OPERATION & MAINTENANCE MANUAL

DFI No.: D00129
Facility Type: Water Quality
Biofiltration Swale

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00129**
Facility Type:	Water Quality Biofiltration Swale
Construction Drawings:	(V-File Number) 25V-039
Location:	District: 2B (Old 2A)
	Highway No.: 001
	Mile Post: MP 69.33 (beg. / end)
	Description: This facility is located on the southeast quadrant of the US26 (Hwy 047) and OR217 (Hwy 144) Interchange. The facility lies south of OR217, nestled between two separate ramps, leading to and from the freeway.

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:	Thomas D. Lulay, Technical Services Managing Engineer, ODOT
Facility construction:	1997
Contractor:	Unknown

4. Storm Drain System and Facility Overview

A water quality swale is a flat-bottomed open channel designed to treat stormwater runoff from highway pavement areas. This type of facility is lined with grass. Treatment by trapping sedimentation occurs when stormwater runoff flows through the grass.

This facility lies adjacent to a water quality extended detention dry pond facility (D00078). The swale further treats stormwater detained by the detention pond. Water enters the swale through a modified inlet that receives water from drain pipes associated with the extended detention dry pond (See Point C of the Operational Plan, Appendix A, and Photo 1). After treatment through the swale, the water is collected by an inlet and discharged through an 18-inch storm pipe into a nearby detention facility (D00085) located to the west.

The drainage area for the facility matches the same drainage area for the extended detention dry pond (DFI D00078) and includes the drainage collected from both the eastbound and westbound portions of US26, approximately 700 feet to the east. Additionally, offsite drainage from the north appears to be conveyed by the 18-inch storm pipe. Drainage is collected by a series of inlets that all tie into the 18-inch storm pipe. This pipe transverses the highway approximately 100 feet to the east of the facility.

All stormwater is conveyed to an inline split-flow manhole (Point A in the Operational Plan, Appendix A). The split-flow manhole is engineered to route the water quality flows to the series of treatment facilities including, a pretreatment pollution control manhole, the extended detention dry pond (DFI D00078), and the water quality biofiltration swale (DFI D00129). Flows that exceed the water quality flows are directed by the split-flow manhole into the 18-inch storm pipe that discharges into the nearby detention facility (DFI D00085) west of the sit being discussed.

Photo 1: Modified Inlet acts, serving as an inlet to the WQ biofiltration swale; see Point C of the Operational Plan.

Photo 2: Water quality biofiltration swale.

Photo 3: Outlet for water quality swale (Point E, Operational Plan), discharging into the adjacent detention facility to the west (DFI D00085).

A. Maintenance equipment access:
The facility can be accessed for maintenance along US26 (Hwy 047) or the Park Way on-ramp.

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)

The water quality biofiltration swale can be used to store a volume of liquid by blocking the 18-inch diameter outlet pipe located at the outlet structure of the swale. This pipe is noted as point D on the

Operational Plan. The structure and pipe can be blocked using metal plates or sandbags.

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 – The auxiliary outlet for this facility is included in the water quality extended detention dry pond (DFI D00078); see Point E of the Operational Plan.

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

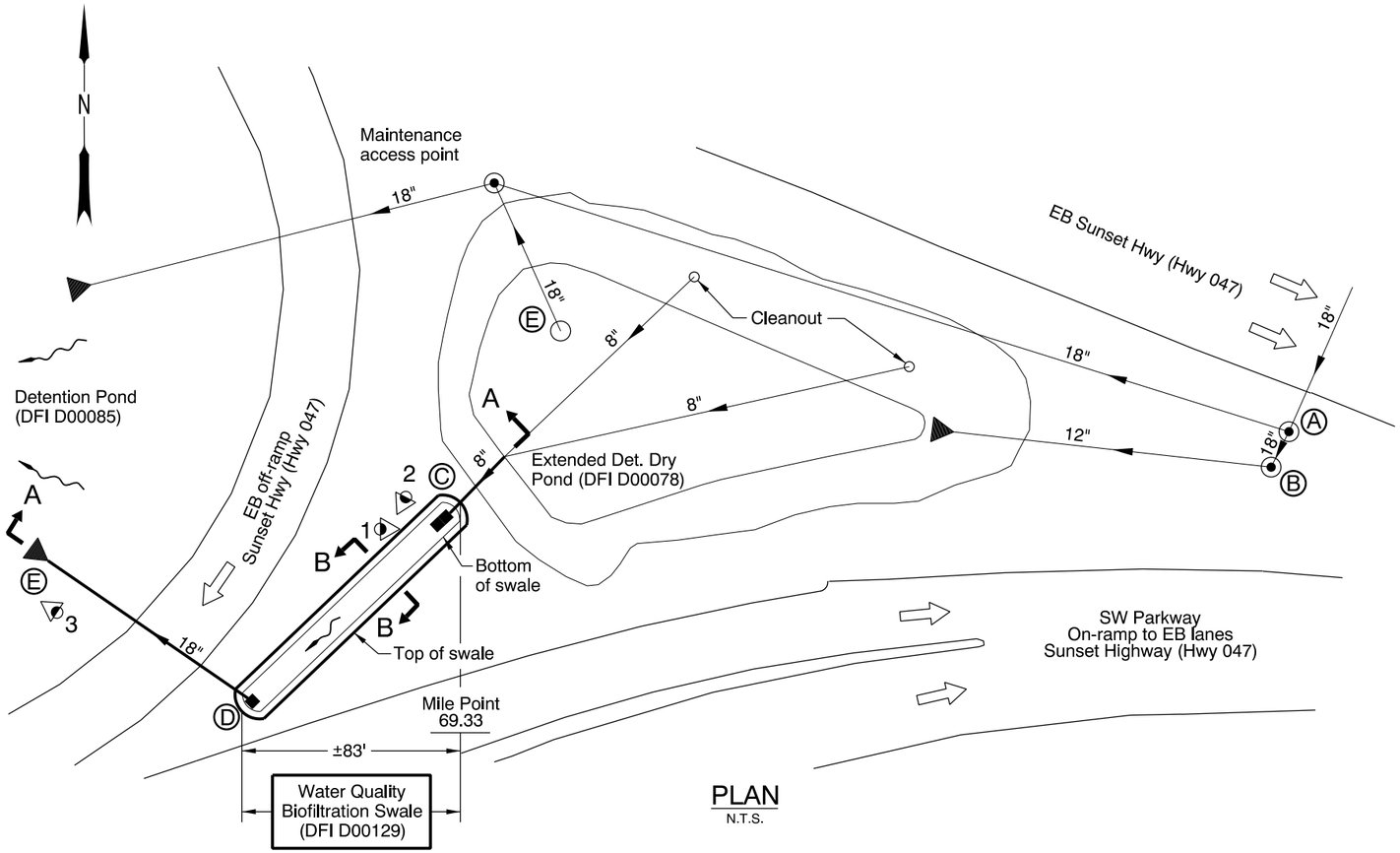
Contact any of the following for more detailed information about management of waste materials found on site:

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

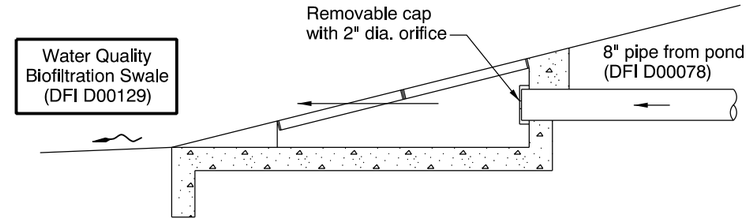
Appendix A

Content:

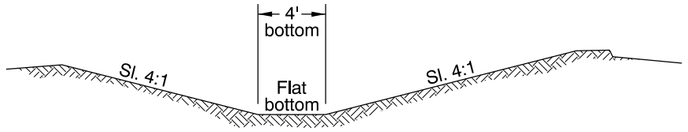
- **Operational Plan and Profile Drawing(s)**



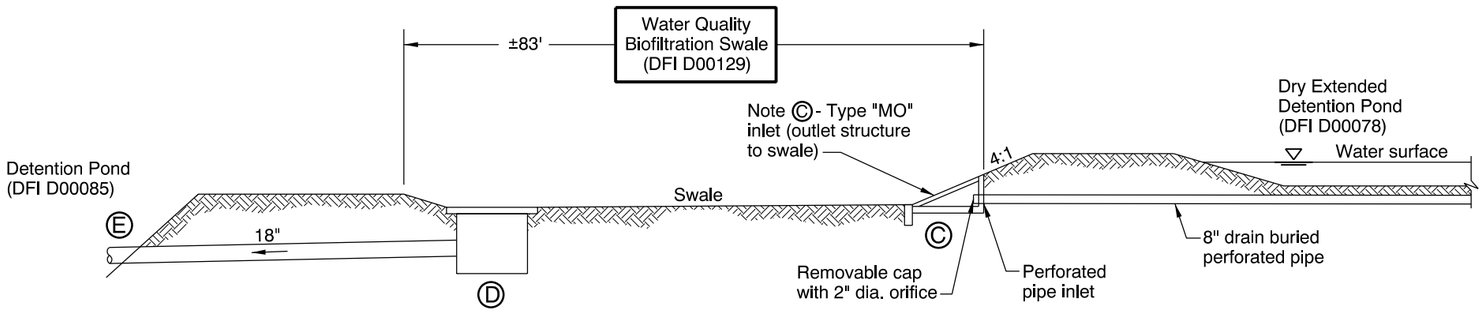
PLAN
N.T.S.



OUTLET STRUCTURE TO SWALE AT POINT Ⓒ
N.T.S.



SECTION B-B
N.T.S.



SECTION A-A
N.T.S.

LEGEND:

- Photo Location / Direction
- Ⓐ Split Flow Manhole
- Ⓑ Pollution Control manhole
- Ⓒ Swale Inlet
- Ⓓ Swale Outlet
- Ⓔ Outfall
- Manhole
- Inlet
- Storm Pipe (Facility)
- Storm Pipe
- Conveyance Direction
- Pavement / Facility Flow Path

Sht. 1 of 1

OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Bob Knorr

Drafted By: S. Wolfer

DFI D00129
MAINTENANCE DISTRICT 2B HWY 047
WATER QUALITY BIOFILTRATION SWALE
SUNSET HIGHWAY MP 69.33
WASHINGTON COUNTY

Z:\Hydraulics\Hydraulics OM\Completed_Facility_Files\Dist_2B\Hwy_047\2B_047_D00129\Operational Plan\DFI_D00129.dgn :: Sheet 1/16/2014 8:25:27 AM hwyr33e

DFI_D00129.dgn

Appendix B

Content:

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

INDEX OF SHEETS

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

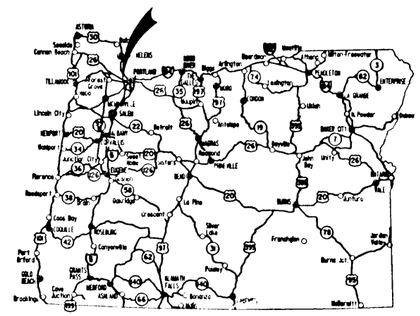
GRADING, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNALS, LANDSCAPING & TRANSIT FACILITIES

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.

SUNSET HIGHWAY

WASHINGTON COUNTY

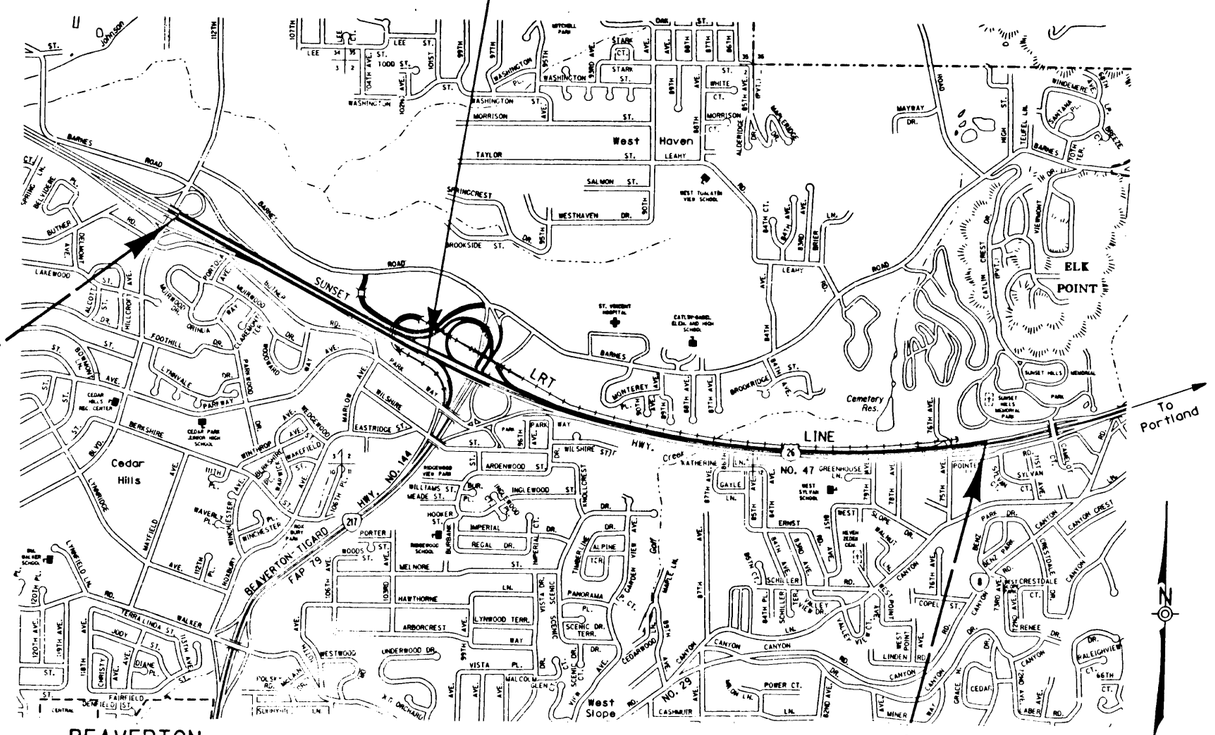
NOVEMBER, 1993



Overall Length Of Project - 2.08 Miles

STA. "LWF" 3186+33.15 P.O.T. Bk. (19' Lt.) &
STA. "LEF" 3186+33.87 P.O.T. Bk. (19' Lt.) =
STA. "L4F" 3185+97.05 P.C. Ah. EQUA.

NH-S047(6)
BEGINNING OF PROJECT
STA. "LEF" 3149+00 (M.P. 68.37)



END PROJECT NH-S047(6)
STA. 3258 50 (M.P. 70.45)

T. 1 N. & 1 S., R. 1 W., W.M.

3 Revised 2-17-94
2 Revised 12-1-93
1 Revised 10-20-93

OREGON TRANSPORTATION COMMISSION

Michael P. Holtern	CHAIRMAN
John Whitty	VICE CHAIRMAN
Susan Brody	COMMISSIONER
Cynthia J. Ford	COMMISSIONER
Roger L. Breezley	COMMISSIONER
Donald E. Forbes	DIRECTOR OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER 8458 OREGON AUGUST 12, 1975 THOMAS D. LULAY Expires Dec. 31, 1994

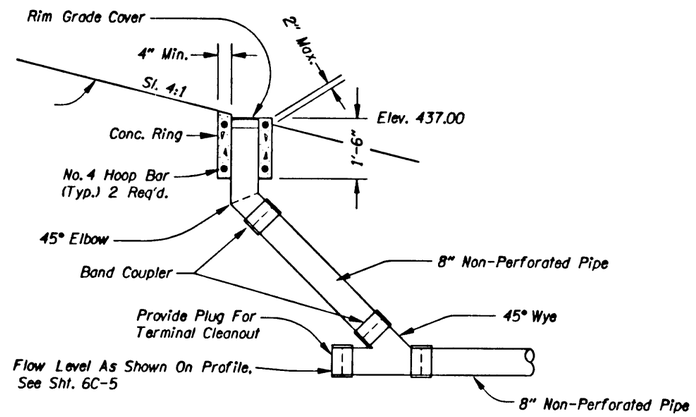
Thomas D. Lulay

TECHNICAL SERVICES MANAGING ENGINEER

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

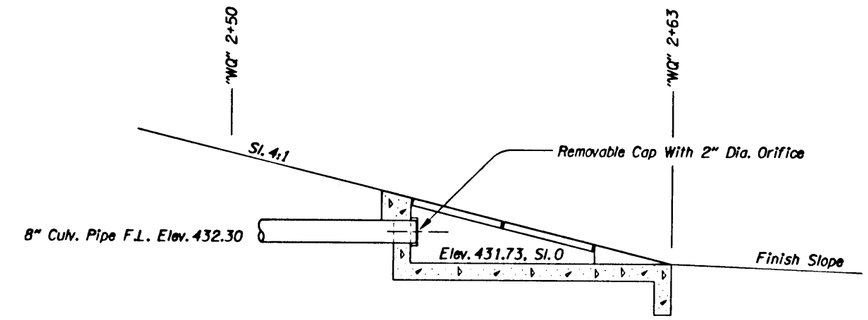
FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION	NH-S047(6)	1

D E T A I L S



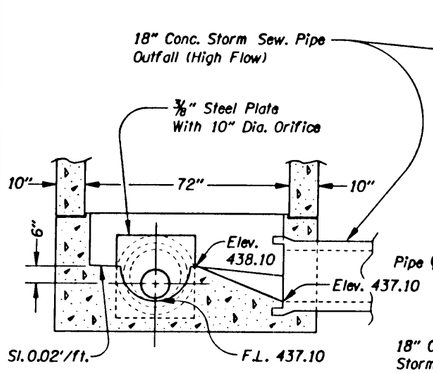
8-INCH DRAIN CLEANOUT

(For Locations, See Plans)

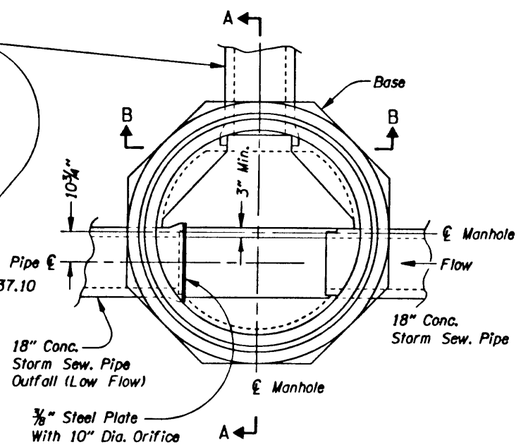


MODIFIED TYPE M-O INLET

(For Details Not Shown, See Drg. No. 2105A)
(For Location, See Sht. 6C-4)



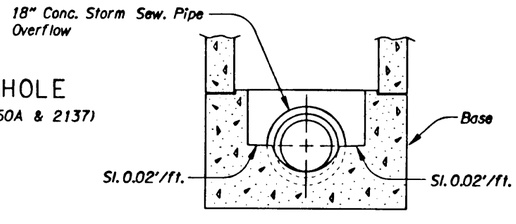
SECTION A-A



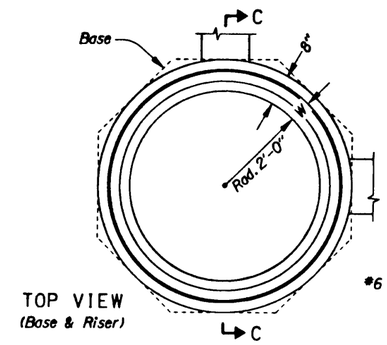
TOP VIEW

SPLIT FLOW MANHOLE

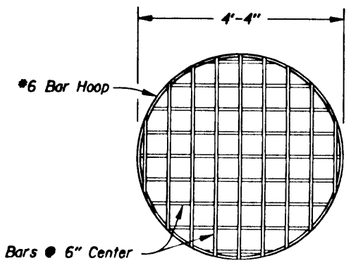
(For Details Not Shown, See Drg. No. 2050A & 2137)



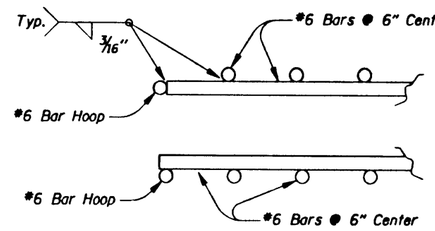
SECTION B-B



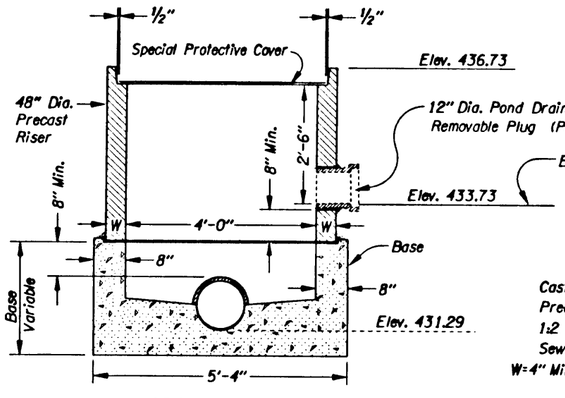
TOP VIEW
(Base & Riser)



Plan View
SPECIAL PROTECTIVE COVER



SPECIAL PROTECTIVE
COVER WELDING



SECTION C-C

NOTE: The Risers Shall Meet The Requirements Of The Current AASHTO Standard Specification M199

LEGEND

- Cast-In-Place Concrete
- Precast Concrete
- 1:2 Cement Mortar
- Sewer Pipe

W=4" Min. (For Tolerance, See AASHTO M199)

OVERFLOW RISER

(For Details Not Shown, See Drg. No. 2050A)

1 Revised 2-17-94

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		2B-27

morris
01-MAR-1994 10:49
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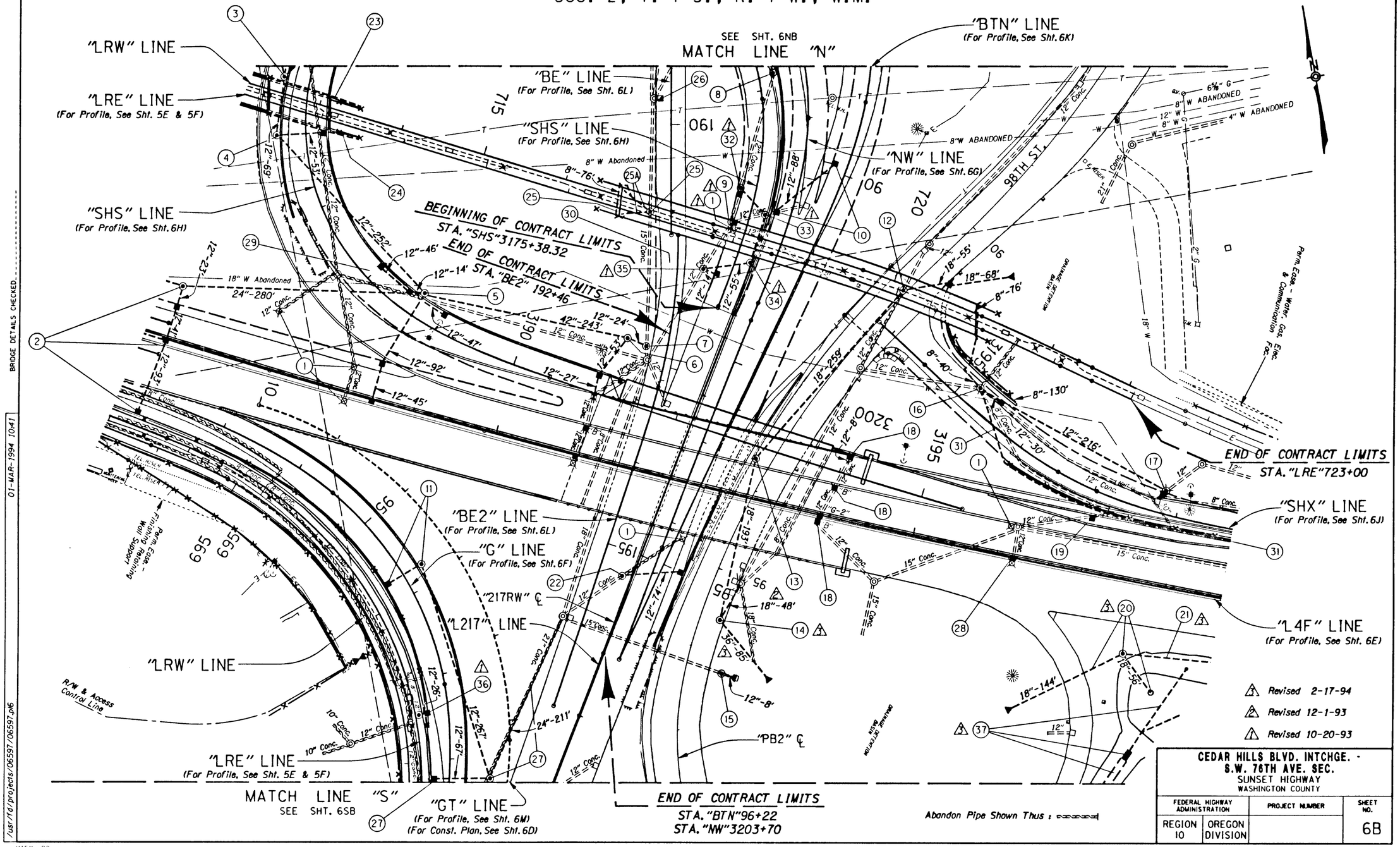
VIEW A2

DRAINAGE & UTILITIES
Sec. 2, T. 1 S., R. 1 W., W.M.



CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		6B

BRIDGE DETAILS CHECKED

/usr/td/projects/06597/06597.dg6 01-MAR-1994 10:41

VIEW B2

DRAINAGE & UTILITIES NOTES

1. Remove Inlet - 6

2. See Sht. 5B-2, Note 11

3. See Sht. 6NB-2, Note 2
   Sta. "SHS" 3185+50
   Const. Manhole

4. Sta. "SHS" 3186+00
   Const. Manhole
   Const. Type "G-2" Mod. Inlet
   Inst. 12" Sew. Pipe - 122'
   Tr. Exc. - 99 C.Y.
   (For Details, See Sht. 2B-2)

5. Sta. "SHS" 3188+68
   Const. Large Drop Manhole
   Const. Type "G-2" Mod. Inlet - 5
   Inst. Safety Ladder
   Inst. 12" Sew. Pipe - 496'
   Inst. 24" Sew. Pipe - 280'
   Under Pvmt. - 37'
   Tr. Exc. - 1,134 C.Y.
   (For Details, See Shts. 2B-2 & 2B-4)

6. Sta. "SHS" 3191+16
   Remove Inlet - 3
   Remove 12" Sew. Pipe - 6'
   Const. Large Manhole
   Const. Type "B" Inlet
   Const. Type "G-2" Mod. Inlet - 2
   Inst. 12" Sew. Pipe - 80'
   Inst. 9" Orifice Plate
   Inst. 42" Sew. Pipe - 243'
   Tr. Exc. - 1,245 C.Y.
   (For Details, See Shts. 2B-2 & 2B-3)
   (See Drg. No. 2105A)

7. Sta. "SHS" 3191+40
   Const. Drop Manhole
   Inst. 12" Sew. Pipe - 24'
   Tr. Exc. - 18 C.Y.

8. See Sht. 6NB-2, Note 4
   Sta. "SHS" 3178+18
   Remove Inlet
   Const. Manhole

1. 9. Remove Manhole

10. Sta. "MW" 3198+17 To Sta. "BTN" 89+90
    Const. Type "G-2" Mod. Inlet - 2
    Inst. 12" Sew. Pipe - 88'
    Tr. Exc. - 84 C.Y.
    (For Details, See Sht. 2B-2)

11. Sta. "G" 95+75
    Const. Manhole
    Const. Type "G-2" Mod. Inlet
    Inst. 12" Sew. Pipe - 45'
    Tr. Exc. - 13 C.Y.
    (For Details, See Sht. 2B-2)
    (See Drg. No. 49599)

12. Sta. "PB2" 91+10
    Const. Manhole
    Const. Type "G-2" Mod. Inlet
    Inst. 18" Sew. Pipe - 123'
    Const. Paved End Slope
    Under Pvmt. - 48'
    Tr. Exc. - 89 C.Y.
    (For Details, See Sht. 2B-2)
    (For Pipe Profile, See Sht. 6J)

13. Sta. "PB2" 93+67
    Const. Manhole
    Inst. 18" Sew. Pipe - 259'
    Under Pvmt. - 259'
    Tr. Exc. - 179 C.Y.
    (For Pipe Profile, See Sht. 6J)

2. 14. Sta. "PB2" 95+62
    Const. Manhole
    Inst. 18" Sew. Pipe - 241'
    Inst. 36" Sew. Pipe - 85'
    Const. Paved End Slope
    Under Pvmt. - 199'
    Tr. Exc. - 207 C.Y.
    (For Pipe Profile, See Sht. 6J)

15. Sta. "PB2" 96+24
    Const. Manhole
    Inst. 12" Sew. Pipe - 8'
    Const. Paved End Slope
    Inst. 15" Gate Valve
    Tr. Exc. - 6 C.Y.
    (For Details, See Sht. 2B-7)

16. Sta. "SHX" 3195+18
    Adjust Manhole
    Inst. 8" Drain Pipe - 246'
    Drainage Geotextile - 161 Sq.Yds.
    Granular Drain Backfill - 26 C.Y.
    Tr. Exc. - 19 C.Y.
    (For Details, See Sht. 2B-3 & 2B-5)
    (See Drg. Nos. 2091A, 49621, 49657 & Assoc. Bridge Drgs.)

17. Sta. "SHX" 3197+80
    Adjust Manhole
    Const. Type "G-2" Mod. Inlet - 2
    Remove 12" Sew. Pipe - 11'
    Inst. 12" Sew. Pipe - 246'
    Tr. Exc. - 185 C.Y.
    (For Details, See Sht. 2B-2)

18. Sta. "L4F" 3193+89
    Remove Inlet - 3
    Remove 12" Sew. Pipe - 3'
    Const. Type "B" Inlet - 2
    Const. Type "G-2" Inlet
    Const. Type "G-2" Mod. Inlet
    12" Sew. Pipe (In Pl.)
    Extend - 8' Lt.
    Under Pvmt. - 3'
    Tr. Exc. - 5 C.Y.
    (For Details, See Sht. 2B-2)
    (See Drg. No. 2105)

19. Sta. "L4F" 3192+01
    Const. Type "G-2" Mod. Inlet
    12" Sew. Pipe (In Pl.)
    Remove - 20'
    Tr. Exc. - 3 C.Y.
    (For Details, See Sht. 2B-2)

3. 20. Sta. "L4F" 3197+50
    Const. Manhole
    Const. Pond Overflow Riser
    Inst. 18" Sew. Pipe - 200'
    Const. Paved End Slope
    Under Pvmt. - 27'
    Tr. Exc. - 167 C.Y.
    (For Details, See Sht. 2B-27)

21. See Sht. 7B-2, Note 2

22. Sta. "BTN" 95+36
    Const. Manhole
    Const. Type "G-2" Mod. Inlet
    Inst. 12" Sew. Pipe - 74'
    Under Pvmt. - 63'
    Tr. Exc. - 42 C.Y.
    (For Details, See Sht. 2B-2)

23. See Sht. 5B-2, Note 8

24. See Sht. 5B-2, Note 9

25. Sta. "LRE" 717+03
    Const. Manhole
    Inst. 8" Drain Pipe - 76'
    25A. Inst. Bridge Drainage System
    Drainage Geotextile - 56 Sq.Yds.
    Granular Drain Backfill - 8 C.Y.
    Tr. Exc. - 5 C.Y.
    (See Drg. Nos. 49617, 49625 & Assoc. Bridge Drgs.)

26. Sta. "BE" 189+70
    Reconst. "CG-2" Inlet
    (For Details, See Sht. 2B-3)

27. Sta. "G" 98+25
    Const. Drop Manhole
    Const. Type "G-2" Mod. Inlet
    Inst. 12" Sew. Pipe - 334'
    Inst. 24" Sew. Pipe - 211'
    Tr. Exc. - 704 C.Y.
    (For Details, See Shts. 2B-2 & 2B-4)

28. Sta. "L4F" 3196+20
    Remove Inlet
    Remove 12" Sew. Pipe - 5'
    Const. Type "G-2" Inlet
    Under Pvmt. - 5'
    Tr. Exc. - 3 C.Y.

29. Sta. "SHS" 3187+95
    Inst. 12" Culv. Pipe - 62' (Conduit)
    Tr. Exc. - 19 C.Y.

30. Sta. "BE2" 191+63
    Inst. 12" Culv. Pipe - 42' (Conduit)
    Under Pvmt. - 38'
    Tr. Exc. - 19 C.Y.

31. Sta. "SHX" 3195+18 To Sta. "SHX" 3200+00
    Inst. 8" Drain Pipe (Wall #37 Drain) - 500'
    Drainage Geotextile - 318 Sq.Yds.
    Granular Drain Backfill - 56 C.Y.
    Tr. Exc. - 18 C.Y.
    (For Details, See Sht. 2B-3)
    (See Drg. Nos. 2091A, 49654 & Assoc. Bridge Drgs.)

2. 1. 32. Sta. "SHS" 3176+82
    Const. Manhole
    Const. Type "G-2" Mod. Inlet
    Inst. 12" Sewer Pipe - 7'
    Tr. Exc. - 3 C.Y.
    (For Details, See Sht. 2B-2)

2. 1. 33. Sta. "SHS" 3176+58
    Const. Manhole
    Inst. 12" Sewer Pipe - 42'
    Under Pvmt. - 38'
    Tr. Exc. - 35 C.Y.

2. 1. 34. Sta. "SHS" 3176+00
    Const. Manhole
    Inst. 12" Sewer Pipe - 59'
    Under Pvmt. - 59'
    Tr. Exc. - 54 C.Y.

2. 1. 35. Sta. "SHS" 3175+75
    Const. Manhole
    Const. Type "G-2" Mod. Inlet
    Inst. 12" Sewer Pipe - 69'
    Under Pvmt. - 40'
    Tr. Exc. - 58 C.Y.
    (For Details, See Sht. 2B-2)

1. 36. Sta. "LRE" 691+70
    Const. Manhole
    Const. Special Inlet
    Inst. 12" Sew. Pipe - 26'
    Conc. Encasement - 3 C.Y.
    Tr. Exc. - 1 C.Y.
    Connect To Track Drainage System
    (For Details, See Shts. 2B-26, LR-2, LR-49, LR-50 & LR-55)

3. 2. 37. Const. Water Quality Treatment Facility
    (For Details, See Shts. 2B-27, 2B-28, 6C-4 & 6C-5)

3. 2. 38. Note Removed From Plan

3. Revised 2-17-94
2. Revised 12-1-93
1. Revised 10-20-93

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		6B-2

BRIDGE DETAILS CHECKED

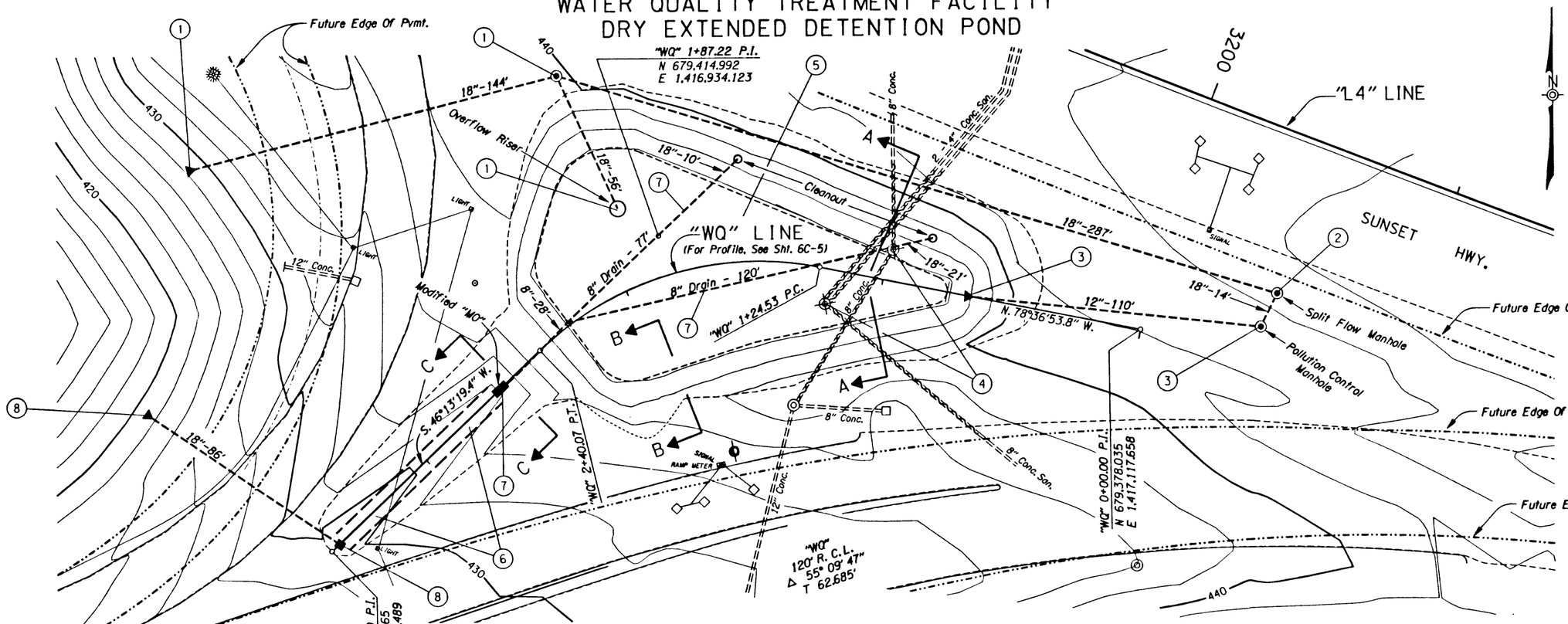
01-MAR-1994 10:41

/usr/td/projects/06597/06597_pl6

morris

VIEW A2

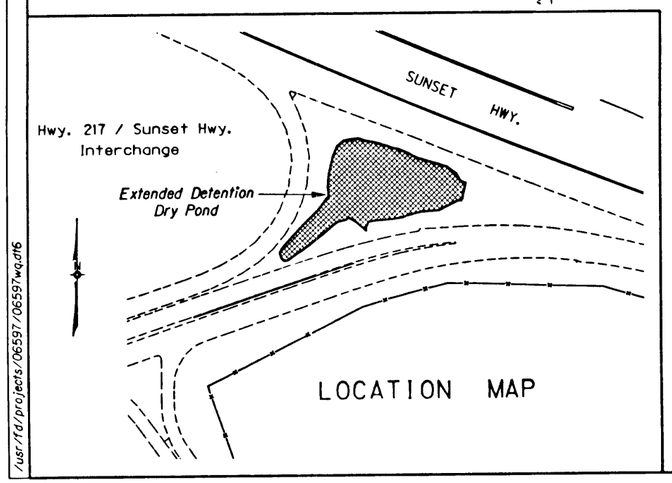
WATER QUALITY TREATMENT FACILITY
DRY EXTENDED DETENTION POND



For Sections A-A, B-B & C-C, See Sht. 2B-28

Top Cut Slope ----------

Toe Fill Slope ....



(1) See Sht. 6B-2, Note 20

(2) See Sht. 7B-2, Note 2

(3) See Sht. 7B-2, Note 17

(4) See Sht. 7B-2, Note 18

(5) Sta. "WQ" 0+44 To Sta. "WQ" 2+63
Const. Water Quality Treatment Facility
(For Details, See Shts. 2B-27, 2B-28 & 6C-5)

(6) Sta. "WQ" 2+63 To Sta. "WQ" 3+46
Const. 4' Bottom Outlet Ditch
Dt. Exc. - 172 C.Y.
Field Verify Location Of Buried Powerline Prior To Const.
(See Sht. 6C-5, Section C-C)

(7) Sta. "WQ" 2+63
Const. Type "MO" Mod. Inlet
Inst. 8" Sew. Pipe - 62'
Inst. 8" Cap With 2" Dia. Orifice
Inst. 8" Drain Pipe - 197'
Inst. 8" Drain Cleanout - 2
Drainage Geotextile - 173 Sq.Yds.
Granular Drain Backfill - 19 C.Y.
Tr. Exc. - 41 C.Y.
(For Details, See Shts. 2B-27 & 6C-5)

(8) Sta. "WQ" 3+46
Const. Type "G-2" Inlet
Inst. 18" Sew. Pipe - 86'
Under Pvmt. - 27'
Const. Paved End Slope
Tr. Exc. - 50 C.Y.

1 Revised 2-17-94

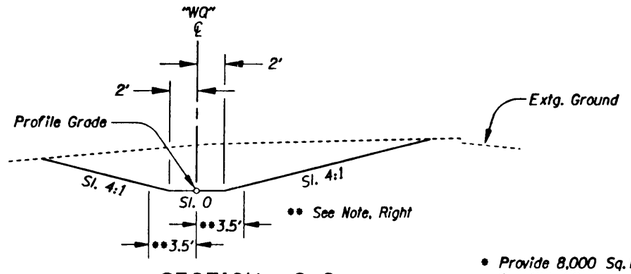
CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		6C-4

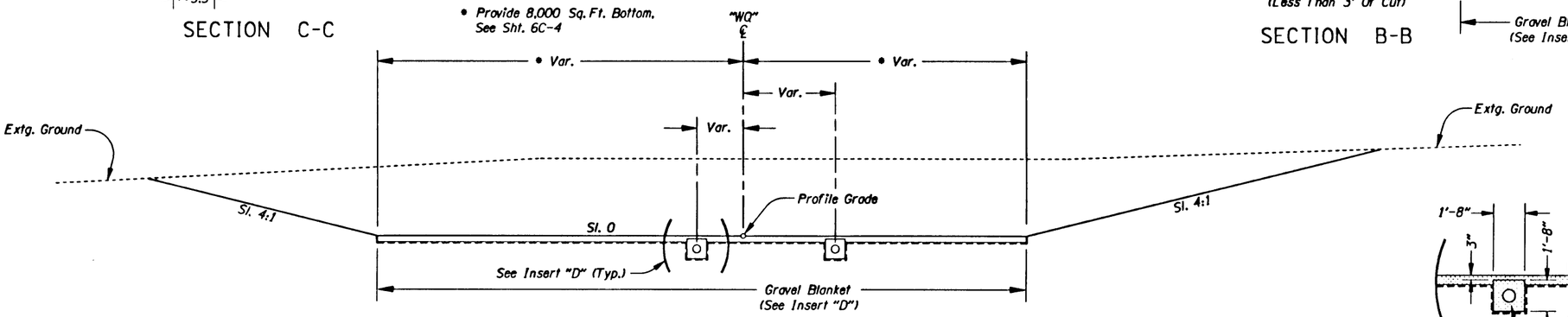
WATER QUALITY TREATMENT FACILITY
DRY EXTENDED DETENTION POND

(For Section Locations, See Sht. 6C-4)

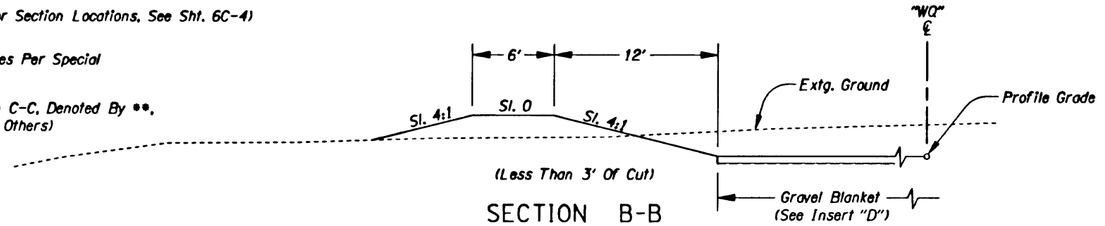
NOTES:
- Seed & Mulch All New Earth Surfaces Per Special Provision Section 01020.
- Maintain Grass Height Within Section C-C, Denoted By **, Between 4 Inches & 12 Inches. (By Others)



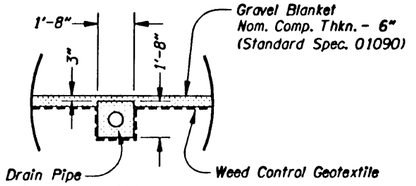
SECTION C-C



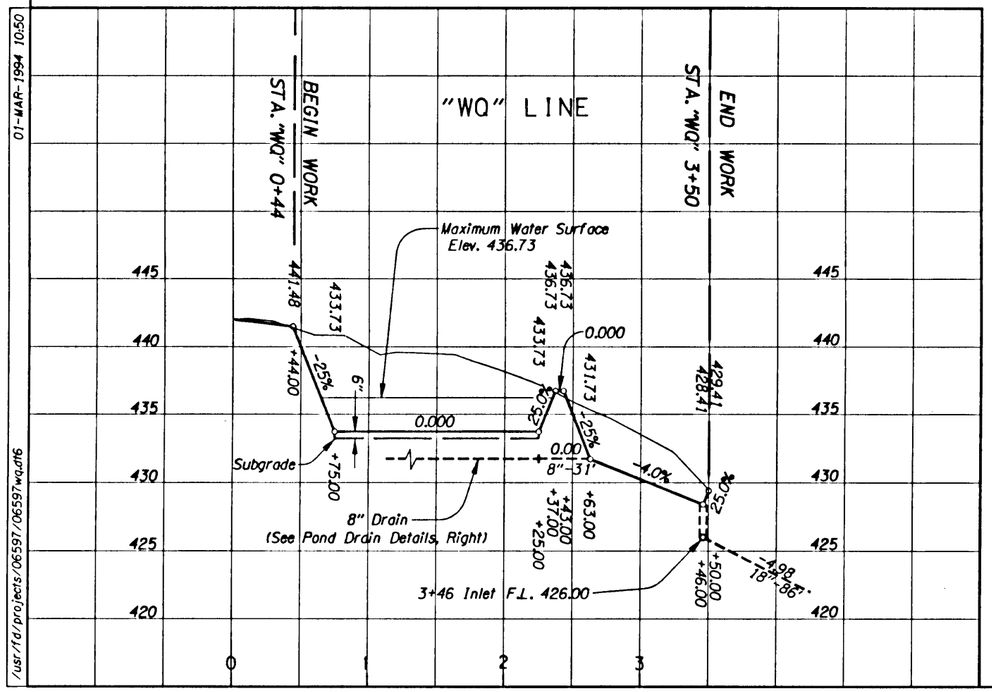
SECTION A-A



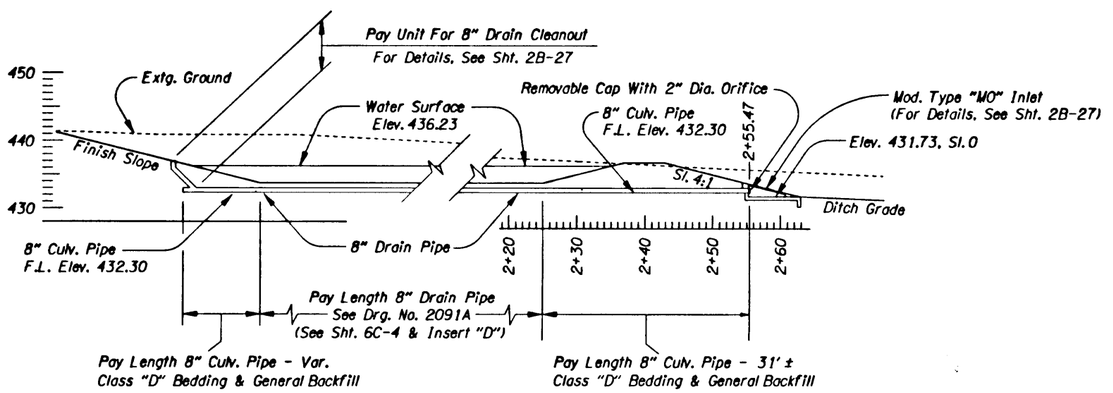
SECTION B-B



INSERT "D"



VIEW B1



POND DRAIN DETAILS

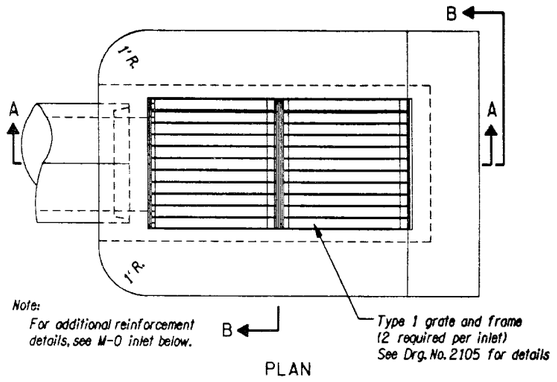
1 Revised 2-17-94

CEDAR HILLS BLVD. INTCHGE. - S.W. 76TH AVE. SEC.
SUNSET HIGHWAY
WASHINGTON COUNTY

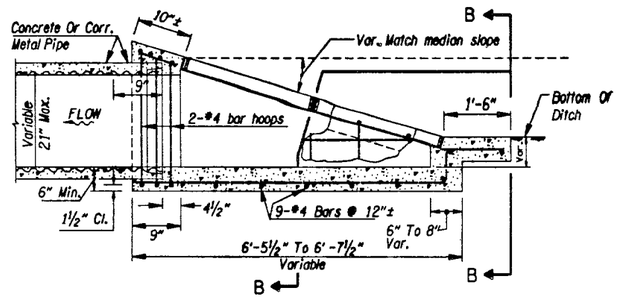
FEDERAL HIGHWAY ADMINISTRATION		PROJECT NUMBER	SHEET NO.
REGION 10	OREGON DIVISION		6C-5

7/92

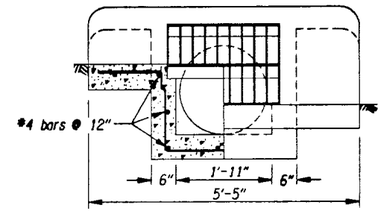
TYPE M-E



PLAN

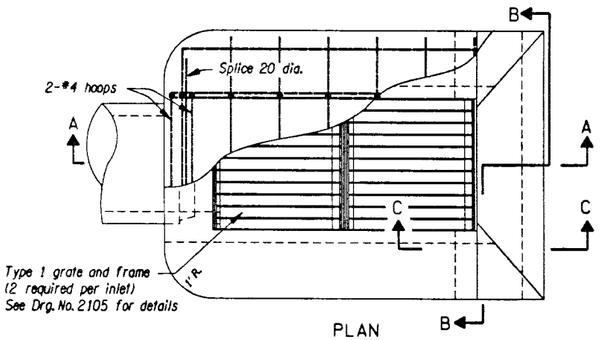


SECTION A-A

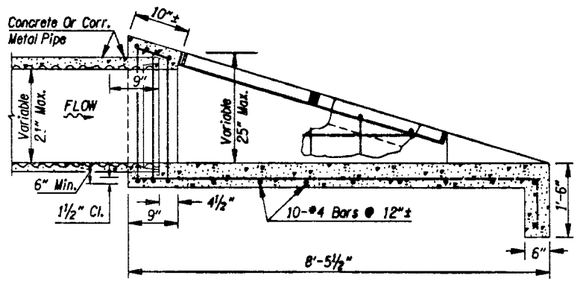


SECTION B-B

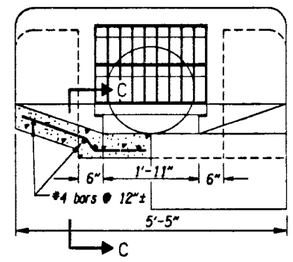
TYPE M-O



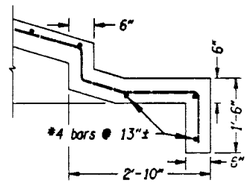
PLAN



SECTION A-A

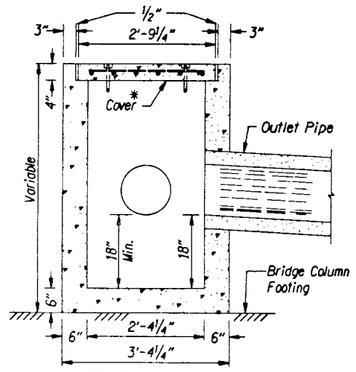


SECTION B-B



SECTION C-C

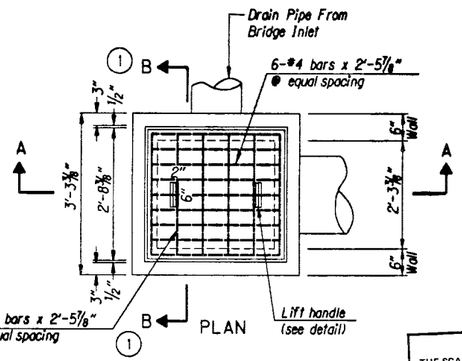
TYPE B



SECTION A-A

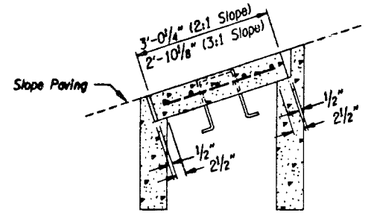
* All bars for Type B & B-SL inlets to be Placed 1½" clear of nearest face of concrete unless shown or noted otherwise.

TYPE B-SL

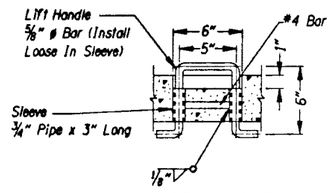


MODIFICATION FOR SLOPE INSTALLATION

(For Details Not Shown, See Type B)



SECTION B-B



LIFT HANDLE

NOTE
THE SCALE OF THIS PRINT IS APPROXIMATELY 45% OF THE ORIGINAL DRAWING.
DO NOT SCALE

GENERAL NOTES:

1. Maximum Pipe Sizes For Use With Type M-E And M-O Inlets are 21 Inch Round And 21x15 Inch Pipe-Arch.
2. All Reinforcing Steel To Be Placed A Minimum Of 2 Inches Clear Of Nearest Face Of Concrete Unless Otherwise Shown Or Noted. Reinforcing Steel To Be Lapped 20 Bar Diameters At Splices.
3. When Uncoated Metal Pipe or Pipe-Arch Are Used, An Asphaltic Or Similar Type Protective Coating Shall Be Applied To The Exterior Surface.

NOTE: All material and workmanship shall be in accordance with the current State of Oregon Standard Specifications for Highway Construction.

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY DIVISION
STANDARD

CONCRETE INLETS

JUNE, 1970

REVISIONS		APPROVED
DATE	DESCRIPTION	
3-1-74	ADDED FRAMES & GRATES REQ. E.A. INLET	
11-1-76	REINFORCEMENT	SPECIFICATIONS ENGINEER
3-3-92	REDRAWN ON CADD, RESIZED M-E, M-O & B INLETS.	DRG. NO. 2105A

2-14-92 ZGZ\100.10\12105A.DGN

2-3.2

VIEW-01