Grande Ronde Model Watershed

1114 J Avenue

La Grande, OR

(541)-663-0570

GRMW PROPOSAL APPLICATION - FINAL

Project/Application Title: Little Creek LC5/6 Fish Passage Improvements Construction

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Invoice Information (If GRMW is the fiscal agent)

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541-663-0570

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This proposal is for a RESTORATION type project!

Location/Abstract

General Location	Downstream Extent	Upstream Extent
Latitude: 45.2192270	Latitude: 45.2192270	Latitude: 45.2172620
Longitude: 117.8666320	Longitude: 117.8666320	Longitude: 117.8599710

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

Little Creek is located in the southeast portion of the Grande Ronde Valley and is a tributary to Catherine Creek with the confluence downstream of Union, Oregon. Little Creek originates on the west side of the Wallowa Mountains and flows through a valley setting with two separate and distinct landforms that influence the channel. The upstream reaches flow through coniferous forest and rangeland into a confined canyon and is relatively high gradient ranging from 4-10%. As Little Creek exits this canyon and enters the Grande Ronde Valley floor, the gradient is reduced to less than 2% and the channel flows through urban and rural agricultural areas. There are 6 irrigation diversion structures on Little Creek within the valley reach. With the exception of the most downstream White Diversion (LC1), all of the structures are currently unscreened and have been identified as potential fish migration barriers during specific times of the year. Water rights on Little Creek are considered over appropriated and instream flow during summer months can become very low. This project is focused on restoring fish passage for adult and juvenile salmonids past the LC5 and LC6 diversions, but additionally could augment instream flows through increasing diversion efficiency and properly metering diversion volumes.

From 2010 to 2013 the U. S. Bureau of Reclamation (USBR) began collecting data on the Israel Ames (LC6) and the Weaver Lane (LC5) diversion structures which resulted in the production of Alternatives Evaluation Reports (AER) for both sites. Both ditch associations ultimately agreed to alternatives selected from that AER produced by the USBR in 2011 and voted to proceed with plans for diversion updates and construction of fish passage. In 2020, the Union SWCD coordinated with water users and land owners to develop a proposal for a Technical Assistance grant to complete engineered designs at both sites. The District received engineering funds and contracted with Anderson Perry and Associates in 2021 to develop fish passage alternatives and design the chosen alternative to final construction package.

The outcome of this project will construct new in-stream diversion structures with roughened bypass channels to allow for fish passage and will include fish screens and flow meters on the irrigation ditches.

Stepwise & Atlas

Prospectus submitted and review by Atlas Implementation Team: Yes

Project prospectus title and/or ID# (if applicable): Little Creek LC5/6 Fish Passage Improvements Construction

Associated Subwatershed: CC2C

Associated Opportunity: CC2C - CC 35.8 - 36.0: Little Creek

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.

The construction of the Weaver and Israel-Ames irrigation diversion dams (LC5 and LC6) on Little Creek created physical obstructions for salmonid migration into the middle and upper portions of Little Creek Watershed. The Catherine Creek Tributary Assessment completed by the USBR in 2012 identified the middle and upper reaches of Little Creek as critical spawning and rearing habitat for federally listed Summer Steelhead (*Oncorhynchus mykiss*). Juvenile fish sampling for species presence was completed by ODFW in 2011 in Little Creek from the confluence to river mile 5.97, upstream of Kofford Road. Juvenile steelhead were found throughout the survey reach, using an electroshocking methodology, while juvenile Chinook (*Oncorhynchus tshawytscha*) were only found from the confluence to approximately river mile 2.10, which is downstream of the Godly Diversion (LC3). Presently Chinook Salmon have not been observed upstream of the Weaver diversion structure (LC5) and are likely blocked from migration by a downstream diversion. Creating passage at the LC5 and LC6 diversion structures, along with future work to address the more downstream structures, will improve the potential for fish to better access over 13.3 miles of additional spawning and rearing habitat.

While juvenile Chinook presence was documented in the lower portion of the Little Creek basin, adult spawning has not been documented in the past 10 years. It is hypothesized that juveniles moving into lower Little Creek are seeking temperature refuge, but adults cannot access upper reaches where geomorphic conditions may be more favorable for spawning. Temperature monitoring in the Little Creek basin has shown that stream temperatures typically remain below 18°C for all stream reaches and cooler than Catherine Creek, near the confluence, with the exception of the lowest reach where stream temperatures were a few degrees warmer.

An additional impact to the key fish species is the Weaver and Israel-Ames intakes are not currently screened at the diversion points. Fish can easily enter the ditches and be trapped in the irrigation network. An element of this project will install fish screens at both intakes.

It is well documented that surface irrigation water is over appropriated in the Little Creek Watershed. In addition, it is believed that inefficiencies throughout the water delivery systems and at the diversion structures are requiring water users to divert more water in order to satisfy their water right. An added beneficial element to this project is improving the function and efficiency of the diversion structures and coordinating with NRCS to improve on-farm irrigation delivery systems. Flow meters will be installed with the diversion updates and measured to better determine the correct amount of water delivery to meet water right demands while augmenting additional water to the stream for improved habitat conditions.

Final Opportunity Score (Atlas opportunity score)

20.0

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
CWA 404	Jan. 31, 2023	Jan. 31, 2025
CWA 401	Jan. 31, 2023	Jan. 31, 2025
ODSL Removal-Fill	Jan. 31, 2023	Jan. 31, 2025
NHPA Sec 106	Jan. 31, 2023	Jan. 31, 2026
ESA - HIP IV Biological Opinion	Jan. 31, 2023	Jan. 31, 2025
Union County Floodplain Development	Jan. 31, 2023	Jan. 31, 2025

Restoration Actions

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

Restoration Action	Justification
23. Structural Passage (Diversions)	
32. Irrigation System Upgrades -Water Management	

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.

The project goal for the Little Creek LC5/6 Fish Passage Construction is to improve fish passage around the Weaver and Israel-Ames irrigation diversion dams on Little Creek to allow juvenile and adult spring/summer Chinook salmon (*Oncorhynchus tshawytscha*) and summer steelhead (*Oncorhynchus mykiss*) to access high quality habitat in Little Creek while preventing fish from entering the irrigation system. Fish passage criteria for design will be based on allowing passage of bull trout and Pacific lamprey, as those are the most stringent requirements and will allow all other salmonids to pass. The existing diversion structures at both sites will be replaced by laydown stanchions that will allow open flow in the channel during the non-irrigation season. The diversion structures will include installation of rotary drum fish screens manufactured and installed by ODFW. A fish bypass channel will be constructed off the main channel on river left of both diversions. The bypass channels will be constructed with streambed simulation material to mimic natural channel design and maintain appropriate velocities for fish passage.

Objectives

The table below quantifies the appropriate indicators this project will include. Each indicator has a measured current condition, an action taken, a restored condition (post-restoration), a set target condition, and justification/citation explaining why the action will work. Each indicator also includes whether or not the objective will be monitored.

Indicator	Current Condition	Action Taken	Restored Condition	Target Condition	Citation	Monitored?
Quantity of accessible fish habitat	0.0	21.4	21.4	N/A		Yes

Reporting Requirements: In addition to the objectives outlined above, sponsors who receive funding through GRMW understand they will be required to resubmit the indicators/objectives table and budget after implementation to verify that work was completed as proposed and on budget. If there were any deviations from the proposed actions or budget they will be asked to explain those deviations at that time. If they plan to submit a completion report to BPA or a similar organization, they may include this table as a part of the completion report to meet this requirement. Please note that if they wish to recreate this table in their own document that it must include "proposed" and "actual" columns to accurately reflect the work completed.

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.

The Objective of habitat quantity applys most specifically to providing fish passage at the Little Creek Diversions. The projects will improve access to 21.4 kilometers of main stem and tributary habitat for all listed species in the Caterine Creek Drainage.

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.

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

Objective #1 - Improve conditions for fish passage for juvenile and adult spring/summer Chinook salmon (O. tshawytscha) and summer steelhead (O. mykiss) during periods of migration that achieve Oregon Department of Fish and Wildlife (ODFW) and National Marine Fisheries Service (NMFS) fish passage criteria to the greatest extent possible.
Objective #2 - Eliminate access for fish and the opportunity for stranding in the irrigation system through the installation of fish screens.
Objective #3 - Increase instream flow by improving water use efficiency and decreasing diverted water volumes.
Objective #4 - Restore natural instream hydrology and sediment routing processes during the non-irrigation season.

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

This project will provide access to headwaters in the Little Creek watershed. Access to cooler stream reaches will be critical for listed species survival with temperature related issues from climate change.

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

Fish passage has been completed at one location on Little Creek (LC1). Work will continue until all fish passage barriers have been addressed. This project will provide passage at 2 of the remaining 5 passage barriers.

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.

Fish passage and increased marine derived nutrients have been documented to greatly benefit a broad range of terrestrial species. These benefits would be difficult to monitor and measure. Sensitive species that will be directly impacted by this project would be amphibians. They are: Columbia Spotted Frog, Rocky Mountain Tailed Frog, and Western Toad.

Is this a phased project?

No

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

None

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
Diverted irrigation water	Union County Watermaster	Weekly during the irrigation season	Indefinitely	Flow Data for Union County can be accessed through OWRD.
Fish Screen Operations	ODFW Screen Shop	Weekly during the irrigation season	Indefinitely	The monitoring data will be available from the ODFW Screen Shop upon request.

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 Agreements:

Dora Cohen/Neighbors Contacted? Yes/Issues? No/ Link -->	Go to File (grmw.org)
Catherine Nowak/Neighbors Contacted? Yes/Issues? No/ Link -->	Go to File (grmw.org)
Gregg Williams/Neighbors Contacted? Yes/Issues? No/ Link -->	Go to File (grmw.org)
Heath Richter/Neighbors Contacted? Yes/Issues? No/ Link -->	Go to File (grmw.org)

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).

Yes

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
Install 2 natural bypass channels	July 1, 2023	Oct. 15, 2023
Install 2 Fish Screens	July 1, 2023	Oct. 15, 2023
Install 2 new laydown stanchion weirs	July 1, 2023	Oct. 15, 2023

Designs

Level of Current Designs:

80%

Alternatives Analysis:

The action alternatives for this project were developed and considered for the two primary parts of the project; the diversion structures and the fish bypass structures. Two alternatives were developed for each of the primary parts and selection criteria used for evaluation included capital cost, natural fish passage conditions, ease of operation, maintenance, risk, predation, and safety.

The alternatives considered for the diversion structures were; 1) to retain the foundation of the existing structure and install new piers and steel stanchions, or 2) replace the existing diversion with a cast-in-place structure and steel stanchions. For LC5 both alternatives were valid, but replacing the existing diversion ranked higher and alternative 2 was selected. For LC6 the condition of the existing structure is poor and alternative 1 was not a valid choice. Alternative 2, replacement of the existing structure, was selected for LC6.

The alternatives considered for the fish bypass structure were; 1) natural roughened channel, or 2) concrete pool and weir ladder. For both LC5 and LC6 the natural roughened channel was determined to be a viable option and ranked highest for meeting the selection criteria.

In addition, two types of fish screen were considered and evaluated based on the physical layout, flow conditions, and expected climate conditions. For both sites a rotary drum screen has been selected over a traveling belt screen.

Additional Comments:

None.

Designs File:

Download Designs File: Open File in Web Browser

Budget

Download Budget File: Open File in Web Browser

Budget Narrative: This block explains the budget and any unusual line items or costs.

None

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)
Union Soil and Water Conservation District	$9,285	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.

Picture5.png

Figure 3. Israel-Ames Diversion (LC6) aerial view from northwest..png

Figure 2. Weaver Diversion (LC5) aerial view from the southwest..png

Figure 1. Weaver Diversion (LC5) looking upstream..png

Additional Files

File Name (Click to Download)	Description
Open File in Web Browser	IT Team Review Comments and Answers

Signature

Signature	Accepted Terms	Draft Signed	Final Signed	Date Signed
James Webster	Yes	Yes	Yes	Oct. 17, 2022

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.

James Webster
Applicant Digital Signature

Oct. 17, 2022
Date Signed (Most Recent)