OPERATION & MAINTENANCE MANUAL

DFI No. : D00039
Facility Type: Detention Tank/Pipe

MARCH, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00039**
Facility Type:	Detention Tank/Pipe
Construction Drawings:	(V-File Number) 38V-117
Location:	District: 3
	Highway No.: 001
	Mile Post: 252.00; 252.05 (beg./end)
	Description: This facility is located in southbound median of Interstate-5 (Hwy 001), just before Exit 252. Access may be obtained from southbound I-5 (Hwy 001).

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

Or

Region Technical Center (Geo-Hydro)

Or

Geo-Environmental Senior Hydraulics Engineer (503) 986-3365.

3. Construction

Engineer of Record:
ODOT Designer – Region 2 Tech. Center
Chris Carman, 503-986-2691

Facility construction: 2005
Contractor: Hamilton 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 stormwater detention facility consists of two 6-ft diameter detention pipes (Photo 4) each 156-feet in length. The facility (Photo 1) is located in the southbound median of I-5 (Hwy 001). The drainage area for the facility includes the southbound lanes from the facility location to 870-feet south of the facility's first manhole (Point A in the Operational Plan in Appendix A). The facility's detention pipes, inlets, and outlets are connected by three oversized manholes (Points A, B, and C).

Stormwater enters this facility at Point A through a 12-inch storm pipe from the south and inlets at both Points A and C. The water is then detained within the two 6-foot diameter detention pipes (Photo 4). The detention of water is controlled by a flow control manhole at Point C (Photos 2, 3 & 4). The water is then conveyed from Point C through an 18-inch pipe which outfalls to the stormwater systems located on the northbound portion of I-5 (Hwy 001).

The stormwater from this facility is eventually treated by a water quality manhole, DFI D00034 located north of the facility and shown on the Operational Plan.

For further information and details regarding the system refer to Appendix A for the Operational Plan and Appendix B for the Project Plan Sheets.

Photo 1: Looking south at Southbound I-5. Paved access area located on left.

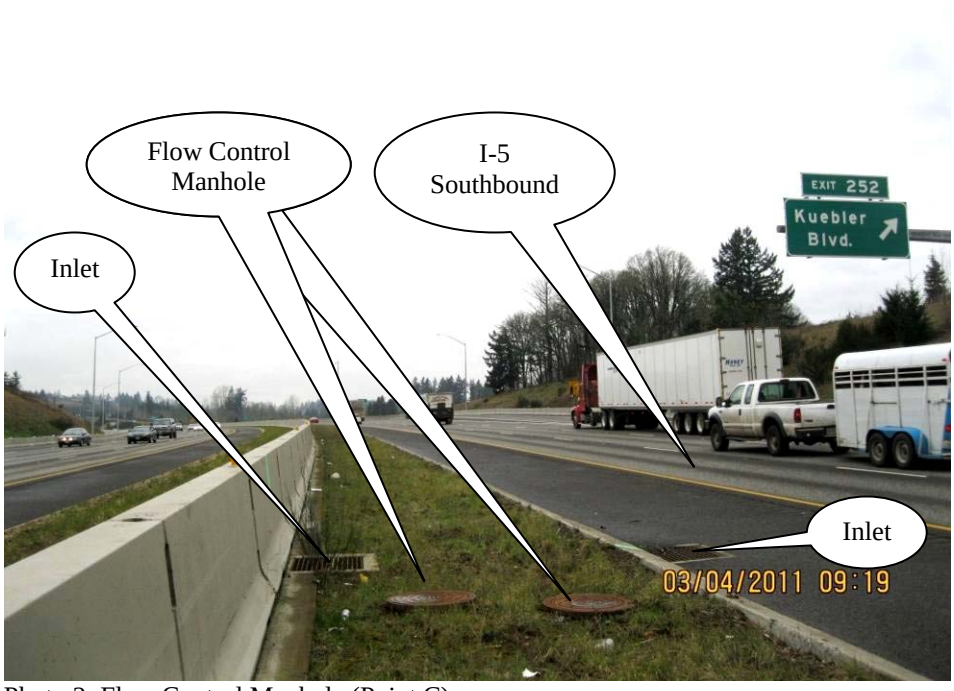


Photo 2: Flow Control Manhole (Point C)

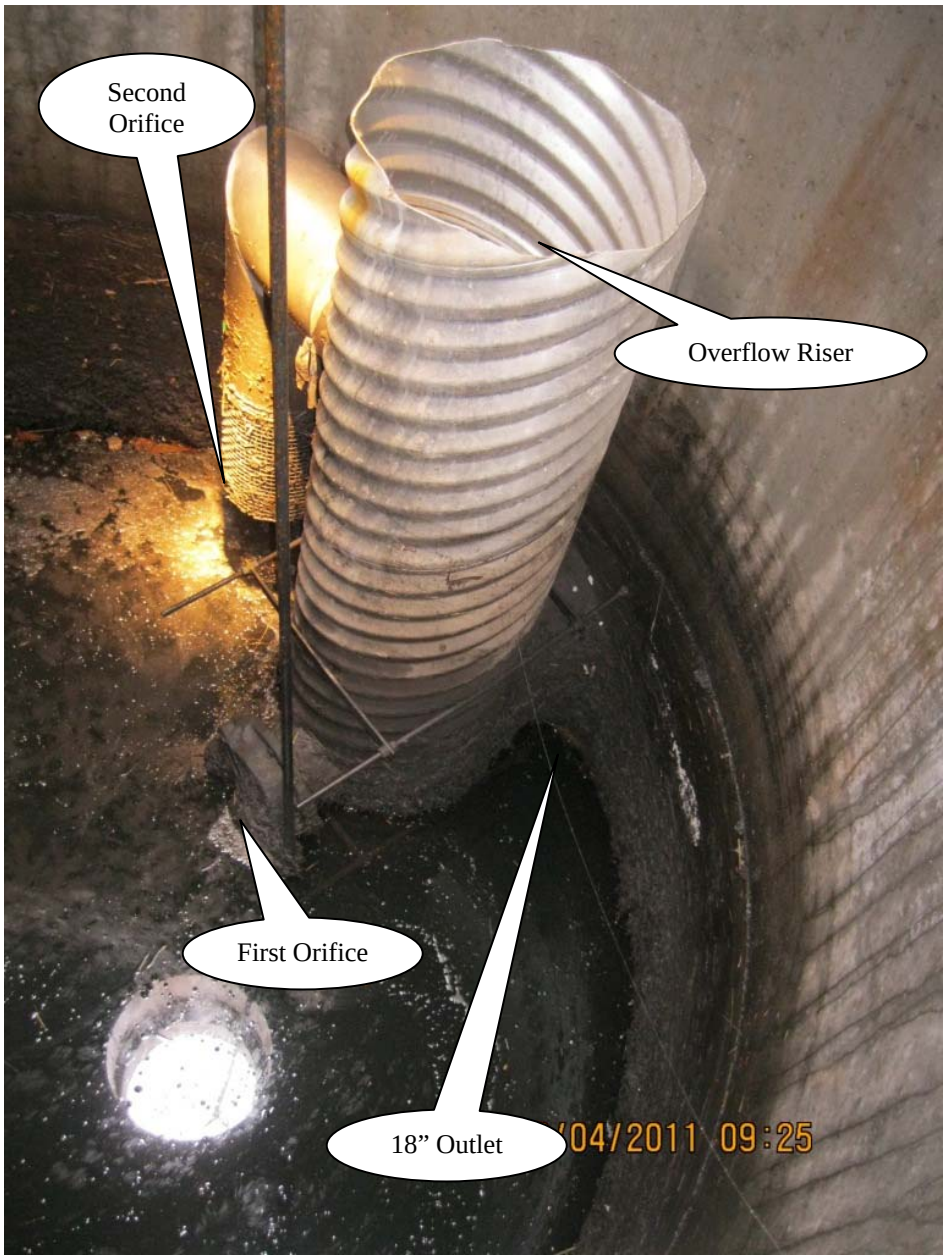


Photo 3: Flow Control Manhole (Point C)

Photo 4: Detention Pipe (Point C, looking south)

A. Maintenance equipment access:
This facility is located along a 12-foot median of the southbound lanes of I-5 (Hwy 001).

B. Heavy equipment access into facility:

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

C. Special Features:

☐ Amended Soils
☐ Porous Pavers
☐ Liners
☐ Underdrains

5. Facility Haz Mat Spill Feature(s)

This detention facility does not does not have features to block liquids from draining from the pipe. In the event of a spill in dry conditions, sandbags can be place in the detention pipe at Point C to slow down a hazardous flow. If a spill occurs during wet conditions, the 18-inch downstream pipe can be accessed via a manhole 141-feet north of Point C, and blocked with sandbags.

6. Auxiliary Outlet

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
In the event of flows exceeding the design flows, water will exit the facility through the top of the high flow riser in the flow control structure (Point C, Photo 3) and travel into the highway's stormwater system.

☐ Other, as noted below

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

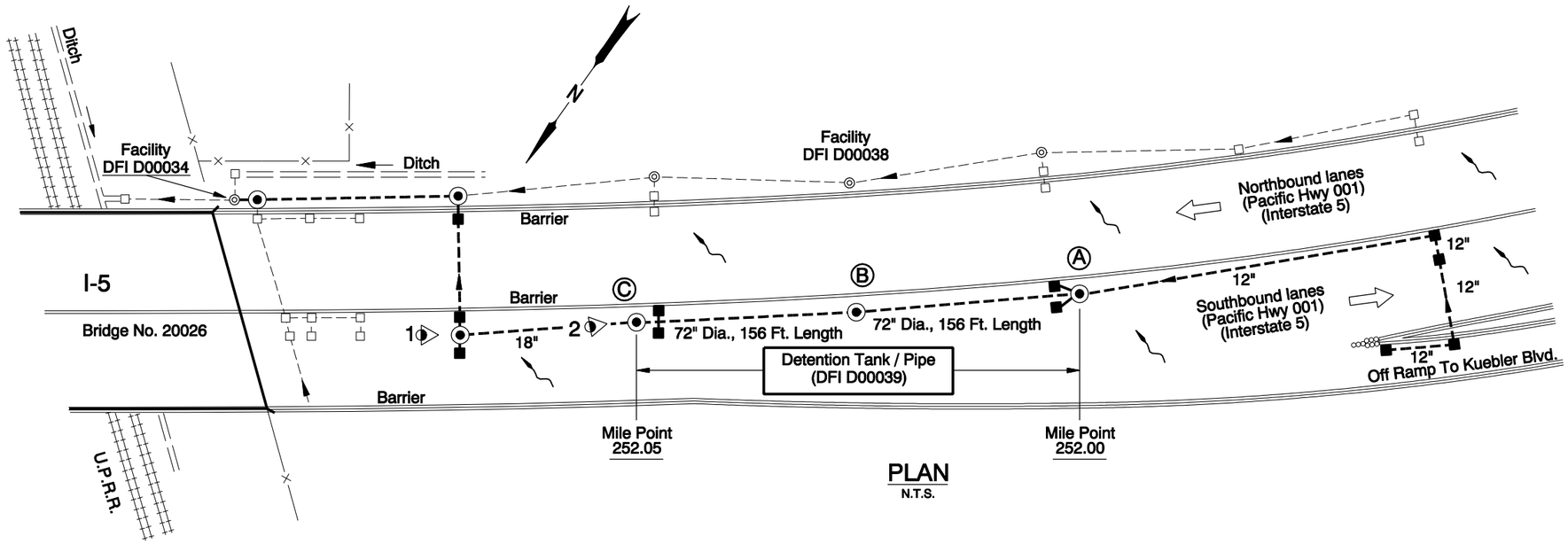
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 986-2647
ODEQ Northwest Region Office	(503) 229-5263

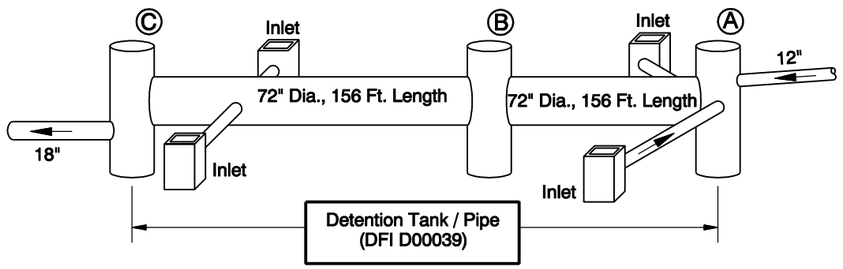
Appendix A

Content:

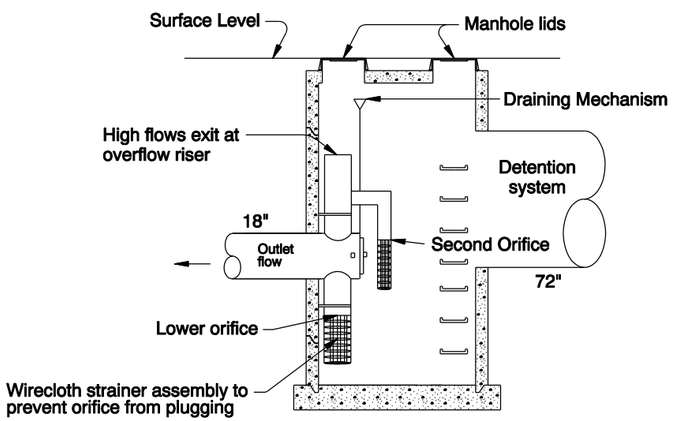
- **Operational Plan and Profile Drawing(s)**



PLAN
N.T.S.



SCHEMATIC OF PIPE DRAINAGE SYSTEM
N.T.S.



Flow Control Structure for Detention Tank / Pipe (DFI D00039)

LEGEND:

- Photo Location / Direction
- A Large Manhole - 9' Dia.
- B Large Manhole - 9' Dia.
- C Flow Control Structure - 9' Dia.
- Manhole
- Inlet
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sht. 1 of 1

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Craig Fox

Drafted By: Jim Holeman

DFI D00039
MAINTENANCE DISTRICT 3 HWY 1
DETENTION TANK / PIPE
PACIFIC HIGHWAY MP 252.00-252.05
MARION COUNTY

G:\03_001_D00039\Operational Plan\DFI_D00039.dgn :: Default 9/28/2011 10:39:59 AM hwye94w

DFI_D00039.dgn

Appendix B

Content:

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

38V-117

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont'd.
1A-2	Index Of Sheets Cont'd.
1A-3	Index Of Sheets Cont'd.
1A-4	Standard Drawing Nos.
1B	Layout Sheet

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

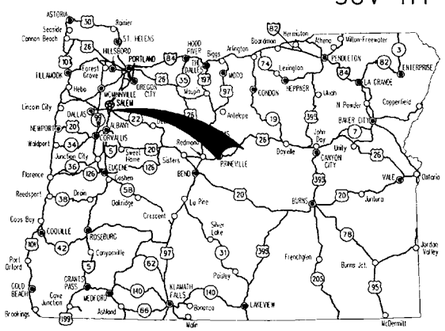
GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNALS & ROADSIDE DEVELOPMENT

I-5: N. SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.

PACIFIC HIGHWAY

MARION COUNTY

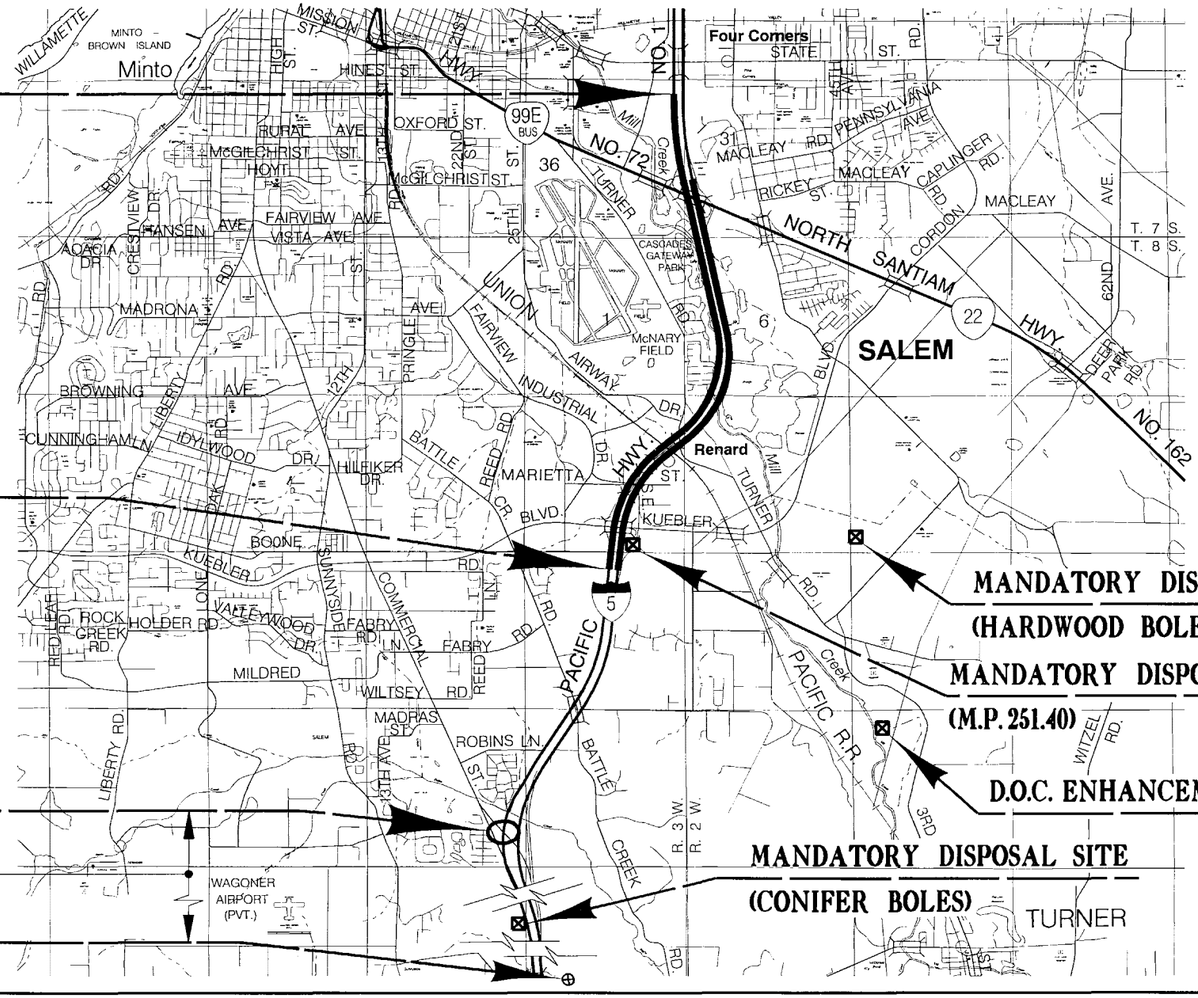
OCTOBER 2005



Overall Length Of Project - 4.02 km (2.49 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.)

OTIA-NH-IM-S001(196)
BEGINNING OF PROJECT
STA. "L" 10+280 (M.P. 254.58)



END OF WORK AREA
STA. "L" 15+682.3 (M.P. 251.22)

NO WORK AREA

OTIA-NH-IM-S001(196)
END OF PROJECT
STA. "LS" 18+664.61 (M.P. 249.38)

Approx. 28 Mi. South

PROSPECTIVE MATERIAL SOURCE
(M.P. 221.13)

MANDATORY DISPOSAL SITE
(HARDWOOD BOLES)

MANDATORY DISPOSAL SITE
(M.P. 251.40)

D.O.C. ENHANCEMENT SITE

MANDATORY DISPOSAL SITE
(CONIFER BOLES)

OTIA
OREGON TRANSPORTATION INVESTMENT ACT

LET'S ALL WORK TOGETHER TO MAKE THIS JOB SAFE

OREGON TRANSPORTATION COMMISSION

Stuart Foster	CHAIRMAN
Gail L. Achterman	COMMISSIONER
Mike Nelson	COMMISSIONER
Randall Papé	COMMISSIONER
Janice J. Wilson	COMMISSIONER
Bruce A. Warner	DIRECTOR OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER
13,704
OREGON
JULY 16, 1987
CATHERINE M. NELSON
Expires Dec. 31, 2006

Catherine M. Nelson
TECHNICAL SERVICES MANAGING ENGINEER

I-5: N. SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	OTIA-NH-IM-S001(196)	1

METRIC

PE000950

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38V-117

SALEM

T. 8 S., R. 2 W., W.M.
T. 8 S., R. 3 W., W.M.

"L" 14+061.151 P.T.

"L"
122.280 m Sp.
S 3°30'37"
A 349.323

"NB" 14+000

"L" 14+000

"NB" 14+100

"L" 14+100

"T" 0+569.941 P.C.

"RR" 0+500

"PE" 0+500.866 P.T.

"L" 14+218.148 P.S.

"NB" 14+200

"L" 14+200

"PM" 0+499.251 P.T.

"PE"
R 1764.044 m C.R.
Δ 1°29'25"
T 22.941 m

"PM"
R 1740.944 m C.R.
Δ 1°29'25"
T 22.640 m

R/W & Access Control Line

"PE" 0+454.987 P.O.C.

"RR" 0+454.443 P.O.C.

"PM" 0+453.973 P.O.C.

"PM"
R 2022.511 m C.R.
Δ 2°30'52"
T 44.386 m

"RR"
R 2033.211 m C.R.
Δ 2°30'52"
T 44.621 m

"PE"
R 2045.611 m C.R.
Δ 2°30'52"
T 44.893 m

"L" 14+300

R/W & Access Control Line

"L" 14+061.190 P.O.T. (3.90 m Lt.)

"NB" 14+089.095 P.T.

"T" 0+500

"NB" LINE

S.54°46'32"W.

S.54°42'42"E.

"PM" 0+400
"RR" 0+400
"PE" 0+400

"PM" LINE

"PM" 0+365.215 P.C.

"RR" 0+365.215 P.C.

Perm. Easem't Hwy. Right of Way

R/W & Access Control Line

S.51°54'00"E.

S.51°54'00"E.

U.P.R.R.

"RR" LINE

"PM" 0+300.000 P.O.T. (10.7 m Rt.)
"RR" 0+300.000 P.O.T.

"PE" LINE

"PE" 0+300.000 P.O.T. (12.4 m Lt.)
"RR" 0+300.000 P.O.T. "RR" 0+300

Sec. 12

"SB" LINE

"L" LINE

"SB" 14+000

"SB" 14+100

"SB"
180.000 m Sp.
S 5°15'43"
A 420.000

"T" 0+435.746 P.T.

"T" 0+494.070 P.O.T.

"L" 14+095.544 P.O.T.

"SB" 14+075.837 P.T.

"L" 14+103.866 P.O.T. (18.30 m Rt.)

"T"
R 291.063 m C.L.
Δ 24°37'30"
T 63.528 m

R/W & Access Control Line

"T" 0+400

TURNER RD.

"T" LINE

"RR" 0+409.225 P.O.C.

"L" 14+231.731 P.O.T.

"PE" 0+365.215 P.C.

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

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-5: N. SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Jeff Larson

ALIGNMENT

SHEET NO. 16

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SALEM

STRUCTURAL DETAILS CHECKED _____

"NB" 14+000

"L" 14+000

"NB" LINE
(For Profile, See Sht. 16J)

N

T. 8 S., R. 2 W., W.M.
T. 8 S., R. 3 W., W.M.

Sec. 12
Sec. 7

+068.0

R/W & Access Control Line

+125.0

"NB" 14+100

"L" 14+100

"RR" 0+500

+195.0

"NB" 14+200

"L" 14+200

"PM" 0+400
"RR" 0+400
"PE" 0+400

+266.5

R/W & Access Control Line

"L" 14+300

"T" 0+500

"SB" 14+000

"T" 0+400

TURNER RD.

R/W & Access Control Line

"SB" LINE
(For Profile, See Sht. 16H)

"SB" 14+100

"L" LINE
(For Profile, See Shts. 16F & 16G)

U.P.R.R.

"PE" LINE

"RR" 0+300

"T" LINE

R/W & Access Control Line

"PM" LINE

"RR" LINE

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

Contractor May Not Occupy Area Prior To November 30, 2005 Shown Thus:

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-5: N. SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Jeff Larson

GENERAL CONSTRUCTION

SHEET NO. 16A

STRUCTURAL DETAILS CHECKED

(1) See Sht. 14B, Note 6
Remove Extg. Guardrail
Const. Precast Conc. Shldr. Barrier
(1A) Const. Conc. Barrier Transition To Bridge Rail - 3.8 m

(2) Const. Low Profile Mountable Curb

(3) Sta. "L" 14+068.0 To Sta. "L" 14+125.0
Structure No. 20032
Remove Extg. Structure
Const. Structure - 57.0 m
Rdwy. Width - 43.8 m
(For Drg. Nos., See Sht. 1A-2)

(4) Sta. "L" 14+148.0 To Sta. "L" 14+178.7
Remove Extg. Guardrail - 110.5 m
Const. Precast Conc. Shldr. Barrier - 23.0 m
Plug Scuppers
(4A) Const. Conc. Barrier Transition To Bridge Rail - 7.6 m
Flare Rate=0, W=0, E=0

(5) Sta. "L" 14+270.6 To Sta. "L" 14+745.1
Remove Extg. Guardrail - 49.5 m
Const. Precast Conc. Shldr. Barrier - 467.9 m
(Reflectorized)
Plug Scuppers
(5A) Const. Conc. Barrier Transition To Bridge Rail - 3.8 m
Flare Rate=0, W=0, E=0

(6) See Sht. 14B, Note 15
Remove Extg. Guardrail
Const. Precast Conc. Shldr. Barrier
(6A) Const. Conc. Barrier Transition To Bridge Rail - 3.8 m

(7) See Sht. 14B, Note 16
Const. Precast Tall Conc. Median Barrier

(8) Sta. "T" 0+475.1 To Sta. "T" 0+505.8
Const. Precast Conc. Shldr. Barrier - 22.9 m
(Reflectorized)
Plug Scuppers
(8A) Const. Guardrail Connection To Conc. Barrier - 7.6 m

(9) Sta. "T" 0+450.6 To Sta. "T" 0+475.1
Const. Guardrail - 3.8 m (Type 2A)
Const. Guardrail - 3.8 m (Type 3)
Const. Guardrail Transition
Flare Rate=0, W=1.22 m, E=0
Const. Guardrail Terminal, Flared Test Level 3
(See Drg. No. RD425)

(10) Sta. "T" 0+505.8 To Sta. "T" 0+530.3
Const. Guardrail - 3.8 m (Type 2A)
Const. Guardrail - 3.8 m (Type 3)
Const. Guardrail Transition
Flare Rate=0, W=1.22 m, E=0
Const. Guardrail Terminal, Flared Test Level 3

(11) Sta. "T" 0+481.1 To Sta. "T" 0+510.8
Const. Precast Conc. Shldr. Barrier - 22.9 m
(Reflectorized)
Plug Scuppers
(11A) Const. Guardrail Connection To Conc. Barrier - 7.6 m

(12) Sta. "T" 0+455.6 To Sta. "T" 0+480.1
Const. Guardrail - 3.8 m (Type 2A)
Const. Guardrail - 3.8 m (Type 3)
Const. Guardrail Transition
Flare Rate=0, W=1.22 m, E=0
Const. Guardrail Terminal, Flared Test Level 3

(13) Sta. "T" 0+510.8 To Sta. "T" 0+535.3
Const. Guardrail - 3.8 m (Type 2A)
Const. Guardrail - 3.8 m (Type 3)
Const. Guardrail Transition
Flare Rate=0, W=1.22 m, E=0
Const. Guardrail Terminal, Flared Test Level 3

(14) Sta. "L" 14+122.0 To Sta. "L" 14+191.0
Remove Extg. Guardrail - 110.5 m
Const. Precast Conc. Shldr. Barrier - 61.4 m
(Reflectorized)
Plug Scuppers
(14A) Const. Conc. Barrier Transition To Bridge Rail - 7.6 m
Flare Rate=0, W=0, E=0

(15) Sta. "L" 14+195.0 To Sta. "L" 14+266.5
Structure No. 20026
Remove Extg. Structure
Const. Structure - 71.5 m
Rdwy. Width - 43.8 m
(For Drg. Nos., See Sht. 1A-2)

(16) Sta. "L" 14+282.7 To Sta. "Dk" 6+355.5
Remove Extg. Guardrail - 182.9 m
Const. Precast Conc. Shldr. Barrier - 460.2 m
(Reflectorized)
Plug Scuppers
(16A) Const. Conc. Barrier Transition To Bridge Rail - 3.8 m
Flare Rate=0, W=0, E=0

(17) See Sht. 14B, Note 19
Remove Extg. Fence
Const. Type CL-6 Fence
(17A) Inst. Double Type "CL-6" Locked Gate - 4.2 m
(17B) End At Bridge

(18) Sta. "L" 14+139.1 To Sta. "L" 14+190.5
Remove Extg. Fence
(18A) Const. Type CL-6 Fence
(18B) End At Bridge
(18C) Inst. Double Type "CL-6" Locked Gate - 4.2 m
Inst. Double Type "CL-6" Locked Gate - 4.2 m

(19) See Sht. 14B, Note 20
Remove Extg. Fence
Const. Type CL-6 Fence
(19A) Inst. Double Type "CL-6" Locked Gate - 4.2 m
(19B) End At Bridge
(19C) Connect To Extg. Fence

(20) Sta "L" 14+101.1 To Sta "L" 14+207.3
Remove Extg. Fence
Const. Type CL-6 Fence
(20A) End At Bridge
(20B) Inst Double Type "CL-6" Locked Gate - 4.2 m

(21) Sta. "L" 14+251.8 To Sta. "L" 14+756.8
Remove Extg. Fence
Const. Type CL-6 Fence
(21A) End At Bridge

(22) Sta. "L" 14+273.5 To Sta. "L" 14+763.6
Const. Type CL-6 Fence
(22A) End At Bridge

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-5: N. SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Jeff Larson

NOTES

SHEET NO. 16B

SALEM

STRUCTURAL DETAILS CHECKED

"NB" 14+000

"L" 14+000

"NB" LINE

"L" 14+100

"NB" 14+100

R/W & Access Control Line

T. 8 S., R. 2 W., W.M.

T. 8 S., R. 3 W., W.M.

Sec. 12

Sec. 7

+090.0

+125.0

200 mm-7.90 m

"RR" 0+500

+195.0

450 mm-56.0 m

"NB" 14+200

"L" 14+200

+266.5

"L" 14+300

"G-2" Basin

300 mm-11.5 m

600 mm-45.5 m

300 mm-12.0 m

"T" 0+500

375 mm-23.5 m

300 mm-20.0 m

Water Quality Str.

1800 mm-46.0 m

300 mm-3.5 m

300 mm-18.5 m

Flow Control M.H.

300 mm-1.5 m

300 mm-12.0 m

Water Quality Str.

375 mm-18.0 m

1800 mm-32.0 m

300 mm-3.5 m

300 mm-2.0 m

450 mm C.M.P.

Ditch

300 mm-23.0 m

300 mm-11.5 m

"G-2" Basin

300 mm-4.0 m

"G-2" Basin

300 mm-6.5 m

300 mm-26.0 m

200 mm C.M.P.

300 mm-3.0 m

300 mm-24.5 m

Flow Control M.H.

2700 mm M.H.

"PM" 0+400

"RR" 0+400

"PE" 0+400

300 mm-26.5 m

Flow Control M.H.

"SB" LINE

"L" LINE

"SB" 14+000

"T" 0+400

TURNER RD.

R/W & Access Control Line

"T" LINE

"SB" 14+100

1500 mm-38.0 m

300 mm-12.5 m

U.P.R.R.

R/W & Access Control Line

"PM" LINE

"RR" LINE

"PE" LINE

"RR" 0+300

Plug And Abandon Extg. Pipe Shown Thus:

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

REGISTERED PROFESSIONAL ENGINEER
14,931
Carol A. Cartwright
OREGON
JULY 25, 1990
CAROL A. CARTWRIGHT
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-5: N. SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Jeff Larson

DRAINAGE & UTILITIES

SHEET NO. 16C

F:\ODOT_DATA\Projects\13284Kuebler\13284f.dr2 7/10/2005 4:50:49 PM hwye07x

1:1000 - 1

STRUCTURAL DETAILS CHECKED _____

(1) *Sta."L"14+051.1 To Sta."NB"14+065.4*
Const. Manhole 2700 mm Dia.
Const. Water Quality Structure
Const. Flow Control Manhole 2400 mm Dia.
Const. Siphon Box
Inst. 300 mm Sew. Pipe - 18.5 m
3.0 m Depth
Inst. 300 mm Sew. Pipe - 23.5 m
6.0 m Depth
Inst. 1800 mm Sew. Pipe - 46.0 m
6.0 m Depth
(For Details, See Sht. GJ-4)
(See Drg. No. RD376)

(2) *Const. Ditch*
"V" Bottom, 1:3 Slopes
Dt. Exc. - 48 m^3

(3) *Sta."L"14+110.1 To Sta."L"14+148.9*
Const. Type "G-2MA" Inlet
Shape Bottom
Inst. 300 mm Sew. Pipe - 39.0 m
1.5 m Depth
Inst. 375 mm Sew. Pipe - 23.5 m
6.0 m Depth
Inst. Slope Anchors
(See Drg. Nos. RD330 & RD364)

(4) *Sta."L"14+136.4 To Sta."L"14+183.9*
Const. Water Quality Structure
Const. Flow Control Manhole 2700 mm Dia.
Const. Large Manhole 2700 mm Dia.
Const. Manhole
Const. Type "G-2" Open Grade HMAC Inlet
With Basin - 2
0.45 m Deep
Const. Type "G-2" Open Grade HMAC Inlet
Shape Bottom
Adjust Inlet For Wearing Course - 2
Inst. 300 mm Sew. Pipe - 20.0 m
1.5 m Depth
Inst. 300 mm Sew. Pipe - 24.5 m
3.0 m Depth
Inst. 375 mm Sew. Pipe - 18.0 m
6.0 m Depth
Inst. 1800 mm Sew. Pipe - 32.0 m
6.0 m Depth
(For Details, See Sht. GJ-4)

(5) *Sta."L"14+148.9 To Sta."L"14+205.0*
Inst. 450 mm Sew. Pipe - 56.0 m
1.5 m Depth

(6) *Sta."L"14+241.4 To Sta."L"14+266.3*
Const. Type "D MOD" Inlet
Inst. 300 mm Sew. Pipe - 26.5 m
1.5 m Depth
Inst. Slope Anchors
(For Details, See Sht. GJ-9)
(See Drg. No. RD370)

(7) *Sta."L"14+266.3 To Sta."L"14+271.5*
Const. Water Quality Structure
Inst. 600 mm Sew. Pipe - 5.5 m
1.5 m Depth

(8) *Sta."L"14+271.5 To Sta."L"14+317.4*
Const. Manhole
Const. Type "G-2" Open Grade HMAC Inlet
With Basin - 5
0.45 m Deep
Const. Type "G-2" Open Grade HMAC Inlet - 4
Shape Bottom
Adjust Inlet For Wearing Course - 6
Inst. 300 mm Sew. Pipe - 78.0 m
1.5 m Depth
Inst. 600 mm Sew. Pipe - 45.5 m
1.5 m Depth

(9) *Sta."SB"14+016.3 To Sta."L"14+051.1*
Const. Manhole
Const. Type "G-2" Open Grade HMAC Inlet
With Basin - 2
0.45 m Deep
Adjust Inlet For Wearing Course - 2
Inst. 300 mm Sew. Pipe - 6.5 m
1.5 m Depth
Inst. 300 mm Sew. Pipe - 26.0 m
3.0 m Depth

(10) *Sta."L"14+123.4 To Sta."L"14+190.1*
Const. Large Manhole 2100 mm Dia.
Const. Flow Control Manhole 2100 mm Dia.
Const. Type "G-2" Open Grade HMAC Inlet
With Basin - 2
0.45 m Deep
Adjust Inlet For Wearing Course - 2
Inst. 300 mm Sew. Pipe - 2.5 m
1.5 m Depth
Inst. 300 mm Sew. Pipe - 26.5 m
3.0 m Depth
Inst. 1500 mm Sew. Pipe - 38.0 m
6.0 m Depth
(For Details, See Sht. GJ-4)

(11) *Remove Extg. 2.1 m x 1.2 m R.C.B.C.*
Const. Channel Change
(11A) *Const. Outlet*
(For Details, See Shts. GE-1, GE-2, GE-3 & GF-1)

(12) *Const. Channel Change*
(For Details, See Sht. GF-2)

(13) *Remove Pipe*

(14) *Sta."L"14+135.6*
Const. Open Grade Wearing Surface Drain
Outlet To Inlet

(15) *Sta."L"14+135.6*
Const. Open Grade Wearing Surface Drain
Outlet To Inlet

(16) *Sta."L"14+272.0*
Const. Open Grade Wearing Surface Drain
Outlet To Inlet

(17) *Sta."L"14+278.5*
Const. Open Grade Wearing Surface Drain
Outlet To Inlet

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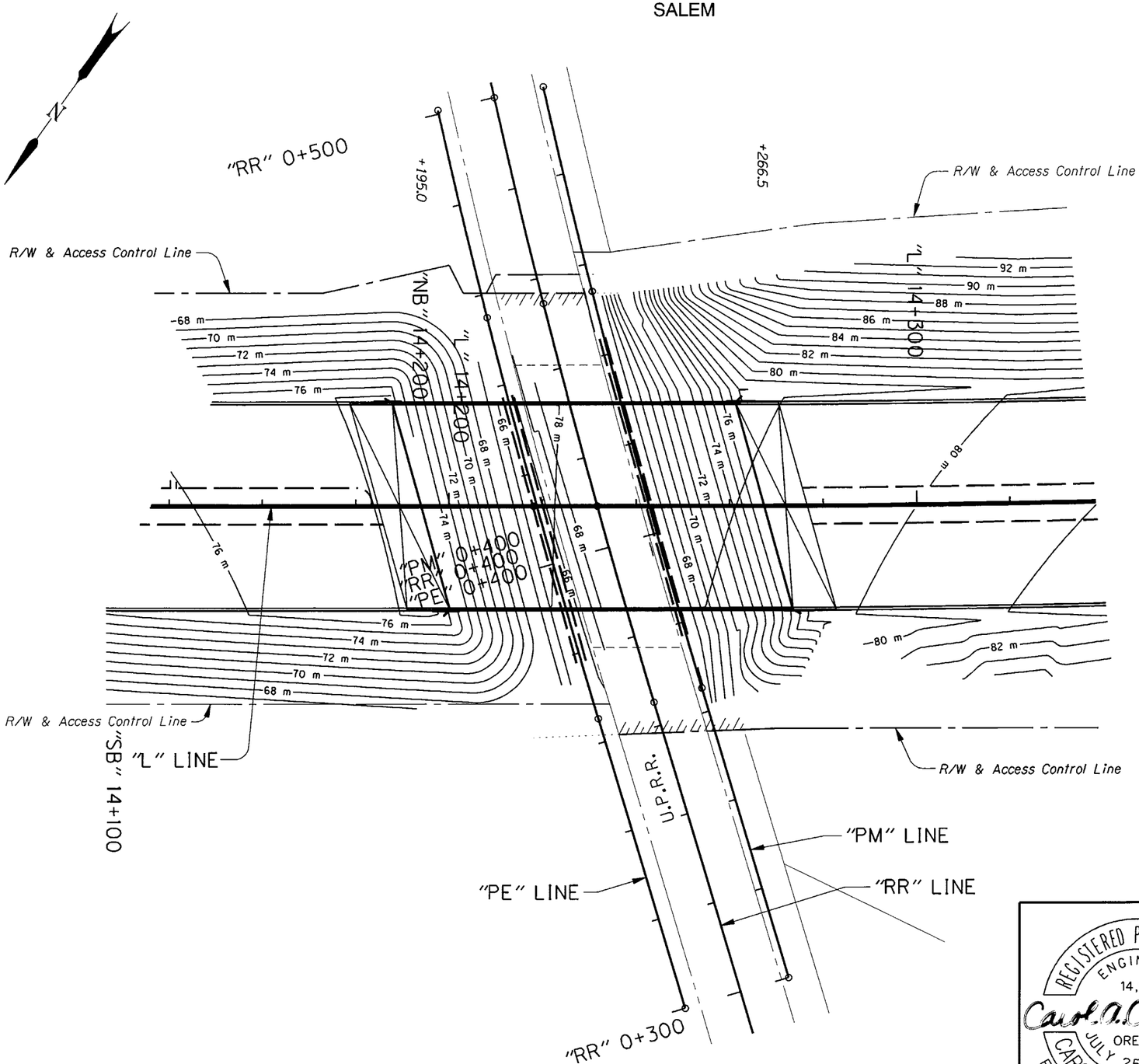
I-5: N. SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Design Team Leader - Carol Cartwright
Designed By - John Lucas
Drafted By - Jeff Larson

NOTES

SHEET NO. 16D

Sec. 12, T. 8 S., R. 3 W., W.M.
SALEM



All Dimensions Are Shown In Meters (m)
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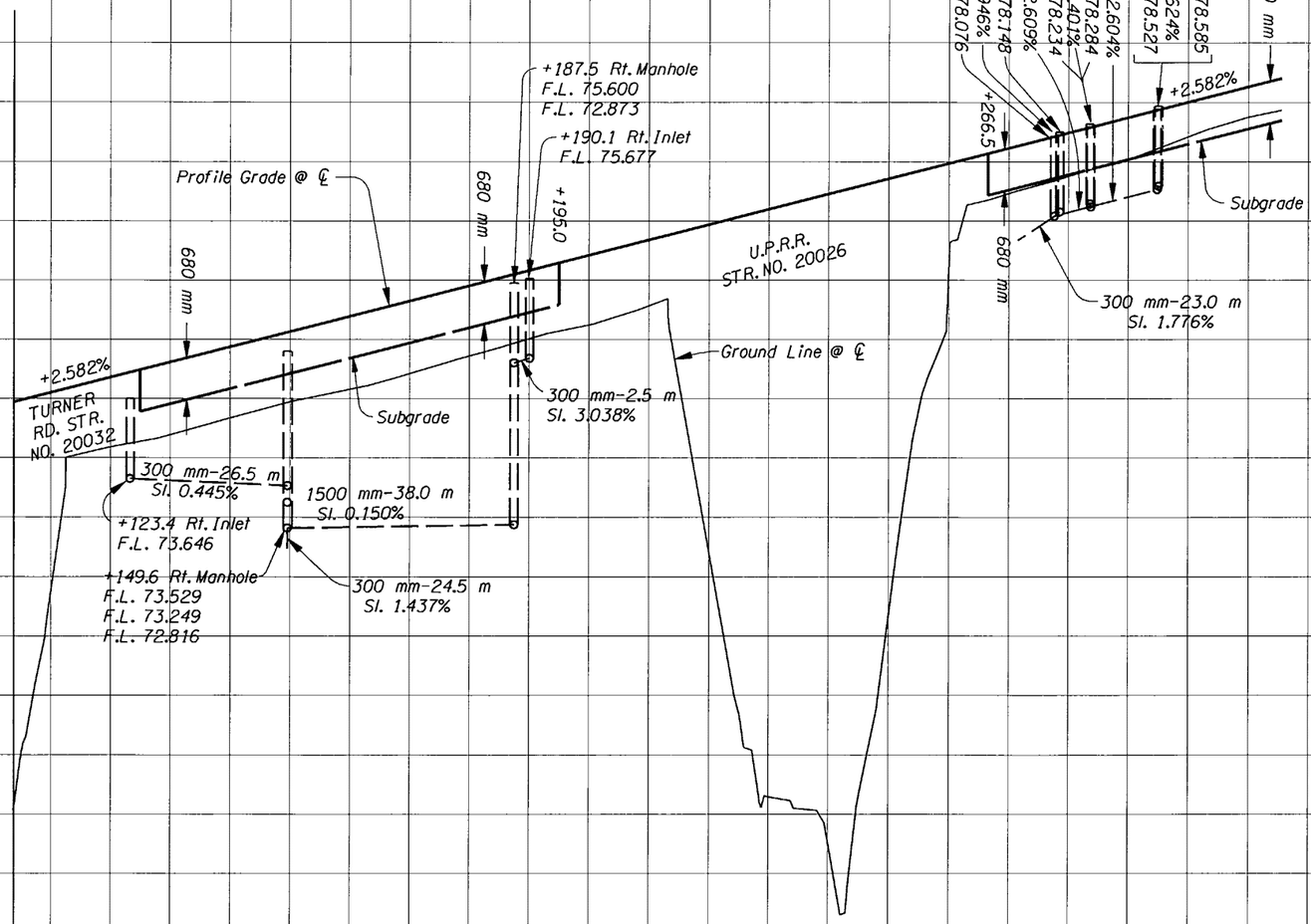
CONTOUR GRADING PLAN

SHEET NO. 16E

STRUCTURAL DETAILS CHECKED

"L" LINE
RIGHT
(Southbound)



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MARION COUNTY

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Designed By - John Lucas
Drafted By - Steve Donaldson

PROFILE

SHEET NO. 16F

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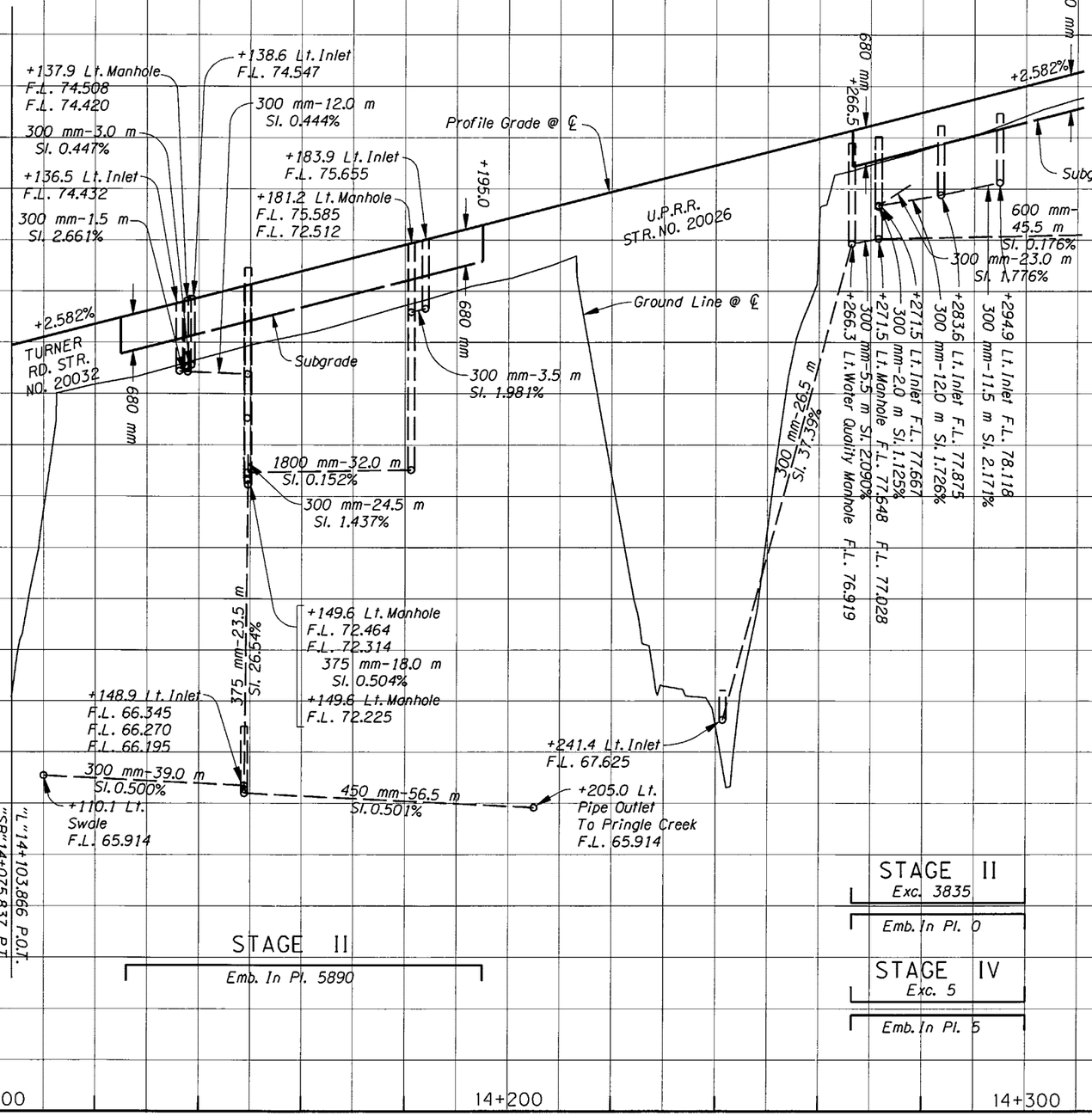
"L" LINE
LEFT
(Northbound)



STRUCTURAL DETAILS CHECKED _____

REGISTERED PROFESSIONAL ENGINEER
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MARION COUNTY

Design Team Leader - Carol Cartwright P.E.
Designed By - John Lucas
Drafted By - Steve Donaldson

PROFILE

SHEET NO. 16G

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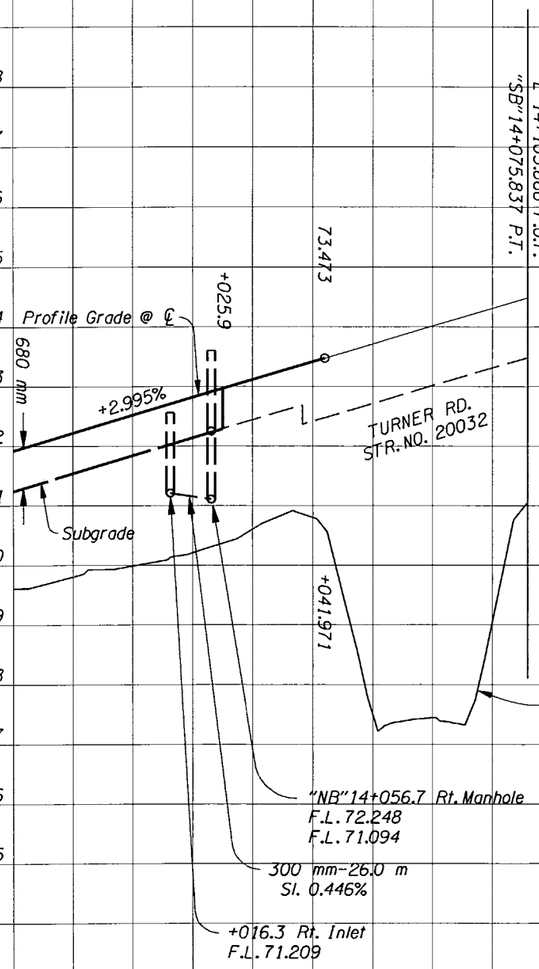
38V-117

"SB" LINE



STRUCTURAL DETAILS CHECKED

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MARION COUNTY

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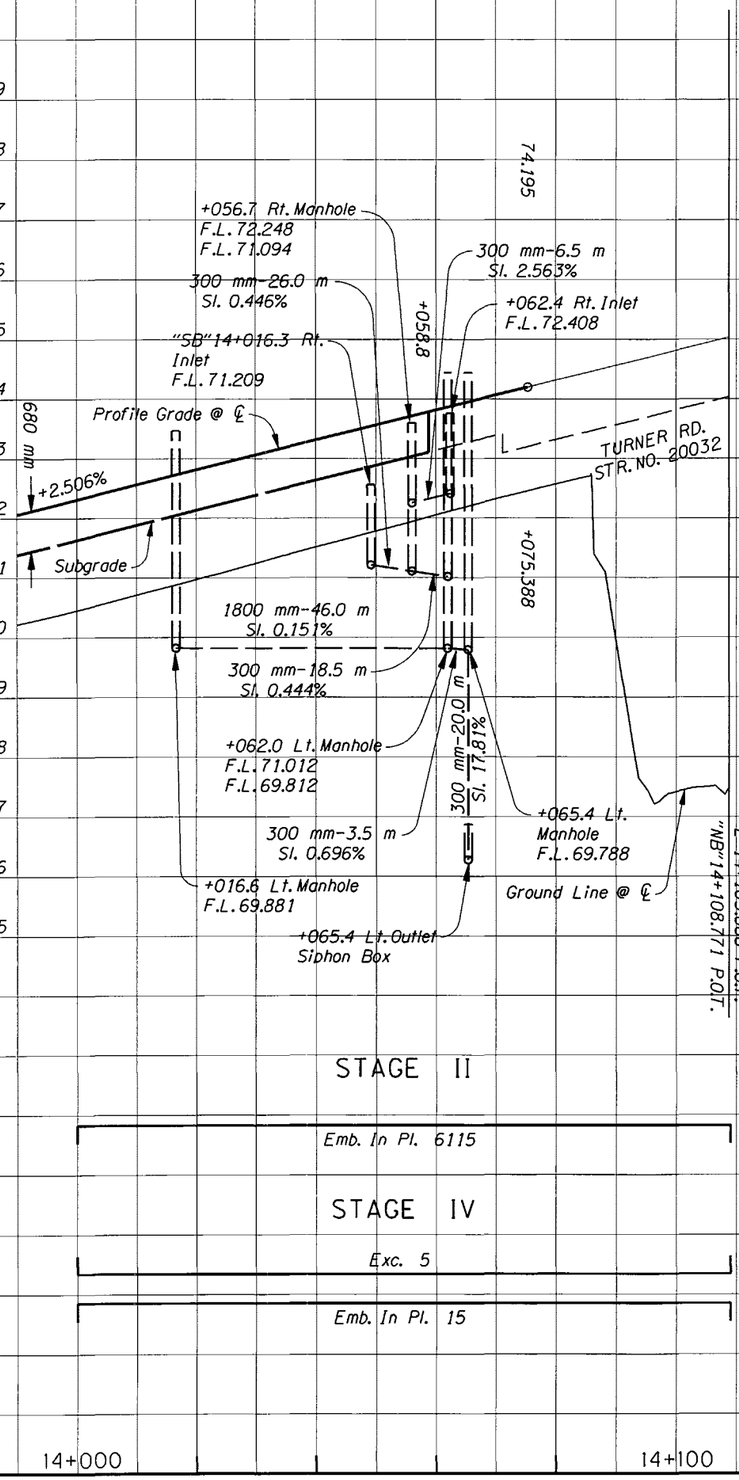
Designed By - John Lucas
Drafted By - Steve Donaldson

PROFILE

SHEET NO. 16H

38V-117

"NB" LINE



STRUCTURAL DETAILS CHECKED

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PROFILE

SHEET NO. 16J

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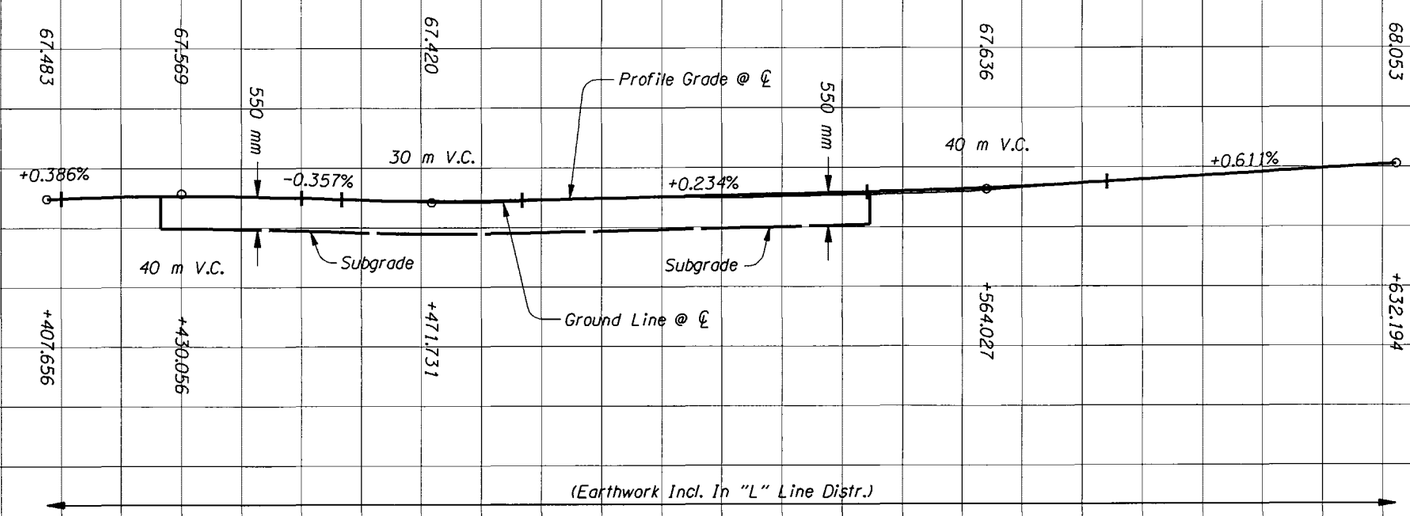
1:1000 - 6

38V-117

"T" LINE



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PACIFIC HIGHWAY
MARION COUNTY

Design Team Leader - Carol Cartwright P.E.
Designed By - John Lucas
Drafted By - Steve Donaldson

PROFILE

SHEET NO. 16K

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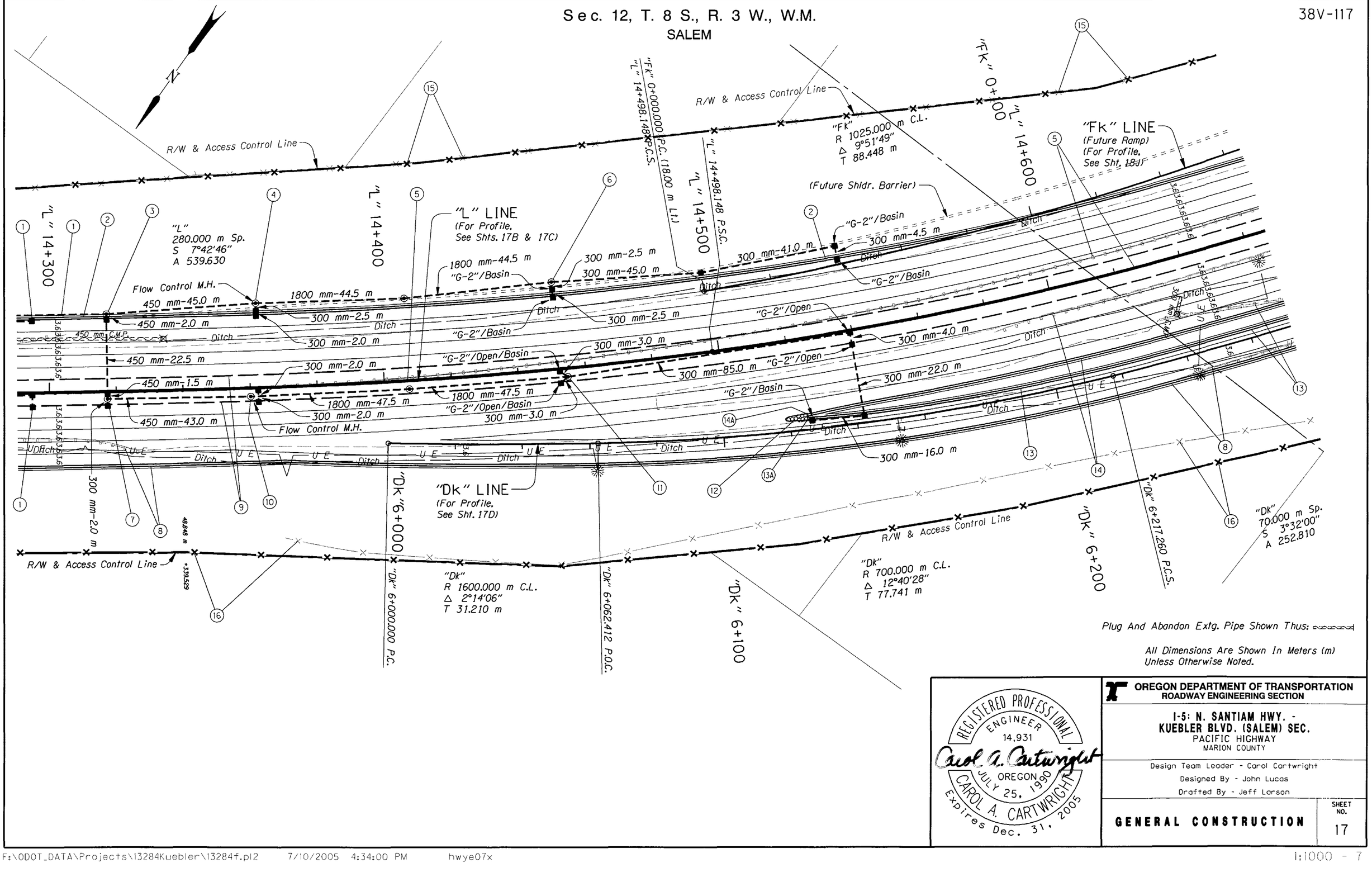
Sec. 12, T. 8 S., R. 3 W., W.M.
SALEM

38V-117



Plug And Abandon Extg. Pipe Shown Thus:

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

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PACIFIC HIGHWAY
MARION COUNTY

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Designed By - John Lucas
Drafted By - Jeff Larson

GENERAL CONSTRUCTION

SHEET NO. 17

(1) See Sht. 16D, Note 8
Inst. 600 mm Sew. Pipe

(2) See Sht. 16B, Note 5
Const. Precast Conc. Shldr. Barrier

(3) Sta. "L" 14+317.4 To Sta. "L" 14+362.4
Const. Manhole
Const. Type "G-2" Open Grade HMAC Inlet - 2
Shape Bottom
Adjust Inlet For Wearing Course
Inst. 450 mm Sew. Pipe - 2.0 m
1.5 m Depth
Inst. 450 mm Sew. Pipe - 69.0 m
3.0 m Depth

(4) Sta. "L" 14+362.4 To Sta. "L" 14+452.4
Const. Flow Control Manhole 2700 mm Dia.
Const. Manhole 2700 mm Dia.
Const. Type "G-2" Open Grade HMAC Inlet
With Basin - 2
0.45 m Deep
Adjust Inlet For Wearing Course
Inst. 300 mm Sew. Pipe - 4.5 m
1.5 m Depth
Inst. 1800 mm Sew. Pipe - 89.0 m
6.0 m Depth
(For Details, See Sht. GJ-4)

(5) See Sht. 14B, Note 16
Remove Extg. Metal Median Barrier
Const. Precast Tall Conc. Median Barrier

(6) Sta. "L" 14+452.4 To Sta. "L" 14+539.4
Const. Manhole 2700 mm Dia.
Const. Type "G-2" Open Grade HMAC Inlet
With Basin - 4
0.45 m Deep
Const. Type "G-2" Open Grade HMAC Inlet
Shape Bottom
Adjust Inlet For Wearing Course - 2
Inst. 300 mm Sew. Pipe - 95.5 m
1.5 m Depth
(For Details, See Sht. GJ-4)

(7) Sta. "L" 14+317.4 To Sta. "L" 14+360.1
Const. Manhole
Const. Type "G-2" Open Grade HMAC Inlet
With Basin
0.45 m Deep
Adjust Inlet For Wearing Course
Inst. 300 mm Sew. Pipe - 2.0 m
1.5 m Depth
Inst. 450 mm Sew. Pipe - 43.0 m
3.0 m Depth

(8) See Sht. 16B, Note 16
Remove Extg. Guardrail
Const. Precast Conc. Shldr. Barrier

(9) Const. Low Profile Mountable Curb

(10) Sta. "L" 14+360.1 To Sta. "L" 14+454.6
Const. Flow Control Manhole 2700 mm Dia.
Const. Manhole 2700 mm Dia.
Const. Type "G-2" Open Grade HMAC Inlet
With Basin - 2
0.45 m Deep
Adjust Inlet For Wearing Course
Inst. 300 mm Sew. Pipe - 4.0 m
1.5 m Depth
Inst. 1800 mm Sew. Pipe - 95.0 m
6.0 m Depth
(For Details, See Sht. GJ-4)

(11) Sta. "L" 14+454.6 To Sta. "L" 14+539.4
Const. Manhole 2700 mm Dia.
Const. Type "G-2" Inlet With Basin
0.45 m Deep
Const. Type "G-2" Inlet
Shape Bottom
Const. Type "G-2" Open Grade HMAC Inlet - 2
Shape Bottom
Const. Type "G-2" Open Grade HMAC Inlet
With Basin - 2
Adjust Inlet For Wearing Course - 2
Inst. 300 mm Sew. Pipe - 133.0 m
1.5 m Depth
(For Details, See Sht. GJ-4)

(12) Sta. "L" 14+523.0
Inst. Impact Attenuator
(For Details, See Sht. 2B-5)

(13) Sta. "Dk" 6+125.4 To Sta. "Dk" 6+350.0
Remove Extg. Guardrail - 110.5 m
Const. Precast Conc. Shldr. Barrier - 222.4 m
(Reflectorized)
Plug Scuppers
(13A) Connect To Impact Attenuator
Flare Rate=1:20, W=0.7 m, E=0
(For Details, See Sht. 2B-5)

(14) Sta. "L" 14+523.0 To Sta. "L" 14+743.3
Remove Extg. Guardrail - 156.2 m
Const. Precast Conc. Shldr. Barrier - 218.6 m
(Reflectorized)
Plug Scuppers
(14A) Connect To Impact Attenuator
Flare Rate=1:20, W=0.7 m, E=0
(For Details, See Sht. 2B-5)

(15) See Sheet 16B, Note 21
Remove Extg. Fence
Const. Type CL-6 Fence

(16) See Sheet 16B, Note 22
Remove Extg. Fence
Const. Type CL-6 Fence

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I-5: N. SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

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Drafted By - Jeff Larson

NOTES

SHEET NO. 17A

"L" LINE
RIGHT
(Southbound)

88 87 86 85 84 83 82 81 80 79 78

+317.4 Rt. Inlet
F.L. 79.186
300 mm-2.0 m
Sl. 2.159%
+317.4 Rt.t. Manhole
F.L. 79.141
F.L. 78.235
450 mm-1.5 m
Sl. 0.269%
+317.4 Rt. Inlet
F.L. 78.321

+362.4 Rt. Inlet F.L. 79.897
300 mm-2.0 m Sl. 17.35%
+362.4 Rt. Outlet Into Detention
Pipe F.L. 79.550 (Blind Conn.)
+362.4 Rt. Inlet F.L. 79.787
300 mm-2.0 m Sl. 11.85%
+362.4 Rt. Outlet Into Detention
Pipe F.L. 79.550 (Blind Conn.)

452.4 Rt. Inlet F.L. 81.830
300 mm-3.0 m Sl. 1.031%
454.6 Rt. Outlet Into Manhole
F.L. 81.800
452.4 Rt. Inlet F.L. 81.741
300 mm-3.5 m Sl. 0.979%
454.6 Rt. Outlet Into Manhole
F.L. 81.710

Profile Grade @ ℄

"DK" 6+142.33 Lt. Inlet
F.L. 84.568

87.653 o

680 mm

540 m V.C.

Ground Line @ ℄

Subgrade

300 mm-22.0 m
Sl. 4.626%

300 mm-85.0 m Sl. 1.371%

+539.4 Rt. Inlet
F.L. 83.564
300 mm-4.0 m
Sl. 4.622%
+539.4 Rt. Inlet
F.L. 83.399

+596.518

+294.9 Rt. Inlet F.L. 78.585
300 mm-4.0 m Sl. 1.624%
+294.9 Rt. Inlet F.L. 78.527

680 mm

+2.582%

Subgrade

+360.1 Rt. Manhole
F.L. 78.346

Blind Connect To
Detention Pipe

450 mm-43.0 m Sl. 0.259%

450 mm-22.5 m
Sl. 0.260%

1800 mm-47.5 m
Detention Pipe
Sl. 0.150%

+407.4 Rt. Manhole
F.L. 78.417

1800 mm-47.5 m
Detention Pipe
Sl. 0.150%

+454.6 Rt. Manhole
F.L. 82.235
F.L. 78.488

STAGE I
Exc. 1420
Emb. In Pl. 1130

STAGE III
Exc. 3575
Emb. In Pl. 2170

14+300 14+400 14+500 14+600

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Drafted By - Steve Donaldson

PROFILE

SHEET NO. 17B

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1:1000 - 8

"L" LINE
LEFT
(Northbound)

87653 0

+566.518

680 mm

Profile Grade @ ℄

540 m V.C.

Ground Line @ ℄

Subgrade

680 mm

+2.582%

Subgrade

450 mm-22.5 m
Sl. 0.260%

600 mm-
45.5 m
Sl. 0.176%

450 mm-45.0 m
Sl. 0.260%

1800 mm-44.5 m
Detention Pipe
Sl. 0.151%

1800 mm-44.5 m
Detention Pipe
Sl. 0.149%

300 mm-45.0 m
Sl. 1.767%

300 mm-41.0 m
Sl. 1.178%

+497.9 Lt. Inlet
F.L. 81.367

+539.4 Lt. Inlet
F.L. 82.065

300 mm-4.5 m
Sl. 5.274%

+539.4 Lt. Inlet
F.L. 81.845

+294.9 Lt. Inlet F.L. 78.118
300 mm-11.5 m Sl. 2.171%

+317.4 Lt. Inlet
F.L. 78.173
450 mm-2.0 m
Sl. 0.305%

+317.4 Lt. Manhole
F.L. 78.168
F.L. 77.258
F.L. 77.108

+362.4 Lt. Inlet F.L. 79.552
300 mm-2.0 m Sl. 3.077%
+362.4 Lt. Inlet F.L. 79.503
300 mm-2.5 m Sl. 3.108%
+362.4 Lt. Manhole
F.L. 79.433 F.L. 77.374

+407.4 Lt.
Manhole
F.L. 77.441

+452.4 Lt. Inlet F.L. 80.985
300 mm-2.5 m Sl. 5.415%
+452.4 Lt. Inlet F.L. 80.855
300 mm-2.5 m Sl. 5.422%
+452.4 Lt. Manhole
F.L. 80.733 F.L. 77.580
F.L. 77.507

STAGE II
Exc. 44 970
Emb. In Pl. 575

STAGE IV
Exc. 10
Emb. In Pl. 35

14+300 14+400 14+500 14+600

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PACIFIC HIGHWAY
MARION COUNTY

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Drafted By - Steve Donaldson

PROFILE

SHEET NO. 17C

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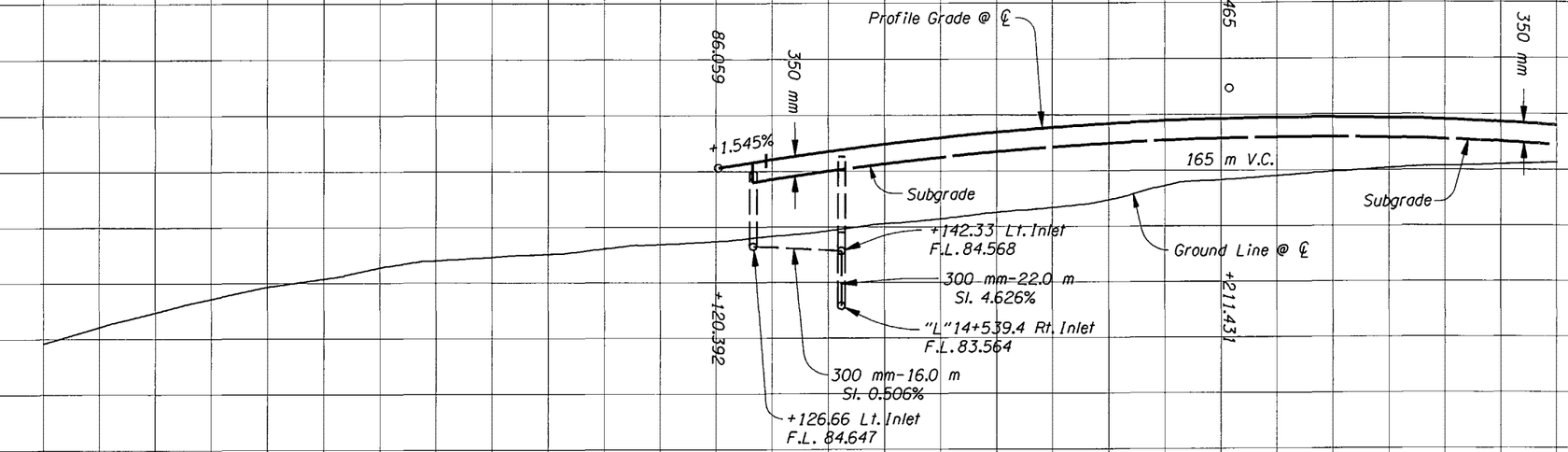
1:1000 - 9

"Dk" LINE



STAGE III

Exc. 85

Emb. in Pl. 1600

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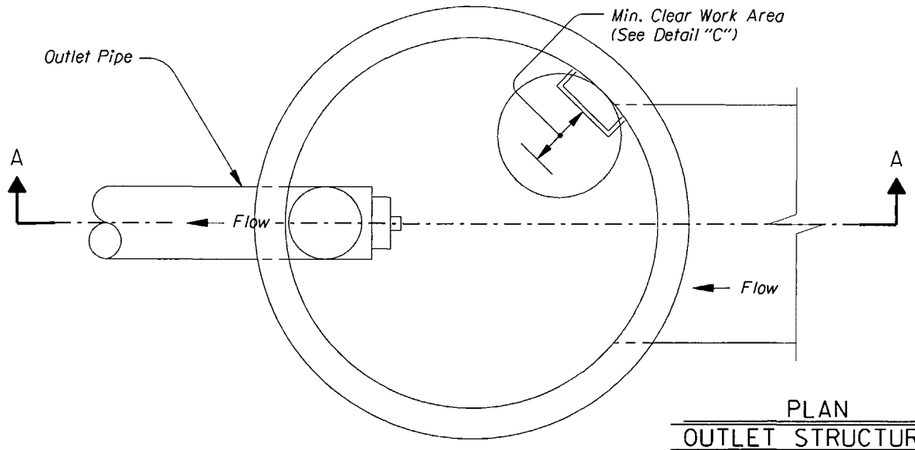
PROFILE

SHEET NO. 17D

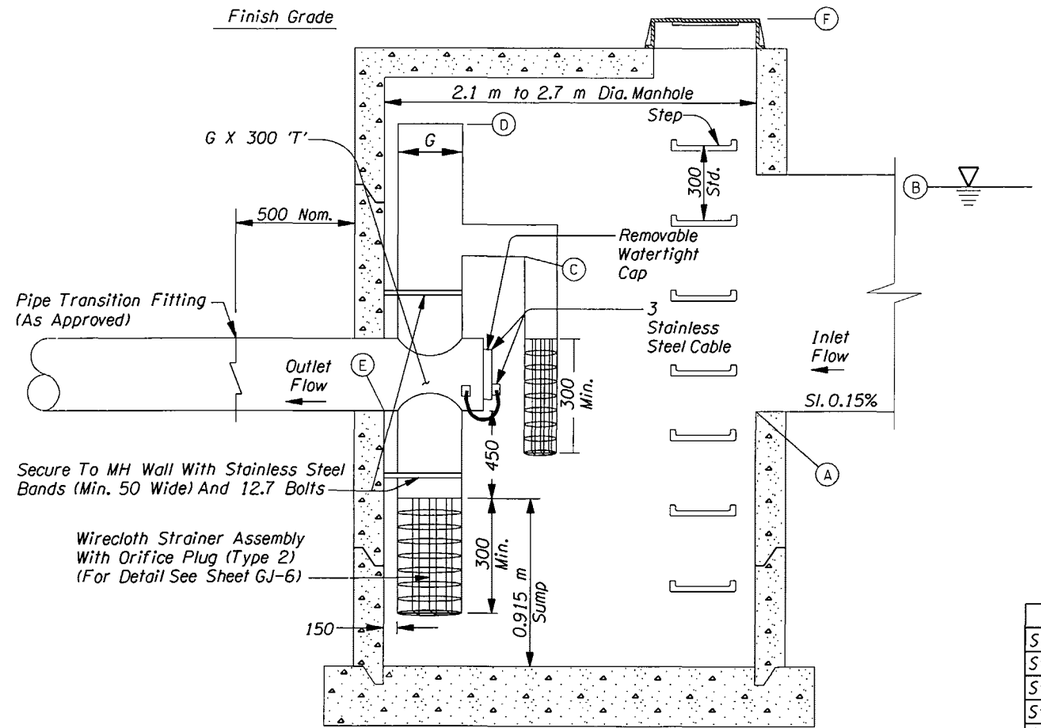
F:\ODOT_DATA\Projects\13284Kuebler\13284fs.prf 7/10/2005 5:22:08 PM hwye07x

1:1000 - 3

NOTES:
1. Hardware, Fasteners And Anchors To Be Stainless Steel; Use 3 mm Stainless Steel Cable.
2. For Manhole Details Not Shown, See RD346
3. Hardware, Fasteners, Anchors, Fittings, Appurtenances, Labor, And Equipment Are Incidental.

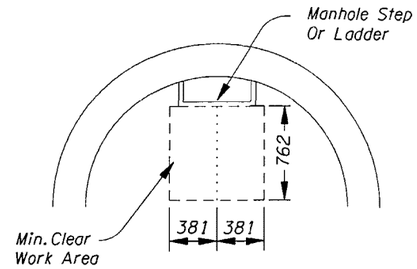


PLAN
OUTLET STRUCTURES
(For Location, See Sht. 16C and 17)
Not To Scale



SECTION A-A
FLOW CONTROL MANHOLE
Not To Scale

Location	G(mm)
Sta. "L" 14+149.633 21.510 Rt.	250
Sta. "L" 14+149.601 0.720 Lt.	250
Sta. "L" 14+061.972 16.494 Lt.	250
Sta. "L" 14+362.421 25.372 Lt.	300
Sta. "L" 14+360.118 2.547 Rt.	450



Locate Pipes, Etc. So That No Portion Of Them Are Within Min. Clear Work Area

DETAIL "C"
MIN. CLEAR WORK AREA
Not To Scale

Sta "L" 14+149.633 21.510 Rt.		
	ELEVATION (m)	DESCRIPTION
A	73.251	Detention Pipe Inlet
B	74.733	Elev. Of Detention Water Surface 50 Year Storm
C	74.247	Fl. Elev. Of Elbow
D	75.033	Rim Of Overflow Riser
E	73.247	Fl. Elev. Of Outlet Pipe
F	75.796	Top Of Manhole

Sta "L" 14+149.601 0.720 Lt.		
	ELEVATION (m)	DESCRIPTION
A	72.466	Detention Pipe Inlet
B	74.131	Elev. Of Detention Water Surface 50 Year Storm
C	73.058	Fl. Elev. Of Elbow
D	74.431	Rim Of Overflow Riser
E	72.458	Fl. Elev. Of Outlet Pipe
F	76.124	Top Of Manhole

Sta "L" 14+362.421 25.372 Lt.		
	ELEVATION (m)	DESCRIPTION
A	77.376	Detention Pipe Inlet
B	78.839	Elev. Of Detention Water Surface 50 Year Storm
C	78.071	Fl. Elev. Of Elbow
D	79.139	Rim Of Overflow Riser
E	77.371	Fl. Elev. Of Outlet Pipe
F	80.618	Top Of Manhole

Sta "L" 14+061.972 16.794 Lt.		
	ELEVATION (m)	DESCRIPTION
A	69.814	Detention Pipe Inlet
B	71.408	Elev. Of Detention Water Surface 50 Year Storm
C	70.353	Fl. Elev. Of Elbow
D	71.708	Rim Of Overflow Riser
E	69.803	Fl. Elev. Of Outlet Pipe
F	74.439	Top Of Manhole

Sta "L" 14+360.118 2.547 Rt.		
	ELEVATION (m)	DESCRIPTION
A	78.348	Detention Pipe Inlet
B	79.723	Elev. Of Detention Water Surface 50 Year Storm
C	79.043	Fl. Elev. Of Elbow
D	80.023	Rim Of Overflow Riser
E	78.343	Fl. Elev. Of Outlet Pipe
F	81.590	Top Of Manhole

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

REGISTERED PROFESSIONAL ENGINEER
17807
OREGON
JULY 25, 1995
CHRIS CARMAN
EXPIRES: December 31, 2005

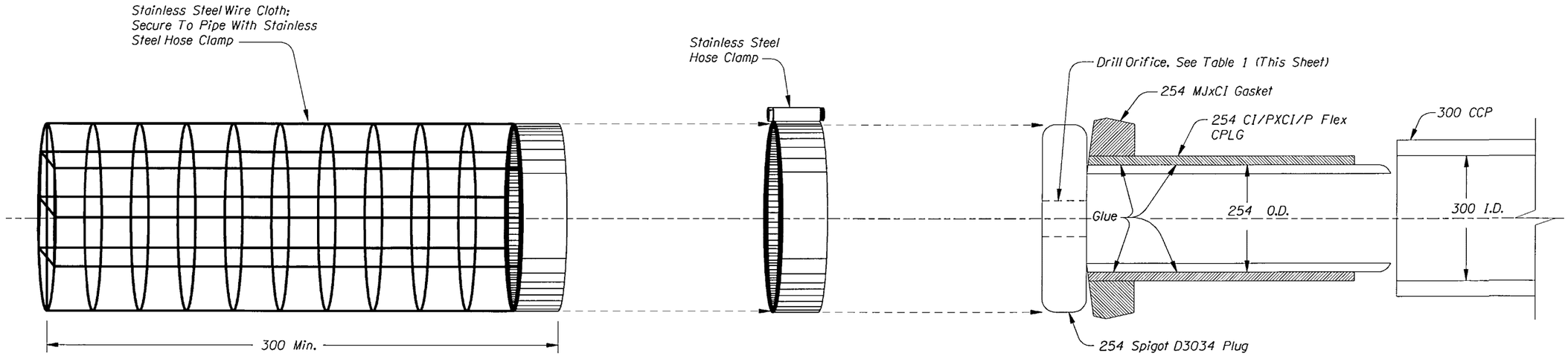
OREGON DEPARTMENT OF TRANSPORTATION
REGION 2 TECH CENTER

I-5: NORTH SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Reviewed By - Alvin Shoblom
Designed By - Chris Carman
Drafted By - Chris Shearer

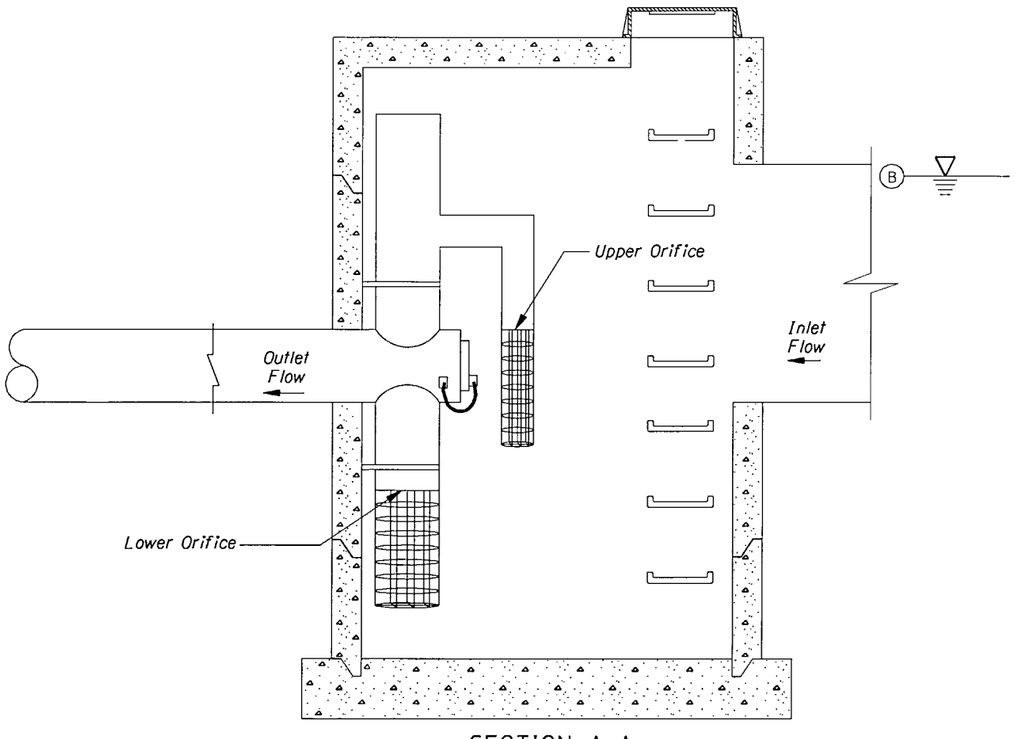
DETAILS

SHEET NO. GJ-4



FLOW CONTROL MANHOLE
WIRE CLOTH STRAINER ASSEMBLY
Not To Scale

ORIFICE PLUG (TYPE 2)
Not To Scale



SECTION A-A
FLOW CONTROL MANHOLE
Not To Scale

Table 1

Location	Lower Orifice Dia.(mm)	Upper Orifice Dia.(mm)
North Santiam Interchange	63.5	N/A
Sta."L" 14+360.118 2.547 Rt.	50	250
Sta."L" 14+362.421 25.372 Lt.	25	175
Sta."L" 14+149.633 21.50 Rt.	25	75
Sta."L" 14+149.601 0.720 Lt.	50	115
Sta."L" 14+061.976 16.794 Lt.	25	75
Kuebler Blvd. Interchange	25	400

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REGION 2 TECH CENTER

I-5: NORTH SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Reviewed By - Alvin Shoblom
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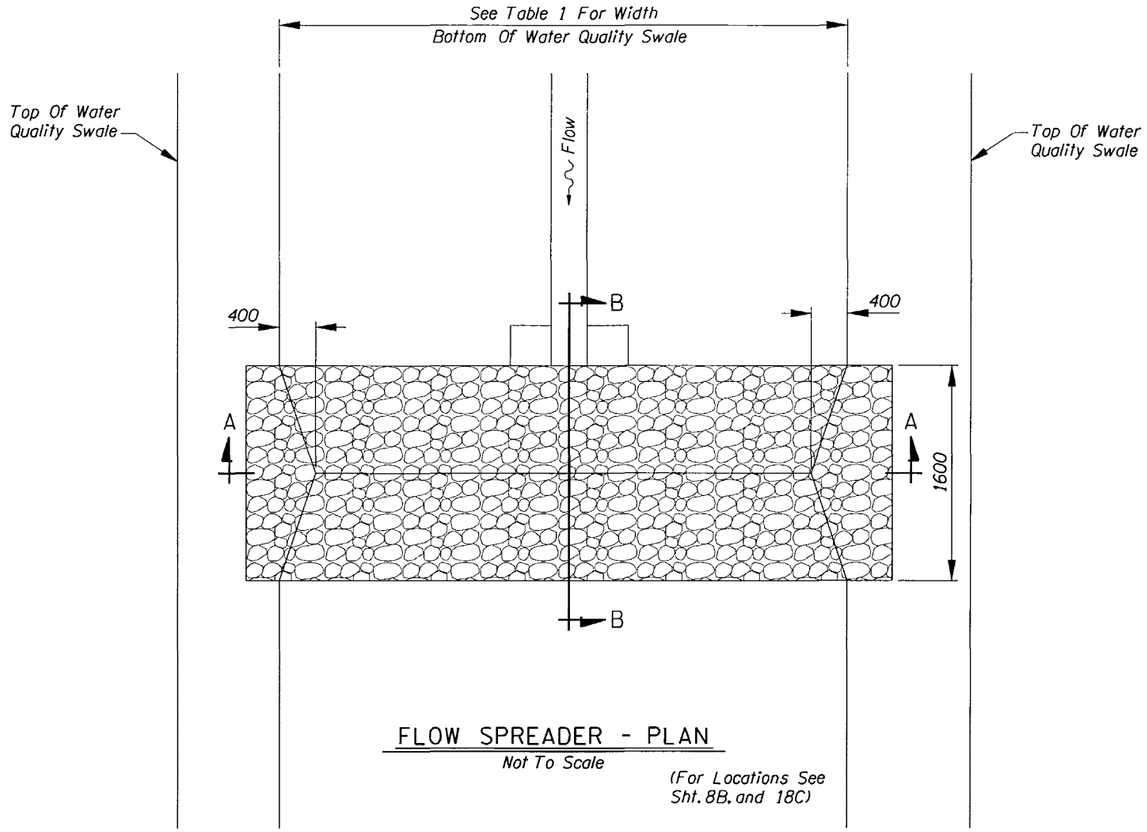
Drafted By - Chris Shearer

DETAILS

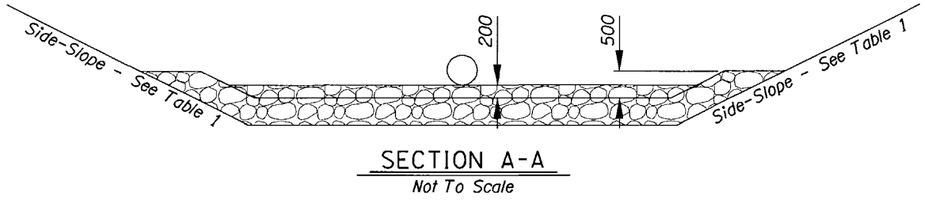
SHEET NO. GJ-6



FLOW SPREADER - PLAN

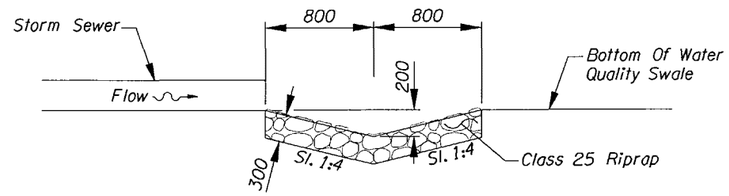
Not To Scale

(For Locations See Sht. 8B. and 18C)



SECTION A-A

Not To Scale



SECTION B-B

Not To Scale

Table 1

Location	Width (m)	Side-Slope
Sta. "A" 0+972.6 17.5 Rt.	4.8	1:2
Sta. "WD" 0+241.1 1.4 Rt.	6.1	1:4

NOTES:
1. *Side-Slopes Are Shown As Vert. To Horiz.*
2. *All Dimensions Shown Are In Millimeters (mm) Unless Otherwise Noted*

REGISTERED PROFESSIONAL ENGINEER
17807
OREGON
JULY 25, 1995
CHRIS CARMAN

EXPIRES: December 31, 2005

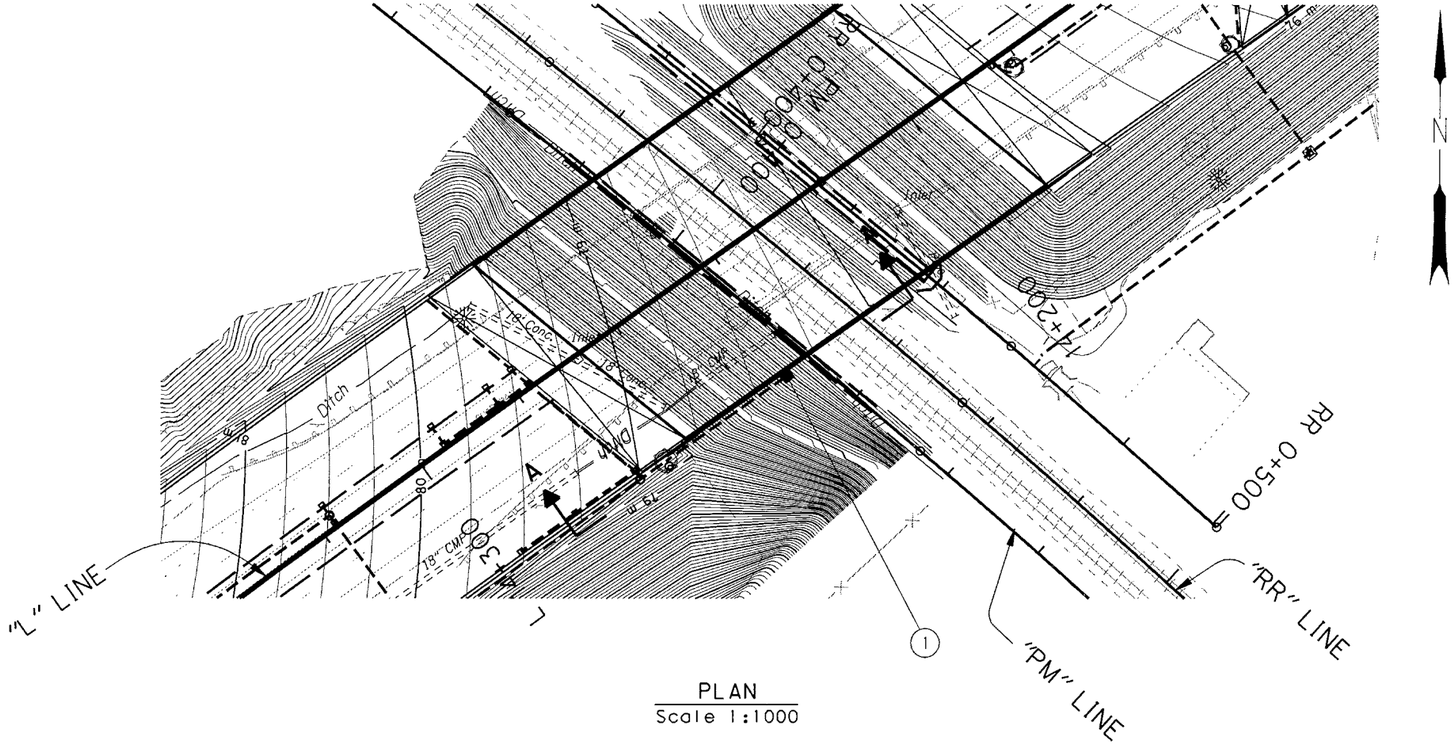
OREGON DEPARTMENT OF TRANSPORTATION
REGION 2 TECH CENTER

I-5: NORTH SANTIAM HWY. - KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Reviewed By - Alvin Shoblom
Designed By - Chris Carman
Drafted By - Chris Shearer

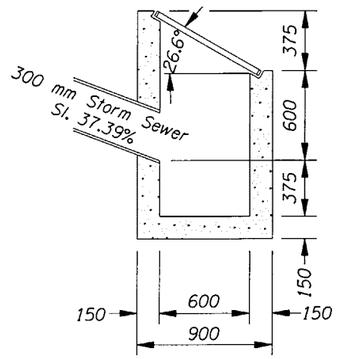
DETAILS

SHEET NO. GJ-7A

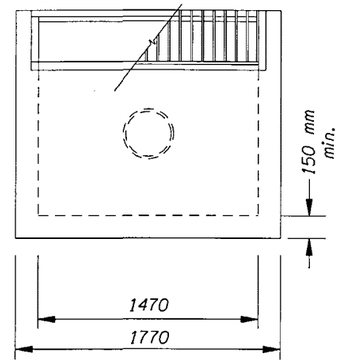


PLAN
Scale 1:1000

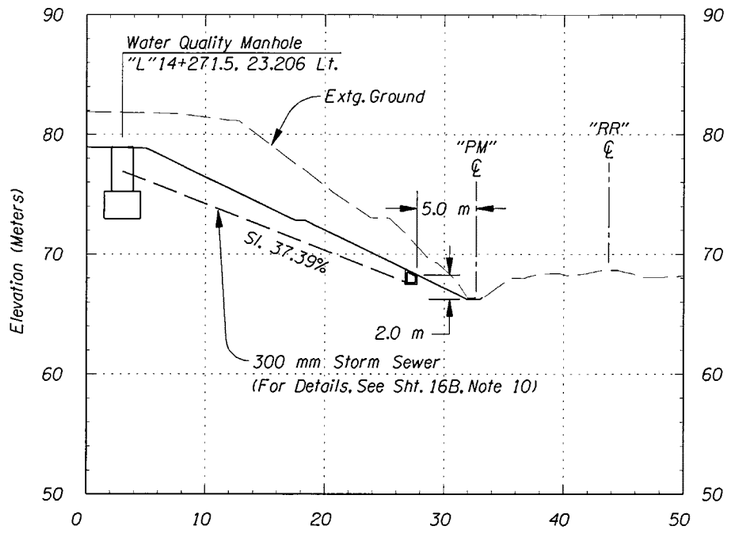
(1) Sta. "L" 14+241.4 To Sta. "L" 14+266.3
Const. Type Modified "D" Inlet
Inst. 300 mm Sew. Pipe - 26.5 m
Inst. Metal Pipe Slope Anchors
(See Sht. 16D, Note 6)
(See Details Below And
Drg. Nos. RD330, RD370)



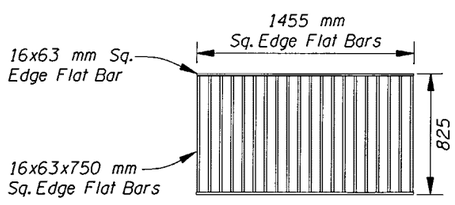
SECTION A-A



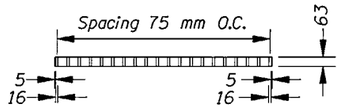
SECTION B-B



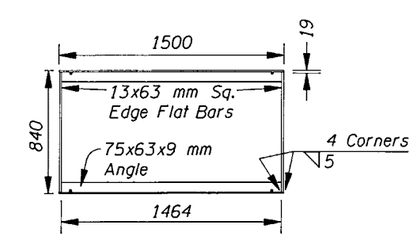
SECTION A-A



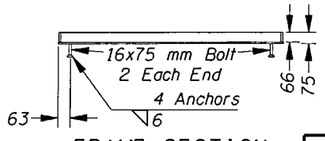
PLAN



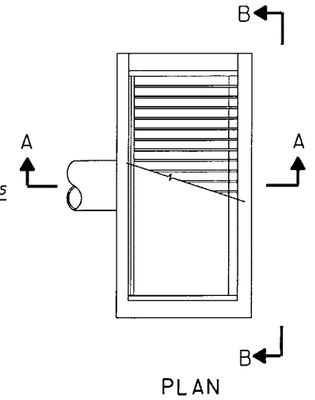
GRATE SECTION
TYPE 1



FRAME PLAN



FRAME SECTION



PLAN

Notes:
1. Concrete Strength Shall Be Commercial Grade Concrete.
2. G-2 Grates May Be Used If Approved By The Engineer.
3. Catch Basin, Frame, And Grates Shall Meet MS18 Loading.

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

Note:
9 mm Cross Bars Shall Be Flush With The Grate Surface And May Be Fillet Welded, Resistance Welded Or Electroforged To Bearing Bars.

REGISTERED PROFESSIONAL ENGINEER
17807
OREGON
JULY 25, 1995
CHRIS CARMAN
Expires Dec. 31, 2005

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

I-5: N. SANTIAM HWY. -
KUEBLER BLVD. (SALEM) SEC.
PACIFIC HIGHWAY
MARION COUNTY

Reviewed By - Luis Rivas
Designed By - Chris Carman
Drafted By - Steve Donaldson

STORMWATER

SHEET NO.
GJ-9

U.P.R.R ENERGY DISSIPATOR