipes:
    - Rigid pipe Δ 36 inches - 18 inches (max.) from outside wall.
    - Flexible pipe - 18 inches (max.) from the outside wall unless a flexible joint fitting is installed and accepted.
  4. Provide 12 inches (min.) of separation between a section joint and the outer edge of any opening.



**HDR** HDR ENGINEERING, INC  
 1001 SW 5TH AVENUE, SUITE 1800  
 PORTLAND, OR 97204-1134  
 503.423.3700

**US26 (POWELL BLVD):**  
**SE 122ND AVE - SE 136TH AVE SEC.**  
 MT. HOOD HIGHWAY  
 MULTNOMAH COUNTY

Designer: Cory Gieseke Review: Christine Higgins  
 Drafter: Ryan Sheehan Checker: Kyle Donovan

**DRAINAGE DETAILS** SHEET NO. HA02