OPERATION & MAINTENANCE MANUAL

DFI No. : D00190
Facility Type: Detention Tank/Pipe

OCTOBER, 2011

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00190**
Facility Type:	Detention Tank/Pipe
Construction Drawings:	(V-File Number) [39V-063]
Location:	District: 2B (Old 2A)
	Highway No.: 140
	Mile Post: [5.45 (beg./end)]
	Description: This facility is located along the northeast quadrant of the intersection of Farmington Road and the Hillsboro-Silverton Hwy (OR 219) when heading eastbound onto Farmington Road. Access may be obtained from the left shoulder of Farmington Road.

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 – David Evans and Assoc., Inc., Richard Attanasio, P.E., 503-223-6663
Facility construction:	2006
Contractor:	Kerr Contractors, Inc.

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 northeast quadrant of the intersection of Farmington Road and the Hillsboro-Silverton Hwy (OR 219) when heading eastbound onto Farmington Road. Access may be obtained from the left shoulder of Farmington Road.

Water is collected by the surrounding ditches and sheet flows from impervious surfaces to catch basin inlets before being conveyed by a 12-inch storm drain system to the detention facility. The detention tank/pipe facility is comprised of two standard manholes on either side of two 60-inch diameter pipes with a flow-control structure at the center to regulate how flows are released to a nearby water quality manhole.

The system is designed to detain most stormwater events and lower flows on a continual basis. Stormwater from excessive higher flow events will overtop the concrete overflow weir, located within the flow control manhole, and leave the detention tank/pipe system before entering the water quality manhole (DFI D00191) to the east.

The water quality manhole is a specialized proprietary structure designed to treat and remove pollutants from the stormwater. Once treated, the water flows south through a 12-inch outlet pipe toward an outfall and riprap pad before entering a ditch that directs flows to Christensen Creek; see Points A and C of the Operational Plan, Appendix A.

A. Maintenance equipment access:
   Unobstructed access may be obtained from the left shoulder of Farmington Road just east of its intersection with the Hillsboro-Silverton Highway (OR 219).

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 southwest at flow control manhole structure; Point A, Ops Plan.

Photo 2: Looking northwest at water quality and flow control manhole structures.

5. Facility Haz Mat Spill Feature(s)

The detention tank/pipe (DFI D00190) and the adjoining water quality manhole facility (DFI D00191) can be used to store a volume of liquid by blocking the 12-diameter outlet pipes located at either the outlet of the flow control detention manhole, or at the water quality manhole. These pipes are associated with Point C on the Operational Plan, Appendix A.

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
The auxiliary outlet is designed into the system's flow control manhole and overflow weir located at the center of the detention tank/pipe. In the event of high flows, stormwater overtops the overflow weir and exits the facility through a 12-inch pipe; see Point A on the Operational Plan, Appendix A.

☐ 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

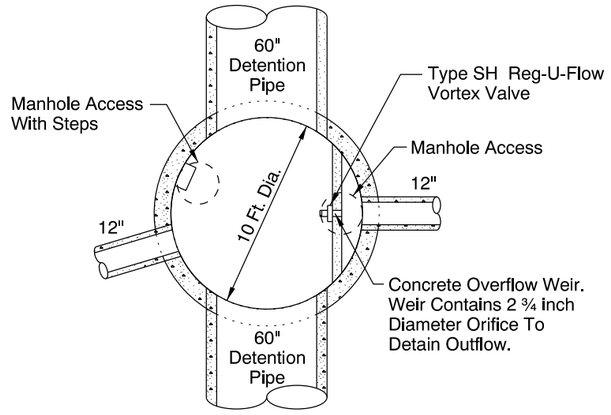
Contact any of the following for more detailed information about management of waste materials found on site:

ODOT Clean Water Unit	(503) 986-3008
ODOT Statewide Hazmat Coordinator	(503) 229-5129
ODOT Region Hazmat Coordinator	(503) 731-8290
ODEQ Northwest Region Office	(503) 229-5263

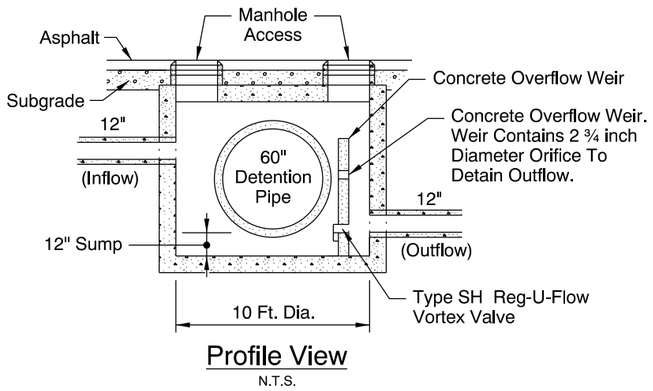
Appendix A

Content:

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

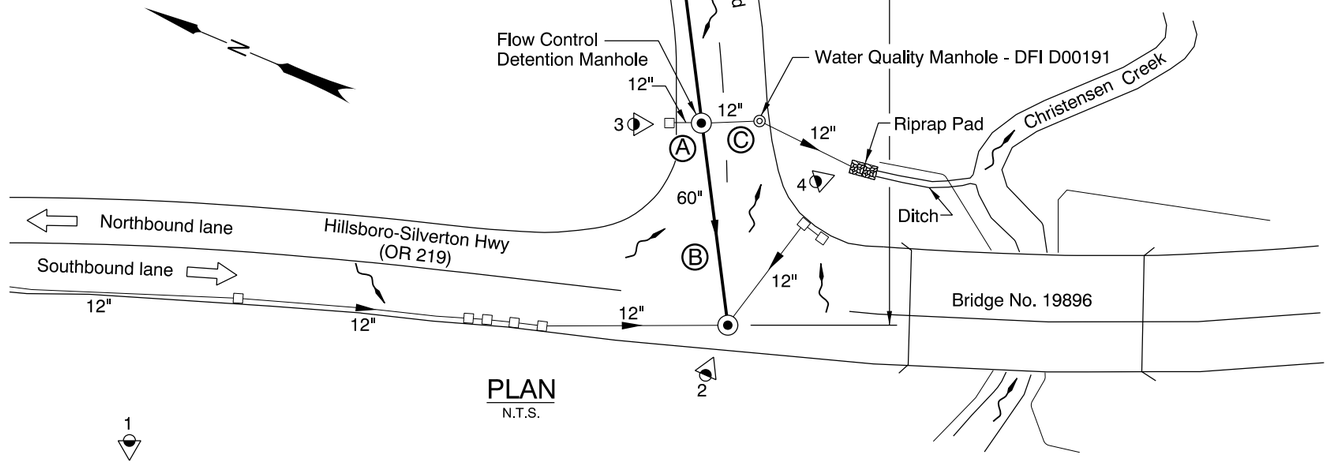


Plan View
N.T.S.

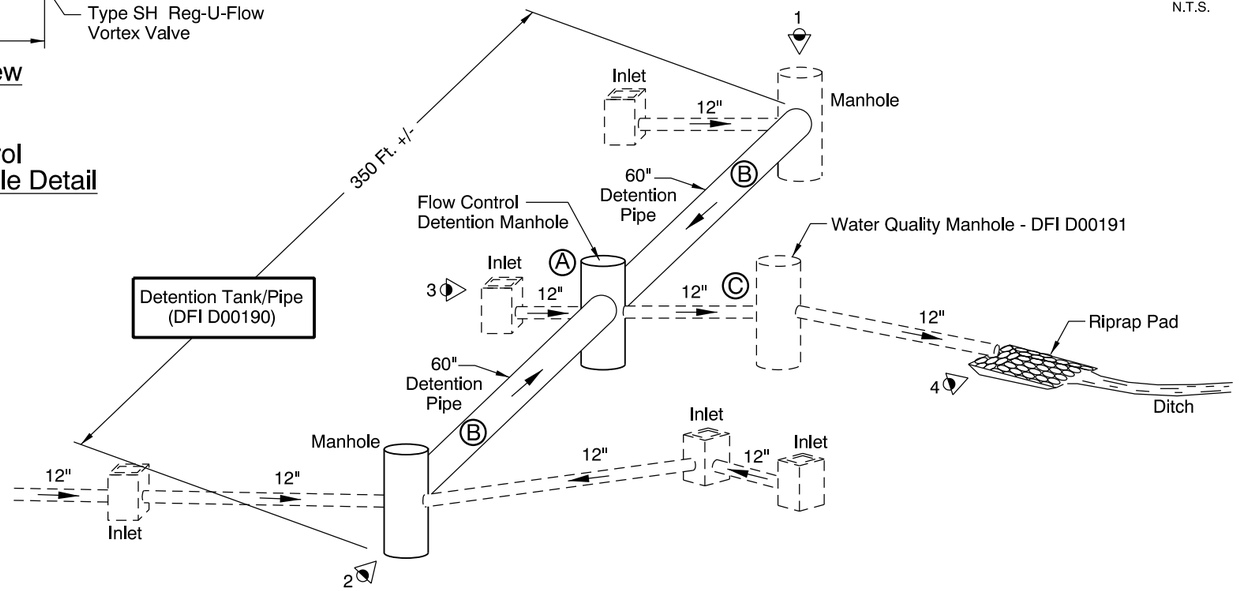


Profile View
N.T.S.

Flow Control Detention Manhole Detail



PLAN
N.T.S.



SCHEMATIC OF PIPE DRAINAGE SYSTEM DFI D00190
N.T.S.

LEGEND:

- Photo Location / Direction
- (A) Flow Control Detention Manhole
- (B) 60" Detention Pipe
- (C) Outlet of Detention Manhole is 12" Pipe Which Connects to Water Quality Manhole (DFI D00191)
- Riprap Pad
- Manhole (and/or ◎)
- Inlet (and/or □)
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sht. 1 of 1

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: J. D. Koziol

Drafted By: Jim Holeman

DFI D00190
MAINTENANCE DISTRICT 2B HWY 140
DETENTION TANK/PIPE
HILLSBORO-SILVERTON HIGHWAY MP 5.45
WASHINGTON COUNTY

Appendix B

Content:

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

39V-63

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

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

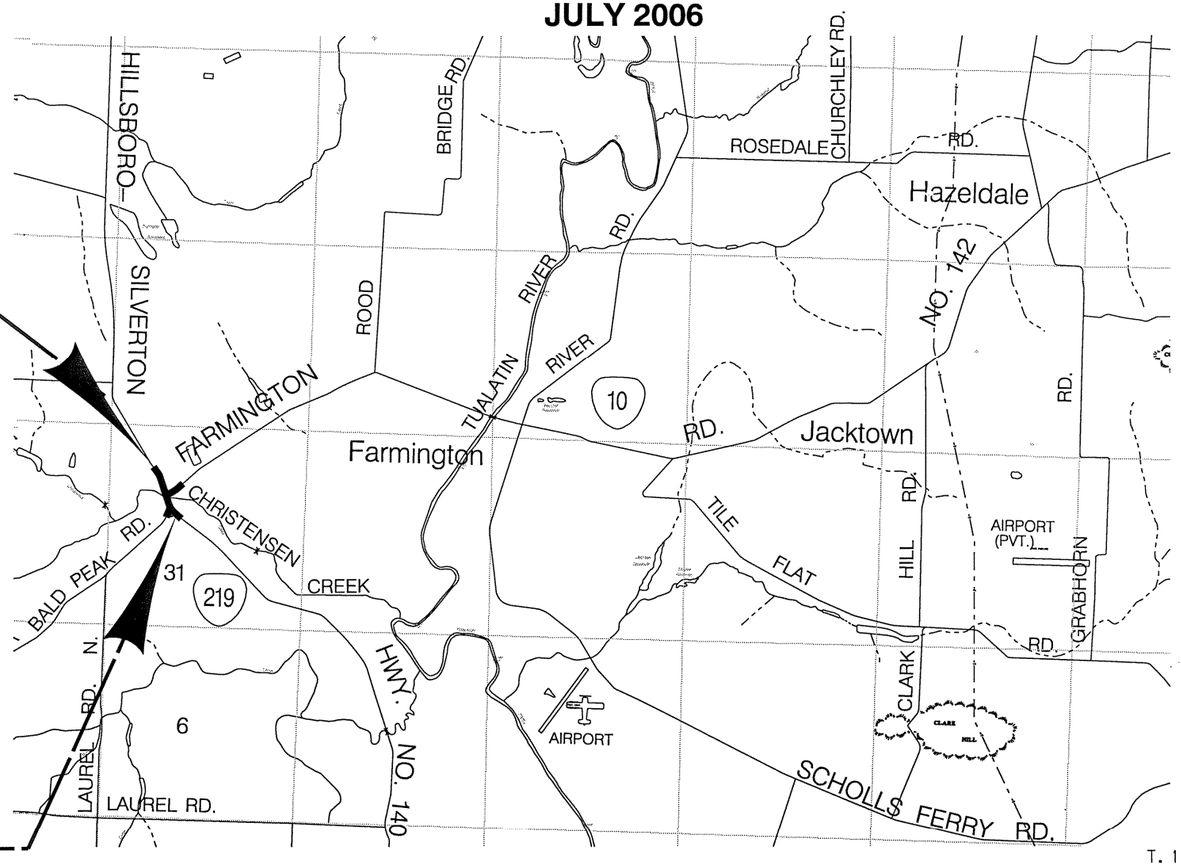
PLANS FOR PROPOSED PROJECT

GRADING, DRAINAGE, STRUCTURE, PAVING, SIGNING, & ROADSIDE DEVELOPMENT

OR219: HILLSBORO - SILVERTON HIGHWAY AT FARMINGTON ROAD

HILLSBORO - SILVERTON HIGHWAY

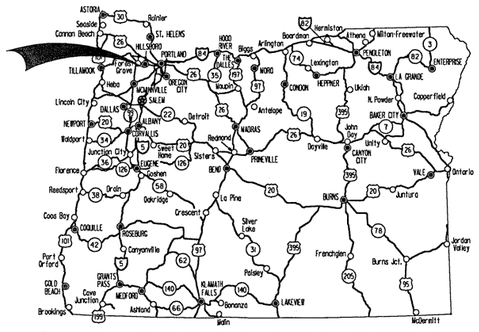
WASHINGTON COUNTY
JULY 2006



BEGINNING OF PROJECT
STA. 8+189.00 (M.P. 5.18)

END OF PROJECT
STA. 9+175.00 (M.P. 5.79)

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



Overall Length Of Project - 0.99 km (0.61Miles)

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

OREGON TRANSPORTATION COMMISSION

Stuart Foster	CHAIRMAN
Gail L. Achterman	COMMISSIONER
Mike Nelson	COMMISSIONER
Randall Pape	COMMISSIONER
Janice J. Wilson	COMMISSIONER
Matthew L. Garrett	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

OR219: HILLSBORO-SILVERTON HIGHWAY AT FARMINGTON ROAD
HILLSBORO - SILVERTON HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	X-STP-S140 (032)	1

METRIC

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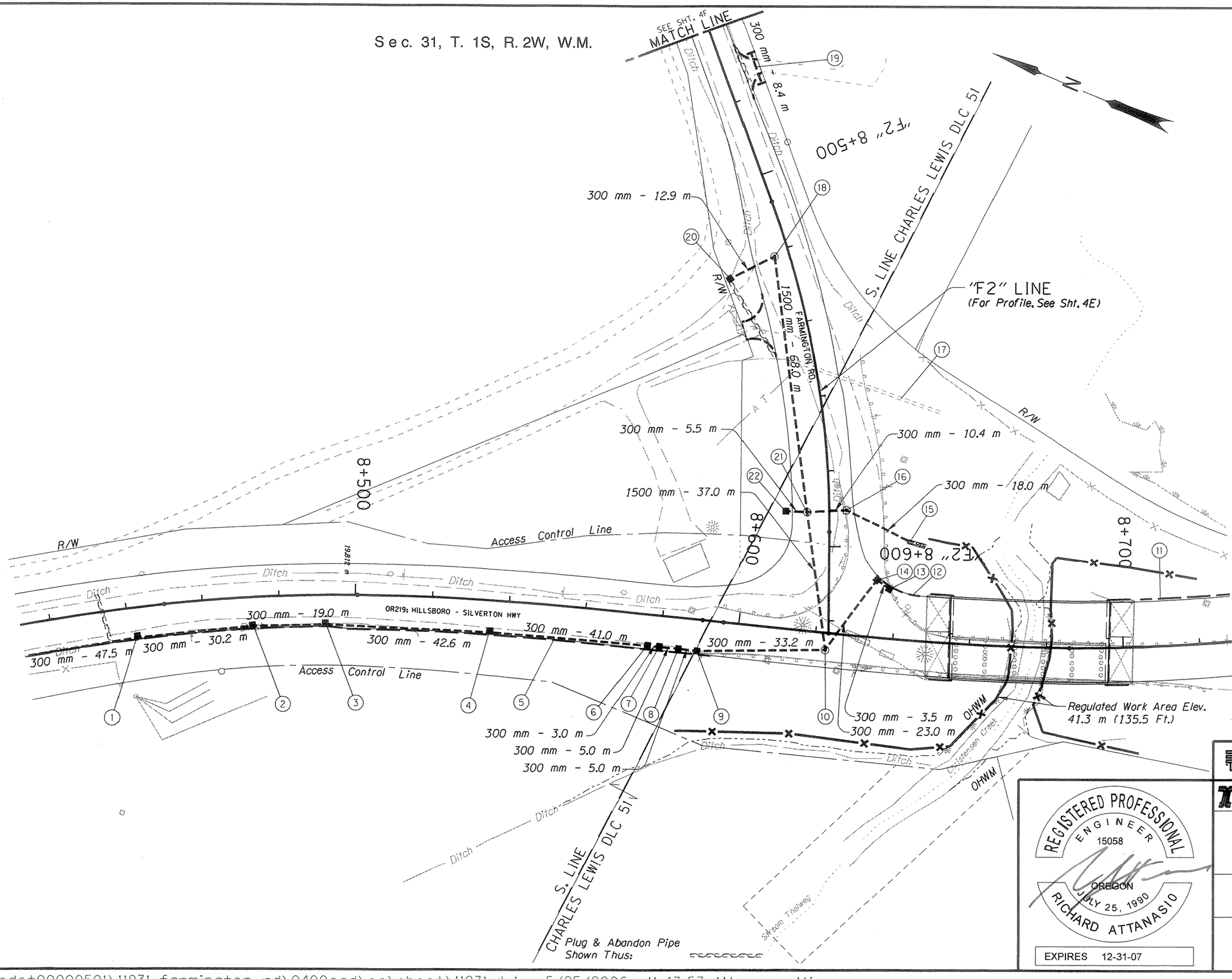
Sec. 31, T. 1S, R. 2W, W.M.



BRIDGE DETAILS CHECKED_____

DAVID EVANS AND ASSOCIATES INC.

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

OR219: HILLSBORO - SILVERTON HIGHWAY
AT FARMINGTON ROAD

HILLSBORO - SILVERTON HIGHWAY

WASHINGTON COUNTY

Reviewed By - CPH
Designed By - SRV
Drafted By - MJY

REGISTERED PROFESSIONAL ENGINEER
15058
OREGON
JULY 25, 1990
RICHARD ATTANASIO
EXPIRES 12-31-07

DRAINAGE PLAN

SHEET NO. 4B

(1) *Sta. 8+442.2, Rt. (8.0 m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 47.5 m
1.5 m Depth

(2) *Sta. 8+472.9, Rt. (7.7 m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 30.2 m
1.5 m Depth

(3) *Sta. 8+492.1, Rt. (7.6m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 19.0 m
1.5 m Depth

(4) *Sta. 8+535.5, Rt. (8.6 m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 42.6 m
1.5 m Depth

(5) *Sta. 8+498.0 To Sta. 8+594.1, Rt.*
Const. Asph. Conc. Drainage Curb
(See Drg. No. RD700)

(6) *Sta. 8+577, Rt. (9.0 m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 41.0 m
1.5 m Depth

(7) *Sta. 8+580, Rt. (9.0 m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 3.0 m
1.5 m Depth

(8) *Sta. 8+585, Rt. (9.0 m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 5.0 m
1.5 m Depth

(9) *Sta. 8+590, Rt. (9.0 m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 5.0 m
1.5 m Depth
(See Drg. No. RD364)

(10) *Sta. 8+622.85, Rt. (4.4 m)*
Const. Manhole, Large 2100 mm Dia.
Inst. 300 mm Sew. Pipe - 33.2 m
1.5 m Depth
Inst 300 mm Sew. Pipe - 23.0 m
1.5 m Depth
(See Drg. No. RD346)

(11) *Sta. 8+705 To Sta. 8+788.0, Lt.*
Const. Asph. Conc. Drainage Curb

(12) *Sta. 8+633.70 To Sta. 8+643.14, Lt*
Const. Asph. Conc. Drainage Curb

(13) *Sta. 8+638, Lt. (14.0 m)*
Const. Type "G-2" Inlet

(14) *Sta. 8+635, Rt. (16.0 m)*
Const. Type "G-2" Inlet
Inst. 300 mm Sew. Pipe - 3.5 m
1.5 m Depth

(15) *Sta. "F2" 8+598.20, Lt. (20.8 m)*
Const. Outfall
Inst. 300 mm Sew. Pipe - 18.0 m
3.0 m Depth
Const. Loose Riprap (Class 25) - 1.44 m^3
(2.4 m Long x 1.2 m Wide x 0.5 m Deep)

(16) *Sta. "F2" 8+590.50, Lt. (4.5 m)*
Const. Manhole, Type Water Quality
Inst. 300 mm Sew. Pipe - 10.4 m
3.0 m Depth

(17) *Fill Abandoned Structures*

(18) *Sta. "F2" 8+521.24, Rt. (3.8 m)*
Const. Manhole, Large 2100 mm Dia.
Inst. 300 mm Sew. Pipe - 12.9 m
1.5 m Depth

(19) *Sta. "F2" 8+473, Lt.*
Inst. 300 mm Culv. Pipe - 8.4 m
1.5 m Depth

(20) *Sta. "F2" 8+524, Rt. (16.8 m)*
Const. Type "D" Inlet
(See Drg. No. RD370)

(21) *Sta. "F2" 8+590.80, Rt. (5.8 m)*
Const. Manhole, Type Flow Control, 3000 mm
Inst. 300 mm Sew. Pipe - 5.5 m
1.5 m Depth
Inst. 1500 mm Sew. Pipe - 68.0 m
6.0 m Depth
Inst. 1500 mm Sew. Pipe - 37.0 m
3.0 m Depth
(For Details, See Sht. GJ)

(22) *Sta. "F2" 8+593, Rt. (10.5 m)*
Const. Type "G-2M" Inlet
(See Drg. No. RD364)

REGISTERED PROFESSIONAL ENGINEER
15058
OREGON
JULY 25, 1990
RICHARD ATTANASIO
EXPIRES 12-31-07

DAVID EVANS AND ASSOCIATES INC.

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

OR219: HILLSBORO - SILVERTON HIGHWAY AT FARMINGTON ROAD

HILLSBORO - SILVERTON HIGHWAY

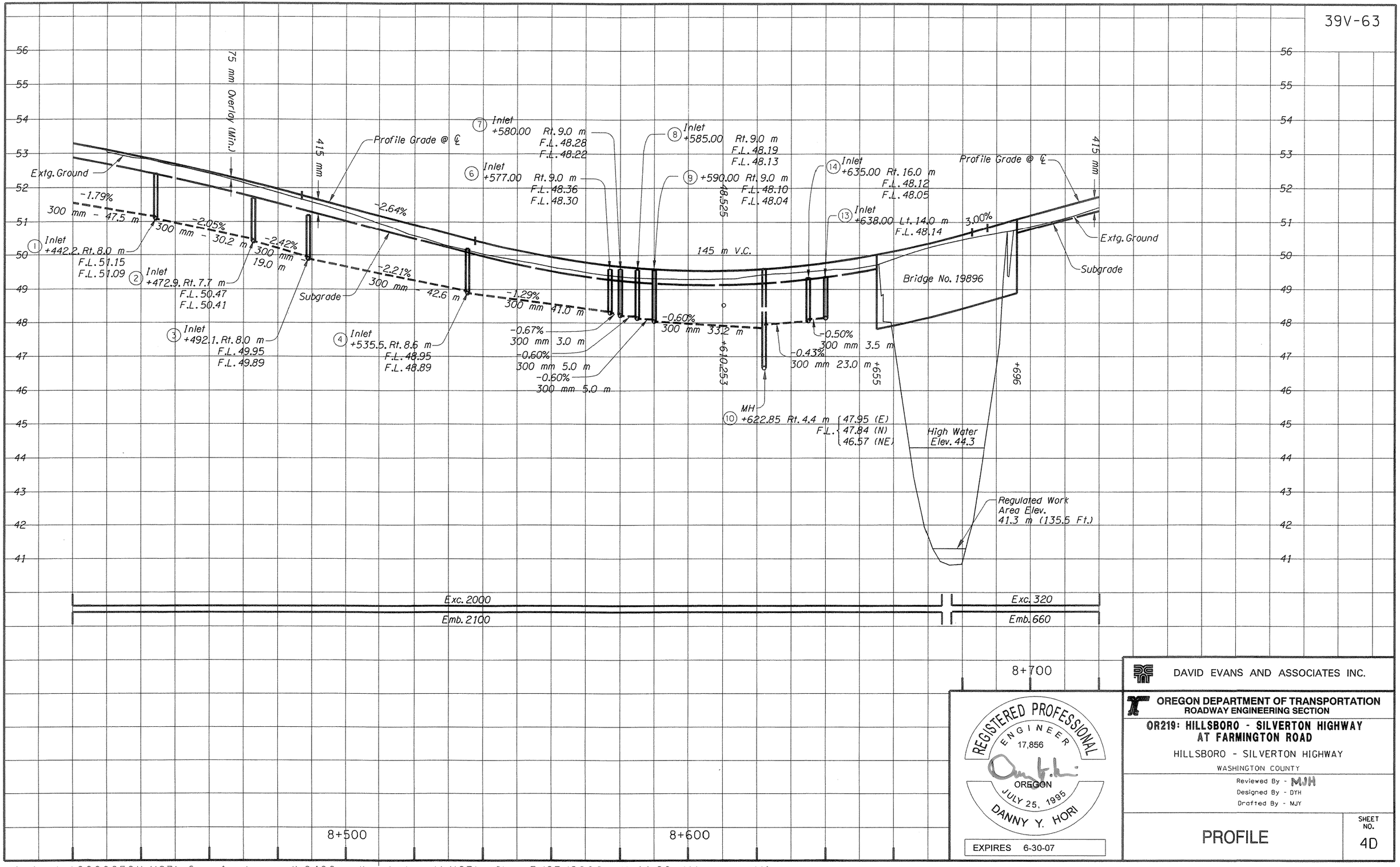
WASHINGTON COUNTY

Reviewed By - CH
Designed By - SRV
Drafted By - MJY

DRAINAGE PLAN NOTES

SHEET NO. 4C

BRIDGE DETAILS CHECKED



DAVID EVANS AND ASSOCIATES INC.

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17,856
OREGON
JULY 25, 1995
DANNY Y. HORI
EXPIRES 6-30-07

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

OR219: HILLSBORO - SILVERTON HIGHWAY AT FARMINGTON ROAD

HILLSBORO - SILVERTON HIGHWAY

WASHINGTON COUNTY

Reviewed By - MJH
Designed By - DYH
Drafted By - MJY

PROFILE

SHEET NO. 4D

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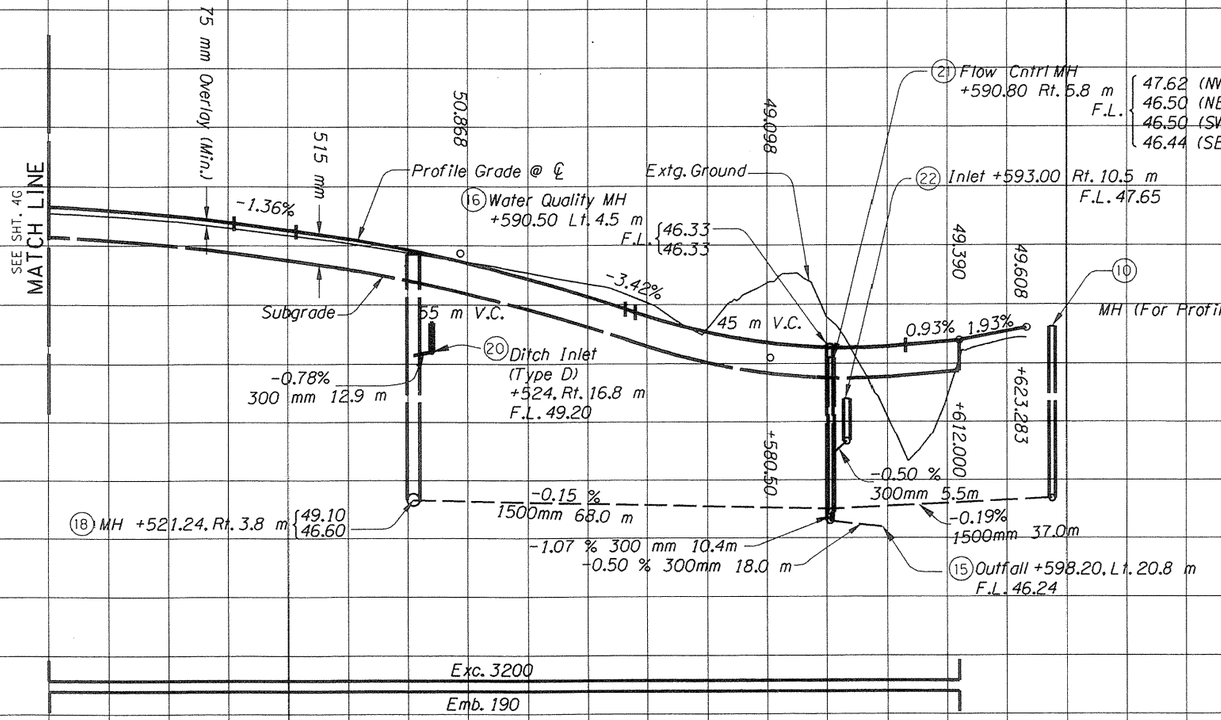
"F2" Line



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ROADWAY ENGINEERING SECTION

OR219: HILLSBORO - SILVERTON HIGHWAY AT FARMINGTON ROAD

HILLSBORO - SILVERTON HIGHWAY

WASHINGTON COUNTY

Reviewed By - MJH
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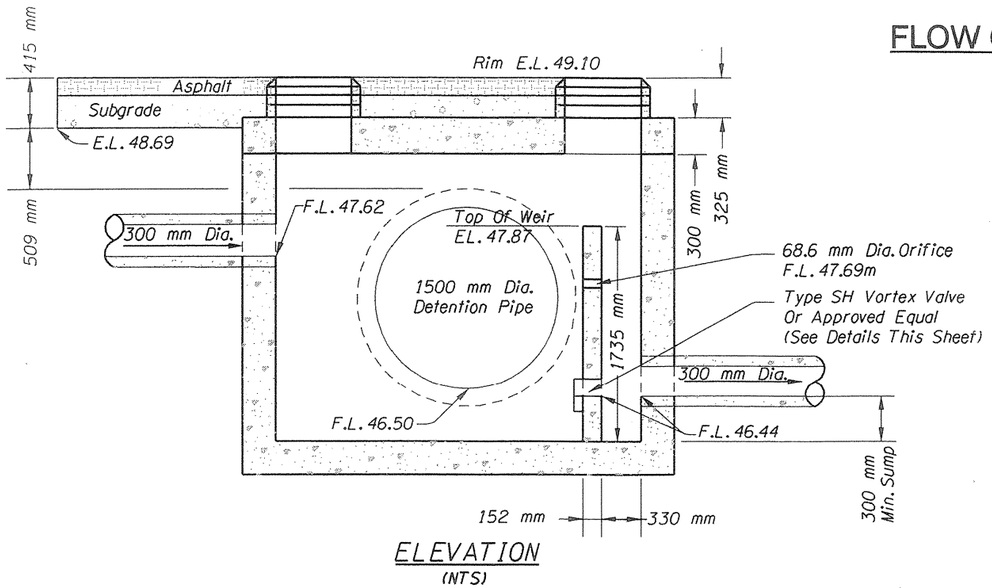
Drafted By - MJY

REGISTERED PROFESSIONAL ENGINEER
17,856
OREGON
JULY 25, 1995
DANNY Y. HORI
EXPIRES 6-30-07

PROFILE

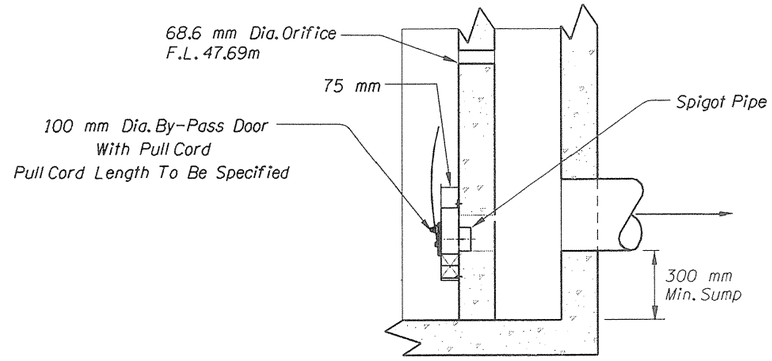
SHEET NO. 4E

FLOW CONTROL MANHOLE

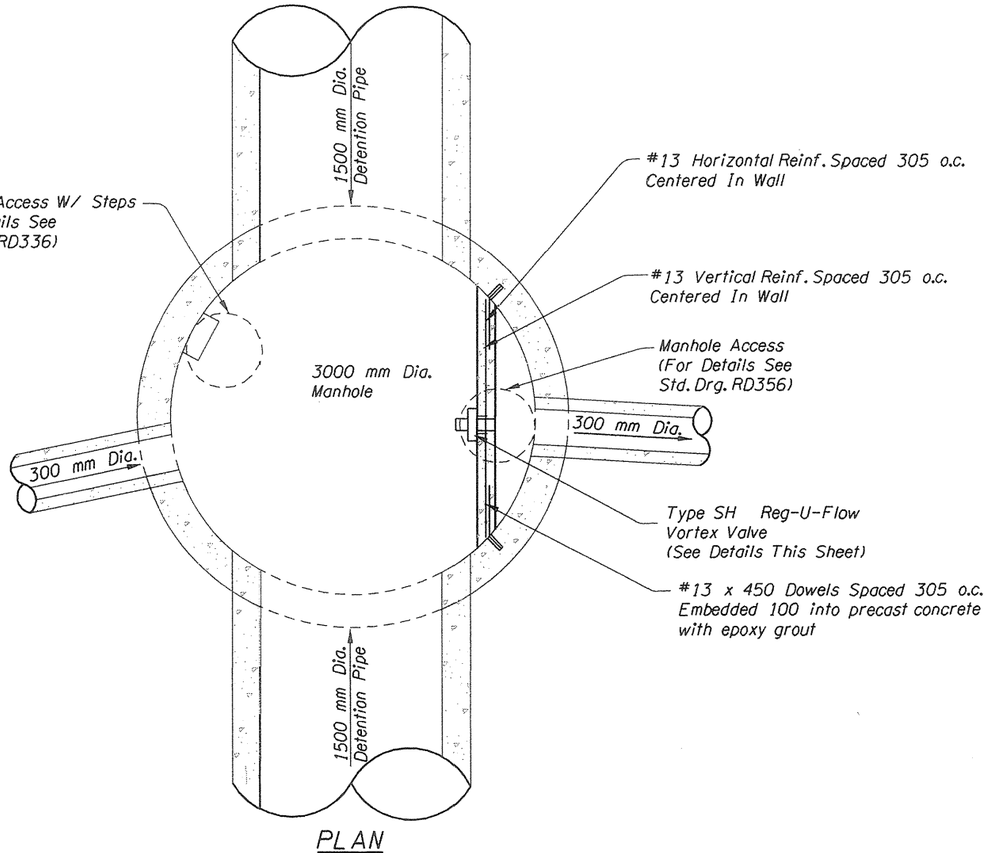


ELEVATION
(NTS)

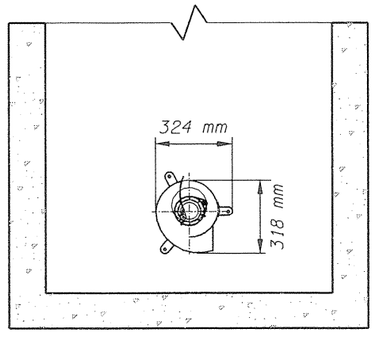
VORTEX VALVE DETAIL



SECTION A-A
(NTS)



PLAN
(NTS)



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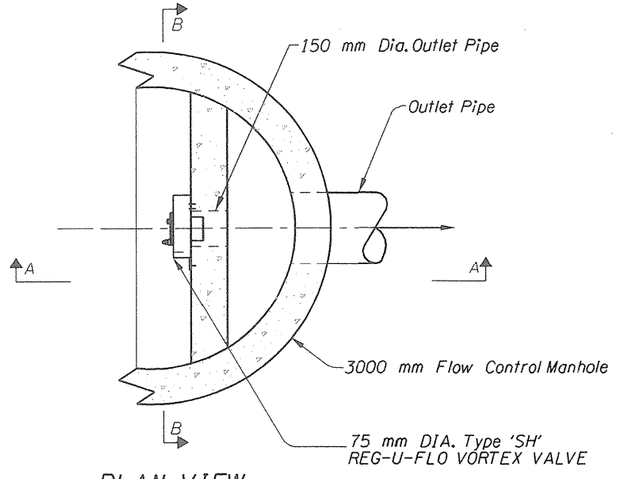

PLAN VIEW
(NTS)

REGISTERED PROFESSIONAL ENGINEER
15058
OREGON
JULY 25, 1990
RICHARD ATTANASIO
EXPIRES 12-31-07

DAVID EVANS AND ASSOCIATES INC.

OREGON DEPARTMENT OF TRANSPORTATION
ROADWAY ENGINEERING SECTION

OR219: HILLSBORO - SILVERTON HIGHWAY
AT FARMINGTON ROAD

HILLSBORO - SILVERTON HIGHWAY

WASHINGTON COUNTY

Reviewed By - QH
Designed By - SRV
Drafted By - TASC

STRUCTURE NO.

BRIDGE DWG. NO.

SHEET NO. GJ

DRAINAGE DETAILS