OPERATION & MAINTENANCE MANUAL

DFI No. : D00674

Facility Type: Water Quality Extended Detention Pond

[April, 2018]

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00674**
Facility Type:	Water Quality Extended Detention Pond
Construction Drawings:	(V-File Number) 46V-022
Location:	District: 2B
	Highway No.: 75
	Mile Post: (5.03 to 5.06) Hwy 75
	Description: This facility is located north of the Sunrise Corridor in the center island of the Bordeaux Lane turnaround, northwest of the intersection of Bordeaux Lane and Mather 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 – [OBEC Consulting Engineers, Amy Jones, 971-634-2005]
Facility construction:	[2014]
Contractor:	Kerr Contractors, Inc.

4. Storm Drain System and Facility Overview

An 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 sizing of these facilities depends on the location and the amount of contributing impervious area.

This extended detention pond is designed to store runoff during wet weather and is dry the remainder of the time. It is located north of the Sunrise Corridor in the center island of the Bordeaux Lane turnaround, northwest of the intersection of Bordeaux Lane and Mather Road. Access to the facility is provided directly from Bordeaux Lane and the turnaround area.

There is one culvert that conveys stormwater runoff from paved areas along the Mather Road and Bordeaux Lane alignments into the detention pond. The locations of this is noted on the Operation Plan as point A in Appendix A

The pond consists of two chambers, each with its own outfall structure. Chamber A (east chamber) exits the pond through Outfall A which consists of a Type “D” inlet connected to 12-inch storm drain pipe. This connects to a manhole containing the flow control assembly. Outfall A serves as a positive outfall for low flow storm events. This connects to the storm drain pipe system in Bordeaux Lane. See Photo 1 and Points B and C on the Operational Plan in Appendix A. Higher storm events will spill over the riprap weir into Chamber B (west chamber). Outfall B is located in Chamber B and consists of a Type “D” inlet connected to a 12-inch storm drain pipe that connects to a manhole containing the flow control assembly. The pipe outfalls to an existing ditch.

The storm drain outlet pipe from the flow control manhole connects to the auxiliary outfall. The storm drain pipe from the auxiliary outfall is 16-inches in diameter and connects to a manhole connecting to the flow control manhole. These are shown in the Operational Plan in Appendix A. The receiving waterway for the outlet pipes is Dean Creek.

A. Maintenance equipment access:
   The pond and outlet structures can be accessed from a Bordeaux Lane and the turnaround road surrounding the pond. See the road layout on the Operational Plan in Appendix A.

B. Heavy equipment access into facility:

   ☐ Allowed (no limitations)

☒ Allowed (with limitations)
☐ Not allowed

C. Special Features:

☐ Amended Soils
☒ Porous Pavers
☒ Liners
☐ Underdrains

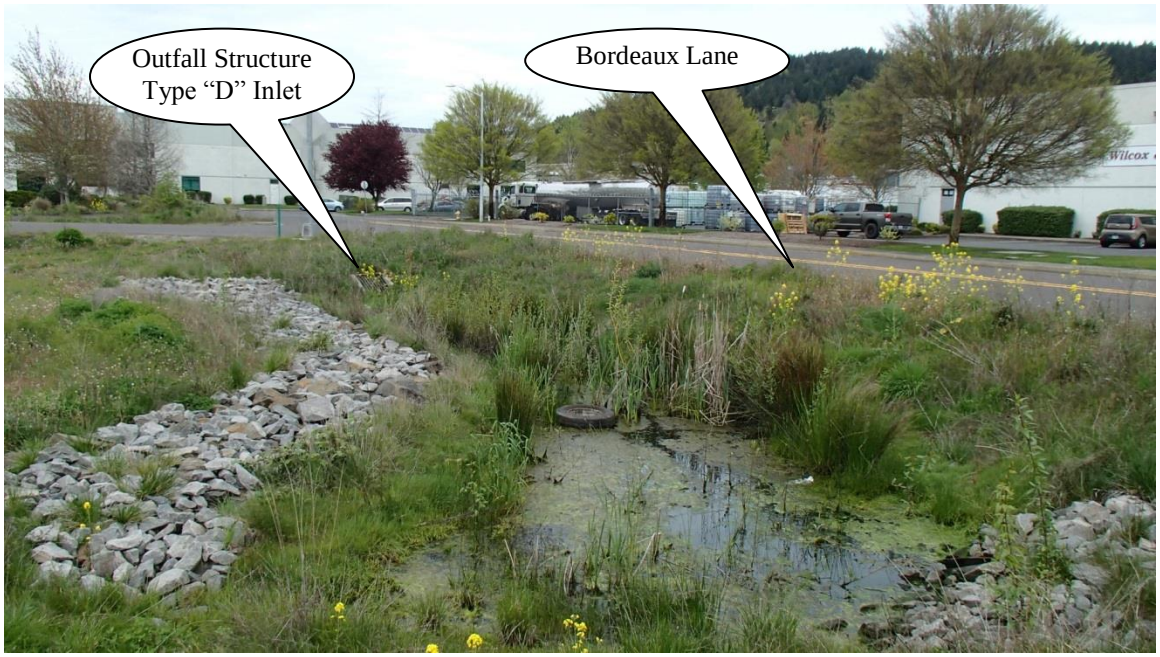


Photo 1: a view of extended detention pond facility, looking North toward Bordeaux Lane.

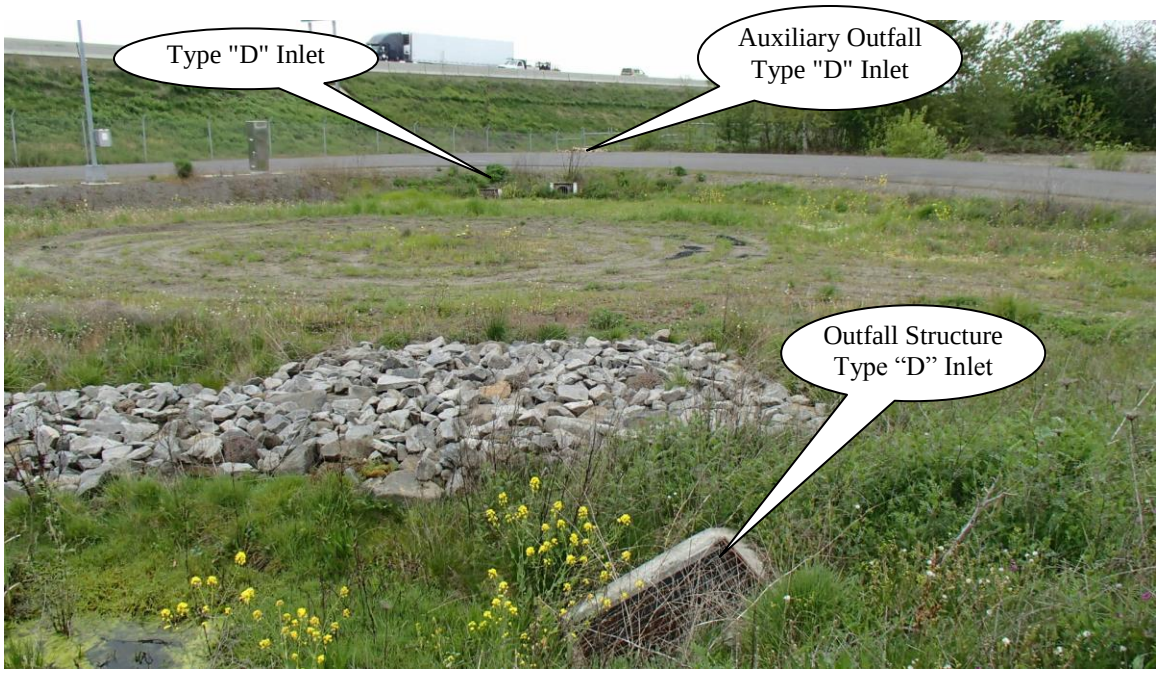


Photo 2: a view of extended detention pond facility, looking Southwest toward Sunrise corridor.

5. Facility Haz Mat Spill Feature(s)

The pond can be used to store a volume of liquid by blocking the 12-inch diameter outlet pipe with the Type “D” inlet located at the outfall structure in the middle of the south side of the pond. This pipe is noted as point C in the Operational Plan. A barrier such as a metal plate over the metal grate on the inlet could be used to prevent liquid from draining from the pond.

6. Auxiliary Outlet (High Flow Bypass)

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

The auxiliary outlet feature for this facility is:

☒ Designed into facility
High flows exit the pond through the auxiliary outlet structure consisting of a type “D” inlet located in Chamber B. This inlet connects to the outfall pipe from the main outfall and flow control structure. See Photo 2 and Point G in the Operational Plan in Appendix A.

☒ Other, as noted below

There is a 30 mil black plastic liner along the bottom and sides of the pond in both chambers to prevent contaminants from the underlying soils to mix with the runoff.

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

The following stormwater facility maintenance table (See ODOT Maintenance Guide) should be used to maintain the facility outlined in this Operation and Maintenance Manual:

- ☒ 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

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

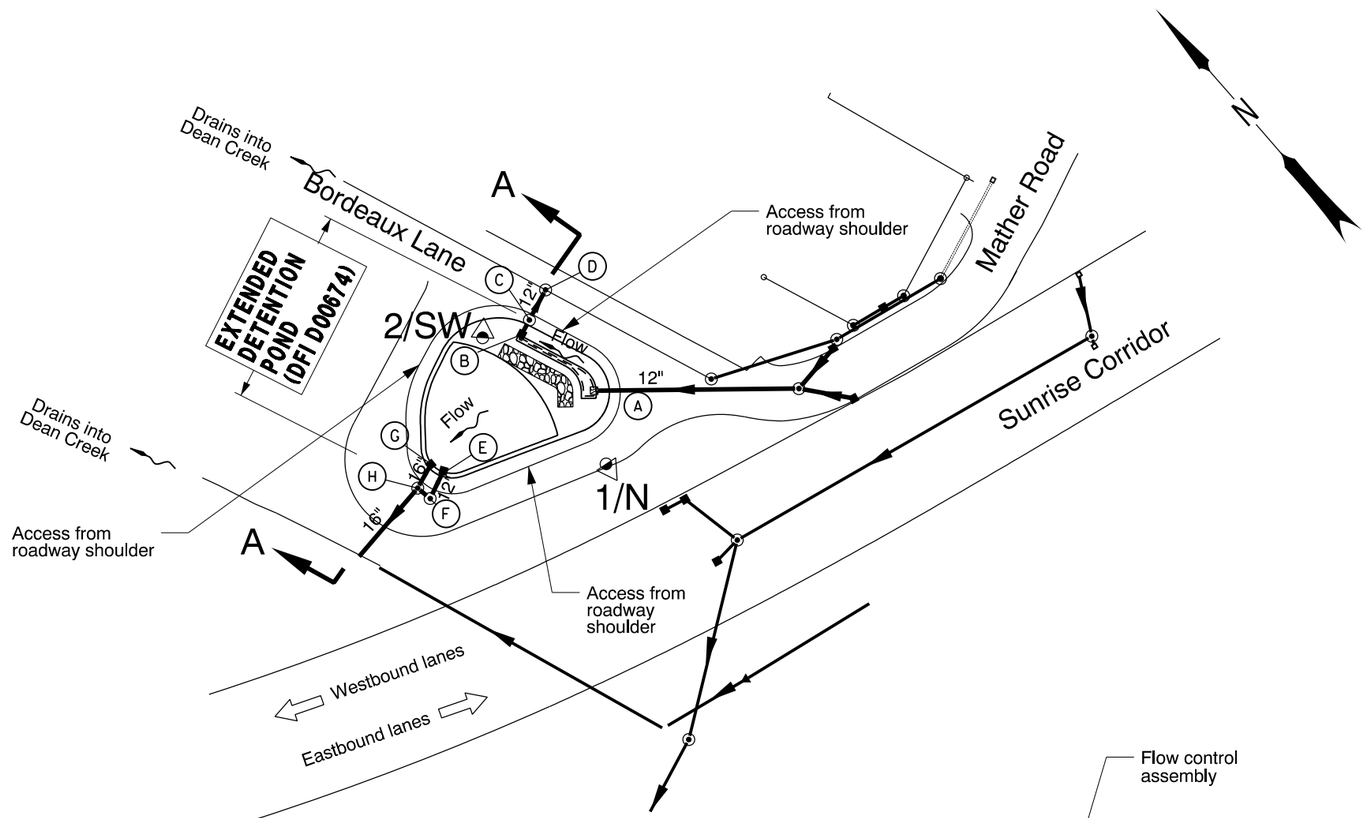
Appendix A

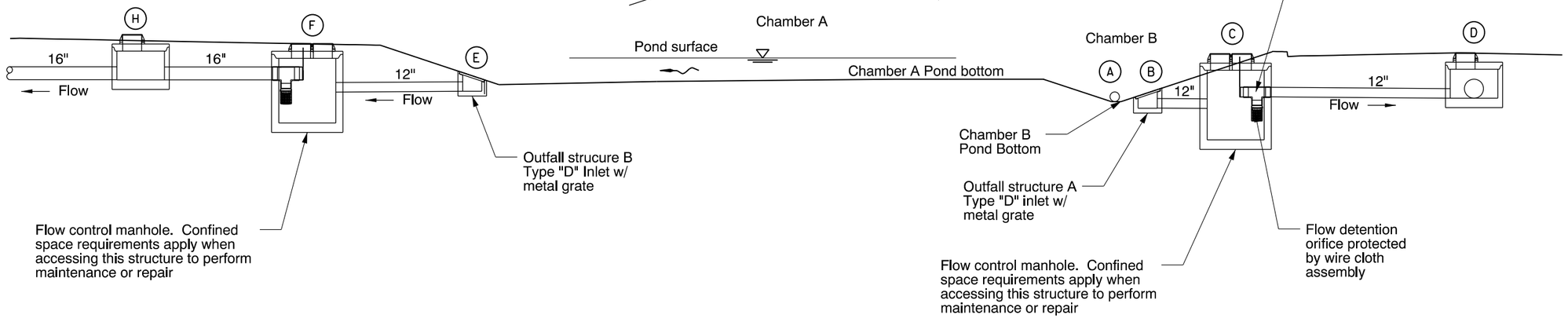
Content:

- **Operational Plan and Profile Drawing**

LEGEND:

- Photo Location / Direction
- (A) 12" storm drain pipe outlet
- (B) Type"D" Inlet and 12" storm drain pipe outfall
- (C) Flow control manhole
- (D) Storm drain manhole
- (E) Type"D" Inlet and 12" storm drain pipe outfall
- (F) Flow control manhole
- (G) Auxiliary outfall - Type"D" inlet and 16" storm drain pipe outfall
- (H) Storm drain manhole
- Manhole (and or)
- Inlet (and or)
- Storm Pipe (Facility)
- Storm Pipe (Not connected to facility)
- Storm Pipe (Existing)
- Conveyance Direction
- Pavement / Facility Flow Path





OREGON DEPARTMENT OF TRANSPORTATION

Prepared By: Amy Jones

Drafted By: Amy Jones

DFI D00674
MAINTENANCE DISTRICT 2B HWY 75
EXTENDED DETENTION POND
SUNRISE CORRIDOR MP 5.03 TO 5.06
CLACKAMAS COUNTY

Appendix B

Content:

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

46V-022

STATE OF OREGON

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED PROJECT

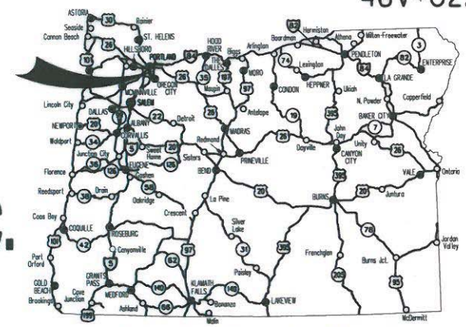
GRADING, DRAINAGE, STRUCTURES, PAVING, SIGNING, ILLUMINATION, SIGNALS & ROADSIDE DEVELOPMENT

FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.

CLACKAMAS HWY.

CLACKAMAS COUNTY
MARCH 2013

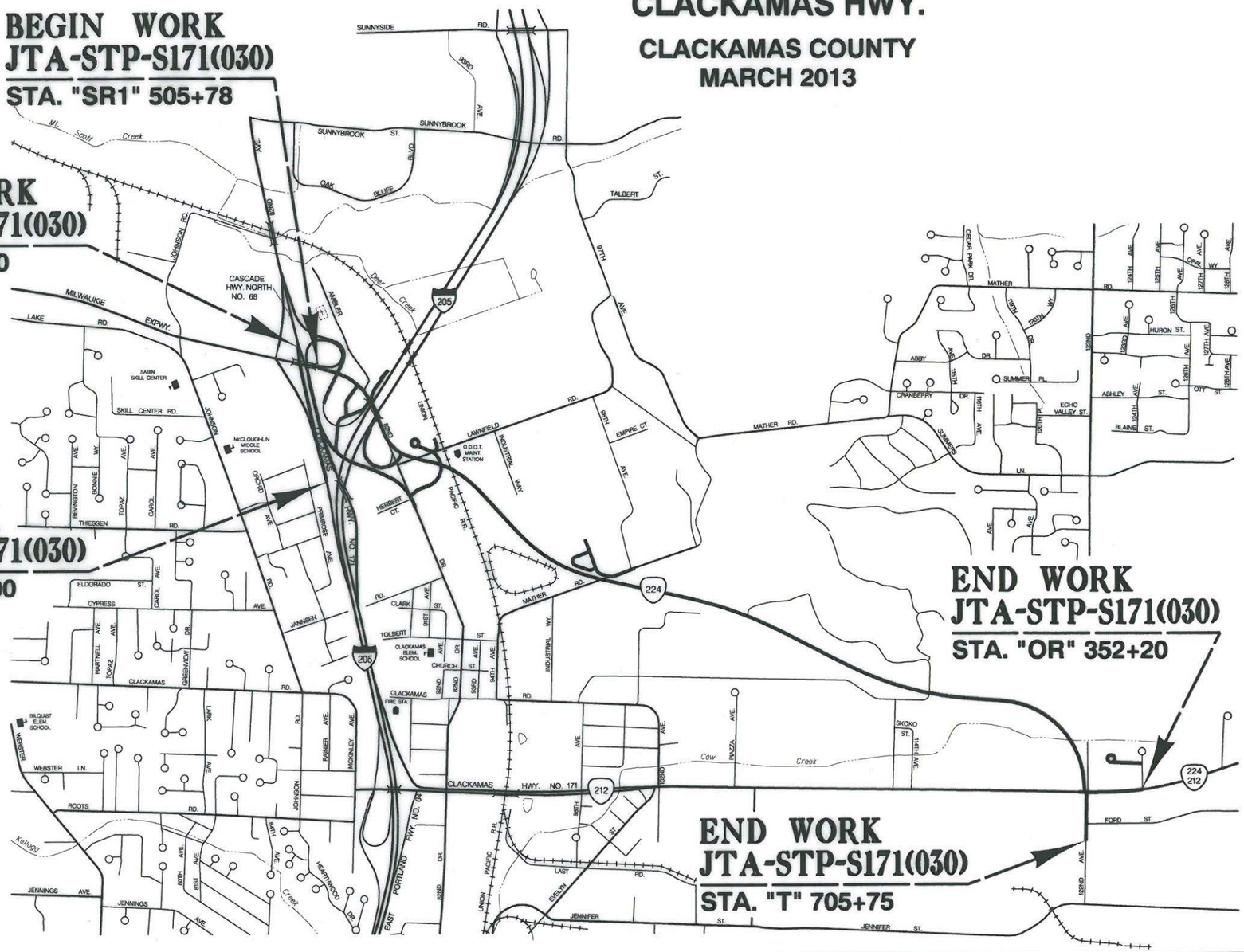
INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
1	Title Sheet
1A	Index Of Sheets Cont'd.



Overall Length Of Project - 3.90 Miles

BEGIN WORK
JTA-STP-S171(030)
STA. "SR1" 505+78

BEGIN WORK
JTA-STP-S171(030)
STA."G" 463+00



END WORK
JTA-STP-S171(030)
STA. "G" 492+00

END WORK
JTA-STP-S171(030)
STA. "OR" 352+20

END WORK
JTA-STP-S171(030)
STA. "T" 705+75

N

SEC. 4, 5, 9, 10, 11
T. 2 S., R. 2 E., W.M.

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

Pat Egan	CHAIR
David Lohman	COMMISSIONER
Mary F. Olson	COMMISSIONER
Mark Frohnmayer	COMMISSIONER
Tammy Baney	COMMISSIONER
Matthew L. Garrett	DIRECTOR OF TRANSPORTATION

PLANS PREPAIRED FOR
OREGON DEPARTMENT OF TRANSPORTATION

OBEC CONSULTING ENGINEERS
www.obec.com
CORPORATE OFFICE:
920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-8089
REGIONAL OFFICES:
LAKE OSWEGO; SALEM; MEDFORD, OREGON; VANCOUVER, WASHINGTON

These plans were developed using ODOT design standards. Exceptions to these standards, if any, have been submitted and approved by the ODOT Chief Engineer or their delegated authority.

Approving Authority: _____ 12/31/12
Signature & date

LAWRENCE H. FOX - PROJECT MANAGER
Print name and title

Concurrence by ODOT Chief Engineer

FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.
CLACKAMAS HWY.
CLACKAMAS COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	JTA-STP-S171(030)	1

File No.

46V-022

N

CASCADE HWY. NORTH (OR213, 82ND AVE.)

CLACKAMAS HWY. (OR224, MILWAUKIE EXPRESSWAY)

I-205 EAST PORTLAND FREEWAY

AMBLER RD.

82ND DR.

HERBERT ST.

LAWNFIELD RD.

MATHER RD.

INDUSTRIAL WAY

Sheet 3

Sheet 4

Sheet 5

Sheet 6

Sheet 7

Sheet 8

"A" LINE

"B" LINE

"C" LINE

"F1" LINE

"G" LINE

"I" LINE

"LS1" LINE

"NBS" LINE

"SBS" LINE

"SUP1" LINE

"SUP3" LINE

"SUP4" LINE

"SUP5" LINE

"AM" LINE

"82D" LINE

"82E" LINE

"EM" LINE

"LN3" LINE

"UPRR" LINE

"EAR" LINE

"SR1" LINE

"BX" LINE

"SR2" LINE

DFI D00674

OREGON DEPARTMENT OF TRANSPORTATION

REGISTERED PROFESSIONAL ENGINEER
73309
OREGON
MAY 13, 2003
TOM METCALF
EXPIRES: 12/31/14

CONSULTING ENGINEERS
www.obec.com

CORPORATE OFFICE:
920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-6089
REGIONAL OFFICES:
LAKE OSWEGO; SALEM; MEDFORD, OREGON; VANCOUVER, WASHINGTON

FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.

CLACKAMAS HWY.

CLACKAMAS COUNTY

Design Team Leader - Tom Metcalf
Designed By - Jason Rahm/Alissa Loberg
Drafted By - Serban Dinca/Brittney Zornado

SHEET LAYOUT PLAN

SHEET NO. 1B

File No.

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Sec. 9 & 10, T. 2 S., R. 2 E., W.M.

46V-022

N

"SR1" 550+00
"SR2" 550+00

"EAR" LINE

See enlargement, sht. 7D-2

"BX" 905+00

"BX" LINE

"SR1" 555+00
"SR2" 555+00

"BX" 900+00

"SR2" 560+00

MATHER RD.

R/W

BORDEAUX LN

Temp. const. ease.

Perm. ease.

Ditch

"SR2" LINE

"SR1" LINE

16"-59'
24"-139'
24"-146'
24"-42'
15"-7'
24"-270'
15"-102'
12"-75'
12"-75'
12"-50'
12"-49'
12"-50'
12"-55'
12"-67'
12"-38'
12"-49'
12"-51'
18"-29'
24"-49'
24"-73'
24"-43'
24"-59'
24"-102'
18"-48'
12"-51'
12"-75'
24"-373'
12"-100'
12"-34'
12"-34'

DFI D00674
Extended
Detention Pond
SWM07

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REGIONAL OFFICES:
LAKE OSWEGO; SALEM; MEDFORD, OREGON; VANCOUVER, WASHINGTON

REGISTERED PROFESSIONAL ENGINEER
64632
OREGON
NOVEMBER 14, 2000
AMY L. JONES

EXPIRES: 06/30/2013

FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.
CLACKAMAS HWY.
CLACKAMAS COUNTY

Design Team Leader - Tom Metcalf
Designed By - Ben Wewerka/Amy Jones
Drafted By - Serban Dinca/Brittney Zornado

DRAINAGE & UTILITIES

SHEET NO. 7D

File No.

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(1) *Abandon pipe*

(2) *Remove inlet - 9*

(3) *Remove manhole - 3*

(4) *Sta. "SR2" 563+77.24, 8.71' Lt. to Sta. "SR2" 560+04.70, 6.9' Lt.*
Inst. 24" storm sew. pipe - 373'
10' depth

(5) *Sta. "SR2" 562+77.60, 55.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 34'
5' depth

(6) *Sta. "SR2" 562+77.64, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 100'
5' depth

(7) *Sta. "SR2" 561+76.68, 55.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 34'
5' depth

(8) *Sta. "SR2" 561+77.36, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 75'
5' depth

(9) *Sta. "SR2" 561+02.73, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 51'
5' depth

(10) *Sta. "SR2" 560+51.91, 22' Rt.*
Const. type "G-2" inlet
Inst. 18" storm sew. pipe - 48'
5' depth

(11) *Sta. "SR2" 561+02.59, 57.1' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 51'
5' depth

(12) *Sta. "SR2" 560+52.63, 58.1' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 49'
5' depth

(13) *Sta. "SR2" 560+03.23, 59.7' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 38'
5' depth

(14) *Sta. "SR2" 560+03.85, 21.9' Rt.*
Const. type "G-2" inlet
Inst. 18" storm sew. pipe - 29'
5' depth

(15) *Sta. "SR2" 560+04.70, 6.9' Lt.*
Const. storm manhole 60" dia.
Inst. 24" storm sew. pipe - 102'
10' depth

(16) *Sta. "SR2" 559+02.72, 1.6' Lt.*
Const. type "G-2" inlet
Inst. 24" storm sew. pipe - 59'
5' depth

(17) *Sta. "SR2" 558+43.72, 6.9' Lt.*
Const. storm manhole
Inst. 24" storm sew. pipe - 43'
5' depth

(18) *Sta. "SR2" 558+01.61, 11.7' Lt.*
Const. type "G-2" inlet
Inst. 24" storm sew. pipe - 73'
5' depth

(19) *Sta. "SR2" 557+29.19, 11.9' Lt.*
Const. type "G-2" inlet
Inst. 24" storm sew. pipe - 49'
5' depth

(20) *Sta. "SR2" 556+79.91, 12.1' Lt.*
Const. type "G-2" inlet
Inst. 24" storm sew. pipe - 146'
5' depth

(21) *Sta. "SR2" 555+33.38, 10.68' Lt.*
Const. type "G-2" inlet
Inst. 24" storm sew. pipe - 139'
10' depth

(22) *Sta. "SR2" 553+94.54, 6.9' Lt.*
Const. manhole 60" dia. with type "G-2" inlet
Inst. 24" storm sew. pipe - 42'
10' depth

(23) *Sta. "SR2" 559+01.90, 34.1' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 67'
5' depth

(24) *Sta. "SR2" 558+35.10, 34.1' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 56'
5' depth

(25) *Sta. "SR2" 557+80, 34.1' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 49'
5' depth

(26) *Sta. "SR2" 557+31.29, 34.1' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 50'
5' depth

(27) *Sta. "SR2" 556+81.22, 34.2' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 50'
5' depth

(28) *Sta. "SR2" 556+31.46, 34.4' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 75'
10' depth

(29) *Sta. "SR2" 555+56.39, 35' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 75'
10' depth

(30) *Sta. "SR2" 554+82.15, 36.3' Rt.*
Const. manhole with type "G-2" inlet
Inst. 15" storm sew. pipe - 102'
10' depth

(31) *Sta. "SR2" 553+81.10, 39.7' Rt.*
Const. manhole with type "G-2" inlet
Inst. 15" storm sew. pipe - 7'
10' depth

(32) *Sta. "SR2" 553+82.69, 32.9' Rt.*
Const. storm manhole
Inst. 24" storm sew. pipe - 270'
20' depth

(33) *Sta. "SR2" 550+80.98, 12.9' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 15'
10' depth

(34) *Sta. "SR2" 550+95.9, 11.8' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 44'
10' depth

(35) *Sta. "SR2" 550+99.05, 57.7' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 19'
10' depth

(36) *Sta. "SR2" 551+16.62, 50.2' Rt.*
Const. storm manhole 60" dia.
Inst. 24" storm sew. pipe - 135'
20' depth

(37) *Sta. "SR2" 550+39.37, 159.1' Rt.*
Const. storm manhole 60" dia.
Inst. 30" storm sew. pipe - 305'
5' depth
(For additional details, see shts. GJ-2 & GJ-2A)

(38) *See sht. 6D, note 16*
Inst. 16" storm sew. pipe

(39) *Sta. "SR2" 550+30.52, 145.45' Rt. to Sta. "SR2" 550+88.32, 136.6' Rt.*
Inst. 12" culv. pipe - 61'
5' depth
Const. sloped end - 2
Const. paved end slope, Lt. & Rt.

(40) *Sta. "SR2" 548+90.78, 17.3' Lt. to Sta. "SR2" 550+26.81, 145.4' Rt.*
Inst. 36" culv. pipe - 215'
10' depth
Const. sloped end - 2
Const. paved end slope, Lt. & Rt.
(For profile see sht. 6F)

(41) *Const. storage pond, D00674 (SWM07)*
Inst. facility field markers, type S1 - 2
Inst. facility field markers, type S2
(For details, see sht. GJ-10)

(42) *Sta. "BX" 902+42.98, 19.31' Rt.*
Const. shallow manhole 24" dia. over extg. storm sew. pipe
Inst. 12" storm sew. pipe - 79'
5' depth
(See drg. no. RD342)

(43) *Sta. "BX" 903+26.96, 20.80' Rt.*
Const. shallow manhole
Inst. 24" storm sew. pipe - 87'
5' depth

(44) *Sta. "BX" 904+24.55, 0.04' Rt.*
Const. shallow manhole over extg. storm sew. pipe

(45) *Sta. "BX" 903+32, 16.86' Rt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 35'
5' depth

(46) *Sta. "BX" 903+36.26, 18.67' Lt.*
Const. type "G-2" inlet
Inst. 12" storm sew. pipe - 37'
5' depth

(47) *Sta. "BX" 903+65.41, 0.0' Rt.*
Const. shallow manhole 60" dia.
Inst. 12" storm sew. pipe - 127'
5' depth
Const. sloped end
Const. paved end slope, Lt.
Const. riprap basin
(For details, see sht. GJ-22)

(48) *Sta. "BX" 905+48.74, 0.49' Lt.*
Const. shallow manhole 60" dia. over extg. storm sew. pipe

(49) *Relocate waterline*
(For details, see shts. WA-1 & WA-2)

(50) *Relocate sanitary sewer*
(For details, see sht. SA-4)

(51) *Preserve and protect gas line*

(52) *Gas, cable, electric & telephone lines relocated prior to construction*

(53) *Preserve and protect extg. communication conduit*

(54) *Inst. impermeable check damn - 12*
(For details, see sht. GJ-18)

(55) *Remove pipe - 192'*

(56) *Sta. "BX" 902+74.40, 23.67' Rt.*
Const. shallow manhole 24" dia. over extg. sew. pipe
Inst. 12" storm sew. pipe - 14'
5' depth
Field verify extg. pipe depth

(57) *Sta. "BX" 902+89.78, 23.56' Rt.*
Const. type "CG-3" inlet
Inst. 12" storm sew. pipe - 22'
5' depth
Field adjust inlet flow line as necessary

(58) *Sta. "BX" 903+12.84, 23.40' Rt.*
Const. shallow manhole 24" dia. over extg. sew. pipe
Field verify extg. pipe depth

(59) *Sta. "EAR" 92+18.77, 25.7' Rt.*
Const. shallow manhole

REGISTERED PROFESSIONAL ENGINEER
64732
OREGON
NOVEMBER 14, 2000
AMY L. JONES
EXPIRES: 06/30/2013

OREGON DEPARTMENT OF TRANSPORTATION

OBEC CONSULTING ENGINEERS
www.obec.com
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920 COUNTRY CLUB ROAD, SUITE 100B EUGENE, OREGON 97401-8089
REGIONAL OFFICES:
LAKE OSWEGO; SALEM; MEDFORD, OREGON; VANCOUVER, WASHINGTON

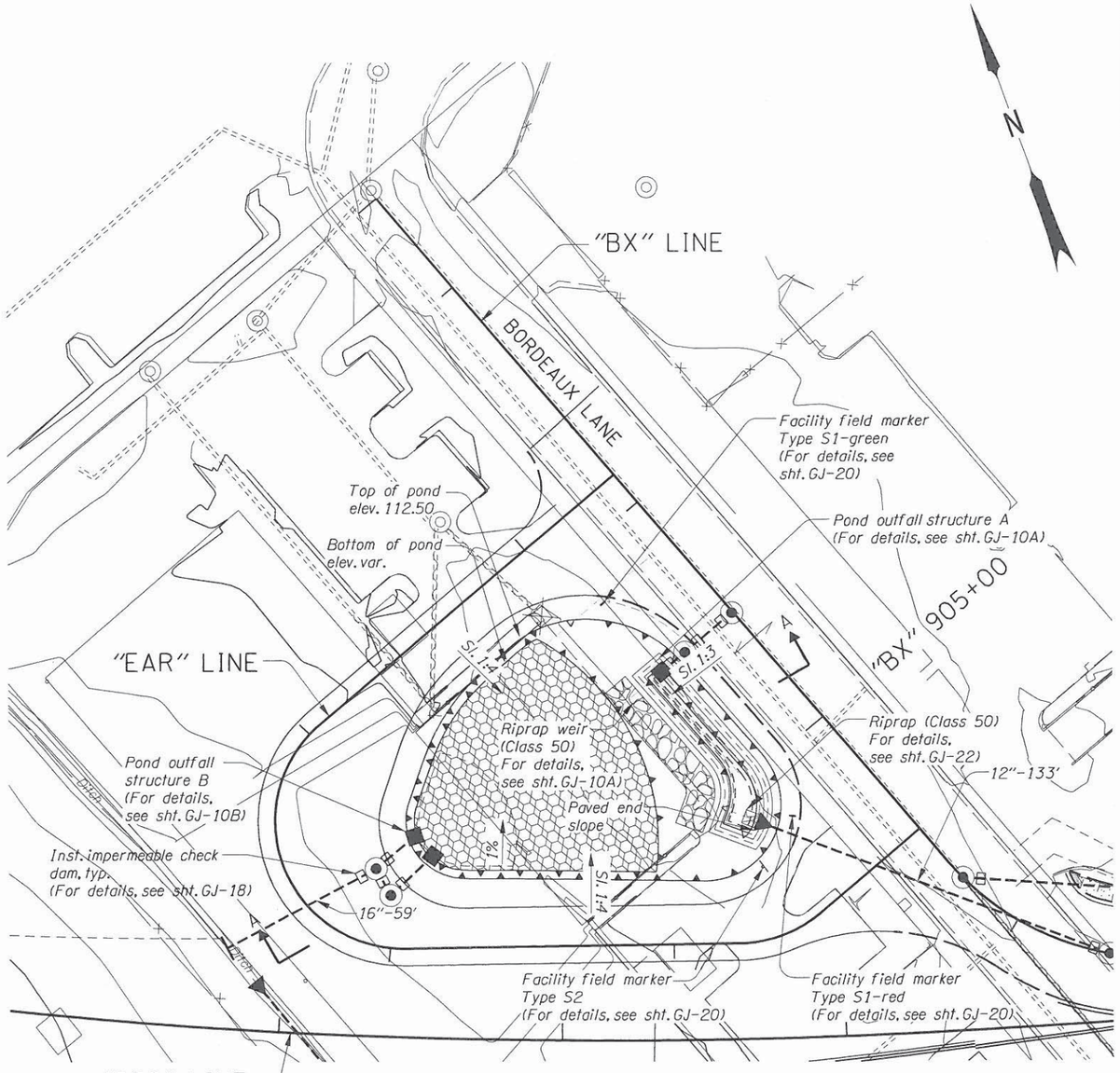
FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.
CLACKAMAS HWY.
CLACKAMAS COUNTY

Design Team Leader - Tom Metcalf
Designed By - Ben Wewerka/Amy Jones
Drafted By - Serban Dinca/Brittney Zornado

DRAINAGE & UTILITIES NOTES

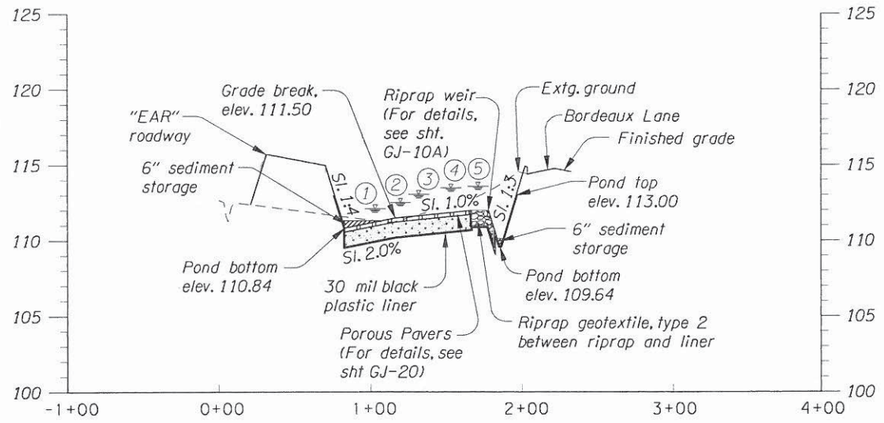
SHEET NO. 7E

File No.



"SWM07" PLAN
STORAGE POND, DFI-D00674

1 Water quality WSE - 111.85
2 2 year WSE - 111.94
3 10 year WSE - 112.02
4 25 year WSE - 112.05
5 100 year WSE - 112.09
(Via emergency spillway only)



SECTION A-A

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REGISTERED PROFESSIONAL ENGINEER
64332
OREGON
NOVEMBER 14, 2000
AMY L. JONES
EXPIRES: 06/30/2013

FFO - OR212/224: SUNRISE CORRIDOR (I-205 - SE 122ND AVE) SEC.
CLACKAMAS HWY.
CLACKAMAS COUNTY

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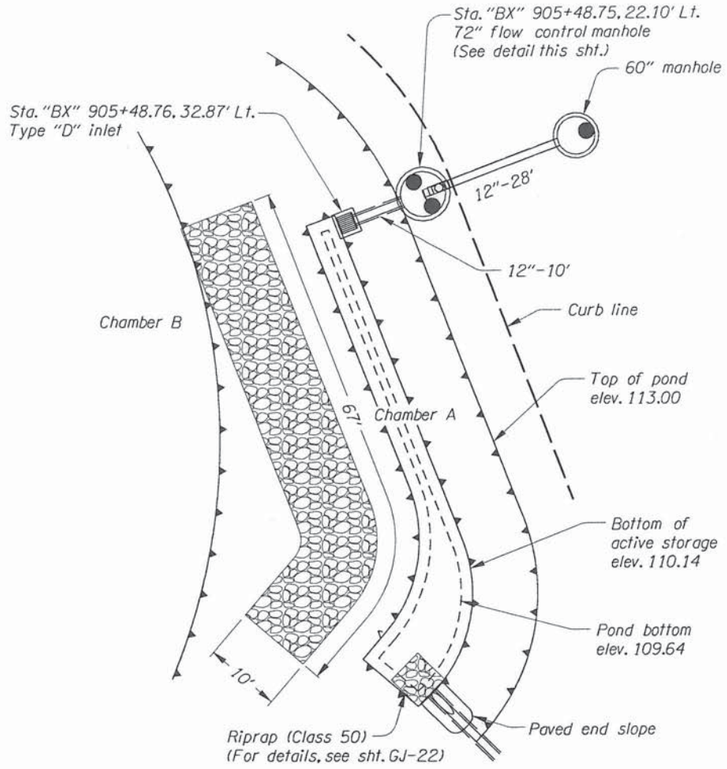
Drafted By - Serban Dinca/Brittney Zornado

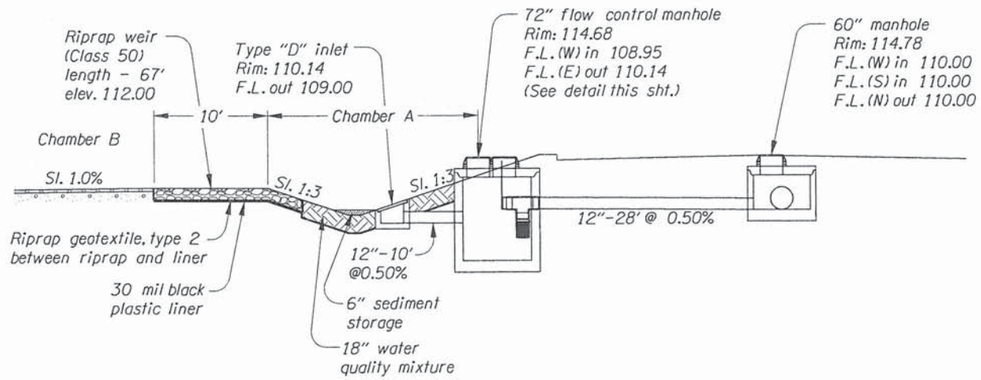
STORMWATER DETAILS

SHEET NO. GJ-10

File No.

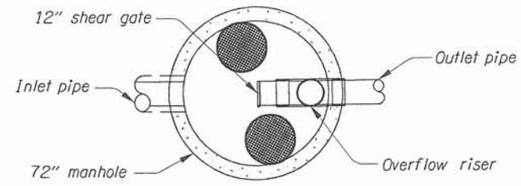


PLAN

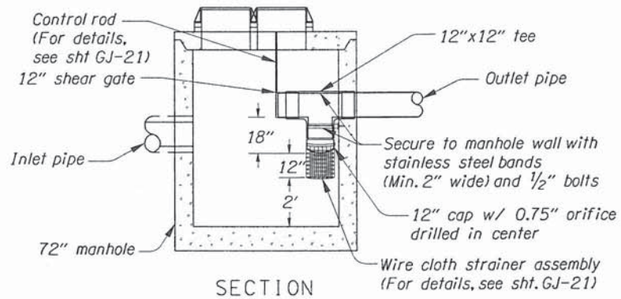


SECTION

"SWM07" OUTFALL STRUCTURE A DETAIL
DFI-D00674



PLAN



SECTION

"SWM07" FLOW CONTROL MANHOLE DETAIL
DFI-D00674

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OREGON
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CLACKAMAS HWY.

CLACKAMAS COUNTY

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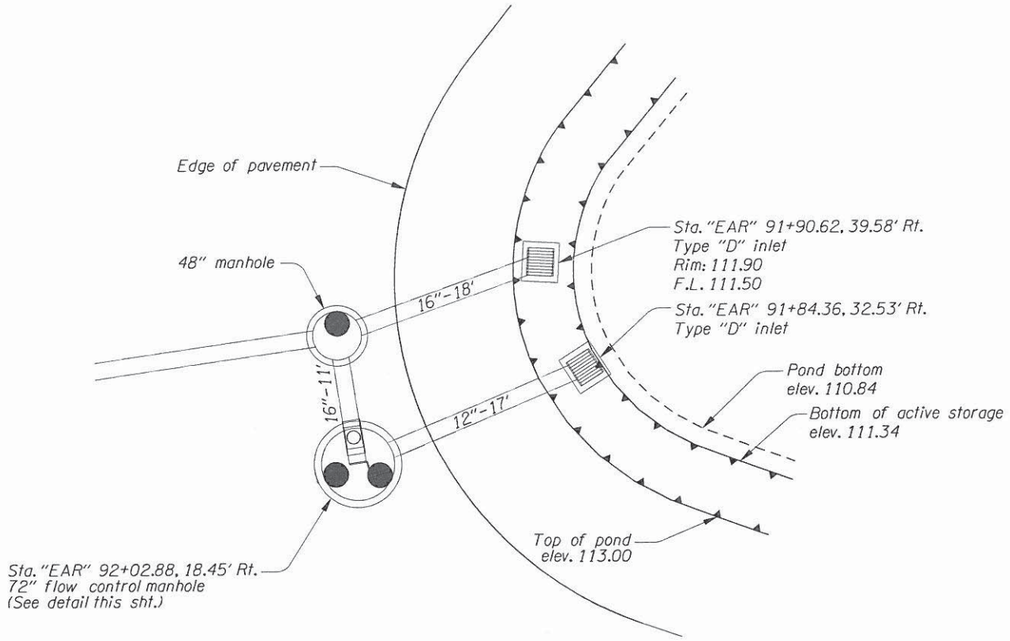
STORMWATER DETAILS

SHEET NO. GJ-10A

File No.



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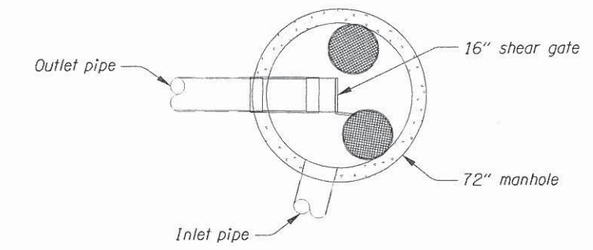
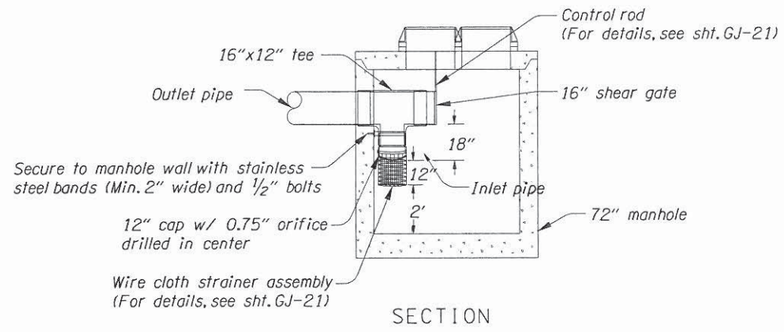
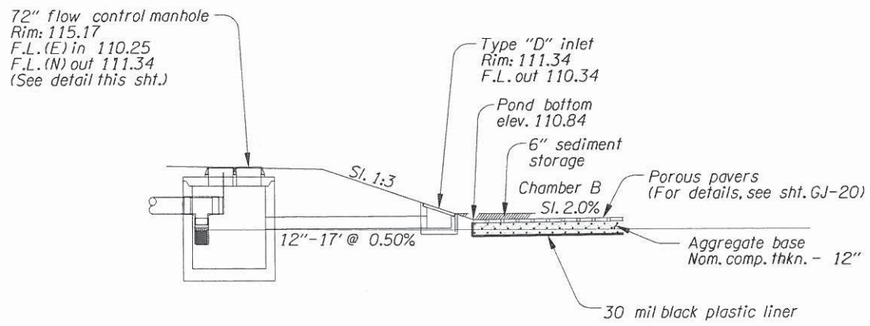


PLAN



SECTION

"SWMO7" FLOW CONTROL MANHOLE
DFI-00674



SECTION

"SWMO7" OUTFALL STRUCTURE B DETAIL
DFI-00674

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STORMWATER DETAILS

SHEET NO. GJ-10B

File No.