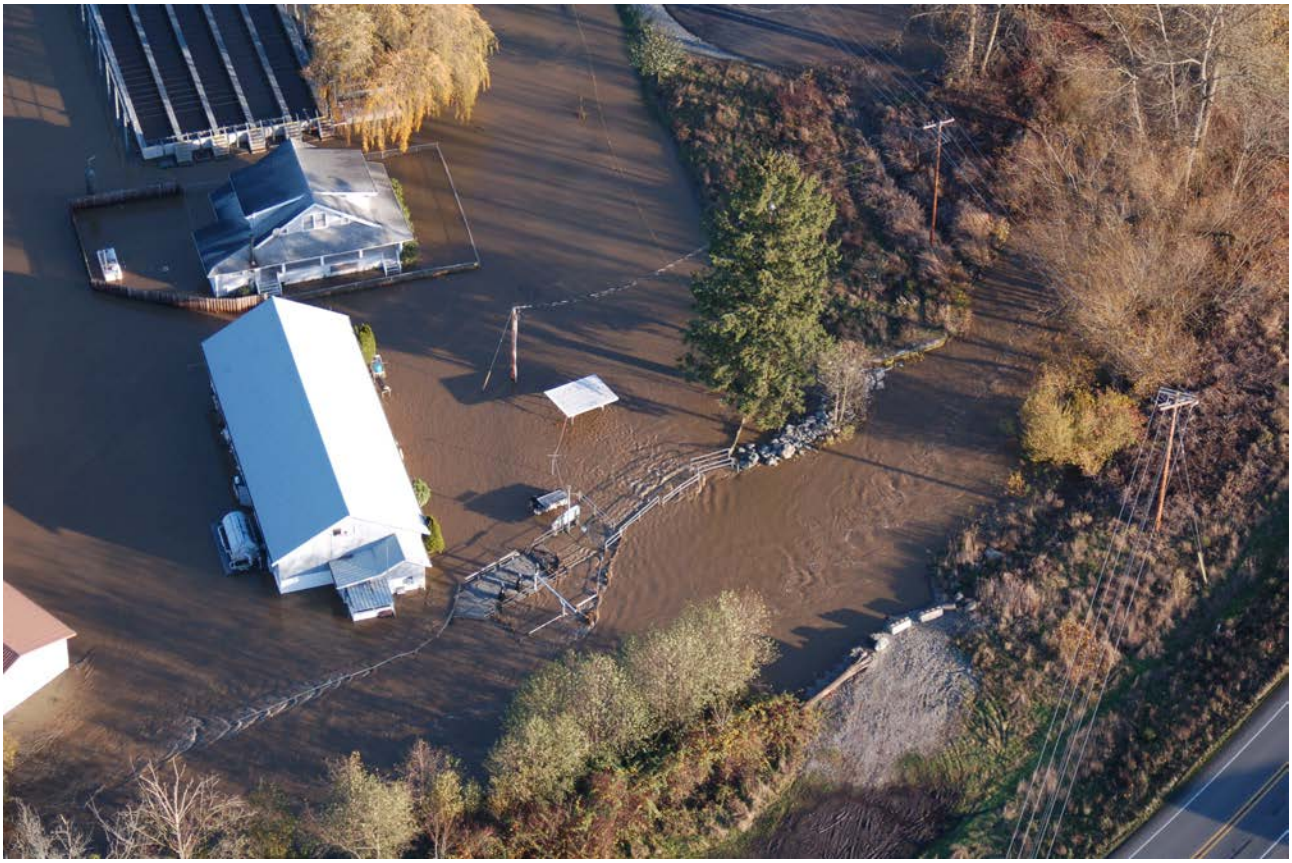

Final Environmental Assessment

Voights Creek Fish Hatchery Repair and Replacement

Pierce County, Washington

FEMA-1817-DR-WA (Public Assistance)
Applicant: Washington Department of Fish and Wildlife

April 2013

FEMA

U.S. Department of Homeland Security
Federal Emergency Management Agency, Region X
130 228th Street SW
Bothell, WA 98021
425-487-4600

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Acronyms and Abbreviations

AADT	Annual Average Daily Traffic
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
AHERA	Asbestos Hazard Emergency Response Act
AHS	Archaeological and Historical Services
APE	Area of Potential Effects
ARL	Agricultural Resource Land
BA	Biological Assessment
BiOp	Biological Opinion
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DAHP	Washington Department of Archaeology and Historic Preservation
dBA	A-weighted decibel
DFIRM	Digital Flood Insurance Rate Map
DPS	Distinct Population Segment
EA	Environmental Assessment
EDNA	environmental designation for noise abatement
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ELJ	Engineered Log Jam
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FR	Federal Register
GHG	greenhouse gas
GIS	geographic information system
GMA	Growth Management Act
HPA	Hydraulic Project Approval
HUC	Hydrologic Unit Code
LBP	lead-based paint
MBTA	Migratory Bird Treaty Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places

NTU	nephelometric turbidity unit
NWI	National Wetlands Inventory
OHWM	Ordinary High Water Mark
PA	Public Assistance
PCB	polychlorinated biphenyls
PCC	Pierce County Code
PFMC	Pacific Fisheries Management Council
PHS	Priority Habitats and Species
PNP	Private Non-Profit
PS	Puget Sound
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Officer
SMA	Shoreline Management Act
SMP	Shoreline Management Plan
SPCC	spill prevention, control, and countermeasures
SR	State Route
SWPPP	stormwater pollution prevention plan
TCP	Traditional Cultural Property
TESC	temporary erosion and sediment control
U.S.C.	United States Code
UGA	Urban Growth Area
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WDOE	Washington Department of Ecology
WNHP	Washington Natural Heritage Program
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation

1.0 INTRODUCTION

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to provide financial assistance to the Washington Department of Fish and Wildlife (WDFW) for a project approximately 2 miles southeast of the town of Orting in unincorporated Pierce County, Washington, on State Route (SR) 162 (Figure 1-1). WDFW requested funding assistance for the repair and replacement of an existing but flood-damaged fish hatchery. The existing Voights Creek Fish Hatchery facilities were damaged during storms in January 2009. A presidential disaster was declared in the region on January 30, 2009, making funds available to public entities for disaster-related damage. The legal description of the project area is Township (T) 18 North (N), Range 5 East (E), Section 4 and T19N, R5E, Section 33, Willamette Meridian. Coordinates are: Latitude 47.082374, Longitude -122.178325.

Based on the presented analysis and comments received from the public and agencies on the Draft EA, no significant impacts were identified. Therefore, FEMA has prepared a Finding of No Significant Impact (FONSI). A summary of comments on the Draft EA are described in Section 5.1.1.

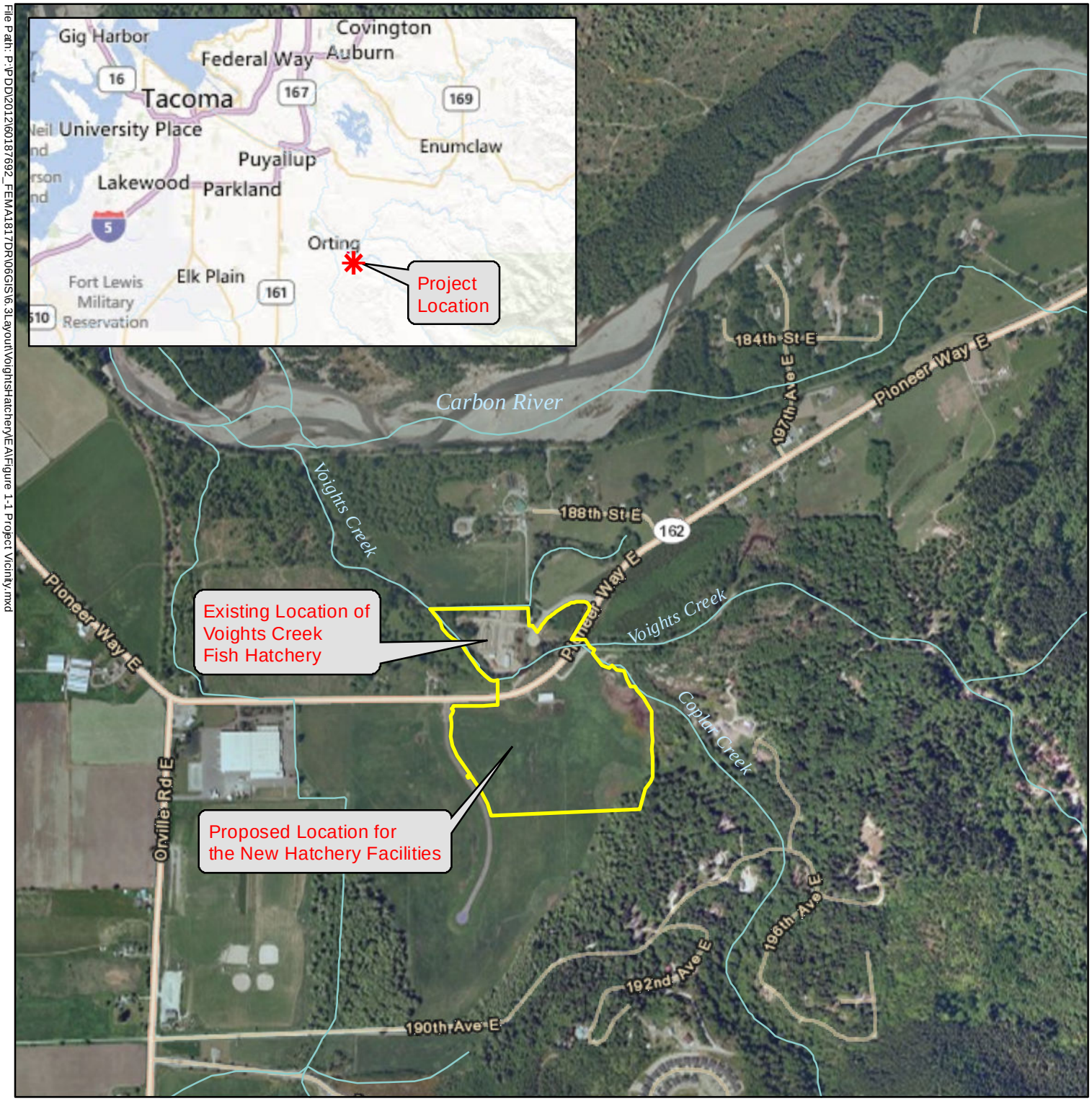
1.1 PROJECT HISTORY

The Voights Creek Fish Hatchery has been operating on the lower reach of Voights Creek since the early 1900s and over the years produced various salmon and trout species. The facility historically produced Chinook (*Oncorhynchus tshawytscha*) and coho salmon (*O. kisutch*), with an annual production of 1.6 million fall Chinook salmon, 780,000 coho salmon, and another 100,000 coho for the Puyallup Tribe of Indians. However, in 2009, no fish were produced at the hatchery, and in 2010, while coho have remained at historic production rates, Chinook production was only 400,000. WDFW anticipates Chinook production to return to pre-flood number (pers. comm., Smith 2012).

The existing hatchery facility is within the 100-year floodplain of Voights Creek and has experienced damaging floods in the years 1965, 1996, 1997, 2006, and 2009. During the January 2009 event (January 6 through 16), record flooding occurred in the Voights Creek drainage as a result of torrential rains. Flood-borne woody debris and stream bedload in Voights Creek blocked an existing gravity intake structure (referred to in this report as Intake #1) that provided the main water source for hatchery operations. Voights Creek changed course, severing the connection of one of the hatchery's two intake structures to the water source (Figure 1-2). Other hatchery facilities were also damaged by the storm, including an access road and bridge.

The proposed project is to replace and relocate the existing flood-prone Voights Creek Fish Hatchery facilities with new facilities outside the 100-year floodplain on Voights Creek, across the creek from and south of its current location. Relocating the hatchery facilities would avoid repetitive damage from future flood events and establish a more secure and reliable source of water for hatchery operations. The project has been approved for funding by the State Legislature and would be funded using state appropriations and federal FEMA funds. The hatchery relocation project is also supported by the Puyallup Tribe of Indians.

File Path: P:\PDD\2012\60187692_FEMA1817DR\06GIS\6.3Layout\VoightsHatcheryEA\Figure 1-1 Project Vicinity.mxd



Voights Creek Fish Hatchery Project
FEMA 1817-DR-WA PW 1532
Environmental Assessment

0 750 1,500 Feet

N

Figure 1-1. Project Vicinity

T19N, R5E, Section 33
T18N, R5E, Section 4
Latitude 47.082374, Longitude -122.178325

Project Area

Stream

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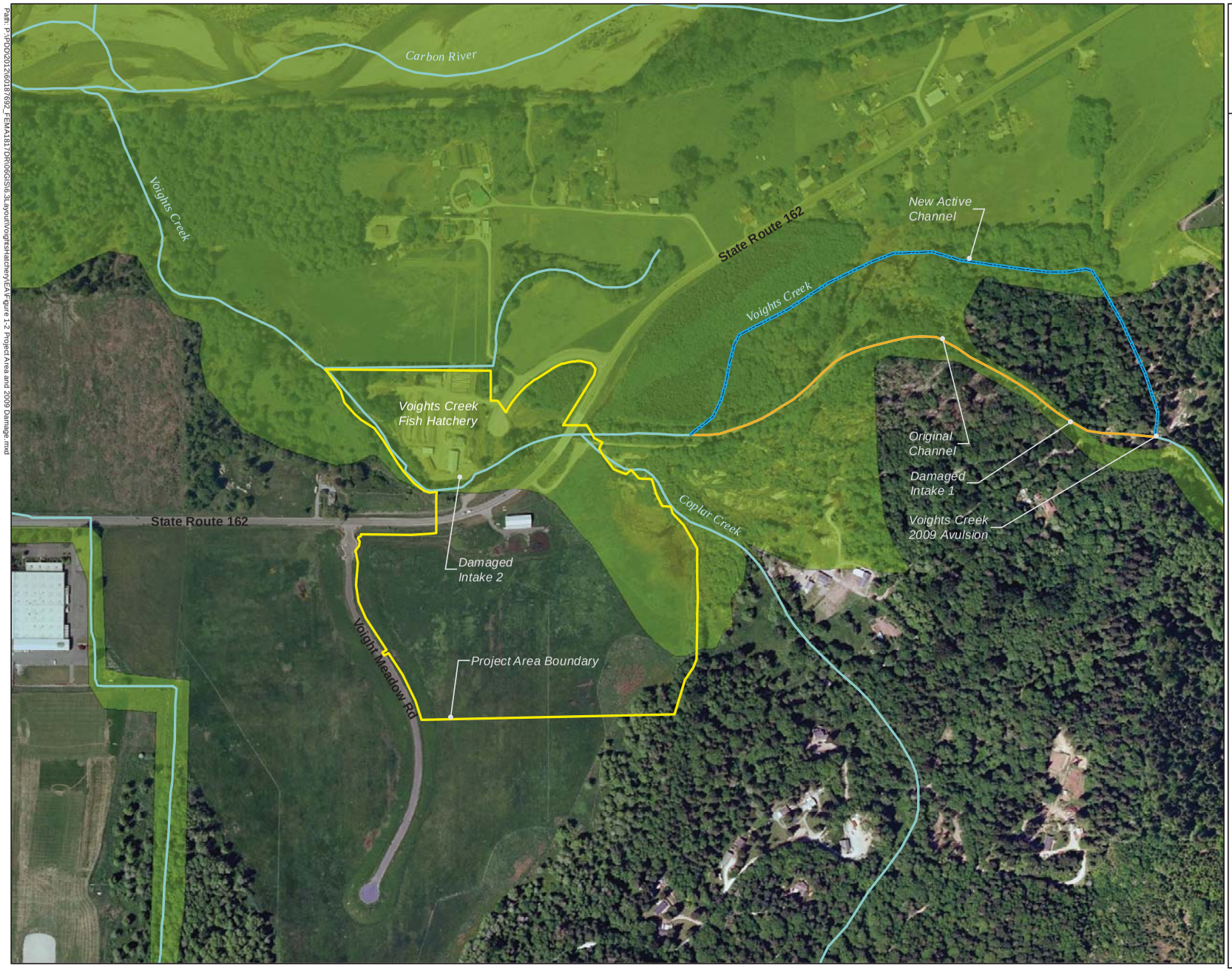
Date Printed: March 2013



Path: P:\PDOC\2016\316076\92_FEMA1817DR06\GIS\3_layout\VoightsHatcheryEA\Figure 1-2. Project Area and 2009 Damage.mxd

Voights Creek Fish Hatchery Project
FEMA 1817-DR-WA PW 1532

Environmental Assessment

Figure 1-2.
Project Area and 2009 Flood Damage

Legend

- Project Area
- Active Channel
- Original Channel
- Stream

Special Flood Hazard Zone

- Revised Preliminary Map

T19N, R5E, Section 33
T18N, R5E, Section 4
Latitude 47.082374, Longitude -122.178325

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1.2 AUTHORITY AND JURISDICTION

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, provides federal assistance programs for both public and private losses sustained in disasters. This project is authorized under a major disaster declared by the president on January 30, 2009 (FEMA-1817-DR-WA).

In accordance with the National Environmental Policy Act (NEPA) of 1969, FEMA must evaluate the environmental consequences of proposed actions on the natural and human environment before deciding to fund an action, including evaluating alternative means of addressing the purpose and need for a federal action. The President's Council on Environmental Quality (CEQ) has developed a series of regulations for implementing NEPA. These regulations are included in Title 40 of the Code of Federal Regulations (CFR), Parts 1500–1508.

As part of the NEPA process, FEMA prepared this Environmental Assessment (EA) to analyze potential effects associated with the hatchery relocation project. The EA was prepared in accordance with both CEQ and FEMA regulations for NEPA (44 CFR Part 10) to determine if the proposed action will have a significant impact on the human environment.

FEMA is also using the EA to help document compliance with other applicable federal laws and executive orders, including the Endangered Species Act (ESA), the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the Clean Water Act (CWA), the National Historic Preservation Act (NHPA), Executive Order (EO) 11988 (Floodplains), EO 11990 (Wetlands), and EO 12898 (Environmental Justice).

2.0 PURPOSE AND NEED

The purpose of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, is to provide a range of federal funding assistance to state and local governments to supplement efforts and resources in alleviating damage or loss from major disasters and/or emergencies. The objective of the FEMA Public Assistance (PA) Grant Program is to provide assistance to state, tribal, and local governments, and certain types of Private Non-Profit (PNP) organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the president. Through the PA Grant Program, FEMA provides supplemental federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, restoration, or relocation of disaster-damaged, publicly owned facilities and the facilities of certain PNP organizations.

The need for this project and FEMA action is to restore the function of the hatchery while avoiding and/or minimizing impacts on the floodplain. Moreover, WDFW needs to establish a more secure and reliable source of water for continued operations at the Voights Creek Fish Hatchery.

To meet the project need, WDFW has identified the following project objectives:

- Establish a reliable source of water essential to hatchery operations.
- Support sport, commercial, and tribal fishing opportunities in the Puyallup River system.
- Minimize the potential for damage during future storms.
- Minimize construction-related environmental impacts.
- Minimize annual maintenance and construction-related costs.
- Provide safe, secure, and permanent public and employee access to the Voights Creek Fish Hatchery.
- Restore and preserve the natural and beneficial values of the floodplain.

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3.0 ALTERNATIVES

The CEQ regulations require federal agencies to consider a reasonable range of alternatives that meet the purpose and need of a proposed action in their NEPA review. Reasonable alternatives are alternative ways of meeting project need, but with varying degrees of environmental impact. Alternatives that would clearly result in substantially greater environmental impact than the Proposed Action do not require detailed analysis.

The following sections describe the alternatives being considered for the Voights Creek Fish Hatchery Project, and the process used to develop these alternatives. This EA presents an analysis of three alternatives for the project: Alternative A (No Action Alternative), Alternative B (Proposed Action), and Alternative C (Rebuild Hatchery Facilities in Place). It also describes alternatives that were initially considered but not carried forward for further analysis. Please note that under all the alternatives evaluated, the hatchery production and management goals will remain unchanged from current conditions. The EA, therefore, does not address potential impacts of the alternatives on wild fish populations from hatchery production.

3.1 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

FEMA requested that WDFW identify possible systems for re-establishing a supply of gravity water to Voights Creek Fish Hatchery facilities; alternatives initially explored in the alternative scoping effort included the following: restore the creek to its original channel, using the existing intake and pipeline; access Voights Creek at its current rechanneled location and construct a new surface intake and delivery system to the hatchery; and access Voights Creek from a sub-surface collection and delivery system to the hatchery (FEMA 2012a). WDFW contracted with MWH to investigate the feasibility of alternatives and provide cost estimates for re-establishing a supply of gravity water to the fish hatchery (MWH 2010). Several alternatives were reviewed but eliminated from further consideration because they did not meet the project purpose and need, they were not practical, or they were not suitable for FEMA funding under its PA program. These alternatives are listed and described below, summarized from WDFW's feasibility study (MWH 2010).

Alternative 1 - Construct an intake structure on the new stream channel. This alternative would establish a new intake structure on the new stream channel and replace the dam diversion and fish ladder with new structures that are consistent with National Marine Fisheries Service (NMFS) fishway facility design standards (NMFS 2008). This alternative is considered impractical because of the following issues:

- Project engineers could not identify an acceptable intake location on the new main stream channel of Voights Creek (MWH 2010). The channel banks are minimal and the channel itself was braided in some locations.

- High probability that Voights Creek may change course in the near future and sever the water source from the hatchery (MWH 2010).

Alternative 2 - Construct an intake upstream of the avulsion. An alternative would be to move the intake structure upstream of the avulsion and allow the creek to continue to develop its channel

between the avulsion and the SR 162 bridge. This alternative would require property purchase and extend the length of the pipeline to the hatchery. This alternative is considered impractical because of the following issues:

- Substantial environmental impacts on fish habitat due to extensive bank armoring in Voights Creek. Riprap embankments would need to be constructed for 500–1,000 linear feet along Voights Creek resulting in unacceptable habitat modification.

- Substantially higher costs would be incurred to purchase additional property, stabilize and armor stream banks, and excavate additional area to extend the pipeline.

Alternative 3 – Construct an infiltration gallery. This alternative would include an infiltration gallery, a system that typically utilizes perforated pipe buried beneath or adjacent to the creek or river to collect water from within the zone of surface water influence. This alternative is considered impractical because of the following issues:

- NMFS considers infiltration galleries to be experimental technology because of numerous potential failure modes and the high risk that the piping would have to be excavated to repair and maintain, causing significant habitat disturbance (MWH 2010).

- Given the geologic conditions along Voights Creek, along with the sediment and bed load conditions, regular plugging of an infiltration gallery is highly probable and would greatly reduce the reliability of this alternative versus a surface water diversion (MWH 2010).

- The gallery could also become unusable due to low flow depths in the channel or because the stream channel moves laterally in the future and may not be active over portions of the perforated pipe. At these times, the gallery would be required to shut down until higher flows return or maintenance can be performed (MWH 2010).

3.2 ALTERNATIVE A – NO ACTION

Under the No Action Alternative, FEMA would not provide funding to WDFW to repair and improve the Voights Creek Fish Hatchery. Partial funding allocated by the state legislature is committed to the project. Because of budget shortages and resource constraints, identifying additional funding would delay improvements. The existing remaining intake and fish ladder are not in compliance with current NMFS criteria (NMFS 2008). The hatchery facilities would continue to be subject to repetitive damage from future storm events that, depending on extent of damage, could result in the shutdown of operations for an indefinite amount of time and loss of hatchery fish, similar to conditions following the 2009 storms. For purposes of this NEPA analysis, it is assumed that under the No Action Alternative, the existing hatchery facilities would remain in place and not be relocated.

3.3 ALTERNATIVE B – PROPOSED ACTION

Under the Proposed Action, FEMA would provide funding to WDFW to rebuild and relocate the hatchery facilities outside the Voights Creek 100-year flood elevation. The Proposed Action includes

the construction of the new hatchery complex (Figure 3-1, *Proposed Project Footprint and Mitigation Sites*) and installation of surface water intake facilities (Figure 3-2, *Proposed Project New Intake Facilities*). Although the demolition of the existing hatchery is not funded, it is included under the Proposed Action because WDFW has committed to decommissioning the existing hatchery once the new hatchery is operational. WDFW proposes to construct the new fish hatchery immediately south of the existing Voights Creek Fish Hatchery facilities on land owned by WDFW (Appendix A, *Construction Drawings*). Ground-disturbing activities for the new hatchery complex, primarily in the upland areas, include constructing the following (Figure 3-1):

- Ten fish rearing ponds and three adult holding ponds.
- Incubation building and settling pond.
- Office/storage building.
- Pollution abatement and stormwater retention ponds.
- Feed storage building.
- Site grading and asphalt paving.
- House relocation (1917 residence moved from existing hatchery site) with detached garage.
- Associated buried pipelines and utilities.

Ground-disturbing activities for the new intake facilities which are primarily associated with Voights Creek and in-water work include the following (Figure 3-2):

- New water intake
- New fish ladder/fishway.
- New crest gate.
- Mechanical/electrical building.

In addition, all structures on the existing hatchery site would be demolished (as funding allows) as part of the Proposed Action (Appendix A, Sheet 17). The project area includes all sites that may be affected by the Proposed Action, including the footprint of the new hatchery complex and intake facilities and mitigation sites. Project elements and mitigation are described in the following sections.

3.3.1 PROJECT ELEMENTS

New Hatchery Complex

The new hatchery complex site is on an upland parcel on the south side of SR 162, formerly used as a dairy farm (Figure 3-1; Appendix A, Sheet 5). Facilities to be constructed include concrete ponds for holding and rearing fish, a hatchery building for incubating and hatching eggs, a pollution abatement pond for clarifying the water from pond cleaning, a fish feed storage building, and an office/storage building for equipment, administration, and interpretive information. Parking for staff and visitors would be accessed off Voight Meadows Road, which has direct access to SR 162. Although the Voights Creek Fish Hatchery was established in 1917, only a residence remains of the original structures (Emerson and McKenney 2008). The hatchery operations building was built in the 1930s and has been remodeled twice. WDFW is proposing to move the remaining 1917 residence to the new hatchery complex site. The hatchery would permanently convert 130,000 square feet of upland pasture.

Path: P:\PDO\G01\260107692_FEMA1817DR\GIS\G3\Layout\VoightsHatcheryEA\Figure 3-1 Proposed Project.mxd

Voights Creek Fish Hatchery Project
FEMA 1817-DR-WA PW 1532

Environmental Assessment

Figure 3-1. Proposed Project Footprint and Mitigation Sites

Legend

- Project Area
- Project Footprint
- Active Channel
- Original Channel
- Stream
- Wetland Boundary

T19N, R5E, Section 33
T18N, R5E, Section 4
Latitude 47.082374, Longitude -122.178325

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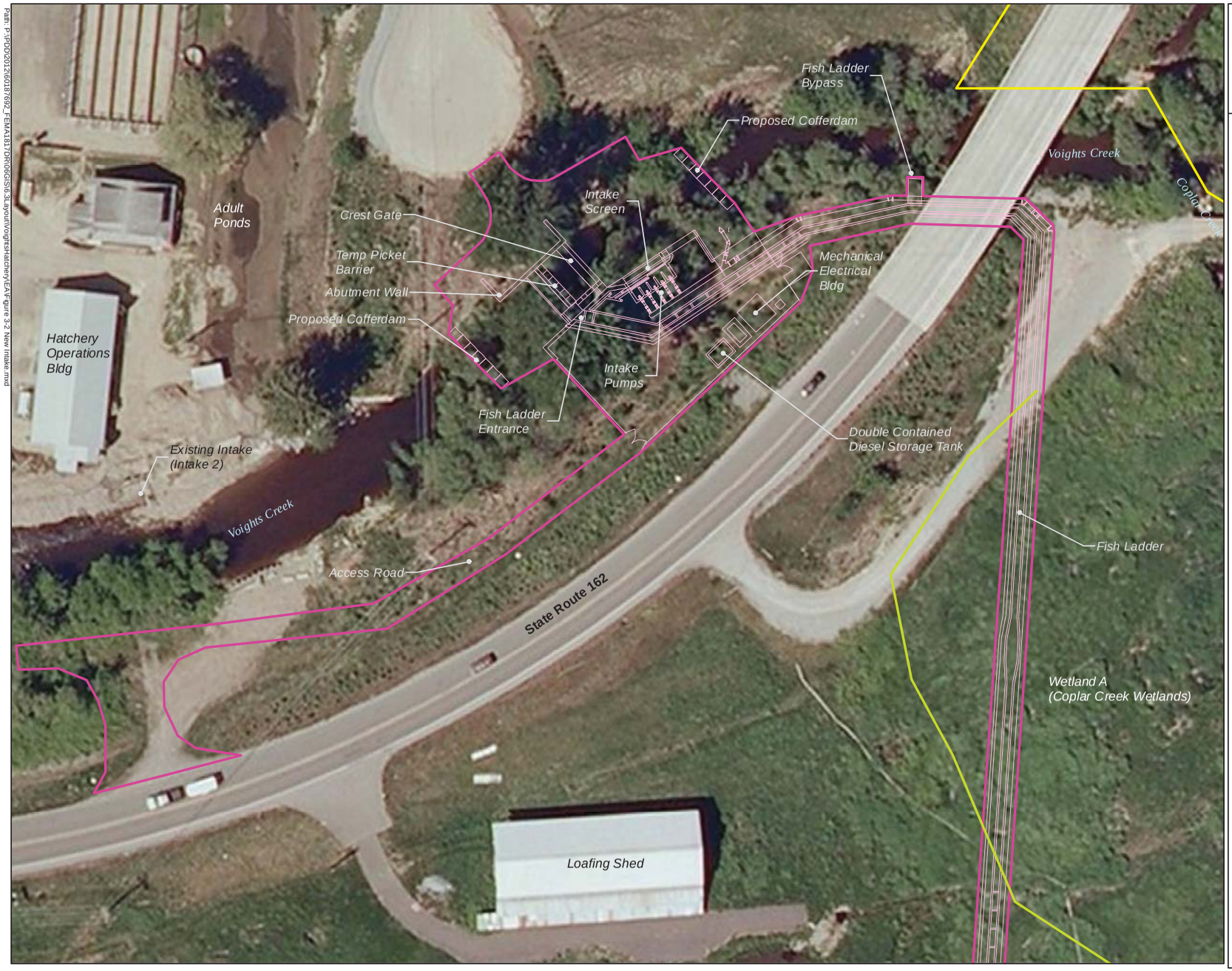

Path: P:\PDO\2012\60187692_FEMA1817DR06\GIS\6.3Layout\VoightsHatcheryEA\Figure 3-2. New Intake.mxd

Voights Creek Fish Hatchery Project
FEMA 1817-DR-WA PW 1532

Environmental Assessment

Figure 3-2. Proposed Project New Intake Facilities

Legend

- Project Area
- Project Footprint
- Wetland Boundary

T19N, R5E, Section 33
T18N, R5E, Section 4
Latitude 47.082374, Longitude -122.178325

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New Intake Facilities

The proposed project includes an intake facility on Voights Creek and a fish ladder to connect the intake facility with the new hatchery complex south of the creek. As with the existing facility, Voights Creek will continue to be the water source for the new hatchery. The new intake is proposed 200 feet upstream of a repaired existing auxiliary intake near the existing hatchery facilities (referred to in this report as Intake #2) (Figure 3-2). Because there is a change in the point of diversion, WDFW is required to amend their existing water right permit issued by the Washington State Department of Ecology (WDOE). Water would be circulated from the new intake to the new hatchery complex and back to the creek at approximately the same location as the intake. No treatment is proposed for water circulated through the fish ladder/fishway.

The design of the new surface water intake facilities includes the intake structure itself, retaining walls, concrete slab and pneumatic weir crossing the stream, bypass, and an abutment on the far (north) bank (Appendix A, Sheets 6–11). The design of the intake structure includes a concrete wall approximately 30 feet in length that supports the fish screen. Five pumps would be mounted approximately 16 feet behind the intake screen face. The screens would consist of heavy duty stainless steel profile bar screening, designed to meet NMFS criteria. A retaining wall along the creek upstream of the intake would serve as a platform for maintenance equipment staging. The 12-inch thick concrete slab that would cross Voights Creek is approximately 34 feet wide and 30 feet long and would serve as the base for the pneumatic weir and picket barrier. This slab would be anchored to the north bank with a concrete abutment wall from the slab to the top of the bank, approximately 9 feet tall and 50 feet long, with 14-foot long wingwalls tied back into the bank. At the top of the bank behind this abutment would be a compacted crushed rock pad for staging of maintenance equipment. Riprap that had been removed for abutment construction would be placed on the banks upstream and downstream of the wingwalls for 15 feet to control local turbulent scour.

The intake includes a concrete structure with perforated metal screens on the left (south) bank of the creek and is designed to meet NMFS criteria for approach velocity. A steel plate weir is proposed that could be pneumatically raised to provide sufficient water depth against the screens. At high flows and during floods, the weir can be lowered to allow gravel and sediment to pass downstream.

The concrete structure would also provide a base for a temporary picket barrier erected across the creek in October and November when the hatchery's adult salmon are returning. The temporary picket barrier would divert adult fish to the hatchery. When the salmon encounter the picket barrier, they would migrate up the fish ladder/fishway and continue to the hatchery adult ponds where WDFW biologists collect broodstock. Wild salmon are also trapped in the adult ponds but would be returned to the creek. When the hatchery is not collecting broodstock, fish that travel up the fish ladder would be diverted through a bypass structure back into the Voights Creek 200 feet upstream of the intake. Passage to the hatchery would be blocked at this point.

The proposed fish ladder/fishway is a below-grade concrete channel approximately 5 feet wide by 6 feet deep and 800 feet in length (Figures 3-1 and 3-2). The water depth in the channel would be approximately 3 feet. This fish ladder/fishway would be covered with steel grating its entire length. The fish ladder/fishway design includes a resting pool.

The pump intake requires a mechanical/electrical building, generator, and diesel storage tank. The 225-square foot mechanical/electrical building would be built from concrete blocks with a metal roof, and a steel compressed air receiver (20 square feet) would be installed next to it. A sound insulated standby generator (130 square feet) and its above-ground double-containment diesel storage tank (135 square feet) would be sited next to the mechanical building. These structures would be sited as far from Voights Creek as practical, above the 100-year flood elevation, and not encroach on the SR 162 right-of-way (pers. comm., Peoples 2013). Access to the intake would be via gravel road from the north side of SR 162 where an existing gravel access exists. The new access would include an asphalt pavement apron at the highway, and the remainder of the access and road would be compacted crushed rock.

To accomplish the work below the Ordinary High Water Mark (OHWM) (in-water work), WDFW will exclude fish from the work zone using protocols and standards outlined by the U.S. Fish and Wildlife Service (USFWS 2012b) and NMFS (2000). Sandbags, supersacks, and visquene sheeting would be used to form cofferdams to isolate the work areas from the stream. For construction of the new intake, the cofferdams would span the entire creek. Once in-water work zones are isolated with the cofferdams, fish salvage/handling may be necessary. One or two large diameter pipes (the specific number, size, and material to be determined by the contractor) would be installed to carry water from upstream around the construction area back into the channel (Appendix A, Sheets 6 and 7). If pumps are needed, the pipe will be housed within a screen box to prevent injury or entrapment of juvenile fish. The project will also comply with any provisions outlined in the required Hydraulic Project Approval (HPA).

The in-stream construction area to be isolated by the cofferdams would be dewatered by pumping from a sump in the dewatered creekbed. An interceptor sump(s) will be constructed just within the cofferdams to intercept leakage from the cofferdam and lower the local groundwater level. This intercepted water will be clear and, as such, will be pumped back into the creek, and will not affect turbidity of the water. Water from other areas within the cofferdam where work is actively being carried out may be turbid, and this water will be collected separately from the interceptor water and pumped to an upland area for settling and infiltration. If the volume of the turbid water being pumped cannot infiltrate, sediment would be allowed to settle out in the upland location, and the clarified water would be pumped back into the creek or into the existing hatchery adult pond, from which it would eventually return to the creek.

Decommissioning of the Existing Hatchery

Once the new hatchery is operational, WDFW would begin plans for decommissioning the existing hatchery, which includes securing funds for the demolition of structures and pavement and restoration seeding and planting. The hatchery demolition site plan is shown on Sheet 17, the grading plan is on Sheet 18, and the restoration plan is on Sheet 21 of the construction drawings provided in Appendix A. The plan includes the demolition of the fish rearing raceways and asphalt ponds, hatchery operations buildings, and a garage. Prior to any on-site demolition and grading, clearing limits would be flagged, and contractors would be required to have all erosion and sedimentation control plans in place and functioning in compliance with the approved erosion and sedimentation control plan. Excavators and/or bulldozers would be used to demolish structures and buildings. Construction and demolition debris would be refurbished, reused, or recycled. All materials that could not be salvaged would be loaded into dump trucks and appropriately disposed of

at an authorized site in accordance with laws and regulation. Following the demolition, WDFW would grade and restore the site. Decommissioning activities would take place in accordance with all applicable laws and regulations.

Restoration activities that would be funded under the Proposed Action at the existing hatchery site are described in the following section under Mitigation Site 3, *Demolition of the Intake 2 Facilities and Restoration of Voights Creek* and Mitigation Site 4, *Voights Creek Off-Channel Habitat Enhancement.*

3.3.2 MITIGATION

Four mitigation sites have been identified in the project area (Figure 3-1; Appendix A, Sheet 19) to address project-related adverse effects on listed species per ESA consultation. In addition, these sites are proposed as mitigation under the Hydraulic Code (Chapter 77.55 Revised Code of Washington [RCW]) for an HPA permit and Pierce County Code (PCC) 18E.40.060. At this time, permitting for compliance with CWA Section 404 and Section 401 with the U.S. Army Corps of Engineers (Corps) has not been completed. WDFW will coordinate with the Corps to ensure that the mitigation measures are designed and implemented to adequately compensate for any effects on wetland resources. If compensatory wetland mitigation is required by the Corps, it will occur on site, in conjunction with the mitigation described below. Restoration and construction activities for the mitigation sites will be conducted the summer after construction of the new hatchery and intake facilities. Each of these sites and the associated mitigation activities are described below.

Mitigation Site 1: Wetland and Buffer Enhancement. Mitigation Site 1 is located in the southeast portion of the project area adjacent to the Coplar Creek wetlands (Figure 3-1; Appendix A, Sheet 20). WDFW is proposing to enhance 18,000 square feet of wetland and buffer that is currently primarily nonnative grassland by planting with native trees and shrubs. The wetland enhancement is part of the mitigation WDFW is proposing to the Corps. The buffer enhancement complies with PCC 18E.40.050, which describes criteria for mitigation of impacts on regulated buffers.

Mitigation Site 2: Coplar Creek Restoration. Mitigation Site 2 is located in the eastern portion of the project area near the confluence of Coplar Creek with Voights Creek (Figure 3-1; Appendix A, Sheets 13 and 20). At this location on Coplar Creek there is an exposed pipe. This section of the creek was dry during a field visit on July 24, 2012. WDFW is proposing to remove the 36-inch diameter pipe and an 18-inch diameter pipe and riprap from the mouth of Coplar Creek, and plant and seed the area (Appendix A, Sheet 13). This work would include fish exclusion and use of a cofferdam and follow the same protocol (USFWS 2012b) identified for construction of the new intake facilities, except that the waters of Coplar Creek would be pumped past the cofferdam area into Voights Creek (Appendix A, Sheet 13). The pump inlet will be screened to exclude juvenile fish. Work below the OHWM is estimated to take 1 to 2 days. Approximately 650 square feet of Coplar Creek will be restored. Approximately 1,300 square feet of riparian areas will be planted.

Mitigation Site 3: Demolition of the Intake 2 Facilities and Restoration of Voights Creek. WDFW will demolish and remove the Intake #2 facilities, including the intake pumps, and install large wood structures on the banks of Voights Creek (Figure 3-1; Appendix A, Sheets 17, 21, 22, and 23). Mitigation Site 3 is geographically connected with Mitigation Site 4 where the removal of riprap just south of the adult ponds will create an entrance for fish passage to the newly created off-

channel habitat (Mitigation Site 4). The banks of Voights Creek are armored with riprap and sheet pile, protecting Intake #2 and the hatchery facilities. WDFW will remove armoring and Intake #2 and replace them with large wood structures and breach the bank to create a new entrance to the adult ponds, which will be converted to off-channel habitat.

Construction at Mitigation Sites 3 and 4 will require work below the OHWM. A cofferdam is proposed to isolate the work area and key into the northern bank of Voights Creek, extending out to the middle of the channel but allowing for streamflow past the work area (Appendix A, Sheet 12). This work would include fish exclusion and follow the same protocol (USFWS 2012b) identified for construction of the new intake facilities. The work area will be isolated for 3 weeks.

For all these actions combined, approximately 4,500 square feet of Voights Creek will be restored. The large wood structures will occupy 4,000 square feet. Approximately 20,000 square feet of riparian areas will be planted.

Mitigation Site 4: Voights Creek Off-Channel Habitat Enhancement. WDFW will remove the outfall and spawning structure at the adult pond, and the riprap just upstream of the adult pond. The existing isolated adult pond that the existing hatchery uses to collect broodstock would be converted to off-channel habitat. As part of Mitigation Site 3, an entrance to the pond from Voights Creek will be breached. The slopes of the old earthen adult pond will be seeded and planted to enhance this newly created off-channel habitat. This mitigation will create off-channel rearing and overwintering habitat (8,500 square feet) and establish access from Voights Creek (Figure 3-1; Appendix A, Sheets 21 and 22). Areas of impact and proposed mitigation are summarized in Table 3-1.

Table 3-1. Summary of Affected Area and Proposed Mitigation.

Affected Area for New Hatchery Facilities	**Area**
Above OHWM	130,000 square feet
Affected Area for New Intake	**Area**
Below OHWM	1,550 square feet
Above OHWM	7,750 square feet
Wetlands	3,700 square feet
Decommissioning of Existing Hatchery	**Area**
Demolition and Restoration of the Existing Hatchery Site	110,000 square feet
Proposed Mitigation	**Area**
In-water Structure Removal: Old Intake (Riprap, Intake Bay, Pumps) Coplar Creek – Culvert and Riprap	 4,500 square feet 650 square feet
In-water Large Wood Placement	4,000 square feet
Off-channel Rearing and Overwintering Habitat	8,500 square feet
Riparian Plantings: Riparian Area at Existing Hatchery Site Wetland and Buffer Coplar Creek	 20,000 square feet 18,000 square feet 1,300 square feet

Source: Information provided by WDFW at July 17, 2012, project kickoff meeting and site visit.

3.3.3 PROJECT SEQUENCING AND TIMELINE

The project is scheduled to start construction in 2013 and be completed in 15 months (including both upland and in-water work). The in-water work for the new intake and Coplar Creek mitigation site would be done over a 3-month period during the first construction year. The other in-water work in the next construction year would be accomplished in about 3–5 weeks. The recommended in-water work window for projects in Voights Creek (Water Resource Inventory Area [WRIA] 10.0414) is from July 16 to August 31 (WDFW 2010). As part of this project, WDFW is requesting to extend the in-water work window by a month at either end of the existing window, a window from June 15 to September 30. All in-water work would take place during daylight hours. Terrestrial construction work may take place during the day or at night. All state and local permit timing conditions would be implemented and observed.

3.3.4 IMPACT AVOIDANCE AND MINIMIZATION MEASURES

The Proposed Action includes impact avoidance and minimization measures to protect fish and wildlife species and habitat during construction.

Temporary Erosion Sediment Control, Spill Control, and Water Quality

- Implement a temporary erosion and sediment control (TESC) plan to minimize erosion and sedimentation.
- Implement a spill prevention, control, and countermeasure (SPCC) plan to minimize spills and ensure that all harmful materials are properly stored, contained, and disposed of.
- Implement a stormwater pollution prevention plan (SWPPP) to prevent stormwater contamination, control sedimentation and erosion, and comply with the requirements of the Clean Water Act for the construction site operator's activities.
- Any stormwater runoff will be contained using erosion control best management practices (BMPs). Specifically, a silt fence will be installed around upland construction sites to filter sediment that may be suspended in runoff water.
- Treat any sediment-laden wastewater (in an upland area) produced by the project prior to discharge.
- Contain or remove from the site any water having direct contact with uncured concrete, as appropriate. Test any such water (i.e., for pH) prior to direct discharge.
- Establish concrete chute cleanout areas to properly contain wet concrete and wash water outside of environmentally sensitive areas.
- Reuse or dispose of waste pavement, concrete, or other construction material at a permitted facility according to WDFW standards.
- Inspect equipment daily for leaks and proper function. Ensure that equipment is clean and free of external petroleum-based products.
- Equipment will be washed before entering the job site and inspected daily for fuel or lubricant leaks.
- Equipment staging and fueling areas will be completely isolated from surface waters to avoid the possibility of impacts on surfaces waters. To the extent practicable, fuel and maintain equipment at least 150 feet landward of the OHWM.
- Stationary equipment, such as generators, within 50 feet of the OHWM would be diapered or provided another type of containment.

- Following project completion, all exposed soils would be stabilized during the first available period or no more than 7 days.
- Wetlands within 150 feet of the construction zone and equipment would be marked for preservation.
- Completely seal all concrete forms to prevent the possibility of fresh concrete from entering surface waters.
- Cease project operations under high-flow conditions that may result in inundation of the construction zone, except for efforts to minimize resource damage.
- Install rock construction entrances at the construction site access points to control tracking of sediments onto public roads and stormwater ditches.
- Construct a temporary sediment trap for the grading activity.
- Erosion control seeding and final seeding will be applied to surfaces subject to erosion.
- During November 1 through March 31, all disturbed areas greater than 5,000 square feet that are subject to erosion will be stabilized by mulch or plastic covering.

Work Below OHWM

- In-water work in Voights and Coplar creeks shall be conducted during the in-water work window as determined by the U.S. Fish and Wildlife Service (USFWS) and NMFS and stipulated by the HPA issued by WDFW.
- In-stream work areas will be isolated from surface waters to prevent sediment-laden water from impacting waters outside the work area and to protect fish resources.
- Dewater identified in-water work areas and relocate fish outside of the construction zone before in-water work begins. NMFS and USFWS shall be notified in case of fish kills.
- Any waste from the project shall be the responsibility of the contractor and would be disposed of at a properly permitted upland site of their choosing.
- Install individual pieces of cofferdams in sequence starting at the upstream end to discourage fish from entering the construction zone and to allow fish that become trapped to escape through the downstream opening.
- Conduct cofferdam dewatering in two or three stages, pausing between stages to accommodate fish removal.
- Do not remove cofferdam devices until turbidity levels within the work area are the same background levels as outside of the isolated area.
- Regulate the rate of flow back into isolated areas through slow removal of cofferdams.
- Monitor and maintain the cofferdam seal.
- Comply with water quality standards for surface waters of the State of Washington (Washington Administrative Code [WAC] 173-201A) during construction of the project.
- Monitor turbidity periodically during in-water work and at a distance downstream of the construction zone (mixing zone) as determined by WDOE to ensure that the nephelometric turbidity unit (NTU) limit complies with thresholds in Table 200 (1)(e) Aquatic Life Turbidity Criteria in WAC 173-201A.
- Stop in-water work if the NTU level exceeds turbidity criteria and adjust to comply with the NTU limit. However, it is not anticipated that state water quality standards will be exceeded at the point of compliance.

- Develop a sediment monitoring protocol for measuring downstream turbidity levels during sediment-generating activities (e.g., in-water construction) that will require approval from USFWS.

Temporary Access

- Locate staging areas above the OHWM and outside of environmentally sensitive areas.
- Staging and temporary access areas should occur within the previously disturbed areas whenever possible.

Fish Handling and Exclusion

- WDFW will follow the fish handling and exclusion protocol as documented in USFWS (2012b).

Footprint Minimization

- Install high-visibility fencing around areas to be preserved before construction to avoid unintended effects on upland vegetation, wetlands, riparian, or other sensitive areas.
- Limit vegetation removal and retain large trees to the extent practicable. Protect root zones of the trees that would be retained by installing silt-fencing at the dripline of each tree to create equipment exclusion zones.
- Areas undergoing temporary alteration shall not be grubbed.

Migratory Bird Protection

- If vegetation removal in the project area is scheduled to occur within the active breeding season (between March 1 and September 15), a qualified biologist shall conduct a pre-construction survey for active nests.
- Pre-construction surveys shall be conducted in all areas proposed for clearing and occur 15 days prior to commencement of construction activities. If surveys show no evidence of nests, no additional conservation measures shall be required.
- If any active nests are located in the construction area, the nest areas shall be flagged and a no disturbance buffer zone of 100 feet shall be provided around the active nest and maintained until the end of the breeding season or until the young have fledged. Guidance from the USFWS shall be requested if establishing a 100-foot buffer zone is impractical.

3.4 ALTERNATIVE C – REPAIR EXISTING INTAKE AND PIPELINE IN PLACE

Under Alternative C, FEMA would provide funding to WDFW to repair the existing intake structure and pipeline in their current footprint, restoring them to pre-disaster condition. Restoration of the existing intake structure would require dredging the creek from the avulsion down to the intake and diverting the creek back into this channel.

Once completed, the existing structure and gravity dam could be used to pass flow down the original channel. Natural scour of the riverbed may eventually incise the channel down to previous levels; however, to minimize the possibility of a new channel avulsion, the river channel would need to be dredged from the avulsion to the confluence with the new main channel, approximately 2,500 feet, to

keep the flow within the banks and prevent future avulsions around the intake (MWH 2010). The creek channel would need to be dredged 3-4 feet deep and 20–30 feet wide to restore sufficient channel capacity to support hatchery facilities. The dredge material should be used to build embankments along both edges of the channel.

Improvements to the existing intake and fish ladder are also required to comply with current NMFS criteria (NMFS 2008). At present, water entering the intake does not pass through screens but instead through a series of orifice openings and is screened for debris at a concrete basin approximately 400 feet downstream. Modification of the intake box to meet the NMFS criteria would require the addition of fish screens with sufficient area to limit the approach velocity to the screens to a maximum 0.4 feet per second, flow control baffles to balance the flow through the screens, and an automated cleaning system. The fish ladder pools would need to be expanded in size to increase the volume in each pool for energy dissipation and to allow passage of juvenile fish. A side wall would need to be removed to expand the width of the pools, the ladder would need to be extended downstream to provide the necessary length, and new weirs would need to be fabricated to replace the existing stop logs.

WDFW would construct the project described under Alternative C during the existing WDFW in-water work window between July 16 and August 31. BMPs include TESC and SPCC plans, and clearing and grubbing specifications similar to those described above in Section 3.3.4 (*Impact Avoidance and Minimization Measures*), would be implemented under Alternative C to minimize construction-related effects. All state and local permit conditions would be implemented and observed.

4.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

This chapter describes the affected environment and potential impacts associated with implementation of the alternatives, organized by the following resource topics: physical resources, water quality and resources, biological resources, cultural resources, and human resources. The CEQ and FEMA regulations (44 CFR Section 10) that implement NEPA require NEPA documents to be concise, focus on the issues relevant to the project, and exclude extraneous background data and discussion of subjects that are not relevant or would not be affected by the project alternatives. Accordingly, the following is a summary of resource areas not evaluated in detail in this EA.

- **Air Quality:** The project is approximately 4 miles east and outside of the Tacoma-Pierce County (also referred to as the Wapato Hills-Puyallup River Valley) nonattainment area (WDOE 2012). The project is in a rural area with low population density and low traffic volumes. Construction would create dust and vehicle emissions; however, impacts would be minor and temporary. The project is not expected to result in an increase in traffic volumes or vehicle emissions that would affect air quality in the area.

- **Socioeconomic**s: The project alternatives are not anticipated to change the number of employees at the hatchery, socioeconomic opportunities, or benefits in the vicinity and would have no effect on socioeconomic conditions.

- **Visual Quality:** There are no designated visual resources present in the project vicinity. The project alternatives would retain the existing character of the landscape and have no effect on visual quality.

- **Public Services and Utilities:** The project area is in a rural, unincorporated area with low population density. The alternatives would not result in an increased need for public services or utilities.

- **Public Health and Safety:** The project area is located in a rural, unincorporated area with low population density. No public health and safety issues have been indentified that would be affected by the project. Construction-related effects such as air quality, noise, hazardous materials, and traffic are addressed in those respective sections.

The NEPA compliance process requires federal agencies to consider direct and indirect impacts on the environment. For each resource category, the impact analysis follows the same general approach in terms of impact findings. When possible, quantitative information is provided to establish impacts. Qualitatively, these impacts will be measured as outlined below.

Impact Scale	Criteria
None/Negligible	The resource area would not be affected, or changes would be either non-detectable or if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable.
Minor	Changes to the resource would be measurable, although the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects.
Moderate	Changes to the resource would be measurable and have both localized and regional scale impacts. Impacts would be within or below regulatory standards, but historical conditions are being altered on a short-term basis. Mitigation measures would be necessary and the measures would reduce any potential adverse effects.
Major	Changes would be readily measurable and would have substantial consequences on a local and regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, though long-term changes to the resource would be expected.

Impacts are disclosed based on the amount of change or loss to the resource from the baseline conditions and may be direct or indirect. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by an action and occur later in time or are farther removed from the area, but are reasonably foreseeable. Cumulative impacts are described in Section 4.6.

The following table summarizes, by resource topic, potential impacts associated with implementation of the alternatives, based on the full analysis in Sections 4.1 through 4.6.

Table 4-1. Summary of Potential Impacts of the Alternatives.

Resource Area	Alternative A – No Action Alternative	Alternative B – Proposed Action	Alternative C – Rebuild in Place
PHYSICAL RESOURCES			
Geology and Soils	Long-term minor adverse effects; increase in soil erosion, sedimentation, and stream bank instability from the hatchery site in the floodplain.	Short-term minor adverse effects; vegetation clearing, soil exposure, and soil compaction. Long-term minor adverse effects from the new hatchery facilities for the new intake. Long-term beneficial effects; decrease in soil erosion, sedimentation, and stream bank instability from mitigation: abandonment and demolition of the existing hatchery facilities, removal of existing intake/ riprap on Voights Creek, and installation of large wood structures.	Short-term minor adverse effects; vegetation clearing, soil exposure, and soil compaction. Same as No Action, long-term minor adverse effects, increase in soil erosion, sedimentation, and stream bank instability from the hatchery site in the floodplain.
Farmland	No adverse effect on farmland.	Long-term minor adverse effects on farmland. Less than 0.001% of farmland in Pierce County would be converted.	Same as No Action Alternative, except for potential long-term minor adverse effects on farmland of statewide importance from new channel alignment.
Climate Change	Potential long-term minor adverse effects brought on by climate change to the existing hatchery from increased exposure to flooding and storm damage.	Long-term minor beneficial effects on climate and climate change from energy efficient design features and rebuild of the hatchery outside of the floodplain.	Same as No Action Alternative.
WATER RESOURCES			
Stream Hydrology and Water Quality	Potential moderate long-term adverse effects from soil erosion, sedimentation, and stream bank instability associated with repetitive damage to instream facilities from flood events.	Potential short-term moderate adverse effects associated with construction, primarily associated with erosion and sedimentation. Minor long-term adverse effects from the presence of the new intake facilities.	Potential moderate adverse effects in the short term associated with channel dredging and in-water work. Minor long-term potential effects from soil erosion, sedimentation, and stream bank instability associated with repetitive damage to instream facilities from flood events.
Wetlands	No effects on Wetland A. Minor long-term effects on Wetland B associated with continued operation of the adjacent facility.	Direct, minor adverse long-term impacts on 3,700 sq ft of Wetland A associated with construction of the new fish ladder. Long-term beneficial effect on Wetland B through wetland buffer enhancement.	Same as No Action Alternative.

Resource Area	Alternative A – No Action Alternative	Alternative B – Proposed Action	Alternative C – Rebuild in Place
Floodplains	Potentially moderate long-term adverse effects, as the hatchery would continue to be located within the designated floodplain and be susceptible to repetitive damage from future storms and floods, as demonstrated numerous times in the past.	Minor short- -term adverse effects on floodplain resources during construction and demolition. Minor long-term adverse effects due to susceptibility of flood damage to the intakes in future flood events. Moderate long-term beneficial effects associated with relocating the hatchery facility complex outside the designated floodplain.	Minor long-term adverse effects on floodplain associated with new intake facility within floodplain.
BIOLOGICAL RESOURCES			
Vegetation	No adverse effect on vegetation.	Short-term moderate adverse impacts on vegetation from construction. Construction of the new hatchery facilities would permanently clear approximately 130,000 sq ft of agricultural pasture, 7,750 sq ft of riparian areas, and 3,700 sq ft of wetland. Long-term moderate beneficial effects; decommission and abandonment of the existing hatchery site (110,000 sq ft) and restoration planting on 20,000 sq ft of riparian area at the existing hatchery site, 18,000 sq ft of Wetland A, and 1,300 sq ft of Coplar Creek.	Short-term minor adverse effects on vegetation from temporary clearing of riparian vegetation associated repairs to the gravity intake and excavation of material on Voights Creek.
Threatened and Endangered Species	Moderate long-term adverse effects on Chinook, steelhead, and bull trout from water quality and hydrology impacts associated with maintaining facility at current site and potential for future flood events.	Short-term moderate adverse effects on Chinook, steelhead, and bull trout from turbidity, aquatic noise and vibration, channel modification, riparian vegetation removal, and work site isolation and fish handling. NMFS concluded that the Proposed Action is not likely to jeopardized the continued existence of PS steelhead or PS Chinook salmon, or destroy or adversely modify designated critical habitat for PS Chinook salmon.	Same as Proposed Action; short-term moderate adverse effects on Chinook, steelhead, and bull trout from turbidity, aquatic noise and vibration, channel modification, riparian vegetation removal, and work site isolation and fish handling. ESA compliance and consultation with the USFWS and NMFS would be required. Terms and conditions of a subsequent biological opinion would minimize potential effects on listed species.

Resource Area	Alternative A – No Action Alternative	Alternative B – Proposed Action	Alternative C – Rebuild in Place
		The USFWS concluded that the action, as proposed, is not likely to jeopardize the continued existence of bull. Long-term minor beneficial effects on Chinook, steelhead, and bull trout would occur from removal of the existing intake/riprap on Voights Creek, removal of culvert/riprap on Coplar Creek, installation of large wood structures, and creation of off-channel rearing and overwintering habitat.	
Essential Fish Habitat	Moderate long-term adverse effects on Essential Fish Habitat (EFH) from water quality and hydrology impacts associated with maintaining intake facility at current site and the potential of future damage to the facility due to flood events.	Short-term moderate adverse effects on EFH during in-water work and from channel modification (1,550 sq ft) and vegetation removal. NMFS's analysis of the action's effects on EFH included short-term, reduction in water quality (turbidity) from installation and removal of intake facilities and blockage of fish passage for a period of up to 5 weeks Long-term minor beneficial effects on EFH for species associated with the Pacific salmon would occur from removal of the existing intake/riprap on Voights Creek, removal of culvert/riprap on Coplar Creek, installation of large wood structures, and creation of off-channel rearing and overwintering habitat.	Short-term moderate adverse effects on EFH from modification of 75,000 sq ft of channel riverbed would be dredged to return flow to the intake. Similar to No Action, moderate long-term effects on water quality and hydrology associated with maintaining intake facility at current site and the potential of future damage to the facility due to flood events.
Bald Eagle	No adverse effect on the bald eagle.	Short-term minor adverse effect on winter foraging eagles from construction activities.	Same as Proposed Action.
Migratory Birds	No adverse effect on migratory birds.	Short-term minor adverse effect on migratory bird habitat from construction activities.	Same as Proposed Action.
Sensitive Species	No adverse effect on sensitive species.	Short-term minor adverse effect on sensitive	Short-term minor adverse effect on

Resource Area	Alternative A – No Action Alternative	Alternative B – Proposed Action	Alternative C – Rebuild in Place
		species of elk and bats from construction activities. Long-term minor beneficial effects on state sensitive species from habitat mitigation.	sensitive species of elk and bats from construction activities.
Habitat Connectivity	No adverse effect on habitat connectivity.	Long-term beneficial effect from demolition of the existing hatchery and restoration of native riparian habitat and floodplain connectivity.	No adverse effect on habitat connectivity.
CULTURAL RESOURCES			
Cultural Resources	No effect on cultural resources and no historic properties affected.	Minor potential to affect cultural resources and historic properties affected. If archaeological or historic resources or human remains are discovered during ground-disturbing activities, work will be stopped immediately and FEMA, Department of Archaeology and Historic Preservation (DAHP), and appropriate tribes contacted.	Minor potential to affect cultural resources and historic properties. If archaeological or historic resources or human remains are discovered during ground-disturbing activities, work will be stopped immediately and FEMA, Department of Archaeology and Historic Preservation (DAHP), and appropriate tribes contacted.
HUMAN RESOURCES			
Land Use and Recreation	No adverse effect on land use. Potential long-term minor adverse impacts on recreation.	Short-term minor adverse effects on land use from construction. Minor beneficial effects on recreation.	Short-term minor adverse effects on land use from construction. Potential long-term minor adverse impacts on recreation.
Environmental Justice	No adverse effect on environmental justice.	Same as No Action.	Same as No Action.
Noise	No adverse effect on noise.	Short-term minor adverse effects from construction noise.	Same as Proposed Action.
Traffic and Transportation	No adverse effect on traffic or transportation.	Short-term minor adverse effects on traffic from construction vehicles.	Same as Proposed Action.
Hazardous Waste	Minor, long-term adverse effect from	Short-term, negligible adverse effects	Short-term, negligible adverse effects

Resource Area	Alternative A – No Action Alternative	Alternative B – Proposed Action	Alternative C – Rebuild in Place
	leaving existing hatchery facilities in the active floodplain, which could result in the release of toxic or hazardous substances during a flood.	associated with construction activities and a spill or release. Long-term, minor beneficial effects associated with moving the hatchery facilities out of the active floodplain.	associated with construction activities and a spill or release (same as Proposed Action). Minor, long-term adverse effect from leaving existing hatchery facilities in the active floodplain (same as No Action).
CUMULATIVE IMPACTS			
	No significant cumulative effects.	No significant cumulative effects.	No significant cumulative effects.

4.1 PHYSICAL RESOURCES

This section describes the physical resources in the project area and potential effects of the project alternatives on these resources in the vicinity of the project. For this assessment, physical resources include geology and soils, air quality, and climate and climate change. Federal laws related to physical resources include the Farmland Protection Policy Act and the Clean Air Act. An assessment of climate and climate change is provided in response to the FEMA directive to integrate climate change adaptation planning and actions into its programs, policies, and operations (FEMA 2011).

4.1.1 GEOLOGY AND SOILS

To evaluate the effects of the project alternatives on geology and soils, WDFW contracted a geomorphic assessment (MWH 2012a) and a geotechnical evaluation (MWH 2012b) of the project area. The Voights Creek watershed is part of the regional landscape around Mount Rainer (MWH 2012a). The creek drains a long and narrow, northwest-trending watershed roughly 33 square miles in size. The uppermost watershed originates at elevation 4,320 feet from multiple feeder streams that drain a broad upland ridge along the lower northwest flank of Mount Rainier. From its upper watershed, the main channel descends 4,010 feet of vertical relief over a distance of about 18 miles. The project area is within the valley/alluvial fan section of the Voights Creek watershed with gradients of 1 to 3% and elevations from 220 to 230 feet. The geology consists of glacially derived soils, primarily glacial outwash and blue lacustrine clay (MWH 2012a). The outwash is typically loosely consolidated and highly pervious; it is exposed at the surface throughout the watershed.

The soils on the northern portion of the existing hatchery site are mapped as Puyallup fine sandy loam, which is typically located on floodplains and terraces that experience occasional flooding (NRCS 2012). The soils on Voights Creek riparian corridor, the southern portion of the existing hatchery site, and the Coplar Creek riparian corridor are aquic xerofulvents, which are considered hydric or wetland soils and typically located in areas of frequent flooding (Sewall 2012, NRCS 2012). The soils in the southern portion of the project area (the location of the proposed new hatchery facilities) are mapped as Orting loam, which is typically located in areas with no flooding on plains (Sewall 2012, NRCS 2012). Orting loam is a somewhat poorly drained soil formed in the remnants of a volcanic mudflow that occurred 600 years ago and originated on Mount Rainier (NRCS 1992).

The project area is in the Mount Rainer volcanic mudflow hazard area with a time interval range of 100 to 500 years (Schilling et al. 2008). No landslide hazard areas are mapped in the project area. The closest mapped landslide area is 4 miles southeast of the project area (WDNR 2012). No seismic hazards are mapped in the project area. The closest earthquake occurred 10 miles east of the project area in 1983 and was a magnitude 3, and the closest active fault is the Western Rainier seismic zone and is 10 miles southeast of the project area (Stanley et al. 1996). Additional details on geology and soils are provided in the geomorphic assessment (MWH 2012a), geotechnical evaluation (MWH 2012b), and wetland delineation (Sewall 2012) prepared for the project area.

4.1.2 FARMLAND

The Farmland Protection Policy Act (FPPA) requires federal agencies to minimize the extent to which their programs contribute to the unnecessary and irreversible conversion of prime farmland, unique farmland, and land of statewide or local importance to non-agricultural uses. Farmland

subject to the FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Pierce County provides excellent climate and soil conditions for successful agriculture. But growing urbanization and fragmentation of the agricultural land base are forcing the local agriculture industry to change. The loss of farmland is a national phenomenon, and Washington is not exempt. The American Farmland Trust has analyzed National Resources Inventory data collected by the U.S. Department of Agriculture and reports that Washington lost 35,200 acres of prime farmland between 1987 and 1992, and an additional 45,800 acres from 1992 to 1997 (Globalwise 2005). Pierce County agriculture is in transition, moving away from the traditional industrial, wholesale model of agricultural business and toward a more intensive, value added, direct market urban edge model (American Farmland Trust 2004).

The project area is located in the Alderton-McMillin Community, and a description of the community and land use is provided in Section 4.5.1, *Land Use and Recreation*. Because of the deposition of alluvial soils distributed by the rivers along the valley floor, the community has excellent soils for agricultural production. As described in the 2007 Alderton-McMillin Community Plan, there are approximately 4,700 acres of farmland in the valley which cover about 42% of the total land area of the community (Pierce County 2007). Approximately 90% of the area within 1 mile of the project area is non-urban, and the closest residential development is 0.9 mile west of the project area. The average size of farmland in Pierce County is 33 acres (USDA 2007).

Prime farmland is mapped in the northern and southern portions of the project area (NRCS 2012). The Voights Creek corridor that crosses through the center of the project area is mapped as farmland of statewide importance (NRCS 2012). Prime farmland in the northern portion of the project area was converted to the existing fish hatchery in the early 1900s. Prime farmland in the southern portion of the project area has been used as agricultural land since the 1800s, formerly a dairy farm (Kaelin & Kaelin Dairy) up until 2004 and currently used by a renter for hay. Voight Creek Estates, LLC purchased the farmland in 2006 and planned to develop the area into a residential housing development.

4.1.3 CLIMATE CHANGE

The climate in the project vicinity is tempered by winds off of Puget Sound. Summers are fairly warm, but hot days are rare. Winters are cool with freezing temperatures that commonly occur under the influence of dry air masses. The average annual temperature is 50 degrees Fahrenheit, and average annual precipitation is 35 to 50 inches (Pierce County 2007). In summer, rainfall is extremely light; several consecutive weeks without precipitation are common. During the rest of the year, rains are frequent, especially in late fall and winter. In most winters, one or two storms are accompanied by strong and sometimes damaging winds, and in some years the accompanying heavy rains cause serious flooding (NRCS 2012).

The CEQ issued a draft NEPA guidance document encouraging federal agencies to improve their consideration of the effects on greenhouse gas (GHG) emissions and climate change in their evaluations of proposals subject to NEPA documentation (CEQ 2010). In this context, climate change issues arise in relation to the consideration of:

> (1) The GHG emissions effects of a proposed action and alternative actions; and
> (2) The relationship of climate change effects to a proposed action or alternatives, including the relationship to proposal design, environmental impacts, mitigation and adaptation measures.

According to the CEQ guidance, the threshold at which NEPA documents should include quantitative analysis for an action is if it will release more than 25,000 metric tons of greenhouse gases per year, which is roughly equivalent to emissions from the annual energy use of approximately 2,300 homes, or the annual GHG emissions from approximately 4,600 passenger vehicles (CEQ 2010). Although the cause of the January 2009 disaster cannot be attributed to climate change, changes in precipitation patterns and volatility in precipitation-driven systems, such as within WRIA 10, cannot be ruled out for potential damage in the future due to events associated with climate change.

4.1.4 CONSEQUENCES OF ALTERNATIVES

An alternative would reach the significance threshold for effects on physical resources if it would:

- For geology or soil resources, a project alternative would result in a significant effect if it would compromise structural instability due to accelerated soil erosion, build on a site with unstable geologic conditions (steep slopes) that could result in substantial property damage, or expose people or structures to adverse effects from geologic hazards (volcanic mudflow).
- For farmland, a project alternative would result in the conversion of land classified as Prime, Unique, Statewide, or Local Important Farmland such that it would jeopardize the viability of the farms remaining in the area.
- For climate and climate change, a project alternative would result in a significant effect if it would generate GHG emissions, either directly or indirectly, that may have a substantial impact on the environment, and/or conflict with an applicable federal agency plan, policy, or regulation for the purpose of reducing generate GHG emissions.

Alternative A: No Action

The existing hatchery would continue to remain in the floodplain and be susceptible to repetitive storm-related damage. **Minor adverse effects** from soil erosion, sedimentation, and stream bank instability on Voights and Coplar creeks would likely occur from future flood events and could result in the loss of fish production at the hatchery and temporary closure similar to impacts from the January 2009 storms.

Because no construction would occur and the hatchery would remain in place, there would be **no direct or indirect effect on prime, unique, statewide, or local important farmland**. Potential **long-term minor adverse effects** brought on by climate change, which could include a greater frequency of severe weather, could include additional risk to the existing hatchery from increased exposure to flooding and storm damage.

Alternative B: Proposed Action

Geology and Soils: **Minor short-term adverse effects** on geology and soil resources would result from vegetation clearing, soils exposure, and soil compaction. Approximately 130,000 square feet of

agricultural lands would be cleared to accommodate the new hatchery facilities resulting in a permanent change in land use. **Minor long-term adverse effects** on portions of Voights Creek (1,550 square feet), Wetland A (3,700), and riparian areas (7,750 square feet) would be affected to accommodate the new intake structure. Long-term soil erosion is not anticipated, and minimization measures included in the Proposed Action would reduce and mitigate moderate, short-term soil erosion expected during construction. In addition, **long-term beneficial effects** on soil resources include the abandonment and demolition of the existing hatchery facilities, removal of existing intake/riprap on Voights Creek, and installation of large wood structures.

Farmland: The Proposed Action would directly convert approximately 3 acres (130,000 square feet) of prime farmland currently in hay productions to a fish hatchery. Using the NRCS AD-1006 farmland conversion impact rating form, NRCS rated the Proposed Action with a score of 198 (see Appendix B, *Agency Correspondence and Consultation*), which is above the 160-point threshold where special measures should be considered as described under 7 CFR 658.4 and 658.5:

- Use of the land that is not farmland or use of existing structures.
- Alternate sites, locations, and designs that would serve the proposed purpose but would convert fewer acres of farmland or other farmland that has a lower relative value.
- Special siting requirements of the proposed project and the extent to which an alternate site fails to satisfy the special siting requirements as well as the originally selected site.

As described in Chapter 3, *Alternatives*, an extensive alternatives analysis was conducted to develop the project alternatives. The alternatives that were developed that met the project purpose were designed to convert the minimum amount of farmland while avoiding floodplains and wetlands. Therefore, the requirements of the FPPA were considered when developing the project alternatives. The 3-acre conversion of farmland would be less than 0.001% of prime farmland in Pierce County. This is considered a **long-term minor adverse effect** on farmland.

Climate Change: The Proposed Action would reduce the threat of damage to the fish hatchery by climate change-induced flooding. Relocating the hatchery facilities to the other side of Voights Creek would not increase total vehicle trips on project-related roads and therefore not increase long-term greenhouse gas emissions. The Proposed Action would produce less than 25,000 metric tons of greenhouse gases annually, and quantitative analysis under NEPA is therefore not required. As part of the project's standard design and Washington state agencies directive for energy conservation in the design of public facilities (RCW 39.35), the Proposed Action has incorporated energy-efficient features that would reduce GHG emissions. This is considered **minor, long-term beneficial effect** on climate change.

Alternative C: Repair Existing Intake and Pipeline in Place

Impacts on soil resources would be localized and considered a **short-term minor effect**. Although there would be no need to clear an area for new hatchery facilities, excavation would be required to realign Voights Creek and connect hydrology to the existing intake; approximately 75,000 square feet and 13,000 cubic yards of stream channel would need to be dredged. In addition, as described for the No Action Alternative, the existing hatchery would continue to remain in the floodplain and be susceptible to repetitive storm related damage. Potential **long-term minor adverse effects** from soil erosion, sedimentation, and stream bank instability on Voights and Coplar creeks would likely

occur from future flood events. Because no prime farmland occurs at the existing hatchery, repair of the new intake would not encroach on prime farmland and have **no direct or indirect effect**. Depending upon the realignment location of Voights Creek, potential **long-term minor direct adverse effects** on farmland of statewide importance.

Potential **long-term, minor adverse effects** brought on by climate change, which could include a greater frequency of severe weather, could include additional risk to the existing hatchery and gravity intake from increased exposure to flooding and storm damage.

4.2 WATER RESOURCES

This section describes the water resources affected environment and potential effects on stream hydrology, water quality, wetlands, and floodplains for each alternative. Various federal statutes for addressing water resources include, but are not limited to, the Coastal Zone Management Act, Clean Water Act, EO 11990, Protection of Wetlands, and EO 11988 Floodplain Management.

In addition to federal requirement, any work that uses, diverts, obstructs, or changes the natural flow or bed of any fresh water or saltwater of the state requires an HPA from WDFW. To protect water quality and stream habitat, HPA permits specify conditions under which work can be performed in and near stream habitats, and provide site- and project-specific conditions and timing restrictions for performing this work.

4.2.1 STREAM HYDROLOGY AND WATER QUALITY

Two streams border the project site – Voights Creek and Coplar Creek (see Figure 1-2). Voights Creek forms the southern border of the existing hatchery complex site and would be the source of water for the rebuilt hatchery facilities. Coplar Creek borders the study area to the east. Both streams are salmonid bearing (see Section 4.3) and are considered Type F waters under the Washington Department of Natural Resources (WDNR) Water Typing System. Within Pierce County, these streams meet the criteria of Type F1 waters, which include fish-bearing streams that support critical fish species (see Section 4.3, *Biological Resources*). Coplar Creek is a tributary to Voights Creek, with the creeks joining in the vicinity of SR 162, just east of the existing hatchery complex. Voights Creek is a tributary to the Carbon River and connects approximately 1/2 mile to the northwest. The project occurs in Water Resource Inventory Area (WRIA) 10, Puyallup-White River, in 5th field Hydrologic Unit Code (HUC) 1711001403, the Carbon River Watershed.

As noted in Section 1.1, the channel configuration and course of Voights Creek was completely altered by the 2009 storm and flood event. An approximately 1,700-foot reach of the original channel upstream of its confluence with Coplar Creek shifted to the north, creating a new active channel closer to SR 162 and the Carbon River (see Figure 1-2). The new avulsion created by the flood event is approximately 3,000 feet northeast of the project site. Voights Creek crosses under SR 162 bridge number 162/11, which is a single span pre-stressed concrete girder 134 feet long (WSDOT 2011b).

The Coastal Zone Management Act requires federal activities or projects proposed within any of Washington's 15 coastal counties (including Pierce County) to comply with this federal requirement, which is administered by the state. Certification is generally administered by WDOE in conjunction with the Shoreline Management Act (SMA). WDFW would work with Pierce County to ensure consistency with the shoreline master program and, in turn, with the Coastal Zone Management Act. Although the project site is not in the vicinity of a coastal area, because Piece County is designated as a coastal county, Coastal Zone Management Program consistency concurrence is required from WDOE.

The Clean Water Act, Section 303 requires states, territories, and authorized tribes to develop lists of impaired waters. Washington's Water Quality Assessment lists the status of water quality for a particular location in one of five categories recommended by the EPA. The 303(d) list reports on

Category 5 waters, which are impaired waters of the state. Waters placed on the 303(d) list (Category 5) require the preparation of a plan to improve water quality by limiting pollutant loads. No waters in the project vicinity are 303(d) listed as Category 5 impaired water of the state (WDOE 2008). WDOE considers Voights Creek a Category 2 water, "waters of concern," indicating some evidence of a water quality problem but not enough to require production of a water quality improvement project at this time (WDOE 2008). Voights Creek is water quality limited for temperature and pH (WDOE 2008).

WDFW has a permitted water right of 27 cubic feet per second (cfs) for hatchery operations (WDFW 2012c). Water for current hatchery operations is withdrawn from Voights Creek using Intake #2, as Intake #1 was destroyed in the 2009 flood. The facility's intake and flow through the hatchery has a long-term average of approximately 7 million gallons per day, 11 million gallons per day on a monthly average, and a maximum daily flow of 13.6 million gallons per day (WDOE 2005).

The Clean Water Act, Section 402 requires the regulation of stormwater runoff from construction and operation activities, which is implemented through National Pollutant Discharge Elimination System (NPDES) permits. WDFW has an existing NPDES permit for discharges associated with operation of the Voights Creek Fish Hatchery (NPDES No. WA 0039730). WDOE most recently renewed the permit in September 2010, for a 5-year period (WDOE 2010); in its review of the permit application, WDOE noted that the Voights Creek Fish Hatchery meets applicable effluent standards and limits, water quality standards, and other legally applicable requirements (WDOE 2009). Because of the Category 2 water quality rating described above, pH and temperature are required to be monitored over the course of the NPDES permit (WDOE 2005).

The PCC requires 150-foot buffers for Type F1 streams (PCC 18E.40.060). At the site of the existing hatchery complex, much of the Voights Creek buffer has been previous developed and currently contains buildings, gravel and paved surfaces, and hatchery structures for fish rearing and propagation. The riparian corridor of Voights Creek in the vicinity of the existing hatchery complex is essentially devoid of vegetative cover, although the area to the east (and along Coplar Creek) is largely intact and provides good stream shading, fish habitat, and nutrient input to the freshwater aquatic ecosystem (GeoEngineers 2009).

4.2.2 WETLANDS

Projects funded by FEMA must comply with permit requirements under the Clean Water Act Section 404 for actions affecting waters of the United States and the discharge of dredged or fill material into U.S. waters, including wetlands. In addition, EO 11990, Protection of Wetlands, requires that federal agencies take action to minimize the destruction, loss, or degradation of wetlands (as defined in 44 CFR Part 9.4), and to preserve and enhance the natural and beneficial effects of wetlands. FEMA's responsibilities under this executive order are also found in 44 CFR Part 9.

Previous wetland investigations have identified two wetland features in the study area: (1) a large forested wetland associated with Coplar Creek on the east boundary of the project area, which extends outside the study area for this EA (Sewall 2012); and (2) a small riverine wetland directly adjacent to the existing hatchery footprint, within the bankfull width of Voights Creek

(GeoEngineers 2009) (see Figure 4-1, *Cover Types*). Information in this section is primarily based on these two previous investigations, which were conducted according to the methodology described in the *Corps of Engineers Delineation Manual* (Environmental Laboratory 1987) and the *Western Mountain, Valleys, and Coast Region Supplement* (Corps 2008, 2010). Wetland information was confirmed by additional research.

Sewall Wetland Consulting, Inc. (Sewall) originally identified and delineated wetland areas in 2003 for a proposed residential development project in the area, the Voight Creek Meadow project (Sewall 2012). The site was delineated again in 2012, at which time Sewall determined that the wetland had expanded farther west. Sewall (2012) identified the wetland on the east edge of the project area along Coplar Creek as Wetland A (also called the Coplar Creek wetlands). Total area of Wetland A in the project area is 7.2 acres and extends off site to the east and south along Coplar Creek. Wetland A contains both forested and emergent areas. The forested portions of the wetland are dominated by Oregon ash (*Fraxinus latifolia*), with salmonberry (*Rubus spectabilis*), ninebark (*Physocarpos capitatus*), red-osier dogwood (*Cornus stolonifera*), skunk cabbage (*Lysichitum americanum*), and slough sedge (*Carex obnupta*) in the understory. The emergent portion of Wetland A includes pasture areas with reed canarygrass (*Phalaris arundinacea)*, bentgrass, soft rush (*Juncus effusus*), creeping buttercup (*Ranunculus repens*), and tall fescue. The hydrology of Wetland A is primarily associated with Coplar Creek, the areal expansion of the wetland relative to the 2003 delineation appears to be related to beaver activity in the vicinity of the creek. Based on the Washington State Wetland Rating System (Hruby 2004), Sewall determined that Wetland A is a depressional Category II wetland (Sewall 2012); Category II wetlands are difficult but not impossible to replace and provide high levels of some functions. Under the PCC (Title 18E [Critical Areas], 18E.30), the buffer width for this type of Category II wetland is 110 feet. This is a preliminary jurisdictional determination and is pending approval by the Corps, WDOE, and Pierce County.

Prior to the 2009 storm, WDFW was considering upgrades to the Voights Creek Fish Hatchery to modernize the facilities. In anticipation of these upgrades, the agency funded a critical areas assessment that included a wetland delineation conducted in 2008 (GeoEngineers 2009). The critical areas assessment identified a 4,700 square foot riverine wetland along the banks of Voights Creek, outside the footprint but adjacent to the existing hatchery complex (to the southwest). This wetland is referred to in this EA as Wetland B, to distinguish it from Wetland A (the Coplar Creek wetlands) described above (see Figure 4-1, *Cover Types*). Wetland B is outside the project boundary examined by the Sewall (2012) investigation. The vegetation community in Wetland B is dominated by red alder (*Alnus rubra*), Scouler's willow (*Salix scouleriana*), Pacific bleeding heart (*Dicentra formosa*), and Himalayan blackberry (*Rubus armeniacus)*. Wetland hydrology is primarily associated with the Voights Creek channel. Based on the wetland's relatively low habitat and wetland function scores, it was rated as a Category III (marginal) wetland (GeoEngineers 2009).

Based on the Piece County Critical Areas Ordinance, this type of wetland requires a total buffer width of 80 feet. This is a preliminary determination and is pending approval by Pierce County.

Path: P:\PDO\G01\260107692_FEMA1817DR06\GIS\3_layout\VoightsHatcheryEA\Figure 4-1 Cover Types.mxd

Voights Creek Fish Hatchery Project
FEMA 1817-DR-WA PW 1532

Environmental Assessment

Figure 4-1. Cover Types

Legend

- Project Area
- Project Footprint

Cover Types

- Developed and Disturbed Areas
- Agricultural Pasture
- Blackberry Shrublands
- Forest
- Wetlands

T19N, R5E, Section 33
T18N, R5E, Section 4
Latitude 47.082374, Longitude -122.178325

FEMA
U.S. Department of Homeland Security
Region X
130 228th Street SW
Bothell, WA 98021-9796

AECOM

0 100 200 Feet

N

According to Sewall (2012), the National Wetlands Inventory (NWI) also identified an additional emergent wetland just south of the existing stormwater pond, in the vicinity of the proposed new hatchery facilities. The NWI wetland feature was interpreted from aerial photographs without ground verification. The Sewall (2012) wetland delineation did not identify or delineate any wetlands in the vicinity of this NWI-mapped feature and it is therefore not considered a jurisdictional wetland. The remainder of the site of the proposed new hatchery facilities is predominately pastureland.

4.2.3 FLOODPLAINS

EO 11988, Floodplain Management, requires federal agencies to reduce the risk of flood loss; minimize the impact on human health, safety, and welfare; and restore the natural and beneficial values served by floodplains. Under FEMA's implementing regulations at 44 CFR Part 9, FEMA must evaluate the potential effects of any actions it may take in a floodplain and consider alternatives to avoid adverse effects (Appendix C, *Executive Order 11988 – Floodplain Management, Eight-Step Decision Making Process*). The site of the existing hatchery facilities is located in the 100-year floodplain of Voights Creek and FEMA designated Special Flood Hazard Areas (see Figure 1-2).

FEMA regulations define a floodplain as "the lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a 1% or greater chance of flooding in any given year" (44 CFR 9.4). The project location is mapped on the FEMA Flood Insurance Rate Map (FIRM) for Pierce County, Washington (unincorporated areas) (Community Panel Number 530138 0610C) as Zone A and is in the 100-year flood zone (FEMA 1987); Zone A areas are subject to inundation by the 1-percent-annual-chance flood event, generally determined using approximate methodologies (FEMA 2012c).

As part of the FEMA national Map Modernization Program initiative, FEMA has produced revised Preliminary Digital Flood Insurance Rate Maps (DFIRMs) and the corresponding Flood Insurance Study (FIS) for both the incorporated and unincorporated areas of Pierce County. Although Final Determinations have not been completed on the new mapping, Pierce County implements floodplain regulations based on the revised preliminary DFIRMs (see Figure 1-2). The approximate 100-year food elevation is 232 feet (FEMA 2009).

4.2.4 CONSEQUENCES OF ALTERNATIVES

A project alternative would reach the significance threshold for effects on water resources if it would:

- Violate water quality standards or cause prolonged alteration to baseline water quality conditions.
- Cause adverse modifications of wetlands that are not minimized in accordance with FEMA's standards in 44 CFR 9.11.
- Alter the existing drainage pattern of streams or wetlands in a manner that would substantially deteriorate their value and functions.
- Maintain or increase the facility's potential for repetitive damages from future flooding.

Alternative A: No Action

No new work would occur in or near wetland; however, the hatchery would remain in place with portions of the facilities within the Voights Creek floodplain and Pierce County regulated buffer areas. There would be **no effects** on Wetland A, and **minor long-term effects** on Wetland B would be associated with continued operation of the adjacent facility. Continuing operation of the existing Voights Creek Fish Hatchery facilities would have **potentially moderate adverse long-term effects** on floodplain resources and stream hydrology and water quality in the project vicinity. The existing facilities are within the designated floodplain, and future storm and flood events are likely to damage the facilities, as occurred during previous flood events. In addition the channel condition and natural hydrology would continue to be degraded from armored stream banks and occupancy of the floodplain.

Alternative B: Proposed Action

Relocating and rebuilding the Voights Creek Fish Hatchery facilities would have **potential moderate short-term and minor long-term adverse effects** on hydrology or stream resources in the project vicinity, primarily associated with in-water work during construction of the new intake and associated structures. Potential impacts on stream resources would include alterations in existing topography and hydrology regimes. Other effects would include an increase in the amount of compacted or modified surface that, if not controlled, could increase the potential for surface runoff, increased erosion, and sediment deposition within sensitive water resources beyond the proposed project footprint.

Ground-disturbing activities for the new intake facilities on Voights Creek and the 100-year floodplain include the intake structure itself, intake pumps, retaining walls, concrete slab, pneumatic weir, fish ladder/fishway, and bypass. The proposed intake facilities would occupy 1,550 square feet of Voights Creek below the OHWM and 7,750 square feet above the OHWM in the 100-year floodplain. The mechanical/electrical building, generator, and diesel storage tank would be sited as far from Voights Creek as practical, above the 100-year flood elevation, and not encroach on the SR 162 right-of-way (pers. comm., Peoples 2013).

Potential described direct and indirect impacts are unavoidable because the intake facility and associated structures are functionally dependent on the creek, but would be minimized by implementing temporary erosion sediment control, and ensuring that work below OHWM complies with provisions in the HPA and requirements of the USFWS, NMFS, and Corps permits. The double or secondary containment tank used to store diesel fuel for the on-site generator is a safeguard measure to prevent accidental releases or spills of toxic or hazardous substances to the environment (water, soil, and air). A project-specific SPCC plan will be prepared for the facility and will include requirements for diesel spill prevention, preparedness, and response to prevent diesel discharges to navigable waters and adjoining shorelines.

Because no waters in the project vicinity are 303(d) listed as Category 5 impaired waters of the state (WDOE 2008), WDFW has an existing NPDES permit for discharges associated with operation of the Voights Creek Fish Hatchery, and the new hatchery has been designed with a pollution abatement facility to ensure that clean water is returned to the Voights Creek, the Proposed Action would have **negligible effect** on water quality from long-term operation of the hatchery.

Relocating and rebuilding the Voights Creek Fish Hatchery facilities would have **a minor direct adverse effect** on wetland resources in the project vicinity. Approximately 3,700 square feet of Wetland A would be directly affected from construction of the fish ladder. The wetland area is dominated by reed canarygrass and is degraded. Again, impacts would be minimized by implemented minimization measures listed in Sections 3.3.2 and 3.3.4. There was no practicable alternative that could avoid impacting Wetland A. The fishway/fish ladder is location dependant, and impacts are minimized to the extent practicable by skirting the outer edge of the wetland. Impacts on Wetland A would be offset through the enhancement of the degraded portions of Wetland A.

The Proposed Action would have **a moderate direct adverse effect** on stream and wetland buffer areas, as designated by Pierce County, approximately 7,750 square feet of stream and wetland buffer would be affected. However, decommissioning of the existing fish hatchery facilities and activities at Mitigation Site #3 would represent a **long-term beneficial effect** on Wetland B, as these activities would improve habitat conditions within the wetland buffer area.

WDFW would be required to mitigate for permanent impacts on Voights Creek, Wetland A, and associated buffers. The project mitigation measures are described in detail in Section 3.3.2 and include wetland buffer enhancement, restoration along Coplar Creek, and restoration along Voights Creek. In particular, WDFW is proposing to enhance 18,000 square feet of portions of Wetland A and wetland buffer that is currently primarily reed canarygrass and agricultural pasture, and plant with native trees and shrubs. WDFW will coordinate with the Corps, WDOE, and Pierce County to ensure that the mitigation measures are designed and implemented to adequately compensate for any effects on wetland resources and buffers.

The Proposed Action would have potential **minor short-term adverse effects** on floodplain resources from construction activities associated with decommissioning of the existing hatchery and **minor long-term direct adverse effects** associated with the installation of the intake facilities within the floodplain. The newly installed intake facility and associated project elements would be designed and installed to meet current floodplain regulations administered by Pierce County; however, because they would be sited within the existing floodplain, they may be subject to future damages from flood events. Overall, there would be a **moderate long-term beneficial effect** on floodplain resources in the project vicinity by relocating the hatchery complex out of the 100 year floodplain. WDFW would be required to obtain a floodplain construction permit for the project, including the demolition of the existing fish hatchery. Pierce County's floodplain administrator would ensure that mitigation measures are implemented for any impact on the floodplain. Relocating the hatchery complex out of the 100-year floodplain and dismantling the existing facilities within the designated floodplain would eliminate potential damage from future storm and flood events, while also restoring many floodplain functions to the original site (as described in the 8-step checklist, included as Appendix C).

Alternative C: Repair Existing Hatchery Facilities in Place

Repairing the existing hatchery facilities in place would have **moderate short-term adverse effects** on stream resources in the project vicinity, primarily associated with construction activities. Restoration of the existing intake structure would require dredging the creek from the avulsion down to the intake and diverting the creek back into this channel. Potential adverse effects during

construction would include erosion and sedimentation, the potential for fish handling and relocation, and the potential for accidental spills of construction-related pollutants into the channel.

Repairing the existing hatchery facilities in place would not encroach on Wetland A, Wetland B, or their respective buffers; therefore, Alternative C would have **no effect** on wetland resources in the project area. Alternative C would have **minor long-term adverse effects** on floodplain resources in the project vicinity. The existing facilities are within the designated floodplain, and although they would likely be designed to lessen the degree of impacts, per floodplain development regulations, future storm and flood events could damage the facilities, as occurred during the 2009 flood and several earlier storm events. Thus, maintaining the facility's floodplain occupancy would perpetuate the flood hazard risks to the federal investment.

Mitigation Measures

Mitigation measures to compensate for the effects on Wetlands A and Voights Creek may be required during the CWA Section 404 and Section 401 processes with the Corps. Any required compensatory wetland mitigation would be completed on site, in conjunction with mitigation requirements of the Pierce County critical areas regulations for effects on wetland and stream buffers. As described in Sections 3.3.2 and 3.3.4, activities at Mitigation Sites 1 through 4 and other impact minimization measures are built into the Proposed Action, including measures to enhance stream, wetland, and buffer habitats. With incorporation of the identified mitigation measures and associated agency coordination, implementation of the Proposed Action would not cause any significant impacts on hydrology resources in the project area.

4.3 BIOLOGICAL RESOURCES

Biological resources include both flora and fauna populations and the habitat they rely on. Several federal statutes protect these resources, including the Endangered Species Act (ESA), Magnuson-Stevens Fishery Conservation Management Act (Magnuson-Stevens Act), Bald and Golden Eagle Protection Act (Eagle Act), and Migratory Bird Treaty Act (MBTA).

In addition, the applicant, WDFW, has a mission to preserve, protect and perpetuate fish, wildlife, and ecosystems while providing sustainable fish and wildlife recreational and commercial opportunities. In consultation with other governmental and nongovernmental organizations, WDFW developed a Comprehensive Wildlife Conservation Strategy that guides conservation of species and habitats with greatest conservation need while recognizing the importance of keeping common species common, and to build and strengthen conservation partnerships with other conservation agencies, tribes, local governments, and nongovernmental organizations (WDFW 2005). WDFW developed the 21st Century Salmon and Steelhead Initiative to meet its responsibilities in recovering salmon and steelhead and provide sustainable fisheries (WDFW 2009). This resulted in an integrated management framework designed to restore federally listed populations through six salmon recovery plans, create and maintain selective and sustainable fisheries, protect and restore habitat, retool hatchery operations to support wild fish recovery, further state-tribal co-management, and develop new strategic partnerships.

4.3.1 VEGETATION COMMUNITIES AND COVER TYPES

The project area's major features that potentially influence biological resources include the existing hatchery facilities, SR 162, agricultural pasture, and Voights Creek. The project area includes the mitigation sites. Vegetation communities and cover type in the project area include developed and disturbed areas, agricultural pasture, blackberry shrublands, conifer forest, riparian forest, wetlands, and water features (Table 4-2). Wetlands and water features were previously described in Section 4.2 *Water Resources*.

Table 4-2. Project Area Vegetation Communities and Cover Types (Existing Conditions).

Vegetation Communities and Cover Types	Square Feet[1]	Acres[2]	Percent of Project Area
Developed and Disturbed Areas	235,200	5.4	13
Agricultural Pasture	956,800	22.0	53
Conifer Forest	41,500	1.0	2
Blackberry Shrublands	101,700	2.3	5.5
Riparian Forest - Willow Scrub	54,300	1.3	3
Wetlands[3]	327,300	7.5	18
Water Features			
Voights Creek	68,000	1.6	4
Coplar Creek	1,300	<0.1	0
Adult Holding Ponds	8,500	0.2	0.4
Totals	**1,794,600**	**41.2**	**100**

[1]Vegetation communities and cover types digitized from aerial photographs using GIS.
[2]Area calculations were rounded to the nearest tenth of an acre.
[3]Based on delineations from GeoEngineers 2009 and Sewall 2012. See EA Section 4.2.

Developed and Disturbed Areas

Developed land cover mapped within the project area represents paved roads including SR 162 and hatchery facilities. SR 162 fragments vegetation communities and wildlife habitats in the project area. Disturbed areas are those affected by human activities. Vegetation does not usually become re-established due to frequent disturbances. Disturbed areas include a gravel maintenance road and parking area to the south and east of SR 162. This road is used to access the SR 162 bridge over Voights Creek and was used to access the dairy farm facilities that were removed. The access road leads to the damaged gravity Intake #1 upstream on Voights Creek. A short gravel road north of SR 162 is a remnant of roadway before the Washington State Department of Transportation (WSDOT) realigned the highway in 2004.

Agricultural Pasture

Agricultural pasture is located in the southern portion of the project area. This area is currently used to grow hay and was previously used to pasture cattle (Sewall 2012). The area has also been used as a dairy farm. The upland pasture areas include tall fescue (*Festuca arundinacea*), bentgrasses (*Agrostis* spp.), velvetgrass (*Holcus lanatus*), and quackgrass (*Agropyron repens*). A mix of weedy species is found throughout the pastures including Canada thistle (*Cirsium arvense*) and patches of Himalayan blackberry (*Rubus armeniacus*).

Blackberry Shrublands

Blackberry shrublands are located along the roadside of SR 162 and in riparian areas along Voights and Coplar creeks. This community includes Himalayan blackberry with combinations of nonnative grasses and thistle in drier areas along SR 162 and reed canarygrass (*Phalaris arundinacea*) in the wetter riparian areas along Voights and Coplar creeks.

Conifer Forest

There is an isolated patch of 20 year-old Douglas-fir (*Pseudotsuga menziesii*) located in the northeast portion of the project area just west of SR 162. This forest is fragmented by SR 162 and was once part of a Christmas tree farm that is east of the highway.

Riparian Forest - Willow Scrub

Riparian forest and willow scrub areas are located along the banks of Voights Creek and are dominated by red alder (*Alnus rubra*) and black cottonwood (*Populus balsamifera*) with patches of willows and blackberry. Reed canarygrass is present along the banks. Coplar Creek riparian areas at the confluence with Voights Creek are dominated by willow scrub-shrub. The riparian forest extends beyond the project area north to the Carbon River and southeast upstream along Voights and Coplar creeks.

4.3.2 SENSITIVE SPECIES AND REGULATORY CONTEXT

For the purposes of this assessment, sensitive species are considered those federally listed proposed, threatened, or endangered species (listed species) protected under the ESA, Pacific salmon fishery species protect under the Magnuson-Stevens Act, eagles protected under the Eagle Act, and bird species protected under the MBTA. In addition, sensitive species include WDFW designated priority species. These species also require protective measures for their survival due to their population

status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority species include State Endangered, Threatened, Sensitive, and Candidate species; animal aggregations (e.g., heron colonies, bat colonies) considered vulnerable; and species of recreational, commercial, or tribal importance that are vulnerable.

Endangered, Threatened, Proposed Species and Critical Habitat

The ESA of 1973 (16 United States Code [U.S.C.] 1531 et seq.), as amended, established a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7 of the ESA requires federal agencies, in this case FEMA, to consult with NMFS and the USFWS, as appropriate, regarding species protected under the ESA. FEMA prepared a biological assessment (BA) that included detailed information of threatened and endangered species and critical habitat in the project area (FEMA 2012b). FEMA submitted the BA to NMFS and the USFWS in October 2012 and completed consultation with NMFS and the USFWS in April 2013. NMFS and the USFWS concluded that FEMA's action by providing funds for the WDFW's proposed project is not likely to jeopardize the continued existence of species listed as threatened, endangered, or proposed to be listed, or result in the destruction or adverse modification of designated or proposed critical habitat. A summary of NMFS and the USFWS analysis is described in Section 4.3.3, *Consequence of Alternatives*.

A county-wide species list for Pierce County was compiled by the USFWS (2012a) and information retrieved from the NMFS website (2012) (Appendix B). An AECOM biologist visited the project area and surrounding lands on July 24, 2012, to determine the status and availability of suitable habitat for listed species, and to evaluate the potential impacts of the project.

Species Evaluated but not Addressed in Detail

Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos horribilis*), marbled murrelet (*Brachyramphus marmoratus*), northern spotted owl (*Strix occidentalis caurina*), marsh sandwort (*Arenaria paludicola*), or golden paintbrush (*Castilleja levisecta*) are not documented nearby, and no suitable habitat is present in project area (USFWS 2012a; WDFW 2012a; WNHP 2005). Therefore, the project alternatives would have no effect on these species.

In 1994, water howellia (*Howellia aquatilis*) was discovered in two locations in Pierce County, approximately 20 miles west of the project area (WNHP 2010). According to the USFWS (1996) recovery plan for water howellia, suitable habitat includes firm consolidated clay and organic sediments that occur in shaded wetlands associated with vernal ponds, ephemeral glacial pothole ponds, and former river oxbows that have an annual cycle of filling with water over the fall, winter, and early spring, followed by drying during the summer months. Wetlands occur in areas in the project area but conditions are not consistent with water howellia habitat found in shaded vernal ponds, glacial pothole ponds, or former river oxbows, and are low quality due to historic agriculture activities within wetland areas. Although no formal on-site sensitive plant surveys have been completed, water howellia was not documented within the project area during wetland delineation field work that occurred in 2003, 2009, and 2012 (GeoEngineers 2009 and Sewall 2012). Because on-site wetland habitat is of poor quality, generally not consistent with habitat requirements and hydroperiods for the water howellia, and the species was not identified during prior wetland delineations, the project alternative would have no effect on water howellia.

In addition to listed endangered and threatened species, project biologists also reviewed the list of proposed species that may use the project area. One proposed species, the streaked horned lark (*Eremophila alpestris strigata*), is documented in Pierce County, and the closest breeding site is at Fort Lewis, approximately 20 miles west of the project area (Pearson and Altman 2005). The streaked horned lark is endemic to the Pacific Northwest and is a subspecies of the wide-ranging horned lark. WDFW has developed a conservation strategy for the streaked horned lark and describes breeding habitat in the Puget Lowlands as grassland prairies with sparsely vegetated relatively short annual grasses and native bunch grasses (3.9 to 13.3 inches)(Pearson and Altman 2005). Grasslands/agricultural pasture occur in the project area but are dominated by densely vegetated, relatively tall nonnative grasses used for hay and are periodically mowed. In addition, there is no proposed critical habitat for the species in the project vicinity (pers. comm., Burgdorf 2013). Because conditions in the project area are not consistent with suitable habitat for the streaked horned lark, the project alternatives would have no effect on the streaked horned lark.

Species Evaluated and Addressed in the Effects Analysis

Puget Sound (PS) Chinook salmon, PS steelhead (*Oncorhynchus mykiss*), and Coastal-Puget Sound bull trout (*Salvelinus confluentus*) suitable habitat is present in the project area. Critical habitat for PS Chinook salmon is present in the project area. Critical habitat for PS steelhead is under development. The closest critical habitat for Coastal-Puget Sound bull trout is approximately 2,500 feet downstream at the confluence of Voights Creek with the Carbon River. Table 4-3 summarizes threatened and endangered species in the project area.

Table 4-3. Federally Threatened Species in the Project Area.

Species	Status	Critical Habitat
Chinook Salmon (*Oncorhynchus tshawytscha*) Puget Sound ESU	Threatened 6/28/05 (70 FR 37160)	Designated 9/2/05 (70 FR 52630)
Steelhead Trout (*Oncorhynchus mykiss*) Puget Sound DPS	Threatened 5/11/07 (72 FR 26722)	Under development 1/10/11 (76 FR 1392)
Bull Trout (*Salvelinus confluentus*) Coastal-Puget Sound DPS	Threatened 11/1/1999 (64 FR 58910)	Designated 10/18/10 (75 FR 63898)

ESU = Evolutionarily Significant Unit; DPS = Distinct Population Segment; FR = Federal Register.
Sources: NMFS 2012; USFWS 2012a.

Puget Sound Chinook

The PS Evolutionarily Significant Unit (ESU) of Chinook salmon is listed as threatened by NMFS (70 Federal Register [FR] 37160). PS fall-run Chinook occur in Voights Creek. During the in-water work window, adult fall-run Chinook will be migrating to spawning sites in the project area. With the exception of a few naturally spawning individuals, all PS fall-run Chinook in Voights Creek are hatchery origin that return to Voights Creek in early August and are diverted to the adult ponds at the existing fish hatchery site where WDFW collects the broodstock (pers. comm., Peoples 2012). Adult Chinook do not migrate upstream of the hatchery. Juvenile Chinook salmon emigrate from their

natal streams as fry from late February through March, with yearlings present year-round (Kerwin 1999). PS Chinook critical habitat is designated in the Carbon River watershed and includes a portion of Voights Creek in the project area but excludes Coplar Creek (70 FR 52630).

Puget Sound Steelhead

NMFS designated PS steelhead as threatened under the ESA on June 11, 2007 (72 FR 26722). The PS steelhead Distinct Population Segment (DPS) is composed primarily of winter-run populations; these fish in Voights Creek are of wild origin and spawn naturally in the system (below and above the hatchery) (pers. comm., Peoples 2012). Juvenile PS steelhead typically spends 2 to 3 years in freshwater before migrating downstream into marine waters. Once the juveniles emigrate, they move rapidly through Puget Sound into the north Pacific Ocean where they reside for several years before returning to spawn in their natal streams. Winter run steelhead enter freshwater between November and April at an advanced stage of maturation and spawn in Voights Creek from the middle of March through June (pers. comm., Peoples 2012). WDFW does not have an estimate of naturally spawning steelhead for Voights Creek, but in 2011, five redds were observed over four visits in April and May between River Mile 0.5 and 3.4 (between Voights Creek Fish Hatchery and 1.6 miles upstream). PS steelhead critical habitat is currently under development and NMFS issued an advance notice of proposed rulemaking for designation of critical habitat for PS steelhead on January 10, 2011 (76 FR 1392).

Coastal-Puget Sound Bull Trout

The Coastal-Puget Sound DPS of bull trout is listed as threatened by the USFWS (64 FR 58910). The USFWS has identified core areas important to the recovery of bull trout. Bull trout typically spawn from August to November during periods of increasing flows and decreasing water temperatures. Depending on water temperature, incubation is normally 100 to 145 days (Pratt 1992). Fry normally emerge from early April through May, depending on water temperatures and increasing stream flows (Pratt 1992). Coastal-Puget Sound bull trout critical habitat is designated in the Carbon River, which is in Unit 2, Puget Sound, Sub-unit: Puyallup River. However, Voights and Coplar creeks are not mapped as critical habitat (75 FR 63898). There is no known spawning distribution of bull trout in Voights Creek, and they are unlikely to be present (pers. comm., Chan 2012). Water temperatures in Voights Creek may preclude their presence in the summer; however, in late fall and winter, subadults may dip in from the Carbon River (pers. comm., Chan 2012).

Essential Fish Habitat and the Pacific Salmon Fishery

The Magnuson-Stevens Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires federal agencies to consult with NMFS on activities that may adversely affect essential fish habitat (EFH). The Pacific Fisheries Management Council (PFMC) has designated EFH for the Pacific salmon fishery, ground fish, and coastal pelagic fisheries (PFMC 2012). Of these, only species associated with the Pacific salmon fishery occur within the project area. Accordingly, none of the alternatives would affect EFH for groundfish or the coastal pelagic fishery. The Pacific salmon fishery in this designation includes all streams, lakes, ponds, wetlands, and other water bodies currently or historically accessible to salmon in Washington, Oregon, Idaho, and California except above the impassable barriers identified by PFMC. The Pacific salmon fishery includes PS Chinook, PS coho, and pink salmon (*O. gorbuscha*) in its designation; and all are potentially present in the project area (WDFW 2012a, 2012b; pers. comm., Peoples 2012).

Bald Eagle

Administered by the USFWS, the Eagle Act provides for the protection of the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting, except by permit, the taking, possession, and commerce of such birds. Golden eagles are not likely to occur within the project area, are extremely rare in the general area, and there are no documented occurrences within 1 mile of the project area (WDFW 2012a). The Carbon River Bald Eagle Winter Area is approximately 1,000 feet north of the project area, and the Crocker Roost is approximately 4,000 feet east of the project (WDFW 2012a). Bald eagles occur in the project area, with concentration of eagles in the winter along the Carbon River.

Migratory Birds

The MBTA prohibits persons, unless by permit, "to pursue, take, or kill…any migratory bird, or any part, nest or egg of any such bird." Direct and indirect acts are prohibited under this definition, although harassment and habitat modification are not included unless they result in the direct loss of birds, nests, or eggs. The MBTA protects all native species of birds not including upland game birds. The current checklist for Pierce County includes 342 species of birds (Washington Birder 2012). Voights and Coplar creeks provide habitat for native waterfowl and riparian birds. Riparian forest adjacent to emergent wetlands and agricultural pasture in the project area provides foraging opportunities for raptors. Common species that use the project area include mallard (*Anas platyrhynchos*), northern flicker (*Colaptes auratus*), violet-green swallow (*Tachycineta thalassina*), black-capped chickadee (*Poecile atricapillus*), American robin (*Turdus migratorius*), song sparrow (*Melospiza melodia*), and dark-eyed junco (*Junco hyemalis*) (Washington Birder 2012, eBird 2012).

Migratory birds nest not only on tree branches and in tree and snag cavities, but also among shrubs and downed vegetation, on open ground, and on cliffs. Many nests, if not most, are well camouflaged or otherwise almost undetectable. While adult birds can usually escape construction activities, their eggs and chicks have no defense. Destruction of active bird nests, eggs, or nestlings that results from vegetation clearing, grubbing, and other site preparation and construction activities would violate the MBTA. The USFWS is the federal agency responsible for administering the MBTA, and consultation is required if an action is determined to cause a potential take of migratory birds to determine measures to minimize or avoid these impacts.

State Sensitive Species

In addition to sensitive species protected by federal laws, the applicant, WDFW, is obligated to protect state sensitive species. State sensitive plant species that potentially occur in the project vicinity were determined from the county-wide list obtained from the Washington Natural Heritage Program (WNHP) for Pierce County, Washington (WNHP 2012a). WNHP geographic information system (GIS) data indicated no rare plant occurrences in the project area (WNHP 2012b). The closest occurrences are 4 miles north, bog clubmoss (*Lycophodiella inundata*); and 9 miles west, white-top aster (*Sericocarpus ridigus*). State sensitive fish and wildlife species are determined by WDFW and listed as Priority Habitats and Species (PHS). Two documented sensitive wildlife species occur within 2 miles of the project area: elk (*Cervus elaphus*) and little brown myotis (*Myotis lucifugus*) (WDFW 2012a). The project area is within the White River elk range that includes resident and winter migratory elk and an elk damage area, where there have been elk

damage reports (WDFW 2012a). The project area is within a documented little brown myotis communal roost buffer. However, no maternity roosts or habitat (i.e., caves) to support large roost sites were observed in the project area. All species of bats are classified as protected wildlife and cannot be hunted, trapped, or killed (WAC 232-12011).

Habitat Connectivity

Like human communities, fish and wildlife communities depend on mobility. Across the land and through the water, wildlife must move in good quality habitats from place to place for foraging, breeding, and for rearing young. According to the WDFW PHS database, a Biodiversity Area and Corridor along the Carbon River are located approximately 1,400 feet north of the existing hatchery. Relatively undisturbed upland forest and shrub habitat on the project site connect to the Biodiversity Area via a vegetated corridor along Voights Creek.

4.3.3 CONSEQUENCES OF ALTERNATIVES

Impacts on biological resources would be considered significant if project-related activities directly or indirectly caused substantial loss, reduction, degradation, disturbance, or fragmentation to native species habitats or their populations, and on any sensitive habitats, natural communities, and special status species that are afforded protection under federal law or regulation.

As noted in Chapter 3, under all the alternatives evaluated, the hatchery production and management goals will remain unchanged from current conditions. The EA, therefore, does not address potential impacts on wild fish populations from hatchery production.

Alternative A: No Action

Under this alternative, the hatchery would remain in place with portions of the facilities within Voights Creek, the floodplain, and Pierce County regulated buffer areas. Although there would be no effect on upland vegetation and associated sensitive wildlife species (bald eagle, migratory birds, elk, bats) and habitat or habitat connectivity, continuing operations of the existing Voights Creek Fish Hatchery would have potential **moderate long-term adverse effects** on Chinook, steelhead, and bull trout and EFH from stream hydrology and water quality associated with potential future flood events. In addition, the existing remaining intake and fish ladder would remain non-compliant with current NMFS criteria (NMFS 2008). The channel condition and natural hydrology would continue to be degraded from armored stream banks and occupancy of the floodplain, which would adversely affect sensitive species and associated habitat.

Alternative B: Proposed Action

Under the Proposed Action, FEMA would provide funding to WDFW for rebuilding and relocating the hatchery facilities outside the Voights Creek 100-year flood elevation, as described in Section 3.3.

Vegetation

Direct impacts would occur from the removal of vegetation during construction. These ground-disturbing construction-related activities would include clearing and grading, increased human presence, and increased vehicle traffic. Construction of the new hatchery facilities would

permanently clear approximately 14% of the existing agriculture pasture in the project area (130,000 square feet of the 956,800 square feet total), 14% of existing riparian areas in the project area (7,750 square feet of the 54,300 square feet), and 1% of existing wetlands in the project area (3,700 square feet of the 327,300 square feet). Decommissioning and abandonment of the existing hatchery site would result in the restoration of approximately 110,000 square feet of upland habitat. In addition, approximately 20,000 square feet of riparian area at the existing hatchery site, 18,000 square feet of Wetland A, and 1,300 square feet of Coplar Creek would be enhanced by planting native vegetation. The new hatchery would initially reduce the existing vegetation in the project area by 9.5% (141,450 square feet of the 1,481,600 square feet of total vegetation), but overall, the alternative would result in a 2% (31,450 square feet) reduction of vegetation in the project area after the exiting hatchery is demolished and restored to native vegetation. Construction operations and associated removal of vegetation during hatchery construction would cause **short-term moderate adverse impacts** on vegetation communities. Over the long term, however, a **moderate beneficial effect** on vegetation would occur, as restored upland and enhanced wetland and riparian vegetative communities mature.

Threatened and Endangered Species and Critical Habitat

Detailed descriptions of potential effects are presented in the BA for the project (FEMA 2012b). Project elements that could potentially affect listed species include the following: turbidity, aquatic noise and vibration, channel modification, riparian vegetation removal, and work site isolation and fish handling. The amount of airborne noise from upland construction equipment would be minimal and would not rise to the level of harm.

Turbidity

Sedimentation and turbidity are primary contributors to the degradation of salmonid habitat (Bash et al. 2001). A temporary increase in turbidity up to 300 feet downstream during the installation and removal of the cofferdam is likely to occur but is expected to be of short duration. Turbidity and construction-related erosion will be minimized but not eliminated from project-related construction. As described in the minimization measures, water quality monitoring will be conducted during in-water work to ensure that turbidity levels do not exceed NTU thresholds as listed in Table 200(1)(e) Aquatic Life Turbidity Criteria (WAC 173-201A-200). Because turbidity would be increased only for a short time, for a small distance downstream, and at a time of year when listed species of fish are least likely to be present in the project area, the effects of the Proposed Action from increases in turbidity would likely have an insignificant effect on listed fish species.

Aquatic Noise and Vibration

Sound pressure waves generated by in-water construction activities have the potential to injure and even kill fish and disturb or alter their behavior (see Popper and Hastings 2009a, 2009b; and ICF Jones & Stokes and Illingworth and Rodkin 2009 for a complete discussion of noise impacts on fish). In general, sound pressure levels exceeding established thresholds for injury are only possible with in-water pile driving, which is not required for this project. The disturbance threshold is the sound level at which normal fish behavior is altered, which has been established at 150 decibels by the Fishery Hydroacoustic Working Group (2008). Work in the water would only occur during installation of the cofferdams. Standard construction equipment would place supersacks and sandbags at the up- and downstream ends of the construction area. The underwater noise generated by this activity is expected to be minimal and likely not even above background ambient noise levels in Voights Creek at the time of construction. Once the cofferdams are in place, the construction area

would be dewatered and all remaining work would occur in dry conditions, thereby limiting further generation of underwater noise. Because aquatic sound pressure levels generated by the Proposed Action will be minimal, aquatic noise would likely have an insignificant and discountable effect on listed fish species.

Channel Modification and Riparian Vegetation Removal
Approximately 1,550 square feet of Voights Creek and 7,750 square feet of riparian buffer would be affected by construction of the new intake facilities. Installation of the new intake would degrade fish habitat and reduce habitat complexity and diversity along the channel margin, thereby diminishing habitat value. Given the roles of channel migration, sediment dynamics, and large wood in a natural river system, riprap (particularly the cumulative effects of multiple riprap projects) can have significant detrimental effects on habitat and the natural fluvial processes of a river (Cramer and Bates 2003). The project would include the installation of bank protection structures (i.e., riprap) that would inhibit natural channel migration and the recruitment of large wood in the project area. Structures would also result in local scouring and deposition of stream substrates and sediments.

The project would also improve the stream bank condition of Voights Creek at the existing intake facilities by removing hard structures along the north bank (including sheet pile and riprap). Approximately 4,500 square feet of Voights Creek would be restored as part of Mitigation Site 3 (as described in Section 3.3.2). Installation of large wood in Voights Creek would create cover and enhance rearing habitat for juvenile fish. As described for Mitigation Site 4, the Proposed Action would create approximately 8,500 square feet of off-channel habitat for Voights Creek. As described for Mitigation Site 2, approximately 650 square feet of pipe and riprap would be removed and the area near the confluence of Coplar Creek and Voights Creek restored. Approximately 20,000 square feet of riparian areas would be planted along Voights Creek. Channel modification and vegetation removal as part of installation of the new intake facilities would have adverse effects, but overall improvements to Voights Creek, including the creation of new off-channel habitat, would have long-term beneficial effects.

Work Site Isolation and Fish Handling
Work site isolation, fish exclusion, and fish handling pose inherent risks to fish, especially if the activity involves electroshocking to capture and relocate fish present within the construction area. The contractor would minimize risks by ensuring that only qualified biologist oversee the fish exclusion activities and follow guidance outlined in the USFWS's *Recommended Fish Exclusion, Capture, Handling, and Electroshocking Protocols* (2012b) and NMFS's *Guidelines for electrofishing waters containing salmonids listed under the Endangered Species Act* (2000).

A picket barrier would be placed across Voights Creek to prevent adult fish from entering the work site isolation area and divert any adult fish to the existing hatchery adult ponds. WDFW typically does this to collect broodstock from adult Chinook. Once the initial pieces of the cofferdam are installed, any remaining fish would likely move away from the disturbance. Even during the designated in-water work window for Voights Creek of July 16 to August 31 (WDFW 2010), juvenile steelhead are likely present in the creek. During the in-water work window, adult fall-run Chinook will be migrating to spawning sites in the project area. All PS fall-run Chinook in Voights Creek are hatchery origin that return to Voights Creek in early August and spawn from September to October (pers. comm., Peoples 2012). Juvenile Chinook salmon emigrate from their natal streams as

fry from late February through March with yearlings present year-round (Kerwin 1999). Juvenile Chinook may be present in the project area during in-water work area isolation activities, and fish handling and relocation may be necessary.

Even though the goal of the fish exclusion is to reduce overall stress and mortality, capturing and handling fish can cause short-term stress, disrupt normal behavior, and may result in injury or mortality (Frisch and Anderson 2000). Fish handling may cause reduced predator avoidance (Olla et al. 1995). Injury and handling stress from nets and seines are expected to be lower than the stress from electroshocking but may still result in adverse effects. Fish removal and relocation would be conducted or directed by a qualified biologist to ensure the safe handling of all ESA-listed fish, and who is also experienced with work area isolation, which will minimize effects. Regardless of the best made plans, salvage and relocation efforts could harm listed steelhead and Chinook.

There is no known spawning distribution of bull trout in Voights Creek, and they are unlikely to be present (pers. comm., Chan 2012). Water temperatures in Voights Creek may preclude presence in the summer, however, in late fall and winter subadults may dip in from the Carbon River (pers. comm., Chan 2012). Because bull trout are not expected to be within the construction area during the in-water work window, the Proposed Action would not likely harm bull trout.

Overall Effects

There would be **short-term moderate adverse effects** on Chinook, steelhead, and bull trout from turbidity, aquatic noise and vibration, channel modification, riparian vegetation removal, and work site isolation and fish handling. On March 7, 2013, NMFS issued a Biological Opinion (BiOp) for the project (see Appendix B for NMFS concurrence letter). NMFS concluded that the Proposed Action is not likely to jeopardized the continued existence of PS steelhead or PS Chinook salmon, or destroy or adversely modify designated critical habitat for PS Chinook salmon. On April 2, 2013, the USFWS issued a BiOp for the project (see Appendix B for the USFWS concurrence letter). The USFWS concluded that the action, as proposed, is not likely to jeopardize the continued existence of bull trout. The project BMPs and mitigation measures, along with the terms and conditions in the BiOp from USFWS and NMFS (see Mitigation Measures), would reduce adverse effects on listed species to less than significant. **Long-term minor beneficial effects** on Chinook, steelhead, and bull trout would occur from removal of the existing intake/riprap on Voights Creek, removal of culvert/riprap on Coplar Creek, installation of large wood structures, and creation of off-channel rearing and overwintering habitat.

Essential Fish Habitat and the Pacific Salmon Fishery

Detailed descriptions of potential effects are presented in the BA for the project (FEMA 2012b). The project would result in the modification of approximately 1,550 square feet of Voights Creek and 7,750 square feet of riparian buffer by construction of the new intake facilities. However, the finished project would continue to allow access for salmon migration to upstream spawning habitat and downstream rearing areas. The project has the potential to temporarily create slightly elevated turbidity levels in Voights Creek. Turbidity would be increased from the placement and removal of cofferdam devices; however, the turbidity plume would be short lived and of moderate intensity. Therefore, there would be **short-term moderate adverse effects** on surface water quality and aquatic habitat during in-water project construction.

The modification of the river bank from vegetation removal and the addition of harden surfaces would have adverse effects on EFH. However, the project would improve stream bank conditions at the existing intake facilities by removing hard structures (sheet pile and riprap) along the north bank, softening the bank by adding large wood (engineered logjams [ELJs] and single logs with rootwads), and creating approximately 8,500 square feet of off-channel habitat. Approximately 4,500 square feet of Voights Creek would be restored. Large wood would occupy 4,000 square feet, creating cover and enhancing rearing habitat for juvenile fish. Approximately 20,000 square feet of riparian areas would be planted in areas adjacent to Voights Creek. Channel modification and vegetation removal would have a **short-term moderate adverse effect**, but overall improvements to Voights Creek including reconnection to the floodplain would have **long-term minor beneficial effects** on EFH for species associated with the Pacific salmon fishery.

Also included in NMFS BiOp is an analysis of the Proposed Action's effects on EFH. Effects on EFH would include short-term reduction in water quality (turbidity) from the installation and removal of intake facilities and blockage of fish passage for a period of up to 5 weeks. NMFS included one conservation recommendation to avoid, minimize, or otherwise offset potential adverse effects on EFH (see Mitigation Measures).

Bald Eagle

The bald eagle is protected by the Eagle Act and the Migratory Bird Treaty Act. No active nest sites are within a 0.25 mile of the construction area, and disturbance to nesting bald eagles should not be an issue. However, the Carbon River Bald Eagle Winter Area is approximately 1,000 feet north of the project area. Typically from November 15 – March 15, wintering bald eagles congregate at wintering sites, such as along Voights Creek, based on shelter and proximity to sufficient, dependable food sources. In Washington State, activities that produce noise or visual effects within 400 feet of the edges of communal roost trees or staging trees are recommended to be conducted outside of the critical roosting period (Larsen et al. 2004). Due to the distance of the Winter Area from the Proposed Action (1,000 feet), a potential **short-term minor adverse effect** on winter foraging may occur by deterring some eagles from feeding or taking shelter.

Migratory Birds

Minor direct effects on migratory birds as well as other wildlife would result from permanent habitat alterations. Approximately 3,700 square feet of wetland, 7,750 square feet of riparian area, and 130,000 square feet of agricultural land would be cleared and removed to accommodate the new intake and upland hatchery complex facilities. Noise and disruption of movement caused by construction crews may cause migratory birds to move away from the construction areas. However, these habitats in the project area are connected and contiguous with similar habitats that extend beyond the construction areas; many species would relocate to these nearby areas during construction.

With the implementation of avoidance and minimization measures (see Mitigation Measures), adverse impacts on migratory birds are not anticipated. Furthermore, WDFW proposed a mitigation program that includes riparian plantings at the old hatchery site on Voights Creek (20,000 square feet) and wetland enhancement adjacent to Coplar Creek (18,000 square feet), which would offset effects from direct removal of habitat. However, **short-term minor adverse effects** and disturbance from habitat removal on migratory birds would persist until the mitigation plantings mature.

State Sensitive Species

Elk and bats use the project area. Similar to the discussion for migratory birds, a **short-term minor adverse effect** would result from habitat that would be permanently altered and construction activities. However, mitigation would have **long-term minor beneficial effects** on state sensitive species as the vegetation matures and provides enhanced breeding, nesting, cover, and foraging habitat.

Habitat Connectivity

The project would reconnect portions of the floodplain and riparian areas of Voights Creek. The demolition of the existing hatchery and restoration of native riparian habitat associated with Voights Creek are considered a **long-term beneficial effect** on wildlife.

Alternative C: Repair Existing Intake and Pipeline in Place

Under Alternative C, FEMA would provide funding to WDFW to repair the existing gravity intake structure and pipeline in their current footprint, restoring them to predisaster condition, as described in Section 3.4. **Minor, short-term adverse effects** on vegetation would occur from temporary clearing of riparian vegetation associated repairs to the gravity intake and excavation of material on Voights Creek.

Similar to the Proposed Action, project elements that could potentially affect listed species and EFH for species associated with the Pacific salmon fishery include the following: turbidity, aquatic noise and vibration, channel modification, and riparian vegetation removal. The repair to the existing gravity intake would be conducted in the dry, and dredging to re-water the former main channel of Voights Creek would likely to be sequenced to minimize fish handling. Approximately 75,000 square feet of riverbed would be dredged to return flow to the intake. High levels of turbidity from initial re-watering of the dredged channel would likely exceed water quality standards. The banks would require armoring and slope stabilization. Because the Voights Creek watershed is a high energy system that delivers large pulses of sediment to the valley floor (MWH 2012a), the likelihood that dredged channel would be re-filled and impact aquatic habitats is high. Realignment of the active stream channel could also result in fish stranding and disruption of migratory movements.

This alternative would have a **short-term moderate adverse effect** on threatened and endangered species and EFH. Similar to the Proposed Action, Alternative C would likely have a **short-term minor adverse effect** on winter foraging eagles, migratory birds, and sensitive species of elk and bats from construction activities. As described for the No Action, the existing hatchery would continue to remain in the floodplain and be susceptible to repetitive storm-related damage. **Long-term moderate adverse effects** on fish habitat in Voights and Coplar creeks would likely occur from future flood events.

Mitigation Measures

As described in Sections 3.3.2 and 3.3.4, activities at Mitigation Sites 1 through 4 and additional impact minimization measures are built into the Proposed Action, including fish handling and exclusion protocols. With incorporation of the identified mitigation measures and associated agency

coordination, implementation of the Proposed Action would not cause any significant impacts on biological resources in the project area.

To protect migratory bird species and comply with the MBTA, if vegetation removal in the project area occurs between March 1 and September 15 when migratory birds may be nesting, a qualified biologist shall conduct a pre-construction survey for active nests. The pre-construction survey shall be conducted in all areas proposed for clearing and occur 15 days prior to the commencement of construction activities. If surveys show no evidence of nests, no additional mitigation shall be required. If any active nests are located in the construction area, the nest areas shall be flagged and a no-disturbance buffer zone of 100 feet shall be provided around the active nest and maintained until the end of the breeding season or until the young have fledged. Guidance from the USFWS shall be requested if establishing a 100-foot buffer zone is impractical.

To protect federally listed species and comply with the ESA, NMFS and the USFWS developed measures to avoid or minimize adverse effects on PS steelhead, PS Chinook, and bull trout. Details of these measures are provided in the BiOp and are described in Chapter 6, *Permitting, Project Conditions, and Mitigation Measures*.

4.4 CULTURAL RESOURCES

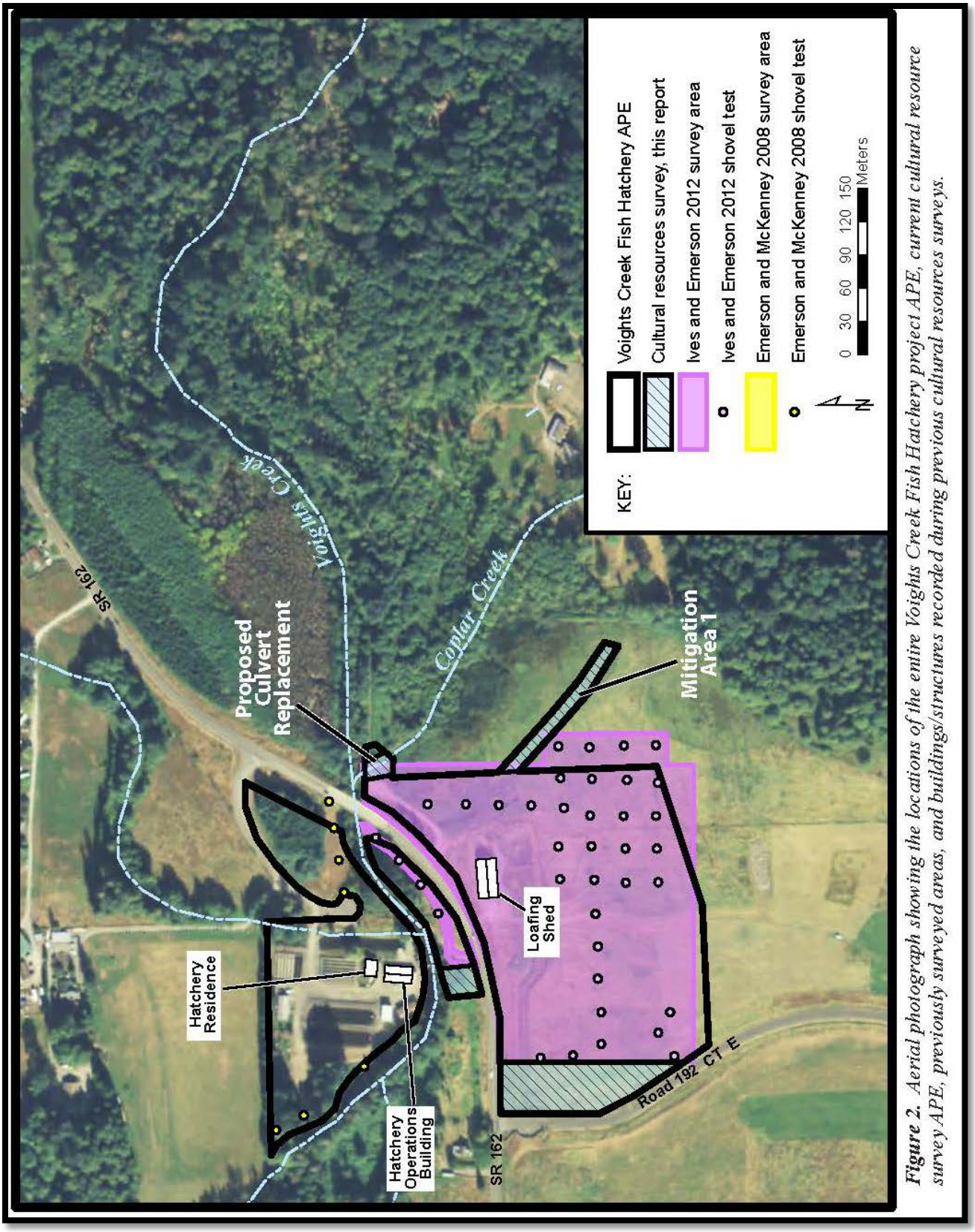
This section describes cultural resources in the vicinity of the project area and the potential effects of the project alternatives on these resources. The term *cultural resource* refers to archaeological sites, Traditional Cultural Properties (TCPs), and built environment structures, regardless of whether they are eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of undertakings that are federally funded or approved or take place on federally administered lands if those undertakings have the potential to affect any district, site, building, structure, or object that is listed, or eligible for listing, in the NRHP. Under Section 106, the lead federal agency must provide the State Historic Preservation Officer (SHPO), affected tribes, and other stakeholders with an opportunity to comment. Section 106 of the NHPA and its implementing regulations (36 CFR 800) outline the procedures to be followed in the documentation, evaluation, and mitigation of impacts to cultural resources.

Per Governor's Executive Order 05-05 and Section 106 of the NHPA, WDFW Archaeological and Historical Services (AHS) personnel conducted the following tasks: contacted the Puyallup Tribe of Indians to solicit information regarding tribal cultural resource concerns for the project area; undertook background research including a search of files housed at the Washington Department of Archaeology and Historic Preservation (DAHP) in Olympia; completed cultural resources survey of the project area, including shovel test excavations; and prepared a professional report of findings and recommendations.

In 2008, WDFW planned to upgrade existing hatchery facilities north of SR 162, and cultural resources investigations were undertaken of the approximately 8-acre existing hatchery (Emerson and McKenney 2008). Subsequently, project plans were changed and the proposed new hatchery location south of SR 162, approximately 5.6 acres, was surveyed for cultural resources (Ives and Emerson 2012). A third cultural resources investigation was conducted on 2.5 acres for the location

of a proposed culvert replacement along Coplar Creek; Mitigation Area 1 where vegetation mitigation plantings are proposed; an area west of previously surveyed new hatchery; and an area south of the existing Voights Creek Fish Hatchery, to the north of SR 162 (Figure 4-2) (McKenney and Stevens 2013). This section summarizes the AHS cultural resources investigations of the project area (Emerson and McKenney 2008, Ives and Emerson 2012, and McKenney and Stevens 2013). FEMA authorized WDFW to initiate consultation with the State Historic Preservation Office on its behalf.

WDFW and FEMA made a determination of "no historic properties affected" for this undertaking, and the DAHP concurred with these findings in a letter dated February 6, 2013 (see Appendix B). FEMA solicited information from the Puyallup Tribe of Indians, Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Colville Reservation, Cowlitz Indian Tribe, Muckleshoot Indian Tribe of the Muckleshoot Reservation, and Nisqually Indian Tribe of the Nisqually Reservation concerning the natural and human environment of the project area. The Cowlitz Indian Tribe responded and recommended an Inadvertent Discovery Plan for the project, which will be required to be implemented under the Proposed Action.



Source: McKenney and Stevens 2013

Figure 4-2. Voights Creek Fish Hatchery Project APE.

4.4.1 HISTORIC CONTEXT

The project area is within the ancestral territory formerly occupied by a number of Southern Coast Salish bands, who were unified not only by their cultural lifestyles but by languages belonging to a common Lushootseed linguistic group. The various bands were most often differentiated from one another by association with the river or drainage basin in which they dwelt, usually with the focus on the outlet to Puget Sound. The mouth of the Puyallup River was associated with the Puyallup people. Further inland, where the Carbon River joins the Puyallup River, the local people were called *Tkwakwamish*. One important village, *Smulkamish*, was situated on a small branch of the Puyallup River, about 10 miles north of the project area (Suttles and Lane 1990).

Local histories indicate that Orting was at first known as Carbon, but this created confusion with the nearby hamlet of Carbonado. In 1878, a railroad engineer came up with the name of Orting, said to be an Indian word meaning "prairie in the woods," or "prairie village" (Phillips 1971; Rushton 1981). Many of the community's first inhabitants were German immigrants lured by the promise of jobs in the hops fields. They stayed on after the hops fields were decimated by blight, beginning in 1892. Many of them had by then managed to purchase their own land in the vicinity. They and other farmers turned their attention to other crops including berries, rhubarb, and vegetables. Flower bulb production became widespread in the valley and is celebrated at the annual Daffodil Festival, which was first held in 1934. Orting scored a coup in 1891 when it was selected as the site of the Washington State Soldier's Home, a retirement facility for armed services veterans that is still in operation today (Kirk and Alexander 1990; Rushton 1981). Orting's other claim to fame is that it is considered the city most endangered by future disastrous mudflows (lahars) from Mt. Rainier. Evacuation drills and warning sirens are a fact of life in Orting.

Voights Creek is named for the family of D.E. Voight and his wife, German immigrants who moved to the Orting area from California in 1866. They homesteaded land near the fish hatchery. Later, their daughter Amelia became the wife of Anthony Whitesell, the son of Orting pioneers Henry and Margaret Whitesell. After Mrs. Voight died and Mr. Voight moved in with his daughter's family, the property was sold to James Coplan (Rushton 1981).

4.4.2 HISTORIC PROPERTIES

The term *historic property* refers to archaeological sites, TCPs, and built environment structures that are eligible for listing in the NRHP. No historic properties were identified by AHS during the cultural resources studies conducted within the project sites. No previously documented TCPs or archaeological sites were identified within or near the project boundaries during the 2008 and 2012 site file search at DAHP. However, Native American use of the Voights Creek fishery is documented, and the family of Indian Dick and his wife made annual visits to the creek to fish (Rushton 1981).

Although the Voights Creek Fish Hatchery was established in 1917, only the residence remains of the original structures. The hatchery operations building was built in the 1930s and remodeled twice. Hatchery buildings and structures of more recent vintage than the residence and operations building include the secondary residence (1974), the asphalt ponds (1971), and the storage building (1980). Structures associated with the gravity intake system are also of relatively recent origin, including the screen box (1964), the current gravity pipeline (1966), and the pump intake structure and weir (1971).

One residence was constructed in 1917 when the Voights Creek Fish Hatchery was established and is located within the project area. It is the oldest structure in the Voights Creek Fish Hatchery complex. The house exhibits some classic Craftsman Style design elements, including the wide eaves, knee braces, large dormers and porch canopy, tri-partite double-hung windows, and narrow horizontal wood siding. The enclosure of the rafter ends is interesting, harkening back to earlier house styles. The main departure from the original design is the attachment of the rear addition. Otherwise, the house exhibits excellent integrity of its original appearance and original construction materials. According to AHS, the residence does not exhibit distinctive design features or retain sufficient historic significance to meet the criteria for listing in the NRHP. DAHP concurred in a letter on May 28, 2008 that the 1917 residence and the hatchery operations building that was constructed in the 1930s were not eligible for listing on the NRHP (see Appendix B, *Consultation and Coordination*).

A loafing shed, the only remaining structure associated with the former Kaelin and Kaelin Dairy, is also located within the project area. In 1993 and 2002 as part of a WSDOT highway project, the farm structures were evaluated for their potential for listing in the NRHP and were recommended not eligible for listing on the NRHP (Luttrell 1993). A letter, dated December 20, 2002 provided DAHP concurrence with the WSDOT determination of NRHP ineligibility (Houser 2002). This last remaining dairy structure will be removed as part of the proposed construction activities.

4.4.3 CONSEQUENCES OF ALTERNATIVES

A project alternative would reach the significance threshold if it would diminish or destroy the integrity of a property that is on or eligible for the NRHP, for which effects cannot be resolved or mitigated. When there are no historic properties present, or the action will have no impact on historic properties, the action is considered to have no effect.

Alternative A: No Action

The existing hatchery would continue to remain in the floodplain and be susceptible to repetitive storm-related damage. No ground disturbance or clearing would occur. Therefore, the No Action Alternative would **have no effect** on cultural resources eligible for listing on the NRHP.

Alternative B: Proposed Action

Given that the above-described cultural resource evaluations for the old and new hatchery facilities did not identify any NRHP-eligible cultural resources and DAHP concurrences, the Proposed Action has **minor** potential to affect resources eligible for listing in the NRHP.

Alternative C: Repair Existing Intake and Pipeline in Place

The project area is considered to have **minor** potential for containing intact cultural resources considering its location on a valley bottom subject to seasonal flooding and scouring. Also, much of the project area has been previously disturbed from construction of the existing hatchery, a dam and intake features, and a graveled roadway with a buried pipeline. WDFW also consulted with the SHPO for proposed repairs; DAHP provided concurrence regarding the APE and Determination of

No Historic Properties Affected in a letter dated February 28, 2008 (Appendix B). Thus, no unavoidable adverse effects on cultural resources are anticipated from this alternative.

Mitigation Measures

In the event that archaeological materials are discovered during ground-disturbing activities, the contractor will halt excavations in the vicinity of the find (initially allowing for a 100-foot buffer) and contact the WDFW environmental lead, FEMA, concerned Tribes, and DAHP. The following actions will be taken at the site:

- Implement reasonable measures to protect the discovery site.
- Take reasonable steps to ensure the confidentiality of the site.
- Take reasonable steps to restrict access to the site.

FEMA will conduct further consultation regarding the nature of the archaeological deposits discovered during construction with DAHP and the affected Indian tribes. If human skeletal remains are discovered, the Pierce County Sheriff, FEMA, and DAHP will be notified immediately, and the above steps followed.

4.5 HUMAN RESOURCES

This section describes the potential effects of the project alternatives on human resources within the project area.

4.5.1 LAND USE AND RECREATION

Existing land uses in the project area are rural in nature and include agricultural uses, rural-scale residential, forest land, and natural open space. To the south of the project area is a planned residential community of a higher density than typical rural residential development. To the west is the Orting Urban Growth Area (UGA), which contains urban levels of development.

Prime farmland is designated in the project area, and discussion of farmland and the FPPA is provided in Section 4.1.2, *Farmland.*

The project area is located in a rural, unincorporated portion of Pierce County and is subject to the regulatory jurisdiction of the county government. The Pierce County Comprehensive Plan establishes goals, policies, and objectives with respect to land use, transportation, housing, capital facilities, utilities, and rural lands to guide future development in the county (Pierce County 2012a).

The Alderton-McMillin Community Plan (Pierce County 2007) guides land use in the community plan area within which the project area is located. The plan applies Rural 10 (R10), Rural 20 (R20), and Agricultural Resource Land (ARL) land use and zoning designations to the project area (Pierce County 2012b). The majority of the new construction proposed in Alternative B is located on land with the ARL designation. The Comprehensive Plan establishes an objective (LU-Ag Objective 16) that bases the ARL designation on the Growth Management Act (GMA) definition of such lands found in RCW 36.70A.030(2) Fish processing, hatcheries, and aquaculture are identified as permitted uses in the ARL zone (PCC 18A.18).

Voights Creek is subject to the land use regulations contained in the Pierce County Shoreline Management Program (SMP). The county SMP applies three environment designations to the segment of Voights Creek that is within the project area. The portion of Voights Creek adjacent to the existing hatchery downstream of the confluence with Coplar Creek is designated as High Intensity. Upstream of the confluence with Coplar Creek, the designations are Conservancy and, farther upstream, Natural.

Production of upland finfish is considered an agricultural activity under the SMP. Normal maintenance and repair of existing agricultural uses are permitted in all shoreline environments per Table 18S.50-1. Agriculture development and other agricultural activities are permitted in the High Intensity and Conservancy environments. Shoreline restoration and enhancement activities are permitted in all shoreline environments.

Recreational opportunities in the project vicinity include fishing and swimming in the Carbon River and access to the regional trails system via the Foothills Trail. The hatchery provides public outreach with viewing opportunities of the hatchery ponds, other hatchery facilities, and Voights Creek. The opportunity to view fish and wildlife in this setting is considered an informal recreation opportunity.

The Pierce County Parks Department maintains the Foothills Trail adjacent to the Carbon River and located just north of the project area (Pierce County 2008). The Foothills Trail is among 54 trails around the country that are joining the National Recreational Trail system. However, there is no access to the Foothills Trail system from the project area, and the project alternatives would not affect the trail.

4.5.2 ENVIRONMENTAL JUSTICE

Environmental justice is the fair and meaningful involvement in the development and implementation of environmental laws, regulations, and policies, of all people regardless of race, color, national origin, or income.

Executive Order 12898 (Environmental Justice, 59 FR 7629 [1994]) requires federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. Potential effects are evaluated by examining the demographics of the area affected by the Proposed Action(s) and the potential of those actions to have disproportionately high adverse effects on minority and low-income populations.

Environmental justice effects were determined using the EPA's guidance for federal agencies to identify disproportionately high and adverse human health or environmental effects on minority populations and low-income populations (EPA 1998). According to these guidelines, a minority population refers to a minority group that has a population of greater than 50% of the affected area's general population. Although not specifically stated in the text, the same rule is used for low-income populations; a low-income population exists if there is a community whose general population comprises 50% or more living under the threshold for low income.

The project is located in rural Pierce County on lands owned by WDFW. The area immediately surrounding the project site is characterized by few residences and small farms with a low population density. The city of Orting, with a 2010 population of 6,746, is about 2 miles to the northwest. The majority of project-related effects would occur within the construction footprint of the project (e.g., effects on soils, vegetation, wildlife, access) or would be limited to the immediate vicinity (e.g., effects on transportation). For the purpose of evaluating environmental justice in this EA, Pierce County is considered the affected environment. Table 4-4 presents the race and ethnicity of the city of Orting, Pierce County, and Washington State residents as reported by the U.S. Census of Population and Housing (U.S. Census Bureau 2012a).

Table 4-4. Race/Ethnicity in Lewis County and Washington State, 2011.

Race/Ethnicity	City of Orting (%)[1]	Pierce County (%)	Washington State (%)
White	87.9	77.3	82
Black	1.5	7.1	3.8
American Indian and Alaska Native	1.4	1.6	1.8
Asian	1.3	6.2	7.5
Pacific Islander and Native Hawaiian	0.5	1.4	0.7
Two or more races	5	6.4	4.3
Hispanic or Latino (of any race)	7.2	9.4	11.6

[1.] Data for 2010.
Source: U.S. Census Bureau 2012a, 2012c.

Low-income households are defined by the U.S. Census Bureau as those households with incomes at or below 80% of area median household income. For 2010, the median household income in Pierce County was estimated at $56,446; for Washington as a whole, it was $55,584 (U.S. Census Bureau 2012b). Approximately 12.3% of the Pierce County population is defined as poverty level, compared to 13.5% of the population of Washington as a whole. At a finer level, for the city of Orting (the nearest community), the percentage of all families living below the poverty level in 2010 was 4.4% (U.S. Census Bureau 2012d), indicating that the proportion of households living below the poverty line in the census tracts nearest the project area is far lower than the county or the state as a whole.

The general population of the affected area (Pierce County) does not include minority populations or low-income populations as defined under EPA's environmental justice guidance (EPA 1998).

4.5.3 NOISE

The local noise environment is rural and primarily undeveloped land. Noise-sensitive land uses nearest the project area are rural residences along SR 162. Human-related noise (e.g., children playing, people talking), hatchery operations, and traffic from SR 162 are the audible noise sources. Home maintenance equipment such as lawnmowers, hedge trimmers, and other power tools also are considered noise sources but are generally intermittent.

PCC 8.72 regulates motor vehicle, public disturbance, and public nuisance noise. PCC 8.76 addresses noise pollution control. PCC 8.76.060 establishes maximum permissible environmental noise levels based on the environmental designation for noise abatement (EDNA) of source and receiving properties. Noise from temporary construction activities is exempt from the permissible levels between the hours of 7 am and 10 pm.

4.5.4 TRAFFIC AND TRANSPORTATION

SR 162 is the major roadway in the project vicinity and the only access road to the project area. SR 162 is a 17-mile long state highway and considered a minor arterial roadway (WSDOT 2011a). SR 162 has a posted speed limit of 50 miles per hour and carries traffic between Sumner and South Prairie primarily for community residents and businesses and provides access to the recreation and tourism along the Carbon River through the farmland valley of South Prairie Creek (Pierce County 2007). While most of this roadway is two lanes, there are dedicated turn lanes at certain intersections. Annual average daily traffic (AADT) is approximately 6,500 vehicles (WSDOT 2011a) on SR 162 in the project area.

Access to the existing hatchery is provided by SR 162 and Voights Creek Hatchery Road on the north side of the highway. Voights Meadow Road provides access to the southern portion of the project area. Public transit is limited in the project vicinity. Alderton-McMillin is currently served by Pierce Transit through the Dial-A-Ride service which connects Orting to South Hill Mall, the Puyallup YMCA, and the rest of the Pierce Transit system. Dial-A-Ride is a type of 'on demand' service via a shuttle van that may be requested one to five days in advance.

4.5.5 HAZARDOUS MATERIALS

In general, no hazardous materials have been identified in the project area. When WDFW purchased the property south of Voights Creek to prepare for the hatchery relocation project, a Phase 1

Environmental Site Assessment was performed on the parcels to assess the presence of potentially hazardous materials in the context of environmental liability (ADESA 2010). The Phase 1 assessment included a review of historical records, a review of current databases and environmental records, and an on-site investigation. Based on the review of historical information reviewed in this report, the property was in agricultural use since the late 1800s, including hops and hay production, and a small commercial dairy. No records of any hazardous substances or "recognized environmental conditions" were identified during the review of existing environmental databases. According to the Pierce County Assessor's Office the single-family farm house that formerly occupied the property was built in 1920. Interviews with former property owners indicated that the site never contained any underground storage tanks. Results of the site inspection (conducted on March 11, 2010) were consistent with the historical and database reviews; no evidence of current or historic hazardous materials was located (ADESA 2010).

No specific surveys or inventories of potential hazardous substances at the existing hatchery site were conducted for this EA. Although Voights Creek Fish Hatchery was established in 1917, only the residence remains of the original structures (Emerson and McKenney 2008). The hatchery operations building was built in the 1930s and has been remodeled twice. Other structures on the existing site include a secondary residence built in 1974 and a storage building built in 1980. Because of the age of the existing residence, lead-based paint (LBP) and asbestos containing material (ACM) may be present in some of the structures. Lead-based paint (LBP) was widely used until 1978. The site contains no underground storage tanks. Two double-containment concrete and steel-lined storage tanks are present on site (diesel for the standby generator and oil for heating the residence) (pers. comm., Berg 2013). No other hazardous or toxic materials or equipment were identified as present on the existing hatchery site during the field visits, and no environmental conditions were identified at the hatchery site during the database review conducted for the Phase 1 assessment.

4.5.6 CONSEQUENCES OF ALTERNATIVES

An alternative would reach the significance threshold for effects on human resources if it would:

- For land use, conflict with goals, objectives, principles, and standards in the Alderton-McMillin Community Plan which includes land use, community character and design, and economic planning elements. For recreation, restrict access to or degrade the quality of recreation resources.
- For noise, increase substantial increase ambient noise levels and conflict with local noise ordinances.
- For traffic and transportation, cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system or in transportation safety hazards, such as sharp curves or dangerous intersections.
- For environmental justice, cause a disproportionately high and adverse human health or environmental impacts on low-income or minority populations.
- For hazardous materials, violate any local, state, or federal regulations concerning hazardous waste or toxic substances and expose hazard substances that could endanger public health or the environment.

Alternative A: No Action

Hatchery production and management goals would remain unchanged from current conditions. The existing hatchery would continue to remain in the floodplain and be susceptible to repetitive storm related damage. Impacts would not change from existing conditions. Consequences of Alternative A on human resources are summarized below.

Land Use and Recreation

Land use under the No Action Alternative would not change from current conditions. The hatchery would continue as a permitted land use. This alternative would have **no land use impacts**.

Potential minor adverse effects on recreation could occur from future flood events and could result in temporary closure of the hatchery similar to impacts that resulted from the January 2009 storms, affecting viewing opportunities at the hatchery. No other recreation resources would be affected by this alternative.

Environmental Justice

The general population of the affected area (Pierce County) does not include minority populations or low-income populations as defined under EPA's environmental justice guidance (EPA 1998). Therefore, none of the alternatives (including the No Action Alternative, the Proposed Action, or Alternative C) would have any environmental justice effects.

Noise

Operational noise related to hatchery maintenance, equipment operations, and visitors would be centralized and relatively quiet and not change from current conditions. The hatchery would continue to be subject to county noise regulations. No construction or related noise would occur. This alternative would have **no noise impacts.**

Traffic and Transportation

Access to the hatchery would not change and traffic volumes in the area and would be consistent with the current condition. There would be **no traffic or transportation impacts.**

Hazardous Materials

Under the No Action Alternative, there would be no new construction or demolition activities. The existing hatchery facility would continue to operate within the floodplain of Voights Creek and be subject to period flooding hazards. Flood events have the potential to release ACM or other toxic construction materials to the environment, or at the least remain a nuisance and possible safety hazard associated with the facilities remaining in the active floodplain. This represents a **minor, long-term adverse effect** for hazardous materials.

Alternative B: Proposed Action

Overall, the Proposed Action would have **short-term minor effects** from construction noise. However, long-term permanent minor beneficial effects would occur from the enhancement of recreation opportunities and reduction in risk from potential closure during future storm events. Consequences of Alternative B are summarized below.

Land Use and Recreation

The construction of a new hatchery would occur on land zoned for agriculture and formerly in use as a dairy farm. However, the land is not currently in productive agricultural use. Upland finfish hatcheries are considered agricultural uses and are permitted under applicable land use regulations, including the Pierce County Comprehensive Plan, SMP, and County Code. As such, construction of the new hatchery would continue to conform to the vision and goals of the area as a rural, agricultural community, as outlined in the Alderton-McMillin Community Plan, and be compatible with surrounding land uses. Therefore, land use impacts associated with Alternative B would be **minor**.

New viewing platforms and walkways at the new hatchery facilities would enhance informal recreation. Continued fish production would benefit local recreational fishing opportunities. Construction of the new hatchery would not affect other recreational resources in the area, such as the Foothills Trail. Alternative B would likely have **beneficial effects on recreation resources.**

Environmental Justice

Environmental justice impacts would be the same as for Alternative A.

Noise

The proposed project would not permanently alter levels of noise generated at the hatchery. Temporary construction noise would be generated during the operation of heavy machinery including but not limited to excavators, cranes, bulldozers, compaction equipment, and other typical construction equipment. Heavy equipment would create normal levels of construction noise (85 A-weighted decibel [dBA]), and this noise would attenuate to ambient levels at a distance of approximately 800 feet from the project area. Construction noise would be subject to Pierce County noise regulations. The nature of this construction would not likely create disproportionate noise impacts when compared to construction projects of a similar scale; thus, **adverse impacts would be short-term and minor**.

Traffic and Transportation

Access would change to Voight Meadow Road, but traffic flow would remain the same for the new hatchery facilities. The number of employees (2 to 4) would remain the same, resulting in identical traffic generation. Construction would result in **short-term minor adverse traffic impacts** as a result of construction vehicles and construction workers entering and exiting the site. Any work in the public right-of-way would be subject to applicable permit requirements such as right-of-way permits. The nature of this construction is not likely to create disproportionate traffic impacts.

Hazardous Materials

Construction of the new hatchery facility would not be expected to result in hazardous materials or toxic waste-related impacts. The hatchery facility would be constructed in compliance with applicable Pierce County building codes and standards relating to building materials. As identified in Section 3.3.4, BMPs associated with hatchery construction include preparation and implementation of a spill prevention, control, and countermeasure (SPCC) plan to minimize spills and ensure that all harmful materials are properly stored, contained, and disposed of during construction activities.

Construction of the new hatchery represents a **short-term, negligible adverse effect** for hazardous materials.

Except for the proposed intake structure, intake pumps, retaining walls, concrete slab, pneumatic weir crossing the stream, bypass, and fish ladder/fishway, the Proposed Action would move the hatchery facilities out of Voights Creek and the active floodplain. The associated mechanical/electrical building, generator, and diesel fuel storage tank would be sited as far from Voights Creek as practical and above the 100-year flood elevation (pers. comm., Peoples 2013).

The double or secondary containment tank will be used to store diesel fuel and prevent accidental releases or spills of toxic or hazardous substances to the environment (water, soil, and air). A project-specific SPCC plan will be prepared for the facility that includes requirements for diesel spill prevention, preparedness, and response to prevent diesel discharges to navigable waters and adjoining shorelines. Overall, the relocation of the hatchery represents a **long-term, minor beneficial effect**, as it would reduce the likelihood of a release of hazardous substances to the environment associated with a future flood event.

Demolition of the existing hatchery facility would generate solid waste. Most of this waste would be chemically inert, but some might be hazardous or toxic. ACM and LBP waste, for example, might be present in the structure. Also, the structure might contain mercury-containing fluorescent lamps, polychlorinated biphenyl (PCB) ballasts, leaded pipes, miscellaneous household hazardous wastes (cleaners, solvents, paints, etc.), and white goods such as refrigerators, all of which will require proper management and disposal.

All demolition waste would need to be characterized to determine whether any of the waste is a dangerous waste, in accordance with WDOE's regulations (WAC 173-303). This characterization might involve chemical testing and analysis. As a result of this characterization, wastes might need to be segregated into separate waste streams. These wastes would then need to be managed (handled, transported, and disposed of), based on whether they are solid or dangerous wastes. ACM is a highly regulated waste stream. It is frequently present in older structures in a variety of forms, including cement pipes, wallboard, siding, asphalt and vinyl floor tiling, construction mastics, and duct insulation. Implementation of the federal Clean Air Act regulations regarding ACM is frequently delegated to either the state or to a local clean air agency, as is the case in Washington State. The state regulations require notification of the intent to demolish structures. Before demolition, the structure would have to be inspected by an inspector certified under the Asbestos Hazard Emergency Response Act (AHERA). If ACM were present, a certified entity would have to remove and dispose of it. Overall, demolition of the existing hatchery facilities represents a **short-term, negligible adverse effect** for hazardous materials in the form of potential exposure to or release of hazardous materials.

Alternative C: Repair Existing Intake and Pipeline in Place

Under Alternative C, FEMA would provide funding to WDFW to repair the existing intake structure and pipeline in their current footprint, restoring them to predisaster condition, as described in Section 3.4. Impacts would be similar to those associated with the No Action alternative (Alternative A), except for temporary impacts associated with construction. In addition, as described for the No Action Alternative, the existing hatchery would continue to remain in the floodplain and be

susceptible to repetitive storm-related damage. Consequences of Alternative C are summarized below.

Land Use and Recreation

Land use impacts associated with Alternative C would be **short-term minor adverse effects**, similar to those for the Proposed Action. Similar to the No Action alternative, **potential minor adverse effects** on recreation could occur from future flood events and could result in temporary closure of the hatchery similar to impacts that resulted from the January 2009 storms.

Environmental Justice

Environmental justice impacts would be the same as for Alternative A (No Action).

Noise

Similar to the No Action, operational noise of the hatchery would not change from current conditions. Impacts related to construction noise would be similar to the Proposed Action.

Traffic and Transportation

Similar to the No Action, traffic and transportation impacts would not change from current conditions. Temporary impacts related to construction would be similar to those of the Proposed Action.

Hazardous Materials

Alternative C would have similar construction-related impacts for hazardous materials as the Proposed Action. That is, construction work for the repair of the existing facilities represents a **short-term, negligible adverse impact**. In the long term, Alternative C would have the same operational impacts as the No Action Alternative, as the hatchery facilities would remain in the active floodplain, representing a **long-term, minor adverse impact** for hazardous materials. No facilities would be decommissioned or demolished under Alternative C.

4.6 CUMULATIVE EFFECTS

Cumulative effects are the impact on the environment that results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Impacts are only cumulative for a given resource.

The geographic scope can be different for each cumulative effects issue. Often, a resource is not limited by jurisdictional boundaries; rather, the resource extends across a natural area of influence, such as an air basin, watershed, or habitat community. For this analysis, the geographic scope is limited to the Voights Creek watershed. Past projects in the Voights Creek watershed include development of the fish hatchery in the floodplain, construction and operation of SR 162, agricultural practices, and timber harvest. There are no ongoing projects in the watershed. Based on information provided by Pierce County Planning Department (pers. comm., Bridgeman and Zierow 2012), no future projects are scheduled to take place near the project area in the foreseeable future. However, if the Proposed Action did not occur, WDFW might sell the parcels in the southern portion of the project area (the proposed hatchery site). Under prior ownership, the existing parcels were evaluated and permitted for residential use, and infrastructure, including main access roads and stormwater facilities, was constructed. If WDFW sold the parcels, it would likely result in the conversion of 26 acres of prime farmland to residential use.

Most of the potential impacts of the Proposed Action are associated with the short-term construction activity and are localized. Subject areas with the potential for cumulative impacts under the Proposed Action include threatened and endangered species and Voights Creek. The potential impacts of other resource areas either did not result in any impact or are not significant and would not incrementally contribute to a significant cumulative impact associated with the other past, present, or future actions.

Voights Creek and Threatened and Endangered Species

The dredging and filling of the Puyallup River estuary started in the late 1800s (Kerwin 1999). An extensive system of levees, dikes, and revetments was started in the early 1900s and continues to be maintained today. In 1906 the White River was diverted into the Puyallup River Basin, almost doubling the flows in the lower Puyallup River. Historic logging, conversion of woodland habitats, and draining of forested wetlands to agricultural lands have resulted in loss of large woody debris in the Voights Creek watershed. The lack of large woody debris is believed to be a limiting factor in providing channel stability and habitat necessary for successful salmon production (Kerwin 1999). These past actions have contributed to cumulative adverse impacts on biological processes necessary for Chinook, steelhead, and bull trout and were factors for their listing. Construction and dewatering for development of the intake facilities could potentially result in adverse effects on Voights Creek and threatened and endangered species of Chinook, steelhead, and bull trout. No other projects or present actions are planned in Voights Creek, but future flood damage may occur. The continued financial investment in the functionally dependent components of the Proposed Action would result in incremental positive and negative impacts. It is anticipated that the cumulative nature of that future investment would be of a lesser consequence than the current situation, thereby resulting in an improvement to the environmental baseline in the future.

5.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

5.1 PUBLIC INVOLVEMENT

FEMA sent a scoping letter to agencies, Tribes, and local interested parties on August 8, 2012. The letter provided a description of the proposed project and requested comments on issues and concerns, the range of alternatives, and potential effects regarding the project. Two written comments were received during the scoping period. These comments were considered and addressed in the preparation of this EA.

5.1.1 COMMENTS ON THE DRAFT EA

The Draft EA was released for public review on March 13, 2013. Copies were sent directly to those agencies, Tribes, and stakeholders that participated in scoping and are listed on the following page. A public notice announcing its availability to the general public for comment was published in the local newspaper (*the Tacoma News-Tribune*), and the Draft EA was available for viewing at the Orting branch of the Pierce County Library. The Public Notice and Draft EA were posted to both the FEMA and WDFW websites, the web addresses of which were included in the Public Notice.

During the public comment period (March 13 to April 16, 2013), one letter was received from a concerned citizen regarding the protection of native steelhead populations and water quality, and one comment letter was received from WDOE relating to toxic cleanup procedures, should contaminated soils or groundwater be discovered during project activities. Additional information on the native steelhead and water quality comment was added in Section 4.2, *Water Resources*. Toxic cleanup procedures identified by WDOE were added to the Chapter 6, *Permitting, Project Conditions, and Mitigation Measures*.

FEMA has determined that the preparation of an Environmental Impact Statement (EIS) is not necessary. The Final EA and FONSI are available on the FEMA and WDFW websites.

5.2 AGENCIES AND TRIBES

FEMA consulted with federal agencies, Tribes, and local agencies and stakeholders throughout the EA process to gather valuable input and to meet regulatory requirements. This coordination was integrated with the analysis of project effects and the public involvement process.

EA Distribution List

FEDERAL AGENCIES

U.S. Fish and Wildlife Service (USFWS)
National Marine Fisheries Service (NMFS)
U.S. Army Corps of Engineers (Corps)

STATE AGENCIES

Washington Department of Ecology (WDOE)
Washington Department of Fish and Wildlife (WDFW)
Washington State Department of Transportation (WSDOT)
Washington State Department of Archaeology and Historic Preservation (DAHP)

TRIBES

Puyallup Tribe of Indians, Washington
Confederated Tribes and Bands of the Yakama Nation,
Confederated Tribes of the Colville Reservation, Washington
Cowlitz Indian Tribe, Washington
Muckleshoot Indian Tribe of the Muckleshoot Reservation, Washington
Nisqually Indian Tribe of the Nisqually Reservation, Washington:

OTHER ORGANIZATIONS

WRIA 10/12 Citizen Advisory Committee(CAC)/Technical Advisory Group (TAG)
Trout Unlimited

ADJACENT LAND OWNERS

[*included in distribution but names withheld for privacy*]

6.0 PERMITTING, PROJECT CONDITIONS, AND MITIGATION MEASURES

WDFW is required to obtain and comply with all required local, state, and federal permits, approvals, and requirements prior to implementing the Proposed Action. These include but may not be limited to compliance with the State Environmental Policy Act (SEPA); Site Development, Floodplain, Demolition, and Building Permits; Critical Areas Review; HPA; Section 401 Water Quality Certification; Section 404 Individual or Nationwide Permit; and ESA compliance. Failure to obtain all appropriate permits and approvals may jeopardize FEMA funding.

As described in Section 3.3.4, *Impact Avoidance and Minimization Measures*, the project includes numerous construction BMPs, including preparation of TESC, SPCC, and SWPP plans. WDFW is responsible for ensuring that all BMPs are implemented during construction activities. In general, implementation of the BMPs is expected to reduce impacts on human, biological, water, physical, and cultural resources to a less-than-significant level.

Mitigation measures and project conditions are outlined in the BiOps issued by NMFS on March 7, 2013 and USFWS on April 2, 2013. These measures and project conditions are necessary to minimize impacts on federally listed species and required for compliance with ESA. In addition, the BiOp issued by NMFS included measures and project conditions necessary to minimize impacts on EFH and required for compliance with the Magnuson-Stevens Act.

The following conditions apply to the project and failure to comply with these conditions may jeopardize the receipt of FEMA funding:

1) If vegetation removal in the project area occurs between March 1 and September 15 when migratory birds may be nesting, a qualified biologist shall conduct a pre-construction survey for active nests. The pre-construction survey shall be conducted in all areas proposed for clearing and occur 15 days prior to commencement of construction activities. If surveys show no evidence of nests, no additional mitigation shall be required. If any active nests are located in the construction area, the nest areas shall be flagged and a no-disturbance buffer zone of 100 feet shall be provided around the active nest and maintained until the end of the breeding season or until the young have fledged.
2) If toxic contamination of soils or groundwater is suspected, discovered, or occurs during the proposed action, the affected media must be tested. If contamination of soil or groundwater is readily apparent or revealed by testing, WDOE must be notified. Contact the Environmental Report Tracking System Coordinator at the Southwest Regional Office at (360) 407-6300. For assistance and information about subsequent cleanup and to identify the type of testing that will be required, contact Cris Matthews with WDOE's Toxics Cleanup program at the phone number given above.
3) In the event that archaeological materials are discovered during ground-disturbing activities, the contractor will halt excavations in the vicinity of the find (initially allowing for a 100-foot buffer) and contact the WDFW environmental lead, FEMA, concerned Tribes, and DAHP. The following actions will be taken at the site:

- Implement reasonable measures to protect the discovery site.
- Take reasonable steps to ensure the confidentiality of the site.
- Take reasonable steps to restrict access to the site.

FEMA will conduct further consultation regarding the nature of the archaeological deposits discovered during construction with DAHP and the affected Indian Tribes. If human skeletal remains are discovered, the Pierce County Sheriff, FEMA, and DAHP will be notified immediately, and the above steps followed.

4) The applicant shall obtain all required local, state, and federal permits and approvals prior to implementing the Proposed Action and comply with any and all conditions imposed.

USFWS BiOp (April 2, 2013):

5) Implement all protocols and standards outlined in USFWS (2012) and NMFS (2000).
6) Document all bull trout encountered and handled during work area isolation and dewatering by submitting a report to the USFWS within 30 days of work area isolation. The report should include the number of fish, and their approximate size and condition.
7) Monitoring shall be conducted at a distance of 300 feet downstream of in-water construction activities.
8) Monitoring shall be conducted at three locations along a transect extending perpendicular to the stream; to the extent practicable, one sample location shall be positioned along the transect near the mid-point of the wetted channel.

    a. Monitoring shall be conducted at 15-minute intervals for the first 3 hours from the start of sediment-generating activities. If turbidity levels measured at 300 ft downstream of sediment-generating activities do not exceed 19 NTUs over background for more than 3 hours cumulatively over any 10-hour workday, 11 NTUs above background for more than 7 hours, cumulatively, over a 10- hour workday 41 NTUs over background for more than 1 hour continuously, or 60 NTUs over background at any time, then additional monitoring will be conducted for the remainder of the workday at a frequency of once every 3 hours or during periods of excessive sediment generating activity.

9) If turbidity levels exceed these NTU values, then the amount of take authorized by the Incidental Take Statement will have been exceeded. Sediment generating activities shall cease and FEMA must reinitiate consultation. FEMA and the applicant, WDFW, shall contact the USFWS's consulting biologist at the Washington Fish and Wildlife Office in Lacey, Washington.
10) If turbidity levels approach the above-listed NTU values, work shall cease and the sediment control procedures should be re-evaluated. Sediment and erosion control measure should be adapted to reduce turbidity levels.
11) Monitoring shall be conducted to establish background turbidity levels upstream and away from the influence of sediment-generating activities. Background turbidity shall be monitored at least twice daily during sediment-generating activities. In the event of a visually appreciable change in background turbidity, an additional sample shall be taken.

12) FEMA and the applicant shall submit a monitoring report within 30 days following the in-water construction season, to include at a minimum, the following: (a) dates and times of construction activities, (b) monitoring results, sample times, locations, and measured turbidities (in NTUs), (c) summary of in-water construction activities and measured turbidities associated with those activities, and, (d) summary of corrective actions taken to reduce sediment/turbidity.
13) If, during the course of the project, incidental take, as described in the BiOp, is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. FEMA and the applicant, WDFW, must immediately provide an explanation of the causes of the taking and seek advice from the USFWS for possible modification of the reasonable and prudent measures.
14) The USFWS is to be notified within three working days upon locating a dead, injured or sick endangered or threatened species specimen. Initial notification must be made to the nearest U.S. Fish and Wildlife Service Law Enforcement Office. Notification must include the date, time, precise location of the injured animal or carcass, and any other pertinent information. Care should be taken in handling sick or injured specimens to preserve biological materials in the best possible state for later analysis of cause of death, if that occurs. In conjunction with the care of sick or injured endangered or threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence associated with the specimen is not necessarily disturbed. Contact the U.S. Fish and Wildlife Service Law Enforcement Office at (425) 883-8122, or the USFWS's Washington Fish and Wildlife Office at (360) 753-9440.

NMFS BiOp (March 7, 2012)

15) Conduct all in-water work for as brief a period as practicable between July 16 and September 30.
16) Document all PS steelhead encountered during work area isolation by submitting an In-water Construction Monitoring Report (Appendix I of BiOp) or equivalent to NMFS within 30 days of work area isolation.
17) When operating machinery below the OHWL, use extreme care to avoid mistakes to minimize the amount of time spent working below OHWL.
18) Monitor erosion control activities, including minimization measures and BMPs, and take corrective action if necessary to ensure protection of riparian areas and waterways. FEMA and the applicant, WDFW, shall submit reports on the contractor's compliance with and the effectiveness of the erosion control BMPs, minimization measures, to NMFS within 60 days of project completion.
19) Monitor turbidity levels to ensure that the project complies with Washington State water quality standards. If the project exceeds the water quality standards, the project will have exceeded the amount of take authorized, and FEMA and the applicant, WDFW, must reinitiated consultation with NMFS. FEMA and the applicant, WDFW, shall report the results of the turbidity monitoring to NMFS within 60 days of project completion.
20) If a sick, injured or dead specimen of a threatened or endangered species is found in the action area, the finder must notify NMFS's Law Enforcement Office at (206) 526-6133 or (800) 853-1964, through the contact person identified in the transmittal letter of the NMFS's BiOp, or through the NMFS Washington State Habitat Office. The

finder must take care in handling sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder should carry out instructions provided by NMFS's Law Enforcement Office to ensure evidence intrinsic to the specimen is not disturbed unnecessarily. All reports shall be sent to National Marine Fisheries Service, Washington State Habitat Office, attention: Scott E. Anderson, 510 Desmond Drive SE, Suite 103, Lacey, Washington 98503, to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death.

7.0 CONCLUSION

The EA evaluated environmental and historic resources that could be affected by the Proposed Action. The evaluation did not identify any significant adverse impacts associated with physical, water, biological, cultural, or human resources. Implementing the conditions associated with permits or approvals is expected to avoid or minimize adverse effects associated with the Proposed Action. FEMA prepared this Final EA and FONSI.

8.0 PREPARERS

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9.0 REFERENCES

ADESA. 2010. Phase 1 Environmental Site Assessment conducted on Voight Creek Estates Lots 1-3, Pierce County, Washington. Project No: 0310-02. Prepared for the Washington State Department of Fish and Wildlife, Olympia, WA, by ADESA, LLC, Tenino, WA. March 25, 2010.

American Farmland Trust. 2004. The Suitability, Viability, Needs, and Economic Future of Pierce County Agriculture. Phase I Report Responding to Questions Posed by Pierce County Council Resolution R2004-105s. Pacific Northwest Field Office, Puyallup, WA.

Bash, J., C. Berman, and S. Bolton. 2001. Effects of Turbidity and Suspended Solids on Salmonids. Center for Streamside Studies, University of Washington, Seattle, WA.

CEQ (Council on Environmental Quality). 2010. Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions. Memorandum for Heads of Federal Departments and Agencies. From Nancy H. Sutley, Chair, Council on Environmental Quality. February 28, 2010. Available at URL = http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEPA_Guidance_FINAL_02182010.pdf.

Corps (U.S. Army Corps of Engineers). 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region. U.S. Army Corps of Engineers, Vicksburg, MS.

Corps. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). U.S. Army Corps of Engineers, Vicksburg, MS. 153pp.

Cramer, M., and K. Bates. 2003. Integrated Streambank Protection Guidelines (ISPG), part of Washington State Aquatic Habitat Guidelines Program. Available at URL = http://wdfw.wa.gov/hab/ahg/ispgdoc.htm/.

eBird. 2012. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available at URL = http://www.ebird.org. (Accessed: November 1, 2012).

Emerson, S., and P. McKenney. 2008. Cultural Resources Survey for the Washington Department of Fish and Wildlife Voights Creek Fish Hatchery Improvement Project, Pierce County, Washington. Principal Investigator: Stan Gough, Submitted to Washington Department of Fish and Wildlife, Contract No. 07-1092, Short Report 969, Archaeological and Historical Services, Eastern Washington University, February 2008.

Environmental Laboratory. 1987. U.S. Army Corps of Engineers Wetland Delineation Manual. Technical Report Y-87-1. U.S. Army Waterways Experiment Station. Vicksburg, Mississippi. 100 pp. + appendices.

EPA (U.S. Environmental Protection Agency). 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis. Available at URL = http://www.epa.gov/compliance/resources/policies/ej/ej_guidance_nepa_epa0498.pdf.

FEMA (Federal Emergency Management Agency). 1987. Flood Insurance Rate Map (FIRM), Pierce County, Washington (unincorporated areas). Panel 610 of 1375. Community Panel Number 530138 0610C. Effective Date August 19, 1987.

FEMA. 2009. Preliminary Digital Flood Insurance Rate Maps and Flood Insurance Study for Pierce County, November 13, 2009.

FEMA. 2011. FEMA Climate Change Adaption Policy Statement. 2011-OPPA-01. Office of Policy and Program Analysis.

FEMA. 2012a. Project Worksheet, Project No. 1532-1, Disaster FEMA-1817-DR-WA, PA ID NO 000-UO3NH-00, Application Title: RHGG023 - Gravity Intake - Voights Creek Fish Hatchery, Applicant Washington State Department of Fish and Wildlife. Prepared by Tom Rietkerk, Jun 1, 2012.

FEMA. 2012b. Voights Creek Biological Assessment. Prepared for FEMA Region X, Bothell, WA, by AECOM, Seattle WA. FEMA-1817-DR-WA. September 2012.

FEMA. 2012c. FEMA planning website. Available at URL = http://www.fema.gov/national-flood-insurance-program-2/zone. Accessed October 2012.

Fishery Hydroacoustic Working Group. 2008. Agreement in principle for interim criteria for injury to fish from pile driving activities. 4 pp. Available at: http://www.dot.ca.gov/hq/env/bio/files/fhwgcriteria_agree.pdf.

Frisch, A.J., and T.A. Anderson. 2000. The response of coral trout (*Plectropomus leopardus*) to capture, handling and transport and shallow water stress. Fish Physiology and Biochemistry 23: 23 – 34.

GeoEngineers. 2009. Critical Areas Report, Wetland and Fish and Wildlife Habitat, Voights Creek Fish Hatchery, Orting, Washington. Prepared for MHW Americas, Inc., Bellevue, WA, by GeoEngineers, Inc., Tacoma, WA. February 25, 2009.

Globalwise. 2005. Pierce County Agriculture Strategic Plan: Task 2: Quantitative/Qualitative Assessment. Vancouver, WA. American Farmland Trust, Farming on the Edge, as reported at www.farmland.org/farmingontheedge.

Houser, M. 2002. Letter to Craig Holstine, Archaeological and Historical Services, concerning Kaelin and Kaelin Dairy NRHP eligibility, December 20, 2002. On File, Archaeological and Historical Services, Cheney.

Hruby, T. 2004. Washington State wetland rating system for western Washington – Revised. Washington State Department of Ecology Publication # 04-06-025. Available at URL = https://fortress.wa.gov/ecy/publications/publications/0406025.pdf.

ICF Jones & Stokes and Illingworth and Rodkin. 2009. Final Technical guidance for assessment and mitigation of the hydroacoustic effects of pile driving on fish. Prepared for California Department of Transportation. 298 pp.

Ives, R., and S. Emerson. 2012. Cultural Resources Survey of the Washington Department of Fish and Wildlife's New Voights Creek Fish Hatchery Project, Pierce County, Washington. Principal Investigator: Stan Gough, Submitted to Washington Department of Fish and Wildlife, Contract No.: 07-1092 (MI# 85095), Short Report 1122, Archaeological and Historical Services, Eastern Washington University, February 2012.

Kerwin, J. 1999. Salmon Habitat Limiting Factors Report for the Puyallup River Basin (Water Resource Inventory Area 10). Washington Conservation Commission. Olympia, WA. July 1999.

Kirk, R., and C. Alexander. 1990. Exploring Washington's Past: A Road Guide to History. University of Washington Press, Seattle and London.

Larsen, E., J. M. Azerrad, and N. Nordstrom, editors. 2004. Management recommendations for Washington's priority species, Volume IV: Birds. Washington Department of Fish and Wildlife, Olympia, Washington, USA.

Luttrell, C. 1993 National Register of Historic Places Registration Form, Kaelin & Kaelin Dairy Barn. On file, Department of Archaeology and Historic Preservation, Olympia.

McKenney, P., and R. Stevens. 2013. Final Cultural Resources Survey for the Washington Department of Fish and Wildlife's Voights Creek Fish Hatchery Project, Pierce County, Washington. Principal Investigator: Stan Gough. Submitted to Washington Department of Fish and Wildlife Contract No.: 07-1092. Short Report 1155. Archaeological and Historical Services (AHS) Eastern Washington University. January 2013.

MWH. 2010. Voights Creek Hatchery Gravity Intake Restoration Technical Memorandum. Prepared for Washington Department of Fish and Wildlife.

MWH. 2012a. Geomorphic Assessment of Voights Creek, Pierce County Washington. Prepared by GeoEngineers.

MWH. 2012b. Geotechnical Evaluation of Voights Creek, Pierce County Washington. Prepared by GeoEngineers.

NMFS (National Marine Fisheries Service). 2000. Guidelines for electrofishing waters containing salmonids listed under the Endangered Species Act. NMFS Northwest Region, June 2000, 5p. Available at URL = http://www.nwr.noaa.gov/ESA-Salmon-Regulations-Permits/4d-Rules/upload/electro2000.pdf.

NMFS. 2008. Anadromous Salmonid Passage Facility Design. NMFS, Northwest Region, Portland, Oregon.

NMFS. 2012. Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead. Last Updated October 31, 2012. Available at URL http://www.nwr.noaa.gov/publications/protected_species/salmon_steelhead/status_of_esa_salmon_listings_and_ch_designations_map.pdf

NRCS (Natural Resources Conservation Service). 1992. Soil Survey report of Snoqualmie Pass Area, Parts of King and Pierce Counties, Washington (Manuscript United States Department of Agriculture, Natural Resources Conservation Service (formerly Soil Conservation Service), in cooperation with Washington State Department of Natural Resources; United States Department of Agriculture, Forest Service; and Washington State University Agricultural Research Center. December 1992.

NRCS. 2012. Web Soil Survey. Custom Soil Resource Report for Pierce County Area, Washington. United States Department of Agriculture, Natural Resources Conservation Service. Accessed October 19, 2012.

Olla, B.L., M.W. Davis, and C.B. Schreck. 1995. Stress-induced impairment of predator evasion and non-predator mortality in pacific salmon. Aquaculture Research 26: 393-398.

Pearson, S.F., and B. Altman. 2005. Range-wide Streaked Horned Lark (*Eremophila alpestris strigata*) Assessment and Preliminary Conservation Strategy. Washington Department of Fish and Wildlife, Olympia, WA. 25pp.

PFMC (Pacific Fisheries Management Council). 2012. Habitat and Communities: Habitat, Pacific Fisheries Management Council Web Site. Available at http://www.pcouncil.org/habitat-and-communities/habitat/. Accessed December 3, 2012.

Phillips, J. 1971 Washington State Places Names. University of Washington Press, Seattle and London.

Pierce County. 2007. Alderton-McMillin Community Plan. Ordinance No. 2007-41s2. Adopted December 11, 2007. Effective June 1, 2008. Pierce County Planning and Land Services Department. Tacoma, WA. Available at URL = http://www.co.pierce.wa.us/xml/abtus/ourorg/pals/docs/lrplan/adoptedaldmcmillcommplan.pdf. Accessed on October 22, 2012.

Pierce County. 2008. Foothills Trail Map. Tacoma, WA. Available at URL - http://www.co.pierce.wa.us/xml/abtus/ourorg/parks/trails/08-foothillstrailmap.pdf. Accessed October 22, 2012.

Pierce County. 2012a. Pierce County Comprehensive Plan. Available at URL = http://www.co.pierce.wa.us/DocumentCenter/View/1166. Accessed November 2012.

Pierce County. 2012b. Public GIS Interactive Mapping Portal. Information Technology Services. Tacoma, WA. http://matterhorn3.co.pierce.wa.us/publicgis/. Accessed on October 22, 2012.

Popper, A.N., and M.C. Hastings. 2009a. The Effects of Human-generated Sound on Fish. Integrative Zoology. 4:43-52.

Popper, A.N., and M.C. Hastings. 2009b. Review Paper: The effects of anthropogenic sources of sound on fishes. Journal of Fish Biology 75: 455-489.

Pratt, K.L. 1992. A review of bull trout life history. Pages 5–9 in P.J. Howell and D.V. Buchanan, editors. Proceedings of the Gearhart Mountain bull trout workshop. American Fisheries Society, Oregon Chapter, Corvallis, OR.

Rushton, A. 1981. The History of the Town of Orting: 1854-1981. Heritage Quest, Orting.

Schilling, S.P., S. Doelger, R.P Hoblitt, J.S. Walder, C.L. Driedger, K.M. Scott, P.T. Pringle, and J.W. Vallance. 2008. Digital data for Volcano hazards from Mount Rainier, Washington, revised 1998—Data to accompany U.S. Geological Survey Open File Report 98-428; version 1.0: U. S. Geological Survey Open File Report 2007-1220. [http://vulcan.wr.usgs.gov/Volcanoes/Rainier/Hazards/OFR2007-1220/]. Accessed October 19. 2012.

Sewall. 2012. Washington Department of Fish and Wildlife Voight Creek Fish Hatchery Property, Critical Areas Report. Prepared for MWH Americas, Bellevue, WA, by Sewall Wetland Consulting, Inc., Covington, WA. July 2012.

Shared Strategy for Puget Sound. 2007. Puget Sound Salmon Recovery Plan. Plan adopted by National Marine Fisheries January 19, 2007. Seattle, WA.

Stanley, W.D., S.Y. Johnson, A.I. Qamar, C.W. Weaver, and J.M. Williams. 1996. Tectonics and seismicity of the southern Washington Cascade Range: Seismological Society of America Bulletin, v. 86, no. 1A, p. 1-18. Accessed October 19. 2012.

Suttles, W., and B. Lane. 1990. Southern Coast Salish. In Northwest Coast, edited by Wayne Suttles, pp. 485-502. Handbook of North American Indians, Vol. 7, William C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

U.S. Census Bureau. 2012a. State and County QuickFacts, Pierce County, Washington. Available at URL = http://quickfacts.census.gov/qfd/states/53/53053.html. Accessed September 2012.

U.S. Census Bureau. 2012b. Small Area Income and Poverty Estimates. Available online at URL=online at: http://www.census.gov/did/www/saipe/data/statecounty/data/2010.html. Accessed September 2012.

U.S. Census Bureau. 2012c. Profile of General Population and Housing Characteristics: 2010. 2010 Demographic Profile Data, City of Orting, WA. Available at URL =

http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk. Accessed September 2012.

U.S. Census Bureau. 2012d. Selected Economic Characteristics, 2006-2010 American Community Survey 5-year Estimates, Orting city, Washington. Available online at URL= http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk. Accessed September 2012.

USDA (U.S. Department of Agriculture). 2007. Census of Agriculture - Washington State County Data. Detailed census of agriculture information is available online at www.agcensus.usda.gov.

USFWS (U.S. Fish and Wildlife Service). 1996. Water Howellia (*Howellia aquatilis*) recovery plan. Helena, MT. Vi. Plus 52 pp.

USFWS. 2012a. Listed and proposed endangered and threatened species and critical habitat; candidate species; and species of concern in Pierce County as prepared by the U.S. Fish and Wildlife Service, Western Washington Fish and Wildlife Office (Revised December 11, 2012).

USFWS. 2012b. Recommended Fish Exclusion, Capture, Handling, and Electroshocking Protocols and Standards. Prepared by Nancy Brennan-Dubbs, U.S. Fish and Wildlife Service, Washington Fish and Wildlife Office, Lacey, WA. June 19, 2012. Information available at URL = http://www.fws.gov/wafwo/pdf/FishExclusionProtocolsandStandards6222012%20DR.pdf.

Washington Birder. 2012. Washington Birder County Checklist. Available: http://wabirder.com/bartel_co_checklist.html. (Accessed: November 1, 2012).

WDFW (Washington Department of Fish and Wildlife). 2005. Washington Comprehensive Wildlife Conservation Strategy. Submitted September 19, 2005. Olympia, WA.

WDFW. 2009. 21st Century Salmon and Steelhead Initiative. Olympia, WA.

WDFW. 2010. Times when Spawning or Incubating Salmonids are Least Likely to be within Washington State Freshwaters. Olympia. WA. Available at URL = http://wdfw.wa.gov/licensing/hpa/freshwater_incubation_avoidance_times_28may2010.pdf.

WDFW. 2012a. Priority Habitats and Species GIS data. Priority Habitats and Species Program, Olympia, WA.

WDFW. 2012b. SalmonScape Interactive Mapping. Map and Data Products Query. Olympia, WA.

WDFW. 2012c. Voights Creek Fish Hatchery website. Available at URL = https://fortress.wa.gov/dfw/score/score/hatcheries/hatcheries.jsp. Accessed October 2012.

WDNR (Washington State Department of Natural Resources). 2012. Washington Interactive Geologic Map. Division of Geology and Earth Resources - Washington Geological Survey. http://www.dnr.wa.gov/researchscience/topics/geosciencesdata/pages/geology_portal.aspx. Accessed October 19. 2012.

WDOE (Washington State Department of Ecology). 2005. Fact Sheet For NPDES Permit WA0039730 Voights Creek Fish Hatchery. Available at URL = https://fortress.wa.gov/ecy/wqreports/public/f?p=110:304:351116481102391.

WDOE. 2008. Current EPA Approved Assessment. Water Quality webpage. Available at URL = http://www.ecy.wa.gov/programs/wq/303d/2008/index.html. Accessed October 23, 2012.

WDOE. 2009. Addendum to the Factsheet for National Pollutant Discharge Elimination System (NPDES) Permit No. WA0039730 (Voights Creek Hatchery). 7 pages. Available at URL = https://fortress.wa.gov/ecy/wqreports/public/f?p=110:304:351116481102391.

WDOE. 2010. National Pollutant Discharge Elimination System Waste Discharge Permit No. WA0039730 (Voights Creek Hatchery). Issued September 9, 2010. Available at URL = https://fortress.wa.gov/ecy/wqreports/public/f?p=110:304:351116481102391.

WDOE. 2012. Proposed State Implementation Plan Revision Tacoma-Pierce County Nonattainment Area. Publication no. [Public Review Draft]. Air Quality Program. Olympia, WA. September 2012. https://fortress.wa.gov/ecy/publications/SummaryPages/1202016.html. Accessed October 19. 2012. Accessed October 19. 2012.

WNHP (Washington Natural Heritage Program). 2005. Field guide to selected rare plants of Washington. Available at URL= http://www1.dnr.wa.gov/nhp/refdesk/fguide/htm/fgmain.htm.

WNHP. 2010. Washington Natural Heritage Program GIS data for Rare Plants and High Quality Ecosystems. June 2010. Information available at URL = http://www1.dnr.wa.gov/nhp/refdesk/gis/wnhpgis.html.

WNHP. 2012a. Washington Natural Heritage Information System List of Known Occurrences of Rare Plants in Washington Pierce County. Olympia, WA.

WNHP. 2012b, Washington Natural Heritage Program GIS Data Set. Available: http://fortress.wa.gov/dnr/app1/dataweb/dmmatrix.html. (Accessed: November 1, 2012).

WSDOT (Washington State Department of Transportation). 2011a. Annual Traffic Report. In cooperation with the U.S. Department of Transportation Federal Highway Administration. http://www.wsdot.wa.gov/mapsdata/travel/pdf/Annual_Traffic_Report_2011.pdf. Accessed Oct 25 2012.

WSDOT. 2011b. Bridge List. M 23-09.05. Olympia, WA. October 2011.

Personal Communications

Berg, R. 2013. WDFW Capital and Asset Management Program. Correspondence with G. Mejia, AECOM, regarding existing site conditions. January 29.

Burgdorf, S. 2013. USFWS, Federal Activities, Lacey, WA; phone call with B. Kerschke, FEMA, Bothell, WA, regarding critical habitat for streaked horned lark. February 20, 2013.

Bridgeman, R. 2012. Pierce County, Development Engineer Division and D. Zierow, Development Center, Planning & Land Service. Correspondence with G. Mejia, AECOM, regarding pending development permits in the vicinity of Voights Creek Fish Hatchery. September 7.

Chan, J. 2012. USFWS, Bull Trout Specialist. Correspondence with M. Peoples, WDFW, Fish and Wildlife Biologist. Regarding potential bull trout presence in Voights Creek. September 5.

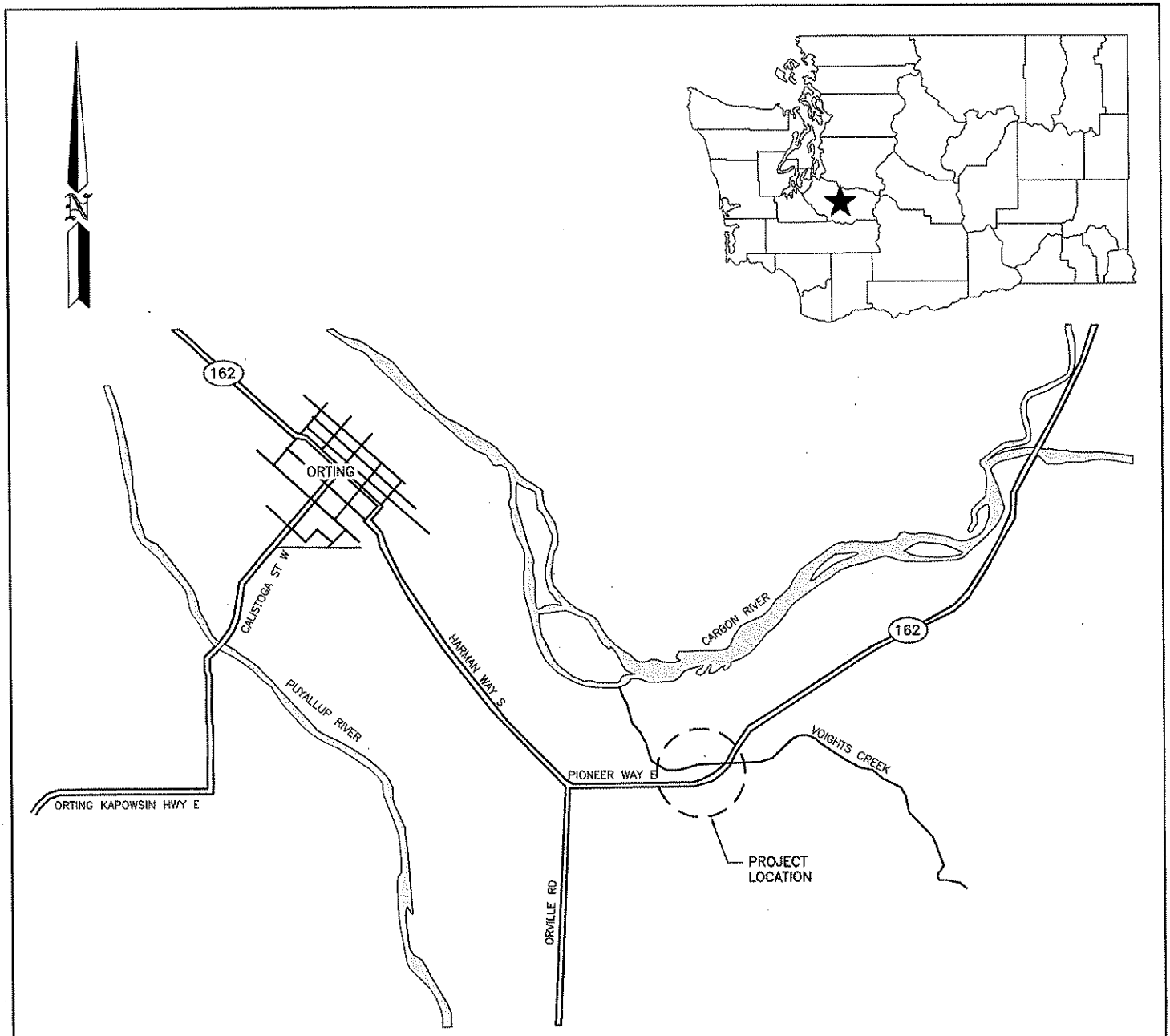
Peoples, M. 2012. WDFW, Fish and Wildlife Biologist. Correspondence with G. Mejia, AECOM. Regarding fish timing in Voights Creek. September 7.

Peoples, M. 2013. WDFW, Fish and Wildlife Biologist. Correspondence with B. Kerschke, FEMA, Bothell, WA, regarding intake facilities and floodplain issues. March 1, 2013.

Smith, J. 2012. WDFW, Fish Hatchery Specialist, Correspondence with R. Berg, WDFW. Regarding Voights Creek Fish Hatchery production. December 13.

Appendix A

Construction Drawings



VICINITY MAP
NOT TO SCALE

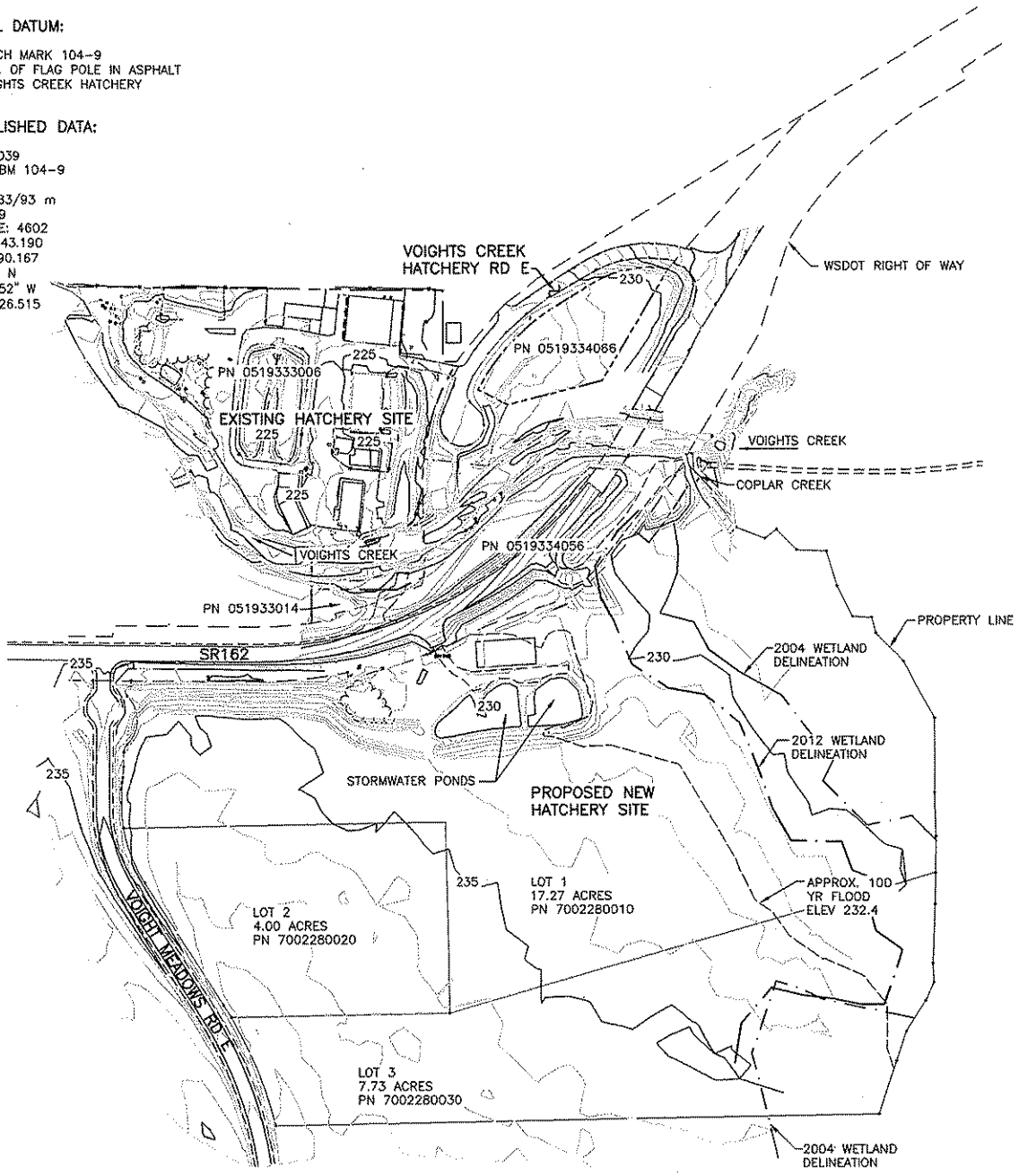
PURPOSE: REMOVE MOST HATCHERY OPERATIONS OUT OF THE EXISTING FLOOD PLAIN	WASHINGTON DEPT. of FISH & WILDLIFE 600 CAPITOL WAY N. OLYMPIA, WA 98501-1091	PROPOSED: CONSTRUCT NEW HATCHERY & INTAKE
DATUM: NGVD 29 ADJACENT PROPERTY OWNER: 1. 2 ENG. PROJECT NO. PE:H8::11-1	REFERENCE NO. SITE: VOIGHTS CREEK HATCHERY ADDRESS: 18801 VOIGHTS MEADOWS RD E ORTING, WA 98360	IN: VOIGHTS CREEK NEAR: ORTING COUNTY OF: PIERCE STATE: WA PORTION OF: SEC 4, T18N, R5E WM DATE: 9-6-2012 SHEET 1 OF 23

PROJECT VERTICAL DATUM:

PIERCE COUNTY BENCH MARK 104-9
BRASS CAP ±10' SO. OF FLAG POLE IN ASPHALT
PARKING LOT AT VOIGHTS CREEK HATCHERY

PIERCE CO. PUBLISHED DATA:

POINT DESIGNATION: 039
POINT DESIG. ALIAS: BM 104-9
POINT ID#: 172
HORIZ. DATUM: NAD 83/93 m
VERT. DATUM: NGVD29
COORD. SYSTEM ZONE: 4602
NORTHING (FT): 642443.190
EASTING (FT): 1222390.167
LAT: 47°04'58.20902" N
LONG: 122°10'41.07652" W
ORTHO ELEV. (FT): 226.515



EXISTING SITE PLAN

SCALE: 1" = 300'

REFERENCE NO. _____

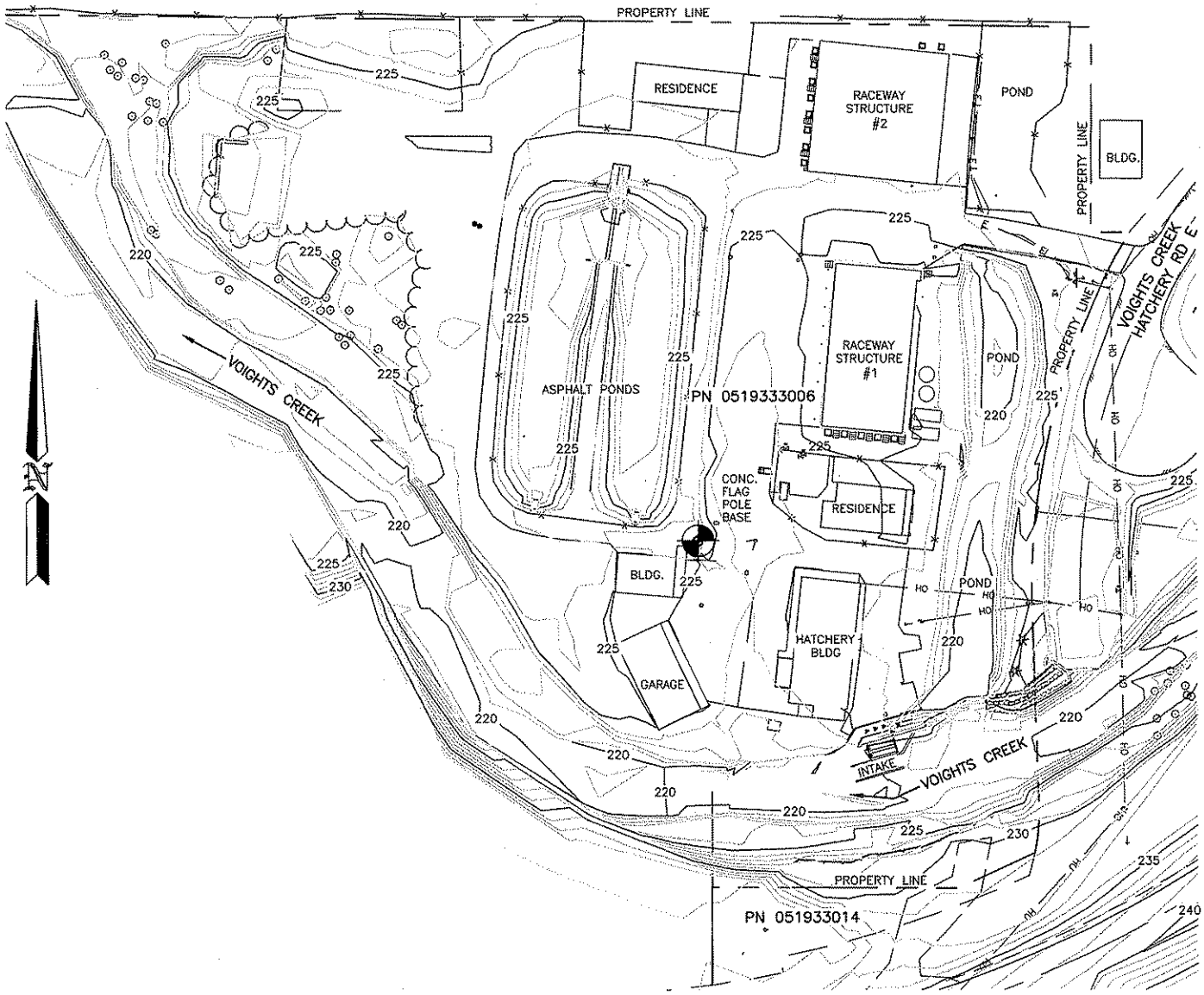
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
EXISTING SITE PLAN

AT: ORTING, WASHINGTON

DATE: 9-6-2012 SHEET 2 OF 23

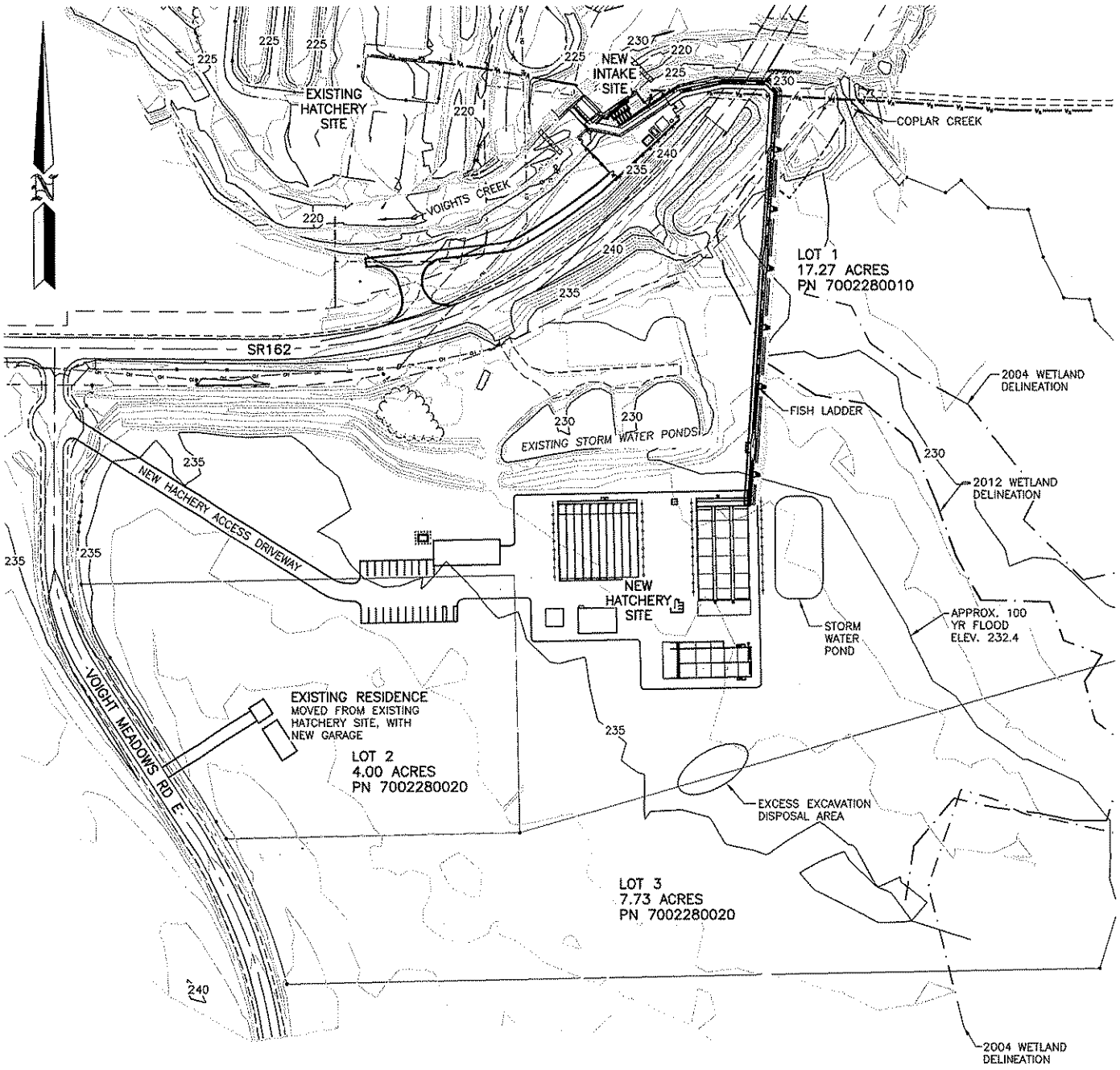
ENG. PROJECT NO. PE:H8:11-1



EXISTING HATCHERY SITE PLAN
SCALE: 1" = 100'

REFERENCE NO.	
APPLICANT:	WASHINGTON DEPT. of FISH & WILDLIFE
VOIGHTS CREEK HATCHERY CONSTRUCT NEW HATCHERY & INTAKE EXISTING HATCHERY SITE PLAN	
AT: ORTING	, WASHINGTON
DATE: 9-6-2012	SHEET 3 OF 23

ENG. PROJECT NO. PE:H8:11-1



NEW HATCHERY AND INTAKE SITE PLAN

SCALE: 1" = 200'

REFERENCE NO.

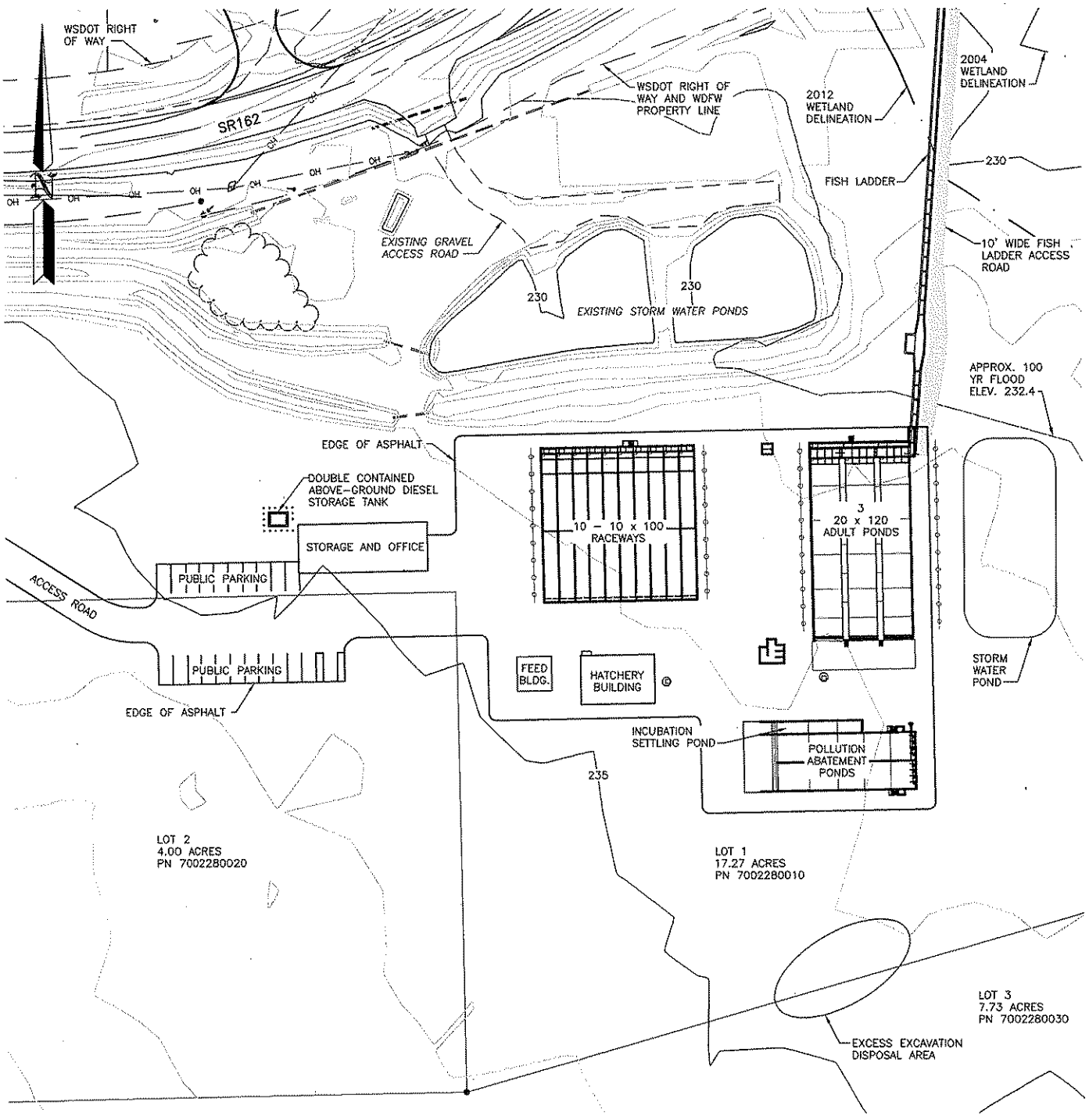
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONCTRUCT NEW HATCHERY & INTAKE
NEW HATCHERY AND INTAKE SITE PLAN

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 4 OF 23

ENG. PROJECT NO. PE:H8:11-1



NEW HATCHERY SITE PLAN

SCALE: 1" = 100'

REFERENCE NO.

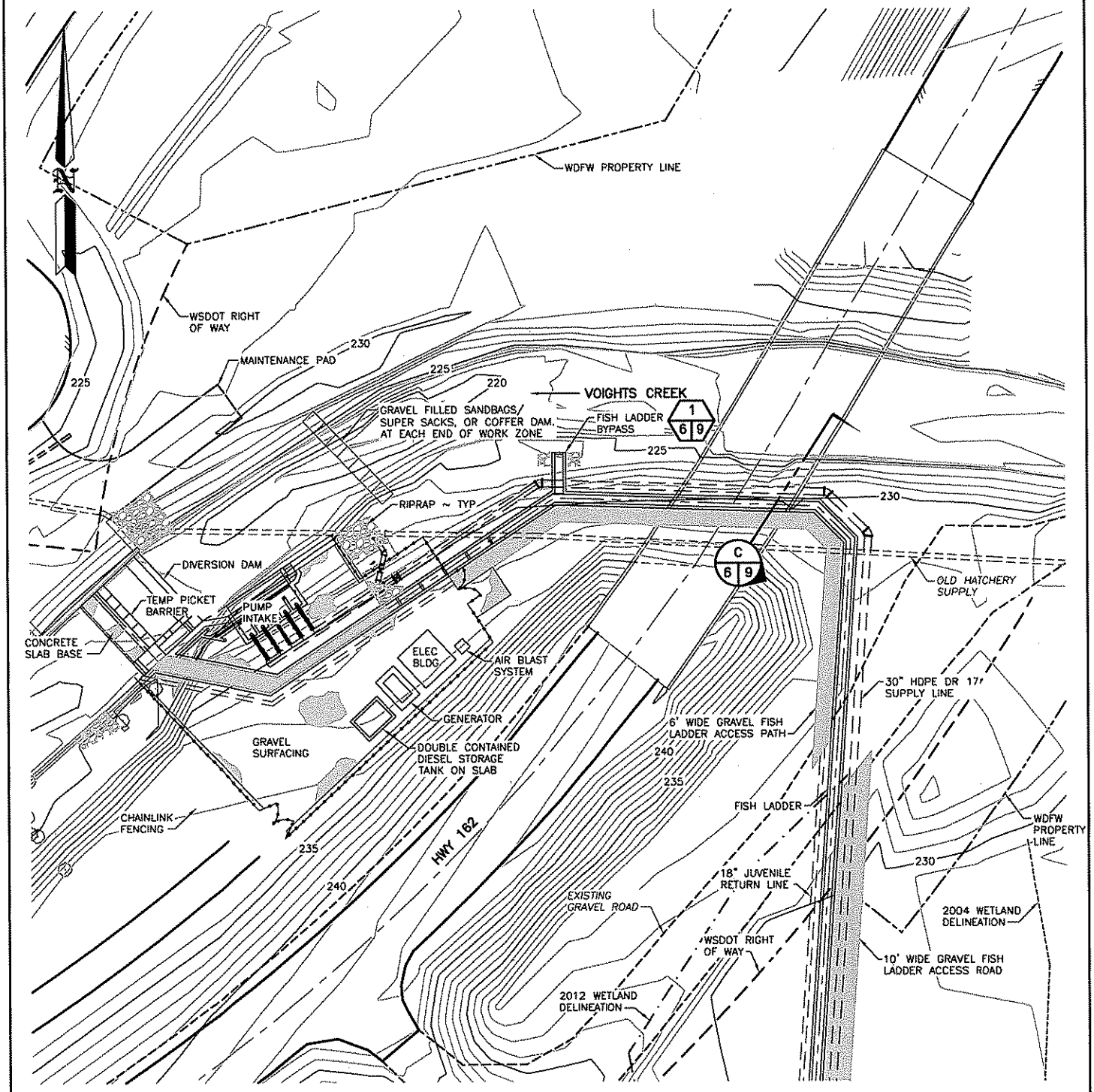
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONCTRUCT NEW HATCHERY & INTAKE
NEW HATCHERY SITE PLAN

AT: ORTING, WASHINGTON

DATE: 9-6-2012 SHEET 5 OF 23

ENG. PROJECT NO. PE:H8:11-1

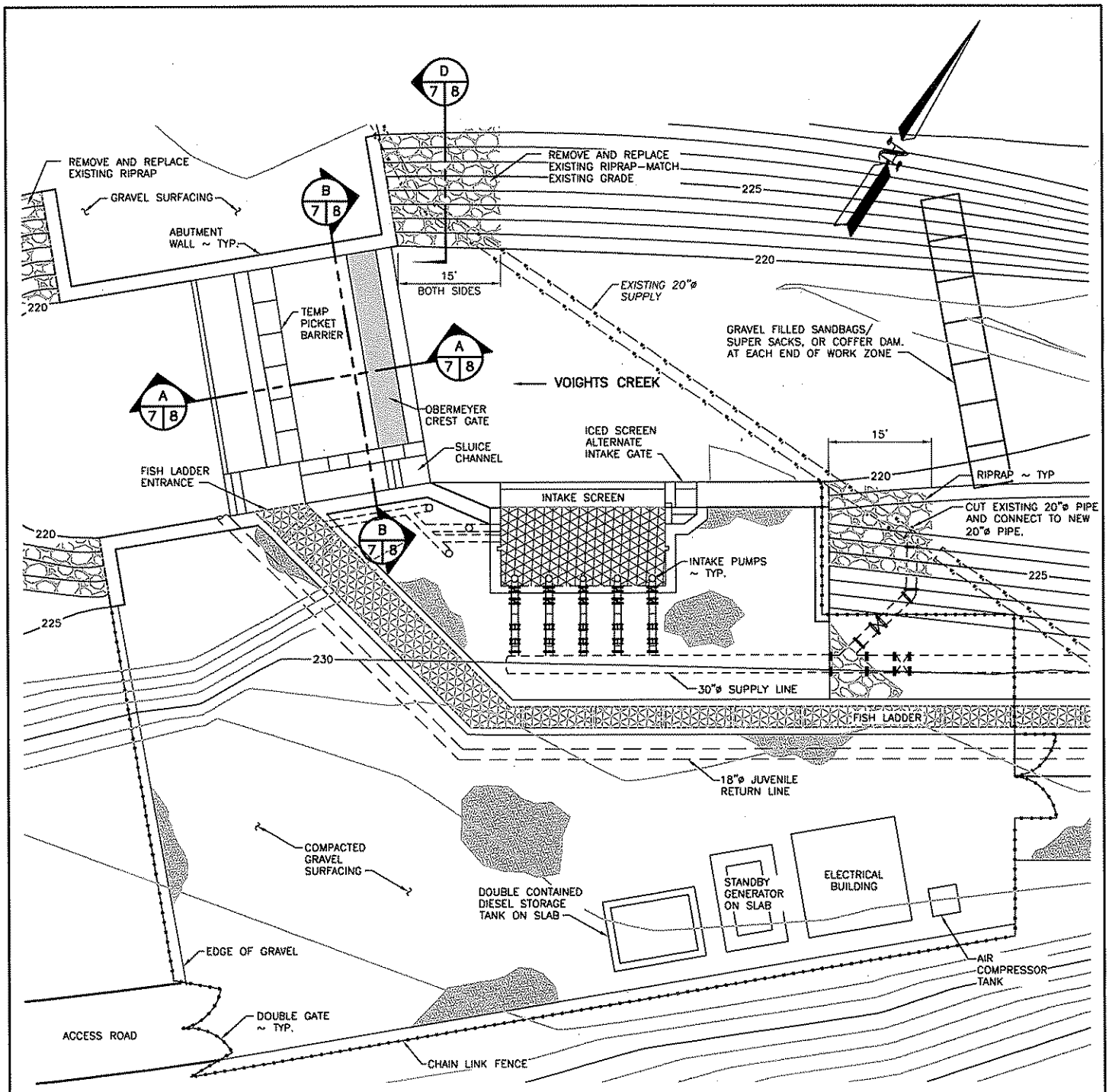


NEW INTAKE SITE PLAN

SCALE: 1" = 50'

REFERENCE NO.	
APPLICANT:	WASHINGTON DEPT. of FISH & WILDLIFE
VOIGHTS CREEK HATCHERY CONCTRUCT NEW HATCHERY & INTAKE NEW INTAKE SITE PLAN	
AT: ORTING	, WASHINGTON
DATE: 1-14-2013	SHEET 6 OF 23

ENG. PROJECT NO. PE:H8:11-1



INTAKE PLAN

SCALE: 1" = 20'

WATER DATA:

OHW = 223.4
100 YR FLOOD = 232.4

REFERENCE NO. _____

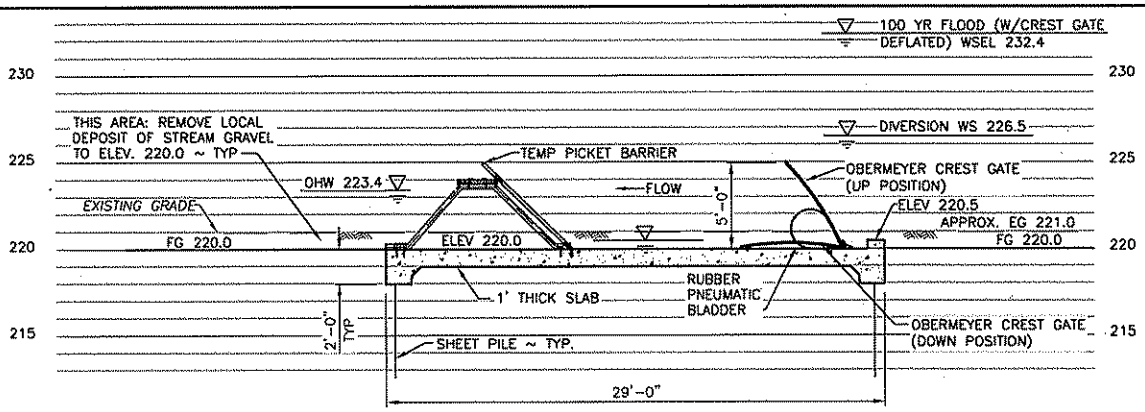
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
INTAKE PLAN

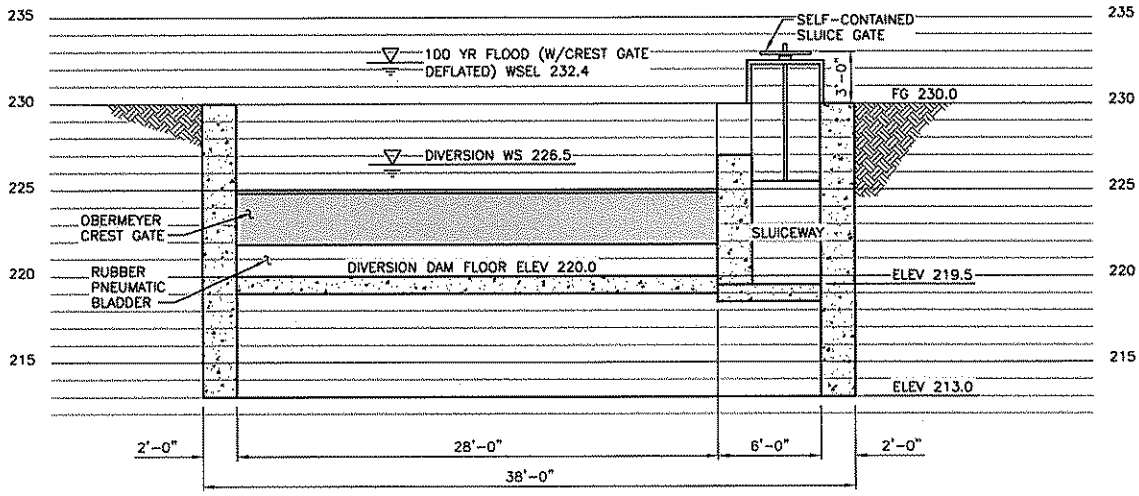
AT: ORTING , WASHINGTON

DATE: 1-14-2013 SHEET 7 OF 23

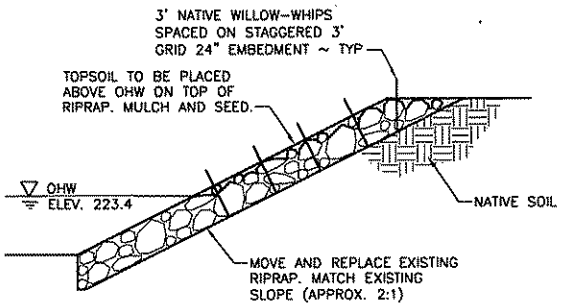
ENG. PROJECT NO. PE:H8:11-1



SECTION
SCALE: 3/32" = 1'-0" (A 7|8)



SECTION
SCALE: 3/32" = 1'-0" (B 7|8)



TYPICAL RIPRAP INSTALLATION
SCALE: 3/32" = 1'-0" (D 7|8)

REFERENCE NO.

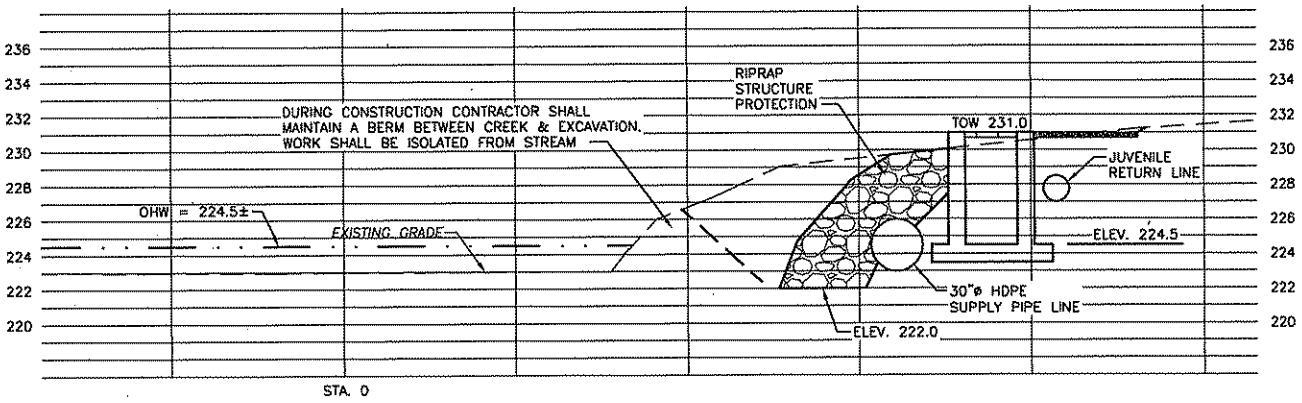
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
INTAKE SECTIONS

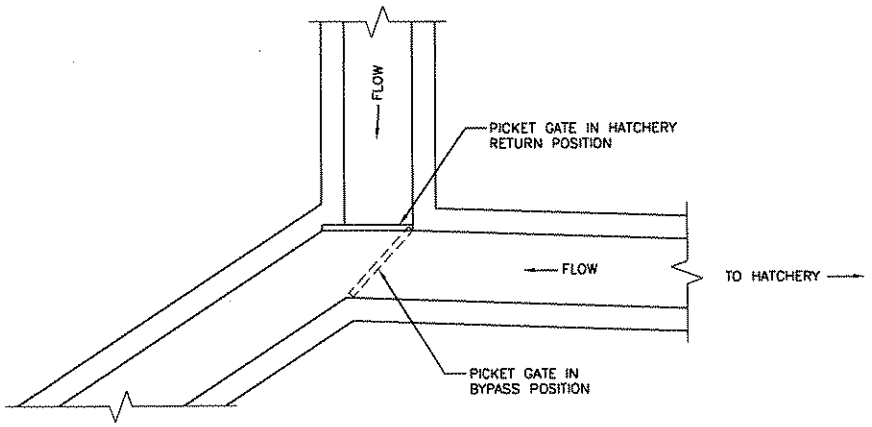
AT: ORTING, WASHINGTON

DATE: 1-14-2013 SHEET 8 OF 23

ENG. PROJECT NO. PE:H8:11-1



SECTION
SCALE: 3/32" = 1'-0"
C
6 | 9



FISH LADDER BYPASS
HINGED PICKET GATE
SCALE: 1/8" = 1'-0"
1
6 | 9

REFERENCE NO. _____

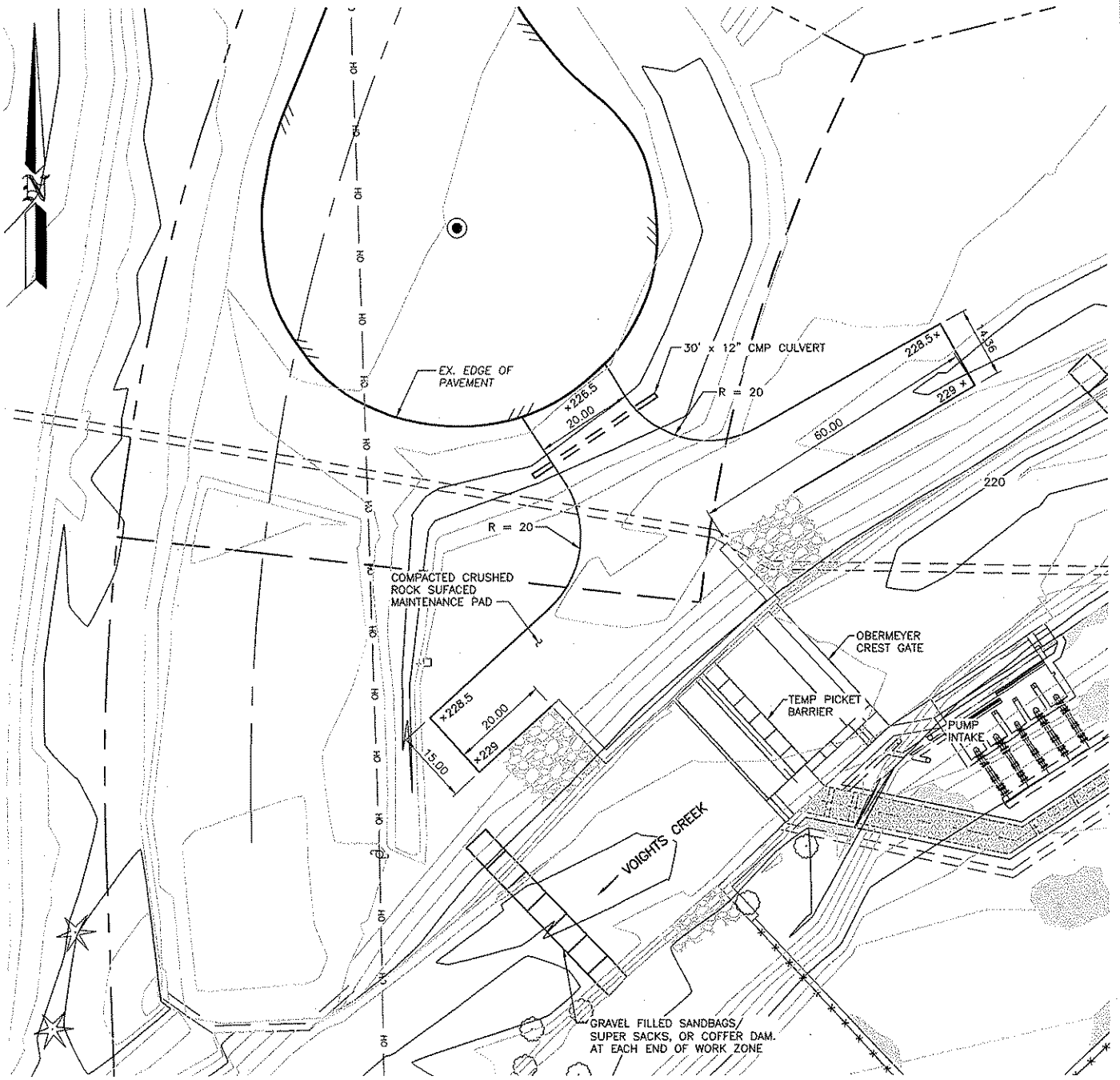
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
FISH LADDER SECTION

AT: ORTING , WASHINGTON

DATE: 1-14-2013 SHEET 9 OF 23

ENG. PROJECT NO. PE:H8:11-1



DEVELOPMENT PLAN

SCALE: 1" = 30'

REFERENCE NO. _____

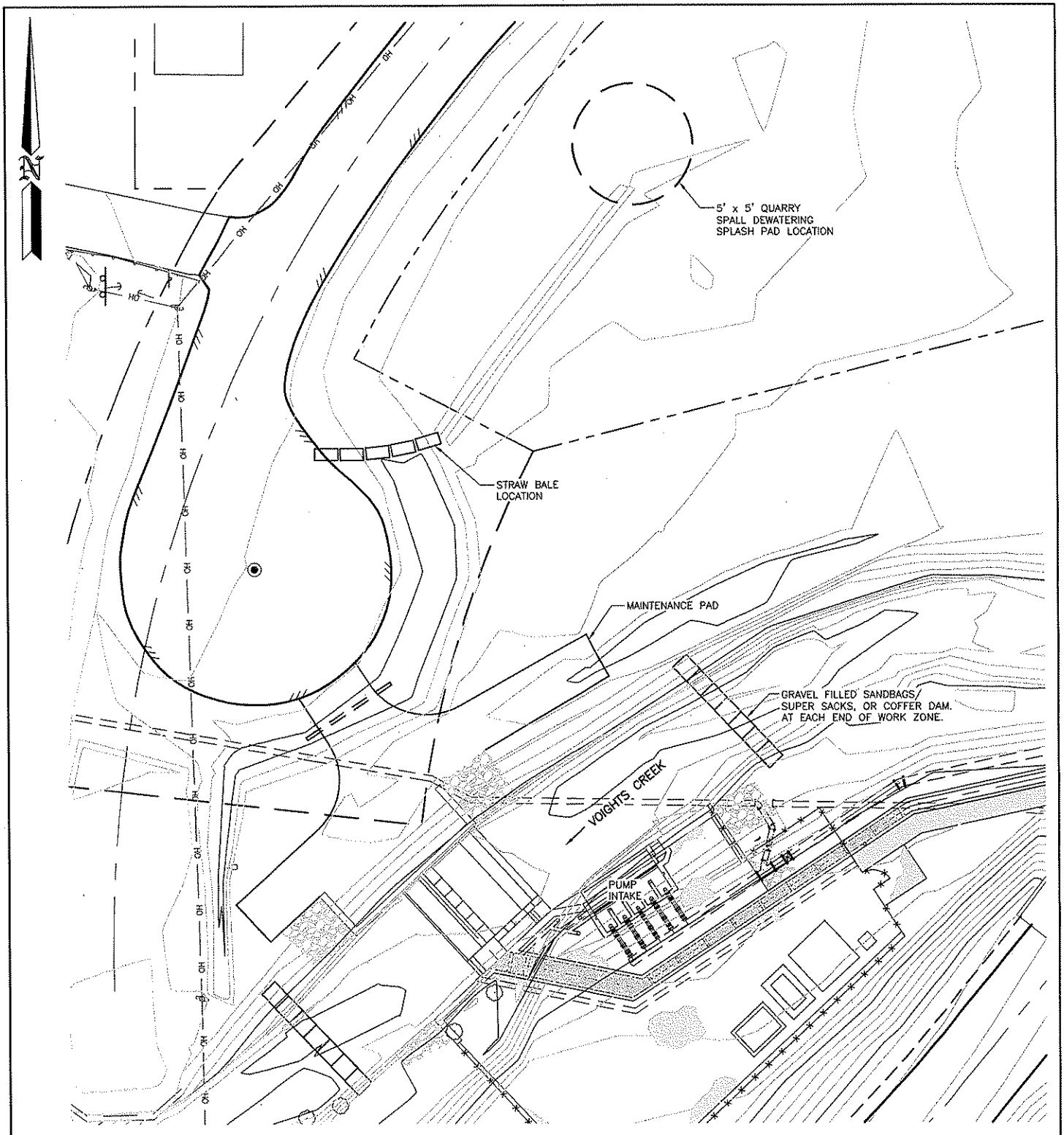
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONCTRUCT NEW HATCHERY & INTAKE
DEVELOPMENT PLAN

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 10 OF 23

ENG. PROJECT NO. PE:H8:11-1



INTAKE DEWATERING PLAN

SCALE: 1" = 40'

INTAKE IMPACT AREA:
BELOW OHW – 1,300 SQ FT.
ABOVE OHW – 7,750 SQ FT

REFERENCE NO.

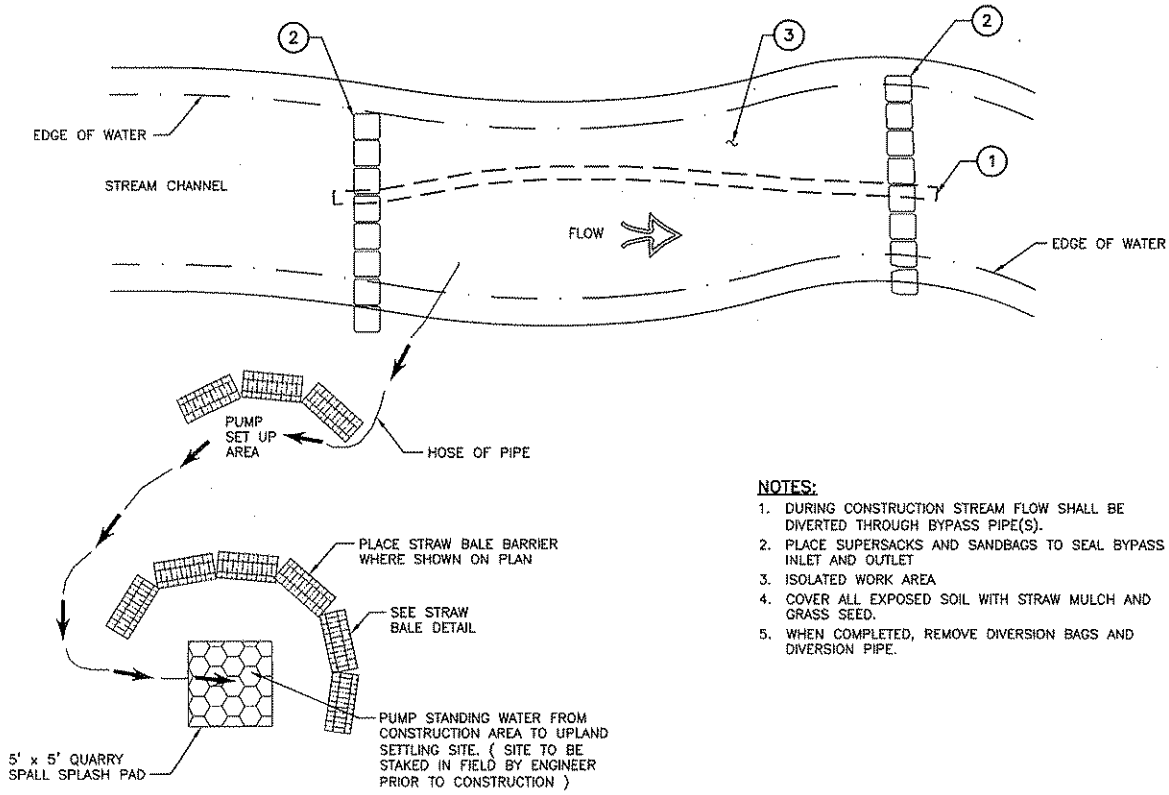
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONCTRUCT NEW HATCHERY & INTAKE
INTAKE DEWATERING PLAN

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 11 OF 23

ENG. PROJECT NO. PE:H8:11-1

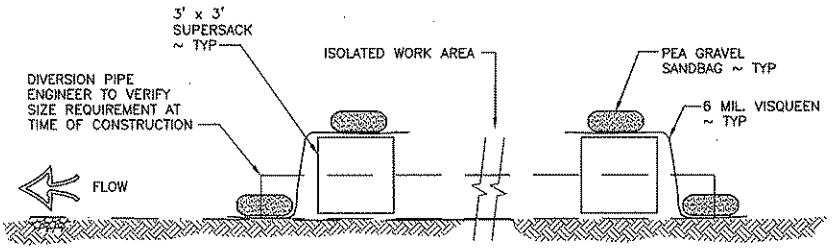


NOTES:

1. DURING CONSTRUCTION STREAM FLOW SHALL BE DIVERTED THROUGH BYPASS PIPE(S).
2. PLACE SUPERSACKS AND SANDBAGS TO SEAL BYPASS INLET AND OUTLET
3. ISOLATED WORK AREA
4. COVER ALL EXPOSED SOIL WITH STRAW MULCH AND GRASS SEED.
5. WHEN COMPLETED, REMOVE DIVERSION BAGS AND DIVERSION PIPE.

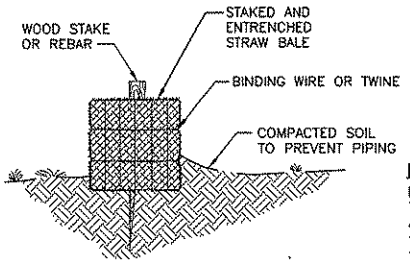
DEWATERING SETTLING SCHEMATIC DETAIL

NOT TO SCALE



SECTION

NOT TO SCALE



STRAW BALE DETAIL

NOT TO SCALE

NOTES:

BALES SHALL BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED. A TRENCH SHALL BE A MINIMUM OF 4 INCHES. BACKFILL SOIL SHALL CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHALL BE BUILT UP 4 INCHES AGAINST THE UPHILL SIDE OF THE BARRIER. EACH BALE SHALL BE SECURELY ANCHORED BY AT LEAST 2 STAKES OR REBAR DRIVEN THROUGH THE BALE.

THE GAP BETWEEN THE BALES SHALL BE CHINKED (FILLED BY WEDGING) WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES.

REFERENCE NO. _____

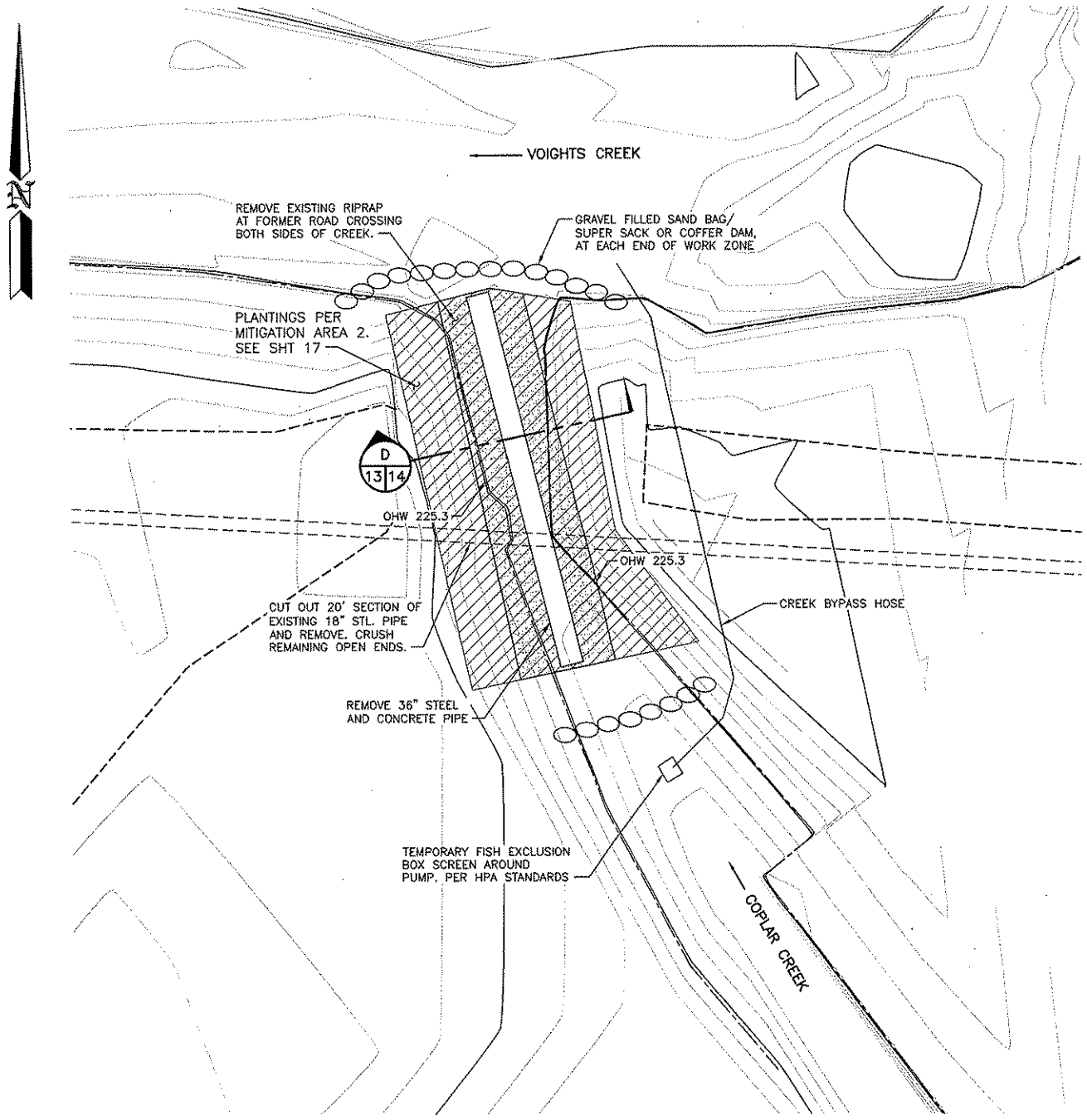
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
DEWATERING DETAILS & SECTION

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 12 OF 23

ENG. PROJECT NO. PE:H8:11-1



COPLAR CREEK SITE PLAN

SCALE: 1" = 20'

COPLAR CREEK IMPACT
REMOVAL - 650 SQ FT.
PLANTINGS - 1,300 SQ FT

REFERENCE NO. _____

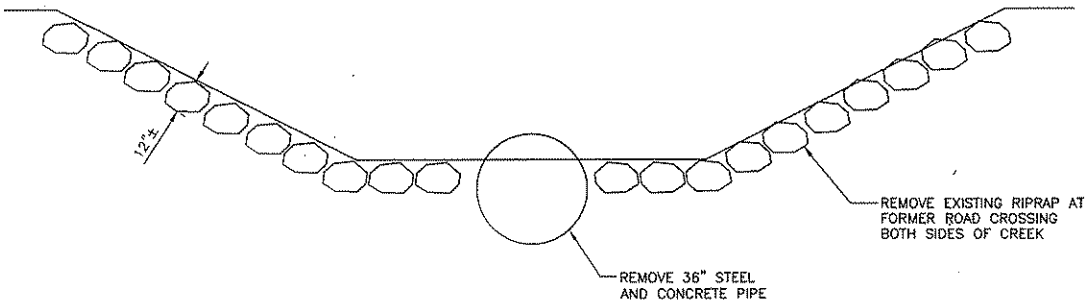
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONCTRUCT NEW HATCHERY & INTAKE
COPLAR CREEK SITE PLAN

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 13 OF 23

ENG. PROJECT NO. PE:H8:11-1



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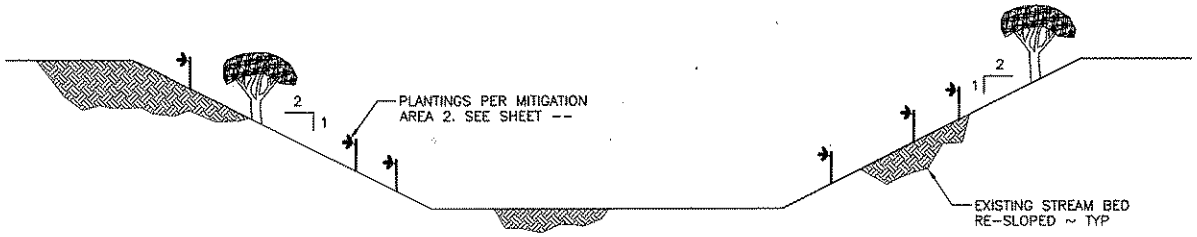


NEW SECTION

SECTION D
SCALE: 1" = 5' 13|14

REFERENCE NO.	
APPLICANT: WASHINGTON DEPT. of FISH & WILDLIFE	
VOIGHTS CREEK HATCHERY CONCTRUCT NEW HATCHERY & INTAKE COPLAR CREEK SECTIONS	
AT: ORTING , WASHINGTON	
DATE: 9-6-2012	SHEET 14 OF 23

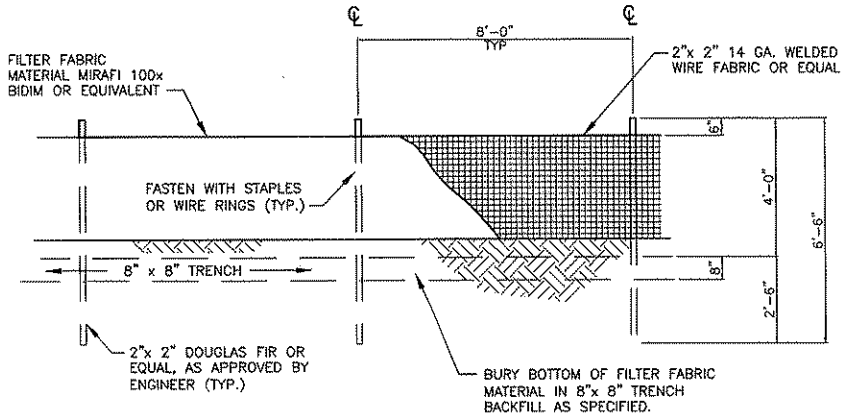
ENG. PROJECT NO. PE:H8:11-1

EROSION CONTROL SITE PLAN

SCALE: 1" = 100'

REFERENCE NO.	
APPLICANT: WASHINGTON DEPT. of FISH & WILDLIFE	
VOIGHTS CREEK HATCHERY CONSTRUCT NEW HATCHERY & INTAKE EROSION CONTROL SITE PLAN	
AT: ORTING , WASHINGTON	
DATE: 9-6-2012	SHEET 15 OF 23

ENG. PROJECT NO. PE:H8:11-1



FILTER FABRIC FENCE

SCALE: NONE

FILTER FABRIC NOTES:

1. FILTER FABRIC SHALL BE PURCHASED CONTINUOUS ROLL CUT TO LENGTH OF BARRIER AS NEEDED. IF JOINTS ARE NECESSARY FABRIC SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POSTS WITH A MINIMUM OF (6) INCH OVERLAP. BOTH ENDS SHALL BE SECURED AS REQUIRED.
2. FILTER FABRIC SHALL BE INSTALLED TO FOLLOW CONTOURS. FENCE POSTS SHALL BE SPACED A MAXIMUM OF EIGHT (8) FEET APART UNLESS OTHERWISE SHOWN HEREIN. ALL POSTS SHALL BE DRIVEN INTO THE GROUND A MINIMUM OF 30 INCHES.
3. A TRENCH SHALL BE EXCAVATED, ROUGHLY EIGHT (8) INCHES WIDE BY EIGHT (8) INCHES DEEP UP SLOPE AND ADJACENT TO THE POST TO ALLOW THE FILTER FABRIC TO BE BURIED.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS UTILIZED, A WIRE SINGLE SPACE MESH SUPPORT FENCE SHALL BE FASTENED TO THE UPSLOPE (OR UPSTREAM) SIDE OF THE POSTS USING ONE (1) INCH MINIMUM LENGTH WIRE STAPLES, TIE WIRE OR APPROVED HOG RINGS. ALL WIRE SUPPORT SHALL EXTEND INTO THE TRENCH A MINIMUM OF FOUR (4) INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE ORIGINAL GRADE.
5. ALL FILTER FABRIC SHALL BE STAPLED OR WIRED TO SUPPORT FENCING AND A MINIMUM OF 20 INCHES OF FABRIC SHALL BE EXTENDED INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED OR FASTENED TO EXISTING TREES OF STRUCTURES UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. IF HIGH STRENGTH FILTER FABRIC AND CLOSER SPACING ARE USED, THE WIRE SUPPORT FENCING MAY BE ELIMINATED. HIGH STRENGTH FABRIC SHALL BE STAPLED OR WIRED DIRECTLY TO POSTS AS REQUIRED BY THE ENGINEER.
7. CUTOFF TRENCH SHALL BE BACKFILLED WITH 3/4 INCH MINIMUM DIAMETER WASHED GRAVEL OR OTHER SIMILAR SOURCE AS APPROVED BY THE ENGINEER.
8. FILTER FENCING SHALL BE INSTALLED WHERE SHOWN ON THE PLAN, OR AS MARKED IN THE FIELD BY THE ENGINEER, PRIOR TO COMMENCEMENT OF WORK. ALL FENCING SHALL BE INSPECTED DAILY DURING CONSTRUCTION AND AFTER EACH SIGNIFICANT RAINFALL EVENT UNTIL SITE HAS BEEN PERMANENTLY STABILIZED. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
9. REMOVAL OF TRAPPED SEDIMENT SHALL BE PERFORMED WHEN AMOUNTS REACH APPROXIMATELY 1/3 HEIGHT OF THE FENCE.
10. FILTER FENCING SHALL REMAIN IN-PLACE UNTIL SITE HAS BEEN REVEGETATED TO ORIGINAL CONDITION OR DIRECTED BY THE ENGINEER.

REFERENCE NO. _____

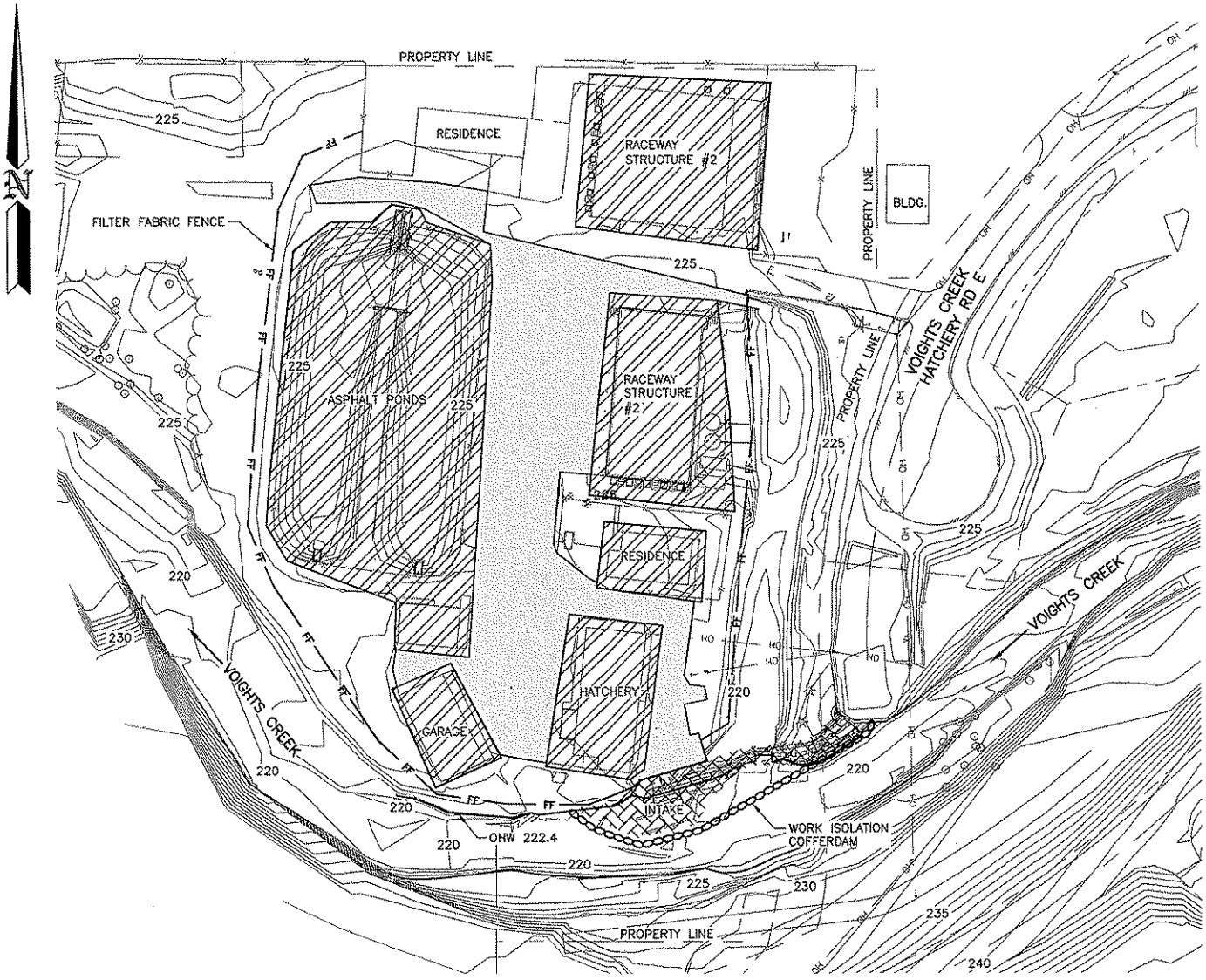
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
FILTER FABRIC FENCE

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 16 OF 23

ENG. PROJECT NO. PE:H8:11-1



HATCHERY DEMOLITION SITE PLAN

SCALE: 1" = 100'

DEMOLITION LEGEND

- STRUCTURE DEMOLITION OR REMOVAL
- STRUCTURE DEMOLITION AS FUNDS ARE AVAILABLE
- PAVEMENT DEMOLITION AS FUNDS ARE AVAILABLE

REFERENCE NO.

APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
HATCHERY DEMOLITION SITE PLAN

AT: ORTING, WASHINGTON

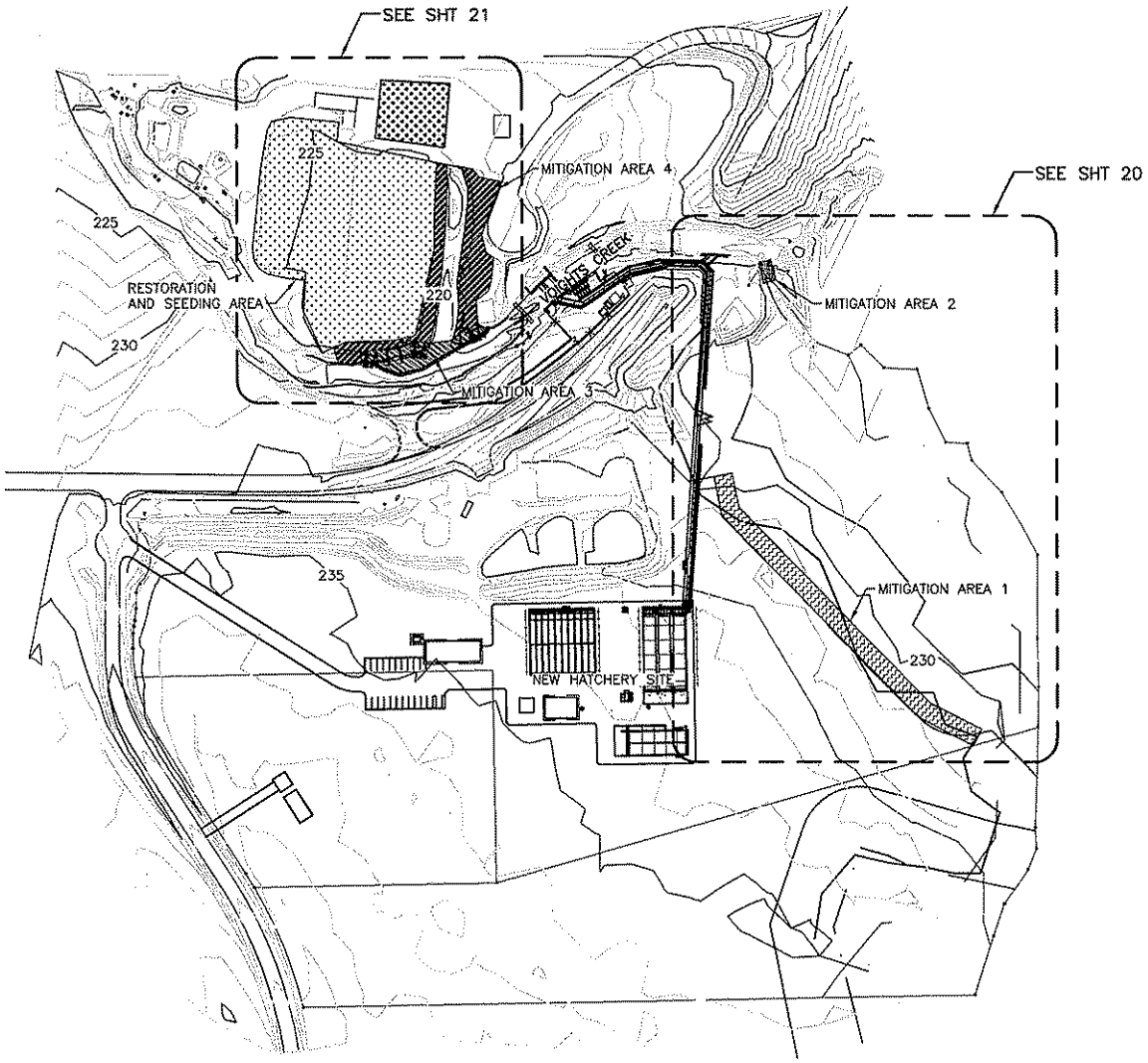
DATE: 9-6-2012 SHEET 17 OF 23

ENG. PROJECT NO. PE:H8:11-1

HATCHERY GRADING SITE PLAN
SCALE: 1" = 100'

REFERENCE NO.	
APPLICANT: WASHINGTON DEPT. of FISH & WILDLIFE	
VOIGHTS CREEK HATCHERY CONSTRUCT NEW HATCHERY & INTAKE HATCHERY GRADING SITE PLAN	
AT: ORTING	, WASHINGTON
DATE: 9-6-2012	SHEET 18 OF 23

ENG. PROJECT NO. PE:H8:11-1



OVERALL MITIGATION SITE PLAN

SCALE: 1" = 300'

IMPACT BELOW OHW	
LOCATION	QUANTITY
NEW INTAKE	1,300 SQ FT
FISH LADDER BYPASS	250 SQ FT
TOTAL	1,550 SQ FT

IMPACT ABOVE OHW	
LOCATION	QUANTITY
NEW INTAKE	7,750 SQ FT
TOTAL	7,750 SQ FT

MITIGATION BELOW OHW	
LOCATION	QUANTITY
OLD INTAKE	4,500 SQ FT
COPLAR CREEK	650 SQ. FT.
OFF CHANNEL REARING HABITAT	8,500 SQ FT
INWATER LWD	4,000 SQ FT
TOTAL	17,650 SQ FT

11:1 MITIGATION RATIO

MITIGATION PLANTINGS ABOVE OHW	
LOCATION	QUANTITY
RIPARIAN	20,000 SQ FT
WETLAND BUFFER	18,000 SQ. FT.
COPLAR CREEK	1,300 SQ FT
TOTAL	39,300 SQ FT

5:1 MITIGATION RATIO

REFERENCE NO. _____

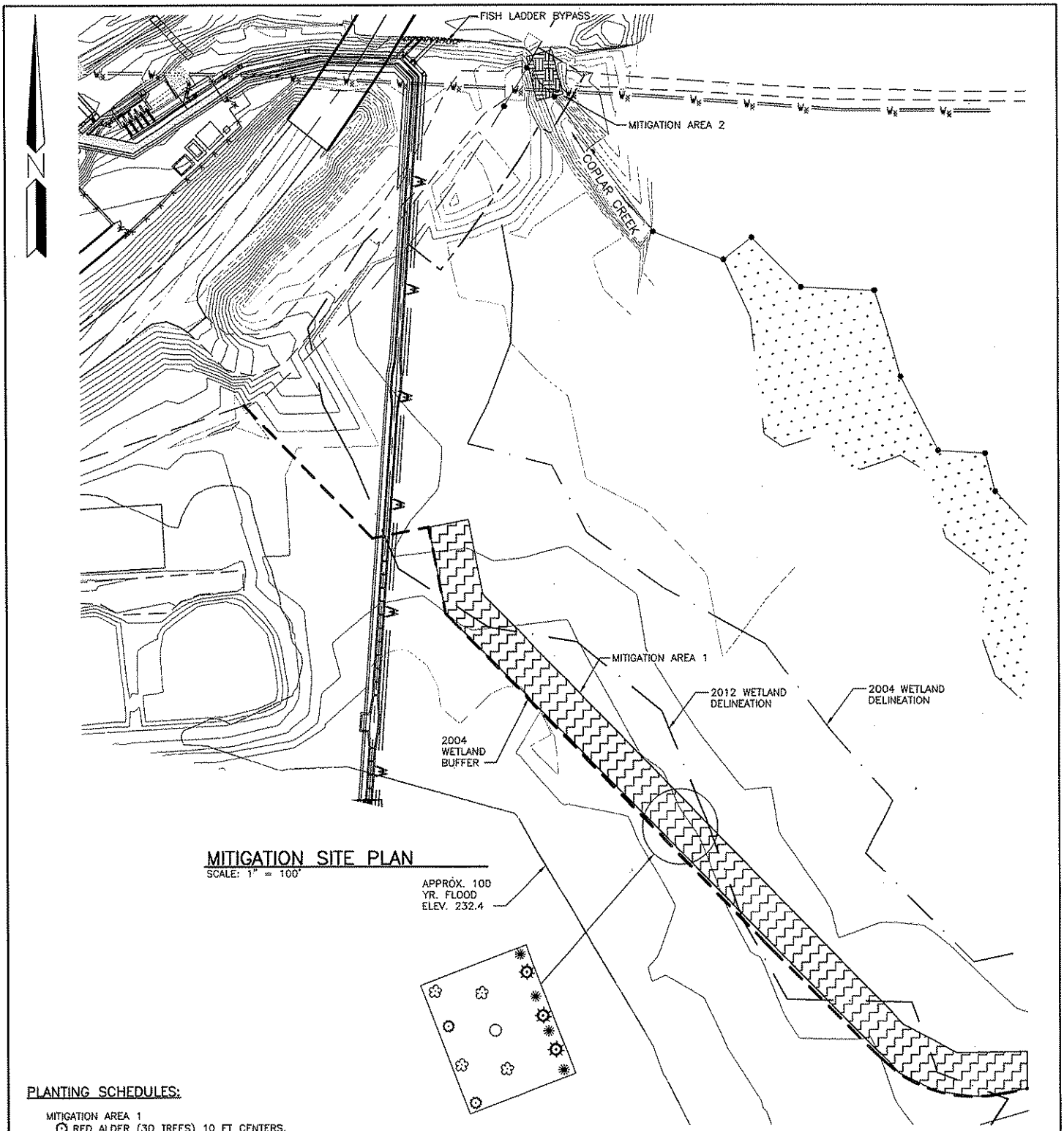
APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
OVERALL MITIGATION SITE PLAN

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 19 OF 23

ENG. PROJECT NO. PE:H8:11-1



MITIGATION SITE PLAN

SCALE: 1" = 100'

PLANTING SCHEDULES:

MITIGATION AREA 1
- RED ALDER (30 TREES) 10 FT CENTERS.
- WESTERN RED CEDAR (30 TREES) 10 FT CENTERS.
- SITKA SPRUCE (60 TREES) 10 FT CENTERS.
- PACIFIC NINEBARK (60 TREES) 5 FT CENTERS.
- RED OSIER DOGWOOD (60 TREES) 5 FT CENTERS.

18,000 SQ FT.

MITIGATION AREA 2
- PACIFIC NINEBARK (10 TREES).
- RED OSIER DOGWOOD (10 TREES).
- WILLOW SPECIES (20 STAKES)

1,300 SQ FT.

ENG. PROJECT NO. PE:H8:11-1

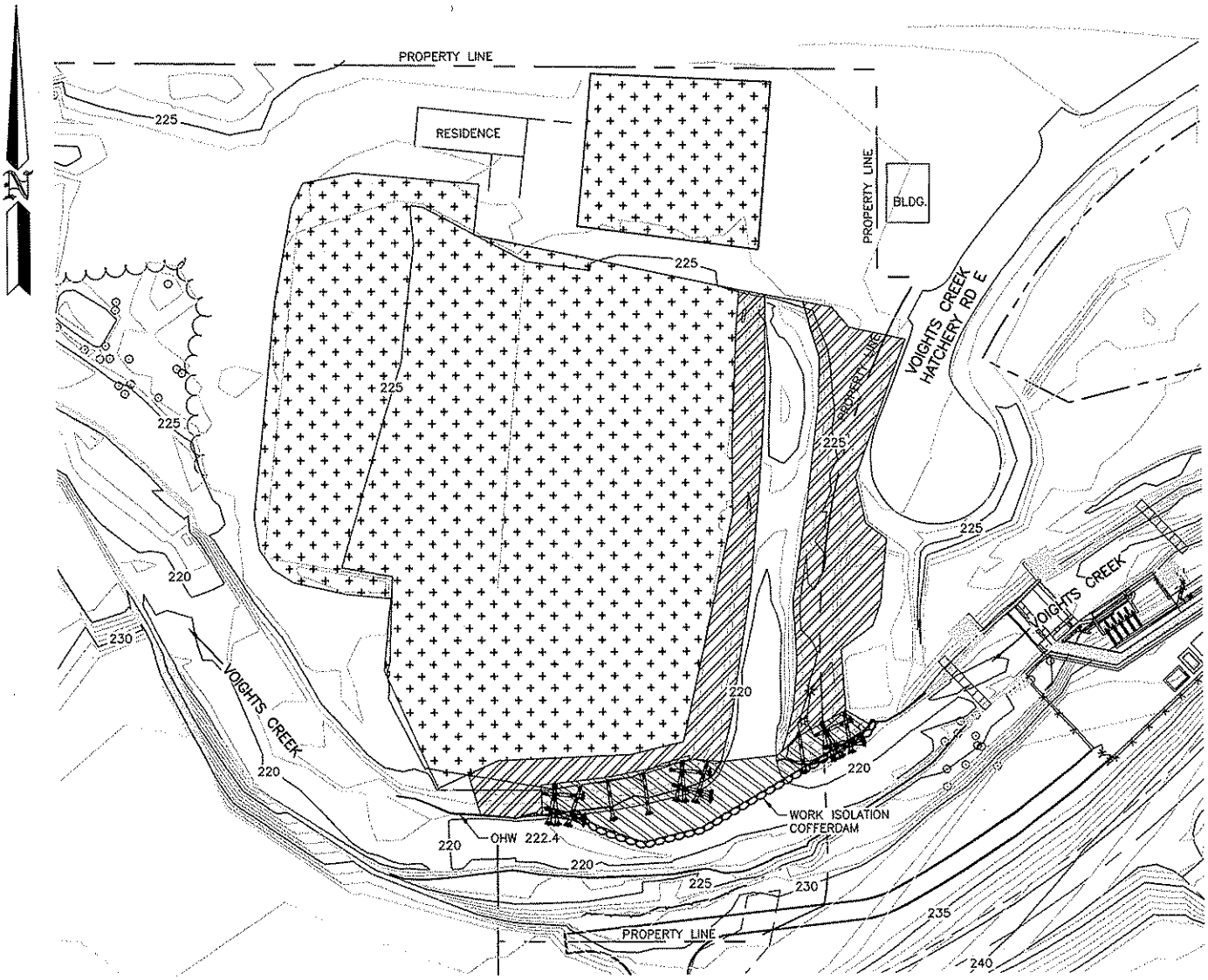
REFERENCE NO. _____

APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
MITIGATION SITE PLAN

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 20 OF 23



HATCHERY MITIGATION AND RESTORATION SITE PLAN

SCALE: 1" = 100'

LEGEND

- SINGLE LOG WITH ROOTWAD
- ENGINEERED LOG JAM (ELJ)
- MITIGATION PLANTING AREA 3
- MITIGATION PLANTING AREA 4
- RESTORATION SEEDING AND PLANTING, AS FUNDS ARE AVAILABLE

MITIGATION NOTES:

MITIGATION AREA 3
- INSTREAM FILL, CONCRETE, AND RIP RAP REMOVAL – 4500 SQ FT.

MITIGATION AREA 4
- DOUGLAS FIR (15 TREE)
- SITKA SPRUCE (15 TREES)
- WILLOW SPECIES (170 STAKES)
- RED OSIER DOGWOOD (100 TREES)
- PACIFIC NINEBARK (100 TREES)
- SLOUGH SEDGE (300 SEEDINGS)
- PLANTINGS – 20,000 SQ FT.

REFERENCE NO. _____

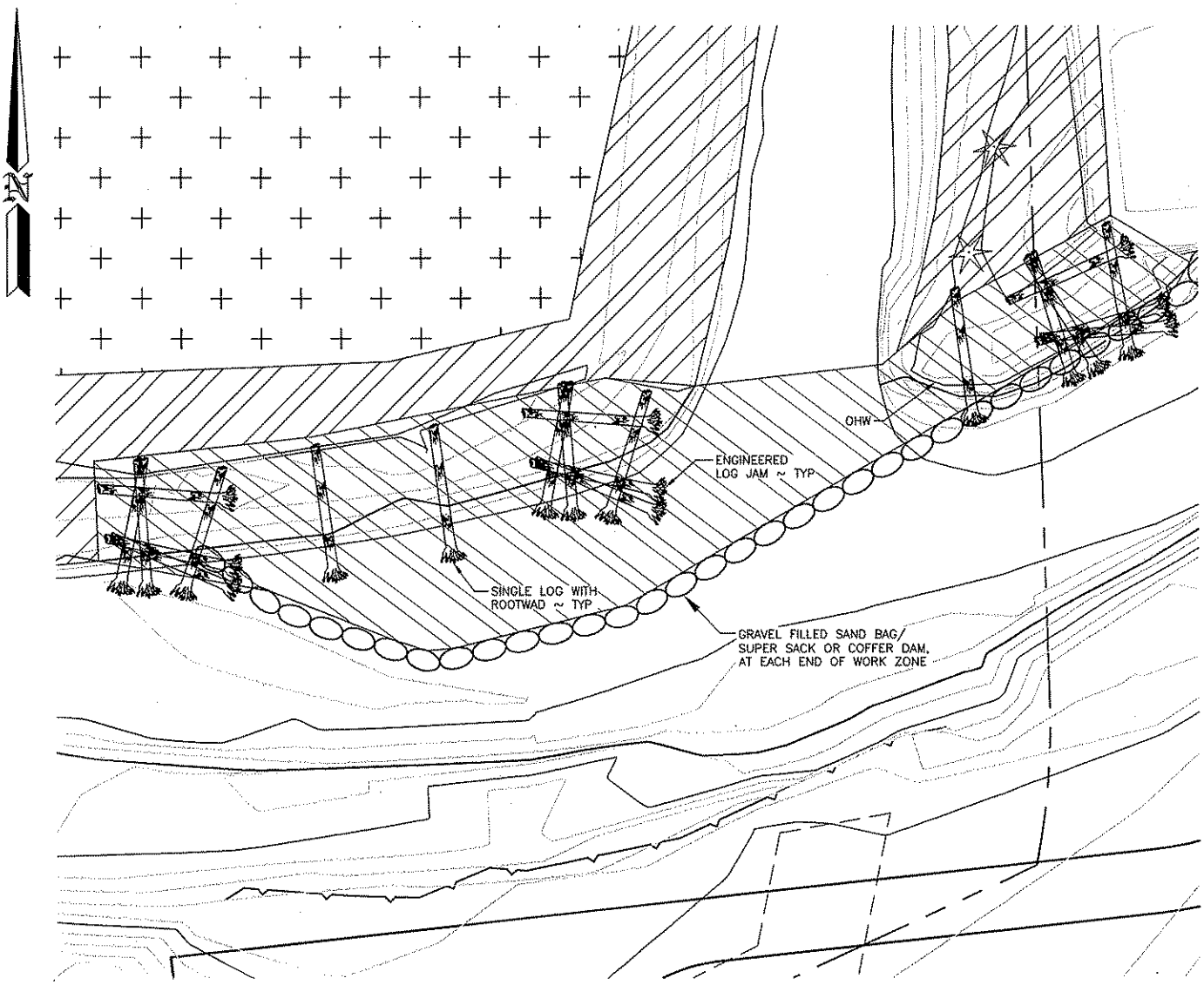
APPLICANT: WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHTS CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
HATCHERY MITIGATION & RESORATION PLAN

AT: ORTING, WASHINGTON

DATE: 9-6-2012 SHEET 21 OF 23

ENG. PROJECT NO. PE:H8:11-1

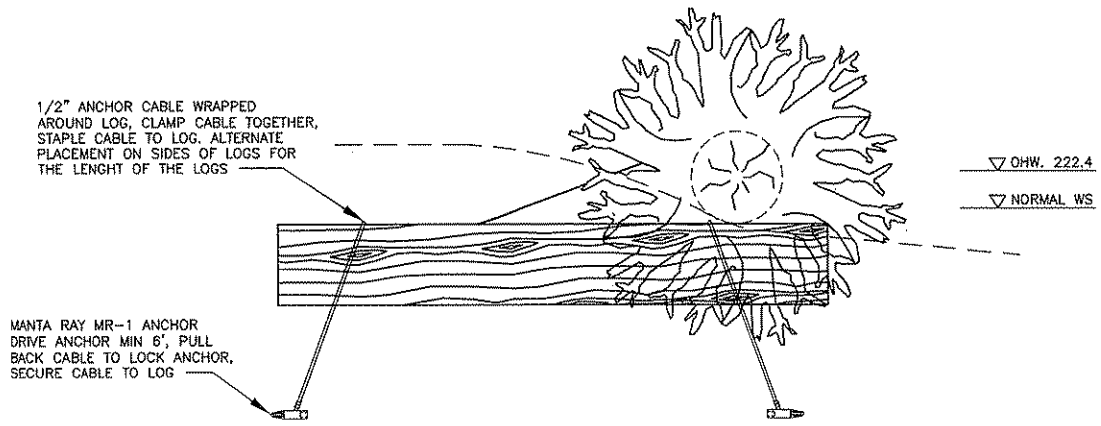


ENGINEERED LOG JAM PLACEMENT

SCALE: 1" = 30'

REFERENCE NO.	
APPLICANT:	WASHINGTON DEPT. of FISH & WILDLIFE
VOIGHTS CREEK HATCHERY CONSTRUCT NEW HATCHERY & INTAKE ENGINEERED LOG JAM PLACEMENT	
AT: ORTING	, WASHINGTON
DATE: 9-6-2012	SHEET 22 OF 23

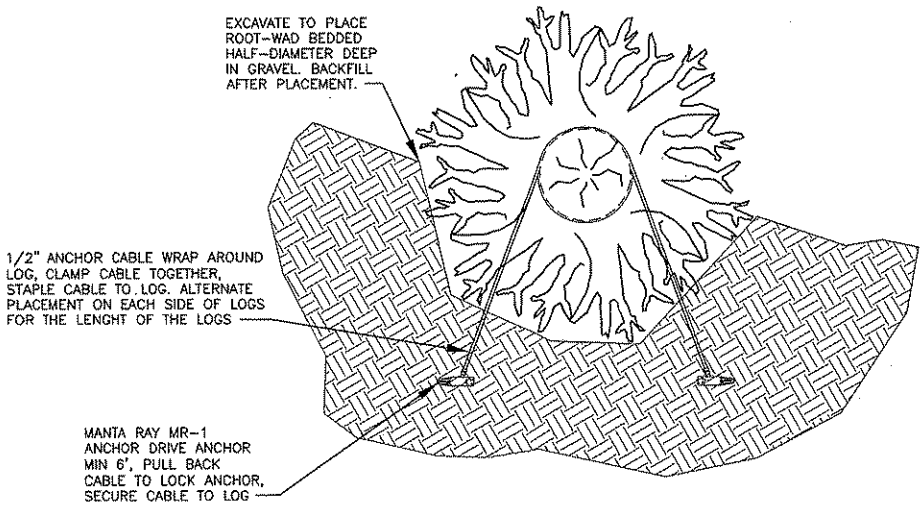
ENG. PROJECT NO. PE:H8:11-1



TOE LOG DETAIL

NOT TO SCALE

NOTES:
1. MINIMUM THREE MR-1 ANCHORS PER LOG.
2. OVERLAPPING LOGS MAY BE WRAPPED AND ANCHORED TOGETHER.
3. SEQUENCE OF LOG INSTALLATION SHOWN ON SHEET 22.
4. INSTALLATION OF SINGLE LOG IS SIMILAR.



ROOT-WAD DETAIL

NOT TO SCALE

NOTES:
1. ENGINEERED LOG JAM SHALL INCLUDE 6 LOGS WITH INTACT ROOTWADS.
2. ROOTWAD =/+ 30" WIDTH; STEMS =/+ 25' LENGTH
3. ALL WOOD MATERIALS WILL BE NATIVE CONIFER (E.G. DOGLAS-FIR, WESTERN RED CEDAR, OR SPRUCE) WITH BARK INTACT (NO PEELED LOGS).
4. KEY LOG TIPS INTO BANK AND BURY WITH NATIVE FILL AND ROCK.
5. LOCATIONS AS LOCATED IN THE FIELD.

REFERENCE NO. _____

APPLICANT:
WASHINGTON DEPT. of FISH & WILDLIFE

VOIGHT CREEK HATCHERY
CONSTRUCT NEW HATCHERY & INTAKE
ROOTWAD/ENGINEERED LOG JAM DETAIL

AT: ORTING , WASHINGTON

DATE: 9-6-2012 SHEET 23 OF 23

ENG. PROJECT NO. PE;H8:11-1

Appendix B

Correspondence and Consultation

DEPARTMENT OF
ARCHAEOLOGY &
HISTORIC PRESERVATION
Protect the Past, Shape the Future

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

February 6, 2013

Ms. Science Kilner
Deputy Environmental Officer
FEMA
130 228th Street SW
Bothell, WA 98021

In future correspondence please refer to:
Log: 121112-11-FEMA
Property: Voights Creek Hatchery relocation
Re: No Historic Properties Affected

Dear Ms. Kilner:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP). The above referenced project was submitted by the Washington State Department of Fish and Wildlife and has been reviewed Dr. Rob Whitlam and myself on behalf of the State Historic Preservation Officer under provisions of Section 106 of the National Historic Preservation Act of 1966 (as amended) and 36 CFR Part 800. My review is based upon documentation contained in your communication.

We concur with the professional opinion of the consultant, that no historic properties will be affected by the current project as proposed. If additional information on the project becomes available, or if any archaeological resources are uncovered during construction, please halt work in the area of discovery and contact the appropriate Native American Tribes and DAHP for further consultation.

Thank you for the opportunity to review and comment. Should you have any questions, please contact me.

Sincerely,

Russell Holter
Project Compliance Reviewer
(360) 586-3533
russell.holter@dahp.wa.gov

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

July 11, 2012

Mr. Ray Berg
Washington Department of Fish and Wildlife
MS 43158
Olympia, WA 98504-3158

In future correspondence please refer to:
Log: 112111-01-WDFW
Property: Voight's Creek Hatchery
Re: No Historic Properties Affected

Dear Mr. Berg:

Thank you for contacting the Washington State Department of Archaeology and Historic Preservation (DAHP). The above referenced project has been reviewed on behalf of the State Historic Preservation Officer under provisions of Governor's Executive Order 05-05. My review is based upon documentation contained in your communication.

We concur that no historic properties will be affected by the current project as proposed. If additional information on the project becomes available, or if any archaeological resources are uncovered during construction, please halt work in the area of discovery and contact the appropriate Native American Tribes and DAHP for further consultation.

Thank you for the opportunity to review and comment. If you have any questions, please contact me.

Sincerely,

Russell Holter
Project Compliance Reviewer
(360) 586-3533
russell.holter@dahp.wa.gov

File, please.

STATE OF WASHINGTON

DEPARTMENT OF ARCHAEOLOGY & HISTORIC PRESERVATION

1063 S. Capitol Way, Suite 106 • Olympia, Washington 98501
Mailing address: PO Box 48343 • Olympia, Washington 98504-8343
(360) 586-3065 • Fax Number (360) 586-3067 • Website: www.dahp.wa.gov

May 28, 2008

Mr. Raymond Berg
Department of Fish & Wildlife
PO Box 43200
600 Capitol Way N
Olympia, Washington 98501-1091

Re: Voights Creek Hatchery Improvement Project
Log No: 112907-01-WDFW

Dear Mr. Berg:

Thank you for contacting our department pursuant to Executive Order 0505. We have reviewed the professional archaeological survey by Archaeological and Historical Services, Eastern Washington University for the proposed Voights Creek Hatchery Improvement Project in Pierce County, Washington.

We concur with their professional recommendations and your finding of No Historic Properties Affected.

We would appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of Executive Order 0505.

These comments are based on the information available at the time of this review and on the behalf of the State Historic Preservation Officer in conformance with Executive Order 0505. Should additional information become available, our assessment may be revised.

In the event that archaeological or historic materials are discovered during project activities, work in the immediate vicinity must stop, the area secured, and the tribes' cultural departments and this department notified. Thank you for the opportunity to comment and a copy of these comments should be included in subsequent environmental documents.

Sincerely,

Robert G. Whitlam, Ph.D.
State Archaeologist
(360) 586-3080
email: rob.whitlam@dahp.wa.gov

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*		Date Of Land Evaluation Request January 1, 2013	
Name of Project Voights Creek Hatchery		Federal Agency Involved FEMA	
Proposed Land Use Fish Hatchery		County and State Pierce County, WA	
PART II *(To be completed by NRCS)*		Date Request Received By NRCS January 7, 2013	Person Completing Form: C. Natsuhara
Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☑ NO ☐	Acres Irrigated 4453	Average Farm Size 33 ac.
Major Crop(s) forage (hay,silage) truck crops, berries, corn	Farmable Land In Govt. Jurisdiction Acres: 395160% 49.7	Amount of Farmland As Defined in FPPA Acres: 387633% 48.8	
Name of Land Evaluation System Used Pierce County	Name of State or Local Site Assessment System none	Date Land Evaluation Returned by NRCS January 16, 2013	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	3			
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	29			
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	3			
B. Total Acres Statewide Important or Local Important Farmland	0			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	<.001%			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	4%			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)	100			

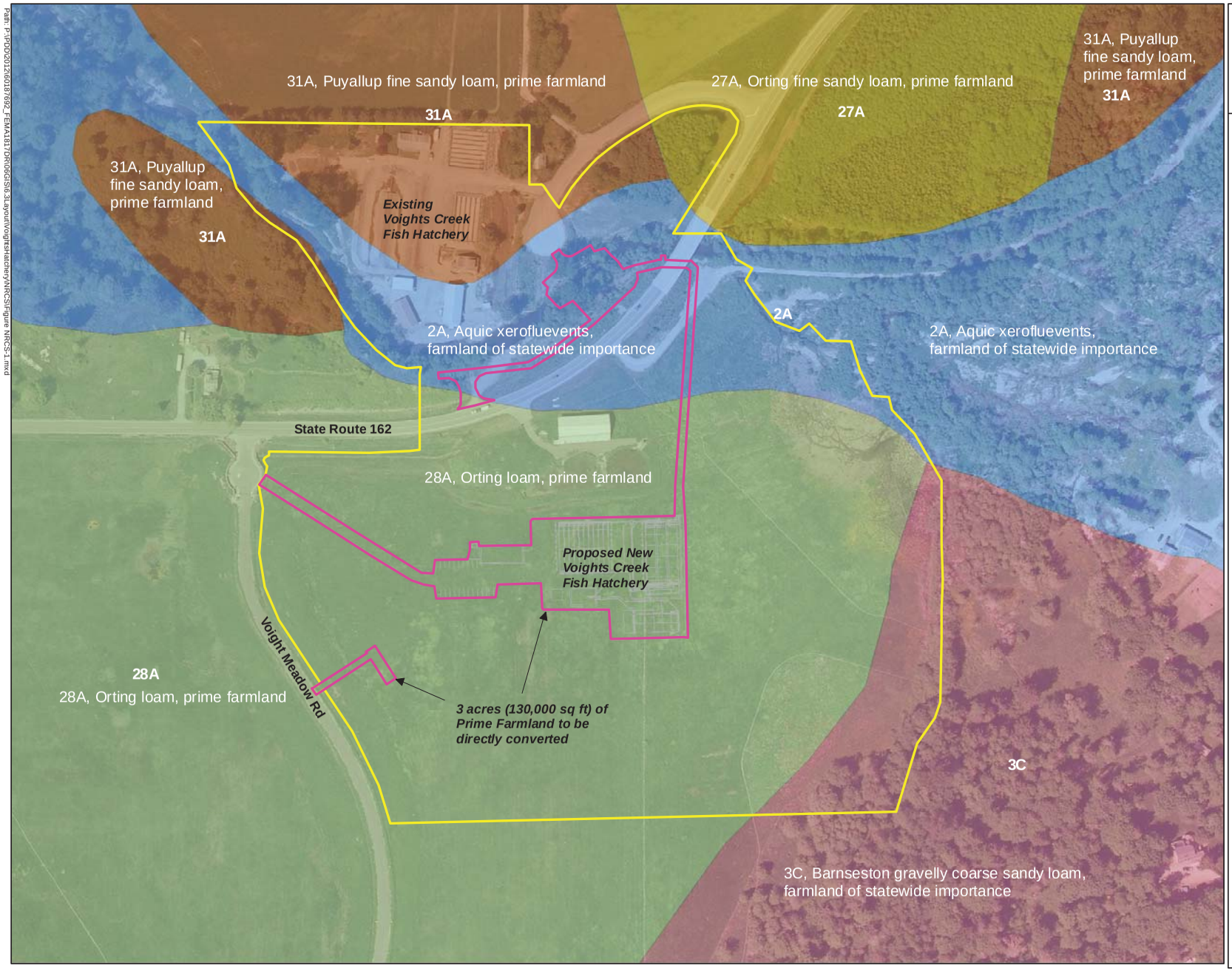
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)	14			
2. Perimeter In Non-urban Use	(10)	10			
3. Percent Of Site Being Farmed	(20)	20			
4. Protection Provided By State and Local Government	(20)	20			
5. Distance From Urban Built-up Area	(15)	5			
6. Distance To Urban Support Services	(15)	0			
7. Size Of Present Farm Unit Compared To Average	(10)	7			
8. Creation Of Non-farmable Farmland	(10)	2			
9. Availability Of Farm Support Services	(5)	5			
10. On-Farm Investments	(20)	15			
11. Effects Of Conversion On Farm Support Services	(10)	0			
12. Compatibility With Existing Agricultural Use	(10)	0			
TOTAL SITE ASSESSMENT POINTS	160	98	0	0	0
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	100	0	0	0
Total Site Assessment *(From Part VI above or local site assessment)*	160	98	0	0	0
TOTAL POINTS ***(Total of above 2 lines)***	260	198	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES ☐ NO ☐

Reason For Selection:

Name of Federal agency representative completing this form:	Date:

(See Instructions on reverse side) **Form AD-1006 (03-02)**



Path: P:\PDOX01\260107692_FEMA1817DR106\GIS\6.3Layout\VoightsHatchery\NRCS\Figure NRCS-1.mxd

Voights Creek Fish Hatchery Project
FEMA 1817-DR-WA PW 1532

Environmental Assessment

Figure NRCS-1.
Proposed Project
Farmland Conversion Impact

Legend

- Project Area (41.2 acres)
- Project Footprint (3.2 acres)

T19N, R5E, Section 33
T18N, R5E, Section 4
Latitude 47.082374, Longitude -122.178325

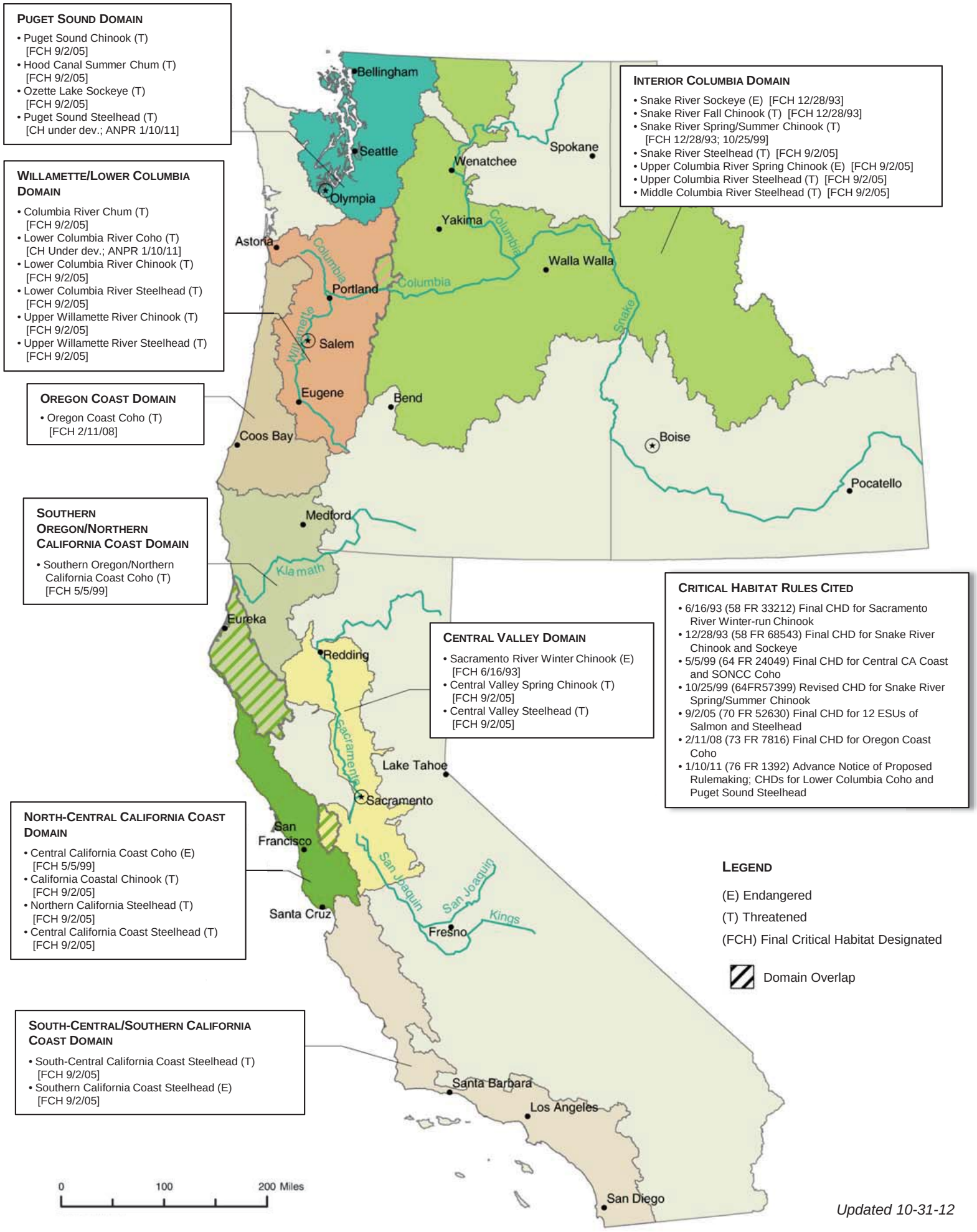
FEMA
U.S. Department of Homeland Security
Region X
130 228th Street SW
Bothell, WA 98021-9796

AECOM

0 100 200 Feet

N

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



Updated 10-31-12

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT; CANDIDATE SPECIES; AND SPECIES OF CONCERN IN PIERCE COUNTY AS PREPARED BY THE U.S. FISH AND WILDLIFE SERVICE WASHINGTON FISH AND WILDLIFE OFFICE

(Revised December 11, 2012)

LISTED

Bull trout (*Salvelinus confluentus*) – Coastal-Puget Sound DPS
Canada lynx (*Lynx canadensis*)
Gray wolf (*Canis lupus*)
Grizzly bear (*Ursus arctos = U. a. horribilis*)
Marbled murrelet (*Brachyramphus marmoratus*)
Northern spotted owl (*Strix occidentalis caurina*)

Major concerns that should be addressed in your Biological Assessment of project impacts to listed species include:

1. Level of use of the project area by listed species.

2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.

3. Impacts from project activities and implementation (e.g., increased noise levels, increased human activity and/or access, loss or degradation of habitat) that may result in disturbance to listed species and/or their avoidance of the project area.

Arenaria paludicola (marsh sandwort) [historic]
Castilleja levisecta (golden paintbrush) [historic]
Howellia aquatilis (water howellia)

Major concerns that should be addressed in your Biological Assessment of project impacts to listed plant species include:

1. Distribution of taxon in project vicinity.

2. Disturbance (trampling, uprooting, collecting, etc.) of individual plants and loss of habitat.

3. Changes in hydrology where taxon is found.

DESIGNATED

Critical habitat for bull trout
Critical habitat for the marbled murrelet
Critical habitat for the northern spotted owl

PROPOSED

(Roy Prairie) Mazama pocket gopher (*Thomomys mazama* ssp. *glacialis*)
Streaked horned lark (*Eremophila alpestris strigata*)
Taylor's checkerspot butterfly (*Euphydryas editha taylori*)
Critical habitat for Roy Prairie pocket gopher
Critical habitat for streaked horned lark
Critical habitat for Taylor's checkerspot butterfly

CANDIDATE

Fisher *(Martes pennanti)* – West Coast DPS
Mardon skipper (*Polites mardon*)
North American wolverine *(Gulo gulo luteus)* – contiguous U.S. DPS
Oregon spotted frog (*Rana pretiosa*)
Yellow-billed cuckoo (*Coccyzus americanus*)
Pinus albicaulis (whitebark pine)

SPECIES OF CONCERN

Bald eagle (*Haliaeetus leucocephalus*)
Cascades frog (*Rana cascadae*)
Fender's soliperlan stonefly (*Soliperla fenderi*)
Larch Mountain salamander (*Plethodon larselli*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Northern goshawk (*Accipiter gentilis*)
Northern sea otter (*Enhydra lutris kenyoni*)
Northwestern pond turtle (*Emys* (= *Clemmys*) *marmorata marmorata*)
Olive-sided flycatcher (*Contopus cooperi*)
Oregon vesper sparrow (*Pooectetes gramineus affinis*)
Pacific lamprey (*Lampetra tridentata*)
Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)
Peregrine falcon (*Falco peregrinus*)
River lamprey (*Lampetra ayresi*)

Slender-billed white-breasted nuthatch (*Sitta carolinensis aculeata*)
Tailed frog (*Ascaphus truei*)
Valley silverspot butterfly (*Speyeria zerene bremeri*)
Western gray squirrel (*Scirius griseus griseus*)
Van Dyke's salamander (*Plethodon vandykei*)
Aster curtus (white-top aster)
Botrychium ascendens (triangular-lobed moonwort)
Castilleja cryptantha (obscure paintbrush)
Cimicifuga elata (tall bugbane)
Cypripedium fasiculatum (clustered lady's slipper)
Lathyrus torreyi (Torrey's peavine)

From:	Mejia, Glen
To:	rowan_baker@fws.gov; martha_jensen@fws.gov; shirley_burgdorf@fws.gov; kathe.hawe@noaa.gov; jeff.fisher@noaa.gov; tom.hausmann@noaa.gov; scott.anderson@noaa.gov; dave.shaefer@usace.army.mil; lori.c.lull@usace.army.mil; sepaunit@ecy.wa.gov; lorenzp@wsdot.wa.gov; russell.holter@dahp.wa.gov; kunderwood@cityoftacoma.org; kurt@wildfishconservancy.org; sporsea@wsdot.wa.gov; seversd@wsdot.wa.gov; rosendo64@yahoo.com; wsabrahamse@comcast.com; rbridgm@co.pierce.wa.us; dzierow@co.pierce.wa.us; chuck.natsuhara@wa.usda.gov; sonia.mendoza@ecy.wa.gov
Cc:	mark.eberlein@fema.dhs.gov; william.kerschke@fema.dhs.gov; gary.urbas@mil.wa.gov; jonathan.holmes@mil.wa.gov; raymond.berg@dfw.wa.gov; marty.peoples@dfw.wa.gov; anthony.sanich@dfw.wa.gov; Keany, Jim; Carr, Peter J.; Rhodes, Perry
Subject:	Public Notice FEMA - NEPA Draft EA Voights Cr Fish Hatchery, Pierce County, 1817-DR-WA
Date:	Wednesday, March 13, 2013 1:06:57 PM
Attachments:	Public Notice FEMA - NEPA Draft EA Voights Creek Fish Hatchery.pdf

Interested Parties,

As stated in the attached Public Notice, the Department of Homeland Security's Federal Emergency Management Agency (FEMA) has prepared a National Environmental Policy Act (NEPA) Draft Environmental Assessment (EA) for the Voights Creek Fish Hatchery Project.

FEMA is proposing to provide financial assistance to the Washington Department of Fish and Wildlife (WDFW) for a project approximately 2 miles southeast of the town of Orting in unincorporated Pierce County, Washington, on State Route 162. WDFW requested funding assistance for the repair and replacement of an existing but flood-damaged fish hatchery. The existing Voights Creek Fish Hatchery facilities were damaged during storms in January 2009. The event was declared a Presidential disaster on January 30th, 2009 (FEMA-1817-DR-WA).

The Draft EA is available for viewing at the Pierce County Public Library, Orting Branch, 202 Washington Ave S, Orting, WA 98360, the FEMA website: https://www.fema.gov/environmental-planning-and-historic-preservation-program/environmental-documents-public-notices-3, and the WDFW's SEPA Web Site: http://wdfw.wa.gov/licensing/sepa/sepa_comment_docs.html.

Please submit your written comments to FEMA Region X Environmental Officer Mark Eberlein no later than 5 p.m. on **April 16, 2013**.

Comments can be provided by any one of the following three methods:

1. Mail: Mark Eberlein, Regional Environmental Officer, 130 228th Street SW, Bothell, Washington 98021
2. Fax: 425-487-4613
3. E-mail: mark.eberlein@fema.dhs.gov

Thank you for your participation.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, Washington 98115

Refer to
NMFS Tracking No.
2012/04880

March 7, 2013

Mr. Science Kilner
U.S. Department of Homeland Security
FEMA Region X
130228th StreetSW
Bothel, Washington 98021

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for the Washington Department of Fish and Wildlife Voight's Creek Hatchery (Sixth Field HUC 171100140502, Lower Puyallup River; Pierce County).

Dear Mr. Kilner:

The enclosed document contains a biological opinion prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7(a)(2) of the Endangered Species Act (ESA) on the effects of the NEPA proposal to fund the construction of a new Voight's Creek hatchery complex. In this opinion, NMFS concludes that the proposed action is not likely to jeopardize the continued existence of Puget Sound steelhead, Puget Sound Chinook salmon, or result in the destruction or adverse modification of designated critical habitat for Federally listed salmonids.

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

This document also includes the results of our analysis of the action's likely effects on essential fish habitat pursuant to Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and includes 1 conservation recommendation to avoid, minimize, or otherwise offset potential adverse effects on essential fish habitat.

This conservation recommendation is a non-identical to the ESA Terms and Conditions. Section 305(b) (4) (B) of the MSA requires Federal agencies to provide a detailed written response to NMFS within 30 days after receiving these recommendations.

If the response is inconsistent with the essential fish habitat conservation recommendations, the FEMA must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall essential fish habitat program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each essential fish habitat consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the essential fish habitat portion of this consultation, we ask that you clearly identify the number of conservation recommendations accepted.

If you have questions regarding this consultation, please contact Scott E. Anderson of my staff at the Washington State Habitat Office at (360)-753-5828, by email at scott.anderson@noaa.gov, or by mail at the letterhead address.

Sincerely,

William W. Stelle, Jr.
Regional Administrator

Enclosure

cc: Bill Kerschke, FEMA

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington Fish and Wildlife Office
510 Desmond Dr. SE, Suite 102
Lacey, Washington 98503

APR - 2 2013

In Reply Refer To:
01EWFW00-2013-F-0014

Mark Eberlein
Federal Emergency Management Agency
Region X
130 228th Street SW
Bothel, Washington 98021-9796

Dear Mr. Eberlein:

Subject: Voights Creek Fish Hatchery Relocation: FEMA-1817-DR-WA PW 1532

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (Opinion) of the proposed Voights Creek Fish Hatchery (hatchery) relocation project in Pierce County, Washington, and its effects on bull trout (*Salvelinus confluentus*). This consultation is being conducted in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Your October 3, 2012, request for formal consultation was received in our office on October 9, 2012.

A pre-planning project meeting was held on July 17, 2012, at which time preliminary project plans were presented and discussed. Meeting attendees included representatives from the Federal Emergency Management Agency (FEMA), National Marine Fisheries Service, U.S. Fish and Wildlife Service, Washington Department of Fish and Wildlife, and Washington Emergency Management Department. FEMA submitted a request for consultation for the hatchery relocation project for effects to bull trout. Your letter and Biological Assessment were received in our office on October 9, 2012, and revised design plans were received on January 14, 2013.

The FEMA proposes to fund the relocation of the existing hatchery facilities outside of the 100-year floodplain of Voights Creek. The proposed action includes: 1) removal of the existing facility; 2) construction of a new hatchery; 3) installing a new intake and fish ladder; 4) removing the existing intake and two pipes from Coplar Creek, and 5) planting the wetlands and disturbed areas. The proposed action will include the temporary placement of cofferdams within the creek and fish capture and handling.

Based on the information provided in the Biological Assessment and additional information, we concur with the FEMA's determination of "may affect, likely to adversely affect" for bull trout.

The FEMA's determination for bull trout critical habitat was "no effect;" however, under the section 7(a) 2 of the Endangered Species Act, the Service does not consult on "no effect" determinations. The determination that there will be no effect to designated bull trout critical habitat rests with the action agency, and no consultation with the Service is required. Therefore, potential effects to designated bull trout critical habitat are not further addressed in this Opinion.

The enclosed Opinion addresses the adverse effects to bull trout based on the material received and other sources of information. A complete record of this consultation is on file at this office.

If you have any questions about this Opinion or our joint responsibilities under the Endangered Species Act, please contact Shirley Burgdorf at (360) 534-9340 or Martha Jensen at (360) 753-9000, of this office.

Sincerely,

for Ken S. Berg, Manager
Washington Fish and Wildlife Office

Enclosure

Appendix C

EO 11988 Floodplain Management
Eight-Step Decision Making Process

Voights Creek Fish Hatchery Project

EXECUTIVE ORDER 11988 – FLOODPLAIN MANAGEMENT EIGHT-STEP DECISION MAKING PROCESS

Executive Order 11988 (Floodplain Management) requires federal agencies "to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of the floodplain and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." The Federal Emergency Management Agency's (FEMA's) implementing regulations are at 44 CFR Part 9, which includes an eight-step decision making process for compliance with this part.

The process includes a preliminary evaluation of whether a proposed action has the potential to affect floodplains or their occupants, or is subject to potential harm by location in floodplains. The eight-step process applies to the proposed Voights Creek Fish Hatchery Project. Portions of the existing hatchery as well as the proposed new intake facilities are within the 100-year floodplain of Voights Creek, and construction could potentially affect floodplains. The steps in the decision making process is as follows:

STEP 1: DETERMINE IF THE PROPOSED ACTION IS LOCATED IN THE 100-YEAR FLOODPLAIN, WHICH INCLUDES THE COASTAL HIGH HAZARD AREA (500-YEAR FLOODPLAIN FOR CRITICAL ACTIONS).

The existing Voights Creek Fish Hatchery facilities has experienced major flooding from several past presidentially declared disasters (1965, 1996, 1997, 2006, 2009), which have damaged the hatchery facilities over the years. Under the Proposed Action, FEMA would provide funding to the Washington Department of Fish and Wildlife (WDFW) for the Voights Creek Fish Hatchery Project (Project) that includes rebuilding and relocating the hatchery facilities outside the 100-year floodplain of Voights Creek (Zone A)(according to Flood Insurance Rate Map [FIRM] Panel No. 530138 0610C, dated August 19, 1987)(FEMA 1987). As part of the FEMA Flood Map Modernization (Map Mod) program, FEMA has produced revised Preliminary Digital Flood Insurance Rate Maps (DFIRMs) and the corresponding Flood Insurance Study (FIS) for both the incorporated and unincorporated areas of Pierce County. Although Final Determinations have not been completed on the new mapping, Pierce County implements floodplain regulations based on the revised preliminary DFIRMs. The approximate 100-year food elevation is 232 feet (FEMA 2009).

The Project has three major components: construction of the new hatchery complex at a new upland site outside of the 100-year floodplain; construction of a new water intake facility in Voights Creek and the 100-year floodplain; and mitigation, which includes decommissioning of the existing hatchery facilities in Voights Creek and the 100-year floodplain. Relocating the hatchery facilities would avoid repetitive damage from future flood events, establish a more secure and reliable source of water for hatchery operations, and restore floodplain connectivity and function on Voights Creek.

STEP 2: PROVIDE EARLY PUBLIC NOTICE (PRELIMINARY NOTICE).

A disaster cumulative notice was provided to the public after the disaster was declared and was published in papers of record in the declared counties. In addition, FEMA sent a scoping letter to agencies, Tribes, and local interested parties on August 7, 2012. The letter described the proposed project and requested comments on issues and concerns, the range of alternatives, and potential effects regarding the project. Comments were received from Trout Unlimited, the Washington Department of Ecology, and the Cowlitz Indian Tribe. These comments were considered and addressed in the preparation of the Draft EA.

The Draft EA will be released for public review. The Draft EA will be available for public review at a library or other location accessible to the public in the local community. The Public Notice and Draft EA will be posted to the FEMA and WDFW websites, the web addresses of which will be included in the Public Notice.

STEP 3: IDENTIFY AND EVALUATE PRACTICABLE ALTERNATIVES TO LOCATING IN THE FLOODPLAIN (INCLUDING ALTERNATIVE SITES, ACTIONS, AND THE "NO ACTION" OPTION). IF A PRACTICABLE ALTERNATIVE EXISTS OUTSIDE THE FLOODPLAIN, FEMA MUST LOCATE THE ACTION AT THE ALTERNATIVE SITE.

Several alternatives were reviewed but eliminated from further consideration in the EA because they did not meet the project purpose and need, they were not practical, or they were not suitable for FEMA funding under its Public Assistance (PA) program. Alternatives are described in Chapter 3.1, *Alternatives Considered But Not Carried Forward* of the EA. The alternatives include:

- **Eliminated Alternative 1** - Construct an intake structure on the new stream channel. The existing hatchery would remain in the 100-year floodplain.
- **Eliminated Alternative 2** - Construct an intake upstream of the avulsion. The existing hatchery would remain in the 100-year floodplain.
- **Eliminated Alternative 3** - Construct an infiltration gallery. The existing hatchery would remain in the 100-year floodplain.

Only the Proposed Action would locate facilities outside of the floodplain.

STEP 4: IDENTIFY THE POTENTIAL DIRECT OR INDIRECT IMPACTS ASSOCIATED WITH THE OCCUPANCY OR MODIFICATION OF FLOODPLAINS AND THE POTENTIAL DIRECT AND INDIRECT SUPPORT OF FLOODPLAIN DEVELOPMENT THAT COULD RESULT FROM THE PROPOSED ACTION.

Ground-disturbing activities for the new intake facilities on Voights Creek and the 100-year floodplain include the intake structure itself, intake pumps, retaining walls, concrete slab, pneumatic weir, fish ladder/fishway, and bypass. The proposed intake facilities would occupy 1,550 square feet of Voights Creek below the ordinary high water mark (OHWM) and 7,750 square feet above the OHWM in the 100-year floodplain. These new structures would have a minor effect on floodplain function by recirculation and water withdrawal for operation of the hatchery.

The new water intake includes a concrete structure with perforated metal screens on the left (south) bank of the creek and is designed to meet National Marine Fisheries Service (NMFS) criteria for approach velocity and would have a negligible effect on floodplain function. The proposed fish ladder/fishway is a below-grade concrete channel approximately 5 feet wide by 6 feet deep and 800 feet in length and would have a negligible effect on floodplain function. A steel plate weir crest gate is proposed that could be pneumatically raised to provide sufficient water depth against the screens. At high flows and during floods, the weir can be lowered to allow gravel and sediment to pass downstream and not impede flood flows.

Structures associated with the new intake facility and vital to the operation of the pump intake but are not functionally dependent on Voights Creek and the 100-year floodplain include the mechanical/electrical building (225 square feet), a sound insulated standby generator (130 square feet), and an aboveground double-containment diesel storage tank (135 square feet). These small structures would be sited as far from Voights Creek as practical and above the 100-year flood elevation (pers. comm., Peoples 2013). These structures would have a minor indirect impact on the floodplain.

Short-term, construction-related impacts on the floodplain would be avoided by implementing best management practices (BMPs) (described below under Step 5). Once the new hatchery is operational, WDFW would begin plans for decommissioning the existing hatchery, which includes securing the funds for demolition of structures and pavement and restoration seeding and planting. The plan includes demolition of the fish rearing raceways and asphalt ponds, hatchery operations buildings, and a garage. Prior to any on-site demolition and grading, clearing limits would be flagged, and contractors would be required to have all erosion and sedimentation control plans in place and functioning in compliance with the approved erosion and sedimentation control plan. Excavators and/or bulldozers would be used to demolish structures and buildings. Construction and demolition debris would be refurbished, reused, or recycled. All materials that could not be salvaged would be appropriately disposed of at an authorized site in accordance with laws and regulation. Following the demolition, WDFW would grade and restore the site. All decommissioning activities would take place in accordance with applicable laws and regulations. The proposed project also includes mitigation that would benefit the natural function of the floodplain, as described in Section 3.3.2, *Mitigation* of the Draft EA.

- **Mitigation Site 1, Wetland and Buffer Enhancement:** WDFW is proposing to enhance 18,000 square feet of wetland and buffer that is currently primarily nonnative grassland and plant with native trees and shrubs.

- **Mitigation Site 2, Coplar Creek Restoration:** Approximately 650 square feet of Coplar Creek will be restored. Approximately 1,300 square feet of riparian areas will be planted.

- **Mitigation Site 3, Demolition of the Intake 2 Facilities and Restoration of Voights Creek:** WDFW will remove armoring and Intake #2 and replace them with large wood structures and breach the bank to create a new entrance to the adult ponds, which will be converted to off-channel habitat. Approximately 4,500 square feet of Voights Creek will be restored. The large wood structures will occupy 4,000 square feet. Approximately 20,000 square feet of riparian areas will be planted.

- **Mitigation Site 4, Voights Creek Off-Channel Habitat Enhancement:** WDFW will remove the outfall and spawning structure at the adult pond, and the riprap just upstream of the adult pond. The existing isolated adult pond that the existing hatchery uses to collect broodstock is proposed to be converted to off-channel habitat.

As part of Mitigation Site 3, an entrance to the pond from Voights Creek will be breached. The slopes of the old earthen adult pond will be seeded and planted to facilitate the enhancement of this newly created off-channel habitat. This mitigation will create off-channel rearing and overwintering habitat (8,500 square feet) and establish access from Voights Creek.

There would be a net beneficial effect from the proposed relocation of the hatchery outside of the floodplain. The project would also increase flood storage and detention for the Carbon River basin, which has been prone to flooding.

By relocating the hatchery outside of the floodplain, the facilities, including an employee residence on site, would not be affected by flood water. In a catastrophic flood, sediment and other debris could clog the intake facilities, but this is less likely to occur due to the installation of the pneumatic crest gate that can be lowered to allow gravel and sediment to pass downstream and not impede flood flows.

STEP 5: MINIMIZE THE POTENTIAL ADVERSE IMPACTS AND SUPPORT TO OR WITHIN FLOODPLAINS TO BE IDENTIFIED UNDER STEP 4, RESTORE AND PRESERVE THE NATURAL AND BENEFICIAL VALUES SERVED BY FLOODPLAINS.

As described in Section 2.0, *Purpose and Need* of the Draft EA, the Proposed Action has been designed to minimize threats to life and property and preserve natural and beneficial floodplain values through the following objectives:

- Provide safe, secure, and permanent public and employee access to the Voights Creek Fish Hatchery.
- Minimize construction-related environmental impacts.
- Minimize impacts on Voights and Coplar creeks.
- Minimize the potential for damage to the hatchery facilities during future storms.
- Restore and preserve the natural and beneficial values of the floodplain.

As described in Section 3.3.4, *Impact Avoidance and Minimization Measures* of the Draft EA, the project includes a list of environmental commitments that address erosion and sediment control, spill prevention, stormwater pollution prevention, work below the OHWM, temporary access, fish handling and exclusion, and project footprint minimization.

STEP 6 REEVALUATE THE PROPOSED ACTION TO DETERMINE FIRST, IF IT IS STILL PRACTICABLE IN LIGHT OF ITS EXPOSURE TO FLOOD HAZARDS, THE EXTENT TO WHICH IT WILL AGGRAVATE THE HAZARDS TO OTHERS, AND ITS POTENTIAL TO DISRUPT FLOODPLAIN VALUES AND SECOND, IF ALTERNATIVES PRELIMINARILY REJECTED AT STEP 3 ARE PRACTICABLE IN LIGHT OF THE INFORMATION GAINED IN STEPS 4 AND 5. FEMA SHALL NOT ACT IN A FLOODPLAIN UNLESS IT IS THE ONLY PRACTICABLE LOCATION.

The proposed intake facilities are location dependent and require a permanent source of water, and construction is not possible outside of the floodplain. The intake facilities are functionally dependant on water and fish access from Voights Creek and designed to minimize impacts on Voights Creek and the 100-year floodplain. Construction in the floodplain would occur between June 15 and September 30, typically the driest time of year, and would minimize actual work in the wet and reduce the potential for adverse effect on floodplains. The project would not expose any segment of the population to flood hazards, and there would be a net beneficial effect from the proposed relocation of the hatchery outside of the floodplain. The project would also increase flood storage and detention for the Carbon River basin, which has been prone to flooding. The Proposed Action would be re-evaluated following comments on the Public Draft EA and prior to the Final EA.

STEP 7: PREPARE AND PROVIDE THE PUBLIC WITH A FINDING AND PUBLIC EXPLANATION OF ANY FINAL DECISION THAT THE FLOODPLAIN IS THE ONLY PRACTICABLE ALTERNATIVE.

The Final EA, and decision document (Finding of No Significant Impact [FONSI] or Notice of Intent [NOI]) will provide the public with the agency's final decision regarding the project.

STEP 8: REVIEW THE IMPLEMENTATION AND POST -IMPLEMENTATION PHASES OF THE PROPOSED ACTION TO ENSURE THAT THE REQUIREMENTS STATED IN SECTION 9.11 ARE FULLY IMPLEMENTED. OVERSIGHT RESPONSIBILITY SHALL BE INTEGRATED INTO EXISTING PROCESSES.

The Proposed Action will be constructed in accordance with applicable floodplain regulations. Oversight responsibility will be built into the implementation and post-implementation phases.

REFERENCES

FEMA (Federal Emergency Management Agency). 1987. Flood Insurance Rate Map (FIRM), Pierce County, Washington (unincorporated areas). Panel 610 of 1375. Community Panel Number 530138 0610C. Effective Date August 19, 1987.

FEMA. 2009. Preliminary Digital Flood Insurance Rate Maps and Flood Insurance Study for Pierce County, November 13, 2009.

Peoples, M. 2013. WDFW, Fish and Wildlife Biologist. Correspondence with B. Kerschke, FEMA, Bothell, WA, regarding intake facilities and floodplain issues. March 1, 2013.