

USFWS Dayton Pond Intake Facility Weir Repair Dayton, Washington

NOAA Fisheries Biological Assessment Final

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CIVIL, AND
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1.0 Introduction

Adaptive Environmental Planning, LLC (AEP) is a subcontractor to Water, Civil, & Environmental Inc. (WCE), who was retained by the U.S. Fish and Wildlife Service (USFWS), to complete a Biological Assessment (BA) for the Dayton Pond Intake Facility Weir Repair Project (Project). The purpose of this BA is to review the proposed Project in sufficient detail to determine whether the proposed action may affect any fish, wildlife, and plant species designated as threatened, endangered, proposed, or candidate and their associated designated critical habitat. This BA has been prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (16 U.S.C. 1536 (c)). Section 7 assures that, through consultation with the National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries), federal actions do not jeopardize the continued existence of any threatened, endangered, proposed, or candidate species, or result in the destruction or adverse modification of critical habitat.

The following species and critical habitat (if designated) have been considered in this document and their effect determination is summarized below:

- Middle Columbia River Steelhead (*Oncorhynchus mykiss*) [Threatened]: **May Affect, Likely to Adversely Affect**
- Steelhead Critical Habitat: **May Affect, Likely to Adversely Affect**

This BA also provides an effects analysis and determination for Essential Fish Habitat (EFH) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the 1996 Sustainable Fisheries Act (SFA). Under this legislation, an evaluation of effects to EFH is necessary for activities that may adversely affect EFH. EFH is defined by the Magnuson-Stevens Act in 50 Code of Federal Regulations (CFR) 600.905-930 as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” and within the Project Area. There is no EFH designated in the Action Area and it is concluded that this Project will have **No Effect** on EFH.

1.1 Project Location

The Project is located within city limits of the city of Dayton in Columbia County, Washington (Appendix A – Figure 1). The Project Area is located within the Upper Walla Walla watershed on the Touchet River (Hydrologic Unit Code 170701020308) at an approximate elevation of 1,610 feet above mean sea level. Table 1 identifies the legal description of the Project Area.

Table 1. Project Area Legal Descriptions

Section (S), Township (T), Range (R)	Coordinates (WGS84)	Columbia County Parcels
S30, T10N, R39E	46.31185° / -117.97298°	264569, 264768, 264771, 264773, 275544

1.2 Existing Background

The Dayton Pond Intake Facility is owned by the USFWS and operated by the Washington Department of Fish and Wildlife (WDFW). USFWS is providing funding for the Project and as a

result, the project is required to comply with Section 7 of the Endangered Species Act (ESA).

The Dayton Pond Intake Facility Weir (Weir) consists of a 120 foot (ft.) by 5 ft. concrete structure. The Weir spans the entire width of the Touchet River, connecting with a fish ladder/intake structure on the left bank, and a U.S. Army Corp of Engineers (USACE) levee on the right bank. The Weir is designed to divert water into an intake collection system that transports water to the Dayton Acclimation Facility, which is operated by the WDFW. Water from the intake is also diverted into a local irrigation company's canal system. In addition to water intake diversion, the Weir directs most upstream migrating fish into the fish ladder which provides year-round upstream fish passage along with trapping/collection capabilities by WDFW. The Dayton Acclimation Facility is used for the acclimation/release of Wallowa (non-ESA listed) and Touchet stock (ESA listed) summer steelhead, and Carson stock (non-ESA listed) spring Chinook salmon (*Oncorhynchus tshawytscha*).

The Weir was constructed in 1986, however, modifications were made to the Weir in 2007 to increase its stability by installing additional concrete at the downstream base. Other modifications to the Weir in 2007 included the installation of a fish ladder/trap, acclimation pond intake improvements, and the irrigation company's intake improvements on the left bank of the Touchet River. Prior to the 2007 improvements, there was no fish ladder/trap and the Weir was not fish passable under low flow conditions. In addition, the irrigation company used to enter the Touchet River and mechanically create push-up berms in order to divert and/or pump water into their canal system. Since the 2007 improvements, the new fish ladder/trap and intake system eliminated the need to enter the river mechanically to create these push-up berms. If the Weir failed or was not in place, then WDFW would have to modify their current salmon/steelhead release (direct stream release vs acclimation) and the irrigation company would require annual disturbance in the Touchet River to divert water into their intake system to fulfill their water rights.

The Weir has experienced erosion during high flows in the river and is currently undermined causing concerns for the stability of the structure, in addition to safety concerns to the public who utilize the area. Emergency riprap was installed downstream of the Weir in 2020 to temporarily prevent additional erosion until a full repair could be performed. Repairs are required to stabilize the existing structure and to stabilize the riverbed both upstream and downstream so that the Weir does not fail under high flow events in the Touchet River.

1.2.1 2021 Emergency Riprap Actions

Emergency riprap was placed along the downstream base of the Weir in 2021 to fill scour holes along the underside of the foundation (refer to section 2.1.5 for a detailed description of the actions). These scour holes were created during two separate flood events since 2018 and posed a serious concern for public safety. On June 28, 2021, WDFW and USFWS personnel were notified by the Columbia County sheriff's department of a possible public member drowning at the facility. Young swimmers had discovered a scour hole at the base of the Weir that was large enough to "swim into", leading to an air pocket(s). One swimmer was allegedly underwater and in an air pocket for approximately 3 minutes which raised concern for the swimmer's safety. Fortunately, this was a false alarm and the swimmer resurfaced safely from underneath the Weir.

This incident led to the emergency installation of riprap at the base of the Weir to prevent public members from swimming underneath the Weir as well as to fill in the existing scour holes that could become larger and possibly compromise the integrity of the Weir leading to failure. These emergency riprap installation actions were considered temporary until the full repair of the Weir (described in section 2.1) could be implemented.

NOAA Fisheries (Colleen Fagan) acknowledged the emergency riprap measures notice and construction activities were completed in 2021 according to the design drawings in Appendix A. Due to the emergency nature of the actions, formal consultation under Section 7 of ESA was not conducted and NOAA Fisheries agreed that these actions would be analyzed along with the full Weir repair action. Thus, these 2021 emergency riprap actions are incorporated into this Biological Assessment.

1.3 Existing Operations and Maintenance

The Weir currently requires annual maintenance in order for WDFW to operate the Dayton Pond Intake Facility and fish ladder/trap appropriately. This annual maintenance includes dredging of gravels and cobbles that accumulate in front of the intake screens and fish ladder/trap upstream exit on the left side of the Touchet River. It is estimate that 20 cubic yards are removed from the Touchet River in front of the intake screens on an annual basis and deposited offsite in the adjacent upland on property owned by the City of Dayton and within the USFWS easement boundary (Appendix A-Figure 1). The existing operations and maintenance activities are covered under and adhere to the following NOAA Fisheries Biological Opinions:

- NOAA Fisheries Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Mid-Columbia River Steelhead and Spring Chinook Salmon Hatchery Programs (NOAA Fisheries 2018); and
- NOAA Fisheries Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Mid-Columbia River Steelhead and Spring Chinook Salmon Hatchery Programs Reinitiation 2018 (NOAA Fisheries 2019).

Refer to section 2.1.6 for a list of the specific approved routine maintenance activities.

1.4 Consultation History

USFWS (Mark Robertson) submitted notice to NOAA Fisheries (Colleen Fagan) regarding emergency riprap installation actions on June 29, 2021. NOAA Fisheries acknowledged the emergency action notice on July 1, 2021.

USFWS, NOAA Fisheries (Colleen Fagan), WCE staff, and AEP staff attended a pre-application meeting on January 27, 2022 to introduce the project and discuss ESA agency requirements for the Proposed Action.

USFWS submitted a Draft Biological Assessment to NOAA Fisheries on May 9, 2022. NOAA Fisheries (Colleen Fagan) provided comments on May 26, 2022 and a virtual meeting was conducted on June 15, 2022 to review the Draft comments. These comments were incorporated into the Final BA.

2.0 Proposed Action & Action Area

This section includes detailed descriptions of the Proposed Action and Action Area. Figures of the Action Area and in-water impact drawings have been included in Appendix A, and site photographs are in Appendix B.

2.1 Proposed Action

In order to repair the Weir and stabilize the riverbed both upstream and downstream, construction activities will require in-water work across the entire width of the Touchet River. Construction would occur during the irrigation season and water would be diverted into the irrigation company's system during repair of the Weir (refer to sections 2.1.3 and 2.1.4 for work windows and the construction schedule). Water may be diverted through the Dayton Acclimation Pond but only as a method to pass more flows downstream during construction to reduce flow velocities in the fish ladder and not for the acclimation of fish. Weir repair construction activities will be performed by a qualified licensed contractor in the state of Washington and the use of heavy mechanized equipment will be required in the form of excavators, loaders, and dump trucks.

The following lists the actions for each specific component of the Project. Refer to Tables 2 and 3 in section 2.1.7 for specific impact areas and quantities associated with each action.

2.1.1 Weir Repair Permanent Actions

Weir Concrete and Riprap Repair

Repair of the Weir consists of removing the existing material, prepping the foundation, and installing new material to stabilize the Weir. The following describes the construction activities associated with the Weir repair:

- Construct a temporary river diversion upstream of the Weir (see Temporary Actions).
- Install a temporary in-river work pad downstream of the Weir (see Temporary Actions).
- Excavate emergency riprap on the downstream side of the Weir, and temporarily place it in the staging area as stockpile or material for the work pad.
- Excavate native streambed material down to the bedrock on the downstream side of the Weir.
- Install precast concrete eco blocks on the leveled exposed bedrock surface on the downstream side of the Weir one foot above the weir footing.
- Backfill the downstream side of the eco blocks with riprap.
- Core holes in the Weir in five-foot intervals, and pump concrete in between the eco blocks and the Weir filling open spaces underneath and downstream of the Weir.
- Place riprap on top of the concrete on the downstream side of the Weir.
- Place riprap along the left bank downstream of the weir.
- Repair erosion on the right bank (levee) alongside the existing weir.

- Remove the temporary in-river work pad downstream of the Weir and restore the riverbed channel to preconstruction conditions (see Temporary Actions).
- Install temporary cofferdam around the Obermeyer Weir and divert river flow to the completed portion of the Weir (right side) as well as continue to divert flow through the fish ladder/intake structure (see Temporary Actions).
- Install the new Obermeyer Weir.
- Remove all temporary water diversions (see Temporary Actions).

Concrete and riprap material will be dredged downstream of the Weir below the ordinary high-water mark (OHWM) of the Touchet River to make room for Weir concrete and riprap repair measures. Once the material has been removed, new concrete and new/reused riprap material will be filled inside and downstream of the Weir below the OHWM of the Touchet River. Dredging and filling activities will be performed in the dry, while the river channel is diverted.

Erosion along the right bank (levee) of the Touchet River (~20 feet) will be repaired by excavating and recompacting native material below the OHWM. Material will be recompacted to reduce permeability around the edge of the weir associated with the USACE levee. The native material will be excavated and recompacted with the excavator from the in-water work pad as described in section 2.1.2. The purpose of this action is to eliminate erosion and water leakage around the edge of the Weir.

Obermeyer Weir

A new Obermeyer Weir (10 feet wide) will be installed on the left side of the existing weir, adjacent to the fish ladder. The raised elevation of the new Obermeyer Weir will be approximately 4 inches lower than the crest of the existing weir concrete structure, while the lowered elevation will be four feet below the crest. The new Obermeyer Weir will allow WDFW the flexibility to create a higher velocity zone of flow along the face of the existing intake structure during high flow events in an effort to maintain the thalweg on the left side of the river near the fish ladder and intakes. It will be lowered during the leading edge of high flow hydrographs (>3 feet per second [fps]) and raised at the trailing edge (<3 fps) which is estimated to be several days per event. WDFW will manually operate the new Obermeyer weir and normal operating procedures will be in the raised condition. It is anticipated that the water surface elevation immediately upstream of the Weir will decrease by approximately 1.25 feet if the Obermeyer Weir is lowered during a 100-year recurrence interval flood event. Approximately 200 cubic yards of material will be excavated out of the Touchet River immediately upstream of the new Obermeyer weir so that these gravels and cobbles do not wash downstream during the first flood event and potentially deposit in areas that were recently dredged by Columbia County in April 2021 (refer to Section 5.1).

A new Obermeyer Weir control building will be installed on the left bank of the river in the existing fenced upland area adjacent to the fish ladder/intake structure.

Juvenile Bypass Pipe

The existing juvenile bypass pipe outlet leading into the Touchet River is located downstream of the fish ladder/intake structure. The bypass pipe will be extended 115 feet downstream from its existing location to minimize deposition of river sediment at the entrance of the discharge end of

the pipe to ensure safe and effective juvenile transport. The bypass pipe currently plugs with sediment and juvenile fish are unable to be transported through the pipe. Extending it downstream will move it outside of the Weir deposition zone reducing the frequency of plugging.

Bank Repair

Existing riprap along the left bank of the Touchet River (~120 feet) downstream of the weir below the OHWM will be repaired/repositioned and augmented to protect against erosion from the increased velocities caused by the operation of the Obermeyer Weir. Existing juvenile vegetation will be removed from this area to allow for the bank repair and no mature vegetation will be removed (Appendix B-Photograph 9). No vegetation on this bank is proposed as the riprap and geotextile fabric installed for erosion protection will block vegetation establishment in this area. There is no mitigation proposed for the bank repair along the left bank of the Touchet River.

2.1.2 Weir Repair Temporary Actions

Upstream River Diversion

In order to perform work in the Touchet River, the river will be temporarily diverted during construction. A berm will be installed upstream of the Weir, which will divert river water (estimated 90 cfs) into the existing intake facility/fish ladder (estimated 180 cfs capacity), and discharge into the Touchet River downstream of the Weir through the existing fish ladder entrance. The anticipated flow splits at the intake facility/fish ladder include ~6 cfs into the irrigation company's system, ~6 cfs into acclimation pond, and ~78 through the fish ladder. The area between the berm and the Weir will be dewatered during construction activities. In the rare occasion that river flows exceed the fish ladder/intake structure capacity, flows would be directed over the weir. Flow velocities in the fish ladder are anticipated to be high during this 4-week diversion and no upstream fish passage is proposed. Native material in the riverbed will be used to form the berm and it will direct water towards the intake structure.

Fish salvage will be performed in the area downstream of the berm and the Weir. WDFW staff will perform the fish salvage by crowding and netting fish starting from the upstream side until fish have relocated/removed from the dewatered work area. Another fish salvage option is to electroshock the fish and relocate them from the dewatered work area. All fish be collected and placed in buckets temporarily and will be released immediately upstream of the Project.

Additionally, a cofferdam will be constructed near the upstream side of the new Obermeyer Weir preventing water from seeping into the excavation site. The cofferdam will be constructed from polypropylene bags filled with water or bulk bags filled with native sediment. The work area will be dewatered during construction activities.

In-River Work Pad

A work pad (12 feet wide by ~135 feet long) will be constructed on the downstream side of the Weir in the river, allowing dry construction access for the repair of the Weir. The work pad will be made of imported riprap and gravel and will be removed when construction is complete. Additionally, the work pad will prevent water from backflowing into the construction area and the area between the work pad and the Weir will be dewatered during construction activities. Two 48-inch culverts (20 feet long) will be installed under the work pad to pass the diversion flows.

from the fish ladder entrance. A riprap ramp will be temporarily constructed on the left bank downstream of the fish ladder/intake structure, allowing construction access to the work pad. Fish salvage will be performed in the area between the weir and work pad and will be performed by WDFW staff and any fish salvaged will be released downstream of the Project.

Once construction is complete, the river channel will be restored to pre-construction conditions (excluding the dredged area immediately upstream of the new Obermeyer weir), both upstream and downstream of the Weir.

Construction Access and Staging Area

Construction access for the Project will be on the west side of the Touchet River, on an existing gravel access road maintained by WDFW (Attachment A-Figure 2). There will be no new construction access roads required for the Project. Construction staging areas will be located in previously disturbed areas on the west side of the Touchet River which are maintained by WDFW. No vegetation is proposed for clearing. The staging area is approximately three acres and is not located in waters of the US or wetlands. Best Management Practices, as described in section 2.3, will be installed in the construction access and staging areas immediately adjacent to the river, to reduce erosion and capture surface runoff.

2.1.3 Construction Work Windows

The allowable in-water construction work windows for USACE and WDFW in regards to ESA listed fish species for the Proposed Action include the following:

- USACE Touchet River: July 15 – August 15
- WDFW Touchet River: July 15 – August 31

2.1.4 Weir Repair Schedule and Sequencing

Construction activities are anticipated to be completed in one season when flows in the Touchet River are low and when adult and juvenile fish are least likely to be migrating. The in-water construction activities would occur between July 5 through September 8, which is outside of the in-water work windows for USACE and WDFW and USFWS is requesting a variance from the in-water work windows for the Touchet River due to the time required to complete the construction activities. There is no storage of materials or equipment proposed below the OHWM.

The following construction sequencing is proposed for the Project:

- June 19, 2023: Mobilize to the Project;
- July 5 – 7, 2023: Divert Touchet River upstream of the Weir / install in-river work pad downstream of the Weir;
- July 10 – 28, 2023: Repair the existing Weir;
- July 31, 2023: Install cofferdam around Obermeyer Weir location and remove upstream diversion and divert water to right side of the Weir and through the fish ladder;
- August 1 – 28, 2023: Construct the new Obermeyer Weir;

- August 28 – September 8, 2023: Remove Obermeyer Weir cofferdam and downstream work pad;
- September 15, 2023: Demobilize from the Project.

2.1.5 2021 Emergency Riprap

On June 30, 2021, USFWS implemented the action to install riprap on the downstream side of the Weir to fill scour holes along the underside of the foundation. Construction activities were completed on July 2, 2021 and consisted of installing 133 cubic yards of riprap (600 square feet) below and above the water surface. The riprap above the water surface was placed approximately 2 feet away from the Weir to reduce pressure on the existing Weir concrete apron and maintain a plunge pool for fish swimming over the Weir downstream. All of the riprap installed during this action will be reused in the Weir repair proposed in this Biological Assessment.

2.1.6 Long-Term Operations and Maintenance

A long-term operations and maintenance plan and standard operating procedures would be developed and finalized prior to the start of construction activities. It would specifically describe how the new Weir, Obermeyer Weir, and associated components would be operated and maintained by WDFW. Typical operations and maintenance activities expected for the life of the structure would be equal to or less than the activities approved for the existing Weir and associated infrastructure as outlined in the following documents:

- NOAA Fisheries Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Four Lower Snake River Steelhead Hatchery Programs (NOAA Fisheries 2017);
- NOAA Fisheries Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Mid-Columbia River Steelhead and Spring Chinook Salmon Hatchery Programs (NOAA Fisheries 2018); and
- NOAA Fisheries Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Mid-Columbia River Steelhead and Spring Chinook Salmon Hatchery Programs Reinitiation 2018 (NOAA Fisheries 2019).

These activities would occur on an as-needed basis to ensure proper functioning of the Facility and include (NOAA Fisheries 2017):

“Several routine and semi-routine maintenance activities occur in or near water that could impact fish in the area including: sediment/gravel removal/relocation from intake and/or outfall structures, pond cleaning, pump maintenance, debris removal from intake and outfall structures, and maintenance and stabilization of existing bank protection and at the intake diversions, fish ladders, and effluent outfall. All in-water maintenance activities considered “routine” (occurring on an annual basis) or “semi-routine” (occurring with regularity, but not necessarily on an annual basis) for the purposes of this action will occur within existing structures or the footprint of areas that have already been impacted. When maintenance activities occur within water, they will

comply with the following guidance:

- In-water work will:
 - Be done during the allowable freshwater work times established for each location, or comply with an approved variance of the allowable freshwater work times with the appropriate state agencies
 - Follow a pollution and erosion control plan that addresses equipment and material storage sites, fueling operations, staging areas, cement mortars and bonding agents, hazardous materials, spill containment and notification, and debris management
 - Cease if fish are observed in distress at any time as a result of the activities
 - Include notification of NMFS staff
- Equipment will:
 - Be inspected daily, and be free of leaks before leaving the vehicle staging area
 - Work above ordinary high water or in the dry whenever possible
 - Be sized correctly for the work to be performed and have approved oils / lubricants when working below the ordinary high water mark
 - Be staged and fueled in appropriate areas 150 feet from any water body
 - Be cleaned and free of vegetation before they are brought to the site and prior to removal from the project area”

Fish passage upstream and downstream at the Weir will continue to occur as existing conditions through the fish ladder. Operation of the new Obermeyer Weir would be more efficient through mechanical weir automation to lower the water surface elevations and direct flows to the left side of the river reducing the potential for gravels and debris to accumulate in front of the intake structure. The new Obermeyer Weir would reduce, but not eliminate, the need for mechanical dredging of gravels in the river on an annual basis.

2.1.7 Permanent and Temporary Impacts Summary

Tables 2 and 3 below summarize the impacts below the OHWM of the Touchet River for each component of the Proposed Action.

Table 2. Proposed Action Permanent Impacts Below the OHWM

Component	Area (sf)	Dredge (cy)	Fill (cy)	Fill Type
Weir Repair Concrete	600	175	175	Concrete
Weir Repair New Riprap	1,825	260	260	Riprap
Weir Repair Reused Riprap	900	133	133	Riprap
Obermeyer Weir	100	20	10	Concrete
Upstream Gravel Removal	730	200	0	--
Juvenile Bypass Pipe	160	12	12	Plastic Pipe and Bedding
Bank Repair	1,000	0	75	Riprap
Erosion Repair	150	5	5	Native Earth and Gravel
TOTAL	5,465	805	670	--

Table 3. Proposed Action Temporary Impacts Below the OHWM

Component	Area (sf)	Dredge (cy)	Fill (cy)	Fill Type
Upstream River Diversion	2,425	125	125	Native Gravels/Cobbles
Upstream River Diversion Dewatered Area	5,125	--	--	--
Obermeyer Weir Cofferdam	115	0	20	Native Gravels/Cobbles Fill Propylene Bags
Obermeyer Weir Cofferdam Dewatered Area	185	--	--	--
In-River Work Pad	2,400	0	310	Riprap
In-River Work Pad Dewatered Area	1,000	--	--	--
TOTAL	11,250	125	460	--

2.2 Action Area

The Action Area is defined as the area with potential to be directly or indirectly affected by the federal action (50 CFR §402.02). The Action Area also considers the effects of interrelated and interdependent activities and includes the geographic extent of the effects resulting from the Proposed Action. For analysis in this BA, the Action Area has been separated into four different activities/areas:

1. The Action Area for work above the OHWM is defined as the immediate Project Area used for construction access and staging.
2. The Action Area for work below the OHWM is considered the immediate Project Area and 0.5-miles downstream for turbidity dissipation.
3. The Action Area related to terrestrial noise is defined as a 0.5-mile radius around the Project site. This buffer signifies the extent that general construction terrestrial noise can travel until it typically reaches background levels in an urban environment. There is no in-water noise anticipated from the Proposed Action as the work will be performed in the dry. The temporary installation of the upstream river diversion and in-river work pad are not anticipated to create in-water noise that could injure aquatic species.

4. The Action Area for long-term operations and maintenance is the immediate Project Area and 0.5-miles downstream for turbidity dissipation.

2.3 Conservation Measures

Project effects on the environment would be avoided and minimized to the greatest extent practicable by following conservation measures during project construction activities. This section describes the proposed conservation measures for the Proposed Action.

2.3.1 General Conservation Measures

The following general conservation measures have been committed for implementation:

1. All applicable permits for the project will be obtained prior to construction, and all work will be performed according to the requirements and conditions of these permits.
2. To prevent spills or runoff of deleterious materials into the surface water, the contractor will inspect fuel hoses, oil or fuel transfer valves, and fittings on a daily basis for drips or leaks.
3. The contractor will conduct all refueling at least 150 feet from the OHWM of the river.
4. The contractor shall be responsible for the preparation of a Spill Prevention, Control, and Countermeasure (SPCC) Plan to be used for the duration of the project. The SPCC Plan shall be submitted to the project engineer prior to the commencement of any construction activities. A copy of the SPCC Plan, and any updates, will be maintained at the work site by the contractor and will include the following:
5. The SPCC Plan shall identify construction planning elements and recognize potential spill sources at the work site. The SPCC Plan shall outline responsive actions in the event of a spill or release and shall describe notification and reporting procedures. The SPCC Plan shall outline contractor management elements such as personnel responsibilities, project site security, site inspections, and training.
6. The SPCC Plan will outline what measures shall be taken by the contractor to prevent the release or spread of hazardous materials, either found on site and encountered during construction but not identified in contract documents, or any hazardous materials that the contractor stores, uses, or generates on the construction site during construction activities. These items include, but are not limited to, gasoline, oils, and chemicals. Hazardous materials are defined in Revised Code of Washington Chapter 70A.300.
7. The contractor shall maintain at the job site the applicable equipment and material designated in the SPCC Plan.
8. The contractor or responsible representative will clean equipment to remove noxious weeds/seeds, aquatic invasive species, and petroleum products prior to entering the site.
9. Dewatering for structures would commence when groundwater is first encountered and be continuous until such times as water can be allowed to rise in accordance with project requirements. Adequate standby equipment shall always be available to insure efficient dewatering and maintenance of dewatering operation during power failure.

10. Site grading would promote drainage by diverting surface runoff from excavations. Water entering the excavation from surface runoff would be collected in shallow ditches around the perimeter of the excavation, drained to sumps, and be pumped or drained by gravity from the excavation to maintain a bottom free from standing water. Pump intakes would be screened according to NOAA screening criteria (3/8-inch mesh) where juvenile fish may be present.
11. All exposed or disturbed areas, including upland staging areas, would be returned to pre-construction conditions upon construction completion. Any areas susceptible for excessive erosion would be stabilized by installing appropriate erosion control BMPs.

2.3.2 Conservation Measures for Above OHWM Work

The following conservation measures have been committed for implementation when working above the OHWM:

1. Upland work to create site access and staging areas will minimize vegetation disturbance by using already disturbed locations. Disturbed areas that are not proposed for permanent modifications will be stabilized at the end of the project.
2. The contractor will develop a Stormwater Pollution Prevention Plan. Soil erosion and sedimentation control measures will be employed during construction of the staging and access areas as well as the Weir features, including use of straw wattles and silt fencing.

2.3.3 Conservation Measures for Below OHWM Work

The following conservation, avoidance, and minimization measures have been committed for implementation when working below the OHWM:

1. Work will occur during the approved work windows for the project as negotiated during the regulatory permitting process for the project.
2. Excavators and loaders will contain hydraulic fluid certified as non-toxic to aquatic organisms.
3. The contractor will inspect fuel hoses, oil or fuel transfer valves, and fittings on a daily basis prior to working below the OHWM for drips or leaks in order to prevent spills or runoff of deleterious materials into the surface water.
4. The contractor will park/store machinery at least 150 feet from the OHWM at the end of each workday or when not in daily use. If 150 feet is not feasible, the contractor will park/store machinery as far away from the OHWM as possible. If machinery is to be stored below the OHWM, secondary containment measures would be installed.
5. A turbidity curtain will be installed (to the extent practicable) in the water below the OHWM around the work area to minimize the downstream transport of re-suspended sediments from construction activities into the Touchet River.
6. Fish rescue will occur to remove fish out of the construction area as described in section 2.1.2. Fish exclusion measures will be employed during construction so fish do not enter the in-water work area which includes the installation of berms separating direct surface

water connections. Reporting of fish handled to NOAA Fisheries will occur upon construction completion.

7. Materials will not be stockpiled below the OHWM or other sensitive areas.
8. Imported materials will consist of clean, granular material free of contaminants and all other deleterious material.
9. The Obermeyer weir cofferdam will be constructed of 1 cubic yard material sacks filled with washed material. Cofferdam heights will be elevated above modeled flood elevations to preclude overtopping.

3.0 Listed Species & Critical Habitat in Action Area

The NOAA Fisheries list for Status of ESA Listing and Critical Habitat Designations for West Coast Salmon and Steelhead (NOAA Fisheries 2016) was obtained that identifies one fish species in the Interior Columbia Recovery Domain-Middle Columbia River (Appendix C).

Table 4. NOAA Fisheries Listed Species with Potential to be Affected by the Proposed Action

Common Name (<i>Scientific Name</i>)	Federal Status	Designated Critical Habitat (Project in Critical Habitat)
Fish		
Middle Columbia River Steelhead (<i>Oncorhynchus mykiss</i>)	Threatened	Yes (Yes)

Based on habitat conditions and species occurrences in the Project and Action Area, one ESA listed species has been identified that could be present and affected by the Proposed Action.

3.1 Listed Species Present in Action Area

3.1.1 Middle Columbia River Steelhead

The Middle Columbia River steelhead is listed as a threatened species under the ESA (71 FR 834-862) and occurs within the Action Area. This distinct population segment (DPS) includes all naturally spawned anadromous steelhead populations below natural and man-made impassable barriers in streams in the Columbia River and its tributaries upstream from the Wind and Hood Rivers (exclusive) to and including the Yakima River. The Snake River steelhead DPS are considered a separate DPS but species from the Wallowa Stock Program have been observed in the Middle Columbia River DPS area. The Middle Columbia River DPS also excludes fish that designated as part of an experimental population. But this DPS does include steelhead from the following artificial propagation programs: Touchet River Endemic Program, Yakima River Kelt Reconditioning Program, Umatilla River Program, and Deschutes River Program.

3.1.1.1 Status – Middle Columbia River Steelhead

The proposed Action Area is located within the Middle Columbia River Recovery Domain for Steelhead (NOAA Fisheries 2009). Steelhead use the Action Area as a corridor for juvenile and adult migration. The majority of steelhead returning to the Middle Columbia River are of hatchery origin, but natural production occurs in all areas of the Walla Walla Basin including the Touchet River and its tributaries. The following description is taken from the NOAA Fisheries Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Mid-Columbia River Steelhead and Spring Chinook Salmon Hatchery Programs Reinitiation 2018 (NOAA Fisheries 2019).

Middle Columbia River steelhead exhibit a complex life history. Steelhead are rainbow trout (*O. mykiss*) that migrate to and from the ocean (i.e., they are anadromous). Resident and anadromous life history patterns are often represented in the same populations, with either life history pattern yielding offspring of the opposite form. Steelhead are iteroparous, meaning they can spawn more than once. Middle Columbia River basin populations include summer and winter steelhead. The two life history types differ in degree of sexual maturity at freshwater

entry, spawning time, and frequency of repeat spawning. Generally, summer steelhead enter fresh water from May to October in a sexually immature condition, and require several months in fresh water to reach sexual maturity and spawn between late February and early April. Winter steelhead enter fresh water from November to April in a sexually mature condition and spawn in late April and early May. Iteroparity (repeat spawning) rates for Columbia Basin steelhead have been reported as high as 2% to 6% for summer steelhead and 8% to 17% for winter steelhead.

Status of the species is determined based on the abundance, productivity, spatial structure, and diversity of its constituent natural populations. Best available information indicates that the Middle Columbia River Steelhead DPS is at moderate risk and remains at threatened status. The most recent status update used updated abundance and hatchery contribution estimates provided by regional fishery managers to inform the analysis on this DPS. However, this DPS has been noted as difficult to evaluate in several of the reviews for reasons such as: the wide variation in abundance for individual natural populations across the DPS, chronically high levels of hatchery strays into the Deschutes River, and a lack of consistent information on annual spawning escapements in some tributaries.

Abundance and productivity are linked, as populations with low productivity can still persist if they are sufficiently large, and small populations can persist if they are sufficiently productive. A viable natural population needs sufficient abundance to maintain genetic health and to respond to normal environmental variation, and sufficient productivity to enable the population to quickly rebound from periods of poor ocean conditions or freshwater perturbations.

Limited population abundance data are available for the populations in the Middle Columbia River Steelhead DPS. Of the 17 populations in this DPS, data on natural-origin spawner abundances for 14 populations is available; such information for the remaining three populations is not available. In the 2010 status review, it summarized that natural-origin and total spawning escapements have increased in the most recent brood cycle, relative to the period associated with the 2005 BRT review, for all four populations in the Yakima River MPG. It is apparent that this trend is continuing through the recent years as well. The 15-year trend in natural-origin spawners was positive for the West Side Deschutes population, and negative for the East Side Deschutes run. There is significant tribal and sport harvest associated with the Klickitat steelhead run, with the sport harvest being targeted on hatchery fish. Overall, natural-origin spawning estimates are highly variable relative to minimum abundance thresholds across the populations in the DPS. Natural-origin returns to the Umatilla, Walla Walla, John Day, and Klickitat rivers have increased over the last several years.

The most recent status review update revealed that updated information on spawner and juvenile rearing distributions does not support a change in the spatial structure status for the Middle Columbia River Steelhead DPS natural populations. Status indicators for within population diversity have changed for some populations, although in most cases the changes have not been sufficient to shift composite risk ratings for any particular populations.

The Mid-Columbia Recovery Plan identifies a set of most likely scenarios to meet the ICTRT recommendations for low risk populations at the MPG level. In addition, the management unit plans generally call for achieving moderate risk ratings (maintained status) across the remaining extant populations in each MPG. Overall viability ratings for the populations in the MCR

Steelhead DPS remained generally unchanged from the prior five-year review. One population, Fifteen Mile Creek, shifted downward from viable to maintained status as a result of a decrease in natural-origin abundance to below its ICTRT minimum abundance threshold. The Toppenish River population (in Yakima MPG) dropped in both estimated abundance and productivity, but the combination remained above the 5% viability curve, and, therefore, its overall rating remained as viable. The majority of the populations showed increases in estimates of productivity.

3.1.1.2 Status – Touchet River Steelhead

The Touchet River contains suitable habitat for steelhead and they have been documented within the proposed Action Area by WDFW and the following is a summary of their data collection (WDFW 2022). This reach (the Action Area) of the Touchet River is migratory habitat for adult and juvenile steelhead, along with spawning and rearing at all life stages. Data on downstream migrants has been obtained through rotary screw trapping near the Project area from 2007-2013 and shows that juveniles are migrating from October-June. Adult steelhead typically arrive in the Action Area from January-May, and are captured annually in the fish ladder/trap for broodstock needs, or passed upstream for natural spawning. Spawning and spawning nests (redds) are observed annually in the Action Area typically from April through June. Only free-swimming juveniles are expected to occur in the Action Area past June. Water temperatures within the Action Area are suitable for steelhead year-round as indicated through the presence of the species in the Action Area.

Electrofishing was conducted by WDFW for summer steelhead in the mainstem Touchet River from 2001-2003 and 2005. The Weir is located between river kilometer 87 and 90.3 and the juvenile steelhead density (fish/100m²) data from above and below the Action Area is summarized in Figures 3 and 4 below (WDFW 2022). The data presented in the figures is 17 years old but densities under current conditions are expected to be similar since there has been very little change to rearing habitat since the electrofishing surveys were conducted (WDFW 2022). The steelhead density for Age 0 is estimated at 45.2 fish/100m² (Rivermile 87) and for Age 1 is estimated at 9.7 fish/100m² (Rivermile 87).

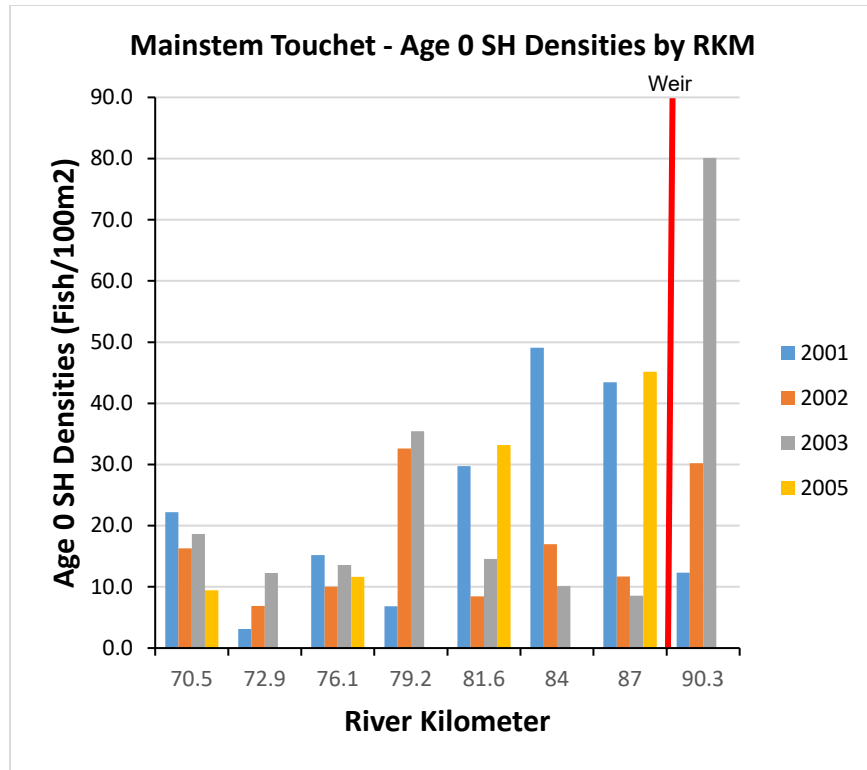


Figure 1. Touchet River Age 0 Steelhead Densities Near the Action Area

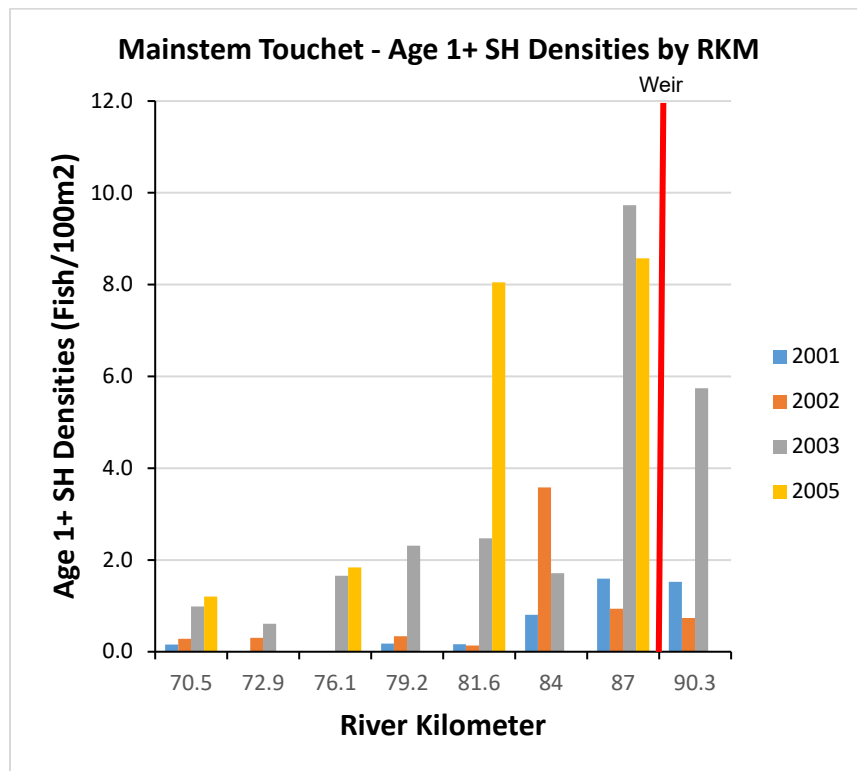


Figure 2. Touchet River Age 1+ Steelhead Densities Near the Action Area

Run timing and movement for adult steelhead in the Touchet River at the Weir has been collected by WDFW from 2001-2021 and the data is summarized for run years 2001-2013 in Figure 5 below (WDFW 2022). This adult run timing data includes both wild and hatchery origin steelhead. The 13-year average for run timing identifies that adult summer steelhead have typically completed their upstream migration at this location in the Touchet River by June 1 (Figure 5) and the next run year doesn't typically show up until January (WDFW 2022). Overwintering in the Action Area has not been well documented since trapping typically captures migrating steelhead, but there are a few steelhead that are expected to be present over the winter months prior to the January run. Adult steelhead are not expected to be present in the Action Area after summer upstream migration is complete approximately mid-May of each year. Migrating juvenile steelhead were captured in a rotary screw trap operated by WDFW upstream of the Action Area from 2007 to 2014. The trap was operated from mid-October to the end of June each year, and average weekly catches during those years are summarized in Figure 6. Attempts to run the trap throughout the summer months (July-September) were limited by low stream flows and shallow river depth which prohibited the operation of the migrant trap; however, some juveniles are expected to be migrating through this area at all times of the year.

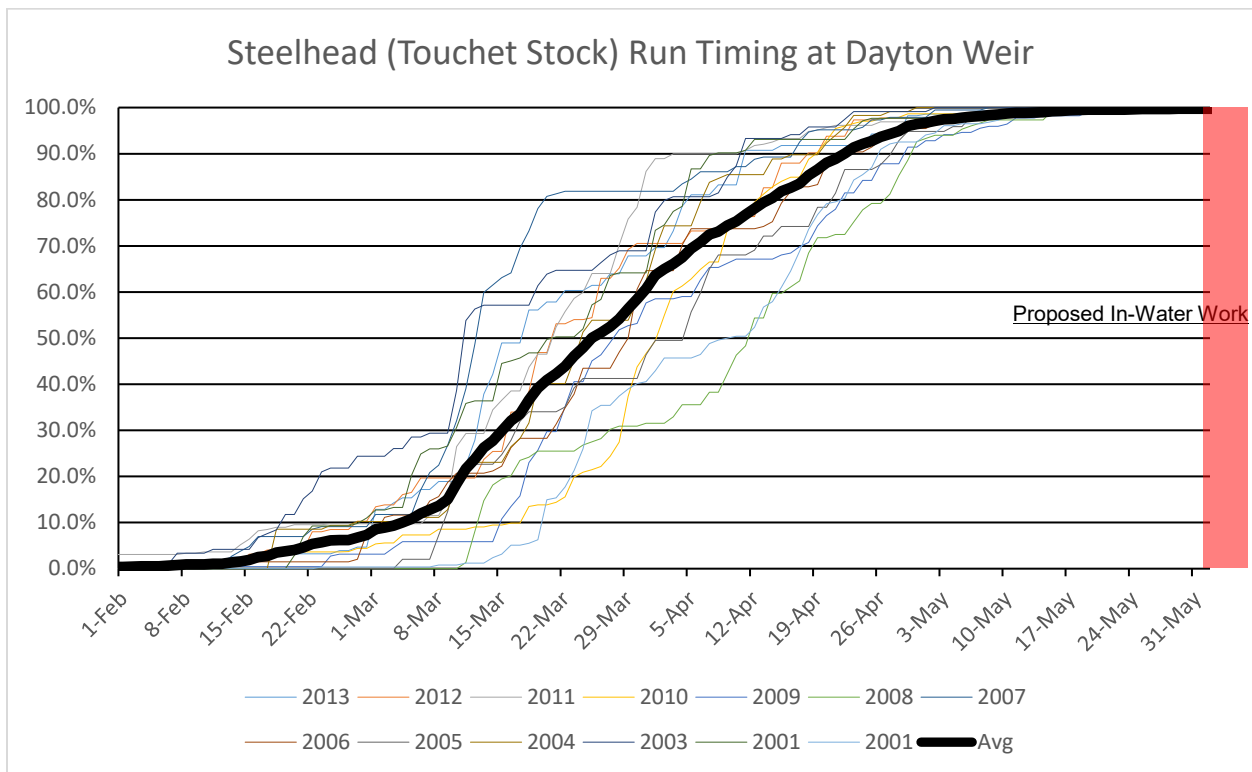


Figure 3. Touchet River Steelhead Run Timing (2001-2013)

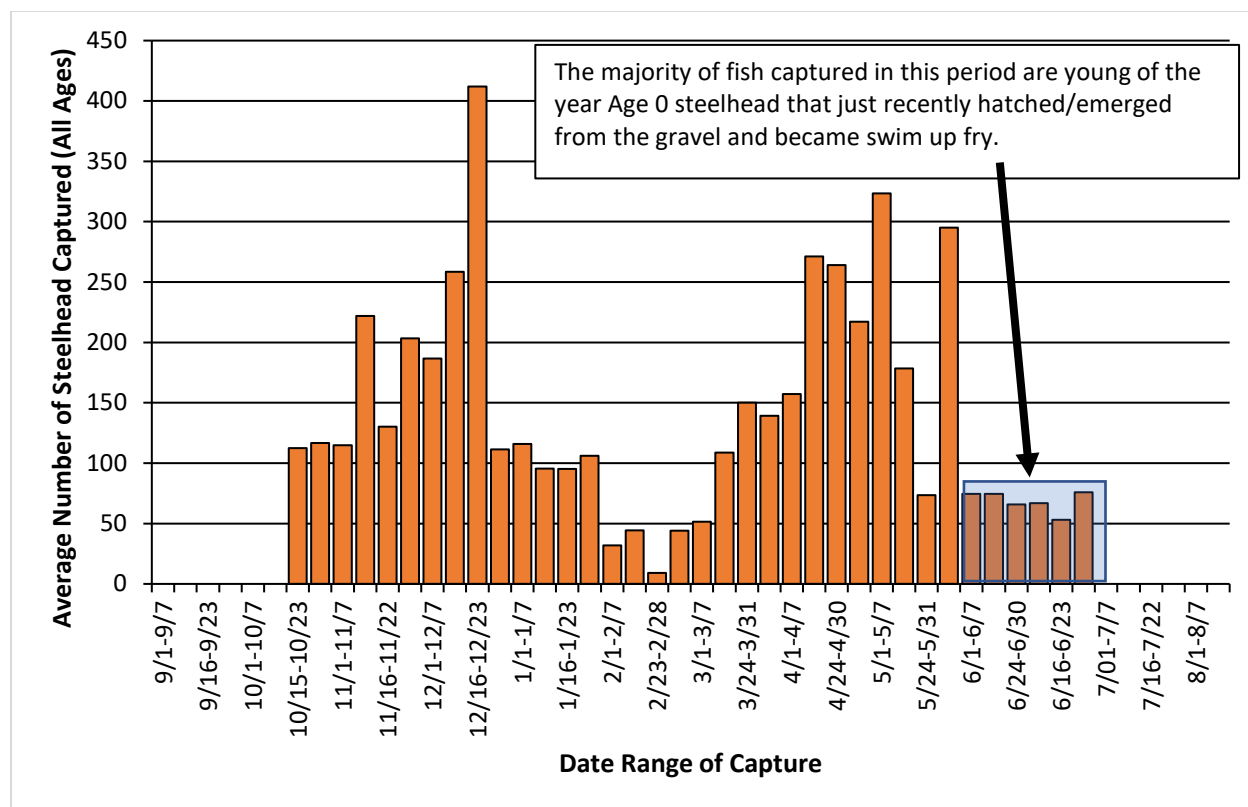


Figure 4. Touchet River Steelhead Counts at the Weir (2007-2014)

3.1.1.3 Limiting Factors and Threats

The primary threats to steelhead in the Touchet River core area have been identified by NOAA Fisheries (2009) as:

Limiting Factors

Tributary Habitat: High water temperature, sediment routing, impaired fish passage, degraded channel structure and complexity, degraded floodplain connectivity and function, low flow, and overall loss of habitat.

Hatchery: Effects of naturally spawning stray hatchery fish (not part of the Middle Columbia River Distinct Population Segment) on native steelhead viability.

Hydro: Mainstem passage.

Other: Legacy effects of historical harvesting.

Threats

Habitat: Current land use practices that reduce habitat quality, quantity and disrupt ecosystem functions.

Hatchery: Hatchery management that results in high rates of straying hatchery fish in natural spawning areas.

Hydro: The Columbia River mainstem hydrosystem.

3.1.1.4 Critical Habitat – Touchet River

NOAA Fisheries designated critical habitat for steelhead in 2005 (70 FR 52630-52858). The Touchet River in the Action Area is designated critical habitat for Middle Columbia River Steelhead (Walla Walla Subbasin 17070102). Critical habitat consists of physical and biological habitat features, Primary Constituent Elements (PCEs), essential for the conservation of a species. Three PCEs have been developed for steelhead which includes the following:

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning incubation and larval development.
 - There is sufficient water quality and quantity to support steelhead spawning.
 - The channel substrate upstream and downstream of the Action Area is suitable for adult steelhead spawning; and redds have been observed annually upstream and downstream of the existing Weir in the Action Area.
2. Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
 - There is sufficient water quantity to support steelhead spawning but limited connectivity to floodplains due to the confined nature of the channel from the presence of the USACE levee on the right bank. Juvenile rearing sites are present throughout the Touchet River and there are adequate sites containing large to medium sized cobbles within the Action Area.
 - Stream temperatures have been recorded on the North Fork Touchet River (approximately 1.5 miles upstream of the Weir) by the Washington State Department of Ecology in 2008, 2010-2013, and 2020-2021 (WDFW 2022). The mean daily water temperature average exceeds 15°C from approximately June 1 through September 1. Temperatures in the North Fork Touchet River are typically lower than the South Fork and at the Project area due to input from the Wolf Fork which has the coldest temperatures in the river system.
 - Stream temperatures have been recorded at the Project area by WDFW from 2000-2012 (WDFW 2022). These temperatures are higher than the recordings in the North Fork due to input from the South Fork and the 1.5-mile of thermal increase from their confluence upstream of the Project Area. The mean daily water temperature average exceeds 15°C routinely from June 1 through September 1 with increases sporadically in May. Stream temperatures near the project area are not a limiting factor for juvenile steelhead in the area.
 - There is sufficient water quality and forage habitat to support juvenile development.

- There is minimal natural cover along the banks of the river due to the removal of riparian vegetation by the USACE for maintenance purposes and historic disturbance of the channel from the construction of the USACE levee.
 - The channel substrate upstream and downstream of the Action Area typically contains large to medium sized cobbles suitable for rearing. It also contains pockets of small gravels that are suitable for adult steelhead spawning; and redds have been observed annually upstream and downstream of the existing Weir within the Action Area.
3. Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
- The Dayton Pond Intake Facility Weir acts as an upstream fish barrier in the Touchet River. The fish ladder/trap is located on the left bank of the river to assist fish migrating upstream and allows year-round upstream passage. The fish/ladder is taken offline approximately one day per year for maintenance.
 - The hydrograph in the Action Area is not modified and is considered a normative hydrograph.

In freshwater zones, the critical habitat extent is defined as the OHWM for this Project.

4.0 Effects of the Action

The following effect determinations (USFWS 1998) are used in the analysis presented in this section:

- No Effect: direct or indirect proposed action measures that will not affect a listed species or designated critical habitat.
- Beneficial: positive proposed action measures without any adverse effects to a species or designated critical habitat.
- Insignificant and Discountable: direct or indirect proposed action measures that never reach the scale where take occurs and are extremely unlikely to occur to a species or designated critical habitat.
- Adverse: direct or indirect proposed action measures that appreciably diminishes a listed species or the value of critical habitat for both the survival and recovery of a listed species.

4.1 May Affect, Likely to Adversely Affect Determination

4.1.1 Middle Columbia River Steelhead

The Proposed Action will result in a permanent adverse decrease in available suitable habitat in the Touchet River. Middle Columbia River steelhead will be present in the Touchet River during in-water construction activities (July 5, 2023 through September 8, 2023). The Proposed Action effect determination is **May Affect, Likely to Adversely Affect** for Middle Columbia River steelhead. The direct and indirect effect determinations for the species are presented below. Refer to the critical habitat effect determination for a more detailed analysis of the habitat that may be modified in the Action Area for the species.

4.1.1.1 Direct and Indirect Effects

Permanent

Suitable Habitat: The Proposed Action will decrease suitable habitat in the Touchet River through the installation of concrete/riprap downstream of the Weir, Obermeyer weir, and riprap on the right and left banks for erosion repair/scour protection which will result in an overall loss of 4,735 square feet (4,575 square feet in existing concrete or riprap / 160 square feet in new native stream channel) of water below the OHWM. However, these areas have been previously modified by the construction of the existing Weir, intake/fish ladder structure on the left bank, and installation of 2021 emergency riprap and they do not provide quality habitat for steelhead. Therefore, this decrease in available habitat in the Touchet River is considered an adverse effect but there is ample suitable habitat both upstream and downstream that is not as heavily disturbed.

The repairs to the Weir would be stabilized through the installation of new concrete and new/reused riprap. The concrete and riprap would protect the Weir during elevated flood flows and reduce the potential for erosion that could cause a failure of the Weir. Approximately 100 linear feet (50 linear feet in riprap and concrete / 50 linear feet in native river channel) of riprap

will be installed along the banks and in the main channel of the Touchet River adjacent to the Weir. There will be minimal change (loss of 160 square feet/50 linear feet of new native stream channel) to the area as the majority of this area is already hardscaped from the Weir, USACE levee that contains riprap on the right bank, and the intake/fish ladder structure on the left bank and is considered an adverse effect.

The removal of approximately 200 cubic yards (730 square feet) of gravels and cobbles upstream of the new Obermeyer weir will reduce the amount of material that may be transported downstream during the first flood event in the river when the weir is lowered. This removal will help the thalweg of the channel stay on the left bank near the intake/fish ladder so that future maintenance dredging occurs less frequently on an as-needed basis per the existing operations and maintenance activities that are covered under and adhere to the NOAA Fisheries Biological Opinions (2018 & 2019). The material removed from the river will be deposited in the upland adjacent to the Weir. The river system is expected to equalize itself during the first flood event with the new Obermeyer weir and any gravels and cobbles moving downstream are considered insignificant and discountable as compared to the overall amount of material naturally moving downstream in the river. The removal of 200 cubic yards of gravels and cobbles in the river is considered an adverse effect. Stream temperatures in this reach of the river are typically higher than suitable for spawning and fish are expected to migrate to colder reaches upstream; remaining uses by steelhead are typically limited to migrational movements where loss of this substrate is not considered meaningful. Even though the stream temperatures are higher than typically suitable for steelhead, they still inhabit this reach of the Touchet River in the Action Area year-round.

Refer to the Critical Habitat section for a detailed analysis of impacts to spawning, rearing, and migration habitat for steelhead.

Fish Passage: Repairs to the Weir will have no long-term effect on existing upstream fish passage conditions, as passage will be available on a year-round basis via the associated fish ladder. Fish swimming downstream over the Weir will land in the protected channel downstream of Weir. However, the new/reused riprap will be installed several feet from the edge of the Weir so that it does not create an obstruction that could injure fish and will include a plunge pool. Note, the riprap is being primarily installed to protect against scouring in the river that could compromise the integrity of the Weir while taking fish passage conditions into consideration. The 2021 emergency riprap was installed with the primary purpose of safety first and fish passage second so that fish are not injured. The installation of new/reused riprap is considered an adverse effect since it will primarily occur in a previously hardscaped area along and in the Touchet River, but the redesign of the plunge pool will have beneficial effect to fish swimming over the Weir.

The juvenile bypass pipe relocation will have a beneficial effect to fish as the exit will not plug with gravels and cobbles as frequently and there will be unobstructed passage downstream of juvenile fish on a more regular occurrence.

Temporary

Fish Exclusion and Handling: The Action Area contains habitat for steelhead in the Touchet River and the species is expected to occur within the Action Area during certain times of the

year. In-water construction activities could result in injury and mortality of steelhead. However, before in-water work occurs, a turbidity curtain will be installed to control turbidity during the installation of the in-water work pad, and fish salvage will be performed to remove fish from the construction area. Water will be diverted away from the active construction area through the fish ladder and exit back into the river downstream of the work area. All work would be performed in the dry (excluding the installation of cofferdams in the river). Based on dewatering area estimates from Table 3 (11,250 sf) and fish densities in the Touchet River during the construction work period from Section 3.1.1.1 (Age 0=45.2 fish/100m² and Age 1=9.7 fish/100m²), it is estimated that a maximum of 574 juvenile fish (Age 0 & 1) may be moved out of the work area and/or handled. Note, this is a high estimate All fish handled would be relocated upstream of the work area in similar habitat conditions in the Touchet River.

Turbidity: Construction activities that could result in increased sedimentation include cofferdam installation, initial diversion of water through the fish ladder and culverts, and/or dewatering of the work area. Construction methods to limit sedimentation will be employed and include diverting water when flows in the Touchet River are low, diverting small volumes and gradually increasing, pumping sediment-laden water onto upland areas to infiltrate or settle prior to entering back into the Touchet River, and slowly install/remove temporary construction equipment in flowing water such as the cofferdam. Any construction activity that could produce sediment-laden water will be less than one day in duration and turbidity increases will be monitored 100 feet downstream of the work area using a turbidimeter and will comply with Washington State water quality standards. Increases in sedimentation in the Touchet River are expected to be minimal and short-lived since there is minimal fine sediments in the river system, and any increase in turbidity would dissipate within 0.5 miles downstream. Note, sediment is expected to dissipate within several hundred feet of the construction area but 0.5 miles is used as a worst-case-scenario. An increase in turbidity may cause fish to migrate away from the turbidity to suitable habitat downstream but the project will not produce turbidity increases to the extent of behavioral changes or injury. There are documented steelhead spawning locations in the Action Area and downstream (WDFW 2022).

Any increase in turbidity would occur during the following construction activities:

- Installation of the cofferdam upstream of the Weir to divert water into the fish ladder (1 day);
- Installation of the fish ladder exit culverts under the in-river work pad (1 day);
- Installation of the riprap ramp and in-river work pad (1 day);
- Dewatering of the work area below the weir until water quality becomes clear (1 day);
- Removal of gravel upstream of the new Obermeyer weir (1 day);
- Diversion of water over the new weir (1 day);
- Installation of the cofferdam upstream of the new Obermeyer weir (1 day);
- Removal of the riprap ramp and in-river work pad (1 day);
- Removal of the cofferdam upstream of the Weir (1 day);

The Touchet River will be dewatered in the work area in between the temporary cofferdams from July 5, 2023 to September 8, 2023. There are minimal turbidity impacts associated with this dewatering activity as water will be diverted around the work area and continue to flow downstream under natural flow conditions. Temporary sedimentation adverse effects may occur downstream from the activities during the durations listed above, but the impacts are anticipated to be short-lived downstream within 0.5 miles of the work area during construction.

Turbidity monitoring will be conducted upstream and downstream of the active construction area. If increases in turbidity are observed above thresholds set in other regulatory permits obtained for the Project, construction activities will halt until turbidity levels are below thresholds. Modifications to construction activities may be implemented as necessary to reduce turbidity produced from in-water work activities.

Fish Passage: During construction on the Weir, all flows in the Touchet River will be diverted through the fish ladder. It is expected that velocities in the fish ladder will be too fast for upstream fish passage over a 4-week period. This lack of upstream fish passage will be an adverse effect to steelhead.

Food: Heavy equipment will be used for excavating and grading the project both in the upland and the dewatered work area in the Touchet River. The equipment will be staged in the uplands. However, excavation and grading will result in the permanent removal/disturbance of the existing Touchet River substrate (160 sf of new native stream channel) which contains benthic invertebrates that provide forage for steelhead. This disturbance will result in a short-term adverse effect to the substrate habitat which provides a food source for steelhead. This disturbance will be offset by natural sediment movement in the river during future flood events. These benthic species are expected to recolonize the disturbed area over six months (McCabe et al. 1996; McCabe et al. 1998). There is sufficient suitable forage habitat upstream and downstream of the Action Area for steelhead foraging and there is no long-term adverse effects anticipated to steelhead. Overall, the installation of the Proposed Action will have a short-term adverse effect but the long-term net change to aquatic and benthic invertebrate habitat is insignificant and discountable to steelhead in the Touchet River.

Predation: Fish will naturally relocate out of the Action Area due to the implementation of construction activities. Relocation of fish upstream and downstream is not expected to cause an increase in predation activities on steelhead due to the plain form configuration of the channel which is does not allow for heavy concentrations of fish that would make it easier for predation by avian species.

Hazardous Materials: Construction activities will be completed in a manner to reduce the potential for hazardous materials entering the water to the greatest extent possible. BMPs will be implemented for all hazardous materials and the construction contractor will be ready to respond to any spills or leaks that may occur. Any effects are anticipated to be insignificant and discountable from the implementation of the BMPs outlined in the Conservation Measures section.

4.1.2 Middle Columbia River Steelhead Critical Habitat

The effect determination for the Proposed Action in designated critical habitat for steelhead is **May Affect, Likely to Adversely Affect** due to the temporary effects to benthic invertebrate prey in freshwater rearing sites and migration corridors, the permanent fill of concrete and riprap associated with the Weir repairs, and blocked upstream fish passage for 4 weeks.

There will be 5,465 square feet (4,575 square feet in existing concrete or riprap / 890 square feet in native stream channel) of permanent impact and 4,940 square feet of temporary impact to designated critical habitat for steelhead in the Touchet River (Appendix A). This includes approximately 100 linear feet (50 linear feet in riprap and concrete / 50 linear feet in native river channel) of riprap installation. The following identifies the affects to the PCEs from the Proposed Action:

1. Freshwater spawning sites

- There will be no effect to water quality or quantity that support steelhead spawning from the Proposed Action over the long-term. Temporary construction activities that create turbidity will occur and are considered an adverse effect to spawning sites downstream in the Action Area. However, any turbidity discharges will be in compliance with Washington State water quality standards and settlement of sediment in the existing substrate is not expected to be above natural background conditions.
- There will be adverse effects to channel substrate upstream and downstream of the Weir from the installation of riprap and weir repair. The Obermeyer weir will transport additional gravels and cobbles downstream during flood events but the amount is estimated to be 20 cubic yards annually and there would no impacts to downstream spawning sites.
- Approximately 200 cubic yards of cobbles and gravels will be permanently removed immediately upstream of the new Obermeyer weir so that it does not transport downstream the during the first high flow event when the weir is lowered. The removal of this material is anticipated to be an adverse effect to this PCE.

2. Freshwater rearing sites

- There is sufficient water quantity to support steelhead rearing but limited connectivity to floodplains due to the confined nature of the channel from the presence of the USACE levee on the right bank. There is no effect to rearing sites in the Touchet River over the long-term. Temporary construction activities that create turbidity will occur and are considered an adverse effect to rearing sites downstream in the Action Area. However, any turbidity discharges will be in compliance with Washington State water quality standards and settlement of sediment in the existing substrate is not expected to be above natural background conditions.
- Suitable rearing water temperatures for steelhead are up to 15°C and over 25°C is considered lethal (NOAA Fisheries 2009). Temperatures have been recorded

above 15°C in the Action Area but steelhead have been documented to occur in the Action Area at temperatures above 15°C in abundant numbers (Figures 3 and 4) and these temperatures appear to be within the range for suitable rearing habitat. There are no effects anticipated to rearing water temperatures over the short- or long-term.

- There is no change proposed to water quality and forage habitat to support juvenile development over the long-term. Temporary construction activities that create turbidity will occur and are considered an adverse effect to rearing sites that support juvenile development downstream in the Action Area. However, any turbidity discharges will be in compliance with Washington State water quality standards and settlement of sediment in the existing substrate is not expected to be above natural background conditions.
 - There is minimal existing natural cover along the banks of the river due to the removal of riparian vegetation by the USACE for maintenance purposes and historic disturbance of the channel from the construction of the USACE levee. There is minimal juvenile natural cover along the left bank downstream of the Weir that is growing in the existing riprap. The streambank is steep in this area and the adjustment/addition of riprap in this area will not change the existing available habitat. There are no effect anticipated as part of the Proposed Action temporarily or over the long-term.
 - The channel substrate upstream and downstream of the Action Area consists of cobbles and gravels and approximately 200 cubic yards of cobbles and gravels will be permanently removed immediately upstream of the new Obermeyer weir. There will be an adverse effect from the increase in concrete and riprap (160 sf in new native channel) associated with the Weir repairs temporarily and over the long-term. There are is no replacement of stream channel proposed for the removal of 160 sf.
3. Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.
- The Dayton Pond Intake Facility Weir acts an upstream fish barrier in the Touchet River. There will be no permanent effect over the long-term to the existing migration corridors. The existing fish ladder/trap will remain in place and operate as designed.
 - There will be a temporary adverse effect to upstream migration through the fish ladder from July 5 through July 31 from high velocity flows associated with the diversion of water in the Touchet River during construction.

4.2 Interdependent and Interrelated Action Effects

This project is interdependent to the Dayton Acclimation Facility and the Dayton Adult Trap, which are operated by the WDFW, as the Weir is designed to divert water into an intake collection system that transports water to the acclimation ponds, and allows WDFW to collect

broodstock for the summer steelhead and spring Chinook program as well as the collection of biological data from the various fish runs. The original Weir was installed in 1983 prior to steelhead being listed under the Endangered Species Act. From the installation of the fish ladder on the left bank of the Touchet River, fish are able to pass upstream year-round. This fish ladder also allows WDFW to monitor upstream migration and selectively pass fish species during certain times of the year. Due to the presence of the fish ladder, the Weir allows natural movement upstream and downstream in the Touchet River. It is also interdependent to the local irrigation company's canal system as the Weir is designed to divert water into their intake.

There are no interrelated effects from the Proposed Action.

4.3 Effects from Ongoing Project Activities

Operations and maintenance activities will be performed at the repaired Weir to ensure continued diversion of water and continued upstream fish passage. These activities could include the removal of accumulated sediment upstream of the Weir but this would occur on an as-needed basis for the life of the Weir which is 50 years. Effects are anticipated to be the same level of impact as described in the NOAA Fisheries Biological Opinions (2018 & 2019).

5.0 Cumulative Effects

Cumulative effects encompass effects of future state or private activities reasonably certain to occur within the Action Area. Federal actions unrelated to this project are not considered in this analysis because they require separate analysis and consultation pursuant to Section 7 of the ESA and the National Environmental Policy Act.

5.1 Reasonable Foreseeable Future Actions

Reasonable foreseeable future actions by state/local government or private entities that could cumulatively affect the overall health and population of the ESA listed species analyzed in this BA are listed below:

- Touchet River Dredging Mitigation: Future mitigation actions to offset impacts from the dredging of 4,700 cubic yards in April 2021 are unknown at this time and being pursued by the Columbia County. Potential mitigation actions may include the following in the reach of the Touchet River where dredging occurred: 1) installation of riparian plants along the banks; 2) installation of large boulders to provide fish resting from high velocity flows; 3) installation of wood structures to add in-water complexity and sediment sorting/scouring to create small bars, coves, and pools; and/or 4) installation of wood structures to deflect high velocity flows to infrastructure, maintain a low flow thalweg while also benefiting ESA listed fish species. The schedule for implementation of these mitigation actions is unknown.
- Dayton Wastewater Outfall Repair: The wastewater treatment plant outfall is located about two miles downstream from the Weir in the Touchet River. This outfall will be repaired on the left bank of the river. The schedule for implementation of this action is unknown.

5.1.1 Middle Columbia River Steelhead

The Proposed Action would not lead to cumulative adverse effects to steelhead because the repair of the Weir will not result in an overall loss of quality habitat (160 sf of new native channel) and would not lead to a long-term degradation of the habitat within the entire Touchet River system. The temporary impact from construction activities combined with reasonable foreseeable future actions would have an insignificant and discountable cumulative effect on steelhead in the Action Area as these other projects are not scheduled to occur at the same time as the Proposed Action. The permanent modifications to habitat would have an insignificant and discountable cumulative effect on this species, considering future activities in the Action Area as these other projects are intended to beneficially decrease flood flow elevations in the Touchet River through the city of Dayton and stabilize the river bank. Approximately 200 cubic yards of cobbles and gravels will be permanently removed immediately upstream of the new Obermeyer weir so that it does not transport downstream during the first high flow event in the river when the weir is lowered. There will be no changes to sediment movement in the river at the Weir from existing conditions that could create additional sediment deposition downstream requiring future dredging.

6.0 Essential Fish Habitat

6.1 Introduction

This section was prepared as a resource for concurrent Essential Fish Habitat (EFH) consultation with NOAA Fisheries for compliance with the Magnuson-Stevens Act and the 1996 SFA. EFH is defined by the Magnuson-Stevens Act in 50 CFR 600.905-930 as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The objective of this EFH assessment is to determine whether or not the Proposed Action may adversely affect designated EFH for relevant commercial, federally managed fisheries species within the proposed Action Area. Federally managed species with EFH include Pacific Groundfishes, Coastal Pelagic Species, Puget Sound pink salmon (*Oncorhynchus gorbuscha*), Chinook salmon (*Oncorhynchus tshawytscha*), and Coho salmon (*Oncorhynchus kisutch*).

There are no federally managed species with EFH in the Action Area or in the Walla Walla Basin (NOAA Fisheries 2022) as depicted on the map in Appendix C.

6.2 Determination of Effect

Since there are no federally managed species with EFH in the Action Area, the Project will have **No Effect** to EFH.

7.0 Conclusion

7.1 Determination of Effect

The following effects determinations have been made for the ESA listed species and critical habitat analyzed in this BA:

- Middle Columbia River Steelhead (*Oncorhynchus mykiss*) [Threatened]: **May Affect, Likely to Adversely Affect**
- Middle Columbia River Steelhead Critical Habitat: **May Affect, Likely to Adversely Affect**

7.2 Conclusion

The USFWS has prepared this BA to comply with Section 7 of the ESA for implementation of the Dayton Pond Intake Facility Weir Repair Project. NOAA Fisheries has regulatory jurisdiction over any activities that may harm ESA listed species or their critical habitat. As such, the USFWS is requesting concurrence with this Biological Assessment and issuance of a Biological Opinion.

8.0 Literature Cited

- 70 FR 52630-52858. Endangered and Threatened Species; Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho. Federal Register, Vol. 70, No. 170, pages 52630 – 52858. September 2, 2005.
- 71 FR 834-862. Endangered and Threatened Species; Final Listing Determinations for 10 Distinct Population Segments of West Coast Steelhead. Federal Register, Vol. 71, No. 3, pages 834 – 862. January 5, 2006.
- McCabe, G.T. Jr., S.A. Hinton, and R.L. Emmett. 1996. Benthic Invertebrates and Sediment Characteristics in Wahkiakum County Ferry Channel, Washington, Before and After Dredging. Report by National Marine Fisheries Service to the U.S. Army Corps of Engineers Portland District, Seattle, Washington, Contract 96930051, 46 p.
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- USFWS. 1998. Endangered Species Consultation Handbook. Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act. U.S. Fish & Wildlife Service and National Marine Fisheries Service. March 1998.

WDFW. 2022. USFWS Touchet River Dam Project: Biological data on Bull Trout and Summer Steelhead. Data provided by Joe Bumgarner-Snake River Lab.

Appendix A
Project Figures



VICINITY MAP
NTS



LOCATION MAP
NTS

Prepared By:



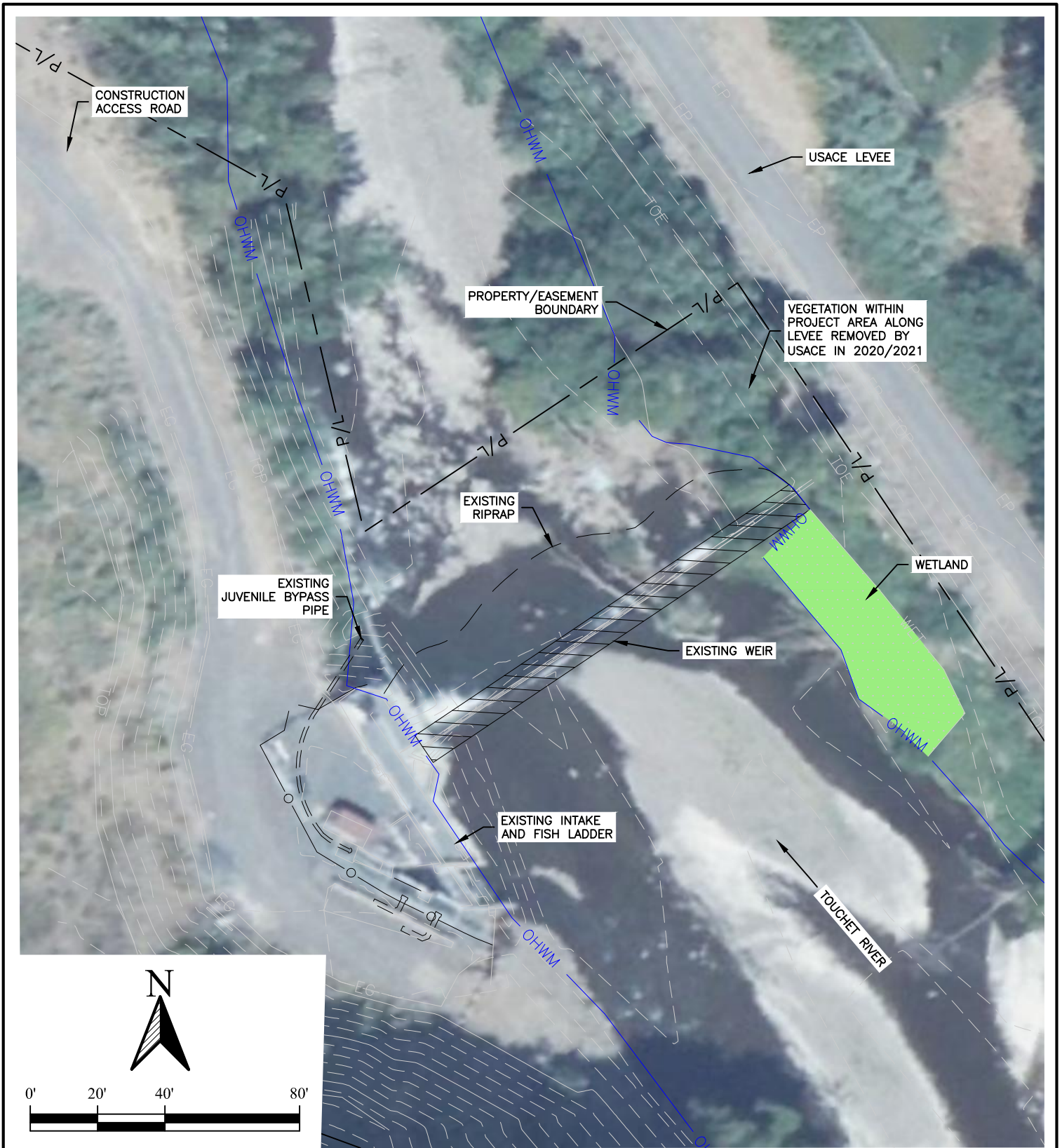
3813 W. State Street
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(208) 319-9744

Prepared For:

USFWS
DAYTON WEIR REPAIR
DAYTON, WA
TOUCHET RIVER
46.3118/-117.9729 (WGS84)

FIGURE 1 OF 8
LOCATION MAP
05/02/2022

PRELIMINARY NOT FOR CONSTRUCTION



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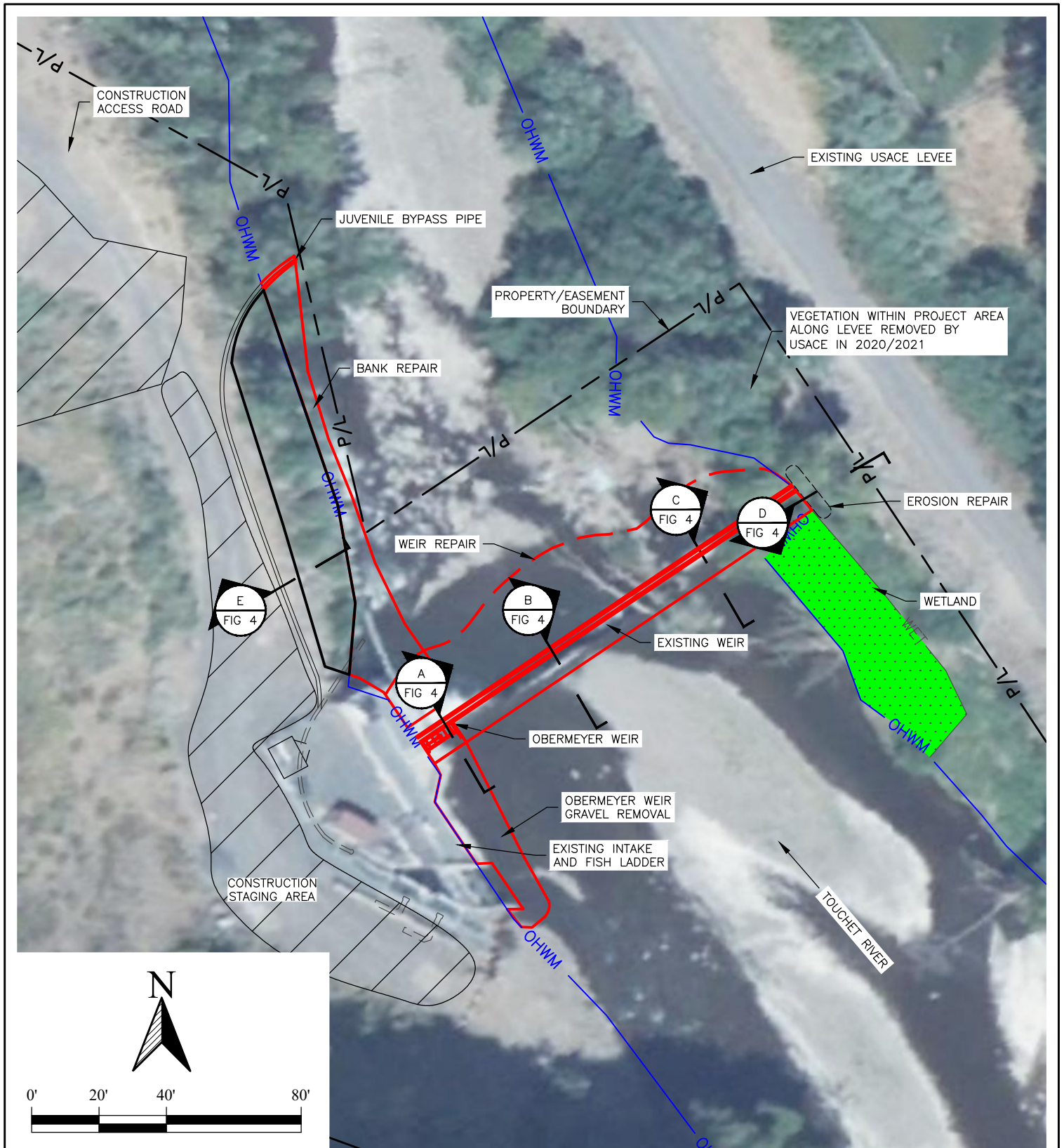
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FIGURE 2 OF 8
EXISTING WEIR
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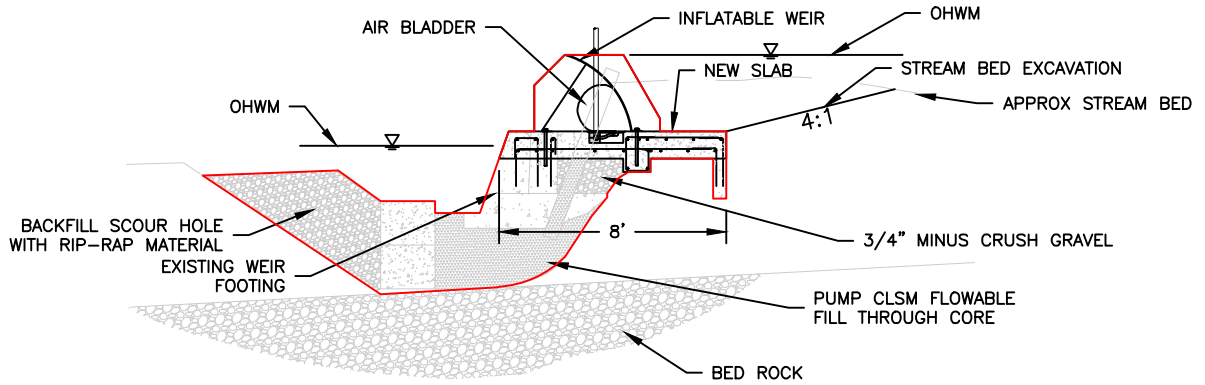
3813 W. State Street
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Prepared For:

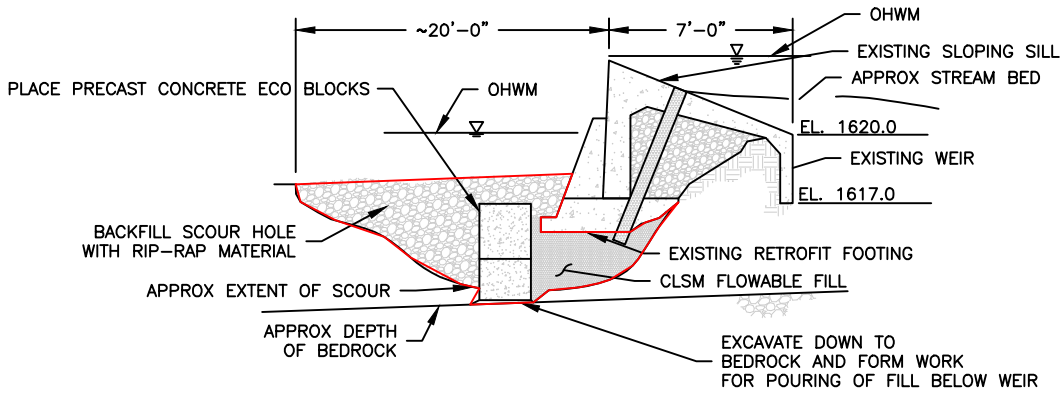
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FIGURE 3 OF 8
PROPOSED WEIR REPAIR
05/02/2022

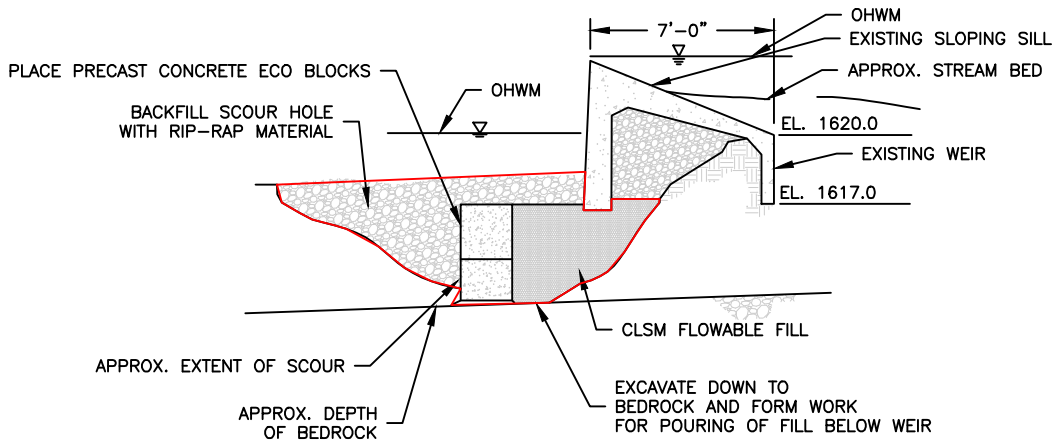
PRELIMINARY NOT FOR CONSTRUCTION



A OBERMEYER WEIR
FIG 3 SECTION VIEW



B WEIR REPAIR
FIG 3 SECTION VIEW



C WEIR REPAIR
FIG 3 SECTION VIEW

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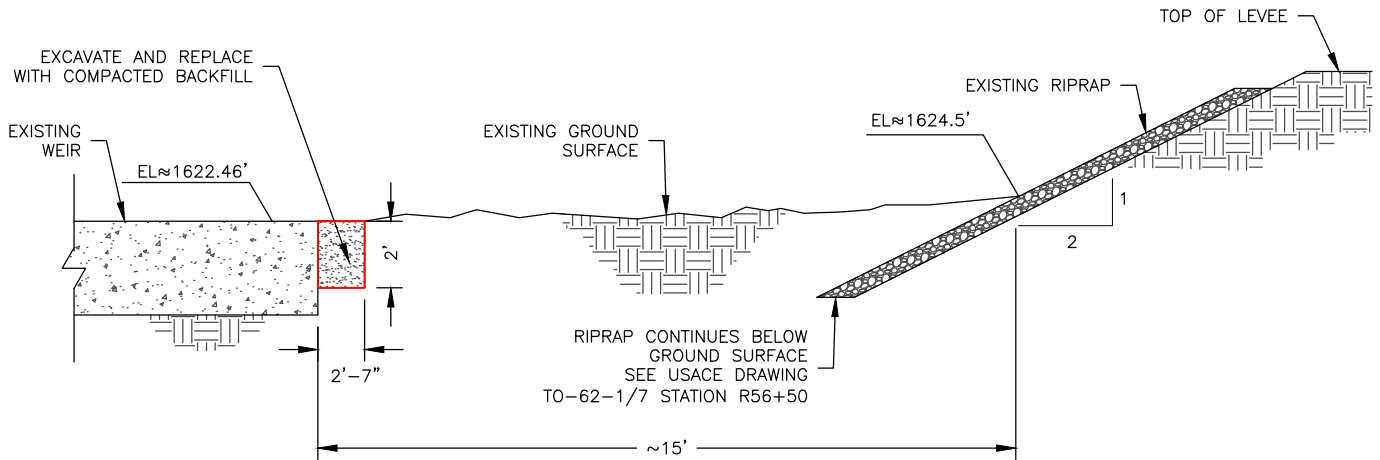
FIGURE 4 OF 8
WEIR REPAIR SECTIONS

05/02/2022

PRELIMINARY NOT FOR CONSTRUCTION

NOTES:

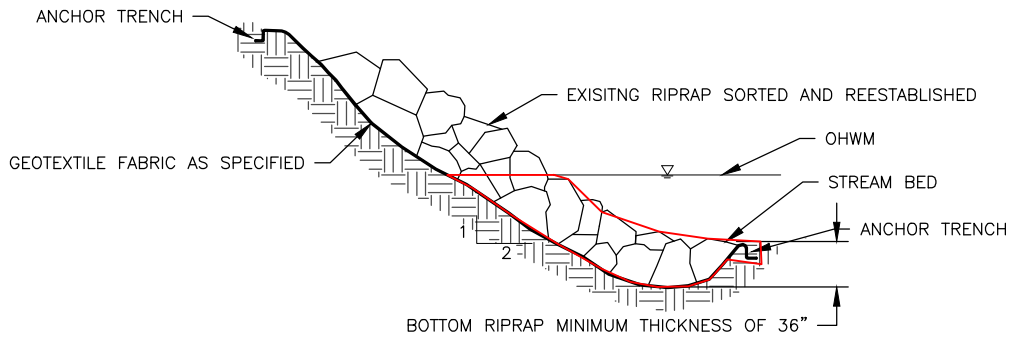
1. EXCAVATE AREA ALONG RIGHT BANK OF WEIR TO REMOVE ERODED SECTION.
2. EXCAVATE APPROXIMATE 5' LONG BY 2'-7" WIDE BY 2' DEEP TRENCH.
3. BACKFILL TRENCH WITH NATIVE MATERIAL AND COMPACT IN 4" LIFTS



D EROSION REPAIR
FIG 3 SECTION VIEW

NOTES:

1. RIPRAP SHOULD BE ANGULAR, DENSE, DURABLE AND SOUND RANGING IN DIAMETER FROM 4-24" WITH AT LEAST 50% BEING IN THE 6-18" SIZE RANGE AND FREE OF TOXIC SUBSTANCES. FILTER MATERIAL TO PROTECT AGAINST EROSION OF BANK SOIL MATERIALS BENEATH THE RIPRAP IS REQUIRED. EXCAVATE APPROXIMATE 5' LONG BY 2'-7" WIDE BY 2' DEEP TRENCH.
2. PLACE 8 OZ. UNWOVEN GEOTEXTILE BELOW RIPRAP.



E BANK REPAIR
FIG 3 SECTION VIEW

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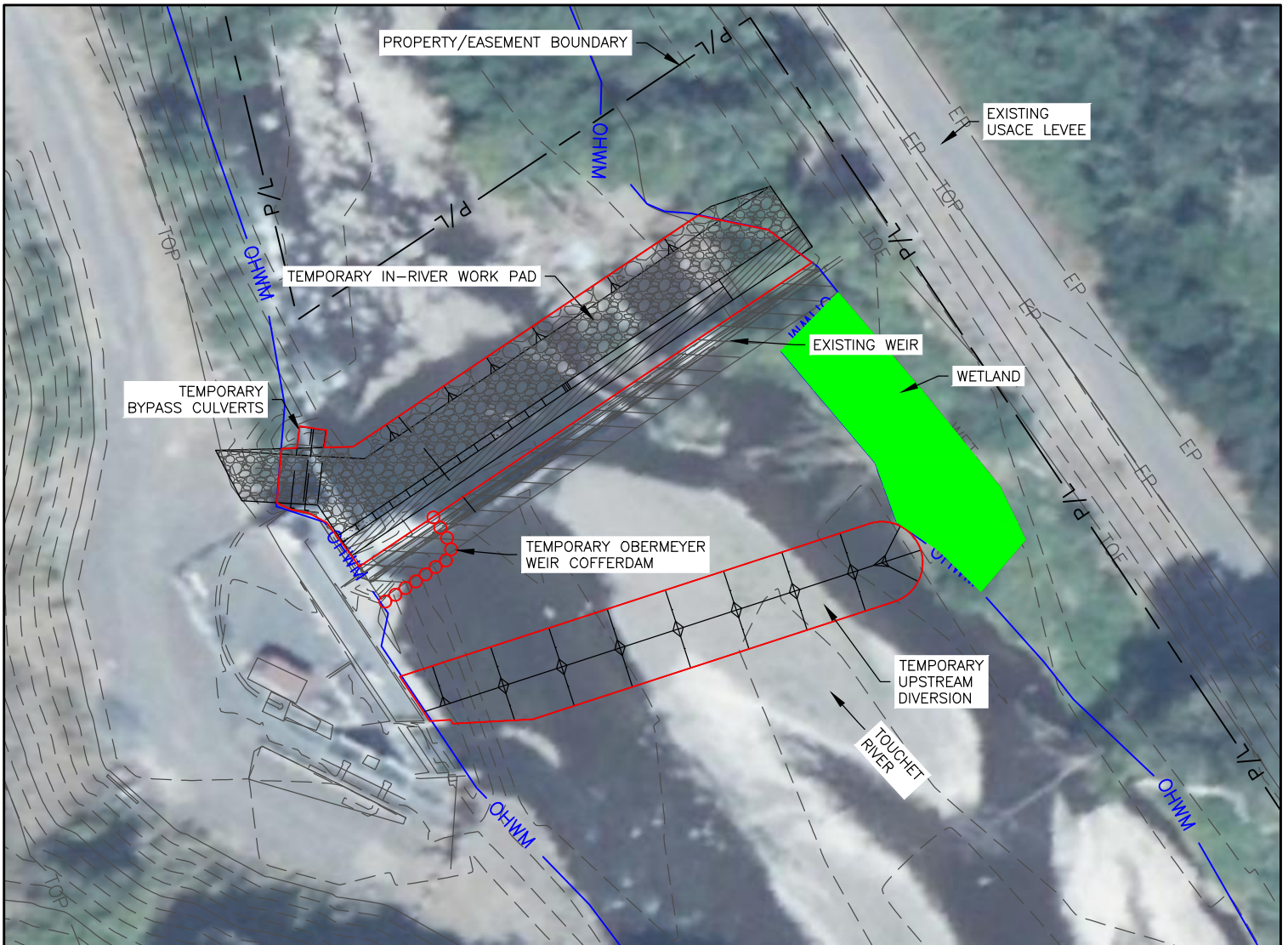
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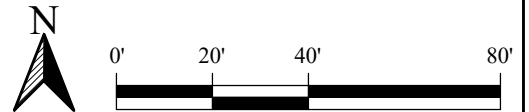
FIGURE 5 OF 8
BANK REPAIR SECTIONS
05/02/2022

PRELIMINARY NOT FOR CONSTRUCTION



NOTES:

1. CONSTRUCT BERM ACROSS RIVER UPSTREAM OF FISH LADDER AND DEVELOP CHANNEL TO BYPASS STREAM FLOW INTO FISH LADDER AND INTAKES.
2. INSTALL 20 FT LONG 4'Ø CULVERTS AT FISH LADDER OUTLET.
3. CONSTRUCT RAMP USING RIPRAP INTO RIVER AND DEVELOP WORK PLATFORM DOWNSTREAM OF WEIR.
4. FROM WORK PLATFORM PULL BACK RIPRAP PLACED IN 2021 AND EXCAVATE TO BEDROCK.
5. INSTALL PRECAST CONCRETE BLOCK BULKHEAD TO ELEVATION 6" ABOVE BOTTOM OF FOOTING AND PLACE RIPRAP ON THE DOWNSTREAM SIDE OF BULKHEAD.
6. CORE THROUGH WEIR SILL TO FOOTING. AT 5' INTERVALS PUMP CLSM THROUGH CORE HOLES TO A HEIGHT LEVEL W/ TOP OF BULKHEAD.
7. REMOVE TEMPORARY WORK PAD BY PLACING MATERIAL OVER BULKHEAD AND FOOTING. PULL BACK WORK PAD TO OBERMEYER WEIR SECTION.
8. RETURN PARTIAL FLOW RIGHT HAND SIDE OF RIVER.
9. COMPLETE CONSTRUCTION OF OBERMEYER WEIR.
10. REMOVE TEMPORARY WORKS FROM RIVER.



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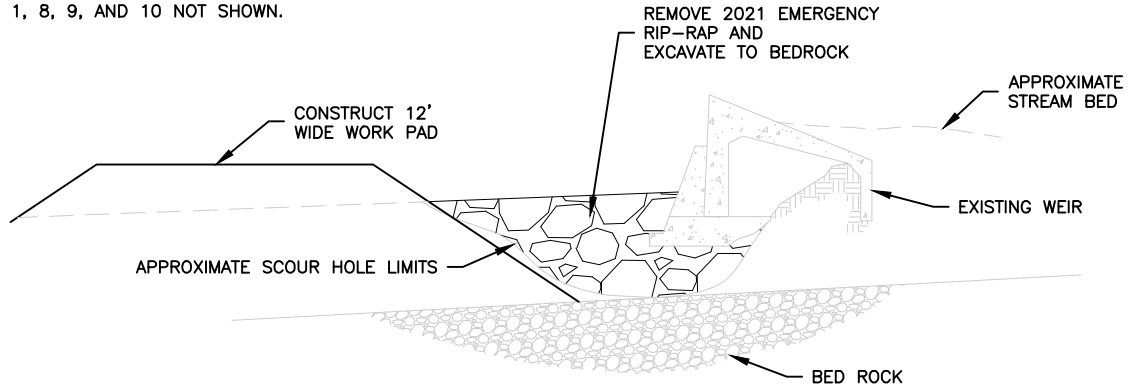
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TOUCHET RIVER
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FIGURE 6 OF 8
DEWATERING PLAN
05/02/2022

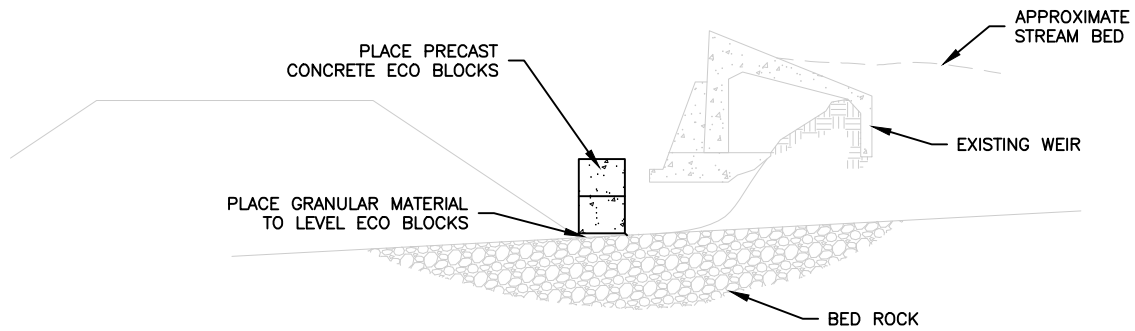
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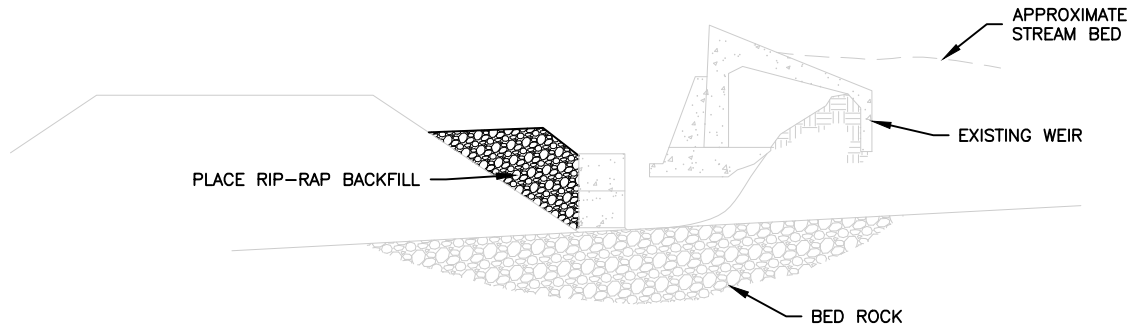
1. STEPS 1, 8, 9, AND 10 NOT SHOWN.



STEP 2
NTS



STEP 3
NTS



STEP 4
NTS

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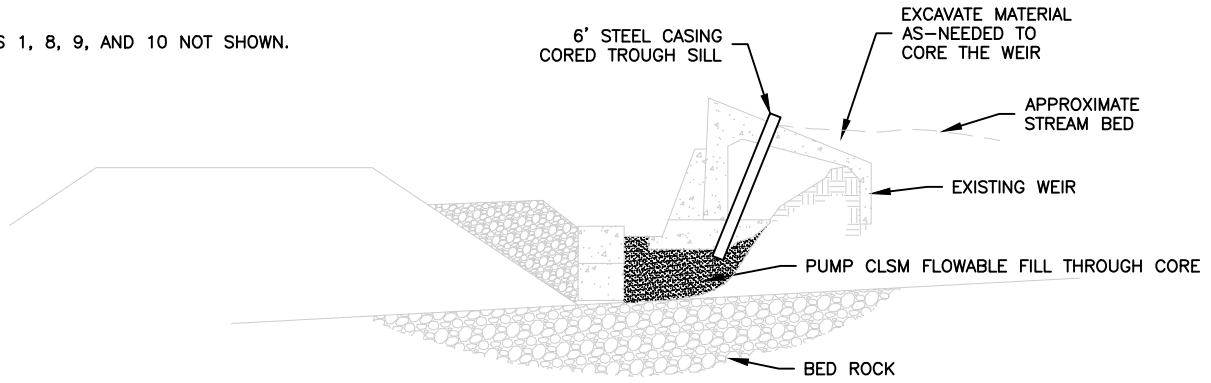
FIGURE 7 OF 8
CONSTRUCTION SEQUENCE ONE

05/02/2022

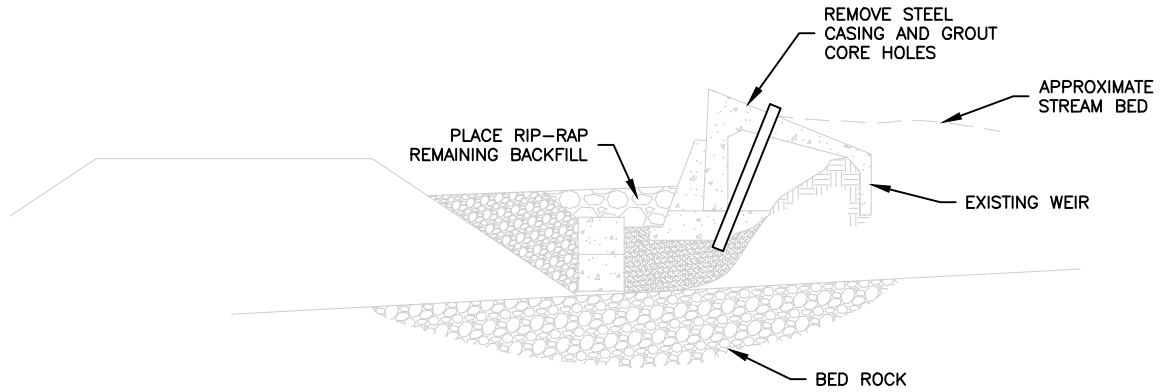
PRELIMINARY NOT FOR CONSTRUCTION

NOTE:

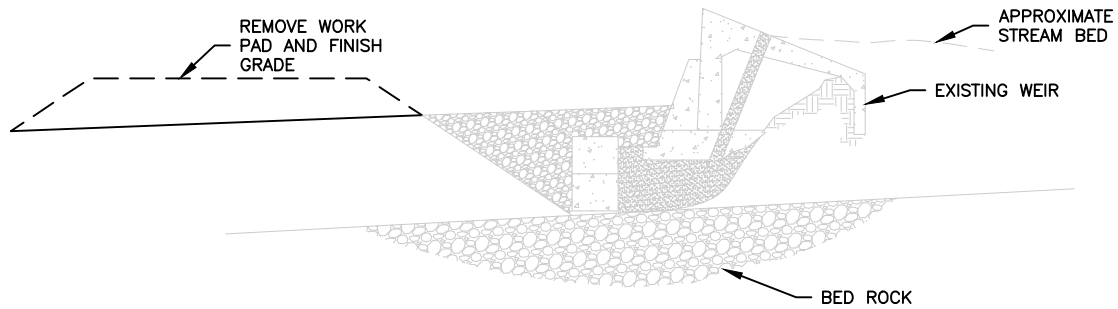
1. STEPS 1, 8, 9, AND 10 NOT SHOWN.



STEP 5
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STEP 6
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STEP 7
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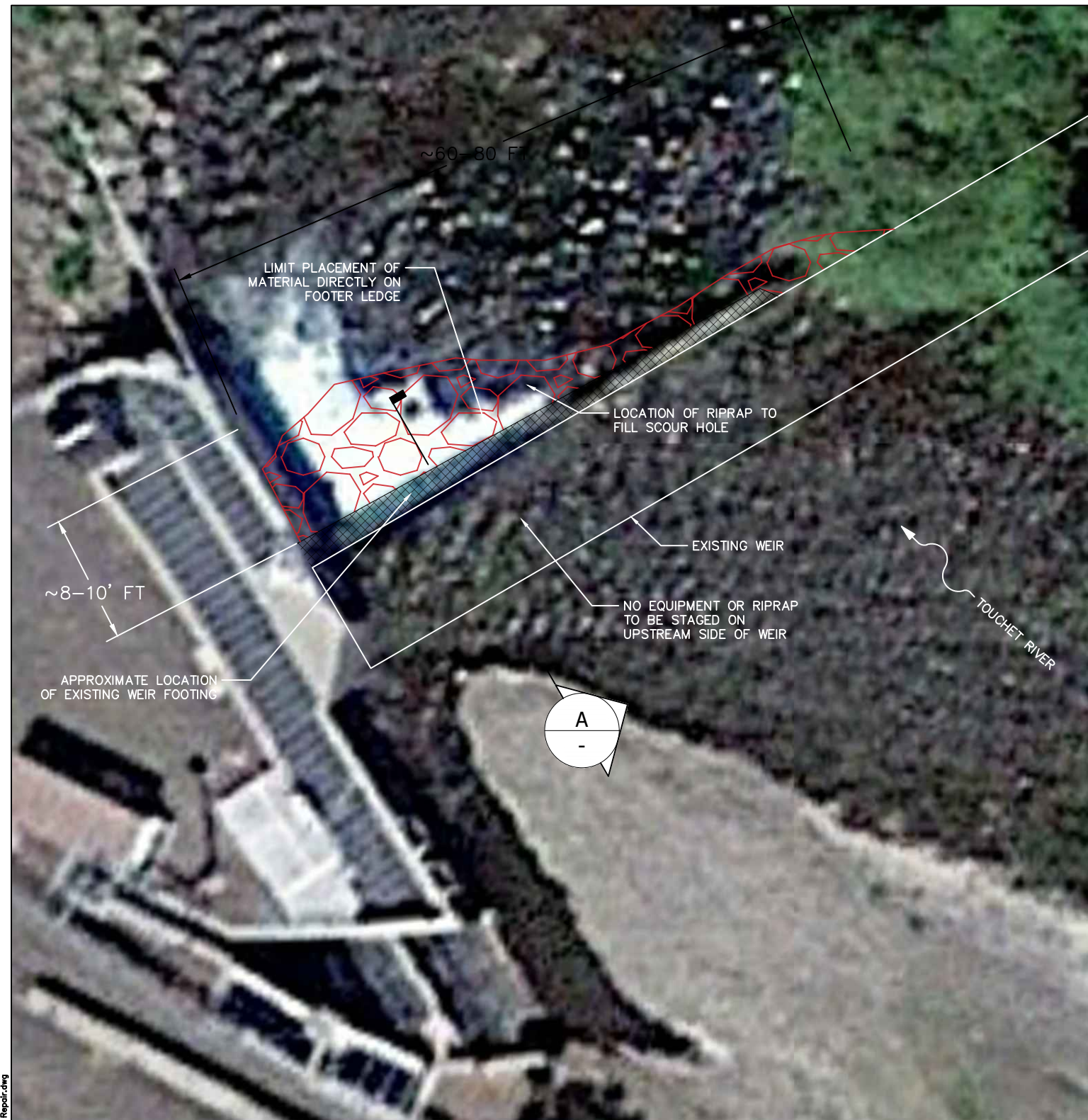
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46.3118/-117.9729 (WGS84)

FIGURE 8 OF 8
CONSTRUCTION SEQUENCE TWO

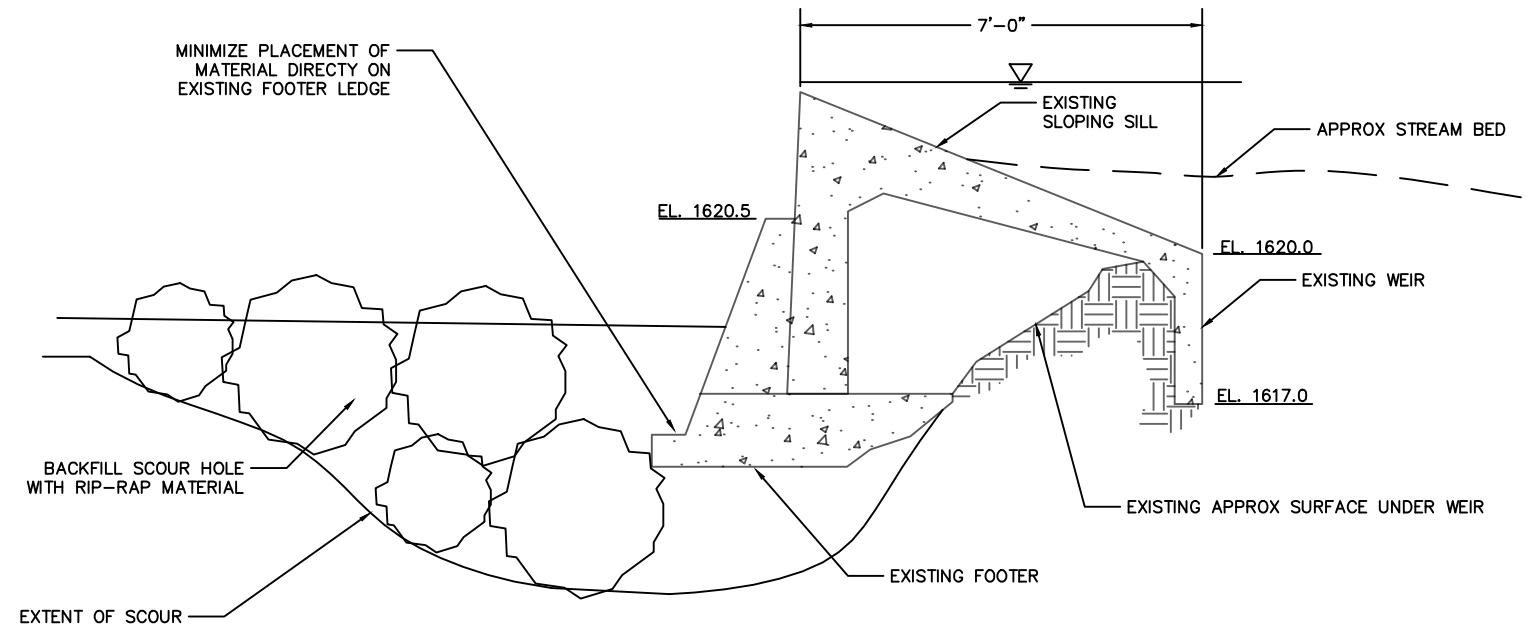
05/02/2022

PRELIMINARY NOT FOR CONSTRUCTION



DESCRIPTION OF WORK

1. PLACE 2 FT-3 FT Ø RIPRAP ALONG DOWNSTREAM FOOTING OF EXISTING WEIR IN SCOUR HOLE
2. LIMIT PLACEMENT OF MATERIAL ON LEDGE OF FOOTER THAT PROTRUDES FROM DOWNSTREAM FACE OF WEIR
3. FILL HOLE APPROXIMATELY 3 FT ABOVE BOTTOM OF FOOTING
4. NO EXCAVATION OF RIVER BED SHALL OCCUR
5. PLACE RIPRAP SO THAT ROCKS INTERLOCK WITH EACH OTHER AND FORMS STABLE SURFACE THAT RESISTS MOVEMENT WITH EXCAVATOR BUCKET.
6. NO WORK OR STAGING SHALL OCCUR FROM UPSTREAM PORTION OF WEIR.



PLAN
NTS

A
SECTION
NTS

C:\Users\Cody\OneDrive\Box\Projects\WIS\Dayton\4.0 CAD\Emergency Repair.dwg

NO.	DATE	DESCRIPTION	APPD.	DRAWING REFERENCES:

DESIGNED BY	DATE APPD.
DRAWN BY	PROJECT MGR.
CHECKED BY	

WATER, CIVIL, AND ENVIRONMENTAL INC.
 514 NORTH 16TH STREET
 BOISE, IDAHO 83702
 (208) 319-9744

USFWS DAYTON POND
 401 SOUTH COTTONWOOD STREET
 DAYTON WASHINGTON

CONSTRUCTION COMPLETED
 BETWEEN JUNE 30 AND JULY 2,
 2021.

USFWS
 DAYTON POND SATELLITE FACILITY
 INTAKE WEIR
 EMERGENCY FILL OF RIPRAP MATERIAL

JOB NO.
SHEET NO.
FIG 1
1 OF 1

Appendix B

Photographs



Photograph 1 (October 2021). Weir looking Southwest from USACE Levee.



Photograph 2 (July 2021). Aerial View of Weir and 2021 Emergency Riprap Installation.



Photograph 3 (October 2021). Intake/Fish Ladder looking Southwest.



Photograph 4 (October 2021). Gravel Dredging Area Upstream of New Obermeyer Weir looking Downstream.



Photograph 5 (October 2021). New Obermeyer Weir Area looking Upstream.



Photograph 6 (October 2021). Weir and Riprap looking Southwest.



Photograph 7 (October 2021). Weir and Riprap looking Northeast.



Photograph 8 (October 2021). Touchet River Downstream of Weir looking Downstream.



Photograph 9 (October 2021). USACE Levee adjacent to Touchet River looking Southeast.



Photograph 10 (October 2021). Upland on the West Side of the Weir.



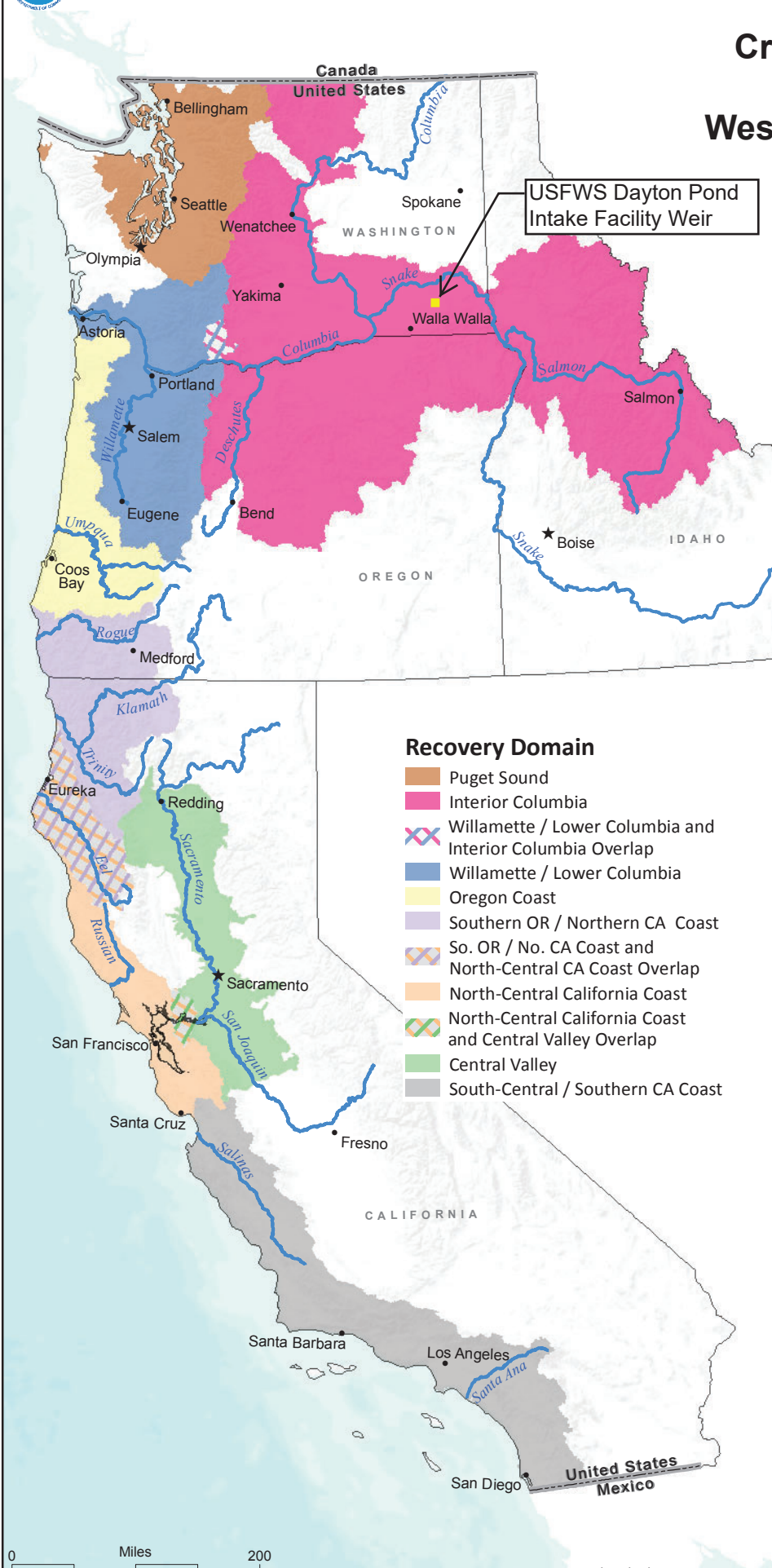
Photograph 11 (October 2021). Upland Access Road.



Photograph 12 (October 2021). Upland Access Road.

Appendix C
Species Lists & Critical Habitat

Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead



- Recovery Domain**
- Puget Sound
 - Interior Columbia
 - Willamette / Lower Columbia and Interior Columbia Overlap
 - Willamette / Lower Columbia
 - Oregon Coast
 - Southern OR / Northern CA Coast
 - So. OR / No. CA Coast and North-Central CA Coast Overlap
 - North-Central California Coast
 - North-Central California Coast and Central Valley Overlap
 - Central Valley
 - South-Central / Southern CA Coast

Evolutionarily Significant Unit / Distinct Population Segment	ESA Status	Date of ESA Listing	Date of CH Designation
Puget Sound Recovery Domain			
Hood Canal Summer-run Chum Salmon	T	3/25/1999	9/2/2005
Ozette Lake Sockeye Salmon	T	3/25/1999	9/2/2005
Puget Sound Chinook Salmon	T	3/24/1999	9/2/2005
Puget Sound Steelhead	T	5/11/2007	2/24/2016

Interior Columbia Recovery Domain			
Middle Columbia River Steelhead	T	3/25/1999 1/5/2006	9/2/2005
Snake River Fall-run Chinook Salmon	T	4/22/1992	12/28/1993
Snake River Spring / Summer-run Chinook Salmon	T	4/22/1992	10/25/1999
Sockeye Salmon	E	11/20/1991	12/28/1993
Snake River Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Upper Columbia River Spring-run Chinook Salmon	E	3/24/1999	9/2/2005
Upper Columbia River Steelhead	T	8/18/1997 1/5/2006	9/2/2005

Willamette / Lower Columbia Recovery Domain			
Columbia River Chum Salmon	T	3/25/1999	9/2/2005
Lower Columbia River Chinook Salmon	T	3/24/1999	9/2/2005
Lower Columbia River Coho Salmon	T	6/28/2005	2/24/2016
Lower Columbia River Steelhead	T	3/19/1998 1/5/2006	9/2/2005
Upper Willamette River Chinook Salmon	T	3/24/1999	9/2/2005
Upper Willamette River Steelhead	T	3/25/1999 1/5/2006	9/2/2005

Oregon Coast Recovery Domain			
Oregon Coast Coho Salmon	T	2/11/2008	2/11/2008

Southern Oregon / Northern California Coast Recovery Domain			
Southern OR / Northern CA Coasts Coho Salmon	T	5/6/1997	5/5/1999

North-Central California Coast Recovery Domain			
California Coastal Chinook Salmon	T	9/16/1999	9/2/2005
Central California Coast Coho Salmon	E	10/31/1996 (T) 6/28/2005 (E) 4/2/2012 (RE)	5/5/1999
Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Northern California Steelhead	T	6/7/2000 1/5/2006	9/2/2005

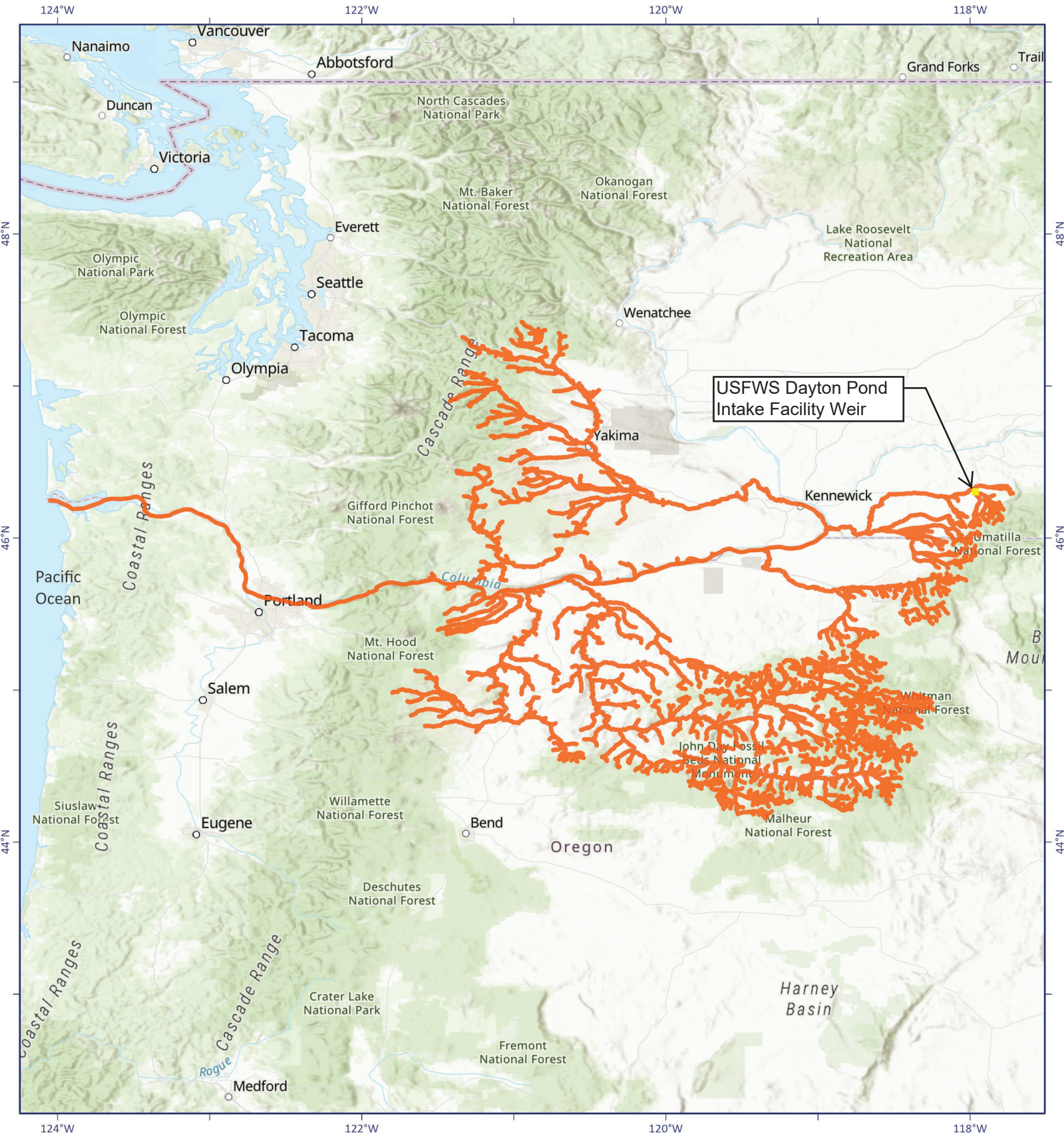
Central Valley Recovery Domain			
California Central Valley Steelhead	T	3/19/1998 1/5/2006	9/2/2005
Central Valley Spring-run Chinook Salmon	T	9/16/1999	9/2/2005
Sacramento River Winter-run Chinook Salmon	E	11/5/1990 (T) 1/4/1994 (E)	6/16/1993

South-Central / Southern California Coast Recovery Domain			
South-Central California Coast Steelhead	T	8/18/1997 1/5/2006	9/2/2005
Southern California Steelhead	E	8/18/1997 5/1/2002 (RE) 1/5/2006	9/2/2005

ESA = Endangered Species Act, CH = Critical Habitat, RE = Range Extension
E = Endangered, T = Threatened

Endangered Species Act - Final critical habitat
 Steelhead [Middle Columbia River DPS]
 Federal Register rule: 70 FR 52630 9/2/2005

The spatial data on this map represent critical habitat locations; however, the complete description and official boundaries of critical habitat proposed or designated by NMFS are provided in proposed rules, final rules, and the Code of Federal Regulations (50 CFR 226). Official critical habitat boundaries may include regulatory text that modifies or clarifies maps and spatial data. Proposed rules, final rules, and the CFR also describe any areas that are excluded from critical habitat or otherwise not part of critical habitat (e.g., ineligible areas), some of which have not been clipped out of the spatial data.



NOAA National Marine Fisheries Service
 Endangered Species Act (ESA) critical habitat data are available via web maps, services, and a geodatabase.
 National resource: <https://www.fisheries.noaa.gov/resource/map/critical-habitat-maps-and-gis-data>
 West Coast Region resource: <https://www.fisheries.noaa.gov/resource/map/protected-resources-app>

Map created: 11/22/2021
 Map author: Shanna Dunn (shanna.dunn@noaa.gov)
 Protected Resources Division, West Coast Region, NMFS
 Data source: NMFS_ESA_Critical_Habitat_20210907.gdb

Basemap credits: State of Oregon GEO, WA State Parks GIS, Esri Canada, Esri, HERE, Garmin, FAO, NOAA, USGS, Bureau of Land Management, EPA, NPS, Esri, FAO, NOAA, Esri, USGS

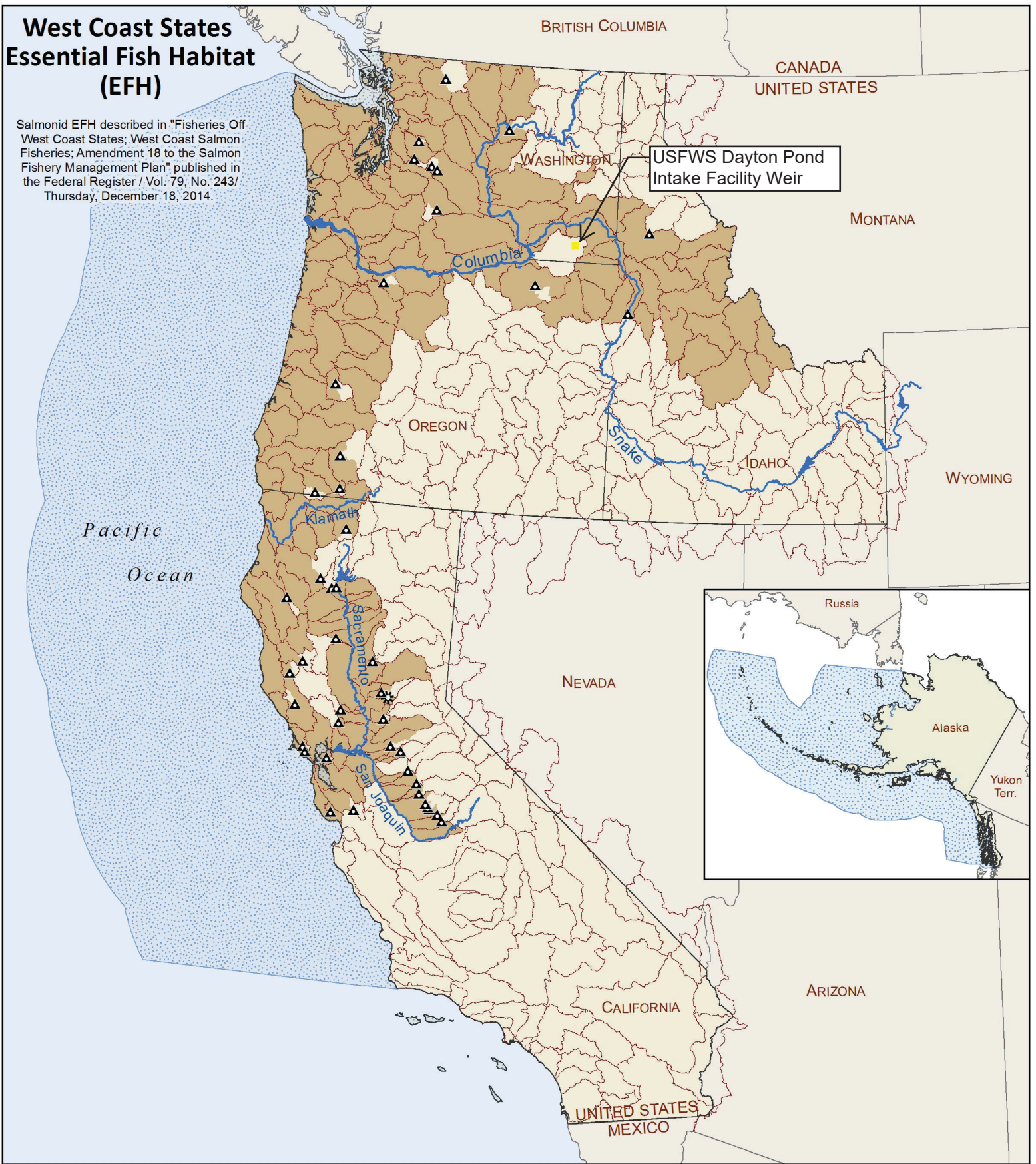
critical habitat

0 65 130 km

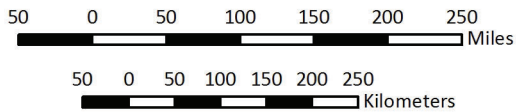
NOAA FISHERIES

West Coast States Essential Fish Habitat (EFH)

Salmonid EFH described in "Fisheries Off West Coast States; West Coast Salmon Fisheries; Amendment 18 to the Salmon Fishery Management Plan" published in the Federal Register / Vol. 79, No. 243/ Thursday, December 18, 2014.



Impassable Dam	Salmon EFH (2014)	Marine Salmon EFH (2014)	4th Field Hydrologic Unit (HU)
Natural Barrier			



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