

Supplement Analysis
for the
Columbia River Basin Tributary Habitat Restoration
(DOE/EA 2126/SA-30)

Middle Lemhi Hayden Reach Project Phase 1
Bonneville project number 2010-072-00
Bonneville contract number 76913 rel 34

Bonneville Power Administration
Department of Energy



Introduction

In December 2020, Bonneville Power Administration (Bonneville) and the Bureau of Reclamation completed the *Columbia River Basin Tributary Habitat Restoration Programmatic Environmental Assessment* (DOE/EA 2126) (Programmatic EA). The Programmatic EA analyzed the potential environmental impacts of implementing habitat restoration actions in the Columbia River Basin and its tributaries.

Consistent with the Programmatic EA, this Supplement Analysis (SA) analyzes the effects of the *Middle Lemhi Hayden Reach Project Phase 1* (Phase 1), which would implement many of the specific restoration actions assessed in the Programmatic EA in the Lemhi River valley in Lemhi County, Idaho. Phase 1's objectives are to increase in-stream habitat diversity, reduce water temperatures, and improve riparian and floodplain vegetative diversity for the benefit of listed salmonids under the Endangered Species Act (ESA). This SA analyzes the site-specific impacts of Phase 1 to determine if it is within the scope of the Programmatic EA's analysis. It also evaluates whether Phase 1 presents significant new circumstances or information relevant to environmental concerns not addressed in the EA. The findings of this SA determine whether additional National Environmental Policy Act (NEPA) analysis is needed pursuant to 40 Code of Federal Regulations (CFR) § 1502.9(d).

Proposed Project

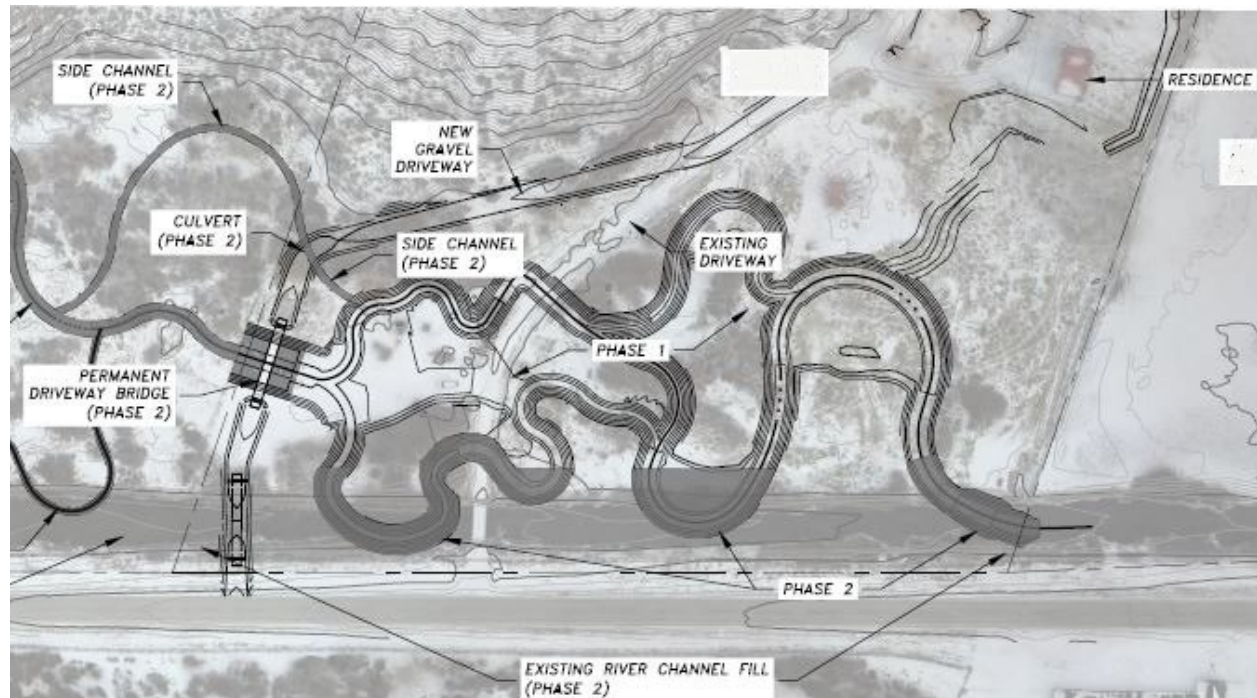
Bonneville would fund the Idaho Department of Fish and Game to implement Phase 1. The Lemhi River and its adjacent floodplain in the Phase 1 area were historically impacted by stream channelization and stabilization using rip-rap, limiting salmonid rearing and over-wintering habitat in this reach. Phase 1 would be the first—and farthest upstream—of three phases of a larger multi-year project (“Overall Project”), extending for approximately 900 feet beside the Lemhi River just upstream of its confluence with Hayden Creek about 19 miles north of Leadore, Idaho.

Phase 1 would excavate new lateral channels in the adjacent floodplain (Phase 1 Channels) to increase rearing and overwintering habitat capacity for juvenile Chinook salmon and steelhead. The Phase 1 Channels would provide for lower velocity flows than those in the main channel. Within the Phase 1 Channels, varying sizes of large woody debris (LWD) structures would be installed to provide structural complexity, encourage pool development, provide refugia for fish from swift currents, and decrease flow shear forces. In total, forty-one such structures would be constructed using 63 large rootwads, 95 logs, 39 small rootwads, and four whole trees.

One to two riffles would be constructed in the Phase 1 Channels to mimic natural riffle areas and provide shallow, fast flow during routine flow conditions. These would be designed to provide backwater pools and raise surface water height to increase floodplain and side-channel inundation. The floodplain itself would be graded to specific elevations between these new channels for inundation at various flow levels. Phase 1 construction would occur on dry land; there would be no connection with the Lemhi River. Once constructed, the Lemhi River would be diverted into the Phase 1 Channels in the second phase of the Overall Project (Phase 2), and approximately 900 linear feet of a straightened section of the Lemhi River would be realigned with meanders to increase channel length and provide a more natural hydrogeomorphological riverscape that would provide hydraulic energy dissipation and sediment transport flows within this reach of the river. Once the new meanders are completed as part of Phase 2, the river would be connected to the Phase 1 Channels.

The Phase 1 area is located on private lands across the river from Highway 28 (the primary access highway— see Figure 1). The river is immediately adjacent to the highway. The Phase 1 area and the landowner’s residence are currently accessed by a bridge and an access road that crosses both the river and floodplain, and the bridge is not strong enough to support the equipment loads required for Phase 1 construction. Additionally, because the bridge and much of the access road are also situated in areas where Phase 1 construction is anticipated to take place, they would need to be relocated and replaced with a new bridge and access road located downstream. A temporary bridge would be used to access the Phase 1 site and an access road (to be developed into the final driveway alignment at the conclusion of Phase 1) would be constructed from the temporary bridge to a portion of the existing driveway near the landowner’s residence. Additionally, a 20-foot-wide buffer along the top bank of the Lemhi River would be used as a temporary haul road during Phase 1 construction (until the river is reconstructed in Phase 2) and also serve as a channel plug separating the newly excavated Phase 1 Channels from the actively flowing river. Existing vegetation to be removed for construction of access and staging areas would be used as slash in the in-stream habitat structures to be constructed. Excess excavated material from Phase 1 construction work would be stabilized in temporary stockpiles at two downstream locations for use in Phase 2.

Figure 1 Middle Lemhi Hayden Creek project features and sequencing



As with Phase 1, Phase 2 and Phase 3 of the Overall Project (“Phase 3”) would construct new river channels and realign the Lemhi River. The temporary bridge to be installed in Phase 1 would be permanently relocated once new channels are constructed in Phase 2 (Phase 2 Channels), and the new access road would be fitted with culverts (one large, others small) which, along with the bridge, would connect with the Phase 2 Channels. The bridge and culverts would be designed to provide for effective floodplain inundation at all flow levels across the floodplain to prevent the road from functioning as a dam or berm across the floodplain.

The Overall Project is proceeding in phases to meet funding requirements, design time needs, and implementation timing constraints. All phases create similar impacts, none of which would, either collectively or individually, automatically trigger actions or produce effects to a degree that may require the preparation of an Environmental Impact Statement. Though the design of each phase is intended to link to the subsequent phases, each phase can function independently to provide fish habitat and floodplain benefits apart from other phases with minimal design alteration. No phase is therefore dependent on a subsequent or prior phase for its fish habitat and floodplain benefits. The environmental effects of each phase will thus be assessed independently as designs and associated analyses become ripe for review, and each review will consider the larger context of the Overall Project.

Phase 1 fulfills commitments under the 2020 National Marine Fisheries Service (NMFS) Columbia River System Biological Opinion and would support conservation of ESA-listed species considered in the 2020 ESA consultation with the US Fish and Wildlife Service on the operation and maintenance of the Columbia River System.

Environmental Effects

Phase 1 implementation would require the use of heavy equipment, including a track-mounted excavator for excavating channels, a bulldozer for constructing temporary roads, and dump trucks for hauling excavated material to disposal sites. Operation of these machines for these tasks would disturb and displace soil in the floodplain and Lemhi River floodplain, damage vegetation, create noise, produce vehicle emissions, and temporarily increase vehicle traffic and human activity in the Phase 1 area. Typical effects of these environmental disturbances are described in Chapter 3 of the Programmatic EA and incorporated by reference and summarized in this document.

Below is a description of the potential site-specific effects of Phase 1 and an assessment of whether these effects are consistent with those described in the Programmatic EA. Phase 1 is designed to improve both aquatic and riparian habitats for the long term, so the adverse effects from soil and vegetation disturbance and human and mechanical activity, as detailed below, would be short-term only.

1. Fish and Aquatic Species

The effects of using mechanized equipment and manually working in the Lemhi River floodplain are consistent with the analysis in the Section 3.3.1 of the Programmatic EA (“*Fish and Aquatic Species*”). Section 3.3.1.3 of the Programmatic EA (“*Effects Conclusion for the Proposed Action on Fish and Aquatic Species*”) describes overall low impacts to fish and aquatic species after considering moderate short-term adverse effects and beneficial long-term effects.

Three species listed as threatened under the ESA are present in the Phase 1 area: Snake River spring/summer Chinook salmon (part of the Upper Salmon Major Population Group), Snake River steelhead (part of the Salmon River Major Population Group), and bull trout. Snake River spring/summer Chinook salmon and Snake River steelhead are also listed by the State of Idaho as Tier 1 “*Species of Greatest Conservation Need*”. Consultation on the Phase 1’s effects on these species was completed under Bonneville’s programmatic Fish and Wildlife Habitat Improvement Program (HIP4) consultation, which concluded that Phase 1 would likely adversely affect these species and their critical

habitat in the short term but not result in jeopardy to the species or destruction or adverse modification of their respective critical habitats.

Phase 1's short-term adverse effects would include exposing, displacing, reconfiguring, or compacting earth using mechanized equipment in the Lemhi River floodplain, and likely causing brief sediment releases following construction activities. A moderate amount of sediment release is anticipated because there would be no instream excavation, dewatering, or reintroduction of flows over newly exposed soils and gravels. There could, however, be some uptake of sediment from exposed soils if springtime flooding flows rise to a level where exposed soils along graded floodplain and newly constructed features could be picked up and transported to the river.¹ There might also be some minor inputs from the installation of the temporary bridge, though that would require no work in the stream or along the stream banks. However, mitigation measures for sedimentation and erosion control (such as hydro-mulch application and use of coir logs and other sediment control features) would be implemented to minimize these impacts, as detailed in Appendix B of the Programmatic EA. The sediment inputs would be consistent with the amounts evaluated in Section 3.3.1.2.1 of the Programmatic EA ("*Short-Term Effects to Fish and Aquatic Species from Construction Activities*").

Because there would be no instream work, there would be no need for instream work area isolation, fish salvage, or dewatering, eliminating any potential to physically impact fish or other aquatic organisms or their habitats during Phase 1 construction. There is potential, however, for movements, sounds, and vibrations associated with construction actions to disturb and temporarily displace fish for short periods of time from discrete locations along the adjacent 900 feet of the Lemhi River. This is much less of an impact than the direct, harmful, and sometimes fatal impacts to aquatic species described in the analysis in Section 3.1.3.1 of the Programmatic EA ("*Dewatering for Instream Work*") and 3.3.1.2.1, ("*Short-Term Effects to Fish and Aquatic Species from Construction Activities*"), and consistent with its finding that movement, sounds, and vibrations of human and mechanical activity would be likely to disturb fish and displace them from their preferred habitat for as long as those disturbances are present.

Phase 1's long-term beneficial effects would include creation of more complex habitats through the addition of meanders, pools, and woody streamside vegetation to the stream and adjacent riparian areas (where none currently exist) and the enhancement of in-stream habitat complexity over time by providing LWD structures, riffles, and pools, and by varying flow velocities. These beneficial effects are consistent with the analysis in Section 3.3.1.2.2.2 of the Programmatic EA ("*River, Stream, Floodplain, and Wetland Restoration and Channel Reconstruction (Category 2) Effects on Aquatic Species*").

2. Water Resources

The effects of using mechanized equipment and manually working in the Lemhi River floodplain are consistent with the analysis in Section 3.3.2 of the Programmatic EA in ("*Water Resources*"). Section 3.3.2.3 of the Programmatic EA ("*Effects Conclusion for the Proposed Action on Water Resources*") describes overall low impacts to water quality after considering moderate short-term adverse effects and beneficial long-term effects.

There would be no effect to water quantity, as Phase 1 would require no water withdrawals.

Overall, Phase 1 may create short-term sediment inputs if flood flows across the floodplain contact exposed soils along the graded floodplain and constructed features, and perhaps some minor inputs from the installation of the temporary bridge, though that would require no work in the stream or along the stream banks. This impact would be mitigated through application of hydro-mulch and use of coir logs and other sediment control features. Phase 1's long-term benefits, however, would include a

¹ Flows currently reach the floodplain from the channeled and incised Lemhi River only at ten-year flows (888 cubic feet per second) or greater.

decreased potential for unnatural sediment inputs, an increased potential for the floodplain to effectively manage its sediment loads, and a reduction of stream temperatures from improved stream form, instream habitat structure, and increased riparian vegetative cover. The short-term adverse effects and long-term beneficial effects are consistent with those described in the Programmatic EA.

3. Vegetation

The effects of using mechanized equipment and manually working in the Lemhi River floodplain are consistent with the analysis in Section 3.3.3 of the Programmatic EA (*"Vegetation"*). Section 3.3.3.3 of the Programmatic EA (*"Effects Conclusion for the Proposed Action on Vegetation"*) describes overall moderate impacts to vegetation after considering moderate short-term adverse effects and beneficial long-term effects. No special-status species of concern or ESA-listed or state-listed plant species are present within the Phase 1 area.

Phase 1 is anticipated to have impacts consistent with those described in the Programmatic EA. Installing the temporary bridge, grading the floodplain, and constructing bypass channels, new channels, and new meanders would remove vegetation from those sites, though all impacted sites would be planted or seeded following construction activities. Section 3.3.3.2 of the Programmatic EA (*"Environmental Consequences for Vegetation"*) evaluated constructed features that could disturb over 50 acres, but the area impacted by Phase 1 would likely measure only about nine acres. Impacts to vegetation would also include trampling of herbaceous vegetation by mechanized equipment and human foot traffic (from which the vegetation would be anticipated to recover well). The completed Phase 1 area would be hydroseeded and planted with native riparian shrubs. This level of effect would be moderate, consistent with that described in the Programmatic EA.

4. Wetlands and Floodplains

The effects of using mechanized equipment and manually working in the Lemhi River floodplain are consistent with the analysis in Section 3.3.4 of the Programmatic EA (*"Wetlands and Floodplains"*). Section 3.3.4.3 of the Programmatic EA (*"Effects Conclusion for the Proposed Action on Wetlands and Floodplains"*) describes overall low impacts to wetlands and floodplains after considering short-term adverse effects and beneficial long-term effects.

Phase 1 is anticipated to have less impacts than those described in the Programmatic EA. Although there would be short-term adverse effects to floodplains as a result of nine acres of earth-moving in the floodplain, this floodplain is currently disconnected from the Lemhi River with flooding only occurring at 10-year flood flows (i.e., 888 cubic feet per second) or greater. No wetlands are present, nor would any be affected, obviating the need for a Clean Water Act permit in advance of construction activities. Consistent with the Programmatic EA, there would be long-term beneficial effects from implementation of Phase 1, as it would increase meander and connectivity to the floodplain, improve groundwater exchange, diversify wetland conditions, and thereby increase the amount and quality of wetlands in the Phase 1 area. This level of effect would be low after considering short-term adverse effects and beneficial long-term effects, as stated in the Programmatic EA.

5. Wildlife

The effects of using mechanized equipment and manually working in the Lemhi River floodplain are consistent with the analysis in Section 3.3.5 of the Programmatic EA (*"Wildlife"*). Section 3.3.5.3 of the Programmatic EA, (*"Effects Conclusion for the Proposed Action on Wildlife"*) describes overall low impacts to wildlife after considering short-term adverse effects and beneficial long-term effects. No special-status species of concern or ESA-listed or state-listed wildlife species are present within the Phase 1 area.

The short-term effects of Phase 1 would be consistent with, though less than, those analyzed in the Programmatic EA. There would be approximately nine acres of vegetative (i.e., wildlife habitat) disturbance, whereas the Programmatic EA evaluated disturbances of 50 acres or more. The actions of humans and machines in this area would temporarily displace wildlife from their preferred haunts and prevent them from reoccupying the site until construction activity has ceased. The resulting habitat to which wildlife would eventually return would be more diverse hydrologically, but it would take a couple of years for the transplanted and newly planted vegetation to provide the increased wildlife habitat value intended. Over time, however, the habitat values in the Lemhi River floodplain would improve relative to the area's pre-construction condition, with increasing woody vegetation diversity and abundance, and with the capability to support more wildlife and higher species diversity. This level of effect would be low after considering short-term adverse effects and beneficial long-term effects, as stated in the Programmatic EA.

6. Geology and Soils

The effects of using mechanized equipment and manually working in the Lemhi River floodplain are consistent with the analysis in Section 3.3.6 of the Programmatic EA (*"Geology and Soils"*). Section 3.3.6.3 of the Programmatic EA (*"Effects Conclusion for the Proposed Action on Geology and Soils"*) describes moderate impacts to geology and soils.

Phase 1 is anticipated to have impacts consistent with those described in the Programmatic EA. Grading the floodplain and constructing bypass channels, new channels, and new meanders would require excavation and thereby cause soil displacement, compaction, and mixing of soil horizons. Section 3.3.3.2 of the Programmatic EA (*"Environmental Consequences for Vegetation"*) evaluated construction actions that could disturb "generally less than 20 acres at any one site,"² but with some "exceeding 50 acres."² The area impacted by Phase 1 would likely measure only about nine acres in size. Design criteria, mitigation measures, and best management practices such as stockpiling of topsoil, dust abatement, and erosion protection measures would all be applied as described in Section 2.4 of the Programmatic EA (*"Mitigation Measures and Design Criteria"*) to minimize impacts and maintain long-term soil productivity.

Phase 1 does not specifically target soils for restoration or enhancement (as it does fish habitat and hydrologic functions), but it does have the capacity to maintain and improve soil properties and functions as it restores hydrologic function and vegetative conditions within the floodplain. The level of effect would be moderate, consistent with the effect level described in the Programmatic EA.

7. Transportation

Phase 1's effects in the Lemhi River floodplain are consistent with the analysis in Section 3.3.7 of the Programmatic EA (*"Transportation"*). Section 3.3.7.3 of the Programmatic EA (*"Effects Conclusion for the Proposed Action on Transportation"*) describes low impacts to transportation.

Though adjacent to Idaho State Highway 28 in the Lemhi Valley, Phase 1 would not modify any public roads: none would be closed, temporarily blocked, or relocated. Although flaggers may need to stop traffic on the northbound lane of travel on Highway 28 while the temporary bridge is located and then relocated, this travel disruption would only last for a matter of hours on the two occasions it occurs. The private road (driveway), on the other hand, would be impacted multiple times as it is relocated and reconstructed to include a bridge and multiple culverts. No river work would be conducted from the highway or its shoulders. Phase 1 would also affect transportation during construction as vehicles

² Programmatic EA section 3.3.2.2, "Environmental Consequences for Vegetation", page 99.

transporting workers and equipment to the site share Highway 28 with other traffic. This level of impact would be low, as stated in the Programmatic EA.

8. Land Use and Recreation

Phase 1 would not affect land use or recreational opportunity (the latter being nonexistent given that the land in question is not even open to public use). This level of effect is consistent with that described in Section 3.3.8.3 of the Programmatic EA (*“Effects Conclusion for the Proposed Action on Land Use and Recreation”*), which states that land use practices underlying project sites would not be changed for most projects.

9. Visual Resources

Phase 1’s effects in the Lemhi River floodplain are consistent with the analysis in Section 3.3.9 of the Programmatic EA (*“Visual Resources”*). Section 3.3.9.3 of the Programmatic EA (*“Effects Conclusion for the Proposed Action on Visual Resources”*) describes low impacts to visual resources.

Because the proposed restoration actions are immediately adjacent to Idaho State Highway 28, all activities would be readily visible to travelers along this route, resulting in short-term visual impacts as described in Section 3.3.9.2 of the Programmatic EA (*“Environmental Consequences for Visual Resources”*). Additionally, Phase 1 construction would temporarily result in bare soils that would be highly visible and likely detract from the otherwise pastoral scenery along this highway, looking much like a plowed or mowed field for the remainder of that construction year until the newly planted grasses, forbs, and shrubs begin to visually restore the setting. This visible effect would last for only a few weeks between mid-July and late August and would not recur, though it would be duplicated in the following year with Phase 2, and then again downstream with Phase 3.

Following Phase 1 completion, some partially complete work (i.e., constructed channels with no flow in them) would also be visible for twelve months until Phase 2 modifies the Lemhi and introduces flow into the Phase 1 Channels. When construction at this site is complete in year two, however, the river would have natural-appearing meanders and the site would provide the same verdant pastoral scenery seen elsewhere along this highway. This would be an improvement over the artificially straight and incised river with dry upland banks and floodplain that characterize the scenery there today. This level of impact would be low, as stated in the Programmatic EA.

10. Air Quality, Noise, and Public Health and Safety

The effects of the proposed project in the Lemhi River floodplain are consistent with the analysis in Section 3.3.10 of the Programmatic EA (*“Air Quality, Noise, and Public Health and Safety”*). Section 3.3.10.3 of the Programmatic EA (*“Effects Conclusion for the Proposed Action on Air Quality, Noise, and Public Health and Safety”*), describes low impacts to air quality, noise, and public health and safety.

Phase 1 would be located approximately 1.75 miles from the small town of Leadore, Idaho—a distance too great for noise, dust, or exhaust from construction activities to migrate and affect the residents during the few weeks of construction activities. No long-term source of emissions or noise would be created either. Safety impacts may result from workers sharing the roads when travelling to and from work sites, and from the potential visual distraction posed by construction work near the highway to passing motorists. Phase 1 has no potential to impact public safety infrastructure (e.g., roads, telecommunications, etc.) or to burden emergency services (e.g., police, fire, ambulance, etc.). This level of impact would be low, as stated in the Programmatic EA.

11. Cultural Resources

Phase 1's effects on cultural resources would be consistent with the analysis in Section 3.3.11 of the Programmatic EA ("*Cultural Resources*"). Section 3.3.11.3 of the Programmatic EA ("*Effects Conclusion for the Proposed Action on Cultural Resources*") describes low impacts to cultural resources since potential effects would be appropriately resolved through the Section 106 consultation process.

Bonneville conducted a cultural resource survey and completed consultations with the Idaho State Historic Preservation office and the Nez Perce Tribe with respect to the area potentially affected by Phase 1. The resulting survey and consultation concluded that the existing bridge over the Lemhi River is not eligible for the National Register of Historic Places and that the Phase 1 would not affect any historic properties in the relevant area. The Idaho State Historic Preservation Office concurred on June 28, 2021, that Phase 1 would have no adverse effect to historic properties. The Nez Perce Tribe provided no response to Bonneville's consultation.

12. Socioeconomics and Environmental Justice

Phase 1's effects on the Lemhi River floodplain are consistent with the analysis in Section 3.3.10 of the Programmatic EA ("*Socioeconomics and Environmental Justice*"). Section 3.3.10.3 of the Programmatic EA ("*Effects Conclusion for the Proposed Action on Socioeconomics and Environmental Justice*") describes low impacts to socioeconomics and environmental justice.

As described in the Programmatic EA, Phase 1 would not require additional permanent employees, require individuals to leave the local area or relocate to it, affect housing available for local populations, displace people, or eliminate residential suitability of lands being restored or in their vicinity. It would generate short-term employment for those directly implementing the restoration actions and would provide small short-term cash inputs to local businesses for fuel, equipment, and meals. This degree of effects would be low.

There are no environmental justice populations present that could be affected, as Phase 1 would be undertaken on private land exclusively, with no offsite effects anticipated.

13. Climate Change

Phase 1's effects on the Lemhi River floodplain are consistent with the analysis in Section 3.3.10 of the Programmatic EA ("*Climate Change*"). Section 3.3.10.3 of the Programmatic EA ("*Effects Conclusion for the Proposed Action on Climate Change*") describes low impacts to climate change.

Due to the short duration of construction (approximately 12 weeks for each phase of the Overall Project) and the relatively small number of construction vehicles involved, temporary emissions associated with Phase 1 construction would likely be well below the Environmental Protection Act's reporting threshold of 25,000 metric tons of carbon, resulting in a low level of effect on climate change, mainly from short-term motorized equipment emissions during implementation of restoration actions. Further, these would be offset to some degree by the ameliorating effects of restored floodplain function such as increased water table inputs, increased carbon sequestration in expanded and improved riparian wetlands, and decreased water temperatures from improved instream and riparian habitat conditions. The overall effects on climate change would be low, consistent with the Programmatic EA.

Findings

Bonneville finds that the types of actions and the potential impacts related to the proposed *Middle Lemhi Hayden Reach Project Phase 1* were examined, reviewed, and consulted upon and are similar to those analyzed in the *Columbia River Basin Tributary Habitat Restoration Programmatic Environmental Assessment* (DOE/EA 2126) and Finding of No Significant Impact. There are no substantial changes in the

EA's Proposed Action and no significant new circumstances or information relevant to environmental concerns bearing on the EA's Proposed Action or its impacts within the meaning of 10 CFR § 1021.314(c)(1) and 40 CFR §1502.9(d). Therefore, no further NEPA analysis or documentation is required.

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Date: September 20, 2022