

# RECLAMATION

*Managing Water in the West*

**Finding of No Significant Impact  
Final Environmental Assessment  
Marble Beach Bank Stabilization  
Lake Roosevelt, Grand Coulee Project, Washington**



U.S. Department of the Interior  
Bureau of Reclamation  
Pacific Northwest Region  
Boise, Idaho

**October 2018**

U.S. DEPARTMENT OF THE INTERIOR

PROTECTING AMERICA'S GREAT OUTDOORS AND POWERING OUR FUTURE

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

# **Finding of No Significant Impact and Decision**

## **Marble Beach Bank Stabilization Lake Roosevelt, Grand Coulee Project, Washington**

**U.S. Department of the Interior  
Bureau of Reclamation**

**Pacific Northwest Region**

**PN-FONSI 18-12**

**October 18, 2018**

### **Introduction**

The Bureau of Reclamation (Reclamation) has prepared the *Marble Beach Bank Stabilization Environmental Assessment* (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and state laws and regulations. This EA evaluates a proposal by Reclamation to construct a 330-linear-foot bank stabilization structure along an actively eroding shoreline on the Mainstem of Franklin Delano Roosevelt Reservoir (Lake Roosevelt) near the community of Marble, Washington, in Stevens County.

Reclamation and the Bonneville Power Administration (BPA) operate and maintain Grand Coulee Dam, which is part of the Federal Columbia River Power System (FCRPS) and impounds waters of the Columbia River to form Lake Roosevelt. The shoreline of Lake Roosevelt comprises lands that were withdrawn from the public domain by Reclamation for the purposes of dam and reservoir construction and operations. These Federal lands are now jointly managed under the Lake Roosevelt Cooperative Management Agreement, otherwise known as the Five-Party Agreement (Five-Party 1990). The five managing partners are Reclamation, the National Park Service (NPS), Confederated Tribes of the Colville Reservation (CCT), Spokane Tribe of Indians, and the U.S. Bureau of Indian Affairs.

The FCRPS Systemwide Programmatic Agreement (SWPA) was signed by Reclamation, BPA, and other signatories in 2009 and the CCT, NPS, Washington Department of Archaeology and Historic Preservation (DAHP), and other signatories in 2014. The SWPA states that the lead Federal agencies pledged to consider the effects of the FCRPS on historic properties and adhere to the terms of the SWPA to satisfy the lead Federal Agencies' Section 106 responsibilities of the National Historic Preservation Act (NHPA). It was through this process that the CCT requested that Reclamation build installations to protect sensitive cultural resources from operation and maintenance and recreational effects of the FCRPS at Lake Roosevelt and Grand Coulee Dam.

Construction is proposed to begin in late summer 2019 and be completed by late winter/early spring 2020, depending on lake water levels. Due to the sensitivity of the resources and adjacent private land ownership and restricted access, the proposed construction would be

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barge-based (See EA Section 2.2.1). Reclamation would work closely with the NPS to ensure the public is notified about China Bend staging activities and delays.

## **Alternatives**

The EA analyzed the No Action Alternative and the Proposed Action Alternative. These alternatives are described below.

### **Alternative 1 – No Action**

Under the No Action Alternative (EA Section 2.1), Reclamation would not construct the bank stabilization structure along the eroding shoreline and no efforts would be made to protect sensitive cultural resources at Marble Beach.

### **Alternative 2 – Proposed Action**

The Proposed Action is to construct a bank stabilization structure along the eroding shoreline of Lake Roosevelt at Marble Beach by installing a concrete retaining wall reinforced with surface-treated riprap. Components of the bank stabilization system are described in EA Sections 2.2.1 and 2.2.2. Staging and loading of project materials would occur about 4 miles downstream of the stabilization site, as described in EA Section 2.2.3. Major construction elements include surface-treated riprap and a three-tier wall. All construction work would be barge-based, and the project is expected to be completed over a 1-year period. Project best management practices (BMPs) are summarized in EA Section 2.2.4 and construction monitoring are summarized in EA Section 2.2.5.

## **Finding of No Significant Impact**

Reclamation determined that implementing the Proposed Action would not significantly affect the quality of the human environment. No environmental effects meet the definition of significance in context or intensity as defined at 40 CFR 1508.27. Therefore, an environmental impact statement is not required for this proposed action. This finding is based on the analysis in the EA and consideration of the context and intensity, as summarized below from the EA.

### **Context**

The project is a site-specific action directly involving about 1.8 acres of lands that were withdrawn from the public domain by Reclamation for the purposes of dam and reservoir construction and operations. The study area extends from China Bend Boat Launch upstream to the Marble Beach Project Site. The project is small in context, as it covers 300 feet of shoreline, compared to 513 miles of total shoreline at the Lake Roosevelt.

### **Intensity**

The following discussion is organized around the 10 significance criteria described in 40 CFR 1508.27. These criteria were incorporated into the resource analysis and issues considered in the EA.

1. **Impacts may be both beneficial and adverse.** The Proposed Action would impact resources as described in the EA and summarized in Table A-1 below. BMPs would be used to reduce impacts to resources and are incorporated into the design of the Proposed Action.

**Table A-1. Summary of impacts to resources**

Resource	EA Section	Overall Effects
Soils	3.1	There would be minor, short-term, localized disturbances to soils at the staging area and adjacent to the site as the stabilization structure is installed. The project would lead to long-term stabilization of the soils and shoreline bank protection. Soil composition would also change due to the high volume of fill used for stabilization.
Recreation Values and Uses	3.2	There would be temporary displacement of visitors and additional crowding at the boat ramp at the China Bend Boat Launch during the construction window. Additional congestion along waterway would occur due to barge usage.
Visual Resources	3.3	The impact to visual resources resulting from the stabilization project would be negligible compared to the about 513 miles of total shoreline at the Lake Roosevelt National Recreation Area.
Water Quality	3.4	Reduction in soil erosion and sediment loading of Lake Roosevelt would occur.
Vegetation	3.5	There would be minor, short-term, localized disturbance and compaction of vegetation at the staging area and immediately adjacent to the site during installation of the stabilization structure. Tiers 2 and 3 would be reseeded with native grass species to help stabilize soils and improve the appearance of the completed project. Once the project is complete, the staging area vegetation would be rehabilitated to original condition.
Noise	3.6	Short-term, localized noise impacts would occur due to construction activities. Effects would be mitigated using BMPs.
Wildlife	3.7	There would be minor, short-term, localized disturbance of wildlife habitat immediately adjacent to the stabilization site during installation of the stabilization structure. The project construction window lies primarily outside of breeding, nesting, or dispersal times for the discussed avian species, and therefore, no impacts to nesting birds are anticipated.
Fisheries	3.8	There could be minor, short-term, localized disturbance to fish from barges anchoring near the shoreline. Fish that may occupy the area would likely relocate during construction

Resource	EA Section	Overall Effects
		activities. There is no suitable spawning habitat in the area due to slope and sediment type; therefore, spawning habitat would not be impacted.
Threatened and Endangered Species	3.9	No Effect
Transportation	3.10	There would be brief interruptions in vehicle traffic when entering or leaving the staging area. No changes in local road traffic or transportation patterns are expected.
Cultural Resources	3.11	The Proposed Action would provide long-term protection of the at-risk resources present at Marble Beach.
Indian Sacred Sites	3.12	No Effect

2. **The degree to which the selected alternative will affect public health or safety, or a minority or low-income population.** The proposal would have no significant impacts on public health or safety. The percentage of minority and low-income populations residing in Stevens County is not over 50 percent, nor is it meaningfully greater in the area than in the state of Washington; therefore, this project complies with Executive Order 12898.
3. **Unique characteristics of the geographic area.** There are no park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas that would be affected by the Proposed Action. As described in the EA, use of the China Bend Boat Launch and construction would cause minor, short-term impacts to sound and visual resources for the town of Marble. The concrete blocks used in the stabilization project would be earth-toned in color, with the exposed faces patterned to blend with natural surroundings. In addition, the tops of the three-tiered terrace would be revegetated with native grasses, further blending the project into the natural surroundings.
4. **The degree to which the effects on the quality of the human environment are likely to be highly controversial.** Reclamation provided for public notification and involvement primarily by posting the Draft EA on the agency's website and by mailing letters to Federal, State, and local agencies and elected officials, interested parties, and Indian Tribes. No public comments were received. The effects of the

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proposed action on the quality of the human environment are not likely to be highly controversial, as defined in 43 CFR 46.30<sup>1</sup>.

5. **The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.** There are no predicted effects on the human environment that are considered highly uncertain or that involve unique or unknown risks.
6. **The action will not establish a precedent for future actions with significant effects and will not represent a decision in principle about a future consideration.** The action is not precedent-setting, and there have been other stabilization projects within Lake Roosevelt.
7. **Whether the action is related to other actions which are individually insignificant but cumulatively significant.** EA Sections 3.1 to 3.12 describe the impacts of past and present actions that have occurred or are ongoing in the study area. Section 3.13 of the EA analyzes the degree to which cumulative impacts would occur because of the Proposed Action. As shown in Section 3.13, the Proposed Action would not create cumulative impacts on fish, threatened and endangered species, or wildlife. Cumulative impacts to soils, recreation, visual, water quality, vegetation, noise would be minor.
8. **The degree to which the action may adversely affect sites, districts, buildings, structures, and objects listed in or eligible for listing in the National Register of Historic Places.** Reclamation has reached a finding of No Adverse Effect on historic properties in the area of potential effect as a result of this undertaking. In reaching this finding, Reclamation consulted with the Washington State Historic Preservation Officer and the CCT Tribal Historic Preservation Office (THPO) regarding effects of the Proposed Action on historic properties. DAHP and THPO concurred that there would be no adverse effects for this undertaking.
9. **The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.** Reclamation concluded that there would be no effect on the species and critical habitat described in Section 3.9.
10. **Whether the action threatens a violation of Federal, state, local, or tribal law, regulation or policy imposed for the protection of the environment.** The Proposed Action would not violate any Federal, state, local, or tribal law, regulation, or policy imposed for the protection of the environment. Other Federal agencies, along with State, local, and tribal governments, were given the opportunity to

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<sup>1</sup> Controversial refers to circumstances where a substantial dispute exists as to the environmental consequences of the proposed action and does not refer to the existence of opposition to a proposed action, the effect of which is relatively undisputed (43 CFR 46.30).

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participate in the environmental analysis process. The Proposed Action would provide long-term protection of the at-risk resources present at Marble Beach and would not impact Indian sacred sites or historic properties. As mentioned above, implementing the Proposed Action would not disproportionately affect minorities or low-income populations.

## **Decision**

Based on the analysis in the EA, it is my decision to select the Proposed Action for implementation. The Proposed Action will best meet the Purpose and Need identified in the EA.



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**Recommended:**

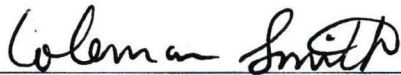


Scott Hofer  
Acting Environmental Program Manager  
U.S. Department of Interior  
Pacific Northwest Region  
Pacific Northwest Regional Office  
Boise, Idaho

10/15/2018

Date

**Approved:**



Coleman Smith  
Grand Coulee Power Manager  
U.S. Department of Interior  
Bureau of Reclamation  
Pacific Northwest Region  
Grand Coulee Power Office  
Grand Coulee, Washington

18 OCT 2018

Date

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U.S. Department of the Interior  
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Pacific Northwest Region  
Boise, Idaho

**October 2018**

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## Acronyms and Abbreviations

Acronym or Abbreviation	Meaning
ACB	Articulated concrete block
APE	Area of potential effect
BPA	Bonneville Power Administration
CCT	Confederated Tribes of the Colville Reservation
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
DAHP	Washington State Department of Archaeology and Historic Preservation
dB	decibel
EA	Environmental assessment
Ecology	Washington Department of Ecology
ESA	Endangered Species Act
FCRPS	Federal Columbia River Power System
ITA	Indian Trust Assets
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	NOAA National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
Reclamation	U.S. Bureau of Reclamation
SHPO	State Historic Preservation Officer
SWPA	Systemwide Programmatic Agreement for the Management of Historic Properties Affected by the Multipurpose Operations of Fourteen Projects of the Federal Columbia River Power System for Compliance with Section 106 of the National Historic Preservation Act
TCP	Traditional cultural property
THPO	Tribal Historic Preservation Officer
TMDL	Total Maximum Daily Load
USDA	U.S. Department of Agriculture
NRCS	USDA Natural Resources Conservation Service
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service

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Acronym or Abbreviation	Meaning
VE	Value engineering
WDFW	Washington Department of Fish and Wildlife

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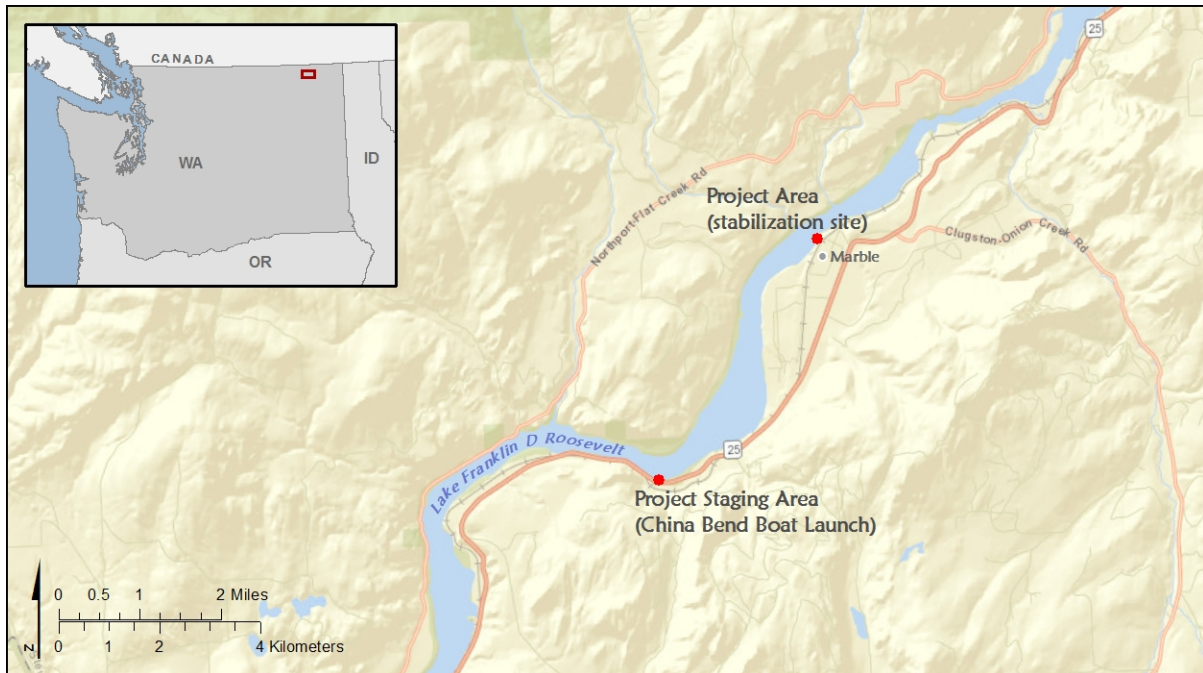
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# 1 Introduction

This environmental assessment (EA) analyzes potential impacts to the natural and human environment from the construction of a bank stabilization structure on approximately 330 linear feet of actively eroding shoreline on the Mainstem of Franklin Delano Roosevelt Reservoir (Lake Roosevelt) near the community of Marble, Washington, in Stevens County (Figure 1-1).



**Figure 1-1. Location of Marble Beach**

The Bureau of Reclamation (Reclamation) and Bonneville Power Administration (BPA) are parts of the Federal Columbia River Power System (FCRPS) Project and are responsible for the operation and maintenance of Grand Coulee Dam, which impounds waters of the Columbia River to form Lake Roosevelt. The shoreline of Lake Roosevelt comprises lands that were withdrawn from the public domain by Reclamation for the purposes of dam and reservoir construction and operations. These Federal lands are now jointly managed under the Lake Roosevelt Cooperative Management Agreement, otherwise known as the Five-Party Agreement (Five-Party 1990). The five managing partners are Reclamation, the National Park Service (NPS), Confederated Tribes the Colville Reservation (CCT), Spokane Tribe of Indians, and the U.S. Bureau of Indian Affairs.

The FCRPS Systemwide Programmatic Agreement (SWPA) was signed by Reclamation, BPA, and other signatories in 2009, and the CCT, NPS, Washington Department of Archaeology and Historic Preservation (DAHP), and other signatories in 2014. The SWPA states that the lead Federal agencies pledged to take into account the effects of the FCRPS undertaking on historic properties and adhere to the terms of the SWPA to satisfy the lead

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Federal agencies' Section 106 responsibilities of the National Historic Preservation Act (NHPA). It was through this process that the CCT requested that Reclamation build installations to protect sensitive cultural resources from operation and maintenance and recreational effects of the FCRPS undertaking at Lake Roosevelt and Grand Coulee Dam. This is also when the Lake Roosevelt Mainstem Cooperating Group (Cooperating Group), consisting of members from Reclamation, BPA, CCT, NPS, and the Washington State DAHP, first devised the bank stabilization structure for Marble Beach.

Reclamation is the lead Federal agency for this project and is preparing this EA in coordination with the other members of the Cooperating Group. Upon completion of this EA and associated consultation and coordination activities, the Grand Coulee Power Manager will determine if a Finding of No Significant Impact will be issued. If project impacts are determined to be significant, a decision will be made to either select the No Action alternative or issue a notice of intent to prepare an Environmental Impact Statement.

## **1.1 Project History and Planning Context**

The CCT History/Archaeology program staff regularly conduct evaluations of shoreline erosion at cultural resource sites on Lake Roosevelt on behalf of Reclamation. The purposes of the evaluations are to: 1) assess site conditions, and 2) gather data to support prioritization of potential treatments. Following the evaluations, which indicated erosion of cultural resources, Marble Beach was selected as a priority site with sensitive cultural resources. Initial design work on Marble Beach began in 2014, and the Cooperating Group has worked through several iterations of the project design since then. The nature and extent of the proposed treatment addressed in this EA are based largely on the results of input through the Cooperating Group.

A Value Engineering (VE) study was conducted for the Marble Beach bank stabilization project, according to Reclamation requirements to evaluate a range of design alternatives. The VE team comprised engineers, an archaeologist, a project manager, construction specialists, and a geologist. In evaluating the proposals, the team considered issues of concern to internal and external project stakeholders, design assumptions and constraints, and construction restrictions and limitations, and evaluated costs, potential risks, advantages, and disadvantages of each proposal. Each proposal consisted of a variant of the project baseline, including different methods of bank stabilization. Following completion and presentation of the VE study, the Cooperating Group agreed upon a combination of proposed stabilization methods – tiered concrete blocks with surface-treated riprap – to carry through for final design, which is the Proposed Action in this EA. The other bank stabilization methods considered were eliminated from full analysis and design and are described in Section 2.3.

## **1.2 Purpose and Need for Action**

The purpose of the Proposed Action is to:

- 
- Protect the shoreline and sensitive cultural resources at Marble Beach from natural and human-caused impacts, including erosion from wave action (wind and boating), seasonal reservoir drawdowns, unauthorized use of off-highway vehicles (OHV), and other recreational activities.
  - Meet responsibilities defined for the FCRPS undertaking in the SWPA.

The proposed Federal action is needed to halt shoreline erosion at Marble Beach to prevent inadvertent exposure of sensitive cultural resources.

### 1.3 Proposed Federal Action

Reclamation proposes to stabilize the shoreline and halt bank erosion at the Marble Beach Project site through the installation of a retaining wall using concrete blocks that would be reinforced with surface-treated riprap (Figure 1-2). Project staging would occur approximately 4 miles downstream of the project site at the NPS-managed China Bend Boat Launch (Figure 1-1).



Figure 1-2. Schematic depiction of the southern portion of the proposed retaining wall

### 1.4 Scoping and Public Involvement

Internal scoping was completed by the Cooperating Group during project conception through design, and by the Cooperating Group and internal Reclamation interdisciplinary team while initiating preparation of the EA. During a series of meetings and site visits from 2014 to the

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present, the Cooperating Group discussed project issues and methods to prevent further erosion and potential exposure of sensitive cultural resources.

The primary issues of concern are the continued erosion of the shoreline at Marble Beach and the associated potential for exposure and loss of sensitive cultural resources. The Reclamation team identified resources that potentially could be impacted by implementing the Proposed Action, and these resources are discussed further in Chapter 3.

Reclamation mailed scoping letters to Federal, State, and local agencies and elected officials, interested parties, and Indian Tribes on June 10, 2018, notifying them in advance that the EA would be available for public comment. Reclamation provided a news release to local-area media that announced the 2-week public comment period on the draft EA. The draft EA was posted to the website on July 27, 2018, and the comment period ended August 9, 2018. Reclamation received no comments during the comment period.

## **1.5 Legal Authorities**

Grand Coulee Dam and Lake Roosevelt are key features of the Columbia Basin Project. The Columbia Basin Project Act, 57 Stat. 140 (March 10, 1943), authorizes Reclamation to operate and maintain Grand Coulee Dam and all applicable works. The Columbia Basin Project is operated and maintained by Reclamation for multiple purposes, including flood control, improved navigation, streamflow regulation, storage and delivery of irrigation water, electrical power generation, and other beneficial uses.

As stated in the Purpose and Need section above, protection of sensitive cultural resources is required at this location. The legal authorities to provide this protection are found under the following:

- The National Historic Preservation Act of 1966, Public Law 89-665, as amended
- Archaeological and Historic Preservation Act of 1974, Public Law 93-291 and 16 U.S.C. 469-469c
- Native American Graves Protection and Repatriation Act, P.L. 101-601.

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## **2 Description of Alternatives**

The decision to be made involves two alternatives: either take no action or implement shoreline stabilization measures to protect the Marble Beach site (Proposed Action). This chapter describes the two alternatives (Section 2.1 and 2.2) and other methods of bank stabilization considered but not carried through for detailed analysis (Section 2.3).

### **2.1 The No Action Alternative**

Under the No Action alternative, Reclamation would not construct the bank stabilization structure along the eroding shoreline, and no efforts would be made to protect sensitive cultural resources at Marble Beach.

### **2.2 Proposed Action**

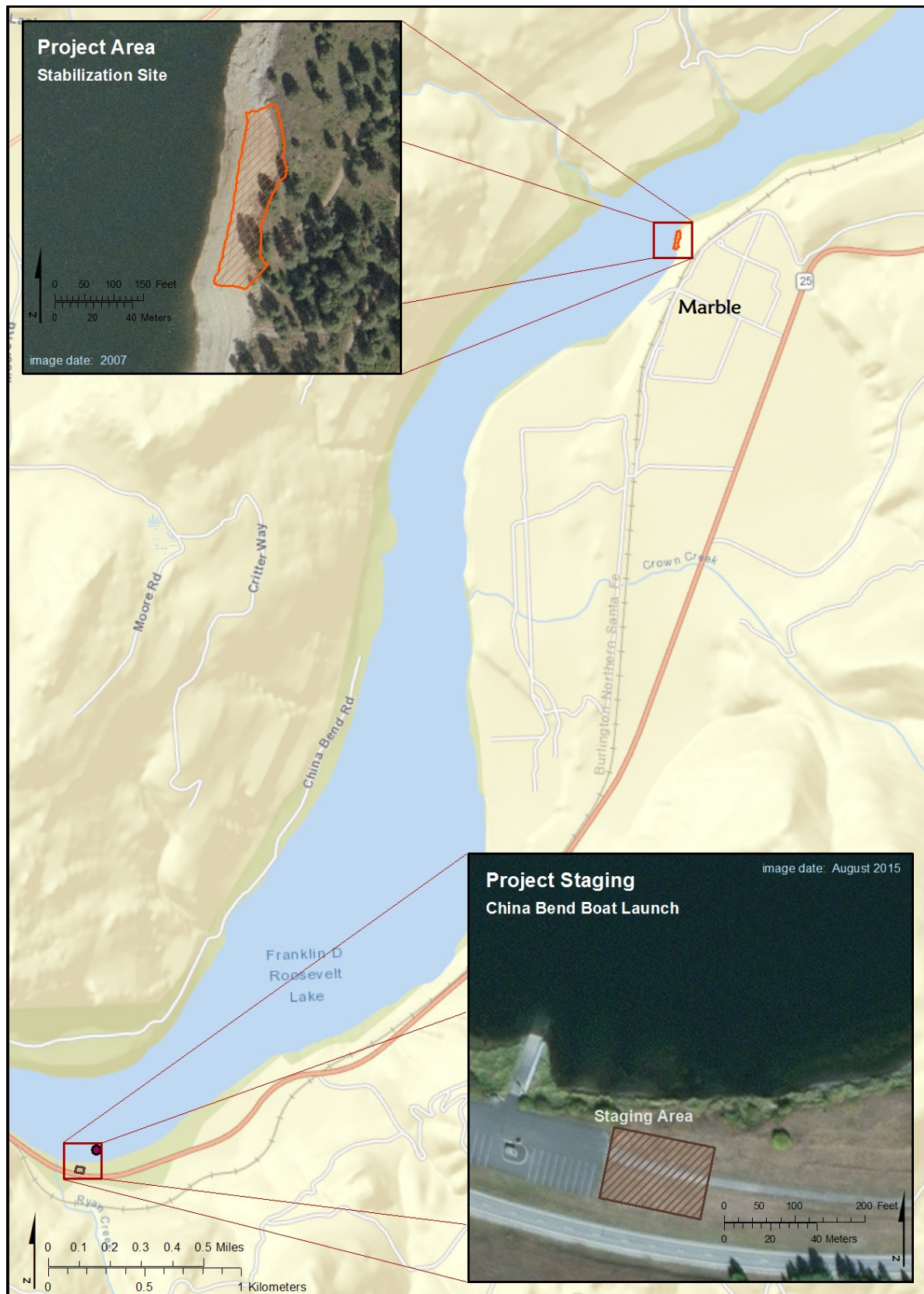
The Proposed Action is to construct a bank stabilization structure along the eroding shoreline of Lake Roosevelt by installing a concrete retaining wall reinforced with surface-treated riprap. Components of the bank stabilization system are described in Sections 2.2.1 and 2.2.2. Staging and loading of project materials would occur about 4 miles downstream from the stabilization site, as described in Section 2.2.3 (Figure 2-1). Project best management practices are summarized in Section 2.2.4, and construction monitoring is described in Section 2.2.5.

#### **2.2.1 Project Area Bank Stabilization**

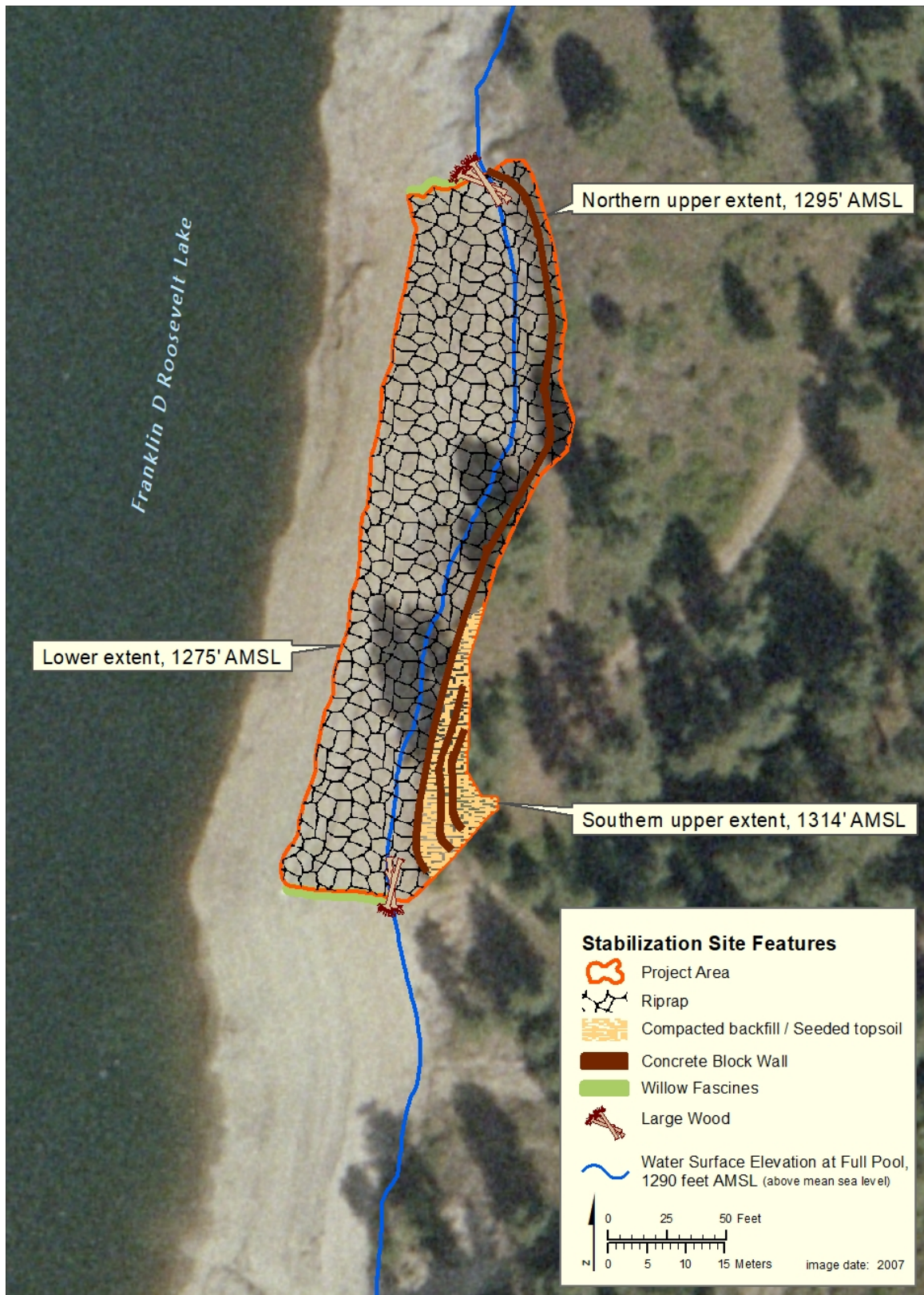
The top of the stabilization structure would extend horizontally from elevation 1295 feet above mean sea level to 1314 feet and have a maximum total overall length of approximately 330 feet. The bottom elevation (lower extent) of the stabilization structure would be at 1275 feet. The width of the area to be protected would range from 50 to 100 feet, for a total stabilization area of 20,200 square feet (about 0.5 acres; Figure 2-2).

Construction is proposed to begin in late summer 2019 and would be completed by late winter/early spring 2020, depending on lake water levels. Due to adjacent private land ownership and restricted access, the proposed construction would be barge-based (see Photograph 2-1). Further, wheeled or tracked equipment would be prohibited on the project site to minimize resource disturbance. Construction would be timed based on pool elevation so that all construction activities would occur outside of the water.





**Figure 2-1. Marble Beach project area and staging area**



**Figure 2-2. Marble Beach stabilization site**



The bank stabilization structure would consist of different gradations of imported rock, fill, concrete blocks (such as ecology blocks), and seeded topsoil. The northern extent of the top of the bank stabilization site has relatively flat topography (about 240 feet in length). Moving south, the topography steepens for the remaining portion of the structure (about 76 feet). Tier 1 of the stabilization would be constructed on the entire length of the northern and southern portions of the project and would consist of a single layer of concrete blocks with riprap backfill (Figure 2-2). Tier 1 would vary in height, from one concrete block layer to three concrete block layers, depending on the existing bank height. Due to the steep topography on the southern portion of the project site, two additional tiers (Tier 2 and 3) would be constructed on the southern portion of the project site to stabilize the bank (see Figure 2-2). The tops of tiers 2 and 3 would be seeded with native grasses (Figure 2-2); where there is only a single tier, there would be no seeded topsoil due to the presence of riprap. A wide layer of 24-inch riprap would be placed below the entire length of tier 1 down to 1275 feet in elevation. A single layer of 36-inch riprap would be placed at the bottom of the stabilization structure as an anchor. Further details of the bank treatment are described in Section 2.2.2.



**Photograph 2-1. Example of barge-based construction work**

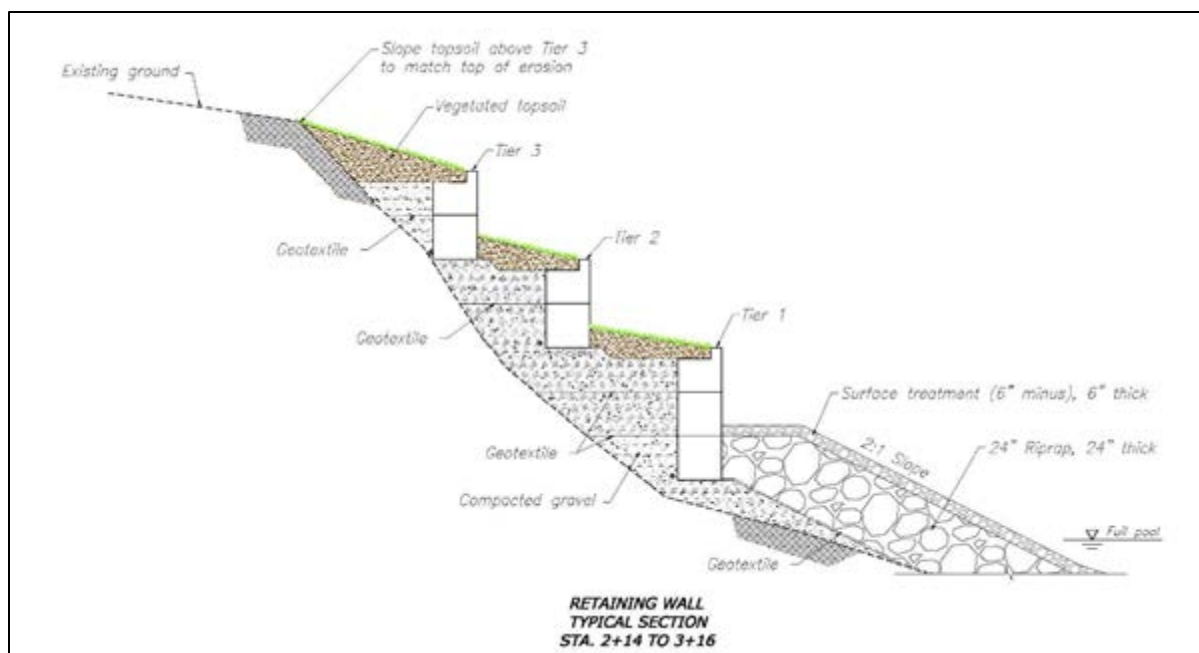
## **2.2.2 Principal Components of Work**

Bank stabilization would include the following components:

- Develop the barge loading and staging areas at the China Bend Boat Launch (see Section 2.2.3).



- 
- Stage construction materials and equipment at the China Bend Boat Launch. Access to the staging area would be from the existing highway system and county roads (see Section 2.2.3).
  - Construct the 330-foot long, concrete-block retaining wall. The total wall height would be 4 feet, with up to 3 feet visible.
    - A compacted gravel base would be used as the foundation for the tier of concrete blocks to provide a stable and level course. The top of the gravel bedding would be at 1293 feet elevation.
    - Three tiers of concrete blocks would be placed on the compacted gravel bedding at the southern extent of the site and backfilled (see Figure 2-3 for a cross-section of a portion of the structure). Individual block dimensions would be 2 feet high by 2 feet deep by 4 feet wide; the number of block layers by tier would vary. The top elevations of Tiers 1, 2, and 3 would be 1299, 1303, and 1307 feet, respectively. The concrete blocks would be earth tone in color, with the exposed faces patterned to blend with natural surroundings.
  - Riprap, combined with a gravel filter base layer and surface treatment (riprap holes filled with small aggregate rock), would be placed in front of the retaining wall between elevations 1294 and 1275 feet to protect the remaining portion of the project area shoreline.
  - Topsoil seeded with native grass would be placed on top of the tiers for the portion of the stabilization structure containing three tiers (Figure 2-3) as the tiers are finalized. The topsoil would be placed from the back edge of the concrete block up to 12 inches of the face of the next concrete block layer. Upon the initial seeding, the contractor would water the seeded topsoil using an existing Reclamation water right. Additional watering would occur as needed following construction to ensure survival of plants.
  - As part of the required mitigation for the CWA Section 404 permit (to offset the project impacts of placing fill materials below the ordinary high-water mark), Reclamation would install large wood structures and willow fascines (bundles) on each end of the stabilization project site, and anchor them with rip rap. Two wood structures would be installed, one with three logs on the upstream end and one with two logs on the downstream end of the site. Each fascine would consist of five poles of native willows placed at 2-foot intervals parallel to Lake Roosevelt and at each end of the site (See Figure 2-2).



**Figure 2-3. Cross-section drawing of the three-tiered retaining wall (occurring only at the southern portion of the stabilization site)**

### 2.2.3 Project Staging Area

The staging and loading areas would be located at the NPS-managed China Bend Boat Launch (see Figure 2-1 and Figure 2-4), approximately 4 miles downstream of the project site. This site consists of a boat launch, boat dock, parking area, and toilets. China Bend is open year-round to the public; however, the boat launch is accessible only at lake levels above 1277 feet (around mid-June through January).



**Figure 2-4. Staging area at China Bend Boat Launch**

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Materials would be transported to the staging area by truck on state highways and county roads. Traffic would be controlled, and temporary signage would be posted at all access points to the staging and loading areas for public safety. The staging area would be accessed primarily by the gravel road off WA-25, rather than the main China Bend Boat Launch access, to minimize impacts to public traffic. Use of the boat launch for staging and loading would comply with the terms and conditions of an NPS Special Use Permit. To accommodate construction at lake elevations below 1277 feet, when the boat launch is out of the water, the barge could be loaded from the launch via a ramp and conveyor or other appropriate method, as determined by the contractor.

The staging area would be sited on the east side of the boat launch parking area (Figure 2-4). This approximately 0.35-acre area would be used for stockpiling construction materials and storing equipment during the construction period. The staging area would be encompassed by a chain-link fence with secure gates for restricted access. The parking area would remain open to the public.

The general location of the loading area, where the barge would land and launch, is shown on Figure 2-4. The exact location would vary within this area, depending on weather conditions and water surface elevation, and would be selected by the barge operator. Depending on the equipment used by the contractor, barge size, and materials being loaded, the barge would make two to four trips per day from the loading area to the stabilization site: one in the morning to load materials, and at least one mid-day to replenish materials. After-hours during the construction period, the barge would anchor at a small cove downstream from the staging area, or as directed by the NPS.

During barge loading throughout the late summer and fall, public availability of the boat launch would be temporarily disrupted and delayed. To ensure public safety while loading the barge, the contractor would direct traffic, temporarily block off the loading area, and remove temporary barriers when the launch is not needed so that the public can resume use of the boat launch. Reclamation would work closely with the NPS to ensure the public is notified about China Bend staging activities and delays.

## **2.2.4 Best Management Practices**

The following best management practices (BMPs) relevant to resources addressed in this EA would be implemented by the contractor to reduce the potential for impacts to the human and natural environment. Further detail on these BMPs is outlined in Appendix A. Additional control methods are detailed in the design specifications and would be part of the construction contract.

- Dust Control
- Air Pollution Control
- Noise Control
- Invasive Species Control

- 
- Water Pollution Controls

### **2.2.5 Monitoring**

Reclamation would provide on-site cultural resources monitors for the duration of construction activities. These monitors would be present to observe the work and ensure that the plans for limited ground disturbance are followed. If cultural resources are uncovered during construction work, the monitors would work with the Reclamation construction inspector and Contracting Officer to protect the find and ensure that proper protocols for inadvertent discoveries at Lake Roosevelt would be followed.

## **2.3 Alternative Methods of Bank Stabilization Considered but Eliminated**

During the planning stages of this project, the Cooperating Group discussed several options to stabilize the Marble Beach shoreline during regular quarterly meetings. One of the greatest design and construction constraints considered in evaluating different methods was the need to minimize or avoid ground disturbance at the site and prohibit use of heavy equipment on the exposed shoreline. The Cooperating Group also wanted to apply a consistent approach to avoid altering habitat or otherwise changing the aesthetic and natural qualities of the site, since the project is within the Lake Roosevelt National Recreation Area managed by NPS, for which maintenance of aesthetically pleasing surroundings is a goal (NPS 2000). The Proposed Action was developed through consideration and analysis of several bank stabilization methodologies, including the use of a combination of one or more of the following: gabion baskets, articulated concrete block (ACB), Reno mattresses, surface-treated riprap, and concrete ecology blocks.

### **2.3.1 Gabion Baskets with Articulated Concrete Block**

This proposal was the original baseline concept and considered using a combination of gabion baskets and ACB for bank stabilization. Gabion baskets were proposed at elevation 1290 feet to stabilize the shoreline at full pool. The baskets would be backfilled with 1-foot soil lifts and planted with native vegetation. A series of ACB mats would be attached to the bottom of the gabion baskets to stabilize the bank.

This option was eliminated due to higher cost, the difference in aesthetic qualities of gabion baskets and ACB mats compared to ecology blocks and riprap, longevity of the gabion baskets, and potential ground disturbance. Tiered ecology blocks are more aesthetically pleasing than gabion baskets, and riprap is more aesthetically pleasing than ACB mats. Further, there was some concern about the durability and life expectancy of the wire mesh of the gabion baskets. There was also concern from stakeholders that ACB mats would need to be anchored to the gabion baskets and keyed in with cables, which would result in the potential for disturbance to native substrate.

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### **2.3.2 Articulated Concrete Block with Surface Treated Riprap**

This proposal considered using ACB with surface-treated riprap for bank stabilization. The ACB, once installed, would be visually unnatural, consisting of a large, exposed expanse of concrete blocks on an otherwise natural shoreline. It also included gabion baskets from the original baseline concept. This option was eliminated due to the lack of durability of the gabion baskets, the potential for ground disturbance associated with anchoring the ACB to the gabion baskets, and because of aesthetic qualities (ecology blocks are more aesthetically pleasing than ACB).

### **2.3.3 Articulated Concrete Block with Reno Mattresses**

This proposal considered using ACB and Reno mattresses for bank stabilization. It also included gabion baskets from the original baseline concept. This option was eliminated due to aesthetics, effects on recreation, lack of durability, and the potential for ground disturbance. The ACB, once installed, would be visually unnatural, consisting of a large, exposed expanse of concrete blocks on an otherwise natural shoreline; the Reno mattresses also would be visually displeasing, with exposed wire mesh. Additionally, there was concern about the durability and life expectancy of the wire mesh of the Reno mattress and gabion baskets. There was also concern from stakeholders that Reno mattresses could reduce recreational opportunities on the shoreline. Further, Reno mattresses need to be anchored/keyed in, which would result in the potential for disturbance to native substrate when connecting the ACB to the Reno mattress.

### **2.3.4 Riprap with Surface Treatment**

This proposal considered using 18-inch riprap covered with 12-inch compacted fill to cover the entire stabilization site. Riprap is an effective method of bank stabilization and results in large cost savings over some of the other methods. This proposal was not dropped in its entirety, but instead was combined with tiered ecology blocks at the upper elevations to provide enhanced aesthetics, recreation management, and a reduced area of fill erosion potential.

### **2.3.5 Use Gabion Baskets Instead of Tiered Ecology Blocks**

Gabion baskets were discussed as an alternative to tiered ecology blocks for bank stabilization. This option was dismissed due to concerns from stakeholders about aesthetics and durability. Gabion baskets are less aesthetically pleasing and less durable than ecology blocks.

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## **3 Affected Environment and Environmental Consequences**

This chapter describes existing physical, biological, social, and cultural resources that could be affected by the Proposed Action and identifies potential impacts, beneficial or adverse, to those resources that could result from each of the two alternatives. The Affected Environment section describes the existing environment upon which the alternatives could have an effect, and the Environmental Consequences section describes the potential direct and indirect effects of those alternatives, if implemented, on the resources evaluated. This chapter closes with an analysis of cumulative effects for those resources directly or indirectly impacted by the Proposed Action.

The No Action alternative describes the conditions of a specific resource if Reclamation takes no action and provides the basis to compare the Proposed Action.

Preliminary analysis indicated that the bank stabilization project has no potential to affect some resources or is anticipated to affect certain resources to such a limited extent that a detailed discussion of those resources is not justified. Resources that were determined to be unaffected by the Proposed Action are summarized in Appendix B and include: Air Quality, Energy, Environmental Justice, Hazardous Waste and Materials, Indian Trust Assets, Land Use, Water Rights, Wild and Scenic Rivers, Public Health and Safety, Socioeconomics, and Wetlands. Resources or uses that may be affected by the Proposed Action or No Action Alternative are analyzed in the remainder of this chapter.

### **3.1 Soils**

#### **3.1.1 Affected Environment**

The top of the terrace at Marble Beach ranges from elevation 1295 to 1314 feet above mean sea level. The material consists of fine-grained sand and silt with fine gravel and cobbles. The material at the toe of the terrace (lowest elevation 1275 feet) is composed of gravelly sandy loam with rock outcropping and cobbles (USDA NRCS 2017, Figure 3-1). The bank material has little shear strength and is easily erodible. Wave action from wind and recreational boating has caused substantial erosion and some bank slumping at the contact between the two terrace materials. The staging area consists of cobbly ashy sandy loam with a compacted gravel road passing through part of it (USDA NRCS 2018, Figure 3-1).





**Figure 3-1. The material at the Marble Beach stabilization site consists of gravelly sandy loam with rock outcropping and cobbles.**

Unnaturally high levels of metals, including lead and arsenic, are found in topsoil in the upper Columbia River Valley near the border between the United States and Canada. Marble Beach is approximately 16 miles from the border. The Teck Trail smelter, located less than 10 miles across the border in Trail, British Columbia, on the banks of the Columbia River, is the main contaminant source. Since 1896, Teck Metals Ltd., and its predecessors (Cominco and others) have continuously operated the smelter in Trail (Ecology 2017). When present, the concentrations of metals commonly observed in the upper Columbia River Valley can be a health concern, if not managed properly. It is not known if these metals are present in the soils at the project site. However, given their presence upstream, there is the potential for metals to be deposited at the site, but at potentially lower concentrations.

### **3.1.2 Environmental Consequences**

#### **Proposed Action**

The bank stabilization project would result in minor short-term disturbances to soils adjacent to the site as the stabilization structure is installed. The project, through the placement of the bank stabilization structure, would lead to long-term stabilization of the soils and protection of the shoreline. The addition of vegetation, through seeded topsoil on the three-tiered structure at the southern portion of the site, would further stabilize the soil and reduce erosion and soil loss over time.

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Fill, gravel, riprap, and topsoil would be obtained from an approved borrow source or quarry. Soil composition and depth at the site would change due to the high volume of gravel fill and riprap proposed for the stabilization structure. Soil composition would consist of 6 inches of gravel base material, various depths of compacted gravel backfill, a layer of 18-inch riprap topped with 6 inches of gravels, and topsoil at the top of the concrete tiers (Section 2.2.2). Soils in the staging area would result in minor short-term disturbances where construction materials would be laid. The area would be rehabilitated to original condition upon completion of work.

Due to the unnaturally high levels of metals found in the topsoil in the upper Columbia River Valley, soils would be tested for metals prior to construction to protect the contractor and ensure that the proper safety equipment is used during the construction of the bank stabilization structure.

### **No Action**

Under the No Action alternative, the soils that make up the shoreline would continue to be eroded by wave action, which could lead to the bank slumping.

## **3.2 Recreation Values and Uses**

### **3.2.1 Affected Environment**

Recreation opportunities along the Mainstem are managed by the NPS as part of the Lake Roosevelt National Recreation Area. The lake is a popular location for boating, fishing, and water sports. Sport fish include rainbow trout, kokanee, walleye, yellow perch, smallmouth bass, walleye, and sturgeon. The fishing season is open year-round, except for sturgeon and walleye. Seasonal harvest of white sturgeon opened in 2017. The 2018 sturgeon season opened June 15 from Grand Coulee Dam to the China Bend Boat Ramp and closed on August 31, 2018 (WDFW 2018).

Marble Beach is an undeveloped area that offers seasonal recreation opportunities. This site occurs in the Upper Region of Lake Roosevelt<sup>2</sup> near the town of Marble. The site is primarily accessed by nearby residents and boat-in visitors. Unauthorized off-highway vehicle (OHV) use of the beach is causing concern about possible damage to sensitive resources. Another stretch of beach used by visitors is located adjacent to and downstream from Marble Beach but is not as easily accessible from Marble. Recreational use numbers for these undeveloped/informal beaches are not available.

The closest boat ramp to the Marble Beach stabilization site is China Bend, approximately 4 miles downstream. China Bend is a popular boat launch and picnic area; overnight camping is not permitted. China Bend has limited facilities, including a boat launch, boat dock,

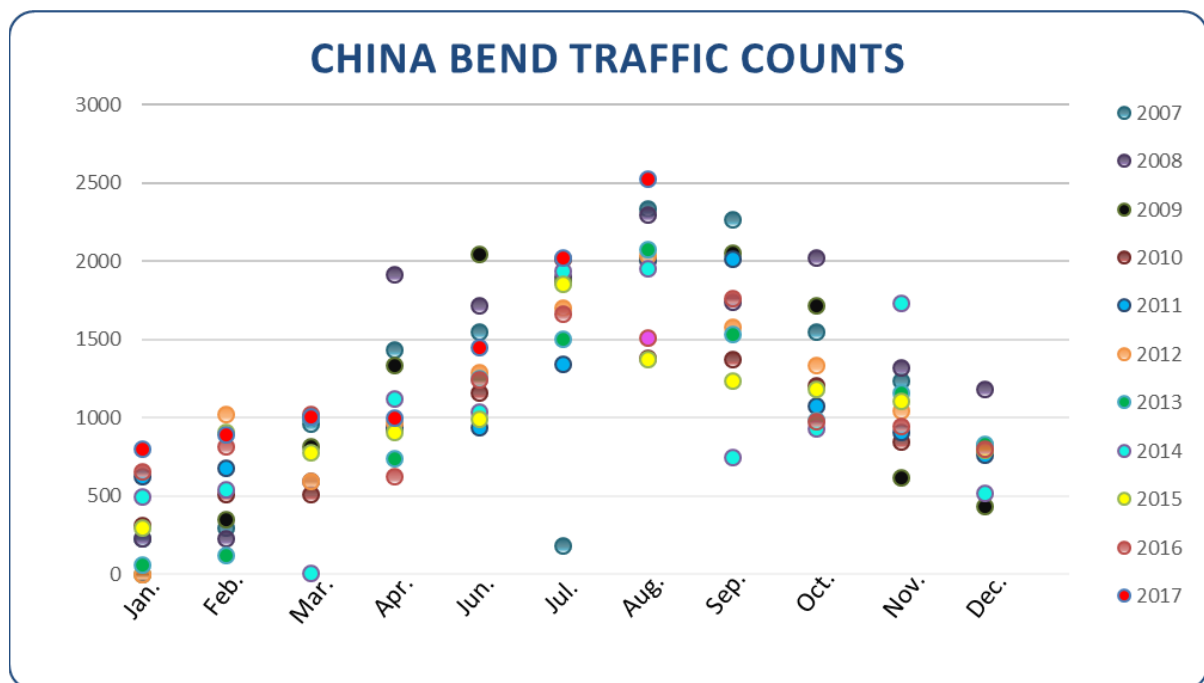
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<sup>2</sup> The Upper Region of Lake Roosevelt encompasses the approximate area from the community of Rice, Washington (south of Kettle Falls) to the border between the United States and Canada.



parking area, and vault toilets. Boats are permitted to launch at this site when lake levels are above 1277 feet, typically between June and January. There are eight other developed recreation sites within the Upper Region, including North Gorge, Snag Cove, and Evans Campgrounds. Between Kettle Falls and China Bend (about 27 miles), there are seven NPS-managed boat launches, and there is an additional boat launch at Northport (about 7 miles farther north) managed by the city. China Bend is located 11 miles south of Northport, Washington, on State Highway 25. Larger nearby population centers include Spokane and Spokane Valley, Washington, and Post Falls, Idaho. These larger cities contribute substantially to the total annual visitation for the Upper Region of Lake Roosevelt, as the cost of traveling is relatively low from these locations (Scherer et al 2013).

Traffic counts are used to extrapolate visitor use numbers and track user trends at China Bend over time. Traffic counts provided by the NPS (Edwards 2017) demonstrate use trends between 2007 and 2017 (Figure 3-2). Traffic counts have shown that visitation at China Bend has remained relatively stable. In 2017, there was a spike in the total number of vehicles entering the site. July, which marks the peak of the season, received 2,531 vehicles, an increase from the previous 3-year average of 1,613. This spike may be related to the new sturgeon harvesting season. On an average year in July (based on the previous 3-year average), there would be about 52 vehicles daily, if visitation were evenly dispersed throughout the week; however, more visitation is anticipated on the weekends than during weekdays. The annual average number of vehicles for the past 10 years is 14,821.



**Figure 3-2. Traffic control counts at China Bend**

According to the Lake Roosevelt National Recreation Area Visitor Survey (NPS 2016), 27 percent of groups visiting consisted of three or four people, although larger family groups are

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common. Groups spent an approximate average of 7.5 hours at China Bend (Scherer et al 2013). The average for total annual visitation is approximately 44,463 visitor days.

Recreational issues that were identified in the NPS General Management Plan (NPS 2000) include the lack of available campsites at popular facilities and overcrowding at the boat ramps. In 2010, the NPS finalized a shoreline management plan to address issues related to visitor crowding at public facilities, including boat ramps and shoreline access points. Private developments near the shoreline create the appearance of private ownership and confuse many visitors. “The unregulated use of the Lake Roosevelt shoreline has also occasionally resulted in visitor conflicts due to crowding, including territoriality” (NPS 2010).

Additionally, boat-in camping and day use at informal sites create the potential for increased human health and safety issues and impacts to natural and cultural resources.

### **3.2.2 Environmental Consequences**

#### **Proposed Action**

Long-term, minor impacts to recreational opportunities at Marble Beach would result from a reduction in the total amount of beach available for recreational activities. The beach area is approximately 1.8 acres when the lake elevation is at 1277 feet (i.e., the lake level when boats can launch at China Bend). There would be a loss of approximately 0.4 acres of the beach after stabilization (about 330 linear feet), which equates to about 20 percent of the total beach area during peak recreation season.

Construction of the stabilization structure would restrict OHV use on a portion of the beach, preserving non-motorized recreational opportunities at Lake Roosevelt.

The terracing of the slope and placement of riprap would have a minor impact on the recreational setting, as the modifications would contrast with the existing landscape. The substrate would be altered with the addition of riprap, making this area slightly harder for pedestrians to traverse. However, the landscape would retain its overall natural appearance, and the visual intrusions would dissipate over time (for more information on visual resources, see Section 3.3).

Impacts to public health and safety would be minimal. While the construction of the stabilization structure would attract some visitors, these structural changes would be easily seen by beach-goers and could be avoided. The height of the exposed concrete blocks would not exceed 4 feet, and the top and bottom terraces would have 3 feet of exposed surface, reducing the potential for falls and serious injury. The band of riprap that would be placed downslope from the retaining wall would be covered with an aggregate of small cobbles and gravels, thereby avoiding the creation of underwater hazards. Public safety would be ensured during staging activities using temporary barriers and flagging, as needed, at the China Bend boat launch and parking area.

Short-term, minor recreational impacts to visitors at the China Bend boat launch would occur when construction materials are loaded onto the barge. Peak recreation season occurs between Memorial Day and Labor Day; only a small portion of staging and loading activities

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would occur during this period, with no activities occurring between Memorial Day and the end of July. Fencing of the staging area and delivery of materials could begin by early August and use of the boat launch to load materials onto the barge could begin by mid-August. All staging activities would occur outside of the designated parking lot and would not affect parking availability.

During loading of the barge in late summer and fall, vehicles carrying equipment would drive through the parking lot from the staging area to the boat launch, temporarily disrupting public use of the boat launch two to four times per day when lake levels are above 1,277 feet. The number of daily disruptions would be dependent on contractor equipment. The boat ramp would be unavailable to the public at these times, and visitors would experience waiting times when the barge is being loaded. Duration of wait times would depend on the type of equipment used to load the barge, the barge size, and the materials being loaded. Staging of construction would disrupt normal seasonal recreational activities after mid-August, and some visitors would be temporarily displaced (potentially to other nearby boat launches). Public postings of the anticipated delays would help to mitigate this temporary impact.

### **No Action**

Under the No Action Alternative, no construction activities would occur. Therefore, there would be no displacement or disruption of visitors at the China Bend boat launch.

## **3.3 Visual Resources**

### **3.3.1 Affected Environment**

Marble Beach is an undeveloped area that offers varying recreation opportunities (see Section 3.2). The site is primarily accessed by nearby residents and boat-in visitors. Key observation points are typically located along the shoreline and nearby locations on the reservoir. According to the General Management Plan for the Lake Roosevelt National Recreation Area (NPS 2000), “the sensitive resources within the National Recreation Area are primarily cultural and visual.” Visitors would be sensitive to major modifications to the natural landscapes, as well as moderate contrast that would substantially change the recreational setting. Marble Beach is managed in its natural condition, providing for opportunities for quiet and solitude.

The landscape views of Marble Beach change seasonally based on water levels. At lower water levels, the exposed beach provides opportunities for visitors to engage in swimming, water play, and picnicking. The beach consists of gentle slopes seen in the foreground, interspersed with rock outcrops and the occasional low-growing vegetation. The steep banks and jagged, horizontal lines of the cliff interrupt the scene and create a dramatic backdrop, which is further accentuated by the vertical lines and darker color of the coniferous forest found along the ridgeline (Photograph 3-1).



**Photograph 3-1. Landscape view of Marble Beach during low water levels**

As the water levels increase, the shoreline is no longer marked by the sandy soils and gentle slopes; the water level expands towards the top of the ridgeline, creating a radically different view. Rock outcrops lie scattered throughout an undulating surface that rises in elevation as it moves into the background. The coniferous forest now plays a primary role in the natural landscape (Photograph 3-2).



**Photograph 3-2. Landscape view of Marble Beach during high water levels**

### **3.3.2 Environmental Consequences**

#### **Proposed Action**

Environmental consequences are analyzed using the Bureau of Land Management Visual Resource Management system that involves inventorying scenic values and establishing management objective for those values through resource management planning process (BLM 1984). Bank stabilization would extend horizontally at the top of the existing slope for an approximate length of 330 feet. Stabilization would include reinforcing the lower portion of the shoreline with surfaced treated riprap and constructing a shorter three-tiered terrace (see Section 2.2.2 and Figure 3-3). The tops of the three-tiered terrace would be revegetated with native grasses, further blending the project into the natural surroundings. Construction activities would result in short-term visual impacts that would cease upon construction completion.





**Figure 3-3. Conceptual diagram of the stabilization site with tiered retaining wall and surface-treated riprap**

During low water levels, the stabilization project would be visible at the top of the slope and generally would be outside the view of key observation points located on the beach below. The reinforced slope would follow the natural topography, and terrace elevations would be relatively low compared to the existing vegetation. Observation points on the reservoir would have only intermittent views of the terraces due to the constantly changing shoreline. Nearby, the modifications may draw the attention of the casual observer but would not dominate the view. At distances of 1 mile or more, the low-profile nature, natural coloring, and vegetative screening would further diminish the overall contrast, and the visual modifications would blend into the background.

At full pool, the visual modifications would be positioned in the foreground, and the visual contrast would draw the attention of the casual observer located on the ridgeline. The concrete blocks and riprap would introduce regular block forms and horizontal repeating lines that would contrast moderately with the surrounding landscape. The blocks would be placed to create a slight curvature, would have molded faces, and would be dyed to blend with the natural surroundings. This measure would help to mitigate the overall contrast. Only a portion of the riprap would be visible at high lake levels.

At full pool, the angle of observation would not contribute to the overall visual contrast, and some locations from the reservoir would have a clear view of the stabilization project. However, irregular edge and alternating vegetation types characteristic of the tree line would have a mitigating effect and the project would blend well into the surrounding landscape.

The stabilization project would add a weak to moderate contrast to the line, form, color, and texture of the natural landscape and may draw the attention of casual observers. However, the project would be unobtrusive given the natural surroundings. The impacts to visual resources along Marble Beach would be confined to a narrow band, and the introduced contrast would diminish over time. The planting of native grass seed and the natural regeneration of low-

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growing shrubs and young trees would screen the concrete blocks on the three-tiered terrace and/or soften their appearance within a few years. The overall composition of the natural setting would be minimally affected due to the short project length (330 feet), and opportunities for quiet and solitude would remain.

### **No Action**

Under the No Action Alternative, the bank stabilization structure would not be constructed. Therefore, no impacts to visual resources would result.

## **3.4 Water Quality**

### **3.4.1 Affected Environment**

The water quality of Lake Roosevelt is regulated by the State of Washington Department of Ecology (Ecology) under the framework of the Clean Water Act (CWA). Washington State has established water quality standards for specific physical and chemical parameters to provide suitable conditions to support designated and potential uses. Some of these uses include agricultural water supply, domestic water supply, stock water supply, industrial water supply, commercial navigation, boating, wildlife habitat, harvesting, and aesthetics (Ecology 2016a). The designated uses of Lake Roosevelt include core salmonid summer habitat and extraordinary primary contact recreation, as well as nine additional standard uses.

Extraordinary primary contact recreation is a designated use for some high-quality or special waters of the state. This designation and the associated water quality standards provide more stringent protection against waterborne disease than primary contact recreation standards.

Section 303(d) of the CWA requires states and tribes to identify water bodies that do not meet water quality standards. States and tribes must publish a list of these impaired waters every 2 years. The most recent approved 303(d) list for the State of Washington is the 2012 Integrated Report approved by U.S. Environmental Protection Agency on July 26, 2016 (Ecology 2016b). For lakes, rivers, and streams on this list, states and tribes must develop water quality improvement plans known as total maximum daily loads (TMDLs). These TMDLs establish the amount of a pollutant a water body can carry and still meet water quality standards. Water temperature was identified as one of the primary water quality problems in the Columbia River segments near Grand Coulee Dam; other water quality concerns include low dissolved oxygen and polychlorinated biphenyls (a persistent organic pollutant with toxicities similar to dioxins).

Tributary streams and rivers in the upper basin of the Columbia River, as well as landslides and erosion of unconsolidated sediments from the reservoir rim, deposit sediments in Lake Roosevelt (USGS 2002). Landslides and erosion along Lake Roosevelt have occurred and continue to occur on the reservoir shorelines (Stevens County Land Services Department 2016).

### **3.4.2 Environmental Consequences**

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## **Proposed Action**

The Proposed Action is expected to reduce sediment loading and turbidity and thus improve water quality conditions within Lake Roosevelt in the long term. The action is expected to minimize erosion from the shoreline, but due to the small size of the stabilization area and the fluctuation of Lake Roosevelt, the reduction in suspended sediment would not be noticeable in the reservoir offshore areas.

There is the potential for short-term localized impacts to water quality during construction. However, CWA permitting for this project would be issued via a Joint Aquatic Resources Permit Application. Through the permitting process, the U.S. Army Corps of Engineers (Corps) and Ecology would identify and document potential required mitigation to protect the water quality in Lake Roosevelt during construction of the Proposed Action.

Additionally, construction BMPs would be implemented to protect water quality (see Appendix A). Therefore, any short-term impacts to water quality during construction are anticipated to be negligible.

## **No Action**

The No Action alternative would not alter sediment conditions in Lake Roosevelt. There would be continued sediment loading into Lake Roosevelt from erosion of the shoreline.

## **3.5 Vegetation**

### **3.5.1 Affected Environment**

The landscape and vegetation regimes surrounding Lake Roosevelt vary across the area, from mixed conifer and ponderosa pine forests in the northern and eastern portions, to semi-arid vegetation classes along the southern and western portions of the reservoir. Additionally, grasslands, pastures, and occasional wetlands add to the wide range of plant diversity.

The project area consists mostly of sandy shoreline that is non-vegetated and is exposed part of the year. Where Tier 2 and Tier 3 are proposed, there is a small area of terrestrial vegetation year-round. Conifers and shrubs are adjacent to the area proposed for stabilization. Fluctuating water levels from reservoir operations combined with erosion from wave action limit the population of near-shore vegetation. The staging area shown in Figure 2-1 indicates a gravel road surrounded by vegetation on both sides that consists mostly of native and weedy grasses.

### **3.5.2 Environmental Consequences**

#### **Proposed Action**

There would be minor, short-term, localized disturbance and compaction of vegetation at the staging area and immediately adjacent to the project site as the stabilization structure is installed. The southern portion of the stabilization site, where the three-tiered retaining wall would be constructed, would be seeded with native grass species to help stabilize soils and



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improve the appearance of the completed project. The installation of the retaining wall and surface-treated riprap would reduce shoreline erosion. Decreased erosion offers the potential for some plant populations to establish or increase at the top of the slope. Approximately 2,270 square feet (0.05 acres) of new vegetation would be established, resulting in a minor increase in total area of vegetation over existing conditions. Once the project is complete, the staging area vegetation would be rehabilitated to original condition.

### **No Action**

Over the long term, as soil is lost from the site, the ability of the site to support vegetation would diminish. Given the small size of the affected area, the impacts to vegetation would be small.

## **3.6 Noise**

### **3.6.1 Affected Environment**

Noise is defined as unwanted sound that is objectionable because it is disturbing or annoying due to its pitch or loudness (USGS 2006). Because the human ear is not equally sensitive to all frequencies, the most common method of measuring frequency is the A-weighted sound level, or dBA. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. In the A-weighted decibel scale, everyday sounds normally range from 30 dBA (very quiet) to 80 dBA (annoying) to 90 dBA (very annoying) to 100 dBA (very loud) (EPA 1981). Representative noise levels in units of dBA from the loudest types of construction equipment are shown in Table 3-1.

**Table 3-1. Representative construction noise levels**

<b>Tool or Equipment</b>	<b>A-Weighted Sound Level in Decibels</b>
Light traffic (at 100 feet)	50
Barge	72
Welder/Torch	74
Generator	73-81
Ground Compactor	80
Pneumatic drill (at 50 feet)	80-85
Chainsaw	84
Excavator	85

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Tool or Equipment	A-Weighted Sound Level in Decibels
Recreational Boating	88
Heavy truck (at 50 feet)	90
Hand power tool	95-118
Hand power saw	97-114
Screw gun, drill motor	98-124

Source: University of Washington 2017 and WDOT 2017

Washington Administrative Code 173-60-050 does not regulate construction noise between 7:00 a.m. and 10:00 p.m., and Stevens County does not currently regulate construction noise. The land at the China Bend Boat Launch is accessible by road, and residents nearby are noise-sensitive receptors. Noise in this area is primarily automobile traffic and recreational boating ranging from 50 to 88 dBA (WDOT 2017).

The project study area for noise disturbance includes the China Bend Boat Launch and Marble Beach. Both areas are exposed to noise, primarily by visitors who spend the day at the beach, fish, and boat on the lake. Sensitive receptors to noise changes in the more developed areas include residents, workers, and visitors. These individuals' sensitivity to changes in the noise environment depend on the relative change in noise conditions and how close to, and for how long, they are exposed to the change. The closest private residence to the project is located approximately 0.14 miles east and up the bank from the project site. Numerous large evergreen trees are present between the project site and this residence; a railroad also exists adjacent to this residence.

### 3.6.2 Environmental Consequences

#### Proposed Action

There would be short-term, localized increases in noise due to staging, loading, and construction activities, both at the staging area and stabilization site. Noise would be produced at varying levels during equipment and material staging, barge loading, and bank stabilization construction. Noise levels (dBAs) are anticipated to range from 50 to 85 dBA at the stabilization site and staging area. Construction activities would be performed between the hours of 7:00 a.m. to 7:00 p.m., unless otherwise directed by the NPS. Thus, no impacts to adjacent landowners and visitors would occur in the evening. Construction could occur on weekends, depending on the contractor's schedule, so impacts to landowners and visitors could potentially occur 7 days a week for the duration of construction. However, it is anticipated that noise would attenuate to some degree from the stabilization site to the nearby residences, given the topography and existing screen of evergreen trees, thus reducing the

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potential impact. Noise levels during construction and staging are not anticipated to be much higher than that existing when recreational boats are driving by.

### **No Action**

Under the No Action alternative, no construction would occur at this location. Existing noise with its various components would remain at the current levels.

## **3.7 Wildlife**

### **3.7.1 Affected Environment**

Lake Roosevelt is surrounded by diverse habitats for many wildlife species. Conifer forests, shrub-steppe, riparian wetlands, open water, and mixed agriculture and pasture grasslands represent suitable habitat for a diverse array of wildlife species. The stabilization site consists mostly of non-vegetated, sandy shoreline that is exposed part of the year; the southern portion where the upper tiers are proposed contains some vegetation. Conifers and shrubs are adjacent to the stabilization site and the China Bend staging area. Systematic surveys of wildlife have not been conducted in the area, but Priority Habitats and Species (PHS) data note the presence of elk, deer, and bird species (according to the Washington Department of Fish and Wildlife (WDFW), as referenced in Reclamation 2017).

### **3.7.2 Environmental Consequences**

#### **Proposed Action**

During construction, wildlife species sensitive to noise disturbance and found in habitats near the stabilization site and staging area could be affected by noise and disturbance associated with construction activities, resulting in the potential for short-term avoidance of the project area. These could include birds such as raptors, waterfowl, and migratory songbirds; mammals such as deer and elk; and reptiles and amphibians that use the area (Reclamation 2017). These disturbances would be short-term and limited to daylight hours. Furthermore, the project construction window lies primarily outside of breeding, nesting, or dispersal times for the discussed avian species, and therefore, no impacts to nesting birds are anticipated. Access to the project site would be achieved by barge via a long-arm excavator, reducing physical disturbance to wildlife using the shoreline and associated habitat. Also, some wildlife species using the staging area and immediate vicinity may be habituated to human recreational presence, thus reducing the degree of disturbance.

About 0.4 acres of sandy shoreline habitat would be converted to surface-treated rip rap, thus altering the current habitat at the stabilization site. This impact is anticipated to be negligible, given the expanse of shoreline up and downstream from the stabilization site.

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## **No Action**

If the No Action alternative is selected, physical erosion of the shoreline would continue. Further loss of soil would make it more difficult for vegetation to establish, yielding a small decrease in potential wildlife habitat at Marble Beach.

## **3.8 Fisheries**

### **3.8.1 Affected Environment**

The affected environment for fish is at the China Bend Boat Launch and the Marble Beach stabilization site. Sport fisheries in Lake Roosevelt are managed by the WDFW. Lake Roosevelt currently supports 20 species of game fish and 12 non-game species. Primary harvest fisheries include rainbow trout, kokanee salmon, sturgeon, and walleye. Kokanee salmon and rainbow trout populations are supplemented via hatchery and net pen operations through a multi-agency effort, the Lake Roosevelt Fishery Enhancement Program, and contribute to the Lake Roosevelt fisheries. Other game fish include smallmouth and largemouth bass, perch, whitefish species, other trout species, crappie, bullhead, sunfish, and catfish. Non-game species, such as suckers, shiners, dace, and sculpin, provide prey base to the fishery.

Bull trout, listed as Threatened under the Endangered Species Act (ESA), are rare, but a few have been documented in Lake Roosevelt (see Section 3.9). State regulations protect white sturgeon, and in May 2017, WDFW announced that there would be an open harvest fishery for white sturgeon in Lake Roosevelt, the first in more than 30 years. For more information on recreational fishing, see Section 3.2.

### **3.8.2 Environmental Consequences**

#### **Proposed Action**

No construction activities would occur directly in the water. However, potential short-term impacts to fisheries could include temporary displacement from presence of the barge in the water during construction. Fish that may occupy the area would likely leave the area surrounding the barge during construction activities. These activities and potential short-term impacts would cease upon project construction completion. Due to the slope and sediment type, suitable spawning habitat and cover for fish are lacking and therefore would not be impacted.

Studies have shown that the effects of riprap for stabilization have both positive and negative effects on fish (Harper and Quigley 2004). Positive effects may include providing additional habitat for foraging and protection of smaller native fish. Negative effects include spaces in the riprap that may provide foraging and spawning habitat for non-native predatory fish, which could pose a predation risk to native fish species. At the project site, spaces within the riprap would be filled in with small aggregate rock (surface-treated). This may result in minimal or no additional fish habitat.

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The two large wood structures and willow fascines (bundles) on each end of the stabilization project site (see Figure 2-2) would create additional habitat for foraging and protection of smaller fish, similar to riprap before surface treatment. It would also provide foraging habitat for non-native predatory fish. The size of the wood structures would create only a minimal amount of fish habitat.

Reduction in sediment loading and turbidity from the Proposed Action (see Section 3.4.2) could result in improved water quality for fish and other aquatic species at a localized level.

### No Action

The absence of bank stabilization would likely result in continued erosion of the shoreline. Increased sediment could have some negative biological impacts affecting aquatic and semi-aquatic species that would be available to fish as a food source.

## 3.9 Threatened and Endangered Species

### 3.9.1 Affected Environment

The following list of Threatened and Endangered species protected by the ESA was developed using the U.S. Fish and Wildlife Service (USFWS) online Information for Planning and Consultation tool for Stevens County, Washington.

**Table 3-2. ESA-listed species for Stevens County, Washington**

<b>Federal Threatened and Endangered Terrestrial Wildlife Species</b>	<b>Status</b>
Canada Lynx ( <i>Lynx Canadensis</i> )	Threatened
Grizzly Bear ( <i>Ursus arctos horribilis</i> )	Threatened
North American Wolverine ( <i>Gulo gulo luscus</i> ): contiguous U.S. distinct population segment	Proposed Threatened
Yellow billed Cuckoo ( <i>Coccyzus americanus</i> )	Threatened
Bull Trout ( <i>Salvelinus confluentus</i> )	Threatened

Source: USFWS online Information for Planning and Consultation tool for Stevens County, Washington, <https://ecos.fws.gov/ipac/>

### Canada Lynx

The Marble Beach Stabilization Project site is outside of the designated critical habitat for the Canada lynx. The project site lacks requisite characteristics of suitable lynx habitat, and there is no suitable habitat near the project area. The frequency of recreational use near the project

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site further reduces the likelihood of occurrence in the project area<sup>3</sup>. Any use of the project area would be incidental and transitory, resulting in minor disturbance of this species.

### **Grizzly Bear**

There are two Ecosystem recovery zones designated for the grizzly bear that lie partially within the State of Washington. Neither of these designated recovery-area ecosystems occurs within Stevens County, Washington, or the Marble Beach project area. Occurrence of this species near the project area is made less likely by the frequency of recreation-associated disturbance. Habitat and population fragmentation similarly reduce the likelihood of grizzly bear presence in the project area<sup>4</sup>. Any use of the project area would be incidental.

### **North American Wolverine**

The project site lacks requisite characteristics of suitable wolverine habitat, and there is no suitable habitat near the project area. No critical habitat has been designated for this species. Furthermore, because of recreational use in the project area, presence of the wolverine in proximity is unlikely<sup>5</sup>.

### **Yellow-billed Cuckoo**

According to the USFWS, the yellow-billed cuckoo had a historical presence in Stevens County, Washington. However, there are no suitable habitat characteristics in the project area. Furthermore, the area experiences recreational use and associated disturbance, reducing the likelihood of cuckoo presence (Reclamation 2017). The project area lies outside of critically designated habitat<sup>6</sup>.

### **Bull Trout**

In 2012, 19 bull trout observations by local citizens, fishing charters, and tribal and educational survey crews were reported from various locations within Lake Roosevelt. If bull trout were present, it is assumed that they would have been entrained from upstream spawning habitat in Canada and the Pend Oreille River, since there is no known bull trout spawning habitat in Lake Roosevelt tributaries (USFWS 2015). Bull trout are extremely rare in Lake Roosevelt, and even less likely to be found in the tributaries. Bull trout are thought to have been observed near the mouths of Lake Roosevelt tributaries, but sightings are often anecdotal. The action area lies outside of bull trout designated critical habitat and designated recovery units.

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<sup>3</sup> Information regarding Canada lynx can be found at <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A073>

<sup>4</sup> Information regarding grizzly bear can be found at <https://www.fws.gov/mountain-prairie/es/grizzlyBear.php>.

<sup>5</sup> Information regarding North American wolverine can be found at <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0FA>.

<sup>6</sup> Information regarding yellow-billed cuckoo can be found at <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B06R>.

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## 3.9.2 Environmental Consequences

### Proposed Action

Table 3-3 lists the effects that the Proposed Action could have on listed species near the proposed project.

**Table 3-3. Effects determination for listed species**

Species	Effects Determination
Canada Lynx ( <i>Lynx canadensis</i> )	The Proposed Action would have no effect on Canada lynx due to lack of habitat; any use of the project area would be incidental and short.
Grizzly Bear ( <i>Ursus arctos horribilis</i> )	The Proposed Action would have no effect on grizzly bears; any use of the project area would be incidental.
North American Wolverine ( <i>Gulo gulo luscus</i> ): contiguous U.S. distinct population segment	The Proposed Action would have no effect on the North American wolverine as there is no suitable habitat in or near the project area.
Yellow billed cuckoo ( <i>Coccyzus americanus</i> )	There would be no effect to the yellow billed cuckoo due to lack of suitable habitat and the action area being outside of the current species range.
Bull trout ( <i>Salvelinus confluentus</i> )	The Proposed Action would have no effect on bull trout. Presence is highly unlikely due to a lack of spawning habitat. The project area lies outside of designated critical habitat and designated recovery units.

### No Action

Impacts of the No Action alternative on threatened and endangered species would be the same as that described for wildlife (Section 3.7) and fish (Section 3.8).

## 3.10 Transportation

### 3.10.1 Affected Environment

Washington State Route 25 (WA-25) is the main road accessing the China Bend Boat Launch and private residences in the community of Marble. Lake Roosevelt is a popular recreation area. Peak season for recreation at China Bend is June through August (see Figure 3-2). No designated roads access the stabilization site. The only authorized public access is from Lake Roosevelt by boat.

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## **3.10.2 Environmental Consequences**

### **Proposed Action**

Trucks hauling materials for this project would use U.S. and state highways and county roads, as necessary, to transport materials to the staging area. During material delivery, the gravel road off WA-25, rather than the main China Bend Boat Launch access, would be used as much as possible to minimize impacts to public traffic. Brief interruptions in traffic when entering or leaving the staging area are described in Section 2.2.3. No changes in local road traffic or transportation patterns are expected to occur because of the proposed project.

Barges would be used on Lake Roosevelt to transport materials to the stabilization site due to the lack of designated overland access roads. Recreational boaters would need to navigate around slow-moving barges when present.

### **No Action**

Under the No Action alternative, there would be no changes in local road or lake traffic or transportation patterns.

## **3.11 Cultural Resources**

### **3.11.1 Affected Environment**

#### **Background**

Cultural resources include historic places, traditional cultural properties (TCPs), artifacts and documents, buildings, structures, archaeological sites, districts, objects, cultural landscapes and ethnographic resources.

Past work to identify and evaluate cultural resources in the affected areas for the project has included literature review, pedestrian inventory, testing, and site monitoring. Federal undertakings, as described in Chapter 1, have resulted in NHPA compliance projects, including State Historic Preservation Office (SHPO) and Tribal consultations at Marble Beach and the China Bend Boat Launch. This stabilization project is an adverse effect treatment for compliance with the FCRPS SWPA.

#### **Archaeological Resources within the Project Area**

The Mainstem of Lake Roosevelt from Grand Coulee Dam to the Canadian border contains hundreds of archaeological sites on Reclamation-, CCT-, and NPS-managed lands.

Archaeological sites along the mainstream of Lake Roosevelt include habitations, resource gathering and processing sites, rock images and legendary landscapes, and many other types of human use areas. The local sites date from about the end of the Pleistocene to modern times and indicate a long-term and continuous human use of this stretch of the Columbia River by the Lakes Indians and their ancestors. The Lakes Indians are now one of the 12 affiliated tribes of the CCT.



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The banks of the former Columbia River channel and the associated cultural resources have been subject to accelerated erosion and related disturbance and loss since completion of Grand Coulee Dam in 1942. The affected areas for this assessment includes the area to be stabilized at Marble Beach and the staging, barge-loading, and launching area proposed at the China Bend Boat Launch.

#### Marble Beach (Stabilization Site)

Prior to creation of the reservoir, the adjacent section of the Columbia River had rapids and was used as a prime fishing and camping location by the Lakes Indians. Sixteen known tribal allotments occur within 1 mile of Marble Beach (Boswell 2000; Covington 2018:45), and this location is included in the draft Lakes Villages Archaeological District as a contributing site (Pouley and Covington 2012). The site is also independently eligible for the National Register of Historic Places (National Register; Covington 2016a).

Sensitive cultural resources present here are at continuous risk of being permanently lost or damaged by reservoir operations and maintenance and recreation impacts (including looting). These resources were first identified at Marble Beach in 1995 (King and Greiser 1996). They have been revisited many times since then (for example: Roulette et al. 2001 and Pouley and Covington 2012). Notable recording efforts occurred in 2007 and 2011 (McCullough and DePuydt 2012:24-28 and Brunson and Culpepper 2007: 22-24). The CCT History/Archaeology Program regularly conducts assessments and monitors impacts at Marble Beach (Covington 2014a; Covington 2014b; Covington 2015; Covington 2016b; Covington 2017; and Covington 2018). The CCT frequently request that the Federal agencies stabilize and protect this landform from continued adverse effects of the Grand Coulee Dam operations and recreation impacts.

The leading edges of pre-dam Columbia River terraces are regularly inundated and experience unheeded erosion reservoir-wide. Subsurface cultural deposits erode along terrace risers at various reservoir strand lines. Observations recorded over numerous years of monitoring suggest that intact subsurface cultural horizons are eroding rapidly at Marble Beach (Covington 2016a).

#### China Bend Boat Launch (Staging Area)

The NPS-managed China Bend Boat Launch is located on the left bank of Lake Roosevelt on a moderately sloping, high river terrace crossed by many small drainages. This stretch of the former Columbia River was also home to the Lakes Indians, who fished, camped and gathered resources here. Sixteen known tribal allotments occur within 1 mile of the boat launch (Boswell 2000; Covington 2018:34). Like Marble Beach, the site is also within the proposed Lakes Villages Archaeological District (Pouley and Covington 2012).

Two cultural resource sites have been recorded near the China Bend Boat Launch during NPS and FCRPS Section 106 compliance work. These sites include a historic segment of corduroy road and a large scatter of cultural resources along the banks of the former riverbed. The road was first recorded in 2000 during FCRPS compliance work (Roulette et al 2001:

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135). The other cultural resources in the vicinity were identified as early as 1967 (Chance 1967).

Both the FCRPS lead Federal agencies and the NPS have conducted compliance work at the boat launch. The FCRPS contracted a large subsurface testing effort there in 2001 to determine the extent of the cultural resources. This work identified resources both upstream and downstream of the boat launch, but nothing in the immediate vicinity of the NPS facility (Roulette et al 2003: 277-296).

### **Traditional Cultural Properties**

There are many Traditional Cultural Properties (TCPs) along the Mainstem of Lake Roosevelt (George 2011). Due to the sensitivity of TCPs to the CCT, details regarding location and use of TCPs along the Mainstem are not disclosed in this EA.

### **Buildings and Structures**

There are no historic buildings or standing structures in the affected areas for the Marble Beach stabilization project. The remains of the historic corduroy road are discussed as an archaeological site and are located outside the affected area of the boat launch facilities.

## **3.11.2 Environmental Consequences**

### **Proposed Action**

#### *Archaeological*

##### Marble Beach

The primary purpose of this project is to protect the shoreline and sensitive cultural resources at Marble Beach from natural and human-caused impacts (Section 1.2). Construction of the proposed bank stabilization structure along the eroding shoreline would provide immediate and long-term protection of the at-risk resources present at Marble Beach. The Section 106 NHPA finding for the proposed action, signed by lead agency officials, was No Adverse Effect.

Reclamation engineers and archaeologists worked closely with the SHPO, CCT History/ Archaeology Program, Tribal Historic Preservation Officer (THPO), and NPS to design the project in a way that would minimize further disturbance to the existing shoreline and cultural resources. The shoreline protection system would be placed on fill brought into the site and was designed so that excavation would not be needed to protect cultural resources. If unforeseen ground disturbance is needed, it would only be allowed with approval and direction of an on-site archaeologist or archeological representative so that direct impacts to at-risk resources would be avoided. Construction efforts would also be continuously monitored by on site archaeological monitors to ensure avoidance of resource impacts.

Construction would be barge-based, with only pedestrian access on the project site; thus, no site disturbance by tracked vehicles would occur. The use of gravel fill and geotextile at the base of the concrete blocks and beneath the rip rap would provide a layer of protection for

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the natural ground surface. Additional fill over the block walls and riprap surfaces would help protect the structure from continued erosion by Lake Roosevelt and shield the site from looters, boaters, and recreationists. The resulting cover would preclude immediate access to the resources for scientific study, but resources would be preserved, rather than permanently lost due to looting or erosion.

#### China Bend Boat Launch

At China Bend, staging operations and barge loading would be regulated by a Special Use Permit through NPS. There would be no new ground disturbance from staging and barge-loading activities. Staging and parking would be confined to previously disturbed areas with gravel, concrete, or asphalt cover; no cultural resources are present in these areas. Any conveyor system or vehicle access to the exposed shoreline to accommodate barge loading would be limited to areas approved through the NPS Special Use Permit and with no potential to impact sensitive natural or cultural resources. Therefore, no impacts to previously recorded historic or archaeological sites upstream and downstream of the boat launch would occur.

#### *Traditional Cultural Properties*

The Proposed Action would have no effect on TCPs. The CCT, through FCRPS planning partnership and consultation efforts, have not identified any potential impacts to TCPs caused by the planned stabilization effort.

#### *Buildings and Structures*

The Proposed Action would not affect historical buildings and structures, as no buildings or structures of historic significance were identified within the affected areas.

### **No Action Alternative**

#### *Archaeological*

##### Marble Beach

Under the No Action alternative, a stabilization structure would not be installed at the project site. In the absence of a protective structure, the shoreline would continue to erode, and the existing cultural resources would continue to be irreparably damaged by reservoir and recreation-related causes. The results would be continued loss of cultural resources and/or disassociation of the physical past with the landform.

If the No Action alternative is selected, the CCT would lose the physical remains of their substantial cultural connections to the Columbia River at this location, and the cultural resources present at Marble Beach would be at risk of being permanently lost. Loss of such cultural resources is traumatic to the descendants of the original inhabitants and further disrupts any efforts to interpret and understand past lifeways in the Columbia Plateau.

##### China Bend Boat Launch

The No Action alternative would not affect the cultural resources near the China Bend Boat Launch.

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## *TCPs*

The No Action alternative would have no effect on TCPs.

## *Buildings and Structures*

The No Action alternative would not affect historical buildings and structures.

## **3.12 Indian Sacred Sites**

Executive Order 13007, signed by President Clinton on May 24, 1996, defines a sacred site as:

Any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site [E.O. 13007, Section 1 (b) (iii)].

### **3.12.1 Affected Environment**

Marble Beach and China Bend are located in the traditional territory of the Lakes Indians (Covington 2016a; Pouley and Covington 2012). They are a constituent member of the CCT and refer to themselves as *Snai'tcektst*, *Snrai'tcektstex*, or *Snai'tcektstex*; other tribes refer to them as *Sinijixtee* and *Sinatcheggs* (Pouley and Covington 2012; Teit 1930:198, 208-213; Ray 1936:16, 22-23, 26; Bouchard and Kennedy 1984, 1985; Table 3). The CCT have not informed Reclamation of any sacred sites within the immediate vicinity of the proposed project area. Several locations with traditional place names and traditional cultural value are present along the Mainstem of Lake Roosevelt, but the CCT have not specifically identified Marble Beach or the China Bend Boat Launch as having established religious significance or ceremonial use.

### **3.12.2 Environmental Consequences**

#### **Proposed Action and No Action**

Based on the review of existing information and consultations with the CCT THPO and History/Archaeology Program, implementation of the Proposed Action or No Action alternative would not result in direct or indirect impacts to sacred sites.

## **3.13 Cumulative Impacts**

Cumulative effects are defined in 40 CFR 1508.7 as, "The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or

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person undertakes such actions.” Past and current actions are considered in the above Affected Environment and Environmental Consequences sections by resource. Cumulative effects are addressed for those resources directly or indirectly impacted by one of the alternatives. Resources not addressed include threatened and endangered species, Indian sacred sites, and transportation.

Former cultural resource protection/erosion control projects that have occurred along Lake Roosevelt include:

- A stabilization project (45FE1) along the Mainstem near Kettle Falls, Washington (2012)
- Two shoreline protection projects (Moonbeam Bay and Redford Canyon) along the Mainstem near Grand Coulee, Washington (2015)
- A road improvement project along Eden Harbor Road near Grand Coulee, Washington (2017), to protect sensitive resources, and
- The Hidden Beach bank stabilization project along the Spokane Arm (2014)

Reasonably foreseeable future actions along Lake Roosevelt include:

- Continued, and likely increased, level of recreation due to population growth and the new sturgeon fishing season
- Continued operation of Grand Coulee Dam and associated annual fluctuations of Lake Roosevelt water levels
- Continued erosion of the lake shoreline due to wave action and seasonal reservoir drawdowns
- Continued monitoring of cultural resources, and
- Mitigation of cultural resource impacts (including the proposed Cayuse Cove bank stabilization project along the Spokane Arm of Lake Roosevelt)

### **3.13.1 Soils**

Recreational activities, especially boating, are prevalent along Lake Roosevelt. These activities are expected to continue in the future and could lead to additional erosion of the banks and a loss of soil near the project site. The stabilization structure and associated seeding would help stabilize the soil at the project site and thus incrementally reduce the level of erosion along the Lake Roosevelt shoreline. Other shoreline stabilization projects have been completed along Lake Roosevelt (Section 3.13) and are cumulatively adding to soil stabilization.

### **3.13.2 Recreation Cumulative Impacts**

The loss of beach area would be negligible when compared to the total amount available in the Upper Region of Lake Roosevelt. Implementing the Proposed Action or the No Action alternatives would not add substantially to the cumulative impacts to recreational

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opportunities in the area. The short-term impacts at China Bend would be limited in scope and would cease upon construction completion.

### **3.13.3 Visual Resources**

The impact to visual resources resulting from the stabilization project would be negligible compared to the about 513 miles of total shoreline at the Lake Roosevelt National Recreation Area (NPS 2000). Implementing the Proposed Action or the No Action Alternatives would not add substantially to the cumulative impacts to visual resources or to the natural setting found within the park.

### **3.13.4 Water Quality**

Implementing the Proposed Action or No Action Alternative would not result in cumulative impacts to water resources. The operation of Grand Coulee Dam, especially the yearly raising and lowering of the water elevation, would continue to impact the lake shoreline and increase erosion and sediment loading. The potential short-term impacts to water quality during construction activities would be minimized with implementation of BMPs and application of potential permit mitigation requirements and cease upon completion of the project. The bank stabilization project would be beneficial to water quality at a local level (330 feet of shoreline) but would be insubstantial at the scale of the entire Mainstem shoreline.

### **3.13.5 Vegetation**

Vegetation at the Marble Beach stabilization site has been impacted by water impoundment, altered water flows, and recreation. The Proposed Action would be unlikely to contribute to cumulative effects on vegetation due to the small level of disturbance.

### **3.13.6 Noise**

The project would result in short-term, localized noise impacts at both the staging area and stabilization site. This noise could add cumulatively to other noise generated in the area, such as recreational boating, driving into and out of the China Bend parking area, and the railroad. However, given the short duration and localized nature of the project, these impacts are not considered substantial.

### **3.13.7 Wildlife**

Recreation along Lake Roosevelt would continue to occur and is expected to increase over time, potentially resulting in disturbance to shoreline wildlife. Construction noise impacts of the Proposed Action on wildlife would be short-term, and thus are not anticipated to add cumulatively to impacts on wildlife in the area. Alteration of habitat from construction of the stabilization site would be minor (0.4 acres) in the context of the existing shoreline between the stabilization site and the staging area and would not cumulatively impact wildlife.

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### **3.13.8 Fish**

Grand Coulee Dam does not have a fish passage structure for all fish to move freely within the Columbia River system. It is well documented that dam construction has eliminated or reduced fish passage through these facilities (FAO 2001). Development and recreational activities, especially boating, are prevalent in Lake Roosevelt; these activities are expected to continue in the future and could lead to increased erosion and sediment delivery to the lake, which could affect habitat for fish. The operation of Grand Coulee Dam, especially the yearly raising and lowering of the water elevation, will continue to cause erosion of the shoreline. Project riprap could create a small amount of habitat for fish (both native and invasive) at the stabilization site, and the stabilization structure would reduce sediment delivery to the lake at a localized level; however, the amount of habitat impacted would be very small, and cumulative impacts are not expected.

### **3.13.9 Cultural Resources**

The Proposed Action is designed to protect and preserve sensitive cultural resources at Marble Beach. Many cultural sites along Lake Roosevelt have been degraded over time by operations of Grand Coulee Dam and Lake Roosevelt. There have been several FCRPS treatment projects implemented or planned along the shorelines of Lake Roosevelt to minimize some of these impacts. The Proposed Action, when combined with other bank stabilization and treatment projects at Lake Roosevelt, and other forms of mitigation (Section 3.13), would cumulatively protect cultural resources along the banks of the inundated Columbia River.

If the Proposed Action or another method of bank stabilization is not constructed (i.e., the No Action alternative is implemented), the erosion at Marble Beach would continue, and the integrity of the cultural resources present at the site would be impacted until those resources are irreplaceably destroyed. This impact would be combined with the effects of erosion on cultural resources up and down the banks of the inundated Columbia River.

No TCPs or historical buildings or structures would be impacted under the Proposed Action or No Action Alternative; therefore, there would be no cumulative impacts to these resources.

## **4 Consultation and Coordination**

This chapter briefly describes the overall environmental consultation and coordination with responsible agencies associated with the local, state, and Federal laws, regulations, executive orders, and policies that are pertinent to the Project.

Those consulted during preparation of this EA include the following Tribal, Federal, and State agencies: CCT, BPA, NPS, Corps, Ecology, WDFW, and DAHP. Specific individuals were consulted to gather information and data about the project area and applicable requirements, as part of consultation, or for permit applications.

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## **4.1 National Environmental Policy Act**

Reclamation prepared this EA pursuant to regulations implementing the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.), which requires Federal agencies to assess the effects that their actions may have on the environment. NEPA requires preparation of an Environmental Impact Statement for major Federal actions significantly affecting the quality of the human environment. Reclamation prepared this EA to determine if the Proposed Action would create significant environmental effects that would warrant preparing an Environmental Impact Statement, or if a Finding of No Significant Impact is justified.

## **4.2 National Historic Preservation Act**

The NHPA was enacted in 1966 and requires Federal agencies to consider project-related impacts to historic properties, which includes prehistoric and historic-period archeological sites, traditional cultural properties, and elements of the built environment. The process for implementing the NHPA is defined in Federal regulations (36 CFR 800) and includes consultation with the SHPO, THPO, and the Advisory Council on Historic Preservation about Federal findings regarding project effects. This work at Lake Roosevelt, for the operations and maintenance of Grand Coulee Dam, is covered by the FCRPS SWPA. The Proposed Action's primary purpose is to mitigate adverse effects to a National Register-eligible archaeological site by protecting the shoreline and sensitive cultural resources at Marble Beach from natural and human-caused impacts, including erosion from wave action (wind and boating), seasonal reservoir drawdowns, unauthorized use of OHVs, and other recreational activities.

Reclamation has reached a finding of No Adverse Effect on historic properties in the area of potential effect as a result of this undertaking. In reaching this finding, Reclamation consulted with the Washington SHPO and the CCT THPO regarding effects of the Proposed Action on historic properties. DAHP and THPO have concurred that there will be no adverse effects for this undertaking via a FCRPS Treatment Plan Form signed by SHPO on September 6, 2018, and THPO on August 14, 2018.

## **4.3 Endangered Species Act**

The ESA requires all Federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or destroy or adversely modify their critical habitat. As part of the ESA's Section 7 process, an agency must request information from the USFWS and NOAA Fisheries regarding whether any threatened and endangered species occur within or near the action area. The agency then must evaluate impacts to those species. If the action may affect any listed species, the agency must consult with the USFWS and/or NOAA Fisheries to ensure that the project will not jeopardize listed species or destroy or adversely modify their critical habitat. Reclamation did not request a list from NOAA, as there are no threatened or endangered species listed by NOAA in the Columbia River above Grand



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Coulee Dam. Reclamation requested a species list from USFWS on October 3, 2017, and an updated list May 22, 2018. Reclamation analyzed the impacts of the project on the species listed and concluded that there would be no effect on listed species or their critical habitat with implementation of the Proposed Action. Therefore, no consultation was required with USFWS (see Section 3.9.2).

## **4.4 Tribal Coordination and Consultation**

Reclamation is proposing to install a stabilization structure at the request of the CCT to protect archaeological resources along the Marble Beach shoreline from additional erosion. The project is a Section 106 mitigation/treatment designed to meet the stipulations of the FCRPS SWPA. Reclamation and BPA have partnered with the CCT and the rest of the Lake Roosevelt Mainstem CG during the planning and design of the project and during the preparation of this EA. As a result, project planning and design include the input of the Reclamation, CCT, BPA, NPS, and DAHP.

Reclamation will conduct ongoing consultation with the CCT, SHPO, and NPS if there are any required changes to project conditions, especially for those with the potential to affect historic properties. Reclamation will contract with the CCT to provide on-site monitors during project construction to ensure no sensitive resources are adversely affected during installation of the stabilization structure. As part of this process, prior to construction, Reclamation will notify the CCT of the intent to proceed and deliver to them the project schedule. If project work encounters archaeological materials during construction, all ground-disturbing activities near the archeological resources must stop. Construction will not resume until the construction crew completes all mitigation measures developed in consultation between Reclamation, the CCT, and SHPO. Reclamation will inform the construction crew of the potential presence and recognition of archeological materials and will instruct the crew to avoid areas that may contain archaeological materials.

## **4.5 Secretarial Order 3175 – Department Responsibilities for Indian Trust Assets**

Indian Trust Assets are legal interests in property held in trust by the United States (with the Secretary of the Interior acting as trustee) for Indian tribes or Indian individuals. Examples of ITAs are lands, minerals, hunting and fishing rights, and water rights. In many cases, ITAs are on-reservation; however, they may also be found off-reservation.

The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian tribes or Indian individuals by treaties, statutes, and executive orders. These rights are sometimes further interpreted through court decisions and regulations. This trust responsibility requires that officials from Federal agencies, including Reclamation, take all actions reasonably necessary to protect ITAs when administering programs under their control. This project would comply with Secretarial Order 3175 (see Appendix B).

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## **4.6 Executive Order 13007 – Indian Sacred Sites**

Executive Order 13007, dated May 24, 1996, instructs Federal agencies to promote accommodation of access to, and protect the physical integrity of, American Indian sacred sites. A sacred site is a specific, discrete, and narrowly delineated location on Federal land. An Indian tribe or an Indian individual determined to be an appropriately authoritative representative of an Indian religion must identify a site as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion, provided that the tribe or individual is an appropriate authoritative representative of an Indian religion. This project would comply with Executive Order 13007 (see Section 3.12).

## **4.7 Clean Water Act**

### **4.7.1 Section 401**

A Federal permit to conduct an activity that causes discharges into navigable waters is issued only after the State of Washington certifies that existing water quality standards would not be violated if the permit were issued. Reclamation submitted a Joint Aquatic Resource Project Application to Ecology to apply for Section 401 project review and certification. Ecology will review the project's CWA Section 401 and Section 404 permit applications for compliance with Washington water quality standards and grant certification if the permits comply with these standards.

### **4.7.2 Section 402**

This section of the CWA authorizes National Pollutant Discharge Elimination System permits (NPDES) for the discharge of pollutants, such as stormwater. The EPA Region 10 provides a general permit for discharges from construction activities. The contractor would issue a Notice of Intent to receive coverage under this general permit and would prepare a stormwater pollution prevention plan.

### **4.7.3 Section 404**

When dredged or fill material discharges into waters of the United States, including wetlands, it requires authorization from the Corps in accordance with the provisions of Section 404 of the CWA. Reclamation has submitted a Joint Aquatic Resource Project Application to the Corps to apply for permit coverage under Section 404. Section 404 permits issued by the Corps may be an individual permit or a permit authorized under the nationwide permit (NWP) process. Currently, there are 54 NWPs, with one of the NWPs designated for bank stabilization (NWP 13). The Corps determines whether the proposed project meets the general, national, and regional conditions associated with the NWP process. If not, the project is reviewed under the individual permit process.

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## **4.8 Executive Order 12898 – Environmental Justice**

Executive Order 12898, dated February 11, 1994, instructs Federal agencies, to the greatest extent practicable and permitted by law, to make achieving environmental justice part of its mission by addressing, as appropriate, disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. Environmental justice means the fair treatment of people of all races, income, and cultures with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative environmental impacts resulting from the execution of environmental programs. This project would comply with Executive Order 12898 (see Appendix B).

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## **Appendix A – Project Best Management Practices**

Best Management Practices (BMPs) would be implemented during construction of the Marble Beach bank stabilization project. The BMPs relevant to resources addressed in the EA include:

### **Dust Control**

Dust control and abatement would be provided during performance of work. Dust pollution would be prevented, controlled, and abated in work areas.

- Prevent, control, and abate dust pollution on rights-of-way provided by the government or elsewhere during performance of work.
- Labor, equipment, and materials would be provided, and efficient methods used wherever and whenever required to prevent dust nuisance or damage to persons, property, or activities.

### **Air Pollution Control**

Reasonably available methods and devices would be used to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.

- Equipment and vehicles that show excessive exhaust gas emissions would not be operated until corrective repairs or adjustments reduce such emissions to acceptable levels.

### **Noise Control**

- Do not exceed noise levels of 65 decibels during the daytime (7:00 am to 7:00 pm), as measured at nearest noise-sensitive areas such as residences and schools.
- Only construction activities approved by the Contracting Officer's Representative shall be allowed during the hours of 7:00 pm to 7:00 am.

### **Invasive Species Control**

Contractors would be required to ensure that all equipment entering the project and staging areas be free of noxious weeds, invasive species, and their propagules, in accordance with State of Washington law. This includes aquatic and terrestrial (i.e., land-dwelling) species.

### **Water Pollution Controls**

Pollutants would be controlled using sediment and erosion controls, wastewater and stormwater management controls, construction site management practices, and other controls, including state and local control requirements. All controls would be implemented in a manner that does not disturb, excavate, or penetrate native soil.

#### Sediment and erosion controls

- Sediment and erosion control methods, such as straw bales (certified weed-free) and silt barriers, would be implemented.

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- Stormwater management measures would be implemented as required.

#### Wastewater and stormwater management controls

##### Pollution prevention measures:

- Prevention measures to control silting and erosion, and those that would intercept and settle any runoff of sediment-laden waters, would be used for stockpiling earth and rock materials.
- Wastewater from general construction activities would be prevented from entering flowing or dry watercourses without the use of approved turbidity control methods.
- Stormwater runoff from upslope areas would be diverted away from disturbed areas.

##### Turbidity prevention measures:

- Methods used for prevention of excess turbidity include, but are not limited to, gravel filter entrapment dikes, flocculating processes, combinations thereof, or other approved methods that are not harmful to aquatic life and do not disturb native soil.
- Wastewaters discharged into surface waters shall meet conditions of the Clean Water Act (CWA) Section 402 (the National Pollutant Discharge Elimination System [NPDES]) permit.
- Prior to performing required construction for this project, discharges of dredged or fill material would meet the conditions of the CWA Section 404 permit.

#### Construction site management

##### Contractor construction operations:

- Construction activities would be performed by methods that would prevent entrance or accidental spillage of solid matter, contaminants, debris, or other pollutants or wastes into Lake Roosevelt.

##### Stockpiled or deposited materials:

- Construction materials would not be stockpiled or deposited near or on the shoreline, where they could be washed away by high water or storm runoff, or could in any way encroach upon the watercourse.

#### Petroleum product storage tanks management

- A storage containment plan would be implemented that includes provisions for double-wall tanks, plastic lining, closed-top containers, berming or containment walls, or other measures for containment of mobile equipment fuels and liquids.
- If mobile equipment is parked on the staging area (China Bend boat launch), drip pans would be placed under motors or engines to catch any drips or leaks from engine casings.
- Spill containment kits would be readily available in areas where liquids, petroleum, oils, and/or lubricants would be stored, either on land sites or on the watercraft being used in the project.

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- If boats will be fueled in or over water, spill containment kits would be readily available in areas where liquids, petroleum, oils, and/or lubricants are stored, either on land sites or on the watercraft being used in the project.

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## Appendix B – Issues Eliminated from Detailed Study

The interdisciplinary team eliminated the following issues (resources) from detailed study, as directed by the Council on Environmental Quality regulations at 40 CFR 1500.1(b) and 1500.2(b). Issues were eliminated because the proposal would cause only inconsequential effects to these resources. No further information on these eliminated issues appears in the Environmental Assessment (EA).

### 1. Air Quality

#### Issue

Would use of mechanized transport associated with the Proposed Action generate air emissions?

#### Rationale for Elimination

There would be a slight increase in exhaust emissions from barge and heavy equipment use and worker transport. Proper maintenance of equipment would prevent any increase in regulated air quality parameters over established limits. Best Management Practices (BMPs; Appendix A) would be implemented as part of the project to avoid measurable air quality impacts. Examples of appropriate BMPs include dust suppression during construction, maintaining construction equipment exhaust emission controls according to manufacturer's instructions, and reducing emissions through carpooling of workers. The study area is in attainment for all criteria pollutants (EPA 2017). There would be a slight increase in exhaust emissions, but it would not affect the air quality attainment status.

### 2. Energy

#### Issue

Would the Proposed Action impact the production of energy or disrupt energy distribution?

#### Rationale for Elimination

Energy supplies would not be impacted by the alternatives. Therefore, energy use or disruption of energy distribution is not addressed further in this EA.

### 3. Environmental Justice

#### Issue

Would the Proposed Action have disproportionately high and adverse human health or environmental impacts on an environmental justice population?

#### Rationale for Elimination

In compliance with Executive Order 12898, no minority or low-income populations have been identified in the study area in Stevens County, Washington. Therefore, Reclamation determined that there would be no disproportionate impacts on environmental justice.



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#### **4. Hazardous Waste and Materials**

##### Issue

Would the Proposed Action result in an increased risk of release of hazardous substances or petroleum products?

##### Rationale for Elimination

No hazardous contamination conditions are known to exist within the project and staging areas. BMPs would be implemented to manage petroleum products (Appendix A). Further, the contractor would follow code of regulations relevant to hazardous waste, Reclamation Safety and Health Standards, and prepare required submittals. Therefore, hazardous materials and wastes are not addressed further in this EA.

#### **5. Indian Trust Assets**

##### Issue

Would the Proposed Action have potential to affect Indian Trust Assets?

##### Rationale for Elimination

No Indian Trust Assets are located within the project area; therefore, Indian Trust Assets are not addressed further in this EA.

#### **6. Land Use**

##### Issue

Would the Proposed Action result in a change of land use?

##### Rationale for Elimination

Land use would not change under either alternative; therefore, land use is not addressed further in this EA.

#### **7. Water Rights**

##### Issue

Would the Proposed Action result in a change of water rights?

##### Rationale for Elimination

No water rights issues are related to the project area or alternatives. Newly planted vegetation for this project would be irrigated with water from Lake Roosevelt under Reclamation's existing water right, and therefore, water rights are not addressed in this EA.

#### **8. Wild and Scenic Rivers**

##### Issue

Would the Proposed Action affect wild and scenic rivers?

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### Rationale for Elimination

There are no Wild and Scenic Rivers in the project area; therefore, Wild and Scenic Rivers are not addressed further in this EA.

## **9. Public Health and Safety**

### Issue

Would the Proposed Action have the potential to impact worker and public safety?

### Rationale for Elimination

Public health and safety concerns related to this project are addressed in Sections 3.1 and 3.2 and Appendix A of the EA. Traffic would be controlled and temporary signage would be posted at all access points to the staging and loading areas for public safety. Contractors would be required to follow Reclamation Safety and Health Standards when constructing the stabilization structure.

## **10. Socioeconomics**

### Issue

Would the Proposed Action result in socioeconomic effects?

### Rationale for Elimination

There would be no changes in demographics; local, regional, or national economy; land use values; public services; or religious patterns. Therefore, socioeconomics is not discussed further in the EA. There would be short-term, localized impacts to recreation at the China Bend boat launch, as discussed in Section 3.2 of the EA.

## **11. Wetlands**

### Issue

Would the Proposed Action impact wetlands?

### Rationale for Elimination

There are no wetlands at the proposed stabilization site. As such, no impacts to wetlands would occur, and wetlands are not further addressed in this EA.