Application Name: Chicken Creek Restoration Project

By: Grande Ronde Model WS Foundation

Offering Type: Upper Grande Ronde Initiative

Application Type: Restoration

OWEB Region: Eastern Oregon
County: Union
Coordinates: 45.062921,-118.40115

Applicant:
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Project Manager:
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Budget Summary:
OWEB Amount Requested: $0
Total Project Amount: $0

Administrative Information

Abstract

Provide an abstract statement for the project in 250 words or less. Include the following information: 1) Identify the project location; 2) Briefly state the project need; 3) Describe the proposed work; 4) Identify project partners.

The Chicken Creek Restoration Project is located on Chicken and West Chicken Creeks, tributaries to Sheep Creek. The project is located on 2 miles of Chicken and West Fork Chicken Creeks (starting at approximate RM 3). The project is located within Upper Grande Ronde River (1706010401); Chicken Creek (170601040104) watersheds. Chicken Creek is spawning and rearing habitat for Snake River Basin summer steelhead, Snake River Basin spring chinook salmon, bull trout and redband trout. Historic beaver trapping, grazing, and roading created a laterally confined channel, with limited floodplain interaction and diminished deciduous vegetation. The project would prioritize LWD placement to add roughness, increase floodplain interaction and habitat complexity, and promote out of channel flooding. It is expected that the project will promote longer periods of hydrologic production, decreased stream temperatures, and increased riparian deciduous vegetation. The project would place wood within 2 miles of Chicken and West Chicken Creeks, limit access to the stream at one dispersed recreation site, and plant 5,000 deciduous seedlings and 10,000 cuttings. Project partners include: Grande Ronde Mode Watershed, Bonneville Power Administration, and the US Forest Service.

Location Information

What is the ownership of the project site(s)?

✓ *Public land (any lands owned by the Federal government, the State of Oregon, a city, county, district or municipal or public corporation in Oregon)*

What agency(ies) are involved?

United States Forest Service

❑ *Private (land owned by non-governmental entities)*

❑ *This grant will take place in more than one county.*

Permits

Other than the land-use form, do you need a permit, license or other regulatory approval of any of the proposed project activities?

● Yes
❍ No

For Details Go to Permit Page

Racial and Ethnic Impact Statement

Racial and Ethnic Impact Statement

❍ The proposed grant project policies or programs could have a disproportionate or unique POSITIVE impact on the following minority persons. (indicate all that apply)

❍ The proposed grant project policies or programs could have a disproportionate or unique NEGATIVE impact on the following minority persons. (indicate all that apply)

● The proposed grant project policies or programs WILL HAVE NO disproportionate or unique impact on minority persons.

Insurance Information

❑ *Working with hazardous materials (not including materials used in the normal operation of equipment such as hydraulic fluid)*

❑ *Earth moving work around the footprint of a well*

❑ *Aerial application of chemicals*

❑ *Transporting individuals on the water*

❑ *Removal or alteration of structures that hold back water on land or instream including dams, levees, dikes, tidegates and other water control devices (this does not include temporary diversion dams used solely to divert water for irrigation)*

❑ *Applicant's staff or volunteers are working with kids related to this project (DAS Risk assessment tool not required, additional insurance is required)*

❑ *Applicant's staff are applying herbicides or pesticides (DAS Risk assessment tool not required, additional insurance is required)*

Additional Information

❑ *This project affects Sage Grouse.*

Problem Statement

Describe the watershed problem(s) that this restoration project seeks to address.

Overall Problem: Chicken and West Chicken Creeks and its meadow habitats are not in proper functioning ecological condition (hydrologic, geomorphic, vegetative composition), due to historic management that included beaver trapping, over grazing, logging, road building, and an altered fire regime.

Sub-problem 1 - Floodplain form and function

The Chicken and West Chicken Creeks floodplain have limited water capture and retention capacities due to past anthropogenic influences. These deficiencies have lowered ground tables. This has resulted in lower riparian vegetation survival and vigor, a decreased ability to store water and buffer water temperature, less connection to the floodplain to moderate in-channel velocity, and lower quality salmon habitat. Lack of floodplain form and function has resulted in a:

* decrease in water storage and meadow/wetland habitats, resulting in drier site and mesic-site species encroachment. Drier habitats are less conducive to riparian deciduous woody vegetation species (Populous and Salix) that are important food and habitat for beaver populations..

* potential increase of in-stream water temperatures from decrease in groundwater recharge, which can be problematic for salmonids.

* increase of in-channel velocity where the channel has downcut, and doesn't spread water out onto the floodplain during high flows. The process of downcutting causes vertical erosion, which increases fine sediment levels and decreases habitat complexity.

* decrease in the amount of zero velocity habitat, which provide juvenile salmonids protection, temperature buffering, food sources and feeding areas, and resting areas.

Sub-problem 2 - Fish habitat complexity:

Chicken/West Chicken Creek's fish habitat complexity (cover, pool quality/quantity, zero velocity habitat, and spawning gravel recruitment) is limited.

* Channel incision and lack of instream woody material has affected the quantity and quality of spawning, rearing, and overwintering habitat in Chicken/West Chicken Creeks.

How have past or current land management practices contributed to the problem?

Historic trapping, overgrazing, logging, road building, and an altered fire regime have degraded Chicken Creek/West Chicken Creeks watershed's ecological form and function. The loss of functional meadow and stream habitat adversely effects the survival and rearing of native salmonids, other fish, and wildlife species.

Beaver trapping pressure in the 19th Century almost caused extirpation of this species in the western United States. The decrease in beaver populations on Chicken/West Chicken Creeks has contributed to channel incision, decreased habitat complexity, altered vegetative communities, and an altered flow/temperature regime. Beaver serve as ecological engineers by building dams that decrease the velocity of peak flows and spread flows out over longer periods of time. This increase of water retention time decreases erosive forces that cause stream incision.

Higher levels of surface and subsurface water retention expands riparian and wetland habitat along the stream. As beaver move in and out of systems, numerous side channels often form, and more woody vegetation ends up in the stream. This leads to increased habitat complexity for fish and wildlife.

Historic overgrazing of sheep and later cattle reduced deciduous vegetation communities around Chicken/West Chicken Creeks. Overgrazing has also caused bank erosion, channel overwidening, and soil compaction. This has caused vertical erosion and channel incision. Channel incision has altered the Chicken Creek system by lowering streambeds and groundwater tables causing a further decrease in riparian vegetation. Currently, the stream is excluded from domestic livestock grazing for five years after project implementation. However, wild ungulate (elk and deer) browsing pressure is high in areas along Chicken/West Chicken Creeks.

Historic logging practices caused a variety of problems in the Upper Grande Ronde watershed. The removal of wood from the system likely resulted in less in-stream large woody debris (LWD). Part of the Chicken Creek Basin is likely affected by this issue. It is important to note that the meadow reaches of the stream may not have had a large amount of large diameter wood historically, but did have abundant small diameter wood and beaver dams/lodges.

High densities of roads near Chicken/West Chicken Creeks and its meadows have likely caused a variety of compounding problems. Impermeable road surfaces increase the rate of overland flow. This affects the timing and volume of flow in downstream areas of the watershed. Roads that are built on the sides of meadow systems (which is the case on sections of Chicken Creek) often result in long-term soil compaction. The soil compaction can lead to a reduction in water holding capacity and infiltration into nearby meadow systems.

Altered natural and human ignited fire (Native American and sheep herders) regimes due to 20th century fire suppression have likely affected the vegetative, hydrologic, and geomorphic processes of montane meadow systems like Chicken Creek. Less frequent intense wildfires are more likely to have negative effects on meadows (erosion in uplands) than more frequent low-intensity fires. Historically, naturally caused and human ignited low intensity fires were likely more common. Conifer encroachment due to lack of regular fire intervals has caused dense under and mid-story fir/pine species on the edges of meadows and in some cases all the way up to the Chicken Creek streambank. This early stage forest ecosystem dynamic increases competition for large tree regeneration, and contributes to meadow water loss through evapotranspiration.

The restoration of Chicken/West Chicken Creeks' form and function will address a combination of these interrelated problems through a physical approach to creek and meadow restoration.

Does this project address one or both of the following:

✓ *Habitat needs for one or more Endangered Species Act-listed species and/or species of concern*
❑ *Concerns identified on 303(d) listed streams*
❑ *No*

Proposed Solution

Goals and Objectives

Provide a goal statement for this restoration application.

Overall Goal: To achieve proper ecological form and function of Chicken/West Chicken Creeks and its meadows, and thereby restore habitat for the imperiled Snake River Basin Spring/Summer Chinook and Snake River Basin Steelhead.

Subgoal 1: Physical - Restore Hydrologic Function
In the meadow reach (Rosgen channel type C and E), increase hydration of laterally confined channel to improve groundwater retention. Use Large Woody Debris (LWD) to restore stream grade, reduce hydraulic efficiencies, and increase floodplain meadow inundation time. LWD structures will be placed in locations to increase roughness and back up water. Restoring hydraulic form and function will facilitate an increase in floodplain water storage, flow attenuation, and spring and seep connection. Longer periods of floodplain inundation will moderate extreme high and low seasonal temperatures. Instream LWD structure types designed to meet these goals include channel spanning structures and floodplain wood.

Subgoal 2: Biological - Improve Fish Habitat
Restore channel habitat complexity. Existing LWD fish habitat structures constructed in 2014 will be modified, and additional whole trees will be placed. These structures will enhance scour pool habitat, cover, and floodplain connection. The structures will increase hydraulic complexity and zero velocity refugia on active channel margins. This will facilitate water retention, gravel deposition and sorting, and LWD recruitment. LWD structure types designed to meet fish habitat goals include: adding large wood to existing habitat structures; channel spanning structures to back water into pool habitat, and whole tree placements to provide fish cover.

List the objectives of this restoration application.

Hypothesis 1: If channel spanning wood structures using trees and racking material are constructed in strategic locations to slow down and back up stream flows then:

- 2 years post implementation: 30% more of the floodplain will be inundated in the late summer season (July 20-September 1) than in 2017-18
- Water storage will be quantified in terms of acres of inundated floodplain using drone technology.

Strategy and Objectives 1: Mimic beaver dam function at pool tails and in areas where accessible side channel habitats exist by constructing channel spanning wood structures to:
- Deflect water into the floodplain for groundwater storage (hyporheic activity) and off channel fish habitat.
- Back water into existing fish habitat structures.
- Recruit fluvially sorted wood.
- Promote gravel deposition and spawning gravel recruitment.
- Recruit deciduous vegetation by increasing groundwater storage.
- Improve habitat for future use by beaver populations.
- Decrease conifer encroachment in Chicken Creek.

Hypothesis 2: See hypothesis 1

Strategy and Objectives 2: Restore floodplain function by placing floodplain wood to:

- Deflect, retain, and capture water once it reaches the floodplain.

- Recruit deciduous vegetation through groundwater storage.
- Improve habitat for future use by beaver populations.

No hypothesis will be tested for objectives 3.

Strategy and Objectives 3: Place whole trees to:

- increase habitat complexity .
- fish cover.

Hypothesis 4: If boulders are placed around the dispersed recreation site then:

- large vehicles will no longer be able to access the downstream floodplain.

Strategy and Objectives 4: Limit large vehicle access downstream of the dispersed recreation site by placing boulders to:

- Decrease soil compaction.
- Decrease recreation impacts to the LWD structures and floodplain.
- Improve riparian vegetation survival, growth and vigor.

Project History

Continuation - Are you requesting funds to continue work on a project previously funded by OWEB where that work did not result in a completed project?

❍ Yes
● No

Resubmit - Have you submitted, but were not awarded an OWEB application for this project before?

❍ Yes
● No

Phased - Is proposed work in this application a phase of a comprehensive watershed restoration plan or project?

❍ Yes
● No

Plans and Salmon

Is the proposed restoration activity(ies) identified in a local assessment or other plan?

● Yes
❍ No

Provide name of local plan, Watershed assessment or other locally relevant document.

The project is located in the Upper Grande Ronde Restoration Atlas. The Upper Grande Ronde Atlas is a geo-spatial restoration prioritization plan developed in coordination with BPA by local fish biologists, researchers, engineers, hydrologists, practitioners, and stakeholders. The plan divides the subbasin into biologically significant reaches (BSR) and prioritizes those reaches for restoration based on fish use, fish life stages, limiting factors, and floodplain availability. The BSR are associated with restoration actions. Each reach is assigned a Tier with Tier 1 being the highest priority and Tier 3 being the lowest priority. The Chicken Creek project area is within a Tier 1 BSR.

Will this project benefit salmon or steelhead?

● Yes
❍ No

✓Snake River Basin - Steelhead
✓Snake River Spring/Summer-run - Chinook Salmon

How will the resulting restoration project benefit salmon or steelhead or their habitat?

The project will increase habitat complexity, increase off-channel habitats, lower stream temperatures, increase riparian vegetation (shade, cover), and improve floodplain function.

Does the project address a restoration action identified in a regional assessment or recovery plan?

❍ Yes
● No

Habitat Types

In which habitat type(s) are you proposing to work?

✓*Instream Habitat: below the ordinary high water mark (includes in-channel habitat restoration, bank stabilization, flow, fish screening, and fish passage) -- Details will follow.*
✓*Riparian Habitat: above the ordinary high-water mark of the stream and within the stream's floodplain. -- Details will follow.*
❑*Upland Habitat: above the floodplain and improves native habitat and watershed function.*
✓*Wetland Habitat: land or areas covered, often intermittently, with shallow water or have soil saturated with moisture. -- Details will follow.*
❑*Estuarine Habitat: tidally influenced areas.*

Instream Habitat

Select all applicable Instream categories.

❑**Bank stabilization**
❑**Fish passage improvement**
❑**Fish screening project**
❑**Instream Flow**

✓Instream habitat restoration

Select all the actions you propose to implement to address the problem.

✓*Placement of materials in channel*

Does the proposed project follow:

✓*ODFW Guidelines*

✓*NOAA Guidelines*

❑*Other*

What types of instream habitat materials are you proposing to install? (select all that apply)

✓*Large wood*

Number of structures.

49

Average number of logs per structure.

7

Average length of logs per structure (feet)

30

Average diameter of logs per structure (feet)

.92

Provide additional information on the log structures, as relevant.

The Chicken Creek Restoration Project would place wood within 2 miles of Chicken/West Chicken Creeks for a total of 49 new structure sites. In addition, 100 whole trees will be added to the stream.

Structure construction involves ground based equipment to construct the structures below.

A. Channel spanning structures
The channel spanning structures (49) are intended to replicate the processes of the channel spanning LWD at the Sheep Creek Reference Reach. The structures have been positioned using LIDAR data, REM mapping and hydraulic model results to create backwatered pool areas and increase lateral connectivity of active side, secondary and relic channel features. The structure will drive increased hydrologic connection with the floodplain and result in increased water table and valley prism water storage. This structure is placed in selected locations with adjacent floodplain to facilitate the development of side and off channel habitats. Type I structures involve a linear channel spanning structures and Type II structures involve meander bend channel spanning structures.

Structure specifications are as follows:

• West Chicken full spanning structures will consist of 1 (13” – 15” dbh) log with rootwad attached. Two additional trees (10” – 13” dbh) log with rootwad attached will also be included. Three tops (8” – 15” diameter) with all limbs intact will be used for habitat wood. Approximately, 2 ½ loads of racking material will be added.
• Chicken Creek full spanning structures downstream of the West/Chicken Creek confluence will consist of 1: 13-15” log with rootwad, 4: 10 – 13” logs with rootwads, 3 : 8” – 15” diameter tops and 3 ½ loads of racking material.
• Chicken Creek full spanning structures upstream of the West/Chicken Creek confluence will consist of 1: 13-15” log with rootwad, 3: 10 – 13” logs with rootwads, 3 : 8” – 15” diameter tops and 3 loads of racking material.

B. Whole Trees

Whole trees (100) are intended to replicate the processes of in-channel small LWD at the Sheep Creek Reference Reach. The structures have been positioned using Lidar data, Rem mapping, and Hydraulic Model Results. The in-channel roughness will provide low velocity margin habitat for juvenile salmonids through the complex interaction of the wood matrix from low flow discharge to bankfull discharge. Above bankfull discharge when the whole trees are partially overtopped, velocity refugia will continue to be provided through the subcritical flow environment extending between the tree and the bankline. Fish will likely take advantage of the wood debris and interstitial space provided. All sites will involve one whole tree per site.

C. Floodplain Wood
Approximately 90% of the area will redistribute wood placed around plantings (planted in 2015) over the floodplain of Chicken/West Chicken Creeks. The other 10% of the floodplain will involve placing felled lodgepole from thick stands, adjacent to Chicken/West Chicken Creeks. This wood is intended to provide floodplain roughness and refugia for fish during high flows. There are 1-2 acres of floodplain on Chicken Cr that will have very little floodplain wood, due to cultural concerns.

D. Existing structures
There are 41 existing structures on Chicken Creek. Of these, there are 13 structures that will be modified to channel spanning structures. These are included in the “channel spanning” section above.

The total amount of large wood to be added into Chicken/West Chicken will consist of 363 pieces. The total amount of racking material to be added will consist of 114: ten yard loads. All of the large wood will come off of the 5175 Road prism. Racking material will come from roadside brushing adjacent to the 5175 road.

Monitoring will involve the following:

(1) Stream temperature: Five temperature/stage probes will be installed upstream, downstream and in the project area. The temperatures/stages will be monitored for 5 years. This will be completed by the USFS.
(2) Drone and Flure: Drone imaging and Flure data will be collected, yearly, for five years by GRMW.
(3) Structure construction: Monitoring of structures would involve photo points of before and after operations occur. Follow up photo points would occur at year 1 - 3 after project completion. This monitoring will be completed by the USFS.
(4) Stream Survey: Region 6 Level II Stream Habitat Inventory would be conducted prior to (completed) and @ year 1 and year 5 after completion. This monitoring will be completed by the USFS.
(5) Plant/seed survival: Native plantings and seeded areas would be evaluated for survival on a yearly basis for three years after project completion through photo points and determining plant survival. If plant/seed survival is poor, then subsequent planting and/or seeding would occur (depending on funding). This monitoring will be completed by the USFS.
(6) Noxious weeds: Noxious weeds would be monitored, yearly, for three years after project operations. This monitoring will be completed by the USFS.

❑*Boulders*
❑*Combination log/boulder*
❑*Other materials: Materials that stabilize the streambed*

❑*Channel reconfiguration and connectivity, including alcoves and side channel reconnection*
❑*Spawning gravel placement*

❑*Beaver reintroduction*
❑*Non-native plant control*
❑*Nutrient enrichment*
❑*Animal species removal*

Is the primary purpose of the instream habitat restoration treatment(s) to address water quality limiting factors?
● Yes
❍ No

✓High Temperature

Total miles of stream to be treated with all instream habitat restoration treatments
2

❑**Stockpiling logs**

Riparian Habitat

Select all applicable Riparian categories.

❑**Riparian road activities**

✓**Fencing and other materials for habitat protection**

Select all the actions you propose to implement to address the problem.

❑*Fencing*
✓*Exclusion other than fencing*

Specify materials
Access to the stream from one dispersed recreation area will be limited through strategic boulder placement. Boulders will be hauled from a site adjacent to the 51 Road (5 miles north of the project site). There will be a total of 30 boulders hauled to the site for placement.

Miles of fencing and other materials for habitat protection
.03

Riparian acres protected by fencing and/or other exclusion
5

✓**Vegetation establishment or management**

Select all the actions you propose to implement to address the problem.

✓*Planting*

For Details Go to Plant Page

❑*Non-native plant control*

❑*Prescribed burnings, stand thinning, stand conversions, silviculture*

❑*Juniper treatment*

❑**Livestock management**

❑**Debris and Structure Removal**

Is an objective of the riparian treatment(s) to address water quality limiting factors?

● Yes

❍ No

✓High Temperature

Total riparian acres to be treated:

30

Total riparian streambank miles to be treated

4

Are you proposing to treat one or both sides of streambank?

❍ One side

● Both sides

Left side of bank (miles)

2

Right side of bank (miles)

2

Stream miles

2

Wetland Habitat

Are you working in artificial or historic wetland habitat? (select one or both)

❑*Artificial wetland*

❑*Historic wetland*

Select all applicable Wetland categories.

❑**Wetland road activities**

❑**Channel modification including creation**

❑**Vegetation establishment or management**

❑**Fencing and other materials for habitat protection**

❑**Structure removal/modification/installation**
❑**Nonstructural removal and placement protection**

Total wetland acres to be treated:

Wrap-Up

Outcomes

Explain how the proposed restoration activities address the watershed problem described in the Problem Statement and Goals and Objectives.

I. Instream wood placement

A. Channel spanning structures

The channel spanning structures (49) are intended to replicate the processes of the channel spanning LWD at the Sheep Creek Reference Reach. The structures have been positioned using LIDAR data, REM mapping and hyrdraulic model results to create backwatered pool areas and increase lateral connectivity of active side, secondary and relic channel features. The structure will drive increased hydrologic connection with the floodplain and result in increased water table and valley prism water storage. This structure is placed in selected locations with adjacent floodplain to facilitate the development of side and off channel habitats.

B. Whole tree placements

Whole trees (100) are intended to replicate the processes of in-channel small LWD at the Sheep Creek Reference Reach. The structures have been positioned using Lidar data, Rem mapping, and Hydraulic Model Results. The in-channel roughness will provide low velocity margin habitat for juvenile salmonids through the complex interaction of the wood matrix from low flow discharge to bankfull discharge. Above bankfull discharge when the whole trees are partially overtopped, velocity refugia will continue to be provided through the subcritical flow environment extending between the tree and the bankline. Fish will likely take advantage of the wood debris and interstitial space provided. All sites will involve one whole tree per site.

C. Floodplain wood

These structures are intended to provide floodplain roughness and refugia for fish during high flows.

D. Existing structures

There are 41 existing structures on Chicken Creek. Of these, there are 13 structures that will be modified to channel spanning structures. These are included in the “channel spanning” section above.

II. Riparian planting

The riparian planting will increase deciduous shrub/tree vegetation to provide future stream shade, decreased water temperatures, beaver forage, floodplain roughness, and large woody debris.

III. Dispersed Recreation Area

Access to the stream from the dispersed recreation area will be limited through strategic boulder placement.

Describe the steps you will take to minimize adverse impacts to the site and adjacent lands during and after project implementation .

All of the large wood and racking material will be obtained within the road 5175 road prism. Therefore, all equipment needed for tree removal will be able to stay on the existing road. This will limit compaction and soil disturbance.

Access to the structure sites from existing roads will be strategically located to ensure the least damage to existing vegetation and the soil profile. All areas that are disturbed will be seeded and mulched with straw and/or woody debris. Areas of heavy compaction will be ripped to ensure soil productivity.

Access to the stream from one dispersed recreation area will be limited through strategic boulder placement.

Fence maintenance will be completed by the USFS and range permittee to ensure no livestock grazing into the riparian areas for five years after project completion. After five years, the area will be managed as a riparian pasture with the goal of continued restoration in Chicken and West Chicken Creeks.

Plantskydd would be sprayed on all deciduous vegetation within 50' on each side of the stream that is 5' tall or less for at least one season after project completion.

Does this proposed project include outreach activities?

❍ Yes
● No

Design

Were design alternatives considered?

● Yes
❍ No

If yes, describe the design alternatives that were considered and why the preferred alternative was selected.

We considered larger wood at structure sites, increased structure numbers, more wood per structure, and lateral forcing structures. The preferred alternative was selected by a group of individuals from multiple agencies with restoration technical experience. The group decided that the amount of wood, amount of structures and structure type should be reflective of the stream size, stream type, valley form, floodplain characteristics and existing vegetation. The existing design was developed to address these issues.

Select the appropriate level of design for your project.

❍ No design is required.
❍ 10-30%: Conceptual design (evaluation of alternatives, concept-level plans, design criteria for project elements, rough cost estimates).
● 30-85%: Preliminary design (selection of the preferred alternative, draft plans, draft design report, preliminary cost estimates).
❍ 85-100%: Final design (final design report, plans, and specifications, contracting and bidding documents, monitoring plan, final cost estimate).

If work remains on the project's design, describe the work that remains to be done and when you expect to have it completed. If no design is required put "N/A"

A draft design will be provided with this proposal. All components have been completed except any changes related to technical review.

Project Management

List the key individuals, their roles, and qualifications relevant to project and post project implementation. At a minimum include the following: project management, project design, project implementation, and project inspection.

Role	Name	Affiliation	Qualifications	Email	Phone
Project design, implementation, and inspection.	Joe Platz	USFS	Joe Platz is a biological technician for the US Forest Service. Joe Platz has a Bachelor of Science degree from OSU in Fisheries Science. He has been involved in designing/implementing restoration projects since 1989.	jplatz@fs.fed.us	(541) 962-8571
Project Design	Sean Welch	BPA	Fish and Wildlife Engineering Technical Services Team Leader	spwelch@bpa.gov	(503) 230-7691

List the major project elements and time schedule for each, including post project implementation.

Element	Start Date	End Date
Wood removal and staging	5/2018	6/2018
Structure construction	7/2018	7/2018
Limiting dispersed recreation access	7/2018	7/2018
Rehabilitaiton	7/2018	11/2018
Planting	10/2018	4/2019

Element	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Wood removal and staging				
Structure construction				
Limiting dispersed recreation access				
Rehabilitaiton				
Planting				

Optional Monitoring

OPTIONAL: Restoration Project Monitoring

✓*Salmonid Monitoring*
❑*Non-salmonid biological monitoring*
✓*Water (quantity) flow monitoring*
✓*Water quality monitoring*
❑*Rangeland monitoring*
✓*Onsite*
✓*Downstream*
✓*Upstream*
❑*Upslope*
✓*Effectiveness monitoring will be conducted for this project*

Budget

Item	Unit Type	Unit Number	Unit Cost	OWEB Funds	External Cash	External In-Kind	Total Costs
Salaries, Wages and Benefits							
			$0	$0	$0	$0	$0
Category Sub-total				$0	$0	$0	$0
Contracted Services							
			$0	$0	$0	$0	$0
Category Sub-total				$0	$0	$0	$0
Travel							
			$0	$0	$0	$0	$0
Category Sub-total				$0	$0	$0	$0
Materials and Supplies							
			$0	$0	$0	$0	$0
Category Sub-total				$0	$0	$0	$0
Equipment and Software							
			$0	$0	$0	$0	$0
Category Sub-total				$0	$0	$0	$0
Other							
			$0	$0	$0	$0	$0
Category Sub-total				$0	$0	$0	$0
Modified Total Direct Cost Amounts				$0	$0	$0	$0
Indirect Costs							
		0%			Indirect Cost Total: $0		
Total				$0	$0	$0	$0

If the budget includes unusually high costs and/or rates, provide justification for those costs and/or rates.

If the budget identifies a contingency amount for specific line item(s) within the Contracted Services and Materials and Supplies budget categories, explain the specific reasons a contingency is needed for each line item. Contingencies are line-item specific and cannot be used for other costs.

Funding and Match

Fund Sources and Amounts

Organization Type	Name	Source Note	Contribution Type	Amount	Description	Status
Federal	United States Forest Service		In-Kind - Materials	$78,700	Seed, LWD, racking, cuttings, boulders	Secured
Federal	United States Forest Service		In-Kind - Labor	$22,275	In Kind labor to collect and plant cuttings and NEPA analysis.	Secured
Federal	United States Forest Service		Cash	$3,575	Travel	Secured
Fund Source Cash Total				**$3,575**	**Fund Source In-Kind Total**	**$100,975**

Match

Contribution Source-Type: Description	Amount
United States Forest Service-In-Kind - Materials: Seed, LWD, racking, cuttings, boulders	$0
United States Forest Service-In-Kind - Labor: In Kind labor to collect and plant cuttings and NEPA analysis.	$0
United States Forest Service-Cash: Travel	$0
Match Total	**$0**

Do match funding sources have any restrictions on how funds are used, timelines or other limitations that would impact the portion of the project proposed for OWEB funding?

❍ Yes
● No

Do you need state OWEB dollars (not Federal) to match the requirements of any other federal funding you will be using to complete this project?

❍ Yes
● No

Does the non-OWEB funding include NOAA/PCSRF funds?

❍ Yes
● No

Uploads

Map: ChickenCk_Restoration_24000_02_018.pdf -
Map: ChickenCk_Restoration_Detail_6500_2018.pdf -
Reports: Chicken Creek Restoration Project.pdf -

Plant Page

Planting Questions

Relationship to other conservation programs

❑*This project will use OWEB funds to increase the planting density on CREP acres.*

Planting Activities

Describe the current condition of the site(s) to be planted.

The riparian habitat is largely devoid of deciduous vegetation, except for those areas planted in 2014/2015. There is an abundance of lodgepole pine within the riparian area that has encroached in the past 80 years, due a decrease in water tables. There is a vast grass mat over the majority of the riparian area.

Describe how you will prepare the site(s) prior to planting and how those activities are appropriate considering the site conditions described in the previous question.

A total of 5,000 deciduous seedlings and 10,000 deciduous cuttings will be planted in the project area. Native species will be used. All of the planting will be completed by hand.

The deciduous seedlings will be protected (as much as possible) from drought. Drought protection includes scalping (by hand), watering the trees twice during the first year, adding soil moisture granules, and mulch. These techniques encourage survival and limit competition with the extensive "grass mat" within the riparian area. Deciciduous species selected are those that are limited within the project area and/or are the preferred food sources for beavers.

The cuttings will be planted in areas that are flooded during spring flows. These plantings are targeting those areas that will have an increased water table. This should support increased survivability, growth and vigor.

Fill out the table below. Identify the vegetation communities you plan on planting in, the acres each vegetation community encompasses, and the density of your planting.

Vegetation Community	Acres	Density
Riparian area (deciduous shrubs)	30	87 stems per acre
riparian area (native grass/forb seed)	10	10 lbs. per acre

Fill out the table below for each vegetation community listed in the table above, provide the common and scientific names of up to five plants that will be planted, the form(tree, shrub, grass), type of plant (bare root, cutting, etc) and the planting timing.

Vegetation Community	Plants: Common Name	Plants: Scientific Name	Form	Type	Year	Month
Riparian area	Cottonwood	Populus trichocarpa	Tree	Bareroot plug	2018	October
Riparian area	cottonwood	Populus trichocarpa	Tree	Cutting	2019	April
Riparian area	Mtn alder	Aldus incana	Shrub	Bareroot plug	2018	October
Riparian Area	Geyers willow	Salix geyeriana	Shrub	Bareroot plug	2018	October
Riparian area	Geyers willow	Salix geyeriana	Shrub	Cutting	2019	April
Riparian area	Sandbar willow	Salix interior	Shrub	Bareroot plug	2018	October

Riparian area	Sandbar willow	Salix interior	Shrub	Cutting	2019	April

Plant Stewardship

After the plantings are installed, will you conduct plant stewardship ("free to grow")?

- ● Yes
- ❍ No

Are you requesting OWEB funds for plant stewardship activities?

- ❍ Yes
- ● No

Explain how you plan to carry out activities to help the plantings survive and grow over time.

Deciduous seedlings will be watered twice during the first year of planting. Plantskydd will be sprayed for at least one season after planting. Depending on research results, plantskydd could be sprayed until plants are above browse height. Plant survival will be monitored for 3 years after planting.

Measures of Planting Success

Use the table below to explain how you will document and determine success for the plantings.

Vegetation Community	Parameter	Percentages
Riparian area (shrubs)	Percent Survival	70%
Riparian area cuttings	Percent Survival	50%
Riparian area (grass/forb)	Percent Cover	90%

If, in the course of the 3-5 years following planting, the success rate falls below your standard, what is your plan?

Our plan will be to replant/seed where applicable. However, the amount of replanting will depend on future funding.

Permit Page

Project Activity Requiring a Permit or License	Name of Permit or License	Entity Issuing Permit or License	Status
Instream wood placement	Regional General Permit & General Permit	Army Corps of Engineers & Depart. of State Lands	Programmatic permits have been filed.
Entire project	NEPA	USFS	Almost completed.
Entire project	ESA clearance	USFS and NOAA	Programmatic (ARBOII) and has been filed.

CHICKEN CREEK RESTORATION PROJECT

Date: 2/26/2018

NORTH

1:24,000

Miles

0 0.6 1.2 1.8

Grande Ronde River
North Fork Limber Jim Creek
Limber Jim Creek
South Fork Limber Jim Creek
Sheep Creek
Meadowbrook Creek
Dry Creek
West Chicken Creek
Chicken Creek
Indiana Creek
Muir Creek
Clear Creek

Chicken Creek Restoration Work

- Recreation Site Rehabilation
- Culvert Replacement
- Existing Structure
- Linear Channel Spanning Structure
- Meander Bend Channel Spanning Structure
- Whole Tree Addition
- Quarry
- Boulder Collection Site
- Tree and Slash Removal

Stream Class

- 1
- 3
- 4

Existing Roads

- 2 - Digit Roads
- 4 - Digit Roads
- 3 - Digit Roads
- Other NON FS Roads

- RangerDistrict
- Private Land
- U.S. Forest Service
- Undetermined

Path: C:\Workspace_2\Joe_Misc_Projects\Projects_2018\ChickenCk_Restoration_2017.mxd

CHICKEN CREEK RESTORATION PROJECT

Date: 2/26/2018

NORTH

1:6,500
Miles
0 0.15 0.3 0.45

Dry Creek
West Chicken Creek
Chicken Creek
5178
5175
51

Chicken Creek Restoration Work

- Recreation Site Rehabilation
- Culvert Replacement
- Existing Structure
- Linear Channel Spanning Structure
- Meander Bend Channel Spanning Structure
- Whole Tree Addition
- Tree and Slash Removal

Stream Class

- 1
- 3
- 4

Existing Roads

- 2 - Digit Roads
- 4 - Digit Roads
- 3 - Digit Roads
- Other NON FS Roads

- RangerDistrict
- Private Land
- U.S. Forest Service
- Undetermined

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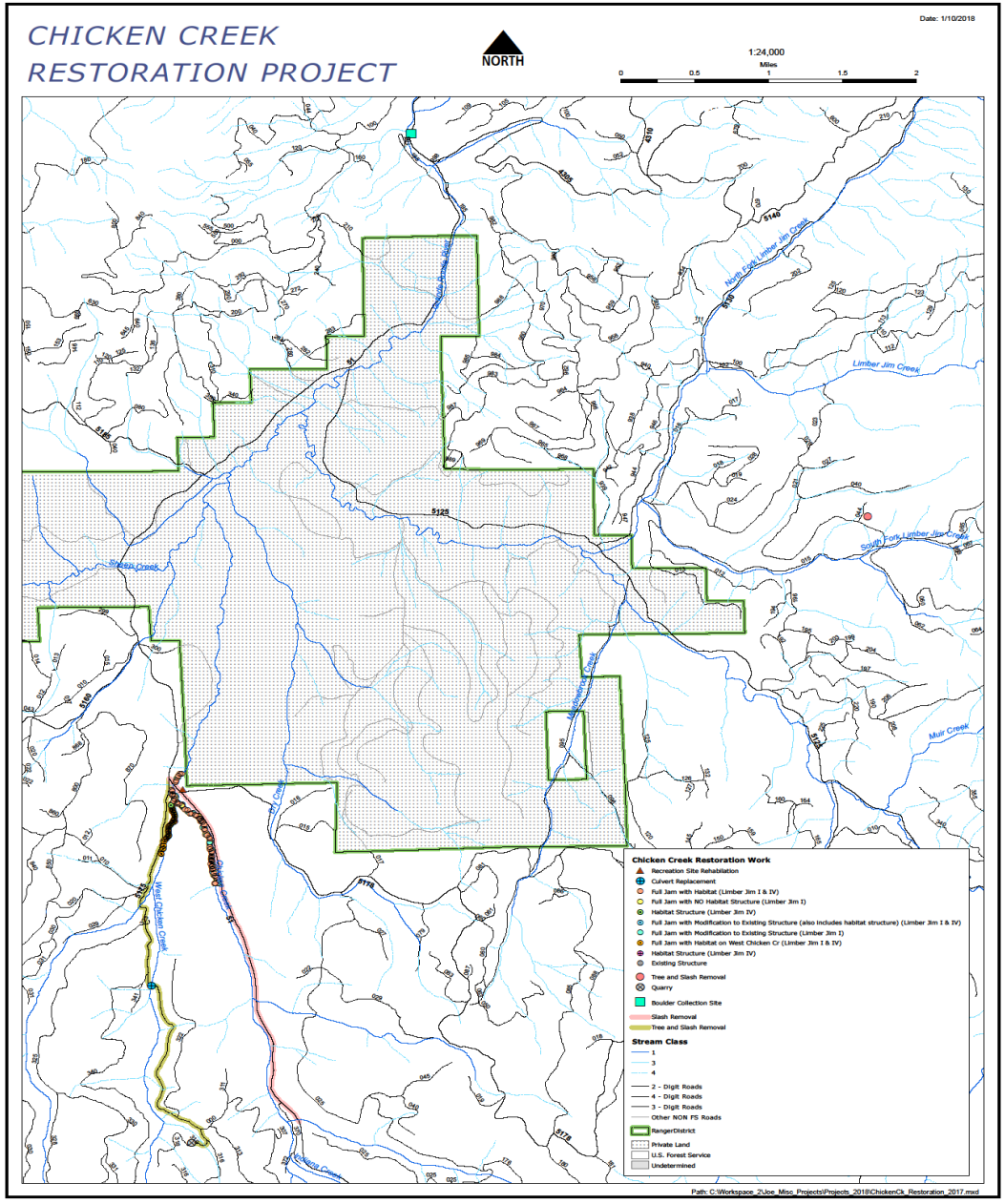
Agenda

- Previous Input
- Review of Chicken Creek Existing Condition
- Hydraulic Modeling
- Structure Placement
- Structure Types
- Wood amounts and Sizes
- Monitoring
- Future Timeline

CHICKEN CREEK MINUTES

- $287,000 available funds from Limber Jim until 12/31/2018 for Chicken Cr (2 stream miles).
- Met on 12/13/17 with Jesse Steele, Jim Webster, Joe Platz, Allen Childs, Sean Welch, and Tim Bailey to discuss the Chicken Creek design.
- Meeting focused on: (1) purpose of the project, (2) channel types and flow inundation, (3) number, type & amount of wood in each structure, (4) Monitoring, and (5) Timeline.
- Since the meeting, Sean Welch and Joe Platz have further defined the flow regime, hydraulic modeling, structure type and placement, wood sizes and amounts.


CHICKEN CREEK
RESTORATION PROJECT
NORTH
1:24,000
Miles
0
0.5
1
1.5
2
Date: 1/10/2018
Limber Jim Creek
North Fork Limber Jim Creek
South Fork Limber Jim Creek
Muir Creek
West Chicken Creek
Chicken Creek Restoration Work
Recreation Site Rehabilitation
Culvert Replacement
Full Jam with Habitat (Limber Jim I & IV)
Full Jam with NO Habitat Structure (Limber Jim I)
Habitat Structure (Limber Jim IV)
Full Jam with Modification to Existing Structure (also includes habitat structure) (Limber Jim I & IV)
Full Jam with Modification to Existing Structure (Limber Jim I)
Full Jam with Habitat on West Chicken Cr (Limber Jim I & IV)
Habitat Structure (Limber Jim IV)
Existing Structure
Tree and Slash Removal
Quarry
Boulder Collection Site
Slash Removal
Tree and Slash Removal
Stream Class
1
3
4
2 - Digit Roads
4 - Digit Roads
3 - Digit Roads
Other NON FS Roads
RangerDistrict
Private Land
U.S. Forest Service
Undetermined
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Chicken Creek Existing Condition (Confluence of Chicken & West Chicken Creeks)

Typical Chicken Creek Photo

41 Existing Structures on Chicken Creek

Existing Chicken Creek Structures

4700 seedlings/3000 cuttings planted with good growth & vigor with pods & Plantskydd spraying

Wood to protect plantings will be spread out on floodplain

Photos of West Chicken Creek

North Fork West Chicken Culvert Replacement

Culvert will be replaced on West Chicken in 2018 with USFS $

HYDRALIC FLOW MODELING AND STRUCTURE PLACEMENT

STRUCTURE TYPES

Three structure types

(a) Type I: Channel spanning structure placed longitudinally
(b) Type II: Channel spanning on meander bend
(c) Type III: Whole tree placement

Further, the project was broken into three different segments.

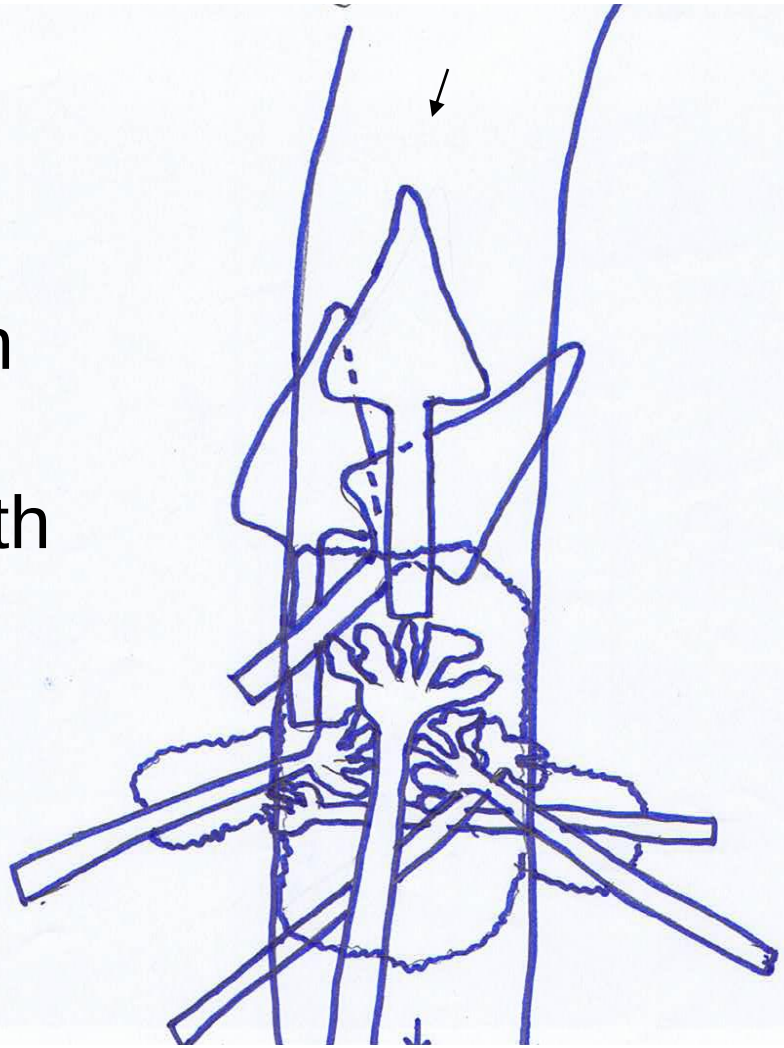
(1) Chicken Creek Downstream of the West Chicken Confluence
(2) Chicken Creek Upstream of the West Chicken Creek Confluence
(3) West Chicken Creek.

***** The amount of wood and racking material changed in relation to the 3 segments.

TYPE I CHICKEN CREEK DS OF CONFLUENCE

CHANNEL SPANNING STRUCTURE

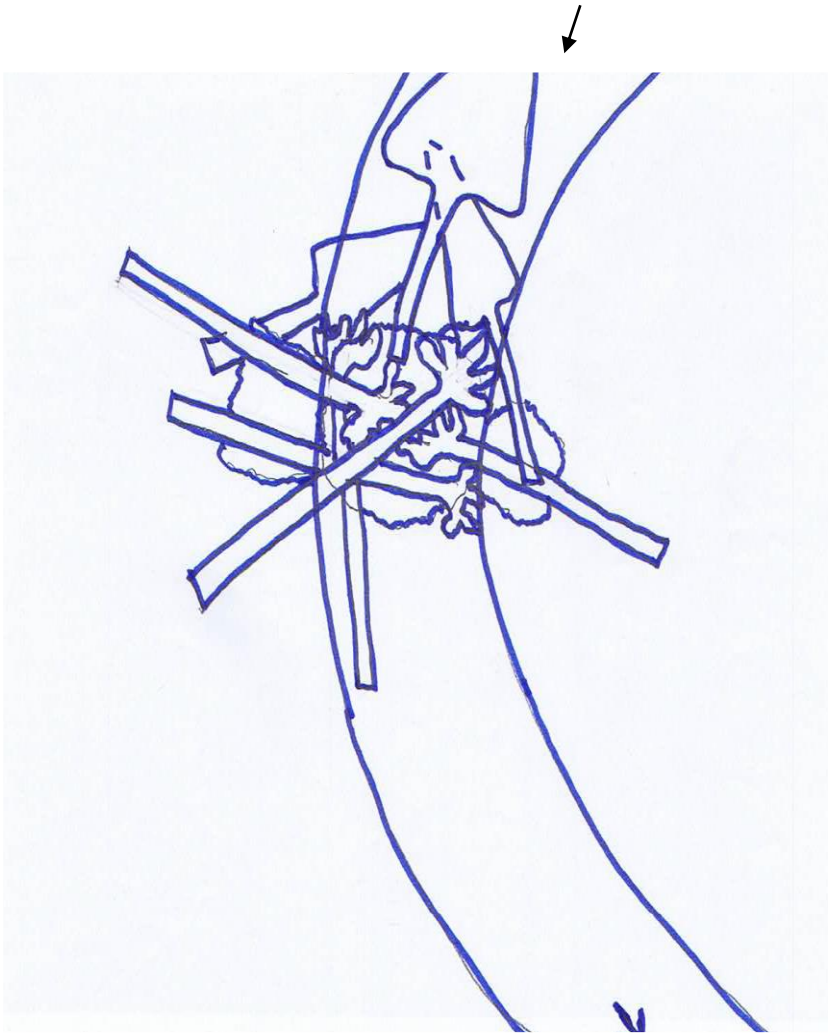
- 1: 13” – 15” dbh log with RW
- 4: 10” – 13” dbh logs with RW
- 3 Tops with full limbs
- 30’ long wood pieces
- 3 ½: 10 yard loads of racking material



TYPE II CHICKEN CREEK DS OF CONFLUENCE

CHANNEL SPANNING STRUCTURE

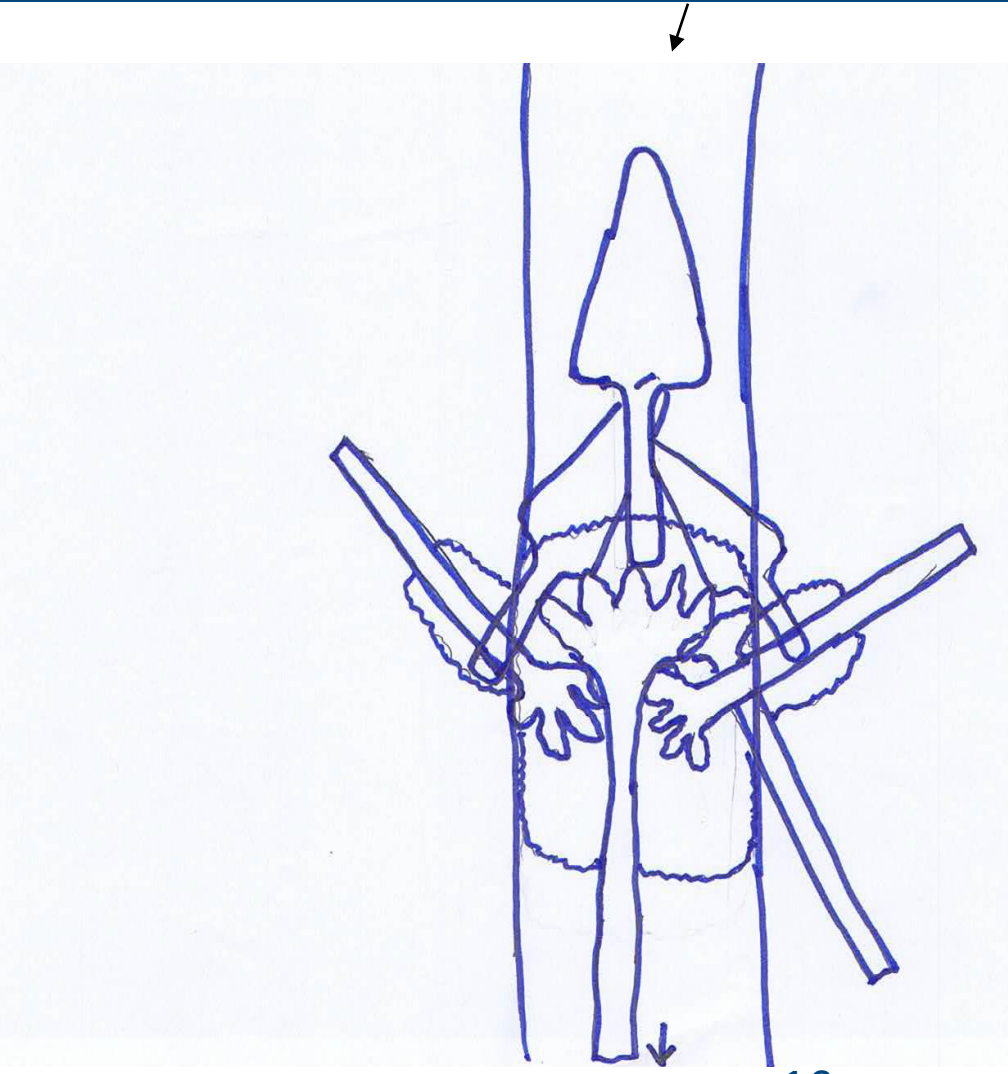
- 1: 13” – 15” dbh log with RW
- 4: 10” – 13” dbh logs with RW
- 3 Tops with full limbs
- 30’ long wood pieces
- 2 ½: 10 yard loads of racking material



TYPE I CHICKEN CREEK UP OF CONFLUENCE

CHANNEL SPANNING STRUCTURE

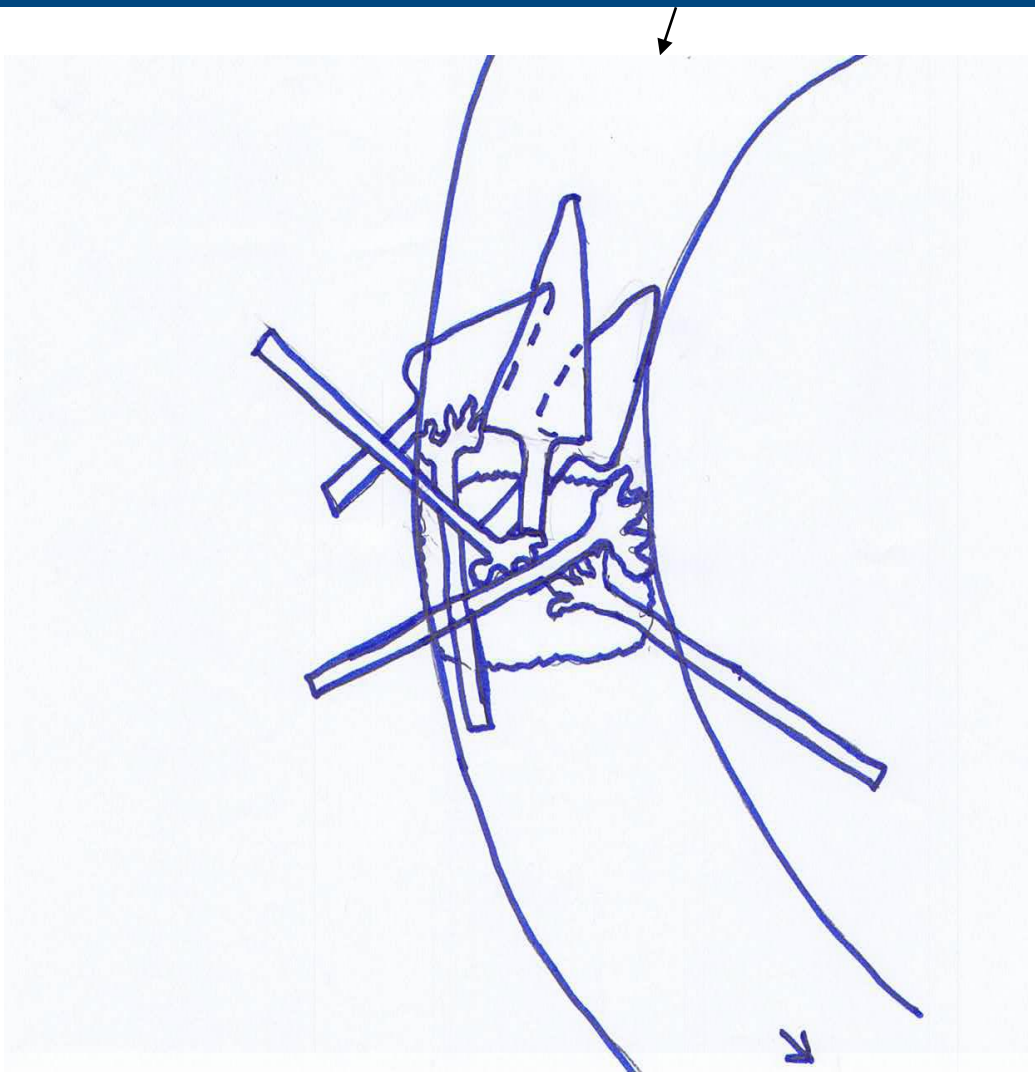
- 1: 13” – 15” dbh log with RW
- 3: 10” – 13” dbh logs with RW
- 3 Tops with full limbs
- 30’ long wood pieces
- 3: 10 yard loads of racking material



TYPE II CHICKEN CREEK UP OF CONFLUENCE

CHANNEL SPANNING STRUCTURE

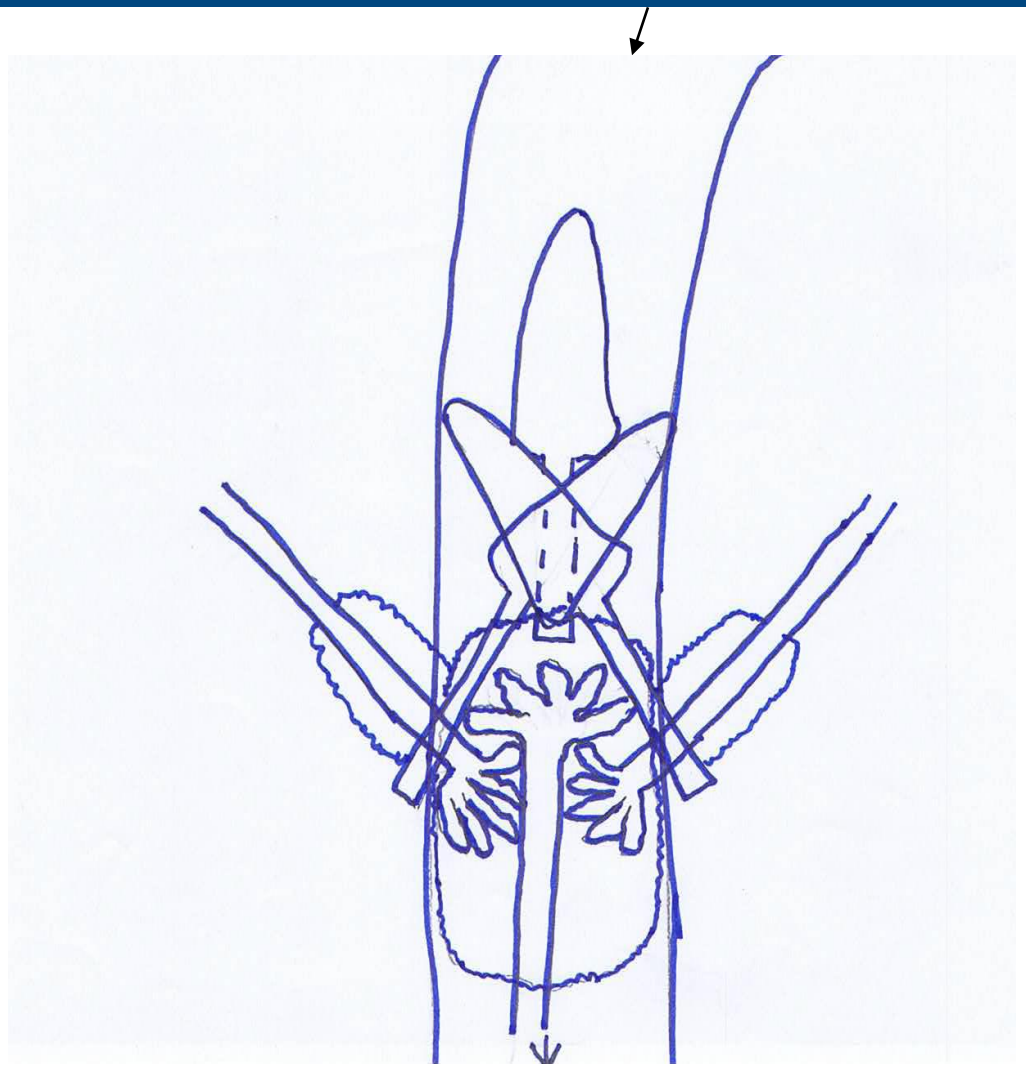
- 1: 13” – 15” dbh log with RW
- 3: 10” – 13” dbh logs with RW
- 3 Tops with full limbs
- 30’ long wood pieces
- 2: 10 yard loads of racking material



TYPE I WEST CHICKEN CREEK

CHANNEL SPANNING STRUCTURE

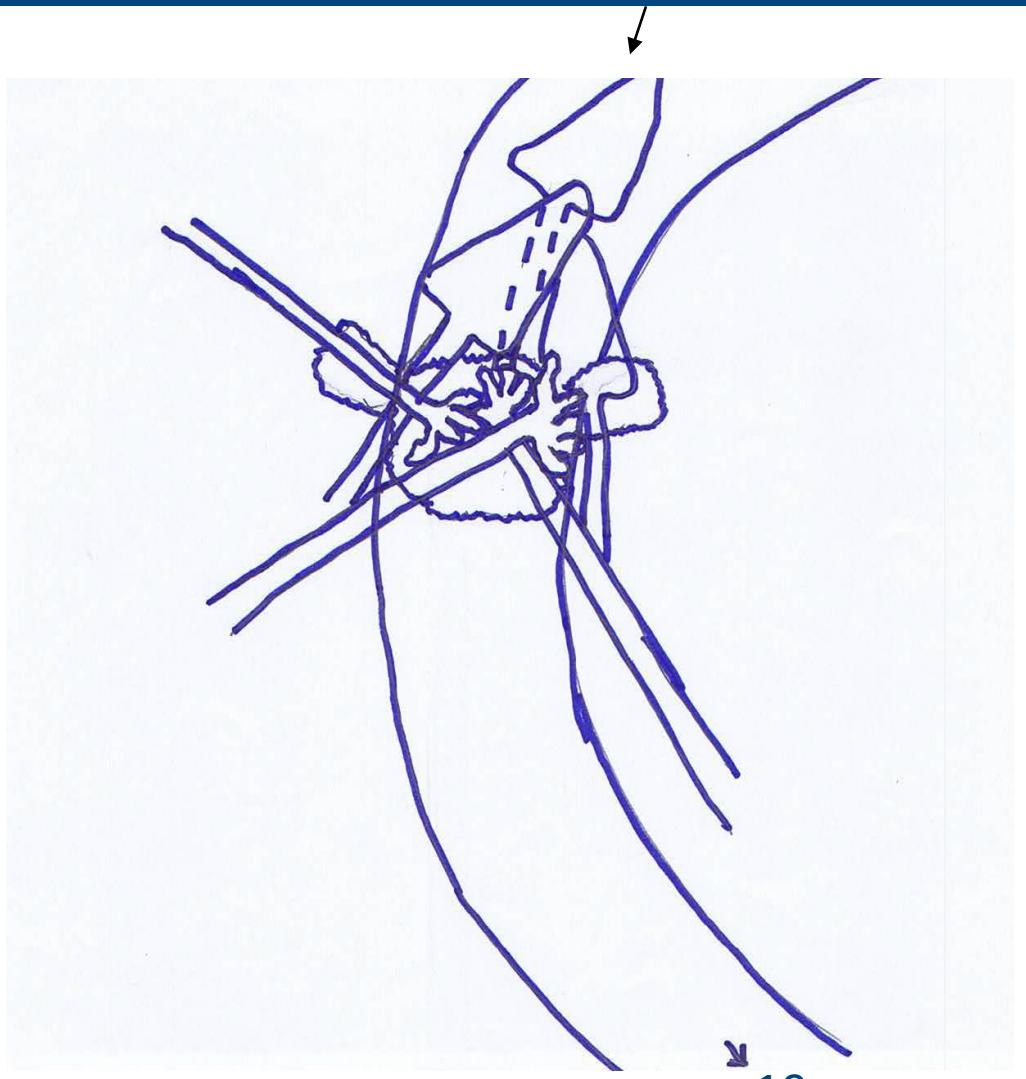
- 1: 13” – 15” dbh log with RW
- 2: 10” – 13” dbh logs with RW
- 3 Tops with full limbs
- 20’ - 30’ long wood pieces
- 2 1/2: 10 yard loads of racking material



TYPE II WEST CHICKEN CREEK

CHANNEL SPANNING STRUCTURE

- 1: 13” – 15” dbh log with RW
- 2: 10” – 13” dbh logs with RW
- 3 Tops with full limbs
- 20’ - 30’ long wood pieces
- 1 1/2: 10 yard loads of racking material



Total Structure/Wood Amounts

- 20: Type I Structures
- 29: Type II Structures
- 100: Whole Tree Structures on map (will be adding additional whole trees)
- Total of 363 large wood pieces (reduced from 736 LWD)
- 114: ten yard loads of racking material
- 90% Floodplain wood will be obtained from wood placed around the plantings
- Additional 10% of floodplain wood will be obtained from thinning adjacent stands or the 5175 Road.
- All of the large wood will be obtained from the 5175 road.
- 1-2 acres of floodplain on Chicken Cr that will have very little floodplain wood, due to cultural concerns.

* 38 trees over 15 dbh that could be used for MUGR.

Other Restoration

* Rehabilitate the site with native grass seed/forbs, ripping, & mulch where needed.
* Plant 5000 deciduous seedlings
* Plant 10,000 deciduous cuttings
* Haul 30 boulders to defined dispersed recreation access.
* Spray with Plantskydd.

Monitoring

- Group wanted 5 temperature gauges with stage included @ the following locations: (1) Upstream of project area on Chicken Creek, (2) Upstream of project area on West Chicken Creek, (3) West Chicken at confluence, (4) Chicken Creek just upstream of confluence, (5) Chicken Creek @ downstream end.
- Talk to Ted about CHAMP, FS stream survey.
- Additional monitoring.

FUTURE TIMELINE

- **FINAL DESIGN TO THE SMALL IT TEAM**
- **PRESENTATION TO THE IT TEAM**
- **PROPSAL DUE ON MARCH 1**
- **IT TEAM REVIEW**
- **BOARD REVIEW**
- **5/15/18 – 6/15/18: TREE REMOVAL AND WOOD HAUL**
- **6/15/18-6/30/18 – BOULDER HAUL AND MOVEMENT OF WOOD TO STRUCTURE LOCATIONS**
- **7/1/18 – 7/15/18 – STRUCTURE CONSTRUCTION**
- **7/15/18 – 7/21/18 - REHABILITATION**
- **10/15/18 – 10/31/18 – PLANTING, SEEDING AND MULCHING**
- **12/1/2018 - FINAL REPORT**
- **4/1/18 – 4/30/18 – USFS PLANTS 10,000 CUTTINGS BY HAND**

- **QUESTIONS**