Supplement Analysis
for the
Columbia Estuary Ecosystem Restoration Program
(DOE/EA-2006/SA-14)

Hogan Ranch Restoration Project (update to SA-14 dated July 31, 2025)
BPA project number 2010-004-00
BPA contract number 92647

Bonneville Power Administration
Department of Energy

Introduction

Bonneville Power Administration (BPA) and the U.S. Army Corps of Engineers (Corps) are partners in the Columbia Estuary Ecosystem Restoration Program (CEERP or estuary restoration program), which is a collaboration intended to evaluate, protect, monitor, and restore fish and wildlife habitat in the Columbia River estuary.

In July 2016, BPA and the Corps completed the Columbia Estuary Ecosystem Restoration Program Environmental Assessment (DOE/EA-2006) (Programmatic Estuary EA). The Programmatic Estuary EA streamlines the environmental review of routine actions with well understood and predictable environmental impacts common to restoration projects in the Columbia River estuary. On March 29, 2021, BPA prepared a Supplement Analysis (SA; DOE/EA-2006/SA-11) to determine whether there had been substantial changes to the estuary restoration program or significant new circumstances or information relevant to environmental concerns since completion of the Final Programmatic Estuary EA. BPA found that there were no substantial changes in the proposed action and no significant new circumstances or information relevant to environmental concerns bearing on the proposed action or its impacts within the meaning of DOE National Environmental Policy Act (NEPA) Implementing Procedures (dated June 30, 2025).

The purpose of this SA is to provide site-specific information about an individual restoration project proposed under the estuary restoration program. Consistent with the Programmatic Estuary EA, this SA analyzes the proposed Hogan Ranch Restoration Project (project), which would restore tidal wetland habitat and floodplain connectivity along the Multnomah Channel, 4 miles downstream from the northern confluence with the Columbia River, in Columbia County, Oregon.

This SA analyzes the site-specific impacts of the project to determine if the project is within the scope of the analysis considered in the Programmatic Estuary EA. This SA also evaluates whether the proposed project presents substantial new circumstances or information relevant to environmental impacts that were not addressed in the Programmatic Estuary EA. The findings of this SA determine whether additional National Environmental Policy Act (NEPA) analysis is needed under 10 C.F.R. § 1021 *et seq*. This SA has been updated to analyze a proposal for fencing and cultural resource site protection measures, after sensitive cultural resources were identified during construction. The SA has also been updated with additional National Historic Preservation Act (NHPA) and Endangered Species Act (ESA) consultation information related to the changes.

Proposed Activities

BPA proposes to fund the Columbia River Estuary Study Taskforce (CREST) to undertake the Hogan Ranch Restoration Project in Columbia County, Oregon. The project would occur on the Hogan Ranch, which is privately owned. Most of the project actions, except a subset of the fill areas, would occur on a Natural Resource Conservation Service (NRCS) Wetlands Reserve Program conservation easement (WRE); 172 acres of the 271-acre parcel were placed in this WRE in 2004. The center of the site is located at 45.808, -122.830, and it is bounded by Multnomah Channel to the east, state-owned property to the north, and private property to the south and west.

The site is mostly comprised of wetlands; a tidal freshwater system connects to Scappoose Bay through Scappoose Creek, which splits into several smaller channels, including Crooked Creek and Teal Creek (Figure 1). Crooked Creek flows into a wetland, called West Pond, and later joins Teal Creek which flows west of the site before continuing to South Pond. There is a small, incised channel with a failing earthen berm flowing from West Pond to another wetland, Middle Pond. South Pond is largely hydrologically isolated from Middle Pond, as well as House Pond. House Pond and Middle Pond are separated by an earthen berm and are managed in order to pond seasonally. All wetland areas beside Teal Creek and Crooked Creek experience twice daily tidal inundation and drainage.

Increased flows from the Multnomah Channel during the spring snowmelt can overtop the levee and flood the project area. Raised levees and culverts, currently plugged with reed canary grass and sediment, impair connectivity between on-site wetlands, Scappoose Bay, and Multnomah Channel. This prevents out-migrating juvenile salmon from accessing this critical habitat for much of the year and may lead to fish stranding as water levels recede.

Land conversion to pasture, hydrologic modification, and invasive species establishment have homogenized the site's vegetation and reduced overall habitat quality for juvenile salmonids. Native plant communities present include Oregon ash (*Fraxinus latifolia*) riparian forests, Pacific willow (*Salix lucida*) shrublands, and emergent wetlands. However, all are increasingly less abundant due to competition pressure with invasive species such as reed canary grass (*Phalaris arundinacea*), which is pervasive in all areas of the site and often grows in large monocultures. There is sparse woody debris within channels at Hogan Ranch, which diminishes habitat complexity benefits for salmon.

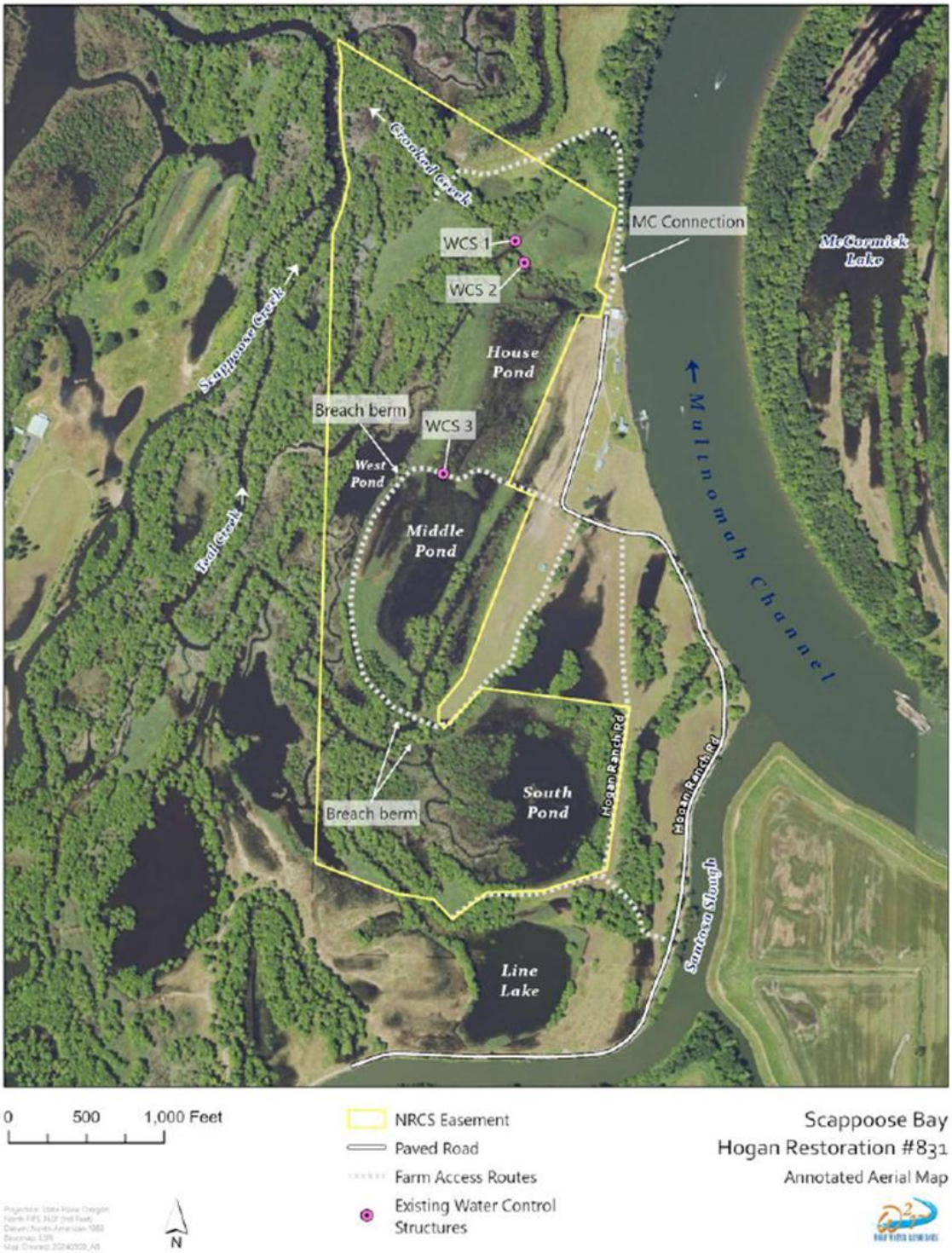


Figure 1. Hogan Ranch Restoration Project Area

Improving floodplain connectivity and enhancing the naturally functioning dynamic wetland system would help to address key limiting factors for habitat needs of juvenile salmonids, as well as other fish and wildlife species in the region. The overall goal of the project is to reestablish juvenile fish access, improve wetland function and habitat quality, and increase complexity of aquatic habitat in the site.

Funding this project would fulfill commitments under the 2020 National Marine Fisheries Service (NMFS) Columbia River System Biological Opinion (2020 NMFS CRS BiOp). These proposed activities would also support conservation of Endangered Species Act (ESA)-listed species considered in the 2020 ESA consultation with the United States Fish and Wildlife Service on the operations and maintenance of the Columbia River System. These actions also support ongoing efforts to mitigate for effects of the Federal Columbia River Power System on fish and wildlife in the mainstem Columbia River and its tributaries pursuant to the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (16 U.S.C. 839 *et seq*.)

The proposed actions would improve habitat for fish and wildlife, including ESA-listed Columbia River chum salmon (*Oncorhynchus keta*), Lower Columbia River coho salmon (*O. kisutch*), bull trout (*Salvelinus confluentus*), and three Evolutionarily Significant Units of Chinook salmon (*O. tshawytscha*): Upper Columbia River (spring), Upper Willamette River, and Lower Columbia River. The proposed actions are consistent with those considered in the Programmatic Estuary EA, including the following Columbia River Estuary (CRE) Module management actions, developed by NMFS to aid in the recovery of salmon and steelhead throughout the region listed below.

- CRE-1: Restore and maintain ecological benefits in riparian areas and manage vegetation on dikes and levees.
- CRE-9: Restore degraded off-channel habitats with high intrinsic potential for increasing habitat quality.
- CRE-10: Improve access to off-channel habitats by breaching, lowering the elevation, or relocating dikes and levees to restore tidal marsh and shallow-water habitats and tidal channels.
- CRE-15: Implement projects to reduce the introduction and spread of invasive plants.

The Hogan Ranch Restoration Project consists of the following restoration actions (Figure 2):

- Breaching seven areas consisting of levees, embankments, and/or berms, and the removal of three associated culverts;
- Decommissioning one rock ford and constructing one new rock ford;
- Installing three bridges;
- Grading of channel and off-channel habitats, swales, and the floodplain across 16 acres;
- Installing habitat features, including one continuous log complex and 70 habitat logs throughout the site;
- Planting native vegetation;
- Repairing damaged fencing and adding new fencing to exclude cattle from WRE wetland habitats; and
- Cultural resource site protection measures.

Most of the proposed work would occur within waters and wetlands; only four upland pasture fill sites would be used. Construction would occur during summer and fall, within the approved in-water work window.

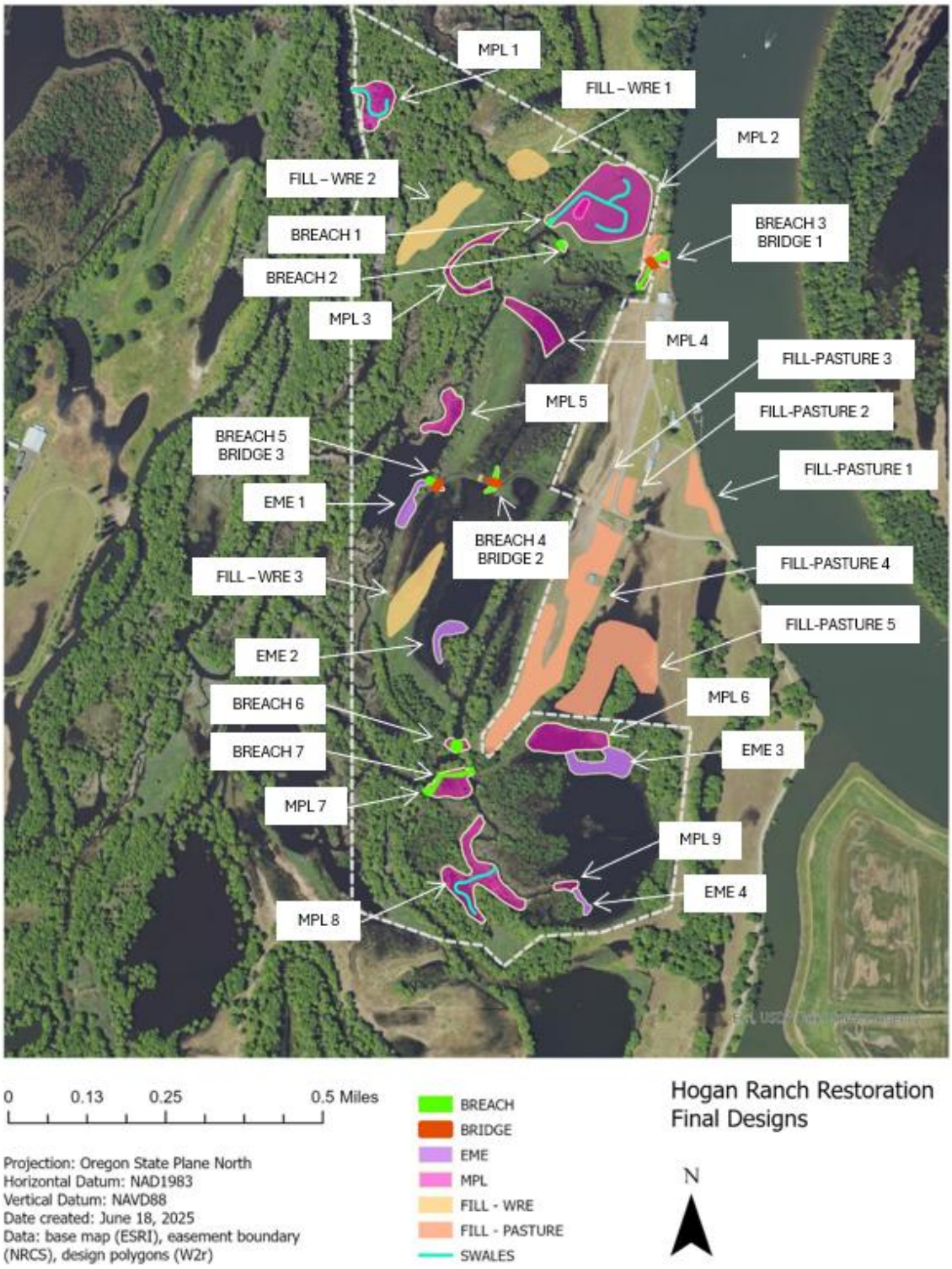


Figure 2. Hogan Ranch Restoration Project Overview[1]

[1] EME = Emergent Marsh Enhancement area; MPL = Marshplain Lowering area; WRE = Wetland Reserve Easement area. White dotted line represents WRE boundary.

Barrier Removal and Bridge/Ford Work

The proposed barrier removals are necessary to enhance connectivity between existing depressional wetlands for better fish access during high flows. The risk of fish stranding in these wetlands would be minimized by grading the breaches to match the channel/swale elevation on either side of the embankment. Breach alignments and bottom widths were selected to minimize the amount of excavation necessary as well as disturbance to existing trees. Culverts would be removed from three of the breach locations.

Additionally, bridges would be installed over three of the breaches to maintain access. Each bridge would have a wooden bridge deck and would require precast concrete ecoblocks for support abutments, with two feet of subgrade rock underneath and the addition of rock to mitigate potential scour. Haul trucks would transport fine sediment and embankment materials from the breaches to a designated fill area, and culverts would be hauled off-site for disposal. A rock ford at the northern end of the project area would also be removed after being used during the construction process.

Specifically, the following breach, culvert removal, bridge and ford work would occur:

Multnomah Channel levee breach & bridge (Breach 3 & Bridge 1; Figure 2)

This work area is located along Hogan Ranch Road. The levee breach and excavation would generate about 1,320 cubic yards (CY) of material. A channel-spanning 65-foot-long bridge would be installed to maintain vehicle access. The channel underneath would be 15 feet wide, with 2:1 side slopes and an 18-inch-thick layer of round river rock installed as scour protection, buried beneath 6 inches of native soil. The road approach would be realigned to allow bridge placement approximately 100 feet upstream from Multnomah Channel. The roadway approaches would tie into the existing levee elevation and the lowest portion of the bridge would be at 18.5 feet to allow more floodwater capacity to pass underneath the bridge opening during high flows.

Crooked Creek culvert breaches (Breach 1 & Breach 2; Figure 2)

Two (24-inch and 36-inch-diameter) corrugated metal culverts with steel trash racks plugged with sediment and debris are disconnecting Crooked Creek from flowing into House Pond. The culverts would be removed using a temporary access road on an existing raised levee dominated by non-native species. The temporary access road would connect Hogan Ranch Road to the north of the Multnomah Channel breach (Breach 3). Each culvert removal would be excavated down to elevation 8.0 feet to tie into existing channel excavations, and in total would generate 500 CY of excavated material.

House Pond-Middle Pond culvert breach & bridge (Breach 4 & Bridge 2; Figure 2)

The project would remove a 12-inch-diameter culvert and surrounding embankment material that are separating House Pond and Middle Pond, and the new breach would be excavated to match the existing channel grade of 8.0 feet. A 45-foot-long bridge for vehicle access would be constructed using similar methods as Bridge 1, to span the new 14-foot-wide channel.

Middle Pond-West Pond breach & bridge (Breach 5 & Bridge 3; Figure 2)

Rock and soil that restricts flows between West Pond and Middle Pond would be removed and excavated to tie into the existing channel elevation of 8.0 feet. In a similar manner to Bridge 2, a 45-foot-long and 14-foot-wide bridge would be constructed.

Middle Pond-South Pond embankment breach & rock ford (Breach 6; Figure 2)

This embankment breach and 12-foot-wide rock ford excavation would remove about 860 CY of material. A new rock ford of 6-inch streambed cobble would be constructed over subgrade material, using some of the repurposed material from the removed northern ford (approximately 50 CY), with a final elevation of 8.0 feet.

South Pond berm removal (Breach 7; Figure 2)

A short, temporary access road would be built to transport equipment and materials to and from this area. This raised berm removal at the confluence of Teal Creek, Middle Pond, and South Pond would be lowered to an elevation of 10.0 feet, generating about 60 CY of embankment material.

Marshplain Lowering and Emergent Marsh Areas
Marshplain lowering (MPL) to enhance areas of the floodplain by increasing inundation frequency would occur at nine depressional reed canary grass-dominated wetland areas totaling approximately 14 acres. Excavators and haul trucks would remove approximately 49,000 CY of reed canary grass and soils in order to lower each area, with additional details below:

- **MPL 1 and 2** - Swale graded to 8.0 feet elevation with the surrounding marsh plain at 8.5 feet
- **MPL 3, 5, 7, and 9** - Lower to 8.0 feet elevation
- **MPL 4** - Create a 8.0-foot elevation swale connecting Crooked Creek with House Pond
- **MPL 6** - Lower to 8.5 feet elevation
- **MPL 8** - Create a 7.5 foot elevation low swale

Emergent marsh enhancement (EME) areas, targeting 7.0 foot elevation, are slightly lower than MPL areas in order to provide more favorable conditions for wetland plants during hot, dry periods. These areas would compensate for the loss of seasonal inundation due to increased hydraulic connectivity provided by other habitat actions.

Log mats would be used for excavation in the MPL and EME areas, and for woody habitat structure placement (28 CY); these would be removed during or by the end of the construction project.

Soil Placement
Fill material would be generated from embankment breaches; marshplain lowering; removal of three culverts and one rock ford; and materials associated with bridge construction. Non-native material would be hauled off-site for disposal. Native soil would be placed in eight areas throughout the project site. A total of about 10,200 CY of material would be placed in three designated wetland areas within the WRE, totaling about 4.2 acres, with elevations not exceeding 16.5 feet. Fill pasture areas are located outside of the WRE boundary and have been selected and designed to avoid wetland conversion. A total of 22,500 CY of material would be placed in four upland areas totaling 6.6 acres. The remaining 17,710 CY would be placed in a grazed wetland area that is 4 acres in size. Fill would be graded so that free drainage is maintained on the landscape, and side slopes would be gradual for both stability and to allow continued grazing in these areas. During construction, pastures which are not easily fenced off would be temporarily fenced using electric cattle exclusion fencing.

Installation of habitat features
To enhance habitat complexity, type 1 (continuous log complex) and type 2 (suspended channel spanning structure) wood habitat structures would be installed by using excavators after an area has been graded. A total of at least 70 habitat logs would be installed during dry conditions on the fringes of channels and marsh plain lowering areas. A majority of the logs would be imported from off-site, with a smaller portion salvaged from elsewhere on the site. One continuous log complex, comprised of up to 30 large logs and slash, would be installed in the new Multnomah Channel connection, with up to 300 live native stakes. Initially, project plans called for the logs to be keyed into the ground and pinned in place with pier logs for stability, where feasible. After identifying soft soil, an additional installation method that included excavating small, deep trenches approximately 6 feet in length, 2.5 feet in width, and over 10 feet in depth was identified. Any logs not used in the log complex would be installed elsewhere as habitat logs.

Installation of Fencing
The project would include construction of a new section of fence across a newly-constructed Multnomah Channel (channel) connection. This fencing would exclude cattle from the NRCS conservation easement when flows are too low during the grazing season each year. The new section of fence would be approximately 50 feet long and would follow the same alignment as the existing fence line. A total of 6 existing fence posts would be removed and replaced within the same footprint and 6 new posts would be installed to support a removable fence across the channel. Posts would consist of 7-foot-long, 5-inch tapered metal posts. Each post would be driven to a depth of about 3 feet below the ground surface via a vibratory fence pounder, which would not require any excavation. Fencing would consist of 4 strands of smooth wire attached to the metal posts, with the top wire a maximum of 42 inches above the ground, and the bottom wire 18 inches above ground. A removable metal gate, also with a maximum 42-inch height and 18-inch opening at the bottom, would also be installed across the channel.

Cultural Resource Site Protection Measures
During final phases of project construction, an exposed cultural feature, part of the previously identified eligible archaeological site, was identified. To protect the feature, this portion of the site would be capped to prevent erosion and future damage. The exposed cultural feature, including a buffer for a total area of approximately 10 feet by 20 feet, would be covered with geogrid materials and geocell. The 6-inch-thick geocell would be staked using 1-inch-diameter or less rebar or similar staking, filled with soil, and compacted. Once the soil is placed, the area would be seeded with annual ryegrass to ensure quick germination and soil stabilization. This area is outside of the conservation easement and will be grazed when cattle are onsite each spring and summer.

Replanting of Native Plants
All of the proposed work areas would be replanted with native plants suited to existing physical and biological conditions, as well as current and future land use. Seeding would occur immediately after construction while replanting of plugs, shrubs, and trees would likely occur during the wintertime.

Upland areas would be replanted with trees, and wetland enhancement areas would be replanted with scrub-shrub species. All MPL and EME areas would also be reseeded with a native wetland herbaceous seed mix. Pasture areas would be reseeded with a fast-growing herbaceous mix.

Low marsh areas that are primarily composed of herbaceous plants would likely revegetate within a year due to the existing seed bank and replanting efforts. Woody species are slower to grow and establish; replanting areas would likely reach approximately 60 percent native cover within 3 to 5 years.

Access Roads, Staging Areas, and Equipment
Much of the site is accessible via existing gravel roads, dirt roads, and grassy clearings. However, several temporary access roads, totaling approximately 3.5 acres, would be established to access enhancement areas. While most of the temporary access roads would traverse disturbed soil that consists primarily of invasive reed canary grass, some tree clearing, at least ten trees, would be necessary. Trees would be cut using chainsaws and stumps would be left in place. Cut trees would be used for in-stream wood habitat features. Post-construction, access roads would be revegetated with a planting mix suited to the use and existing conditions of each area.

Equipment along with logs and other temporary construction materials would be staged within five designated areas totaling approximately four acres, and all but one would be accessible by existing roads. Though all staging areas would be within wetlands and below the 100-year flood level, each location would be strategically located in areas already impacted and/or near enhancement areas to minimize impacts to healthy wetlands. In addition, spill prevention measures, including full containment, would be in place. Equipment needed for the project would include low ground pressure excavators, off road haul trucks, and a crane, scraper, and bulldozer.

Best Management Practices
Prior to earthwork activities, erosion control best management practices (BMPs) would be implemented throughout the project areas. The project would follow all conservation measures for equipment use and refueling identified in BPA's Fish and Wildlife Habitat Improvement Program (HIP) biological opinions. The BMPs consist of temporary bulk bag cofferdams and either turbidity curtains or silt fences; and straw wattle at the downslope end of all staging areas; fill placement areas; temporary access roads; and existing dirt roads. During typical summertime conditions, interior wetlands at Hogan Ranch hold little water in early summer and are completely dry by late summer. Temporary bulk bag cofferdams would be installed at the downstream and upstream ends of each work area to isolate construction activities. Spill prevention measures for staging areas would include full containment of potential contaminants; daily vehicle inspections for leaks; regular steam cleaning of equipment; absorbent mats for all stationary power equipment; biodegradable hydraulic fluid; and an adequate on-site supply of materials to contain spills.

Prior to any work beginning, CREST would work with Oregon Department of Fish and Wildlife to capture and relocate any amphibians that are within the work area to areas outside the project footprint. Prior to establishing the temporary cofferdams for the new bridges and culvert removal, CREST would perform fish salvage at the site. Due to existing low water levels and high stream temperatures, it is unlikely that any salmonids would be in the system from July through October.

Adaptive Management Actions
Annual monitoring would occur for up to five years after project completion to ensure goals and objectives of the project are met. Metrics to be monitored include retention of wood habitat structure; depth and duration of wetland inundation (as well as extent of inundation during high flows); vegetation changes in wetlands; sediment movement; and the potential development of fish passage barriers at the channel connections. Vegetation surveys would be conducted at House and Middle ponds, as well as at selected MPL and EME areas that are representative of the site. If required vegetation metrics are not achieved, additional planting activities would occur. Likewise, if the required conditions for adequate fish movement are not met, CREST would conduct an evaluation and develop solution strategies.

Environmental Effects

The implementation of this project requires the use of construction crews and heavy equipment for removal of culverts, earthen berms, and a levee; creating swales; grading existing channels and the floodplain; installing wood structures; constructing bridges; and installing other project elements. Actions would disturb and displace soil, damage vegetation, create noise and vehicle emissions, and temporarily increase vehicle traffic and human activity in the project area. The typical environmental impacts associated with the estuary restoration program are described in Chapter 3 of the Programmatic Estuary EA and summarized in this document. Below is a description of the potential site-specific impacts of the project and an assessment of whether effects would be consistent with the impacts described in the Programmatic Estuary EA.

1. **Fish**

Impacts to fish discussed in the Programmatic Estuary EA, Section 3.2.4, include: potential temporary elevated turbidity and injury in the short term; and increased food web support; conversion of vegetation to more natural conditions; restored and improved hydrology; and enhanced water quality in the long-term.

Work area isolation would be implemented to isolate in-water construction sites from the surrounding areas. Fish salvage would be conducted in isolated areas, and injury or mortality could occur from these activities. However, due to existing low water levels, there is a low likelihood of salmonid or other fish presence during project implementation. After construction is complete, when rainfall or surface flow

first enters onto newly disturbed soil in the project area, turbidity in Multnomah Channel and interior waterways and wetlands could be elevated temporarily. However, injury or mortality to fish is unlikely to occur due to the limited duration and spatial extent of the impact, and the implementation of the erosion and sediment control measures used to limit sediment discharges, and the high dilution levels that would be provided by the Multnomah Channel.

Beneficial effects would far outweigh the temporary negative impacts to fish in the area. The beneficial effects would include increased access to food, resting, and growth areas in interior waters and the associated floodplain; improved fish passage through barrier removals; cattle exclusion from wetland habitats; and improved water temperature conditions for salmon migrating during the late spring and early summer, as well as for other fish species. Under current conditions, water temperatures at the site regularly exceed 64 degrees Fahrenheit (17.5 degrees Celsius) during the spring and remain consistently above healthy thresholds for salmon during the summer and early fall. Improved temperature regulation would be supported through plantings that would shade channels and fringes of wetlands, as well as the embankment breaches and channel reconnections, which would allow more tidal water to flow and mix.

ESA-listed fish with the potential to occur in proximity to the project area include coho, Chinook, steelhead, and bull trout. Scappoose Creek has designated critical habitat for Lower Columbia River coho and Chinook salmon, both listed as Threatened under the ESA. Multnomah Channel also has designated critical habitat for Lower Columbia River coho and Chinook, as well as steelhead, also ESA-listed as Threatened. The project area is considered Essential Fish Habitat (EFH) under the Magnuson-Stevens Act because it provides habitat for coho and Chinook salmon. Columbia and Willamette River salmon stocks both utilize floodplain habitat in this region. Juvenile salmon are known to inhabit nearby habitat including Sauvie Island and the adjacent Columbia River mainstem; juvenile Chinook and coho have recently been recorded within Teal Creek. The lower Columbia River is listed as designated critical habitat for bull trout and provides essential foraging, migratory, and overwintering habitat for surviving tributary populations of bull trout, despite depressed bull trout populations within the Coastal Recovery Unit. There is one known state-listed species in the vicinity of the project area, Pacific lamprey (*Entosphenus tridentatus*), which is state sensitive.

BPA completed an ESA Section 7 consultation on the effects of the project's actions on ESA-listed species in its Fish and Wildlife HIP programmatic consultations, which found that such actions would likely adversely affect these species and their designated critical habitat in the short term but would not be likely to result in jeopardy to the species or result in destruction or adverse modification of their designated critical habitat. Estuary restoration program projects would benefit bull trout by increasing the function of estuarine and nearshore marine habitats, specifically through reconnecting floodplain and side channel habitat to expand shallow water habitat within the estuary. Impacts to lamprey would be minimized through HIP conservation measures, such as BMPs for dewatering and salvage.

When taking into account the project BMPs to limit the temporary adverse impacts, on a whole the action is expected to have moderate and ultimately beneficial effects to fish, which is consistent with the analysis in the Programmatic Estuary EA, Section 3.2.4.

2. **Hydrology and Hydraulics**

Hydrology and hydraulic impacts discussed in the Programmatic Estuary EA, Section 3.3.3 include: erosion, scour, and in-channel deposition; increased frequency and duration of inundation; localized changes in velocity, flow, and circulatory patterns; reconnection of channel habitats; and increased instream flows.

Barrier removals have the potential to pose the risk of increased erosion, scour, and changes to velocity, flow, and circulatory patterns. To minimize this risk, wood habitat structures would be placed throughout to reduce flow and retain water in the wetlands. For barrier removals, hydraulic conditions

under the bridges would match those upstream and downstream for average channel forming conditions. Additionally, scour protection materials would be used to protect the bridge abutments. A hydraulic modeling assessment was conducted for the project to examine the hydraulic behavior of the site pre- and post-project to verify that project objectives and constraints would be met. The project intends to restore floodplain connectivity, without any unforeseen flooding impacts; the hydraulic modeling showed that the floodplain restoration actions carried out by the proposed project would not cause a rise in the 100-year flood elevation in the project area. Furthermore, any changes to elevations to support restoration that would occur would not impact upstream or downstream properties. The analysis shows that the flood carrying capacity in the project vicinity would be maintained, the inundation area would not increase, and there would be no measurable increase in base flood levels.

The removal of three culverts and seven breaches throughout the site would permanently alter the hydrology between Scappoose Creek, Multnomah Channel, and Hogan Ranch wetlands. Two of the culvert removals would result in a hydrological connection between Crooked Creek, House Pond, and Middle Pond during a portion of the year. Designed as a high flow connection, the Multnomah Channel breach would enable an annual connection for just over one month out of the year. Models indicate that improved hydrologic connection across Hogan Ranch would slightly increase the wetted area during high and low tide. With greater floodplain connectivity at the site, it is anticipated that wetland hydrology would improve which could expand the wetland area.

These impacts that have been outlined are moderate after the implementation of project BMPs, which is consistent with the analysis in the Programmatic Estuary EA, Section 3.3.3, which concluded moderate impacts to hydrology and hydraulics.

3. **Water Quality**

The water quality impacts discussed in the Programmatic Estuary EA, Section 3.4.3 include: construction-related turbidity and erosion; increased composition of native vegetation; increased quantity of tidal marsh habitat; increased flows, tidal exchange, and flushing; increased channel complexity and alignment; and decreased composition, distribution, and quantity of invasive species.

Over the long-term, water quality in the project vicinity is anticipated to improve. Reconnecting the floodplain would increase hydraulic mixing of stream and tidal flows at the site. This would improve water quality by providing cooler conditions for all aquatic organisms and increasing the exchange of water, sediment, and nutrients between the floodplain, Multnomah Channel, and the mainstem river.

In the short term, sediment from ground-disturbing activities would be contained by BMPs and would be conducted in the dry. During re-watering after construction, slight, localized increases in suspended sediment could occur in the Multnomah Channel and interior wetlands and waterways, but these impacts would be short in duration, diluted by high flows, and minimized by following erosion and sediment control practices.

When considering the project BMPs, the impacts associated with the project are moderate and ultimately beneficial. This is consistent with those described in the Programmatic Estuary EA, Section 3.4.3, which concludes that effects to water quality would be low to moderate and mitigated by erosion and sediment control practices.

4. **Geomorphology, Soils, and Topography**

The impacts to geomorphology, soils and topography discussed in the Programmatic Estuary EA, Section 3.5.3 include: temporary erosion and sedimentation; altered channel form, structure, and density; localized changes in velocity, flow, and circulatory patterns; restored sediment transport; and restored spatial and temporal connectivity of streams and wetlands.

Impacts to soils from the project would result from temporary construction activities, including vegetation clearing, grading, and compaction of soils by heavy equipment during construction. Short-term construction-related impacts would include a temporary increase in soil erosion or temporarily elevated suspended sediments in interior waterways and wetlands, as well as the Multnomah Channel. These impacts would be mitigated using erosion and sediment control practices as well as revegetation.

Compaction from heavy equipment could degrade soil structure, reducing pore space needed to retain moisture and promote gas exchange. Over the long term, soil improvements associated with restored sediment transport would be beneficial due to the restoration of the natural soil-forming processes, sediment flushing, and floodplain function. Furthermore, the floodplain would stabilize due to the installation of native plantings.

Project actions – including breaches, large woody debris placement, and excavation and soil placement in the wetland enhancement areas - would restore natural landforms and local topography, allowing for more natural sedimentation and erosion processes and the exchange of water, materials, and organisms between the larger ecosystem and adjacent, shallowly vegetated habitats.

When considering project BMPs, these impacts are moderate and ultimately beneficial. This is consistent with those described in the Programmatic Estuary EA, Section 3.5.3, which predicted that construction would have moderate temporary effects, and that long-term impacts would be beneficial.

5. **Sediment Quality**

The impacts to sediment quality discussed in the Programmatic Estuary EA, Section 3.6.3 include: changing hydrologic flow patterns; floodplain and tidal reconnection; increasing organic materials in sediments; and introduction of pollutants.

The project-related earthwork would loosen sediments in and around interior wetlands and waterways, which would later be suspended in the water column and redistributed within the estuary upon rewatering. Typically by early July, increased flows from seasonal rainfall and snowmelt have receded and the wetlands have transformed into firm compact soils covered by invasive reed canary grass. Water levels are at their lowest levels during these months, allowing effective work area isolation and the ability to excavate and transport soils without causing excessive turbidity issues during construction. During construction, there is also the potential for contamination from staging areas located in wetlands, but the project would adhere to pollution prevention measures to mitigate risks.

In the long term, the project would change the hydrologic flow patterns to a more natural condition that would remove invasive species and create an elevation more favorable for native emergent vegetation and recruitment of organic sediment.

These impacts are less than those described in the Programmatic Estuary EA, Section 3.6.3, which concluded that effects to sediment quality would be moderate.

6. **Air Quality**

The impacts to air quality discussed in the Programmatic Estuary EA, Section 3.7.3 include: temporary and localized increase in dust and pollutants such as carbon monoxide, nitrogen dioxide, particulates, sulfur dioxide, ozone, or lead.

Vehicle emissions during the transportation and operation of construction equipment could cause a minor temporary increase in emissions for the duration of on-the-ground construction work. Overall, impacts would be low and would not result in violations of state air-quality standards. This is consistent with the Programmatic Estuary EA, Section 3.7.3, which predicted that impacts on air quality are expected to be low both in concentration and duration.

7. **Wildlife**

The impacts to wildlife discussed in the Programmatic Estuary EA, Section 3.8.3 include: noise or visual disturbance to wildlife, displacement of individual animals, and habitat conversion.

Local wildlife present within the area could be disturbed by project activities. State-listed species known to occur in the vicinity of the project area include one state sensitive species, northern red-legged frog (*Rana aurora*), and two state sensitive-critical species, painted turtle (*Chrysemys picta*) and purple martin (*Progne subis*). In the short term, noise and visual disturbance during construction would likely cause wildlife to avoid the project area. If present during construction, individual birds, smaller ground-dwelling mammals, reptiles, and amphibians could be harmed or killed incidentally during construction or associated amphibian relocation activities. These short-term effects would be minimized by constructing outside of the nesting season/metamorphosis period and during low water conditions, as well as conducting amphibian relocation during construction.

In the longer term, effects to wildlife are expected to be beneficial. The action would improve breeding and feeding habitat for semi-terrestrial animals such as beaver (*Castor canadensis*), waterfowl, shorebirds, and insect-eating birds, such as the purple martin. Wildlife that utilize riparian areas would benefit from the planting of native shrubs. Aquatic species that eat macroinvertebrates would benefit from reconnecting the interior wetlands at Hogan Ranch with the daily tidal cycle because it would improve food availability in Multnomah Channel and surrounding waterways. Amphibians, such as northern red-legged frogs that depend on a mosaic of connected wetlands and upland forests, would likely benefit from this project due to enhanced habitat availability, quality, and connectivity. Western painted turtles may also benefit from the enhanced habitat, with improvements from reducing invasive plant pressure on site and adding large wood to channels which may function as basking structures.

The project area does potentially contain habitat for ESA-listed Columbian white-tailed deer (*Odocoileus virginianus leucurus*). The species is known to occupy areas about 2.3 miles from the project site at the Scappoose Industrial Airpark, as well as on Sauvie Island on the other side of the Multnomah Channel. No herbicide application, which would cause a negative effect on the species, is proposed for the project. A small amount of new fencing is proposed, but would follow HIP guidelines to allow for deer to move under or over when closed. Furthermore, the fencing would remain open for much of the year (approximately October to May, when cattle are not present), as well as when the newly-excavated channel is hydrologically connected to the Multnomah Channel (approximately 10 percent of the year, mostly during the spring freshet). The action would comply with all other conservation measures outlined in the HIP programmatic consultation with USFWS, such as species-specific seasonal timing restrictions, to minimize adverse impacts to any nearby deer. Audiovisual disturbance to any specific individuals would be temporary in temporal and geographic scope and would not appreciably affect the ability of the species to forage, breed, or shelter in the larger landscape. BPA determined that the project is not likely to adversely affect Columbian white-tailed deer when BPA initiated consultation with USFWS for projects in the estuary that followed HIP conservation measures on December 31, 2020, and again to review the new proposed fencing on September 29, 2026. USFWS concurred with BPA's original determination on January 19, 2021 and again on October 22, 2026. The project is within the range of the ESA-listed northern spotted owl (*Strix occidentalis caurina*), but no suitable habitat exists for the species within the site, so there would be no effect. No other ESA-listed wildlife species were identified as potentially occurring in the project area.

Overall, these impacts are moderate and ultimately beneficial, which is consistent with the Programmatic Estuary EA, Section 3.8.3, which concluded that effects to wildlife would be moderate and beneficial.

8. **Wetlands, Floodplains, and Vegetation**

The impacts discussed in the Programmatic Estuary EA, Section 3.9.3 include: alteration of wetland hydrology; restoration of wetland-forming processes; increased wetland area, habitat complexity, composition of native vegetation, riparian buffer area, vegetation cover, and quantity of tidal marsh habitat flows, tidal exchange, and flushing; and decreased composition, distribution, and quantity of invasive species.

There would be both temporary and permanent impacts to jurisdictional waters under the CWA in the project area. In the long term, the project could potentially increase the acreage of wetlands by introducing Multnomah Channel flows to areas of the floodplain that are now inundated less frequently. Additionally, wetland quality would improve due to the restoration of natural flow patterns and the replacement of invasive species with native plants.

The construction of three new bridges and one rock ford would require the permanent placement of materials in wetlands, and all Clean Water Act permits would be in place prior to work initiation. During construction, the project would remove about 52,700 CY of material from below the Ordinary High Water Mark (OHWM) in the form of soil, vegetation, rock, and metal. About 22,500 CY of native soil would be relocated in the designated upland disposal areas within the 100-year floodplain. Approximately 30,000 CY of material would be placed below the OHWM in the form of soil, large wood, rock, and bridge material, of which around 17,700 CY would be placed in the wetland area outside of the WRE. Permanent losses from the bridge scour protection and abutments would result from the conversion of 0.06 acre of wetlands to upland areas. Embankment breaches would result in converting uplands to wetlands (0.73 acre of wetland gains). Wetland change resulting from this project would be 0.67 acre of wetland gains.

Marsh plain lowering, including several low swales, would be a permanent change to the topography of the wetlands at Hogan Ranch. Final grades of these areas are designed to remove reed canary grass above and below-ground biomass and promote the growth of native emergent vegetation. Lowering the marshplain would extend periods of inundation, to the benefit of native wetland plants, particularly during low water years. The breaches would increase the frequency of natural inundation and drainage patterns.

A total of 70 habitat logs, the majority of which would be imported from off-site, would be placed in interior wetlands and channels. Wetlands would be revegetated according to their intended use. Wetlands within the WRE would be revegetated with a mix of native woody and herbaceous plants targeted to the final grade elevation. The wetland outside of the WRE that is used for cattle grazing would be seeded with a variety of grasses and forbs.

No ESA-listed plant species have been recorded in or near the project area. State-listed plants recorded nearby to the project area include Howellia (*Howellia aquatilis*) which is state-listed as Threatened, and three state Candidate species: Howell's montia (*Montia howelli*), Oregon sullivantia (*Sullivantia oregana*), and tall bugbane (*Cimicifuga elata var. elata*). These species, if present, along with non-listed plants in the project area, would be impacted by project activities, such as ground disturbance and potential trampling from human presence. BMPs would be employed to avoid damage to native trees whenever possible and to salvage native vegetation and replant or use as instream wood after construction. All areas disturbed by construction activity would be replanted or seeded with native species to stabilize topsoil, prevent introduction of invasive species, and improve habitat quality. Overall, this project would have a positive impact on vegetation conditions in the long term.

The project would restore floodplain connectivity and function and improve wetland function and value, as described above. Additionally, the project would not result in floodplain development. While the project may moderately impact wetlands and vegetation in the short term, the overall long-term

impacts would be beneficial because the goal of the project is to increase native wetland plant diversity and improve overall wetland quality, compared to the current condition. This is consistent with the Programmatic Estuary EA Section 3.9.3, which predicted moderate and beneficial effects.

9. **Land Use and Recreation**

The land use and recreation impacts discussed in the Programmatic Estuary EA, Section 3.10.3 include: removal of drainage structures, and changes in access to recreational opportunities.

Hogan Ranch is privately-owned and is not accessible for any recreation or other opportunities open to the general public. The property is used for cattle grazing on areas adjacent to project restoration areas. Temporary construction activities could cause minor, short-term disruptions to cattle grazing operations due to increased traffic, noise, or access limitations. While the replacement of fencing would limit cattle access to certain locations, in the long term, the cattle grazing activities would benefit from the bridge and ford installation and fence installation/repairs. The landowner also hosts a waterfowl hunting group on site during the fall and winter; these uses would continue after the proposed project. In the short term, the project construction would result in a minor disturbance to waterfowl hunting during the month of October, but the area would be available for the rest of the season. In the long term, improving wetland hydrology and plant diversity as well as floodplain connectivity would likely have a beneficial effect to the waterfowl hunting that occurs in the project vicinity as the improved habitat may draw more waterfowl to the site. In addition, the restoration actions are consistent with the purpose and objectives outlined within the Wetland Reserve Plan of Operations developed by NRCS and the landowner, a required component of the WRE program.

Overall, project impacts would be low, which is consistent with the Programmatic Estuary EA, Section 3.10.3, which concluded there would be low to moderate impacts to land use and recreation.

10. **Cultural Resources**

The impacts discussed in the Programmatic Estuary EA, Section 3.11.3 include: reestablishment of tidal channels, reestablishment of wetland and riparian plant communities, and removal of structures.

BPA initiated its site-specific National Historic Preservation Act Section 106 consultation regarding geotechnical boring on March 7, 2025. BPA consulted with the Oregon State Historic Preservation Office (SHPO), Confederated Tribes of the Grand Ronde (Grand Ronde), Confederated Tribe of Siletz Indians, Cowlitz Indian Tribe, Chinook Indian Tribe, and NRCS. On March 25, 2025, NRCS responded and requested copies of all future consultation materials. On March 26, 2025, BPA sent initiation of consultation letters regarding the overall project to all consulting parties. On April 28, 2025, Oregon SHPO concurred with BPA no adverse effect to historic properties determination regarding the geotechnical bores, with the condition a monitor was present. Consulting firm Harris Environmental, Inc. conducted a field survey and prepared a cultural resources report[2]. Based on the information provided in the Harris report, BPA determined that an identified archaeological site is eligible for listing in the National Register of Historic Places and that the proposed project would have no adverse effect to historic properties, provided a Post-Review Discovery Plan is implemented and an archaeological monitor is present during ground-disturbing activities within the boundary of the identified site. On June 26, 2025, BPA sent these findings of eligibility and effect, along with the associated report, to the consulting parties. On June 30, 2025, Oregon SHPO acknowledged receipt of consultation materials. They concurred with the finding of no adverse effect to historic properties on July 29, 2025. No other responses were received from consulting parties. The consultation period ended July 30, 2025.

[2] Mora, Andrea and Holschuh, Dan. February, 2025. Cultural Resources Survey in Advance of Geotechnical Testing at the Hogan Ranch Habitat (HRH) Project Area. Report prepared for the Columbia River Estuary Study Taskforce (CREST) by Harris Environmental Group

On August 6, 2026, BPA received notice from CREST of a post-review discovery made by the cultural resource monitor within the limits of the identified archaeological site during construction of Bridge 1 and the large woody complex within the Multnomah Channel connection. All construction within the identified site limits halted while BPA notified consulting parties of the find and determined next steps. After a site visit on August 10, BPA determined that artifacts identified during construction of the bridge scour protection trenches were consistent with prior disturbance resulting from embankment construction in the 1930s/1940s. It was also determined that the trenching that occurred for the large wood placement was outside of what BPA's earlier Section 106 consultation addressed. BPA sent a plan to consulting parties on August 14, 2026, which included screening of the woody complex back dirt and geotextile fabric installation. This plan also proposed continuing the trenching work at the bridge location with an archaeological monitor present for ground disturbing activities. Furthermore, no additional ground disturbance or large log placement would occur at the woody complex, and remaining logs would be placed elsewhere in the site. No additional responses were received and the plan was implemented.

After the August post-review discovery, CREST identified the need to install the fencing and BPA initiated additional consultation on October 1, 2026. Oregon SHPO responded the same day acknowledging receipt of the letter. On October 22, 2026, the Grand Ronde concurred with the proposed fence installation methods. The comment period expired on October 31, 2026, and no other comments were received.

On October 13, 2026, an additional post-review discovery occurred when a cultural resources feature was exposed during grading actions (which were included in the initial consultation). After a site visit by BPA archaeologists on October 16, 2026, BPA determined that there were unanticipated adverse effects to the archaeological site eligible for listing in the National Register of Historic Places under Criteria A, B, and D. This determination was based on a collection of effects resulting from the placement of large woody debris within the site boundary and the discovery of the intact feature during grading. On October 19, 2026, BPA emailed consulting parties proposed actions to resolve the adverse effects. Comments were received from the Grand Ronde and the Oregon SHPO. Based on the comments received, BPA proposed to carry out mitigation actions to resolve the unanticipated adverse effects. Mitigation actions include cultural resource training for BPA project managers, project proponents, construction contractors and cultural resource firms working on future BPA-funded Lower Columbia River estuary restoration projects in southwestern Washington and northwestern Oregon. In addition, BPA and CREST would develop a public webpage on the history (pre-contract to present) of Hogan Ranch, and BPA would fund the University of Oregon Museum of Natural and Cultural History to rehouse and digitize materials from existing collections from the archaeological site, as well as outreach related to the site collections, such as professional journal publication and conference presentations.

BPA initially determined that the project would not adversely affect historic properties, but due to the identification of the unanticipated intact cultural deposits, BPA subsequently determined that the project would adversely affect historic properties. While BPA determined that the project would have an adverse effect to historic properties, the cultural resource site protection measures (e.g., covering and capping a portion of the site) would protect and minimize further impacts to existing cultural resources. These cultural resource site protection measures and mitigation actions described above appropriately addressed the adverse effects through the Section 106 consultation process. Therefore, just as in the Programmatic Estuary EA, project-related impacts would be minimized and mitigated to a low level.

11. **Socioeconomics**

The impacts discussed in the Programmatic Estuary EA, Section 3.12.3 include: short-term employment opportunities, local short-term traffic or lifestyle disruptions due to construction, land use conversion, and improvements to fish populations and associated fisheries.

The project would result in small, temporary, beneficial impacts to socioeconomics by providing jobs for construction workers as well as nearby service providers. Temporary increases in traffic during construction could result in short-term disruptions to local travel, minor increases in road maintenance needs, and potential delays in emergency response services. If these impacts occur, they would be minimal, localized, and temporary. Long-term benefits could result from improved natural scenery and fish populations, leading to more fishing opportunities in the vicinity of the site. The project would not displace residents or degrade residential suitability; nor would it cause changes to the tax base. The project area is on land that is not open to the general public.

Overall, the expected socioeconomic impacts would be low, which is consistent with those described in the Programmatic Estuary EA, Section 3.12.3.

12. **Visual Resources**

The impacts to visual resources discussed in the Programmatic Estuary EA, Section 3.13.3 include: short-term visual impacts related to construction, and long-term impacts associated with changing the visual condition from a managed state to a more natural landscape.

The project area cannot be easily seen from the nearest major roadway, U.S. Highway 30, which is over 0.5 mile away, as there are buildings, vegetation, including trees, and a railroad grade between the project area and the road. From the private property, however, much of the project area may be visible during construction. During construction, equipment and bare soil may be visible from neighboring properties and public roads or from users of the Multnomah Channel. The visual effects of the bare soil would be temporary and mitigated through BMPs.

In the long term, the visual effects on the private property would be mitigated by installation of erosion and sediment control practices and replanting bare soil areas, temporary access roads and staging areas. Furthermore, barrier removal would increase hydrologic connectivity, resulting in an increase in the function of the wetland within the project site. The improved floodplain area would be seeded and planted with native woody riparian vegetation, resulting in a more natural-looking environment.

These impacts are low overall, which is consistent with the visual resources analysis in the Programmatic Estuary EA, Section 3.13.3, with analyzed effects ranging from low to moderate.

13. **Noise, Hazardous Waste, Public Health**

The impacts to noise, hazardous waste, and public health effects discussed in the Programmatic Estuary EA, Section 3.14.3 include: short-term noise during construction and maintenance, potential encounters with contaminated media during construction, and risks to safety due to changes in the hydrologic regime after construction.

Noise level would be expected to increase intermittently above ambient conditions during the construction period, but the closest neighboring residence is over 0.5 mile away. Just under 0.25 mile away, there is a property with horse trails; thus, construction noise could be a short-term impact. Requirements to minimize these effects, such as limiting activities to daytime hours, would be addressed through construction specifications. Other than the potential for maintenance-related noise generation which would be of short duration and no louder than typical landowner use, the project would not result in any long-term effects to ambient noise levels once the construction is complete.

Hazardous waste introduction could occur if contaminated media (i.e., soil or gravel) were encountered during construction. As a hazardous material assessment was completed as part of the WRE enrollment, it is unlikely that any contaminated media or hazardous waste sites (i.e., underground storage tanks) exist on site. There is also a short-term risk that fuel spills could occur, but the potential for these impacts would be low as the project would comply with all general conservation measures outlined in the HIP. There would also be no storage of fuels, flammable materials, or chemicals in the staging areas,

and all refueling would occur at the main staging area, from double-walled fuel tanks mounted on pickup trucks. The project would not result in any long-term impacts from hazardous waste.

Potential safety risks could be associated with increased area, elevation, and duration of flowing water in interior wetlands and waterways following the barrier removals. However, hydraulic modeling found that the project would not increase flood risk. Though not permitted, the public can potentially access this water by small watercraft during high flows. However, because water levels are expected to rise and fall slowly with the natural tides, safety risks are anticipated to be low. This is consistent with the analysis in the Programmatic Estuary EA, Section 3.14.3, which described low effects to noise, hazardous waste, and public health, and safety.

14. **Transportation and Infrastructure**

The impacts to transportation and infrastructure discussed in the Programmatic Estuary EA, Section 3.15.3 include: temporary increase in traffic, changes in navigation, and potential damage to infrastructure due to changes in flow patterns.

The project is not anticipated to have impacts on infrastructure during construction or due to changes in flows, but would have a minor, short-term impact on local traffic from construction vehicle presence. The project would not have any impacts on navigation within the Multnomah Channel.

Overall, project impacts to transportation and navigation would be low. This is consistent with the effects in the Programmatic Estuary EA, Section 3.15.3, which described low effects to navigation and moderate effects to transportation.

15. **Climate Change**

The impacts to climate change discussed in the Programmatic Estuary EA, Section 3.16.3 include: both the release and sequestration of greenhouse gases, and the buffering of sea-level rise, particularly during extreme flows.

Due to the short duration of construction activities and the relatively small number of vehicles and equipment involved, project-related greenhouse gas emissions are anticipated to be low. This minimal contribution to climate change would be offset to some degree by the increased functioning of the floodplain including increased water table inputs, increased carbon sequestration in expanded and improved wetland habitats, and potentially, decreased water temperatures from improved estuarine and riparian habitat conditions.

Plantings could be adaptively managed to address long-term changes in climate (and any resulting effects to salinity, surface-water elevation, and groundwater elevation). Marshplain, wetland, and upland areas would be revegetated soon after construction is completed. All areas would be planted with a variety of native species at a range of elevations to allow plants to adapt to a range of water levels and other fluctuating environmental conditions. Barrier removal would create a larger opening that would allow for larger flows. Likewise, improving access to the floodplain would provide refuge areas to juvenile fish during more extreme flows in the Columbia River.

Overall, the long-term impacts on climate change from the project are expected to be low and beneficial, consistent with the impacts described in the Programmatic Estuary EA, Section 3.16.3.

Findings

This SA finds that the types of actions and the potential impacts related to the proposed Hogan Ranch Restoration Project are consistent with those analyzed in the Columbia Estuary Ecosystem Restoration Program Environmental Assessment (DOE/EA-2006) and Finding of No Significant Impact. There are no substantial changes in the Programmatic EA's Proposed Action and no substantial new circumstances or information about the significance of the adverse effects that bear on the analysis in the Programmatic EA's Proposed Action or its impacts within the meaning of NEPA, as amended and the DOE NEPA Implementing Procedures. Therefore, no further NEPA analysis or documentation is required.

DAPHNE DAY

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Daphne Day
Environmental Protection Specialist

Concur:

SARAH BIEGEL

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FOR Katey Grange
NEPA Compliance Officer