DOE F 1325.8e Electronic Form Approved by CILR – 10/08/2002
(08-89)

**United States Government** **Department of Energy**

**Bonneville Power Administration**

# memorandum

**DATE:** March 23, 2006

**REPLY TO ATTN OF:** KEC-4

**SUBJECT:** Supplement Analysis for NEOH Grande Ronde - Imnaha Spring Chinook Hatchery Project (DOE/EIS-0340-SA-01)

**TO:** Ken Kirkman - KEWU-4
Project Manager

**Proposed Action:** Grande Ronde - Imnaha Spring Chinook Hatchery Project Modifications Resulting from Final Design

**Project No.**: 1988-053-01

**Location**: Wallowa County, Oregon

**Proposed By**: Bonneville Power Administration (BPA) and Nez Perce Tribe

**Introduction**: BPA, in its March 11, 2005 Record of Decision (ROD) on the Grande Ronde - Imnaha Spring Chinook Hatchery Project, decided to fund value engineering, land acquisition and final design of fish production facilities to support an ongoing program of Snake River spring chinook propagation for conservation and recovery of the species. BPA analyzed the environmental impacts of the program in the NEOH Grande Ronde - Imnaha Spring Chinook Hatchery Project (DOE/EIS-0340) completed in July 2004. Subsequently, modifications to some of the proposed facilities and sites have been made to reduce costs, improve efficiency, reduce hazards and risks, and ameliorate some physical limitations and lingering public issues associated with some aspects of certain facilities. These changes are detailed in the attached report entitled "Supplement Analysis for the NEOH Grande Ronde - Imnaha Spring Chinook Hatchery Project Final Environmental Impact Statement."

The purpose of the Supplement Analysis (SA) is to determine if a Supplemental Environmental Impact Statement (EIS) is needed to analyze and disclose the environmental impacts of the proposed changes in project design since the Final EIS and ROD were issued.

**Description of the Action and Analysis of Effects**: The proposed changes to the project design and an analysis of their environmental impacts relative to what was disclosed in the FEIS is described in the attached SA report. A supplement to the original biological assessment for the project was also conducted and submitted to US Fish and Wildlife Service and NOAA Fisheries in March, 2006 to substantiate that reinitiation of Endangered Species Act consultation is not warranted. An additional cultural resources report (No. 06-NPT-05, February 2006) was submitted to Oregon State Historic Preservation Office with a finding of 'no effect' relative to proposed design changes at the Lostine River Hatchery site. A technical memorandum from HDR/FishPro, Inc., entitled "Evaluation of Hydraulic Impacts" (March 2006) evaluates potential changes to the hydrologic situation of the changed location for the Lostine River Hatchery intake.

**Findings**: As documented in the SA and companion documents listed above, the potential impacts from the proposed design changes are not substantially different from those discussed in the Final EIS, ROD, and original biological assessments, biological opinions and cultural resources reports. No substantial change to scope or intensity, timing or duration is associated with any predicted level of impact. There are no new circumstances or information relevant to environmental concerns and bearing on the proposed action and design modifications. Therefore, a Supplemental EIS is not needed.

*/s/ Mickey A. Carter*
Mickey A. Carter
Environmental Protection Specialist - KEC

Concur:

*/s/ Katherine S. Pierce* Date: *March 27, 2006*
Katherine S. Pierce
NEPA Compliance Officer

Attachment: Supplement Analysis, NEOH Grande Ronde - Imnaha Spring Chinook Hatchery Project Final Environmental Impact Statement

cc: (with attachment):
Mr. Greg Haller, Nez Perce Tribal Fisheries, P.O. Box 365, Lapwai, ID 83540
Mr. Robert Rock, Wallowa-Whitman National Forests, P.O. Box 907 / 1550 Dewey Avenue, Baker City, Oregon 97814
Mr. Chris Starr & Mr. Joe Krakker**,** LSRCP Office, 1387 S. Vinnell Way, Suite 343, Boise, Idaho 83709

# Supplement Analysis

## Northeast Oregon Hatchery Program
# Grande Ronde – Imnaha Spring Chinook Hatchery Project

# Final Environmental Impact Statement

March 2006

**U.S. Department of Energy**
**Bonneville Power Administration**
**and**
**Nez Perce Tribe**

*Prepared by:*
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Mickey A. Carter
Environmental Protection Specialist
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# 1.0 Introduction

In May 2004, Bonneville Power Administration (BPA) completed a Final Environmental Impact Statement (FEIS) for the Northeast Oregon Hatchery (NEOH) Program – Grande Ronde – Imnaha Spring Chinook Hatchery Project (DOE/EIS-0340, July 2004). The FEIS discussed impacts to resources, including the natural and built environment, due to construction, operation, and maintenance of anadromous fish (spring/summer Chinook) production facilities considered part of the NEOH Project.

Since the completion of the FEIS and issuance of the Record of Decision (ROD) on March 11, 2005, several changes have occurred to the project design and proposal. These changes represent design modifications as the project has moved forward into final design phase in preparation for Step 3 review by the Northwest Power and Conservation Council (Council). Step 3 review is currently scheduled to occur in March 2006. Then, a second ROD may be issued to allow funding of construction for project elements beginning later in 2006. Environmental reviews, including Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and National Environmental Policy Act (NEPA) analyses and consultations, were included as part of the Step 2 submittal to the Council. Step 2 also included preliminary design and cost estimation. Design changes are generally anticipated in the three-step review process.

In accordance with the procedural requirements of NEPA, a supplemental EIS must be prepared if there are substantial changes to a proposed action or significant new circumstances or information relevant to environmental concerns arise. Pursuant to 10 C.F.R.§1021.314© and 40 C.F.R. §1502.9©(1), this Supplement Analysis has been prepared to determine if a supplemental EIS is required for the proposed project, considering the newly proposed design modifications.

In accordance with Section 7 of the ESA of 1973, as amended, BPA has prepared a supplement to the Biological Assessment (BA) that was previously prepared for the project. The BA supplement addresses the effects of proposed project changes on ESA-listed threatened and endangered species, and should be referenced for detailed information concerning these species in addition to what is presented within this document. The findings of the BA supplement is that project changes will not result in levels of take that exceed those which were previously authorized under the Biological Opinions issued for the project by the U.S. Fish and Wildlife Service (USFWS; File No. 1-17-04-F-03853 [8330.03853 (04)) and NOAA Fisheries (NOAA Fisheries No.: 2004/00615). Agency concurrence regarding this determination is expected.

# 2.0 Description of Proposed Action

The project is being proposed to modify and modernize existing hatchery facilities and construct auxiliary hatchery facilities where needed to aid native spring/summer Chinook conservation and recovery in northeast Oregon. In the FEIS, five sites were analyzed, including the existing Lookingglass Hatchery, the Imnaha Satellite Facility and the Acrow Panel Bridge site on the Imnaha River; and the proposed Lostine River Adult Collection Facility, and the Lostine River Hatchery

Facilities were to be designed and constructed to achieve components of the Natural Rearing and Enhancement Systems (NATURES) (Maynard et al. 1996) criteria (e.g., low density rearing, lighting, volitional release, in-water structures) to the extent feasible. Instream structures would meet applicable NOAA Fisheries and USFWS design requirements. Construction would be staged to accommodate existing operations and reduce impacts on fish production at each facility. Instream work would be

performed in compliance with applicable regulations and permits. Instream work would include the placement of temporary cofferdams or other temporary water diversions to route water around work areas. Portable pumps would be used to keep work areas dry. Pump discharge would be routed through a settling basin prior to discharge back into the river. Instream work would only occur during ODFW's instream work window, identified as July 15 through August 15 for both the Lostine River and the Imnaha River, or as otherwise specified by the appropriate regulatory agency(s). No instream work was proposed in Lookingglass Creek as part of this project.

Project design and construction would meet all other environmental requirements and would incorporate industry standard best management practices (BMPs) such as erosion control, waste management, dust control, weed management, fire prevention, work hour and noise considerations. The project would comply with the Federal Clean Water Act's (CWA) NPDES requirements and would incorporate sensitive site design measures such as retaining riparian vegetation, landscaping with native plants, and shielding facility lighting. Design would also comply with USFS regulations for wild and scenic rivers, where applicable.

# 3.0 New Information or Changes since Final EIS

Changes made to the design of elements of the proposed NEOH project have occurred primarily in response to the challenges faced during the final design process. During the course of final design, construction and operational costs, operational safety issues, impacts to adjacent land owners, land procurement, and impacts to habitat have been further evaluated and designs modified in response to specific site components. In addition, changes have been made, including elimination of two of the project sites, to accommodate the limitations of sites in relation to construction feasibility, costs, ownership and environmental impacts. Design modifications to facility components affect facility infrastructure and water usage scenarios, but do not affect rearing program production numbers. Changes pertaining to each project component are presented below, following a brief description of the project element as presented in the DEIS/FEIS.

## 3.1 Lookingglass Hatchery

The Lookingglass Hatchery is an existing facility that has been in operation since 1982. Proposed modifications to the facility as presented in the FEIS were relatively minor and mainly limited to upgrades to the electrical supply system.

A decision was made by the Oregon Department of Fish and Wildlife and US Fish and Wildlife Service, (the managers and owners of this facility) to complete upgrades and remodel activities separate from the NEOH project. Therefore, this site and actions taken for facility improvements are no longer an element of this analysis.

## 3.2 Proposed Lostine Adult Collection Facility

To collect adult spring/summer Chinook for hatchery broodstock, fisheries managers currently use a portable weir (called Wolfe Trap) on the Lostine River near its confluence with the Wallowa River. Although this weir functions adequately during most flows, it is still unable to capture from the run of Chinook during high flow events, which restricts the number and genetic variety of adults that can be collected for hatchery broodstock. So, the Lostine Adult Collection Facility (LACF) was proposed in the FEIS. This weir was to be located about one mile south of the town of Lostine, downstream of historic spring/summer Chinook spawning areas. This new facility was to operate during higher flows (800 – 1,200 cubic ft per second [cfs]); the existing Wolfe Trap was to continue to be used during lower flows.

Construction of the proposed LACF would have involved extensive in-water work including:

- dismantling of portions of an old concrete fish ladder,
- installation of new flow velocity barrier (requiring construction of concrete abutment walls, extensive bank removal, and riparian vegetation removal),
- construction of a flood-proofing levee using fill and riprap along approximately 360 ft of the Lostine River,
- construction of a temporary access road and a permanent gravel road,
- replacement of an old bridge, and
- addition of new electrical service.

Due to land acquisition issues, the LACF was eliminated from the project, which thereby eliminates all impacts related to the construction and maintenance of a facility at this location. To meet the need for safe and effective adult Chinook collection during high flows, a fishway/ladder is now proposed to be constructed at the Lostine River Hatchery (see Section 3.3). Wolfe Trap will continue to be operated as it has to date. Wolfe Trap will probably need to be improved at some point to enable the structure to withstand higher flows and provide enhanced safety conditions for personnel; but improvement designs have not been developed, and none are proposed at this time, so it is premature to speculate on their environmental effects in this analysis. Any modifications to the Wolfe Trap will be addressed under a separate NEPA review and consulted on independently for compliance with Section 7 of the ESA.

## 3.3 Lostine River Hatchery

### *3.3.1 Original Site Plan*

As presented in the FEIS, construction of the proposed Lostine River Hatchery is to occur on a 6-acre site located near the Lostine River Acres subdivision, about 5 miles upstream (south) of the town of Lostine. See Figure 1. Construction as originally proposed would have added approximately 1.9 acres of impervious surface at a currently undeveloped site (a livestock pasture). The site was to be graded and filled with 5,000 to 6,000 cubic yards (cy) of rock from a nearby quarry in preparation for construction and to protect the hatchery from floods. Construction would also require the removal of several large grand fir (*Abies grandis*), Englemann spruce (*Picea englemannii*), and black cottonwood (*Populus balsamifera*) trees, and a small number of diseased trees, snags and downed wood. Riprap was proposed near the existing meander side channel on the southwest corner of the site to protect the hatchery from floods and bank erosion. Three groundwater wells were to provide 1,200 gallons per minute (gpm) for facility operations.

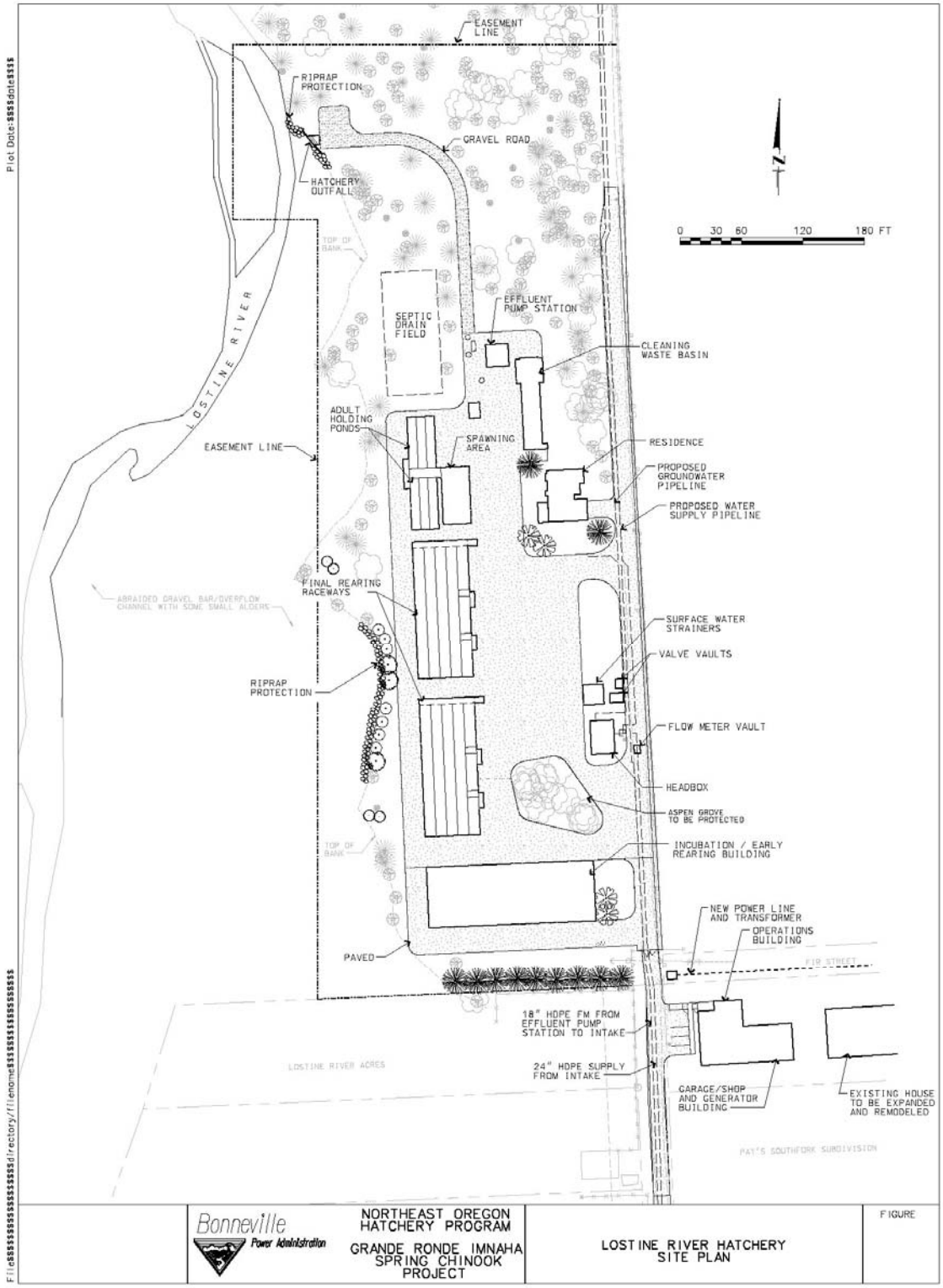


Figure 1. Lostine River Hatchery Site Plan as Proposed in FEIS.

### *3.3.2 Proposed Changes to Site Plan*

Design changes to the Lostine River Hatchery are presented below in three categories: upland site components, streambank and in-stream components, and operational changes (adult collection, low flow water usage and pumpback criteria).

### *Upland Site Components*

Facility Site Plan

In general, the new site plan (Figure 2) contains similar components to those presented on the original site plan. However, several structures have been shifted to the north or relocated throughout the hatchery easement. Although the basic construction area remains the same, the amount of new impervious surface has been increased from 1.9 acres in the original proposal, and is now approximately 2.8 acres.

The new design has several components located in an area that was previously planned to include only an access road to the outfall structure. The outfall structure is now proposed to be replaced with a fishway/outfall. Associated structures including a spawning building and adult holding ponds will be located on the northern end of the parcel. The spawning building is sited on the northern portion of the parcel to allow gravity flow though the hatchery and minimal fishway length.

A centrifugal sand separator to remove sand particles from the surface water supply is added. The sand separator will be operated during high river flows. Sediment from the separator will be mixed with facility's effluent flow and discharged at the same dilution as is in the river.

Finally, a stormwater conveyance and treatment system has been designed. All runoff will be routed to a drain in the center of the site and directed to an oil/water separator and then to a bioswale to be constructed in uplands near the northern portion of the site.

The northern end of the site contains numerous mature trees. So, construction per the new site plan will result in more tree removal. Still, mature trees will be protected where possible. And, no trees would now be removed where the LACF was proposed. Elimination of the LACF site and subsequent tree removal associated with site development will likely balance the additional tree removal needed on the northern parcel of the hatchery site.

Slope Protection

The bank stabilization technique along the western portion of the facility has been modified. Instead of riprap, large trees will be anchored to the slope and native shrubs will be planted to reinforce the bank and prevent potential sedimentation into the meander channels at the toe of the slope (Figure 2, slope protection area lined with downed trees). These channels are generally dry during the summer, so no impact to aquatic species is anticipated from this activity. This bioengineering work would be above the Ordinary High Water Mark (OHWM) and would occur in the summer.

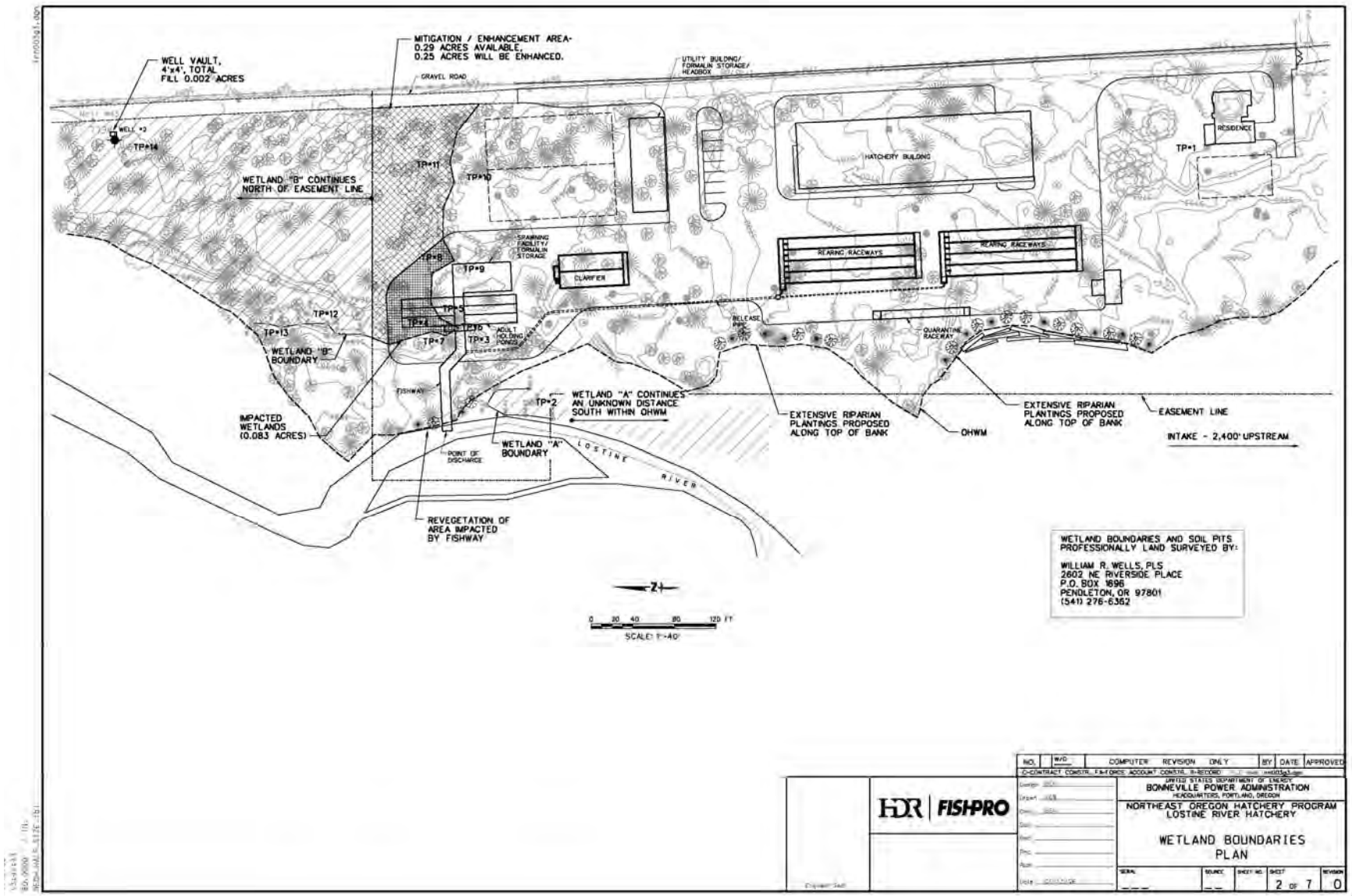


Figure 2. Current Lostine River Hatchery Site Plan (showing wetland boundaries).

Juvenile Release Pipeline

The original proposal had juvenile fish routed to an outfall located at an existing side channel of the river. Installation of this outfall would have involved disturbance to meander overflow channels of the Lostine River. The Oregon Department of State Lands prefers that disturbance of these channels be avoided. So, a buried pipeline is now proposed to route juvenile fish from the rearing raceways to the fishway, and then to the river. The pipe will be buried within areas proposed for gravel surfacing and will result in no additional disturbance to upland habitat. The pipe will be sized to ensure the safe passage of fish into the fishway. The fishway step heights will be lowered by placing additional damboards in the ladder to ease smolt entry into the river. Flows down the ladder will be adjusted if necessary to allow safe release of smolts. During release, a portable (removable) grate with one-inch bar spacing will be placed at the fishway entrance to prevent entry of river fish or predators.

House Remodeling

The EIS proposed to remodel the existing BPA-owned house located across Granger Road from the proposed hatchery. It has been determined that new construction is more cost effective than remodeling. The new residence will be a 2,200 square foot single story home, plus an attached garage. Due to the configuration of the existing residence with the large detached garage, the new residence can fit within the same footprint as the existing house. The existing house is a doublewide, so it could be lifted from its foundation and moved to another location. If relocation is not possible, demolition will occur. Removal or demolition will occur on uplands and will not require any tree removal. Vegetation to be cleared for construction of the new residence consists primarily of weedy upland plants that do not provide habitat for listed species or high value habitat for local wildlife species. All demolition spoils will be removed from the site and taken to an approved upland location.

Well Vaults

Small (4 foot by 4 foot) concrete vaults will be buried adjacent to each hatchery well to house valves and operational equipment. The EIS describes pitless adapters.

Groundwater Well Development

As described in the FEIS, three wells will provide groundwater to the facility. These wells have already been drilled as test wells. In October 2005, an aquifer pump test was conducted at the primary production well. This test predicted relatively low yield from one of the test wells. Based on these test results, one of the wells previously proposed for hatchery use will no longer be utilized. To replace the low yielding well, a new well is proposed to be drilled. This well will be located within the hatchery easement, likely along the western perimeter near the proposed adult holding ponds/spawning building.

Another modification to groundwater development is an increase in the groundwater budget from a maximum of 1,200 gpm to 1,450 gpm. This increase is attributed primarily to the fine tuning of de-icing water needs at the intake structure, as well as added flow for the operation of a fish marking trailer. Table 1 shows the groundwater budget for the facility by month. As can be seen in the table, maximum withdrawal only occurs during the month of February. All other months will require groundwater at levels below the maximum withdrawal rate discussed in the FEIS. Groundwater right applications have been filed with the Oregon Water Resources Department and are currently under review. More details related to ground and surface water requirements for the facility are presented in the *Operational Changes* section, presented later in this document.

Table 1. Groundwater Usage (gpm) Per Month at the Lostine River Hatchery.

| **Well Use** | **Month** | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Incubation | 210 | 210 | | | | | | 210 | 210 | 210 | 210 | 210 |
| Early Rearing | | 900 | 900 | 900 | 900 | 900 | 900 | 900 | | | | |
| De-icing | 325 | 325 | | | | | | | | | 325 | 325 |
| Marking | | | | | | | | 40 | | | | |
| Domestic | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 |
| **Total** | **550** | **1450** | **915** | **915** | **915** | **915** | **915** | **1165** | **225** | **225** | **550** | **550** |

Intake Pipeline and Access Road

Due to the relocation of the intake structure (described in the next section - *Streambank and Instream Component Changes*), the associated intake access road and pipeline corridor have also been relocated (Figure 3). The newly designed access road (12 ft wide) will require the removal of approximately 0.05 acres of upland vegetation, primarily herbaceous grasses within a privately owned easement (leased to BPA for the development and use of the intake and associated infrastructure; see photo of area in Appendix A). The access road will be routed around mature trees to avoid their removal. The buried 24-inch diameter gravity pipeline that will convey surface water from the intake to the hatchery site will traverse private property until the junction with Granger Road. The pipeline will be buried immediately adjacent to Granger Road on the western side of the road easement. BPA has recently submitted a permit to Wallowa County requesting permission to utilize the County easement for installation of the water pipelines (surface, pumpback, and de-icing lines). Because the pipelines will no longer be buried beneath Granger Road (to avoid access impacts to local residents during formerly proposed road improvements), the road is no longer proposed for paving and will remain in its current condition and configuration. The EIS stated that approximately 10 mature trees that currently line Granger Road were to be removed during installation of the pipeline and subsequent roadway improvements. Installation of the pipeline immediately west of the road should not result in additional tree removal.

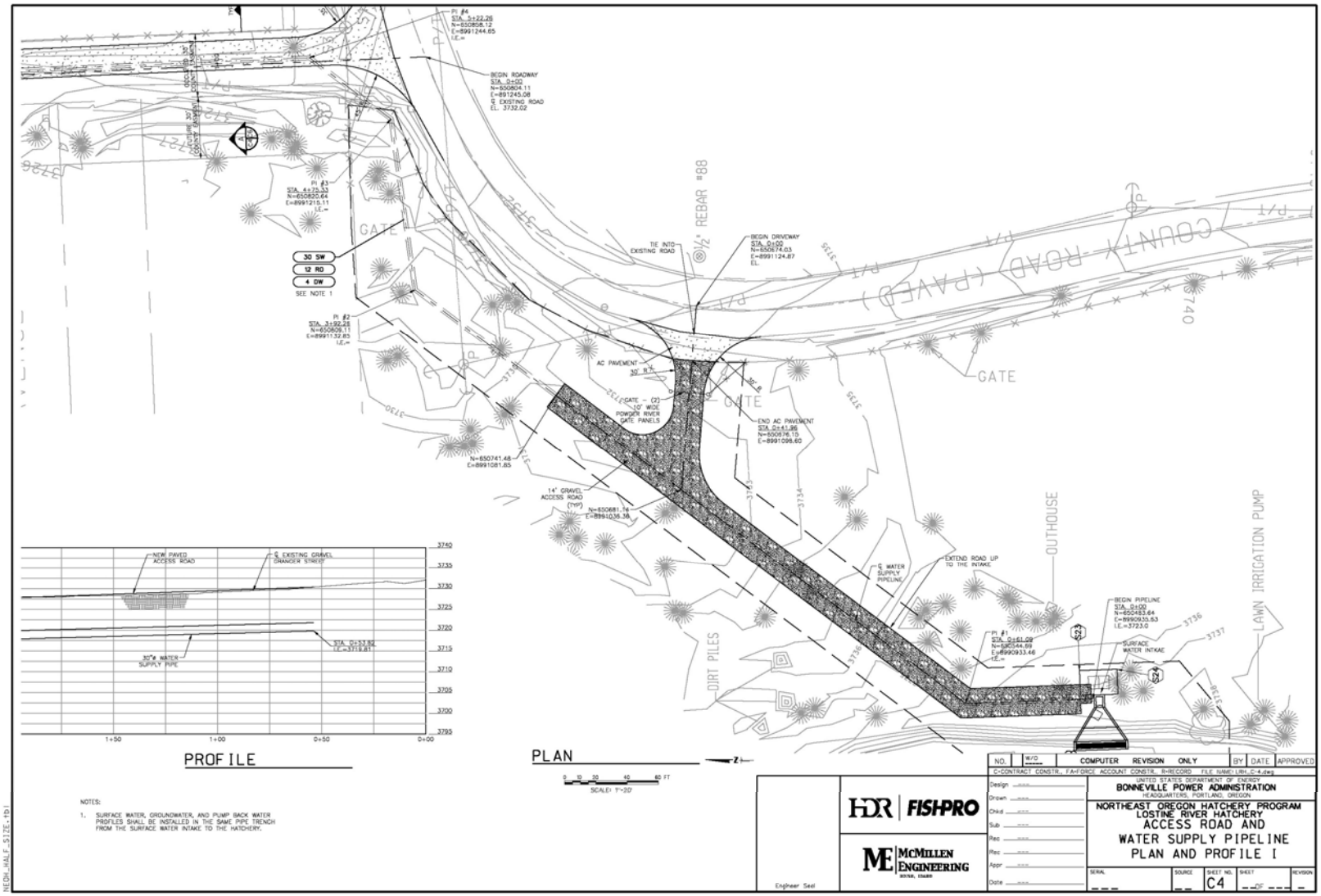


Figure 3. Intake Access Road and Surface Water Pipeline Corridor.

### *Streambank and Instream Component Changes*

Construction and installation of in-water structures will be similar to that described in the original FEIS, utilizing similar types and sizes of cofferdams. Although construction could potentially be completed during one in-stream season under an ambitious work schedule, it is conservatively estimated that construction will take place over two seasons during the instream work window (July 15 – August 15) recommended by ODFW, as was discussed in the FEIS. Although construction schedules will be determined by the contractor, it is anticipated that during the first season, the intake structure and eastern half of the concrete sill will be installed. In the second instream work season, the western half of the buried sill and the associated rock weir will be installed. The hatchery fishway/outfall will be constructed during the first or second season, depending on construction staffing and progress.

Surface Water Intake

The surface water intake structure as originally proposed is shown in Figure 4. The intake was originally sited approximately ½ mile south of the hatchery parcel, just upstream of the County Bridge, and was designed to supply up to 17.8 cfs to the facility. The intake facility was to include a cast-in-place intake on the east bank of the river, a pneumatically-operated weir to control the water surface elevation, a fish ladder for passage, a sluiceway for periodic downstream sediment transport past the weir, a log boom to protect the screen panels and a compressor building to house the air receiver and compressor. An air system was proposed to provide air burst cleaning to the screen panels and to inflate the pneumatically-controlled weir.

Installation of the intake, fish ladder, sluiceway and conveyance pipeline would have result in the removal of approximately 100 ft of the riverbank and associated riparian vegetation. Construction of the compressor building and access road was to remove approximately 0.06 acres of riparian vegetation, including one or two mature black cottonwoods, and several saplings and shrubs. River cobbles were to be placed instream at the intake structure to stabilize the intake and minimize sedimentation.

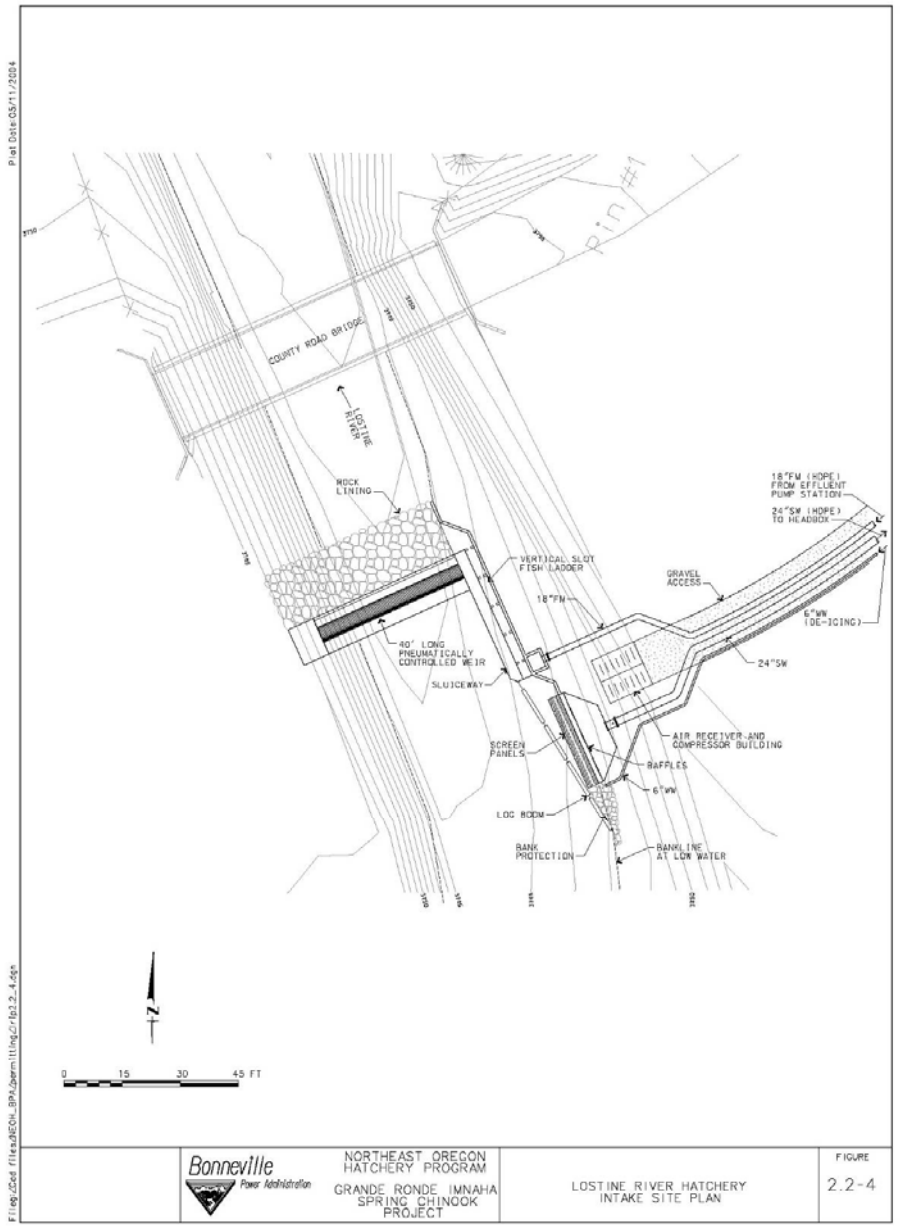


Figure 4. Lostine River Hatchery Intake Site Plan as Proposed in the FEIS.

Due to property acquisition issues and design constraints relating to construction, the location of the proposed intake has been moved approximately 400 feet downstream from the location identified in the EIS. This relocation reduces the diversion reach affected by hatchery surface water withdrawals. Photos of the new intake location are included in Appendix A. The river reach in the new location is more constricted than the previous location and the substrate is characterized by large cobbles and small boulders. The new intake structure has been redesigned (see Figure 5) to supply up to 18.0 cfs to the hatchery ( surface water requirements are 16.7 cfs; however, redesign takes into account a buffer factor for an intake screen).

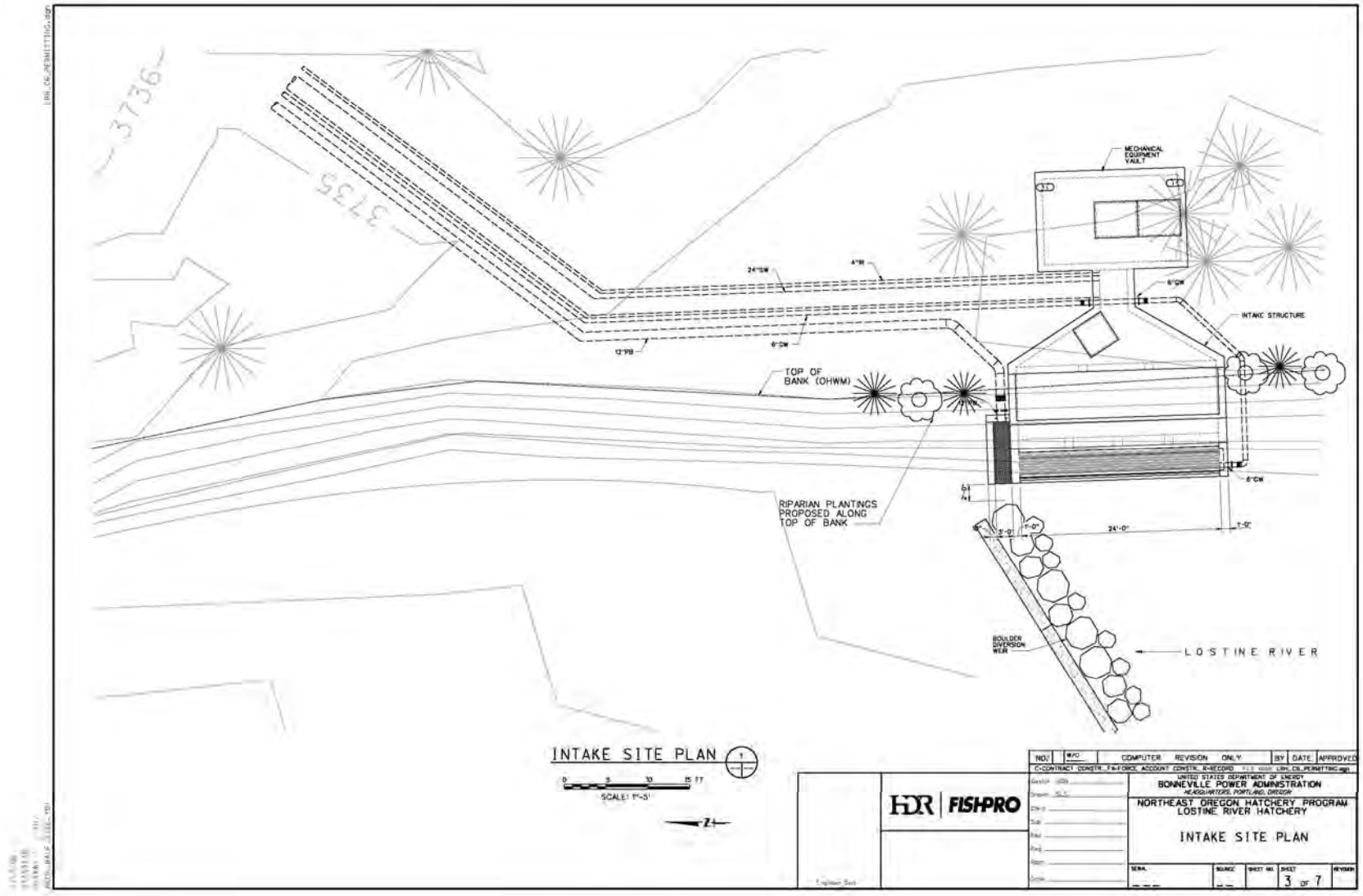


Figure 5. Newly designed Lostine River Hatchery intake structure.

Elements of the new intake include:

- Buried concrete sill spanning the river
- Rock weir positioned on the buried sill
- Cast in place intake structure (approximately 30 ft long extending 8 ft from bank) equipped with NOAA-approved screens
- De-icing pipeline outlet just upstream of intake screens (outlet screened to prevent fish entry)
- Water pumpback pipeline outlet just downstream of intake screens (outlet screened)
- Buried vault housing air burst cleaning system and low pressure air bubbler system

A buried concrete sill is proposed to span the river and serve as substrate onto which the rock weir will be positioned. This sill was recommended by NOAA Fisheries Engineer, John Johnson during a September 2005 site visit (pers comm., 9/05); conceptual designs for the intake structure were also approved by Mr. Johnson during the site visit. The rock weir will route water to the intake screens. During normal or high flow events, the river will top the rock weir, allowing fish passage. During low flows, a three-foot opening in the weir adjacent to the right bank will provide fish passage.

As with the previous design, the surface water intake will be a cast-in-place concrete structure located on the right (east) bank of the river. The intake structure will be screened to meet NOAA Fisheries criteria. Although specific construction methods will be determined by the construction contractor, it is anticipated that installation of the intake facility will occur in two phases. If both phases cannot be accomplished in one in-water work window, completion of the intake installation will occur the following year. The first phase will entail installation of the eastern half of the buried concrete sill and excavation and bank work for installation of the intake structure. The sill will consist of manufactured sections of concrete approximately 1.5 ft wide and 2.5 ft high. Installation of the sill and intake will be accomplished in the dry behind a cofferdam and will require the use of a dewatering system. The cofferdam described in the EIS was a cellular type (i.e. driven sheetpiles) 150-170 ft long, and 12-15 ft wide. However, because this intake has a much smaller area of construction (no fish ladder), the cofferdam will be smaller, likely no more than about 50 ft long and 30 ft wide. And, due to substrate composition in this area, a cellular cofferdam is not practical. Instead, a cofferdam consisting of sand bags and ecology blocks is proposed. The exterior of the cofferdam will be covered in plastic sheeting to ensure a water tight seal. Cofferdam materials will be installed using a crane positioned on the eastern bank of the river, above the top of bank. During eastern bank work, fish passage will be maintained in the western half of the river. Approximately 40 ft of the riverbank will be removed during construction of the intake structure (in comparison to 100 ft of bank removal anticipated with the original intake design). The cofferdam will be removed upon completion of the intake and eastern sill portions. Removal will occur incrementally to reduce downstream sedimentation.

During the second instream work window (if necessary), the western half of the buried concrete sill will be installed in the dry utilizing a plastic liner and ecology block cofferdam (30 ft long by 30 ft wide). Large boulders will be placed atop the buried concrete sill to form the rock weir.

Following installation of the instream intake structure, excavation will take place above the ordinary high water mark east of the river in order to install a buried concrete vault. This vault will be flush with the ground and will house the air burst cleaning system associated with the new intake facility. Housing these structures in a buried concrete vault should effectively muffle the noise associated with operation of the cleaning system. Following intake installation, the structure will be covered with river rock and backfilled with excavated bank materials.

The proposed installation of the intake facility as described above is almost identical to the proposed construction method described in the EIS for the original intake.

New Fishway/Outfall Structure

As originally proposed in the FEIS, construction and subsequent maintenance of the hatchery outfall structure was to require the excavation of approximately 150 cy of bank material and removal of associated woody riparian vegetation, including a limited number of trees. Approximately 35 cy of river cobbles were to be placed around the outfall to stabilize the structure and prevent erosion and sedimentation.

As discussed previously, to mitigate for loss of the high flow adult collection capability that the LACF was to provide, a fishway is now proposed in the vicinity of the original hatchery outfall location. This fishway will be a pool and step ladder (with one foot drops; Figure 6) approximately 102 ft long that will route fish that enter the ladder into a trapping/sorting area. During the initial years of operation, the trapping facility will be visually inspected daily for the presence of non-target fish species; non-target fish will be held for no longer than 24 hours before being returned to the river. Details regarding trapping procedures are discussed in greater detail in the *Operational Changes* section later in this document.

The fishway/outfall entrance construction will be completed during the instream construction window. Prior to initiation of construction activities, erosion and sediment control measures will be implemented. A silt fence will be placed along the top of the bank at the edges of the excavation area and will tie into the cofferdam to limit sediment transport to the channel. A cofferdam will be constructed prior to any excavation within the top of bank. The anticipated cofferdam will be constructed of ecology blocks placed within the channel by an excavator. The cofferdam will be approximately 40 ft in length, 4 ft high, and semi-circular in shape encompassing the fishway discharge location. A thick plastic sheet will be placed over the ecology blocks to ensure a water tight seal. The plastic will be anchored with sand bags or native material (free of fine material) on both sides of the blocks. Two 36-inch standpipes will be placed within the cofferdam, one upstream and one downstream of the fishway structure site to form dewatering sumps. The dewatering pumps will drain the area within the cofferdam by drawing water from the sumps and delivering it to a construction sediment basin located on the hatchery construction site.

Once dewatering is accomplished, excavation of the site will proceed, with the material being placed in an approved area on-site. Anticipated excavation of 96 cy of bank materials (below the Ordinary High Water Mark) represents a decrease in the amount estimated for the previous outfall structure as presented in the FEIS (150 cy). The new fishway structure will be cast-in-place concrete. The fish ladder will be constructed from the river channel to the top of bank. The concrete walls will be backfilled to the final grade. Large natural stones will be placed on the upstream and downstream sides of the completed fishway to provide erosion protection.

The fishway will also be utilized to release juveniles from the facility. The entrance to the fishway will be grated to prevent entry of river fish or predators into the channel during periods of fish release.

During construction of the fishway a pool will be created at the base of the fishway entrance. This pool will maintain a minimum depth sufficient for holding prior to ladder ascension and into which juveniles can enter. The pool will be lined along the bottom and sides with river rock to prevent erosion.

Once the fishway outlet construction is completed from the river channel to the top of the existing bank, stoplogs can be installed at the entrances and the cofferdam removed. Final concrete finish work can be completed inside the dewatered channel. Following construction, disturbed areas will be reseeded.

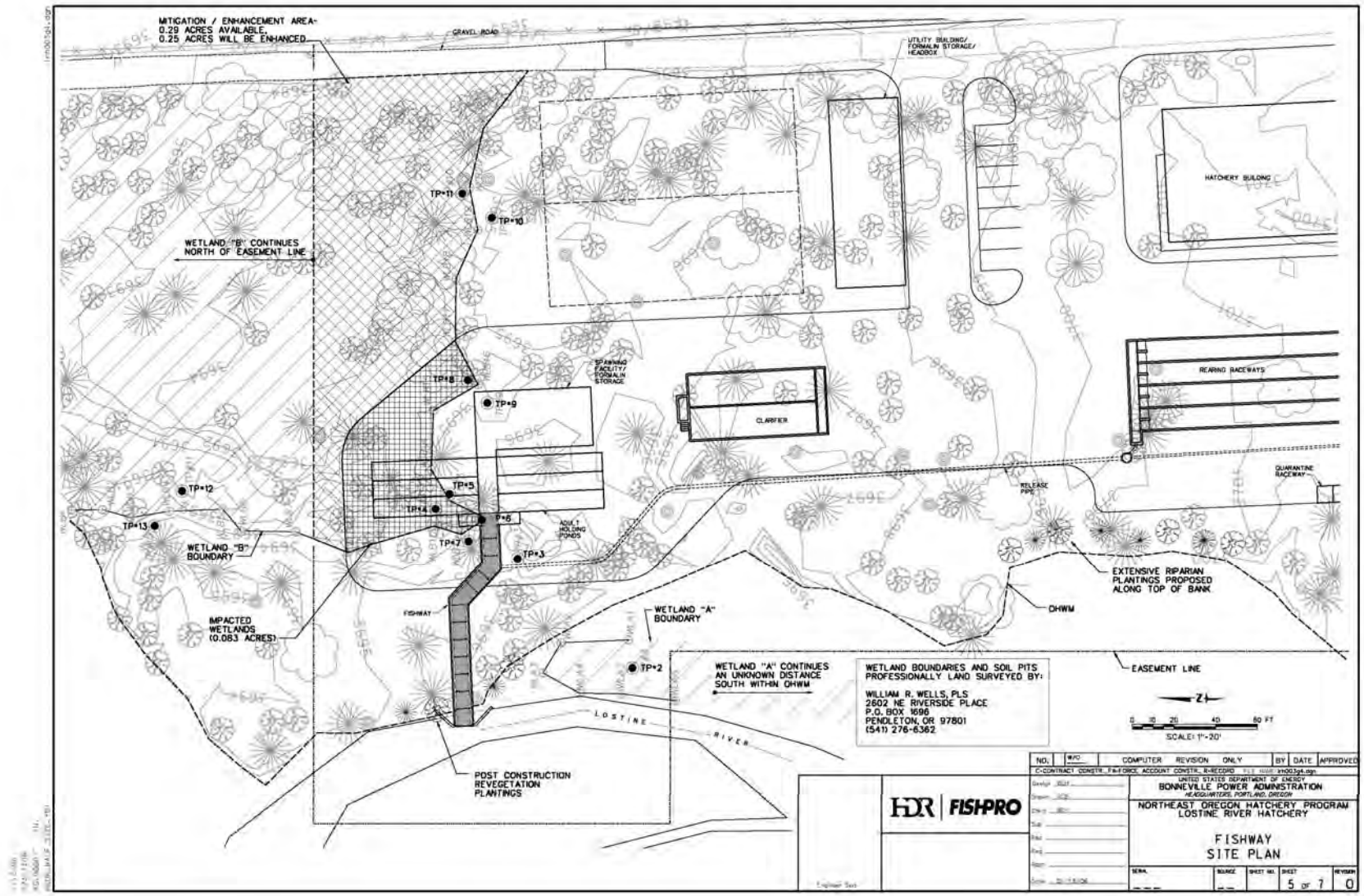


Figure 6. Proposed Lostine River Hatchery Fishway

## *Operational Changes*

Hatchery Surface Water Withdrawal and Pumpback

As described in the EIS, both Chinook and bull trout are known to spawn within the diversion reach (between the intake and outfall). Due to the presence of spawners in this reach, the NEOH team elected to impose restrictions on hatchery water withdrawals to ensure that a minimum instream flow equivalent to 50% of the total flow at the point of diversion, or 12 cfs, whichever is greater, is maintained within the diversion reach. To accomplish this, the team proposed a "pumpback" system to return hatchery effluent (up to 12 cfs) to the point of diversion. This pumpback system was to ensure that hatchery operations would have minimal impact on instream flow within the diversion reach.

As the design progressed into final planning, further analysis determined that pumpback would only be required for 13% of the water years on record assuming use of the "normal" hatchery flow strategy. In light of this information, the NEOH team questioned the need for such a large pumpback system and initiated discussions and analysis of other methods by which instream flow could be maintained at the levels discussed in the FEIS. To maintain flows equivalent to 50% of the total flow of the river, or 12 cfs, whichever is greater, the team now proposes the use of a modified low flow strategy (using Piper's Flow Index; Piper et al. 1982), in combination with an emergency pumpback system (if necessary). It is likely that in the vast majority of water years, pumpback will not be required. However, as an added security measure to minimize impacts to instream flows, designers have included an emergency pumpback system capable of returning up to 4 cfs to the point of diversion. Based on average monthly flows, the need for pumpback under the Piper's Flow Index is relatively remote, effectively occurring only 3% of the water years on record. Table 2 presents the Piper's Flow Index proposed for use at the hatchery to maintain 50% of instream flows, or 12 cfs, whichever is greater. Combined with emergency pumpback procedures, low flow rearing should minimize impacts to instream flow within the diversion reach.

Table 2. Hatchery Water Requirements (in cfs) Using Piper's Flow Index for Periods of Low Instream Flow.

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Current normal flow strategy[1] | 13.3 | 14.7 | 14.7 | 7.3 | 3.7 | 3.7 | 16.7 | 16.7 | 16.7 | 13.3 | 13.3 | 13.3 |
| Piper's Flow[2] | 3.7 | 4.0 | 4.1 | 2.5 | 3.7 | 3.7 | 6.3 | 8.4 | 9.1 | 4.7 | 3.8 | 3.7 |
| Mean Monthly Streamflows[3] | 49.4 | 47.5 | 55.6 | 162 | 512 | 789 | 381 | 85.9 | 50.6 | 55.6 | 63.3 | 57.9 |
| Historic Low Flow (year) | 15.0 ('37) | 14.8 ('37) | 16.3 ('55) | 35.7 ('75) | 203 ('77) | 332 ('26) | 59.7 ('77) | 30.6 ('31) | 23.0 ('31) | 22.8 ('88) | 14.7 ('36) | 15.3 ('36) |

[1] Includes an additional 10% of flow for operation of a sand separator during the months of February through June, if necessary.

[2] Piper et al. 1982. Fish Hatchery Management. USFWS. Washington D.C.

[3] Source: USGS Waterdata website (http://waterdata.usgs.gov/or/nwis). USGS Gage No. 13330000 on the Lostine River near Lostine, Oregon. Water years 1912- 2004.

The "normal flow" rate is based on the standard turnover rate for raceways (one turnover per hour). Because densities are so low, Piper's flow rate results in far less than one turnover per hour, resulting in the need for much less water under that scenario.

To provide additional assurances for protection of redds constructed within the diversion reach the Nez Perce Tribe, in cooperation with ODFW, will monitor redds to determine if hatchery withdrawals are contributing to dewatering, or if naturally occurring low flows lead to natural dewatering. Results of the monitoring may lead to the development of adaptive management strategies to monitor river flow and modify hatchery withdrawal based on redd condition and instream flow.

Fishway Operations

During trapping periods, hatchery discharge water will be routed down the fishway. During non-trapping and non-release periods, water will bypass the ladder steps and be discharged at the base of the structure. Operation of the ladder for trapping will vary annually based on the river flows and the status of operations at the Wolfe Trap. If flows are low enough to operate the Wolfe Trap effectively during most of the run, use of the hatchery fishway will be minimal. However, if high flows during May through July preclude trapping at the Wolfe Trap site, the fishway will be used.

Trapped non-target fish will be returned to the Lostine River upstream of the fishway entrance via piped conveyance. Because the river stage varies annually, the return pipe will consist of flexible tubing that will be attached to a fixed pipe on the top of the bank. The tubing can be positioned anywhere along the bank, allowing managers to assess instream flows and return fish to the river or side channel in locations most conducive to continuation of upstream migration and deterring their returning through the fishway. This will minimize handling of non-target species. The return tubing will be in place when the ladder is operational and removed once trapping is complete. The pipe and tubing will be sized to transport an adult salmonid, will have an appropriate slope, and will discharge into an area of the river that is the of adequate depth in relation to the drop out of the end of the pipe.

## 3.4 Acrow Panel Bridge site in the Lower Imnaha Subbasin

As described in the FEIS, the existing bridge and associated abutments at this location will be removed via crane during ODFW's instream work window (July 15 through August 15). Following removal, the panel bridge was to be transported for use at the LACF. Because the LACF has been eliminated from the project, the bridge will no longer be used at the site. At this time it is unknown where the panel bridge will be relocated; however, no changes to the bridge removal techniques are proposed under the current project design. The bridge will likely be transported to a storage yard until a new use for the structure has been identified.

## 3.5 Imnaha Satellite Facility

### *3.5.1 Original Design*

As presented in the EIS, the Imnaha Satellite Facility is an existing rearing facility completed in 1988. The facility is located on approximately four acres of USFS land in the upper Imnaha subbasin near RM 46 and is bounded by the Imnaha River and Forest Service road 3955. The USFWS owns the facility and holds a USFS special use permit for the facility. The facility is operated by ODFW for collection and holding of Imnaha spring/summer Chinook adults and acclimation of smolts prior to release. The original site plan included the addition of elements shown in Figure 7. All elements were proposed within the existing site boundaries.

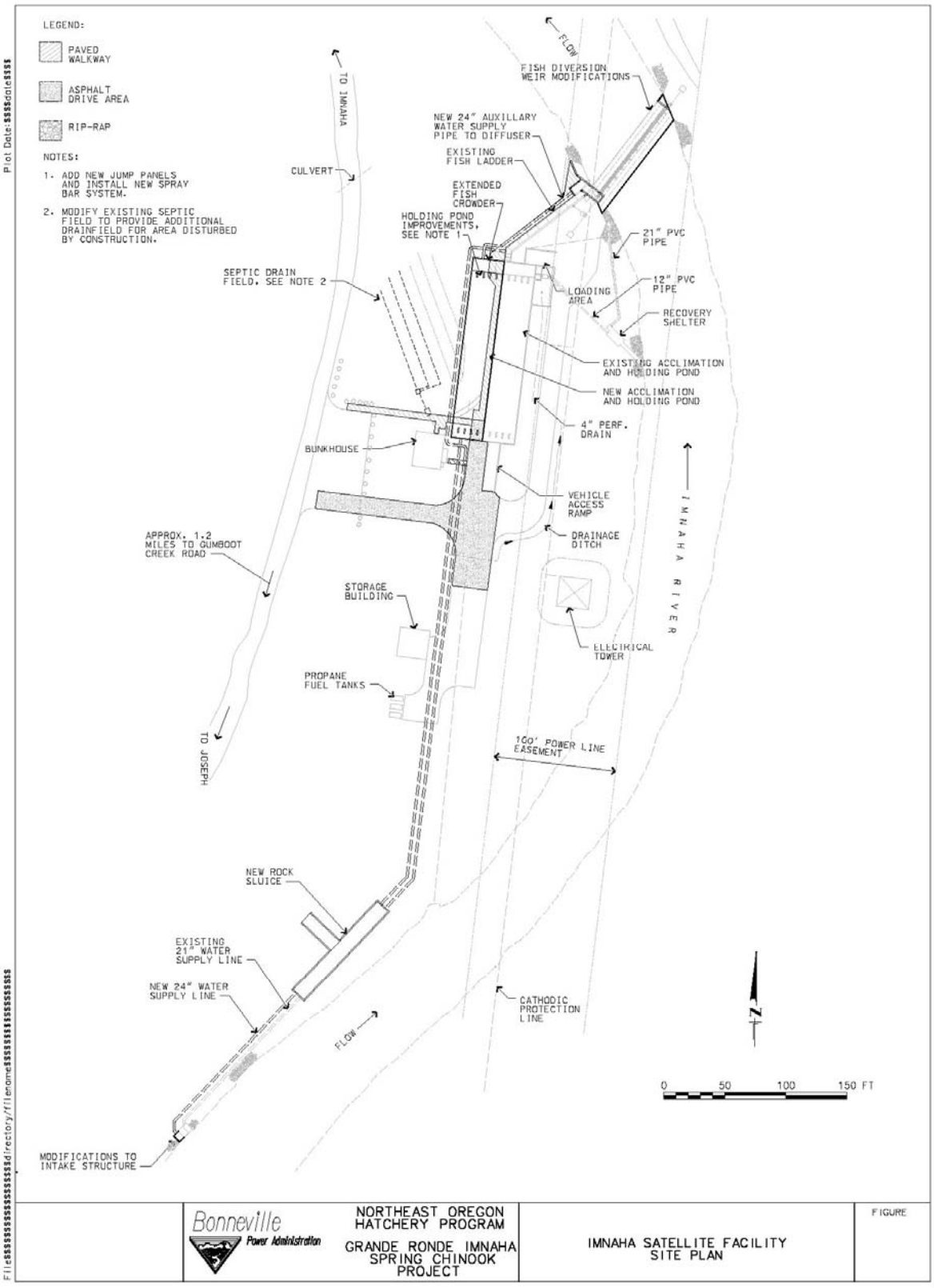


Figure 7. Imnaha Satellite Facility Existing and Proposed Site Plan as Presented in FEIS.

### *3.5.2 Proposed Changes to Design*

#### *Upland Site Components*

Minor modifications to the original site plan are proposed at the Imnaha Satellite Facility. The new site plan (see Figure 8) includes:

- Relocation of the intake rock sluiceway to a settling basin east of the existing storage building
- Redesign of the new acclimation and holding ponds to the east side of the existing holding ponds
- Extension of the existing storage building and addition of vehicle parking area
- Relocation of the vehicle access ramp
- Addition of adult holding area extension
- Additional portable generator and skid-mounted air compressor for operation of pneumatically-controlled weir and intake screen cleaning
- Pre-manufactured equipment panel for pneumatically-controlled weir

The proposed redesign of facility components will result in a slight increase (about 0.05 acres) of impervious surface area to the site compared to that presented in the EIS. All other proposed upgrades to this facility will occur as described in the EIS.

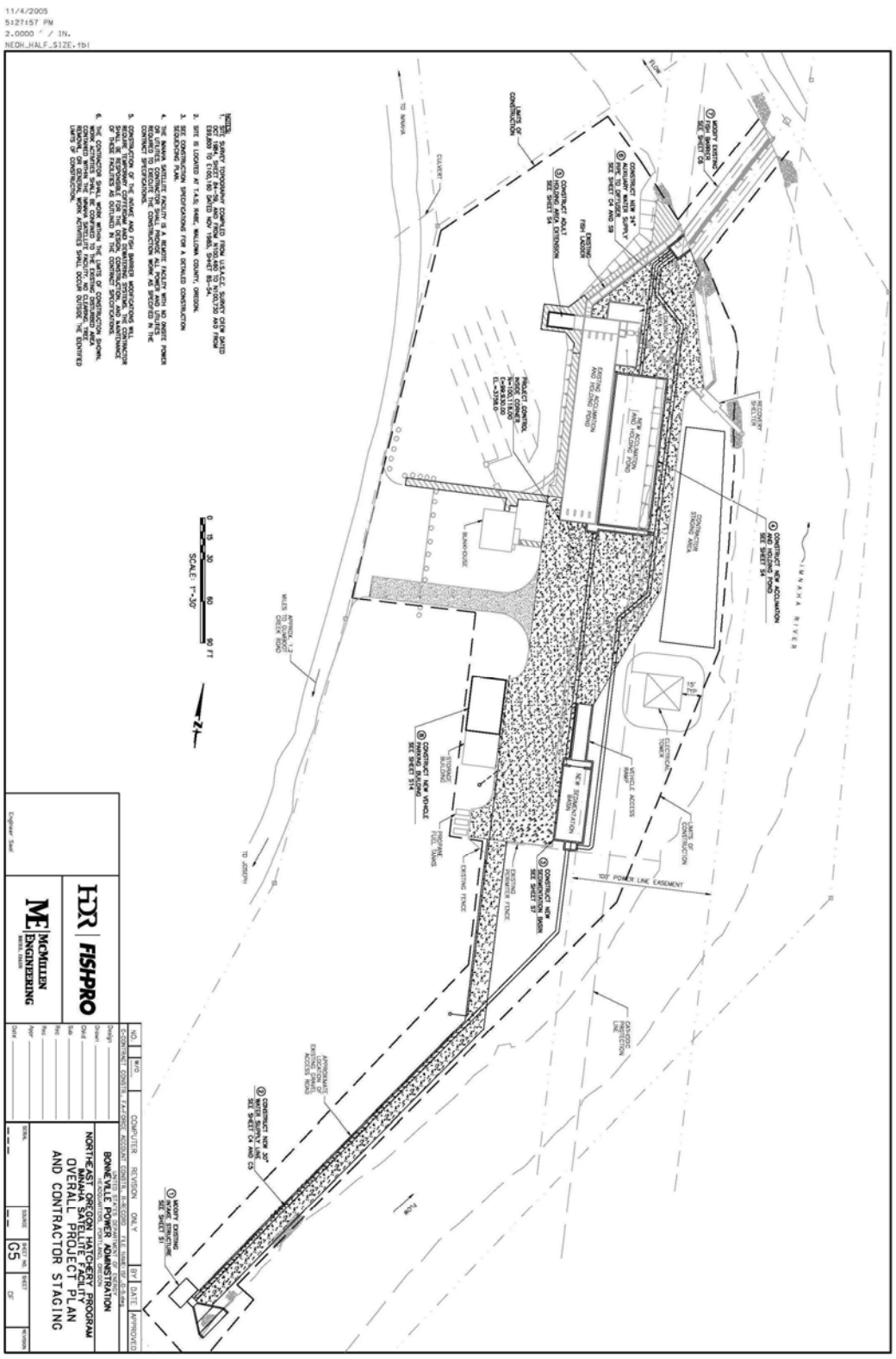


Figure 8. Current Imnaha Satellite Facility Site Plan.

### *Streambank and Instream Component Changes*

Modifications to Replacement Weir Type

As described in the EIS, a portable picket-style weir has been used to direct fish to the existing ladder. The picket weir does not direct fish effectively to the ladder because the ladder entrance is too far downstream for fish to locate it easily. Picket installation during high flows is difficult and hazardous and a portion of the run can be missed when the weir cannot be installed. This can result in a broodstock shortage and one that does not adequately represent the entire run with regards to genetic composition.

As presented in the EIS, to alleviate some of the collection difficulties of the existing weir, a new hydraulically operated weir was proposed. The new weir was to require expanded concrete abutments on both sides of the river; construction impacts were to occur within the area of the existing weir and concrete sill. Upon further consideration and discussions with hatchery operators, it was determined that the weir type as proposed in the EIS would still present some installation and operational difficulties to staff. To address this issue, a new weir type is now proposed.

The existing picket weir will be replaced with a pneumatically-controlled weir that will be inflated to create a vertical hydraulic drop which creates a barrier to upstream migrants. This weir has been approved by the U.S. Forest Service (Appendix A). Once reaching the weir, the migrants would be directed to the fish ladder entrance where they will ascend to the adult holding area for sorting and transport or return to the river. The weir will be operated during the adult trapping period (mid May through September).

The new pneumatically-controlled weir consists of a rubber bladder and hinged steel spillway gate to be mounted to the existing concrete apron. A skid-mounted portable air compressor and generator will be placed adjacent to the storage building. During operations, the spillway gate will be raised and lowered by inflating a rubber bladder located underneath the gate section. When not in use, the weir will lie flat on the concrete apron. At the highest weir position, the weir crest will be located approximately 3 ft above the existing concrete apron. The weir will be programmed to automatically maintain a set water surface on the upstream side of the weir. As the river flow increases, the weir crest will be lowered to maintain the preset water surface and pass the increasing flows. This will ensure that downstream flows are not impacted by the slight impoundment created behind the raised weir.

In order to install the pneumatically-controlled weir, a cofferdam will be installed on the upstream side of the existing concrete apron. It is anticipated that the work will be executed in sections to allow the Imnaha River flows to pass around the work area. The cofferdam will consist of ecology blocks covered with a plastic sheet (the EIS described a much larger cofferdam, composed of driven sheet piling). The plastic will be used to seal the ecology blocks preventing water from seeping into the work area. Dewatering pumps will be installed to remove water from inside the work area. The dewatering system will discharge into a sediment pond located on the left bank of the river. No excavation in the river channel is anticipated for the weir installation.

Once the work area is dewatered, the existing concrete slab, which slopes from the right bank to the left bank, will be modified to provide a level concrete apron. Anchor bolts will be drilled into the concrete slab to tie the new spillway weir and rubber bladders to the concrete apron. The steel gate sections will then be installed on the concrete apron. Air piping will also be installed within the concrete apron to provide air to the rubber bladders.

Although linear expansion of the abutments is no longer required (as presented for the original design in the EIS), the existing concrete abutment walls will be raised approximately 2 ft to provide flood protection during the 100 year flood event (since weir will impound water upstream). This work will be accomplished

by installing form boards on the existing walls, drilling and installing vertical steel dowels and horizontal reinforcement steel, then pouring the raised wall sections. Concrete is anticipated to be pumped to the right abutment walls. If this is not possible, equipment may need to be driven atop wooden cribbing on the concrete sill to access the right wall (to be determined by the contractor). The left abutment walls are accessible by the concrete trucks. A control panel and air system will be installed on the left abutment of the existing structure.

With the exception of the portable air compressor and generator needed to power the new weir, the basic construction techniques and disturbance footprint for installation of the new weir are the same as proposed in the EIS; however, operation of the weir will be different than the previously proposed hydraulically operated weir. Operational differences are described in the next section (*Operational Changes*).

Intake Design Changes

As described in the EIS, modifications to the existing intake structure are necessary to allow for an additional 11.3 cfs of river water (for a total of 20.3 cfs) to be diverted from the Imnaha River for increased holding and rearing. Final designs require the complete replacement of the existing structure and replacement with a new structure. The removal of the existing intake and installation of the new intake will occur within the same area of proposed streambank disturbance as described in the EIS. However, two new 4 ft tall, 4 ft wide, and 7.5 ft long structures will be placed on the top of bank adjacent to the intake to house filters, valves and a small air tank associated with the intermittent air burst cleaning system for the intake. These structures will consist of imitation fiberglass rock enclosures, which will house equipment with limited visual intrusion. Additionally, the 100 cubic yards of river rock originally proposed to be placed upstream and downstream of the structure for stabilization has been reduced to 12 cubic yards with the new intake design. Another minor difference in the construction methodology is that the intake will now be constructed within an ecology block and plastic cofferdam approximately 45 ft long and 10 ft wide (EIS proposed a cellular cofferdam up to 45 ft long and 10 ft wide).

The new intake design was preliminarily reviewed and verbally approved by NOAA Fisheries Engineering (J. Johnson, NOAA Fisheries Engineering pers comm.). It should be noted that the verbal approval is conditioned upon review of final engineering plans.

### *Operational Changes*

New Replacement Weir Operation

During periods of adult collection (potentially beginning as early as mid May through September), the weir will be inflated and essentially block fish passage. During all other times of the year (October through mid May), the pneumatically-controlled weir will lie flat, allowing fish to pass directly upstream or downstream over the weir.

During adult collection, downstream migrants will pass over the weir and upstream passage will be provided through the existing ladder. This is essentially an existing condition as the existing weir currently blocks upstream passage during adult collection periods. However, operation of the existing weir during the latter half of May has only been possible, on average, 10% of the years of facility operation. The new weir has been designed to allow collection during higher flows, therefore additional upstream migratory delay to non-target fish may occur during the latter half of May.

Surface Water Budget

The original surface water budget as presented in the FEIS did not require surface flow during the month of May. This was primarily due to the fact that installation of the existing weir during May has only been possible during about 10% of the years of operation due to extreme high flows and subsequent operational

limitations (i.e. danger to staff). However, the new weir design is intended to provide safe and effective trapping capabilities throughout a longer duration of the run, including the second half of May. Therefore, although flows may still be too high to operate the new weir consistently during the month of May, water rights have been requested for the month to cover that time period should collection be possible. The new surface water budget, shown in Table 3, highlights the change for the month of May (bolded) from that presented in the original FEIS. The current water budget now includes the maximum surface water diversion during that month to operate the adult holding pond and ladder should collection be possible.

Table 3. Surface water requirements per usage, mean monthly stream gage flow, and historic low flows for the Imnaha Satellite Facility (cfs)[1].

| | **Mar** | **Apr** | **May** | **Jun** | **July** | **Aug** | **Sept** |
|---|---|---|---|---|---|---|---|
| Acclimation needs Attraction flow and adult holding pond | 9.6 | 9.6 | **20.3** | 20.3 | 20.3 | 20.3 | 20.3 |
| Mean monthly streamflows | 92.0 | 341 | 804 | 859 | 453 | 150 | 87.1 |
| Historic Low Flows (year)[2] | 65.1 (1952) | 201 (1950) | 513 (1950) | 636 (1947) | 236 (1949) | 99.6 (1949) | 64.4 (1949) |

[1]Source: USGS Waterdata web site (http://waterdata.usgs.gov/or/nwis); gage located above Gumboot Creek, upstream of facility. Water Years 1944 – 1953.
[2]Year of occurrence

# 4.0 Environmental Resources

## 4.1 General Considerations

Due to the elimination of the LACF from the NEOH project, all environmental impacts presented in the FEIS due to the construction and operation of that facility will no longer occur.

Design changes are anticipated to result in an action that ultimately has less impact relative to construction (both in-water and upland) than the action described in the FEIS. The site changes and construction plans would not cause environmental impacts that exceed those analyzed in the FEIS. Further analysis conducted since the FEIS (such as cultural resources investigations at the new Lostine hatchery intake location) have not identified any resources outside the bounds of coverage in the FEIS.

Mitigation planned in the FEIS has been included in the design of facilities and would be included in construction specifications. Additional mitigation to compensate for wetland impacts and impacts to the riparian corridor due to installation of structures within rivers and along streambanks is briefly discussed herein.

## 4.2 Resource-Specific Considerations

Resource-specific impacts resulting from NEOH project design changes are presented in the order in which they were addressed in the FEIS. As design changes only affect construction and operation at the LRH and ISF, only impacts due to those facilities are evaluated herein. Since impacts are generally reduced overall, no increase to cumulative impacts for any resource is anticipated. No new undertakings by other entities are reasonably foreseeable beyond those presented and analyzed in the FEIS that may affect cumulative impact analysis.

### *4.2.1 Fisheries*

Lostine River Hatchery

As stated in the FEIS, in-stream work would occur between July 15 - August 15, which is the in-water work window recommended by the Oregon Department of Fish and Wildlife. Impacts to fish species, including bull trout, steelhead, and Chinook salmon (ESA listed species) have not changed significantly from the FEIS. A thorough analysis of the effects of project changes on listed aquatic species is addressed in a supplement to the Biological Assessment prepared for the project (HDR/FishPro 2006).

Impacts due to relocation of the intake structure are expected to be reduced compared to the original location. The original structure was sited about 400 ft upstream of the current location. This relocation closer to the hatchery site will reduce the diversion reach affected by hatchery surface water withdrawals. The original intake facility was to contain a pneumatically-controlled weir that would essentially block all fish passage during low flows, and direct fish to pass through a fish ladder for upstream and downstream migrations, which could have caused migratory delay. The newly designed intake structure will contain a rock weir with an opening on the east bank to accommodate passage during low river flow conditions, and should not result in significant migratory delays. The concrete sill required to support the intake rock weir would be sloped to concentrate low-flow stream conditions to one side of the channel, assuring adequate water depth for fish passage over the structures. Clearing of riparian vegetation associated with the new intake structure will also result in less vegetation removed since the new intake location consists of a heavily armored bank with little streambank vegetation.

During trapping operations (maximum trapping period is May through September) hatchery discharge water will be routed down the fishway. During non-trapping periods and when juveniles are not being released, water will bypass the ladder steps and be discharged at the base of the structure.

It is anticipated that hatchery fish reared on the combination of ground and surface water will cue into the ladder and be trapped. To minimize impacts to non-target fish, the trap will be visually inspected daily and non-target species will be returned to the river with hold times not exceeding 24 hours. Trapped non-target species will be returned to the Lostine River upstream of the trapping site via piped conveyance. Fish will be returned to the river or side channel in locations most conducive to continuation of upstream migration. This water to water transfer will minimize handling of non-target species. The return flexible tubing will be seasonally placed during trapping, and removed following trapping periods. The return pipe and tubing will be large enough to transport an adult salmonid, have an appropriate slope, and discharge into an area of the river that is the correct depth in relation to the drop out of the end of the pipe (an excavated pool as described earlier). Water will only flow through the return pipe when non-target species are returned to the river.

The potential for double handling of non-target species is reduced under the new trapping scenario. Although the potential for non-target fish to be attracted to the ladder and ascend does exist, because theses fish are not imprinted to hatchery discharge water and because the river is relatively wide in the vicinity of the fishway, non-target species will, in general, likely pass the ladder entrance and avoid being trapped. The velocity barrier at the formerly proposed LACF ensured all upstream migrating fish would ascend the ladder, meaning all non-target species were to be subject to trapping, handling, and migrational delay. Therefore, with implementation of the new ladder scenario, take relative to trapping of non-target species is likely reduced under the proposed project change. Additionally, because the LACF fish trap is no longer part of the proposed action, trucking of hatchery broodstock to the Lostine River Hatchery is no longer necessary, thereby reducing stress to hatchery fish.

Although the low flow regime has been modified, by law, the level of discharged pollutants will be within the limitations of the general NPDES permit for aquaculture facilities that produce less than 300,000

pounds, administered by the ODEQ. By complying with acceptable values, the impact of effluent on receiving waters and the aquatic environment is expected to be minimal.

Imnaha Satellite Facility

The existing Imnaha weir currently operates from mid May (when river flows allow installation) through September, forcing all fish to enter the ladder and the adult holding pond, where non–target species are sorted and returned to the river through the bypass pipeline. The new weir will operate over the same time period and treatment of trapped non-targets will remain the same as existing operations, although the expanded adult holding area will improve holding conditions for trapped fish. However, operation of the new pneumatically-controlled weir introduces a new element to the site, impoundment. This weir, when inflated, will act as a barrier to upstream migrations. Water will back up behind the inflated weir, resulting in a temporary upstream impoundment. Sediment may accumulate behind the weir; however, the weir will be lowered following trapping operations and sediment will naturally be transported downstream. If sediment becomes an issue, the weir can be occasionally lowered to flush any accumulation. Impoundment may temporarily increase the wetted width of the stream immediately upstream of the structure; however, the created impoundment is anticipated to be minimal, resulting in a maximum temporary one foot increase in surface water elevation. Because river flow will pass over the weir impacts to downstream flows will not occur. The weir will be gradually raised and lowered so that operations will not create a loss in flow as the weir is raised or a pulse in flow as the weir is lowered. Operation of the weir in May will require water withdrawal for ladder operation, adult holding and adult return. The impact of this extended use period to the diversion reach should be negligible considering average flows during May exceed 800 cfs.

During non-operational periods, the weir will be deflated and lie flat atop the concrete sill and substrate, allowing free passage upstream and downstream. During adult collection, downstream passage will be possible over the weir. It is anticipated that flow moving past the weir will create a natural scour pool on the downstream face of the weir, providing a plunge pool for fish. Downstream migrants that may be present during trapping include steelhead kelts and bull trout migrants or rapid turn around spawners.

Operation of the existing weir during the latter half of May has only been possible on average 10% of the years of facility operation. The new weir has been designed to allow collection during higher flows; therefore, additional handling and upstream migratory delay may occur if hatchery staff are able to operate the weir during the latter half of May. Fluvial bull trout migrate upstream past the Imnaha Satellite Facility from June through August. By September, most bull trout are upstream of the Imnaha Satellite Facility at spawning sites near the headwaters; outmigration generally occurs from late September through November. Therefore, since bull trout generally migrate upstream after May, operation of the weir during May should not result in additional handling or take beyond that which was previously discussed.

Monitoring for passage efficiency at the new weir structure will occur in the first season of operation, and during any unusual flow scenarios (either extreme high or low flows). Monitoring of this structure is essential to assure that additional impacts to fish species are not occurring as a result of the new weir. Visual observation of upstream and downstream migrants will be performed. Surveys will be performed daily in the vicinity of the weir and also in portions of the diversion reach. Corrective measures that ensure the survival of naturally reproducing adults must be immediately applied should passage problems occur with the weir.

For construction of the intake structure, use of an ecology block cofferdam instead of driven sheetpiles will minimize impacts to the riverbed. Because the in-water construction locations and basic methodologies will remain the same, all other impacts to aquatic species during in-water construction are anticipated to be similar in nature to those previously described in the EIS.

### *4.2.2 Wildlife*

Lostine River Hatchery

Modifications to the LRH site plan would result in the removal of additional trees on the northern portion of the site, which could result in a loss of potential perch trees for raptors, including the threatened bald eagle. However, this tree loss is offset by tree retention associated with elimination of the LACF. The original intake design included an above-ground air compressor building. The new design includes placement of the air compressor in a vault below grade. This placement should reduce noise impacts to wildlife species compared to the original design. Additionally, because a pneumatically-controlled weir is no longer proposed at this site (now a rock weir), the air compressor will only be utilized to provide air for intake screen cleaning and should therefore have fewer operational cycles.

Based on new information provided by an October 2005 well pump test, maximum sustained groundwater pumping has caused temporary groundwater drawdown within 150 ft of wells. This drawdown may impact a small pond approximately 50 ft east of the primary production well (See *Indirect Wetland Impacts and Proposed Mitigation section* below*)*. This pond may be utilized by wildlife for watering, and could potentially serve as breeding habitat for the Columbia spotted frog, although no surveys have been completed to confirm the presence of the species. This pond may be subject to water level fluctuations during maximum facility groundwater usage (1,450 gpm), which would occur during the month of February. Breeding likely occurs from May to June in the vicinity of the site, during which time approximately 800-900 gpm of groundwater would be utilized. Drawdown levels cannot be predicted at this time; however, if measurable drawdown does occur during these moderate groundwater usage periods, potential breeding habitat could be impacted. However, this pond is relatively small and ample suitable breeding habitat is available in the immediate vicinity to which individuals could migrate. It should be noted that this pond has been dewatered on other occasions when no pumping has occurred in test wells, suggesting drawdown may be related to other local groundwater fluctuations or uses (i.e. local irrigation, drought, recently installed drainage structures on adjacent property). It should be noted that monitoring of groundwater levels of this pond is proposed to determine pre and post well pumping conditions at the request of the landowner.

In general, project changes are not anticipated to result in impacts to wildlife that exceed those previously described in the FEIS prepared for this project. A supplement to the BA prepared for this project discusses project changes in relation to ESA-listed species. This supplement has been submitted to the USFWS and NOAA Fisheries.

Imnaha Satellite Facility

Project design changes are not anticipated to result in impacts to wildlife species that differ significantly from those previously discussed in the FEIS. Noise associated with generator operation for the operation of the pneumatically-operated weir and for operation of the air burst cleaning system at the intake would produce temporary increases in noise above the ambient level at the site. However, operation of the generators would only be necessary during initial inflation of the weir, and to maintain weir height periodically. Air burst cleaning will only be necessary a few times a week, when necessary to clear the intake screens.

### *4.2.3 Plants and Wetlands*

Lostine River Hatchery

As stated in the DEIS, the northern end of the site is relatively undisturbed and contains a dense canopy and understory of riparian vegetation. The site plan as presented in the DEIS/FEIS proposed removal of portions of this habitat for installation of the outfall structure and associated access road. The new site plan proposes construction of a fishway/outfall at the previous outfall location, as well as an adult holding and spawning facility. Construction of the facility as per the new site plan will result in increased

vegetation removal, including several additional trees. Although mature trees will be preserved where possible, this increase in tree removal will occur, but is offset for this project on a watershed scale with no trees removed at the LACF site due to the site being dropped from the project.

The DEIS/FEIS stated that approximately 3,000 to 5,000 $ft^2$ of wetland would be lost at the outfall and well locations. Since the FEIS was issued, wetlands within the hatchery easement and intake site (including access road and surface pipeline corridor) were delineated by HDR/FishPro. A subsequent wetland delineation report and functional assessment have been submitted to Oregon Department of State Lands (ODSL; HDR/FishPro 2005) for a jurisdictional determination (ODSL file number WD 2005-0659). Palustrine scrub shrub and forested wetlands are present along the northern portion of the site and below the ordinary high water mark established for the site (top of bank). The results of the delineation indicate that project actions will impact approximately 3,600 $ft^2$ (0.083 acres) of forested/scrub-shrub wetlands on the northern end of the parcel; along with disturbance to approximately 200 $ft^2$ (0.004 acres) of wetlands associated with well vault and pipeline installation at the well locations. Thus, the cumulative wetland lost at the LRH site, approximately 3,800 $ft^2$ (0.087 acres), is within the estimate as stated in the DEIS/FEIS.

Approximately four mature trees will be removed from the wetland on the northern portion of the site in association with construction of the adult holding ponds and spawning building. Although the site plan was adjusted to minimize impacts to this wetland system, avoidance of this wetland entirely is difficult due to elevational constraints on engineering. Additionally, relocation of the spawning building would necessitate a longer fishway for hatchery Chinook and non-target listed salmonids.

A variance to fill wetlands has been submitted to Wallowa County and is currently under review. A joint permit application requesting authorization to fill wetlands and impact waters of the state/U.S. has been submitted to the ODSL and to the U.S. Army Corps of Engineers. To compensate for impacts to this wetland system, a payment in lieu of mitigation has been proposed by BPA to satisfy compensatory wetland mitigation requirements of the ODSL. The ODSL accepts "payment to provide" mitigation when impacts to wetlands are less than 0.2 acres. Because the Corps has a policy of "no net loss" of wetlands and their functions, there is no federal mechanism to accept payment in lieu of mitigation. Therefore, BPA proposes mitigation for impacts to wetlands in the form of enhancement at a ratio of 3:1 (approximately 0.26 acres of on-site mitigation). A compensatory mitigation plan has been prepared describing proposed mitigation for wetland impacts. Proposed mitigation includes enhancement of unaffected portions of the wetland within the hatchery parcel. Enhancement, as proposed, includes management of invasive vegetation, and addition of habitat features for wildlife within the wetland (i.e. felling removed trees into the wetland for wildlife habitat features, additional tree and shrub planting along the northern perimeter to create a vegetation buffer; addition of nesting boxes). In addition, impacts to riparian vegetation due to installation of the intake/outfall structures will be mitigated by enhancement of degraded riparian areas, specifically, the top of the slope to be enhanced with riparian plantings.

Imnaha Satellite Facility

No wetlands are present at this location; therefore, none will be impacted. Proposed site development changes at this location will not result in additional vegetation loss, with the exception of minor encroachment on existing manicured lawns at the facility due to modifications to the proposed locations of several components.

### *4.2.4 Geology*

Lostine River Hatchery and Imnaha Satellite Facility

Impacts expected at both locations have not changed significantly since the FEIS, although the amount of impervious surface to be added at each site has slightly increased (an additional 0.9 acre of impervious

surface at the LRH and an additional 0.05 acres at the ISF). Work within the rivers and along the riverbanks will still occur, albeit at a different location for the LRH intake structure. Disturbances relative to streambank work will be mitigated in a similar manner as described in the FEIS.

To prevent erosion during the construction period, silt fences would be installed and maintained between all areas of ground disturbance and the rivers, including areas of site clearing and timber felling. Facility designs contain erosion control measures where needed. Facility plans have been designed to minimize tree removal. All earth materials from site clearing would be used as fill material or removed from the site. Cleared trees will be placed in appropriate upland sites for wildlife habitat enhancement or along the slope protection area at the LRH. Temporary haul roads would be obliterated and reseeded at the end of construction. Necessary access roads would be graveled. An application and renewal application for a National Pollutant Discharge Elimination System Storm Water Discharge Permit (#1200-CA for construction) was submitted in December 2005 to the Oregon Department of Environmental Quality. A permit was issued December 27, 2005. An erosion and sediment control plan will be on-site and available for inspection.

### *4.2.5 Hydrology*

Lostine River Hatchery

Under the new site plan, impervious surface area would increase approximately 0.9 acres from that proposed in the FEIS (2.8 acres now compared to 1.9 acres originally). Additional placement of fill and construction within the floodplain could contribute to further alteration of flood flows and impediment of natural movement of floodwaters during extreme flows. As stated in the EIS, the hatchery site did not flood during the 1999 high flow, the fifth highest on record for the Lostine River. Given past trends, flooding events would therefore be relatively infrequent on the hatchery site. The addition of 0.9 acres of impervious surface at the site is not expected to significantly exacerbate the impact to surrounding lands or local morphology compared to those impacts discussed in the EIS.

The elimination of the formerly proposed pneumatically-controlled weir at the former LRH intake location subsequently eliminates the potential for localized erosion and flooding behind the impoundment that would be created when the weir was raised. The new intake type and location was studied in detail by HDR/FishPro and documented in a draft Technical Memorandum entitled "Evaluation of Hydraulic Impacts, North East [sic] Oregon Hatchery: Lostine River Hatchery Intake in March, 2006. It was determined in this study that the construction of a rock diversion structure protruding partially across the channel and the associated other structures would have less overall impact on river hydrology and downstream and upstream situations than the original proposal. The hydrologic dynamics of the river would likely normalize within one hundred feet or so below the proposed new diversion location. The river channel and dynamics should be unaffected by the existence of the new diversion and associated structures downstream where the Tippets Avenue bridge is located.

Surface water requirements for the LRH have remained roughly the same as those described in the EIS. However, the low flow mitigation scenario has been modified. To mitigate for impacts to instream flows, during periods of low instream flow, a hatchery water low flow, "Pipers flow index", strategy has been developed, and combined with a four cfs pumpback system, will ensure impacts to instream flows are minimized (See 3.3.2 *Operational Changes)*. The pumpback system will return water just downstream of the intake, similar to that previously described in the EIS as being returned to the river down the fish ladder at the intake location.

The facility will now require a maximum groundwater supply of 1,450 gpm which represents an increase in usage compared to the EIS (1,350 gpm. Aquifer tests were completed by pump testing the Primary Production Well (Ralston 2005). Monitoring of adjacent wells was completed during the pump testing.

A pumping effect was detected in a shallow pond on private property (McLain) that is approximately 50 ft from the Primary Production well and also in the South Production Well located 195 ft from the Primary Production well. A pumping effect could not be identified in the data logger records from the three hatchery wells located between 645 ft and 1,404 ft from the Primary Production Well. A pumping effect also could not be identified in the neighboring private wells ranging from 1,056 to 2,724 ft from the Primary Production Well. It has also been determined that the North Well will be abandoned as it is not functioning properly and a new well will be drilled in the vicinity of the spawning building to provide the maximum flow required for hatchery operations.

Imnaha Satellite Facility
Changes to the site plan are not anticipated to result in increased impacts to water quality related to construction or operations of the facility.

Impacts to floodplains will occur with the new proposed weir design (pneumatically-controlled weir). During operation of the weir an impoundment will be created upstream of the structure. This impoundment is anticipated to result in a temporary rise in river stage of one foot. This will create a seasonal, localized increase in flooding risk just upstream of the structure. As a precaution the abutments of the existing weir structure will be raised two feet.

An increase in water withdrawal for May will occur in years when the pneumatically-controlled weir can operate. This will be dependant upon river flow.

### *4.2.6 Wild and Scenic Rivers*

Lostine River Hatchery
As stated in the EIS, the portion of the Lostine River that has been designated as Wild and Scenic is about 1 mile upstream from the LRH site, or about ½ mile upstream of the new intake location (the former intake location was 400 ft closer to the Wild and Scenic corridor). The distance from the Wild and Scenic River corridor and nature of the proposed activities at the LRH hatchery site and intake site were considered not likely to invade or diminish the Wild and Scenic values; therefore, no analysis of impacts was undertaken. Similarly, the proposed design changes will not diminish Wild and Scenic values upstream of the project sites.

Imnaha Satellite Facility
Proposed replacement of the existing intake with a consolidated structure in lieu of expanding the existing intake will result in no additional impact to the wild and scenic character of the river as compared to the FEIS. No additional flow impediment or alteration at this location is anticipated as the new intake structure will be sited entirely within the disturbance area described in previous consultation.

With regard to the proposed pneumatically-controlled weir, potential impacts to free-flow status of the river due to impoundment during operation of the weir (mid May – September) may occur; however, the newly designed weir structure has received written authorization from the USFS (Appendix A).

Elevation of the weir abutments may impact the visual character of site compared to existing conditions. Linear expansion of the left bank abutment as proposed in the FEIS will still occur; however, no linear expansion of the right bank abutment is proposed.

### *4.2.7 Cultural Resources*

Lostine River Hatchery
The new intake location and associated access road and surface pipeline corridor at the LRH site have been surveyed for cultural resources by archaeologists with the Nez Perce Tribe (date, B. Johnson, NPT,

pers comm.). In addition, the west easement adjacent to Granger Road within which the water pipelines (surface water, pumpback, de-icing) will be installed, has also been surveyed, and no cultural resources were found; none were anticipated to be affected by the project. These surveys included a search of records with the Oregon Parks and Recreation Department, as well as an on-site shovel test. Surveys did not identify any cultural resources within the area associated with intake infrastructure or within the pipeline corridor. Survey results were reported to the State Historic Preservation Office (SHPO).

The previous cultural resources survey conducted for the hatchery facility encompassed the entire hatchery easement; therefore, changes to the site plan will not result in construction in areas that have not been previously surveyed.

Although no cultural resources have been identified within the LRH project parcel, as was stated in the EIS, construction activity would be monitored by a qualified archaeologist. If evidence of cultural materials is found, site work would be halted until the site can be assessed. Notification of and consultation with the SHPO and BPA would also occur as appropriate.

Imnaha Satellite Facility
Changes to the site plan at the ISF would not result in infrastructure being sited outside of the original cultural resources survey boundary. Since no cultural resources were detected during the site survey, and because this is an existing facility and modifications would occur within areas already developed, no new impacts to cultural resources are anticipated. As with the LRH, a qualified archaeologist will be present during construction and will report any findings to the appropriate agencies.

### *4.2.8 Aesthetics (Visual Quality)*

Lostine River Hatchery
Proposed site plan changes should not result in increased impact to visual quality compared to those described in the FEIS. Shifting most of the facility infrastructure north minimizes the visual impact to local landowners to the south and east, away from the Lostine River Acres subdivision. This shift may actually improve the visual quality for residents to the south. Screening tree planting along the southern perimeter as described in the FEIS should reduce the visual impact. Additional tree planting along the eastern perimeter of the site is proposed to limit the impact to residents to the east on undeveloped portions of Granger Road.

The new residence proposed to replace the existing doublewide will be designed to compliment the existing character of the neighboring properties. The structure will be a single story dwelling with an attached garage, and will be located in approximately the same configuration as the existing residence.

Relocation of the intake structure from immediately upstream of the County bridge to several hundred feet downstream of the bridge would lessen the visual impact to local residents and travelers on the road. The new intake and associated access road would be on private property, away from public view. The intake will have a rock weir that spans the river that will be constructed of round cobble and boulders that are anticipated to be appear similar to native river material. The weir will only be highly evident during periods of low flow when portions of the weir are exposed. This section of the river is only visible from private land or from the river channel (i.e. wading or floating). The anticipated level of visual impact due to proposed project changes is less than that described in the FEIS.

Imnaha Satellite Facility
As described in the DEIS, the ISF is an existing facility and proposed upgrades would result in a facility that is very similar in appearance to the current site. Two new 4 ft tall, 4 ft wide, and 7.5 ft long structures will be placed on the top of bank adjacent to the intake to house filters, valves and a small air

tank associated with the intermittent air burst cleaning system for the intake. These structures will consist of imitation fiberglass rock enclosures, which will house equipment with limited visual intrusion. The air compressor required for the new weir will be skid-mounted with a generator and housed adjacent to the existing storage building on site. This structure will likely be moved off site following annual operations.

During adult collection periods, the raised weir may cause a slight change to the observed river condition resulting from impounding, and proposed elevation of the abutments two ft higher than the existing abutments may adversely impact the visual character in those areas. However, even with the proposed weir replacement, post-construction views of the upgraded ISF are not anticipated to be substantially different from views of the existing hatchery facility. Other changes to the site plan will not adversely impact visual quality beyond that which has already been discussed in the DEIS/FEIS.

### *4.2.9 Land Use, Recreation, and Transportation*

Lostine River Hatchery

Since issuance of the FEIS, extensive consultation regarding the hatchery development with the Wallowa County Planning Department has occurred and is currently on-going. Use of the site for hatchery development is consistent with zoning designations. Two variances applications have been filed with the County: 1) a request for variance from County regulations relating to road widths in association with improvements to Granger Road; and 2) a request for variance to allow development within wetlands and associated buffers. These variances have been considered by the County and addressed by the County's Planning Commission in a public hearing regarding the facility, held on January 31, 2006. The Commission requested an extension to review the variance applications. Further review will take place at the next public hearing, scheduled for February 28, 2006. Preliminary discussions with the County indicate that the wetland variance will be granted; however, the road variance will be removed from consideration as the road will no longer be excavated to accommodate the surface water pipeline. BPA is currently in discussions to enter into a road maintenance agreement with Wallowa County for long-term maintenance of Granger Road (i.e. gravel replacement, pothole filling, etc.). Details regarding this potential agreement have not yet been developed, but are certain to involve less environmental impact than described in the EIS.

Design changes at this site will not result in changes to impacts to land uses compared to those described in the FEIS.

Imnaha Satellite Facility

Proposed design changes at the ISF will not result in changes to impacts to land uses compared to those described in the FEIS.

### *4.2.10 Socioeconomics*

Lostine River Hatchery and Imnaha Satellite Facility

The proposed project changes at both facilities as described in this document do not differ substantially from the original proposal analyzed in the FEIS with regard to socioeconomics.

### *4.2.11 Air Quality*

Lostine River Hatchery

Dust from demolition or dismantling and hauling the existing doublewide home offsite is an increase in impacts from that discussed within the FEIS. Demolition or relocation activities will be conducted under permit from Wallowa County and will be completed in such a manner as to not exceed the National Ambient Air Quality Standards. These impacts will be minor, intermittent and localized. Because Granger Road will no longer be paved, use of the road by hatchery staff and fish hauling trucks may cause a slight increase in truck trips compared to existing conditions. Because the hatchery facility will allow

for rearing on-site, the amount of trips by large fish haul trucks will actually decrease compared to trips made in association with existing acclimation facility operations; however, use of the road by hatchery staff personal vehicles will increase. However, this increase is not anticipated to create significant additional dust.

Imnaha Satellite Facility

The proposed project changes as described in this document do not differ substantially from the original proposal analyzed in the FEIS with regard to air quality. The amount of dust and vehicular emissions from construction equipment should remain approximately the same. No increase in operational vehicles is anticipated compared to existing conditions.

### *4.2.12 Noise*

Lostine River Hatchery

A short-term, intermittent increase in ambient noise will occur from the demolition and removal of debris or the relocation of the doublewide house offsite.

Operational noise impacts at the previous LRH intake location associated with the air compressor building would no longer occur, which will be quieter for nearby residents. The air cleaning system associated with the new intake facility will be housed in a buried concrete vault, which should effectively muffle the noise associated with operation of the cleaning system. Noise from other operations in association with this facility should remain the same as described in the FEIS. Pumps and generators at the hatchery site will still be housed within buildings, which will effectively muffle associated noises; however, when in use these facilities will produce noise, but not at levels that would likely be considered a "nuisance."

Imnaha Satellite Facility

An air compressor for weir operation and for the air cleaning at the intake will be an additional feature at this site. The compressor will operate both the weir and the air burst system and will be centrally located on a skid-mounted portable unit near the storage building. An additional generator to provide power for the compressor will also be required. Intermittent use of the compressor during facility operations will represent an increase in noise compared to existing conditions. However, any increase over ambient condition is not anticipated to create a nuisance situation.

### *4.2.13 Public Health and Safety*

Lostine River Hatchery and Imnaha Satellite Facility

The proposed project changes at both facilities as described in this document do not differ substantially from the original proposal analyzed in the FEIS with regard to public health and safety. The elimination of the LACF would eliminate some truck traffic to the hatchery site for transport of captured fish, which could negligibly reduce vehicle accident risk.

## 5.0 Updated Summary of Mitigation Measures

Modifications to the Proposed Action, additional studies and coordination with regulatory agencies have resulted in minor changes and additions to the mitigation measures, described below. The Proposed Action would continue to be self-mitigating due to the inclusion of best management practices, conservation measures, and special design considerations.

**Additional Construction Measures** — Specific measures to be taken during (or prior to) construction would include:

*Fish*

- Use of bioengineering methods for bank stabilization at the Lostine River Hatchery side-channel bank site.

*Wildlife*

- Fell trees to be removed by expansion to the north at the Lostine River Hatchery site into the wetland for increased wildlife habitat. Addition of ten song bird nesting boxes in enhanced wetland area.

*Plants and Wetlands*

- Formal wetland delineation completed at the Lostine River Hatchery (HDR/FishPro 2005). Implement compensatory on-site wetland mitigation of approximately 0.26 acres in the form of wetland enhancement.
- Fell trees into wetland for enhancement.
- Preserve trees and protect root systems to the extent possible along Granger Road during pipeline installation immediately west of the existing road.

*Soils and Erosion*

- No change from FEIS.

*Water Quality*

- No change from FEIS.

*Cultural Resources*

- No change from FEIS.

*Air Quality*

- Control dust during demolition or removal of doublewide residence at the Lostine River Hatchery site.

*Noise*

- No change from FEIS.

*Public Health and Safety*

- No change from FEIS.

**Additional Operational Measures** — Specific measures to be taken during facility operations would include:

*Fish*

- Monitoring the Lostine River (through visual observation) for dewatering of redds during low instream flow periods.
- Implement revised low-flow rearing strategy and/or pumpback at the Lostine River Hatchery during periods on limited instream flow to ensure a minimum of 12 cfs or 50 percent of the total flow through the bypass reach whichever is greater.
- Monitoring the adult trap at the Lostine River Hatchery (through visual observation) for non-target fish species. Releasing all non-target species from the trap and allowing them to continue upstream within 24 hours of trapping.

*Plants and Wetlands*

- Implementing monitoring of McLain pond for impacts from well use at the Lostine River Hatchery.

*Water Quality*
- No change from FEIS.

*Visual Quality*
- No change from FEIS.

## 6.0 Conclusion

The proposed NEOH project changes described in this document do not differ substantially from the original proposal analyzed in the FEIS, nor are any of the proposed changes and their corresponding environmental effects considered new information or circumstances relevant to environmental concerns. Because of this, preparation of a supplemental EIS is not required.

A summary of the facilities associated with FEIS Proposed Action and final design revisions is presented in Table 4. The total number of facilities to be developed by the project is reduced and the acreage occupied at the remaining facilities has remained the same from the FEIS analysis. Table 5 presents a comparative summary of the environmental consequences of the Proposed Action, as presented in the FEIS, and the proposed final design project elements

Table 4. Comparison of Facilities Associated with FEIS Proposed Action and Final Design Revisions.

| **Facilities** | **Proposed Action** | **Final Design Revisions** |
|---|---|---|
| Number of Sites Involved | 5 Sites[1]<br>Lookingglass Hatchery<br>Lostine Adult Collection Facility, including the Lostine Adult Collection Weir<br>Lostine River Hatchery<br>Acrow Panel Bridge Site<br>Imnaha Satellite Facility | 3 Sites[1]<br>Lostine River Hatchery<br>Imnaha Satellite Facility<br>Acrow Panel Bridge Site |
| Approximate Acres Occupied | Lookingglass Hatchery (11)<br>Lostine Adult Collection Facility, including the Lostine Adult Collection Weir (3)<br>Lostine River Hatchery (6)<br>Acrow Panel Bridge Site (0)<br>Imnaha Satellite Facility (6) | Lostine River Hatchery (6)<br>Imnaha Satellite Facility (6) |
| Number of Sites Improved | Lookingglass Hatchery<br>Imnaha Satellite Facility | Imnaha Satellite Facility |
| Number of New Sites | Lostine Adult Collection Facility<br>Lostine River Hatchery | Lostine River Hatchery |

[1] Acrow Panel Bridge Site is included in Final EIS for analysis of bridge removal.

Table 5. Updated Comparative Summary of Environmental Consequences between the FEIS Proposed Action and the Final Design Revisions.

| Environmental Resource | FEIS Proposed Action | Final Design Revisions |
|---|---|---|
| **Fisheries**<br>Targeted spring/summer chinook | Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species population viability. No impacts to individuals or populations are expected from discharges at the proposed facilities. Individuals and the population would benefit from improved passage as well as adult attraction and collection facilities. The population would benefit from improved broodstock collection and holding facilities. Incubation and rearing practices resulting from the proposed facilities would increase population viability and benefit the species in the long-term. Fish health maintenance activities would benefit individuals and the population by reducing disease potential. | Reduced migratory improvements in the Lostine River with the removal of the LACF.<br><br>Reduced diversion reach at LRH with intake relocation 400 ft downstream of original location. |
| • Non-targeted chinook | Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species population viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress from installation of weirs, ladders, and traps within the Lostine River. Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact non-targeted chinook population viability. Incubation and rearing practices at the proposed facilities would have no impact on non-targeted chinook. Fish health maintenance activities would benefit individuals and the population by reducing disease potential. | Reduced migratory improvements in the Lostine River with the removal of the LACF. Potentially reduced handling and stress with the removal of the LACF that would have collected all migrating individuals. Replacement with a volitional ladder at the LRH will target artificially propagated fish over naturally produced fish.<br><br>Reduced migratory delay with the removal of the full-spanning weir and ladder at the Lostine River intake. Reduced diversion reach at LRH with intake relocation 400 ft downstream of original location.<br><br>Minor extension of the migratory delay window with the new weir at the Imnaha Satellite site allowing operation in May. |
| • Other salmonids | Site disturbances and channel alterations would create minor localized impacts that would not affect species population viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, | Reduced migratory improvements in the Lostine River with the removal of the LACF.<br><br>Potentially reduced handling and stress with the removal of the LACF |

| Environmental Resource | FEIS Proposed Action | Final Design Revisions |
|---|---|---|
| | but would not affect species viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress from installation of weirs, ladders, and traps within the Lostine River. Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact population viability of other salmonids. Incubation and rearing practices at the proposed facilities would have no impact on other salmonids. Fish health maintenance activities would benefit individuals and the population by reducing disease potential. | that would have collected all migrating individuals.<br>Reduced migratory delay with the removal of the full-spanning weir and ladder at the Lostine River intake. Reduced diversion reach at LRH with intake relocation 400 ft downstream of original location.<br><br>Minor extension of the migratory delay window with the new weir at the Imnaha Satellite site allowing operation in May. |
| • Non-salmonids | Site disturbances and channel alterations would create minor localized impacts that would not affect species viability. Water withdrawals during operation of facilities would reduce habitat in the immediate reach of each diversion, but would not affect species viability. No impacts to individuals or populations are expected from discharges at proposed facilities. Some individuals may experience short-term stress from installation of weirs, ladders, and traps within the Lostine River.<br>Improved upstream and downstream passage in both subbasins would benefit populations. Broodstock collection and maintenance are not expected to impact population viability. Incubation and rearing practices at the proposed facilities would have no impact on non-salmonids. Fish health maintenance activities would have no impact on non-salmonids. | Reduced migratory improvements in the Lostine River with the removal of the LACF.<br><br>Potentially reduced handling and stress with the removal of the LACF that would have collected all migrating individuals.<br><br>Reduced migratory delay with the removal of the full-spanning weir and ladder at the Lostine River intake. Reduced diversion reach at LRH with intake relocation 400 ft downstream of original location.<br><br>Minor extension of the migratory delay window with the new weir at the Imnaha Satellite site allowing operation in May. |
| **Wildlife**<br>• ESA species<br><br><br><br><br><br>• Other species | No state or federally listed species are known to nest or breed at project sites. Bald eagle roosts or potential roosts have been documented at or near all sites except ISF. Tree removal at LRH and LACF may reduce the number of potential roost sites.<br><br>Temporary displacement during construction activities (noise and presence of humans) would be the primary consequence to big game and other wildlife species that use project sites. | Reduced overall tree loss with the removal of the LACF from the project. Potential impact to Columbia spotted frog habitat with pond drawdown on an adjacent parcel near LRH.<br><br>Increased habitat area and diversity with wetland mitigation actions at the LRH. |
| **Plants and Wetlands**<br>• ESA species | No state or federally listed plant species are known to occur at any project sites. | No change from FEIS. |

| Environmental Resource | FEIS Proposed Action | Final Design Revisions |
|---|---|---|
| • Other native species | Varying amounts of native vegetation would be disturbed or displaced by facility structures. All sites will be replanted with native species. Some loss of riparian habitat is anticipated at LACF and LRH. | No loss of riparian habitat at the LACF.<br>Reduced riparian habitat loss at the LRH intake as the new location has been previously disturbed. Riparian plantings will occur post-construction to improve the existing condition. |
| • Non-native species | All facilities will be maintained to discourage nonnative, invasive, and weed species. | No change from FEIS. |
| • Wetlands | LACF and LRH – Net loss of minor amount of wetlands (less than ½ acre combined).<br>Mitigation – Conduct formal wetland delineations and implement compensatory wetland mitigation as required in consultation with regulatory agencies. | No impact to wetlands at the LACF.<br>Formal delineation completed at the LRH and mitigation actions developed for ~0.26 acres of on-site lands.<br>Implementation of a monitoring program to determine affects from well use on wetlands. |
| **Geology** | | |
| • Approximate acres temporarily disturbed and permanently altered | LGH – incidental disturbance within existing facility (total existing facility about 11 acres).<br>LACF – 2 acres (total site about 3 acres).<br>LRH – 5 acres temporarily, 3 acres permanently,<br>APBS – 0 acres occupied after bridge removed.<br>ISF – < ½ acre within existing facility (total existing facility about 6 acres). | LGH – No longer a project component.<br>LACF – No longer a project component.<br>LRH – No change from FEIS.<br>APBS – No change from FEIS.<br>ISF – No change from FEIS. |
| • Slope/bank stability | Stability unchanged. | No change from FEIS. |
| • Erosion | Short-term, localized erosion during construction. | No change from FEIS. |
| **Hydrology** | | |
| • Water quality | Localized temporary construction-related runoff and sedimentation within applicable standards. | No change from FEIS. |
| • Water quantity | LRH – occasional short-term reduced flows along hatchery reach in extremely dry or cold periods (up to 50 percent reduction during extreme low flows; during those times, river and well water would be pumped back to the intake location).<br>ISF – similar to LRH, but shorter duration and extent; minor flow regime alteration | LRH – a revised low flow rearing strategy has been developed for hatchery operations. The pumpback capacity has been reduced to 4 cfs in conjunction with the revised low flow rearing strategy. Instream flows will be maintained as described within the FEIS. The maximum groundwater need has increased from 1350 gpm to 1450 gpm.<br>ISF – an increase in flow required in May for the operation of the ladder |

| Environmental Resource | FEIS Proposed Action | Final Design Revisions |
|---|---|---|
| | during periods of extremely low flows. | and adult holding facility. |
| • Flow restrictions / floodplains | LACF and LRH – localized flow restriction, concentration, and scouring. | LACF no longer a component of this project.<br>LRH- Localized flow restrictions at the intake would be eliminated with the new intake structure. An increase of 0.9 acres of impervious surface is not anticipated to affect surrounding lands. |
| | APBS – slight improvement with removal of bridge and bridge abutments.<br>ISF – slight improvement with new weir. | APBS – No change from FEIS.<br>ISF – increased flow restriction with the pneumatically controlled weir. Impoundment will occur upstream of the weir during periods of operation. Increase in flood elevation immediately upstream of the weir may occur during operation. The weir can be adjusted to minimize this situation. |
| **Wild and Scenic Rivers** | | |
| • Imnaha River | Instream structures at ISF would slightly constrict natural river flow and decrease vegetation; slight improvement with bridge and abutment removal at APBS and new weir at ISF; likely improvement over time to fisheries ORV, as well as lifestyle and recreation ORVs. | Loss of improvement of Imnaha flow condition with pneumatically controlled weir due to minor impoundment created during operation. Visual change in weir type and intake type.<br>APBS - No change from FEIS. |
| • Lostine River | Not likely to invade area or unreasonably diminish values of Wild and Scenic designation. | No change from FEIS. |
| • Grande Ronde River | Not likely to invade area or unreasonably diminish values of Wild and Scenic designation. | No longer a component of this project. |
| **Cultural Resources** | No effect. If evidence of cultural materials is found later, work or activity would be halted until the site could be assessed. | No change from FEIS. Confirm when surveys complete |
| **Aesthetics (Visual Quality)** | LGH – no effect on overall visual character.<br>LACF – limited effect on overall visual character.<br>LRH – limited effect; visible to nearby residents.<br>APBS – slight improvement on visual | LGH – No longer a component of this project.<br>LACF – No longer a component of this project.<br>LRH – Improved condition from FEIS. Facilities on the hatchery parcel shifted north, further from existing residences. Intake relocated to a stretch of river not visible from public roads.<br>APBS – No change. |

| Environmental Resource | FEIS Proposed Action | Final Design Revisions |
|---|---|---|
| | character and views from Road 551.<br>ISF – limited effect on overall visual character. | ISF – Change in visual appearance at weir and intake, however, no increased impact from FEIS. |
| **Land Use, Recreation and Transportation** | | |
| • Land Use | Facilities consistent with local zoning as applicable, permitted outright or as conditional use; ISF on Forest Service land, would require reissuing special use permit. | No change from FEIS. |
| • Recreation | No effect on recreation, except possible long-term benefit if Chinook stocks sufficiently recover to enhance viewing and fishing. | No change from FEIS. |
| • Transportation | Short-term traffic increase during construction. LACF – improve trout farm bridge and parking. LRH – maintain Granger Road over long-term. | LACF no longer a component of this project. LRH – Granger Road will no longer be improved; BPA will enter long-term road maintenance agreement with County for road. |
| **Socioeconomics** | No change to population; some increase to employment, especially during construction; and some benefit to local economy if chinook recover and stimulate recreation or fishing. | No change from FEIS. |
| **Air Quality** | Short-term increase in particulates during construction; no long-term effect. | No change from FEIS. |
| **Noise** | LGH – temporary increase in area noise levels during construction; long-term potential to decrease noise levels at facility with new buildings and equipment.<br><br>LACF – temporary increase in area noise levels during construction.<br>LRH – temporary increase in area noise levels during construction; long-term noise associated with traffic to the facility and additional residence.<br>APBS – temporary increase in area noise levels during bridge removal.<br>ISF – temporary increase in area noise levels during construction. | LGH – no longer a component of this project.<br><br>LACF – no longer a component of this project.<br>LRH – a minor reduction in noise has occurred with placing the air compressor for the intake in a buried vault.<br>APBS – no change from FEIS.<br><br>ISF – additional seasonal noise with generators and air compressors to operate the pneumatic weir and provide air cleaning for the intake screen. |
| **Public Health and Safety** | Potential minor increased demand for public services (fire, hospital, etc.) and increased traffic during construction. | No change from the FEIS. |

LGH = Lookingglass Hatchery
LACF = Lostine Adult Collection Facility
LRH = Lostine River Hatchery
APBS = Acrow Panel Bridge Site
ISF = Imnaha Satellite Facility

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# Appendix A

# Imnaha Satellite Facility USFS Approval Letters

United States Department of Agriculture | Forest Service | Wallowa-Whitman National Forest | Eagle Cap Ranger District
88401 Hwy. 82
Enterprise, OR 97828

File Code: 1500
Date: February 13, 2006

Ken Kirkman
Project Manager
Bonneville Power Administration
P.O. ox 3621, KEC-4
Portland, OR 97208-3621

Dear Mr. Kirkman;

The Wallowa-Whitman National Forest has reviewed recent design changes proposed for up-grading the fish weir at the Imnaha Satellite Facility, Northeast Oregon Hatchery Program, and feels the proposed changes will not create effects different from those already analyzed by the Grande Ronde-Imnaha Spring Chinook Hatchery Project Final Environmental Impact Statement (FEIS), DOE/EIS-0340, July 2004. There is, therefore, no need for additional analysis under National Environmental Policy Act (NEPA) or Wild and Scenic Rivers Act requirements. The design covered under the FEIS called for construction of a Chiwawa weir that would have required slight modifications to the existing concrete fish diversion weir to install. The new proposed design changes would install an Obermeyer weir instead of a Chiwawa weir, and like the Chiwawa weir would only require minimal modifications to the existing fish diversion weir.

The Snake River spring/summer chinook salmon native the Imnaha River are listed as threatened and are protected under the Endangered Species Act (ESA). Consultation on the effects to the environmental baseline and fisheries are covered under the August 25, 2003 Northeast Oregon Hatchery Program Grande Ronde-Imnaha Spring Chinook Hatchery Project Biological Assessement, and is considered adequate to address the effects of the proposed design change to the Imnaha Satellite Facility. If there are any questions regarding this decision, please call Mary DeAguero, District Ranger Hells Canyon National Recreation Area at (541) 426-5501.

Sincerely,

Mary C DeAguero

MARY C. DEAGUERO
HCNRA/Eagle Cap District Ranger

cc: Greg Haller, NEOH Project Leader

United States Department of Agriculture | Forest Service | Wallowa-Whitman National Forest | Wallowa Mountains Office and Visitor Center
88401 Hwy. 82
Enterprise, OR 97828

File Code: 1500
Date: February 14, 2006

Ken Kirkman
Project Manager
Bonneville Power Administration
PO Box 3621
KEC-4
Portland, OR 97208-3621

Dear Mr. Kirkman;

This letter is to clarify my letter dated February 13, 2006 in regards to The Wallowa-Whitman National Forest's recent review of design changes proposed for up-grading the fish weir at the Imnaha Satellite Facility, Northeast Oregon Hatchery Program. I would like to clarify that my previous letter includes all work to be completed in regards to the fish weir including the intake reconstruction which will occur within the existing footprint. The proposed changes will not create effects different from those already analyzed by the Grande Ronde-Imnaha Spring Chinook Hatchery Project Final Environmental Impact Statement (FEIS), DOE/EIS-0340, July 2004. There is, therefore, no need for additional analysis under National Environmental Policy Act (NEPA) or Wild and Scenic Rivers Act requirements.

If there are any questions regarding this decision, please call Mary DeAguero, District Ranger Hells Canyon National Recreation Area at (541) 426-5501.

Sincerely,

/s/ Mary C. DeAguero
MARY C. DEAGUERO
HCNRA/Eagle Cap District Ranger

cc: Monty Gregg
Haller
NEOH Project Leader