

OPERATION & MAINTENANCE MANUAL

DFI No. : D00730, D00731, D00732
Facility Type: Drywell



January, 2016

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1. Identification

Drainage Facility ID (DFI): **D00730, D00731, D00732**
Facility Type: [Drywell and sedimentation manholes
Construction Drawings: (V-File Number) 46V-037
Location: District: 10
Highway No.: 15
Mile Post: M.P. 92.30, Lt., M.P. 92.36, Rt.,
M.P. 92.38, Rt.
Description: These drywells are located on the west end of Downtown Sisters, close to Oak Street. See appendices for drawings.

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: Mike Ogden ODOT Region 4 Tech. Center
(541) 388 - 6288
Facility construction: 2013
Contractor: Knife River

4. Storm Drain System and Facility Overview

This Drywell and sedimentation manhole system is an underground injection facility (UIC). This means that all stormwater up to the 100-year design storm is contained and infiltrated in this system.

No bypass systems have been constructed. Most inlets are either in local or mainline sags and do not allow for an overflow bypass to be constructed.

The water is treated by an inlet with a downturned elbow and a sedimentation manhole for each drywell.

Stormwater is collected via inlets (with a downturned elbow) and conveyed via a 12 inch pipe from the inlet to a sedimentation manhole. From the sedimentation manhole water is conveyed to the drywell via a 12 inch pipe. Either between the inlet and sedimentation manhole, or between the sedimentation manhole and the drywell, a gate valve has been installed. These valves were installed as a way to stop hazardous materials from entering the drywell.

Drainage basin sizes are fairly small and typically include only highway runoff. These have typically been designed/sized to have two drywells per block.

A. Maintenance equipment access:

Maintenance access to the facility is obtained from Cascade Avenue, US20, or via Oak Street.

B. Heavy equipment access into facility:

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

C. Special Features:

- Amended Soils
- Porous Pavers
- Sedimentation Manholes
- Shutoff valves

5. Facility Haz Mat Spill Feature(s)

These Drywells **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 inlet and sedimentation manhole. The valve requires a valve key to turn the valve off and on. As a part of the first response plan, the City of Sisters Maintenance crews are equipped with the valve keys as well.

6. Auxiliary Outlet (High Flow Bypass)

Auxiliary Outlets were not constructed for this facility. The overall concept for stormwater design in downtown Sisters, along US20, was many small drainage basins and infiltration facilities. There are many sag points that do not allow for a bypass flow.

The auxiliary outlet feature for this facility is:

Designed into facility

Other, as noted below

All drywells were designed to contain the 100 year flood with no bypass.

7. 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:

<http://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/pages/omm.aspx>

Maintenance requirements for proprietary structures, such as underground water quality manholes and/or vaults with filter media are noted in Appendix C when applicable.

The following stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual or follow the Maintenance requirements outlined in Appendix C when proprietary structure is selected below:

- 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)
- Special Maintenance requirements:

8. 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: <http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml>

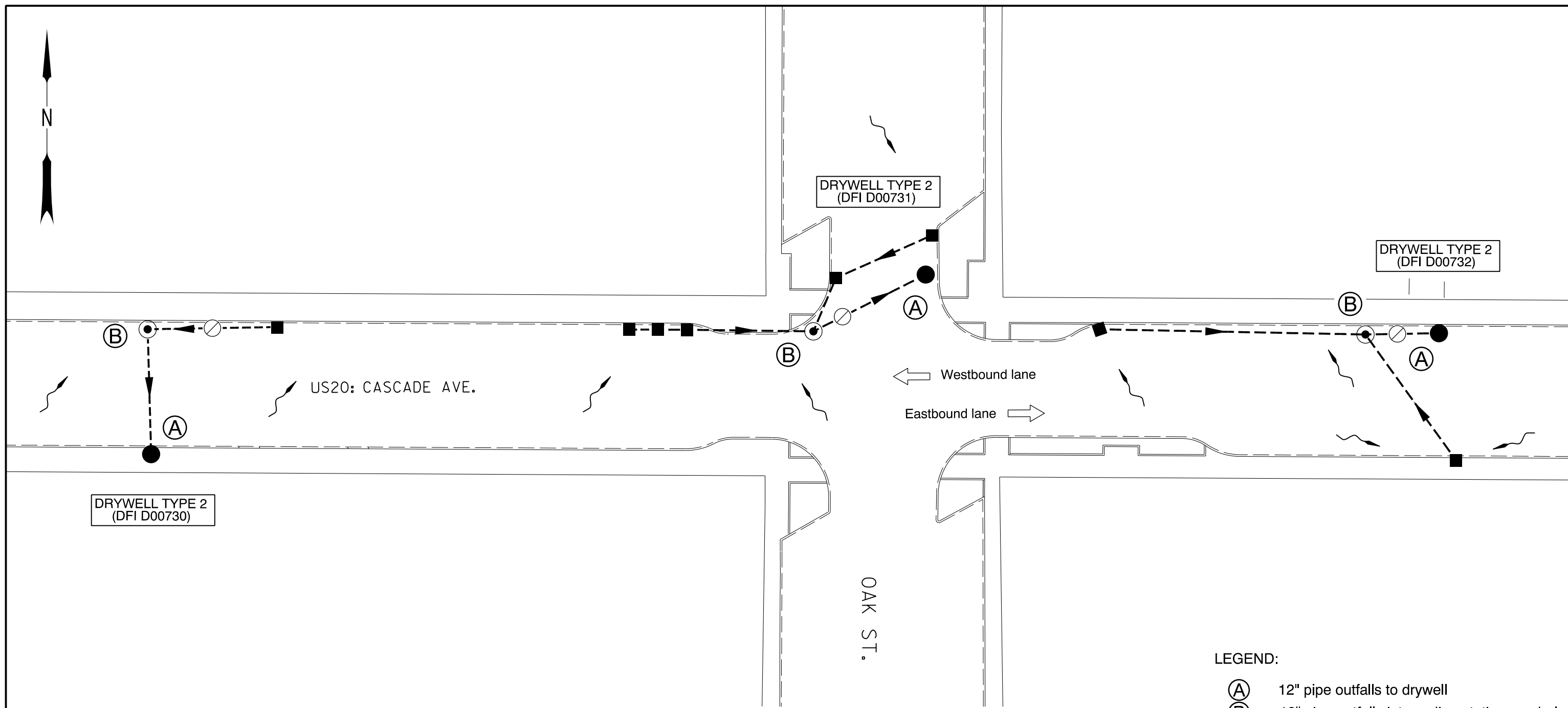
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(541) 388-6088 or (541) 410-0706
ODEQ Northwest Region Office	(503) 229-5263

Appendix A

Content:

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



LEGEND:

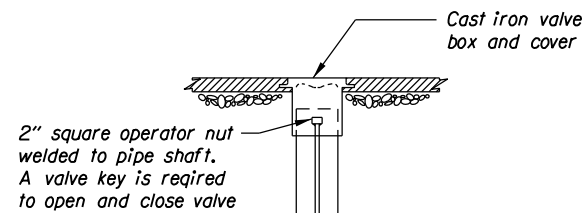
- (A) 12" pipe outfalls to drywell
- (B) 12" pipe outfalls into sedimentation manhole
- Drywell
- ⊙ Sedimentation Manhole
- Inlet with downturned elbow
- - -> 12" Storm Pipe with flow direction
- ⊘ Shutoff Valve
- ~ Pavement / Facility Flow Path

Sht. 1 of 2

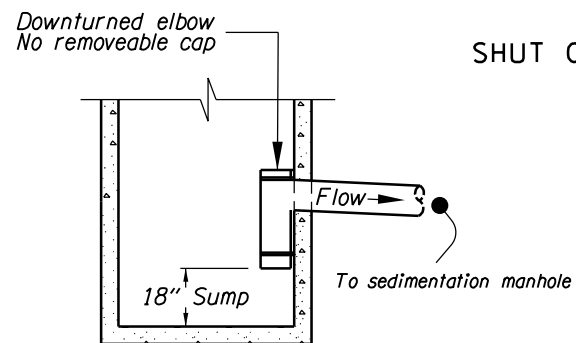


Prepared By: Wade Coatney
 Drafted By: Wade Coatney

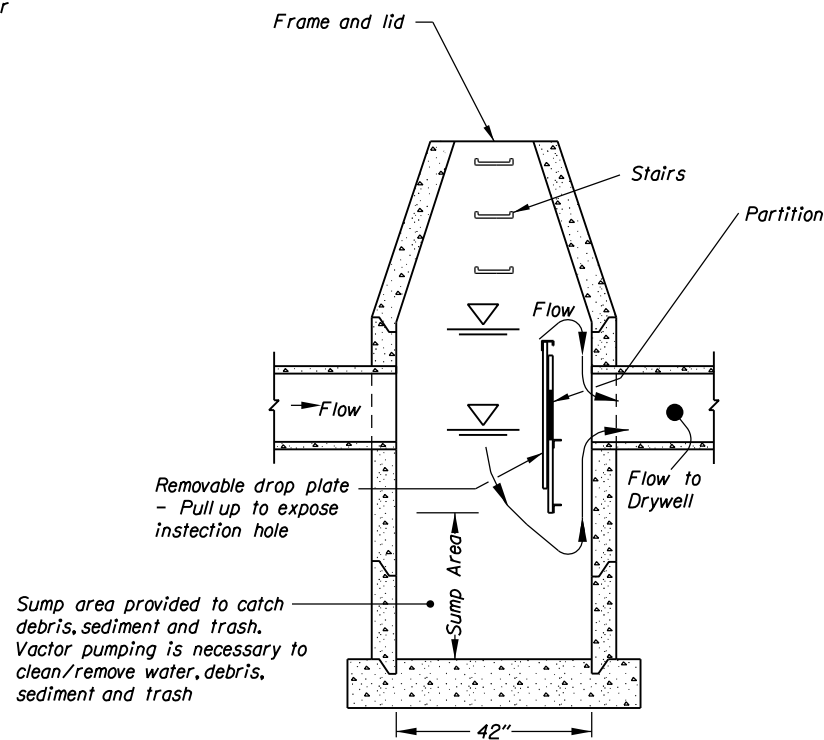
DFI D00730, D00731 & D00732
MAINTENANCE DISTRICT 10 HWY 15
DRYWELL
 MCKENZIE-BEND HWY MP 92.30 - 92.38
 DESCHUTES COUNTY



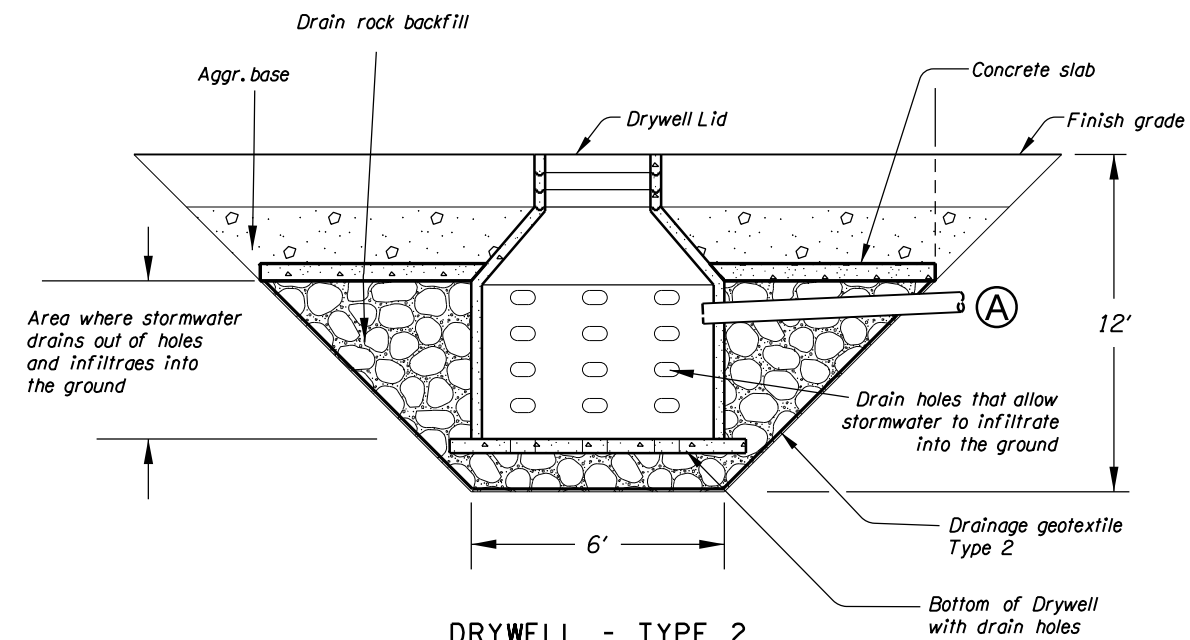
SHUT OFF VALVE



INLET W/ DOWNTURNED OUTLET



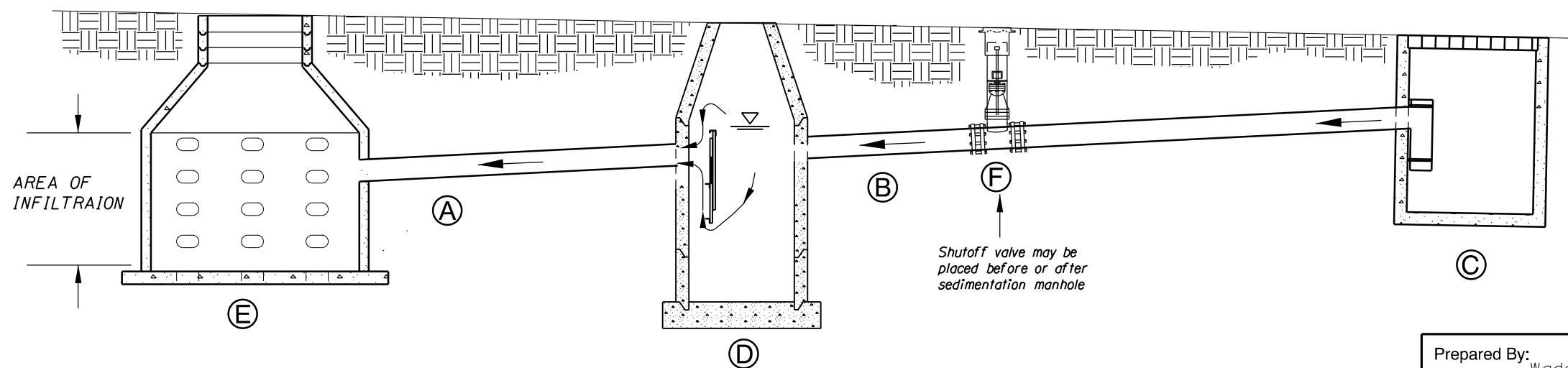
SEDIMENTATION MANHOLE



DRYWELL - TYPE 2

LEGEND:

- (A) 12" pipe outfalls to drywell
- (B) 12" pipe outfalls into sedimentation manhole
- (C) Inlet with downturned elbow
- (D) Sedimentation manhole
- (E) Drywell Type 2
- (F) Shutoff valve
- ← Conveyance Direction



SYSTEM PROFILE

Sht. 2 of 2

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Wade Coatney

Drafted By: Wade Coatney

DFI D00730, D00731 & D00732
MAINTENANCE DISTRICT 10 HWY 15
DRYWELL
 MCKENZIE-BEND HWY MP 92.30 - 92.38
 DESCHUTES COUNTY

Appendix B

Content:

- **ODOT Project Plan Sheets**
 - *Cover/Title Sheet*
 - *Detail Sheets*
 - *Drainage and profile sheets*

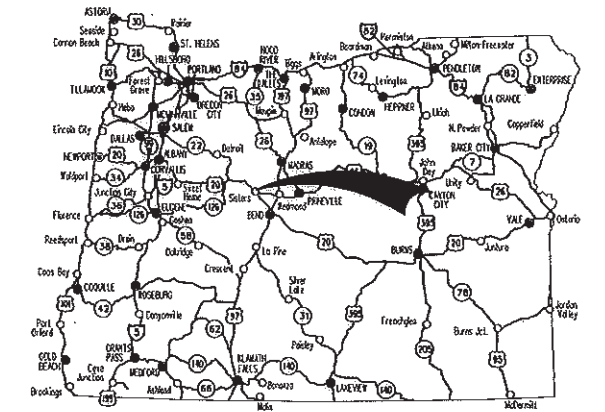
INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont'd.
1A-2	Std. Drg. Nos.

STATE OF OREGON
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED PROJECT
 GRADING, DRAINAGE, PAVING, SIGNING & ROADSIDE DEVELOPMENT

**FFO-US20: CASCADE IMPROVEMENTS
 (SISTERS) SEC.**

**McKENZIE HWY. & SANTIAM HWY.
 DESCHUTES COUNTY
 MAY 2013**

T. 15 S., R. 10 E., W.M.



Overall Length Of Project - 1.41 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.)



**BEGINNING OF PROJECT
 PLH-TEA-S015(030)
 STA. "B" 19+85**

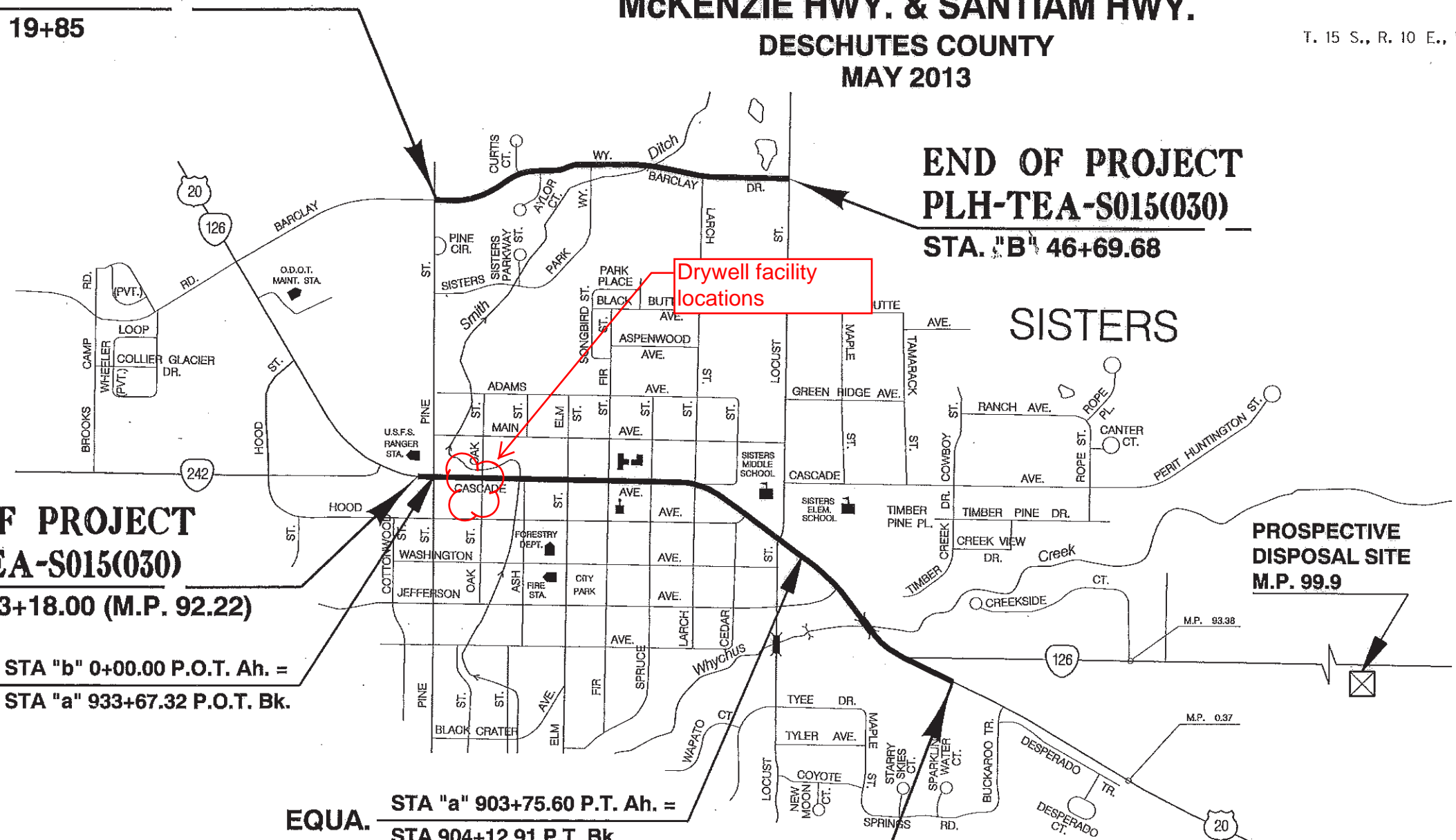
**END OF PROJECT
 PLH-TEA-S015(030)
 STA. "b" 3+18.00 (M.P. 92.22)**

**EQUA. STA "b" 0+00.00 P.O.T. Ah. =
 STA "a" 933+67.32 P.O.T. Bk.**

**EQUA. STA "a" 903+75.60 P.T. Ah. =
 STA 904+12.91 P.T. Bk.**

**END OF PROJECT
 PLH-TEA-S015(030)
 STA. "B" 46+69.68**

**BEGINNING OF PROJECT
 PLH-TEA-S015(030)
 STA. 889+53.00 (M.P. 0.08)**



**PROSPECTIVE DISPOSAL SITE
 M.P. 99.9**

- OREGON TRANSPORTATION COMMISSION**
- Pat Egan CHAIR
 - David Lohman COMMISSIONER
 - Mary F. Olson COMMISSIONER
 - Mark Frohnmayer COMMISSIONER
 - Tommy Baney COMMISSIONER
 - Matthew L. Garrett DIRECTOR OF TRANSPORTATION

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

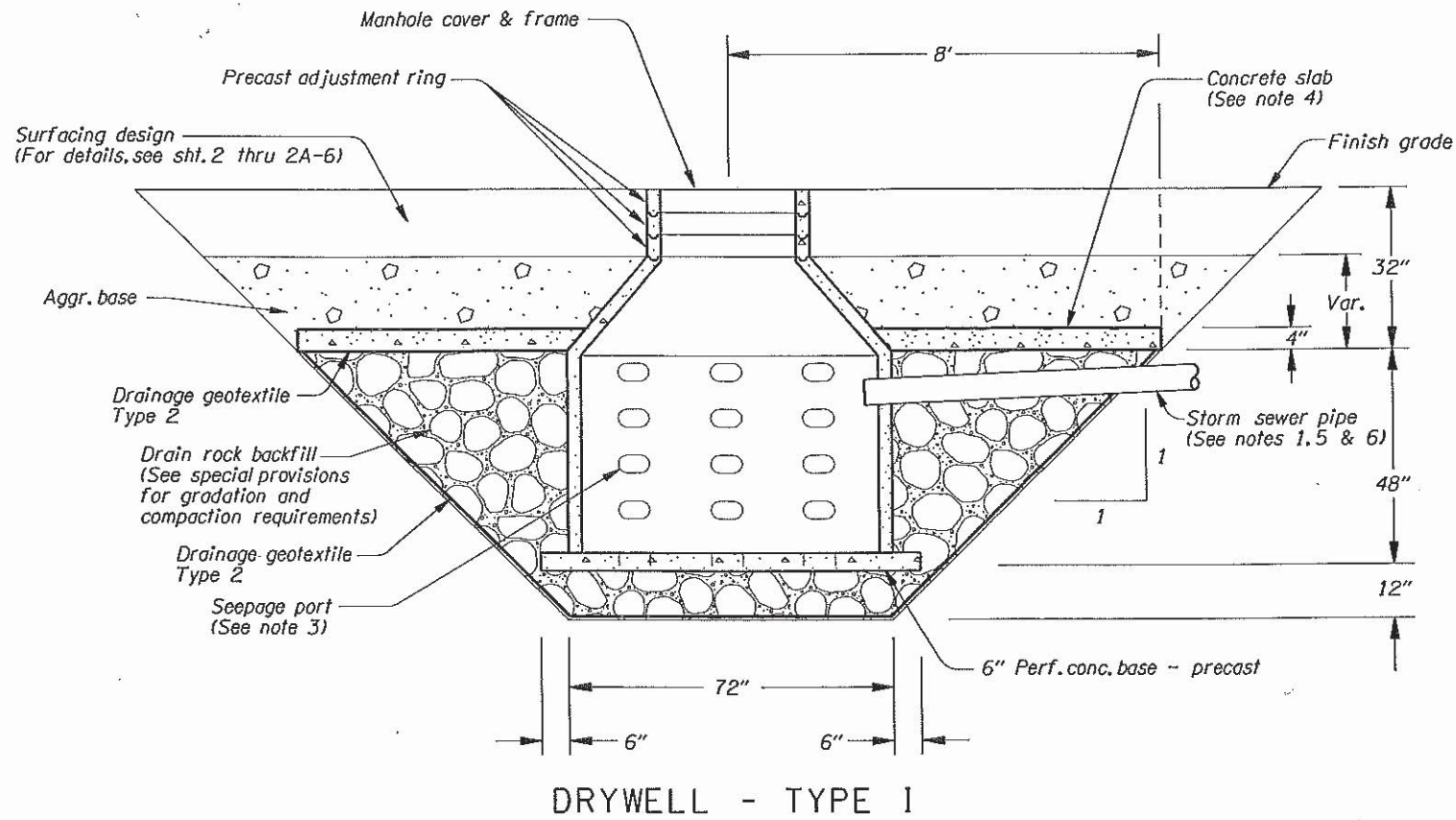
Approving Authority: *Jon W. Heacock 3/6/2013*
 Signature & date

Jon Heacock, Region 4 TCM
 Print name and title

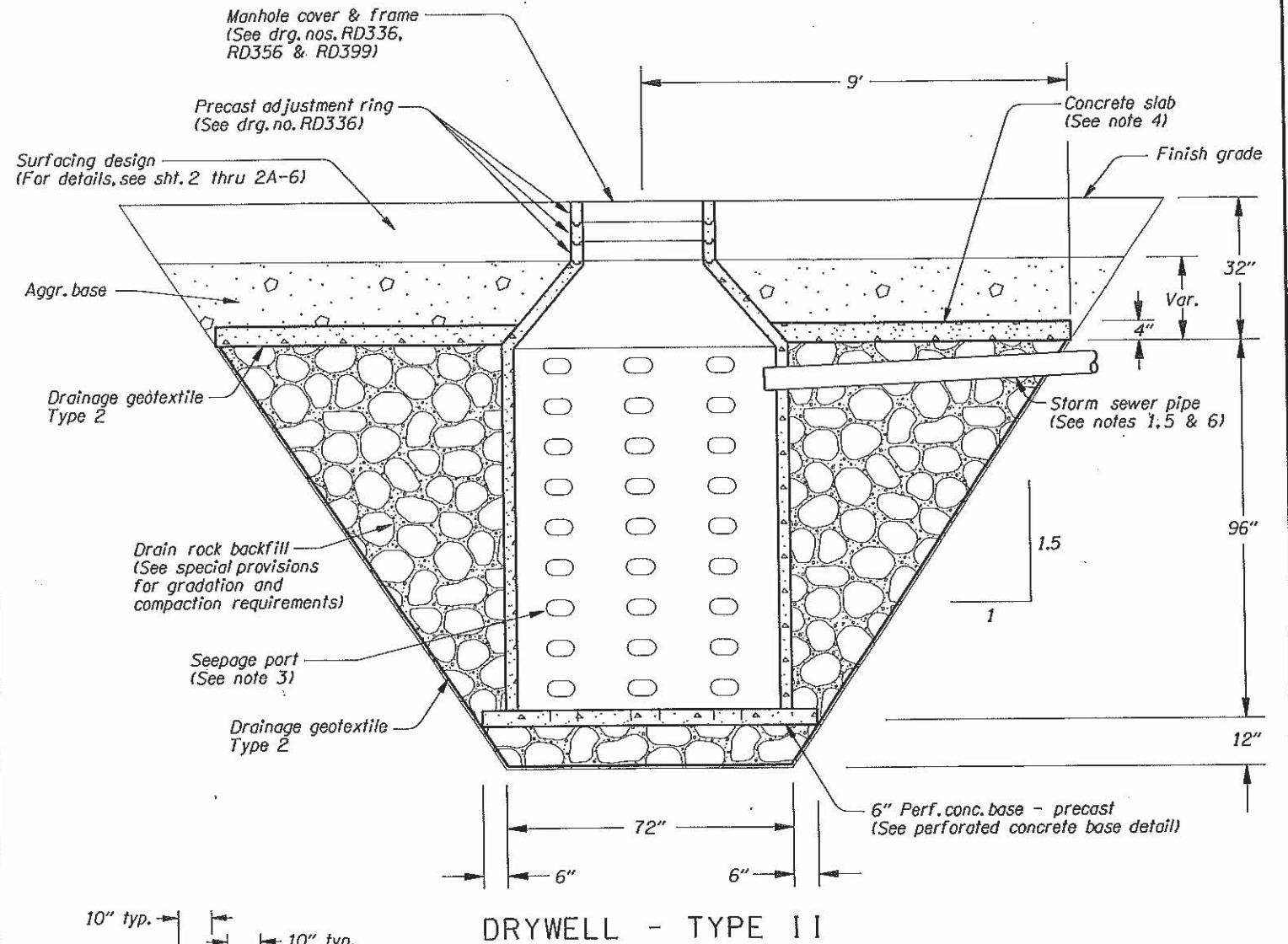
Concurrence by ODOT Chief Engineer

FFO-US20: CASCADE IMPROVEMENTS (SISTERS) SEC.		
McKENZIE HWY. & SANTIAM HWY. DESCHUTES COUNTY		
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	PLH-TEA-S015(030)	1

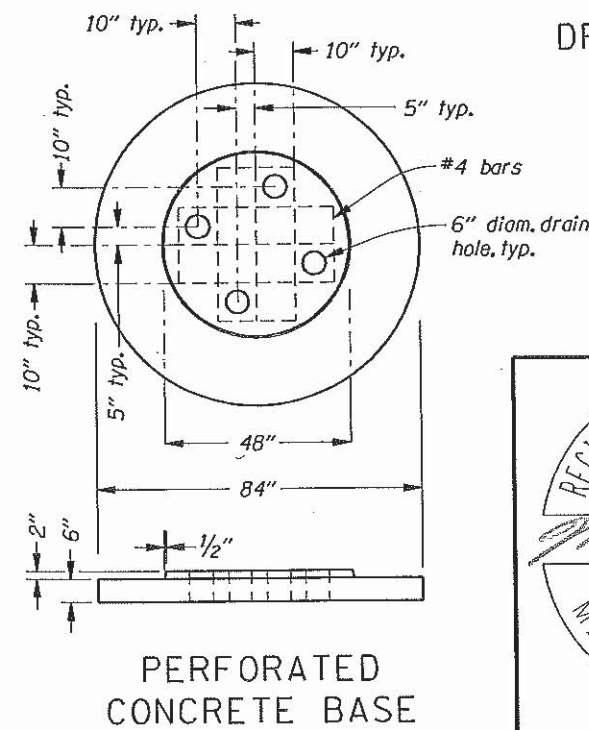
PE001724



DRYWELL - TYPE I



DRYWELL - TYPE II

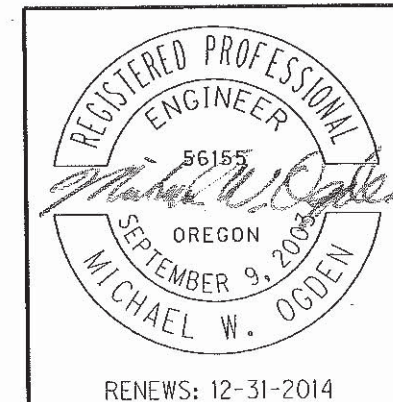


PERFORATED CONCRETE BASE

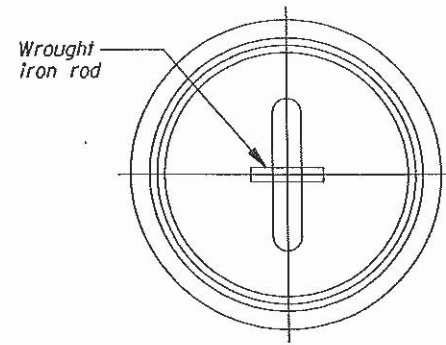
D00730
D00731
D00732

GENERAL NOTES FOR ALL DETAILS:

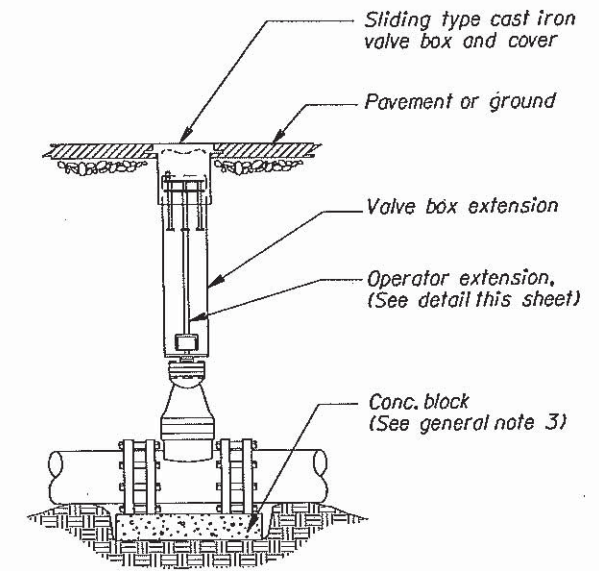
1. For storm sewer pipe materials, sizes, slopes & locations, see plan sheets and pipe data sheets.
2. All precast sections shall conform to requirements of ASTM C478.
3. Seepage port size and location vary by manufacturer.
4. Construct precast or cast-in-place concrete slab.
5. Connect inlet pipe to structure using precast hole or core drilled hole.
6. All connecting pipes shall have a tracer wire, or approved alternate.



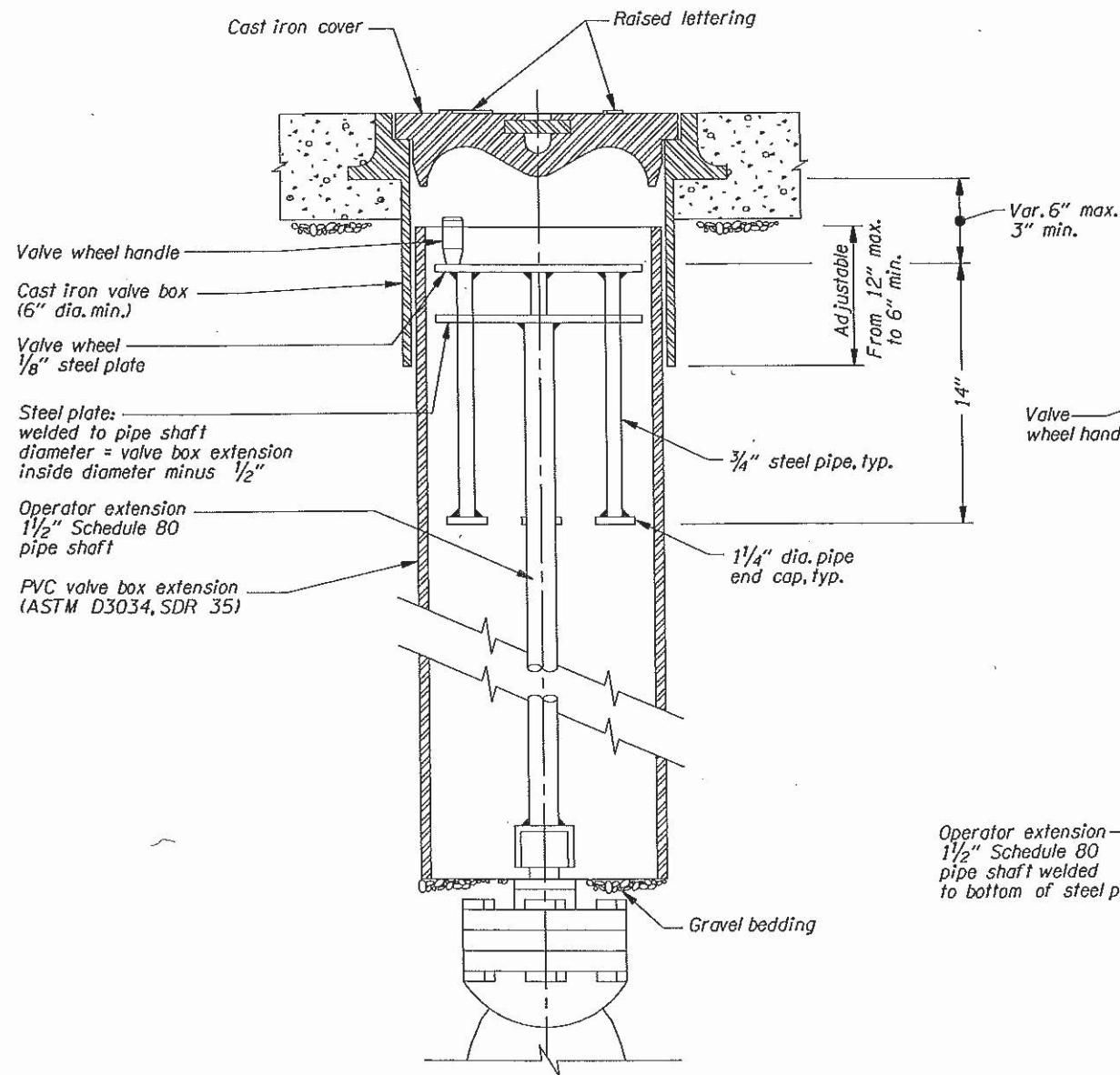
OREGON DEPARTMENT OF TRANSPORTATION	
REGION 4 TECHNICAL CENTER	
FFO-US20: CASCADE IMPROVEMENTS (SISTERS) SEC. McKENZIE HWY. & SANTIAM HWY. DESCHUTES COUNTY	
Reviewed By - Michael W. Ogden Designed By - Wade J. Coafney Drafted By - Greg Saurbier	
DRAINAGE DETAILS	SHEET NO. 2C



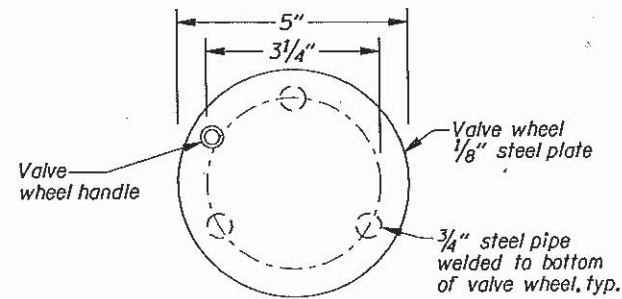
COVER PLAN



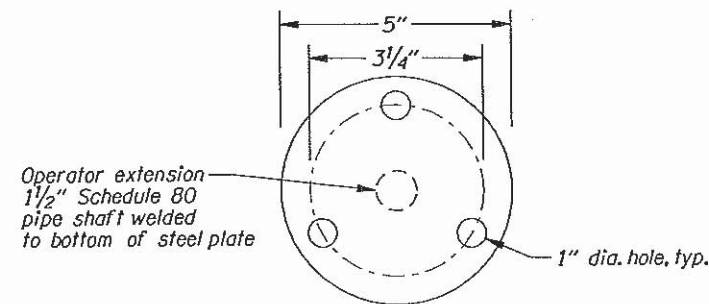
VALVE BOX ASSEMBLY DETAIL



VALVE BOX EXTENSION SECTION



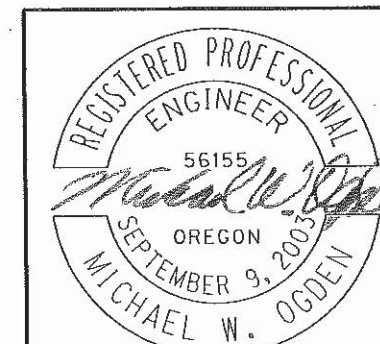
VALVE WHEEL



STEEL PLATE

GENERAL NOTES FOR ALL DETAILS:

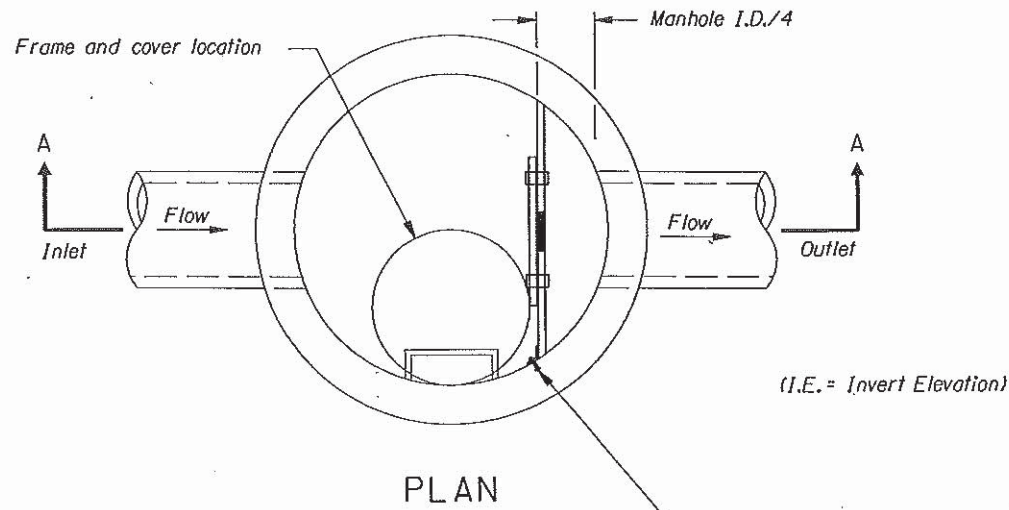
1. Valve box not to rest on operating assembly.
2. Center valve box on axis operator extension.
3. Valves shall be installed on precast concrete block.
4. Welds shall be minimum 1/4" all around.
5. Hot-dip galvanize operator extension after fabrication.



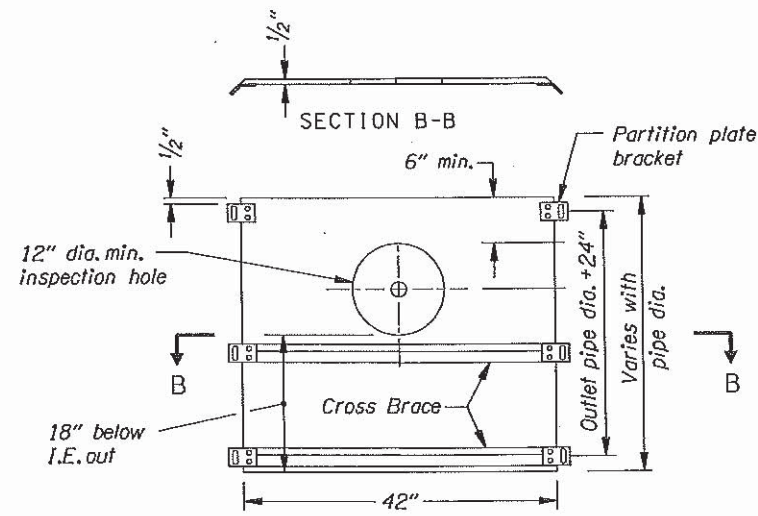
RENEWS: 12-31-2014

OREGON DEPARTMENT OF TRANSPORTATION	
REGION 4 TECHNICAL CENTER	
FFO-US20: CASCADE IMPROVEMENTS (SISTERS) SEC. McKENZIE HWY. & SANTIAM HWY. DESCHUTES COUNTY	
Reviewed By - Michael W. Ogden Designed By - Wade J. Coathney Drafted By - Greg Saubier	
DRAINAGE DETAILS	SHEET NO. 2C-3

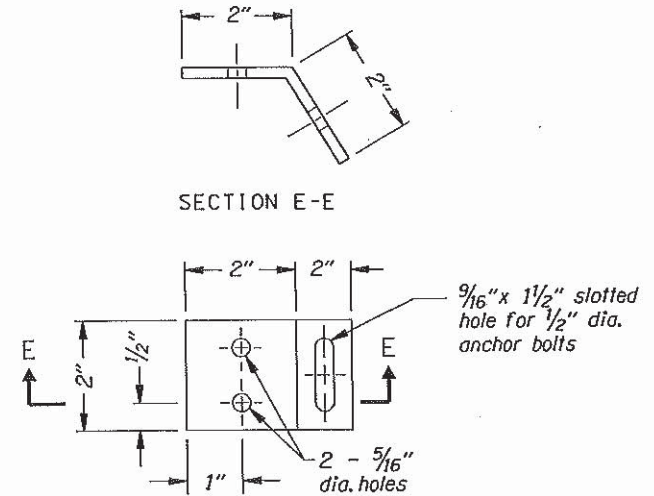
(For details not shown, see drg. nos. RD340 & RD346)



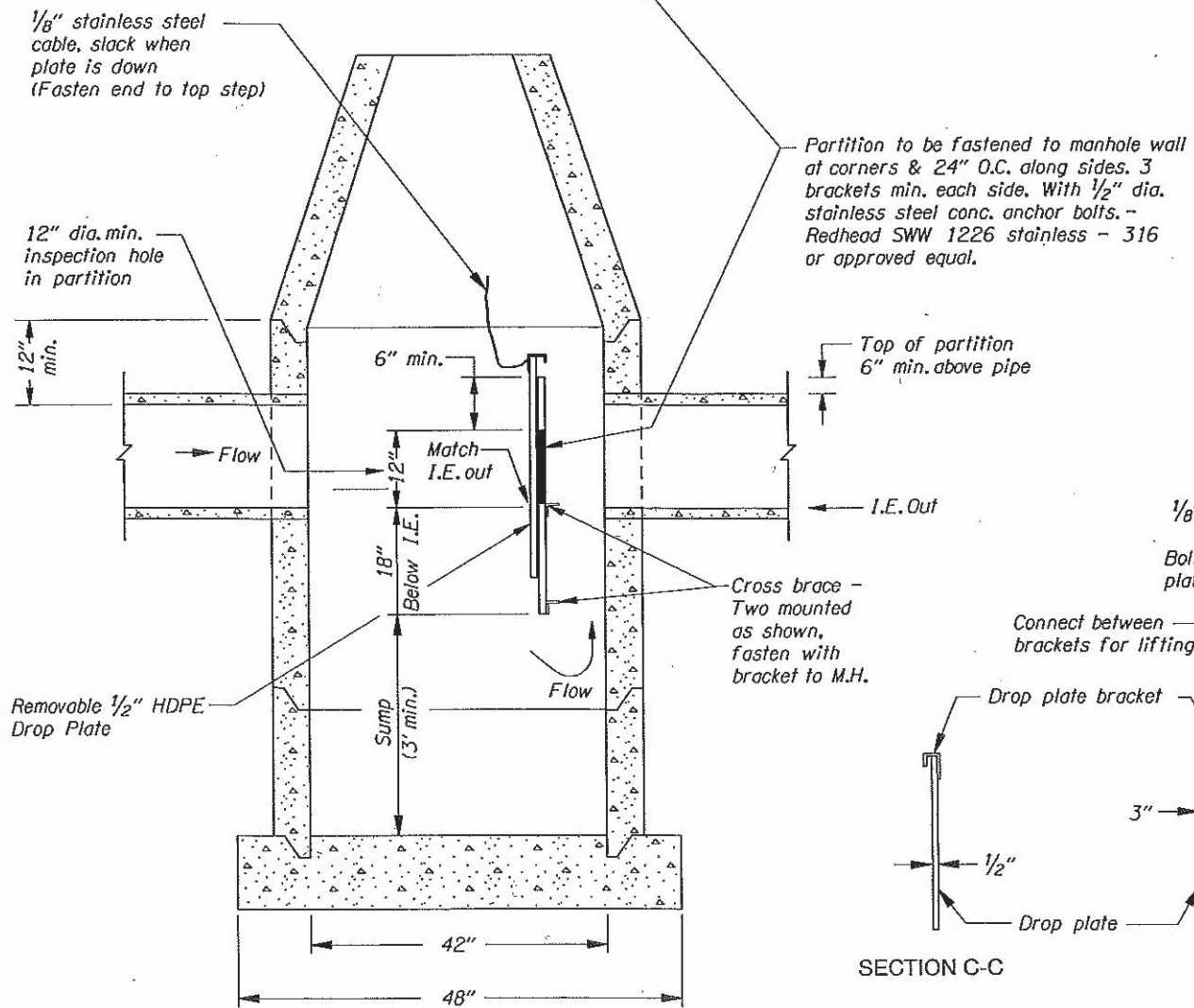
PLAN



PARTITION PLATE



PARTITION PLATE BRACKET
(1/8" stainless steel)



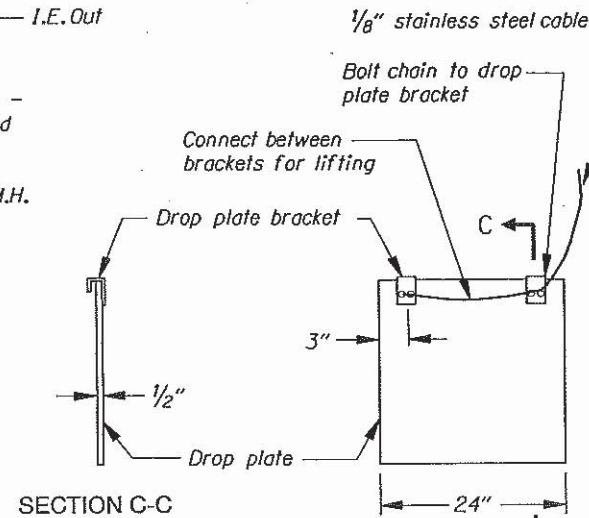
SECTION A-A

Partition to be fastened to manhole wall at corners & 24" O.C. along sides. 3 brackets min. each side. With 1/2" dia. stainless steel conc. anchor bolts. - Redhead SWW 1226 stainless - 316 or approved equal.

Top of partition 6" min. above pipe

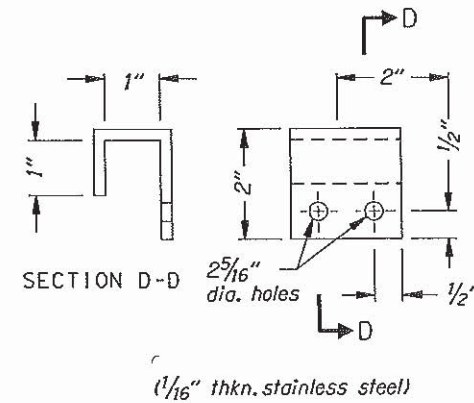
I.E. Out

Cross brace - Two mounted as shown, fasten with bracket to M.H.



SECTION C-C

DROP PLATE

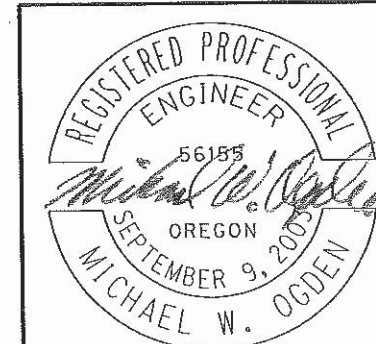


SECTION D-D

DROP PLATE BRACKET
(1/16" thkn. stainless steel)

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 sizes).
3. 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.
4. Manhole and base per manhole standard drawings.
5. Cross brace L 2 1/2" x 1 1/2" x 3/16" hot-dip galvanize, ASTM A-123. 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.
6. Hardware, fasteners, anchors, fittings, appurtenances, labor and equipment is incidental to sedimentation manhole item.



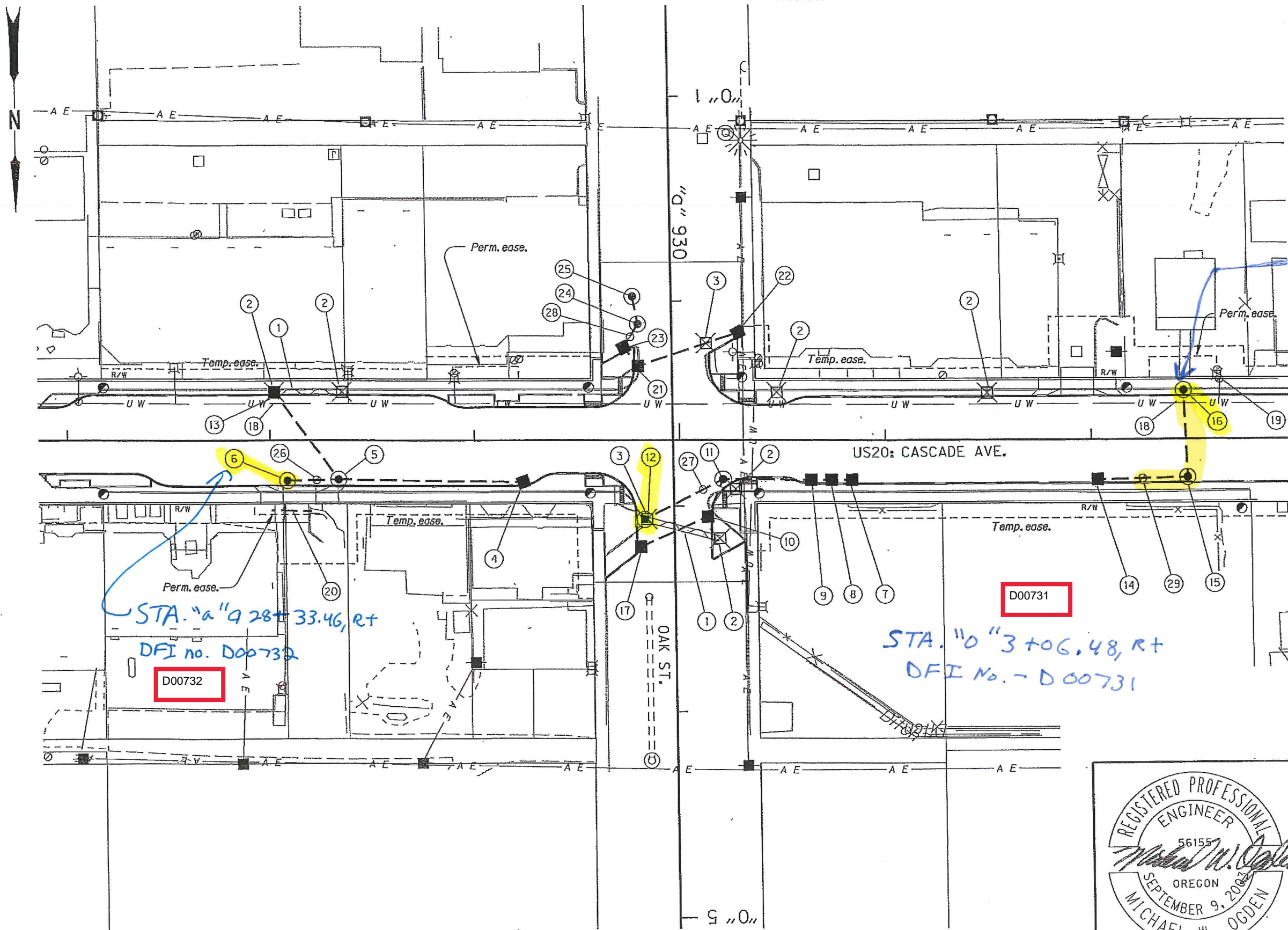
RENEWS: 12-31-2014

OREGON DEPARTMENT OF TRANSPORTATION	
REGION 4 TECHNICAL CENTER	
FFO-US20: CASCADE IMPROVEMENTS (SISTERS) SEC. MCKENZIE HWY. & SANTIAM HWY. DESCHUTES COUNTY	
Reviewed By - Michael W. Ogden Designed By - Wade J. Coatney Drafted By - Greg Saurbier	
DRAINAGE DETAILS	SHEET NO. 2C-4

SEDIMENTATION MANHOLE

Sec. 4, 5, 8, & 9, T. 15 S., R. 10 E., W.M.
SISTERS

46V-037



STA "a" 932+45.46, L+
DFI no. - D00730

D00730

STA "a" 928+33.46, R+
DFI no. D00732

D00732

STA "b" 3+06.48, R+
DFI no. - D00731

D00731

Notes:
For additional notes, see shf. no. 10B
For drainage profile, see shfs. 10D & 9E



OREGON DEPARTMENT OF TRANSPORTATION	
REGION 4 TECHNICAL CENTER	
FFO-US20: CASCADE IMPROVEMENTS (SISTERS) SEC. MCKENZIE HWY. & SANTIAM HWY., DESCHUTES COUNTY	
Reviewed By - Michael W. Ogden Designed By - Wade J. Coatney Drafted By - Greg Saubier	
DRAINAGE & UTILITIES	SHEET NO. 10A

① Remove pipe - 61'

② Remove inlets - 6

③ Decommission UIC - 2

④ Sta. "a" 929+23.75, Rt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" Out) - 3188.64
Inst. 12" storm sew. pipe - 90.31'
5' depth
S = 0.005'/ft

⑤ Sta. "a" 928+33.46, Rt.
Const. sedimentation manhole
(For details, see sht. 2C-4)
I.E. (12" In) - 3189.77
I.E. (12" In) - 3188.19
I.E. (12" Out) - 3188.09
Inst. 12" storm sew. pipe - 24.96'
5' depth
S = 0.005'/ft

⑥ Sta. "a" 928+08.50, Rt.
Const. drywell - type 2
(For details, see sht. 2C)
Inst. type "S3" field facility marker
DFI no. D00732
I.E. (12" In) - 3187.96'

⑦ Sta. "a" 930+83.45, Rt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" Out) - 3188.24
Inst. 12" storm sew. pipe - 9.87'
5' depth
S = 0.005'/ft

⑧ Sta. "a" 930+73.58, Rt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" In) - 3188.19
I.E. (12" Out) - 3188.09
Inst. 12" storm sew. pipe - 10.05'
5' depth
S = 0.005'/ft

⑨ Sta. "a" 930+63.53, Rt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" In) - 3188.04
I.E. (12" Out) - 3187.54
Inst. 12" storm sew. pipe - 42.67'
5' depth
S = 0.005'/ft

⑩ Sta. "O" 3+05.19, Lt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" In) - 3189.07
I.E. (12" Out) - 3188.97
Inst. 12" storm sew. pipe - 19.65'
5' depth
S = 0.005'/ft

⑪ Sta. "a" 930+20.86, Rt.
Const. sedimentation manhole
(For details, see sht. 2C-4)
I.E. (12" In) - 3188.87
I.E. (12" In) - 3187.32
I.E. (12" Out) - 3187.22
Inst. 12" storm sew. pipe - 42.72'
5' depth
S = 0.005'/ft

⑫ Sta. "O" 3+06.48, Rt.
Const. drywell - type 2
(For details, see sht. 2C)
Inst. type "S3" field facility marker
DFI no. D00731
I.E. (12" In) - 3187.01

⑬ Sta. "a" 928+02.47, Lt.
Const. type "CG-3" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" Out) - 3190.30
Inst. 12" ductile iron pipe - 52.61'
5' depth
S = 0.010'/ft

⑭ Sta. "a" 932+02.89, Rt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" Out) - 3188.55
Inst. 12" storm sew. pipe - 43.50'
5' depth
S = 0.010'/ft

⑮ Sta. "a" 932+46.43 Rt.
Const. sedimentation manhole
(For details, see sht. 2C-4)
I.E. (12" In) - 3188.11
I.E. (12" Out) - 3188.01
Inst. 12" storm sew. pipe - 43.42'
5' depth
S = 0.010'/ft

⑯ Sta. "a" 932+45.46 Lt.
Const. drywell - type 2
(For details, see sht. 2C)
Inst. type "S3" field facility marker
DFI no. D00730
I.E. (12" In) - 3187.58

⑰ Sta. "O" 3+19.84 Rt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" Out) - 3189.25
Inst. 12" storm sew. pipe - 35.78'
5' depth
S = 0.005'/ft

⑱ Preserve and protect extg. waterline

⑲ Adjust valve box

⑳ Sta. "a" 928+00.39 to Sta. "a" 928+20.04, Rt.
Inst. 24" culv. pipe - 19.65'
I.E. (12" In) - 3191.16
I.E. (12" Out) - 3191.26
5' depth
S = 0.005'/ft

㉑ Sta. "O" 2+31.74 Rt
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" In) - 3190.30
I.E. (12" Out) - 3190.20
Inst. 12" storm sew. pipe - 11.39'
5' depth
S = 0.005'/ft

㉒ Sta. "O" 2+15.47 Lt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" Out) - 3190.56
Inst. 12" storm sew. pipe - 51.21'
5' depth
S = 0.005'/ft

㉓ Sta. "O" 2+22.58 Rt.
Const. type "G-2 (Modified)" inlet w/
downturned outlet and 1.5' sump
(For details, see sht. 2C-5)
I.E. (12" In) - 3190.15
I.E. (12" Out) - 3190.05
Inst. 12" storm sew. pipe - 13.53'
5' depth
S = 0.005'/ft

㉔ Sta. "O" 2+11.14 Rt.
Const. sedimentation manhole
(For details, see sht. 2C-4)
I.E. (12" In) - 3189.98
I.E. (12" Out) - 3189.88
Inst. 12" storm sew. pipe - 13.66'
5' depth
S = 0.005'/ft

㉕ Sta. "O" 1+97.71 Rt.
Const. drywell - type 2
(For details, see sht. 2C)
I.E. (12" In) - 3189.81

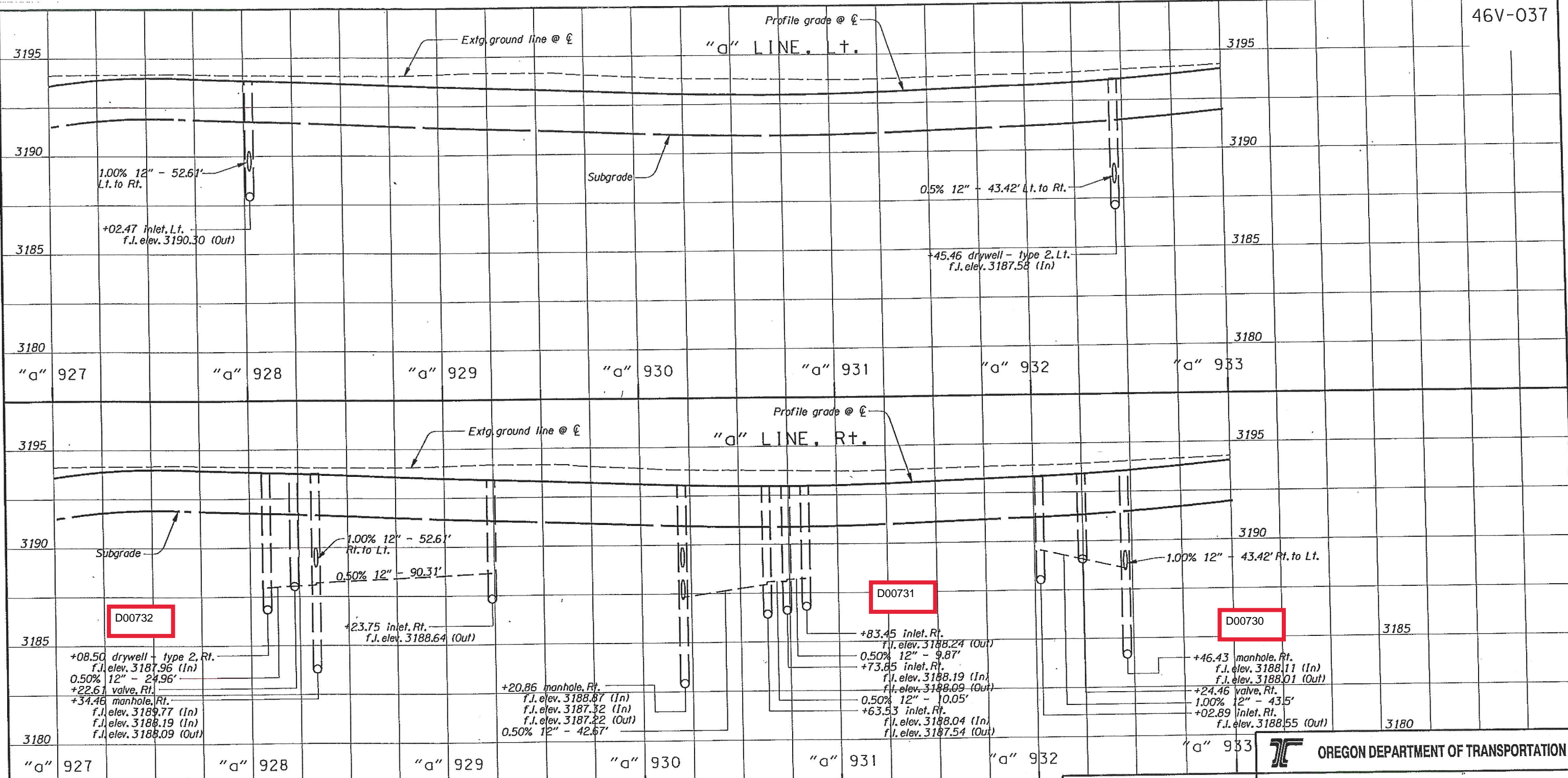
㉖ Sta. "a" 928+22.61, Rt.
Inst. 12" gate valve
Const. valve box and operate stem extension assembly
(For details, see sht. 2C-3)

㉗ Sta. "O" 2+92.08, Lt
Inst. 12" gate valve
Const. valve box and operate stem extension assembly
(For details, see sht. 2C-3)

㉘ Sta. "O" 2+17.40, Rt
Inst. 12" gate valve
Const. valve box and operate stem extension assembly
(For details, see sht. 2C-3)

㉙ Sta. "a" 932+24.88, Rt.
Inst. 12" gate valve
Const. valve box and operate stem extension assembly
(For details, see sht. 2C-3)

	<p>OREGON DEPARTMENT OF TRANSPORTATION</p>
	<p>REGION 4 TECHNICAL CENTER</p>
	<p>FFO-US20: CASCADE IMPROVEMENTS (SISTERS) SEC. McKENZIE HWY. & SANTIAM HWY. DESCHUTES COUNTY</p>
	<p>Reviewed By - Michael W. Ogden Designed By - Wade J. Coatney Drafted By - Greg Sourbier</p>
	<p>DRAINAGE NOTES</p>
	<p>SHEET NO. 10B</p>

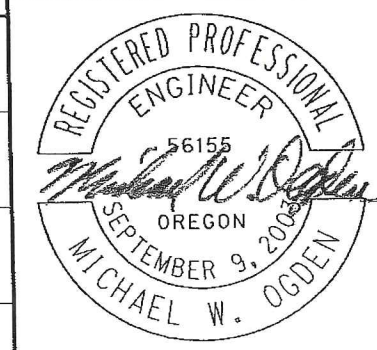


OREGON DEPARTMENT OF TRANSPORTATION

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Drafted By - Greg Saurbler



RENEWS: 12-31-2014

DRAINAGE PROFILE

SHEET NO. 10D

* See roadway profile sheets for vertical curve data.