The Wallowa River- Baker Project Proposal

Submitted to the Grande Ronde Model Watershed for Consideration by

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Oregon Department of Fish and Wildlife
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GRANDE RONDE MODEL WATERSHED
Watershed Enhancement Project Proposal

1. **Project Name: Wallowa River-Baker Project**

2. **Applicant:** Oregon Department of Fish and Wildlife, Grande Ronde Basin Fish Habitat Enhancement Project

3. **Participating Landowner(s) and Agencies:**
   Oregon Department of Fish and Wildlife
   John and Tarrah Baker (Landowner)
   Oregon Department of Transportation (Landowner)
   Grande Ronde Model Watershed
   Dan Baremore (Potential participating landowner)

4. **Project Contact(s):**
   Project Manager:
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5. **Project Location:**

This project is located approximately 2.75 miles Northwest of Wallowa, Oregon on the Wallowa River (R.M. 21), a tributary to the Grande Ronde River. The legal description of this project is Township 1 North, Range 42 East, Section 4, Willamette Meridian, Wallowa County, Oregon. GPS coordinates for this location are the following: Latitude: 45.594011, Longitude: -117.575855.

6. **Project Objectives:**

Currently, the goal of this proposal is to secure funding to complete a 30% engineered project design for the Wallowa River-Baker project. While ODFW has completed many in house designs in the past, this project is highly complex due to its location in a naturally occurring aggrading reach, its proximity to a county bridge downstream, and the existence of a dike leading to the bridge on the left bank (constructed by USACE). ODFW believes that a design by an engineering firm with multiple years of experience completing complex channel restoration designs will ensure project success. ODFW has completed a working conceptual design with the landowner, as seen in Figure 2, that will be the basis of the engineered design.

According to the 2012 FCRPS Biological Opinion Habitat Conditions Represented Using Standardized NOAA Limiting Factors produced by the 2012 expert panel process, the main limiting factors for listed Snake River Spring/Summer Chinook and Snake River Summer Steelhead in this section the Wallowa River (WLC3 and WRS6 respectively) are:

6.2 Channel Structure and Form: Instream Structural Complexity (LF Weight: 25%)
7.2 Sediment Conditions: Increased Sediment Quantity (LF Weight: 20%)
6.1 Channel Structure and Form: Bed and Channel Form (LF Weight: 15%)

and

6.1 Channel Structure and Form: Bed and Channel Form (LF Weight: 15%)
4.1 Riparian Condition: Riparian Vegetation (LF Weight: 25%)
6.2 Channel Structure and Form: Instream Structural Complexity (LF Weight: 25%)

Currently, the Wallowa River within the project reach has experienced loss of riparian vegetation and exhibits poor stream bank stability. This reach is currently aggrading causing active lateral channel migration into agricultural fields.

Funding for a 30% project design will bring this project one step closer in addressing the limiting factors to Chinook/Steelhead within this reach of the river and produce a restoration design that will accomplish the following:

- Restore the Wallowa River to within its natural form and function, promoting natural, stable stream channels and in-stream habitat diversity.

- Increase both quantity and quality of summer and winter rearing habitat for native anadromous and resident salmonids. Focal species will be the ESA listed Snake River Spring/Summer Chinook and Snake River Summer Steelhead. Bull Trout may also utilize the project area.

- Restore floodplain connectivity and riparian buffers to minimize erosion and maintain property value for landowner.

- Improve water quality (sediment, nutrient exchange, water temperatures, flow).

- Increase groundwater storage and recharge.

The above objectives will address the limiting factors identified above and are also consistent with the Grande Ronde Subbasin Plan (2004) Habitat Goals (Section 5.2.1.1):

- Protect high quality habitat, restore degraded habitats, and provide connectivity between functioning habitats.

- Manage for healthy ecosystems to support aquatic resources and native species.

The Grande Ronde Subbasin Plan Supplement identifies the Mid-Wallowa River as one of the 5 highest priority restoration areas in the subbasin for both Spring Chinook and Steelhead. (Table 3-1, Table 3-2). A high restoration benefit ranking as per the GRSP indicates that a project within the Mid Wallowa River will result in improved aquatic/riparian habitat, reduced sediment delivery to the stream, and improved flow and water temperature regimes that will provide a relatively large increase in abundance, productivity, and diversity of the species. (GRSP pg.14) The GRSP also provides a framework for screening and identifying the priority of proposed projects as

well as strategies to accomplishing objectives in the Grande Ronde Subbasin, for example:

Table 5-6 - Framework for screening and identifying the priority of proposed projects in the Grande Ronde subbasin (page 46).
The table includes concepts and strategies, such as:

♦ ***"Restore watershed processes impacting the aquatic system, water quality-limited streams, and wildlife habitat" Strategy***- Restoring hydrology to reestablish healthy riparian zones in the landscape

♦ ***"Channel Condition" Strategy***- Reconstruct channelized stream reaches to historic or near-historic form and location where appropriate and feasible; Improve the density, condition and species composition of riparian vegetation through planting, seeding; grazing management and improved forest management practices; Install in channel structures (LWD, boulders, rock structures) as appropriate to improve habitat complexity in the short term.

The project location and objectives are consistent with the GRSP goals and the GRSP Supplement's restoration location prioritization and strategies for completing desired objectives as well as addressing limiting factors identified by the 2012 Expert Panel.

7. Project Description

Introduction

The Wallowa River is a tributary to the Grande Ronde River and provides a migration corridor as well as spawning and rearing habitat for ESA listed Snake River Spring/Summer Chinook and Snake River Summer Steelhead as well as habitat for Bull Trout. The adjacent lands to the project are mostly private agricultural grounds, the only exception being a small piece of ground owned by the Oregon Department of Transportation, which is currently being managed by ODFW as a Wildlife Management Area and has a public fishing pond. Since settlement, the stream courses and drainage patterns were greatly simplified and severely altered as a result of agricultural practices as well as road and railroad construction. In-stream habitat and complexity were further diminished by regular in "channel maintenance" that included gravel extraction. Due to these habitat alterations, the Wallowa River within this project reach has experienced a loss of riparian vegetation and exhibits poor stream bank stability. Efforts to address channel stability were completed in 1997 by the NRCS within the project reach. This consisted of installing stream barbs and planting on high banks. While an effort was made, few of the plants survived due to the planting elevation and many of the in-stream structures exacerbated localized scour or deposition, again causing accelerated lateral migration. As Figure 2 shows, if funding is secured for 30% design, the overall goal of the project will be to re-connect the floodplain, construct high flow channels to dissipate flood energy, provide off-channel rearing habitat, connect a spring fed channel to the Wallowa River, and transfer nearly 140 acres of riparian zone into a conservation easement.

Existing Condition

Currently, the Wallowa River as it flows through the Baker property is an aggrading section of river causing lateral channel migration into the landowners' agricultural field. (Figures 3-7). With a lack of a healthy riparian zone on the left bank, large amounts of sediment are being introduced into the river at higher flows and channel complexity is limited in these locations.

In 2007, ODFW and other partners were contacted by the landowner about bank erosion that was occurring on their property. At that time it was relatively localized at one location. In 2009, as seen in Figure 4, out of channel flows during runoff breached the narrow riparian area and began carving a new channel. Later in 2009, the active erosion on the Baker property had caused a complete, new, channel to be carved through the landowners' property (Figure 5-6). At that time discussions began with the landowner about taking the whole pasture out of production, putting it into a conservation easement, fencing it off and planting it with native vegetation. Following this, conceptual ideas for a side channel creation and bank stabilization project were discussed. After high flows in the 2011, the Wallowa River abandoned its' new left bank channel and began to carve yet another new channel further to the right bank (Figure 7). Currently this large channel is only activated at higher flows.

Looking at historical photos it appears that there was a spring fed creek that ran through the project area. Over time this tributary was ditched and controlled for irrigation purposes, and was supplemented with Wallowa River and Bear Creek water. The Baker's are now the last water users on this system and the remaining water returns to the Wallowa River. It flows throughout the year. Some of this distance, approximately 0.25 miles is in a ditch along Lower Diamond Road. Currently fish can access this "Spring Ditch" and travel upstream unimpeded until reaching the screens that are at the upper end of the system meant to keep fish out.

At the downstream end of the project location on the right bank, there is high exposed bank on the ODFW managed ODOT property. This six to eight foot high bank is likely contributing sediment and no riparian vegetation is growing on top of it.

ODFW has documented steelhead spawning within the project reach. ODFW will be snorkeling this fall to document fish use.

After many years of planning and discussion, the Baker's have agreed to place approximately 70 acres into a conservation easement with ODFW, which accounts for roughly 0.60 miles of the Wallowa River. Contact has also been made with the upstream landowner, Dan Baremore, who has expressed great interest in putting his ~65 acres of riverside property into a conservation easement, which also accounts for another ~0.36 miles of the Wallowa River.

Specific Actions

The first action to undertake in this project is to have Baker's sign a conservation lease agreement, which is currently in its final process, and should be effective on October 1, 2013. This will turn over approximately 70 acres of riparian habitat into a 15 year easement. The next action is to obtain a 30% project design which will include flow analysis, sediment transport analysis, and HEC-RAS modeling. The following tasks are currently conceptual, but give a general idea of the current direction of the design plans. As mentioned previously, the right bank/upstream landowner has expressed interest in this project as well, the following estimates will be shown and with the addition of the Baremore property, please also refer to Figure 2.

- Placement of wood complexes within side and mainstream channels for bank stability and channel complexity. (~.6 miles of stream, 0.96 w/Baremore).

- Construction/Activation of approximately 5440 feet of high flow channels which will include excavation for floodplain connectivity.

- Construction of ~1500 feet of channel connecting the "spring ditch", to a constructed side channel. This action will remove the water from the ditch along Lower Diamond Road and provide water to the constructed side channel. At the Baker point of diversion a fish screen will be installed to prevent entrance to the irrigation system.

- Re-construction of approximately 600 feet of meander on the Baker Property and 500 ft. of bank reconstruction on the ODOT property within the main Wallowa River channel.

- Riparian planting with native species (70+/- acres, 135 +/- acres w/ Baremore)

- Put ~70 acres (135 acres W/Baremore) into a conservation easement.

- Protect ~0.6 miles (0.96 miles W/Baremore) of Snake River Spring/Summer Chinook and Summer Steelhead spawning and rearing habitat with a 15 year conservation easement.

- Build a riparian fence exclosure to protect the restored riparian area.

Benefits

This project is crucial, because it allows the main limiting factors for Chinook and Steelhead in this section the Wallowa River (in-stream complexity, increased in-stream sediment, loss of riparian vegetation, and loss of water quality and quantity) to all be addressed within the project design. This project will intend to include several side channels which will increase stream complexity, stabilize banks with riparian planting, revetment structures, and large wood, reducing in stream sediment and increasing riparian vegetation, and will promote aquifer recharge with floodplain reconnection. Specifically the benefits will include:

- The Baker project will provide a variety of benefits to the ecosystem as a whole as well as to the people which surround it.

- The riparian zone will benefit from the protection of riparian fencing and through planting and natural recovery.

- A riparian easement with provide a buffer for agricultural practices on adjacent lands.

- In stream habitat will benefit from improved complexity and numbers of riffles/pools, backwaters, etc. which will create more spawning and rearing habitat for Snake River Spring/Summer Chinook and Snake River Summer Steelhead.

- Improvement of floodplain connectivity will improve water quality and water storage capacity.

- Establishing the riparian easement identified, will give the stream channel a buffer and the ability to adjust and meander. This will allow the river to accommodate natural variations of sediment, which occur presently, and with future climate variation.

- This project will protect a stretch of the Wallowa River that has some of the best habitat complexity (multi channel, large wood complexes, pools/riffles, alcoves/backwater) in the valley.

- Many other species such as birds and big game will benefit from the added habitat complexity.

- Contractors, businessmen and the landowner(s) will all benefit economically from this project whether it be jobs, materials purchase, or added intrinsic property value.

Project Maintenance

ODFW-Project maintenance:
ODFW Grande Ronde Fish Habitat will inspect for channel stability, fish passage, and document project results and status reporting as outlined in annual statements of work to BPA. ODFW will also assume maintenance associated with the riparian fence easement, which will include yearly maintenance and inspection of the fence as well as responsibility for offsite water developments.

Permits

Concurrent with 30% design, ODFW will complete all environmental compliance requirements in fall/winter 2013-2014. These requirements will include Oregon DSL and USACE JPA, Section 106 consultation, and ESA consultation or programmatic.

Monitoring Plan

ODFW Grande Ronde Fish Habitat will monitor the project in accordance with the Work Elements 157 and 162 within its annual statement of work submitted to BPA (http://www.cbfish.org/Project.mvc/Display/1984-025-00). The milestones associated with these work elements will allow evaluation of project objectives. Pre-project monitoring has been completed and long term monitoring such as photo points, temperature data collection, and solar radiation input data collection, and channel geomorphology data collection will continue for a minimum of ten years. Reporting will be through Pisces and thorough documentation will be included in the program annual report.

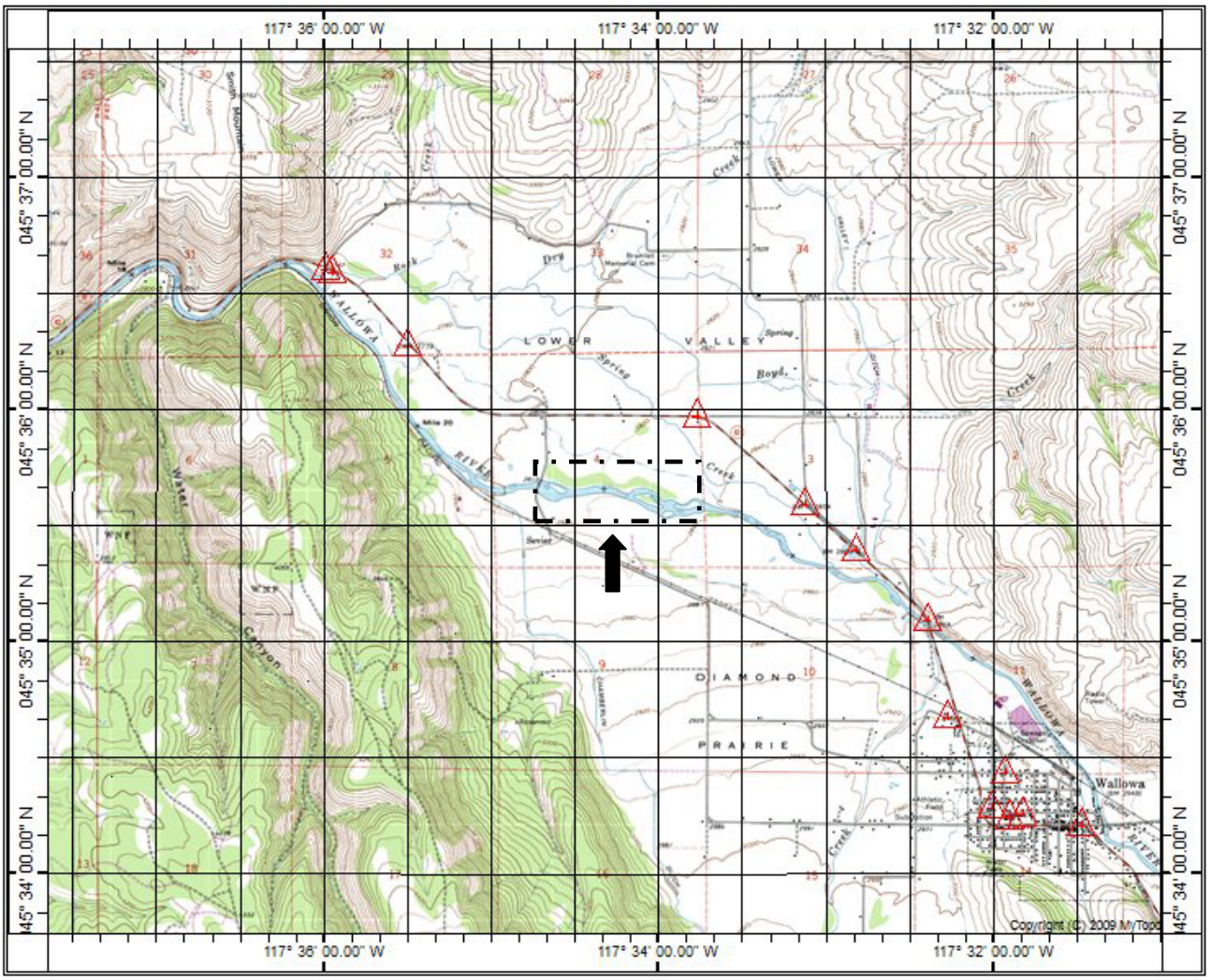
Work Dates

30% design completed by February 15th, 2014 with final design May 1st 2014.
Permitting and consultation will take place in the fall/winter/spring of 2013-2014.
Construction will take place in the summer of 2014.
Monitoring will take place indefinitely by ODFW.

8. Project Budget

Currently, the intent of this proposal is to obtain $80,000 for 30% project design which includes flow analysis, sediment transport analysis and HEC-RAS modeling. After funding is secured, and a design agreed upon, another proposal will be submitted at a later date when project criteria and details are better understood and quantifiable.

9. Attachments:



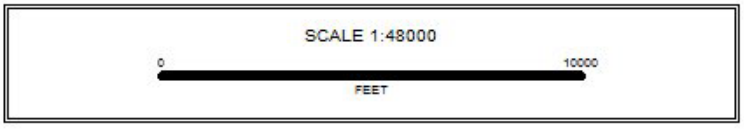


Figure 1. Vicinity Map showing approximate location of project outlined by the dashed line above the arrow.

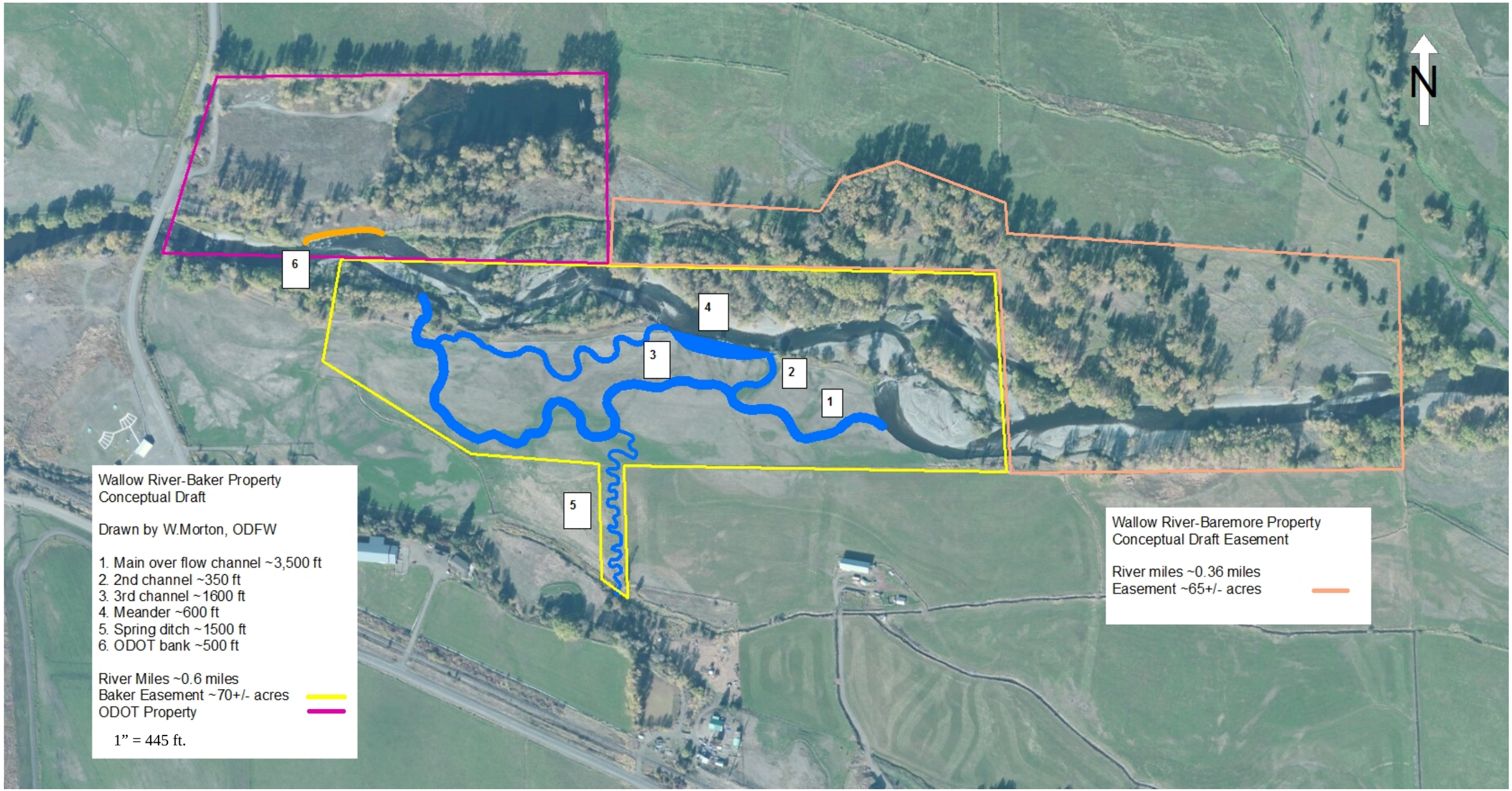


Figure 2. Conceptual Draft of the Baker Project on the Wallowa River showing proposed channel work and easement boundaries.

Figure 3. Looking downstream on the Baker property in April 2007 at the relatively localized bank erosion.

Figure 4. Looking downstream, on the Baker property in June 2, 2009, showing the Wallowa River laterally migrating through the narrow riparian buffer carving what would become the main channel by the end of runoff.

Figure 5. Looking downstream June 25, 2009 at the Wallowa River from the Baker Property in a location close to Figure 4. As flows receded this became the main channel.

Figure 6. Looking upstream in July 2010 from the right bank towards the shooting locations of Figures 4 and 5. The bank is over 500 ft. long at this time.

Figure 7. A photo taken from a location in proximity to the photo in Figure 6 in January 2012. ODFW employees and the landowner are surveying the abandoned left bank channel. This was the main channel 2009-2012 and still activates at higher flows.

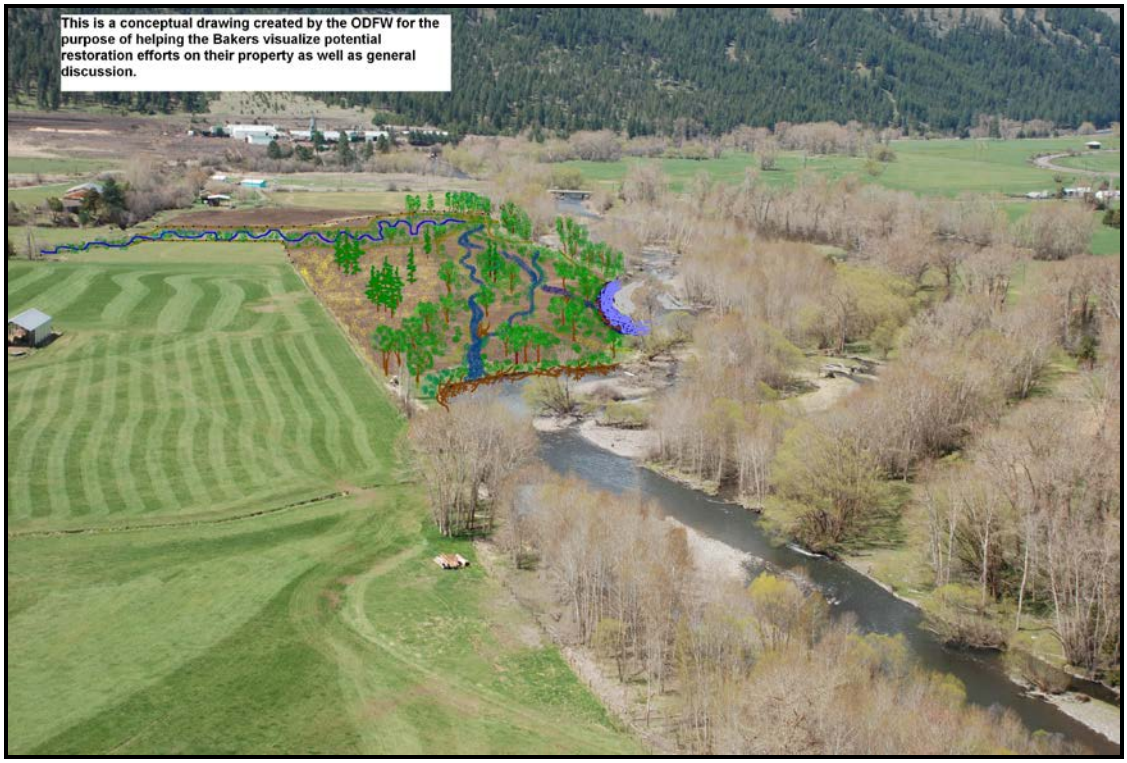


Figure 8. Conceptual drawings completed by ODFW in March 2012 to assist the landowners in visualizing the riparian restoration concepts proposed for their property.