OPERATION & MAINTENANCE MANUAL

DFI No. : D00349
Facility Type: Detention Pond

July, 2016

INDEX

1. Identification

Drainage Facility ID (DFI):	**D00349**
Facility Type:	Detention Pond
Construction Drawings:	(V-File Number) 41V-065
Location:	District: 2C
	Highway No.: 002
	Mile Post: 18.02; 18.02 (beg./end)
	Description: This facility is located on the northeast corner or exit 18 off of I-84. The pond is adjacent to the west bound off ramp.

2. Facility Contact Information

Contact the Engineer of Record, Region Technical Center, or Geo-Environmental's Senior Hydraulics Engineer for:

- Operational clarification
- Maintenance clarification
- Repair or restoration assistance

Engineering Contacts:

Region Technical Center Hydro Unit Manager

Or

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

3. Construction

Engineer of Record:	ODOT Designer –Geo-Environmental, Alvin Shoblom, 503-986-3365 Consultant Designer – Region 1 Roadway Engineering
Facility construction:	2008
Contractor:	Unable to Determine

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 particular facility is a bioretention pond, designed to detain stormwater runoff and infiltrate it through a water quality mix, filtering the particulates (soil particles) contained in the water. The facility collects stormwater runoff along I-84 east of Exit 18 by means of sheet flow and one G-2MA and a 12 inch ductile iron pipe. The facility's only outlet is an overflow spillway which flows east to a neighboring roadside ditch. Additionally, photos of the facility can be seen in photos 1 through 4. A plan view and cross-sections of the facility are shown in Appendix A on the operational plan provided.

A. Maintenance equipment access:
   The facility can be accessed for maintenance from I-84 west's north shoulder at exit 18's off ramp. The shoulder slopes are between four to six units horizontal to one unit vertical (4H : 1V). Maintenance equipment can park on these slopes near the facility but not on the facility. There are no guardrails at the road edge; however there are boulders along the facility edge.

B. Heavy equipment access into facility:

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

C. Special Features:

   ☒ Amended Soils
   ☐ Porous Pavers
   ☐ Liners
   ☐ Underdrains

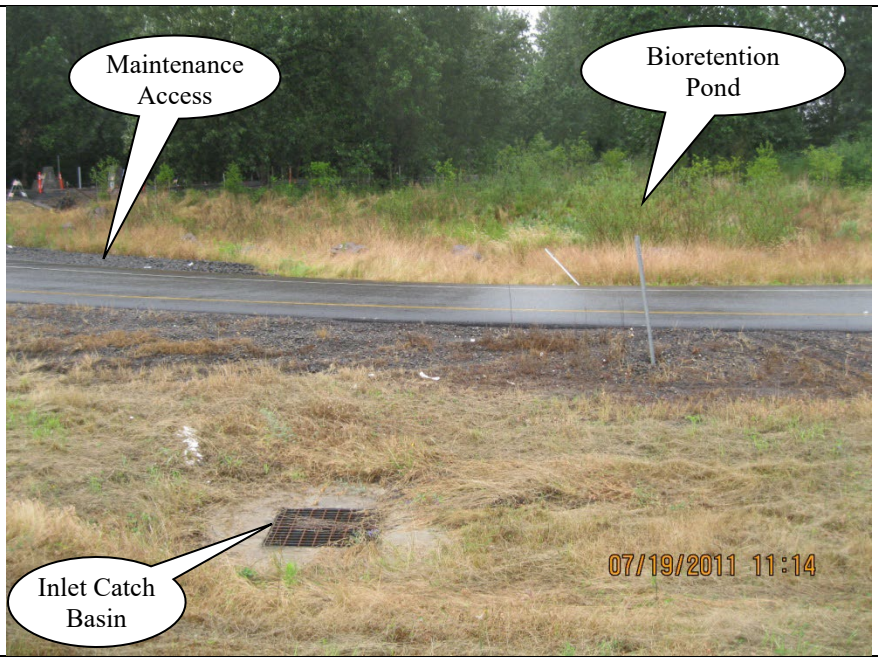


Photo 1: Facility Footprint

Photo 2: Looking from the East or Decreasing Mileage

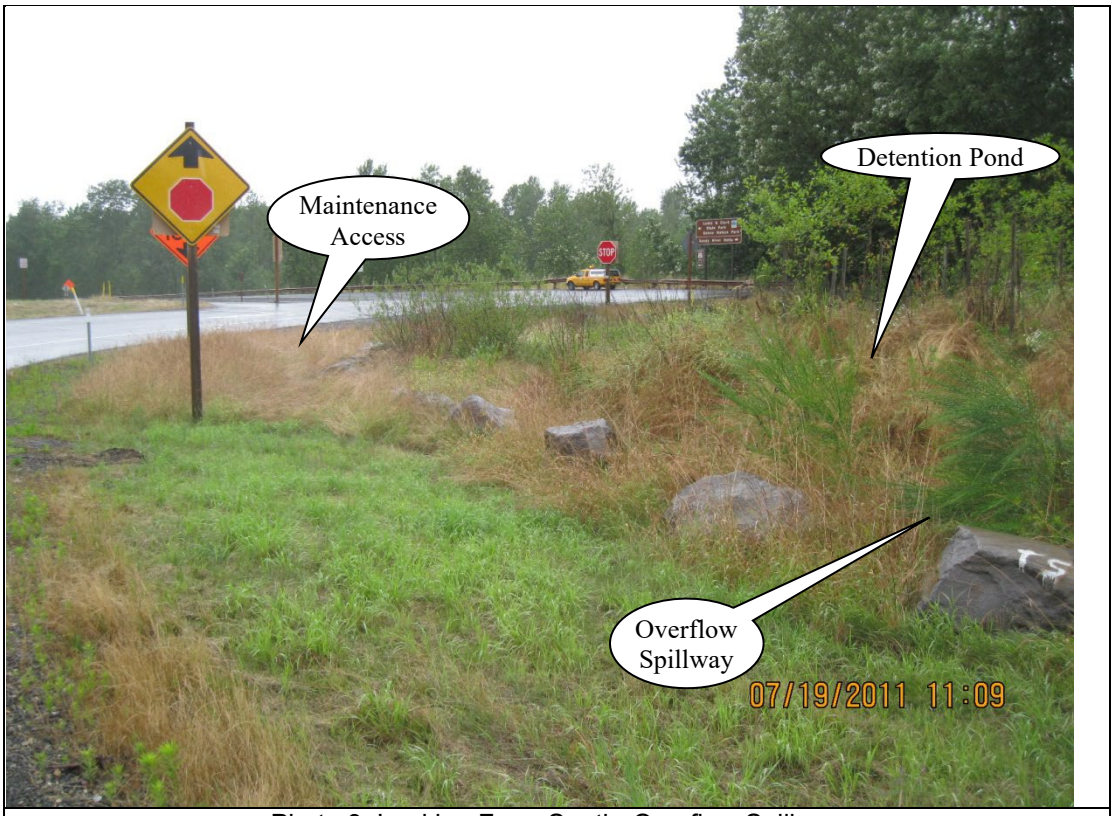


Photo 3: Looking From South, Overflow Spillway

Photo 4: Looking from the West (or Increasing Mileage), Overflow Spillway

5. Facility Haz Mat Spill Feature(s)

Spill prevention is important to the successful operation of a stormwater management system. Prevention measures shall be taken at all times when handling substances that contaminate water. Should a spill occur, immediate attention is required and corrective measures shall be enacted as part of the response to control the spill.

If a Haz Mat spill were to occur within this drainage area, pond can be used to store a volume of liquid by blocking the adjacent roadside ditch (seen in Appendix A's operational plan).

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 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 facility incorporates an overflow spillway to neighboring roadside ditch, allowing high flows to exit.

7. Maintenance Actions

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 actions for ponds, swales, filter strips, bioslopes, and detention tanks and vaults. Special maintenance actions in addition to the routine actions 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 actions 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 actions 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 actions:

Note: Special maintenance Actions 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 road waste 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

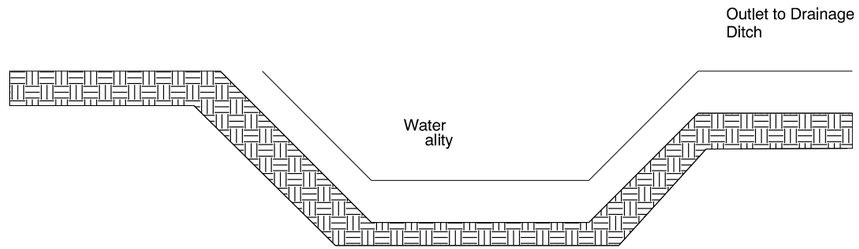
Contact any of the following for more detailed information about management of waste materials found on site:

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)**



SECTION A-A
N.T.S.

Inlet Pipe

Detention Pond
(DFI D00349)

Water Quality
Mix

Water Quality
Mix

SECTION B-B
N.T.S.

PLAN
N.T.S.

Appendix B

Content:

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

DW

Revised Plan
Sheets Incorporated

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

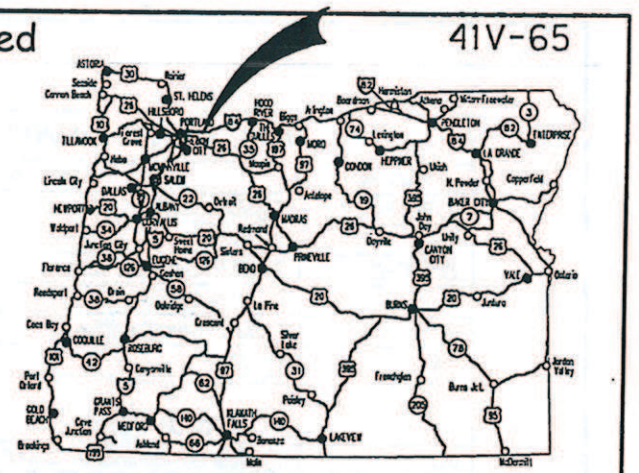
Revised Plan
Sheets Incorporated

STATE OF OREGON
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED PROJECT
GRADING, PAVING, SIGNING & ROADSIDE DEVELOPMENT

I-84: SANDY RIVER DELTA ACCESS SEC.
COLUMBIA RIVER HIGHWAY

MULTNOMAH COUNTY
MAY 2008

41V-65



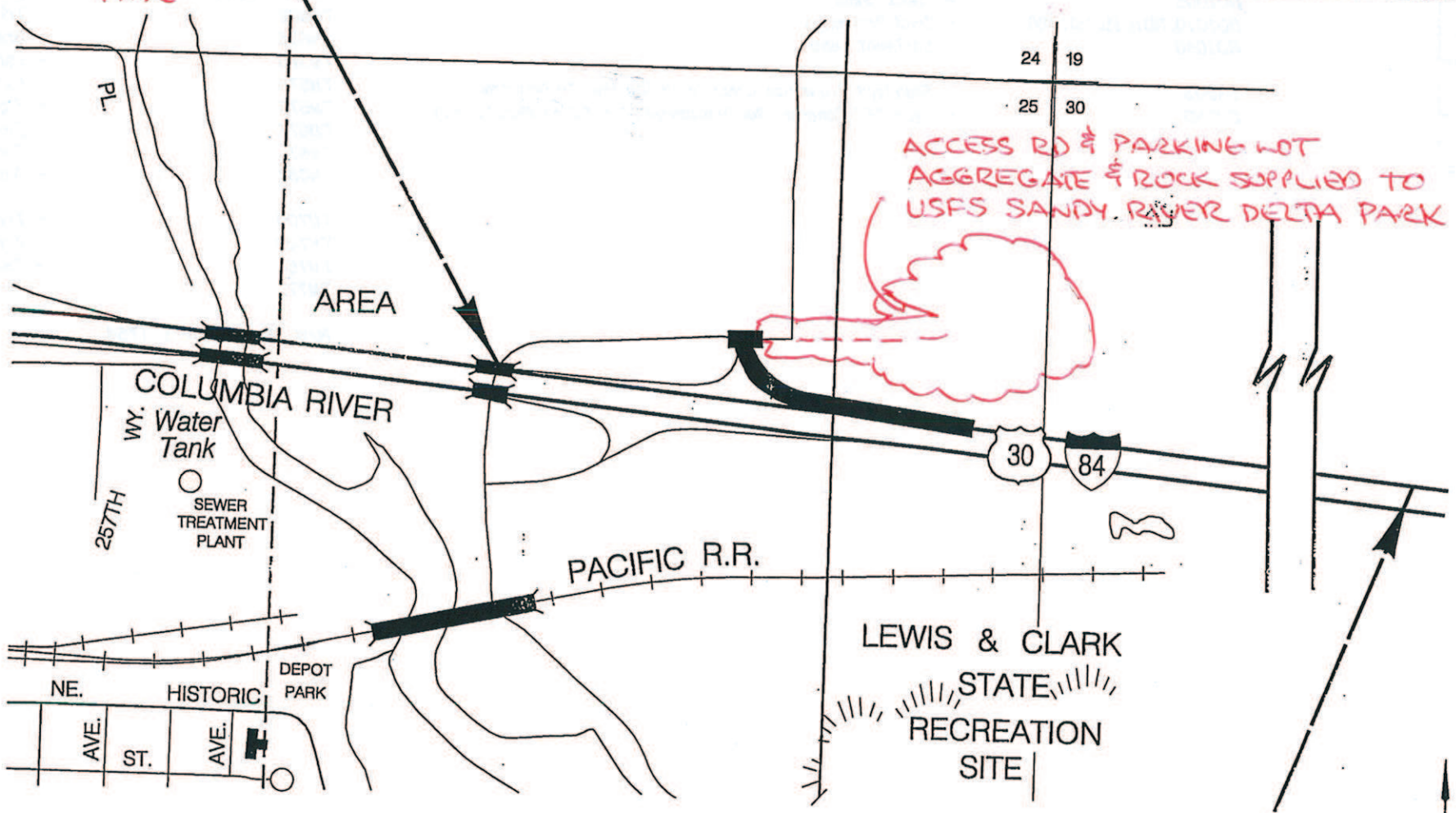
Overall Length Of Project – 0.38 Miles

"AS CONSTRUCTED"
Wayne A. Statler
PROJECT MANAGER
2 FEB 2009
DATE

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

BEGINNING OF PROJECT
X-PLH-S002(094)
STA. "JR" 10+72.8 (M.P. ~~18.37~~ 17.90)



END OF PROJECT X-PLH-S002(094)
(M.P. 19.40)

T. 1 N., R. 3 E., W.M.

OREGON TRANSPORTATION COMMISSION

Gail Achterman	CHAIR
Michael Nelson	VICE CHAIR
Janice Wilson	COMMISSIONER
Alan Brown	COMMISSIONER
David Lohman	COMMISSIONER
Matthew L. Garrett	DIRECTOR OF TRANSPORTATION

"I certify this project complies with applicable ODOT design standards and practices and that any exceptions have been submitted and approved by the ODOT Chief Engineer or her/his delegated authority."

By: Naveen G. Chandra
Signature

NAVEEN G. CHANDRA, P.E. RPDM
Print name and title

B Johnson
Concurrence by ODOT Chief Engineer

I-84: SANDY RIVER DELTA ACCESS SEC.
COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

FEDERAL HIGHWAY ADMINISTRATION	PROJECT NUMBER	SHEET NO.
OREGON DIVISION	X-PLH-S002(094)	1

PE001407 - 000

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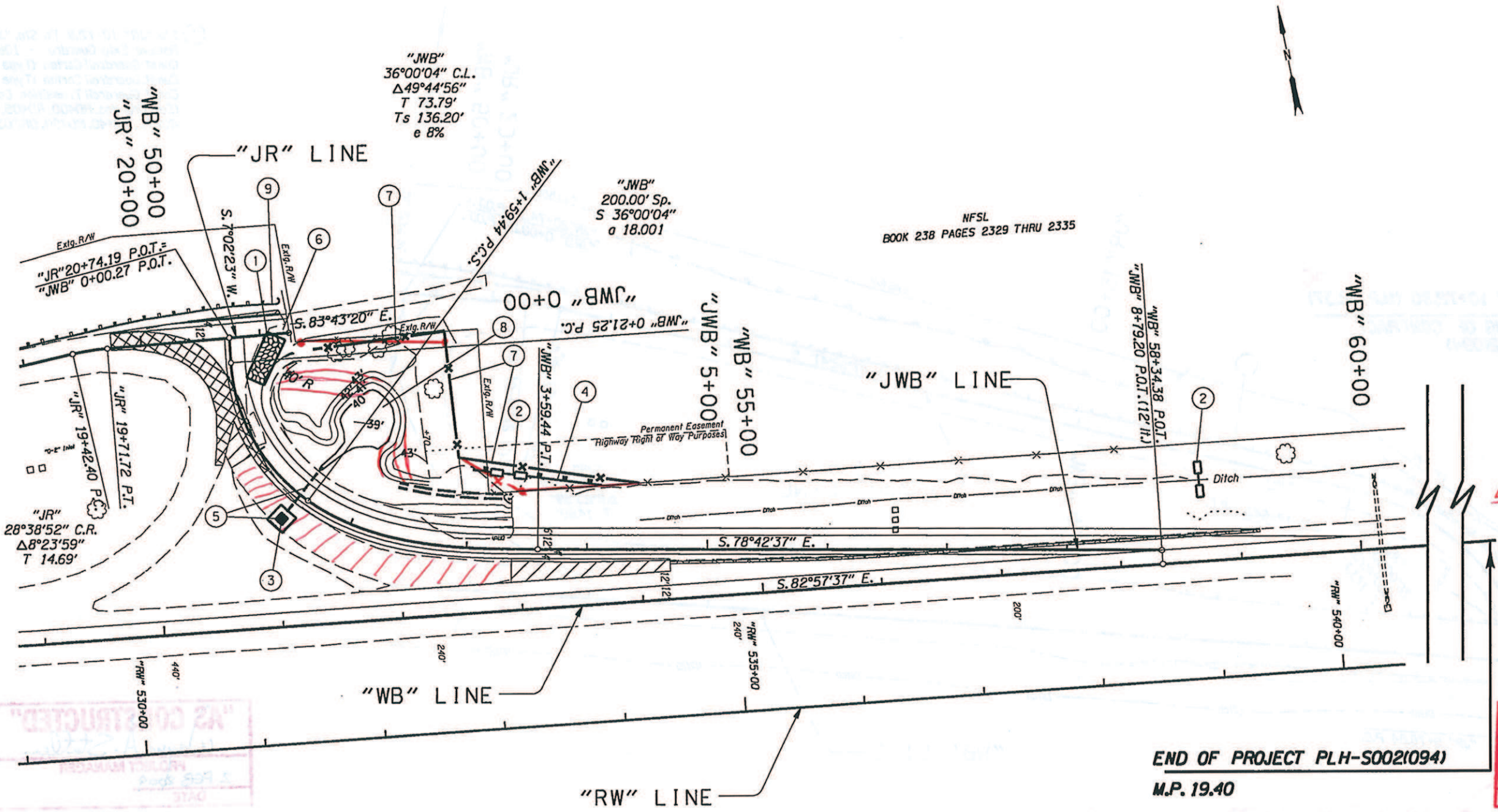
Sec. 25, T. 1 N., R. 3 E., W.M.



END OF PROJECT PLH-S002(094)

M.P. 19.40

1. Const. Construction Entrance (See Drg. No. RD1000)
2. Const. Check Dam - 2 (See Drg. No. RD1005)
3. Const. Inlet Protection (See Drg. No. RD1010)
4. Const. Sediment Fence Unsupported (See Drg. No. RD1040)
5. Sta. "JWB" 1+52.04, 25.3' Rt.
   Const. Type "G-2MA" Inlet
   w/ 2' Sump
   Grate El. 41.9'
   Inst. 12" Ductile Iron Pipe - 56'
   5' Depth
   Flow Line El. In - 40.25'
   Flow Line El. Out - 39.25'
   Outlet Slope End 1:4
   (See Drg. RD300, RD316 & RD364)
6. Const. Asphalt Approach
7. Const. Type 2 Fence (See Drg. No. RD810) I-4W CCO #12 SEE NOTE *
8. Exc. And Grade Detention Pond And Planting Area Per Finish Grade Contours Shown And As Directed ENLARGED Excavation Quantity Includes Exc. 1' Below Finish Grade - 1270 CY (contaminated material)
   (For Planting Details See GN, GN-2, GN-3, GN-4 & GN-5)
9. See Sht. 3, Note 1
   Const. Guardrail Corten (Type 2A)
   Const. Anchor (Type 1 Mod.)
   Const. Type B End Piece

"AS CONSTRUCTED"
Wayne A. Stalter
PROJECT MANAGER
2 FEB 2009
DATE

GENERAL NOTES:

The construction, adjustment, maintenance, and upgrading of these Erosion Control measures is the responsibility of the contractor for the duration of the project.

Erosion Control measures shown on this plan are for anticipated site conditions. Adjust or upgrade these measures for unexpected storm events to ensure that sediment and sediment-laden water does not leave the site.

Develop a revised plan of the Erosion Control measures shown as required by Section 00280, Oregon Standard Specifications for Construction. Implement this plan for all clearing and grading activities and in segments applicable to each staging phase. Construct in such a manner so as to ensure that sediment and sediment-laden water does not enter the roadway or drainage system, or violate applicable water standards.

Install measures within the right-of-way unless directed otherwise.

Install stabilized construction entrances at the beginning of construction and maintain for the duration of the project. Additional measures may be required to insure that all paved areas are kept clean.

Construct sediment fence 1.5 meters (5 feet) downslope from the toe of fill slopes where sediment-laden water has a potential of entering waterways or leaving the R/W.

Protect all inlets during surface grinding, paving, and earthwork operations to prevent pollutants from entering storm water systems.

Graphic symbols are approximate. Place Erosion Control measures as required or directed.

LEGEND

- Fill slope
- Cut slope
- Inlet Protection
- Sediment Fence, Unsupported
- Check Dam
- Construction Entrance
- Remove Extg. Surfacing Shown Thus:
- 3" Cold Plane Pavement Removal and 3" HMAC Replacement

* SEE THE DALLES FENCING PROJECT SHT 2, REV 1 10-6-08 SHT 4B ADDED

REGISTERED PROFESSIONAL ENGINEER
14468
OREGON
July 26, 1989
LAWRENCE A. KRETTLER
Expires 06-30-2009

OREGON DEPARTMENT OF TRANSPORTATION

REGION 1 - ROADWAY ENGINEERING SECTION

I-84: SANDY RIVER DELTA ACCESS SEC.
COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

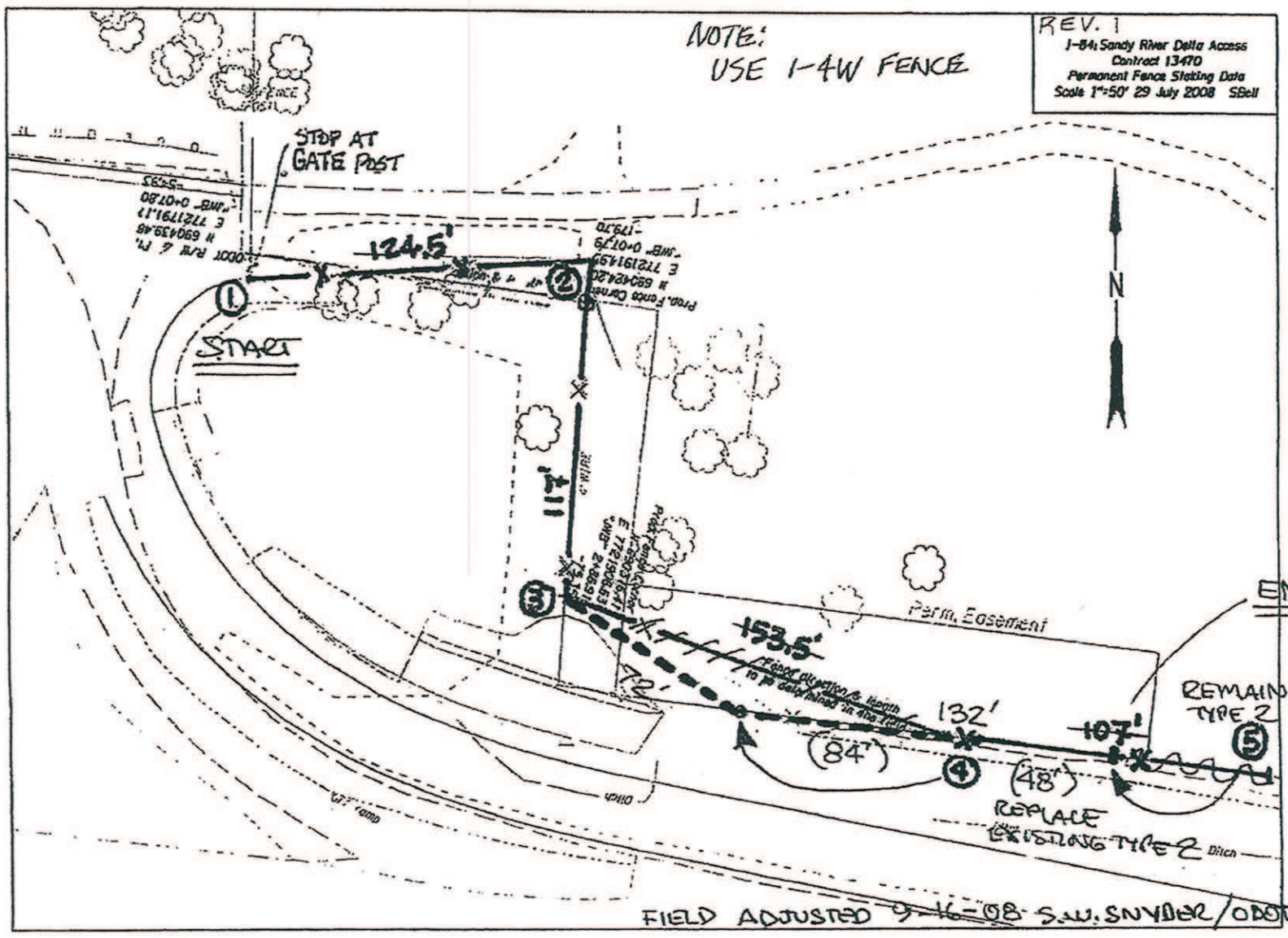
Project Leader - Adam Markell
Designed By - Sharon Bell
Drafted By - Sharon Bell

GENERAL CONSTRUCTION

SHEET NO. 4

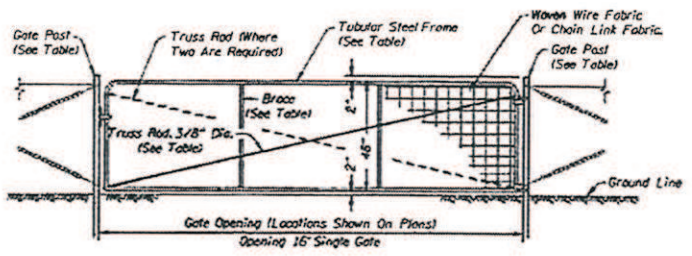
NOTE:
USE 1-4W FENCE

REV. 1
I-84: Sandy River Delta Access
Contract 13470
Permanent Fence Staking Data
Scale 1"=50' 29 July 2008 SBell



Page 1 of 2 Pages
ATTACHMENT A
Price Agreement # CCO-12
OSHD Contract # 13470

40V-19

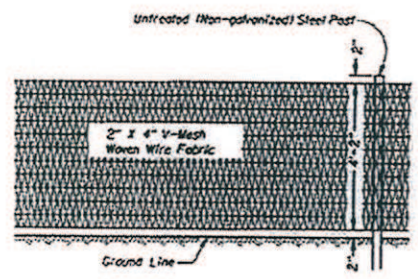


GATE COMPONENTS ①						GATE POSTS ②	
GATE OPENING (ft)	TUBULAR FRAME		BRACES		TRUSS RODS	TUBULAR	
SINGLE GATE	NOM. DIA. (in)	MIN. WT. lb/ft	NUMBER	NOM. DIA. (in)		NOM. DIA. (in)	MIN. WT. lb/ft
16	1-1/2	2.72	2	1-1/4	2	6	18.97

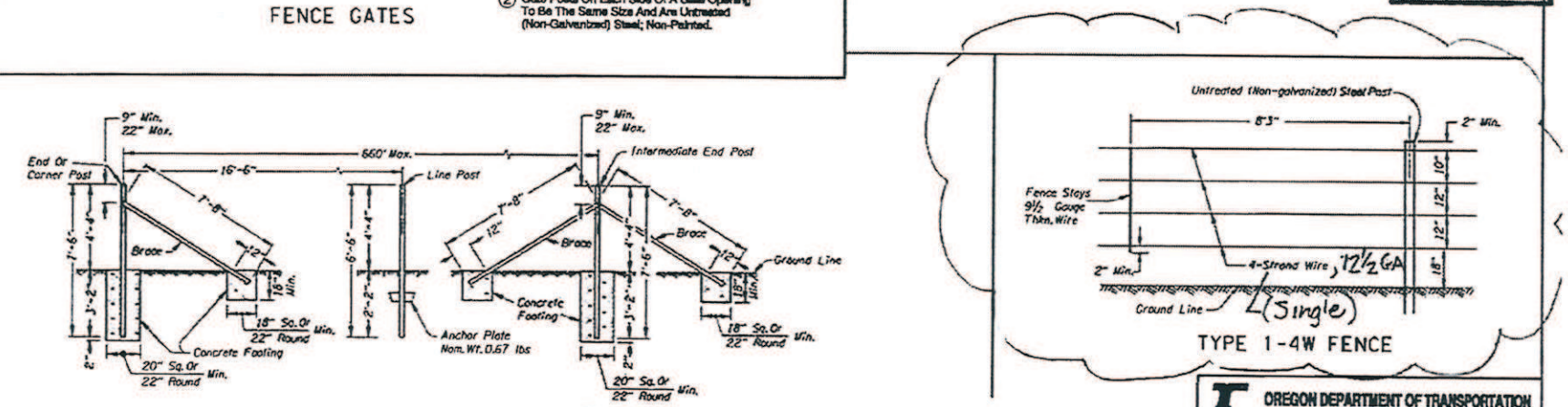
① Gates Shall Be Untreated (Non-Galvanized) Steel; Non-Painted.

② Gate Posts On Each Side Of A Gate Opening To Be The Same Size And Are Untreated (Non-Galvanized) Steel; Non-Painted.

FENCE GATES



4' V-MESH WIRE FENCE



NOTE:

1. For Line Post Spacing Use 16'-6" Dimension.
2. For Shapes, Weights And Size Of Members, See Metal Fence Member Table.
3. Posts And Braces Shall Be Untreated (Non-galvanized) Steel; Non-painted.

METAL POSTS

METAL FENCE MEMBER			
MEMBER	SHAPE	MASS PER FOOT Nominal	SIZE Nominal
Line Post	Tee Channel (a) or U-bar	1.33 lb.	ASTM A-702
Brace or Brace Rail	Tubular (b)		Approx. 1¼" O.D.
	(a) Angle	3.19 lb.	2" x 2" x ¼"
Other Post	Tubular (b)		2½" O.D.
	(a) Angle	4.10 lb.	2½" x 2½" x ¼"

(a) In Accordance With ASTM A-702
(b) In Accordance With AASHTO M-161

TYPE 1-4W FENCE

"AS CONSTRUCTED"
Wayne A. Stalter
PROJECT MANAGER
2 FEB 2009
DATE

REGISTERED PROFESSIONAL ENGINEER
52,835
OREGON
JULY 15, 2003
FLOYD A. HARRINGTON
RENEWAL DATE: 6-30-2007

OREGON DEPARTMENT OF TRANSPORTATION
REGION 1 - ROADWAY ENGINEERING SECTION
I-84: SANDY RIVER - THE DALLES (FENCING) PROJECT
COLUMBIA RIVER HIGHWAY
MULTNOMAH, HOOD RIVER & WASCO COUNTIES
Project Leader - Sandy Van Bemmel
Designed By - Zdenek Vymazal
Drafted By - David Hoose
DETAILS
SHEET NO. 2

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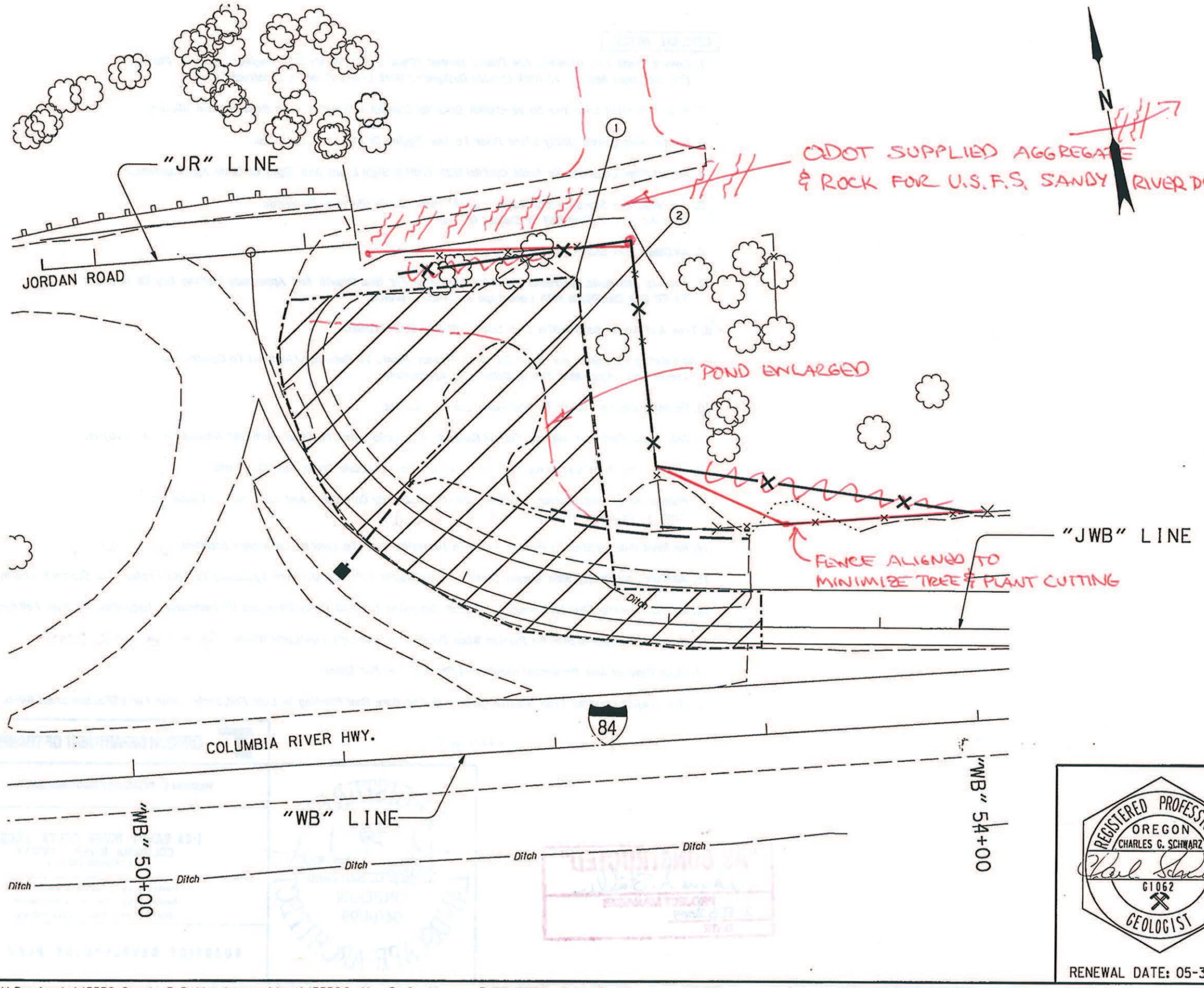
REV. 1 10/6/08 1:1200 - 001

C13470
CCO #12

4B

EXTENT OF PETROLEUM CONTAMINATED SOIL

41V-65



ODOT SUPPLIED AGGREGATE & ROCK FOR U.S.F.S. SANDY RIVER DELTA

7-1-2008 SCHWARZ TO NEEL PRF 0853

NO CONTAMINATED MATERIAL

1. *Soil within the area shown is contaminated with heavy oil. To the extent possible, all soil excavated within that area shall be re-used on the project as either embankment material or for berms. Wherever it is re-used, contaminated soil must be covered with a layer of clean soil at least 12" thick.*
2. *Following excavation of this detention pond, soil samples must be collected for heavy oil analysis prior to placement of clean fill. Those samples will be collected by ODOT.*

"AS CONSTRUCTED"
Wayne A. Stalder
PROJECT MANAGER
2 FEB 2009
DATE

REGISTERED PROFESSIONAL GEOLOGIST
OREGON
CHARLES C. SCHWARZ
G1062
RENEWAL DATE: 05-31-2008

OREGON DEPARTMENT OF TRANSPORTATION

REGION 1 - GEO/HYDRO UNIT

I-84: SANDY RIVER DELTA ACCESS SEC.
COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Reviewed By - Paul Wittbrodt
Designed By - Charles Schwarz
Drafted By - Charlotte Gerken

PCS LOCATION PLAN

SHEET NO. GL

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41V-65

Preliminary Plant Schedule

Trees

SYMBOL	QTY.	SIZE	SPACING	SCIENTIFIC NAMES	COMMON NAMES	REMARKS
	17	1" Calip.	As Shown	Crataegus douglasii	Black Hawthorne	
	17	1" Calip.	As Shown	Fraxinus Latifolia	Oregon Ash	
	18	1" Calip.	As Shown	Populus trichocarpa	Black Cottonwood	

Proposed Boulders 2.5'-4' above grade - outside designated clearzone with ODOT engineer approval. Coordinate installment and placement with Landscape Architect.

Shrubs

SYMBOL	S.F.	SIZE	SPACING	QTY.	SCIENTIFIC NAMES	COMMON NAMES	PRECENT OF MIX
SHRUB MIX 'A'	5400	Bare Root 18"-24"	4' O.C.	44	Amelanchier alnifolia	Serviceberry	10%
				66	Ribes sanguineum	Red-Flowering Currant	15%
500 EA				110	Rosa nutkana	Nootka Rose	25%
				110	Salix scouleriana	Scouler's Willow	25%
				110	Symphoricarpus albus	Snowberry	25%
SHRUB MIX 'B'	2500	Bare Root 18"-24"	4' O.C.	61	Cornus Sericea	Red-Twig Dogwood	30%
374 EA				41	Sambucus caerulea	Blue Elderberry	20%
				61	Salix lucida	Columbia Willow	30%
				41	Spiraea douglasii	Douglas Spirea	20%
SHRUB MIX 'C'	5400	Bare Root 18"-24"	4' O.C.	88	Mahonia nervosa	Compact Barberry	20%
686 EA				132	Rosa nutkana	Nootka Rose	30%
				88	Spiraea douglasii	Douglas Spirea	20%
				132	Symphoricarpus albus	Snowberry	30%
Seed Mix No. 1	7,000 (13,300 over Seed Note No. 11)	SEED INCREASED *			Elymus glaucus	Blue Wildrye	40% PLS
					Bromus carnatus	California Brome	40% PLS
					Festuca rubra var. rubra	Native Red Fescue	15% PLS
					Deschampsia caspitosa	Tufted Hairgrass	5% PLS
Compost	20,300	127 C.Y. INCREASED *					
12" Topsoil	16,200	600 C.Y. INCREASED *				Plant Prep: Method A	
6" Topsoil	4,200 (West Side Only)	77 C.Y.				Plant Prep: Method C	

1,560 EA

Planting and Irrigation Note:
1. Planting will require hand watering via water truck and additional "water bound" irrigation supplement during first year of establishment.
2. Shrubs species to be planted in massings of 5-12 min.
3. Planted area to receive 2" of composted mulch for erosion control, moisture retention and as a natural plant/soil conditioner.
4. All bare root plant material to comply with ASNS.

0 40 80 120

SCALE: 1:40

"AS CONSTRUCTED"
Wayne A. Stalen
PROJECT MANAGER
2 FEB 2009
DATE

Key Notes

(1) Apply seed according to Special Detail 5 with Seed Mix No. 1. Prepare seed bed according to Method C under Section 01040.48.

(2) Shrub Mix A plant quanity per plan and schedule. To be planted between Nov. 30 - Mar. 15. 500 PLANTED DEC 2008

(3) Shrub Mix B plant quanity per plan and schedule. To be planted between Nov. 30 - Mar. 15. 374 PLANTED DEC 2008

(4) Shrub Mix C plant quanity per plan and schedule. To be planted between Nov. 30 - Mar. 15. 686 PLANTED DEC 2008

(5) Prepare soil for shrub mix according to Method A.

(6) 2" Compost Blanket (No Seed) per Detail 6.

(7) 12" Imported Topsoil Depth

(8) 6" Imported Topsoil Depth

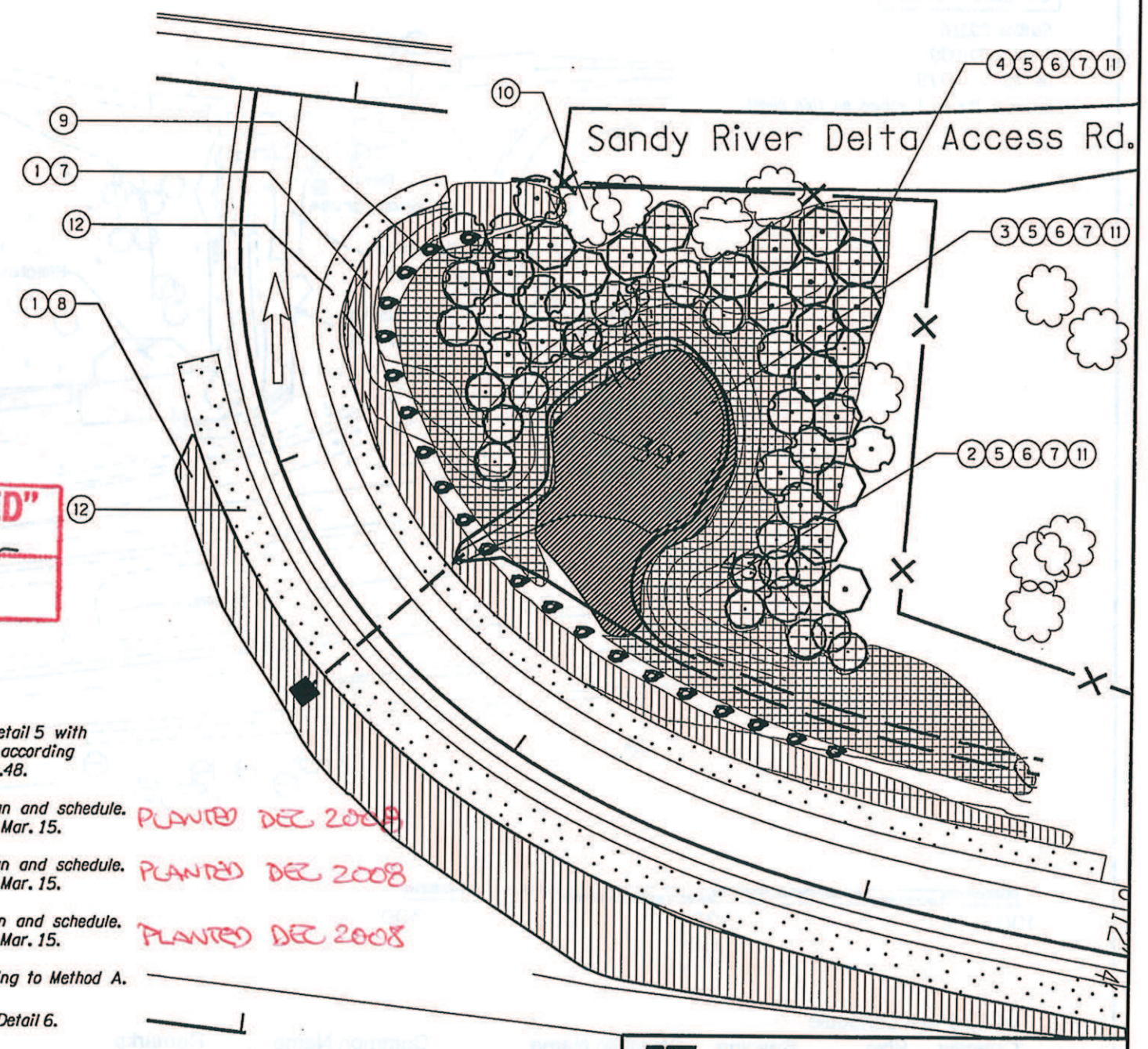
(9) Boulders Max. Spacing 10' O.C. apart and outside the "Clear Zone."

(10) Existing trees to remain. FENCE ADJUSTED

(11) Apply Seed Mix No. 1 per detail 7 between Nov. 30 - Mar. 15. NOT APPLIED AS OF FEB, 1 2009 PER MAGNUS

(12) Gravel Shoulder.

* SEE GN-5, SHOWS AREAS NOT COVERED BY CONTRACT DWGS.



REGISTERED
424
Magnus U. Bernhardt
OREGON
04/14/99
LANDSCAPE ARCHITECT

OREGON DEPARTMENT OF TRANSPORTATION

REGION 1 - ROADWAY ENGINEERING SECTION

I-84: SANDY RIVER DELTA ACCESS
COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Reviewed By - Magnus U. Bernhardt
Designed By - Magnus U. Bernhardt
Drafted By - Zyola T. Mix Phillips

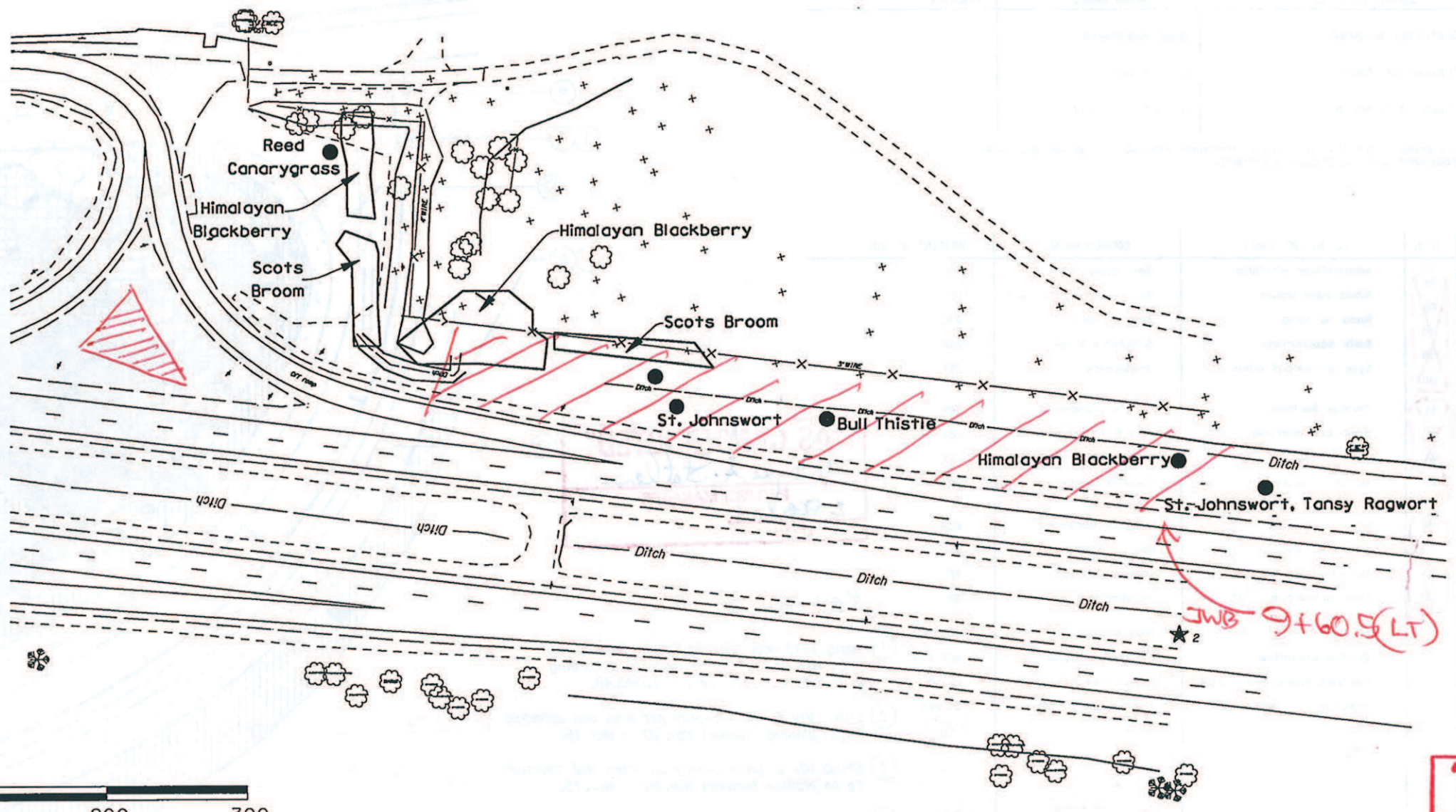
ROADSIDE DEVELOPMENT PLAN

SHEET NO. GN-4

ROADSIDE RESTORATION
WEED REMOVAL PLAN

GENERAL NOTES:

Section 00320
Section 001030
Section 01040.75
Apply to the work shown on this sheet.



100 50 0 100 200 300
FEET

"AS CONSTRUCTED"
Wayne A. Stetler
PROJECT MANAGER
2 FEB 2009
DATE

USFS Plant Schedule

Quantity	Size	Spacing	Scientific Name	Common Name	Remarks
10	1 Gallon	2' O.C.	Carex obnupta	Slough Sedge	Plant in groups of 3-5
5	1 Gallon	3' O.C.	Rosa nootkana	Nootka Rose	Plant in groups of 2-3
5	1 Gallon	3' O.C.	Rosda pisocarpa	Swamp Rose	Plant in groups of 2-3
10	1 Gallon	2' O.C.	Scirpus microcarpus	Small-fruited Bulrush	Plant in groups of 3-5
3	3 Gallon	10' O.C.	Crataegus douglasii	Black Hawthorne	
33					

INSPECTOR S.W. SNYDER

Important Note: Deliver Plants to ODOT ~~Troutdale Sign Shop During Bare Root planting in late Fall early Winter (Contact David Smith 503.666.9391) at: 620 West Columbia, Troutdale, OR 97060~~.
Notify Robin Dobson, USFS at 541.308.1717 ~~upon delivery to Sign Shop~~ DELIVERED BY SNYDER TO DOBSON 12-4-08
PLANTS PLACED INSIDE SANDY RIVER DELTA PARK.

LEGEND
//// ADDITIONAL AREAS COVERED WITH TOPSOIL MULCH & SEED (COMPOST)

REGISTERED LANDSCAPE ARCHITECT
424
Magnus U. Bernhardt
OREGON
04/14/99

OREGON DEPARTMENT OF TRANSPORTATION
REGION 1 - ROADWAY ENGINEERING SECTION

I-84 SANDY RIVER DELTA ACCESS
COLUMBIA RIVER HIGHWAY
MULTNOMAH COUNTY

Reviewed By - Magnus U. Bernhardt
Designed By - Magnus U. Bernhardt
Drafted By - Zyola T. Mix Phillips

ROADSIDE DEVELOPMENT PLAN

SHEET NO. GN-5