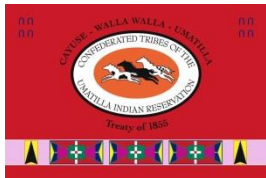


**Union Soil and Water Conservation District
Sponsor
Confederated Tribes of the Umatilla Indian Reservation
Grande Ronde Fish Habitat Project
Department of Natural Resources**

**Catherine Creek (CC44) Parcel 3
Fish Habitat Restoration Project
Southern Cross Conservation Property
59716 Highway 203, Union, OR 97883.**



Administrative Contact, USWCD Kathryn Frenyea (kfrenyea@unionswcd.org)

Administrative Contact, CTUIR: Julie A. Burke (julieburke@ctuir.org)
(541) 429-7292

Technical Contact: Allen Childs (allenchilds@ctuir.org)
(541) 429-7940

**Catherine Creek (CC44) Parcel 3 Fish Habitat Restoration Project
Southern Cross Conservation Property
Comparison of Master Proposal to Updated Design and Proposal**

The following describes changes and provides rationale for design and budget adjustments made by the project planning and design team for the CC44, Parcel 3 Fish Habitat Restoration Project on the Southern Cross Conservation Property. The original funding proposal was based on 30% design which was approved by the GRMW Board for FY2015 funding. The project sponsor, on behalf of the project team is requesting an increase in funding for the project to support implementation of a larger scope effort to increase spawning and rearing habitat.

Specifically, the Final Design prescribes increased main Catherine Creek channel construction to increase channel length and number of large pools, increased large wood along main channel, side channels, and floodplain wetland complexes, and increased side channel and peripheral habitat in the form of floodplain complexes to increase the overall availability of off-channel rearing habitat.

Project Purpose and Location

The purpose of the project is to protect, enhance, and restore spawning and rearing habitat for spring-summer Chinook salmon, summer steelhead, bull trout, and resident fishery resources, including freshwater mussels and Pacific lamprey.

The project is located along Catherine Creek with the Atlas Biological Significant Reach (BSR) CCCC3b1 which is identified as a high priority BSR with Tier 1 (highest priority) actions. The Phase 3, Parcel 3 Reach is located on the Southern Cross Ranch, recently conserved by fee acquisition through the CTUIR's Accord agreement with BPA. The purpose of the acquisition is to protect the property in perpetuity for the conservation and restoration of salmon and steelhead habitat. The property includes about $\frac{3}{4}$ of a mile of Catherine Creek and 68 acres of historic floodplain which was channelized and confined valley left in the early 1940's.

The project is located approximately 3 miles southeast of the City of Union, Oregon along Highway 203 (Medical Springs Highway) (T5SR40E, Sections 28 and 33) at RM44, 59716 Highway 203, Union, OR 97883.

The Construction Design Drawings and Technical Specifications can be accessed at Web Address: <http://data.ctuir.org/fisheries/>.

Scope of Work and Comparison to 2014 GRMW Funding Proposal

The project includes construction of approximately 4,200 linear feet of new main channel (including four confluences with the existing channel); construction/excavation of approximately 955 linear feet of perennial side channel; construction of approximately 425 linear feet of new ephemeral side channel; construction of approximately 1,425 linear feet of alcoves and spring channels; construction of approximately 9,200 linear feet of floodplain swale complexes; construction of 15 riffles in the main channel; construction of 142 main channel wood structure components; construction of approximately 570 linear feet of edge roughness; construction of approximately 1,075 feet of brush mattress; construction/placement of 336 floodplain roughness features (primarily large and small wood structures and whole trees); and the excavation of over 50,000 cubic yards of material (design quantity) over a two year construction period.

Design changes from 75% design to 100% design on the CC44, Parcel 3, Southern Cross parcel were incorporated to maximize adult spawning and juvenile rearing habitat uplift along an approximate 0.78 mile reach of mainstem Catherine Creek which was acquired in fee title through the CTUIR-BPA Accord for fish conservation purposes. The property presents the largest and most significant opportunity to expand, create, and enhance core spawning and rearing habitat for ESA spring-summer chinook salmon and summer steelhead within the Catherine Creek Atlas Tier 1 Biological Significant Reach, CCC3a1.

Key habitat elements incorporated into the design to facilitate habitat uplift:

--Incorporation of channel design criteria to facilitate stable channel form with decreased width to depth ratios, riffle cross sectional area, increased sinuosity with right radius pools and profile conducive to improving floodplain connectivity with activation of peripheral juvenile rearing habitat

--An increase in large wood complexes related to incorporation of different structures types along outside meander pools (Original BO and 75% counted meander wood as single units where 100% counts them as multiple units on each bend)

--Incorporation of floodplain roughness to encourage sediment deposition and riparian vegetation response

--Incorporation of edge roughness and brush mattress to maintain channel dimension and decrease streambank erosion and sediment delivery and provide rapid vegetation regrowth and bank cover

--Incorporation of peripheral habitat (floodplain complexes and side channels) to increase juvenile rearing habitat, wetland development and hyporheic connectivity

--No additional incidental take predicted associated with channel activation and decommissioning

CC-44 Parcel 3 Southern Cross Habitat Feature Comparison			
	30% Design	75% Design	100% Design
Main Channel (LF)	4900	5000	5000
Perennial Side Channel (LF)	2562	2575	2317
Ephemeral Side Channel (LF)	1228	0	425
Floodplain Swale Complexes (LF)	0	9219	9200
Alcoves and Spring Channels (LF)	1551	264	1425
Large Wood Complexes (EA)	50	25	142
Floodplain and Side Channel Wood Complexes (EA)	42	44	336
Channel Margin Roughness (LF)	Undecided	Undecided	570
Channel Bank Live Brush Bank (LF)	Undecided	Undecided	1075
Constructed Riffles (EA)	13	13	16
Boulder Complexes (EA)	4	4	4

Habitat uplift associated with the 100% design compared to the 30% design is expected to be significant. A combination of an increase in the planned Catherine Creek channel length, incorporation of additional large wood complexes in into meander pools, point bars, channel transitions, side channels and floodplain swales, increased peripheral habitat, and an increase in channel margin complexity are expected to more fully address habitat limiting factors and increase the overall capacity for spawning and summer-winter rearing habitat within the project area.

The increased quantities of channel and floodplain grading and large wood additions resulted in an estimated increased funding need from the original funding proposal from \$1.3 million to \$2.2 million. The project sponsor and planning team believe the increased investment is worth the habitat benefits as the project is located in a core reach of Catherine Creek, is located on a

property that is dedicated and protected in perpetuity for fish and wildlife, and opportunities in other reaches of the basin on private land are limited.

Project Timeline:

The Project is designed to be constructed in two stages.

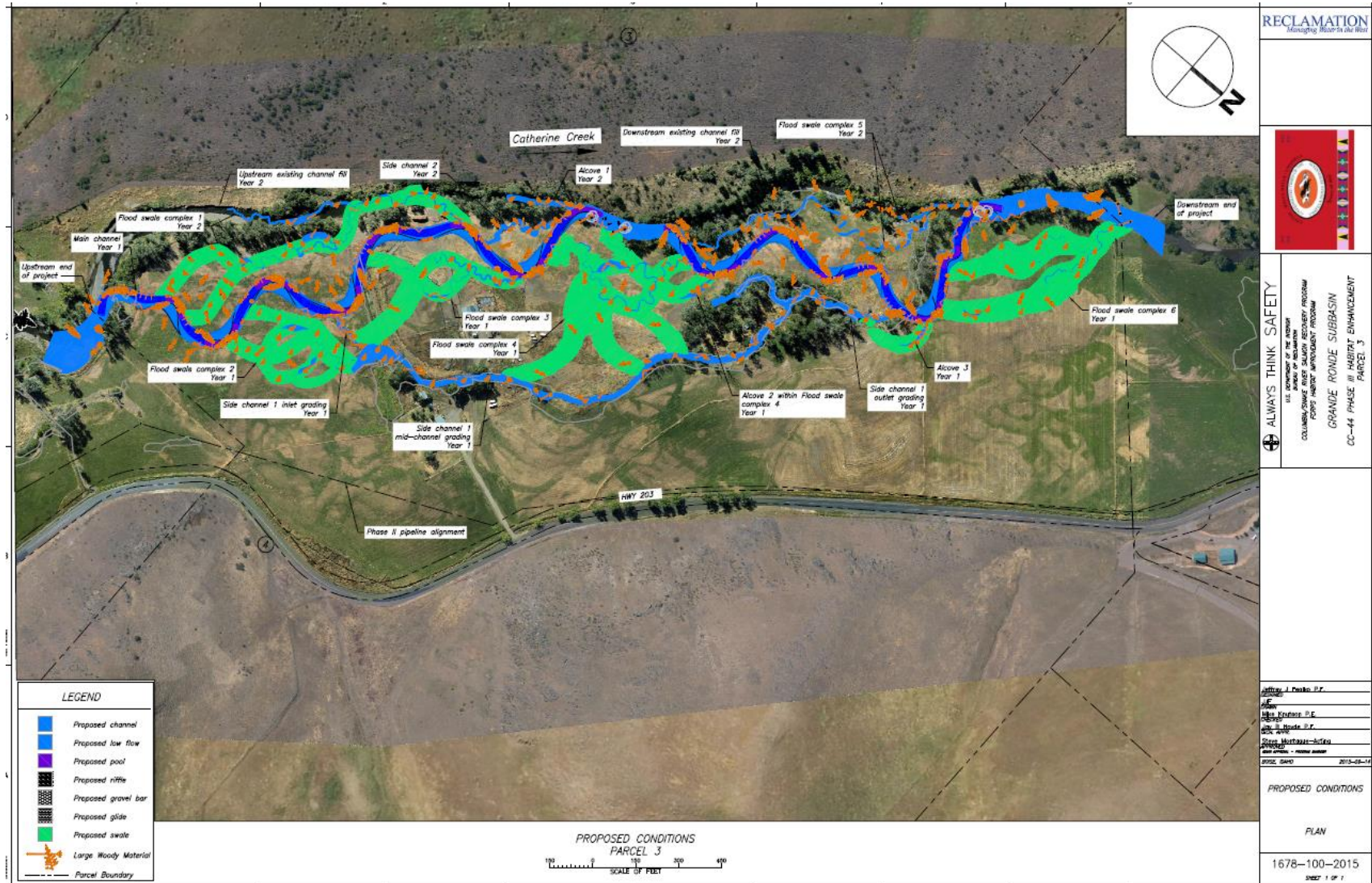
Year 1 Construction will be initiated in November 2015 and occur entirely in the dry, with no in-channel work. Work will consist of general site and access preparation, channel, side channel and floodplain swale excavation, installation of large wood structures and materials in constructed channels and floodplain, bridge installation, and site clean-up.

Year 2 Construction between June 1 and August 31, 2016 includes completion of channel construction, large wood structure installation, fish salvage, channel activation, channel reclamation and final site cleanup. In-water work will be confined to the ODFW designed in-water work window July 1, 2016 through August 15, 2016.

FY2016 GRMW-BPA Funding Proposal
Page 5



Attachment B: Project Overview



Attachment C: Itemized Budget, Fish Habitat Restoration Project (Year 1 and Year 2)

CC44 Parcel 3 Southern Cross FY2016 Budget (Year 2 Construction)				
Item	Description	Unit	Quantity	Amount
1	Mobilization and Demobilization	Lump Sum	1	\$25,000.00
2	Environmental Controls (SWPPP, ESC, Etc.)	Lump Sum	1	\$5,000.00
3	Temporary Haul Roads	Lump Sum	1	\$2,500.00
4	Temporary Access Road Stabilization	SQ YD	1000	\$5,000.00
5	Temporary Bridge Crossing	Each	2	\$80,000.00
6	Cofferdams and Temporary Diversion Dams	Lump Sum	1	\$25,000.00
7	Dewatering	Lump Sum	1	\$15,000.00
8	Site Clearing	Acre	10	\$15,000.00
9	Floodplain Excavation (includes SC1, SC2, ALC1, ALC3, SWC1 to SWC6)	CY	8671	\$52,026.00
10	Main Channel Excavation	CY	2667	\$16,002.00
11	Riffle Overexcavation	CY	-	Year 1
12	Riffle Material Screening	CY	-	Year 1
13	Riffle Construction	CY	-	Year 1
14	Excavated Material Placed and Compacted as Fill	CY	49314	\$123,285.00
15	In-Channel Habitat Boulders	Each	-	Year 1
16	Three-log Bank Roughness Element	Each	5	\$10,000.00
17	Tree Top Bank Roughness Element	Each	-	Year 1
18	Upstream Bend Component	Each	4	\$18,000.00
19	Middle Bend Component	Each	2	\$8,000.00
20	Downstream Bend Component	Each	2	\$10,000.00
21	Small Apex Jam	Each	1	\$3,000.00
22	Large Gravel Bar Tree	Each	7	\$7,000.00
23	Side Channel 1 Inlet Structure	Each	-	Year 1
24	Streambank Habitat Structure	Each	4	\$22,000.00
25	Sweeper Log Structure	Each	2	\$4,000.00
26	High Energy Bank Structure	Each	1	\$5,500.00
27	Onsite Walnut Tree Placement	Each	4	\$4,000.00
28	Large Apex Jam	Each	1	\$6,500.00
29	Bank Log with Boulders	Each	2	\$1,400.00
30	Edge Roughness	LF	105	\$7,875.00
31	Brush Mattress	LF	695	\$34,750.00
32	Two-log Floodplain Roughness Element	Each	100	\$90,000.00
33	Single Log With Rootwad on Floodplain	Each	24	\$14,400.00
34	Tree Top With Branches on Floodplain	Each	100	\$60,000.00
35	Tree Top Floodplain Roughness Element	Each	78	\$70,200.00
36	Large Racking Member (12"-8")	Each	50	Year 1
37	Small Racking Member (8"-4")	Each	50	Year 1
38	Slash Material	CY	1000	\$15,000.00
39	Straw Mulch	Acre	20	\$15,000.00
40	Site Cleanup	Lump Sum	1	\$5,000.00
41	Sod Salvage, Maintain, and Transplant	Cubic Yard	2264	\$18,112.00
42	Track Hoe (300 Series)	Hours	20	\$3,700.00
43	Track Hoe (200 Series)	Hours	80	\$12,800.00
44	Dozer (D5 or D6)	Hours	60	\$10,800.00
45	Dump Truck (Off-road)	Hours	40	\$7,400.00
46	End Dump (30-Foot)	Hours	20	\$2,300.00
YEAR 2 CONSTRUCTION BUDGET				\$830,550.00