OPERATION & MAINTENANCE MANUAL

DFI No. : D01179
Facility Type: Stormwater Planter

September 2018

INDEX

1. Identification

Drainage Facility ID (DFI):	**D01179**
Facility Type:	Stormwater Planter
Construction Drawings:	(V-File Number) 52V-005
Location:	District: 2B
	Highway No.: 026
	Mile Post: 7.84; 7.85 (beg./end)
	Description: This facility is located along the north side of SE Powell Boulevard approximately 300 feet west of SE 136th 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

Stormwater planters are structural landscaped reservoirs used to collect, filter, and infiltrate stormwater, allowing pollutants to settle and filter out as the water percolates through the vegetation, growing medium, and gravel. Depending on site conditions, planters can be designed to completely or partially infiltrate the stormwater they receive. They can also be designed as lined facilities where stormwater is temporarily stored. Excess stormwater collects in a perforated pipe at the bottom of the lined planter and drains to an approved discharge location.

This facility is located along the north side of SE Powell Blvd. approximately 300 feet west of SE 136th Avenue. Refer to Figure 1 for the facility location. This facility is approximately 5 inches lower than the adjacent roadway, with 18 inches of water quality soil on top of 18 inches of storage rock.

Figure 1. Facility Location

Stormwater is conveyed into the stormwater planter through evenly spaced curb cut inlets along the side of the stormwater planter adjacent to the roadway, and through notches along the sides of the planter adjacent to the sidewalk. Once the stormwater percolates through the vegetation and water quality soil, it drains out of the facility through a perforated drain pipe located within the storage at the bottom of the facility. The drain pipe is connected directly to a stormwater system located immediately downstream of the stormwater planter. The stormwater will travel to a sedimentation manhole and eventually to a drywell where it will be infiltrated.

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

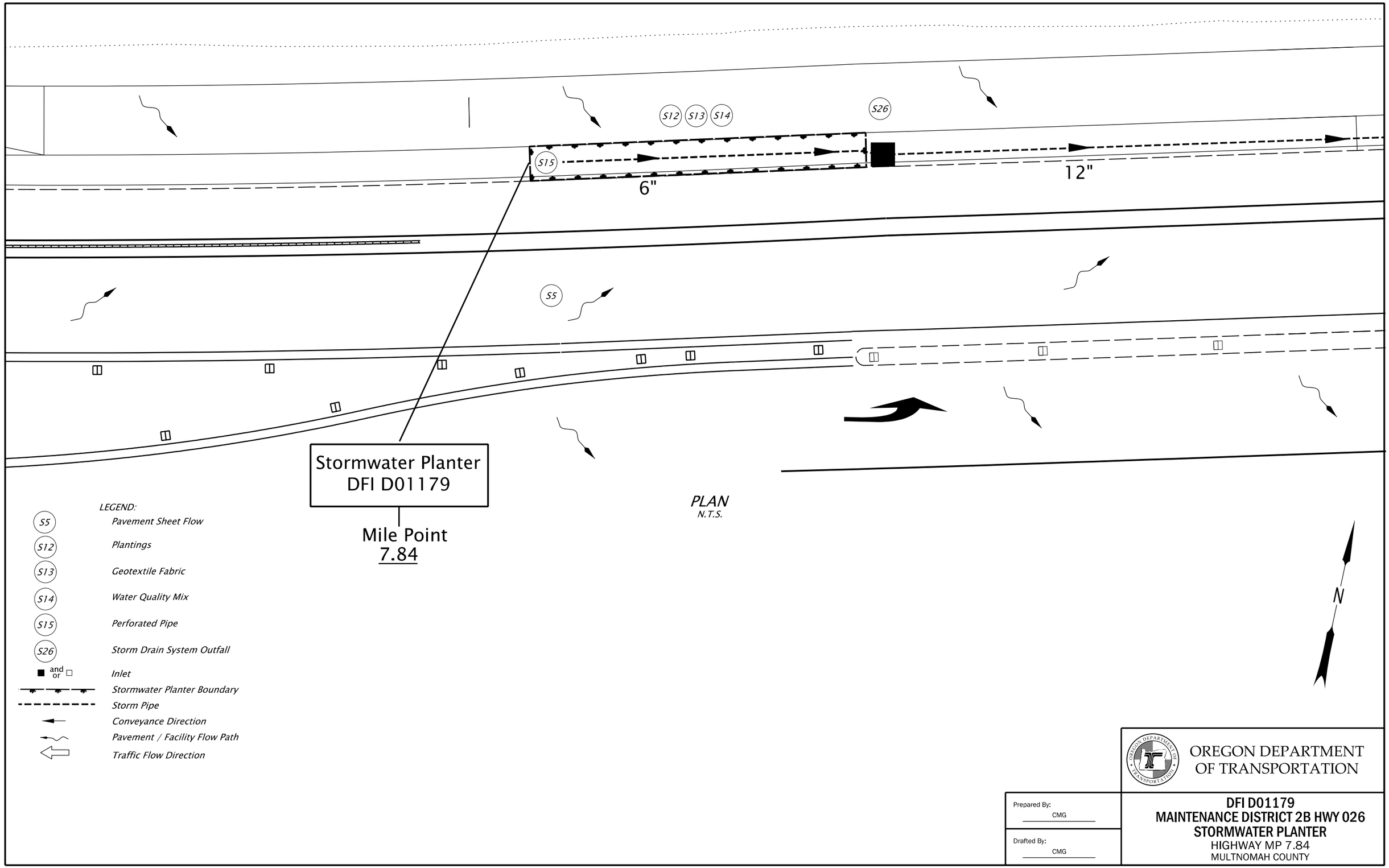
Contact any of the following for more detailed information about management of waste materials found on site:

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)**



PLAN
N.T.S.

LEGEND:

- S5 — Pavement Sheet Flow
- S12 — Plantings
- S13 — Geotextile Fabric
- S14 — Water Quality Mix
- S15 — Perforated Pipe
- S26 — Storm Drain System Outfall
- ■ and or □ — Inlet
- Stormwater Planter Boundary
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path
- Traffic Flow Direction

N

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: CMG

Drafted By: CMG

DFI D01179
MAINTENANCE DISTRICT 2B HWY 026
STORMWATER PLANTER
HIGHWAY MP 7.84
MULTNOMAH COUNTY

R_19690_dt11.dgn :: Stormwater O_M Figures 8/29/2018 10:46:37 AM CGIESEKE

Appendix B

Content:

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

52V-005

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A01	Title Sheet
A02	Index Of Sheets, Cont.
A03	Standard Drawing Numbers
A04	Plan Sheet Layout
A05 thru A07	Control Data

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

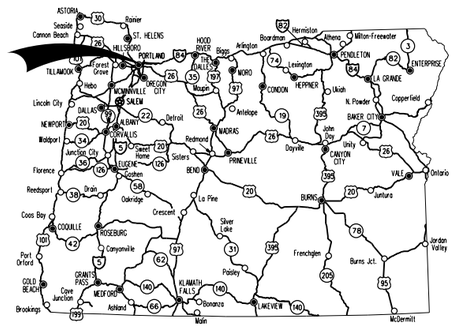
GRADING, PAVING, DRAINAGE, SIGNING, ILLUMINATION, SIGNALS, AND ROADSIDE DEVELOPMENT

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

MT. HOOD HIGHWAY

MULTNOMAH COUNTY

DECEMBER 2018

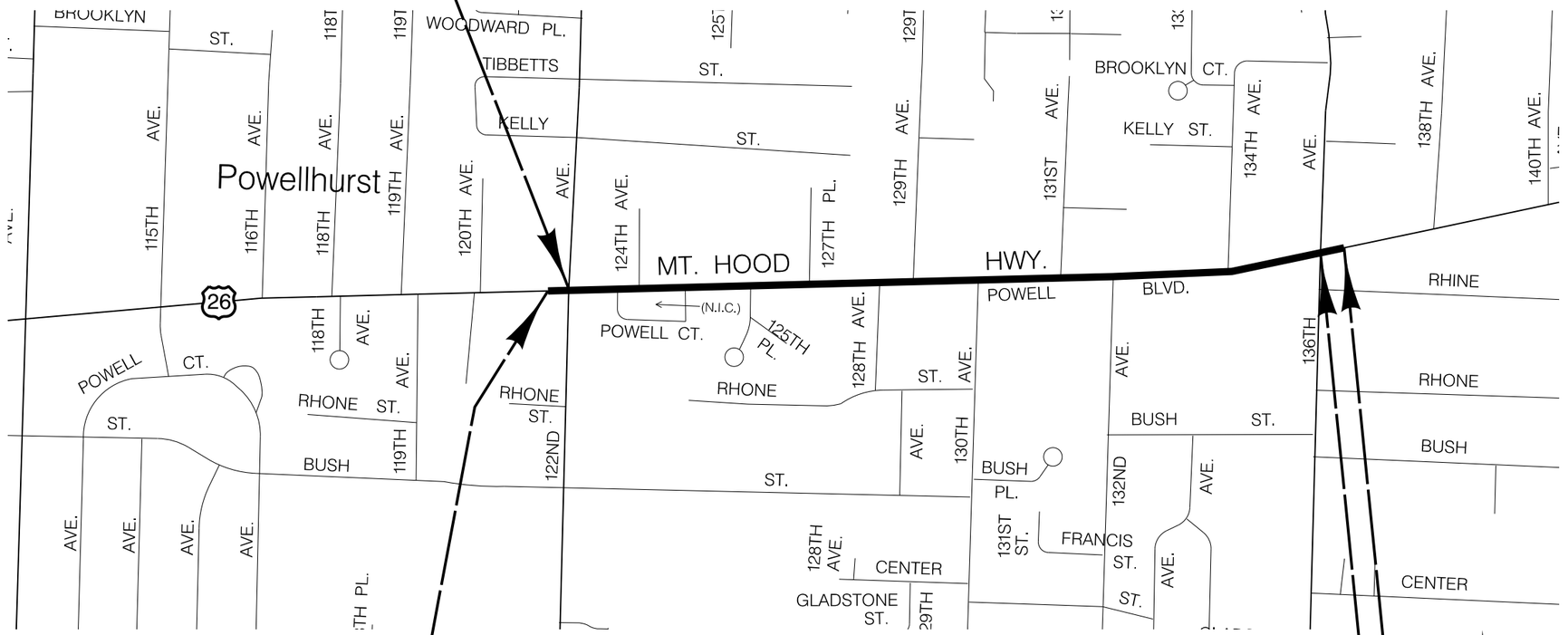


Overall Length Of Project - 0.93 Miles

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.)

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

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.

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.

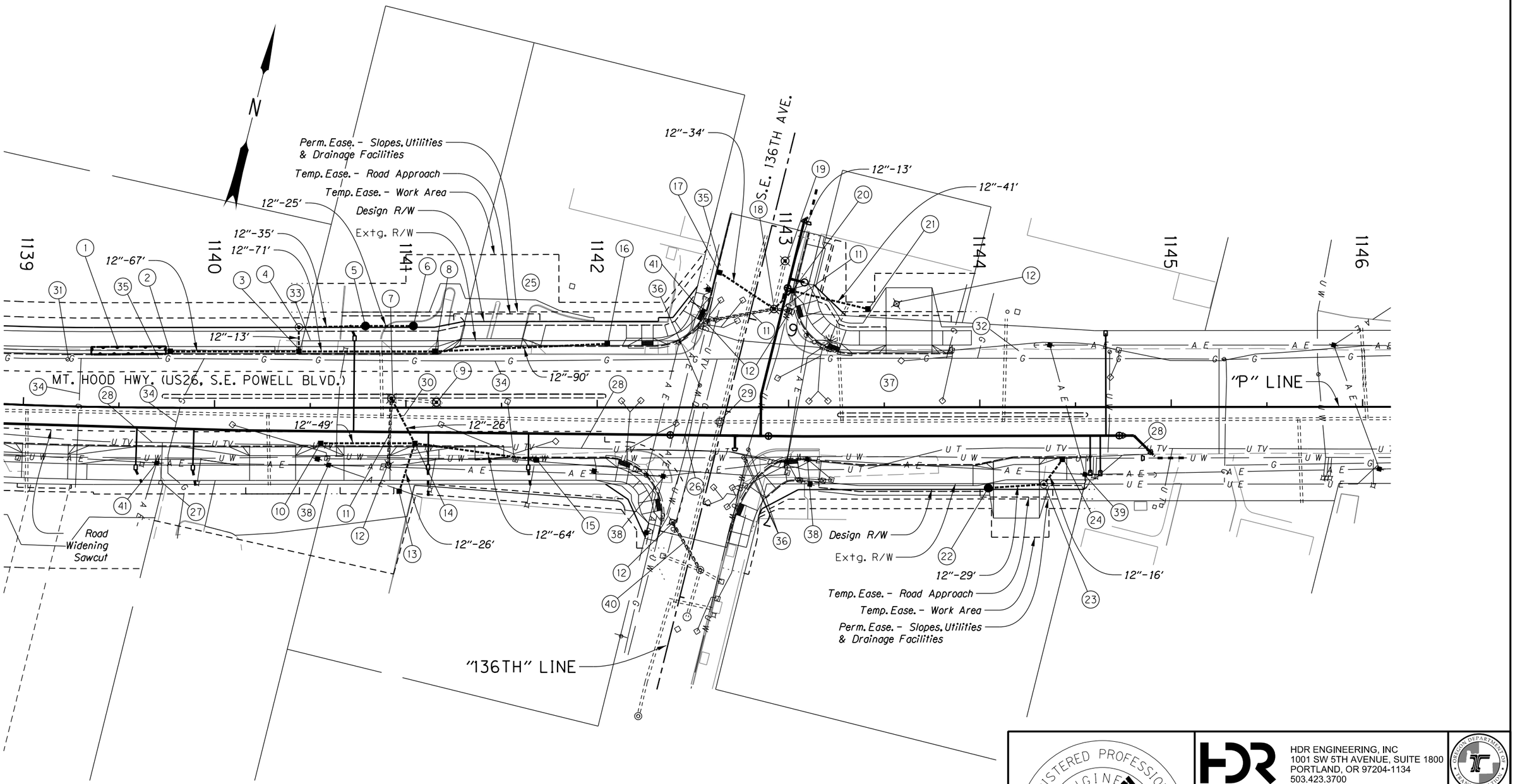
Approving Authority: _____
Signature & date

_____
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.

REGISTERED PROFESSIONAL ENGINEER
585[illegible]E
OREGON
JULY 21, 1998
CHRISTINE HIGGINS
EXPIRES: JUNE 30, 2019

FINAL REVIEW PLANS

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

OREGON DEPARTMENT OF TRANSPORTATION

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

Designer: Cory Gieseke
Drafter: Cory Gieseke
Reviewer: Christine Higgins
Checker: Kyle Donovan

DRAINAGE AND UTILITIES - PLANS

SHEET NO.
C07C

(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)

REGISTERED PROFESSIONAL ENGINEER
585[illegible]E
OREGON
JULY 21, 1998
CHRISTINE HIGGINS
FINAL REVIEW PLANS
EXPIRES: JUNE 30, 2019

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

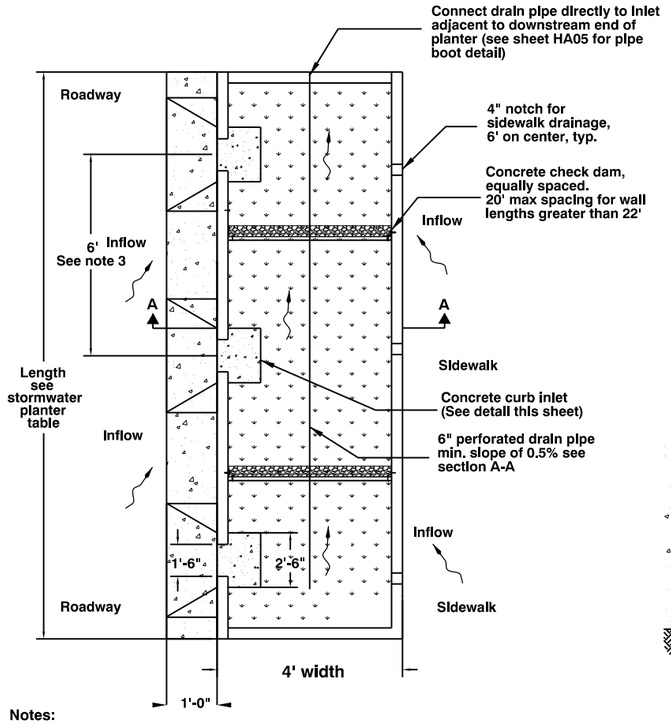
OREGON DEPARTMENT OF TRANSPORTATION

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

Designer: Cory Gieseke
Reviewer: Christine Higgins
Drafter: Cory Gieseke
Checker: Kyle Donovan

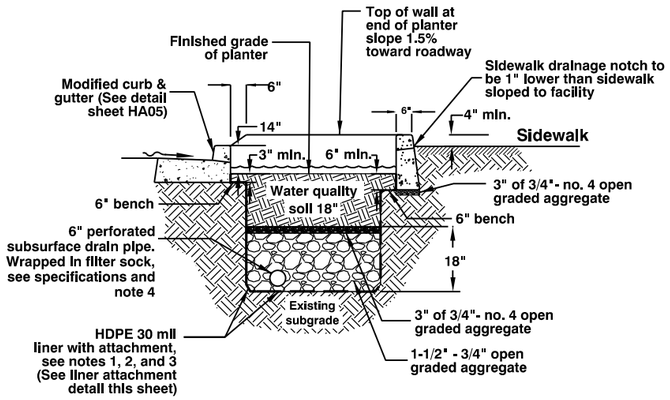
DRAINAGE AND UTILITIES - NOTES

SHEET NO.
C07D



Notes:
1. Match longitudinal slope of planter to slope of the road.
2. If less than 18" is between splash pad and planter end wall, extend pad to wall.
3. Install inlets (6' on center) on all sides of facility that are not adjacent to sidewalk. install 4" notch (6' on center) where adjacent to sidewalk.

PLAN VIEW



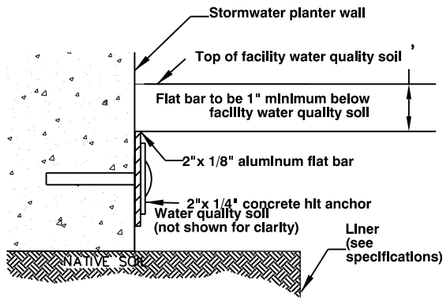
Notes:
1. Partial or full liner required. See stormwater planter table (this sheet) for requirement.
2. Partial liner located along side of planter adjacent to roadway.
3. Full liner located along all sides of planter.
4. Drain pipe only required for fully lined planters.
5. Scarify the native soil 12" following the initial excavation and before installing water quality soil and rock.

SECTION A-A

STORMWATER PLANTER DETAIL
NOT TO SCALE

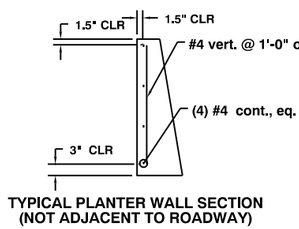
STORMWATER PLANTER TABLE

DRAWING REFERENCE	STATION "P" ALIGNMENT	Lt/Rt CURBLINE	LENGTH (FT)	DFI no.	CHECK DAM (Y/N)	FULL LINER (Y/N)	SUB DRAIN (Y/N)
C02C	1108+65.00	Lt.	49.00	D01166	Y (2)	Y	Y
C04C	1118+39.60	Rt.	26.00	D01169	Y (1)	N	N
C04C	1120+45.15	Rt.	30.00	D01171	Y (1)	N	N
C04C	1122+37.00	Rt.	15.00	D01172	N	N	N
C05C	1127+34.15	Rt.	13.00	D01173	N	N	N
C07C	1139+35.05	Lt.	39.00	D01179	Y (1)	Y	Y

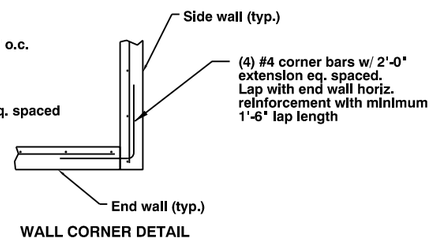


Notes:
1. Adhere liner to concrete with top coat tc moldable sealant, or approved equal.
2. Liner to extend from top of water quality soil to the bottom of excavation.
3. 3" of concrete is required on all sides of attachment. Adjust sidewalk depth as necessary.
4. Secure liner to concrete with 2" aluminum flat bar, placed as directed (around entire facility).
5. Attach flat bar with concrete hit anchors, 24" o.c.
6. Trim excess liner to the top of the flat bar.

LINER ATTACHMENT DETAIL
NOT TO SCALE



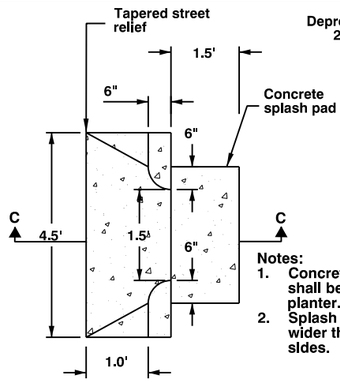
TYPICAL PLANTER WALL SECTION (NOT ADJACENT TO ROADWAY)



WALL CORNER DETAIL

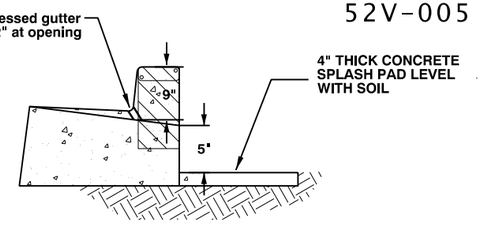
Notes:
1. Top of planter walls to be 4" higher than adjacent sidewalk.
2. Bottom of planter walls to be 6" below top of water quality soil.

PLANTER WALL
NOT TO SCALE

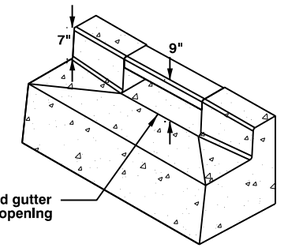


PLAN

Notes:
1. Concrete splash pad elevation shall be level with soil inside planter.
2. Splash pad shall be six inches wider than inlet opening on both sides.

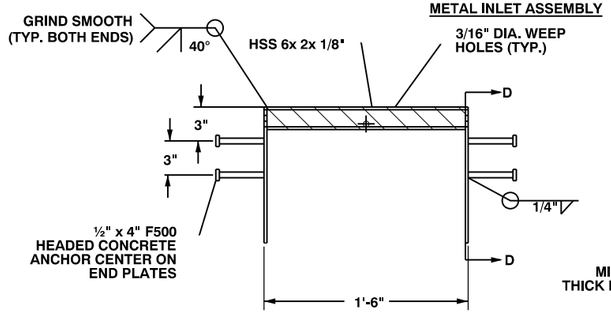


SECTION C-C

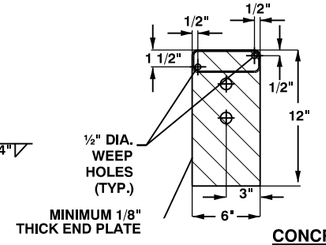


ISOMETRIC

METAL INLET ASSEMBLY

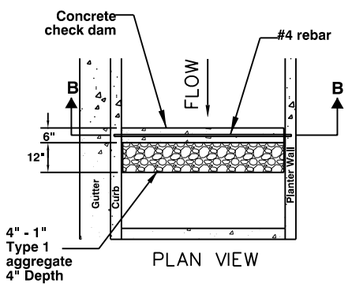


ELEVATION

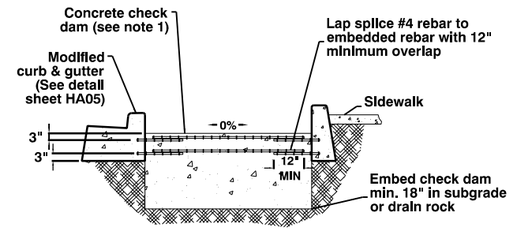


CONCRETE CURB INLET
NOT TO SCALE

SECTION D-D



PLAN VIEW



SECTION B-B

Notes:
1. Top of dam elevation to be 2" lower than upstream curb depression elevation.
2. Concrete to be 3,000 psi.
3. Embed #4 rebar 3" into curb and planter wall.

CONCRETE CHECK DAM
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
585[illegible]E
OREGON
JULY 21, 1998
CHRISTINE HIGGINS
EXPIRES: JUNE 30, 2019

FINAL REVIEW PLANS

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 Sheean | Checker: Kyle Donovan

DRAINAGE DETAILS

SHEET NO. HA03