

# OPERATION & MAINTENANCE MANUAL

**DFI No.: D00073**

**Facility Type: Water Quality Extended  
Detention Dry Pond**



**JULY, 2011**

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## 1. Identification

Drainage Facility ID (DFI): **D00073**  
Facility Type: Water Quality Extended Dry Detention Pond  
Construction Drawings: (V-File Number) 35V-103  
Location: District: 2B (Old 2A)  
Highway No.: 001  
Mile Post: MP 289.80 to MP 289.86  
Description: This facility is located on west side of I-5 (Hwy 001) just north of 1-5 at Nyberg Road Off-ramp. Access is made via southbound I-5.

## 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 – Geo-Environmental Section,  
Alvin Shoblom, P.E. (503) 986-3365  
Facility construction: 2003  
Contractor: Kerr Contractors, Inc.

## 4. Storm Drain System and Facility Overview

A water quality extended detention dry pond is a basin that is designed to detain stormwater for a sufficient time to allow particles and attached pollutants to settle. The outlet control structure limits the rate of runoff leaving the pond by using an orifice. These facilities are designed to

completely drain over a 48 hour period. The size of these facilities depends on the location and the amount of contributing impervious area.

A split-flow manhole located upstream of the pond is used to bypass the high flows into a separate conveyance system. The high flows do not receive treatment. The facility consists of water quality storage, freeboard storage, inlet pipe, and an outlet control structure. Treated water from this pond drains into a drainage ditch and eventually flows into the Tualatin River.

The extended detention dry pond is located on the west side of I-5 just north of the Nyberg Road off-ramp. The drainage from the northwest quadrant of the Nyberg Road interchange is collected by a series of inlets and conveyed to the facility by a 24-inch storm pipe. The drainage area includes the southbound off-ramp and the southbound lanes of I-5 from approximately the extended detention dry pond to the north to the overcrossing of Nyberg Road.

The 24-inch storm pipe lies within the western portion of the southbound off-ramp. Along this line lies a series of inlets. The drainage from southbound I-5 sheds from the center to the western edge of shoulder of the roadway. The portion of runoff near the facility is conveyed by the concrete barrier (scuppers closed) and collected in an inlet south of the facility. The remaining portions are collected by inlets along the highway and directed into a 15-inch storm branch that ties into the 24-inch storm pipe. All stormwater is conveyed to an inline split-flow manhole; see the Operational Plan, Appendix A. The split-flow manhole is engineered to route the water quality volume to the extended dry detention pond, and the bypass flow is routed into a drainage ditch that outfalls into an existing 18-inch diameter cross-culvert.



Photo 1: WQ Extended Detention Dry Pond looking north. I-5 is located to the right.



Photo 2: WQ Extended Detention Dry Pond Control Outlet Structure



Photo 3: Inlet into WQ Extended Detention Dry Pond.



Photo 4: Split-flow manhole.

A. Maintenance equipment access:

The facility can be accessed for maintenance along I-5 (Hwy 001) for inspection and use of hand equipment. Heavy equipment access is a problem due to the concrete barrier. See Photo 4

B. Heavy equipment access into facility:

- Allowed (no limitations)
- Allowed (with limitations) – See Maintenance Equipment Access
- Not allowed

C. Special Features:

- Amended Soils
- Porous Pavers
- Liners
  - Armored Bank Protection System consisting of cell concrete units paved along bottom of pond.
- Underdrains

## 5. Facility Haz Mat Spill Feature(s)

Option 1: The water quality extended detention dry pond can be used to store a volume of liquid by closing the butterfly valve at the outlet control structure; see photo 2 and the outlet control structure detail of the Operational Plan. By closing this valve, a storage volume of 47.9 m<sup>3</sup> can be obtained between the pond bottom and upper outlet.

Option 2: If there is a possibility of the event exceeding the upper outlet then additional measures need to be taken to avoid potential discharge into the Tualatin River.

## 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 treatment 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

High flows bypass the extended detention dry pond by a split-flow manhole located south of the pond; see photo 4 and the Operational Plan, Appendix A. The high flows are routed through an 18-inch cross culvert to the east side of I-5 (Hwy 001).

The high flow bypass within the pond involves the use of an emergency outflow inlet; see photo 2. In the event runoff is directed to the pond that exceeds the water quality event, and flow from the primary outlet of the pond, the pond level will rise and be released through this emergency outflow structure.

## 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 or 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>

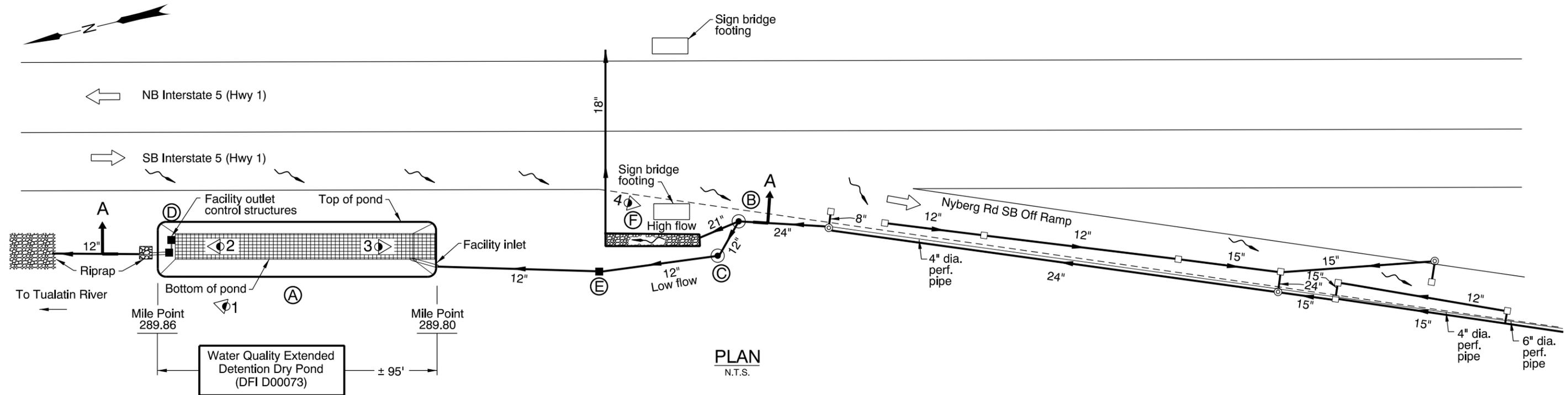
Contact any of the following for more detailed information about management of waste materials found on site:

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

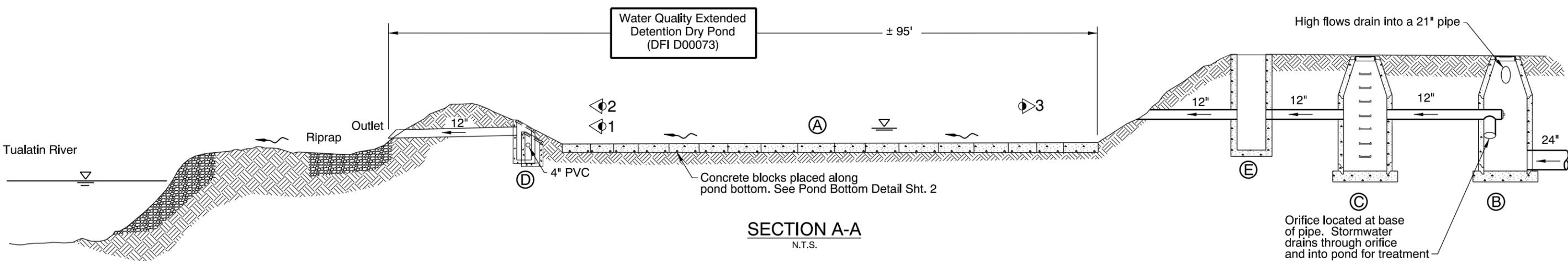
# Appendix A

## Content:

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



**PLAN**  
N.T.S.



**SECTION A-A**  
N.T.S.

**LEGEND:**

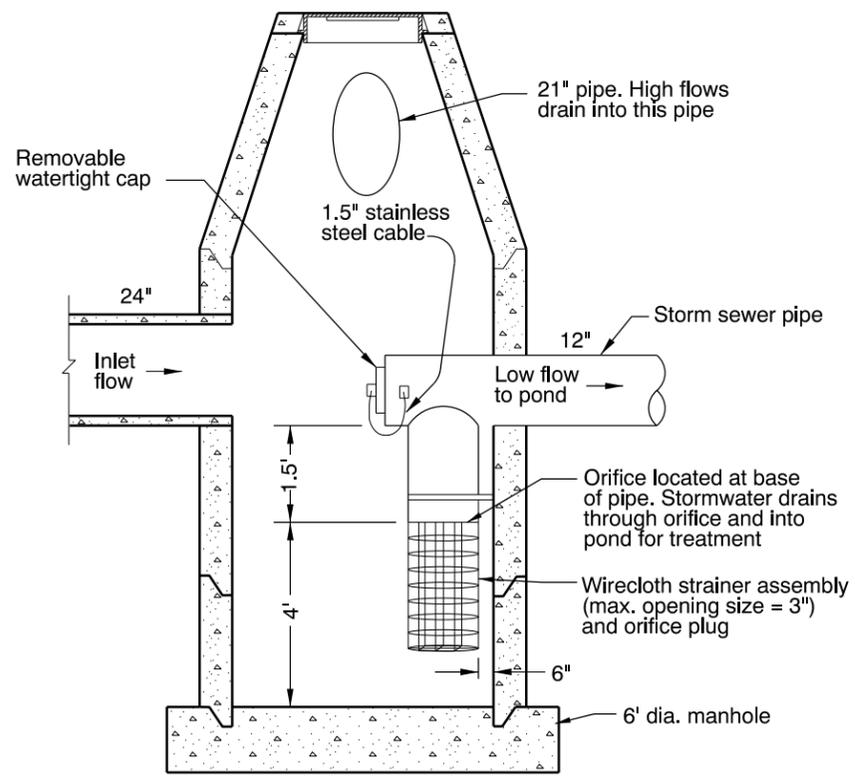
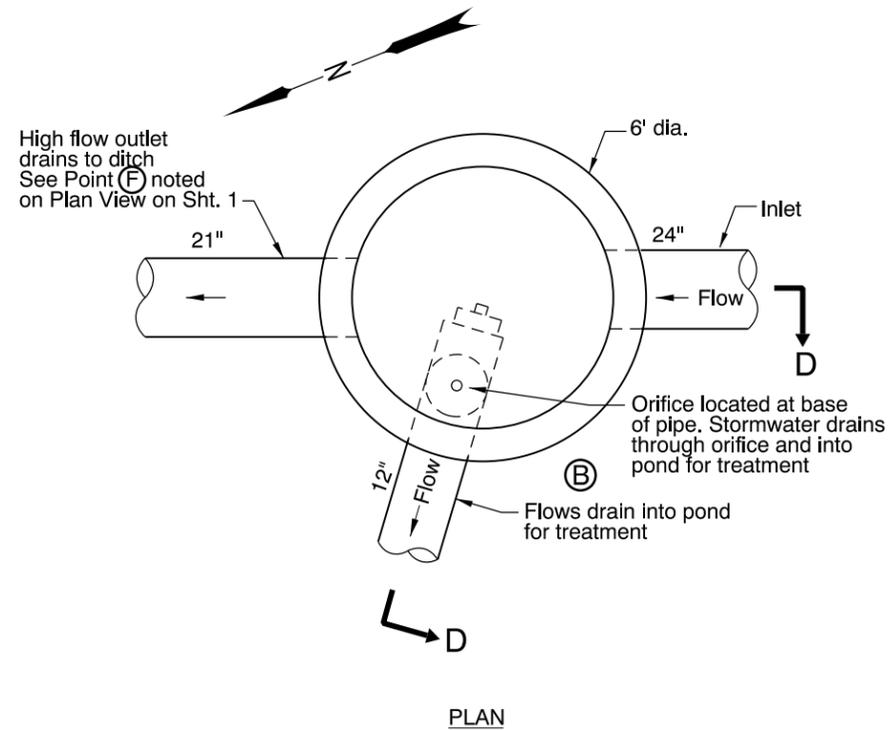
- ◁ Photo Location / Direction
- Ⓐ Water Quality Extended Detention Dry Pond
- Ⓑ Split Flow Manhole
- Ⓒ Manhole
- Ⓓ Water Quality Outlet Control Structure
- Ⓔ Inlet
- Ⓕ Loose Riprap Lined V-Bottom Ditch
- Ⓞ and Ⓟ Manhole
- and □ Inlet
- ← Traffic Flow / Direction
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- ~ Pavement / Facility Flow Path
- ▨ Riprap

Sht. 1 of 2

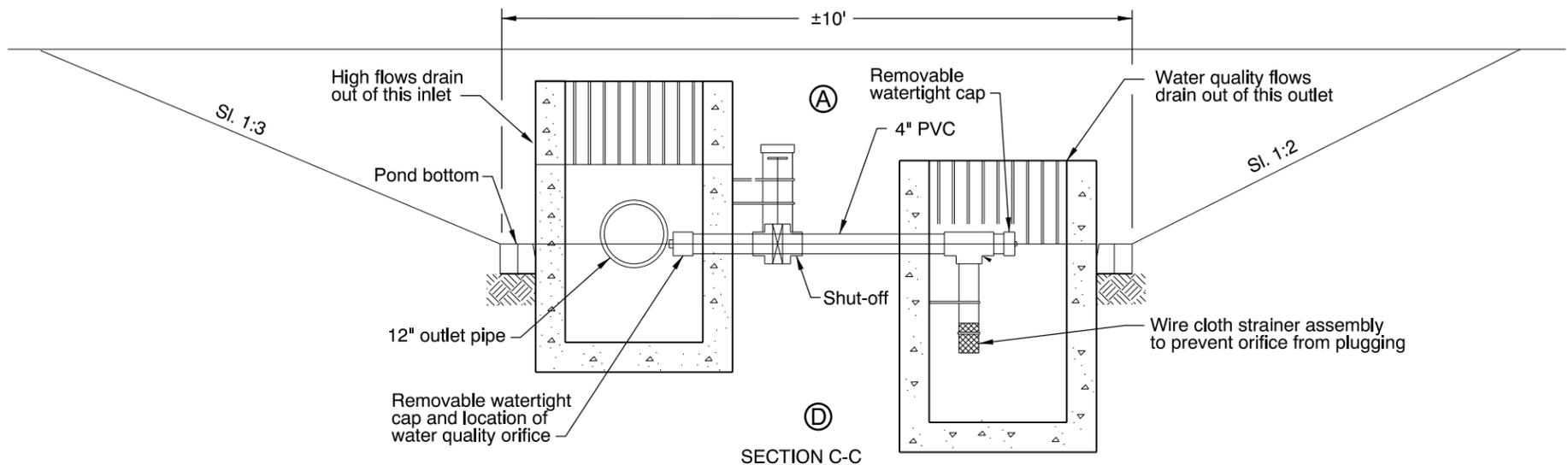
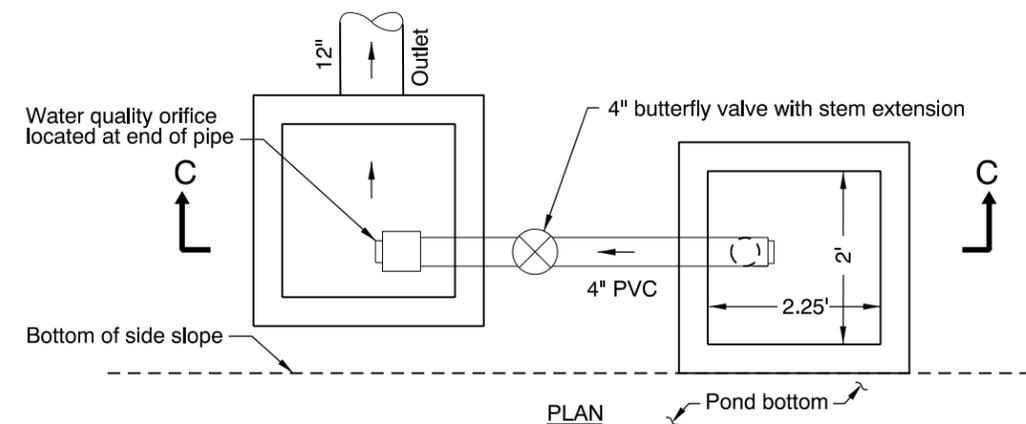


Prepared By: Bob Knorr  
 Drafted By: Rodney Schultz

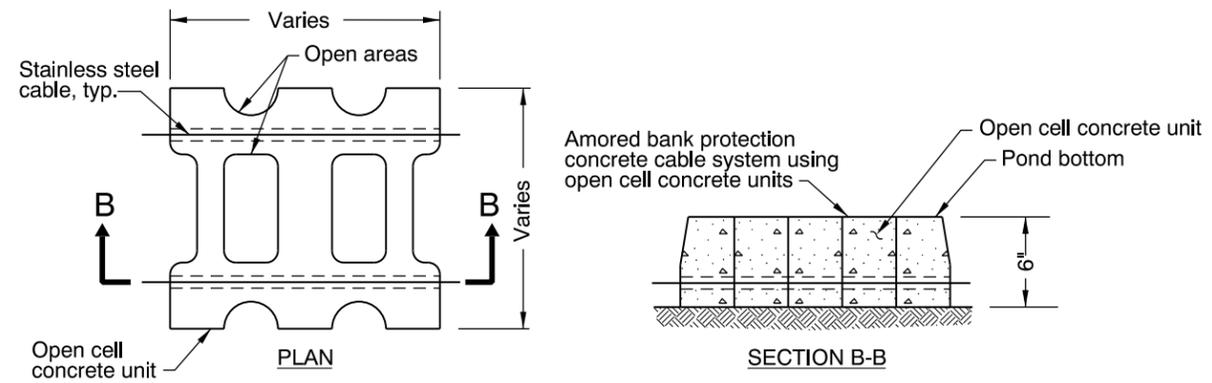
**DFI D00073**  
**MAINTENANCE DISTRICT 2B HWY 1**  
**WATER QUALITY EXTENDED DET, DRY POND**  
 PACIFIC HWY 1 MP 289.80-289.86  
 WASHINGTON COUNTY



**SPLIT FLOW MANHOLE DETAIL AT POINT (B)**  
N.T.S.



**OUTLET CONTROL STRUCTURE DETAIL AT POINT (D)**  
N.T.S.



**POND BOTTOM DETAIL (ARMORED BANK PROTECTION CONCRETE CABLE SYSTEM)**  
N.T.S.

Prepared By: Bob Knorr  
Drafted By: Rodney Schultz

**DFI D00073**  
**MAINTENANCE DISTRICT 2B HWY 1**  
**WATER QUALITY EXTENDED DET, DRY POND**  
PACIFIC HWY 1 MP 289.80-289.86  
WASHINGTON COUNTY

# Appendix B

## Content:

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

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Standard Drawing Nos.
2, 2A Thru 2A-3 Incl.	Typical Sections
2B Thru 2B-3 Incl.	Details
2C Thru 2C-7 Incl.	Traffic Control Plans
2D	Erosion Control Details
2D Thru 2D-3 Incl.	Erosion Control Plans
2E Thru 2E-3 Incl.	Water Quality Details
2E-4	Water Quality Plan
2F	Pipe Data
3	Alignment
3A, 3B	General Construction & Profile
3C	Profile
4, 4A	General Construction
4B	Profile
PERMANENT PAVEMENT MARKINGS	
ST, ST-2, ST-3	Striping Plans
ROADSIDE DEVELOPMENT	
R-1	Plant List
R-2, R-3	Planting Plans
R-4	Irrigation Plan
R-5, R-6	Irrigation Details

DRAWING NO.	DESCRIPTION
BRIDGE NO. 18956	
60435	Bridge Plans (Sign Bridge)
PERMANENT SIGNING	
S-5589	Signing Plan
S-5590	Sign Details
S-5591	Sign & Post Data Tables
ILLUMINATION	
I-0810	Pole & Table Legend
I-0811	Plan
TRAFFIC SIGNALS	
12678	Signal Legend & Details
12679	Signal Modification Plan
12680	Detector Replacement Plan

STATE OF OREGON  
DEPARTMENT OF TRANSPORTATION

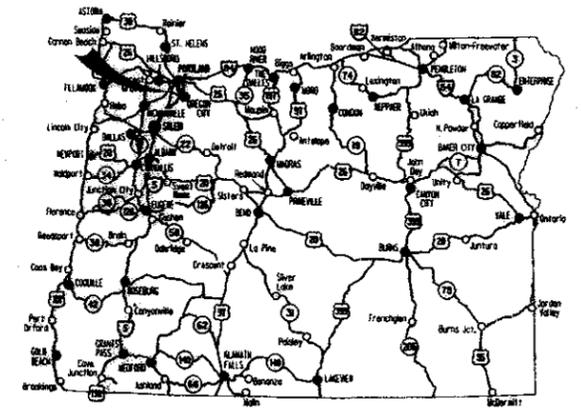
PLANS FOR PROPOSED PROJECT

GRADING, STRUCTURES, PAVING, STRIPING, SIGNING,  
ILLUMINATION, SIGNALS, & ROADSIDE DEVELOPMENT

I-5 AT NYBERG RD.  
(SB OFF-RAMP) SEC.

PACIFIC HIGHWAY  
WASHINGTON COUNTY

JUNE 2002



Overall Length Of Project - 1.26 km (0.78 Mile)  
Overall Length Of Work Area - 0.55 km (0.34 Mile)

**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 From The Center,  
Or Answers To Questions About The Rules By Calling (503) 232-1987.

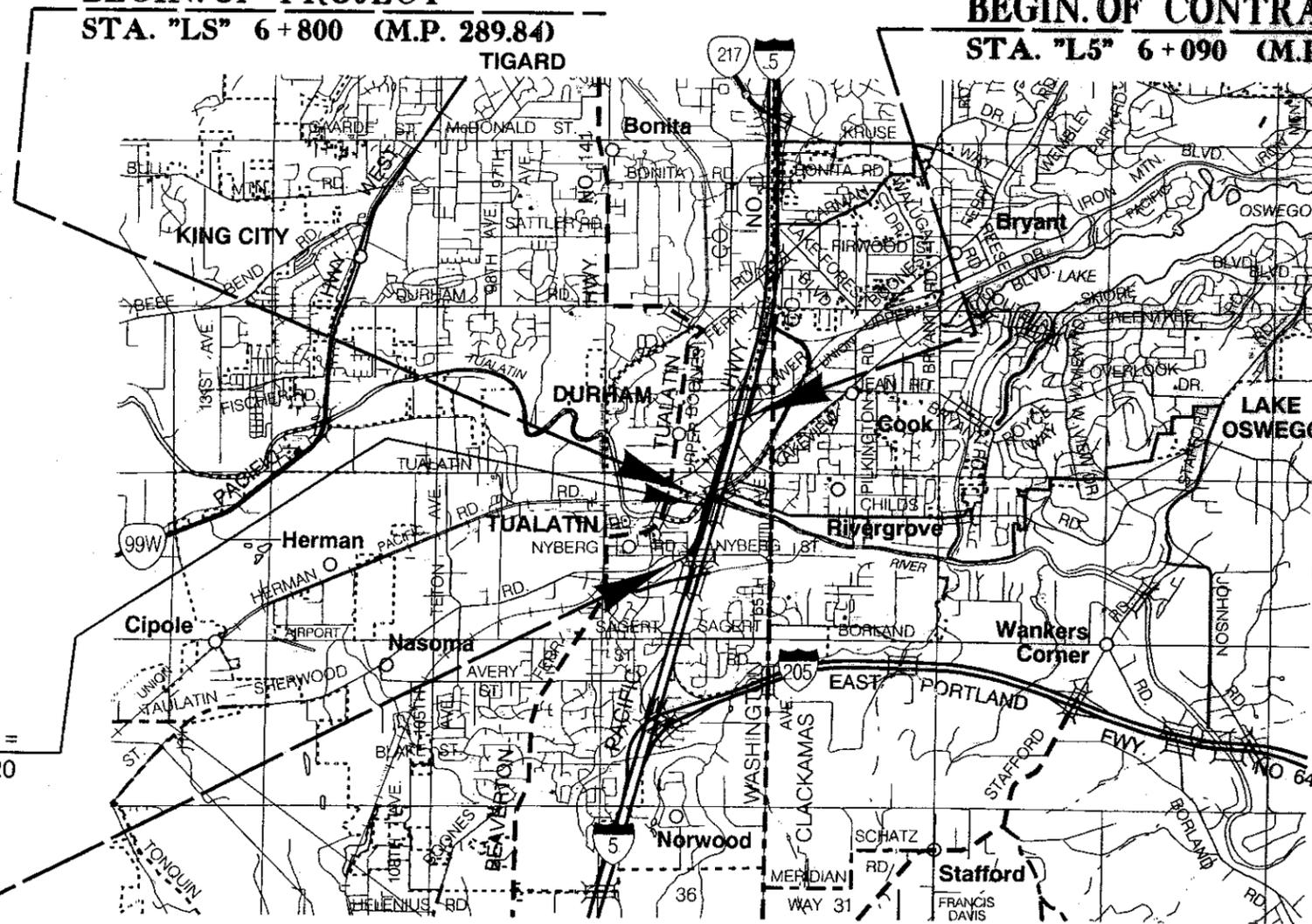
X-IM-S001(123)

BEGIN OF PROJECT

STA. "LS" 6+800 (M.P. 289.84)

BEGIN OF CONTRACT PROJECT

STA. "L5" 6+090 (M.P. 290.28)



OREGON TRANSPORTATION COMMISSION

- Steven H. Corey CHAIRMAN
- Gail L. Achterman COMMISSIONER
- Stuart Foster COMMISSIONER
- Randal Papé COMMISSIONER
- John Russell COMMISSIONER
- Bruce A. Warner DIRECTOR OF TRANSPORTATION



Catherine M. Nelson

TECHNICAL SERVICES MANAGING ENGINEER

I-5 AT NYBERG RD.  
(SB OFF-RAMP) SEC.  
PACIFIC HIGHWAY  
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION	X-IM-S001(123)	1

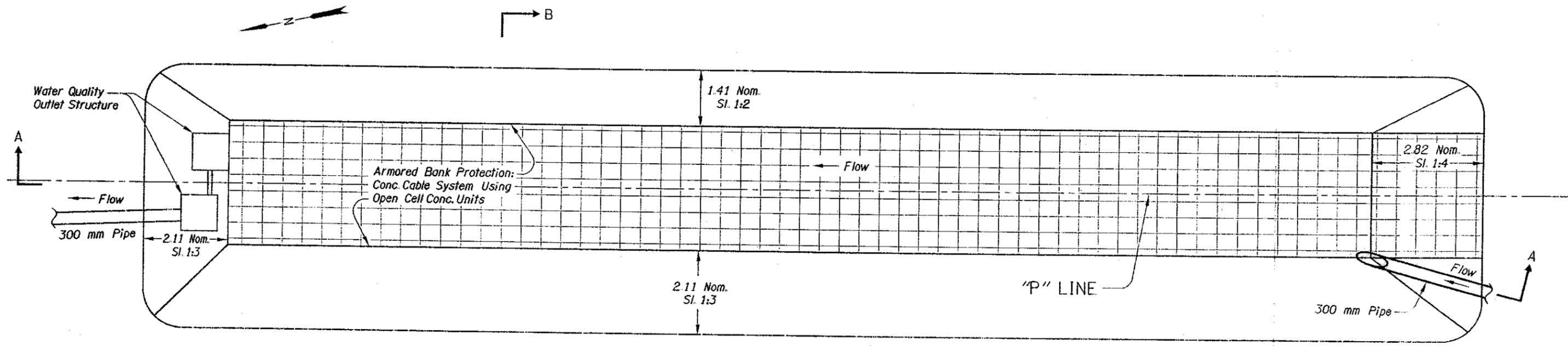
EQ STA. "LS" 6+920 =  
STA. "CN2" 6+920

X-IM-S001(123)  
END OF PROJECT

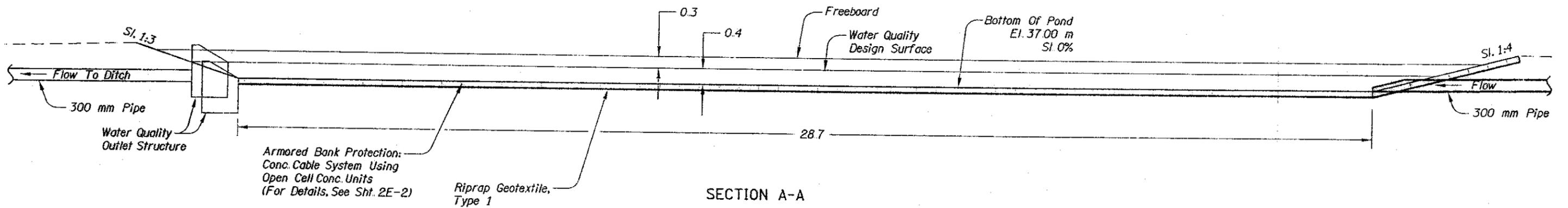
STA. "CN2" 7+349.786 (M.P. 289.50)



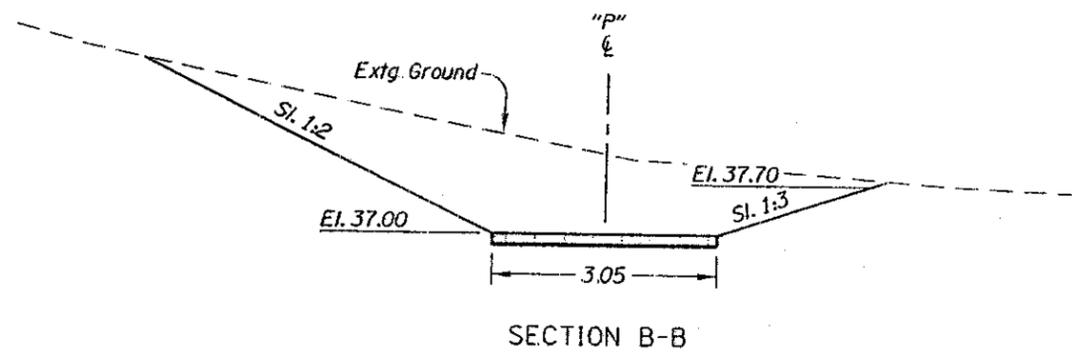
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PLAN

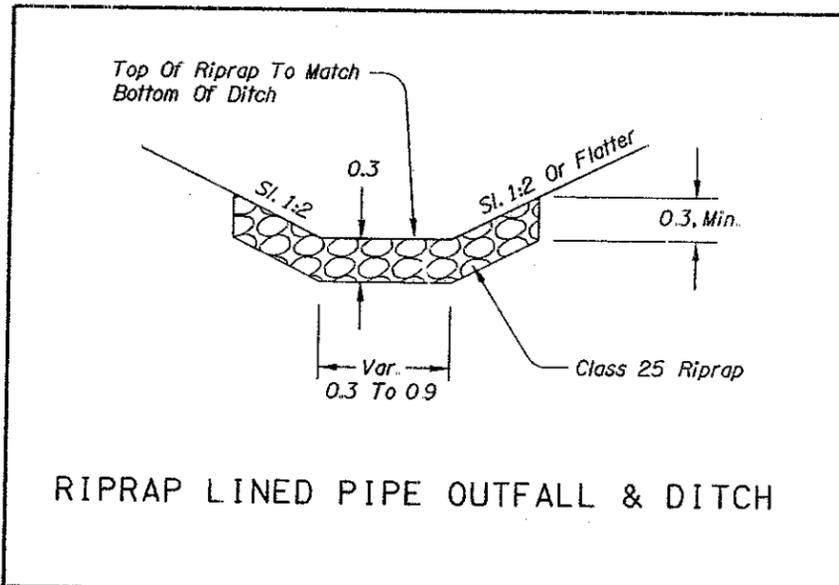


SECTION A-A



SECTION B-B

WATER QUALITY FACILITY



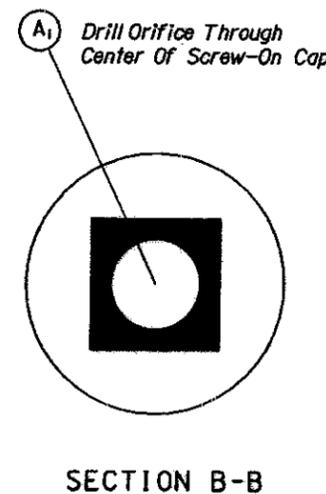
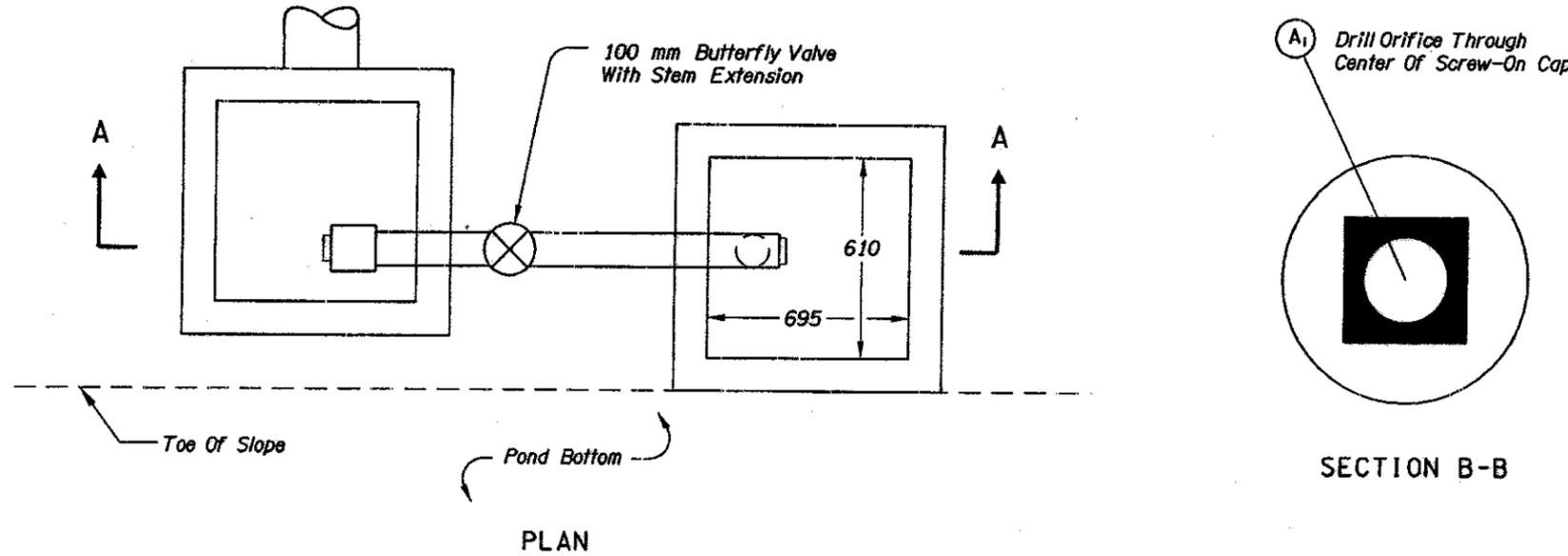
RIPRAP LINED PIPE OUTFALL & DITCH

All Dimensions Are In Meters (m) Unless Otherwise Noted.

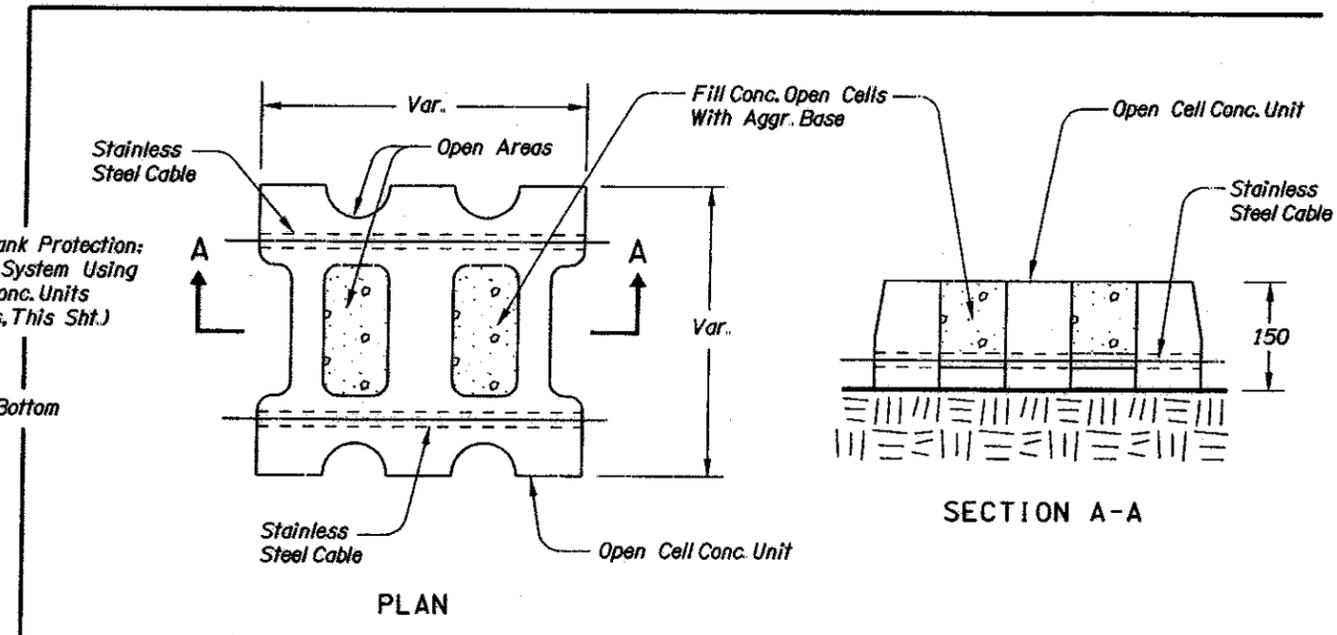
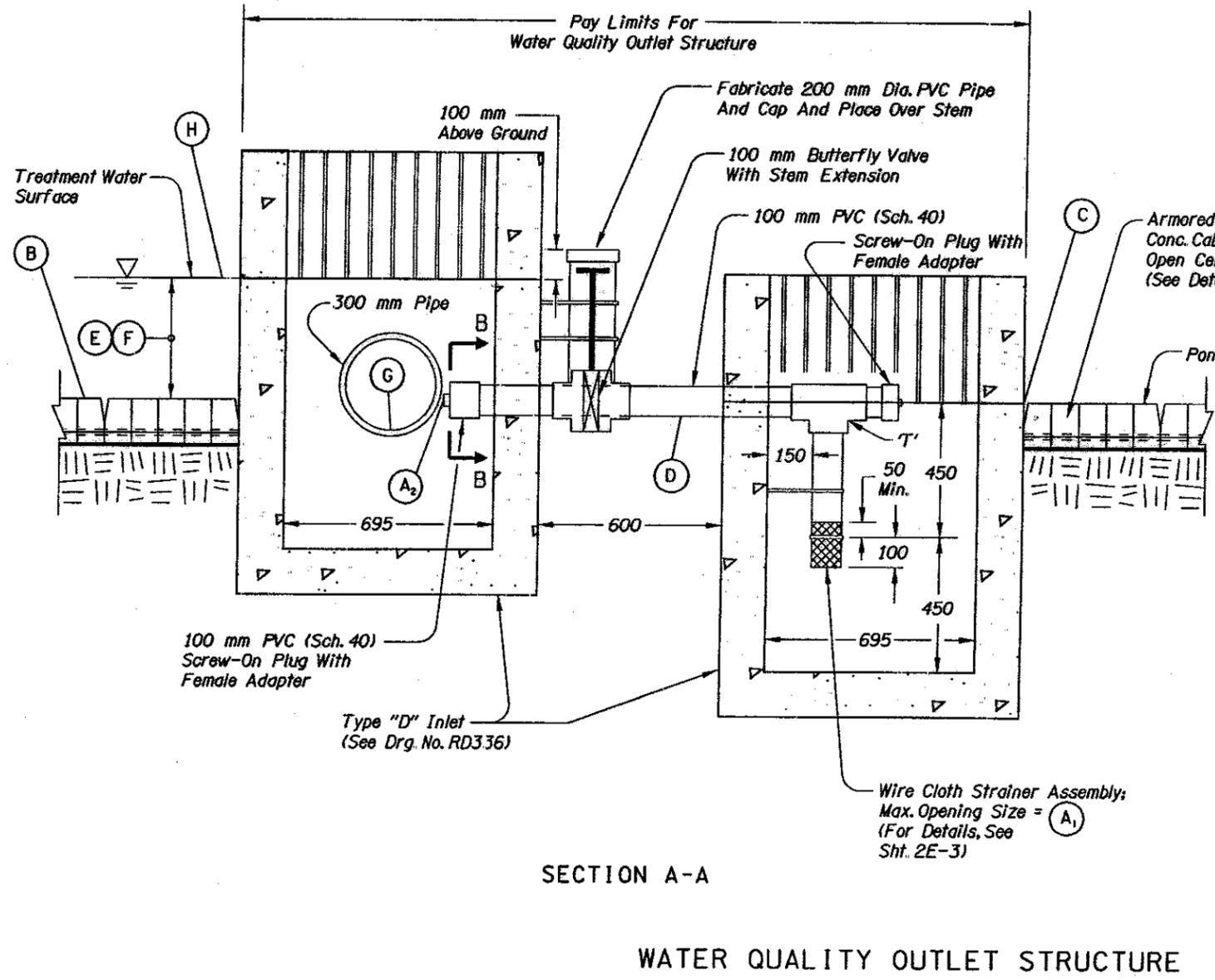


<b>OREGON DEPARTMENT OF TRANSPORTATION</b> GEO / HYDRO SECTION	
<b>1-5 AT NYBERG RD.</b> (SB OFF-RAMP) SEC. PACIFIC HIGHWAY WASHINGTON COUNTY	
Reviewed By - Paul Wirfs Designed By - Alvin Shoblom Drafted By - Heather Conisor	
<b>WATER QUALITY DETAILS</b>	SHEET NO. <b>2E</b>

23-APR-2002 08:05



Letter	Value	Description
A <sub>1</sub>	15.5 mm	Orifice Diameter
A <sub>2</sub>	37.000 m	Elev. Of Center Of Orifice
B	37.000 m	Elev. Of Pond Bottom
C	37.000 m	Elev. Of Lip Of Inlet
D	36.950 m	FL Elev. Of 100 mm PVC
E	400 mm	Pond Design Depth
F	47.94 m <sup>3</sup>	Pond Design Volume
G	36.900 m	FL Elev. Of Outfall Pipe
H	37.400 m	Elev. Of Lip Of Inlet



**ARMORED BANK PROTECTION  
CONCRETE CABLE SYSTEM**

All Dimensions Are In Millimeters (mm)  
Unless Otherwise Noted.



**OREGON DEPARTMENT OF TRANSPORTATION  
GEO/HYDRO SECTION**

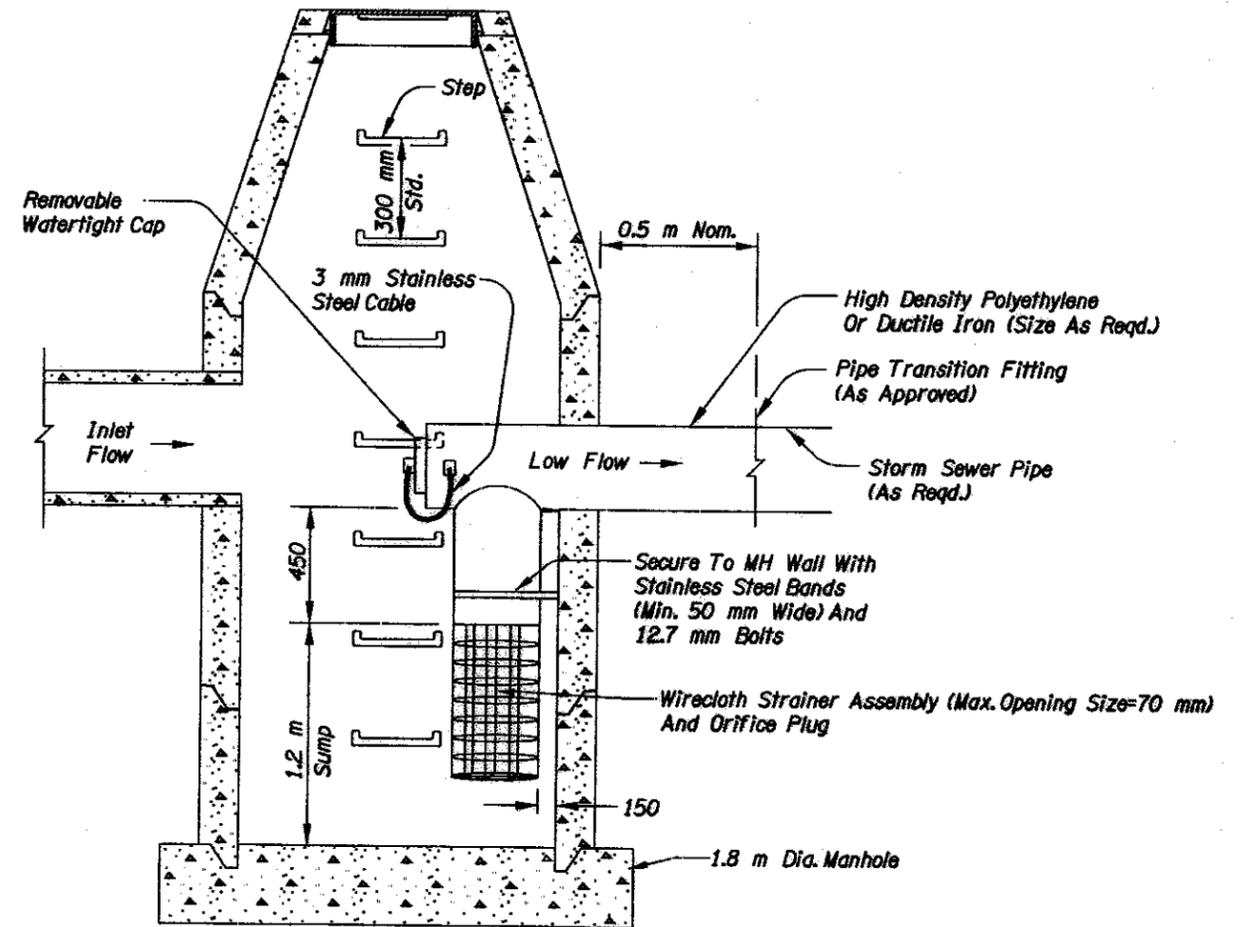
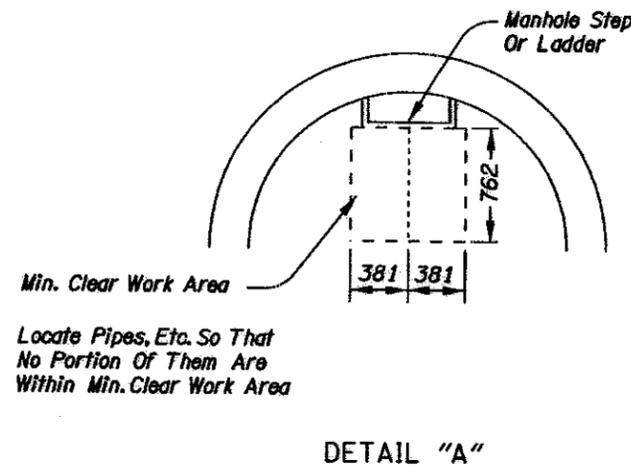
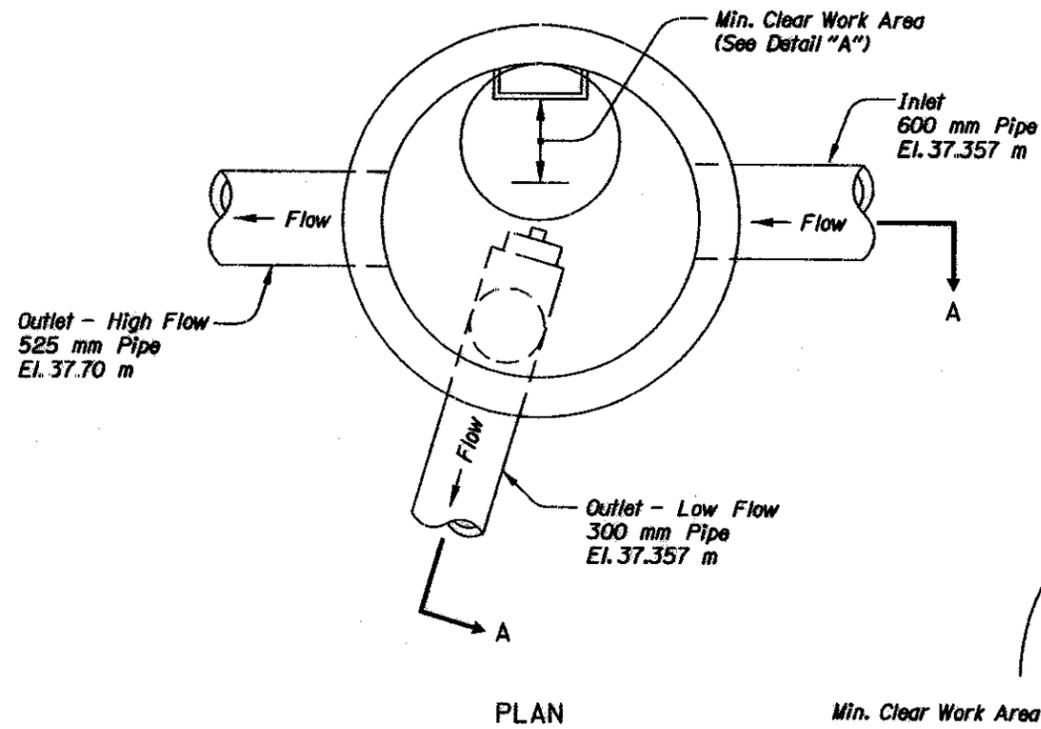
**I-5 AT NYBERG RD.  
(SB OFF-RAMP) SEC.  
PACIFIC HIGHWAY  
WASHINGTON COUNTY**

Reviewed By - Paul Wires  
Designed By - Alvin Shoblom  
Drafted By - Heather Gonsior

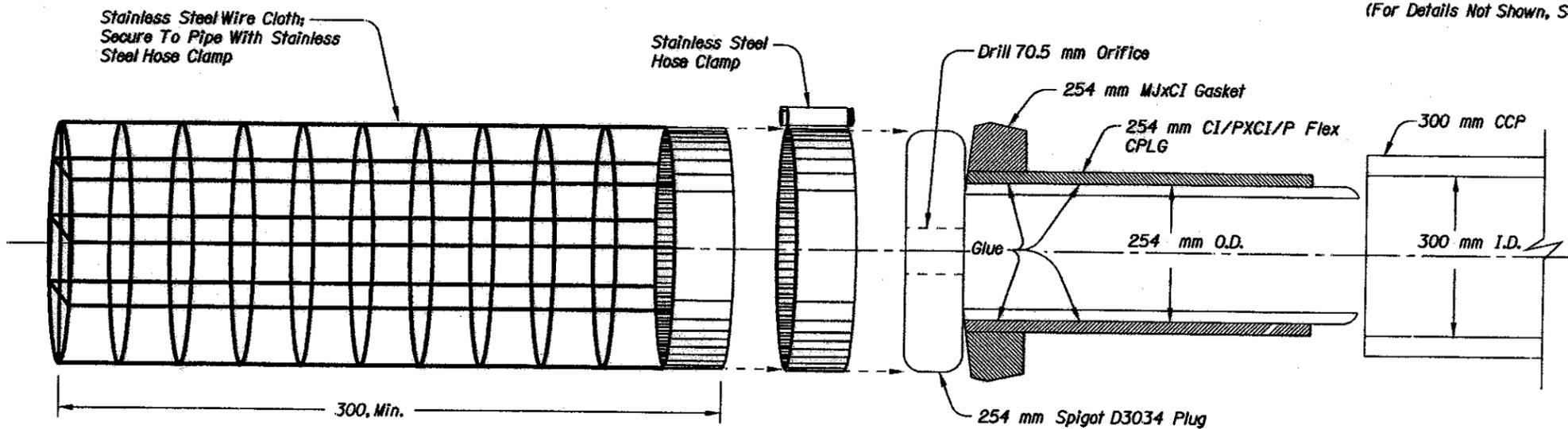
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**2E-2**

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(For Details Not Shown, See Manhole Standard Drawings)



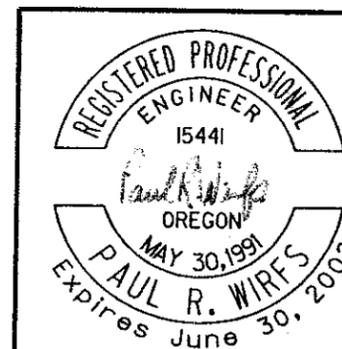
WIRE CLOTH STRAINER ASSEMBLY AND ORIFICE PLUG

**SPLIT FLOW MANHOLE**  
(See Shts. 3A & 3B, Note 8)

**NOTES:**

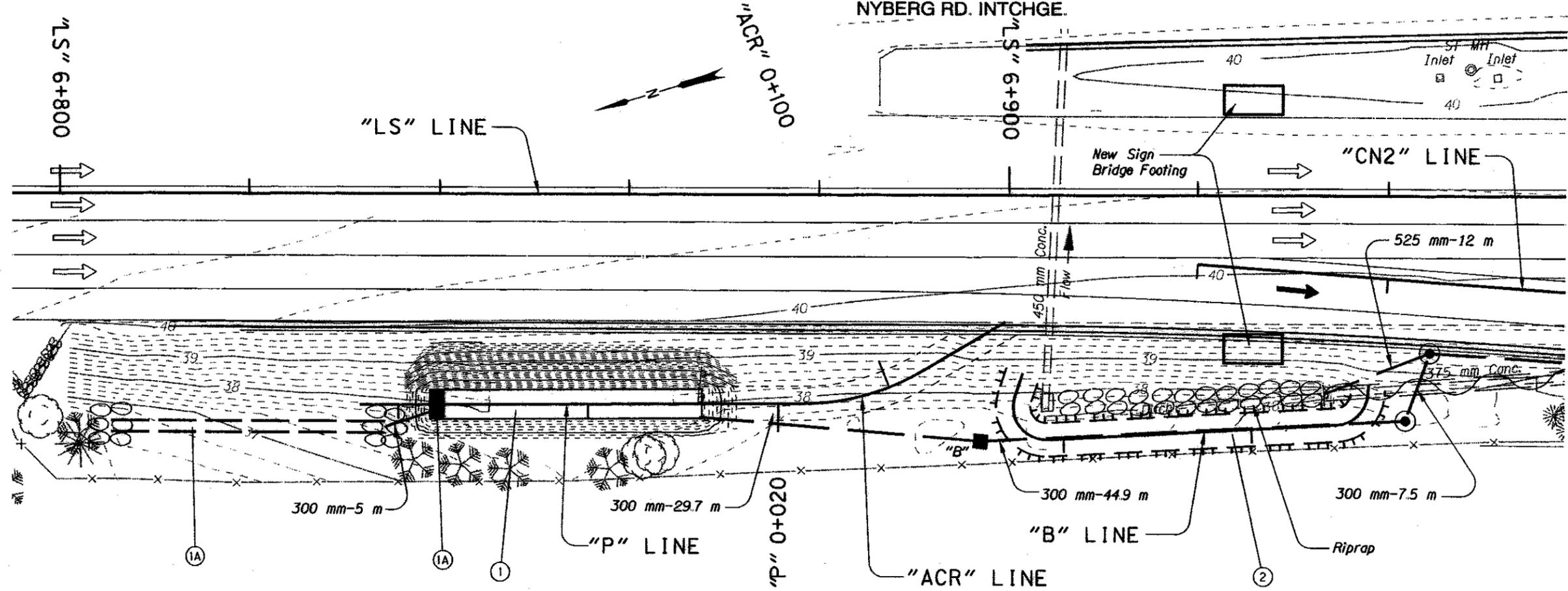
1. Hardware, Fasteners And Anchors To Be Stainless Steels Use 3 mm Stainless Steel Cable.
2. See Pipe Data Sheet And Plan Sheets For Pipe Size(s).
3. See Pipe Data Sheet And Plan Sheets For Manhole Size(s).
4. See Pipe Data Sheet And Plan Sheets For Sump Depth.
5. Manhole And Base Per Manhole Standard Drawings.
6. Hardware, Fasteners, Anchors, Fittings, Appurtenances, Labor, And Equipment Are Incidental.

All Dimensions Are In Millimeters (mm) Unless Otherwise Noted.

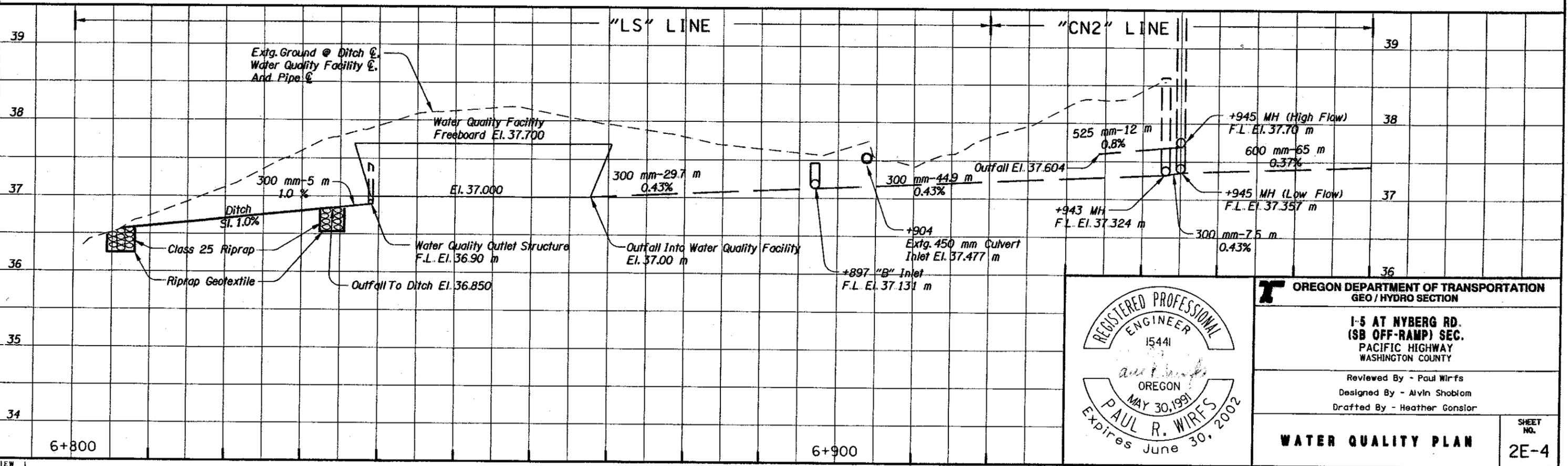


<b>OREGON DEPARTMENT OF TRANSPORTATION</b> GEO / HYDRO SECTION	
I-5 AT NYBERG RD. (SB OFF-RAMP) SEC. PACIFIC HIGHWAY WASHINGTON COUNTY	
Reviewed By - Paul Wirfs Designed By - Alvin Shoblom Drafted By - Heather Gonslor	
SHEET NO. <b>2E-3</b>	<b>WATER QUALITY DETAILS</b>

Sec. 24, T. 2 S., R. 1 W., W.M.  
 NYBERG RD. INTCHGE.



- ① Sta. "LS" 6+838.9 To 6+867.6, Rt. Const. Water Quality Facility (For Details, See Sht. 2E)
- ①A Sta. "LS" 6+838.9, Rt. Const. Water Quality Outlet Structure Const. Ditch  
 0.9 m Flat Bottom, 1:2 Slopes  
 Ditch Exc. - 17.3 m<sup>3</sup>  
 Inst. Riprap Geotextile, Type 1 - 8 m<sup>2</sup>  
 Const. Loose Riprap (Class 25)  
 At Pipe & Ditch Outfalls - 2.4 m<sup>3</sup>  
 Depth=0.3 m, Length=1.0 m  
 (See Drg. No. RD336)  
 (For Details, See Shts. 2E & 2E-2)
- ② Const. Berm (For Details, See Shts. 2B-2, 3, 3B & 3C)



REGISTERED PROFESSIONAL  
 ENGINEER  
 15441  
 OREGON  
 MAY 30, 1991  
 PAUL R. WIRFS  
 Expires June 30, 2002

**OREGON DEPARTMENT OF TRANSPORTATION**  
 GEO / HYDRO SECTION

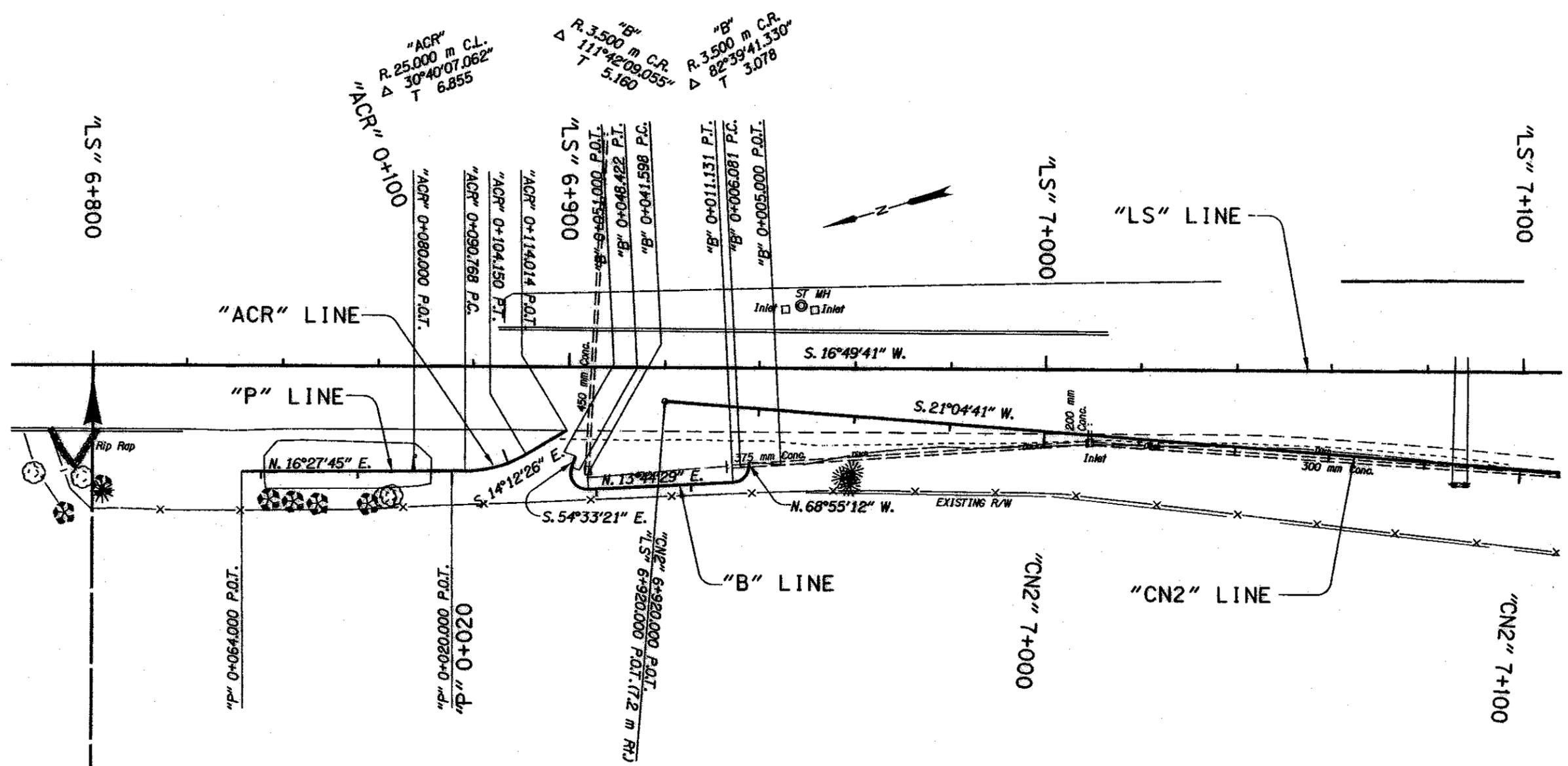
**I-5 AT NYBERG RD.  
 (SB OFF-RAMP) SEC.**  
 PACIFIC HIGHWAY  
 WASHINGTON COUNTY

Reviewed By - Paul Wirfs  
 Designed By - Alvin Shoblom  
 Drafted By - Heather Gonsior

**WATER QUALITY PLAN**

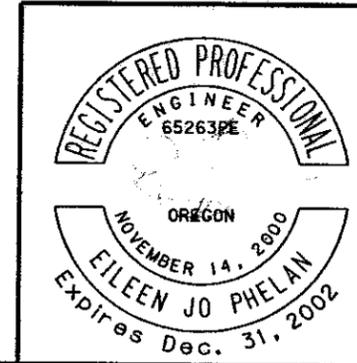
SHEET NO.  
**2E-4**

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BEGINNING OF PROJECT X-IM-S001 (123)  
 STA. "LS" 6+800.000

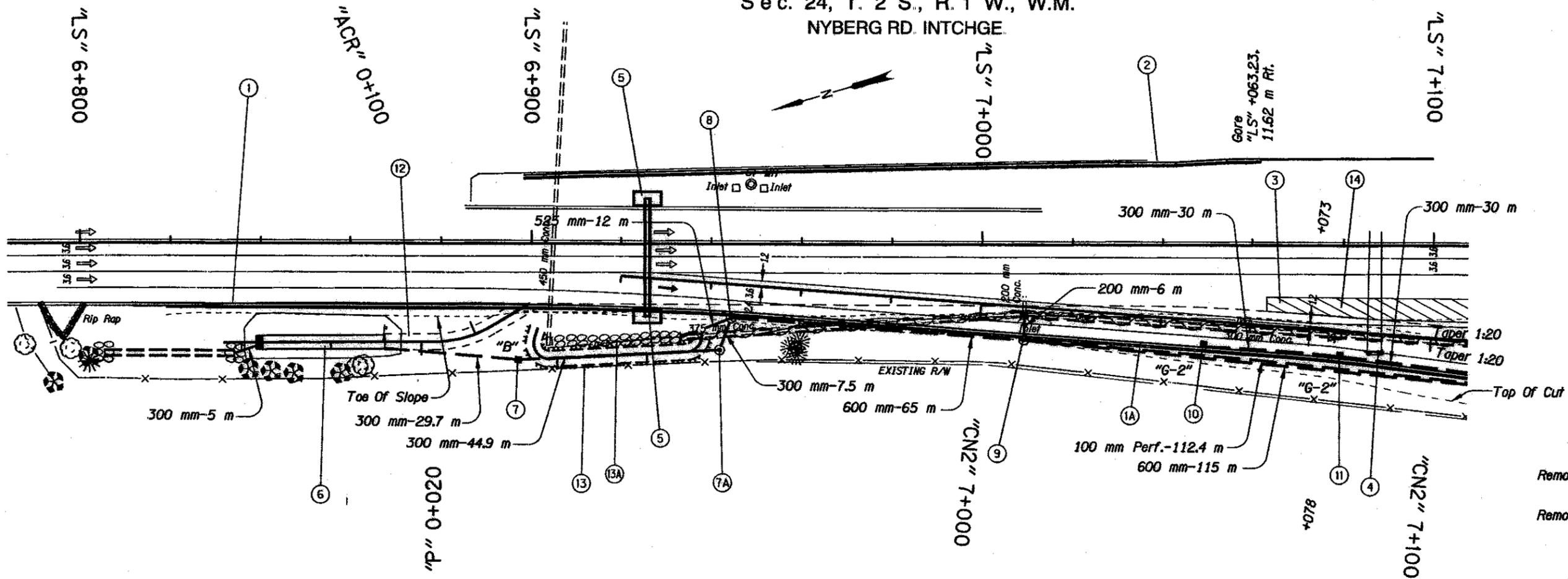
All Dimensions Are In Meters (m)  
 Unless Otherwise Noted.



<b>OREGON DEPARTMENT OF TRANSPORTATION</b> ROADWAY ENGINEERING SECTION	
<b>I-5 AT NYBERG RD.</b> <b>(SB OFF-RAMP) SEC.</b> PACIFIC HIGHWAY WASHINGTON COUNTY	
Project Leader - Shelley Richards Designed By - Magnolia Bartley Drafted By - Heather Gonsior	
<b>ALIGNMENT</b>	SHEET NO. <b>3</b>

16-APR-2002 11:16  
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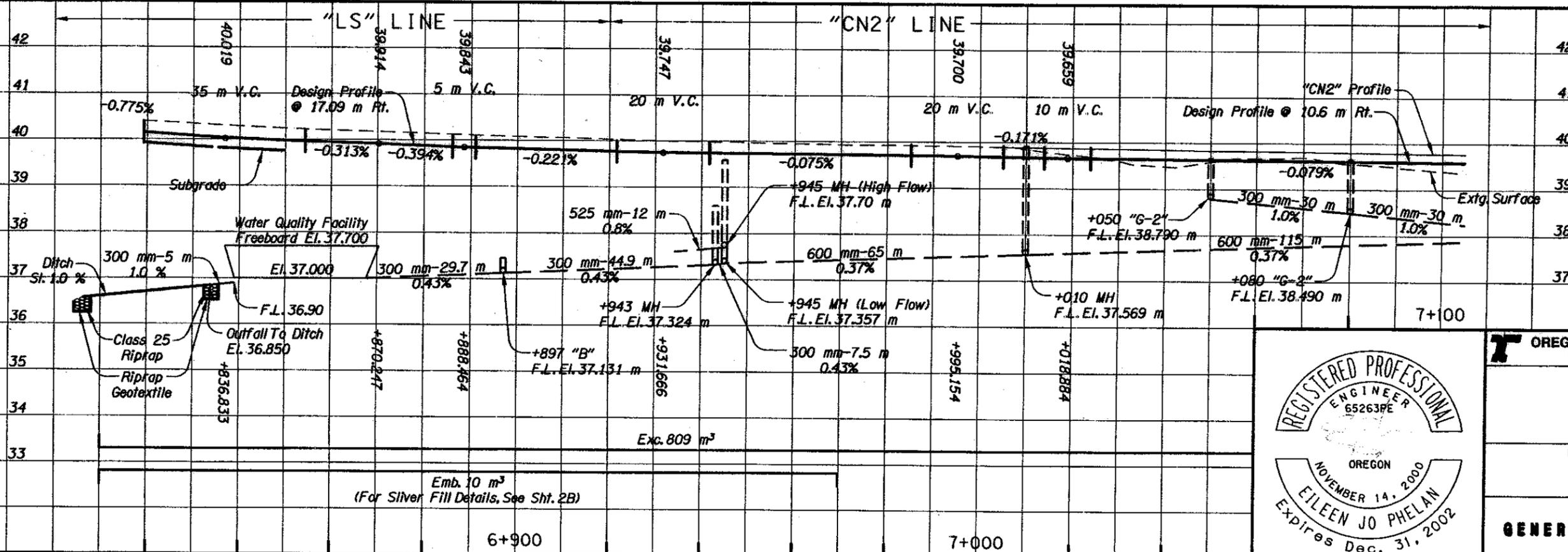
Sec. 24, T. 2 S., R. 1 W., W.M.  
 NYBERG RD. INTCHGE.



Remove Pymt., Shown Thus:

Remove Pipe, Shown Thus:

All Dimensions Are In Meters (m)  
 Unless Otherwise Noted.



OREGON DEPARTMENT OF TRANSPORTATION  
 ROADWAY ENGINEERING SECTION

I-5 AT NYBERG RD.  
 (SB OFF-RAMP) SEC.  
 PACIFIC HIGHWAY  
 WASHINGTON COUNTY

Project Leader - Shelley Richards  
 Designed By - Magnolia Bartley  
 Drafted By - Heather Gonstor

GENERAL CONSTRUCTION

SHEET NO.  
 3A

BRIDGE DETAILS CHECKED

22-APR-2002 16:14

C:\usr\Projects\0682-Nyberg\0682.dwg

BRIDGE DETAILS CHECKED

23-APR-2002 08:09

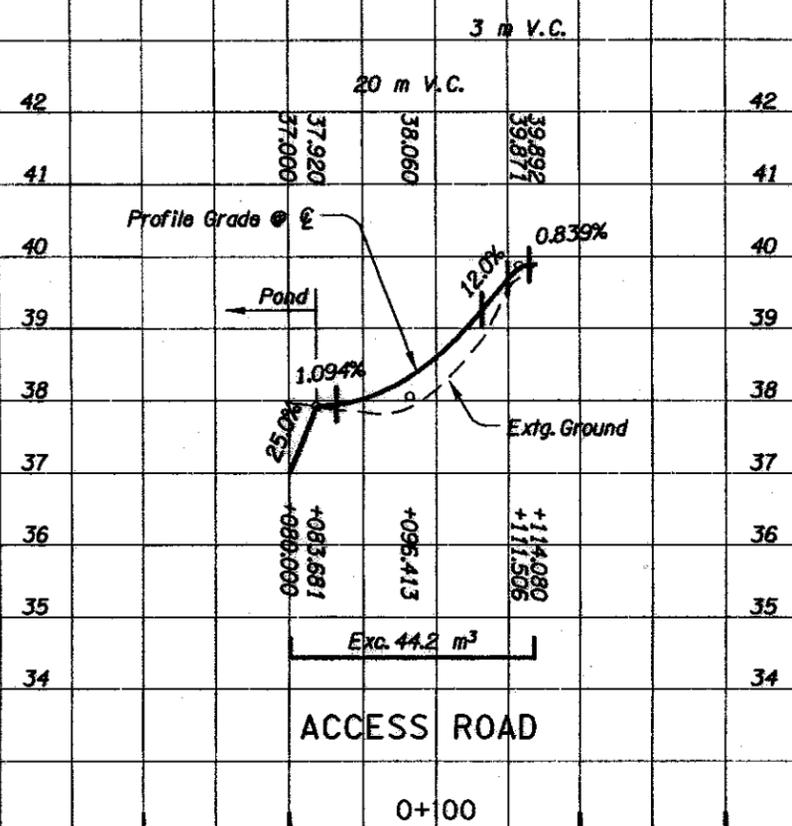
c:\user\projects\weather\06682.rvt

- ① Sta. "LS" 6+815.21 To "CN2" 7+215.26, Rt.  
Remove Extg. Conc. Shldr. Barrier - 3.81 m  
Const. Precast Conc. Wide Base Shldr.  
Barrier - 400.05 m  
Conn. To Extg. Barrier  
Pin To Roadway, Except As Noted In Notes 1A & 1B
- ①A Sta. "LS" 6+895.22 To Sta. "CN2" 6+902.84, Rt.  
Do Not Pin Barrier
- ①B Sta. "CN2" 7+013.33 To Sta. "CN2" 7+215.26, Rt.  
Do Not Pin Barrier  
No Scuppers  
(See Drg. No. RD500)
- ② Sta. "LS" 6+898.14 To 7+061.84, Lt.  
Const. Conc. Barrier Transition - 3.81 m  
Const. Precast Tall Conc. Barrier - 160.02 m  
With Scuppers Left Open  
Conn. To Extg. Barrier  
(For Details, See Sht. 2B-3)  
(See Drg. No. RD545)
- ③ Sta. "LS" 7+063.23 To Sta. "LS" 7+210.00, Rt.  
Remove Pymt.
- ④ Sta. "LS" 7+086.8  
Remove Extg. Sign Bridge
- ⑤ Sta. "LS" 6+925.8  
Const. Sign Bridge  
(For Details, See Bridge Sht. 60435)
- ⑥ Sta. "LS" 6+838.9 To 6+867.6, Rt.  
Const. Water Quality Pond  
Inst. 300 mm Pipe - 5 m  
Tr. Exc. - 4.3 m<sup>3</sup>  
(For Details, See Sht. 2E-4)  
(See Drg. Nos. RD300, RD309, & RD312)
- ⑦ Sta. "LS" 6+897, Rt.  
Const. Type "B" Inlet  
Inst. 300 mm Pipe - 74.6 m  
Tr. Exc. - 30.8 m<sup>3</sup>
- ⑦A Sta. "CN2" 6+945, Rt.  
Const. Manhole  
Inst. 300 mm Pipe - 7.5 m  
Tr. Exc. - 10.6 m<sup>3</sup>  
(See Drg. Nos. RD324, RD327 & RD339)
- ⑧ Sta. "CN2" 6+945, Rt.  
Const. Split Flow Manhole  
Dia. = 1.8 m, Sump = 1.2 m  
Inst. 525 mm Pipe - 12 m  
Inst. 600 mm Pipe - 65 m  
Tr. Exc. - 186 m<sup>3</sup>  
(For Details, See Sht. 2E-3)
- ⑨ Sta. "CN2" 7+010, Rt.  
Remove Inlet  
Remove Pipe - 76.4 m  
Const. Manhole  
200 mm Conc. Pipe (In Pl.)  
Extend - 6 m  
Inst. 100 mm Perf. Pipe - 112.4 m  
Inst. 600 mm Pipe - 115.0 m  
Tr. Exc. - 410.9 m<sup>3</sup>
- ⑩ Sta. "CN2" 7+050, Rt.  
Const. Type "G-2" Inlet
- ⑪ Sta. "CN2" 7+080, Rt.  
Const. Type "G-2" Inlet  
Inst. 300 mm Pipe - 30 m  
Tr. Exc. - 24.6 m<sup>3</sup>
- ⑫ Const. Access Road  
(For Details, See Shts. 2A-3, 3 & 3C)
- ⑬ Const. Berm  
Selected Gen. Backfill - 38 m<sup>3</sup>  
(For Details, See Sht. 2B-2 & 3C)
- ⑬A Const. Loose Riprap (Class 25) Along Bottom Of  
Extg. "V" Bottom Ditch - 2.7 m<sup>3</sup>  
Depth = 0.3 m, Width = 0.3 m, Length = 30 m  
Ditch Exc. - 2.7 m<sup>3</sup>  
(For Details, See Sht. 2B-2 & 2E)
- ⑭ Inst. Type 1 Delineators - 14  
(See Drg. Nos. RD800 & RD805)

	<b>OREGON DEPARTMENT OF TRANSPORTATION</b> ROADWAY ENGINEERING SECTION
	<b>1-5 AT NYBERG RD.</b> <b>(SB OFF-RAMP) SEC.</b> PACIFIC HIGHWAY WASHINGTON COUNTY
	Project Leader - Shelley Richards Designed By - Magnolia Bartley Drafted By - Heather Gonsior
<b>CONSTRUCTION NOTES</b>	
SHEET NO. <b>3B</b>	

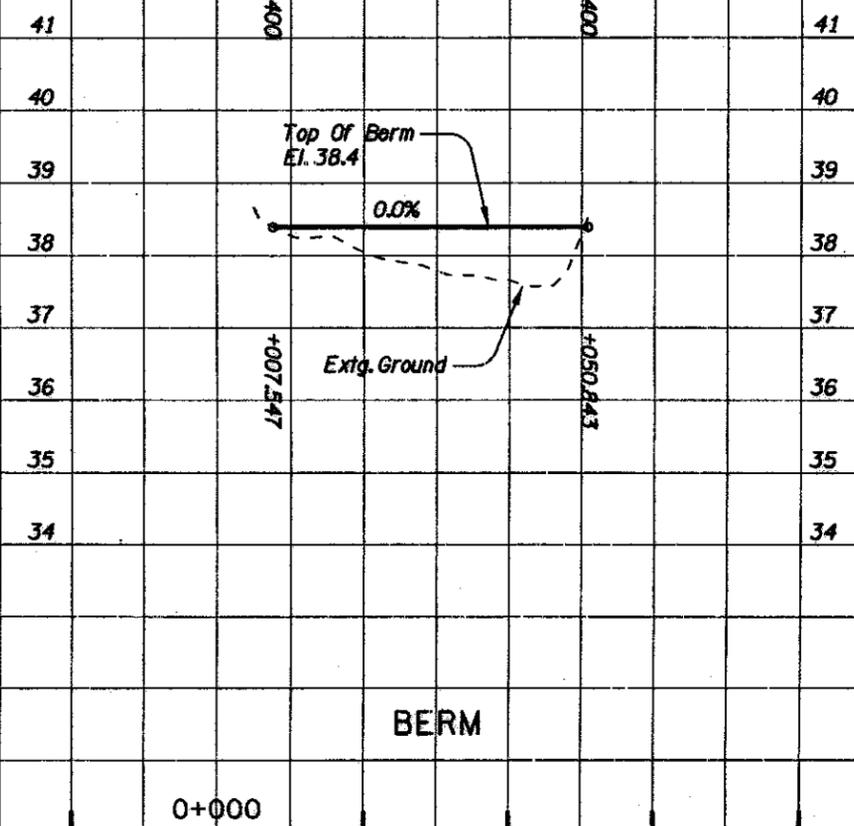
"ACR" LINE

"B" LINE



ACCESS ROAD

0+00



BERM

0+000

All Dimensions Are In Meters (m)  
Unless Otherwise Noted.



OREGON DEPARTMENT OF TRANSPORTATION  
ROADWAY ENGINEERING SECTION

I-5 AT NYBERG RD.  
(SB OFF-RAMP) SEC.  
PACIFIC HIGHWAY  
WASHINGTON COUNTY

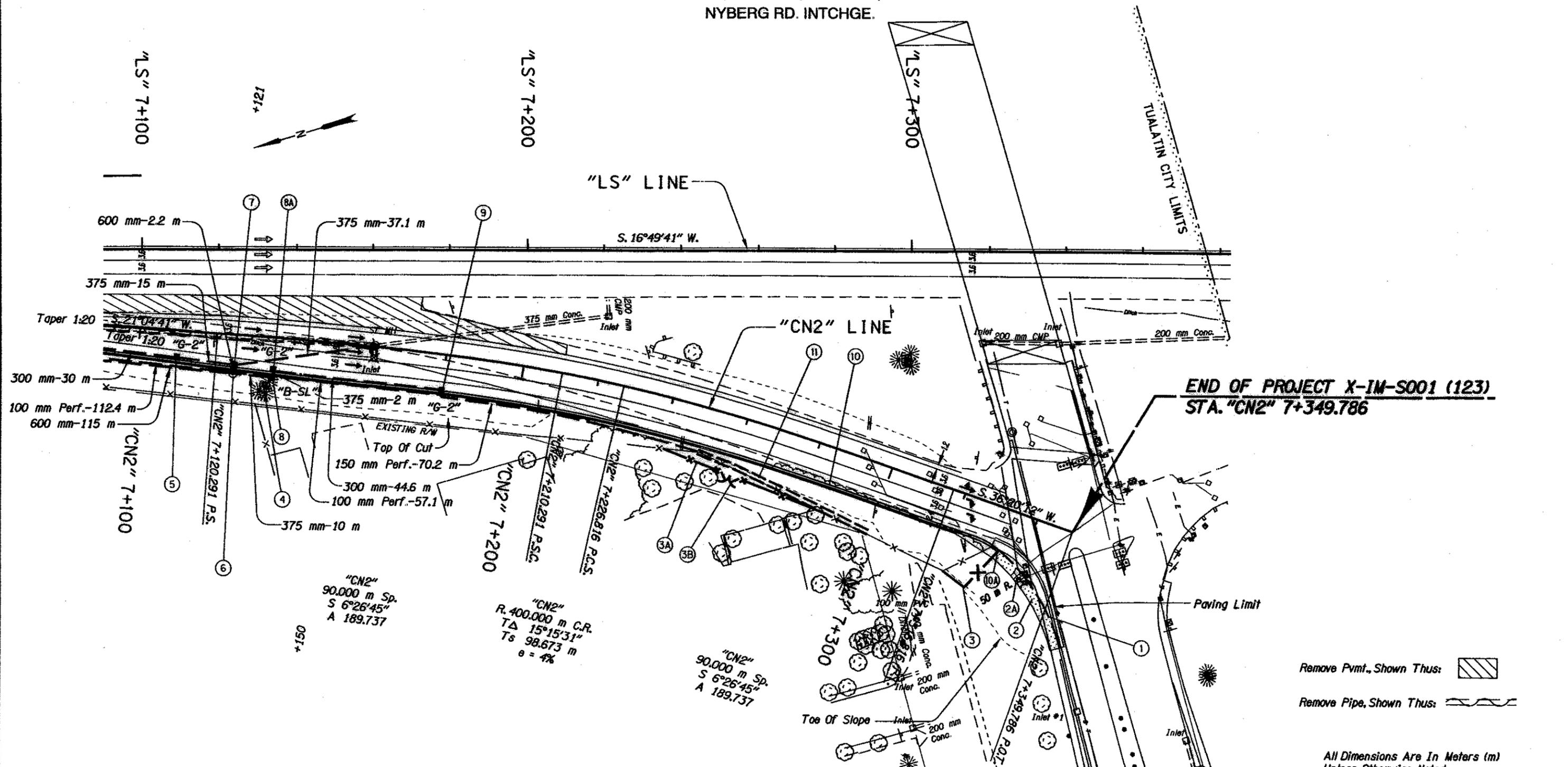
Project Leader - Shelley Richards  
Designed By - Magnolia Bartley  
Drafted By - Heather Gonsior

PROFILE

SHEET NO.  
3C

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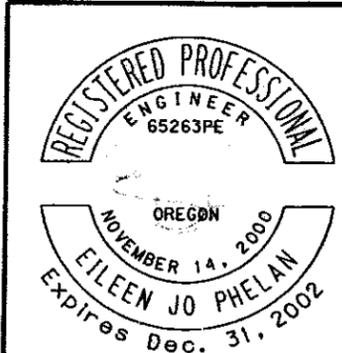
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**END OF PROJECT X-IM-S001 (123)**  
**STA. "CN2" 7+349.786**

Remove Pvmt., Shown Thus:   
 Remove Pipe, Shown Thus: 

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<b>OREGON DEPARTMENT OF TRANSPORTATION</b> ROADWAY ENGINEERING SECTION	
<b>I-5 AT NYBERG RD.</b> <b>(SB OFF-RAMP) SEC.</b> PACIFIC HIGHWAY WASHINGTON COUNTY	
Project Leader - Shelley Richards Designed By - Magnolia Bartley Drafted By - Heather Gonslor	
<b>ALIGNMENT &amp; GENERAL CONSTRUCTION</b>	SHEET NO. <b>4</b>

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① Remove Extg. Curb - 35.5 m  
 Const. Type "A" Curb - 30.8 m  
 Conn. To Extg. Curb  
 (See Drg. No. RD700)

② Remove Extg. Walk  
 Const. 2.4 m P.C. Conc. Walk - 73.0 m<sup>2</sup>  
 Conn. To Extg. Walk  
 ②A Const. Sidewalk Ramp, Option "C"  
 (See Drg. No. RD725)

③ Remove Extg. Fence - 14 m  
 Const. Type CL-6 Fence - 20 m  
 Conn. To Extg. Fence  
 (See Drg. No. RD815)  
 ③A Sta. "CN2" 7+240.9 To Sta. "CN2" 7+286.8  
 Remove Extg. Fence - 45.5 m  
 Const. Chain Link Fence (CL-6) - 43.2 m  
 ③B Sta. "CN2" 7+260  
 Inst. Gate (CL-6)  
 1.9 m Opening  
 Field Verify Location  
 (See Drg. No. RD820)

④ Sta. "CN2" 7+133, Rt.  
 Relocate Luminaire  
 (For Illumination Details, See Shts. I-0810  
 & I-0811)

⑤ Sta. "CN2" 7+110, Rt.  
 Const. Type "G-2" Inlet  
 Inst. 300 mm Pipe - 30 m  
 Tr. Exc. - 31.8 m<sup>3</sup>

⑥ Sta. "CN2" 7+125, Rt.  
 Const. Manhole  
 Inst. 100 mm Perf. Pipe - 57.1 m  
 Inst. 375 mm Pipe - 10 m  
 Inst. 600 mm Pipe - 2.2 m  
 Tr. Exc. - 20.0 m<sup>3</sup>

⑦ Sta. "CN2" 7+125, Rt.  
 Remove Inlet  
 Remove Manhole  
 Plug & Abandon Pipe - 151.2 m  
 Const. Manhole With Type "G-2" Inlet  
 Inst. 375 mm Pipe - 15.0 m  
 375 mm Conc. Pipe - In-Pl.  
 Extend - 37.1 m  
 Conn. To Manhole  
 Tr. Exc. - 60.9 m<sup>3</sup>  
 (See Drg. No. RD333)

⑧ Sta. "CN2" 7+135, Rt.  
 Const. Type "B-SL" Inlet  
 Inst. 375 mm Pipe - 2.0 m  
 Tr. Exc. - 2.6 m<sup>3</sup>  
 (See Drg. No. RD339)  
 ⑧A Const. Type "G-2" Inlet  
 Inst. 300 mm Pipe - 44.6 m  
 Tr. Exc. - 39.1 m<sup>3</sup>

⑨ Sta. "CN2" 7+180, Rt.  
 Const. Type "G-2" Inlet  
 Inst. 150 mm Perf. Pipe - 70.2 m  
 Inst. Subsurface Drain Outlet  
 Tr. Exc. - 26.3 m<sup>3</sup>  
 (For Details, See Sht. 2B-2)  
 (See Drg. No. RD303)

⑩ Sta. "CN2" 7+215.26 To "CN2" 7+333.25  
 Const. Precast Conc. Wide Base Shldr. Barrier  
 - 117.99 m  
 Sta. "CN2" 7+241.93 To Sta. "CN2" 7+325.75  
 Const. Barrier With Scuppers Left Open  
 Pin To Roadway  
 Sta. "CN2" 7+215.26 To Sta. "CN2" 7+241.93  
 Do Not Pin Barrier  
 ⑩A Sta. "CN2" 7+325.75 To Sta. "CN2" 7+333.25  
 Const. Conc. Barrier To Curb Transition.  
 (See Drg. No. RD540)

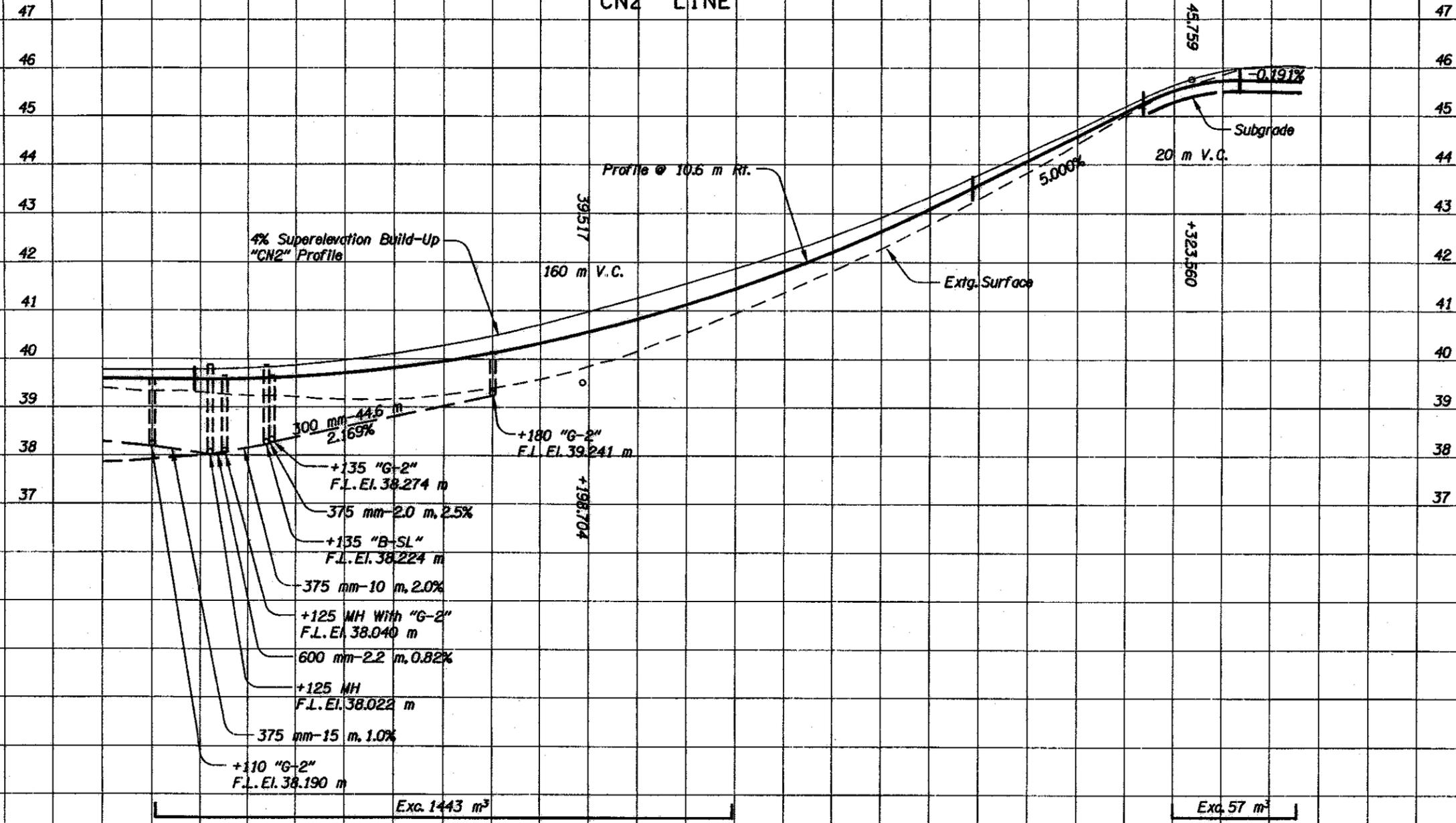
⑪ Sta. "CN2" 7+250 To Sta. "CN2" 7+305  
 Const. Ditch  
 "V" Bottom, Depth=0.2 m, 1:2 Slopes  
 Ditch Exc. - 9.1 m<sup>3</sup>  
 (For Details, See Sht. 2B-2)

	<b>OREGON DEPARTMENT OF TRANSPORTATION</b> ROADWAY ENGINEERING SECTION	
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	Project Leader - Shelley Richards Designed By - Magnolia Bartley Drafted By - Heather Gonsior	
<b>CONSTRUCTION NOTES</b>		SHEET NO. <b>4A</b>

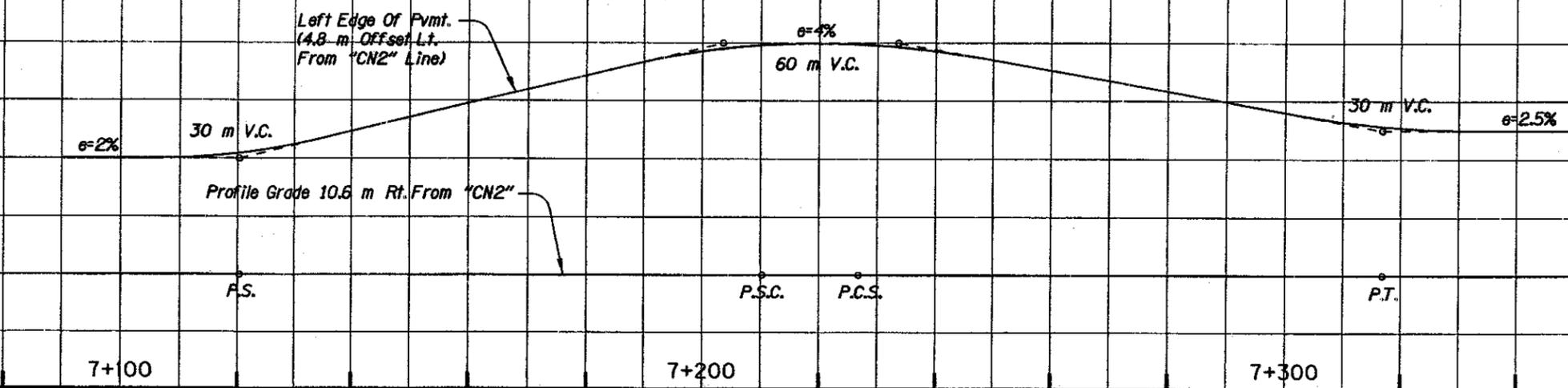
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"CN2" LINE



SUPERELEVATION CHART



All Dimensions Are In Meters (m) Unless Otherwise Noted.



**OREGON DEPARTMENT OF TRANSPORTATION**  
ROADWAY ENGINEERING SECTION

**I-5 AT NYBERG RD. (SB OFF-RAMP) SEC.**  
PACIFIC HIGHWAY  
WASHINGTON COUNTY

Project Leader - Shelley Richards  
Designed By - Magnolia Bartley  
Drafted By - Heather Conslor

**PROFILE**

SHEET NO. **4B**

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