OPERATION & MAINTENANCE MANUAL

Underground Injection Control System: Drywell

Manual Prepared: February 2023

DFI No. D01529

Figure 1: DFI No. D01529, looking [note cardinal direction]

Identification

Drainage Facility ID (DFI):	D01529
Facility Type:	Drywell with pretreatment sedimentation manhole, flow splitter, and shut-off valve
Construction Drawings:	(V-File Numbers) 56V-055
Location:	District: 2B Highway No.: 068 Mile Post: 7.3, Median

1. Manual Purpose

The purpose of this manual is to outline inspection needs and summarize maintenance actions for drywells and system components.

2. 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.

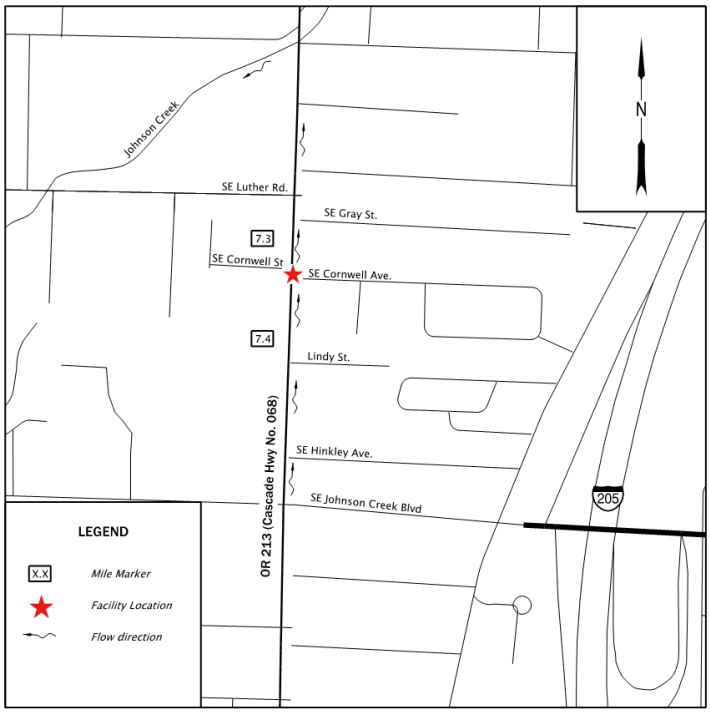


Figure 2: Facility Location Map

3. Facility Summary

This drywell is considered an Underground Injection Control system (UIC). The drywell structure allows stormwater to infiltrate into the surrounding soil. This process of infiltration through the drywell structure also removes pollutants from the stormwater.

Generally, drainage systems that outlet to a drywell also include inlets, pipes, pre-treatment manholes/structures to remove trash and debris, a shutoff valve, and the drywell structure. Drywells typically include manholes with perforated barrels, drain rock, and drainage geotextile.

Drywells are accessible via a manhole lid and can be identified by the Type S3 facility field markers shown below.

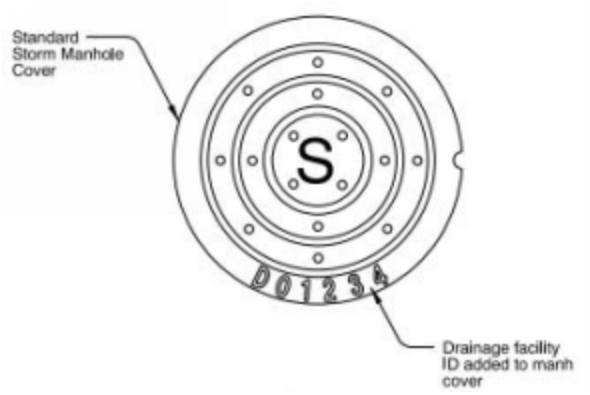


Figure 3: Type S3 Stormwater Facility Field Marker

Diameter (Feet)	Drywell Bottom Depth (Feet)	Drain Rock (CUYD)
4	25	±13

- Does this facility contain pretreatment BMPs? Yes
    - If yes, please specify type: Sedimentation manhole
- Depth to Groundwater Table: ±33 feet
- Groundwater Surface Elevation: ±185 feet
- Is there a well within 500 feet of the drywell? No

Site Specific Information

This facility is an underground facility with manhole access located within the center turn lane of OR 213 (Cascade Hwy. No. 068). High flows from larger storm events will bypass the facility through an upstream flow splitter manhole and continue through a pipe network to ultimately outfall directly into Johnson Creek. This facility is comprised of three major components with connecting storm pipes, see Appendix A. The components include 1) a flow splitter manhole to siphon off stormwater under a water quality storm event and allow high flows to bypass the system 2) a sedimentation manhole as a pretreatment mechanism to collect debris and sediment prior to entering the infiltration sump, and 3) an infiltration sump with perforated walls to infiltrate the runoff into the surrounding soils. The facility receives OR 213 runoff from both northbound and southbound lanes through a 36-inch diameter inlet pipe which connects to the flow splitter manhole. Low flows will be conveyed with a 12-inch diameter storm pipe to the sedimentation manhole for pretreatment, then conveyed to the infiltration sump.

4. Facility Access

Maintenance access to the facility:

☐Roadside pad	☐Roadside shoulder
☐Access road with Gate	☐Access road without Gate
☒ Roadway median	☐Lane closure needed
☐Other Access (specify below in photo caption)	

Figure 4: [insert post construction facility access photo and caption text]

5. Operational Components / Maintenance Items

Operational Components

The facility components table (**Table 1**) highlights the applicable components for this facility. The component is included in this facility when the box contains an "x" (e.g. ☒).

Operational Plan

See Appendix A for the site specific operational plan.

Key Features/Items:

This facility includes an overflow bypass component.

☐ No	☒ Yes
There is no bypass component. High flows drain into and infiltrate through the facility.	**There is an overflow bypass component. Under large storm events, the drywell may overflow to other facilities. See Operational Plan for details.**

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: Drywell Components		ID #
Upstream Manholes/Structures		
Flow Splitter Manhole	☒	**D1**
Pre-treatment Structure Type: Sedimentation manhole	☒	**D2**
Shutoff Valve: Butterfly Valve	☒	**D3**
Drywell	☒	**D4**
Facility Inlet		
Inlet Pipe(s)	☒	**D5**
Ground Cover		
Common Fill	☐	**D6**
Underground Components		
Geotextile Fabric: Drainage geotextile	☒	**D7**
Granular Drain Rock	☒	**D8**
Perforated Pipe:	☐	**D9**
Facility Outlet		
Infiltration	☒	**D10**
High Flow Bypass	☒	**D11**
Storm Sewer System	☒	**D12**

Unique Tools for Component Testing

a. Valve key (for shutoff valve testing)

6. Facility Hazardous Material Spill Feature(s)

The drywell cannot be used to store a volume of hazardous liquid. All hazardous material must be blocked prior to entering the drywell. The hazardous material can be blocked by turning off the valve between the pollution control manhole and the drywell. The valve requires a valve key to turn the valve off and on.

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.
d. Open and close any shutoff valves annually.

Maintenance Guide/Maintenance Actions

The ODOT Maintenance Guide lists the standard maintenance actions for water quality facilities under Activity 125.

Standard maintenance tables describe the maintenance component, the potential defect or problem, the condition when maintenance is needed, and the recommended maintenance to correct the problem. Use the following tables to maintain ODOT drywells:

- Table 8: Underground Injection Controls (UICs)

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

8. Limitations

- Confined Space Entry
    a. All personnel who need to enter the drywell for maintenance, inspection, or any other reason must trained and certified in confined space entry.

9. Material Disposal

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/Maintenance/Documents/ems_manual.pdf

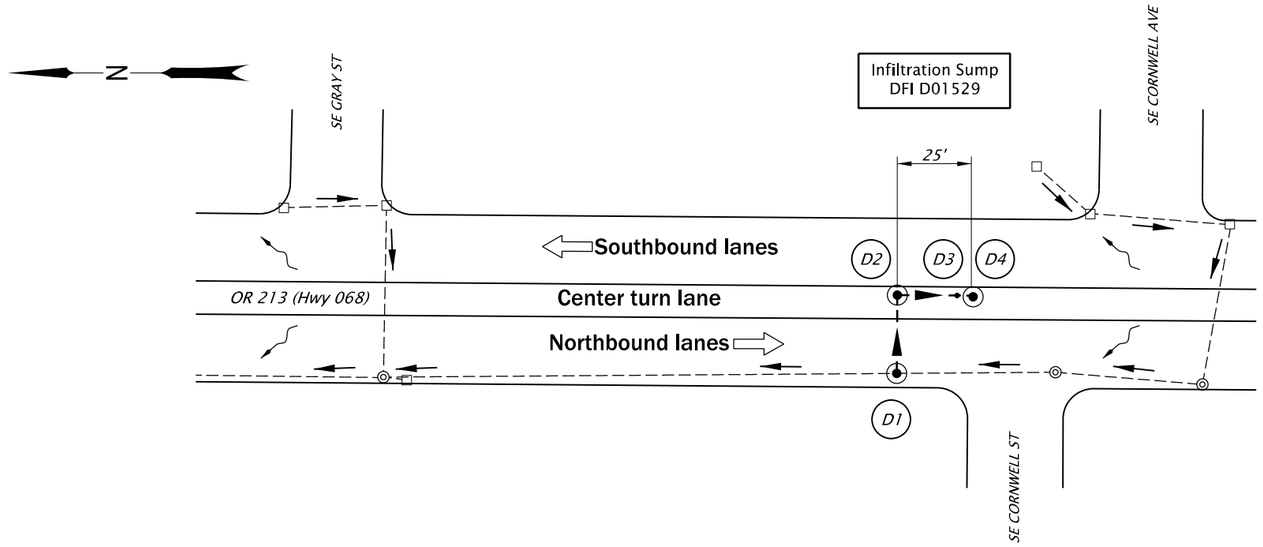
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Materials Management Coordinator	(503) 731-8493
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

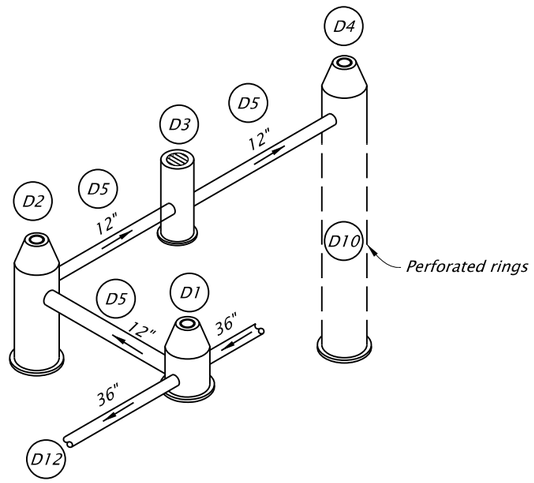
A Appendix A – Site Specific Operational Plan

Contents:

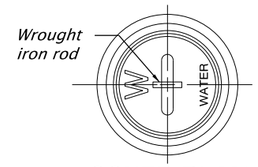
Operational Plan: DFI D01529



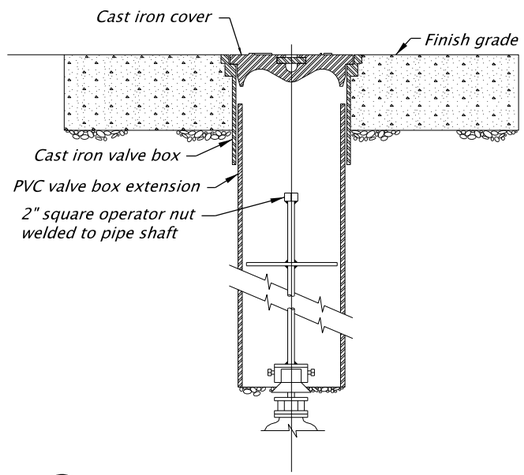
PLAN
Not to Scale



SUMP SYSTEM SCHEMATIC
Not to Scale



COVER PLAN



D3 VALVE BOX EXTENSION SECTION

LEGEND

X#	Facility component (see table 1 in O&M Manual)
◉ and/or ◎	Manhole
■ and/or □	Inlet
•	Shut-off valve
▬▬▬◄	Storm pipe (facility)
- - - - -	Storm pipe
◄	Conveyance direction
◄~	Pavement / facility flow path
⇦	Traffic flow direction

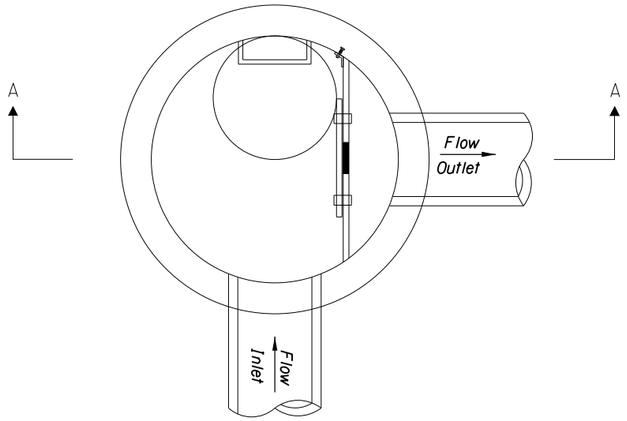
OREGON DEPARTMENT OF TRANSPORTATION

Sht. 1 of 2

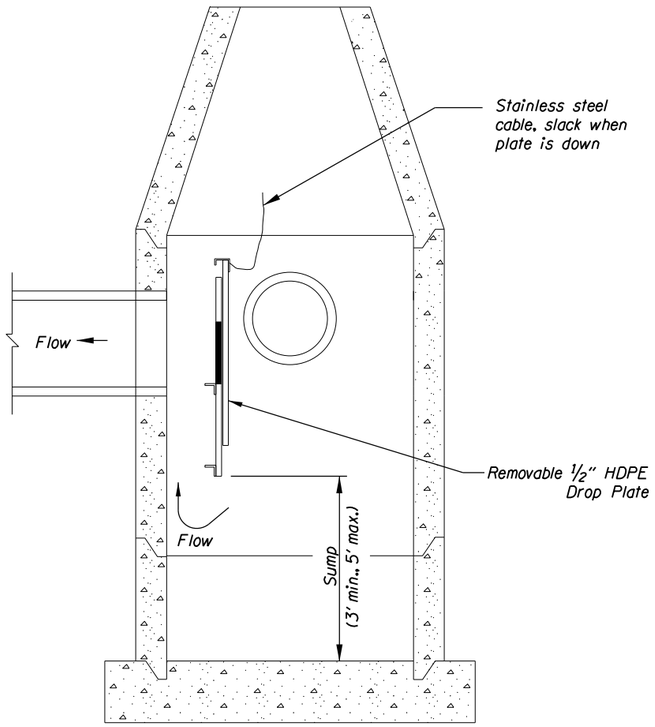
Prepared By: Eric Webster

Drafted By: Eric Webster

DFI D01529
MAINTENANCE DISTRICT 2B HWY 068
INFILTRATION SUMP SYSTEM
HIGHWAY MP 7.3
CLACKAMAS COUNTY

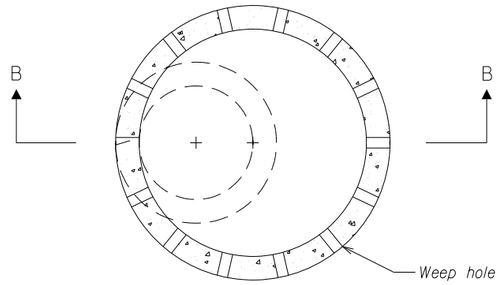


PLAN

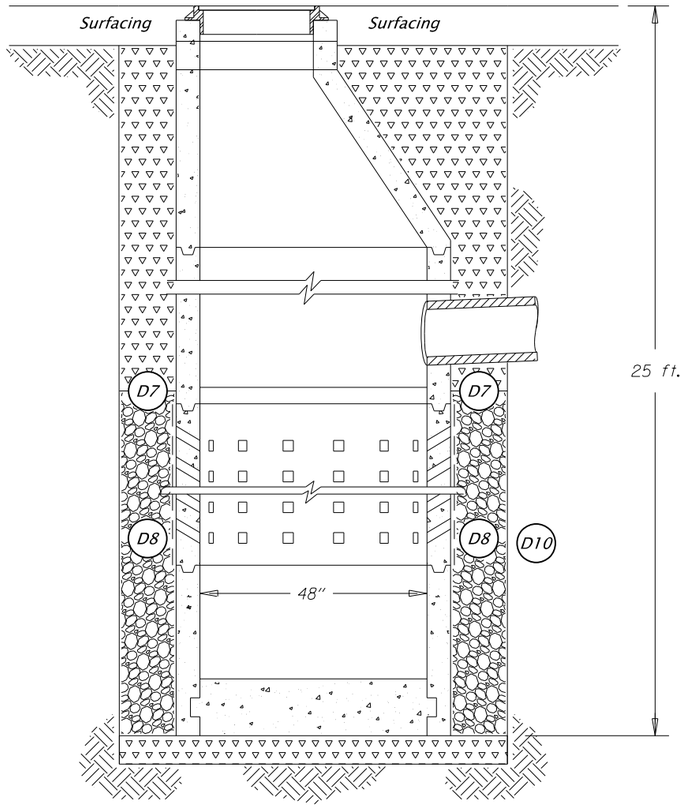


SECTION A-A

D2 **Sedimentation Manhole**
Not to Scale

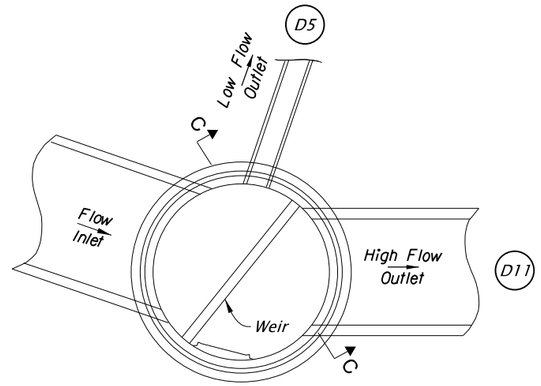


PLAN

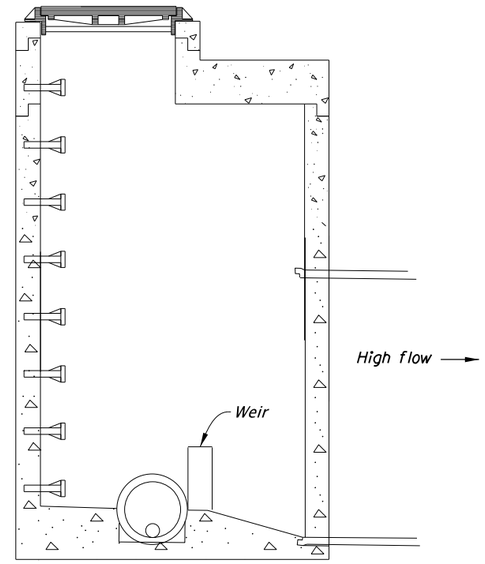


SECTION B-B

D4 **Infiltration Sump**
Not to Scale



PLAN



SECTION C-C

D1 **Flow Splitter Manhole**
Not to Scale

OREGON DEPARTMENT OF TRANSPORTATION

Sht. 2 of 2

Prepared By: Eric Webster

Drafted By: Eric Webster

DFI D01529
MAINTENANCE DISTRICT 2B HWY 068
INFILTRATION SUMP SYSTEM
HIGHWAY MP 7.3
CLACKAMAS COUNTY

B Appendix B – Project Contract Plans

Contents:

Site Specific Subset of Project Contract Plan 56V-055

56V-055

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A01	Title Sheet
A02	Index Of Sheets Cont'd.
A03	Std. Dwg. Nos.

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

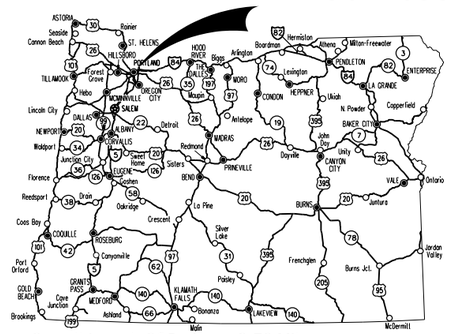
PLANS FOR PROPOSED PROJECT

GRADING, PAVING, CURB RAMPS, SIGNING, SIGNALS & ILLUMINATION

OR213 (82ND AVE): SE FOSTER RD - SE THOMPSON RD SEC.

CASCADE HIGHWAY NORTH

CLACKAMAS & MULTNOMAH COUNTIES
MAY 2023



Overall Length Of Project - 2.78 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

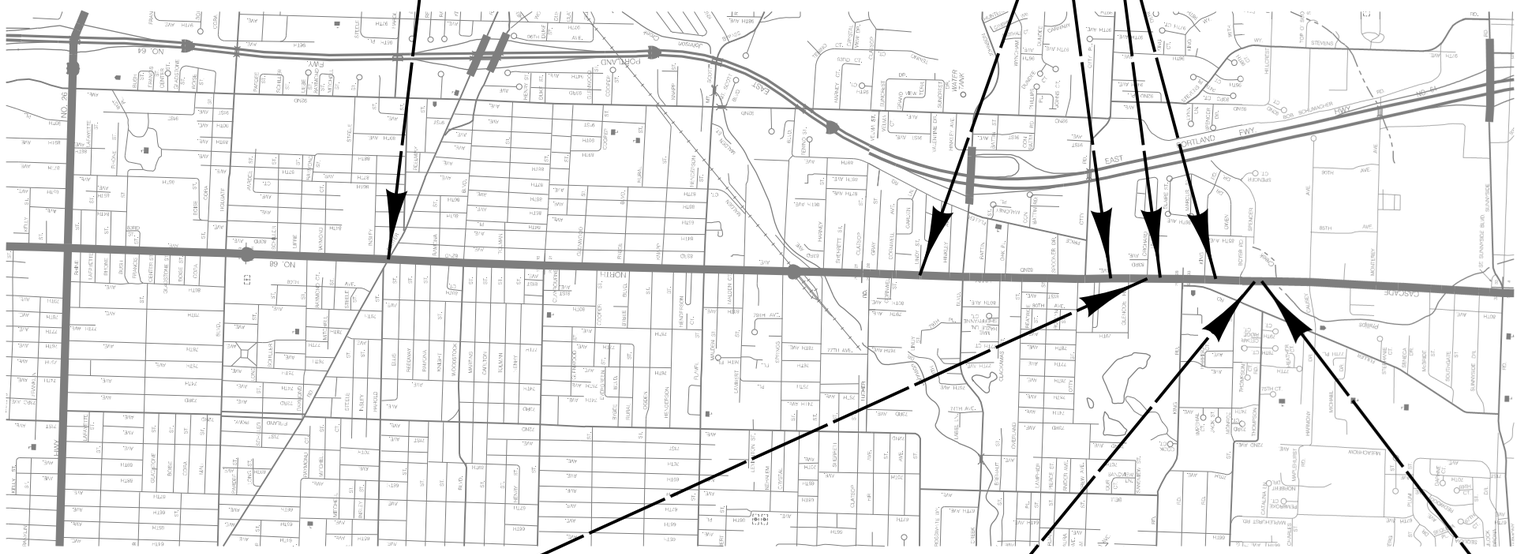
STA. "L" 254+67 (M.P. 5.76)

NO WORK AREA

STA. "L" 341+00 (M.P. 7.41) TO STA. "L" 373+75 (M.P. 8.03)

NO WORK AREA

STA. "L" 377+50 (M.P. 8.10) TO STA. "L" 395+90 (M.P. 8.45)



PROJECT LOCATION

M.P. 8.06

PROJECT LOCATION

M.P. 8.50

END OF PROJECT

STA. "L" 400+00 (M.P. 8.52)

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

PE002904-000-J71

PLANS PREPARED FOR
OREGON DEPARTMENT OF TRANSPORTATION

101 SW Main Street, Suite 1000
Portland, OR 97204
P 503.225.9010
consor

OREGON TRANSPORTATION COMMISSION

Robert Van Brocklin	CHAIR
Julie Brown	VICE CHAIR
Sharon Smith	COMMISSIONER
Lee Beyer	COMMISSIONER
Vacant	COMMISSIONER
Kristopher W. Strickler	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.

Consultant Principal: Kevin M Thelin Date: 2023.02.16 10:36:52-08'00'

Signature & date

Kevin Thelin, PE, Chief Transportation Engineer

Print name and title

Concurrence by ODOT Chief Engineer

OR213 (82ND AVE): SE FOSTER RD - SE THOMPSON RD SEC.
CASCADE HIGHWAY NORTH
CLACKAMAS & MULTNOMAH COUNTIES

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	S068(031)	A01

N

"L" 332

"L" 333

"L" 335

"L" 336

"L" 338

SE GRAY ST

SE CORNWELL AVE

SE LUTHER RD

SE CORNWELL ST

PRIVATE DRIVE

Sec. 28

Sec. 29

"L" LINE

CASCADE HWY NORTH (OR213/SE 82ND AVE)

see sht. BB26

Paving Limits

Extg. R/W

12" - 34'

12" - 57'

12" - 8'

12" - 19'

12"- 25'

12"- 24'

12" - 26'

12" - 25'

LEGEND

(Items in legend may not appear on plans)

Remove manhole:
Adjust sew. manhole:
Adjust san. manhole:
Const. manhole:
Remove inlet:
Adjust inlet:
Const. inlet:
Const. pipe:
Abandon/remove pipe:
Inst. butterfly valve:

REGISTERED PROFESSIONAL ENGINEER
80521PE
DIGITALLY SIGNED 2023.02.16 14:26:11-08'00'
OREGON
MAY 14, 2013
TYLER SHAWN NORD
RENEWS: 12-31-2024

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

consor

OR213 (82ND AVE):
SE FOSTER RD - SE THOMPSON RD SEC.
CASCADE HIGHWAY NORTH
CLACKAMAS & MULTNOMAH COUNTIES

Designer: Austin Morey
Reviewer: Kevin Thelin
Drafter: Scott Failmezger
Checker: Tyler Nord

DRAINAGE & UTILITIES

SHEET NO. C14C

(1) *See sht. C13C, note 4*

(2) *See sht. C13C, note 6*

(3) *See sht. C13C, note 13*

(4) *Adjust water valve - 13*

(5) *Adjust gas valve - 4*

(6) *Minor adjust manhole - 6*
Method "C" circular cut

(7) *Adjust "CG type" inlet*
(For details, see sht. HA09)

(8) *Remove inlet*

(9) *See sht. C13C, note 7*

(10) *Relocate fire hydrant*
(By others)

(11) *Relocate water valve*
(By others)

(12) *Sta. "L" 334+26.0 Lt.*
Const. type "G-2" inlet w/ 1.5' sump
Inst. 12" ductile iron pipe - 34'
5' depth
Trench resurfacing - 11 sq. yd.

(13) *Sta "L" 336+14.0, 2.5' Lt.*
Inst. 12" butterfly valve
(For details, see sht. HA08)

(14) *Remove inlet*
Remove pipe -8'

(15) *Sta. "L" 333+92.4 Lt.*
Const. type "G-2" inlet w/1.5' sump

(16) *Sta. "L" 336+40.7, 45.7 Lt.*
Const. catch basin, area drain
(see std. drg. RD374)

(17) *Adjust water meter box - 2*

(18) *Adjust inlet*
Inst. 12" ductile iron pipe - 24'
5' depth
Connect to extg. structure

(19) *Relocate power pole - 4*
(By others)

(20) *Relocate pole anchor*
(By others)

(21) *Minor adjust manhole*
Method "C" circular cut
Abandon 12" pipe - 61'
Inst. 12" ductile iron pipe - 57'
5' depth
Connect to extg. structure
Trench resurfacing - 19 sq. yd.

(22) *Remove inlet*
Remove 12" pipe - 45'
Trench resurfacing - 15 sq. yd.

(23) *Remove inlet*

(24) *Sta. "L" 337+73.65, Rt.*
Const. 72" manhole w/ "G-2" inlet
Extra for manhole over extg. sewer
(See dwg. no RD346 & RD348)

(25) *Sta. "L" 336+20.0, 2.5' Lt.*
Const. Sump, 25' depth
with sump capacity test
Install field facility marker, Type S3
Inst. 12" storm sew. pipe - 25'
10' depth
Trench resurfacing - 8 sq. yd.
(For details, see sht. HA05 & HA07)
(See std. drg. RD399)

(26) *Sta. "L" 335+95.0, 2.5' Lt.*
Const. sedimentation manhole
Type A
Inst. 12" storm sew. pipe - 26'
10' depth
Install field facility marker, Type S3
Trench resurfacing - 9 sq. yd.
(For details, see sht. HA04)

(27) *Sta. "L" 335+95.0, 23'.0 Rt.*
Const. 72" diversion manhole
Extra for manhole over extg. sewer
Install field facility marker, Type S3
(For details, see sht. HA02)

(28) *Sta. "L" 337+77.2, 40.0 Lt.*
Const. catch basin, area drain
Extra for over extg. sewer

(29) *Adjust "CG type" inlet*
(For details, see sht. HA09)
Inst. 12" ductile iron pipe - 19'
5' depth
Trench resurfacing - 6 sq. yd.
Connect to extg. structure

(30) *Sta. "L" 334+51.8, Rt.*
Const. type "CG-3" inlet w/1.5' sump

(31) *Sta. "L" 333+84.3, 26.1' Rt.*
Const. 72" manhole
Inst. 12" ductile iron pipe - 8'
5' depth
Extra for manhole over extg. sewer
(See note 1)

(32) *Sta. "L" 333+92, Rt.*
Const. type "G-" inlet w/1.5' sump

(33) *Minor adjust manhole*
Method "C" circular cut
Remove 12" pipe - 6'
Inst. 12" ductile iron pipe - 25'
5' depth
Connect to extg. structure

(34) *Sta. "L" 337+20.6*
Const. type "CG-3" inlet w/ 1.5' sump

Notes:
1) Verify existing pipe invert and pipe orientation in the field.

REGISTERED PROFESSIONAL ENGINEER
80521PE
DIGITALLY SIGNED 2023.02.16 14:26:19-08'00'
OREGON
MAY 14, 2013
TYLER SHAWN NORD
RENEWS: 12-31-2024

consor

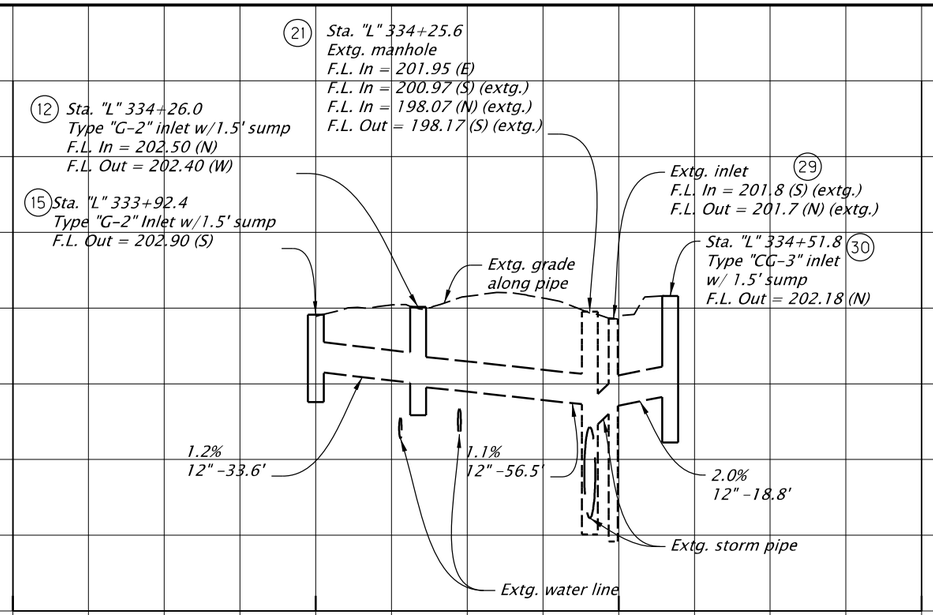
OREGON DEPARTMENT OF TRANSPORTATION

OR213 (82ND AVE):
SE FOSTER RD - SE THOMPSON RD SEC.
CASCADE HIGHWAY NORTH
CLACKAMAS & MULTNOMAH COUNTIES

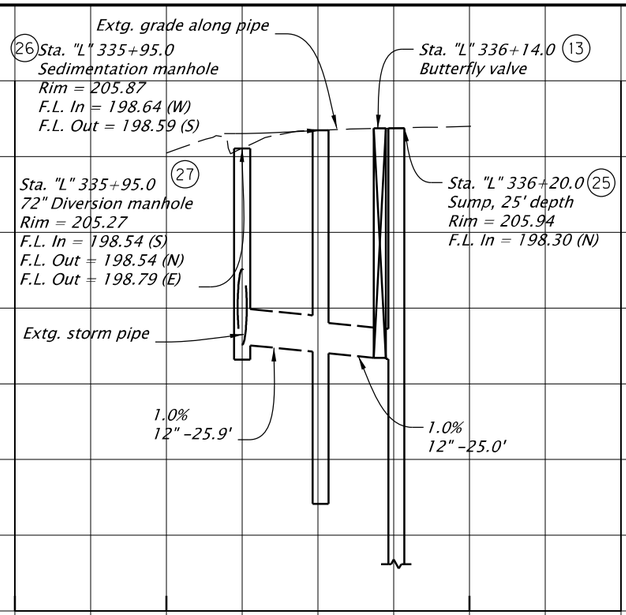
Designer: Austin Morey | Reviewer: Kevin Thelin
Drafter: Scott Failmezger | Checker: Tyler Nord

DRAINAGE & UTILITIES NOTES

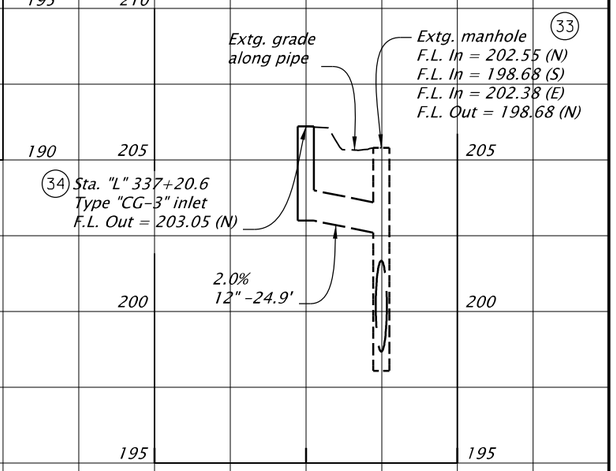
SHEET NO. C14D



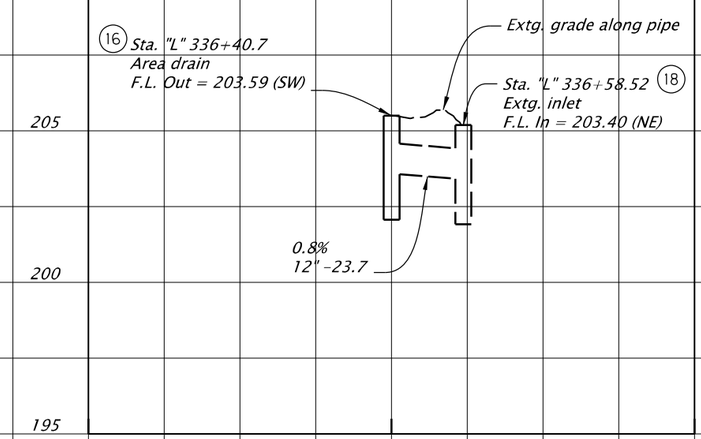
PROFILE ALONG PIPE CENTERLINE AT SE GRAY ST (EAST TO SOUTHEAST CORNERS)



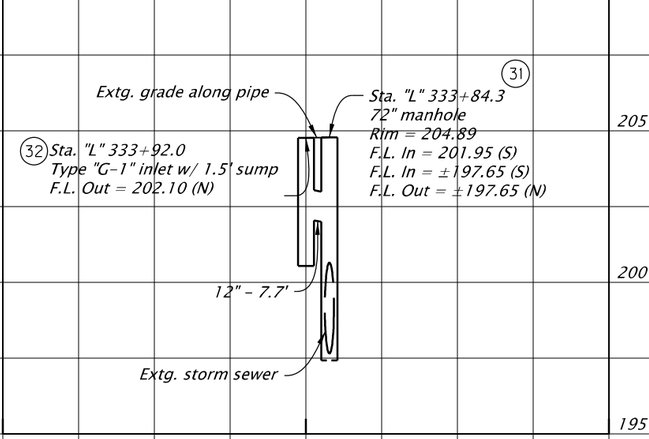
PROFILE ALONG PIPE CENTERLINE AT SE CORNWELL ST (WEST-MEDIAN)



PROFILE ALONG PIPE CENTERLINE AT "L" 337+00, Rt.



PROFILE ALONG PIPE CENTERLINE AT SE CORNWELL ST (NORTHEAST CORNER)



PROFILE ALONG PIPE CENTERLINE AT SE GRAY ST (NORTHWEST CORNER)

Notes:

1. Existing utility shown elevations are approximate and for information only

REGISTERED PROFESSIONAL ENGINEER
80521PE
DIGITALLY SIGNED 2023.02.16 14:26:28-08'00'
OREGON
MAY 14, 2013
TYLER SHAWN NORD
RENEWS: 12-31-2024

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

consor

OREGON DEPARTMENT OF TRANSPORTATION

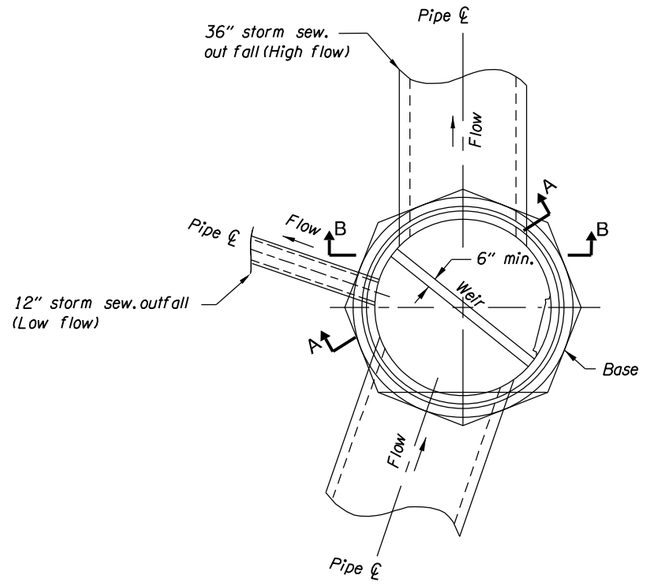
OR213 (82ND AVE):
SE FOSTER RD - SE THOMPSON RD SEC.
CASCADE HIGHWAY NORTH
CLACKAMAS & MULTNOMAH COUNTIES

Designer: Austin Morey
Reviewer: Tyler Nord
Drafter: Serge Chernishoff
Checker: Tyler Nord

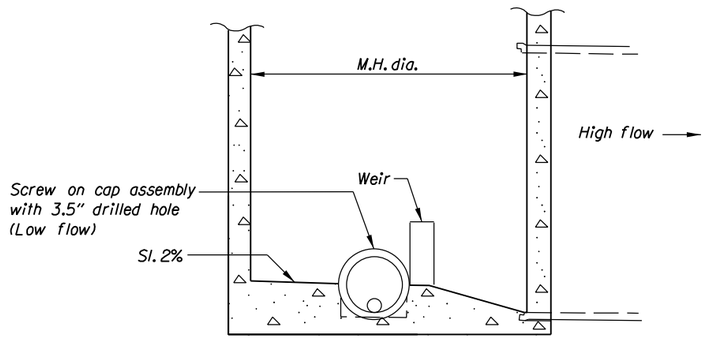
DRAINAGE PROFILES

SHEET NO. C14E

DIVERSION MANHOLE
"L" 335+95, 23' RT.



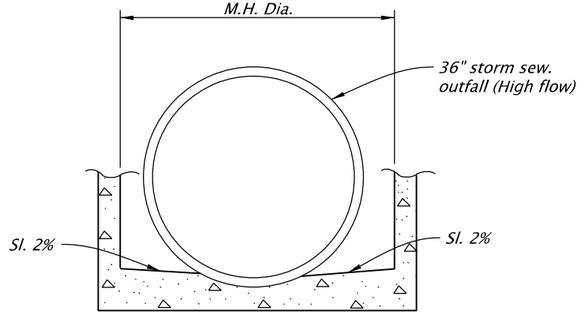
72" MANHOLE



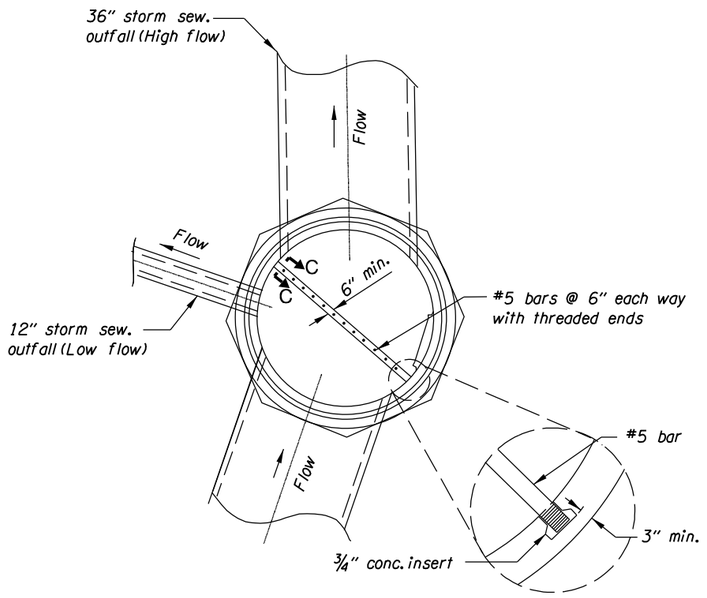
SECTION A-A

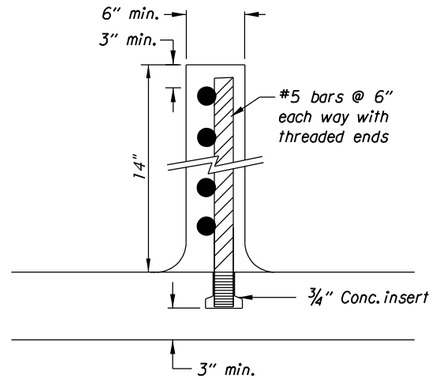
SPLIT FLOW MANHOLE

(For details not shown, see dwg. nos. RD340 & RD346)



SECTION B-B





SECTION C-C

** Drawing Not to Scale **

REGISTERED PROFESSIONAL ENGINEER
93797PE
DIGITALLY SIGNED 2023.02.16 12:21:45-08'00'
OREGON
JULY 10, 2018
ERIC R. WEBSTER
RENEWS: 06-30-2024

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

consor

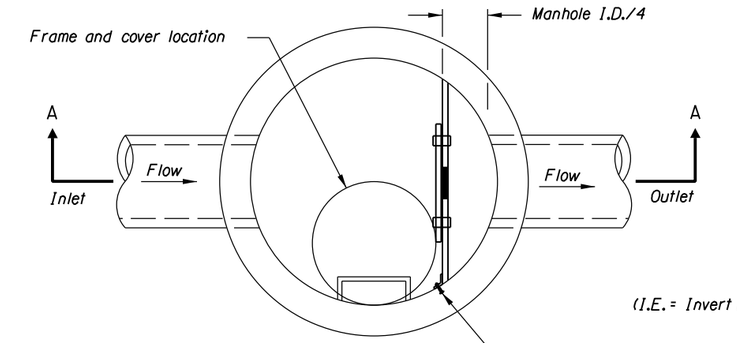
OR213 (82ND AVE):
SE FOSTER RD - SE THOMPSON RD SEC.
CASCADE HIGHWAY NORTH
CLACKAMAS & MULTNOMAH COUNTIES

Designer: Eric Webster	Reviewer: Kevin Thelin
Drafter: Fouad Elgharabli	Checker: Tyler Nord

DETAILS

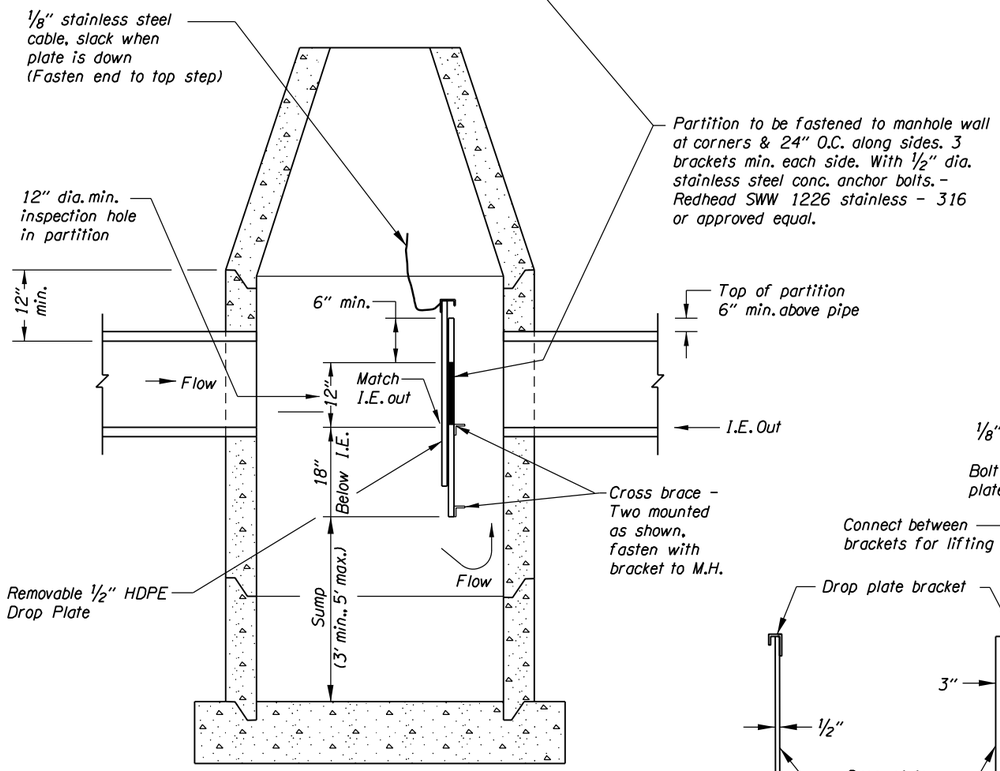
SHEET NO. HA02

SEDIMENTATION MANHOLE TYPE A

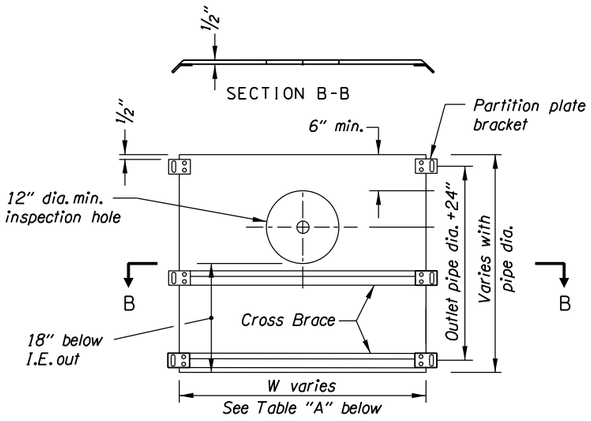


(I.E. = Invert Elevation)

PLAN



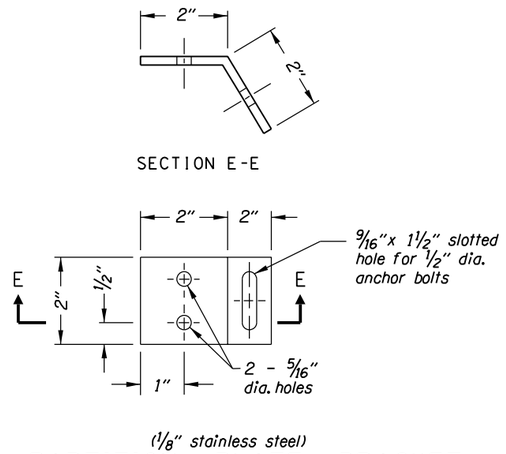
SECTION A-A



PARTITION PLATE

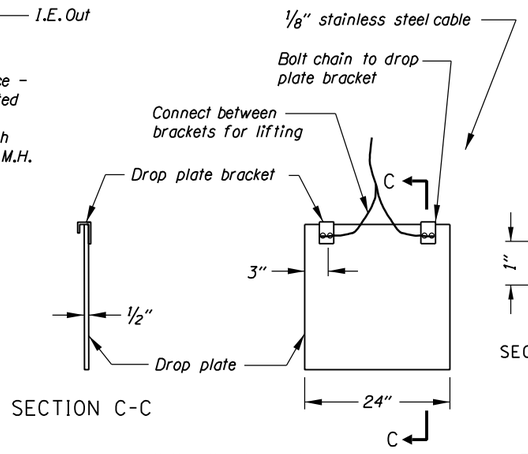
TABLE "A"

M.H. Dia. (in)	W (in)
48	42
54	47
60	52
72	62
96	83

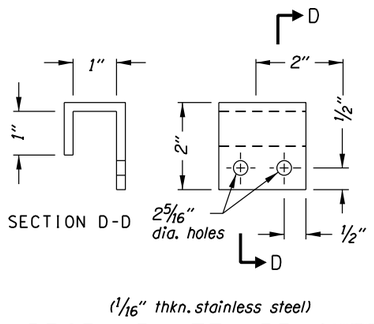


(1/8" stainless steel)

PARTITION PLATE BRACKET



SECTION C-C



(1/16" thkn. stainless steel)

DROP PLATE

DROP PLATE BRACKET

GENERAL NOTES FOR ALL DETAILS:

1. Hardware, fasteners and anchors to be stainless steel; use 1/8" stainless steel cable.
2. See pipe data sheet and plan sheets for pipe size(s).
3. See pipe data sheet and plan sheets for manhole size(s).
4. See pipe data sheet and plan sheets for sump depth.
5. Removable drop plate and partition to be constructed of High Density Polyethelene (HDPE). 1/2" thick ASTM D1248-78 and installed prior to manhole cone or top.
6. Manhole and pipe connection details per manhole standard drawings.
7. Cross brace L 2 1/2" x 1 1/2" x 3/16" grade 316 stainless steel. Two per partition plate - Full width. Fasten to partition with stainless bolt, nut & washer at 18" ctrs. Fasten to M.H. at ends using partition plate brackets.
8. Hardware, fasteners, anchors, fittings, appurtenances, labor and equipment is incidental to sedimentation manhole item.
9. See std. dwg. RD335 for manhole with precast flat slab top option.

** Drawing Not to Scale **

(For details not shown, see dwg. nos. RD340 & RD346)

REGISTERED PROFESSIONAL ENGINEER
93797PE
DIGITALLY SIGNED 2023.02.16 12:21:02-08'00'
OREGON
JULY 10, 2018
ERIC R. WEBSTER
RENEWS: 06-30-2024

consor

OR213 (82ND AVE):
SE FOSTER RD - SE THOMPSON RD SEC.
CASCADE HIGHWAY NORTH
CLACKAMAS & MULTNOMAH COUNTIES

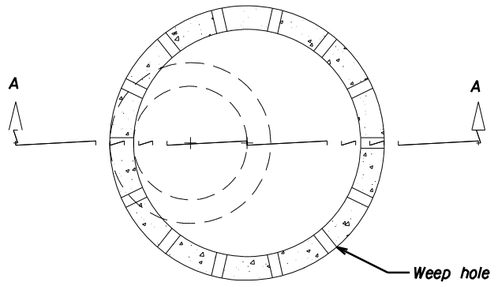
Designer: Eric Webster
Reviewer: Kevin Thelin
Drafter: Fouad Elgharabli
Checker: Tyler Nord

DETAILS

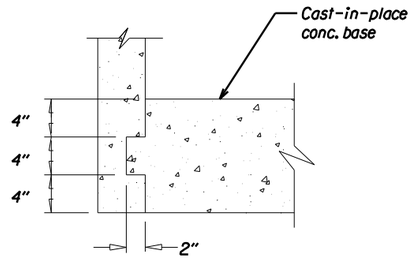
SHEET NO. HA04

Rotation: 0° Scale: 1"=1'-0"

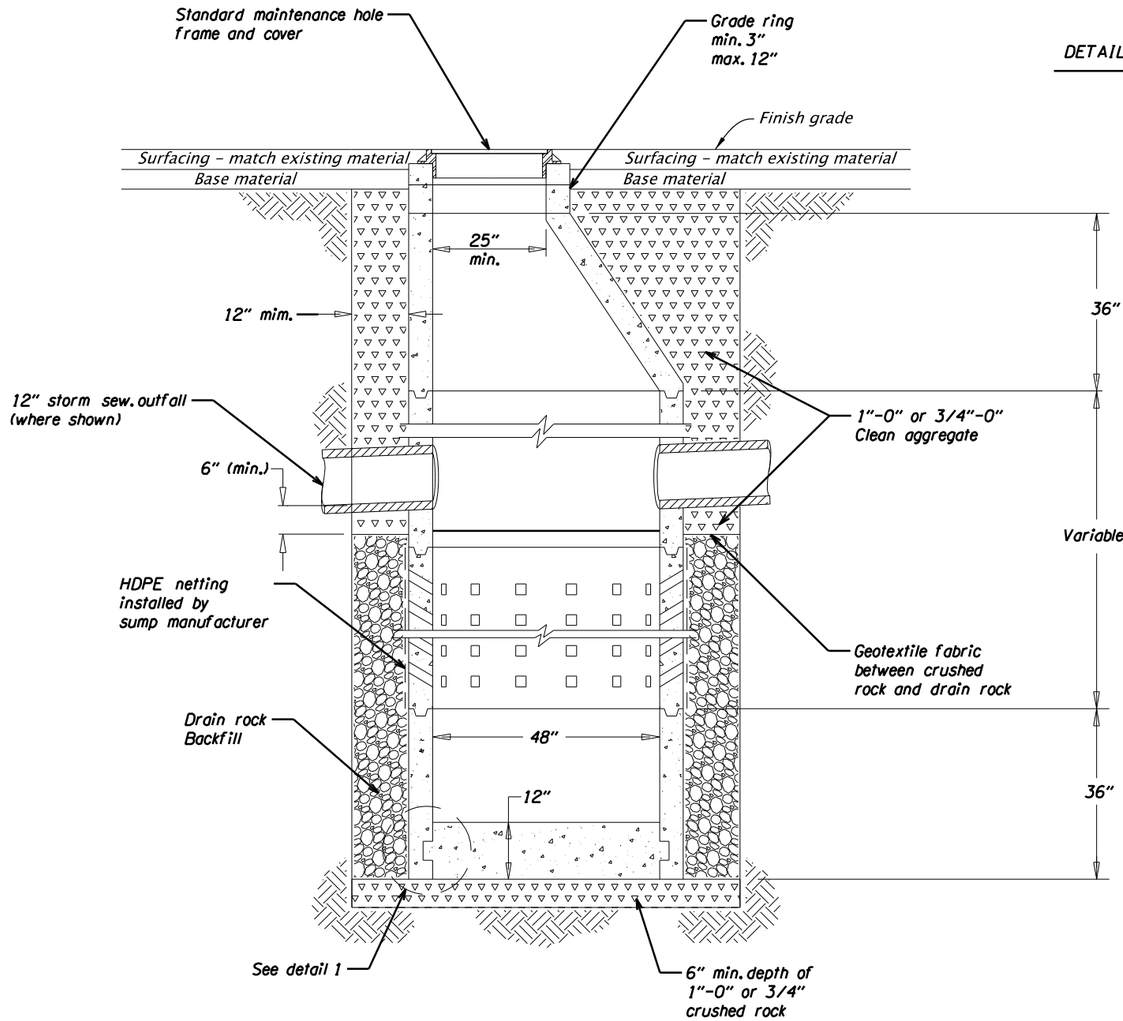
PRECAST SUMP



PLAN



DETAIL 1



SECTION A-A

Notes:

1. All precast sections shall confirm to the requirements of ASTM C478.

2. Manhole and pipe connection details per manhole standard drawings.

3. See pipe data sheet and plan sheet for pipe size(s).

4. Provide 1"-0" or 3/4"-0" clean crushed aggregate under all connecting pipe.

5. Do not connect pipe to any perforated section. Provide 48" of separation between the cone base and any weep holes.

6. Cast-in-place concrete shall be bevel and smooth. A precast concrete base may be substituted for the base shown.

7. Provide 12" min. of separation between a section joint and the outer edge of any opening.

8. Hardware, fasteners, anchors, fittings, appurtenances, labor, and equipment is incidental to drywell item.

9. Install valve box and operator extension assembly where indicated. See std. dwg. RD 258 for details not shown.

** Drawing Not to Scale **

Sheet included in
City of Portland
Public Works Permit

REGISTERED PROFESSIONAL ENGINEER
93797PE
DIGITALLY SIGNED 2023.02.16 12:21:10-08'00'
OREGON
JULY 10, 2018
ERIC R. WEBSTER
RENEWS: 06-30-2024

FINAL ELECTRONIC DOCUMENT AVAILABLE UPON REQUEST

consor

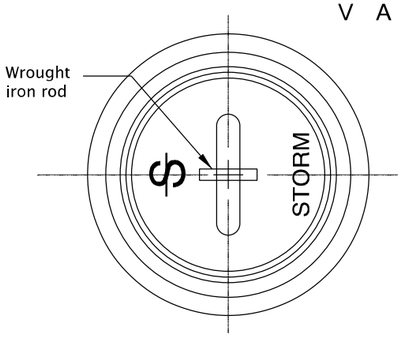
OREGON DEPARTMENT OF TRANSPORTATION

OR213 (82ND AVE):
SE FOSTER RD - SE THOMPSON RD SEC.
CASCADE HIGHWAY NORTH
CLACKAMAS & MULTNOMAH COUNTIES

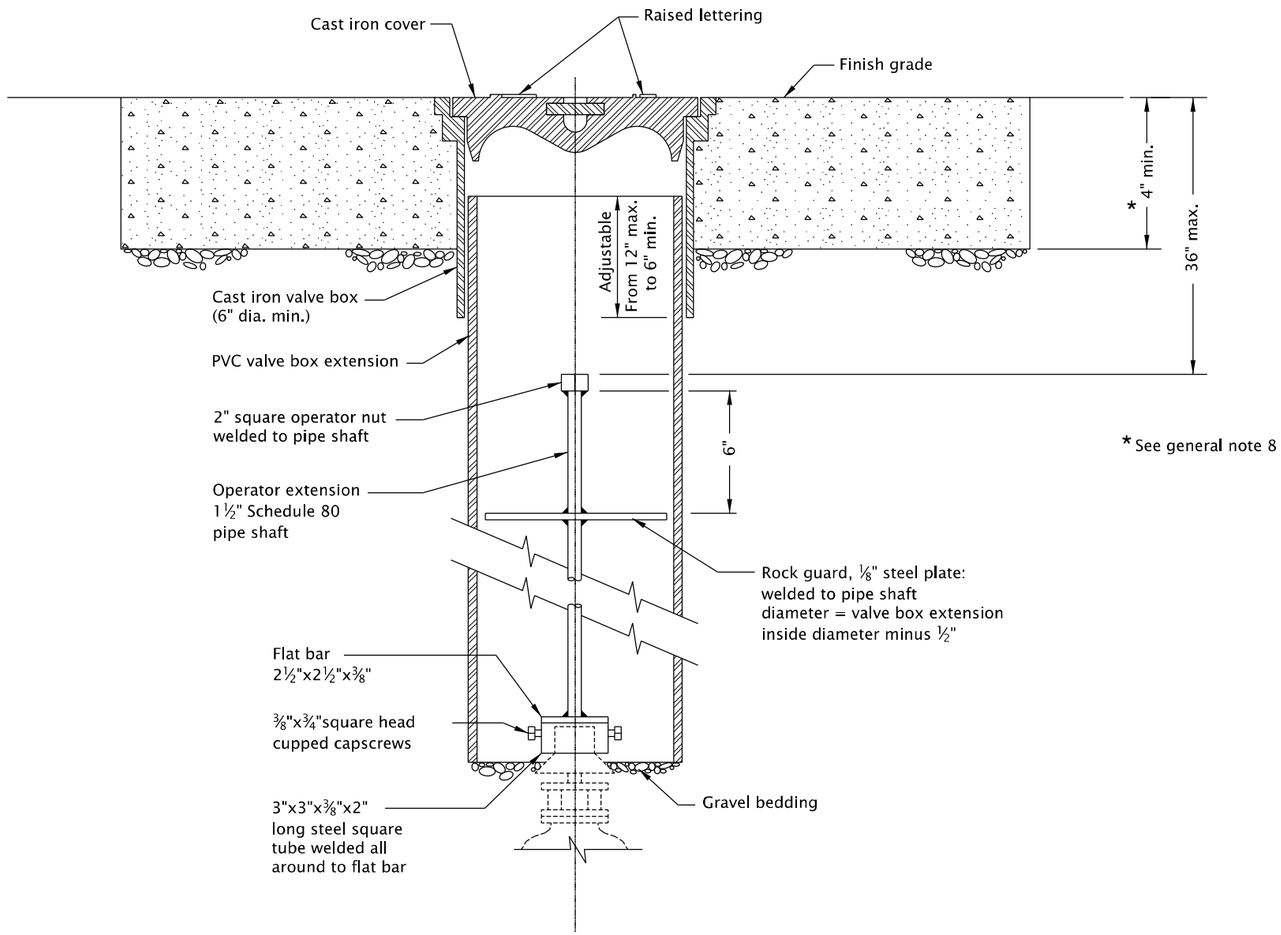
Designer: Eric Webster	Reviewer: Kevin Thelin
Drafter: Fouad Elgharabli	Checker: Tyler Nord

DETAILS | SHEET NO. HA05

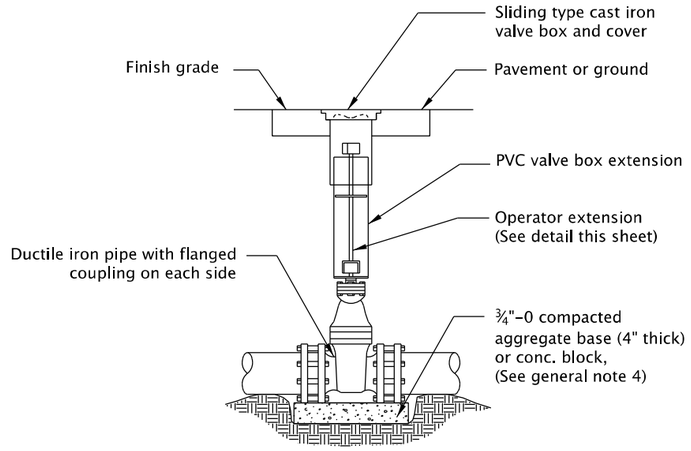
VALVE BOX AND OPERATOR EXTENSION ASSEMBLY



COVER PLAN



VALVE BOX EXTENSION SECTION



VALVE BOX ASSEMBLY DETAIL

** Drawing Not to Scale **

GENERAL NOTES FOR ALL DETAILS ON THIS SHEET:

1. Valve box not to rest on operating assembly.
2. Operator extension required when valve nut is deeper than 4' from finish grade.
3. Center valve box on axis of operator nut.
4. Valves 12" and smaller shall be provided with compacted aggr. base on undisturbed ground. Valves greater than 12" shall be installed on precast concrete block, (4" thick).
5. Welds shall be minimum ¼" all around.
6. Hot dip galvanize operator extension after fabrication.
7. Casting shall meet H20 load requirement.
8. Provide concrete or asphalt pad (24" square, 4" thick), when required.
9. See project plans for details not shown.

REGISTERED PROFESSIONAL ENGINEER
93797PE
DIGITALLY SIGNED 2023.02.16 12:21:31-08'00'
OREGON
JULY 10, 2018
ERIC R. WEBSTER
RENEWS: 06-30-2024

consor

OREGON DEPARTMENT OF TRANSPORTATION

OR213 (82ND AVE):
SE FOSTER RD - SE THOMPSON RD SEC.
CASCADE HIGHWAY NORTH
CLACKAMAS & MULTNOMAH COUNTIES

Designer: Eric Webster	Reviewer: Kevin Thelin
Drafter: Fouad Elgharabli	Checker: Tyler Nord

DETAILS — SHEET NO. HA08

Rotation: 0° Scale: 1"=1'-0"