

1. Project Name:

Beaver Creek Dam Fish Passage and Streamflow Restoration Project

2. Applicant:

City of La Grande Norm Paullus, Public Works Director

3. Participating Landowner(s) and Agencies:

U.S. Forest Service Wallowa-Whitman National Forest Bill Gamble, District Ranger

4. Project Contact(s):

Technical Contact: Brett Moore, P.E., Project Engineer Anderson Perry & Associates, Inc. 1901 N. Fir Street / P.O. Box 1107 La Grande, Oregon 97850 <u>bmoore@andersonperry.com</u> (541) 963-8309

Administrative Contact: Norman Paullus, Public Works Director City of La Grande 800 X Avenue La Grande, Oregon 97850 <u>npaullus@cityoflagrande.org</u> (541) 962-1325

Landowner/Agency: Bill Gamble, District Ranger U.S. Forest Service Wallowa-Whitman National Forest 3502 Highway 30 La Grande, Oregon 97850 <u>bgamble@fs.fed.us</u> (541) 963-8582 Project Coordination: Laurie Parry, Environmental Compliance Specialist Anderson Perry & Associates, Inc. 1901 N. Fir Street / P.O. Box 1107 La Grande, Oregon 97850 <u>Iparry@andersonperry.com</u> (541) 963-8309

5. Project Location:

County: Union Stream Name: Beaver Creek, West Beaver Creek, Cove Creek River Mile: 13-15 Beaver Creek Tributary To: Grande Ronde River GPS Coordinates LAT: 45.1266884 N GPS Coordinates LONG: -118.1674011 W (See Figures 1A through 2E)

6. Project Objectives:

The objective of this project is to manage the La Grande watershed such that ecological processes support aquatic productivity and diversity while a reliable drinking water source for the City of La Grande is maintained. Fish passage for aquatic species is the main focus of the project. Other benefits include fish screening on all diversions and restoring native fish populations by providing connectivity. The proposed Improvements will bring the reservoir into regulatory compliance, allowing the City to continue operating this water storage resource, and will open 12 miles of spawning habitat for salmonids while supporting in-stream flow augmentation during low flow periods of the year.

The City of La Grande owns and operates the La Grande Reservoir, an impoundment on Beaver Creek in the Upper Grande Ronde River watershed in Union County. Beaver Creek is home to multiple Endangered Species Act (ESA)-listed species including spring Chinook, summer steelhead, and bull trout. The Beaver Creek Dam was constructed in 1915 to create the reservoir that provides water storage for domestic use during dry periods of the year. Several diversion structures in the watershed feed a pipeline to the City for municipal water. At the time of construction, fish passage was not considered. The completed project created seven barriers, five of which inhibit aquatic access to approximately 12 miles of watershed, an area that has potential for quality habitat and historically was a spawning and rearing area for spring Chinook salmon and steelhead. See Figures 1A and 1B for the locations of these facilities. Due to the high mountain location, these facilities are normally accessible by vehicle only during a six-month period of the year.

An operational agreement that will ensure appropriate (when operationally feasible) seasonlong stream flow for fish passage is being drafted between the City of La Grande and the U.S. Forest Service (USFS). The minimum flow for which fish passage will be provided is 6 cubic feet per second (cfs). Any flows below this threshold will not be guaranteed to provide fish passage and the City of La Grande will not be obligated to reduce the amount of water being diverted for municipal use. The City and The Freshwater Trust have entered into a 20-year renewable agreement to release water from the reservoir during low flow periods in Beaver Creek.

Overview of Project Goals:

- Improve fish passage through Beaver Creek to the La Grande Reservoir and through approximately 12 miles of high quality habitat.
- Improve stream morphology by re-grading the channel at five diversion structures and re-establishing natural stream channels.
- Augment in-stream flows during low flow periods in Beaver Creek.
- Restore populations of native fish to the La Grande watershed area.

As outlined in the Grande Ronde Subbasin Plan prepared for the Northwest Power and Conservation Council (Nowak, M. Cathy, May 28, 2004, pages 258-259), goals for aquatic habitat within the subbasin are (1) protect high quality habitat, restore degraded habitats, and provide connectivity between functioning habitats; and (2) manage for healthy ecosystems to support aquatic resources and native species. In addition, priority attributes for the Upper Grande Ronde River watershed include: (1) sediment, (2) flow, (3) temperature, and (4) key habitat quantity (reduced wetted widths).

The draft Northeast Oregon Snake River Recovery Plan (National Marine Fisheries Service [NMFS], November 2012, pages 6-42 and 6-82) identifies the primary habitat-related limiting factors for steelhead and spring Chinook salmon populations in Beaver Creek and associated tributaries as excess fine sediment, reduced habitat quantity and diversity (pools/pool frequency), water quality (temperature), and locally impaired riparian conditions. The Plan specifically identifies fish passage as a limiting factor on Beaver Creek for both steelhead and spring Chinook salmon (page 8-53) and outlines the following specific action: "Improve fish passage by removing one passage barrier at the La Grande Reservoir on Beaver Creek." Priorities for recovery include (1) conservation of existing quality habitat, (2) enhancing habitat and restoring natural ecological processes, and (3) restoring habitat and natural ecological processes that were historically important (page 8-3).

Additionally, as described in the Plan (page 6-8), reduction in salmonid spawning populations indirectly affects stream and riparian nutrient balances. The decrease in salmonid carcass deposition and decay and associated marine-derived nutrients has been shown to reduce spawning and rearing habitat productivity. These marine-derived nutrients also promote riparian forest productivity, influencing aquatic and riparian biodiversity and biomass production. The reconnection of approximately 12 miles of inaccessible salmonid stream habitat in the La Grande watershed has the potential to improve existing downstream spawning and rearing habitat, increase stream shading, and generally improve riparian and aquatic habitat with the reintroduction of essential nutrients that promote bio-productivity.

Improving habitat in the Upper Grande Ronde River is identified as high priority in the abovereferenced Plans for bull trout, steelhead, and spring Chinook salmon populations. The limiting factors this project will address are fish passage; habitat quantity, quality, and diversity; and flows. The project will remove five barriers, opening approximately 12 miles of pristine aquatic habitat.

This watershed area has been protected from many of the threats that lead to degradation of habitat in the lower reaches: the La Grande watershed restricts the use of motorized vehicles, no livestock grazing is allowed, and timber harvesting is prohibited. Therefore, the riparian area within the watershed is in excellent condition and provides for stream shading. The major limiting factor associated with the watershed is passage; however, once the barriers are removed, aquatic species will have access to this high quality habitat that was historically used for spawning, rearing, and migration.

7. Project Description

Introduction

During the 1915 construction of the dam for the La Grande Reservoir, fish passage was not a consideration. Installation of the dam and associated diversion structures created five barriers that inhibit access for aquatic species, namely Mid-Columbia steelhead and spring Chinook salmon, to approximately 12 miles of protected watershed. These facilities are located on USFS property; however, the City of La Grande owns and operates the facilities. The goal of this project is to remove fish passage barriers at five diversion structures, open approximately 12 miles of native habitat to aquatic species, and augment in-stream flows, while continuing to protect the City of La Grande's drinking water source. The project will be completed in three phases: Phase I will address fish passage and screening on the main intake and upper diversions and fish passage at the dam; Phase II will address fish screening at each intake. The work areas are shown on Figures 2A through 2E.

Existing Condition

The Beaver Creek watershed is located in northeastern Oregon in the Blue Mountains and is part of the Grande Ronde River subbasin. The Beaver Creek watershed drains approximately 60 square miles, and most of the Upper Beaver Creek subwatershed is designated as the La Grande watershed, a secondary municipal water supply for the City of La Grande. Beaver Creek flows north and joins the Grande Ronde River at river mile 181.7.

Land cover in the Upper Beaver Creek subwatershed is dominated by forestland, mainly ponderosa pine and Douglas-fir. Approximately 98 percent of the subwatershed is owned by the USFS, with the remaining acreage in state, Bureau of Land Management, and private ownership.

From the confluence with the Grande Ronde River, Beaver Creek has open passage for approximately 13.5 miles. The first man-made barrier encountered is a concrete intake structure with a 7-foot vertical drop (see Figure 3D). This is the main diversion for the City's water system, collecting water released from the La Grande Reservoir. The Beaver Creek Dam structure, the second barrier, is located approximately 1,100 feet upstream of the water system intake (see Figures 3B and 3C). Due to seasonal algae growth in the stored water of the reservoir, the upper diversion structure was constructed upstream of the backwater of the dam. When algae bloom occurs, this diversion structure allows clear water to be sent around the impoundment to an intake structure on Cove Creek. This diversion on Beaver Creek creates the third barrier on the stream, approximately 3,400 feet upstream of the reservoir (see Figure 3A).

There are also four small intake facilities on tributaries to Beaver Creek. These intakes are located on Cove Creek, Elk Creek, West Beaver Creek, and Hidden Springs. These consist of concrete diversion structures that span the entire creek to divert water into a concrete intake box, where debris is screened before the water flows into the pipe system to the City. The diversion structures range between 2 feet and 6 feet in width across these small creeks. Each diversion has developed a plunge pool behind the structures that exceeds the natural conditions of the creeks (see Figure 3E). Of the four intake structures, only the two occurring on Cove and West Beaver Creeks are intended to be modified, as Elk Creek and Hidden Springs are not known to provide for fish habitat (Tim Bailey, Oregon Department of Fish and Wildlife [ODFW]). The City of La Grande relied on the watershed as its primary source of water until 2002, when the last of a series of wells was brought on line to meet the community's water demand. Due to dropping water levels in the confined aquifer beneath La Grande, additional wells are not expected to be a viable water source in the future. Therefore, the existing water rights of the watershed remain instrumental in meeting demands as the community grows.

Beaver Creek historically had large populations of native fish including Chinook salmon, Snake River steelhead, and bull trout. Habitat degradation, including fish barriers, has been identified as one of the main contributing factors in the decline of native fish populations. The Beaver Creek Dam Fish Passage and Streamflow Restoration Project would remove five fish barriers and open approximately 12 miles of native habitat, in addition to augmenting stream flows and securing a reliable backup source of drinking water for the City of La Grande.

The City of La Grande, USFS, and Anderson Perry & Associates, Inc. (AP), along with the Grande Ronde Model Watershed, NMFS, and ODFW, have worked many years, spending countless hours and dollars, to develop a project design that is functional within the constraints of the site, is economically feasible, and meets fish passage criteria. The City has a final design for the project, and all permits, concurrences, and approvals have been secured. The following is a list of specific actions that will be necessary to successfully implement this project.

Specific Actions

- *Task 1:* Secure the remaining funding needed to implement the project, including funding for fish screening.
- Task 2: Develop technical specifications, bid documents, and contract documents.
- *Task 3:* Advertise the project, obtain bids, and secure a qualified contractor.
- **Task 4:** Implement the final design, which is intended to provide fish passage for flows between 6 and 90 cfs. Typically, ODFW requires fish passage to be provided between the annual 95 percent and 5 percent exceedance flows. This equates to approximately 0.44 cfs and 30 cfs, respectively, for this project location on Beaver Creek. However, since this project focuses primarily on providing fish passage for steelhead, design parameters include the lower and upper limits of 6 and 90 cfs due to steelhead migration periods on the Upper Grande Ronde River and associated tributaries, which occurs between April 1 and June 15 (Tim Bailey, ODFW). Higher discharges occur during this time period; hence, the exceedance flows were calculated for this time period corresponding to the typical steelhead migration season.

The City of La Grande will provide fiscal and contracting responsibilities. The City of La Grande and AP will provide technical and construction oversight for the following project actions:

Phase I:

• Upstream Diversion. Cutting a portion of the concrete check structure, removing a narrower (approximately 3-foot wide) section of concrete to provide a low flow channel with a natural bottom, and installing rock cross vanes and streambed simulation material downstream of the check structure to re-grade the channel to meet fish passage criteria (see Plan Sheet 10). Streambed simulation material will be utilized to create a constant grade from the elevation of the proposed concrete notch in the existing diversion structure to the existing streambed elevation approximately 170 feet downstream. Large woody debris (LWD) will be placed in stream to slow water velocities and improve fish habitat.

- Main Diversion. Removing a 3-foot wide section of the existing concrete diversion structure portion of the intake to provide a low flow channel with a natural bottom through the diversion structure. This will be accomplished by saw cutting the 8-inch thick concrete that joins the intake structure to the check structure, breaking the concrete into manageable pieces, and disposing of the concrete at an approved site. Large rock grade control structures will be installed to maintain the re-graded channel elevations. Streambed simulation material will be utilized to create a constant grade to match the elevation of the proposed concrete notch in the existing diversion structure to the existing streambed elevation approximately 250 feet downstream. Rock ribs and rock clusters will be installed to dissipate energy from the water and to create resting pools and fish habitat (see Plan Sheet 11). LWD will be placed in stream to improve fish habitat. The downstream extent of these activities is approximately 250 feet.
- Dam. Saw cutting and removing portions of the existing east spillway and spillway weir. A concrete entrance pool, 10 feet wide by 3 feet deep by approximately 22 feet long, will be placed at the east spillway floor elevation. Downstream of the entrance pool will be a series of precast concrete vortex weirs with 8-inch drops (NMFS and ODFW approved) for approximately 430 feet downstream. A total of 67 precast concrete structures will be installed to provide fish passage (see Plan Sheets 4 through 9). Each precast concrete vortex weir will be cast at a remote location, shipped to the site by truck, and placed into the channel on compacted material. Depending on the weight of the vortex weirs and access to the channel, the vortex weirs may be cast in separate pieces and assembled on site. The estimated weight of each vortex weir is 24,000 pounds. The existing slope of the channel is approximately 10 percent. The finished vortex weir channel will also have a finished grade of approximately 10 percent, and each vortex weir will provide pool habitat and resting areas for migrating aquatic species. The vortex weir shape will concentrate flows during low flow situations to provide continued passage. During higher flows, the weir shape will create scour pools and allow for energy dissipation of the water. The weir shape will provide aquatic passage at a wide range of flows in the channel due to slower velocities at the edges, which will improve jump conditions for juvenile fish.

The entrance pool has been designed to have a maximum velocity of 3 feet per second at a flow of 90 cfs (5 percent exceedance flow). Higher flows will scour the pool to prevent the pool from accumulating excessive sediment. The farthest downstream vortex weir will be filled with large boulders and simulated streambed material to allow aquatic life to migrate upstream and help keep the weir in place (NMFS and ODFW approved).

The upper limit of flow for which the fishway has been designed is 90 cfs to provide fish passage for migrating steelhead between April 1 and June 15 (Tim Bailey, ODFW). Historically, seasonal high flows occur during this time period. Allowance of fish passage up to 90 cfs has been incorporated into the design by the addition of side pools and channels along the sides and downstream of the spillway. These design features are intended to provide steelhead with lower velocity water in order to pass the in-stream structure during seasonal migration (NMFS and ODFW approved). On each side of the vortex weir channel will be an overflow area filled with streambed simulation material. The overflow area will provide fish passage during high flows when the water over the vortex weirs (in the center of the channel) is streaming and has high velocities. These areas will slope approximately 10:1 back to the existing bank. This distance will vary to match conditions in the field. The overflow channel will consist of a gradation of streambed simulation material that includes a mixture of fines and coarse rock with a median particle diameter such that 84 percent will pass the identified class size of 72 inches. This will help provide stabilization during high flows.

The area below the west spillway will be re-graded to provide a constant slope to the wall of the first turning pool, with the fill consisting of a gradation of streambed simulation material that includes a mixture of fines and coarse rock with a median particle diameter such that 84 percent will pass the identified class size of 96 inches. This will maintain the slope during very high flow conditions when the west spillway experiences overflow.

Phase II

• Cove and West Beaver Creek Intake Structures. Existing concrete intake structures will remain in place. The downstream channels will be re-graded to match the elevation of the existing intake structures by placing streambed simulation material that is larger than the average material size of the natural channel from the diversion to a distance downstream as needed to match the natural channel slope (see Plan Sheet 12).

Phase III

- Fish Screening. Installing fish screens on all diversion prior to diverting water.
- **Task 5:** Develop a monitoring plan based on implementation and compliance monitoring, as well as effectiveness monitoring. Carry out the monitoring plan for five years after the project is completed to determine the benefits of the project and whether or not the project objectives were achieved.

Benefits

- Improved fish passage.
- Restored connectivity to approximately 12 miles of pristine habitat.
- Improved water quality and stream diversity.
- Augmentation of in-stream flows during low flow periods.
- A secure, continued water supply for the City of La Grande.
- Enhancement in water storage infrastructure and public resource lands.

Project Maintenance

An Operation and Maintenance Plan will be developed by AP and carried out by the City of La Grande.

<u>Permits</u>

- Environmental Assessment
- Biological Assessment
- ESA Section 7 USFWS
- ESA Section 7 NMFS
- U.S. Army Corps of Engineers 404 Permit
- Oregon Department of State Lands
 Removal/Fill Permit
- Cultural Resources Section 106

Complete/Approved

Complete/Approved

Biological Opinion Issued 4/28/14

Biological Opinion Issued 5/27/14

Issued 5/29/14

Issued 9/25/14 and renewed 7/1/16

Concurrence received spring 2013

Monitoring Plan

Lee Mannor, City of La Grande Water Superintendent, will be responsible for coordinating the implementation of the monitoring plan for the Beaver Creek project. Guidelines for monitoring will be outlined in the monitoring plan, which will be developed by stakeholders prior to the onset of the project. A general monitoring plan has been developed and is attached; however, prior to construction the City plans to work with stakeholders to develop a more comprehensive plan.

Preconstruction photo points will be established and effectiveness monitoring will be a priority. A post-construction report demonstrating as-built conditions will be provided by the City of La Grande to regulatory and funding agencies. The site will be monitored two times per year and annual monitoring reports will be submitted to regulatory and funding agencies.

Work Dates

- Fall 2016 Finalize design; develop technical specifications, bid documents, and contract documents
- March 2017 Solicit bids and award contract
- Summer 2017* Construction of Phase I
- Summer 2018* Construction of Phase II
- Summer 2019* Install fish screens on all diversions
- Summer 2017 through 2024 Perform monitoring

*Due to the constraints at the site, the in-water work window, and weather, the construction schedule is subject to change.

8. Project Budget

The City is requesting funding for this project for the 2017 fiscal year. See the attached Project Budget for additional details.

Total Budget:	\$1	1,125,700
OWEB Funding (secured):	\$	150,000
Requested BPA BiOp Funding:	\$	150,000
City of La Grande Match:	\$	225,700
Oregon Water Resources Department	\$	600,000

9. Attachments:

- Project Budget
- Figures
- Plan Sheets 1 through 14
- Agency Correspondence
- Letters of Support
- Monitoring Plan

Project Budget

Beaver Creek Dam Fish Passage and Stream Flow Restoration Project PROJECT BUDGET

Totals automatically round to the nearest dollar

	Α	В	С	D	Е	F
Itemize projected costs under each of	Unit	Unit	BPA	City of La	OWRD	Total Costs
the following categories.	Number	Cost	Funds	Grande &	Funds	
	(eg #of	(eg hourly		OWED		(add columns
	(e.g., # 01	(e.g., nourly				(add columns)
PRE-IMPLEMENTATION.	nouisj	Tate)				C, D, L)
Permitting - 1200-C Stormwater Permit	14	\$145		\$2,000		\$2,000
Complete Bid Documents	83	\$145		\$4,000	\$8,000	\$12,000
Bid Project/Secure Contract	69	\$145		\$10,000	1-9	\$10,000
	SU	JBTOTAL (1)	0	\$16,000	\$8,000	\$24,000
PROJECT MANAGEMENT.			1		·	
Construction Administration/Project	1,156	\$145		\$167,600		\$167,600
Management	,					
	SU	JBTOTAL (2)	0	\$167,600	\$0	\$167,600
CONTRACTED SERVICES. Labor, s	supplies, and n	naterials to be pro	ovided by non-sta	aff for project impl	lementation.	
Upstream Diversion						0
Mobilization	Lump Sum	\$4,000		\$4,000		\$4,000
Remove Section of Concrete	Lump Sum	\$3,000		\$3,000		\$3,000
Clearing and Grubbing	Lump Sum	\$1,500		\$1,500		\$1,500
Streambed Simulation Material	250 CY	\$50		\$12,000		\$12,000
Woody Debris Structures	1	\$3,000		\$3,000		\$3,000
Grade Control Structures	3	\$8,000			\$24,000	\$24,000
Rock Ribs	Lump Sum	\$3,000		\$3,000		\$3,000
Rock Clusters	4	\$750		\$3,000		\$3,000
Seeding and Planting	Lump Sum	\$1,500		\$1,500		\$1,500
Water Control	Lump Sum	\$3,000		\$3,000		\$3,000
Dam Passage						
Mobilization	Lump Sum	\$44,000	\$13,000	\$31,000		\$44,000
Remove Section of Concrete	Lump Sum	\$30,000	\$30,000			\$30,000
Clearing and Grubbing	Lump Sum	\$5,000	\$5,000			\$5,000
Excavation of Fishway	Lump Sum	\$102,000	\$102,000			\$102,000
Precast Concrete Weirs	65	\$4,230			\$275,000	\$275,000
Structural Concrete	Lump Sum	\$70,000		\$18,000	\$52,000	\$70,000
Streambed Simulation Material	3,360 CY	\$50			\$138,000	\$138,000
Seeding and Planting	Lump Sum	\$3,000		\$3,000		\$3,000
Water Control	Lump Sum	\$4,000		\$4,000		\$4,000
Main Diversion						
Mobilization	Lump Sum	\$10,000		\$10,000		\$10,000
Remove Section of Concrete	Lump Sum	\$3,500		\$3,500		\$3,500
Clearing and Grubbing	Lump Sum	\$3,000		\$3,000		\$3,000
Streambed Simulation Material	360 CY	\$50		\$18,000		\$18,000
Woody Debris Structures	2	\$2,500		\$5,000		\$5,000
Grade Control Structures	6	\$8,000			\$48,000	\$48,000
Rock Ribs	6	\$3,000			\$22,000	\$22,000
Rock Clusters	18	\$550			\$10,000	\$10,000
14-inch Diameter Restrained Joint	Lump Sum	\$19,500			\$19,500	\$19,500
Pipe						
Seeding and Planting	Lump Sum	\$3,000		\$3,000		\$3,000
Water Control	Lump Sum	\$8,000		\$8,000		\$8,000

	Α	В	С	D	Е	F
Itemize projected costs under each of	Unit	Unit	BPA	City of La	OWRD	Total Costs
the following categories.	Number	Cost	Funds	Grande &	Funds	
				OWEB		
	(e.g., # of	(e.g., hourly				(add columns
	hours)	rate)				C, D, E)
Two Smaller Intakes						
Mobilization	Lump Sum	\$500		\$300	\$200	\$500
Clearing and Grubbing	Lump Sum	\$2,100		\$2,100		\$2,100
Streambed Simulation Material	66 CY	\$50			\$3,300	\$3,300
Seeding and Planting	Lump Sum	\$1,000		\$1,000		\$1,000
Water Control	Lump Sum	\$1,000		\$1,000		\$1,000
	SU	JBTOTAL (3)	150,000	\$144,900	\$592,000	\$886,900
CA	TEGORY	TOTALS (4)	150,000	\$328,500	\$600,000	\$1,078,500

FISCAL ADMINISTRATION *Totals automatically round to the nearest dollar

FISCAL ADMIN.				
Fiscal Administration		\$47,200		\$47,200
				\$0
SUBTOTAL (10)	\$0	\$47,200	\$0	\$47,200

PROJECT BUDGET TOTAL *Totals automatically round to the nearest dollar

PROJECT BUDGET TOTAL				
Total for Section B	\$150,000	\$375,700	\$600,000	\$1,125,700
Percentage for Section B	13%	33%	53%	100%

Figures





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West

WEST FORK BEAVER CREEK INTAKE

<u>COVE CREEK INTAKE</u>

ROAD 4305280

INTAKE DIVERSION UR = 22

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La Grande Reservoit

UPSTREAM DIVERSION









FIGURE

2C















PHOTO 1 - Upstream diversion structure looking upstream.



PHOTO 2 - Upstream diversion showing vertical drop during low flow.





PHOTO 3 - Beaver Creek arched concrete dam with earth backfill showing spillways in the background. Photo from "Geological Reconnaissance of Beaver Creek Dam Site and Storage Reservoir, August 23, 1967."







PHOTO 7 - Main intake structure downstream of Beaver Creek Dam.





Plan Sheets 1 through 14

CITY OF LA GRANDE, OREGON





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BEAVER CREEK DAM FISH PASSAGE

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CITY OF LA GRANDE, OREGON **BEAVER CREEK DAM FISH PASSAGE** SHEET

6

ENTRANCE POOL SECTIONS







CURVED VORTEX WEIR PLAN

TYPE I SCALE: 1/2"=1'-0"

CURVED VORTEX WEIR PLAN TYPE II SCALE: 1/2"=1'-0"

- NOTES: I. PRECAST CONCRETE POOLS TO BE CAST IN SECTIONS, EACH OF WHICH WILL NOT EXCEED 24,000 LBS.
- 2. WELD PLATES OR OTHER DEVICES FOR ATTACHING THE POOL SECTIONS PERMANENTLY TOGETHER SHALL BE PROVIDED BY THE MANUFACTURER.
- 3. PRECAST CONCRETE POOL MANUFACTURER SHALL SUBMIT DRAWINGS AND CALCULATIONS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. BOTH THE DRAWINGS AND CALCULATIONS SHALL BE STAMPED BY AN OREGON REGISTERED PROFESSIONAL ENGINEER.
- 4. SEE SECTIONS A AND B, SHEET 7 FOR SIMILAR SECTION VIEWS.
- 5. PRECAST UNITS SHALL BE DESIGNED FOR A MINIMUM LATERAL UNSUPPORTED UNIFORM LIQUID LOAD OF 80 LBS./SQ. FT.

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REVIEWED BY B. MOORE		COPYRIGHT 2013 BY ANDERSON PERRY & ASSOC., INC.		



CITY OF LA GRANDE, OREGON BEAVER CREEK DAM FISH PASSAGE SHEET

CURVED VORTEX WEIR PLANS

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RESTING POOL PLAN AND SECTIONS

9
STREAM RESTORATION NOTES:

- STREAMBED SIMULATION MATERIAL SHALL BE PLACED TO THE GRADE SHOWN ON THE DRAWINGS. MATERIAL SHALL BE PLACED BY FIRST INSTALLING THE LARGEST ROCK THAT WILL PROTRUDE ABOVE THE STREAMBED SURFACE. SMALLER MATERIAL SHALL THEN BE USED TO FILL THE VOIDS BETWEEN THE LARGE ROCK. THIS MATERIAL SHALL BE TAMPED IN PLACE FOLLOWED BY JETTING OR FLOODING THE SURFACE WITH WATER TO WASH THE FINER MATERIAL INTO REMAINING VOIDS.
- 2. LOCATIONS OF WOODY DEBRIS STRUCTURES SHOWN ARE APPROXIMATE. ACTUAL LOCATIONS OF STRUCTURES SHALL BE DETERMINED IN THE FIELD UNDER THE DIRECTION OF THE ENGINEER.

SIGNED BY H. MORRISON

REVIEWED BY B. MOORE

DRAWN BY P. RICHARDSON







VERT. SCALE IN FEET

ACAD FILE: Design-BaseC3D.dwg COPYRIGHT 2013 BY ANDERSON PERRY & ASSOC., INC.

DATE

VERT. SCALE 1"=2.5"

2013

FOR REVIEW ONLY

NOT FOR CONSTRUCTION

HORZ SCALE 1"=5

XREFS: TB-BeaverCk.dwg

DESIGNED BY H. MORRISON

EVIEWED BY B. MOORE

RAWN BY P. RICHARDSON

JOB NUMBER 1309-84

ROXIMATE WIDTH (FT) "W'	APPROXIMATE OHW DEPTH (IN)	BARRIER HEIGHT (IN) "H"	STREAMBED MATERIAL BEDCLASS (IN)
4	12	36	16
в	18	36	24





Ę. 2013 2:29:51

DESIGNED BY H. MORRISON

DRAWN BY P. RICHARDSON REVIEWED BY B. MOORE

						THIS DRAWING HAS BEEN REDUCED 50%. ADJUST SCALE ACCORDINGLY. BARSCALE SHOWN IS ACCURATE.	Conders
	BY	DATE	HORZ SCALE NO SCALE	VERT. SCAL	E	EOP REVIEW ONLY	& associate
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			ACAD FILE: VaneDetails.dv	vg		1 NOT FOR CONSTRUCTION	LA GRANDE, OR. WALLA WALLA
· · · · · · · · · · · · · · · · · · ·			COPYRIGHT 2013 BY AI	VDERSON PER	RY & ASSOC., INC.		





SHEET

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Agency Correspondence



DEPARTMENT OF THE ARMY

PORTLAND DISTRICT, CORPS OF ENGINEERS POST OFFICE BOX 2946 PORTLAND, OREGON 97208-2946

May 29, 2014

ATTENTION OF: Operations Division

REPLY TO

Regulatory Branch Corps No.: NWP-2013-296

Mr. Norm Paullus City of La Grande 800 X Avenue La Grande, Oregon 97850

Dear Mr. Paullus:

The U.S. Army Corps of Engineers (Corps) received your request for Department of the Army authorization for fish passage/restoration work. The project is located in La Grande, Union County, Oregon. The site is in Sections 7, 8, 16 and 17 of Township 5 South, Range 37 East.

The proposed project will remove existing physical barriers at the Beaver Creek Dam, Beaver Creek diversion and three municipal water intakes, and adding habitat structures. The project is shown on the enclosed drawings (Enclosure 1).

- 1. Beaver Creek Main Intake Structure:
 - a. Modify Existing Intake and Install Grade Control A 3-foot wide section of the existing concrete spillway will be saw cut and removed to concentrate flows during low flow events and allow for passage. Six grade control structures will be installed using 48-inch diameter foot rock, with 36-inch diameter rock placed upstream against the footer rock. Streambed simulation material will be placed in the streambed.
 - b. Install Large Wood Structures and Rock Clusters Two large wood debris structures will be placed in the bank to improve fish habitat. Each structure will be constructed using three trees with a minimum length of 20 feet and 18-inches in diameter. A minimum of 50% of the tree length will be buried. Trees will be pinned with rebar and anchored with large rocks. Approximately 18 rock clusters, each consisting of groups of three boulders ranging from 36 inches to 48 inches in diameter, will be placed near the surface of the streambed. Roughly 60% of each boulder will be buried.

Beaver Creek Main Intake Dive	ersion Structu	re Modifications Removal/Fill	Summary
Permanent fill below OHWE	1,650 CY	Permanent removal below OHWE	0 CY
Temporary fill below OHWE	130CY	Temporary removal below OHWE	900 CY
Temporary fill above OHWE	80 CY	Temporary removal above OHWE	555 CY
Permanent fill above OHWE	475 CY	Permanent removal above OHWE	645 CY
Total Fill	2,385 CY	Total Removal	2,100CY

2. Beaver Creek Upstream Diversion:

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· 1.

- a. Modify Existing Diversion and Install Grade Control A 3-foot wide section of the existing concrete spillway will be saw cut and removed to concentrate flows during low flow events and allow for passage. Six grade control structures will be installed using 48-inch diameter foot rock, with 36-inch diameter rock placed upstream against the footer rock. Streambed simulation material will be placed in the streambed.
- b. Two large wood structures will be placed in the bank downstream of the diversion to slow flows and improve fish habitat. Each structure will be constructed using three trees with a minimum length of 20 feet and 18-inches in diameter. A minimum of 50% of the tree length will be buried. Trees will be pinned with rebar and anchored with large rocks.

Beaver Creek Upstream Diversio	n Modificati	ion Removal/Fill Summary	
Permanent fill below OHWE	950 CY	Permanent removal below OHWE	0 CY
Temporary fill below OHWE	30 CY	Temporary removal below OHWE	650 CY
Temporary fill above OHWE	0 CY	Temporary removal above OHWE	25 CY
Permanent fill above OHWE	50 CY	Permanent removal above OHWE	25 CY
Temporary fill in wetlands	0 CY	Temporary removal in wetlands	0 CY
Permanent fill in wetlands	56 CY	Permanent removal in wetlands	56 CY
Total Fill	1,086 CY	Total Removal	756 CY

3. Beaver Creek Dam:

. 1.

The channel below the dam will be excavated for a distance of approximately 350 feet downstream of the existing east spillway. Approximately 3,500 CY of material will be excavated and later used onsite to backfill around the new fishway. In the excavated channel, ³/₄-inch minus, O-base rock will be placed to a depth of 6 inches and compacted to create a stable and level base for the precast concrete vortex weir fishway.

The existing concrete weir and portions of the east spillway will be removed and replaced with a concrete vortex weir fishway. The first 22.5 feet of the fishway will be a reinforced concrete entrance pool that will be 10 feet wide by 3 feet deep. To create passage over the dam spillway, a series of approximately 63 precast concrete vortex weirs with precast concrete off-channel resting pools will be installed downstream. Each weir will have a concrete base that is approximately 8 inches thick and the side walls will be 6.25 feet high. The base of each vortex weir will overlap the immediate downstream weir by 1 foot. The banks along the sides of the concrete fishway will be graded to a slope of 1:10 with streambed simulation material ranging in size from gravel to 48-inch boulders.

Beaver Creek Dam Modifications Removal/Fill Summary				
Permanent fill below OHWE	4,250C Y	Permanent removal below OHWE	1,750 CY	
Temporary fill below OHWE	0 CY	Temporary removal below OHWE	4,250 CY	
Temporary fill above OHWE	0 CY	Temporary removal above OHWE	1,000 CY	
Permanent fill above OHWE	1,000 CY	Permanent removal above OHWE	1,500 CY	
Total Fill	5,250 CY	Total Removal	8,500 CY	

- 4. Re-Grade West Concrete Spillway Outflow:
 - a. The area between the downstream end of the west spillway and the new fishway will be re-graded using 48-inch diameter rock in order to provide a constant slope from the end of the spillway to the top of the concrete structures.
 - b. All work will take place in the dry channel. The over flow channel will be completely rebuilt, with the native material removed and the concrete vortex weirs installed.
- 5. Cove Creek and West Beaver Creek Intake Structure Modification:

The existing concrete intake structures at Cove Creek and West Fork Beaver Creek will remain in place without modification. Streambed simulation material will be installed downstream of the structures to eliminate the approximately 36-inch drop that has formed at each location. The streambed simulation material will be sized appropriately for conditions at each location, with Cove Creek receiving bed class 16 material and West Fork Beaver Creek receiving larger bed class 24 material to mitigate future sedimentation and formation of fish barriers. The streambed simulation material will be graded to match the existing elevation of the intakes and will tie into the existing streambed at the downstream end of the improvements. Approximately 20 CY of permanent fill (streambed simulation material) will be required at the Cove Creek location, and approximately 40 CY of permanent fill (streambed simulation material) will be needed at the West Fork Beaver Creek location.

Cove Creek		Cove Creek	
Permanent fill below OHWE	20 CY	Permanent removal below OHWE	0 CY
Temporary fill below OHWE	0 CY	Temporary removal below OHWE	0 CY
Permanent fill above OHWE	0 CY	Temporary removal above OHWE	0 CY
West Fork Beaver Creek		West Fork Beaver Creek	
Permanent fill below OHWE	40 CY	Permanent removal below OHWE	0 CY
Temporary fill below OHWE	0 CY	Temporary removal below OHWE	0 CY
Permanent fill above OHWE	0 CY	Temporary removal above OHWE	0 CY
Total fill	60 CY	Total removal	0 CY

This letter verifies that your project is authorized under the terms and limitations of Nationwide Permit (NWP) No. 27 (Aquatic Habitat Restoration, Enhancement and Establishment Activities). Your activities must be conducted in accordance with the conditions found in the Portland District NWP Regional Conditions (Enclosure 2) and the NWP General Conditions (Enclosure 3). You must also comply with the Oregon Department of Environmental Quality (DEQ) Water Quality Certification Conditions (Enclosure 4) and the project specific conditions lettered (a) and (b) below. Failure to comply with any of the listed conditions could result in the Corps initiating an enforcement action. a. Permittee shall notify the Regulatory Branch with the date the activities authorized in waters of the United States are scheduled to begin. Notification shall be sent by e-mail to <u>cenwp.notify@usace.army.mil</u> or mailed to the following address:

U.S. Army Corps of Engineers CENWP-OD-GC Permit Compliance, Union County PO Box 2946 Portland, Oregon 97208-2946

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The subject line of the message shall contain the name of the county in which the project is located followed by the Corps of Engineers permit number.

b. Permittee shall comply with the all of the Reasonable and Prudent Measures (RPMs) and Nondiscretionary Terms and Conditions (T&C) contained in National Marine Fisheries Service (NOAA Fisheries) biological opinion (BiOp) dated May 27, 2014 (Enclosure 5). The RPM's and T&C's are found on pages 38-41 of the BiOp.

We direct your attention to NWP Regional Condition 16 (Enclosure 2) and General Condition 29 (Enclosure 3) that requires the transfer of this permit if the property is sold, and NWP General Condition 30 that requires you to submit a signed certificate when the work is completed. A "Compliance Certification" is provided (Enclosure 6).

We have prepared a Preliminary Jurisdictional Determination (JD), which is a written indication that wetlands and waterways within your project area may be waters of the United States (Enclosure 7). Such waters have been treated as jurisdictional waters of the United States for purposes of computation of impacts and compensatory mitigation requirements. If you concur with the findings of the Preliminary JD, please sign it and return it to the letterhead address within two weeks. If you believe the Preliminary JD is inaccurate, an Approved JD may be requested, which is an official determination regarding the presence or absence of waters of the United States. If you would like an Approved JD, one must be requested prior to starting work within waters of the United States. Once work within waters of the United States has been started, the opportunity to request an Approved JD will no longer be available.

This authorization does not obviate the need to obtain other permits where required. Permits, such as those required from the Oregon Department of State Lands (ODSL) under Oregon's Removal /Fill Law, must also be obtained before work begins.

The nationwide permits expire on March 18, 2017. This verification is valid until March 18, 2017 unless the NWP is modified or revoked prior to that date. If you commence or are under contract to commence this activity before the date the NWP expires, is modified, or revoked, you will have 12 months from the date of the expiration, modification, or revocation to complete the activity under the present terms and conditions of the current NWP.

We would like to hear about your experience working with the Portland District, Regulatory Branch. Please complete a customer service survey form at the following address: <u>http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey</u>.

If you have any questions regarding this NWP verification, please contact Shelly Lynch@usace.army.mil at the letterhead address, by telephone at (541) 962-0401, or e-mail: Michelle.R.Lynch@usace.army.mil.

FOR THE COMMANDER, JOSE L. AGUILAR, COLONEL, CORPS OF ENGINEERS, DISTRICT COMMANDER:

Team Leader, Regulatory Branch

Enclosures

ŗ,

6 F.

Copy Furnished:

Oregon Department of State Lands (Hartman) Oregon Department of Environmental Quality (Christensen) Department of State Lands 1309-84-37 1645 NE Forbes Road, Suite 1 Bend, OR 97701 S41-388-6112

Permit No.: Permit Type: Waterway:

Expiration Date:

County:

54549-RF Removal/Fill Beaver Cr/ W Fk Beaver Cr/ Cove Cr Union September 25, 2014

CITY OF LA GRANDE PUBLIC WORKS

IS AUTHORIZED IN ACCORDANCE WITH ORS 196.800 TO 196.990 TO PERFORM THE OPERATIONS DESCRIBED IN THE ATTACHED COPY OF THE APPLICATION, SUBJECT TO THE SPECIAL CONDITIONS LISTED ON ATTACHMENT A AND TO THE FOLLOWING GENERAL CONDITIONS:

- 1. This permit does not authorize trespass on the lands of others. The permit holder shall obtain all necessary access permits or rights-of-way before entering lands owned by another. For new linear facility projects, the removal-fill activity cannot occur until the permit holder obtains either the landowner's consent, a right, title or interest with respect to the property that is sufficient to undertake the removal or fill activity, or a court order or judgment authorizing the use of the property.
- 2. This permit does not authorize any work that is not in compliance with local zoning or other local, state, or federal regulation pertaining to the operations authorized by this permit. The permit holder is responsible for obtaining the necessary approvals and permits before proceeding under this permit.
- 3. All work done under this permit must comply with Oregon Administrative Rules, Chapter 340; Standards of Quality for Public Waters of Oregon. Specific water quality provisions for this project are set forth on Attachment A.
- 4. Violations of the terms and conditions of this permit are subject to administrative and/or legal action, which may result in revocation of the permit or damages. The permit holder is responsible for the activities of all contractors or other operators involved in work done at the site or under this permit.
- 5. Employees of the Department of State Lands and all duly authorized representatives of the Director shall be permitted access to the project area at all reasonable times for the purpose of inspecting work performed under this permit.
- 6. Any permit holder who objects to the conditions of this permit may request a hearing from the Director, in writing, within twenty-one (21) calendar days of the date this permit was issued.
- 7. In issuing this permit, the Department of State Lands makes no representation regarding the quality or adequacy of the permitted project design, materials, construction, or maintenance, except to approve the project's design and materials, as set forth in the permit application, as satisfying the resource protection, scenic, safety, recreation, and public access requirements of ORS Chapters 196, 390, and related administrative rules.
- 8. Permittee shall defend and hold harmless the State of Oregon, and its officers, agents, and employees from any claim, suit, or action for property damage or personal injury or death arising out of the design, material, construction, or maintenance of the permitted improvements.
- 9. Authorization from the U.S. Army Corps of Engineers may also be required.

<u>NOTICE</u>: If removal is from state-owned submerged and submersible land, the applicant must comply with leasing and royalty provisions of ORS 274.530. If the project involves creation of new lands by filling on state-owned submerged or submersible lands, you must comply with ORS 274.905 to 274.940. This permit does not relieve the permittee of an obligation to secure appropriate leases from the Department of State Lands, to conduct activities on state-owned submerged or submersible lands. Failure to comply with these requirements may result in civil or criminal liability. For more information about these requirements, please contact the Department of State Lands, 541-388-6112.

Lori Warner-Dickason, Northern Region Manager Wetlands & Waterways Conservation Div. Oregon Department of State Lands

September 25, 2013 Date Issued

mailtant

Authorized Signature

Sep



Oregon John A. Kitzhaber, M.D., Governor

Department of Fish and Wildlife

Fish Division 3406 Cherry Avenue NE Salem, OR 97303 503-947-6200 Fax: 503-947-6202 www.dfw.state.or.us

April 8, 2013

Norm Paullus Public Works Director 800 X Avenue City of La Grande La Grande, OR 97850



Re: City Of La Grande – Beaver Creek Municipal Water Supply Fish Passage Improvement Project (PA-08-0018)

Dear Mr. Paullus,

The Oregon Department of Fish and Wildlife (ODFW) has reviewed and approves (as required by ORS 509.585) the fish passage designs which you plan to implement to improve fish passage conditions for native migratory fish in Beaver Creek, a tributary of the Grande Ronde River, located in Union County. The City of La Grande (Applicant) owns and operates the La Grande Reservoir, constructed in 1915 to provide municipal water supply for the City of La Grande. Several water diversion structures exist in the upper watershed which feed a reservoir from which water is piped to the City for municipal uses.

The project, as proposed in the design plans and produced by Anderson Perry & Associates, Inc. will restore fish passage at three of the City's existing diversion structures. These include the Beaver Creek Dam, the Main Intake Diversion, and the Upstream Diversion. The design solution for the Beaver Creek Dam Diversion entails a series of precast reinforced concrete vortex weirs with corresponding resting pools. The remaining two design solutions at the main and upstream diversion facilities is comprised of a series of stream simulation channel reconstruction and grade controls in conjunction with woody debris structures.

ODFW Fish Passage Program staff reviewed the project plans and designs and we find that with exception to the over-steepened streambed slope of 7.5% associated with the reconstructed channel at the main intake, the project is consistent with and meets Oregon Fish Passage design criteria (OAR 635-412-0035(1)(2)(10)(11)). For this specific component of the project design, we provide a design exception, as permissible in OAR 635-412-0035(1)(d). This design exception, which authorizes the 7.5% streambed slope, is granted give the site specific constraints and the ODFW emphasis on site monitoring and remediation if necessary. We are concerned about the long-term durability and stability of the channel bed in this steep stream reach; however we are supportive of this steep design given the monitoring and remediation commitments of the Applicant as identified by the provisions of this approval.

This fish passage approval is contingent on specific operational items which include:

cooperation of the project partners and the construction team during and after the construction phase of this project. Please continue to coordinate with the ODFW Fish Passage Program and District staff as appropriate during the construction phase(s) of the project as appropriate.

Please retain this correspondence for your records, as this documents ODFW's approval of fish passage for the City of La Grande's Beaver Creek Fish Passage Improvement project. Please pass this information along to the appropriate staff as appropriate. Please notify me if you have any questions regarding the content of this fish passage approval.

Thank you for cooperation and patience as we worked through the fish passage approval for this project. Please note that it is your responsibility to maintain fish passage for the Project as approved and required by ORS 509.610. If you have any questions, please contact me at 503-947-6228.

Sincerely,

Aryong D. apta

Greg Apke ODFW Statewide Fish Passage Program Coordinator

Cc: Tim Bailey (ODFW) Alan Ritchey (ODFW) Ken Loffink (ODFW) Brett Moore (A&P) Hubert Morrison (A&P) Project File (PA-08-0018)

Laurie Parry

From: Sent: To: Subject: Jeffrey Brown <jeffrey.brown@noaa.gov> Monday, November 05, 2012 9:26 AM Laurie Parry Fwd: Beaver Creek- City of La Grande

Hi Laurie,

Per your request, this is the email message from Ken Loffink to Brett talking about jump height for Beaver Creek passage. Feel free to contact me if you have any questions or concerns.

Thanks, Jeff Brown 503-230-5437

------ Forwarded message ------From: Ken Loffink <<u>ken.j.loffink@state.or.us</u>> Date: Tue, Nov 22, 2011 at 10:19 AM Subject: Beaver Creek- City of La Grande To: Brett Moore <<u>bmoore@andersonperry.com</u>> Cc: Jeffrey.Brown@noaa.gov, Joel Watts <<u>joel.watts@state.or.us</u>>, Timothy Bailey <<u>timothy.d.bailey@state.or.us</u>>

Hi Brett,

Apologies for not getting back to you sooner on the request for a variance in jump height criteria at the City of La Grande Reservoir (Dam Fish Passage).

Due to site constraints (channel gradient) ODFW is ok with utilizing a jump height higher than 6" at this location. We would like to see the jump heights stay fairly low though, as we do have species present at this location that are not the greatest leapers (bull trout). If need be, we would approve a solution with jump heights up to 12".

With that in mind, could you please provide us with a quick narrative stating reasons for a 12" jump height versus utilizing a 6" or a 9" (i.e. what does using a 12" jump get us)? Would it be possible to hybridize the two ideas (vortex weirs & roughened channel) to provide a more natural step pool morphology? The NMFS document stated that fines would be washed away from the bed materials, would this not occur utilizing vortex weirs? Jump heights and fish passability in vortex weirs will be dependent on pool water surface elevations, therefore if the channel does not seal properly and water subs out this could pose a problem.

This is all food for thought, as stated ODFW is ok with jump heights up to 12" but we want to be sure there are no other options, and that this is the best solution for native migratory fish passage at this site.

Please let me know if you have any questions.

Thanks

Ken Loffink

Assistant Fish Passage Coordinator

Oregon Department of Fish and Wildlife

3406 Cherry Avenue NE

Salem, OR 97303

Office: 503-947-6256

Cell: <u>503-302-8670</u>

Fax: <u>503-947-6203</u>

ken.j.loffink@state.or.us

Laurie Parry

To:

From: Hubert Morrison Sent: Friday, January 25, 2013 11:06 AM Brett Moore; Laurie Parry; Norm Paullus (npaullus@cityoflagrande.org) FW: Beaver Creek Dam Fish Passage Subject:

From: Jeffrey Brown - NOAA Federal [mailto:jeffrey.brown@noaa.gov] Sent: Friday, January 25, 2013 10:59 AM To: Hubert Morrison Cc: Renee Coxen - NOAA Affiliate Subject: Re: Beaver Creek Dam Fish Passage

Hubert,

Subject to the addition of the gated orifices, the design does meet criteria and is appropriate for the site. Please feel free to contact me if you have any questions or concerns.

Sincerely,

Jeff Brown P.E. Hydraulic Engineer NOAA Fisheries Service Portland, Oregon (503)230-5437

On Thu, Jan 17, 2013 at 4:33 PM, Hubert Morrison <<u>hmorrison@andersonperry.com</u>> wrote:

Jeff,

Thank you for your response. As stated in an earlier e-mail in answer to your comments, the gated orifices at each weir were not intentionally omitted and will be added to the design drawings as per your request. With that in mind, the question now is, will you approve the design subject to the plans showing the above stated improvements? Please let us know.

Thank you,

Hubert

From: Jeffrey Brown - NOAA Federal [mailto:jeffrey.brown@noaa.gov]
Sent: Wednesday, January 16, 2013 2:54 PM
To: Hubert Morrison
Subject: Re: Beaver Creek Dam Fish Passage

I'm not sure I intend to submit comments beyond the questions previously submitted. If I do, you'll have them no later than the end of next week.

Thanks!

On Wed, Jan 16, 2013 at 2:50 PM, Hubert Morrison < <u>hmorrison@andersonperry.com</u>> wrote:

Gentlemen,

We have been receiving questions regarding the schedule for the Beaver Creek Dam Fish Passage Improvements. In order to provide an estimated timeline, we are requesting that you respond with your estimated schedule for review comments on this project. Please respond to this request at your convenience.

Thank you,

Hubert Morrison, PE

Staff Engineer

Anderson Perry & Associates, Inc

1901 N. Fir Street / P.O. Box 1107

La Grande, OR 97850

(541) 963-8309 phone

(541) 963-5456 fax

hmorrison@andersonperry.com

www.andersonperry.com

Jeff Brown P.E.

Hydraulic Engineer

NOAA Fisheries Service

Portland, Oregon

<u>(503)230-5437</u>



UNITED STATES DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration NATIONAL MARINE FISHERIES SERVICE West Coast Region 7600 Sand Point Way N.E. Seattle, Washington 98115

Refer to NMFS No:WCR-2014-637

May 27, 2014

Dr. John Laurence Forest Supervisor Wallowa-Whitman National Forest P.O. Box 907 Baker City, Oregon 97814

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Beaver Creek Fish Passage Project, Beaver Creek (HUC 170601040301) Subwatershed, Union County, Oregon

Dear Dr. Laurence:

The enclosed document contains a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7(a)(2) of the Endangered Species Act (ESA) on the effects of the Wallowa-Whitman National Forest (WWNF) authorizing a Special Use Permit (SUP) to the City of La Grande pursuant to the Federal Land Policy and Management Act as amended October 21, 1976 and 36 Code of Federal Regulations (CFR) 251 Subpart B as amended and subject to their provisions. The SUP will be issued for the construction of fish passage on four diversions and one impoundment structure (dam), and maintenance of a water transmission line (includes diversions), reservoir, dam, and caretaker's residence.

In this Opinion, NMFS concludes that the proposed action is not likely to jeopardize the continued existence of Snake River Basin (SRB) steelhead (*Oncorhynchus mykiss*) or result in the destruction or adverse modification of designated critical habitat for SRB steelhead.

As required by section 7 of the ESA, NMFS is providing an incidental take statement with the Opinion. The incidental take statement describes reasonable and prudent measures NMFS considers necessary or appropriate to minimize the impact of incidental take associated with this action. The take statement sets forth nondiscretionary terms and conditions, including reporting requirements, that the WWNF and any person who performs the action must comply with to carry out the reasonable and prudent measures. Incidental take from actions that meet these terms and conditions will be exempt from the ESA take prohibition.

NMFS also reviewed the proposed action for potential effects on Essential Fish Habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act



(MSA), including conservation measures and any determination that you made regarding the potential effects of the action. This review was pursuant to section 305(b) of the MSA, implementing regulations at 50 CFR 600.920, and agency guidance for use of the ESA consultation process to complete EFH consultation. In this case, NMFS concluded that the action would not adversely affect EFH. Thus, consultation under the MSA is not required for this action.

Please direct questions regarding this opinion to Renée Coxen, in the La Grande Office of Southern Snake River Branch at 541-975-1835, ext. 234.

Sincerely, Day Male

William W. Stelle, Jr. Regional Administrator

cc: Brad Lovatt, USFS Joe Vacirca, USFS Gretchen Sausen, USFWS Shelly Lynch, COE Tim Bailey, ODFW



United States Department of the Interior



FISH AND WILDLIFE SERVICE La Grande Field Office 3502 Highway 30 La Grande, Oregon 97850 Phone: (541) 962-8584 FAX: (541) 962-8581

Reply To: 01EOFW00-2014-I-0081 File Name: Beaver Creek Fish Passage_LOC.doc TS Number: 14-321 TAILS: 01EoFW00-2014-I-0081 Doc Type: Final

Dr. John A. Laurence Forest Supervisor Wallowa-Whitman National Forest P.O. Box 907 Baker City, OR 97814 APR 1 8 2014

Subject: Beaver Creek Fish Passage Project – Informal Consultation (*FWS reference* 01EOFW00-2014-I-0081)

Dear Dr. Laurence:

This document transmits the Fish and Wildlife Service's (Service) concurrence on the Beaver Creek Fish Passage Project, Union County, Oregon, and the effects on the Federally-threatened bull trout (*Salvelinus confluentus*), as requested by the Wallowa-Whitman National Forest (Forest), in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your request, dated March 31, 2014, for informal consultation and accompanying Biological Assessment (Assessment) was received in this office on April 2, 2014. The Beaver Creek Fish Passage Project is located in the Upper Beaver Creek subwatershed, within the Upper Grande Ronde River Subbasin, in Union County, Oregon.

Based on information provided in the Assessment, the Forest has determined, and we concur, that the proposed project *may affect, but is not likely to adversely affect*, bull trout and *will not affect* designated critical habitat.

Proposed Action

The Beaver Creek Fish Passage project is located in the Upper Beaver Creek subwatershed, southwest of the City of La Grande, Oregon, on Beaver Creek and two tributaries. This area is designated as the La Grande Watershed, a secondary municipal water source for the City of La Grande. The legal description is Township 5 South, Range 37 East, Sections 7, 8, and 16.

The City of La Grande owns and operates La Grande Reservoir on Beaver Creek. The Beaver Creek Dam was constructed in 1915 to create the reservoir that provides water storage for domestic use during dry periods of the year. The City of La Grande relied on the

watershed as its primary source of water until 2002 when the last of a series of wells was brought online to meet the community's water demand. Due to dropping water levels in the confined aquifer beneath La Grande, additional wells are not expected to be a viable water source in the future. Therefore, the existing water rights of the watershed remain instrumental in meeting demands as the community grows.

Five intake structures in the watershed feed a pipeline to the City for municipal water. Currently, this reservoir and associated infrastructure are held as a secondary water source, as the City uses a series of wells as its primary water supply.

A special use permit (SUP) will be issued to the City of La Grande by the Wallowa-Whitman National Forest pursuant to the Federal Land Policy and Management Act as amended October 21, 1976, and 36 Code of Federal Regulations (CFR) 251 Subpart B as amended and subject to their provisions. The SUP will be issued for the construction of fish passage on four diversions and one impoundment structure (dam) and maintenance of a water transmission line (includes diversions), reservoir, dam, and caretaker's residence.

At the time of the original construction, consideration for fish passage was not provided, and the project created barriers on fish-bearing waterways, preventing access to over 14 miles of watershed. The proposed project will restore fish passage over the existing barriers at the Beaver Creek Dam, Beaver Creek diversion, and three municipal water intakes; restore connectivity of native fish populations; and restore access to steelhead spawning and rearing habitat above the existing barriers.

Action Area

The action area includes all areas that could be potentially affected by the proposed action and is not limited to the actual work area as described in the Assessment. For example, any sediment released into a waterway could affect fish or habitat downstream. For this project, the action area is defined as the necessary staging areas and access roads, and the immediate work area at each project location, as well as the streambed and riparian habitat from 25 feet upstream to 100 feet downstream of each project location.

The approximate acreages of each component of the action area are presented in the following Tables.

Location	Acres	Habitat type
Beaver Creek Main Intake Work Area	0.54	Stream Channel and Riparian Corridor
Beaver Creek Upstream Diversion Work Area	0.29	Stream Channel and Riparian Corridor
Beaver Creek Dam/Vortex Weir Work Area	0.57	Stream Channel and Riparian Corridor
Cove Creek Diversion Work Area	0.01	Stream Channel and Riparian Corridor
West Fork Beaver Creek Diversion Work Area	0.02	Stream Channel and Riparian Corridor
Subtotal – Work Areas	1.43	
Northern Staging Area	0.69	Upland – Disturbed Meadow
Caretaker's Residence Staging Area	0.93	Upland – Disturbed Meadow

2

Subtotal – Staging Areas	1.62	
Beaver Creek Main Intake Rock Source	0.02	Upland – Disturbed Forest
Beaver Creek Dam/Vortex Weir Rock Sources	0.07	Upland – Disturbed Forest
Dog Grave Rock Pit	0.23	Upland – Existing Rock Pit In Forest
Subtotal – Rock Pits	0.32	

Access Road and Number	Miles
Main Gate to Upstream Diversion – 4305270	3.35
West Fork Beaver Creek Access – 4305275	0.83
Cove Creek Access – 4305278	0.35
Beaver Creek Main Intake Access – 4305280	0.37
Total	4.90

In summary, the action area for the Beaver Creek Fish Passage Project includes approximately 1.43 acres of stream channel and riparian corridor for the work areas, 1.62 acres of disturbed upland meadow and forest for staging areas, and 0.32 acre of disturbed forest for rock sources. In addition, approximately 4.90 miles of existing access roads through forested areas will be used for site access.

Project Objectives and Major Project Components

The City of La Grande is proposing to make improvements to the Beaver Creek Dam, Beaver Creek diversion, and three municipal water intakes (Beaver Creek, Cove Creek, and West Fork Beaver Creek) to restore fish passage in the Upper Beaver Creek subwatershed. In-water work below the ordinary high water elevation (OHWE) will take place during the Oregon Department of Fish and Wildlife (ODFW) preferred in-water work window, July 1 through July 31. All work at the three intake structures and the Beaver Creek upstream diversion will take place within this instream work window. A longer time frame will be needed to accommodate the amount of work that is required to install the concrete weir structure at the Beaver Creek Dam. However, the dam spillway where this work will take place is dry during this time, and work in active flows is not expected. It is anticipated that this work will be conducted from July 1 to November 15, as recommended by the ODFW District Fish Biologist (ODFW 2013).

Staging and access for this project will be on adjacent uplands and existing service roads. Equipment will be required to enter the channel in order to install the vortex weirs, streambed simulation material, grade control structures, boulder clusters, and large woody debris. Any usable large wood, topsoil, or native channel material removed during construction will be stockpiled on site for use during site restoration. Unusable material will be disposed of in accordance with applicable local laws and regulations. Refer to Plan Sheets 1 through 12 in Appendix C of the Assessment for project details. This design has been reviewed and approved by a National Marine Fisheries Service (NMFS) engineer (NMFS 2013).

Particular objectives of the project include; 1) restore fish passage over the Beaver Creek Dam, the Beaver Creek upstream diversion, and three municipal water intakes, 2) restore

connectivity of native fish populations, and 3) restore access to steelhead spawning and rearing habitat upstream of the existing barriers. The proposed sequence of construction is as follows:

Beaver Creek Main Intake Diversion Modification – 2014

- a) Clear access road to site.
- b) Install block nets at temporary access road site across Beaver Creek and perform fish salvage.
- c) Install temporary access road with culvert across Beaver Creek.
- d) Divert flows around work area through temporary culvert and existing diversion pipes. Cut in a new return pipe to allow all flows to return to Beaver Creek downstream of the work area.
- e) Conduct fish salvage operations in remaining pools within work area isolation barriers.
- f) Mine and stockpile large rock for the main intake, upstream diversion, and dam modifications.
- g) Construct rock ribs, rock clusters, grade control and woody debris structures, and install streambed simulation material.
- h) Complete streambank restoration.
- i) Remove work area isolation barriers.
- j) Perform site restoration activities.
- 2) Beaver Creek Upstream Diversion Modification 2014
 - a) Clear access road.
 - b) Install temporary culvert and lengthen existing overflow channel at the existing ford across Beaver Creek.
 - c) Install work area isolation barriers.
 - d) Divert flows around work area through the existing screen box, into the existing overflow channel, through the temporary culvert, and return to Beaver Creek downstream of the work area.
 - e) Conduct fish salvage operations in remaining pools within work area isolation barriers.
 - f) Construct rock ribs, rock clusters, grade control and woody debris structures, and install streambed simulation material.
 - g) Complete streambank restoration.
 - h) Remove work area isolation barriers.
 - i) Perform site restoration activities, including removal of temporary culvert.
- 3) Cove Creek and West Fork Beaver Creek Intake Diversion Modifications 2014
 - a) Clear access roads to the sites.
 - b) Install work area isolation barriers at each site.
 - c) Divert flows around work areas through the existing Cove Creek and West Fork Beaver Creek diversions. Lengthen existing return pipes if necessary to avoid work areas.
 - d) Conduct fish salvage operations in remaining pools within work area isolation barriers at both sites.

- e) Install streambed simulation material at both sites.
- f) Complete streambank restoration at both sites.
- g) Remove work area isolation barriers at both sites.
- h) Perform site restoration activities at both sites.
- 4) Beaver Creek Dam Modification 2015
 - a) Build staging area and clear access road.
 - b) Divert flows around work area through the existing Beaver Creek outlet pipes.
 - c) Demolish dam and spillway.
 - d) Excavate fishway channel.
 - e) Mine and stockpile large rock.
 - f) Install fishway (precast concrete vortex weirs and resting pools, cut-off walls, and streambed simulation material).
 - g) Install entrance pool and spillway.
 - h) Backfill/armor the spillway entrance.
 - i) Complete streambank restoration.
 - j) Perform site restoration activities.

Construction Access, Staging, and Rock Source Locations

Main site access will be via Forest Service Roads 4305 and 4305270. Some maintenance may be required on Road 4305270, primarily the addition of base rock to accommodate the heavy equipment required for construction activities and hauling materials.

In order to access the area downstream of the Beaver Creek Dam, a 120-foot access road will need to be cleared to a width of 16 feet. Approximately 14 to 17 trees will be removed to accomplish this. These trees will be stockpiled and used to construct the large woody debris structures. In addition, base rock may be added to stabilize the road surface. After construction is complete, this access road will be retained to allow future access to the weir structure and will be seeded with native grasses to prevent erosion.

The existing access road to the Beaver Creek main intake (Road 4305280) will need to be cleared to a passable width of twelve feet, graded, and two switchbacks will be widened to provide a 45-foot turning radius for a large dump truck. A turn around area will also be provided near the intake structure. Following construction, these improvements will be left in place to provide operations and maintenance access for the intake. A temporary access road with a culvert to allow diversion through the existing structure will be required to cross the streambed and access the rock source east of the creek. This will require approximately 50 cubic yards (CY) of temporary fill.

The Beaver Creek upstream diversion will be accessed using existing Road 4305270. This will require minor vegetation removal to provide a passable width of 12 feet, and removal of small trees and rocks near the diversion to provide a 90-foot diameter equipment turnaround area. The existing ford across Beaver Creek will be used to access to the far side of the creek. The existing overflow channel will be lengthened to avoid the work area and to by-pass water. A temporary culvert will be installed in the overflow channel to allow

equipment passage while maintaining flows through the diversion structure and overflow channel.

The existing access roads to the Cove Creek intake (Road 4305278) and West Fork Beaver Creek intake (Road 4305275) may require minor vegetation removal to allow for equipment passage. Two main staging areas will be used. One will be located approximately 2,500 feet from the main entrance gate on Road 4305270 in a large clearing, which has been used previously as a vehicle turnaround and staging area. The second main staging area will be between the caretaker's house and Beaver Creek Reservoir; it will require clearing and leveling prior to use. After construction, both staging areas will be returned to preconstruction grade and seeded with native grasses.

Three on-site rock sources will be used to avoid having to haul in large quantities of rock. The Dog Grave rock pit is located west of and adjacent to the access road between the caretaker's residence and the upstream diversion, and is approximately 75 feet from the edge of the Beaver Creek Reservoir. The second rock source is located immediately upstream of Beaver Creek main intake, on the east side of Beaver Creek, and is approximately 25 feet from the edge of the creek. The third source consists of three small areas located at the downstream end of the proposed vortex weir structure. These areas are immediately adjacent to the existing channel of Beaver Creek.

Work Area Isolation and Fish Salvage

Prior to in-water work, each work area will be isolated. The barriers will be constructed of ecology blocks, sandbags, plastic sheeting, or other suitable materials. Approximately 25 CY of material will be involved as temporary fill below the OHWE to construct each work area isolation barrier. The details of each isolation effort are listed below.

Beaver Creek main intake

The temporary access road will form a dam across the channel, and all flows will be collected by a temporary culvert under this access road and directed into the existing diversion pipeline. A return will be cut into the diversion pipeline downstream of the work area, and all flows will reenter the Beaver Creek channel. Installation of the temporary access road and culvert will not be done in a dry channel; rather, the area will be isolated with block nets and salvaged prior to the start of work. Following installation of the temporary access road, all stream flows will be diverted around the work area and all remaining work will take place in the dry channel. The only impact of this diversion will be to the immediate work area; the volume of water in Beaver Creek downstream of the work area should not be affected.

Beaver Creek upstream diversion

All stream flows will be diverted through the existing screen box into the overflow channel and back into Beaver Creek immediately downstream of the work area. A temporary culvert will be installed in the overflow channel prior to flow diversion, to allow equipment access to the work area in the dry Beaver Creek channel while maintaining flows through the diversion structure and overflow channel. The only impact of this diversion will be to the immediate work area; the volume of water in Beaver Creek downstream of the work area will not be affected. See details on Plan Sheet 10, Appendix C of the Assessment.

Cove Creek and West Fork Beaver Creek diversions

All stream flows will be diverted through the existing diversions and return pipes and back into the channels immediately downstream of the work areas. The existing return pipes may need to be lengthened in order to exit downstream of the work areas, however, this work will take place above OHWE. The only impact of these diversions will be to the immediate work areas; the volume of water in Cove Creek and West Fork Beaver Creek downstream of the work areas should not be affected.

Beaver Creek Dam

The water will be redirected via the existing pipe that penetrates the dam to the east, and all work will take place in the dry channel. The diverted water will go down the historic channel of Beaver Creek and rejoin the channel immediately downstream of the area where the vortex weirs will be installed. The only impact of this diversion will be to the immediate work area; the volume of water in Beaver Creek downstream of the work area will not be affected.

A total of six salvage efforts will be required for this project. These will include the installation of the temporary access road at the Beaver Creek main intake (accomplished by installing block nets to isolate the work area), and dewatering the five work areas: Beaver Creek main intake, Beaver Creek Dam, Beaver Creek upstream diversion, Cove Creek intake, and West Fork Beaver Creek intake.

Fish salvage will take place inside the isolated work areas by seining the area first if possible, then through the use of electrofishing. Electrofishing will be completed by an ODFW or other qualified biologist according to NMFS, Service, and ODFW electrofishing guidelines. All fish handled will be recorded. Captured fish will be placed in aerated buckets, examined, identified, and then released upstream of the action area in similar habitat from which they were obtained or pools located upstream of the action area. Any fish injuries observed will result in a modification of the electrofishing settings. Work area isolation and fish salvage will not be conducted when water temperatures exceed 15°C. Care will be taken to avoid putting predators (if any are captured) into the same bucket as prey species. The amount of time fish spend in the buckets will be minimized to reduce impacts. Any listed fish will be noted, and if mortality occurs to a listed fish species, it will be collected according to NMFS and USFWS requirements.

Upstream fish passage will not be provided during the construction period. This does not represent a departure from existing conditions, as upstream passage is currently blocked at all project locations. Downstream passage will remain available during construction, although existing passage conditions may be seasonally limited by low water levels. Following construction, both upstream and downstream passage will be possible when stream volumes are sufficient.

Beaver Creek Dam Modifications

All work will take place in the dry channel. The overflow channel will be completely rebuilt, with the native substrate removed and the concrete vortex weirs installed. In order

to accomplish this, equipment will be required to enter the dry channel multiple times per day for approximately four months.

Install Concrete Vortex Weir Fishway

The channel below the dam will be excavated for a distance of approximately 350 feet downstream of the existing east spillway. Approximately 3,500 CY of material will be excavated and later used on site to backfill around the new fishway. In the excavated channel, ³/₄ inch-0 base rock will be placed to a depth of six inches and compacted to create a stable and level base for the precast concrete vortex weir fishway.

The existing concrete weir and portions of the east spillway will be saw cut, removed, and replaced with a concrete vortex weir fishway. The first 22.5 feet of the fishway will be a reinforced concrete entrance pool that will be ten feet wide by three feet deep. The entrance pool will be attached to the remaining existing concrete spillway with rebar embedded into the concrete and epoxied into the existing spillway (see Plan Sheet 4, Appendix C in the Assessment). A series of approximately 63 precast concrete vortex weirs with precast concrete off-channel resting pools will be installed downstream from the entrance pool (see Plan Sheet 3, Appendix C in the Assessment). The furthest downstream vortex weir will match existing grade at the confluence of the spillway channel with the Beaver Creek channel. Each weir will have a concrete base that is approximately eight inches thick, 12 feet wide, and seven feet long (parallel to flow) (see Plan Sheet 6, Appendix C in the Assessment). Concrete walls eight inches thick in the shape of an "M" will create a Vshaped weir. The side walls will be 6.25 feet high, and the interior walls will slope downward and inward to a height of 5.25 feet, that will concentrate water flow to the center of the weir. Each precast concrete vortex weir is expected to weigh more than 20,000 pounds. The base of each vortex weir will bear on and overlap the immediate downstream weir by one foot; mastic between the overlapped bases and grout between the abutting vertical walls will help reduce or eliminate seepage. The banks along the sides of the concrete fishway will be graded to a slope of 1:10 with streambed simulation material ranging in size from gravel to 48-inch diameter boulders. Concrete cutoff walls will be installed within the backfill along the length of the project to prevent piping outside the vortex weirs (see Plan Sheets 3 and 5, Appendix C in Assessment).

Re-Grade West Concrete Spillway Outflow

The area between the downstream end of the west spillway and the new fishway will be regraded using 48-inch diameter rock in order to provide a constant slope from the end of the spillway to the top of the concrete structures (see Plan Sheet 3, Appendix C in Assessment).

Beaver Creek Upstream Diversion Modifications

All work will take place in the dry channel. In order to install the proposed improvements, including the two large woody debris (LWD) structures, equipment will be required to enter the dry channel approximately twelve times.

Modify Existing Diversion and Install Grade Control

A three-foot wide section of the existing concrete weir and spillway will be saw cut and removed to the substrate under the existing concrete spillway. Three grade control

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structures will be installed using 48-inch diameter footer rock (where needed), with 36-inch diameter rock placed upstream against the footer rock. Bed-class 24 streambed simulation material, consisting of a mixture of soil, gravel, cobbles, and boulders to simulate the natural streambed, will then be placed in the streambed. This material will fill in the existing drop in the streambed and will create a constant grade from the notch in the concrete diversion to the existing streambed elevation approximately 170 feet downstream (see Figure 2D and Plan Sheet 8, Appendix C in the Assessment). A total of approximately 500 CY of material will be required for the streambed simulation material and grade control structure installation.

Install Large Woody Debris (LWD) Structures

Two LWD structures will be placed in the bank downstream of the diversion. Each LWD structure will utilize three trees that are a minimum length of 20 feet and 18 inches in diameter at breast height (DBH). A minimum of 50 percent of the length of each of the trees will be buried. The trees will be pinned together with rebar, and large boulders will be placed within and on top of the structure to provide stability and keep the LWD structures in place (see Plan Sheets 8 and 12, Appendix C in the Assessment).

Beaver Creek Main Intake Structure Modifications

Equipment will be required to enter the wetted channel twice, following isolation and fish salvage, in order to install and remove the temporary access road and culvert. Installation of the remaining improvements, including the two LWD structures and approximately 18 boulder clusters, will take place in the dry channel or from the temporary access road.

Modify Existing Intake and Install Grade Control

A three-foot wide section of the existing concrete spillway will be saw cut and removed to the substrate under the existing spillway. Six grade control structures will be installed using 48-inch diameter footer rock, with 36-inch diameter rock placed upstream against the footer rock. Bed-class 24 streambed simulation material, consisting of a mixture of soil, gravel, cobbles, and boulders to simulate the natural streambed, will be placed in the streambed. This material will fill in the existing drop in the streambed and will be graded at a constant grade from the notch in the concrete diversion to the existing streambed elevation approximately 170 feet downstream (see Figure 2C and Plan Sheet 9, Appendix C in the Assessment). A total of approximately 800 CY of material will be required for the streambed simulation material and grade control structure installation.

Install LWD Structures and Rock Clusters

Two LWD structures will be placed in the bank. Each structure will be constructed using three trees that are a minimum length of 20 feet and 18 inches DBH. A minimum of 50 percent of the length of each of the trees will be buried. The trees will be pinned together with rebar, and large boulders will be placed within and on top of the structure to provide stability and keep the LWD structures in place (see Plan Sheets 9 and 12, Appendix C in the Assessment). Approximately 18 rock clusters, each consisting of groups of three boulders ranging in size from 36 inches to 48 inches in diameter, will be placed near the surface of the streambed. Approximately 60 percent of each boulder will be buried (see Plan Sheet 9, Appendix C in the Assessment).

Cove Creek and West Fork Beaver Creek Intake Structure Modifications

The existing concrete intake structures at Cove Creek (see Figure 2C in the Assessment) and West Fork Beaver Creek (see Figure 2E in the Assessment) will remain in place without modification. Streambed simulation material will be installed downstream of the structures to eliminate the approximately 36-inch drop that has formed at each location. The streambed simulation material will be sized appropriately for conditions at each location, with Cove Creek receiving Bed-class 16 material and West Fork Beaver Creek receiving larger Bed-class 24 material, to help prevent future scour. The streambed simulation material will be installed to match the existing gradient upstream of the diversion and intakes and will tie into the native streambed at the downstream end (see Plan Sheet 10, Appendix C in the Assessment). Approximately 15 CY of streambed simulation material will be required at the Cove Creek location, and approximately 30 CY of streambed simulation material will be needed at the West Fork Beaver Creek location. All work at these two locations will take place in the dry channel, with the equipment remaining on adjacent uplands. The construction at Cove Creek and West Fork Beaver Creek will likely take place during the summer of 2014.

Restoration

Following construction, fill from the temporary access road at the Beaver Creek main intake and the upstream diversion sites will be removed and stockpiled at the staging area between the Beaver Creek Dam and the caretaker's residence. This material will be incorporated as backfill in the vortex weir installation downstream of the Beaver Creek Dam. The temporary access road locations at both sites will be restored by removing the temporary fill, returning the area to pre-construction contours, and seeding the streambanks above the OHWE with native grasses to prevent erosion. The streambank below the OHWE will be restored to pre-construction contours with native rock and streambed simulation material.

Other road improvements will be seeded with native grasses to prevent erosion, but left in place to provide operations and maintenance access to the structures.

Once construction is complete at each site, the streambed simulation material will be washed in to settle the sediments, seal the new channel bottom, and reduce the amount of unconsolidated fines on the new channel surface. Flows will then be returned to the isolated work areas by removing the isolation barriers and closing the bypass gates in the diversion structures. It is not anticipated that the streams will contain high volumes of water following construction due to the time of year when these activities will take place, so excessive sediment flushing is not expected to be an issue. The streams will experience naturally increasing flow volumes as fall rains begin.

A six-inch minimum depth of topsoil will be placed over disturbed areas above OHWE for native vegetation seeding, and native willow cuttings will be installed around the woody debris structures (see Plan Sheet 12, Appendix C in the Assessment).

Post-Project Maintenance and Monitoring

Maintenance of the municipal water facilities, including the dam and all diversion structures, will be performed by the City as part of their normal system operations. This will include ensuring that the structures do not collect excessive sediment or woody debris.

The City will also monitor substrate settlement in areas where streambed simulation material is installed. If settlement is observed, the City will develop an adaptive management strategy to remedy the situation.

A Fish Passage Monitoring Plan has been developed to assess the success of the proposed improvements relative to fish passage. Monitoring of the physical characteristics of the project areas will be performed by City of La Grande staff. Fish use monitoring tasks will be performed by ODFW staff or other qualified personnel. For full details of the Fish Passage Monitoring Plan, refer to Appendix E in the Assessment.

Conservation Measures:

Conservation measures are intended to minimize or avoid environmental impacts to listed species or critical habitat. Conservation measures for the project are listed below.

- An Erosion and Sediment Control Plan will be prepared and implemented prior to beginning construction.
- Site restoration includes monitoring and maintenance to ensure that performance standards are being met.
- The City and Project Engineer will meet with the selected contractor on site, prior to moving equipment on site or beginning any work, to ensure that all parties understand the locations of sensitive biological sites and the measures that shall be taken to protect them.
- Areas for non-work-shift storage of equipment and vehicles, other than trackmounted vehicles, will be located at least 150 feet away from the Regulated Work Area.
- Prior to operating within 150 feet of the Regulated Work Area; equipment cleaning, maintenance, and refueling will be completed. Fuels and other potentially hazardous materials will be placed 150 feet or more from the Regulated Work Area.
- In the vehicle staging area, all equipment will be inspected and cleaned. All equipment will be checked for fluid leaks, and any leaks found will be fixed. External oil, grease, dirt, and caked mud will be removed from equipment. Untreated wash and rinse water will not be discharged into the Regulated Work Area. Temporary impoundments to catch water from equipment cleansing will be located at least 150 feet from the Regulated Work Area and in locations so as not to contribute untreated wastewater to any flowing stream.

- Biodegradable lubricants will be used in equipment operating within 150 feet of the Regulated Work Area.
- The ODFW in-water work period for the action area is July 1 to July 31. All work at the three intake structures and the Beaver Creek upstream diversion will take place within this preferred window. A longer time frame will be needed to accommodate the amount of work that is required to install the concrete weir structure at the Beaver Creek Dam. However, the dam spillway where this work will take place will be dry during this time, and no work in active flows is expected. It is anticipated that this work will be conducted from July 1 to November 15.
- The Engineer and/or City staff will be notified by the contractor at least five working days prior to completion of isolation barrier construction. An ODFW or other qualified biologist will be given access to work isolation barriers to remove fish trapped within the enclosure before work begins within the isolation barrier.
- Fish removal will be carried out by ODFW or other qualified fish biologist in accordance with NMFS, Service, and ODFW fish salvage guidelines.
- For track-mounted equipment, large cranes, and other equipment whose limited mobility makes it impractical to move it for refueling, precautions to minimize the risk of fuel reaching the Regulated Work Area will be taken. Spill prevention measures will be implemented and fuel containment systems will be designed to completely contain a potential spill. Other pollution control devices and measures (such as diapering, parking on absorbent material, etc.) adequate to provide containment of hazardous material will also be used as necessary. Refueling operations will be completed in a way that will minimize the amount of fuel remaining in vehicles stored during non-work times.
- Hazardous material containment booms and spill containment booms will be maintained on site to facilitate the cleanup of hazardous material spills. Hazardous material containment booms will be installed in instances where there is a potential for release of petroleum or other toxicants.
- Contaminated or sediment-laden water, or water contained within an isolation barrier, will not be discharged directly into any Waters of the State until it has been satisfactorily treated (e.g., by bio-swale, filter, settlement pond, pumping to a vegetated upland location, bio-bag, or dirt-bag).
- Water pump intakes (in the work isolation area) will be screened according to NMFS's Fish Screening Criteria for Anadromous Salmonids (2011).
- Equipment will be inspected for noxious weeds prior to entry into the project area. Rock pits and equipment will be inspected for noxious weeds prior to equipment exit from the rock pit.

Bull Trout - Grande Ronde River Management Unit

The Grande Ronde Core Area (within the Columbia River Interim Recovery Unit) has eight local populations: Upper Grande Ronde complex, Catherine Creek and tributaries, Indian Creek and tributaries, Minam River/Deer Creek complex, Lostine River/Bear Creek complex, Upper Hurricane Creek, Wenaha River, and Lookingglass Creek, and are described below.

Current distribution of bull trout in the Grande Ronde River Management Unit includes the mainstem Grande Ronde River from its headwaters in Oregon to the confluence with the Snake River in Washington, and possibly into the Snake River for overwintering; tributaries including Catherine Creek, Indian Creek, Lookingglass Creek, Wallowa River and its tributaries (Minam, Deer, Bear, Lostine, and Hurricane creeks), and the Wenaha River and its tributaries. Wenatchee Creek historically had bull trout, but has not been surveyed recently. To the best of our knowledge, with the exception of the Wallowa River above Wallowa Dam, historic distribution is closely reflected by the current distribution. Approximately 4,000 bull trout spawned in each of the past few years in the Grande Ronde Core Area. The majority of spawning likely occurs in the Wenaha River and Minam River/Deer Creek complex, both which exists primarily in wilderness areas. In the Little Minam Core Area approximately 750 bull trout spawned in each of the past few years.

The general status for all populations in the Grande Ronde Core Area appears to be stable, and contains both migratory and resident bull trout. The Wenaha River local population is one of the strongholds as it has multiple age classes, contains fluvial fish, has an anadromous prey base, has connectivity with the Grande Ronde and Snake rivers, and contains pristine habitat (consistent redd count data unfortunately is not available for this population). Other healthy bull trout populations include Lookingglass Creek, Lostine River, and Deer Creek. Minam River has had surveys conducted by ODFW in past years, with limited documentation of bull trout observed. Hurricane Creek is at high risk of extinction due to low numbers of resident bull trout, hybridization with brook trout, and limited habitat due to their isolation in the headwaters upstream of Alder Slope diversion dam and downstream of Slick Rock Falls. Lostine River and Bear Creek contain brook trout and the degree of hybridization is unknown. Limited redd count data is available on Bear Creek and this portion of the Lostine River/Bear Creek local population has been listed as special concern. The Upper Grande Ronde River, Catherine Creek, and Indian Creek populations contain primarily resident life history forms and are at moderate risk of extinction. Limited data is available is available for these systems, with the exception of Catherine Creek. Catherine Creek has some limited numbers of fluvial size fish as reported at the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) adult weir on Catherine Creek. North Fork Catherine Creek has redd count data collected from 1998 to 2006, 2008, and 2010-2013; and the trend appears to be stable. Connectivity between local populations is limited by two major dams, numerous water diversions, and various culverts and other blockages, introduced brook trout, and water quality (thermal warming and sediment) and other habitat degradation concerns exist in these local populations.

StreamNet (2012) identifies the lower and middle reaches of Beaver Creek (to approximately RM 8.8) as migration habitat for bull trout. Tim Bailey, ODFW biologist, and Brad Lovatt, USFS biologist, stated that while little is known about bull trout use of the

Beaver Creek system, bull trout have been recorded in Hoodoo Creek, a tributary to Beaver Creek (ODFW 2012, USFS 2012). Adults and juveniles could use the area downstream of the municipal water intakes year-round if temperatures are suitable (ODFW 2012). During the in-water work window, water temperatures are likely to be too warm to support bull trout. Currently, there is no upstream passage past the main intake on Beaver Creek, and bull trout are not known to be present within or upstream of the reservoir (ODFW 2012, USFS 2012) (Assessment).

Conclusion

The Forest has determined, and the Service concurs, that the proposed Beaver Creek Fish Passage Project *may affect, but is not likely to adversely affect,* bull trout. The Service's concurrence with this determination is based on the following:

- Direct and indirect effects to bull trout from project implementation are anticipated to be discountable due to the proposed action (including project design criteria).
- Due to high water temperatures, bull trout juveniles and adults are highly unlikely to be present in the vicinity of the Beaver Creek, Cove Creek, and West Fork Beaver Creek intakes during the in-water work window of July 1 to July 31, when all work at these locations will take place;
- Due to passage barriers at the municipal water intakes, bull trout are not currently present at the Beaver Creek Dam or the Beaver Creek upstream diversion locations and will, therefore, not be affected by construction activities in these areas;
- The proposed in-water work window of July 1 to November 15 that will be required to install the vortex weirs at the Beaver Creek Dam will not affect bull trout, since bull trout are not present at this location and all work will be performed while the channel is dry.

This concludes informal consultation pursuant to section 7(a) (2) and 7(c) of the Act. If information reveals effects of the action may affect listed species or critical habitat in a manner or to an extent not considered in this consultation; the action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this consultation; and/or, new species is listed or critical habitat is designated that may be affected by this action, the Forest would need to re-initiate consultation.

We appreciate your concern for listed species. The Wallowa-Whitman National Forest is encouraged to continue to explore opportunities to manage pro-actively for the benefit of native species, and to promote the conservation of listed species as directed by section 7(a)(1) of the Act. If you have any questions on this concurrence, or require more information regarding this consultation, please contact Gretchen Sausen or me at (541) 962-8584.

Sincerely,

And Mill

Gary S. Miller Field Supervisor
cc:

Tim Bailey, Oregon Department of Fish and Wildlife, La Grande, Oregon Sue Brady, Anderson Perry, Inc., La Grande, Oregon Joe Vacirca, Wallowa-Whitman National Forest, Baker City, Oregon

Brad Lovatt, Wallowa-Whitman National Forest, La Grande, Oregon Renee Coxen, National Marine Fisheries Service, La Grande, Oregon Gretchen Sausen, Fish and Wildlife Service, La Grande, Oregon

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USDA	United States Department of Agriculture	Forest Service	Wallowa-Whitman National Forest		La Grande Ranger District 3502 Highway 30 La Grande, OR 97850
]	File Code: Date:	1950 July 15, 2014

To: Norm Paullus, City of La Grande Public Works Director Laurie Parry, Anderson Perry & Associates, Inc.

Attached is the Decision Notice for the Beaver Creek Fish Passage Project. The objection period closed on July 7th, 2014 and no objections were received. Under 36 CFR 218.12 (c) (2), I signed the Decision Notice today and the decision may now proceed to implementation. As described in the Decision Notice (DN, page 6) a separate special use permit will be required for the construction described in this project. Please work with our District Special Uses specialist Andy Steele (541-962-8543) to complete this step of the process.

Also, please note the specific reasonable and prudent measures, terms and conditions, and conservation measures received from National Marine Fisheries Service and US Fish and Wildlife Service (DN, pages 3-6) during consultation for this project which must be incorporated into project design, implementation, and monitoring.

This decision is subject to appeal under 36 CFR 214 by those who hold written authorizations to occupy and use National Forest System lands. Specifics regarding these appeal rights can be found on pages 11 and 12 of the attached Decision Notice.

Feel free to contact me with any questions you may have. I can be reached at the La Grande Ranger District, 3502 Highway 30, La Grande, OR 97850, 541-962-8582, or by email at bgamble@fs.fed.us.

Thank you for partnering in the development and planning of this project on the La Grande Ranger District. If I can be of any further help, please do not hesitate to call.

Sincerely,

Bill Gamble DISTRICT RANGER La Grande Ranger District

cc: Beaver Creek Fish Passage Project File



Letters of Support

January 12, 2016

Oregon Water Resources Department Attention: Jon Unger, Water Resources Grant Administrator 725 Summer Street NE, Suite A Salem, Oregon 97301

RE: Water Supply Development Account: Beaver Creek Dam Fish Passage and Streamflow Restoration Project

Dear OWRD Review Team:

The Wallowa Whitman National Forest has worked closely with the City of La Grande on planning and work to maintain and improve conditions in the Beaver Creek watershed. The watershed is an important secondary domestic water source for La Grande and also provides critical aquatic habitat for steelhead and bull trout. As such, the forest supports the City of La Grande's application for funding to complete the Beaver Creek Dam Fish Passage and Streamflow Restoration Project. This project involves completing major improvements to the dam and reservoir that are owned by the City of La Grande. The goal of this project is to upgrade the La Grande Reservoir system to allow for the protection of the existing water storage facilities at Beaver Creek to achieve two primary objectives; 1) Remove fish passage barriers at five diversion structures and open approximately 12 miles of native habitat to aquatic species, to allow for the USFS to determine that the dam meets fish passage requirements, and allow for the continuing protection the City of La Grande's water source. 2) Allow for adequate water storage capacity and infrastructure, so that water can be released to augment low late season flows.

The design for this project is complete, as well as most permit requirements, and an Oregon Watershed Enhancement Board (OWEB) grant has been secured to provide partial funding for construction. The City of La Grande hopes to construct the project in 2016.

The Wallowa-Whitman National Forest fully supports this project and will continue to participate in the planning process and implementation as this project moves forward.

Sincerely,

Bill Gamble, La Grande District Ranger

cc: OWRD, Jon.J.Unger@wrd.state.or.us

USDA

United States Department of Agriculture Forest Service Wallowa-Whitman National Forest 1550 Dewey Ave. P.O. Box 907 Baker City, OR 97814

File Code: 1900/2700 Date: October 16, 2012

Mr. Norman J. Paullus, Jr. Public Works Director City of La Grande 800 'X' Avenue La Grande, OR 97850

Dear Mr. Paullus:

The Wallowa-Whitman National Forest (WWNF) is engaged in a cooperative effort with the City of La Grande to complete the environmental planning for a proposed fish passage project in the City's municipal watershed (Beaver Creek). The current infrastructure associated with La Grande watershed facilities create barriers to fish passage at 3 locations inhibiting access to 8-14 miles of spawning and rearing habitat for Lower Snake River Steelhead, a threatened species under the Endangered Species Act. The restoration of fish passage in Beaver Creek is identified as a key recovery action in the Lower Snake River Aquatic Recovery plan and has been a desired goal for the WWNF and City of La Grande for more than a decade. Restoration of fish passage will also bring the City's facilities in compliance with Oregon State Law that requires passage at all artificial barriers.

Achieving these mutually beneficial goals will require significant investment by the City. This letter is intended to express our full support for the project and encourage funding and grant support to the City of La Grande for the planning and implementation of this worthwhile project.

Sincerely,

KEVIN D. MARTIN Forest Supervisor

cc: Robert Strope



Dana Kurtz

To: Subject: Caylin Barter RE: Confirm letter of support for the Beaver Creek Dam Fish Passage and Streamflow Restoration Project

From: Caylin Barter [mailto:Caylin@thefreshwatertrust.org]
Sent: Wednesday, January 06, 2016 9:53 AM
To: Dana Kurtz
Cc: Haley Walker; Laurie Parry; <u>publicworks@cityoflagrande.org</u>
Subject: RE: Confirm letter of support for the Beaver Creek Dam Fish Passage and Streamflow Restoration Project

Dear Dana,

Thank you for writing to re-confirm The Freshwater Trust's support for the Beaver Creek Dam Fish Passage and Streamflow Restoration Project.

We are excited to see this project reemerge, and we remain extremely supportive of the proposal based on its potential to drastically improve habitat availability for listed steelhead while also benefiting the City's water supply resilience and increasing the slate of options for cooperative water-use agreements that improve late-season flow.

We urge OWEB to support this important project.

Best regards, Caylin

Caylin Barter Flow Restoration Director The Freshwater Trust 503.222.9091 x16 (office) **530**.205.5107 (cell) caylin@thefreshwatertrust.org www.thefreshwatertrust.org

From: Dana Kurtz [mailto:dkurtz@andersonperry.com]
Sent: Wednesday, December 30, 2015 12:21 PM
To: Natasha Bellis <<u>Natasha@thefreshwatertrust.org</u>>
Cc: Haley Walker <<u>Haley@thefreshwatertrust.org</u>>; Laurie Parry <<u>lparry@andersonperry.com</u>>;
publicworks@cityoflagrande.org
Subject: Confirm letter of support for the Beaver Creek Dam Fish Passage and Streamflow Restoration Project

Dear Natasha,

In 2012, you drafted the attached letter of support for the City of La Grande's applications to secure funding for the Beaver Creek Dam Fish Passage and Streamflow Restoration Project. The City of La Grande is submitting a new grant application, and we feel that it would make the application stronger if you could send a quick email or letter indicating

that your office still supports this project. We would appreciate receiving your letter or email by Tuesday, January 12th, 2016.

Here are a few details about the project, please let me know if you need any additional information (draft application, plan set etc).

The City of La Grande is submitting an application to the Oregon Water Resources Department (OWRD) Water Supply Development Account, which originated in 2013 to provide loans and grants for water supply development projects that have economic, environmental, and social/cultural benefits. The City is excited about the opportunity to secure the funding needed to complete the major improvements to the dam and reservoir so that the City of La Grande can continue to operate the La Grande Reservoir.

This project seeks to manage the watershed in such a way that ecological processes support aquatic productivity and diversity while maintaining a reliable drinking water source for the City. The goal of this project is to upgrade the La Grande Reservoir system to allow for the protection of the existing water storage facilities at Beaver Creek to achieve two primary objectives; 1) Remove fish passage barriers at five diversion structures and open approximately 12 miles of native habitat to aquatic species, to allow for the USFS to determine that the dam meets fish passage requirements, and allow for the continuing protection the City of La Grande's water source. 2) Allow for adequate water storage capacity and infrastructure, so that water can be released to augment low late season flows through agreements with organizations like the Freshwater Trust.

Thanks for your help,

Dana Kurtz Environmental Scientist Anderson Perry & Associates, Inc. 1901 N Fir Street/PO Box 1107 La Grande, OR 97850 541-963-8309 office / 541-963-5456 fax 509-953-1804 cell

Web Facebook



65 SW Yamnil Street Suite 200 Portland, Oregon 97204 503.222 9091 MAIN OFFICE www.thefreshwatertrust.org

Joe S. Whitworth, President

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October 12, 2012

Oregon Watershed Enhancement Board 775 Summer Street NE, Suite 360 Salem, OR 97301-1290

RE: Beaver Creek Fish Passage

Dear Grant Application Review Team,

I am writing this letter in support of the efforts of the City of La Grande to restore fish passage above La Grande Reservoir on Beaver Creek in the upper Grande Ronde Basin. Restoring fish passage to this area will reopen 14 square miles of pristine spawning grounds to threatened salmonid species, including steelhead and Chinook. In addition, this project will also retrofit existing fish screens to meet current fish screening criteria.

Several critical basin-wide assessments identify areas of the upper Grande Ronde Basin as priorities for implementing restoration actions that will lead to the recovery of federally listed species. (NWPPC Grande Ronde Subbasin Plan, NOAA Snake River Steelhead Recovery Plan). Specifically, this project will advance priority restoration work in this important Grande Ronde River watershed by increasing available habitat for aquatic species.

The Freshwater Trust is a non-profit organization that actively works to preserve and restore freshwater ecosystems. Our work in the Grande Ronde Basin focuses on restoring instream flow to the basin's many flow —limited streams. Funding from the Oregon Watershed Enhancement Board (OWEB) for this project will complement The Freshwater Trust's work by providing federally-listed fish additional access to historic salmonid spawning grounds.

The Freshwater Trust strongly supports the City of La Grande's efforts to restore fish on Beaver Creek and urges OWEB to support this important barrier modification project. Please feel free to contact me if you have any questions.

Sincerely,

Natasha Bellis Flow Restoration Project Manager 503-222-9091 x 24 natasha@thefreshwatertrust.org

Dana Kurtz

From:	Norm Paullus, La Grande Public Works Director <npaullus@cityoflagrande.org></npaullus@cityoflagrande.org>
Sent:	Tuesday, January 12, 2016 2:41 PM
To:	Dana Kurtz
Subject:	Intake fish ladder
Follow Up Flag:	FollowUp
Flag Status:	Flagged

Dana,

This email is intended to extend the level of commitment to the Beaver Creek Fish Ladder project that is reflected in our support letter 2 years ago. This project has been and continues to be as important now as it has been in the past which is reflected by the current level of expenditure the City has born to get it to this stage of \$250,000. We look forward to being able to move this project from its' current level on to construction once we have accessed funding to the level necessary. If you should need anything more please feel free to let me know so we can address items.

Norman J. Paullus Jr.

Public Works Director

800 'X' Avenue

La Grande, Oregon 97850

Phone (541)962-1325

Fax (541)963-3608

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September 14, 2012

To Whom It May Concern:

Attached you will find the grant application for the La Grande Beaver Creek Fish Passage Project. This project is designed to help aquatic life and install a process in which migratory fish can access several miles of spawning grounds above the La Grande Reservoir Dam. Existing conditions do not allow for migratory fish to pass beyond the dam under natural conditions within their own means. The new proposed plans, once constructed, will allow for this to happen.

This grant application is being submitted and sponsored by the City of La Grande so that funding can be accessed to make this happen. While the improvements that would be funded by this grant application do not affect the City's ability to use water, the City whole heartedly supports this improvement project in all aspects so that a normal uninterrupted stream channel can be used by migratory fish and all other benefits to the natural stream channel can be recognized.

Thank you for your consideration in reviewing this application for grant funding and we look forward to working with you on this project in the future.

Sincerely yours, olman

Norman J. Paullus Jr. La Grande Public Works Director December 30, 2015

Oregon Water Resources Department Attention: Jon Unger, Water Resources Grant Administrator 725 Summer Street NE, Suite A Salem, Oregon 97301

RE: Water Supply Development Account: Beaver Creek Dam Fish Passage and Streamflow Restoration Project

business Ore

Dear OWRD Review Team:

I am writing to support the City of La Grande's application for funding to complete the Beaver Creek Dam Fish Passage and Streamflow Restoration Project. This project involves completing major improvements to the dam and reservoir that are owned by the City of La Grande. The goal of this project is to upgrade the La Grande Reservoir system to allow for the protection of the existing water storage facilities at Beaver Creek to achieve two primary objectives; 1) Remove fish passage barriers at five diversion structures and open approximately 12 miles of native habitat to aquatic species, to allow for the USFS to determine that the dam meets fish passage requirements, and allow for the continuing protection the City of La Grande's water source. 2) Allow for adequate water storage capacity and infrastructure, so that water can be released to augment low late season flows.

The design for this project is complete, as well most permit requirements, and an Oregon Watershed Enhancement Board (OWEB) grant has been secured to provide partial funding for construction. The City of La Grande hopes to construct the project in 2016.

Representing Business Oregon's statewide recruitment efforts, I recognize the importance of water infrastructure for job creation and retention activities and I support this project and will continue to participate in the planning process as this project moves forward.

Sincerely,

Jill

Jill A. Miles, CEcD :Lead Recruitment Officer Business Oregon

cc: OWRD, Jon.J.Unger@wrd.state.or.us





800 SE Emigrant Ave., Suite 240 Pendleton, OR 97801 (541) 276-8006 FAX (541) 276-4778 www.healthoregon.org/dwp

January 11, 2016

Oregon Water Resources Department Attention: Jon Unger, Water Resources Grant Administrator 725 Summer Street NE, Suite A Salem, Oregon 97301

Re: Support for Project by the City of La Grande, PWS #4100453

The Oregon Health Authority - Drinking Water Services (DWS) strongly supports the proposed Beaver Creek Dam Fish Passage and Streamflow Restoration project by the City of La Grande. Beaver Creek was the City's primary water source until 1992, when the city placed a groundwater well into service. Maintaining the dam and reservoir to meet applicable standards, including fish passage, is critical to preserve the ability to place the Beaver Creek surface water source back into service in the event of an emergency situation.

If you have any questions or need this information in an alternate format please call me at 541-966-0900.

Sincerely,

William Loco

William Goss, P.E. Regional Engineer

c. OHA - Drinking Water Services, Portland



1114 J Ave. La Grande, Oregon 97850

> (541) 663-0570 Fax: (541) 962-1585

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Oregon Water Resources Department Attention: Jon Unger, Water Resources Grant Administrator 725 Summer Street NE, Suite A Salem, Oregon 97301

RE: Water Supply Development Account: Beaver Creek Dam Fish Passage and Streamflow Restoration Project

Dear OWRD Review Team:

The Grande Ronde Model Watershed (GRMW) supports the City of La Grande's application for funding to complete the Beaver Creek Dam Fish Passage and Streamflow Restoration Project. This project involves completing major improvements to the dam and reservoir that are owned by the City of La Grande. The goal of this project is to upgrade the La Grande Reservoir system to allow for the protection of the existing water storage facilities at Beaver Creek to achieve two primary objectives; 1) Remove fish passage barriers at five diversion structures and open approximately 12 miles of native habitat to aquatic species, to allow for the USFS to determine that the dam meets fish passage requirements, and allow for the continuing protection the City of La Grande's water source. 2) Allow for adequate water storage capacity and infrastructure, so that water can be released to augment low late season flows.

The GRMW supports this project and will continue to participate in the planning process as this project moves forward.

Sincerely, Jeff Oveson **Executive Director**



United States Department of the Interior



FISH AND WILDLIFE SERVICE La Grande Field Office 3502 Highway 30 La Grande, Oregon 97850 Phone: (541) 962-8584 FAX: (541) 962-8581

File Name: FWS support_2016_OWRD_Beaver Creek Dam Fish Passage Project.doc TS Number: 16_200

JAN 1 1 2016

Oregon Water Resources Department Attention: Jon Unger, Water Resources Grant Administrator 725 Summer Street NE, Suite A Salem, Oregon 97301

Subject:Letter of support for Water Supply Development Account: Beaver Creek DamFish Passage and Streamflow Restoration Project

Dear Review Committee:

I am writing to support the City of La Grande's application for funding to complete the Beaver Creek Dam Fish Passage and Streamflow Restoration Project. The Fish and Wildlife Service's (Service) La Grande Field Office consulted on this project for its effects to federally listed bull trout and will continue to participate in the planning process as this project moves forward.

This project involves completing major improvements to the dam and reservoir that are owned by the City of La Grande. The goal of this project is to upgrade the La Grande Reservoir system to allow for the protection of the existing water storage facilities at Beaver Creek to achieve two primary objectives: 1) Remove fish passage barriers at five diversion structures and open approximately 12 miles of native habitat to aquatic species, to allow the Forest Service to determine that the dam meets fish passage requirements, and allow for the continuing protection the City of La Grande's water source; and 2) Allow for adequate water storage capacity and infrastructure, so that water can be released to augment low late season flows. The design for this project is complete, as well as most permit requirements, and an Oregon Watershed Enhancement Board (OWEB) grant has been secured to provide partial funding for construction. We have been notified that the City of La Grande hopes to construct the project in 2016.

We appreciate your consideration of the City of La Grande's Water Supply Development Account: Beaver Creek Dam Fish Passage and Streamflow Restoration Project. If you have any questions regarding this letter of support, please contact Gretchen Sausen on my staff at (541) 962-8695.

Sincerely, Jary S. Mill

Gary S. Miller Field Supervisor

cc: Laurie Parry, Anderson Perry and Associates, Inc., La Grande, Oregon

Monitoring Plan

BEAVER CREEK FISH PASSAGE IMPROVEMENTS FISH PASSAGE MONITORING PLAN

A. Introduction

The City of La Grande proposes to make improvements to the Beaver Creek Dam, Beaver Creek upstream diversion, and three municipal water intakes (Beaver Creek, Cove Creek, and West Fork Beaver Creek) to restore fish passage in the Upper Beaver Creek subwatershed, in Union County, Oregon. These five structures currently act as barriers to fish movement, preventing access to more than 14 miles of upstream habitat. The proposed project will include installation of a concrete vortex weir fishway, streambed simulation material, gradient control structures, large wood structures, and boulder clusters. In order to assess the success of these improvements relative to fish passage, the following Fish Passage Monitoring Plan was developed.

B. Monitoring Timing

Monitoring of the physical characteristics of the project areas will be performed by the City (or their representative) twice per year, in the spring and fall, in order to evaluate the project areas during periods of high and low flows. Flows are highest in the Beaver Creek system in the spring, following snowmelt and spring rains. Steelhead migrate upstream to spawn during this time, from March through mid-June. Low flows in the Beaver Creek system are expected in the late summer and fall (August through November), prior to the start of fall rains.

A visual evaluation by Oregon Department of Fish and Wildlife (ODFW) staff (or other qualified personnel) of fish presence or evidence of fish use (including presence of redds) in the project areas will take place at least once per year, preferably during the spring when flows are high and fish are most likely to be actively moving through the area and using the fishways. A more detailed redd survey will be conducted by ODFW or other qualified personnel in Beaver Creek to determine steelhead usage upstream of the Beaver Creek Dam and upstream diversion.

C. Performance Standards

Intake Structures and Upstream Diversion. Channel stability, suitability for fish passage, and observations of fish use will be evaluated during the annual monitoring visits to the three intake structures (Beaver Creek main intake, Cove Creek intake, and West Fork Beaver Creek intake) and the Beaver Creek upstream diversion. Specific performance criteria for these four sites are described on Table 1.

	Design		Monitoring	Personnel to Perform
Parameter	Considerations	Performance Criteria	Method	Monitoring
Project	Stable bed and	No bank erosion or	Visual	City
stability	bank	downcutting of the	observation	
		channel bed within or		
		downstream of the	Established	
		roughened channel	photo points	
		fishway		
	Stable grade	No visible shifting of the	Visual	City
	control and large	large wood structures or	observation	
	Wood structures	boulder clusters	Fatablished	
	(Beaver Creek		established	
	unstream		photo points	
	diversion only)			
	and boulder			
	clusters (Beaver			
	Creek main intake			
	only)			
Unimpeded	Enable upstream	Continuous roughened	Visual	City
passage of	and downstream	channel across the	observation	
native	fish passage	structures, with little to		
migratory fish		no drop formed	Established	
during design		downstream of the	photo points	
flows		intake/diversion		
		structures	-	
		If present at the time of	Visual	ODFW*
		the site visit, fish	observation	
		observed in or on both		
		sides of the fishway		
		Steelhead redds observed		
		unstream of the		
		structures, with narticular		
		focus on Beaver Creek		
		upstream of the reservoir		

Table 1 - Performance Criteria for the Three Intake Structuresand Beaver Creek Upstream Diversion

*Or qualified personnel authorized by the City and ODFW.

Vortex Weir Fishway. As the vortex weir fishway was designed to address flow volumes and not flow velocities, water depth and jump height will be used as the primary metrics to evaluate fish passage conditions at this site. The stability of the channel and fishway structure will also

be evaluated during the monitoring visits, as well as observations of fish use. Specific performance criteria are described on Table 2.

Parameter	Design Considerations	Performance Criteria	Monitoring Method	Personnel to Perform Monitoring
Flow volume (water depth)	All flows within the range of 6 cubic feet per second (cfs) (low flow) to 90 cfs (high flow) should provide fish passage	Minimum 9-inch water depth in the weir at design flows	Direct measurement of depth of flow within the weir	City
Jump height	Maximum 8-inch jump height	Maximum 8-inch jump height	Direct measurement	City
Project stability	Stable bed and bank	No visible shifting of the vortex weir components or backfill No evidence of seepage problems along the vortex weir No bank erosion or downcutting of the channel bed downstream of the vortex weir	Visual observation Established photo points	City
Unimpeded passage of native migratory fish	Enable upstream and downstream fish passage	No excessive bedload or woody debris accumulating in weir pools	Visual observation	City
during design flows		No fish stranded or trapped in the fishway If present at the time of the site visit, fish observed in or on both sides of the fishway Steelhead redds observed upstream of the Beaver Creek reservoir	Visual observation	ODFW*

 Table 2 - Performance Criteria for the Beaver Creek Dam Vortex Weir Fishway

*Or qualified personnel authorized by the City and ODFW.

D. Monitoring Methods

Photopoints. A minimum of one permanent photopoint will be established at each of the three intake structures and the Beaver Creek upstream diversion. Each photopoint will be located to provide an overview of the project area, with additional photopoints showing close-up views of specific areas, such as the grade control or large wood structures, as necessary.

At least four permanent photopoints will be established along the vortex weir structure below the Beaver Creek Dam, including, but not limited to, views of the east spillway at the upstream end, the outlet at the downstream end, and two overall views of the upper and lower sections of the vortex weir structure itself. Additional photopoints showing close-up views of portions of the vortex weir structure may be added as necessary to document jump height, water depth, or other conditions within the vortex weir.

Direct Measurements. Direct measurements of water depth and jump height will be taken at two points within the vortex weir structure to verify that the structure meets the performance criteria.

Visual Observation. The three intake structures and the Beaver Creek upstream diversion will be visually evaluated for stability of the channel, banks, roughened channel fishways, and large wood and rock structures (where present). Particular attention will be given to whether scour is creating a drop in the streambed simulation material downstream of the structures, thereby limiting fish passage. Any observations of fish or evidence of fish use in the project area will be noted.

The vortex weir structure below the Beaver Creek Dam will be visually evaluated for stability of the concrete structure, backfill material, and downstream channel and banks, as well as excessive sediment or woody debris accumulation in the vortex weir structure. Any observations of fish or evidence of fish use in the project area will be noted. Redd surveys on Beaver Creek will be performed once per year, in order to determine whether steelhead are able to access areas upstream of the Beaver Creek Dam and upstream diversion.

E. Reporting

All reports will be submitted to the U.S. Forest Service, National Marine Fisheries Service (NMFS), and U.S. Fish and Wildlife Service (USFWS) by January 31 for the previous year's monitoring period. Project completion reports will be prepared immediately following construction to address conditions during construction as well as evaluate the improvements. Beginning the following year, a monitoring report will be prepared to summarize conditions in the project areas and evaluate the fish passage performance criteria listed on Tables 1 and 2, above. The monitoring reports will be prepared annually for a period of five years at each site.

The following monitoring periods are required for the five project locations:

Beaver, Cove, and West Fork Beaver Creek intake structures and Beaver Creek upstream diversion:

- Project completion report: 2014
- Annual monitoring: 2015 through 2019

Beaver Creek Dam vortex weir fishway:

- Project completion report: 2015
- Annual monitoring: 2016 through 2020

Separate project completion reports will be prepared for the work completed in 2014 (three intake structures and Beaver Creek upstream diversion) and work completed in 2015 (Beaver Creek Dam improvements and fishway).

Joint monitoring reports covering all five sites will be prepared when possible. Therefore, a total of six annual monitoring reports will be prepared, with the first report (2015) addressing only the three intake structures and the upstream diversion, and the final annual monitoring report (2020) addressing only the Beaver Creek Dam and vortex weir fishway.

F. Contingency Plan

If at any time the monitoring indicates a site is not functioning as intended and does not provide adequate fish passage, the City will coordinate with ODFW, NMFS, USFWS, and other interested agencies and undertake remediation efforts to rectify the problem. Remediation efforts may include activities such as replacing streambed simulation material washed out by high flows, stabilizing structures, modifying structures to provide adequate passage, or other necessary activities approved by ODFW and other interested agencies. As this is designated critical habitat for Endangered Species Act-listed species, any proposed remediation efforts may require consultation with NMFS and USFWS before they are implemented. Permanent seeding shall occur September 1 through October 31. At the end of the establishment period, the seeded area must have a uniform, healthy, and weed-free stand of grass.

- 1. Pesticides, including herbicides, will not be used within the restoration planting area, including within 150 feet of the OHWE. Mechanical, hand, or other methods may be used to control or contain non-native invasive species.
- 2. Fertilizer will not be used within the restoration planting area, including within 50 feet of the OHWE.
- 3. Erosion control performance standards and Best Management Practices (BMPs) will be followed in both upland and riparian restoration areas to minimize temporary impacts as a result of sediment runoff.

Planting will be completed during the same time frame as the seeding and will include the following:

Upland Permanent Seeding: Approximately 0.52 acre

Botanical Name	Amount
(Common Name)	<u>(lb/acre)</u>
Elymus lanceolatus	1.5
(Thickspike wheatgrass)	
Agrypyron trachycaulum	1.42
(Slender wheatgrass)	
Festuca idahoensis	1.20
(Idaho Fescue)	

Wetland Seeding and Planting: Approximately 0.08 acre

Deschampsia cespitosa (Tufted hairgrass)	1.5
Carex microptera Small-winged sedge	20 cubic inch plugs (40 plugs)
Carex nebrascensis Nebraska Sedge 2	0 cubic inch plugs (40 plugs)
Poa palustris Fowl Bluegrass	0 cubic inch plugs (40 plugs)
Riparian Planting: Approximately 0.18 acre	

Symphoricarpos albus

1

1 gallon containers (20)

Snowberry

<i>Cornus sericea</i> Red Osier Dogwood	1 gallon containers (5)
Salix sp. Willow	1-inch cuttings (120)
Alnus sinuate Sitka Alder	1 gallon containers (6)
Upland Planting: Approximately 0.52 acre	
Pseudotsuga menziesii Douglas Fir	1 gallon containers (6)
Abies concolor White Fir	1 gallon containers (6)
<i>Cornus sericea</i> Red Osier Dogwood	1 gallon containers (5)
Pinus ponderosa Ponderosa pine	1 gallon containers (6)
<i>Ribes aureum</i> Golden Currant	1 gallon containers (4)
Rubus parviflorus Thimbleberry	1 gallon containers (4)

OPERATING PLAN FOR THE LA GRANDE RESERVOIR

INTRODUCTION

In the summer/fall of 2014, the City of La Grande proposes to replace the existing spillway on the La Grande Reservoir and improve the diversions on four intake structures to improve fish passage on Beaver Creek, allowing aquatic species access to 12 additional miles of habitat. An entrance pool and vortex weir fishway will be installed at the east spillway of the dam. Along with these improvements, stream channel improvements will be completed at the intake structures on the upper diversion, the main diversion, and on Cove Creek and West Beaver Creek. For these improvements to be effective, it is important that the City operate the reservoir and facilities in a manner that will accomplish the intended goal of providing fish passage while still allowing for diversion of drinking water to the City for human consumption. The purpose of this document is to outline how the facilities will operate in a normal water year.

BACKGROUND

The Beaver Creek Dam was constructed on the main stem of Beaver Creek in 1915 at approximately river mile 13.5 to create the reservoir that provides water storage for domestic use for the City of La Grande during dry periods of the year. Several diversion structures in the watershed feed a pipeline to the City for municipal water. At the time of construction, fish passage through the diversion structures was not considered. The completed project created seven barriers, five of which inhibit aquatic access to approximately 12 miles of watershed, an area with potential for quality habitat that was a historic spawning and rearing area for spring Chinook salmon and threatened Snake River Evolutionarily Significant Unit summer steelhead, as well as a migratory channel for bull trout.

The City of La Grande relied on the watershed as its primary source of water until 2002 when the last of a series of wells was brought on line to meet the community's water demand. Due to dropping water levels in the confined aquifer beneath La Grande, additional wells are not expected to be a viable source in the future. Therefore, the existing water rights of the watershed remain instrumental in meeting demands as the community grows.

The watershed facilities are located on U.S. Forest Service (USFS) property; therefore, the City maintains a Conditional Use Permit with the USFS. The Conditional Use Permit is currently being renewed, and part of the renewal process is a requirement to address fish passage through the facilities if it is determined by state and federal agencies to be beneficial to aquatic species.

CURRENT OPERATION

Currently, the Beaver Creek Watershed water supply system is in reserve status and is not being used for drinking water. The Safe Drinking Water Act now requires this water supply source to

have some type of additional treatment prior to being utilized in the system. The City has continued to maintain and protect the system's physical improvements because they intend to utilize the system in the future. The following describes the system, how it is currently being operated, and how it will be operated in the future.

Beaver Creek Infrastructure. On the main stem of Beaver Creek are three manmade structures. The main intake, which is located approximately 1,100 feet downstream of the dam, collects and diverts water released or spilled from the dam into the City's water system pipeline. The dam consists of a 30-foot high concrete and earthen dam, a large east spillway, and a smaller west spillway, which is used for emergency overflow. During high and normal flows, water spills over the east spillway into Beaver Creek; during low flows, a small control valve in the bottom of the dam is used to release water into Beaver Creek. The upper diversion is located approximately 3,400 feet upstream of the reservoir. This diversion was installed to divert water around the reservoir when algae bloom in the stored waters of the reservoir makes the water unpalatable. The upper diversion is capable of passing 1 cubic foot per second and has been used only once in the 30 years since it was installed.

Tributaries. There are four small intake facilities on tributaries to Beaver Creek. These intakes are all located below the dam. They are located on Cove Creek, Elk Creek, West Beaver Creek, and Hidden Springs. These intakes are concrete structures that span the entire creek to divert water into a concrete box where water flows into a pipe to the City water system. The Elk Creek and Hidden Springs intake facilities are not considered passage barriers as there is no viable fish habitat upstream of these facilities.

Beaver Creek Flows. At the beginning of every calendar year, the reservoir is either full and spilling or is still filling to spillway elevation. The reservoir is normally full by March of each year. In a normal water year, the reservoir spills over the spillway into late July or early August. During the latter part of July through October, the City releases stored water into Beaver Creek using the pipe at the bottom of the dam. During this time there is typically no measurable natural flow into the reservoir from upstream Beaver Creek, so stored water must be used to maintain flows in Beaver Creek. After rains start again in late October, in early November the reservoir will begin filling and water will begin spilling over the spillway. The City makes every effort to maintain flows in Beaver Creek at all times.

Drinking Water Diversion. The City currently has four diversions on tributaries below the dam and one diversion on the main stem of Beaver Creek below the dam; each diversion diverts water directly into the pipeline that delivers drinking water to the City. There is also a diversion above the reservoir on Beaver Creek that diverts water out of Beaver Creek, around the reservoir, and into Cove Creek either to be left in the stream or to be diverted into the delivery system at Cove Creek or the main stem of Beaver Creek.

In the past, when there were sufficient natural flows in the watershed, the City normally diverted water to the delivery system from the tributaries first. For water quality reasons, the City normally did not divert water from Beaver Creek until flows in the tributaries were insufficient to meet City needs. This practice will continue in the future. Historically, the City

has utilized stored water from the pipeline in the bottom of the reservoir, released into Beaver Creek, then collected at the main diversion and delivered into town beginning in July. However, the City's current operation plan is to use well water (well water levels are declining and cannot be used year-round) during the high demand season (July, August, and September) to meet the City's water needs. Therefore, any flows put into Beaver Creek from storage would remain in stream. Due to insufficient natural flows entering the reservoir from Beaver Creek during this time of the year, water must be released from the pipe in the bottom of the dam to maintain flows in Beaver Creek.

Fish Passage Flows. General operation of tributaries, main, and upper diversions will be to maintain bypass flows to allow for fish passage. The amount of bypass flows will depend on the type of screening system that is installed in the future.

Fish passage at the dam will occur during periods when the reservoir is full and water is spilling over the spillway. This typically occurs from November to July unless stored water in the reservoir is used to augment Beaver Creek flows. As long as there is natural flow upstream of the reservoir and the reservoir is full, there will be fish passage at the dam. Once natural flows decline, there will be no flow over the spillway and the only water available to be released into Beaver Creek will be stored water. During normal water years, the City does not intend to use stored water for drinking water. If stored water is used for purposes other than drinking water (i.e., in-stream flows), then the reservoir would need to fill before fish passage can resume at the spillway.

Operation and Maintenance. There are several months of the year when the facilities are inaccessible due to snowpack and winter weather. During these times, maintenance will be provide as possible to ensure proper operation. The diversion facilities will be regularly inspected during periods of diversion to ensure proper operation, bypass flows, and debris-free facilities. The fish passage facilities at the dam will be maintained and kept free of debris, as accessible. As flows decline through the facilities, regular monitoring of the fishway will be provided by City staff to ensure adequate water is spilling down the fishway. Once flows drop and become non-existent in the fishway, any water and fish left in the ladder will be flushed into Beaver Creek and the ladder will be shut down until the spillway becomes active. In the late fall, before the site becomes inaccessible due to winter weather, or before the fishway becomes active, the dewatering gates on the fishway will be closed and the ladder will be prepared for operation.