OPERATION & MAINTENANCE MANUAL

DFI No. : D00140
Facility Type: Detention Tank/Pipe

JUNE, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00140**
Facility Type:	Detention Tank
Construction Drawings:	(V-File Number) 39V-058
Location:	District: 2B (Old 2A)
	Highway No.: 064
	Mile Post: 1.35/1.36 (beg./end)]
	Description: This facility is located on the north side of Interstate 205 alongside the southbound lanes. The detention tank is located adjacent to a water quality manhole (DFI_D00139). Access to the facility can be obtained from Interstate 205 (Hwy 064) from behind the guardrail.

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:	Consultant Designer – OBEC Consultant Engineers, Lawrence Fox, (503) 589-4100
Facility construction:	2006
Contractor:	Oregon Mainline Paving LLC. Construction Company.

4. Storm Drain System and Facility Overview

A detention facility is designed to control the quantity of runoff, by reducing the peak discharge and only detaining runoff for some short period of time. These facilities are designed to store and gradually release or attenuate stormwater runoff via a control structure or release mechanism, and completely drain after the design storm has passed. The most common detention facilities include:

- Dry ponds - these are depressed storage areas that store runoff during wet weather and are dry the rest of the time. Usually they are earthen depressions.
- Tanks - these are underground storage facilities that are typically constructed from large diameter pipe.
- Vaults - these are enclosed underground storage facilities. They are typically constructed from reinforced concrete.

This facility is located on the north side of Interstate 205 alongside the southbound lanes. The detention tank is located adjacent to a water quality manhole (DFI_D00139). Access to the facility can be obtained from Interstate 205 (Hwy 064).

Stormwater entering the facility comes from a water quality manhole (D00139) located approximately 10-feet away. The flow is conveyed by an 18-inch pipe, leading into the detention tank. The water is detained there, where it slowly exits the facility. The facility is comprised of two 60-inch diameter pipes adjoined by a pair of inlet and outlet vaults provided for maintenance purposes. Inside of the outlet vault, (see Operational Plan, Point E), lies a concrete weir wall where there is a 3-inch diameter orifice constructed at its base. This orifice is for flow control, and is how most of the flows will typically exit. In case of high flows, the water will overtop the weir wall to exit through the 18-inch diameter outlet pipe before flowing to an outfall near the Tualatin River.

A. Maintenance equipment access:
   Access to the facility can be obtained from Interstate 205 (Hwy 064) from behind the guardrail. The facility is equipped with an inlet vault (point C of the Operational Plans, Appendix A), which serves as a direct access point into the facility for maintenance.

B. Heavy equipment access into facility:

   ☐ Allowed (no limitations)
   ☒ Allowed (with limitations)
   ☐ Not allowed

C. Special Features:

☐ Amended Soils
☐ Porous Pavers
☐ Liners
☒ Underdrains

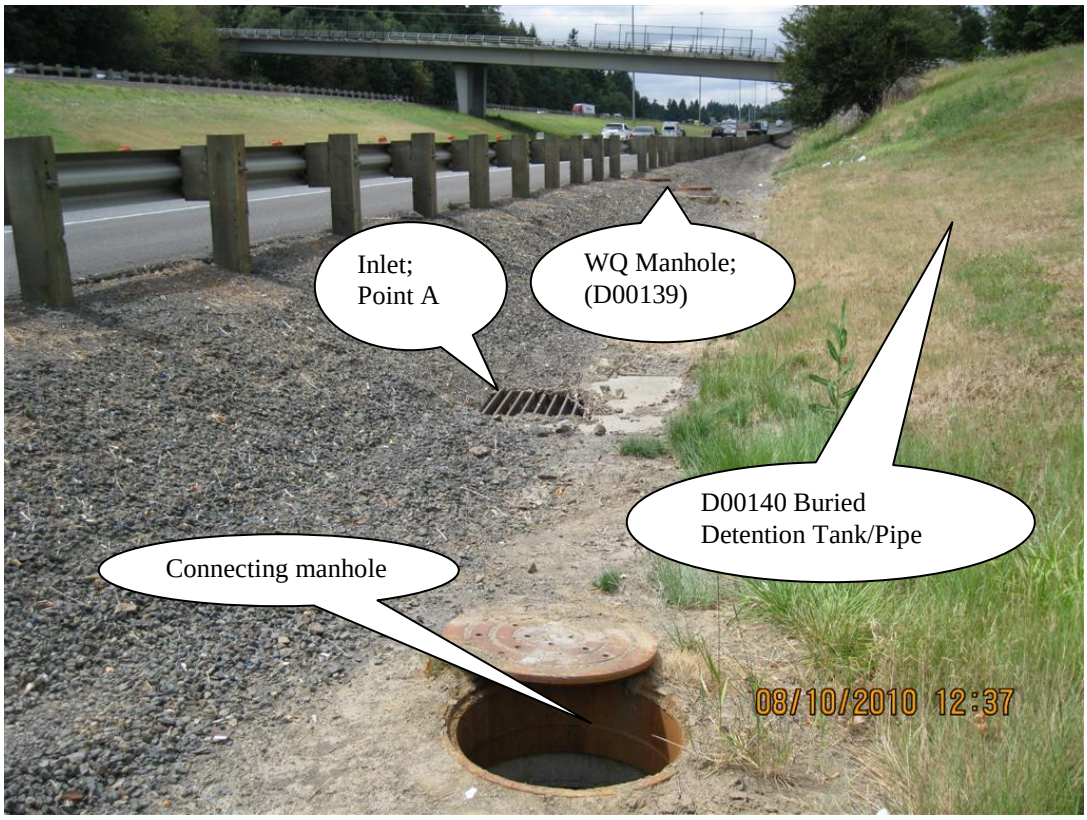


Photo 1: Looking west at inlet (Point A, Ops Plan), the connecting manhole near Point F, and the WQ manhole in the background. The detention tank/pipe (DFI_D00140) is buried and to the right.

5. Facility Haz Mat Spill Feature(s)

The detention tank can be used to store a volume of liquid by blocking the 18 inch-diameter outlet pipe located at the outlet of the detention tank/pipe's outlet vault. This pipe is noted as point E in the Operational Plans.

6. Auxiliary Outlet (High Flow Bypass)

Auxiliary Outlets are provided if the primary outlet control structure can not safely pass the projected high flows. Broad-crested spillway weirs and over flow risers are the two most common auxiliary outlets used in stormwater facility design. The auxiliary outlet feature is either a part of the facility or an additional storm drain feature/structure.

The auxiliary outlet feature for this facility is:

☐ Designed into facility

☒ Other, as noted below
There are no auxiliary outlet features for this facility

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/OOM/MGuide.shtml

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:

Note: Special maintenance Requirements Require Concurrence from ODOT SR Hydraulics Engineer.

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

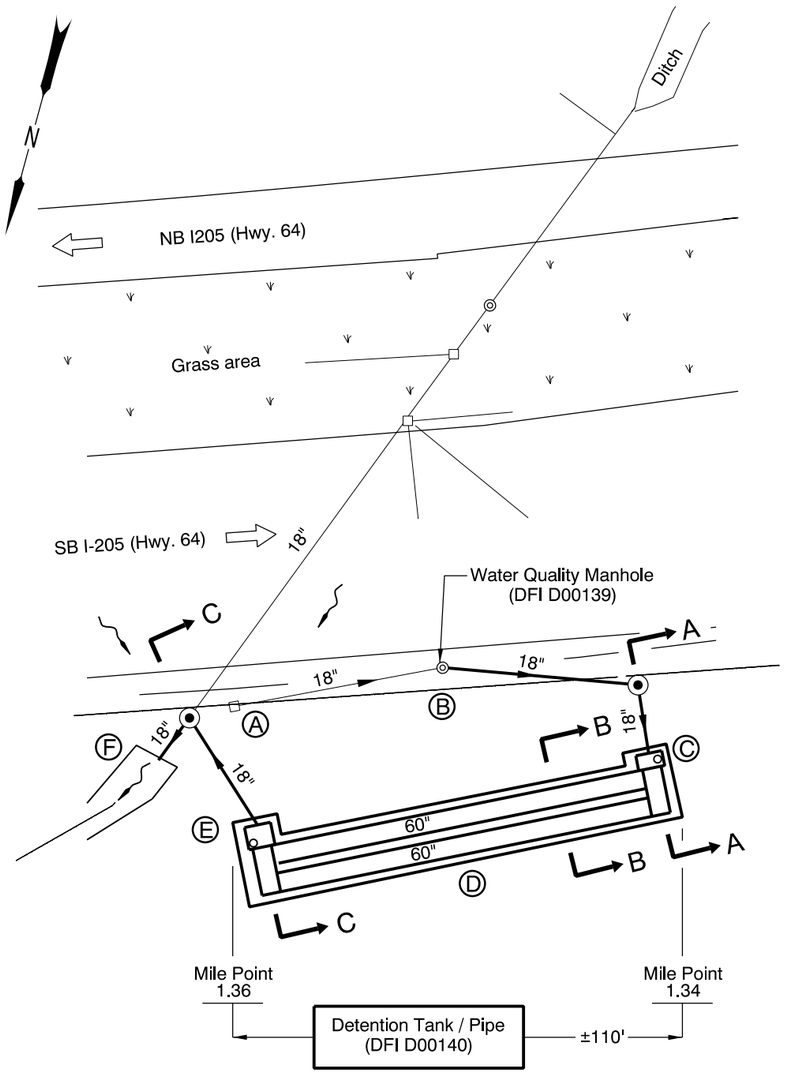
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 731-8304
ODEQ Northwest Region Office	(503) 229-5263

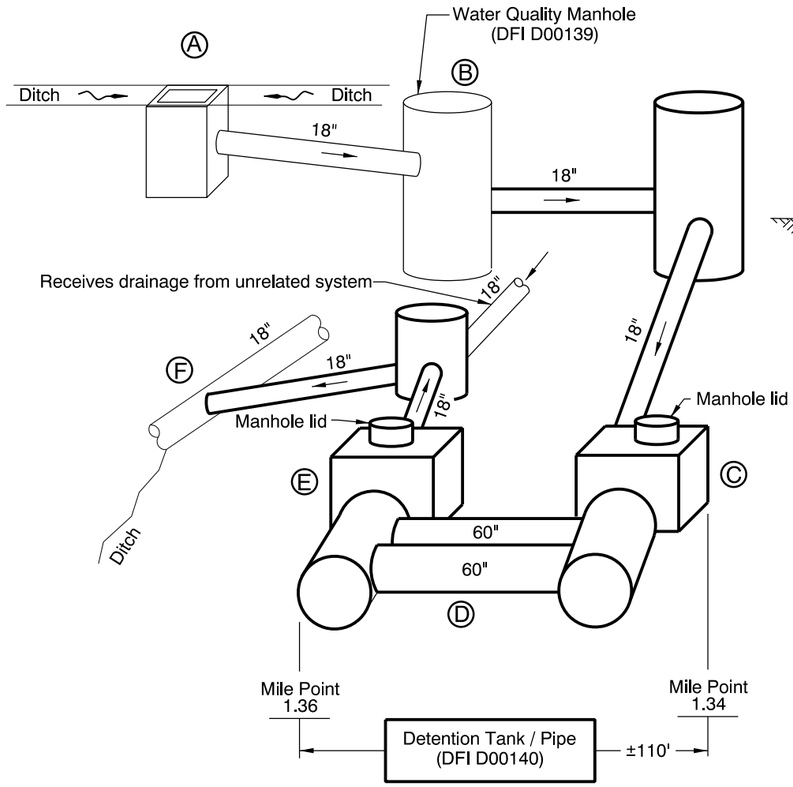
Appendix A

Content:

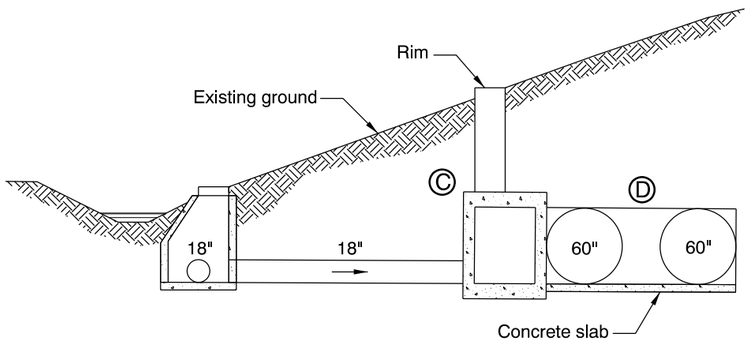
- **Operational Plan and Profile Drawing(s)**



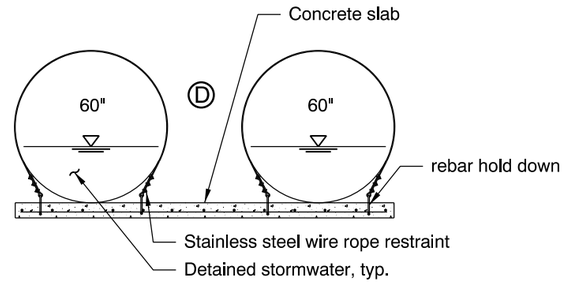
PLAN
N.T.S.



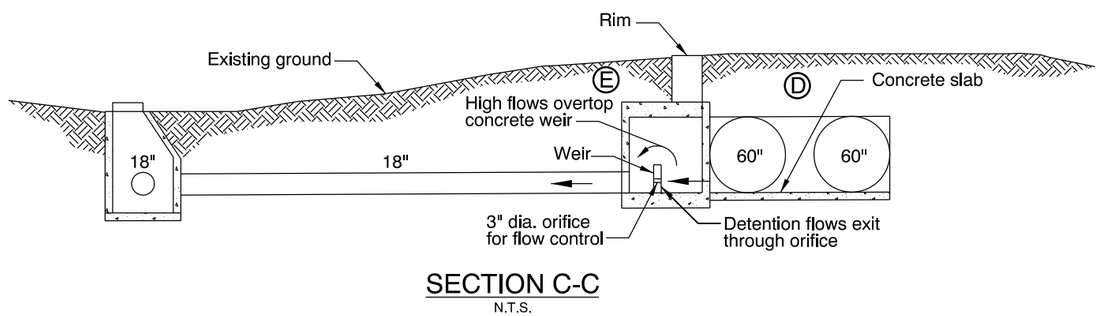
SCHEMATIC OF PIPE
DRAINAGE SYSTEM
N.T.S.



SECTION A-A
N.T.S.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

LEGEND:

- A Inlet Culvert
- B Water Quality Manhole
- C Inlet Vault
- D Detention Pipes
- E Outlet Vault
- F Outfall
- Manhole
- Inlet
- Traffic Flow/Direction
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sht. 1 of 1

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Wynee Hu

Drafted By: Mathew Bunde

DFI D0140
MAINTENANCE DISTRICT 2B HWY 064
DENTENTION TANK/PIPE
EAST PORTLAND FREEWAY MP 1.36-1.34
CLACKAMAS COUNTY

Appendix B

Content:

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

39V-58

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

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING & ILLUMINATION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.

EAST PORTLAND FREEWAY

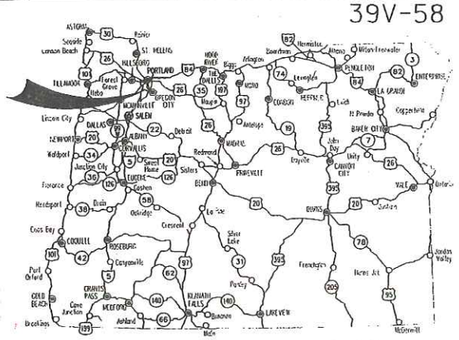
CLACKAMAS & WASHINGTON COUNTIES

APRIL 2006

"AS CONSTRUCTED"

Mark Beeson

Date 6/26/09 Project Mngr



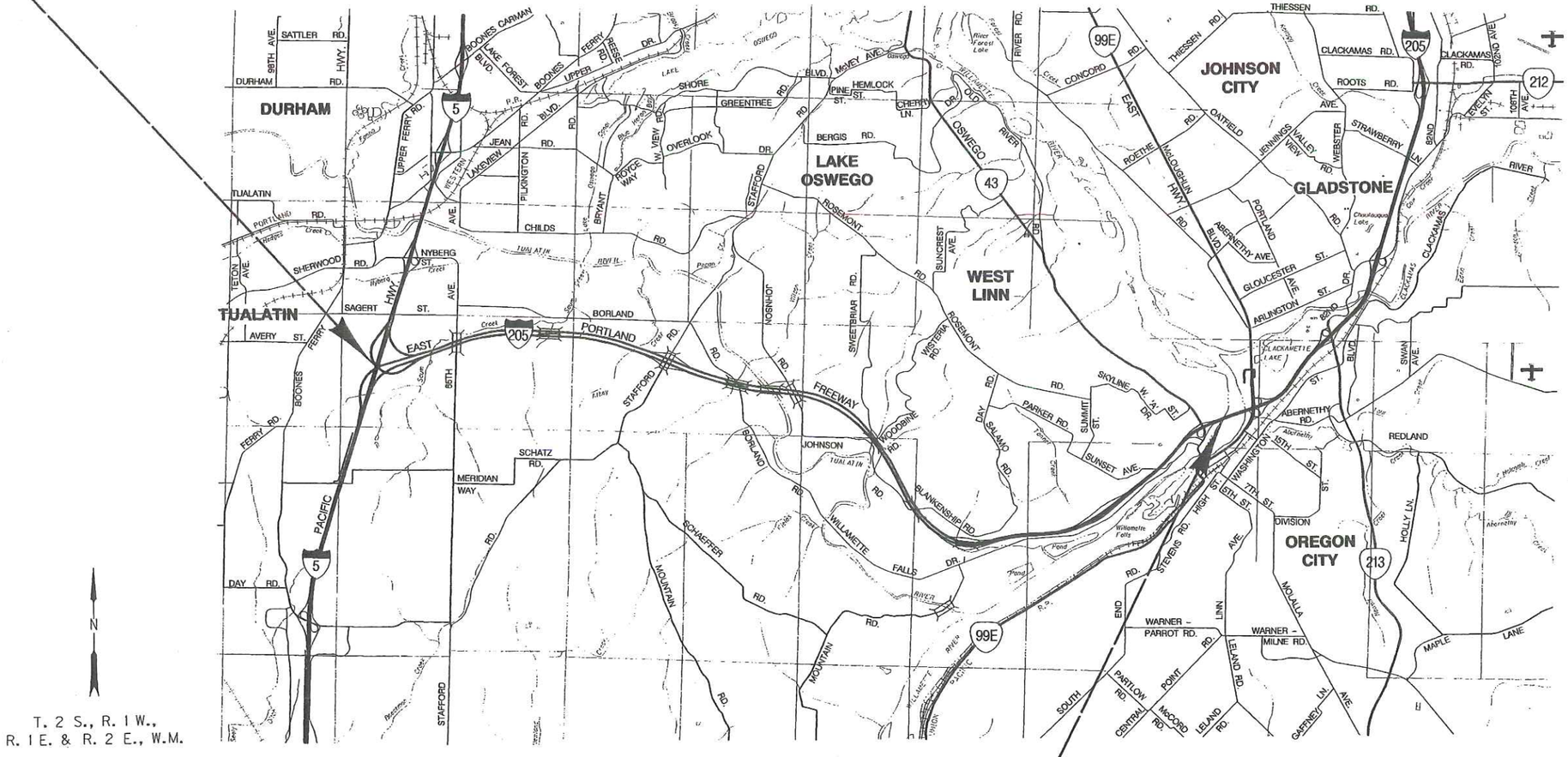
Overall Length Of Project - 8.90 Miles

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

END OF PROJECT IM-OTIA-S064(032)

STA. "LS2" 1231+71.15 (M.P. -0.10)



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

BEGINNING OF PROJECT IM-OTIA-S064(032)

STA. "L" 735+41.85 (M.P. 8.80)

OREGON TRANSPORTATION COMMISSION

Stuart Foster	CHAIRMAN
Gail L. Achterman	COMMISSIONER
Mike Nelson	COMMISSIONER
Randall Papé	COMMISSIONER
Janice J. Wilson	COMMISSIONER
Matthew Garrett	DIRECTOR OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER
14,953
OREGON
JULY 25, 1990
LAWRENCE H. FOX

EXPIRES: 12/31/07

LAWRENCE H. FOX
OBEC CONSULTING ENGINEERS - PROJECT MANAGER

OREGON DEPARTMENT OF TRANSPORTATION
CONCURRENCE

Harold E. Lasley 2/23/06
TECHNICAL SERVICES MANAGING ENGINEER DATE

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

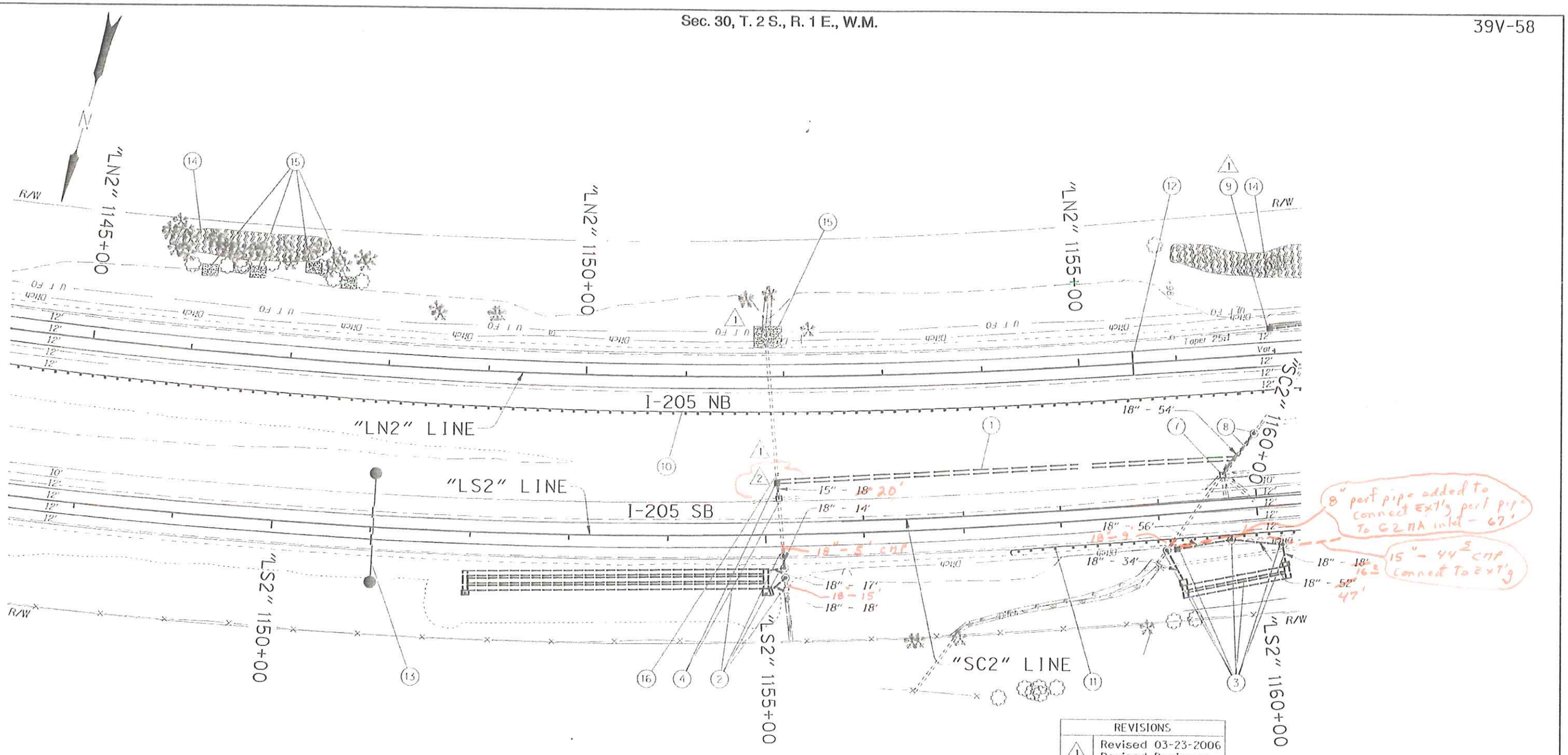
FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	IM-OTIA-S064(032)	1

File No. 15980

i:\Projects\019\019082\Roadway\12874fs.fs1 2/14/06

Sec. 30, T. 2 S., R. 1 E., W.M.

39V-58



"AS CONSTRUCTED"

Date 6/26/09 | Project Mngr

REVISIONS	
1	Revised 03-23-2006 Revised Drainage
2	Revised 02-20-2007 Revised Drainage

LEGEND

Remove Exlg. Pipe Shown Thus:

Type "A" Weed Control Shown Thus:

Type "B" Weed Control Shown Thus:

REGISTERED PROFESSIONAL ENGINEER
12295
Jerome D. Lane
OREGON
JULY 5, 1983
JEROME D. LANE

EXPIRES: 12/31/08

OBEC CONSULTING ENGINEERS
www.obec.com

Corporate Office: 609 COUNTRY CLUB ROAD, SUITE 100S EUGENE, OREGON 97401-6000
2235 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1375
1355 POPLAR DRIVE MEDFORD, OREGON 97504-5107

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Serban Dinca

GENERAL CONSTRUCTION

SHEET NO. 35A

File No. 16236

(1) Const. Ditch
2' Flat Bottom, 1:4 Side Slopes

(2) Sta. "LS2" 1155+19.5, 48.9' Rt.
Const. Conc. Manhole - 2
Over Extg. Sew Pipe
Const. Water Quality Manhole
Over Extg. Sew Pipe
Inst. 18" Sew. Pipe - 49'
5' Depth
Const. Underground Detention Facility #5
(For Details, See Sht. GJ-8)

(3) Sta. "LS2" 1159+26.8, 36' Rt.
Const. Type "G2-MA" Inlet
Inst. 18" Sew. Pipe - 152'
1 5' Depth
Const. Conc. Manhole - 2
Over Extg. Sew Pipe
Const. Water Quality Manhole
Const. Underground Detention Facility #6
(For Details, See Sht. GJ-9) Added 15 - 44° CMP

(4) Sta. "LN2" 1151+93.08, 108.95' Rt.
Cap Extg. Inlet
Const. Type "G-2MA" Inlet 20'
Extend 15" Sew. Pipe - 18' Lt.
10' Depth

1 (5) Note Removed

1 (6) Note Removed

(7) Sta. "LN2" 1156+52, 104' Rt.
Cap Extg. Inlet

(8) Sta. "Ln2" 1156+74.79' Rt.
Remove Extg. Pipe
Const. Conc. Manhole
Over Extg. Sew. Pipe
Inst. 18" Sew. Pipe - 54'
10' Depth

1 (9) Sta. "LN2" 1156+96.9, 26' Lt.
Const. Type "G-2" Inlet
Connect 8" Perf. Drain
See Sht. 36B, Note 11

(10) See Sht. 32A, Note 10
Const. Guardrail (Type 2A)

(11) Sta. "LS2" 1157+48.77 To
Sta. "LS2" 1177+36.27, Rt.
Const. Guardrail - 1937.5' (Type 2A)
Extra For 8' Guardrail Posts - 310
Const. Guardrail Terminal, Non-Flared (50')
Flare Rate=0, W=1', E=0

(12) Sta. "LN2" 1155+50
Const. Terminal Expansion Joint - 24'
(For Details, See Sht. 2B-25)

(13) Sta. "LS2" 1151+00
Const. Sign Bridge
(For Drg. Nos., See Sht. 1A)

(14) Type "A" Weed Control

(15) Type "B" Weed Control

2 (16) Sta. "LN2" 1151+91.8, 97.6' Rt.
Const. Sloped End For Metal Pipe
(Sl. 1:2.5) On Extg. 15" CMP
Remove 28' Of Extg. 15" CMP To
Extg. Inlet @ Sta. "LN2" 1151+93.08
Const. Riprap Lined Ditch
Class 50 Riprap - 2 Cu.Yd.
"V" Bottom, 1:2 Side Slopes, 1' Depth
Const. From Extg. 15" CMP Outlet
To Proposed Type "G2-MA" Inlet
(See Note 4, This Sht.)

"AS CONSTRUCTED"
Date 6/26/09 | Project Mngr

REVISIONS	
1	Revised 03-23-2006 Revised Note
2	Revised 02-20-2007 Added Note

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REGISTERED PROFESSIONAL ENGINEER
12295
Jerome D. Lane
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JULY 5, 1983
JEROME D. LANE
EXPIRES: 12/31/08

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. -
PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Mathew Bunde

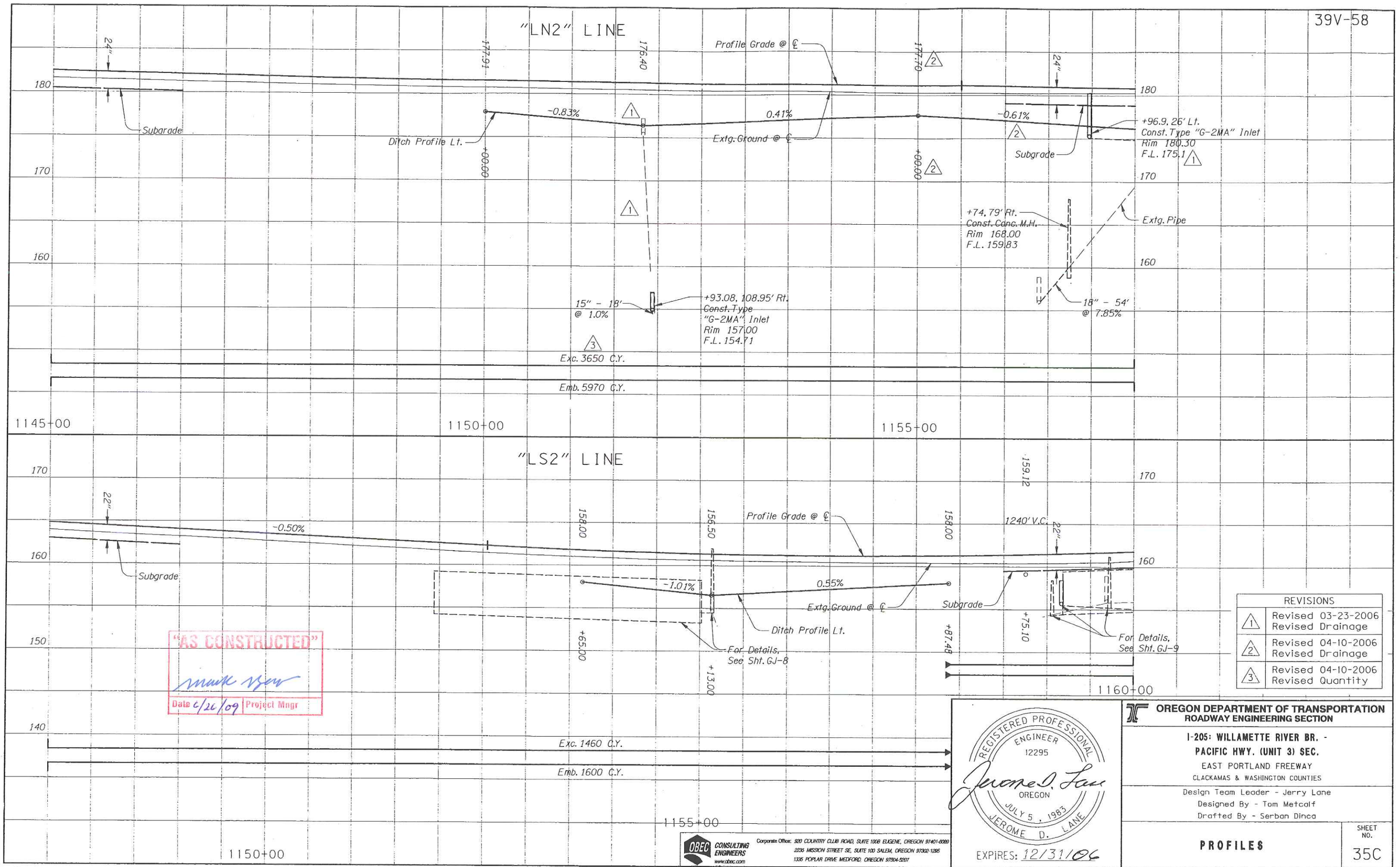
CONSTRUCTION NOTES

SHEET NO. 35B

File No. 16239

39V-58

"LN2" LINE



REVISIONS	
1	Revised 03-23-2006 Revised Drainage
2	Revised 04-10-2006 Revised Drainage
3	Revised 04-10-2006 Revised Quantity

REGISTERED PROFESSIONAL ENGINEER
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Jerome D. Lane
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JULY 5, 1983
JEROME D. LANE

EXPIRES: 12/31/06

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OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.

EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Serban Dinca

PROFILES

SHEET NO. 35C

I:\Projects\019\019082\Roadway\12874f.dp3 4/6/2006 11:04 AM

File No. 16240 1:1200 - 4

N

"LN2" 1157+54.26 P.T.

R/W

"LN2" 1160+00

S.W. 65TH AVE.

"LN2" 1165+00

"LN2" 1168+55.42 P.O.T.
"G2" 1168+55.42 P.O.T.

R/W

"LN2" LINE

"G2" LINE

"LN2"
400.00' Sp.
S 2°00'00"
a 0.25

S70°35'25"W

S68°05'25"W

"SC2" 1160+00

"SC2" 1160+78.56 P.T.

"SC2" 1165+00

"LS2" 1169+95.91 P.O.C.
"SC2" 1169+95.35 P.C.

I-205 NB

"SC2" LINE

"SC2"
500.00' Sp.
S 2°30'19"
a 0.2

S70°20'47"W

I-205 SB

S69°42'00"W

"LS2" 1160+00

"LS2" 1160+93.73 P.T.

"LS2" LINE

"LS2"
400.00' Sp.
S 2°00'00"
a 0.25

R/W

"LS2" 1165+00

"LS2" 1167+37.32 P.C.

"LS2"
0°15'00" C.R.
Δ 4°24'30"
T 882.10'
e 2%

"LS2" 1170+00

R/W

Sec. 30, T. 2 S., R. 1 E., W.M.
Sec. 25, T. 2 S., R. 1 W., W.M.

"AS CONSTRUCTED"

Date 6/26/09 | Project Mngr

REGISTERED PROFESSIONAL ENGINEER
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JULY 5, 1983
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EXPIRES: 12/31/06

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OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

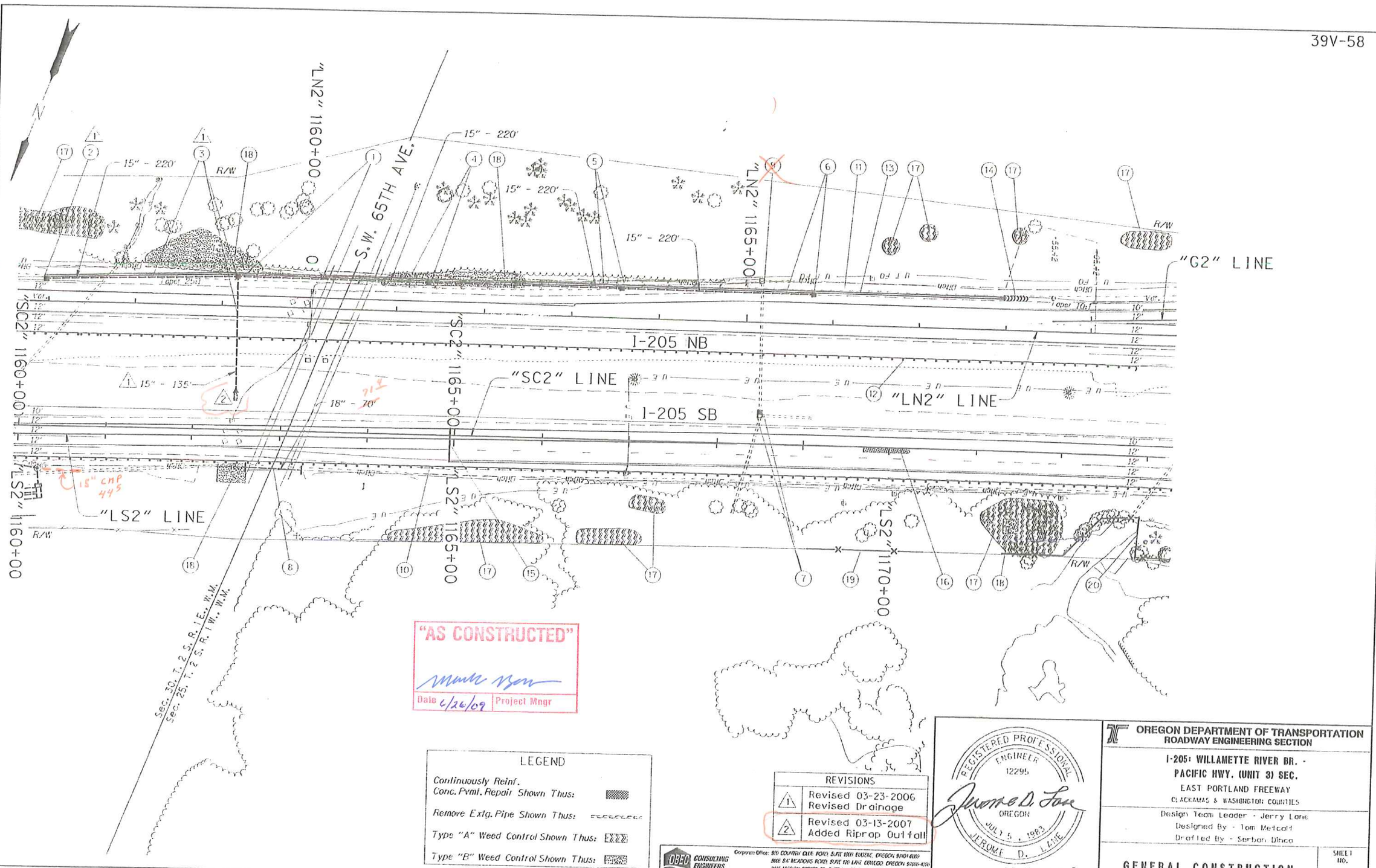
I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Serban Dinca

ALIGNMENT PLAN

SHEET NO. 36

39V-58



"AS CONSTRUCTED"

Date 6/26/09 | Project Mngr

LEGEND

- Continuously Reinf. Conc. Pvmt. Repair Shown Thus:
- Remove Extg. Pipe Shown Thus:
- Type "A" Weed Control Shown Thus:
- Type "B" Weed Control Shown Thus:

REVISIONS

1	Revised 03-23-2006 Revised Drainage
2	Revised 03-13-2007 Added Riprap Outfall

OBEC CONSULTING ENGINEERS www.obec.com

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3605 SW MEADOWS ROAD, SUITE 100 LAKE OSWEGO, OREGON 97035-4250
2234 MISSION STREET SE, SUITE 100 SALEM, OREGON 97302-1268
1300 POPLAR DRIVE MEDFORD, OREGON 97504-8301

REGISTERED PROFESSIONAL ENGINEER 12295 OREGON JULY 5, 1983 JEROME D. LANE

Jerome D. Lane

EXPIRES: 12/31/08

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Serban Dinca

GENERAL CONSTRUCTION

SHEET NO. 36A

File No. 16242

(1) Sta. "LN2" 1160+14.1, 37.3' Lt.
Remove Inlet
Remove Pipe

(2) See Sht. 35B, Note 9

(3) Sta. "LN2" 1159+16.9, 34' Lt.
Const. Type "G-2" Inlet
1 Inst. 15" Sew. Pipe - 355'
Tunneling, Boring & Jacking - 90'
5' Depth
1 Const. Paved End Slope, Rt.
Const. Riprap Outfall
3 Const. Loose Riprap (Class 100) - 2 Cu.Yd.
Riprap Geotextile, Type 2 - 6 Sq.Yd.
(For Details, See Sht. 2B-10)
(See Drg. Nos. RD320 & RD364)

(4) Sta. "LN2" 1161+36.9, 34' Lt.
Const. Type "G-2" Inlet
Inst. 15" Sew. Pipe - 220'
5' Depth

(5) Sta. "LN2" 1163+56.9, 34' Lt.
Const. Type "G-2" Inlet
Inst. 15" Sew. Pipe - 220'
5' Depth

(6) Sta. "LN2" 1165+76.9, 34' Lt.
Const. Type "G-2" Inlet
Inst. 15" Sew. Pipe - 220'
5' Depth

(7) Sta. "LS2" 1168+48.7, 37.4' Lt.
Cap Exta. Inlet
Const. Type "G-2MA" Inlet
Over Exta. Sew. Pipe

(8) Sta. "LS2" 1163+25.14, 37.5' Rt.
Inst. 18" Sew. Pipe - 70' 71'
5' Depth
Connect To Exta. Inlet
Fill Over Top Of Culv. As Needed

(9) ~~Adjust Inlet~~ No earthwork

(10) See Sht. 35B, Note 11
Const. Guardrail (Type 2A)

1 (11) Inst. 8" Perf. Drain Pipe - 1100'
5' Depth
(For Details, See Sht. 2B-13)

(12) See Sht. 32A, Note 10
Const. Guardrail (Type 2A)
Const. Guardrail Terminal,
Non-Flared (50')
Flare Rate=0, W=1', E=2'

(13) Sta. "LN2" 1156+98 To
Sta. "LN2" 1167+98, Lt.
Const. Reflectorized Conc. Shldr.
Barrier - 1100'
Anchor Conc. Barrier To Asph.
(See Drg. No. RD500)
(For Details, See Sht. 2B-13)

— 2" added to base of barrier as per RFI #060

(14) Sta. "LN2" 1167+98, Lt.
Inst. Impact Attenuator
(For Details, See Sht. 2B-9)

(15) Sta. "LS2" 1164+95.1
Const. Terminal Expansion Joint - 38'
(For Details, See Sht. 2B-25)

(16) Continuously Reinf. Conc.
2 Pvmt. Repair - 36 Sq.Yd.
(For Details, See Shts. 2B-18, 2B-19 & 2B-20)

(17) Type "A" Weed Control

(18) Type "B" Weed Control

(19) Sta. "LS2" 1169+08 To Sta. "LS2" 1170+42, Rt.
Remove Type 2 Fence - 135'
Const. Type 2 Fence - 135'

(20) Sta. "LS2" 1171+34 To Sta. "LS2" 1173+33, Rt.
Remove Type 2 Fence - 270'
Const. Type 2 Fence - 270'

"AS CONSTRUCTED"
Date 6/26/09 | Project Mngr

REVISIONS	
1	Revised 03-23-2006 Revised Note
2	Revised 04-10-2006 Revised Note
3	Revised 03-13-2007 Revised Note

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220 HIGH STREET SE, SUITE 100, SALEM, OREGON 97301-3706
1464 POPLAR DRIVE, MEDFORD, OREGON 97504-6121

REGISTERED PROFESSIONAL ENGINEER
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OREGON
JULY 5, 1983
JEROME D. LANE
EXPIRES: 12/31/08

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-205: WILLAMETTE RIVER BR. - PACIFIC HWY. (UNIT 3) SEC.
EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

Design Team Leader - Jerry Lane
Designed By - Tom Metcalf
Drafted By - Mathew Bunde

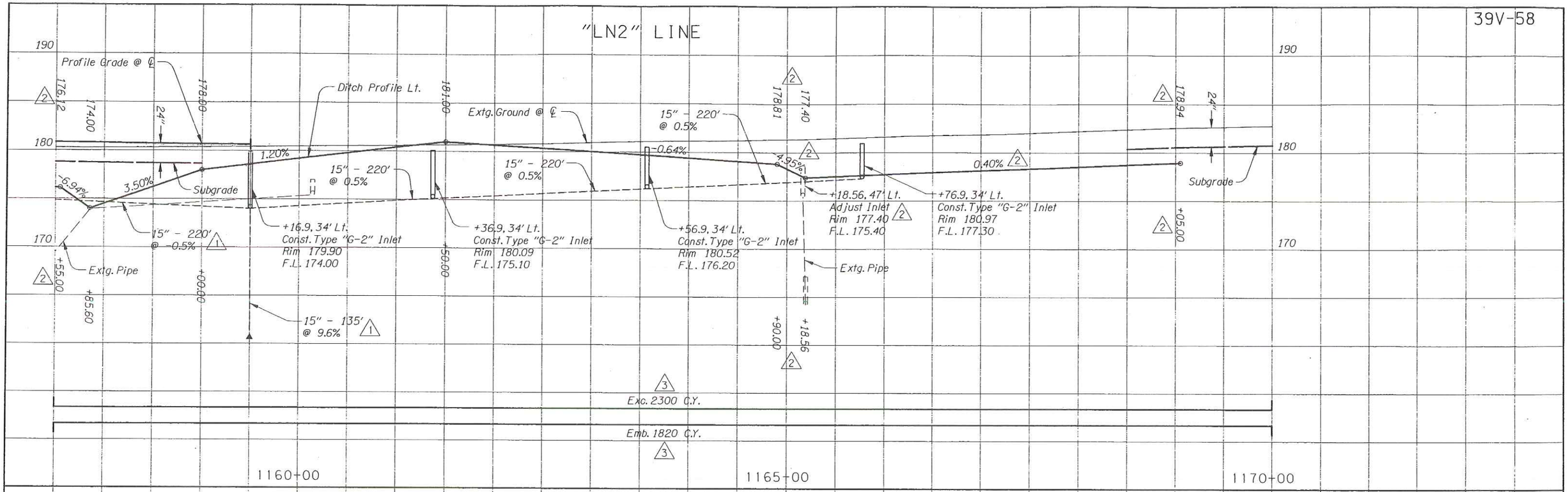
CONSTRUCTION NOTES

SHEET NO. 36B

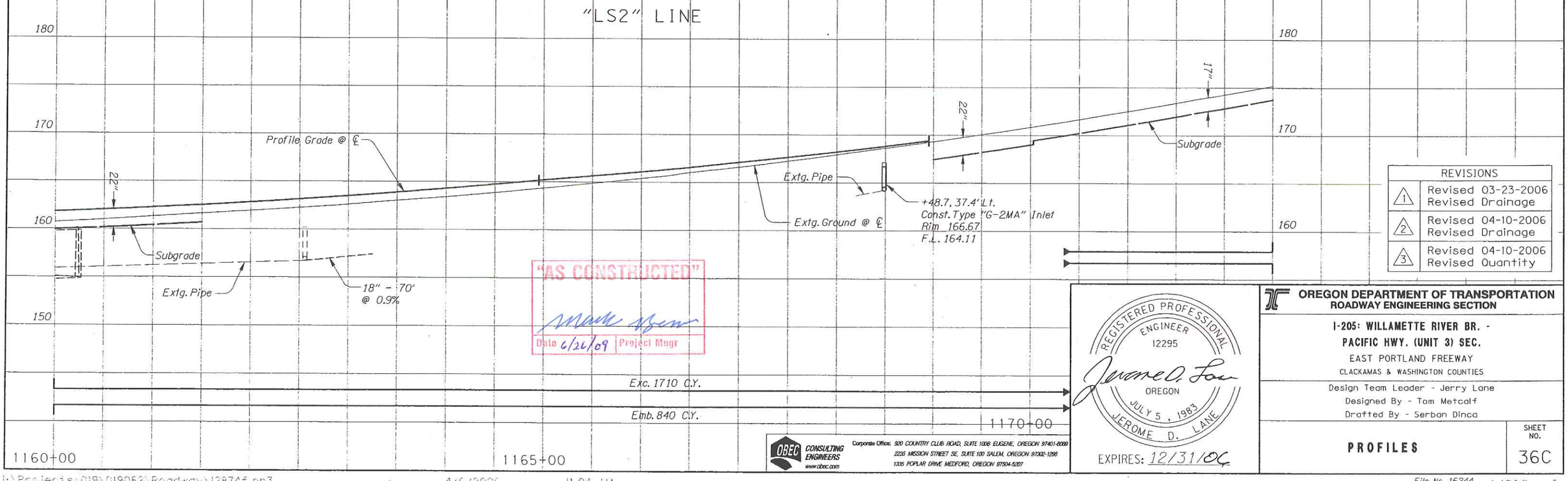
File No. 16243

39V-58

"LN2" LINE



"LS2" LINE



"AS CONSTRUCTED"
Date 6/26/09 | Project Mngr

REVISIONS	
1	Revised 03-23-2006 Revised Drainage
2	Revised 04-10-2006 Revised Drainage
3	Revised 04-10-2006 Revised Quantity

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OREGON DEPARTMENT OF TRANSPORTATION
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Drafted By - Serban Dinca

PROFILES

SHEET NO. 36C

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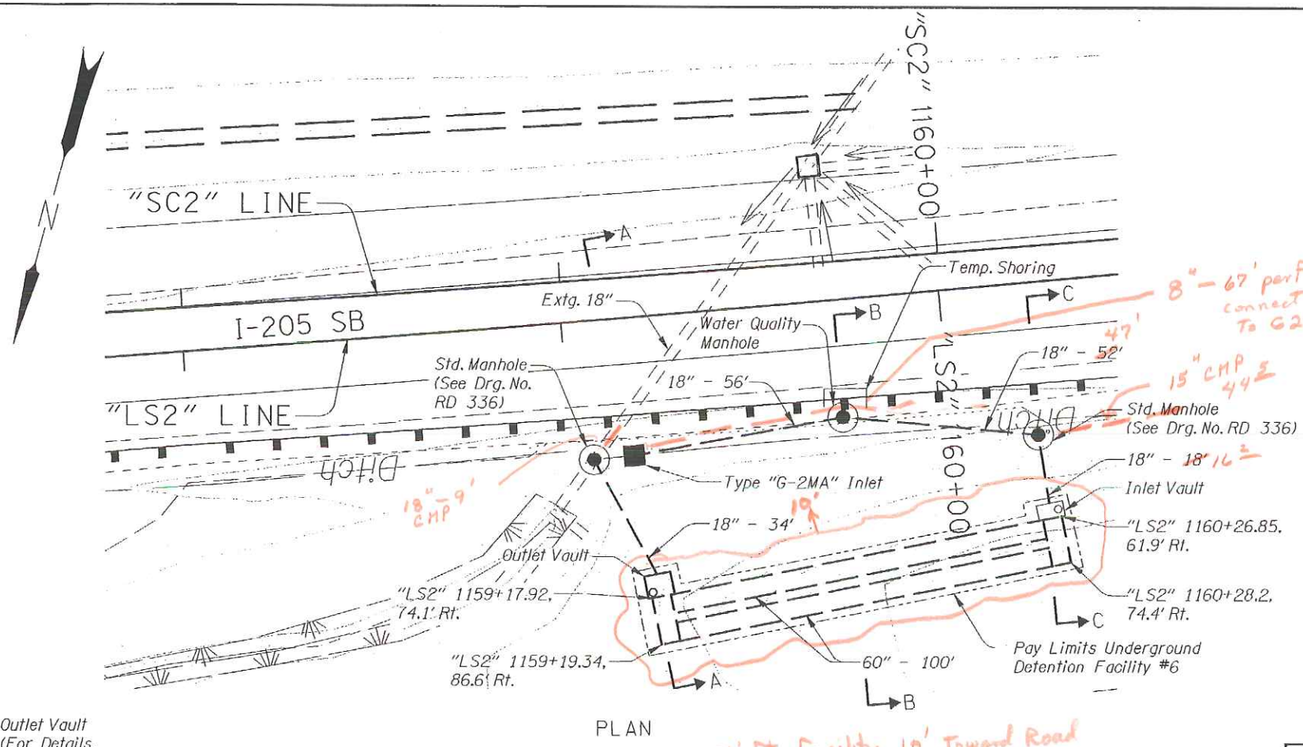
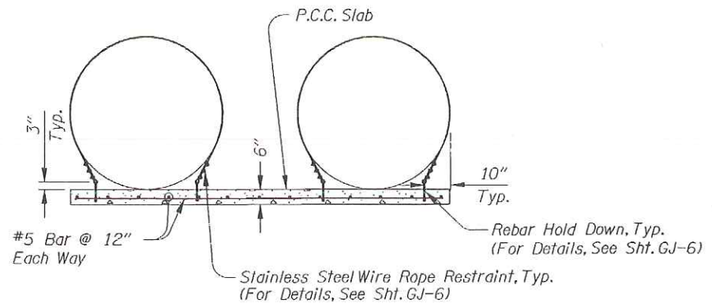
File No. 16244 1:1200 - 6

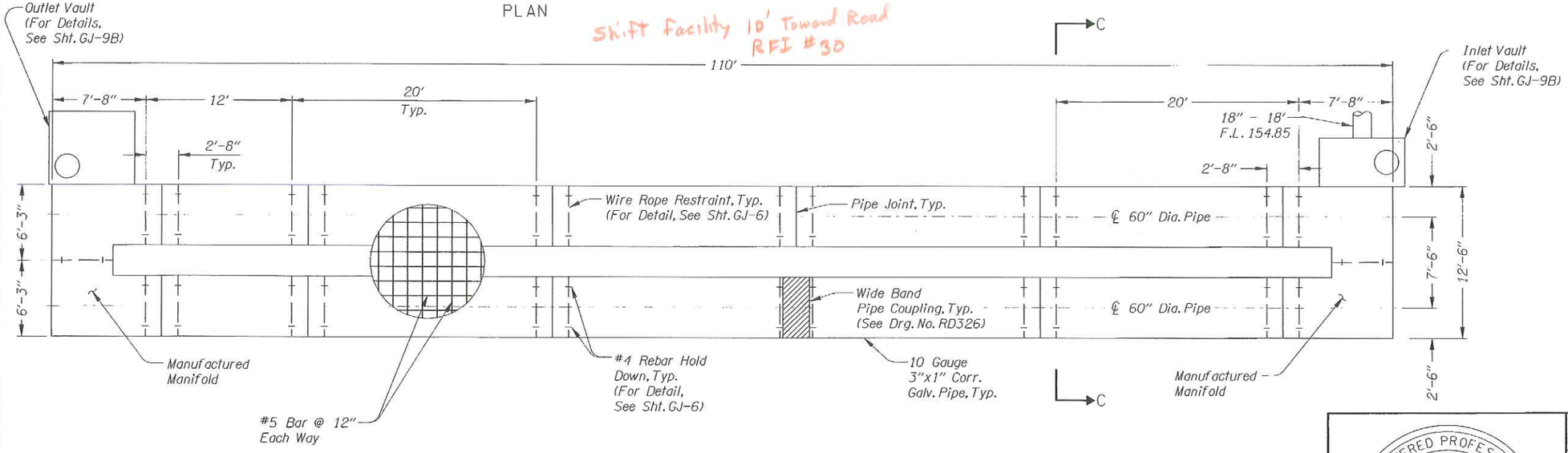


PLAN



SECTION C-C

Shift facility 10' Toward Road RFI #30



PIPE & TIEDOWN LAYOUT

UNDERGROUND DETENTION FACILITY #6

(See Sht. 35A, Note 3)

"AS CONSTRUCTED"
Mark Lane
Date 6/26/09 Project Mngr

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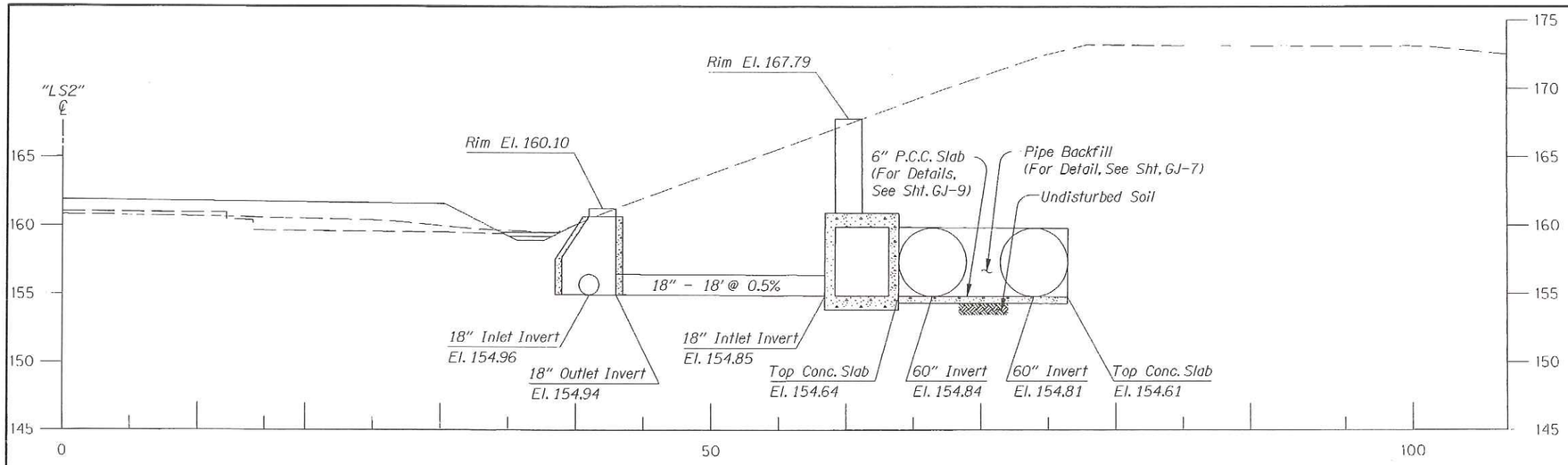
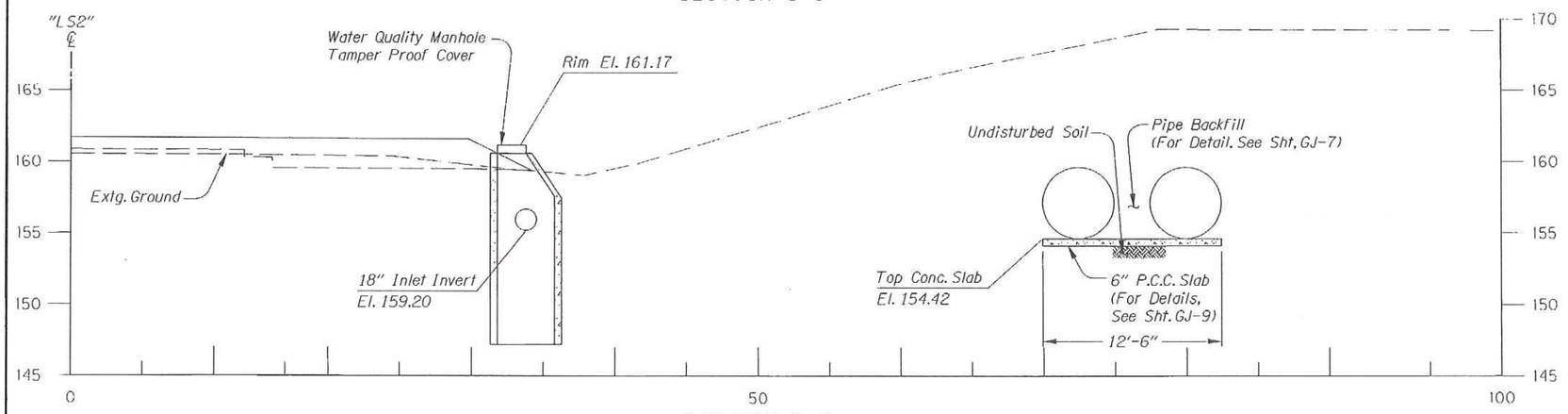
UNDERGROUND DETENTION FACILITY #6

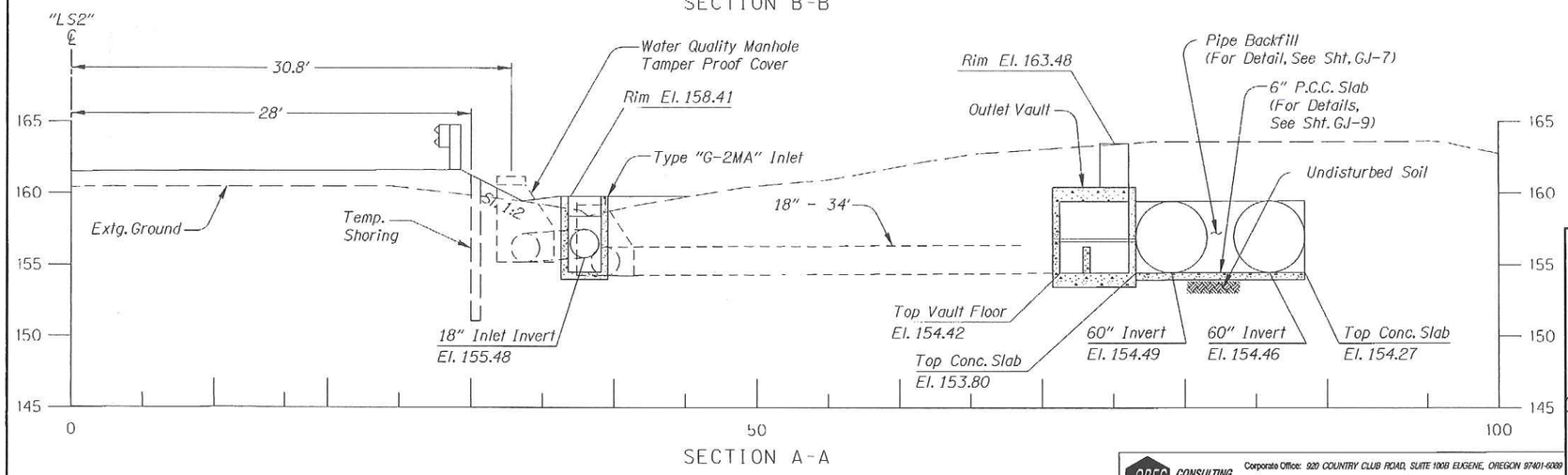
SHEET NO. GJ-9



SECTION C-C



SECTION B-B



SECTION A-A

"AS CONSTRUCTED"

Mark Bean

Date 6/26/09 | Project Mngr

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OREGON DEPARTMENT OF TRANSPORTATION
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I-205: WILLAMETTE RIVER BR. -
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EAST PORTLAND FREEWAY
CLACKAMAS & WASHINGTON COUNTIES

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UNDERGROUND DETENTION FACILITY #6 CROSS SECTIONS

SHEET NO. GJ-9A

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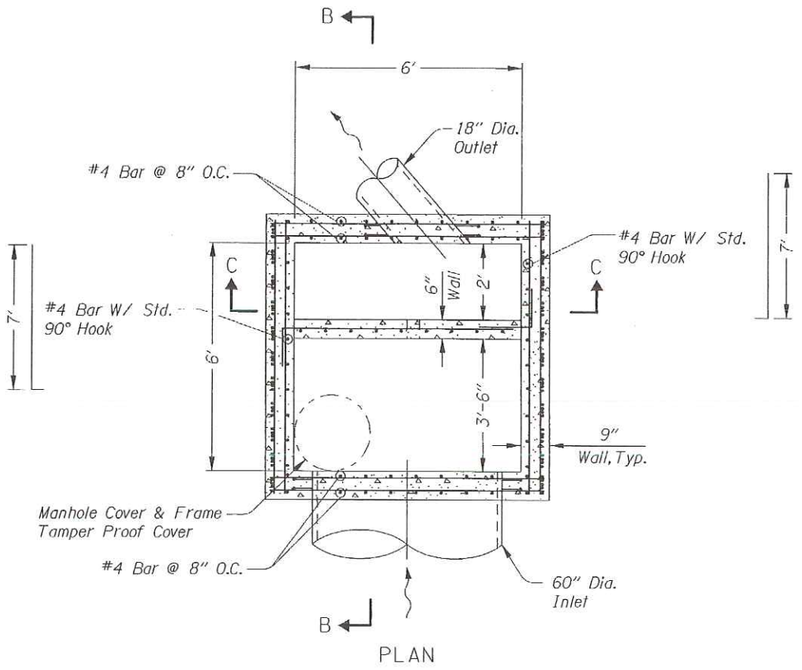


PLAN

GENERAL NOTES:

All Material And Workmanship Shall Conform To The 2002 Oregon Standard Specifications For Construction.

Entry & Outlet Vaults Designed For HL-93 Live Load.

Concrete Members Designed By Load Factor Design Method.

All Reinforcement Steel Shall Conform To Astm Specification A615, Grade 60 Or A706.

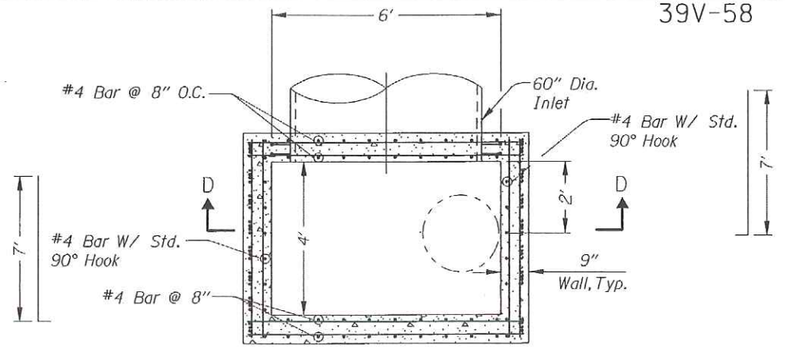
The Following Splice Lengths Shall Be Used,

Bar Size		3	4	5	6	7	8	9	10	11
Splice Length	Uncoated	1'-0"	1'-4"	1'-8"	2'-0"	2'-8"	3'-6"	4'-4"	5'-7"	6'-9"
	Epoxy Coated	1'-5"	1'-10"	2'-4"	2'-10"	3'-9"	4'-11"	6'-1"	7'-10"	9'-6"

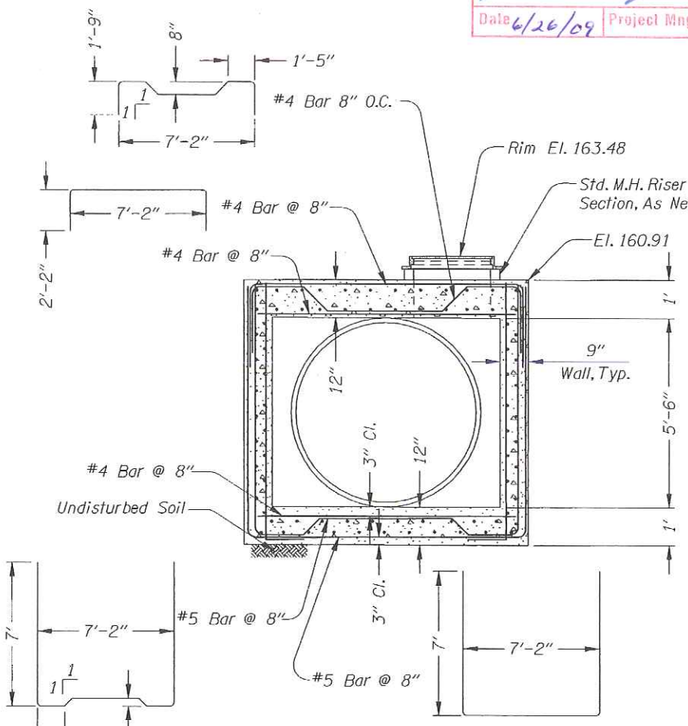
All Bars Shall Be Placed 2" Clear Of The Nearest Face Of Concrete Unless Shown Otherwise.

Concrete In Box Culverts Shall Be Class 3600-1½" Or ¾"

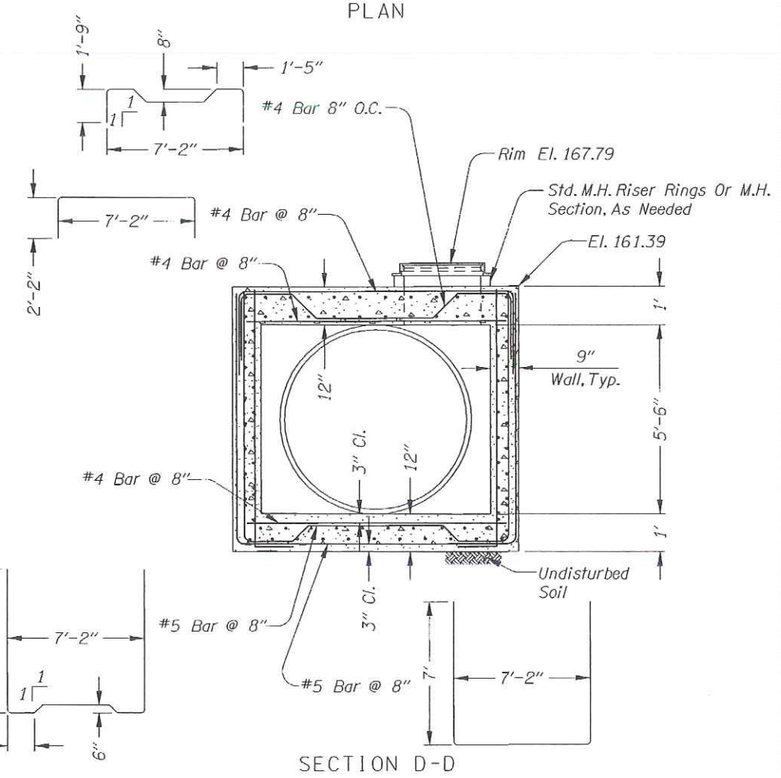
"AS CONSTRUCTED"
Mark Bern
Date 6/26/09 Project Mngr



PLAN



SECTION C-C



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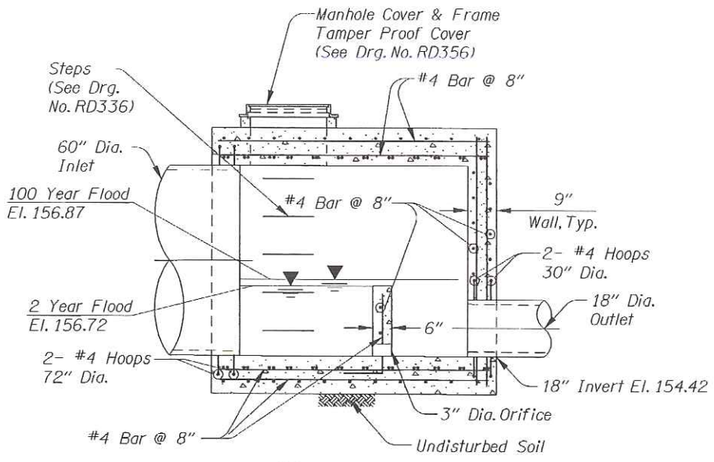

SECTION B-B

INLET VAULT

OUTLET VAULT

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UNDERGROUND DETENTION FACILITY #6 DETAILS

SHEET NO. GJ-9B

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