Prospectus of Proposed Project Opportunity

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Opportunity Title

Buffalo Flats Floodplain Planning

Opportunity Lead

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Technical Contact

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Landowners

Contacted: Yes
Supportive: The landowners are very supportive of improving fish habitat in Catherine Creek and Little Creek and restoring natural floodplain processes in the Buffalo Flats project area. They have conservation management goals to improve ecological conditions while operating a viable livestock ranch.
Contribution: The landowners have fully engaged in the scoping process and have assisted in gathering initial site information. They have also been instrumental in public outreach to provide project information to the local community. They plan to continue contributing to the project as the technical design advances as active participants of the technical team. The landowners will be developing both a property management plan and a weed management plan to be implemented post project construction.

River

Name: Catherine Creek
Mile: River Mile 40-42
Tributary: Grande Ronde River

Restoration Atlas

BSR: CC3B1
Tier: Tier 1
Initial Score: 128.6
Proposed Score:

Restoration Activities

1. Protect Land and Water (Easement, Acquisition, Management)
2. Channel Reconstruction
3. Pool Development
4. Riffle Construction
5. Meander (Oxbow) Re-connect - Reconstruction
7. Levee Modification: Removal, Setback, Breach
8. Remove - Relocate Floodplain Infrastructure
9. Restoration of Floodplain Topography and Vegetation
10. Floodplain Construction
11. Perennial Side Channel
12. Secondary (non-perennial) Channel
13. Floodplain Pond - Wetland
14. Alcove
15. Hyporheic Off-Channel Habitat (Groundwater)
16. Beaver Restoration Management
18. Riparian Buffer Strip, Planting
20. Remove non-native plants
26. Boulder Placement
27. LWD Placement
28. Modification or Removal of Bank Armoring
29. Restore banklines with LWD - Bioengineering
30. Aquire Instream Flow (Lease- Purchase)
31. Improve Thermal Refugia (spring reconnect, other)
32. Irrigation System Upgrades -Water Management
34. Upland Vegetation Treatment - Management
35. Road Decommissionsing or abandonment
36. Road Grading - Drainage Improvements

Species Affected

Focal: Snake River Spring Chinook salmon, Snake River Summer steelhead, and bull trout.
Other: Resident redband trout, lamprey, and other native resident fish populations.

Description

The District is working in collaboration with the BOR to begin the planning process for a stream restoration project on the Buffalo Peaks Land and Livestock property (BPLL)(RM 40.69-41.65) upstream of the town of Union. This prospectus is intended to begin the IT review process, however no funding will be requested for the design at this time.

The BPLL property includes roughly 240 acres of historic floodplain of both Catherine Creek and Little Creek, which comprises the Buffalo Flats project area. Approximately 0.96 miles of Catherine Creek and 1.30 miles of Little Creek are located in the project area. This planning effort will initially focus on restoration of the Catherine Creek channel and floodplain, and evaluate restoration opportunities on Little Creek in the future.

The proposed project reach of Catherine Creek was channelized some time prior to the construction of State Highway 203. As a result, the Catherine Creek channel is disconnected from the historic floodplain and aquatic habitat has been degraded in many ways. Streamside vegetation and instream large woody material have been managed to reduce impacts to the highway. Channelization has lead to the simplification of habitat units through the reach. From the period of 1941 to 1990 pool habitat in Catherine Creek decreased by 61% (McIntosh 1992). Habitat surveys conducted in 2010 indicated that the overall reach was dominated by riffle units (88.1%) with only 11 percent of the units being comprised of pools (ODFW AQI, 2010). The incised channel has increased water depth during peakflow events which has led to increased flow velocity, increased shear stress on the channel bed, and bed armoring. This has led to a decrease in spawning area and opportunity. ODFW Research records show that only 14 redds have been observed in this reach over the past 8 years and juvenile densities for both steelhead and Chinook have been estimated to be very low.

The primary goal of this project is to restore natural floodplain processes and improve instream salmonid habitat conditions in Catherine Creek and Little Creek while providing for . The desired outcomes from the project include increasing channel lengths, creating side channel and alcove habitat, and increasing the area of zero velocity refugia. The restoration of sediment routing through the project reach will create favorable conditions for diverse riparian vegetation to establish. In addition, better sediment routing will lead to improved spawning conditions as well as increased habitat diversity. The creation of large deep pools with stable wood additions will improve adult holding habitat and juvenile rearing habitat (for both over summer and over winter). The design for this project will be conducted in a manner that does not negatively impact infrastructure to existing ditch networks, adjacent properties, or increase the flood risk to the city of Union.

Objectives

1. Do no harm to neighboring properties and structures and maintain the utility of existing infrastructure.
- Design and implement actions that shows no rise to base flood conditions within the City of Union.
- Decrease flooding and flood damage in the City of Union by increasing streambank and floodplain storage of water and ice; thereby, attenuating flows, reducing ice formation within the project reach, and storing additional ice within the project floodplain.
- Recruit and store large woody material in the project area and reduce future wood loading within the City of Union.
- Complete a project that has no effect on neighboring or downstream irrigators to obtain their legal right to withdraw water from either Catherine Creek or Little Creek.
- Maintain and improve transmission and delivery of State Ditch irrigation water through the project area.

2. Improve agricultural productivity and ecological conditions within the project area.
- Raise water table only within the designated project area to promote and improve native vegetation communities.
- Promote natural river-floodplain connectivity for improvement of soils and native vegetation.
- Manage grazing within the project area to protect and maximize vegetative health and forage production.

3. Improve aquatic habitat conditions and increase habitat diversity and complexity for salmonids.
- Maximize stable large wood material density within wetted channels and within the confines of geomorphic and physical constraints of the project site with consideration of risk to existing infrastructure.
- Maximize pool density within the project area within sustainable geomorphic potential of the project reach for fish use (adult holding and juvenile rearing) at completion of project.
- Maximize and promote ephemeral and perennial side channels that include complex cover and perennial alcove features within the hydrogeomorphic conditions/constraints of the project area at project completion.
– Improve bedload retention and restore sediment routing processes by changing the predominant plane-bed channel conditions associated with homogenous particle size retention to a pool-riffle channel with greater particle size diversity.
- Maximize off-channel features such as alcove and off-channel pond habitats with preferred depth, velocity, and cover for refuge and rearing of juvenile Chinook at the completion of the project.

4. Improve water quality conditions (temperature and sediment) for salmonids.
- Provide long term decrease in baseflow water temperature of Little Creek within the project reach through improved riparian shading.
- Provide temperature benefits to salmonids in both Little Creek and Catherine Creek using strategies to promote increased thermal diversity through hyporheic exchange.

- Increase sinuosity of the main channel alignment to improve thermal diversity at baseflow conditions by increasing hyporheic conductivity flowpaths.
- Improve cool water supply and thermal diversity potential within the project area by increasing water storage within the floodplains through increased annual and low flow water table elevation at the completion of the project.
– Improve thermal diversity during baseflow conditions by connecting the main channel to potential cold water sources of hyporheic and/or groundwater including historic relic channels.
- Improve natural bedload routing and retention processes by restoring channel morphology and promoting channel bed diversity resulting in reduction of bed armor, creation of dynamic depositional features, and increased and improved hyporheic connectivity.

5. Improve riparian corridor and floodplain vegetative diversity and health within the project area.
- Maximize floodplain connectivity within the geomorphic potential, landowner confines, and floodplain zoning constraints of the project area. Minimally activate the floodplain on an annual basis during the spring freshet at project completion.
- Enhance native woody vegetation including dominant cottonwood, alder, and willow within the limitations of soil structure and hydrology within the project reach to maximize shade on water surfaces within 10-years following project completion.
- Improve suspended sediment retention on floodplain surfaces within the project area through greater extent, frequency, and duration of floodplain inundation during spring runoff conditions at completion of project.
- Prevent the establishment of non-native weeds within the project boundary for first 5-years after construction through active weed management.

6. Reconnect both Catherine Creek and Little Creek with their floodplains and expand quality floodplain habitat availability for salmonids within the project boundaries.
- Construct a new channel network that allows floodplain interaction with river flows at a minimum of an annual basis during spring high flow conditions.
- Remove constrictions to overland flow and side channel development in the floodplain to restore a more natural geomorphology within landowner and zoning constraints.

Major Risks

Cultural: The plan will be to start early in the design process to identify potential issues.

Funding and Permitting: This will be a large and complex project and may require secured funding prior to significant effort for the design of a potential new road alignment and channel. The purpose of submitting this prospectus at this time is not to secure design funding but to provide project information and solicit review and input about implementation funding,

environmental compliance and regulatory permitting requirements, and other design details.

Community Concerns: The District, BOR, GRMW, CTUIR, and TU have begun a education and outreach effort in the local community of Union that has consisted of identifying and presenting information to stakeholders, neighboring landowners, ditch companies, City of Union, and concerned and interested citizens. The District provides project updates on their website and directly to the Union City Council. The District has identified key community members to include in a Focus Group that will be provided project details in future meetings.

Permits and Consultation

ESA Section 7 USFWS: Applicable
ESA Section 7 NMFS: Applicable
COE or DSL Permit: Applicable
Cultural Resources Section 106: Applicable
DEQ 401 Water Quality Permit: Applicable

Project Schedule

Year: 2023

Monitoring: Monitoring plans will be developed as the project design progresses.

Project Relations

Multi-phase Effort: Yes
Phase Description: The project will be phased to allow enough time to complete the new road alignment and construction of the new channel through the project site. We anticipate construction starting in 2023 and being completed in the summer of 2024.
Could Phase 1 be a Stand Alone Project: False
Would the project lose value if future phases don’t happen: The conceptual changes to the Buffalo Flats area that would need to be completed in the first year would not achieve project goals and objectives is additional actions are not taken. The scale and complexity of this project will require actions to be in a sequence that spans more than one year.

Preliminary Cost Estimate

Total: 0
BPA Funding: 0
OWEB Funding: 0

Design Funding

Design Funds Requested: No