Grande Ronde Model Watershed

1114 J Avenue

La Grande, OR

(541)-663-0570

GRMW PROPOSAL APPLICATION - FINAL

Project/Application Title: Chesnimnus Creek Williams Restoration Design

Submitted By: Kathryn Frenyea, Nez Perce Tribe

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Invoice Information (If GRMW is the fiscal agent)

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This proposal is for a TA type project!

Location/Abstract

General Location	Downstream Extent	Upstream Extent
Latitude: 45.7156860	Latitude: 45.7093210	Latitude: 45.7323310
Longitude: -117.0800070	Longitude: -117.0920410	Longitude: -117.0363030

Due to a limitation of the framework tool used to create PDFs, we are unable to display the opportunity map within this document. However, you may still view the opportunity map using the following link:
Opportunity Map Link

The Chesnimnus Creek Williams Restoration Project is part of a multi-phased effort proposing to complete designs, permitting, and all necessary documents to implement a thoroughly vetted instream and floodplain restoration project benefitting limiting life stages of ESA listed steelhead between RM 4.6 and 9.1 in Chesnimnus Creek. Chesnimnus Creek is a tributary of Joseph Creek, located in the northern end of Wallowa County. Joseph Creek and its tributaries, identified as MCC1 in the Wallowa Atlas Restoration Prioritization Matrix, is a Tier 2 subwatershed. Although the Joseph Creek steelhead population is among the most viable in the region, its headwaters do not originate in high elevation snowpack dominated mountains, which makes this watershed extremely susceptible to changes in temperature and hydrologic regimes.

With legacy logging effects, roads, agricultural practices, and other anthropogenic influences within the Joseph Creek watershed, current habitat conditions in Chesnimnus Creek are significantly deviated from its historic ecosystem function. This departure has negatively impacted many physical and biological aspects of the watershed, resulting in various life stage impairments to steelhead and Pacific lamprey, of which this project aims to improve through a suite of priority restoration actions.

In addition to the Nez Perce Tribe, the Grande Ronde Model Watershed (GRMW), the landowners, project funders, the Oregon Department of Fish & Wildlife (ODFW), and other Atlas Implementation Team partners will be instrumental in the successful completion of this project.

Stepwise & Atlas

Prospectus submitted and review by Atlas Implementation Team: Yes

Project prospectus title and/or ID# (if applicable): Chesnimnus RM 6.4 Floodplain Restoration Project

Associated Subwatershed: MCC1

Associated Opportunity: MCC1 - Lower Ches, Salmon, Alder & Pine

Problem Statement & Opp Score

The problem statement described the critical/limiting life stages and limiting habitat factors identified in the Atlas for the subwatershed in which this project is located and explain which of these species, life stages and limiting factors will be addressed in this project (how the problems will be addressed should be discussed in the 'Proposed Solution' section). This includes past land use history with respect to the project reach and larger watershed—especially any land use that has led to the current impaired condition.

According to the Wallowa Atlas Restoration Prioritization Matrix, the most limiting life stages in MCC1 (Joseph Creek & Tributaries) are Incubation/Emergence, and Summer and Winter Rearing for steelhead. These limiting life stages all rank as a Medium priority, to be addressed within 5–10 years to improve steelhead population productivity, abundance, and distribution. Adult Immigration and Emigration, Holding, Spawning, and Juvenile Emigration all rank as Low priorities, to be addressed in 10–20 years to improve steelhead population productivity, abundance, and distribution. All the aforementioned life stages rank as Low priority for lamprey.

Riparian Vegetation is ranked as a High priority restoration action for both steelhead and lamprey. Anthropogenic Barriers, Floodplain Condition, Bed and Channel Form, Instream Structural Complexity, and Temperature are ranked as Medium priorities for both steelhead and lamprey. Increased Sediment Quantity is also ranked Medium for steelhead alone. Chesnimnus Creek is among several Joseph Creek tributaries that are currently ODEQ 303(d) listed as "impaired" for both temperature and sediment (ODEQ 2022).

The Wallowa Atlas development team noted that high sediment, water temperature, and habitat fragmentation are all factors contributing to Incubation/Emergence, and Summer Rearing limiting life stages, with particular concern regarding future temperature regime alterations. Another annotation states that Winter Rearing increased in priority due to concerns around losses of winter rearing habitat, specifically on private lands.

The ESA Recovery Plan for NEOR Snake River Spring and Summer Chinook Salmon and Snake River Basin Steelhead Populations (NOAA 2017) ranks the status of the Joseph Creek Steelhead Population – one of four extant populations within the Grande Ronde River Major Population Group, as having a very low risk of extinction. The recovery plan also states, "The recovery strategy will maintain and improve the population's highly viable status by restoring tributary habitat conditions for steelhead incubation and juvenile rearing". Decreasing summer water temperatures and minimizing sediment input are listed among the Key Strategies and Actions to be applied in lower Chesnimnus Creek to improve steelhead incubation and juvenile rearing.

All restoration actions implemented through this project will aim to address the highest priority limiting life stages and habitat factors in the Wallowa Atlas Restoration Prioritization Matrix and the ESA Recovery Plan cited above.

The current condition of this reach, and much of lower Chesnimus Creek, is significantly degraded from historic conditions. Due to decades of livestock grazing, channel manipulation, levee construction, vegetation clearing, infrastructure placement, and other anthropogenic interventions, both the stream channel and floodplain have been extremely simplified and disconnected. These land use practices have resulted in loss of off-channel habitat and floodplain connectivity and are the largest factors effecting steelhead incubation and juvenile rearing life stages (NOAA 2017).

The majority of the floodplain under restoration consideration is pastureland, some of which is being used seasonally to graze cattle in the fall. A riparian fence currently runs very close to the creek, which includes intermittent water gaps. These water gaps are located at low gradient sites where steelhead spawning may otherwise occur. However, the channel in these areas has been over-widened, the substrate altered, and redds deposited are subject to trampling by cattle. Additional ecological disfunction, resulting from climate change, was observed in September 2021, where a large reach was dry potentially for the first time on record, according to local US Forest Service staff.

Although there is some remnant beaver activity, beaver colonization in Chesnimnus Creek is severely depleted from historic levels. A marked reduction in diversity and abundance of hardwoods (forage), channelization leading to insufficient pool/ponded habitat (cover), excessive trapping (harvest), and other various impacts have resulted in depressed beaver populations within the watershed, and thus a lack of essential ecological services that beaver provide. Historically, this watershed would have likely been a willow dominated meandering wet meadow complex brimming with beaver dams. This geomorphic and biological combination would have effectively spread out and attenuated water and sediment coming through the system annually during spring high flows. Water captured in the floodplain during these events would have recharged groundwater and intercepted hyporheic flow, proliferating riparian vegetation to the benefit of beaver, fish, and other terrestrial and aquatic organisms through increased food production, reduced sedimentation, and improved stream temperatures and baseflows. In the absence of these symbiotic factors that previously captured runoff, spring flows now flash through the system, and leave much of the watershed hot and dry through the summer and into the fall. These disruptions in natural watershed processes have resulted in deleterious impacts to various life stages of ESA listed summer steelhead - with egg incubation/fry emergence, and juvenile summer and winter rearing being the highest priority, and to a lesser degree, adult immigration, holding, and spawning.

Proposed Opportunity Score

None

Permits

All permits associated with the project are listed below along with a date of acquisition and date of expiration.

Permit Name	Date Acquired	Expiration Date
Oregon DSL - Removal/Fill	None	None
ACOE - 404 Permit	None	None
Oregon DEQ - 401 Certification	None	None
Federal, State & Tribal - Section 106 Cultural	None	None
NMFS/USFWS - Section 7 ESA	None	None

Restoration Actions

Below is a list of all restoration actions applicable to this project.

Restoration Action	Justification
2. Channel Reconstruction	
3. Pool Development	
4. Riffle Construction	
7. Levee Modification: Removal, Setback, Breach	
8. Remove - Relocate Floodplain Infrastructure	
9. Restoration of Floodplain Topography and Vegetation	
11. Perennial Side Channel	
12. Secondary (non-perrenial) Channel	
13. Floodplain Pond - Wetland	
14. Alcove	
15. Hyporheic Off-Channel Habitat (Groundwater)	
16. Beaver Restoration Management	
17. Riparian Fencing	
18. Riparian Buffer Strip, Planting	
20. Remove non-native plants	
23. Structural Passage (Diversions)	
27. LWD Placement	
28. Modification or Removal of Bank Armoring	
31. Improve Thermal Refugia (spring reconnect, other)	
35. Road Decomissionsing or abandonment	
36. Road Grading - Drainage Improvments	

Proposed Solution

The proposed solution states the project goals and articulates the expected outcomes of the project. It explains how the restorations actions selected will address the problems stated in the problem statement.

This project will produce fully permitted, regulatory agency and landowner approved restoration designs that, when implemented, will reinitiate integral components of ecological process and function that are currently absent or significantly arrested within Chesnimnus Creek. Selected restoration actions will primarily aim to improve instream habitat conditions and reconnecting Chesnimnus Creek with its floodplain. These two primary goals will benefit the key limiting life stages of Incubation/Emergence, Summer, and Winter Rearing, as well as Adult Holding and Spawning for both steelhead and lamprey.

Instream improvements will include large wood placement to improve channel aggradation, sediment sorting, and pool development benefiting juvenile summer and winter rearing, and spawning conditions. Levee removal/setback and elimination of bank armoring will reduce channel confinement and enable natural channel forming processes to occur.

Channel fill may be placed instream, where appropriate, to eliminate incision and allow new channels to establish on the floodplain. Some side channel development and/or re-establishment of geomorphic grade line may be implemented accordingly.

Large wood placement on the floodplain in the form of BDAs (Beaver Dam Analogs), PALs (Post Assisted Log Structures), and other roughened floodplain material will restore natural topography and disperse flows increasing inundation, surface-groundwater exchange, sediment attenuation, and promote riparian and wetland vegetation reestablishment. Additional native and locally appropriate riparian and/or wetland planting and seeding will also be implemented to

propagate vegetative diversity, and abundance.

In conjunction with the actions listed above, some modifications to current infrastructure may be addressed through the design. These may include riparian fencing set back/relocation, water gap replacement by off-site livestock watering, road grading – drainage improvements, and potential stream crossing replacement/relocation to minimize lateral confinement and longitudinal discontinuity within the channel. For example, the bridge that crosses Chesnimnus Creek to access the house, barn, and other infrastructure is substantially undersized, which is evident by the head-cut flow path that has forged its way around the existing bridge abutment during high flow events (see three attached photos). A bridge survey will be conducted to determine whether it will be most appropriate to add another water crossing, replace the existing bridge with a wider structure, or relocate the crossing to a more geomorphic and hydraulically suitable location.

These enhancements to the channel-floodplain interaction are expected to result in improved instream temperatures, baseflows, and overall water quality. Getting water out of the main channel and onto the floodplain during high flows also reduce instream velocities, thereby lessening soil erosion, channel incision, and bed scour, which lend to preferential incubation, juvenile rearing, and spawning conditions. In combination, these actions will potentially encourage greater beaver occupancy, which will significantly contribute to the overarching goal of restoring self-sustaining ecological process and function within Chesnimnus Creek.

Objectives Narrative

Objective Narrative: This block explains why the objectives selected are relevant to this project and why/how the actions selected in the Restoration Actions section should result in the restored condition proposed.

Objectives related to implementation actions will be defined through the design development process and included in the restoration funding application.

Based on known limiting factors, objectives will aim to achieve the following benefits to all life stages of threatened and sensitive species within the project reach by 2025:

1) Increase cold water refugia

2) Maintain baseflows/surface flows instream year-round

3) Increase wetted area and off-channel habitat

4) Improve native riparian diversity, abundance, and distribution

5) Improve hydraulic and sediment function favorable for spawning

Explain Target Condition: This block explains why any of the restored conditions of any objectives selected do not meet the target condition. If all restored conditions meet the corresponding target condition, then this field will appear blank.

N/A

Additional Objectives: This block includes any additional objectives not captured in the objectives table. Objectives should be specific, measureable, achievable, relevant, and time-bound.

1) Secure funding to hire a reputable river restoration design firm to produce an engineer-stamped final design plan set, construction specifications, environmental permits, and bid documents necessary to implement an instream and floodplain enhancement project between RM4.6 and RM9.1 to enhance ESA listed and sensitive species habitat on Chesnimnus Creek by 2025.

2) Facilitate design review and approval of 15%, 30%, and 80% project designs with the landowners, Wallowa Atlas Implementation Team, regulatory agencies, and BPA RRT.

Climate Change Concerns: This block explains considerations made regarding how this proposed work may address climate change concerns.

The ESA Recovery Plan for Northeast Oregon Snake River Spring and Summer Chinook Salmon and Snake River Basin Steelhead Populations (NOAA, 2017) cites a number of climate change related factors as having potential effects on Snake River spring/summer Chinook salmon and steelhead in freshwater (Section 5.1.8, pg. 223). The following changes are particularly relevant to steelhead in Chesnimnus Creek:

- Winter flooding in transient and rainfall-dominated watersheds may scour redds, reducing egg survival.
- Warmer water temperatures during incubation may accelerate the rate of egg development and result in earlier fry emergence and dispersal.
- Reduced summer and fall flows may reduce the quality and quantity of juvenile rearing habitat, strand fish, or make fish more susceptible to predation and disease.
- Reduced flows and higher temperatures in late summer and fall may decrease parr-to-smolt survival.
- Increased water temperatures in Snake and Columbia River reservoirs could increase consumption rates and growth rates of predators and, hence, predation-related mortality on juveniles.
- Lethal water temperatures may occur in the mainstem migration corridor or in holding tributaries, resulting in higher mortality rates.

Of the 11 climate risks listed by The Oregon Conservation Strategy, the following seven are applicable to Chesnimnus Creek:

- Increase in average annual air temperatures, and likelihood of extreme heat events
- Changes in hydrology and water supply; reduced snowpack and water availability in some basins; changes in water quality and timing of water availability
- Increase in wildfire frequency and intensity
- Increase incidence of drought
- Changes in the abundance and geographical distributions of plant species and habitats for aquatic and terrestrial wildlife
- Increase in diseases, invasive species, and insect, animal, and plant pests
- Loss of wetland ecosystem services

Floodplain reconnection is one crucial restoration activity that, when implemented, may help mitigate many of the adverse effects from climate change listed above. The ability to store water in the form of hyporheic flow and groundwater will increase cold water in both off-channel habitat and instream for ESA-listed and sensitive species. Improved native riparian and wetland plant diversity, abundance, and distribution is anticipated to result from a raised water table. These enhanced habitat conditions favorable to beaver will hopefully entice more beaver to inhabit the project reach, further perpetuating these and other climate change countering measures.

Previous Work: This block describes any previous work implemented in this reach and how this project connects to or builds upon those previous efforts.

Past restoration efforts within this privately owned section of Chesnimnus Creek were implemented by ODFW in the late 80’s and 90’s. These activities included installation of water gaps, riparian fencing, pine tree plantings, and in-stream rock barbs and juniper revetments. Although these and other similar measures taken by various landowners likely improved some localized ecological function and fish habitat, it is apparent several decades later, with continuously altering climate conditions, more aggressive approaches to restoring this reach are warranted to protect and enhance these valuable fish populations into the future.

Other Species: If there any other sensitive or listed species, aquatic or terrestrial, impacted by this project, this block lists them and explains how they might be impacted by this project.

Full ESA consultation with both NMFS and USFWS will be completed as part of the required Section 7 environmental clearance. Through this process, any listed or sensitive species will be identified within the project area. If either agency determines listed or sensitive species exist in the area of potential effect, the project sponsor will take necessary action (e.g., surveys, monitoring, etc.) to minimize any potential impacts.

Is this a phased project?

Yes

If this is a phased project, can this phase be a standalone project?

Yes

Monitoring

This table shows all objectives specified for monitoring. It explains who will be performing this montitoring, how it will be implemented, how long it will take place for, whether or not it will be shared or available to Atlas partners, and how that data will be shared/made available.

Monitoring Indicator	Monitor	Protocol	Time Monitored (yrs)	Availability/Sharing
Water Temperature	NPT/GRMW	HOBO Loggers	5 years (minimum)	Yes
Redds/Mile	NPT/GRMW	Steelhead Spawning Ground Surveys	5 years (minimum)	Yes
Surface Water Connectivity	GRMW/NPT	Drone Imagery/Site Visits	5 years (minimum)	Yes
Riparian Vegetation	NPT/GRMW	Photo point monitoring	5 years (minimum)	Yes

Landowner Engagement

The following table is applicable to projects which take place on private property. It lists the relavant landowners involved in the project, the landowner agreement, whether or not neighboring landowners have been contacted, and whether or not there were any issues identified (resolved or unresolved) concerning the landowner.

Landowner	File (Click to Download)	Neighbors Contacted?	issues
Michael Williams	None	Yes	

Timeline

Will this project be completed within 2 years if awarded funding? Projects that will be completed in the first year of the contract in-water work window will be given funding priority over out-year projects (applies to restoration projects only).

N/A

Explanation if answer to above was "N/A":

This proposal is for Technical Assistance. Designs are anticipated to be completed within less than 2 years from time of funding.

Project Elements

The table below identifies the major work elements of this project, when the work for each element is proposed to begin, and when that work is expected to end.

Project Element	Proposed Start Date	Proposed End Date
Hire Design Firm	Aug. 1, 2023	Sept. 1, 2023
Site Investigation and Survey	Sept. 1, 2023	Nov. 1, 2023
15% Design Development	Nov. 1, 2023	Jan. 1, 24
30% Design & BDR Development	Jan. 1, 2024	March 1, 2024
80% Design Development	March 1, 2024	May 1, 2024
Cultural Survey & Report	Oct. 1, 2023	Feb. 1, 2024
Environmental Permitting	May 1, 2024	Oct. 1, 2024
Final Design, BDR & Final Cost Estimate	May 1, 2024	Oct. 1, 2024
Bid Document Preparation	Oct. 1, 2024	Jan. 1, 2025

Feedback

The section below indicates feedback for this online proposal process. Comments are greatly valued and will be read and internalized by staff upon submission. Comments will be used to guide the refinement of this format to something simple, clean, intuitive, and useful. We (GRMW) express special thanks to our partners for taking the time to fill out this section.

This online application is working well and is considerably easier to navigate this second time around.

I have the following suggestions for enhanced userability:

- Provide an option to not only "Delete", but also "Edit" various entries in Permits, Restoration Actions, Objectives, Monitoring, Landowners, Elements, and Cost Share tabs.

- Clearly state which tabs and/or sections are required for Technical Assistance vs. Restoration applications.

- Include a "Checklist" tab for both Restoration and T.A. applications, including required uploads for each.

As always, I appreciate the opportunity to provide feedback. Well done, and keep up the good work!

Budget

Download Budget File: Open File in Web Browser

Cost Share

The table below outlines all cost share included for this project including: the organization/source of the cost share, the amount of the cost share (in dollars), whether or not the funds have been secured, whether the funding is cash or in kind, and the reference or contract number if available.

Organization/Cost Share Source	Amount ($)	Secured?	Cash/In Kind?	Reference/Contract # (If Available)
ODFW	$10,569	Yes	In Kind	
GRMW	$2,800	Yes	In Kind	
NPT	$14,500	Yes	In Kind	

Uploaded Photos

By providing pictures the following photos to GRMW the applicant agrees to have their pictures displayed on the GRMW website (grmw.org) and social media accounts.


IMG_2075.JPG


IMG_2081.JPG


IMG_2084.JPG


IMG_2088.JPG


IMG_2090.JPG


20230322_112532.jpg


20230322_112536.jpg


20230322_112540.jpg

Signature

Signature	Accepted Terms	Draft Signed	Final Signed	Date Signed
Kathryn Frenyea, Nez Perce Tribe	Yes	Yes	Yes	April 6, 2023

The signature below affirms everything the applicant has entered into this document is true and accurate to the best of their knowledge and that they agree to stipulations previously outlined in this application such as the sharing of media and reporting requirements should the project be approved by the GRMW Board of Directors.

Kathryn Frenyea, Nez Perce Tribe
Applicant Digital Signature

April 6, 2023
Date Signed (Most Recent)