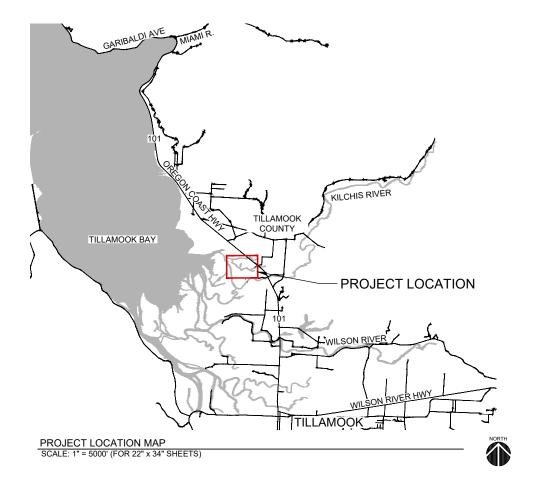
PORTER TRACT ESTUARY RESTORATION

TILLAMOOK COUNTY, OREGON THE NATURE CONSERVANCY 2019



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RESTORATION & SEEDING PLAN

PROJECT OWNER



THE NATURE CONSERVANCY

DICK VANDER SCHAAF 821 SE 14TH AVENUE PORTLAND, OR 97214

PROJECT ENGINEERS



WOLF WATER RESOURCES

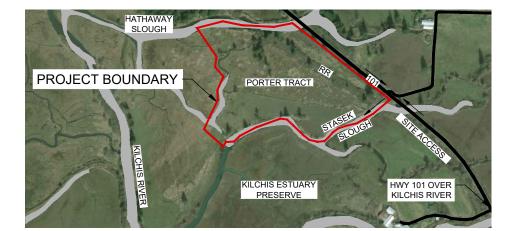
CURTIS LOEB, PE AMANDA JONES, PE JOE RULDOPH, ECOLOGIST 1001 SE WATER AVE , SUITE 180 PORTLAND, OR 97214 (503) 207-6688

GEOTECHNICAL ENGINEER



GEOTECHNICS LLC

ANDRE MARE, PE, GE 7629 SE HARRISON STREET PORTLAND, OR 97215 (503) 730-2469



VICINITY MAP

1" = 500' (FOR 22" x 34" SHEETS)



ODFW IN-WATER WORK WINDOW JUL 1 TO SEP 30







The Nature Conservancy

FINAL DESIGN

COVER

JOB NO. SHEET NO.

G1.0

APPROX	APPROXIMATE	
AVG	AVERAGE	
BMP	BEST MANAGEMENT PRACTICE	
BOT	BOTTOM	
CAR	CONTRACTING AGENCY'S	
	REPRESENTATIVE	
CH	CHANNEL	
CL	CENTERLINE	
CLC	CENTERLINE OF CHANNEL	
CP	CONTROL POINT	
<u> </u>		

CY CUBIC YARD DEMO DEMOLISH DIA DIAMETER DTI DETAIL DWG DRAWING **EASTING** (E) EXIST EXISTING **EXISTING GRADE**

ELEVATION EROSION & SEDIMENT CONTROL FINISHED GRADE ESC FG FT GS IE FOOT, FEET **GROUND SPOT** INVERT ELEVATION IR IRON ROD JURISD JURISDICTIONAL MAX MAXIMUM MGMT MANAGMENT MHW MEAN HIGH WATER MHHW

ORDINARY HIGH WATER

MEAN HIGHER HIGH WATER MINIMUM MATERIAL NORTHING NORTH AMERICA VERTICAL **DATUM 1988** NOT TO SCALE NORTH TO SOUTH

RCG REED CANARYGRASS ROW RIGHT-OF-WAY SIDE SLOPE SS SPEC SPECIFICATION STA STATION STD STANDARD TEMP TEMPORARY ТОВ TOP OF BANK TOE TYP TOE OF CHANNEL

WHS

W/

TYPICAL UON UNLESS OTHERWISE NOTED WCS WATER CONTROL STRUCTURE WOOD HABITAT STRUCTURE WSE WATER SURFACE ELEVATION YELLOW PLASTIC CAP

CHANNEL NAME ABBREVIATIONS

DU DUNLIN PLOVER SA SANDPIPER SN TU SNIPE TURNSTONE

GENERAL NOTES

1. IN-WATER WORK WINDOW: JULY 1 - SEPTEMBER 30. NO IN WATER WORK OUTSIDE OF THIS TIME FRAME WITHOUT SPECIAL WRITTEN APPROVAL.

MIN

MTL

NTS

N-S

NAVD88

- GROUND CONTROL SURVEY PROVIDED BY STATEWIDE LAND SURVEYING, 2012 TO 2017. 2. HORIZONTAL DATUM: STATE PLANE, OREGON NORTH ZONE, NAD83, US INTERNATIONAL FEET VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
- TOPOGRAPHY CONTOURS BASED ON LIDAR. 3.
- CONTRACTORS WORKING IN PUBLIC ROW SHALL BE LICENSED FOR THEIR WORK AND MAINTAIN LIABILITY INSURANCE REQUIREMENTS CONSISTENT WITH TILLAMOOK COUNTY'S UTILITIES ORDINANCE. EVIDENCE OF INSURANCE SHALL BE PROVIDED TO THE TILLAMOOK COUNTY ROAD DEPARTMENT.
- CONTRACTOR IS RESPONSIBLE FOR MEETING ALL STATE & COUNTY TRAFFIC SIGNAGE AND/OR FLAGGING REQUIREMENTS.
- CONTRACTOR IS RESPONSIBLE FOR MEETING ALL PERMIT REQUIREMENTS. ANY FINES INCURRED DUE TO PERMIT VIOLATIONS SHALL BE THE RESPONSIBILITY OF THE
- THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND OBSERVING SITE CONDITION IN ALL WORK AREAS PRIOR TO BIDDING.
- LAND SURFACE ELEVATIONS WITHIN THE WORK AREA RANGE FROM 6 FT TO 15 FT NAVD88. WORK AREA IS PROTECTED BY DIKE W/ LOW POINT OF APPROX 10 FT NAVD88.
- PREDICTED TIDE ELEVATIONS DURING CONSTRUCTION ARE BETWEEN 3 FT AND 9 FT NAVD88. BETWEEN JULY AND OCTOBER, THE HIGHEST PREDICTED TIDE IS 9 FT NAVD88.
- 10. ALL QUANTITY ESTIMATES ARE APPROXIMATE.
- 11. PROPERTY BOUNDARY PER C. WAYNE COOK LAND SURVEYING PARTITION SURVEY ("REBOB SURVEY") SEP 2010 VIA TNC.

SURVEY CONTROL POINTS

POINT#	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	686162.42	7341923.80	14.81	SET HUB AND MAG
2	685500.47	7340454.41	9.77	SET MAG NAIL
3	685545.47	7340513.24	11.19	SET NAIL SPIKE RPC
4	685546.88	7340386.05	9.53	SET NAIL SPIKE RPC
5	685143.31	7340293.08	9.61	FD 5/8" IRON ROD YPCTERRY JONES
6	685039.97	7340255.53	9.64	FD 5/8" IRON ROD YPCTERRY JONES
7	685058.01	7340205.66	9.51	FD 5/8" IRON ROD YPCTERRY JONES
8	685161.41	7340243.34	9.54	FD 5/8" IRON ROD YPCTERRY JONES
9	685628.87	7340269.87	9.46	SET NAIL SPIKE RPC
10	685632.48	7340563.96	9.18	SET NAIL SPIKE RPC
11	685880.40	7342192.61	16.63	SET 5/8 IR LGCAP
12	685854.70	7341996.47	15.62	SET 5/8 IR LGCAP

FLOOD / TIDAL WATER LEVELS	ELEV (FT NAVD88)
100 - YR BASE FLOOD	12.0
10 - YR	11.5
JURISD OHW	11.4
5 - YR	10.8
MHHW	7.8
MHW	7.0
MTL	3.9
NAVD88 DATUM	0.0
MLLW	-0.3

NOTICE TO EXCAVATORS:

ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. 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 NOTIFICATION CENTER IS 503-232-1987).

POTENTIAL UNDERGROUND FACILITY OWNERS

Dig Safely.

Call the Oregon One-Call Center DIAL 811 or 1-800-332-2344

BREVIATIONS NATURE CONSERV/ PORTER TRACT NOTES ABI

JOB NO. SHEET NO.

G1.1



PLAN - SITE OVERVIEW

84779PE OREGON MAR. 8, 2016 MANDA L. JOH RENEWS: 6/30/2019

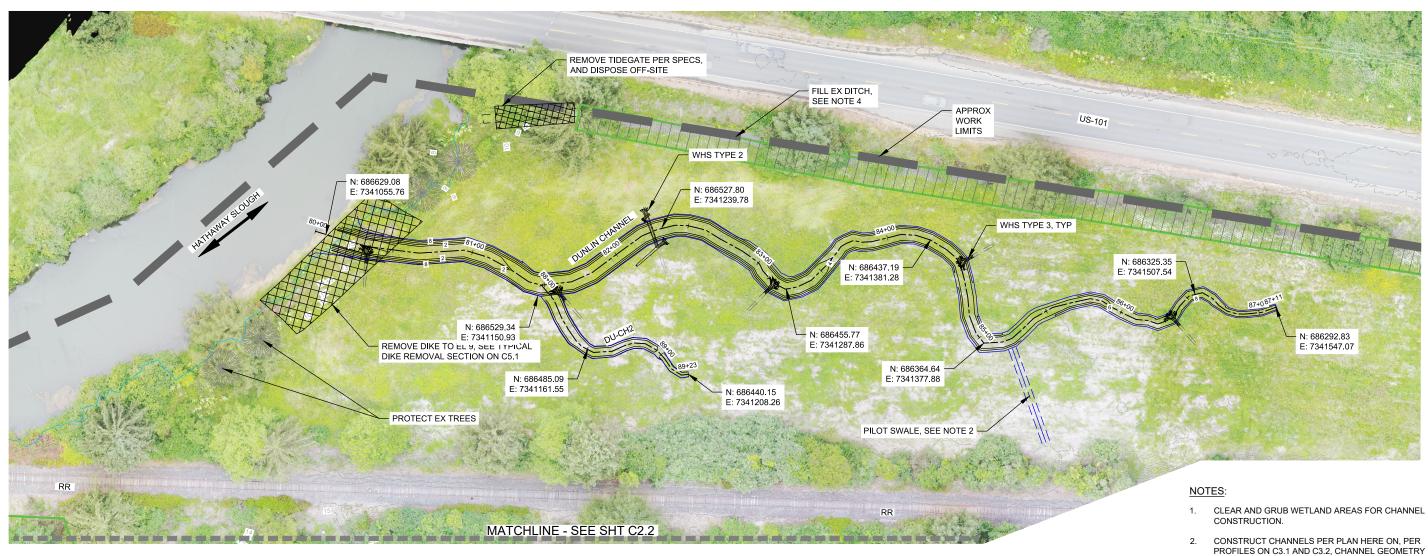


1821 SE 14TH AVE. PORTLAND, OR 9721

OVERVIEW Ш SIT

JOB NO. SHEET NO.

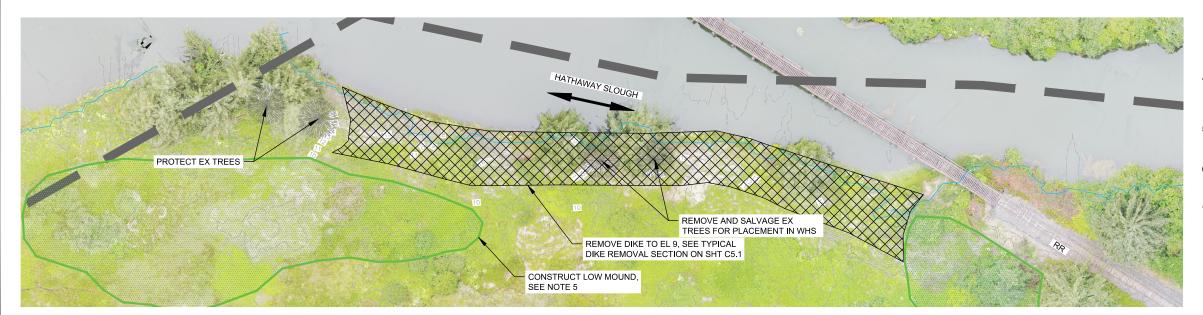
C1.1



PLAN - NORTHERN CHANNELS

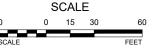






PLAN - HATHAWAY SLOUGH BERM REMOVAL





ITAL SIGNAT RENEWS: 6/30/2019

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CH LAYOUT & GRADING PLAN 1

THE NATURE CONSERVANCY PORTER TRACT

JOB NO.

SHEET NO.

C2.1

SECTION ON C5.1. CONSTRUCT PILOT SWALES AS SHOWN ON THIS SHT AND PER TYPICAL PLAN AND SECTION ON C5.3. THE CHANNEL ALIGNMENTS SHOWN DEFINE THE EXCAVATION SUMMARY TABLE. CHANNEL EXCAVATION VOLUMES ARE APPROXIMATE IN-PLACE VOLUME ESTIMATES. FILL EXISTING DRAINAGE DITCHES WITH EXCAVATED MATERIAL FROM CHANNELS PER PLAN HERE ON, CONSTRUCT LOW MOUND FOR TOPOGRAPHIC RELIEF USING EXCAVATED MATERIAL. SEE C5.1 FOR

TABLES ON C3.3, AND THE TYPICAL CHANNEL

CENTERLINE OF THE PROPOSED CHANNELS. CONSTRUCT SMOOTH RADII BETWEEN DEFINED ALIGNMENT POINTS. SEE C1.1 FOR CHANNEL

THE DITCH BACKFILL DETAIL ON C5.1, AND AS

CONSTRUCT WHS PER PLAN HERE ON AND PER

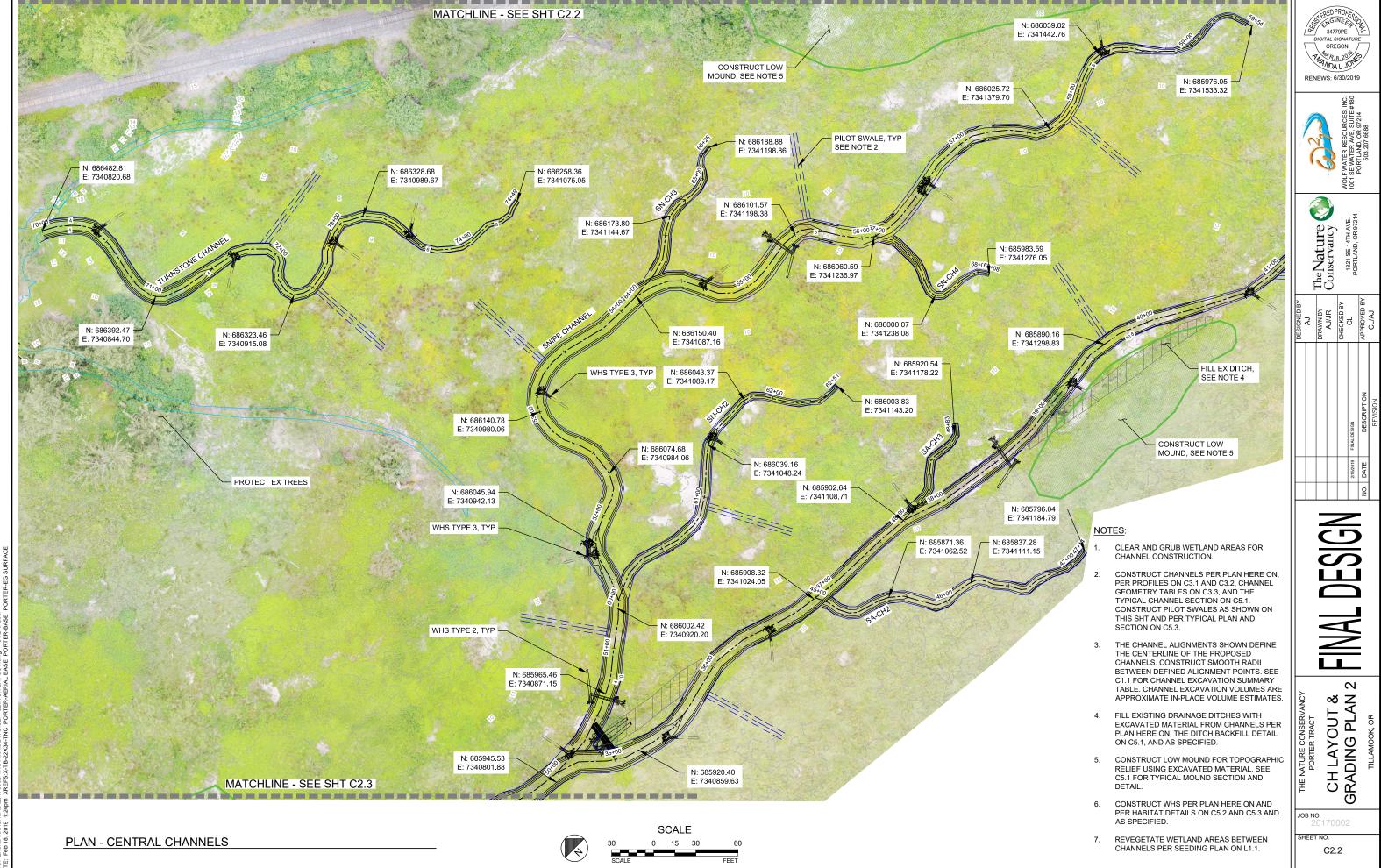
HABITAT DETAILS ON C5.2 AND C5.3 AND AS

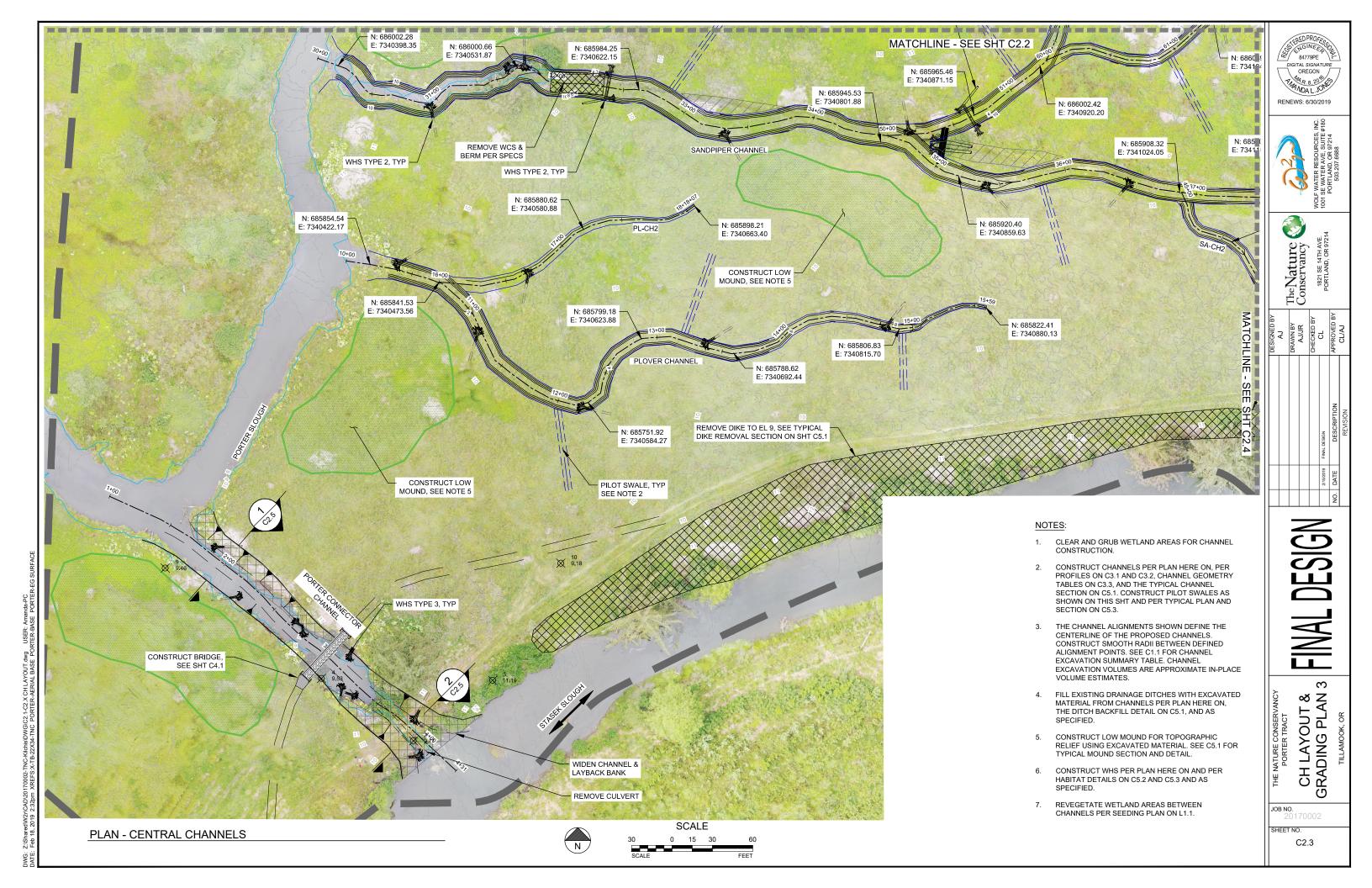
REVEGETATE WETLAND AREAS BETWEEN

CHANNELS PER SEEDING PLAN ON L1.1.

TYPICAL MOUND SECTION AND DETAIL.

SPECIFIED.







84779PE OREGON

RENEWS: 6/30/2019



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CLEAR AND GRUB WETLAND AREAS FOR CHANNEL CONSTRUCTION.

- CONSTRUCT CHANNELS PER PLAN HERE ON, PER PROFILES ON C3.1 AND C3.2, CHANNEL GEOMETRY TABLES ON C3.3, AND THE TYPICAL CHANNEL SECTION ON C5.1. CONSTRUCT PILOT SWALES AS SHOWN ON THIS SHT AND PER TYPICAL PLAN AND SECTION ON C5.3.
- THE CHANNEL ALIGNMENTS SHOWN DEFINE THE CENTERLINE OF THE PROPOSED CHANNELS. CONSTRUCT SMOOTH RADII BETWEEN DEFINED ALIGNMENT POINTS. SEE C1.1 FOR CHANNEL EXCAVATION SUMMARY TABLE. CHANNEL EXCAVATION VOLUMES ARE APPROXIMATE IN-PLACE VOLUME ESTIMATES.
- FILL EXISTING DRAINAGE DITCHES WITH EXCAVATED MATERIAL FROM CHANNELS PER PLAN HERE ON, THE DITCH BACKFILL DETAIL ON C5.1, AND AS SPECIFIED.
- CONSTRUCT LOW MOUND FOR TOPOGRAPHIC RELIEF USING EXCAVATED MATERIAL. SEE C5.1 FOR TYPICAL MOUND SECTION AND DETAIL.
- CONSTRUCT WHS PER PLAN HERE ON AND PER HABITAT DETAILS ON C5.2 AND C5.3 AND AS SPECIFIED.
- REVEGETATE WETLAND AREAS BETWEEN CHANNELS PER SEEDING PLAN ON L1.1.

JOB NO. SHEET NO.

C2.4

4

CH LAYOUT & GRADING PLAN 4

NOTES:

- 1. SECTIONS ARE SHOWN LOOKING EAST (UPSTREAM).
- 2. SECTIONS ARE 1H:1V.
- 3. VERTICAL DATUM IS NAVD88 IN FEET.

BATT9PE
DIGITAL SIGNATURE
OREGON

MAR. 8, 20

MADA L. 10

RENEWS: 6/30/2019

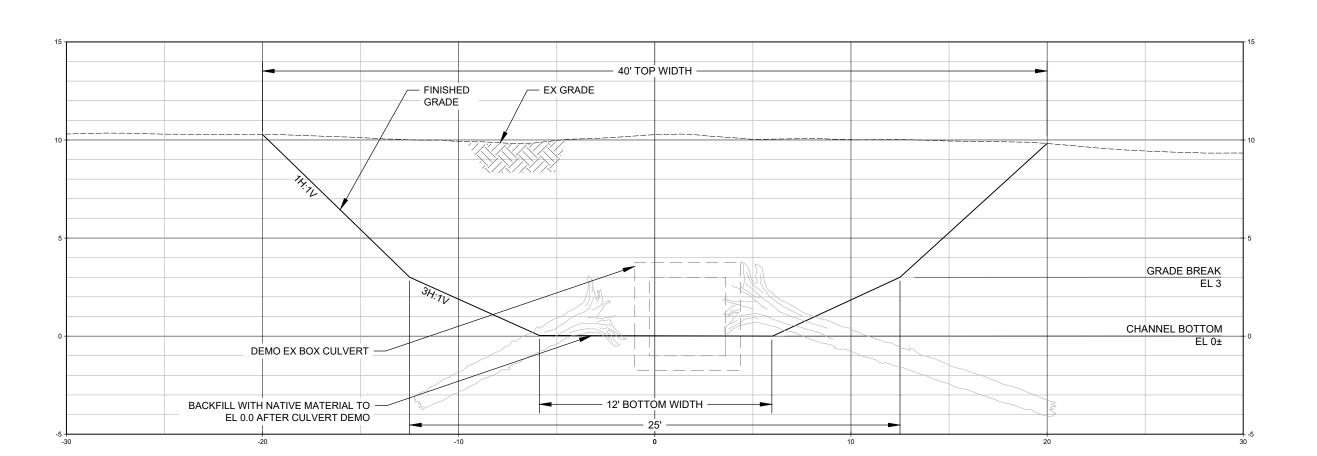
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CONNECTOR CHANNEL SECTIONS

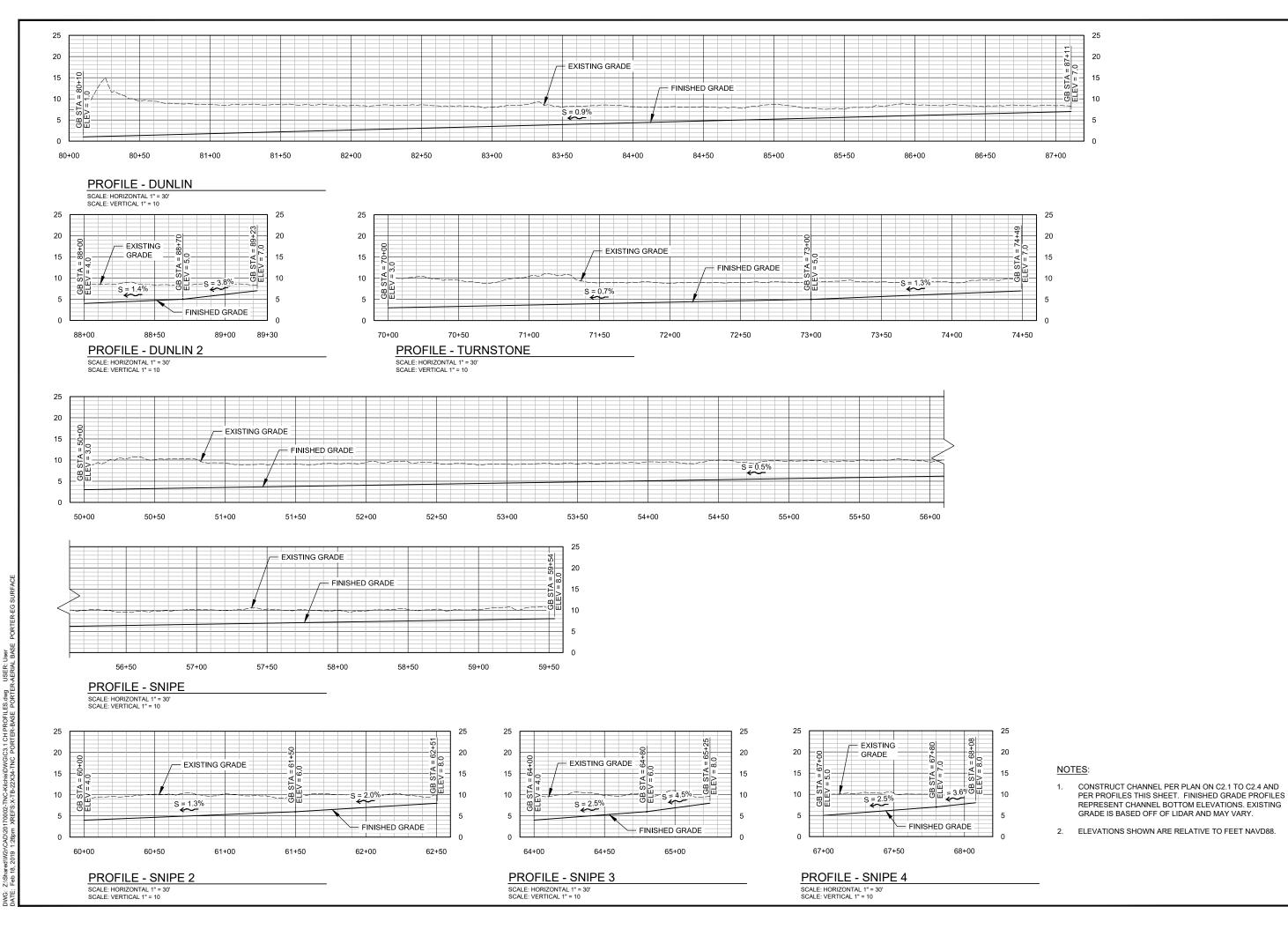
JOB NO. 20170002 SHEET NO.

C2.5

SECTION 1 - PORTER CROSSING DOWNSTREAM OF BRIDGE



SECTION 2 - PORTER CROSSING UPSTREAM OF BRIDGE



84779PE IGITAL SIGNATU OREGON VIANDA L. JOH

RENEWS: 6/30/2019



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DESIGNED I
DESIGNED I
AJJR
AJJR
CHECKED B
CL
APPROVED I
CL/AJ

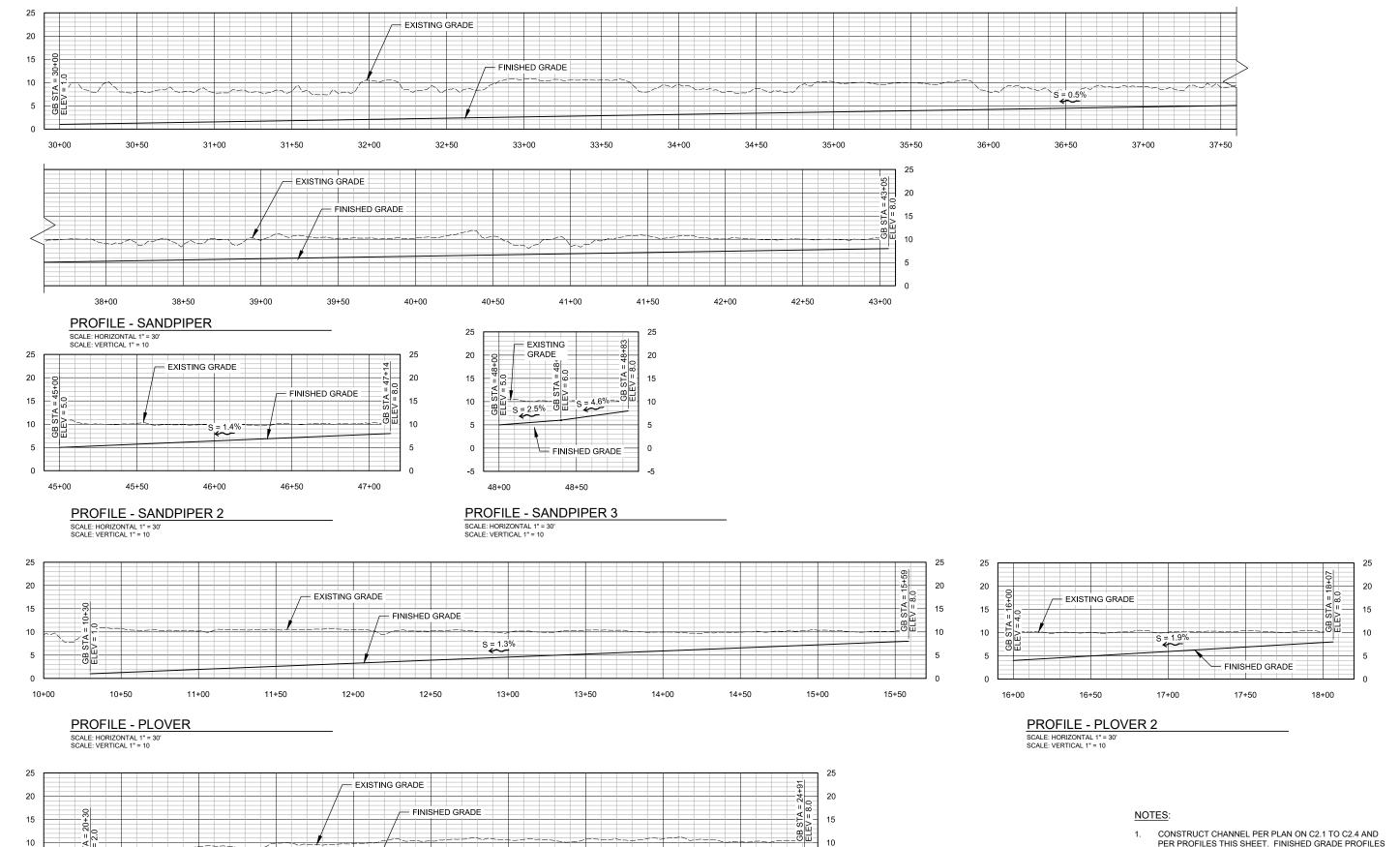
NATURE CONSERVANCY PORTER TRACT

CHANNEL PROFILES 1

JOB NO.

SHEET NO.

C3.1



20+00

20+50

SCALE: HORIZONTAL 1" = 30' SCALE: VERTICAL 1" = 10

PROFILE - HERON

21+00

21+50

22+00

22+50

23+00

23+50

24+00

24+50

- CONSTRUCT CHANNEL PER PLAN ON C2.1 TO C2.4 AND PER PROFILES THIS SHEET. FINISHED GRADE PROFILES REPRESENT CHANNEL BOTTOM ELEVATIONS. EXISTING GRADE IS BASED OFF OF LIDAR AND MAY VARY.
- 2. ELEVATIONS SHOWN ARE RELATIVE TO FEET NAVD88.

NATURE CONSERVANCY PORTER TRACT CHANNEL PROFILES 2

DIGITAL SIGNATU OREGON THAR. 8, 2016 CS

RENEWS: 6/30/2019

WOLF WATER RESOURCES, II 1001 SE WATER AVE, SUITE #1 PORTLAND, OR 97214 503 207 6688

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DESIGNED E
AJ
DRAWN BY
AJJJR
CHECKED B
CL
CL/AJ

JOB NO. SHEET NO.

C3.2

STA	BOTTOM WIDTH FT	TOP WIDTH FT
	SNIPE	
50+20	8	15
56+00	8	12
56+20	6	10
57+20	6	10
57+40	4	8
58+60	4	8
58+80	2	5
59+50	2	3
	SNIPE CH2	
60+00	4	10
61+40	4	8
61+50	2	8
62+50	2	3
	SNIPE CH3	
64+00	4	9
64+80	4	8
64+80	2	6
65+25	2	3
	SNIPE CH4	
67+00	2	7
68+10	2	3

	1	
STA	BOTTOM WIDTH FT	TOP WIDTH FT
	SANDPIPER	
30+00	12	20
33+45	12	20
33+65	10	17
35+05	10	17
35+30	8	14
36+90	8	13
37+10	6	12
40+20	6	11
40+65	4	7
42+00	4	7
42+10	2	5
43+05	2	3
	SANDPIPER CH2	
45+00	4	10
46+80	4	7
46+85	2	5
47+15	2	3
	SANDPIPER CH3	
48+10	2	7
48+83	2	3
	'	

STA	BOTTOM WIDTH FT	TOP WIDTH FT				
	PLOVER					
10+30	8	20				
11+80	8	15				
12+00	6	13				
13+60	6	11				
13+80	4	8				
15+00	4	7				
15+10	2	5				
15+60	2	3				
	PLOVER CH2					
16+00	6	12				
16+60	6	11				
16+70	4	9				
17+50	4	7				
17+60	2	5				
18+10	2	3				

STA	BOTTOM WIDTH FT	TOP WIDTH FT			
	HERON				
20+30	6	12			
21+60	6	12			
21+80	4	9			
24+60	4	8			
24+80	2	5			
24+90	2	3			

STA	BOTTOM WIDTH FT	TOP WIDTH FT				
	TURNSTONE					
70+00	6	13				
71+40	6	11				
71+60	4	9				
73+50	4	8				
73+60	2	6				
74+50	2	3				

STA	BOTTOM WIDTH FT	TOP WIDTH FT				
DUNLIN						
80+00	8	16				
83+45	8	12				
83+65	6	10				
85+45	6	9				
85+65	4	6				
86+70	4	6				
86+80	2	4				
87+10	2	3				
	DUNLIN CH2					
88+00	6	11				
88+40	6	10				
88+50	4	8				
89+00	4	6				
89+00	2	4				
89+25	2	3				

STA	BOTTOM WIDTH FT	TOP WIDTH FT				
Pe	PORTER CONNECTION CHANNEL					
1+85	12	40				
2+40	12	35				
2+65	12	30				
3+20	12	30				
3+45	12	35				
3+70	12	40				
3+45	12	35				

NOTES:

- CONSTRUCT CHANNELS PER GEOMETRY ON THIS SHEET AND CROSS SECTION DETAIL ON SHEET 5.1.
- LAYOUT CHANNEL HORIZONTAL ALIGHMENTS ACCORDING TO PLANS ON SHEETS C2.1 AND C2.4 AND PER ELECTRONIC CAD FILE PROVIDED BY CONTRACTOR.
- CHANNEL SIDE SLOPES ARE IN 1H:2V UNLESS OTHERWISE



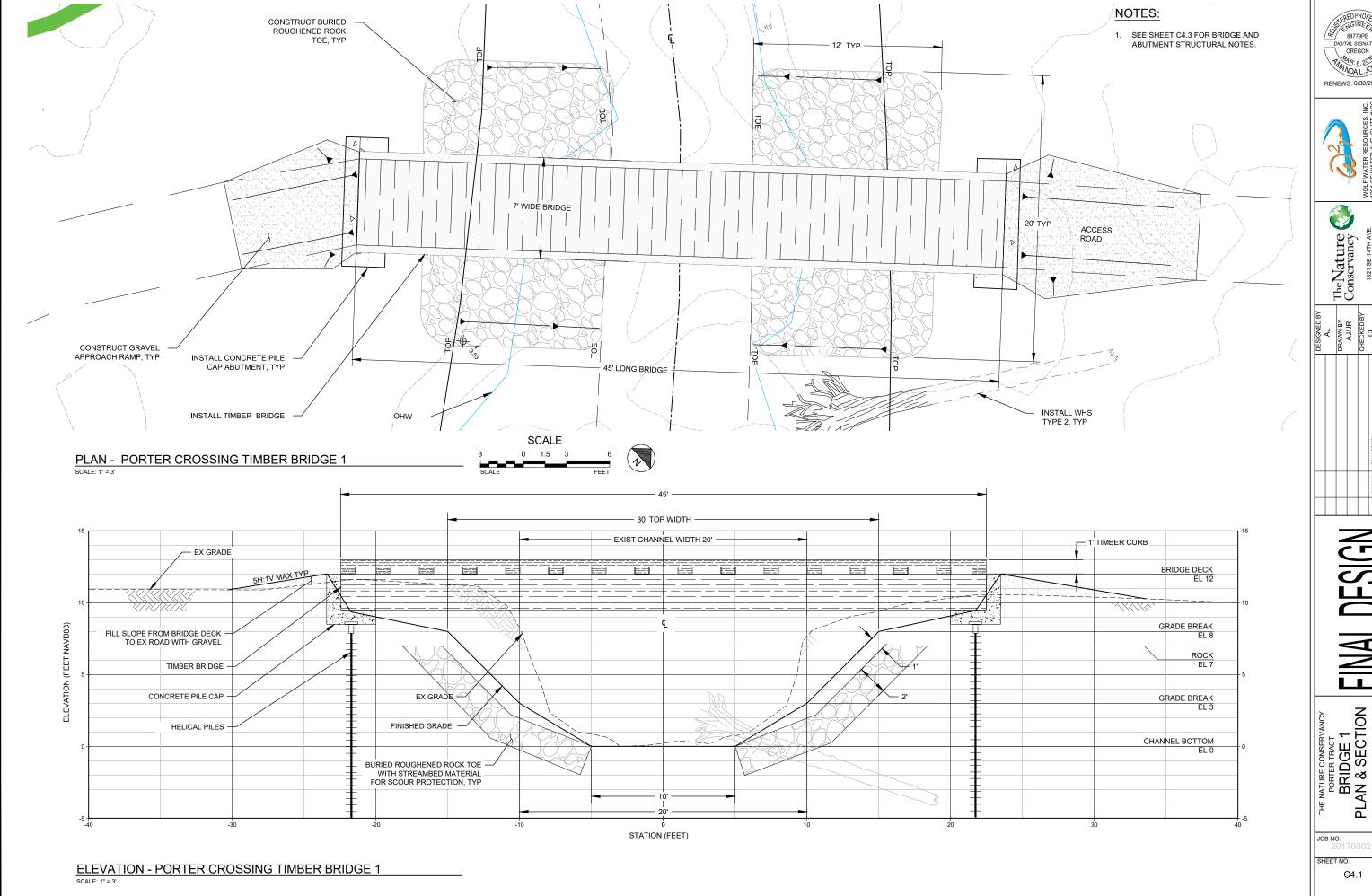


ברסופוגרם הו	Ā	DRAWN BY	AJ/JR	CHECKED BY	ಶ	APPROVED BY	CL/AJ
					INAL DESIGN	DESCRIPTION	REVISION

CHANNEL GEOMETRY FINAL DESIGN

JOB NO. 20170002 SHEET NO.

C3.3

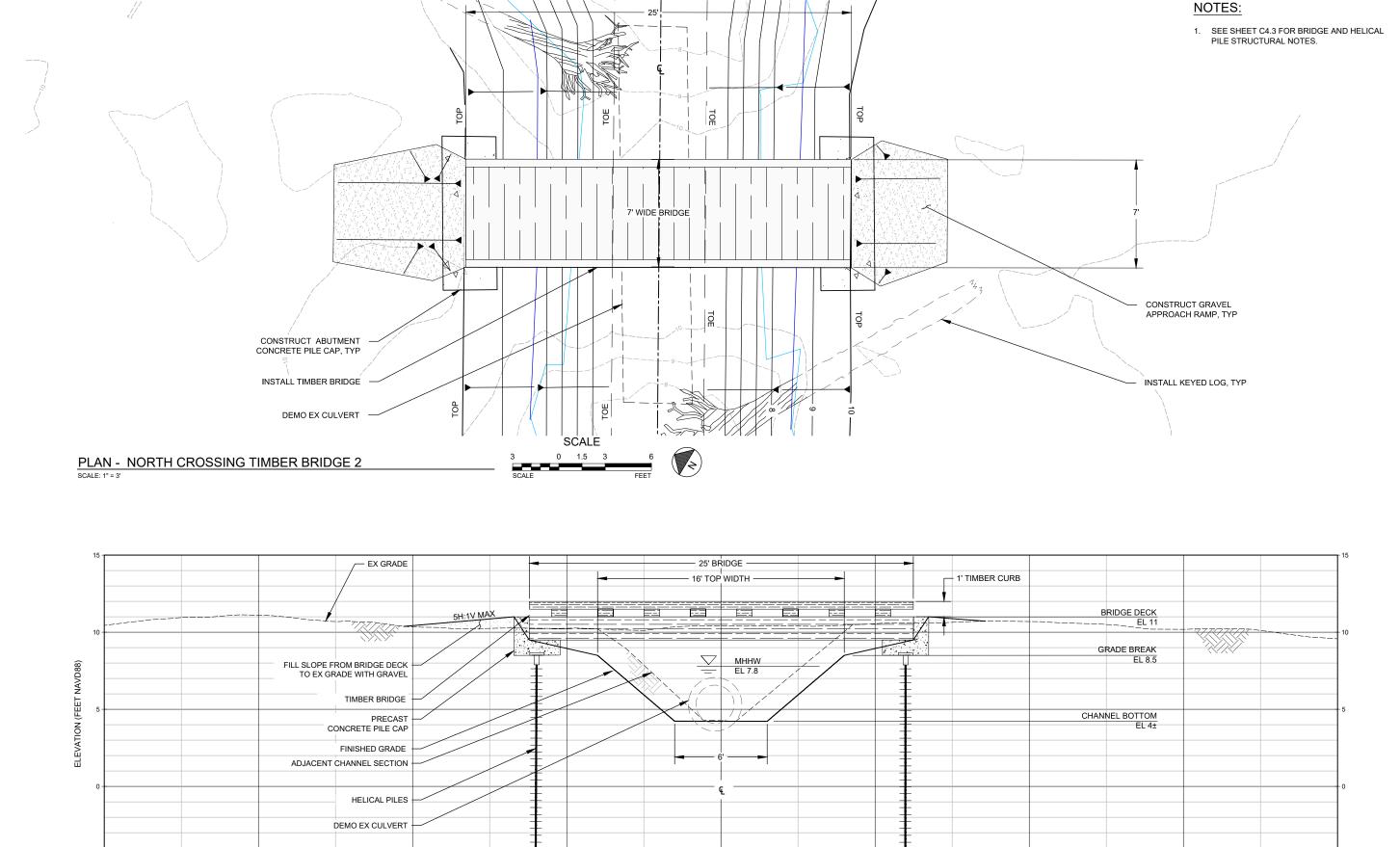


84779PE DIGITAL SIGNATUR OREGON 7/14/R.8.2016 CS

RENEWS: 6/30/2019

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20170002



STATION (FEET)

84779PE
DIGITAL SIGNATURE
OREGON THANDALJONE

RENEWS: 6/30/2019

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THE NATURE CONSERVANCY PORTER TRACT BRIDGE 2 PLAN & SECTION

JOB NO.

SHEET NO. C4.2

ELEVATION - NORTH CROSSING TIMBER BRIDGE 2

BRIDGE STRUCTURAL NOTES:

- 1. BRIDGE AND ABUTMENT SYSTEM SHOWN IS CONCEPTUAL. CONTRACTOR SHALL SUBMIT PREFAB BRIDGE AND ABUTMENT SYSTEM PLAN FOR ENGINEER REVIEW AND APPROVAL. BRIDGES SHALL BE TIMBER (ALASKAN YELLOW CEDAR OR APPROVED EQUIVALENT WITHOUT PRESSURE TREATMENT).
- 2. PERFORMANCE SPECIFICATIONS FOR PREFABRICATED BRIDGE AND ABUTMENT SYSTEM: I FNGTH:

PORTER CROSSING - 45' TOTAL (BRIDGE 1)
NORTH CROSSING - 25' TOTAL (BRIDGE 2)
DTH: APPROX 7' TOTAL

WIDTH:

LIGHT VEHICLES & PEDESTRIAN ACCESS USE:

DECK EL:

PORTER CROSSING - EL 12 FT NAVD88

NORTH CROSSING - EL 11 FT NAVD88

NONE, 6" CURB RAILS ON 6" BLOCKS (12" TOTAL CURB HEIGHT) GUARDRAIL:

LOADING:

LIVE : 90 PSF

STRUCTURE WEIGHT DEAD: LATERAL: 2 FT/S DEBRIS WIND: 85 MPH - EXPOSURE C DECK: ALASKAN YELLOW CEDAR TREATMENT: NO TREATMENT ALLOWED

3. STEEL COMPONENT SPECIFICATIONS:

STEEL SHAPES : ASTM A36

HARDWARE: ASTM A307 (A325 AS NOTED)

HOT DIP GALVANIZE ALL STEEL SHAPES AFTER FABRICATION.

HOT DIP GALVANIZE ALL HARDWARE,

ALL WELDING TO BE PER AWS SPECIFICATIONS CERTIFIED WELDERS. TREAT ALL FIELD MODIFICATIONS W/ COLD GALVANIZING PAINT.

- 4. WOOD SURFACE SEALER SHALL BE APPLIED ACCORDING TO MANUFACTURER SPECIFICATIONS AND SLOPES V REQUIREMENTS.
- BEARING PADS, ANCHOR BOLTS, AND ALL BRIDGE/ABUTMENT CONNECTION HARDWARE SHALL BE SUPPLIED WITH BRIDGE.
- 6. CERTIFIED TEST REPORTS SHALL BE FURNISHED FOR THE STRUCTURAL BRIDGE ELEMENTS, HIGH STRENGTH BOLTS, ELASTOMERIC BEARING PADS, AND ANCHOR BOLTS.
- CAR AND ENGINEER TO VERIFY COORDINATES IN FIELD BEFORE PLACEMENT. BRIDGE COORDINATES AT ENDS (ALONG MIDLINE):

PORTER CONNECTION BRIDGE 2: NORTH: N: 685547.81 F: 7340373 80

> SOUTH: N: 685580.80 E: 7340404.38

NORTHERN BRIDGE 1:

NORTH: N: 686458.01 E: 7340625.06

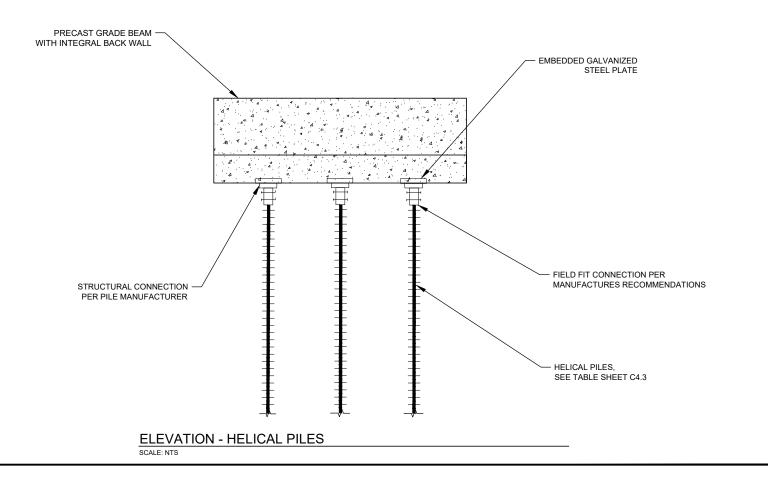
SOUTH: N: 686436.62 E: 7340637.87 REMOVED CULVERTS TO BE TAKEN OFF SITE AND DISPOSED OF IN A MANNER AND LOCATION APPROVED BY CAR.

BRIDGE ABUTMENT SYSTEM SHALL COMPLY WITH REQUIREMENTS OF GEOTECHNICAL ENGINEERING REPORT (GEOTECHNICS LLC) AVAILABLE UPON REQUEST FROM CAR.

- 10. ABUTMENTS SHALL BE PRECAST REINFORCED CONCRETE PILE CAPS SUPPORTED BY HELICAL PILES, AND SHALL BE CONSTRUCTED PER BRIDGE MANUFACTURER SPECIFICATIONS. CAR AND ENGINEER TO APPROVE BRIDGE AND ABUTMENT SYSTEM PRIOR TO MANUFACTURING.
- 11. RECOMMENDED HELIX CONFIGURATIONS OF SINGLE SHAFT, 2-7/8 INCH OUTSIDE DIAMETER ARE SHOWN IN THE TABLE BELOW.
- 12. BRIDGE 2 HELICAL PILE ALTERNATIVES REFER TO THE NUMBER OF PILES (2 OR 3).

HELICAL ANCHOR DESIGN RECOMMENDATIONS								
#	# OF H-PILES PER END	HELIX CONFIGURATION	MINIMUM SPACING (FT)	MINIMUM TORQUE (FT-LB)	MINIMUM PILE DEPTH	ESTIMATED PILE DEPTH AT MIN TORQUE		
BRIDGE 1	3	10"/12"	3.0	890	12	15		
BRIDGE 2 - ALT 1	2	10"/12"	3.0	890	14	18	PRECAST GRADE BEAM WITH INTEGRAL BACK WALL	
BRIDGE 2 - ALT 2	3	8"/10"	2.5	560	14	18	INTEGRAL BACK WALL	
EMBEDDED STEEL ₹								
							ROUND HSS STEEL CAP ®	
				PLAN - ABUTM	ENIT		— SIEEL CAP E	

SCALE: NTS



84779PE

OREGON

MANDA L.JON

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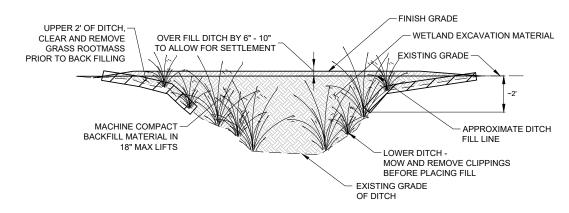
POKIEK INGE BRIDGE STRUCTURAL NOTES

JOB NO. SHEET NO

C4.3

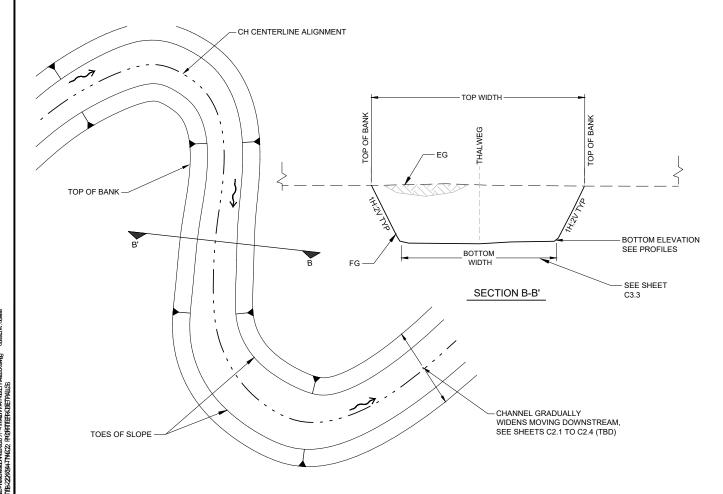


- DEWATER DITCHES COMPLETELY PRIOR TO BACKFILLING IN ACCORDANCE WITH SPECIFICATIONS.
- 2. REMOVE ORGANIC MATERIAL FROM EXCAVATION MATERIAL BEFORE PLACING AS FILL.



DITCH BACKFILL DETAIL

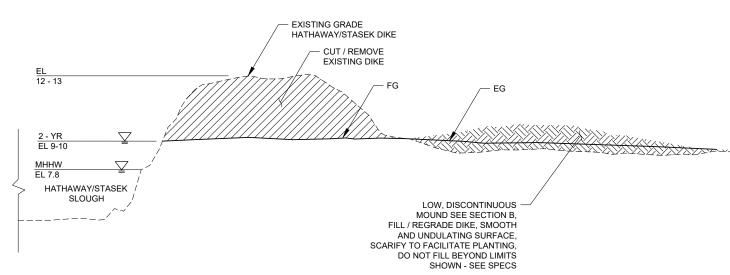
NOT TO SCALE



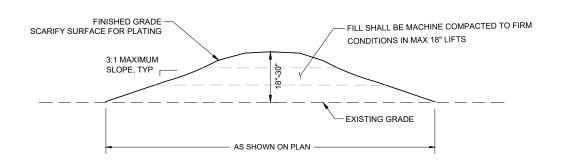
NOTES:

1. SEE GEOMETRY TABLES FOR BOTTOM ELEVATIONS AND BOTTOM WIDTHS (TBD).

TYPICAL CHANNEL PLAN & SECTION NOT TO SCALE



HATHAWAY AND STASEK SLOUGH DIKE REMOVAL - TYPICAL SECTION NOT TO SCALE



LOW MOUND - TYPICAL SECTION NOT TO SCALE

84779PE GITAL SIGNATU OREGON RENEWS: 6/30/2019

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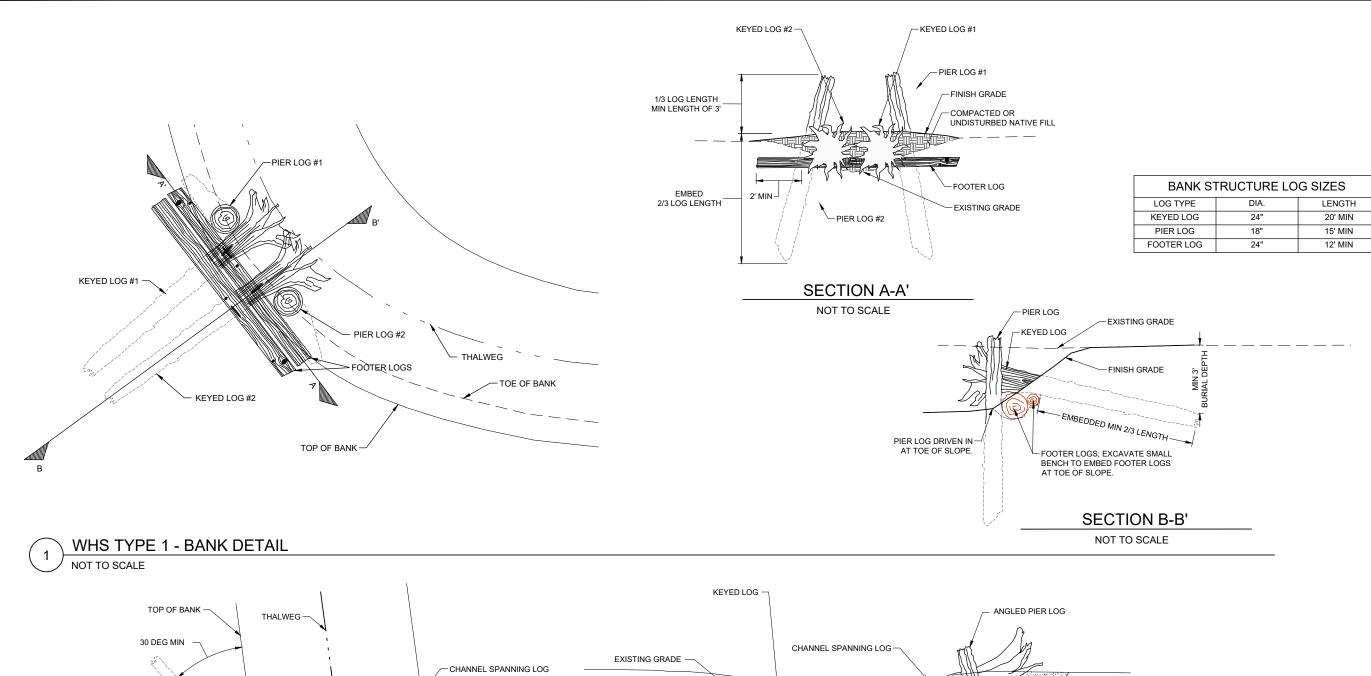
1821 SE 14TH AVE. PORTLAND, OR 97214

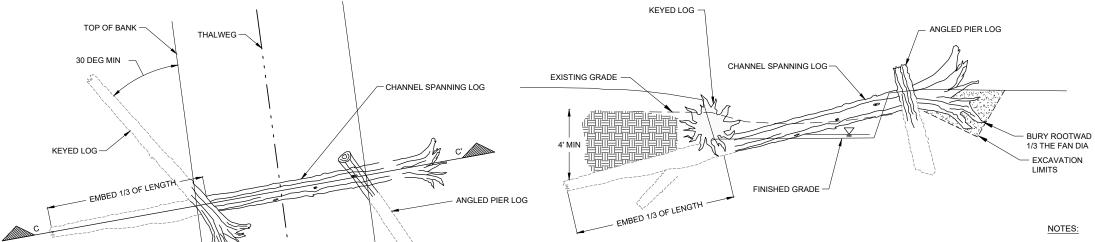
FINAL DESIGN

GRADING DETAILS

JOB NO. 20170002 SHEET NO.

C5.1





30 DEG MIN

SECTION C-C'

NOT TO SCALE

CHANNEL SPANNING STRUCTURE						
LOG SIZES						
LOG TYPE	DIA.	LENGTH				
CH. SPANNING	24"	30' - 40'				
KEYED LOG	16" - 20"	20'				
PIER LOG	12" - 18"	12'				

- 1. SEE INDIVIDUAL LOG DETAILS ON SHT C5.3.
- 2. THE WHS-CHANNEL SPANNING STRUCTURE WILL BE CONSTRUCTED IN TWO DIFFERENT SIZES, PROPORTIONAL TO THE CHANNEL SIZE. REFER TO LOG SIZE TABLES AND SPECIFICATIONS FOR LOG REQUIREMENTS AND NUMBER OF EACH SIZE.
- 3. INSTALL ALL LOGS BY SHARPENING ENDS WITH A CHAINSAW AND DRIVING THE LOG INTO THE GROUND. EXCAVATE ONLY AS NECESSARY

OREGON

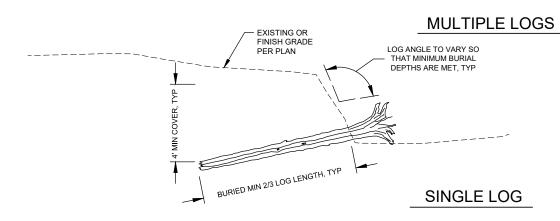
RENEWS: 6/30/2019

HABITAT DETIALS

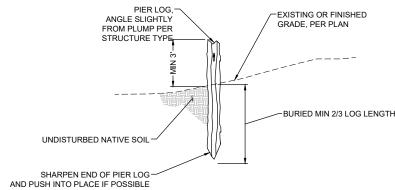
JOB NO. SHEET NO.

C5.2

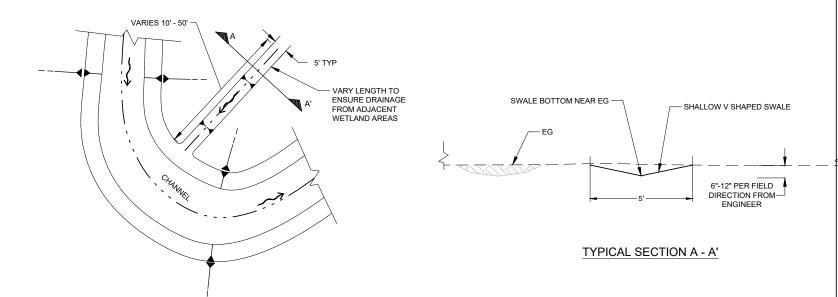
WHS TYPE 2 - CHANNEL SPANNING DETAIL NOT TO SCALE



WHS TYPE 3 - KEYED LOG NOT TO SCALE



PIER LOG NOT TO SCALE



PILOT SWALE DETAIL NOT TO SCALE

TYPICAL PLAN

FINAL DESIGN

84779PE GITAL SIGNATU OREGON

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HABITAT DETIALS 2

JOB NO.

SHEET NO. C5.3

-BURIED MIN 2/3 LOG LENGTH

1" = 500' (FOR 22" x 34" SHEETS)

EROSION CONTROL LEGEND:

WATTLES

TURBIDITY CURTAIN

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FINAL DESIGN

ESC PLAN

JOB NO.

SHEET NO. ESC1.1

- ENTER SITE AT DESIGNATED ENTRANCE POINT UNLESS APPROVED BY ENGINEER.
- ALL ACCESS ROUTES AND SITE ENTRANCES SHALL BE RESTORED ACCORDING TO SPECIFICATIONS AND SEEDING
- CHANNELS ONE AND TWO SHALL BE GRADED FIRST. KEEP EXISTING DIKES IN PLACE UNTIL GRADING IN THE CENTER OF THE SITE IS FINISHED. DO NOT CONNECT CHANNEL 3 TO THE KILCHIS RIVER AND THE STASEK SLOUGH UNTIL THE CHANNEL GRADING HAS BEEN FINISHED. DEMO CULVERTS AND RECONSTRUCT EARTHEN BERMS AS A LAST STAGE OF CONSTRUCTION. CONSTRUCTION.
- SEE SHEET C2.2 FOR DIKE REMOVAL SUMMARY TABLE.

NOTE: CONSTRUCT WHEEL WASH AT CONSTRUCTION ENTRANCES AS NECESSARY TO PREVENT SEDIMENT FROM LEAVING SITE.

STREAM FLOW

ANCHOR PT.

RADIUS = 25' MIN.

CONSTRUCTION ENTRANCE

DEPTH 8 INCHES MIN.

6" - 4" QUARRY SPALLS

SUBGRADE REINFORCEMENT / GEOTEXTILE REQUIRED

ABUT ENDS TIGHTLY. PLACE IN SERIES, PARALLEL WITH CONTOURS STRAW WATTLES MADE WITH LOOSE COMPACTION RICE STRAW PLAN VIEW STAKES - STAKE AT 4" OFF CENTER BIODEGRADABLE STRAW WATTLES, PER SPECIFICATIONS

SECTION

FLOW

METER SIZE

SAND BAGS

STRAW WATTLE

METER SIZE VARIES PREPARE BANKS PRIOR TO PLACEMENT SECTION

SECURE WRAP WITH SANDBAG IMPERVIOUS -SYNTHETIC WRAP DEWATERING PUMP METER SIZE FLOW **BULK BAGS** CHANNEL BED-PREPARE CHANNEL BED PRIOR TO PLACEMENT PROFILE

PLAN

- 1. INSTALL TEMPORARY COFFER DAMS AS SHOWN ON PLANS TO ISOLATE THE EXCAVATION AREAS.
- 2. IN ADDITION TO BULK BAGS, USE AN IMPERVIOUS SYNTHETIC LINER TO REDUCE PERMEABILITY OF THE COFFER DAM.
- 3. HEIGHT OF THE COFFER DAMS SHALL BE HIGH ENOUGH TO PREVENT BYPASS FLOWS FROM ENTERING THE ISOLATED WORK AREA. DAM HEIGHTS AND MATERIALS SHALL BE INCLUDED IN THE CONTRACTOR'S WORK CONTAINMENT AND DEWATERING PLAN.

TEMPORARY COFFER DAM

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FINAL DESIGN

ESC DETAILS

JOB NO. 20170002

SHEET NO. ESC 1.2

2

GENERAL NOTES FOR EROSION, SEDIMENT & POLLUTANT CONTROL

- 1. EROSION, SEDIMENT AND POLLUTANT CONTROL IS REQUIRED FOR THIS PROJECT.
- PREPARE AN EROSION, SEDIMENT AND POLLUTANT CONTROL PLAN (ESPCP) BEFORE BEGINNING WORK. KEEP A COPY OF THE ESPCP ON SITE AT ALL TIMES DURING THE PROJECT.
- 3. THE EROSION AND SEDIMENT CONTROL FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR THE ANTICIPATED SITE AND SEASONAL CONDITIONS. UPGRADE THESE FACILITIES TO ADDRESS CHANGING WORK OR WEATHER CONDITIONS
- 4. SELECT BEST MANAGEMENT PRACTICES (BMPs) FROM THE FOLLOWING DOCUMENTS: 1) THE CITY OF PORTLAND EROSION AND SEDIMENT CONTROL MANUAL; 2) THE STANDARD CONSTRUCTION SPECIFICATIONS AND 3) THE PROJECT SPECIAL PROVISIONS.
- 5. INSTALL, MONITOR, REPLACE AND UPGRADE ALL FACILITIES AND MEASURES. PERFORM MAINTENANCE TO ENSURE THEIR CONTINUED FUNCTIONING.
- INSPECT AND MAINTAIN ALL FACILITIES AND MEASURES UNTIL WORK AREAS ARE RESURFACED OR STABILIZED.
- COMPLETE AN EROSION CONTROL MONITORING FORM AFTER EACH INSPECTION. INCLUDE THE INSPECTION DATE AND TIME. RETAIN THESE COMPLETED FORMS ON SITE AND PROVIDE THEM UPON REQUIEST.
- 3. NO VISIBLE AND MEASURABLE SEDIMENT OR POLLUTANT SHALL EXIT THE SITE, ENTER A PUBLIC RIGHT-OF-WAY OR BE DEPOSITED INTO ANY WATER BODY OR STORM DRAINAGE SYSTEM.
- FOLLOWING A STORM EVENT, INSPECT AND ADJUST, REPAIR, IMPROVE OR REPLACE ALL DEFICIENT OR FAILING FACILITIES AND MEASURES.
- 10. PROTECT ALL FUNCTIONING STORM WATER INLETS AND CATCH BASINS FROM RECEIVING UNFILTERED SEDIMENT -LADEN RUNOFF.
- 11. REMOVE SEDIMENT AND DEBRIS FROM INLETS AND CATCH BASINS BEFORE PAVING. DO NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
- 12. STABILIZE ALL EXPOSED SOIL IMMEDIATELY FOLLOWING GROUND DISTURBING ACTIVITY.
- 13. STABILIZE AND PROTECT STOCKPILED SOIL WITH APPROVED MEASURES.
- 14. REMOVE EROSION AND SEDIMENT CONTROL FACILITIES AFTER THE PROJECT IS COMPLETED AND ACCEPTED.

SITE CONDITION	MINIMUM FREQUENCY
ACTIVE PERIOD	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOW MELT, IS OCCURRING. AT LEAST ONCE EVERY 14 DAYS, REGARDLESS OF WHETHER STORMWATER RUNOFF IS OCCURRING.
PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURE ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
INACTIVE PERIODS GREAT THAN FOURTEEN (14) CONSECUTIVE CALENDAR DAYS	ONCE EVERY MONTH
PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.
5. PERIODS DURING WHICH DISCHARGE IS UNLIKELY DUE TO FROZEN CONDITIONS	MONTHLY. RESUME MONITORING IMMEDIATELY UPON MELT, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.

ODEQ STANDARD ESCP NOTES:

- HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.8.C.I.(3))
- ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS. (SCHEDULE A.12.B AND SCHEDULE B.1)
- INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS. (SCHEDULE B.1.C AND B.2)
- 4. RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, THE ABOVE RECORDS MUST BE RETAINED BY THE PERMIT REGISTRANT BUT DO NOT NEED TO BE AT THE CONSTRUCTION SITE. (SCHEDULE B.2A.C)
- ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SCHEDULE A 8.A)
- 6. THE ESCP MUST BE ACCURATE AND REFLECT SITE CONDITIONS. (SCHEDULE A.12.C.I)
- SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. SUBMIT ALL NECESSARY REVISION TO DEQ OR AGENT WITHIN 10 DAYS. (SCHEDULE A.12 C.IV. AND V)
- PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SCHEDULE A.7.A.III)
- IDENTIFY, MARK, AND PROTECT (BY CONSTRUCTION FENCING OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SCHEDULE A.8.C.I.(1) AND (2))
- PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE-VEGETATE OPEN AREAS.
 RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR
 CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.A.V.)
- 11. MAINTAIN AND DELINEATE ANY EXISTING NATURAL BUFFER WITHIN THE 50-FEET OF WATERS OF THE STATE. (SCHEDULE A.7.B.I.AND (2(A)(B))
- 12. INSTALL PERIMETER SEDIMENT CONTROL, INCLUDING STORM DRAIN INLET PROTECTION AS WELL AS ALL SEDIMENT BASINS, TRAPS, AND BARRIERS PRIOR TO LAND DISTURBANCE. (SCHEDULE A.8.C.I.(5))
- 13. CONTROL BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND DOWNSTREAM CHANNELS AND STREAMBANKS. (SCHEDULE A.7.C.)
- 14. CONTROL SEDIMENT AS NEEDED ALONG THE SITE PERIMETER AND AT ALL OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION, BOTH INTERNALLY AND AT THE SITE BOUNDARY. (SCHEDULE A.7.D.I)
- 15. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SCHEDULE A.8.C.I.(6))
- 16. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES. TEMPORARY OR PERMANENT STABILIZATIONS MEASURES ARE NOT REQUIRED FOR AREAS THAT ARE INTENDED TO BE LEFT UNVEGETATED, SUCH AS DIRT ACCESS ROADS OR UTILITY POLE PADS.(SCHEDULE A.8.C.II.(3))
- 17. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS. (SCHEDULE A.8.C.I.(7))
- 18. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: CONSTRUCTION ENTRANCE, GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LAND- DISTURBING ACTIVITIES. (SCHEDULE A 7.D.II AND A.8.C.I(4))
- 19. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SCHEDULE A.7.D.II.(5))
- 20. CONTROL PROHIBITED DISCHARGES FROM LEAVING THE CONSTRUCTION SITE, I.E., CONCRETE WASH-OUT, WASTEWATER FROM CLEANOUT OF STUCCO, PAINT AND CURING COMPOUNDS. (SCHEDULE A.6)
- 21. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, FERTILIZER, PESTICIDES AND HERBICIDES, PAINTS, SOLVENTS, CURING COMPOUNDS AND ADHESIVES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(2))
- 22. IMPLEMENT THE FOLLOWING BMPS WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCHEDULE A.7.E.III.)
- 23. USE WATER, SOIL-BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND-BLOWN SOIL. (SCHEDULE A 7.A.IV)

- 24. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.9.B.III)
- 25. IF AN ACTIVE TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS. (SCHEDULE A.9.D)
- 26. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SCHEDULE A 7.B)
- 27. AS NEEDED BASED ON WEATHER CONDITIONS, AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPS MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS. (SCHEDULE A.7.E.II.(2))
- 28. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND BARE GROUND ACTIVITIES DURING WET WEATHER. (SCHEDULE A.7.A.I)
- 29. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SCHEDULE A.9.C.I)
- OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT AND BEFORE BMP REMOVAL. (SCHEDULE A.9.C.I)
- 31. CATCH BASINS: CLEAN BEFORE RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SCHEDULE A.9.C.III & IV)
- 32. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN-UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME. (SCHEDULE A.9.B.I)
- 33. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SCHEDULE A.9.B.II)
- 34. THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE. (SCHEDULE A.7.F.I)
- 35. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.T.F.II)
- 36. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, ALL TEMPORARY EROSION CONTROLS AND RETAINED SOILS MUST BE REMOVED AND DISPOSED OF PROPERLY, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. (SCHEDULE A.8.C.III(1) AND D.3.C.II AND III)



WOLF WATER RESOURCES, INC. 1001 SE WATER AVE. SUITE#180 PORTLAND, OR 97214 503.207.668

SHEET NO. ESC1.3



RENEWS: 6/30/2019



APPROX. AREA = 7.5 AC

Pounds of Pure Live Seed (PLS) PER ACRE

MULCH SHALL BE APPLIED WITH A BLOWER OR BY HAND.

APPLICATION RATE

TON PER ACRE.

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FINAL DESIGN DES

REVEGETATION PLAN TILLAMOOK, OR

JOB NO. 20170002 SHEET NO.

L1.1

1" = 500' (FOR 22" x 34" SHEETS)