



R & E Grant Application 13 Biennium

Project #:
13-103

Clatskanie Floodplain Complexity

Project Information

R&E Project Request: \$25,850.00
Match Funding: \$192,099.20
Total Project: \$217,949.20
Start Date: 3/15/2015
End Date: 6/15/2015
Project Email: tyler.joki@columbiaswcd.com
Project Biennium: 13 Biennium
Organization: Columbia Soil and Water Conservation District

Fiscal Officer

Name: Kari Hollander
Address: 35285 Millard Rd
St Helens, OR 97051
Telephone: 503-397-4555 x102
Email: kari.hollander@columbiaswcd.com

Applicant Information

Name: Tyler Joki
Address: 35285 Millard Rd
St Helens, OR 97051
Telephone: 503-397-4555 x104
Telephone 2: 503-397-4555 x100
Fax: 503-366-0864
Email: tyler.joki@columbiaswcd.com

Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

Project Summary

This project is part of ODFW's 25 Year Angling Plan.

Activity Type: Habitat

Summary: The Project is located on the Clatskanie River at approximately River Mile 5.5 just before the river becomes tidally influenced. During the 1996, the river avulsed into a nearby cattle field abandoning its historic network. In particular, the restoration

project would increase connectivity between the Clatskanie River main stem and 3,000 ln. ft of side channel, install 15 large wood structures, and restore 23-acres of the plant community. Currently, the off-channel habitat is only connected at extremely high flows and has no complexity. This will improve available rearing habitat for coho and restore spawning habitat for Chinook and chum.

Objectives: Reconnect Flow to 3,000 ln. ft of side channel habitat to improve the rearing and spawning habitat for coho and Chinook.

Fishery Benefits:

This project would have a direct benefit to fisheries by improving the juvenile production within the watershed and helping recover and restore populations of coho and Chinook. Current fish use at the site was measured by ODFW staff conducting monitoring efforts in the watershed. This project will provide critical habitat for rearing and spawning in a fragmented and patchwork landscape and increase productivity for each species meeting Goal 2, Strategy a of ODFW's 25 Year Angling Plan.

Table 1 Clatskanie River salmonid population estimates with confidence intervals based upon mark-recapture data from ODFW screw trap operated at the project site (Hemel 2012 & Hemel 2014)

Species...(Life Stage).....	2012.....	2013.....
.....	Estimate.....	C.I.(+/-).....
Coho.....(fry).....	71,075.....	24,280.....
Coho.....(smolts).....	36,850.....	9,068.....
Chinook...(fry).....	10,648.....	7,910.....
Steelhead.(>120 mm).....	5,826.....	5,155.....
Cutthroat.(160 - 249 mm).....	3,592.....	1,268.....
Cutthroat.(120 – 159 mm).....	773.....	670.....

**Watershed
Benefits:**

1. This has a specific benefit to the watershed by implementing key limiting factors highlighted in the 2010 Habitat Assessment Project
 - Lack of Large Woody Debris
 - Lack of Stream Complexity and Habitat Heterogeneity
2. Lower Columbia River Conservation and Recovery Plan for Oregon Populations of Salmon and Steelhead 2010 Table 5-5
 - Key Limiting Factor for Juvenile Salmonids: Physical habitat quality (impaired habitat complexity and diversity, including access to off-channel habitats) (p. 103)
 - Secondary Limiting Factor for Juvenile Salmonids: Water Quality (elevated water temperatures) (p. 103)

- Current Situation:** The current flow of the Clatskanie River is causing mass wasting along the unvegetated agricultural field on the South of the property along the left bank of the Clatskanie River. Due to lack of Floodplain connectivity, moderate to high flows are confined to the main stem channel, concentrating the force of the river along these vulnerable banks. Livestock are excluded from the floodplain site proposed for restoration and will be excluded from the vulnerable banks to allow plants to establish.
- Alternatives:** Several alternatives were considered. These include: Returning the flow back to it's historic, pre-96 main stem channel. This alternative was not selected due to difficult permitting feasibility, cost and lack of landowner desire. Restoring connection to side channels, AND stabilizing the banks of the main stem Clatskanie. This alternative was not selected due to high cost for bank stability practices on such a large scale for limited ecosystem benefit.
- Designer:** The project was designed by John Dvorsky M.S. and Jake Hoffeld P.E. of Waterways Consulting. Input on the design was solicited from Dave Stewart (ODFW), Tom Murtagh (ODFW) and Chris Homel (ODFW).
- Methods:** Construction Activities:
- An excavator will excavate a 25 ft wide by 2 ft deep channel that connects an existing side channel to the Clatskanie River. The channel connection point will occur at a large existing logjam diverting flow into the streambank.
 - An excavator will excavate a 20 ft wide by 1-ft deep section of floodplain to promote connectivity between secondary and tertiary channels
 - Install one logjam in the secondary channel to raise water surface elevations within channel and redirect 10% of flow to channel 1 and 2 side channels.
 - Logjam will be installed by an excavator and will consist of 4 rootwads and 6 logs. Logs and rootwads will be coniferous material and 40-ft long with an 18" to 36" DBH.
 - Logs will be buried or keyed in between existing trees or timber pilings as necessary to secure logs.
 - Install 11 LWD structures consisting of 3 to 4 logs and/or rootwads per structure with an excavator in the secondary and tertiary channels. Logs and rootwads will be of coniferous material and 40-ft long with an 18"-36" DBH.
 - LWD structures will be buried or keyed in between existing trees or timber pilings as necessary to secure the logs.
 - Logs will be transported from the staging area to their place of installation by a skidder
 - The Project Engineer/Hydrologist will be contracted to help guide installation.
 - Plant 1,150 4-ft conifer trees within the floodplain as appropriate to promote succession and increase streamside shade
 - Plant 1,025 2 to 3-ft deciduous trees within the floodplain to increase forest diversity and streamside shade
 - Plant 7,600 live stakes and 6,300 bare root shrubs to help increase diversity and suppress the reed canarygrass

- Install 600-wire cages around coniferous trees for beaver and elk protection
- Exclude cattle from 50-ft riparian buffer along eroding northwestern streambank of Clatskanie River
- Revegetate with fast growing species consisting of 200 trees, 356 shrubs and 2,000 live stakes to reestablish buffer and arrest bank erosion
- An excavator will grub out Himalayan blackberry during construction.
- Reed canarygrass will be stripped out as practicable within construction areas. In other areas, canarygrass will be mowed with a brush hog prior to planting.
- The reed canarygrass will be mowed with a large mower as possible and mowed by hand to promote establishment of the plantings.
- Herbivory protection will also be maintained and removed as it is no longer needed.

Project Management Activities:

- Work with consultants to finalize designs and submit permits.
- The project manager/ technical staff will put the project out for bid, select a qualified contractor, and develop appropriate contracts.
- The project manager and contracted engineering firm will direct the construction contractor regarding all earthwork, site prep and large wood installation.
- The project manager and fiscal staff will complete project and fiscal reporting requirement for the grant.
- The Project Manager will manage the revegetation contractor and inspect the work.
- Survey the site after installation of large woody debris to document site conditions and establish a baseline for changes in site conditions.
- Photo-points will be established for the site to document baseline conditions, project construction, and post-project conditions.

Inspector: Columbia SWCD Staff and John Dvorsky

Funding Elements: R&E funds will be used to purchase the materials used for large wood installations

Partners: Yes

Landowners - will exclude cattle from project and build riparian fence along pasture on the left bank of main stem Clatskanie.
Lower Columbia River Watershed Council - Technical assistance, construction oversight and assistance with planting implementation.
USFWS - Funding and permitting assistance
NRCS - Technical assistance for livestock management
OWEB - Funding assistance

Existing Plan: Yes

3. Lower Columbia-Clatskanie Watershed Assessment - the Clatskanie is a high priority for restoration/conservation due to good potential for response to habitat improvement and presence of multiple ESU salmonids (p. X-6)

4. Lower Columbia River Watershed Council Habitat Assessment Project 2009/10 recommendations

- Reach 2 - Priority for LWD placement in off-channel areas (Executive Summary p. 11)
- Reach 2 – Riparian planting enhancement priority (Executive Summary p. 11)

Affected Contacted: Yes

Affected Supportive: Yes

Affected Comments: This project has been under development for almost a decade going careful planning of different design iterations, permitting consultation and technical review, and landowner consensus. This design is the selected alternative that all landowners are comfortable with that can pass regulatory muster.

Project Schedule/Participants/Funding

Activity	Date	Participants
Finalize Design to 100%	1/1/2015	Waterways
Federal Permits Acquired	4/15/2015	SWCD
State and County Permits Acquired	4/15/2015	SWCD or LCRWC
Prepare Bid Solicitation and Specifications	3/15/2015	SWCD or LCRWC
Contracting	4/15/2015	SWCD
Materials Acquisition	6/15/2015	SWCD
Mobilization and Construction	8/30/2015	Selected Contractor
Construction Project Inspection	9/15/2015	Waterways and SWCD
Riparian Planting	2/15/2016	Selected Contractor
Planting Inspection	4/15/2015	SWCD or LCRWC
Planting Maintenance (2-3x Year as needed) 2016-2019	9/15/2019	Selected Contractor

Affected Species: Chinook Salmon
Chum Salmon
Coho Salmon
Steelhead

Project Permits

Name	Issued By	Secured?	Date Secured	Date Expected
JPA	USACE	No	1/1/0001	4/15/2015
Floodplain Development Permit	Columbia County LDS	No	1/1/0001	4/15/2015
GA	DSL	No	1/1/0001	4/15/2015

Project Monitoring

Organization	Address	Activity	Frequency
Columbia SWCD	35285 Millard Rd St Helens, OR 97051	Photo Points	Biennial for 5 years

Project Maintenance

Organization	Address	Activity	Frequency
Landowners	PO Box 14157 Portland, OR 97293	Monitor Plant Survival and Tree Protectors and conduct maintenance activities as needed	Annual
OWEB	775 Summer Street NE, Suite 360 Salem, OR 97301	Fund Plant Establishment. SWCD will contract with a company or individual capable of maintaining the project.	1 grant for 3 years

Project Match Funding

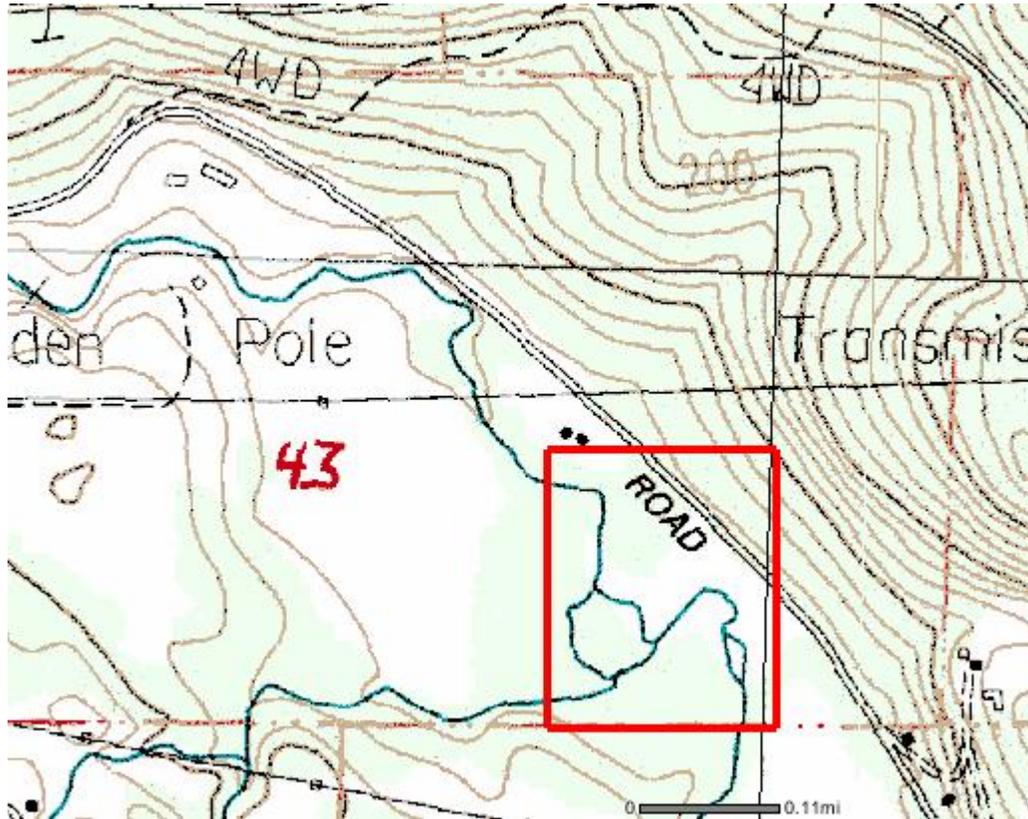
Funding Source	Cash	In-Kind	Other	Description	Total	Secured?	Conditions?	Comments
R&E Request	\$25,850.00	\$0.00	\$0.00		\$25,850.00	No	No	Cash for Materials Acquisition
Columbia SWCD	\$0.00	\$4,024.00	\$0.00		\$4,024.00	Yes	No	Time to help manage the project, do permitting, and oversee plant maintenance.
USFWS Partners Program	\$25,000.00	\$0.00	\$0.00		\$25,000.00	No	No	Cash towards overall project expenses
ODFW	\$0.00	\$450.00	\$0.00		\$450.00	Yes	No	Time for assistance with final permitting review and fish salvage.
OWEB	\$160,025.20	\$0.00	\$0.00		\$160,025.20	Yes	No	Must have 25% for OWEB funds
Landowner	\$0.00	\$2,600.00	\$0.00		\$2,600.00	Yes	No	Time and labor to install fencing and help maintain plantings.
				Total Match Funding:	\$217,949.20			

Project Budget

Item	Item Type	Units	Unit Cost	R&E Funds	Match Funds	Total
Administrative expenses	Administration	1	\$24,523.70	\$0.00	\$24,523.70	\$24,523.70
3 years of Plant Maintenance	Contracted Services	3	\$8,130.00	\$0.00	\$24,390.00	\$24,390.00
Dewatering	Contracted Services	1	\$5,000.00	\$0.00	\$5,000.00	\$5,000.00
Engineering Oversight	Contracted Services	134	\$135.00	\$0.00	\$18,090.00	\$18,090.00
Erosion and Sediment Control	Contracted Services	1	\$800.00	\$0.00	\$800.00	\$800.00
Grubbing & Creation of Access Routes	Contracted Services	1	\$7,000.00	\$0.00	\$7,000.00	\$7,000.00
Install Boulders	Contracted Services	74	\$50.00	\$0.00	\$3,700.00	\$3,700.00
Install Exclusion Fence	Contracted Services	800	\$2.00	\$0.00	\$1,600.00	\$1,600.00
Install Vertical Snag Logs	Contracted Services	12	\$250.00	\$0.00	\$3,000.00	\$3,000.00
Mobilization & Demobilization	Contracted Services	1	\$10,000.00	\$0.00	\$10,000.00	\$10,000.00
Place Logs	Contracted Services	43	\$350.00	\$0.00	\$15,050.00	\$15,050.00
Planting Installation	Contracted Services	16750	\$1.00	\$0.00	\$16,750.00	\$16,750.00
Project Management	Contracted Services	208	\$60.00	\$0.00	\$12,480.00	\$12,480.00
Side Channel Excavation	Contracted Services	581	\$8.00	\$0.00	\$4,648.00	\$4,648.00
Site Prep and Mowing	Contracted Services	5	\$1,000.00	\$0.00	\$5,000.00	\$5,000.00
ODFW Fish Salvage/Technical Assistance	Personnel	9	\$50.00	\$0.00	\$450.00	\$450.00
Post Implementation Reporting	Personnel	3	\$500.00	\$0.00	\$1,500.00	\$1,500.00
Project Management Oversight	Personnel	60	\$50.00	\$0.00	\$3,000.00	\$3,000.00
1 1/2" minus Aggregate	Supplies/Materials /Services	45	\$20.00	\$0.00	\$900.00	\$900.00
10 to 15 ft Vertical Log	Supplies/Materials /Services	12	\$250.00	\$3,000.00	\$0.00	\$3,000.00
15 Rolls of 300 ft Woven Wire Fence	Supplies/Materials /Services	15	\$200.00	\$0.00	\$3,000.00	\$3,000.00
2 stakes per cage	Supplies/Materials /Services	2850	\$0.40	\$0.00	\$1,140.00	\$1,140.00
25 to 30 ft Log	Supplies/Materials /Services	15	\$300.00	\$4,500.00	\$0.00	\$4,500.00
30 to 40 ft Rootwad	Supplies/Materials /Services	28	\$500.00	\$14,000.00	\$0.00	\$14,000.00
500 b Boulders	Supplies/Materials /Services	74	\$50.00	\$3,700.00	\$0.00	\$3,700.00
Bamboo stakes	Supplies/Materials /Services	2000	\$0.20	\$0.00	\$400.00	\$400.00
Bareroot Conifers	Supplies/Materials /Services	1050	\$2.50	\$0.00	\$2,625.00	\$2,625.00
Bareroot Deciduous Trees	Supplies/Materials /Services	1000	\$1.75	\$0.00	\$1,750.00	\$1,750.00
Bareroot Shrubs	Supplies/Materials /Services	4700	\$1.50	\$0.00	\$7,050.00	\$7,050.00
Herbivory Cage Construction	Supplies/Materials /Services	950	\$4.75	\$0.00	\$4,512.50	\$4,512.50
Live Stakes 3 ft	Supplies/Materials /Services	10000	\$1.00	\$0.00	\$10,000.00	\$10,000.00

Mulch	Supplies/Materials /Services	25	\$4.00	\$0.00	\$100.00	\$100.00
Native Seed	Supplies/Materials /Services	50	\$50.00	\$650.00	\$1,850.00	\$2,500.00
Smooth 4 Wire Exclusion Fence	Supplies/Materials /Services	800	\$2.00	\$0.00	\$1,600.00	\$1,600.00
Tree Guards	Supplies/Materials /Services	950	\$0.20	\$0.00	\$190.00	\$190.00
					Total Budget:	\$217,949.20

Project Map



Additional Files

Click a link to view that particular file.

[65% Design Set Clatskanie Floodplain Pg1-4](#)

[65% Design Set Clatskanie Floodplain Pg5-8](#)

[Landowner Letter of Support](#)

[ODFW Letter of Support](#)

[Signature Authorization](#)



Oregon

John A. Kitzhaber, M.D., Governor

Department of Fish and Wildlife

Northwest Region

17330 SE Evelyn Street

Clackamas, OR 97015-9514

(971) 673-6000

(971) 673-6070



November 6th, 2014

Tyler Joki
Columbia County SWCD
35285 Millard Road
St. Helens, OR 97051

Re: Clatskanie Floodplain Project

Mr. Tyler Joki,

The Oregon Department of Fish and Wildlife (ODFW) North Willamette Watershed District has worked closely with multiple partners, including the Columbia County SWCD and the Lower Columbia River Watershed Council, in the Clatskanie River basin, to improve and restore riverine habitat function for the benefit of multiple species of fish and wildlife. The Clatskanie River Stakeholders identified the lower reach of the Clatskanie River as a key area in need of stream restoration due to stream bank instability, erosion, channelization and, ultimately separation from the floodplain. These conditions significantly reduce survival and population health of all salmonids native to the Clatskanie River, including not only ESA listed coho salmon, chum salmon and fall chinook salmon, but important game fish like winter steelhead and sea run cutthroat trout, fish runs of keen interest to local anglers.

This project will restore 1,900 feet of mainstem habitat, 26 acres of the floodplain, and 4,000 feet of off-channel habitat located in a low gradient reach just above tidewater. This area is essential for providing a variety of habitat functions to multiple life histories of fish, including spawning, initial rearing and over winter refugia for juvenile salmonids not ready for intertidal transition. Stream habitat degradation is also identified as a Limiting Factor and Threat for the Clatskanie River in the Lower Columbia River Recovery Plan for ESA Salmonids (2013), and recognized by ODFW as a leading factor in suppressing natural production of native salmon and steelhead in the watershed. The project reach is also located in a Core Opportunity Area, a designation for habitat restoration in the ODFW adopted Oregon Conservation Strategy (2006). Additionally, the Clatskanie River, particularly this project reach, is a focus area for re-introducing chum salmon, an essential foundation species of fish extirpated from the Clatskanie River for over 40 years. The ODFW led Chum Salmon Project is working to improve stream function to the lower Clatskanie River for adult and juvenile chum releases in the near future. This project is a cornerstone to that effort.

ODFW is committed to restoring native fish runs in tributary rivers to the lower Columbia like the Clatskanie River to healthy levels where they can once again enrich natural stream processes and function, and ultimately provide for sport and commercial fisheries in the future. ODFW also feels strongly that the success in building this project will build on growing community support and trust in ODFW and the Stakeholders to address the bigger over-arching vision of restoring stream function to the entire Clatskanie River.

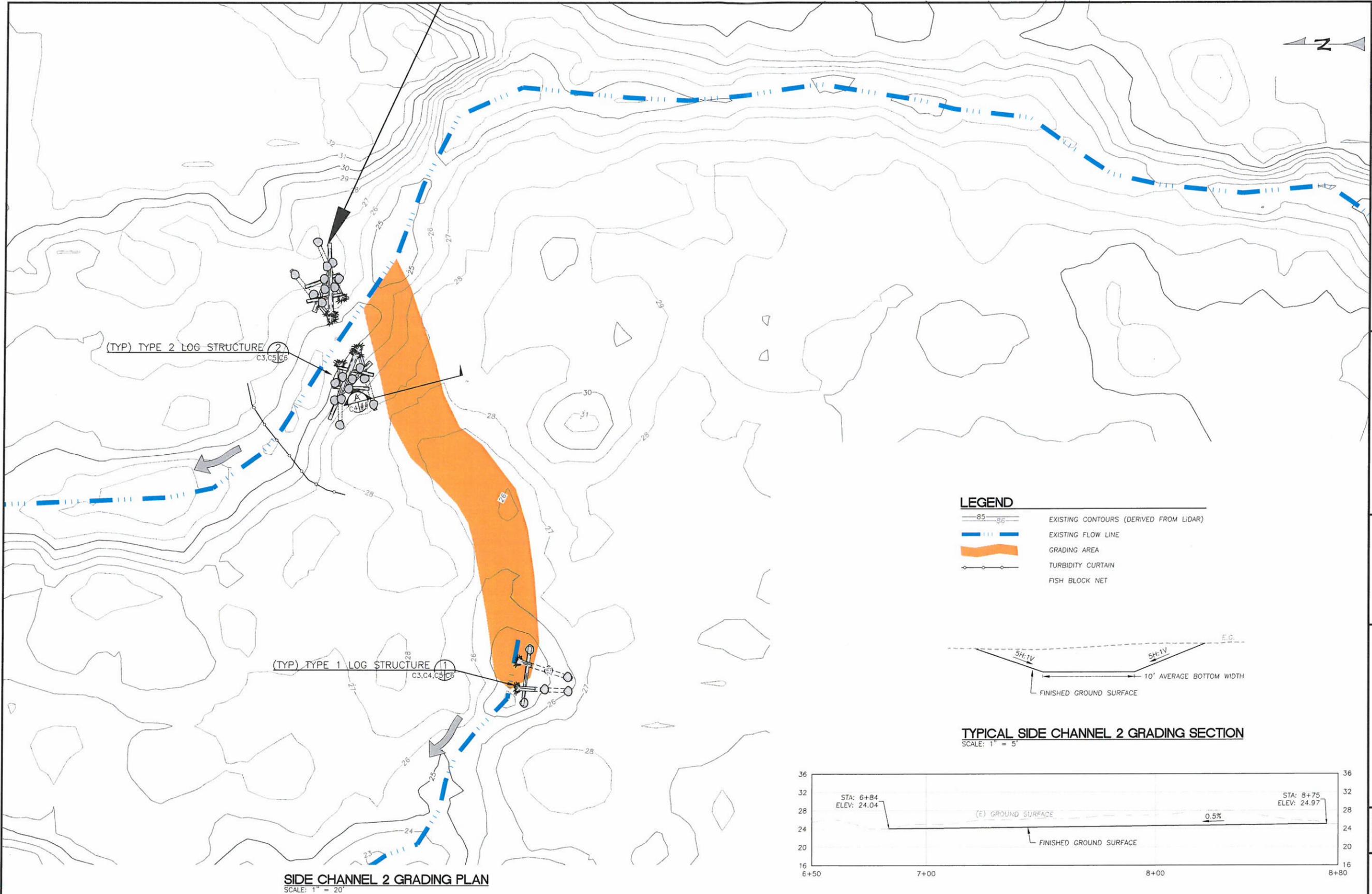
ODFW looks towards working closely with the Columbia County SWCD and the Stakeholders to provide technical assistance and guidance as this project moves forward. Please give me a call if you have any questions regarding ODFW's involvement and support for the Clatskanie Floodplain Project.

Sincerely,



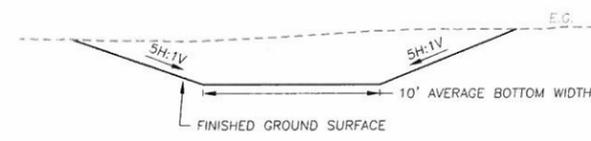
Tom Murtagh
ODFW District Fish Biologist – NWWD
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971-673-6044

Dave Stewart
ODFW District Stream Restoration Biologist
17330 SE Evelyn Street
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971-673-6044
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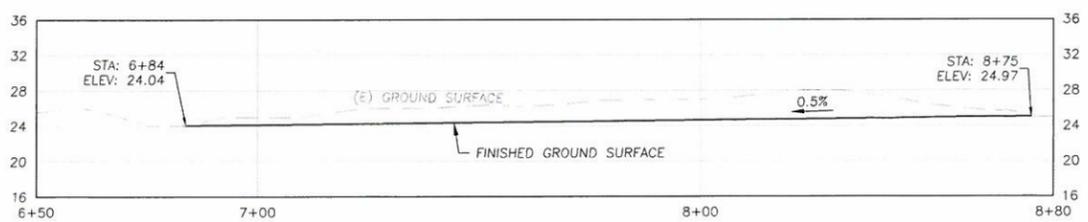


SIDE CHANNEL 2 GRADING PLAN
SCALE: 1" = 20'

- LEGEND**
- EXISTING CONTOURS (DERIVED FROM LIDAR)
 - EXISTING FLOW LINE
 - GRADING AREA
 - TURBIDITY CURTAIN
 - FISH BLOCK NET



TYPICAL SIDE CHANNEL 2 GRADING SECTION
SCALE: 1" = 5'



SIDE CHANNEL 2 GRADING PROFILE
SCALE: 1" = 20' (H); 1" = 10' (V)

WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 610
PORTLAND, OR 97205
PH: (503) 227-5979 // FAX: (888) 819-6847
WWW.WATWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION

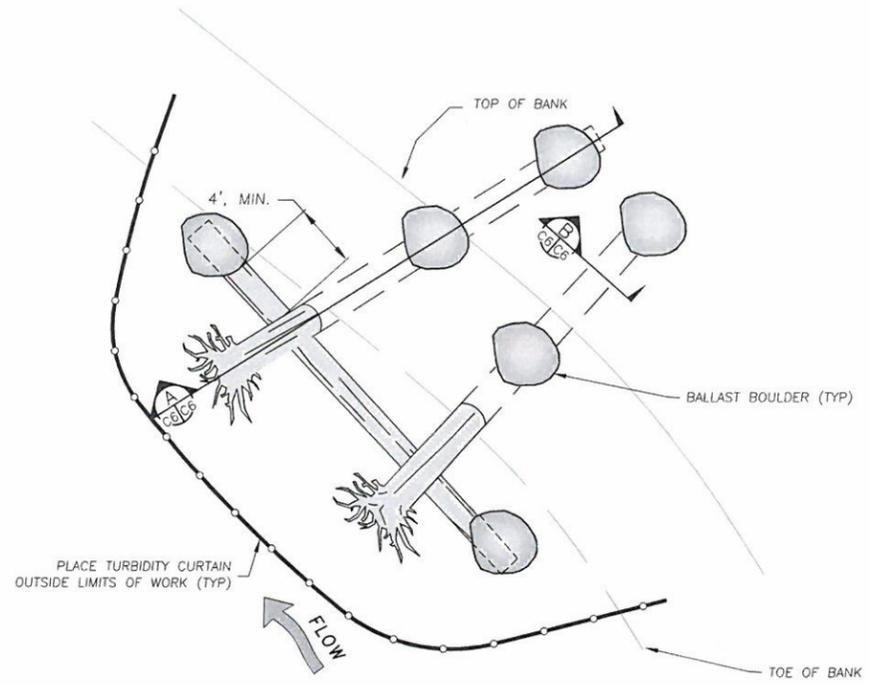
PREPARED AT THE REQUEST OF:
COLUMBIA SOIL AND WATER CONSERVATION DISTRICT

SIDE CHANNEL 2 GRADING PLAN AND PROFILE

LOWER CLATSKANIE FLOODPLAIN RESTORATION PROJECT
65% DESIGN SUBMITTAL

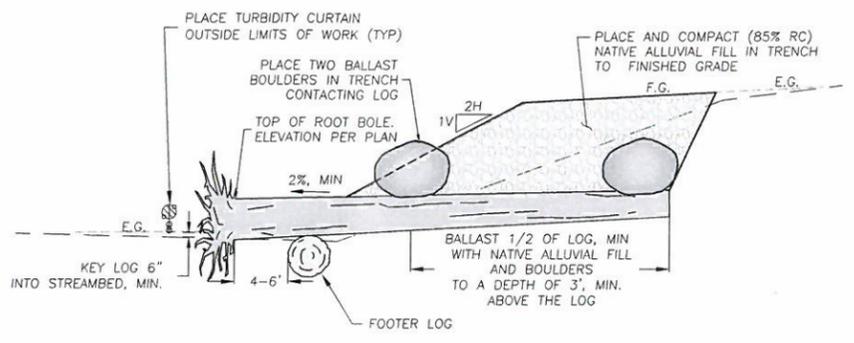
DESIGNED BY: J.D.H.
DRAWN BY: A.M.L.
CHECKED BY: M.W.W.
DATE: 04/18/14
JOB NO.: 13-040

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS

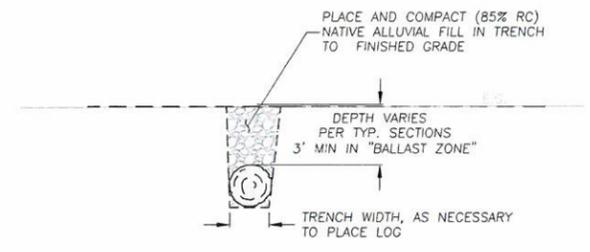


TYPICAL TYPE 1 LOG STRUCTURE PLAN
 SCALE: 1" = 5'
 C3,C4,C5,C6

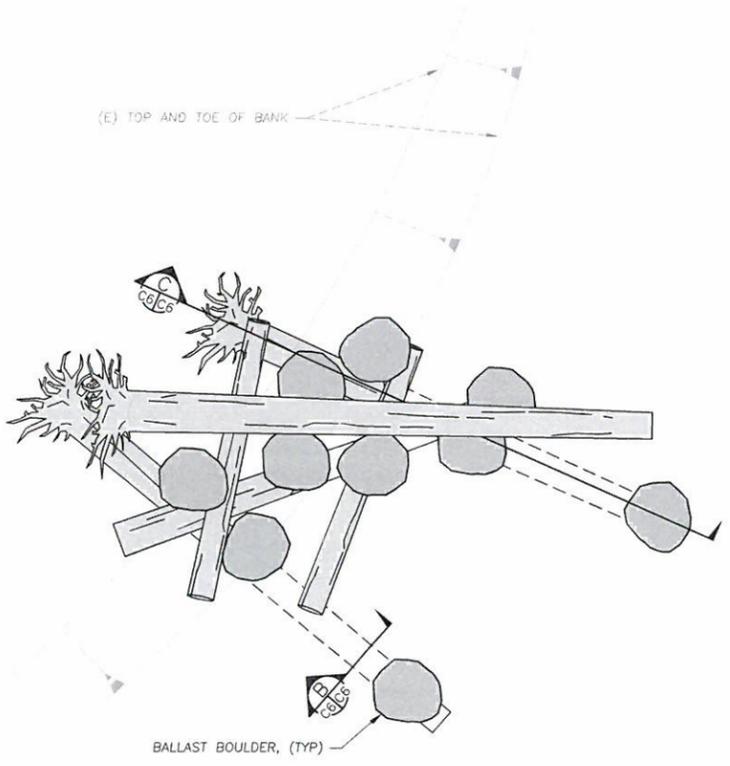
- NOTES:**
- SOME PUMPING MAY BE REQUIRED TO CONTAIN TURBID WATER WITHIN THE WORKING LIMITS. PUMPED WATER SHALL BE DISCHARGED THROUGH APPROPRIATELY SIZED FILTER BAGS AND DISCHARGED TO A NATURAL DEPRESSION ON THE ADJACENT FLOODPLAIN.
 - MATCH FINISHED GRADES TO ADJACENT UPSTREAM AND DOWNSTREAM EXISTING GRADES WHEN BACKFILLING THE LOG STRUCTURES.



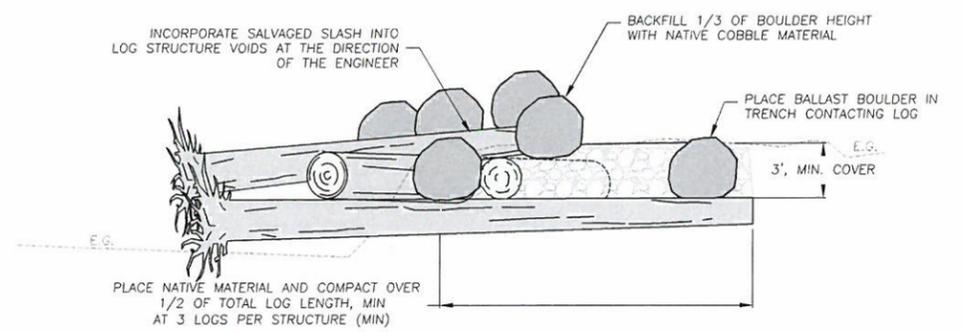
TYPICAL TYPE 1 LOG STRUCTURE SECTION
 SCALE: 1" = 5'
 A C6/C6



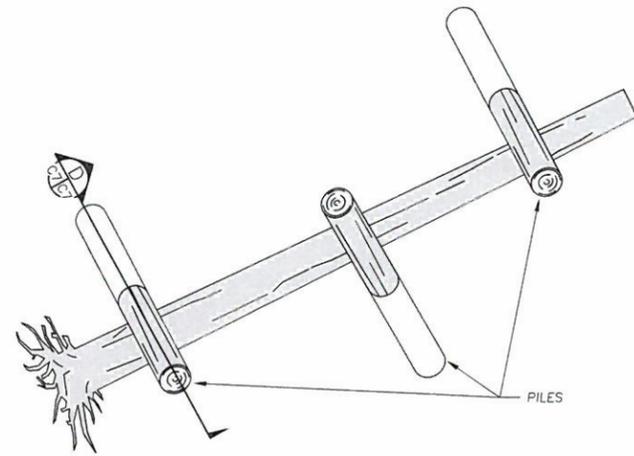
TYPICAL TRENCH SECTION
 SCALE: 1" = 5'
 B C6/C6



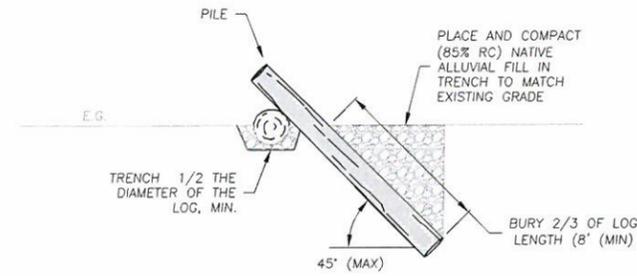
TYPICAL TYPE 2 LOG STRUCTURE PLAN
 SCALE: 1" = 5'
 C3,C5,C6



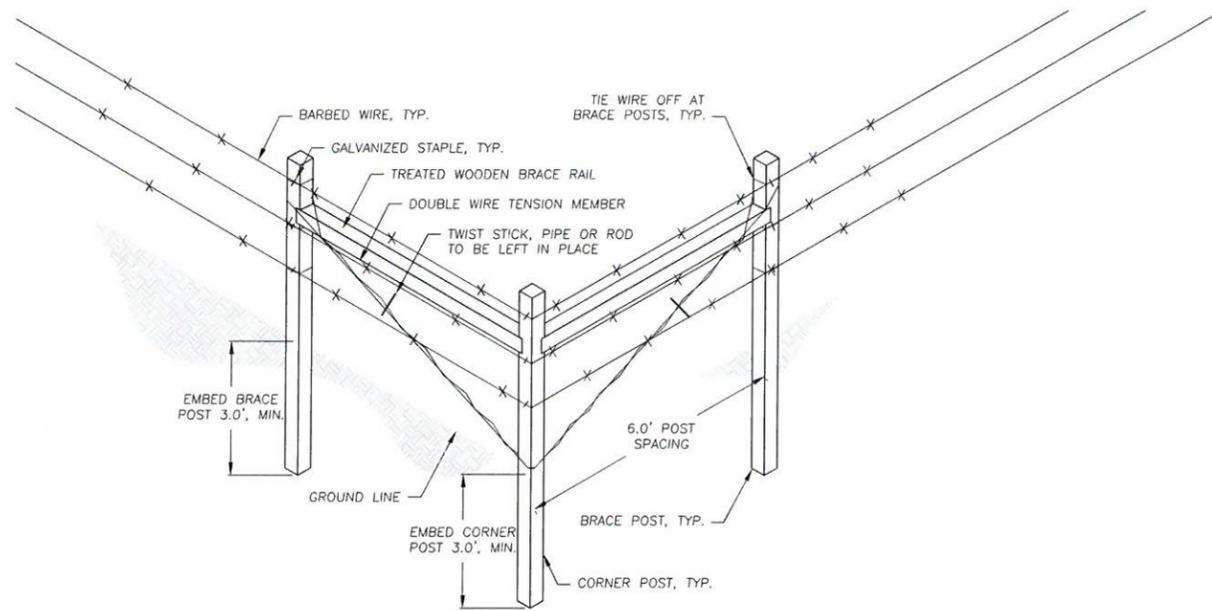
TYPICAL SECTION AT TYPE 2 LOG STRUCTURE
 SCALE: 1" = 5'
 C C6/C6



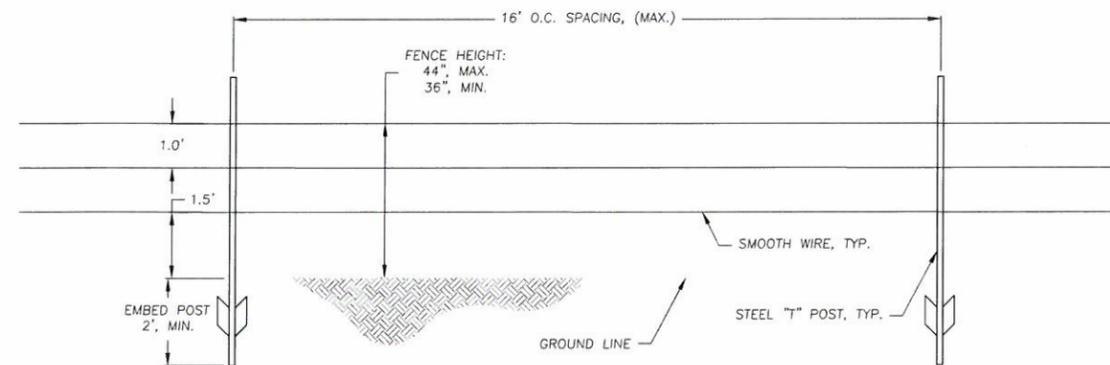
TYPICAL TYPE 3 LOG STRUCTURE PLAN (3)
SCALE: 1" = 5'
C3,C4,C7



TYPICAL SECTION AT TYPE 3 LOG STRUCTURE (D)
SCALE: 1" = 5'
C7,C7



FENCE BRACING DETAIL
SCALE: 1"=2'



SMOOTH WIRE FENCE DETAIL (4)
SCALE: 1" = 2'
C3,C7

FENCE NOTES:

1. STEEL "T" POSTS SHALL BE PAINTED OR GALVANIZED AND SHALL BE A MINIMUM OF 1.25 LBS PER FOOT OF LENGTH.
2. STEEL POSTS MUST BE SET AT SIGNIFICANT HIGH AND LOW POINTS ALONG FENCE TO MAINTAIN PROPER WIRE HEIGHT.
3. CORNER AND BRACE POSTS SHALL BE PRESSURE TREATED DOUGLAS FIR 4"x4" POSTS WITH SUFFICIENT LENGTH TO CONSTRUCT A 42 INCH HIGH FENCE WITH A MINIMUM OF 3 FEET OF EMBEDMENT.
4. BRACE RAILS SHALL BE PRESSURE TREATED DOUGLAS FIR 4"x4" POSTS, NOTCHED INTO THE TOP ONE-HALF OF THE CORNER AND BRACE POSTS. BRACE RAILS SHALL BE ATTACHED TO CORNER AND BRACE POSTS WITH TWO 20D GALVANIZED NAILS ON EACH SIDE.
5. SMOOTH WIRE SHALL BE 12.5 GAGE, 2-STRAND, AND GALVANIZED.
6. WIRE CLIPS OR FASTENERS MUST BE GALVANIZED AND SIMILAR TO STRENGTH OF FENCE WIRE.
7. STAPLES SHALL BE AT LEAST 9 GAGE GALVANIZED AND AT LEAST 1.5 INCHES LONG FOR SOFT WOOD (PINE), AND AT LEAST 1 INCH LONG FOR HARDWOODS.
8. FENCE BRACING IS REQUIRED AT ALL CORNERS AND MAJOR ANGLES IN THE FENCE.
9. A DOUBLE WIRE TENSION MEMBER SHALL BE CONSTRUCTED OF TWO COMPLETE LOOPS OF 12.5 GAGE, GALVANIZED SMOOTH WIRE EXTENDING FROM A POINT APPROXIMATELY 6 INCHES BELOW THE TOP OF POST TO GROUND LEVEL OF THE CORNER POST. WIRE IS THEN TWISTED WITH A PIECE OF WOOD, PIPE, OR ROD UNTIL WIRE IS TAUT AND ASSEMBLY IS RIGID.
10. WHEN SPLICING OF WIRE IS NECESSARY, THE "WESTERN UNION" SPLICE WILL BE RECOMMENDED. THIS SPLICE IS MADE BY OVERLAPPING THE ENDS EACH WIRE AND WRAPPING EACH WIRE FIVE TIMES AROUND THE OTHER WIRE.

PRELIMINARY
NOT FOR CONSTRUCTION

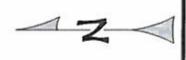
PREPARED AT THE REQUEST OF:
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LOG STRUCTURE AND OTHER DETAILS

LOWER CLATSkanie FLOODPLAIN RESTORATION PROJECT
65% DESIGN SUBMITTAL

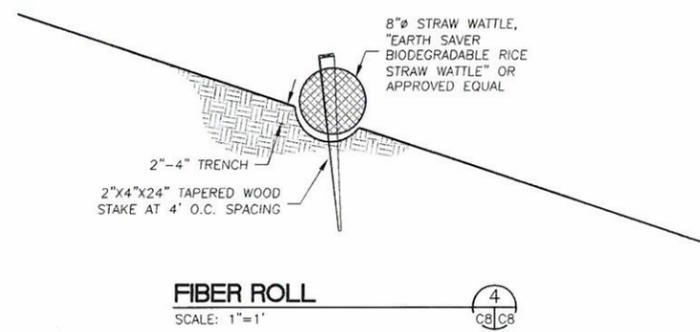
DESIGNED BY:
DRAWN BY:
CHECKED BY:
DATE: 04/18/14
JOB NO.: 13-040

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS
0 1"



- LEGEND**
- EXISTING CONTOURS (DERIVED FROM LIDAR)
 - EXISTING FLOW LINE
 - STAGING AREA
 - TEMPORARY ACCESS ROUTE
 - FIBER ROLL
 - NEW FENCE

EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 100'



WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 610
PORTLAND, OR 97205
PH: (503) 227-5979 // FAX: (888) 819-6847
WWW.WATERWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
COLUMBIA SOIL AND WATER
CONSERVATION DISTRICT

EROSION AND
SEDIMENT
CONTROL PLAN

LOWER CLATSKANIE
FLOODPLAIN RESTORATION
PROJECT
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DRAWN BY: A.M.L.
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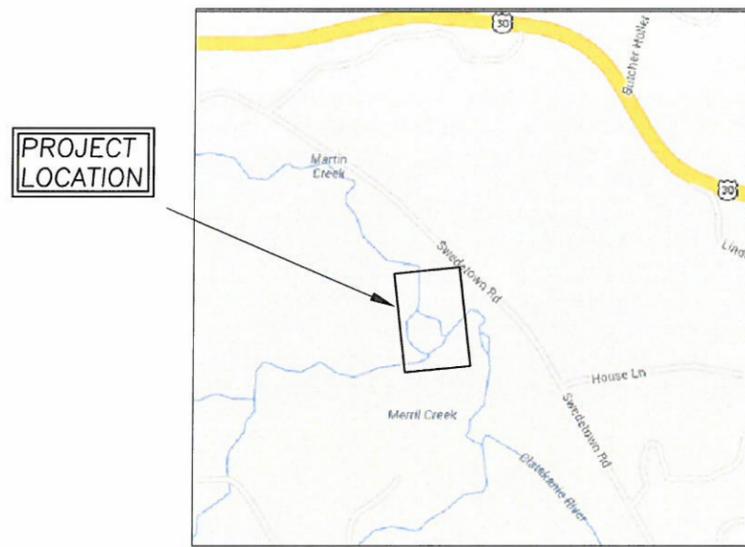
COVER SHEET

LOWER CLATSKANIE FLOODPLAIN RESTORATION PROJECT
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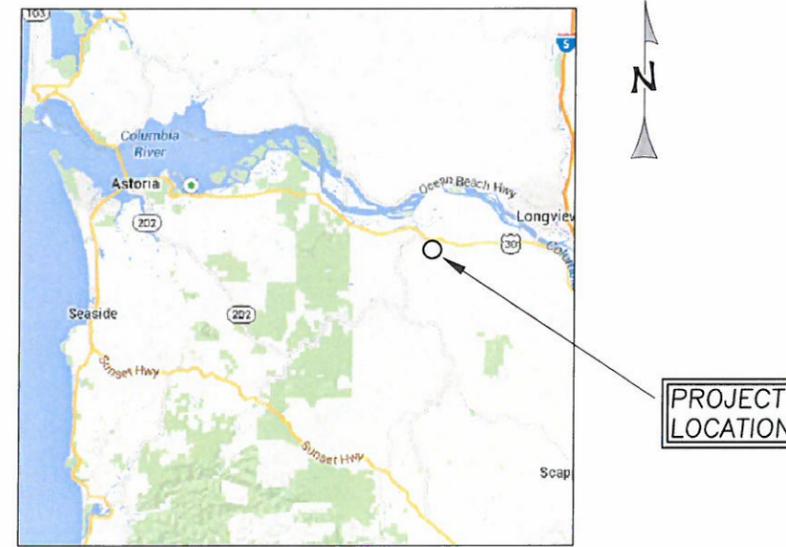
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 0 1" 1"

C1 1 OF 8



VICINITY MAP
 N.T.S. (GOOGLE)



REGIONAL MAP
 N.T.S. (GOOGLE)

SHEET INDEX

- C1 COVER SHEET
- C2 ACCESS AND STAGING PLAN
- C3 SITE PLAN
- C4 SIDE CHANNEL 1 GRADING PLAN AND PROFILE
- C5 SIDE CHANNEL 2 GRADING PLAN AND PROFILE
- C6 LOG STRUCTURE DETAILS
- C7 LOG STRUCTURE AND OTHER DETAILS
- C8 EROSION AND SEDIMENT CONTROL PLAN

GENERAL NOTES

- TOPOGRAPHIC MAPPING:
 LIDAR ACQUISITION PERFORMED BY WATERSHED SCIENCES, INC. FOR ARMY CORPS OF ENGINEERS. OVERSIGHT AND QUALITY ASSURANCE PERFORMED BY A VARIETY OF AGENCIES INCLUDING: DAVID C. SMITH & ASSOCIATES, INC., DAVID EVANS & ASSOCIATES, INC., AND CC PATTERSON AND ASSOCIATES.
- GROUND SURVEY PERFORMED AND PROCESSED BY:
 WATERWAYS CONSULTING, INC.
 SURVEY DATES: OCTOBER 10-11, 2013 AND NOVEMBER 8, 2013
1. ELEVATION DATUM FOR GROUND SURVEY: AN APPROXIMATE ELEVATION OF 18.13 AT SURVEY CONTROL POINT #2 (1/2"x24", REBAR) WAS PROVIDED BY COLUMBIA SOIL AND WATER CONSERVATION DISTRICT AND LOWER COLUMBIA ESTUARY PARTNERSHIP AS SHOWN ON SHT. C2.
 2. BASIS OF BEARINGS: BASIS OF BEARINGS BETWEEN POINTS #2 AND #4 IS S86°13'06.82"W, AS SHOWN ON SHT. C3.
 3. AERIAL PHOTO SOURCE:
 ESRI ArcGIS AND OTHERS
 DATE COLLECTED: JULY 8, 2010
 4. CONTOUR INTERVAL IS ONE FOOT. ELEVATIONS AND DISTANCES SHOWN ARE IN DECIMAL FEET.
 5. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES ARE NOT SHOWN HEREON.
 6. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE CURRENT EDITION OF THE OREGON DEPARTMENT OF TRANSPORTATION (ODOT) STANDARD SPECIFICATIONS (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").

ABBREVIATIONS

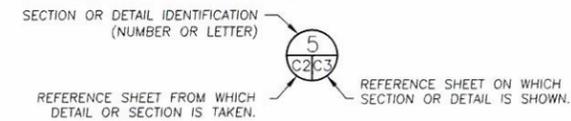
AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DIA.	DIAMETER
E	EXISTING
E.G.	EXISTING GROUND
ELEV.	ELEVATION
DI	DRAINAGE INLET
FG	FINISHED GRADE
FT	FEET
INV	INVERT
N	NEW
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
R.C.	RELATIVE COMPACTION
RSP	ROCK SLOPE PROTECTION
SHT	SHEET
SPK	SPIKE
SO.FT.	SQUARE FOOT
T	TREE
T.B.D.	TO BE DETERMINED
TYP	TYPICAL
UNK	UNKNOWN
WSE	WATER SURFACE ELEVATION
YR	YEAR

PROJECT DESCRIPTION

THESE DRAWINGS PROVIDE A 65% DESIGN SUBMITTAL FOR THE RESTORATION OF A FLOODPLAIN SITE ON THE LOWER CLATSKANIE RIVER OUTSIDE CLATSKANIE, OREGON.

WORK WILL INCLUDE EXCAVATION TO INCREASE HYDRAULIC CONNECTION WITH SIDE CHANNELS AND THE ADDITION OF LARGE WOOD THROUGHOUT THE PROJECT SITE.

SECTION AND DETAIL CONVENTION





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ACCESS AND STAGING PLAN

LOWER CLATSKANIE FLOODPLAIN RESTORATION PROJECT
65% DESIGN SUBMITTAL

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 DRAWN BY: A.M.L.
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C2 2 OF 8

LEGEND

	EXISTING FLOW LINE
	EXISTING GRAVEL ROAD
	STAGING AREA
	(N) TEMPORARY ACCESS ROUTE

ACCESS AND STAGING PLAN
 SCALE: 1" = 200'

- NOTES:**
- ALL DISTURBED AREAS (INCLUDING TEMPORARY ACCESS ROADS) SHALL BE RIPPED, SEEDED, AND MULCHED AT CONCLUSION OF WORK. SEED MIX TBD.
 - UTILIZE ONLY THE APPROVED ACCESS POINTS, AS SHOWN ON THE DRAWINGS. MATERIALS SHALL BE STOCKPILED WITHIN THE DESIGNATED STAGING AREAS OR AN EXISTING FLAT AND PREVIOUSLY DISTURBED AREA.
 - THE DOWN-SLOPE PERIMETER OF THE STOCKPILE AND STAGING AREAS SHALL BE CONTAINED WITH FIBER ROLLS.

LOG STRUCTURE NOTES

1. **PLACEMENT LOCATIONS:** LOG STRUCTURE DESIGNS ARE SHOWN CONCEPTUALLY DUE TO THE INHERENT VARIABILITY OF THE MATERIAL PROPERTIES. THE DESIGN REQUIRES THAT THE ENGINEER WILL OBSERVE CONSTRUCTION OF THE LOG STRUCTURES TO ENSURE THE INTENT OF THE DESIGN IS MET. OBSERVATIONS MUST INCLUDE LOG AND BOULDER SELECTION, PLACEMENT, AND BACKFILLING. ANY LOG STRUCTURES CONSTRUCTED WITHOUT THE ENGINEER PRESENT ON-SITE MAY RESULT IN REJECTION OF THE WORK BY THE ENGINEER.

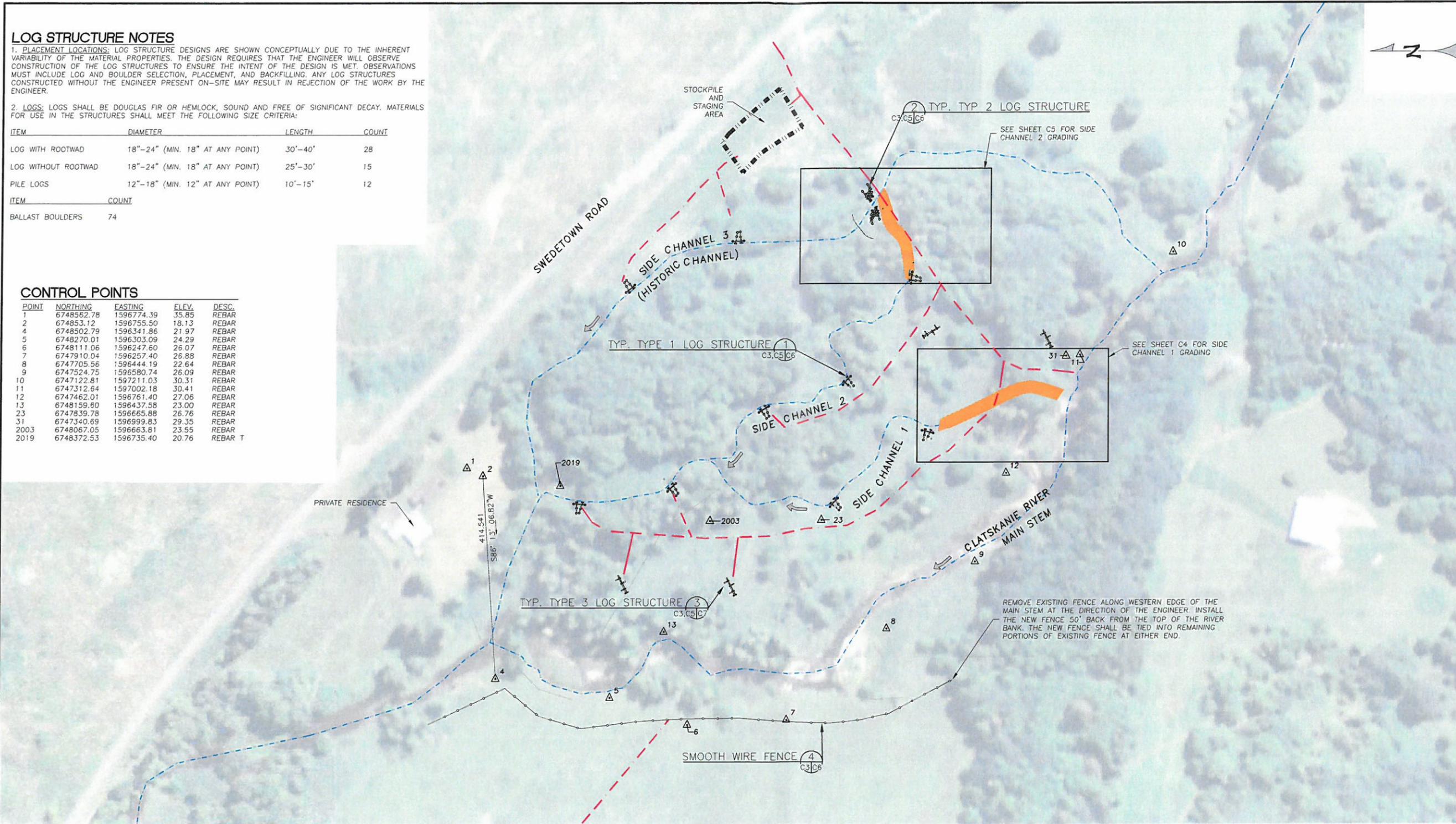
2. **LOGS:** LOGS SHALL BE DOUGLAS FIR OR HEMLOCK, SOUND AND FREE OF SIGNIFICANT DECAY. MATERIALS FOR USE IN THE STRUCTURES SHALL MEET THE FOLLOWING SIZE CRITERIA:

ITEM	DIAMETER	LENGTH	COUNT
LOG WITH ROOTWAD	18"-24" (MIN. 18" AT ANY POINT)	30'-40'	28
LOG WITHOUT ROOTWAD	18"-24" (MIN. 18" AT ANY POINT)	25'-30'	15
PILE LOGS	12"-18" (MIN. 12" AT ANY POINT)	10'-15'	12

ITEM	COUNT
BALLAST BOULDERS	74

CONTROL POINTS

POINT	NORTHING	EASTING	ELCV.	DESC.
1	6748562.78	1596774.39	35.85	REBAR
2	674853.12	1596755.50	18.13	REBAR
4	6748502.79	1596341.86	21.97	REBAR
5	6748270.01	1596303.09	24.29	REBAR
6	6748111.06	1596247.60	26.07	REBAR
7	6747910.04	1596257.40	26.88	REBAR
8	6747705.56	1596444.19	22.64	REBAR
9	6747524.75	1596580.74	26.09	REBAR
10	6747122.81	1597211.03	30.31	REBAR
11	6747312.64	1597002.18	30.41	REBAR
12	6747462.01	1596761.40	27.06	REBAR
13	6748159.60	1596437.58	23.00	REBAR
23	6747839.78	1596665.88	26.76	REBAR
31	6747340.69	1596999.83	29.35	REBAR
2003	6748067.05	1596663.81	23.55	REBAR
2019	6748372.53	1596735.40	20.76	REBAR T



SITE PLAN
SCALE: 1" = 100'

LEGEND

- EXISTING FLOW LINE
- CHANNEL GRADING AREA
- CONTROL POINT
- TEMPORARY ACCESS ROUTE
- EXISTING FENCE (NOT ALL FENCING IS SHOWN HEREON)
- NEW FENCE

NOTES:

1. ISOLATED PATCHES OF BLACKBERRIES SHALL BE CLEARED ALONG THE TEMPORARY ACCESS ROUTE AT THE DIRECTION OF THE ENGINEER.
2. LOG STRUCTURE LOCATIONS SHOWN ARE APPROXIMATE. FINAL LOG PLACEMENT AND LOCATIONS SHALL BE AT THE DIRECTION OF THE ENGINEER.
3. REMOVE ALL EXISTING FENCES BETWEEN SIDE CHANNEL 1 AND THE MAIN STEM AT THE DIRECTION OF THE ENGINEER.
4. REVEGETATION SHALL BE IMPLEMENTED PER PLANS BY OTHERS.
5. ALL EXISTING TREES SHALL BE PROTECTED USING ESA FENCING DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.

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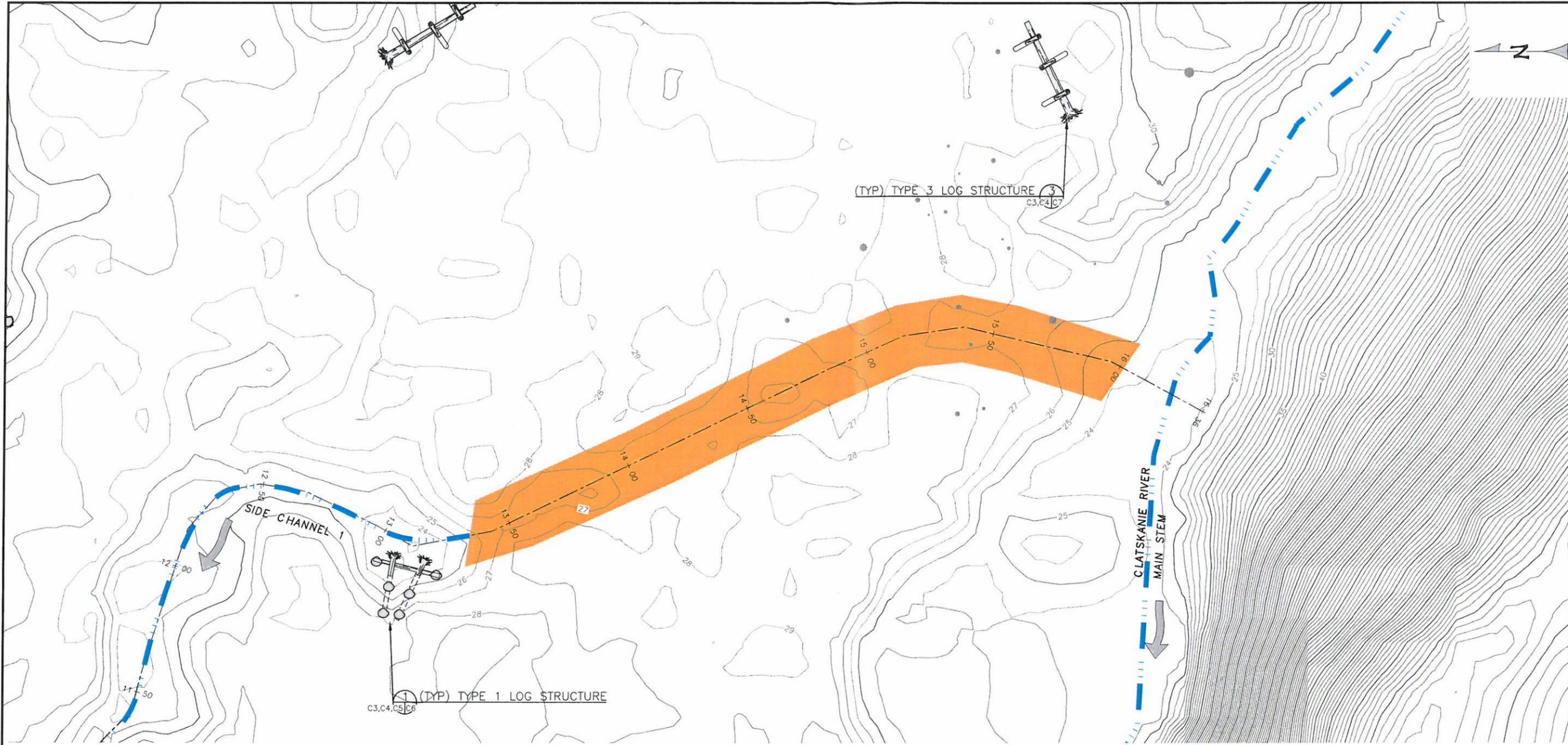
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SITE PLAN

**LOWER CLATSKANIE
FLOODPLAIN RESTORATION
PROJECT
65% DESIGN SUBMITTAL**

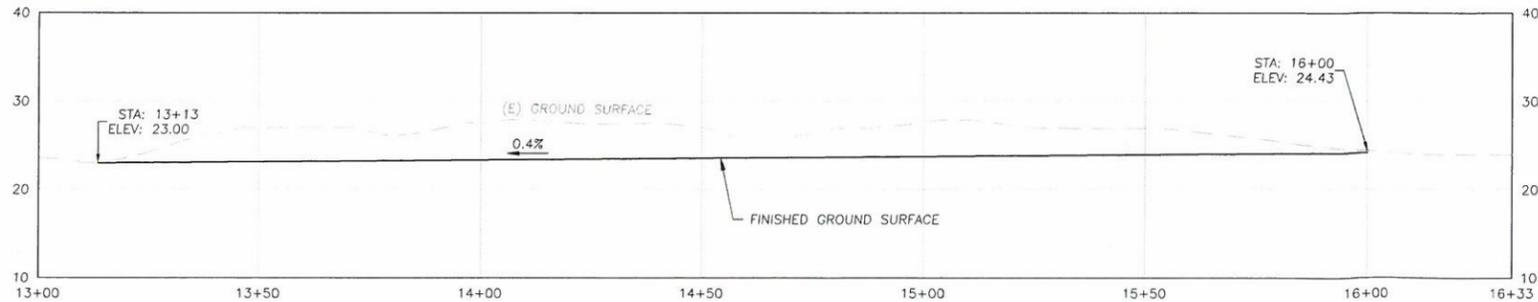
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0 1" 1"



SIDE CHANNEL 1 GRADING PLAN
SCALE: 1" = 20'

- LEGEND**
- EXISTING CONTOURS (DERIVED FROM LIDAR)
 - EXISTING FLOW LINE
 - GRADING AREA



SIDE CHANNEL 1 GRADING PROFILE
SCALE: 1" = 20' (H); 1" = 10' (V)



TYPICAL SIDE CHANNEL 1 GRADING SECTION
SCALE: 1" = 5'

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SIDE CHANNEL 1
GRADING PLAN
AND PROFILE

LOWER CLATSkanie
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ADJUST SCALES FOR
REDUCED PLOTS

NATURE'S ACRES FARM LLC

PO BOX 14157
PORTLAND, OR 97293

November 5th, 2014

Tyler Joki
Columbia SWCD
35285 Millard Rd
St. Helens, OR 97051

Subject: Clatskanie Floodplain Restoration Project

Dear Mr. Joki,

I am writing in support of the proposed project to restore connection to many of the historic side channels along the Clatskanie River property we own. We enjoy the outdoors, hunting and fishing, and believe that creating habitat on this section will increase the number of juvenile fish (who eventually grow into adults) within the Clatskanie River. We have enjoyed the interactions we've had with you, the watershed council, and ODFW staff in developing this project.

We believe that enabling projects such as this is our responsibility as stewards of this property. Our goal is for the property to transition into the hands of future generations as an ecologically diverse, well-managed parcel of land, with the wildlife and habitat as first priority. We are excited that our nine-year-old daughter lives, breathes, and dreams farm life and many of our dinner table conversations revolve around farm plans.

We are committed to maintaining the habitat created through this project, and look forward to working with you on it.

Sincerely,

Carl, Stephanie and Amelia Smith

Signature Authorization Page

I hereby make an application for financial assistance under the terms and conditions of the R&E Program as described in my project application.

I understand that if my project is approved for funding, the following will apply:

- All project sponsors must sign a grant agreement containing the terms and conditions on which funding will be released.
- Project expenses which occur before the grant agreement is signed or after the expiration date will not be paid by the R&E Program.
- Copies of all necessary permits must be submitted to the R&E Program.
- Project sponsors must certify compliance with local, state, and federal regulations and laws.
- Landowner, monitoring and maintenance agreements must be submitted to the R&E Program.
- Regular progress reports may be required, and at the end of each project a Completion Report must be submitted.
- Educational products resulting from projects are public domain.
- All information submitted to either party under this application is subject to the federal Freedom of Information Act.

Project Title: Clatskanie Floodplain Complexity

Applicant: Columbia SWCD

Date: 11/6/2014

Fiscal Officer:



Date: 11/7/2014