US Army Corps of Engineers®
Walla Walla District

MILTON-FREEWATER NURSERY BRIDGE DROP STRUCTURE REHABILITATION

PM-EC-2013-0090

ENVIRONMENTAL ASSESSMENT

June 2014

Milton-Freewater
Nursery Bridge Drop Structure Rehabilitation
Environmental Assessment

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Appendix A – Biological Assessment for the Milton-Freewater Nursery Bridge Drop Structure Rehabilitation

Appendix B – NMFS Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation, Repair of the Nursery Bridge Drop Structure, Milton-Freewater, Umatilla County, Oregon. NMFS Consultation Number: NWR-2014-594

Appendix C – Biological Opinion for the Milton-Freewater Nursery Bridge Drop Structure Rehabilitation Project, Umatilla County, Oregon – Formal Consultation (reference 01EOFW00-2014-F-0156

1. INTRODUCTION

The U.S. Army Corps of Engineers, Walla Walla District (Corps), proposes to rehabilitate the Nursery Bridge drop structure on the Walla Walla River in Milton-Freewater, Oregon (Figure 1). The structure was damaged by high flows in April 2013.

This Environmental Assessment (EA) was prepared in accordance with the Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (NEPA)* (Title 40 of the CFR Parts 1500-1508) and Engineer Regulation (ER) 200-2-2, *Procedures for Implementing NEPA*. The objective of the EA is to determine the magnitude of the environmental effects of the proposed action and any reasonable alternatives. If such effects are relatively minor, a Finding of No Significant Impact (FONSI) would be issued and the Corps would proceed with the preferred alternative. If the environmental effects are significant according to the CEQ's criteria (40 CFR 1508.27), an Environmental Impact Statement (EIS) would be prepared before a decision is reached to implement the preferred alternative. Applicable laws under which these impacts will be evaluated include NEPA, the Endangered Species Act, the Clean Water Act, and the National Historic Preservation Act. The Corps also considered, but determined inapplicable, requirements under the Clean Air Act, the U.S. Fish and Wildlife Coordination Act, the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

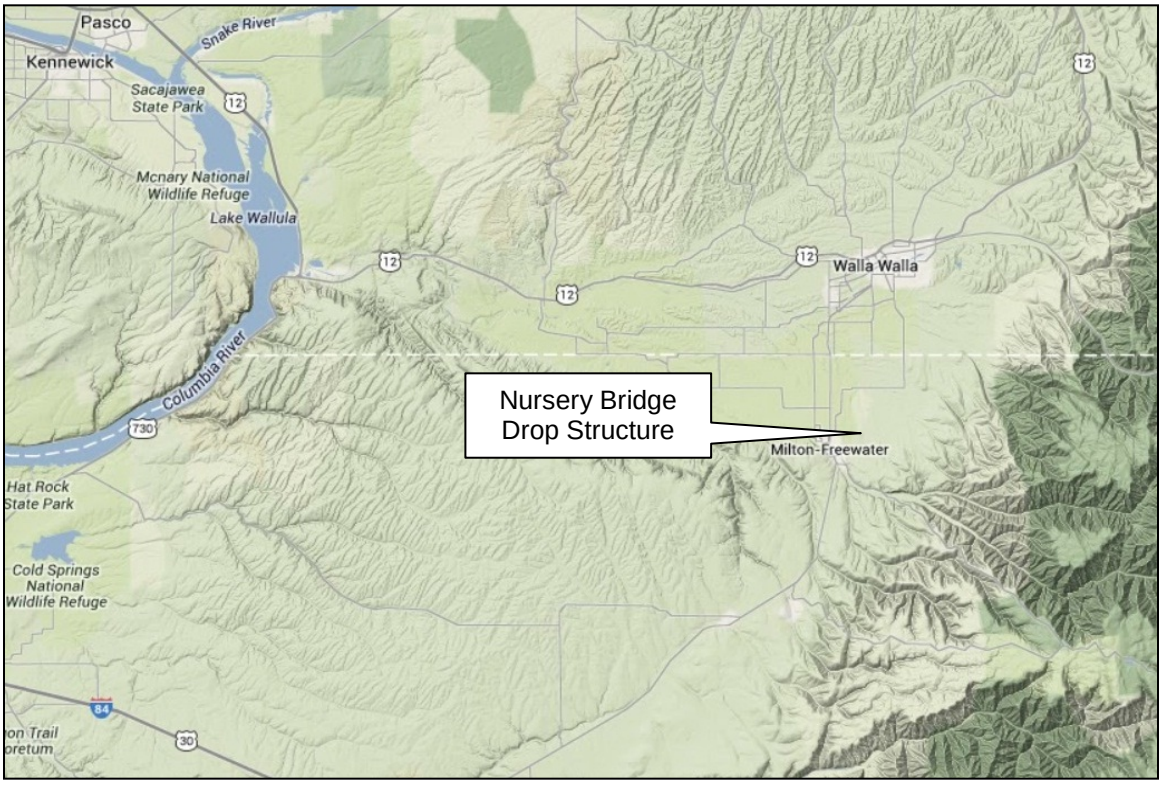

Figure 1. Location of the Nursery Bridge drop structure in Milton Freewater, Oregon.

1.1. Purpose and Need

The purpose of the proposed action is to restore original flood risk reduction capability of the Milton-Freewater Flood Control Project (MFFCP) by repairing damages to the Nursery Bridge drop structure caused by high flows that occurred between April 19 and 21, 2013. The repair work is being proposed pursuant to the Rehabilitation Program under Public Law (P.L.) 84-99. The Nursery Bridge structure is part of the MFFCP, which provides flood risk reduction benefits to the City of Milton-Freewater and surrounding residences and businesses. The Milton-Freewater Water Control District (MFWCD) is the local owner and operator of the MFFCP. The structure also provides erosion protection for the Eastside Road and a railroad bridge and includes a fish ladder that provides migration access to the upper Walla Walla River for salmonid species listed under the Endangered Species Act (ESA) (Figure 2).

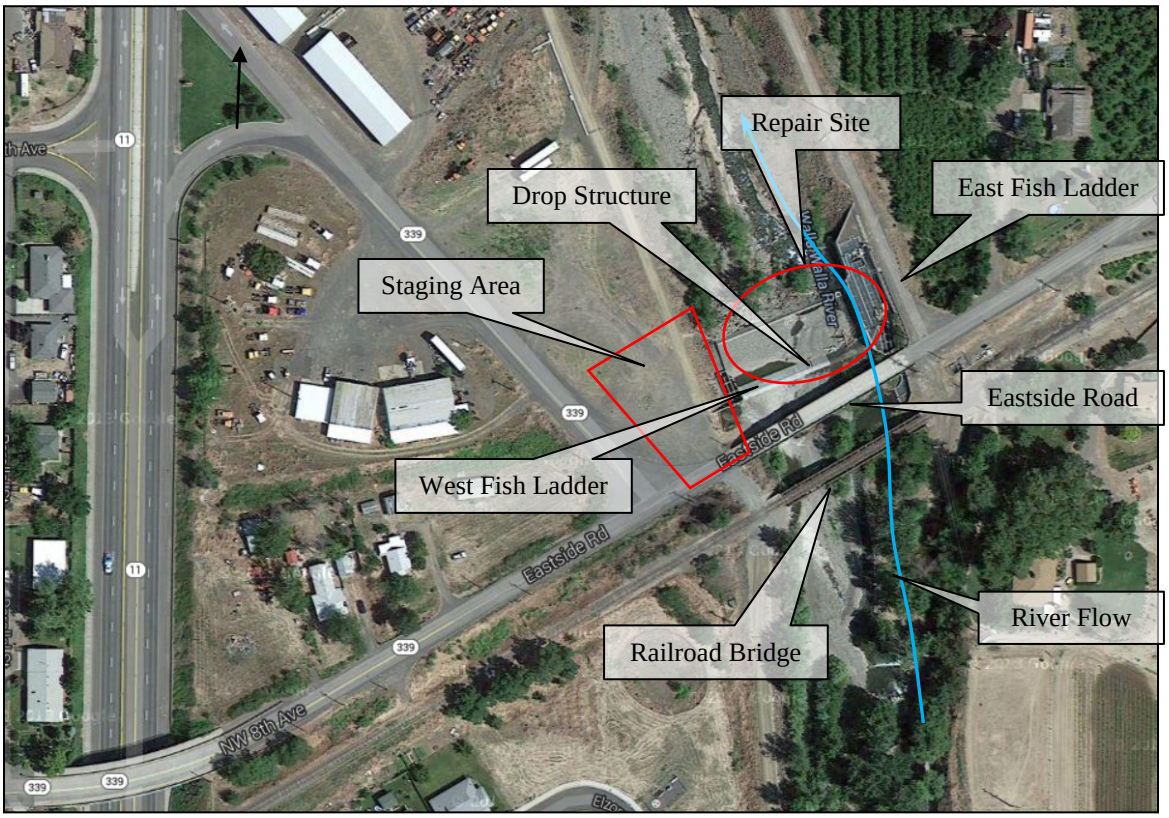

Figure 2. Aerial overview of the Nursery Bridge drop structure and staging area.

Damage to the drop structure includes displaced riprap immediately downstream of the end sill (Figure 3) and eroded concrete at the toe of the spillway (Figure 4). High flows displaced riprap exposing the end sill to a depth of approximately six feet. Flows along the toe of the spillway have exposed rebar and eroded portions of six of its eight sections. There is also damage to the 1:1 concrete slope. Without repair, the drop structure will likely continue to deteriorate and may eventually fail, leading to the loss of the drop structure, eastside bridge, railroad bridge, both fish ladders, and possibly the nearby levee system.

Figure 3. Picture showing the loss of riprap from the toe of the end sill.

Figure 4. Picture showing damage (exposed rebar) at the toe of the drop structure.

1.2. Background Information

The Nursery Bridge drop structure was first constructed in 1952 to arrest degradation that was occurring within the levee system of the Walla Walla River. In 1966 the Corps added a fish ladder for fish passage on the west shore of the drop structure. However, changes in river flows shifted flows from the west shore to the east shore; essentially leaving the fish ladder dry. In 2001, a new fish ladder was constructed on the east shore.

Under Public Law 84-99 authority was given the Corps to provide emergency response/disaster assistance; including rehabilitation of flood control works (FCW) threatened or destroyed by flood. To be eligible levees must be part of the Corps Rehabilitation and Inspection Program (RIP). This program provides for inspections of FCWs and the rehabilitation of damaged FCWs. The Nursery Bridge drop structure is eligible under this authority for emergency assistance from the Corps. On May 21, 2013 the flood control district requested assistance from Corps to repair the drop structure. This proposed project is in response to that request.

1.3. Proposed Action Area

The Nursery Bridge drop structure is located in rural Umatilla County, Oregon, on the Walla Walla River. The repair site is immediately downstream from the intersection of the Walla Walla River and the Eastside Road in Milton-Freewater, Oregon (Figure 2). The drop structure is part of the Milton-Freewater Levee system, which began in 1952 to protect sections of the town of Milton-Freewater. The area surrounding the project site is primarily agriculture with some residential areas to the southwest and industrial use to the northwest.

The Walla Walla River, adjacent to the drop structure, is constrained by the Milton-Freewater levee system. The floodplain is virtually non-existent downstream from the project site but is more functional upstream from the drop structure. The river is dominated by a braided system with an unstable channel that migrates within the levee system. The limited corridor of riparian habitat is important for fish and wildlife in the area and is dominated by cottonwood, willow, Russian olive, dogwood, water birch, and alder. While instream fish habitat is limited by low summer flows and high summer water temperatures, the upper Walla Walla River supports important populations of bull trout, Middle Columbia River steelhead and reintroduced hatchery raised Chinook salmon.

2. ALTERNATIVES

Two alternatives are evaluated in this EA; the No Action alternative and the Drop Structure Rehabilitation or the proposed action alternative. Each alternative includes both repair sites. The “no action” alternative does not satisfy the project’s purpose and need, but NEPA requires analysis of the no action alternative to set the baseline from which to compare other alternatives. “No action” does not mean there would be no environmental effects from this alternative.

Three additional alternatives were considered but dismissed because they were either not viable or are outside the authority of PL 84-99. These included: 1) the restoration of the drop structure to its pre-flood condition without any “resilience” incorporated, 2) the complete restoration of the degraded stream channel downstream from the drop structure, and 3) the improvement, or

betterment of the existing drop structure. The first of these was dismissed because it had already been attempted in 2010 and had sustained extensive damage during runoff events in 2013, prompting this proposed action. The second would include the installation of multiple grade control structures to restore nearly one mile of degraded stream below the drop structure. This alternative went well beyond the authority of PL 84-99. The third alternative would require improvements to the existing drop structure that were considered a betterment that also went beyond the authority of PL 84-99 by installing sheetpile walls and 7,000 square feet of articulated block matting. Consequently, only the No Action and Proposed Action Alternatives were analyzed further.

2.1. Alternative 1: No action

Under Alternative 1, the no action alternative, the Corps would not repair the drop structure, but would allow the structure to continue to function in its damaged state. No ground disturbing activities would take place and no alterations of the drop structure would occur. Periodic monitoring and inspections would take place and annual removal of sediments from the stilling basin would continue. Without repair, the drop structure would likely deteriorate and may eventually fail, leading to the loss of private property and public infrastructure.

2.2. Alternative 2: Proposed Action

The proposed action is divided into two sections; concrete repair at the toe of the spillway, and riprap or erosion protection of end sill. All work would be conducted during the summer in-water work window (July 1 – September 30) to minimize effects to sensitive resources.

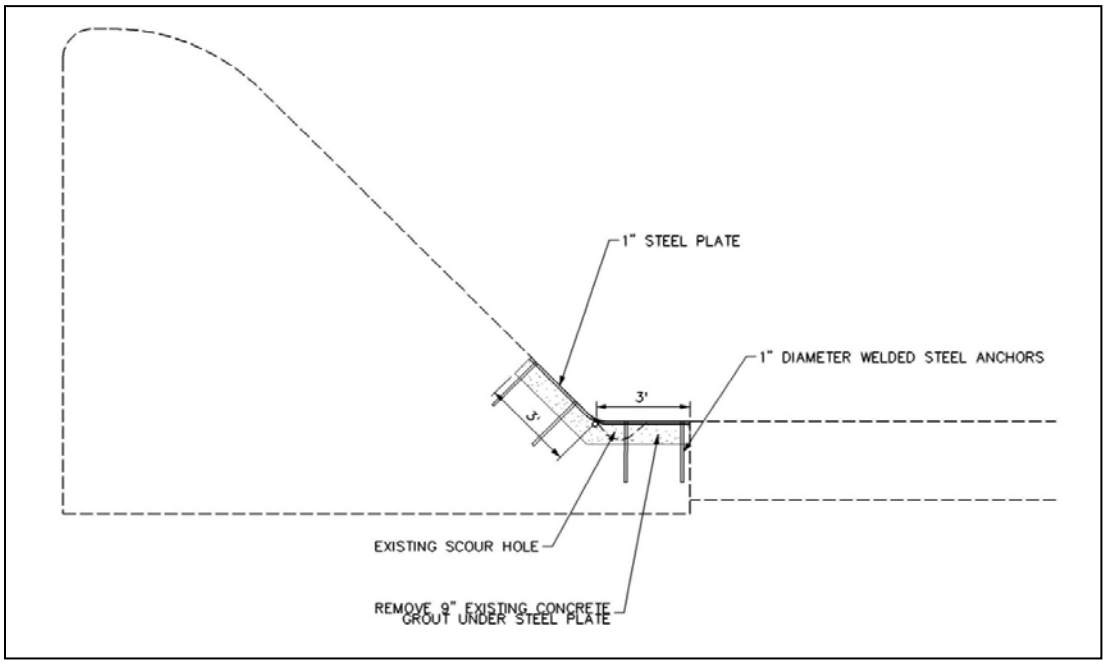

Figure 5. Cross section of the spillway showing proposed concrete repairs at the toe of the structure.

2.2.1. Concrete Repair

The existing concrete at the toe of the spillway has been damaged on six of its eight sections. Continued erosion is likely to occur if the spillway is not repaired. To protect the drop structure, grout would be used to fill the eroded areas of the spillway, while the base of the spillway would be armored with a steel plate to prevent the reoccurring erosion. The steel plate would be anchored to the bottom of the stilling basin using welded steel epoxy adhesive anchors and would protect approximately 3 feet of the base of the structure and 3 feet of the slope. The plate would be recessed flush with the concrete structure and grouted to provide a smooth transition to concreted surfaces (Figure 5).

2.2.2. Riprap Repair

Previous installations of riprap to protect the drop structure have failed. To prevent similar failures a more resilient gabion structure would be installed to stabilize the stream channel immediately downstream from the end sill of the stilling basin. The gabion structure would extend out from the end sill of the drop structure approximately 27 feet and would be constructed in the shape of an extended stilling basin. This structure would be covered with Shotcrete (a sprayed on concrete) to provide a smooth surface, prevent entrapment of fish, and to increase structure stability (Figures 6 and 7).

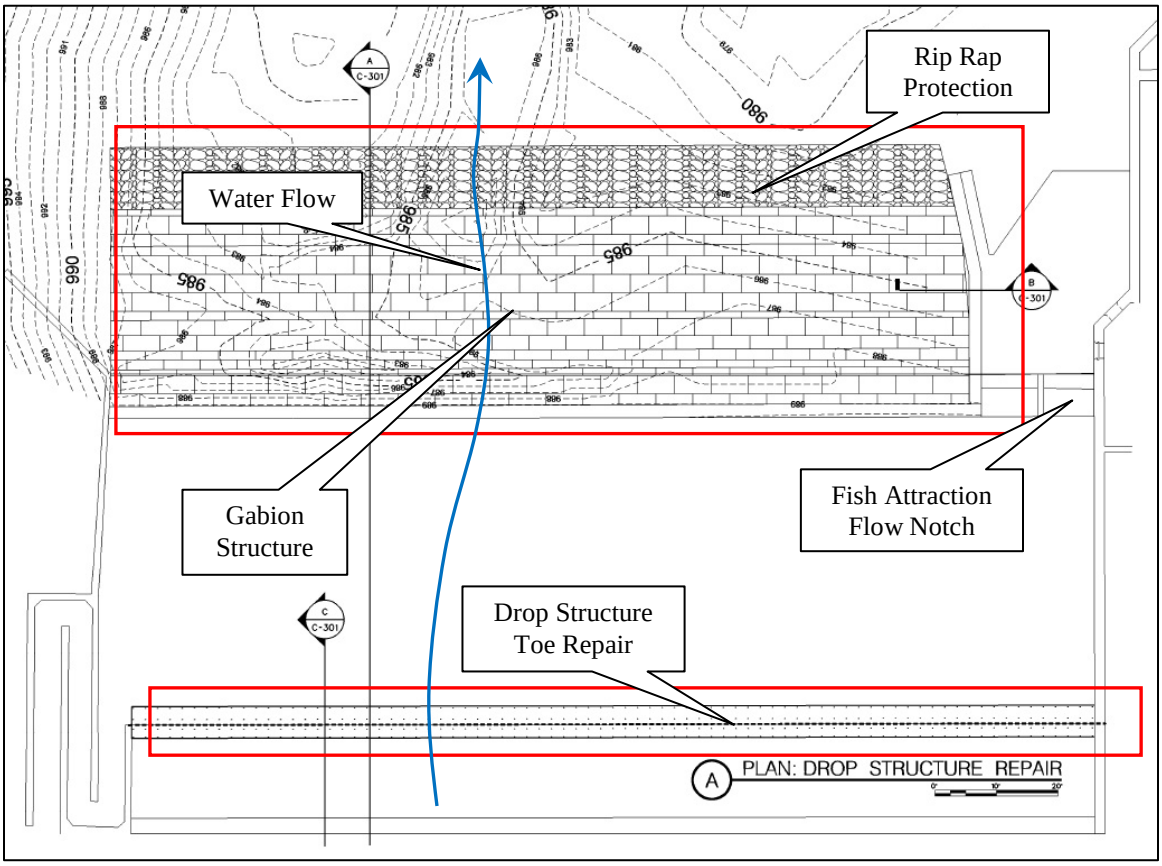

Figure 6. Top view of plans showing the spillway toe repair and installation of the gabion skirt.

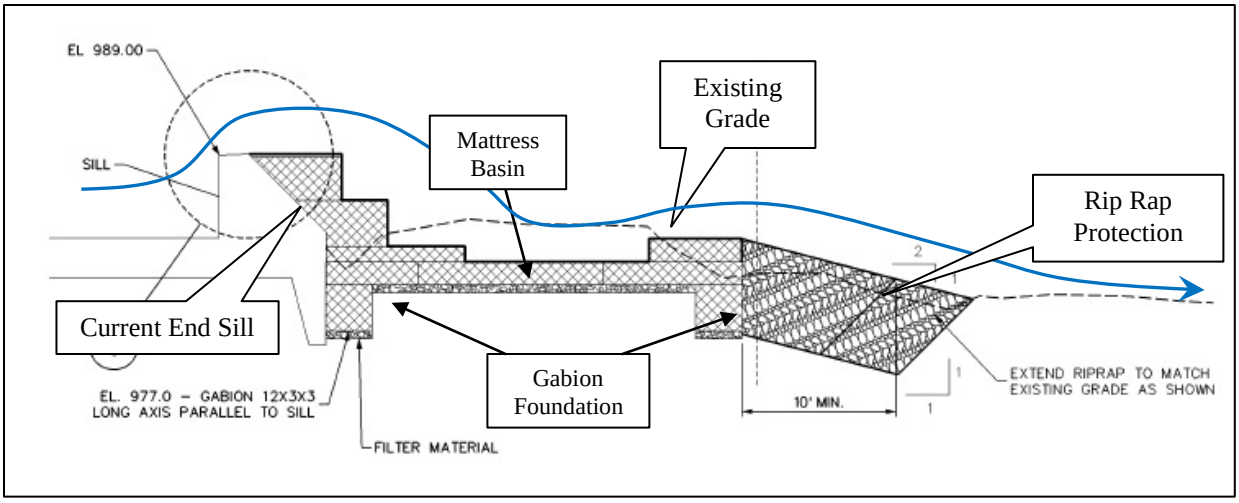

Figure 7. Cross section of the stilling basin showing the installation of the gabion skirt and riprap armoring.

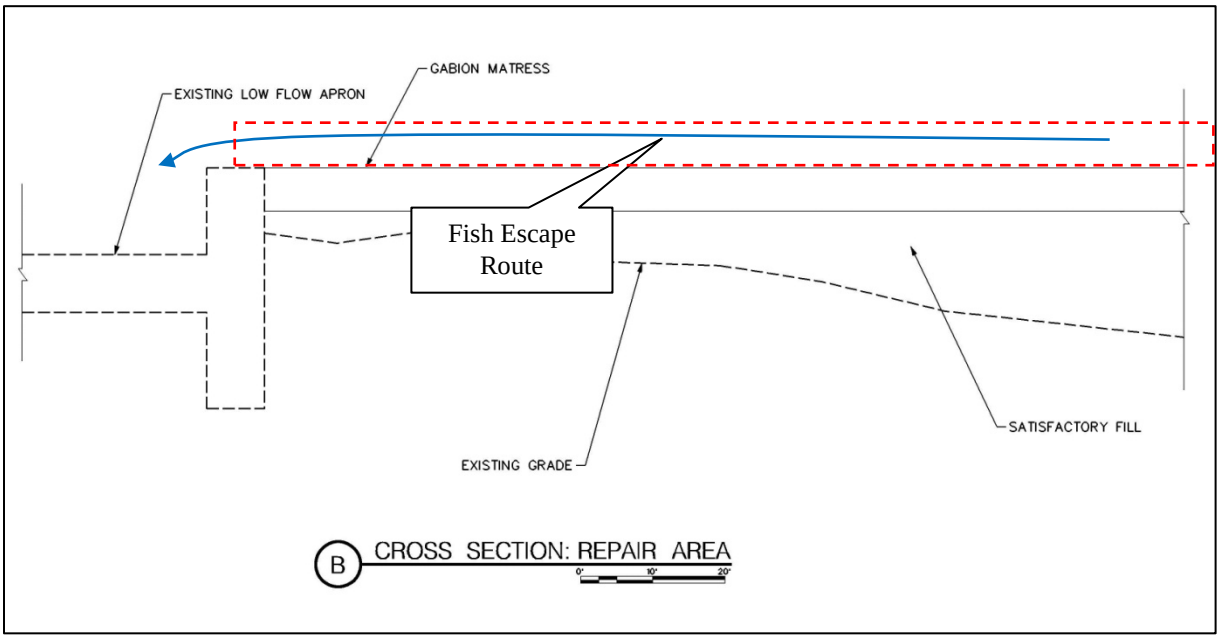

Figure 8. Cross section of the gabion skirt showing the relationship between the repair and the low flow fish passage slot.

The area below the stilling basin would be leveled and compacted for placement of the gabion baskets. Two rows of three foot by three foot gabion baskets would form the up- and down-stream foundation upon which the remaining gabion structure would be constructed. This would include a mattress of gabion baskets 1.5 feet thick placed on the foundation to form the basin of the new gabion structure, while additional layers of gabion baskets would be placed on the mattress to step up to the concrete stilling basin. A final layer of gabion baskets would be placed near the downstream end of the structure to form an end sill (Figure 7). The lower elevation of the gabion structure would be the same as the wall of the existing low flow channel on the right side of the

channel. This would allow fish to escape to the fish ladder as flows recede (Figure 8). Rip rap would be placed below the gabion structure to provide additional protection. Heavy equipment used during rehab may include excavators, cranes, trackhoes, skid steers, and dozers.

2.2.3. Water Diversion

Water is diverted from the project site each summer following high spring flows. A small push-up dam is typically used to divert this water through the east fish ladder away from the proposed action so that fish passage would not be interrupted. This diversion typically takes place each May or June and is accompanied by a fish salvage operation conducted by the Oregon Department of Fish and Wildlife (ODFW) and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). As a result, work for the proposed action would be conducted in the dry, while water flows are low and when all water is being diverted through the east fish ladder.

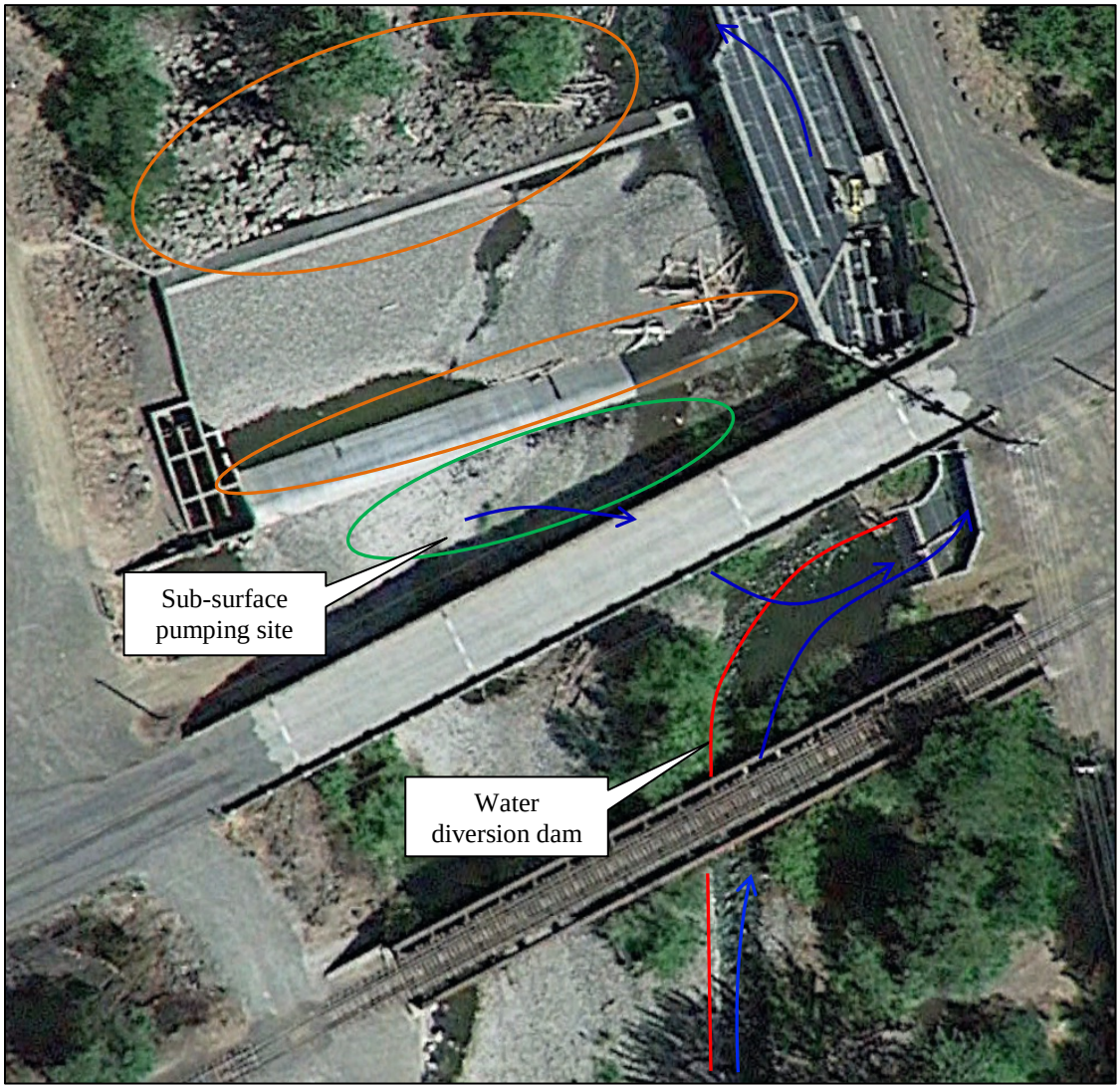

Figure 9. Aerial view of nursery bridge drop structure showing proposed diversion dams (red), pumping station (green), and work areas (orange) for the structure rehab.

Subsurface flows that find a way around the annual diversion dam are likely to enter the project site and may need to be diverted through pumping (Figure 9).

Additional fish salvage would be completed for a concurrent project being conducted by Anderson Perry and Associates (AP) under Biological Opinions issued from both the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) to assist in a levee repair project being conducted for the MFWCD during the same time period. Salvage for the levee repair project would occur in mid July as water is diverted into a temporary bypass channel to move water from the east levee, where work will be conducted, to the west levee. Two temporary bridges will be constructed to provide access to both work sites.

Limited water exclusion may be required for proposed action to protect the stream and the proposed work site on the northeast corner of the project. This exclusion should not require fish salvage. To ensure no fish are harmed a qualified biologist will be on site during this phase of the project.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Introduction

This section describes the existing affected environment (existing condition of resources) and evaluates potential environmental effects on those resources for each alternative. Although only relevant resource areas are specifically evaluated for impacts, the Corps did consider all resources in the proposed project area and made a determination as to which ones to evaluate (Table 1).

Table 1. Environmental Resources not evaluated further.

Environmental Component	Explanation
Aesthetics/Visual Quality	The proposed action would repair the drop structure to a its original condition and add an additional structure approximately 27 by 140 feet in area. The area is already highly disturbed and only visible upon close inspection.
Air Quality	The project area is in attainment for Oregon's ambient air quality standards. Air quality would be negligibly impacted by the action**.**
Climate Change	The Council on Environmental Quality (CEQ) in draft NEPA guidance for documenting effects of climate change directed agencies to conduct quantitative analysis of Greenhouse Gas (GHG) emissions for any project with estimated GHG emissions over 25,000 metric tons of annually. It is not anticipated that the total GHG emissions produced by the operation of excavation equipment would exceed the 25,000 metric ton GHG emission threshold.
Environmental Justice	The proposed action would have no negative impacts (e.g. economically) on any minority/ethnic group or social class.
Noise	The project area is located at the edge of Milton-Freewater in rural Umatilla county and will occur in the confines of noise blocking levees. The nearest homes are 100 yards from the site.
Recreation	No noteworthy recreation activities are pursued at the site.
Socioeconomics	Under the Proposed Alternative there would be no negative impacts to socioeconomics in the project area.

The following resource areas were evaluated: Water Quality, Aquatic Resources, Vegetation, Wildlife, Threatened and Endangered Species, Cultural Resources, and Cumulative Impacts. The Corps determined it was not necessary to conduct addition evaluation of Aesthetics/Visual Quality, Air Quality, Climate, Environmental Justice, Noise, Recreation and Socioeconomics as implementation of the proposed action would not affect these resources.

3.2. Water Quality

3.2.1. Affected Environment

The Walla Walla River and its tributaries drain about 480 square miles in Oregon. Water availability in the Walla Walla River basin is dependent on high-elevation snowpack in the Blue Mountains. Runoff occurs anytime during the precipitation period of October through May, with peaks occurring in April. Flows diminish rapidly after May, reaching their lowest levels in August and September. The Walla Walla River near Milton-Freewater is a cold water system characterized by braided channels that migrate within the confines of the levee system. Habitat degradation in the project area from urban and agricultural development, grazing, logging, recreational activities, and flood control structures have reduced water quality and quantity. Agricultural diversions have severely impacted streamflows in the Walla Walla River since the 1880s (Neilson, 1950).

Approximately 60 percent of current water usage in the basin is for crop irrigation (U.S. Corps of Engineers, 1997). Prior to 2000, these diversions regularly dewatered sections of the Walla Walla River. In 2000, irrigation districts in Oregon maintained a minimum instream flow of 13 cubic feet per second (cfs) at Nursery Bridge in Milton-Freewater, Oregon, based on a settlement agreement with USFWS. This instream flow was increased to 18 cfs in 2001, and then to 25 cfs in 2002. In 2003 and 2004, the minimum flow increased to 27 cfs through June 30th, and then decreased to 25 cfs for the remainder of the year. This additional water had an immediate effect by reducing the historic dewatered area below the Nursery Bridge structure. In 2001, the Walla Walla River had continuous overland flow from Nursery Bridge to the state line for the first time in decades.

Reduced streamflows created by water withdrawals adversely affect water quality within the basin by reducing streamflows, increasing water temperatures, reducing dissolved oxygen, and increasing pH. The Walla Walla River is currently listed as impaired by the Oregon Department of Environmental Quality for low dissolved oxygen. However, water temperature likely represents the most critical physiological barrier to salmonids, particularly for passage and rearing (Mendel et al., 2000). Lethal water temperatures for salmonids range from 75 to 84 ^{o}F (Bjornn and Reiser, 1991). Mean water temperatures in the Walla Walla River range from 35 to 83 ^{o}F, while water discharge ranges from 25 cfs in late summer to 1,600 cfs (Mendel et al., 2007).

3.2.2. Environmental Consequences

3.2.2.1. No Action Alternative

Under the No Action Alternative there would be no effects on water quality in the project area. The continued operation of the damaged drop structure would have no short-term effects to water quality in the project area. However, long-term effects could include the undermining and failure of the drop structure and a significant release of sediments contained upstream of the drop structure.

3.2.2.2. Proposed Alternative

Under the Proposed Alternative the effects to water quality in the project area would be less than significant. Because water would be diverted from the project site prior to the proposed action effects to water quality would be minimized. Effects, during construction, would likely include increased sediment transport and increased turbidity at the repair site and for some distance downstream. These effects would be localized and short term. To minimize sediment transport and increased turbidity, work would be conducted in the dry, while water flows are low and when all water is being diverted through the east fish ladder. Increased sediment may occur during summer storm events that can occur during the late summer and early fall. These events are rare and would be captured using secondary diversion structures such as sand bags and eco-blocks.

3.3. Aquatic Resources

3.3.1. Affected Environment

The Walla Walla River is home to several anadromous and resident fish species. Anadromous species include steelhead, Chinook salmon, western brook lamprey, and bull trout. Resident fish of the upper watershed include redband trout, mountain whitefish, and sculpin, while resident fish of the lower Walla Walla River include northern pikeminnow, chiselmouth, redside shiner, largescale sucker, and speckled dace. Non-native fish in the lower drainage include carp, channel catfish, smallmouth bass, and bluegill. Habitat at the Nursery Bridge drop structure is limiting, and few fish are found at the project site outside migration seasons. Species that may occur at the site during the year include steelhead, Chinook salmon, sculpin, whitefish, and bull trout. Potential effects to species listed under the Endangered Species Act (ESA), and efforts to minimize such potential effects, are discussed in section 3.6.

3.3.2. Environmental Consequences

3.3.2.1. No Action Alternative

Under the No Action Alternative there would be no effects on aquatic resources in the project area. The continued operation of the damaged drop structure could possibly block fish migration in the near future, while long-term effects could include the undermining and failure of the drop structure and a significant release of sediments contained upstream of the drop structure that would impact aquatic resources for some unknown distance downstream, and may block fish passage for some unknown period of time.

3.3.2.2. Proposed Alternative

Under the Proposed Alternative there would be minor, less than significant effects to aquatic resources in the project area. Effects to aquatic resources may include increased sediment and turbidity, and the conversion of cobble/boulder habitat to gabion/concrete structure. Temporary increases in suspended sediment concentrations have highly variable effects on fish, ranging from behavioral effects including alarm reactions and avoidance responses to sub-lethal effects including reduced feeding and physiological stress. Elevated turbidity can also lead to decreases in macro-invertebrate numbers in fresh water streams. To minimize the short-term effects of construction

activities, work would be conducted in the dry, while water flows are low and when all water is being diverted through the east fish ladder (July 15 – September 30). Increased sediment may still occur during storm events that can occur during the late summer and early fall. These events are rare and would be captured using secondary diversion structures such as sand bags and eco-blocks.

An estimated 3,500 square feet of marginal boulder/cobble habitat would be converted to gabion/concrete structures. The new structure would provide limited habitat for macro-invertebrate populations, and would only provide migration habitat for fish populations. However, the current habitat is marginal at best and is dry for nearly six months of the year and has little value as macro-invertebrate habitat.

3.4. Wildlife

3.4.1. Affected Environment

The diverse habitat of the Walla Walla River Basin is home to nearly 300 species of wildlife, including nearly 70 mammal species, over 200 bird species, and 25 species of reptile or amphibian. Common mammals that may occur in the project area include mule and whitetail deer, striped skunk, red fox, beaver, several species of mice, and cottontail rabbit. Birds in the area may include waterfowl species, upland game birds, song and migratory birds, and raptors.

Wildlife habitat at the project site is limited to scattered patches of shrubs and small trees with some areas of bunch grasses. Trees in the area include cottonwood, alder, and birch, while willow species are the dominant shrub species within and bordering the floodplain. The river channel is bordered by levees that are armored by rip rap, while the project footprint is almost entirely rock and cobble (Figure 2). Detailed information on non-game wildlife population numbers and locations is scarce, although in-depth data is available for most game species. Sensitive riparian species in the area may include the northern leopard frog, bald eagle, great blue heron, and yellow-billed cuckoo (Marshall et al., 1996).

3.4.2. Environmental Consequences

3.4.2.1. No Action Alternative

Under the No Action Alternative there would be no effect on wildlife in the project area. The continued operation of the damaged drop structure would have no short-term effects to wildlife in the project area. However, long-term effects could include the undermining and failure of the drop structure and a significant release of sediments and the potential loss of riparian vegetation both up- and downstream from the drop structure.

3.4.2.2. Proposed Alternative

Under the Proposed Alternative there would be minor, less than significant effects to wildlife in the project area. The concrete repair of the existing stilling basin would have no effect to wildlife species at the project site. However, the installation of a gabion/Shotcrete structure to stabilize the end sill of the existing drop structure would remove approximately 1,400 square feet of shrub habitat within the floodplain. As a result, there may be some loss of small mammal and migratory

bird nesting habitat. However, most of the mammal species using this habitat would simply relocate to nearby habitats. In addition, construction would be conducted outside nesting seasons for migratory birds and should not impact these species. The loss of shrub habitat is minor relative to existing shrub habitat in the area. The remaining habitat in the construction footprint is boulder/cobble substrate with very little wildlife value.

3.5. Vegetation

3.5.1. Affected Environment

The riparian plant community near the project site is dominated by cottonwood, alder, birch and willow, while various shrubs occur throughout the river basin and floodplain. Cultivation, logging, domestic livestock grazing, residential and commercial development, and flood control activities have affected riparian vegetation throughout much of the mid-lower elevation reaches of the subbasin. Vegetation within the project footprint is limited to small clusters of shrubs and trees that are protecting small islands of soil from the current down-cutting.

3.5.2. Environmental Consequences

3.5.2.1. No Action Alternative

Under the No Action Alternative there would be minor, less than significant effects on vegetation in the project area. The continued operation of the damaged drop structure would have minor effects on the riparian vegetation immediately below the drop structure as additional erosion undermines individual plants and washes them downstream. Long-term effects could include the undermining and failure of the drop structure and a significant release of sediments. These sediments currently hold significant riparian habitats in place above the drop structure and their loss would undermine these plants and likely damage or destroy those plants below the drop structure.

3.5.2.2. Proposed Alternative

Under the Proposed Alternative there would be minor, less than significant effects to vegetation in the project area. Grubbing and clearing in preparation for gabion installations would remove approximately 1,400 square feet of shrub and small tree habitat downstream of the existing drop structure. However, the loss of vegetation would be minor relative to currently existing habitats. Approximately 9,000 square feet of riparian vegetation is immediately adjacent to the end sill of the stilling basin, while nearly 20 acres of quality riparian habitat exists immediately upstream of the Nursery Bridge drop structure.

3.6. Threatened and Endangered Species

3.6.1. Affected Environment

On February 24, 2014 the Corps reviewed the current list of threatened and endangered species that may exist in the project area under jurisdiction of the National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (USFWS) for Umatilla County, Oregon (Table 2).

Table 2. ESA listed species that may occur in the area potentially affected by the proposed action.

Species	Scientific Name	Status	Critical Habitat
NMFS			
Middle Columbia Steelhead	*Oncorhynchus mykiss*	Threatened	Yes
USFWS			
Bull Trout	*Salvelinus confluentus*	Threatened	Yes
Gray Wolf	*Canis lupis*	Delisted	N/A
Washington Ground Squirrel	*Brachylagus idahoensis*	Candidate	N/A

Steelhead numbers have been monitored annually at the Nursery Bridge drop structure since 1993 (Figure 10). On average, 555 steelhead migrate through the fish trap annually. Migration for these fish extends from January through June with peaks in migration occurring in April and May. Most spawning occurs in March through May and smolt out-migration takes place during the following winter and spring.

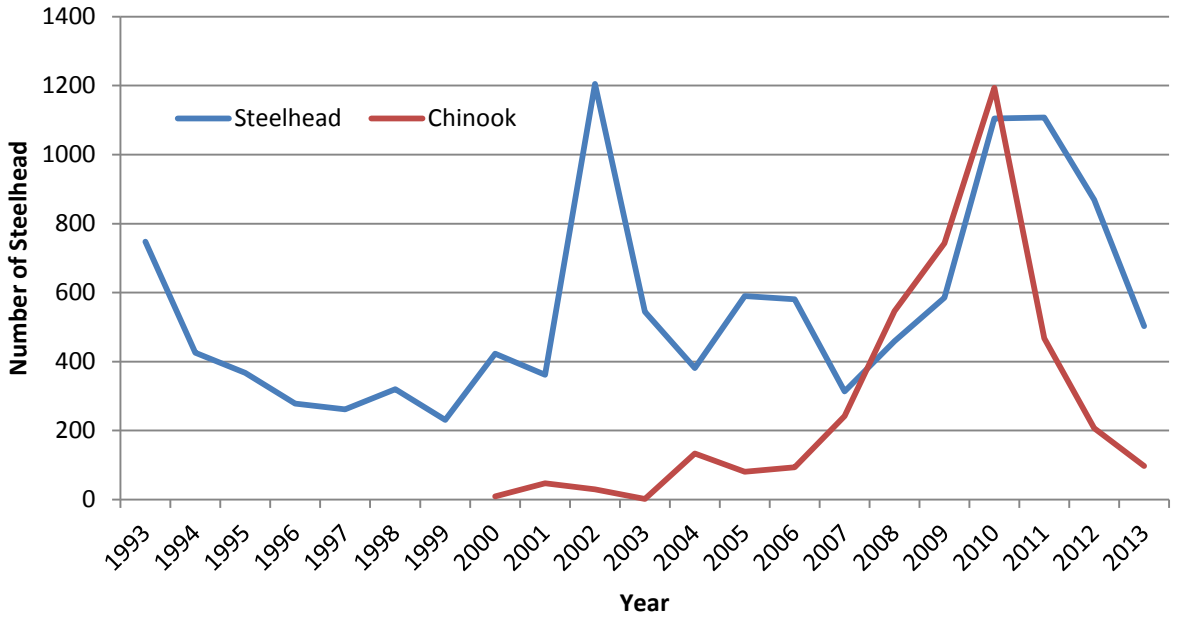

Figure 10. Number of steelhead and Chinook salmon recorded at Nursery Bridge from 1993 through 2013 (Mahoney et al. 2011).

Spring Chinook were indigenous to the basin, but were extirpated by the 1920's. The CTUIR reintroduced spring Chinook salmon to the basin in 2000 and 2001. Adults began to return to the Nursery Bridge fish ladder in 2004 and numbers of returning Chinook salmon climbed dramatically until 2010, when they begin to decline again (Figure 8). Adult spring Chinook migration season peaks in May and June.

Bull trout are found in the Upper Walla Walla River and Mill Creek. Adult bull trout move downstream from headwater tributaries after spawning in the fall, over-winter mostly in the mainstem, and return to the headwaters as temperatures warm in the spring. Based on spawning surveys, bull trout numbers are increasing with a population of 4,000 estimated in the entire Walla

Walla River system. Peak upstream migration times for bull trout at the Nursery Bridge drop structure occur in May and June, while peak downstream movements are spread out from October through March.

The gray wolf was once common throughout much of Washington and Oregon. Records exist of wolves in the vicinity of the Walla Walla Valley. Currently, wolf packs and individuals have been confirmed in southeast Washington and northeast Oregon. On May 5, 2011, the USFWS delisted the Northern Rocky Mountains Distinct Population Segment (DPS) of gray. Consequently, gray wolves are no longer listed as threatened under the ESA in the project area. In addition, habitat conditions, the high level of human activity, and a non-existent prey base in the area that is part of this proposed action make the habitat unsuitable for wolves.

Washington ground squirrels are listed as a candidate for listing under the ESA within the project area. This species spends much of its time underground. Adults emerge from hibernation between January and early March, depending on elevation and microhabitat conditions, with males emerging before females. Their active time is spent in reproduction and fattening for their six-month or longer dormancy. Washington ground squirrels inhabit dry grasslands or patches of grass and other herbaceous plants within low open sagebrush. They prefer deep, loose soil, which they need for digging burrows. The greater part of its current range is uncultivated steppe in Walla Walla, Franklin, Adams, Lincoln, and Grant Counties in Washington. There are no know Washington ground squirrels in the project area.

3.6.2. Environmental Consequences

3.6.2.1. No Action Alternative

Under the No Action Alternative there could be minor effects to Threatened and Endangered species in the project area. The continued operation of the damaged drop structure would have minor effects on the listed fish species in the project area. Short-term effects would include additional erosion at the base of the end sill, making fish migration increasingly difficult. Long-term effects could include the undermining and failure of the drop structure and a significant release of sediments and the potential loss of riparian vegetation both up- and downstream from the drop structure, and may block fish passage for an unknown period of time.

3.6.2.2. Proposed Alternative

Under the Proposed Alternative the Corps has determined that the proposed action may affect, but is not likely to adversely affect listed fish species in the project area. The Corps completed a Biological Assessment (BA) and submitted it to the USFWS and NMFS (collectively the "Services") on March 17, 2014. The primary effect to listed species would come from the repair of the concrete spillway, installation of gabion structures, placement of shotcrete, and installation of riprap. Effects of these actions would be minimized by diverting water from the work site to the fish ladder during construction to reduce sediment and maintain fish passage. Construction is expected to require 3 to 4 weeks. All work would be completed during the in-water work window when few, if any, listed salmonids would be in the project area. Long-term effects include the conversion of marginal cobble/boulder habitat to a homogonous gabion/Shotcrete structure. While this structure does not provide quality fish habitat, it does maintain fish passage and eliminates

current fish salvage concerns at the base of the current spillway. For a more detailed analysis of the effects of the proposed action on threatened and endangered species see the BA (Appendix A).

3.7. Historic/Cultural Resources

3.7.1. Affected Environment

The area of potential effect (APE) for the proposed federal undertaking is the Nursery Street drop structure and the adjacent levees. The proposed rehabilitation project would involve restoring the drop structure to its pre-flood condition (w/resilience) in two locations. The drop structure is over 50 years of age, but all of the repairs are taking place within elements replaced within the last 50 years. No original elements of the structure have the potential to be affected by the proposed repairs. Furthermore, sediments immediately up and downstream of the drop structure, that may be affected, consist of recently deposited gravels or reworked riprap. So again, reworking this material does not have the potential to affect historic/cultural resources. All of the levees are accessible by existing roads, including the maintained access roads located on the levees themselves. No new roads would be constructed for this project. Equipment staging areas would be located at existing borrow areas and on the roads that form the tops of the levees.

3.7.2. Environmental Consequences

3.7.2.1. No Action Alternative

Under the No Action Alternative there may be adverse effects on Historic/Cultural Resources in the project area. The Nursery Bridge drop structure is over 50 years old, and may be eligible for protection under current laws regarding historic structures. Under the No Action Alternative the Corps would not repair the Nursery Bridge drop structure, but would allow the structure to continue to function in its damaged state. No ground disturbing activities would take place and no alterations of the structure would occur. Short-term effects would include additional erosion at the base of the spillway and below the end sill, while long-term effects could include the undermining and failure of the drop structure.

3.7.2.2. Proposed Alternative

Under the Proposed Alternative there is no potential to affect Historic/Cultural Resources in the project area. Because all of the proposed repairs are occurring within recent and re-deposited fill, and because all of the repairs are to non-historic elements of the structure, the project has no potential to affect historic/cultural resources.

3.8. Soils

3.8.1. Affected Environment

An extensive deposit of silty clay known as the Palouse Formation covers much of the uplands. Recent alluvium, consisting of clay, silt, sand, and gravel deposited by present-day rivers and streams is common in river valleys and flood plains (U.S. Department of Agriculture, 1988).

A deep deposit of loess (windblown silt and fine sand) covers much of the subbasin that is used for agricultural purposes. Loess is highly erodible, yielding sediment, particularly in the middle and lower reaches of the main stem Walla Walla River (U.S. Army Corps of Engineers, 1997).

Specific soils near the project site include Freewater very cobbly loam, Freewater-urban land complex, Oliphant silt loam, riverwash, and less than 4 percent Yakima silt loam (Figure 11). Soils in the project footprint are 100 percent riverwash.

Umatilla County Area, Oregon (OR667)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
29A	Freewater very cobbly loam, 0 to 3 percent slopes	59.0	44.9%
30A	Freewater-Urban land complex, 0 to 3 percent slopes	37.2	28.3%
61A	Oliphant silt loam 0 to 3 percent slopes	14.9	11.4%
84	Riverwash	15.9	12.1%
128A	Yakima silt loam, 0 to 3 percent slopes	4.5	3.4%
Totals for Area of Interest		131.5	100.0%

Figure 11. Map of the soils in the project area.

3.8.2. Environmental Consequences

3.8.2.1. No Action Alternative

Under the No Action Alternative there may be significant negative impacts to soils in the project area. The continued operation of the damaged drop structure would have minor effects on the soils

immediately below the drop structure as additional water flows continue to erode soils at the site. Long-term effects could include the undermining and failure of the drop structure and a significant release of sediments and soils both up- and downstream from the drop structure. Almost all of these soils would be in channel riverwash, or soil material transported and deposited by the river.

3.8.2.2. Proposed Alternative

Under the Proposed Alternative there would be minor, less than significant short-term effects on soils in the project area. Long-term effects would be positive. Excavation of the site to prepare for the installation of a gabion/Shotcrete structure would cause minor disturbances to an already disturbed site. Approximately 3,500 square feet of riverbed would need to be leveled to prepare for the placement of gabion baskets, while an additional 2,000 square feet of area would be covered with protective riprap. Cobble from the project site and from the stilling basin cleanout would be used to fill the gabion baskets. The new gabion/Shotcrete structure would allow high water flows to drop an additional 7 foot from the current stilling basin into the new structure before being released into the stream channel. The new structure would reduce erosion and minimize soil loss.

3.9. Cumulative Impacts

The National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations implementing NEPA require federal agencies to consider the cumulative impacts of their actions. Cumulative effects are defined as, "the impact on the environment which results from the incremental impact of an action when added to other past, present and reasonable foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR § 1508.7). Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.

Because other resources are not likely to be affected at the study site, cumulative effects analyses for the proposed action will focus on Aquatic Resources and Threatened and Endangered Species. The area of analysis (given the proposed work and potential direct/indirect effects) includes the Nursery Bridge Drop Structure, its associated levee system, and the Walla Walla River and streambed for a distance of 500 feet up-and down-stream from the drop structure.

Historically the Walla Walla River was a free flowing river that experienced seasonal fluctuations in flow. High spring runoffs that were driven by winter snow accumulation, followed by relatively low flows in the summer and fall. Alterations of the hydrology of the Walla Walla River Basin began in the late 1800s as water withdrawals to support agricultural production and community development commenced (Nielson 1950). Water within the basin is now considered to be over allocated and reductions in stream flow have adversely impacted aquatic resources. These impacts include dewatering sections of the Walla Walla River, disrupted sediment transport, and elevated summer water temperatures (Mendel et al. 2007). The Walla Walla River is currently listed as impaired by the Oregon Department of Environmental Quality for low dissolved oxygen. However, water temperature likely represents the most critical physiological barrier to salmonids, particularly for passage and rearing (Mendel et al., 2000).

Spring Chinook salmon, summer steelhead, and bull trout were historically abundant in the Walla Walla River. Spring Chinook annual returns were reduced dramatically following the construction

of Nine Mile Dam on the Walla Walla River in 1905 (Nielsen 1950). The last significant spring Chinook salmon run was in 1925, and by the 1950s the run was extirpated. Summer steelhead and bull trout still survive in the drainage, but numbers are well below historical levels (NMFS 2009, USFWS 2002). Factors that led to these reductions continue to exert substantial influence on anadromous fish abundance and production. These factors include: habitat loss, grazing, irrigation diversions, reduced stream flows, impaired passage, embedded stream substrates, degraded water quality, and altered channel morphology (NMFS 2005). Despite efforts to increase numbers of listed fish they remain low. During the 2013 migration season only 503 adult steelhead were counted at the Nursery Bridge fish ladders.

Recent efforts to restore these fish populations include summer instream flows and the installation of grade control structures to provide access to fish passage facilities. In 2000, irrigation districts in Oregon maintained an instream flow of 13 cubic feet per second (cfs) at Nursery Bridge. This instream flow was increased to 18 cfs in 2001, and then to 25 cfs in 2002. In 2003 and 2004, the minimum flow increased to 27 cfs through June 30th, and then decreased to 25 cfs for the remainder of the year. This additional water had an immediate effect by considerably reducing the historic dewatered area below the Nursery Bridge structure. These summer instream flows are expected to continue in the future.

The Milton-Freewater levee system was constructed from 1945 to 1952 to protect the town of Milton-Freewater from flood risk. As part of the levee system, the Nursery Bridge drop structure was constructed in 1952. In 1966 the Corps added a fish ladder for fish passage on the west shore of the drop structure. However, changes in river flows shifted from the west shore to the east shore; essentially leaving the fish ladder dry. In 2001, a new fish ladder was constructed on the east shore. In 2010 the drop structure sustained damage from flood flows to the concrete face and the protective riprap below the end sill. The dam was refaced and the riprap replaced. Flood flows during April 2013 again damaged the toe of the drop structure and displaced the riprap from the end sill. Future projects that may impact the action area include: a levee rehabilitation project conducted by the MFWCD to repair 3,000 feet of the toe of the east levee beginning just below the east shore fish ladder; a hatchery construction project proposed by the CTUIR for spring Chinook salmon near Milton-Freewater, Oregon; and the installation of grade control structures immediately below the east shore fish ladder entrance to improve access for anadromous salmonids in the system. Future grade control alterations will likely be required to prevent additional degradation to the stream channel.

Potential effects on aquatic resources (including T&E species) associated with the proposed action are not expected to result in significant impacts to the human environment, even when considered/added to other past, present and reasonable foreseeable future actions.

4. COMPLIANCE WITH APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

4.1. National Environmental Policy Act

This environmental assessment was prepared pursuant to regulations implementing the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.). NEPA provides a commitment that

Federal agencies will consider the environmental effects of their proposed actions and involve the public in such decision making. Completion of this environmental assessment and signing of a Finding of No Significant Impact (FONSI), if applicable, fulfills the requirements of NEPA.

4.2. Endangered Species Act

The Endangered Species Act (ESA) established a national program for the conservation of threatened and endangered fish, wildlife and plants and the habitat upon which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with the Services, as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their critical habitats.

The Corps has determined that this action, as proposed, may affect, but is not likely to adversely affect listed species or their designated critical habitats (Appendix A: Biological Assessment for the Milton-Freewater Nursery Bridge Drop Structure Rehabilitation – Dated March 14, 2014). Informal consultation was initiated on March 17, 2014 when the Corps issued its BA to the Services. On April 11, 2014 the Corps received a Biological Opinion (BO) from the NMFS finding that the proposed action is not likely to jeopardize the continued existence of ESA listed Middle Columbia River steelhead, or result in the destruction or adverse modification of their designated critical habitats (Appendix B: NMFS Endangered Species Act Section 7(a)(2) Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation, Repair of the Nursery Bridge Drop Structure, Milton-Freewater, Umatilla County, Oregon. NMFS Consultation Number: NWR-2014-594). On May 30, 2014 the Corps received a similar BO from the USFWS (Appendix C: Biological Opinion for the Milton-Freewater Nursery Bridge Drop Structure Rehabilitation Project, Umatilla County, Oregon – Formal Consultation (reference 01EOFW00-2014-F-0156).

Fish salvage would be conducted by the ODFW, CTUIR, and AP, as described in Section 2.2.3 above (Water Diversion). This water diversion, and fish salvage, would occur at least one month prior to project implementation. Fish passage data reveals a dramatic drop in fish numbers in early summer as water discharge drops and water temperatures rise. Consequently, the Corps believes additional fish salvage, after construction begins, would not be necessary. Any additional fish salvage must be conducted by a qualified biologist with experience in salvage of ESA listed fish, and salvage must be occur when water temperatures are lowest (i.e. early morning).

In addition, a simple construction plan (Plan) which coordinates the multiple projects at the site must be completed. The Plan will delineate the location of fish bypass channels, equipment access routes, staging areas, and temporary bridges. The plan will also determine if the location of the fish bypass channel will need to be shifted at any time during the in-water work period, and if so, how that work will be coordinated to minimize impacts to fish. This plan must be completed and submitted to the USFWS before initiation of the drop structure repairs. Meetings are scheduled with the project leaders from concurrent projects at Nursery Bridge to coordinate efforts so that construction would proceed in an organized manner. Planning information will be provided to the services as soon as it is available. The Plan, when finalized, will be incorporated into the BA as an attachment and provided to the Services.

4.3. National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 as amended directs federal agencies to assume responsibility for all cultural resources under their jurisdiction. Section 106 of NHPA requires agencies to consider the potential effect of their actions on properties that are listed, or are eligible for listing, on the National Register of Historic Places (NRHP). The NHPA implementing regulations, 36 Code of Federal Regulations (CFR) Part 800, requires that the federal agency consult with the State Historic Preservation Officer (SHPO), Tribes and interested parties to ensure that all historic properties are adequately identified, evaluated and considered in planning for proposed undertakings.

Under the Proposed Alternative there is no potential to affect Historic/Cultural Resources in the project area. Because all of the proposed repairs are occurring within recent and re-deposited fill, and because all of the repairs are to non-historic elements of the structure, the project has no potential to affect historic/cultural resources.

4.4. Clean Water Act

The Clean Water Act (CWA) of 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Section 401 of the federal Clean Water Act requires that any federal activity that may result in a discharge to waters of the United States must first receive a water quality certification from the state in which the activity will occur. Section 404 of the Clean Water Act established a program to regulate the discharge of dredged or fill material into waters of the United States.

The project meets the requirements of Nationwide Permit 3, which reads, in part, “The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized.” Nationwide Permit 3 is water quality certified by the state of Oregon subject to all applicable NWP general conditions. These include visual turbidity monitoring, stormwater discharge pollution prevention, and protection of natural resources.

5. COORDINATION, CONSULTATION, AND PUBLIC INVOLVEMENT

5.1 Agency Consultation and Coordination

This EA is being distributed for public and agency review and comment and is also available through the Walla Walla District Corps of Engineers website at www.nww.usace.army.mil. The primary distribution list is found in table 3.

Table 3. List of individuals or agencies for distribution of this EA.

Individual	Organization
John Wells	Anderson Perry & Associates
John Zerba	Hudson Bay District Improvement Company
Linda Hall	City of Milton-Freewater, Oregon
Larry Givens	Umatilla County, Oregon
Vern Rodighiero	Milton-Freewater Water Control District
Bill Duke	Oregon Department of Fish and Wildlife
Duane Smith	Oregon Department of Environmental Quality
Susan Haylock	Oregon State Historic Preservation Office
Gary James	Confederated Tribes of the Umatilla Indian Reservation
Don Rose	Bonneville Power Administration
Diane Driscoll	National Marine Fisheries Service
John Stephenson	U.S. Fish and Wildlife Service
Christine Reichgott	U.S. Environmental Protection Agency
Scott Maguire	Senator Jeff Merkley's Office
Ron Wyden	Senator Ron Wyden's Office
Kirby Garrett	Congressman Greg Walden's Office

5.2 Public Involvement

This EA is being made made available to potentially interested members of the public and local, state, and federal agencies for a 20-day review and comment period.

6. REFERENCES

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