RECLAMATION

Managing Water in the West

Draft Environmental Assessment Stampede Dam Safety of Dams Modification

Washoe Project, California and Nevada
Mid-Pacific Region

U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Denver, Colorado

November 2011

Mission Statements

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

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.

Draft Environmental Assessment
Stampede Dam
Safety of Dams Modification

Washoe Project, California and Nevada
Mid-Pacific Region

U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Denver, Colorado

November 2011

Acronyms and Abbreviations

ADT	average daily traffic
APE	area of potential effect
BMPs	Best Management Practices
CAS	Corrective Action Study
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
Cfs, ft^3/s	cubic feet per second
CWA	Clean Water Act
DPS	distinct population segment
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
ft^3/s	cubic feet per second
IDF	Inflow Design Flood
ITA	Indian Trust Assets
LCT	Lahontan cutthroat trout
MSE	Mechanically Stabilized Earth
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSAQMD	Northern Sierra Air Quality Management District
O&M	operation and maintenance
P.L.	Public Law
PMF	probable maximum flood
Reclamation	Bureau of Reclamation
RWQCB	Regional Water Quality Control Board
RWS	reservoir water surface
SHPO	State Historic Preservation Office
SOD	Safety of Dams
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USFWS	U.S. Fish and Wildlife Service
WDRs	waste discharge requirements

Contents

Page

Tables

Figures

Figures (continued)

Attachments

CHAPTER 1 – PURPOSE AND NEED

1.1 Introduction

The Bureau of Reclamation (Reclamation) has determined that safety deficiencies exist at Stampede Dam. Recent investigations conducted under Reclamation's Safety of Dams (SOD) Program revealed that during an estimated 75,000 year flood event Stampede Dam would be overtopped by floodwater, resulting in dam failure.

Failure of Stampede Dam would result in the probable loss of life, failure of downstream Boca dam, downstream property damage, and loss of stored water for fishery enhancement along the Truckee River and Pyramid Lake Fishway facilities operation.

This draft environmental assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508), and the U.S. Department of the Interior regulations for the Implementation of the NEPA (43 CFR Part 46). The draft EA analyzes the potential environmental impacts of correcting the safety deficiencies at Stampede Dam.

1.2 Purpose and Need for Action

The purpose of the proposed action is to correct safety deficiencies at Stampede Dam. The safety deficiencies are hydrologic, related to the dam's inability to safely pass floodwaters ranging between a 75,000-year flood event and the Inflow Design Flood (IDF) without failing. These hydrologic deficiencies result in Stampede Dam not meeting Reclamation's Dam Safety Public Protection Guidelines (Reclamation 2011). The IDF for Stampede Dam is the Probable Maximum Flood (PMF), defined as the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions reasonably possible in a particular drainage area. At Stampede Dam, the PMF is estimated to be a 250,000-year flood event. Action is needed to prevent probable loss of life, property, water storage, and other project benefits due to failure of the dam.

1.3 Location and Background

Stampede Dam is part of Reclamation's Washoe Project in east-central California, north of Lake Tahoe as shown in figure 1-1. The dam is located in Sierra County,

Figure 1-1.—Washoe Project.

California approximately 11 miles northeast of the Town of Truckee, on the Little Truckee River immediately below the mouth of Davies Creek and approximately eight miles above the confluence of the Little Truckee and Truckee Rivers as shown in figure 1-2.

Stampede Dam, Reservoir, and related features are shown in figure 1-3. The zoned earthfill embankment dam (figure 1-4) completed in 1970 has a structural height of 239 feet, a crest width of 40 feet, a crest length of 1511 feet, and a crest elevation of 5974.0 feet. (*Note*: All elevations are in feet and use North American Vertical Datum of 1988 (NAVD 88)). Stampede Reservoir provides a total storage capacity of 280,200 acre-feet at the original design maximum reservoir water surface (RWS) elevation 5967.3. At the top of joint use pool (elevation 5952.7 feet) the water storage capacity is 226,500 acre-feet, which is primarily used for fishery enhancement, for the threatened Lahontan cutthroat

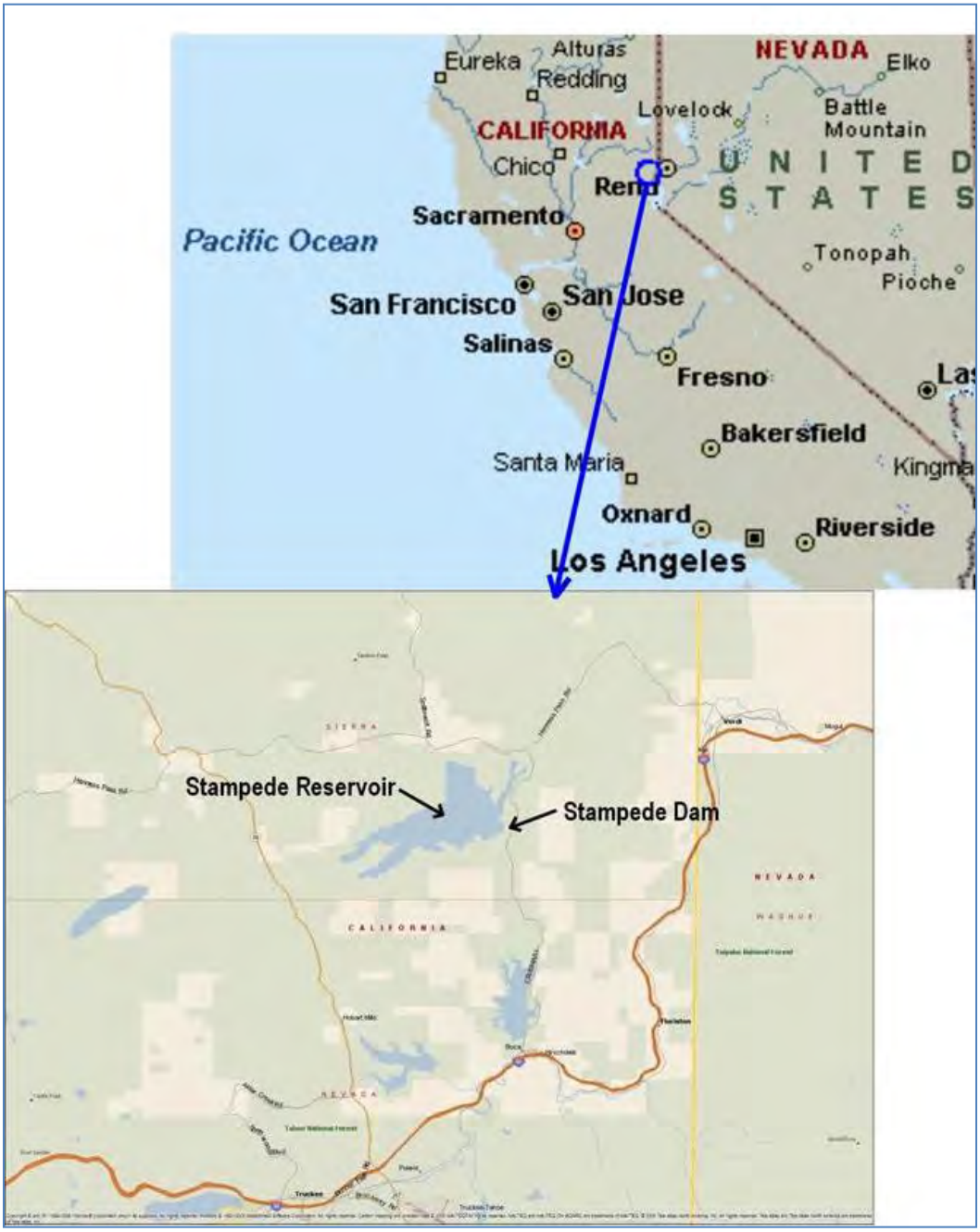


Figure 1-2.—Location map.

trout (*Onchorhynchus clarki henshawi)* and for the spawning of endangered cui-ui (*Chasmistes cuius*), along the Truckee River downstream from Derby Dam and operation of the Pyramid Lake Fishway facilities. The reservoir also provides flood control, recreation, a reservoir fishery, and water for other fishery improvements on the main Truckee River, Little Truckee River, and Boca Reservoir. A minimum release of 30 ft^3/s from the reservoir must be maintained for the benefit of fisheries in the Little Truckee River.

Figure 1-3.—Stampede Dam features.

An earthfill embankment dike (figure 1-5) approximately 1,449 feet long with a maximum height of 85 feet and a crest width of 40 feet at elevation 5974.0, extends across a saddle on the south side of the reservoir.

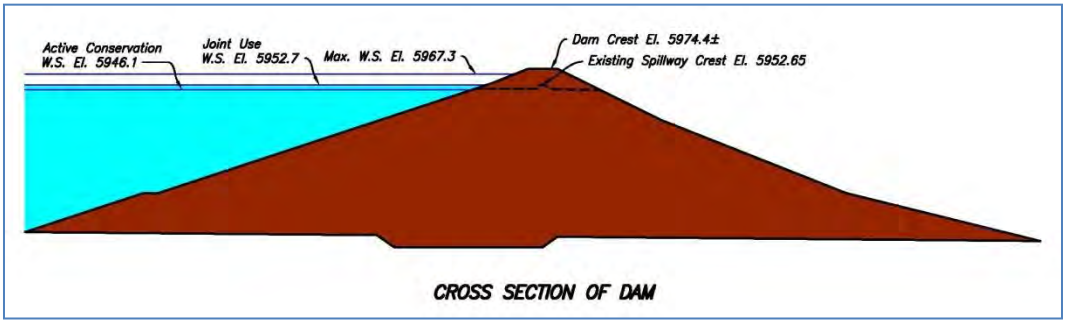


Figure 1-4.—Cross section of dam.

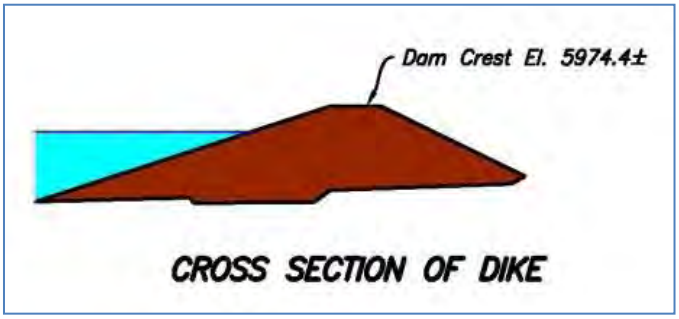


Figure 1-5.—Cross section of dike.

The spillway is located through the right abutment[1] of the dam and consists of an uncontrolled[2]ogee inlet structure at elevation 5952.7, a chute varying from 15-feet wide at the top to a 20-foot-wide by 115.5-foot-long stilling basin. The spillway is designed to release 3,060 ft^3/s at the original design maximum RWS elevation 5967.3.

The outlet works consists of a 12-foot-diameter concrete-lined tunnel through the right abutment. A 90-inch diameter steel pipe is supported within the downstream portion of the tunnel. The outlet works has a design capacity of 2,740 ft^3/s at original design maximum RWS elevation 5967.3.

Stampede Powerplant was completed in 1987 adjacent to the outlet works discharge channel with a capacity of 3,650 kW providing approximately 12 million kWh of energy annually.

[1] Right and left abutments are designated as one looks downstream.

[2] An uncontrolled spillway does not have gates; when the water rises above the lip or crest of the spillway it begins to be released from the reservoir. The rate of discharge is controlled only by the depth of water within the reservoir. All of the storage volume in the reservoir above the spillway crest can be used only for the temporary storage of floodwater, and cannot be used as water supply storage because it is normally empty.

The spillway, outlet works, and powerplant are shown in figure 1-6.

Figure 1-6.—Spillway, outlet works, and Stampede Powerplant located below Stampede Dam.

Stampede Dam and other related structures and land areas are located within the Reclamation Zone (see figure 2-2). The Reclamation Zone identifies Reclamation's property boundary as defined in the 1970 Memorandum of Agreement between the Bureau of Reclamation, U.S. Department of the Interior and the Forest Service, U.S. Department of Agriculture.

1.3.1 Background

Risk analyses for seismic, hydrologic, and static (seepage) failure modes conducted between May 2003 and January 2004 concluded that Stampede Dam does not meet Reclamation dam safety guidelines for both hydrologic and seismic failure modes. However, it was recognized the potential seismic dam safety issues were based on limited data, and additional Issue Evaluation studies and investigations were needed to further analyze and re-assess the risks of an earthquake-induced or static failure.

Geologic investigations and analyses conducted in 2004 and 2005 revealed that the dam's foundation materials are much stronger than previously thought.

Consequently, the possibility of a seismic induced failure is extremely remote. It was also concluded that a seepage (static) failure is also extremely unlikely. However, corrective actions for hydrologic reasons needed to be pursued. Accordingly an Interim Corrective Action Study (CAS) to address the remaining hydrologic risks at Stampede Dam was completed in 2006.

The 2006 Interim CAS included development of seven appraisal-level structural alternatives to reduce hydrologic risks, identification of five non-structural alternatives, as well as three other structural alternatives considered but not developed.

Following completion of the 2006 Interim CAS, a change in corrective action priorities resulted in suspension of the project from June 2006 to November 2008. Upon re-starting the project in late 2008, re-evaluation of existing hydrologic risks confirmed that existing hydrologic risks at Stampede Dam justified continued corrective action in accordance with Reclamation's public protection guidelines based on new project data and the evolution of Reclamation's dam safety risk analysis practices (Reclamation 2009).

In determining the hydrologic risks for Stampede Dam, Reclamation hydrologists compiled and analyzed historical basin precipitation-frequency-duration data; completed a regional discharge frequency analysis based on historical basin stream gage data; and performed a field reconnaissance-level paleoflood study to develop hydrologic hazard curves for Stampede Dam. Reclamation used a risk-based approach to determine the IDF for Stampede Dam. Comparison risk analyses indicate that the IDF should be the PMF for Stampede Dam. The PMF is developed by first estimating the probable maximum precipitation for a drainage basin and then considering optimum runoff conditions within the basin. PMF events are recognized as practical upper limits to flood events at a given site assuming extreme precipitation conditions in conjunction with optimal runoff conditions. The PMF is recognized as the industry-accepted standard to evaluate IDF events. The results of these studies indicate that the estimated return period of a flood having similar size to the PMF at Stampede Dam is 250,000 years.

Based on the results of the 2006 Interim CAS and discussions during several Project Management Team meetings following resumption of the CAS in 2009, three structural alternatives were identified for further development to the feasibility design level. In addition, the Dam Breach Alternative, considered as a non-structural alternative in 2006, was identified as a fourth structural alternative for further consideration as part of the 2009 CAS.

Geotechnical and structural design considerations were analyzed and risk reduction studies conducted for each of the three structural alternatives. The Mechanically Stabilized Earth (MSE) Raise was identified as the preferred alternative based on those evaluations. Final design of the MSE Raise was initiated in 2010.

1.4 Authority

The Washoe Project was authorized by Public Law (P.L.) 858, 84th Congress, 2d session, August 1, 1956, as amended August 21, 1958, by Public Law 85-706.

Potential safety hazards affecting Stampede Dam were investigated pursuant to the Reclamation SOD Act (P.L. 95-578, as amended). The Reclamation SOD Act requires that 15-percent of the costs incurred in the modification of a structure shall be allocated to the authorized purposes of the structure. Under the Truckee-Carson-Pyramid Lake Water Rights Settlement Act of 1990 (Title II of P.L. 101-618) the construction cost of Stampede Dam is non-reimbursable. Thus, the cost of the Stampede Dam SOD Modification would be non-reimbursable.

Reclamation's Area Manager for the Lahontan Basin Area Office is delegated the authority to approve the Environmental Assessment for the Stampede Dam SOD Modification, including proposed features located on lands that were transferred to the Tahoe National Forest under the Federal Water Project Recreation Act.

1.5 Scoping Issues

Scoping requirements under the NEPA include requesting input from the public, Tribes, and interested parties. Scoping allows the public to help identify issues or concerns related to the project. A summary of the scoping process for this action can be found in chapter 4.

Potential environmental issues identified frequently during scoping and considered in the development of this Draft EA included:

- Increased recreation and construction traffic on Hobart Mills and Dog Valley Roads due to closure of the road across Stampede Dam
- Effect on emergency response due to closure of the road across Stampede Dam
- Construction and operation effects to water quality and quantity
- Effects on fish and the downstream fishery
- Effects on recreation visitation and campground use

CHAPTER 2 – DESCRIPTION OF ALTERNATIVES

2.1 Introduction

The proposed action is to correct the safety deficiencies at Stampede Dam. These hydrologic deficiencies result in Stampede Dam not meeting Reclamation's Dam Safety Public Protection Guidelines (Reclamation 2011). This chapter presents the following alternatives being considered for the SOD modification:

Alternative 1 – No Action
Alternative 2 – Mechanically Stabilized Earth (MSE) Raise (Preferred Alternative)

In addition, alternatives eliminated from further study are described.

2.2 Alternative 1 – No Action

Under this alternative, no Federal action would be taken to correct safety deficiencies at Stampede Dam. Reclamation would continue operating the dam in accordance with applicable procedures with no improvements to handle extreme flood events. Thus, during a 75,000 year or greater flood event, Stampede Dam would be overtopped by floodwater resulting in dam failure. Overtopping outflows or breach outflows from Stampede Dam would cause overtopping and failure of downstream Boca Dam. Under Alternative 1, the downstream population would continue to live with elevated risk of dam failure during a significant hydrologic event. Reclamation considers the No Action Alternative to be unacceptable for the long-term safety of Stampede Dam and populated areas downstream.

The No Action Alternative generally represents the current conditions without the Preferred Alternative. The evaluation of a No Action Alternative is required in order to evaluate the effects of the Preferred Alternative to current conditions under NEPA.

2.3 Alternative 2 – MSE Raise (Preferred Alternative)

With the Preferred Alternative, Reclamation would undertake actions to correct safety deficiencies that have been identified at Stampede Dam. Reclamation would reduce hydrologic risks by constructing modifications that would allow Stampede Dam to safely pass all anticipated floodwaters up to and including the IDF (the 250,000-year PMF) without failing. This alternative meets the SOD criteria for protection of life and property.

It is important to note Reclamation is **not** proposing to change the RWS elevation under normal conditions. Reclamation would continue to operate Stampede Dam in accordance with existing Standing Operating Procedures to manage water elevations within Stampede Reservoir under current operating criteria. Thus during normal conditions the reservoir would continue to operate at or below the existing normal maximum RWS elevation at the existing spillway crest elevation of 5952.7 feet. Following any flood event, Reclamation would manage Stampede Dam to safely reduce flood waters in Stampede Reservoir as quickly possible until the water surface elevation returned to current operating levels. In the event of a PMF the reservoir would return to its normal operating elevation of 5946.1 feet in approximately 15 days. Existing and projected maximum RWS elevations are shown in figure 2-1. The reservoir capacity at the existing dam crest elevation 5974.0 feet is 305, 313 acre-feet of water. At the new maximum RWS elevation 5981.5 feet the reservoir could temporarily store up to 337,180 acre-feet of water.

A similar MSE dam crest raise was constructed at Lake Sherburne Dam, Montana in 1982 and at Taylor Draw Dam, Colorado in 1984.

Key features of the Preferred Alternative are described below and numbered within the text as shown in figure 2-2.

2.3.1 Dam Raise

2.3.1.1 Dam, Dike, and Intervening Area

The dam, dike and intervening embankment area [1] are shown in figure 2-3.

- The dam crest would be raised from the existing elevation of 5974.0 feet to a modified dam crest elevation of 5985.5 feet. The 11.5-foot high dam and dike crest raise would be constructed using current MSE construction techniques. A typical MSE wall section is shown in figure 2-3. The crest raise section would be limited to a 30-foot width and extend approximately 3,600 feet across the dam, dike, and the intervening section between the dam and the dike. The asphalt surface material and safety guardrail on this segment of the Dog Valley Road would be removed, along with approximately five feet of earthfill material overlaying the core of the dam and dike. A concrete leveling pad would be constructed at the base of the MSE precast concrete facing panels and earthfill material would be placed between the panels to complete the dam raise.

- The 800 foot long intervening area between the dam and the dike would be raised by constructing an earth embankment with a 30-foot-wide crest. This would require the removal of trees where embankment fill would bury existing tree roots. A section view of the intervening area embankment is shown in figure 2-4.

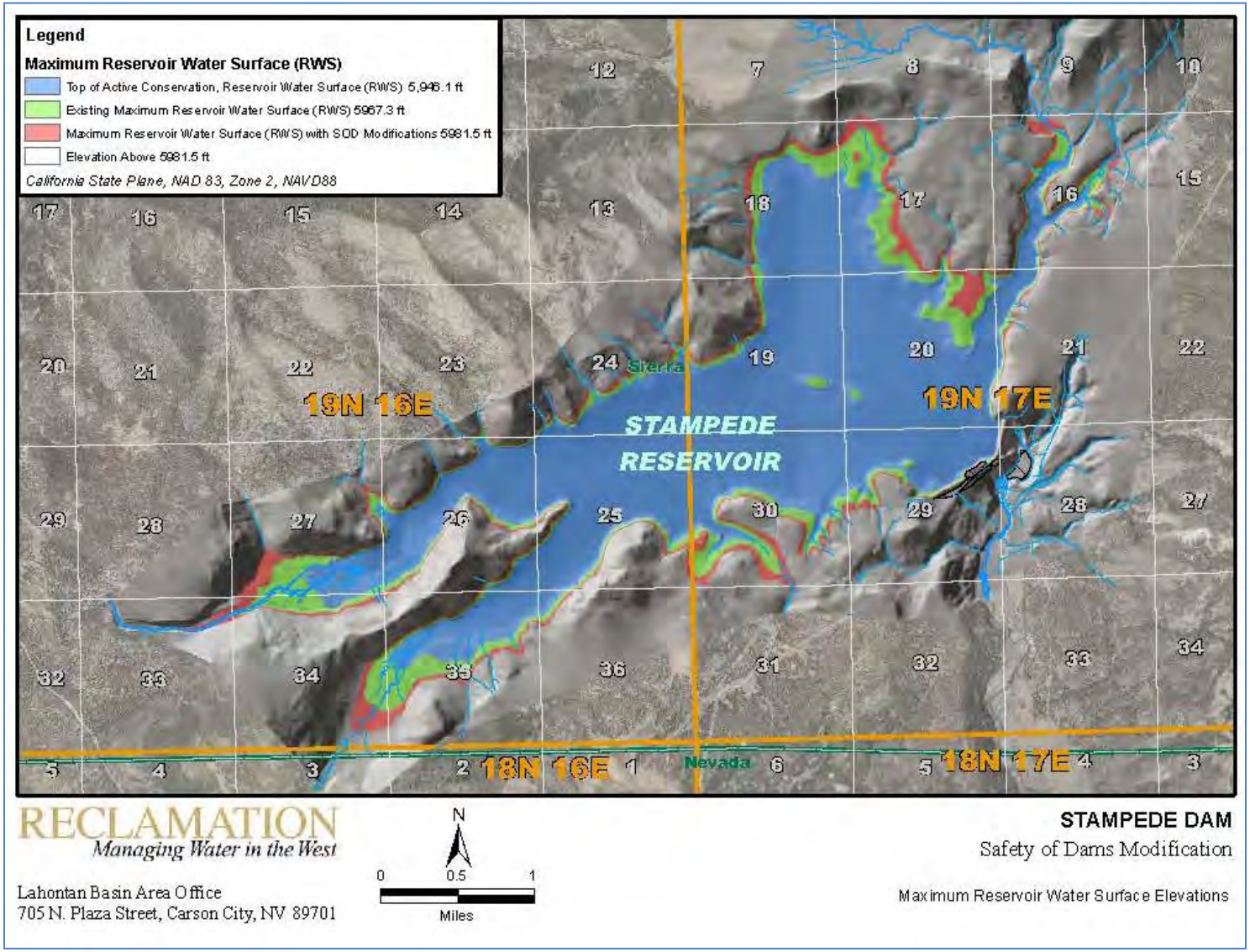


Figure 2-1.—Maximum reservoir water surface elevations.

- A seepage control/seepage collection system consisting of sand and gravel layers would be constructed within the limits of the MSE dam and dike crest raise to limit the build-up of pore pressures and to prevent internal erosion within the raised crest section as a result of RWS elevations during extreme flood events. A toe drain would also be installed at the base of the downstream wall panels to collect and convey seepage flows.

2.3.1.2 Road Modifications

Road modifications would include:

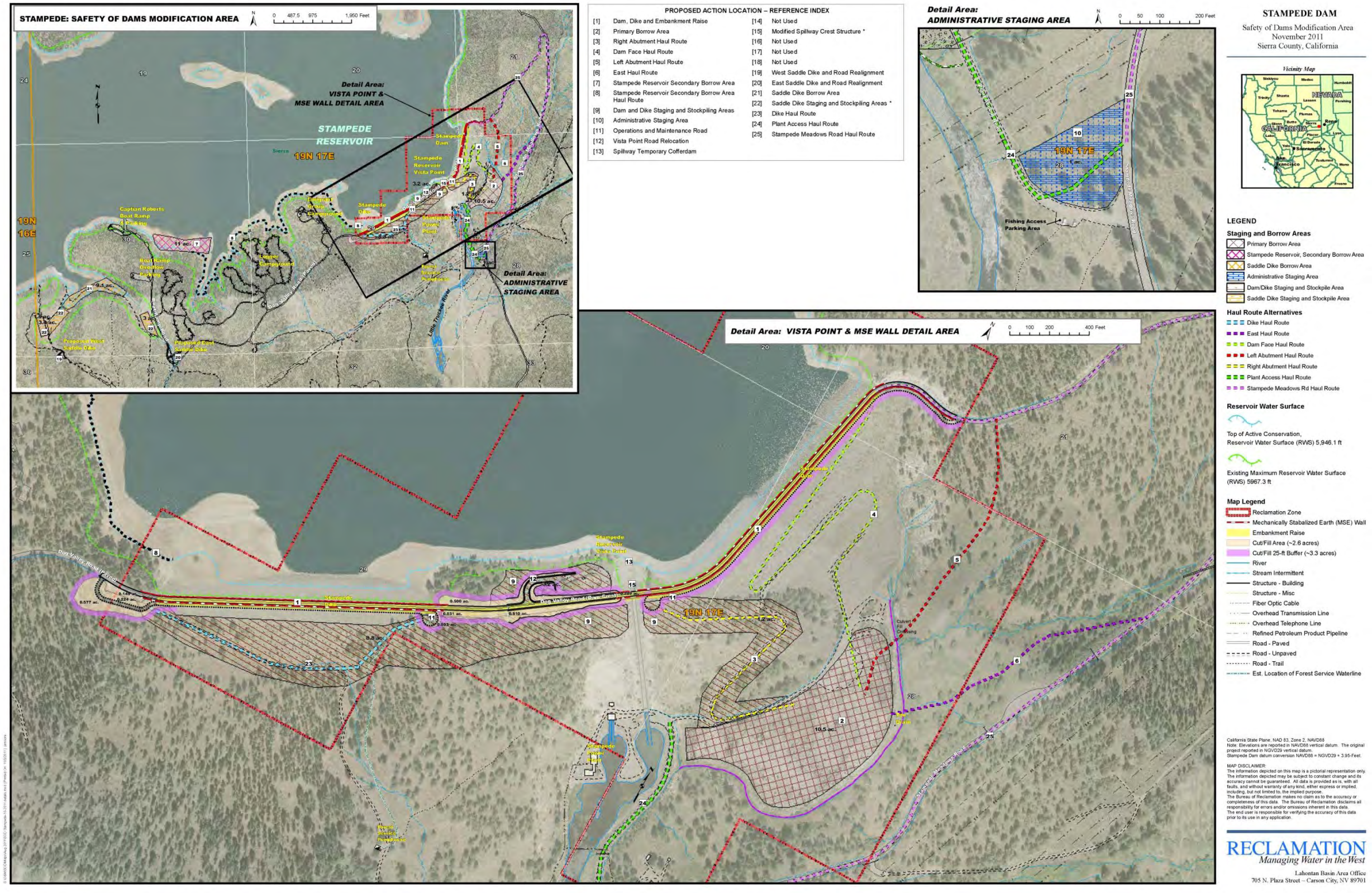
- An 18-foot wide operation and maintenance (O&M) road would be constructed downstream of the MSE crest raise sections at the base of the MSE wall panels [11]. The O&M road would serve as an access road during construction of the proposed dam safety modifications and a permanent access road following completion of construction. The O&M road would require 2 vehicle turn-around areas located on the east side of the spillway and the main dike. Trees and other vegetation would need to be removed to accommodate the O&M road and vehicle turn-around areas.

- Constructing a new paved roadway section across the top of the new crest raise to accommodate the Dog Valley Road.

- Installing new vehicle guardrail for traffic safety along each shoulder of the new section of Dog Valley Road on top of the MSE crest raise.

- An earthen ramp would be constructed at the west vehicle turn-around on the new O&M road to provide a route for deer to migrate around the spillway channel. This ramp would preclude potential deer entrapment on the new MSE dam section.

- A temporary haul route along the downstream toe of the dike to provide truck access during construction of the MSE raise in this area [23].



PROPOSED ACTION LOCATION – REFERENCE INDEX

[1]	Dam, Dike and Embankment Raise	[14]	Not Used
[2]	Primary Borrow Area	[15]	Modified Spillway Crest Structure *
[3]	Right Abutment Haul Route	[16]	Not Used
[4]	Dam Face Haul Route	[17]	Not Used
[5]	Left Abutment Haul Route	[18]	Not Used
[6]	East Haul Route	[19]	West Saddle Dike and Road Realignment
[7]	Stampede Reservoir Secondary Borrow Area	[20]	East Saddle Dike and Road Realignment
[8]	Stampede Reservoir Secondary Borrow Area Haul Route	[21]	Saddle Dike Borrow Area
[9]	Dam and Dike Staging and Stockpiling Areas	[22]	Saddle Dike Staging and Stockpiling Areas *
[10]	Administrative Staging Area	[23]	Dike Haul Route
[11]	Operations and Maintenance Road	[24]	Plant Access Haul Route
[12]	Vista Point Road Relocation	[25]	Stampede Meadows Road Haul Route
[13]	Spillway Temporary Cofferdam		

STAMPEDE DAM

Safety of Dams Modification Area
November 2011
Sierra County, California

Vicinity Map

LEGEND

Staging and Borrow Areas
- Primary Borrow Area
- Stampede Reservoir, Secondary Borrow Area
- Saddle Dike Borrow Area
- Administrative Staging Area
- Dam/Dike Staging and Stockpile Area
- Saddle Dike Staging and Stockpile Area

Haul Route Alternatives
- Dike Haul Route
- East Haul Route
- Dam Face Haul Route
- Left Abutment Haul Route
- Right Abutment Haul Route
- Plant Access Haul Route
- Stampede Meadows Rd Haul Route

Reservoir Water Surface

Top of Active Conservation, Reservoir Water Surface (RWS) 5,946.1 ft

Existing Maximum Reservoir Water Surface (RWS) 5967.3 ft

Map Legend
- Reclamation Zone
- Mechanically Stabalized Earth (MSE) Wall
- Embankment Raise
- Cut/Fill Area (~2.6 acres)
- Cut/Fill 25-ft Buffer (~3.3 acres)
- River
- Stream Intermittent
- Structure - Building
- Structure - Misc
- Fiber Optic Cable
- Overhead Transmission Line
- Overhead Telephone Line
- Refined Petroleum Product Pipeline
- Road - Paved
- Road - Unpaved
- Road - Trail
- Est. Location of Forest Service Waterline

California State Plane, NAD 83, Zone 2, NAVD88
Note: Elevations are reported in NAVD88 vertical datum. The original project reported in NGVD29 vertical datum.
Stampede Dam datum conversion NAVD88 + NGVD29 + 3.95-Feet.

MAP DISCLAIMER:
The information depicted on this map is a pictorial representation only. The information depicted may be subject to constant change and its accuracy cannot be guaranteed. All data is provided as is, with all faults, and without warranty of any kind, either express or implied, including, but not limited to, the implied purpose.
The Bureau of Reclamation makes no claim as to the accuracy or completeness of this data. The Bureau of Reclamation disclaims all responsibility for errors and/or omissions inherent in this data.
The end user is responsible for verifying the accuracy of this data prior to its use in any application.

RECLAMATION
Managing Water in the West

Lahontan Basin Area Office
705 N. Plaza Street – Carson City, NV 89701

Figure 2-2.—Stampede Dam Safety of Dams modification area.

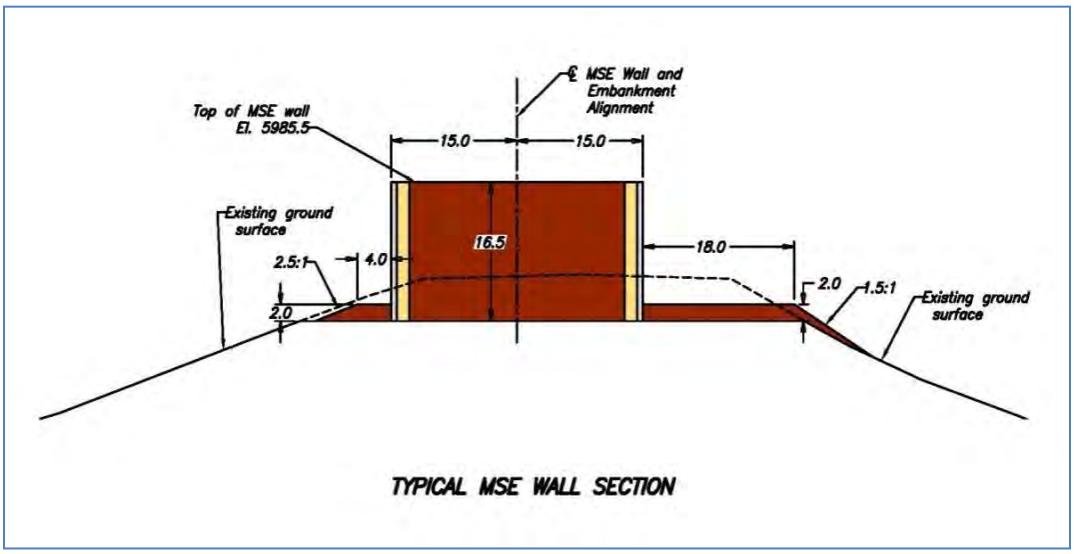


Figure 2-3.—Preferred Alternative, MSE wall – section view.

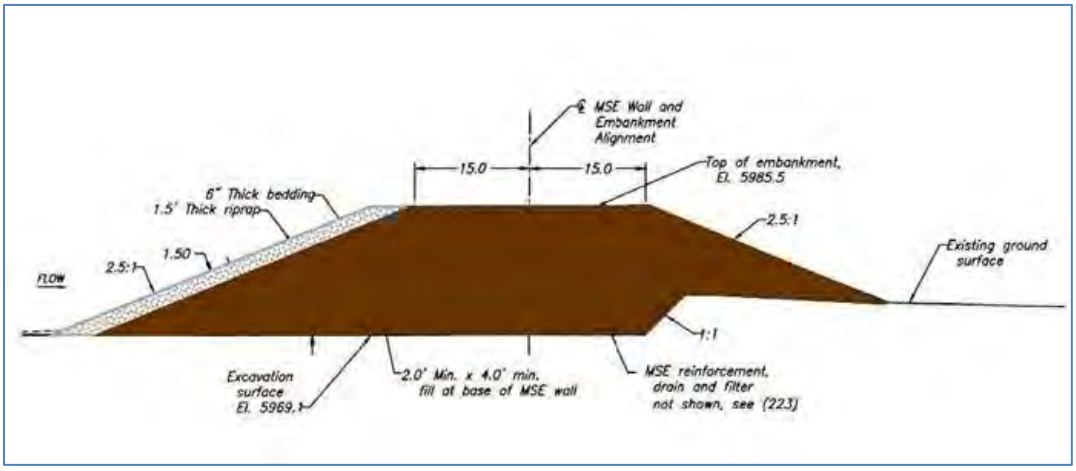


Figure 2-4.—Intervening area embankment raise – section view.

- Relocating the entrance road to the Stampede Reservoir Vista Point Area to the west to connect with the Dog Valley Road's new higher elevation and to facilitate using the Vista Point as a staging and stockpiling area during construction [12]. The Vista Point road relocation would extend approximately 350 feet before connecting into the existing parking area access road. The new road would be constructed on an earth embankment section. Several mature trees, a vault toilet, picnic tables, and the water line serving the site would be removed for construction; the facilities would be upgraded or replaced in alternate locations at the Vista Point post-construction. The modified entrance would include a level bench at the intersection with the Dog Valley Road to provide adequate site distance for entrance onto Dog Valley Road in accordance with the latest

versions of American Association of State Highway and Transportation Officials (AASHTO), California Department of Transportation (Caltrans), and Sierra County Public Works requirements.

2.3.1.3 Dam, Dike, and Administrative Staging and Stockpiling Areas

- Approximately 13.2 acres adjacent to Stampede Dam, the main dike, and the intervening area would be used during construction as contractor staging and stockpiling areas [9]. The Vista Point Area would be included as a staging and stockpiling area. The contractor would also be authorized to use the Primary Borrow Area as a staging and stockpiling area. Trees may need to be removed in these areas to provide workspace for construction operations.

- The area north of the intersection of the powerplant road and Stampede Meadows Road is proposed as a one acre administrative staging area for contractor use during construction [10]. Several trees may need to be removed in this area to provide workspace for construction operations.

2.3.1.4 Stampede Reservoir Secondary Borrow Area and Haul Route

- The Stampede Reservoir Secondary Borrow Area may be used to provide fill material on a contingency basis [7]. Borrow material located between elevations 5928 feet and 5950 feet in Stampede Reservoir could be used for the construction of the dam raise provided that a reservoir restriction is not required to access the material. This area is approximately 11 acres in size and located north of the Logger Campground complex.

- A temporary haul road is proposed along the edge of the reservoir at elevation 5946.1 feet to provide access between the Stampede Reservoir Secondary Borrow Area and the dam and dike [8].

2.3.1.5 Primary Borrow Area and Haul Routes

- The crest raise would be constructed of approximately 60,000 cubic yards of earthfill borrow material obtained from the Primary Borrow Area, an estimated area of 10.5 acres located within the Reclamation Zone below the dam [2]. This area previously served as a disposal area for original construction of the dam and 2006 field investigations indicate that suitable quality and quantity of fill material is available within the identified limits of the Primary Borrow Area for construction of the MSE and embankment raise.

- Several temporary haul routes may be considered to connect the Primary Borrow Area to the Dog Valley Road [3, 4, 5]. The Stampede Meadows Road and Dog Valley Road may also be used as haul routes [25]. The powerplant access road may be temporarily widened during construction to 2 lanes to accommodate large truck traffic [24]. The powerplant access road would be returned to its existing configuration following construction.

2.3.1.6 Spillway Modifications

A new spillway crest structure would be constructed to accommodate the MSE dam crest raise and to limit peak spillway discharges during the PMF to 3,000 ft^3/s consistent with the existing spillway capacity. Features of the new crest structure include:

- Constructing a temporary earthfill cofferdam upstream of the spillway control structure to protect the contractor's work in this area and to limit the construction risks associated with the excavation required to complete the spillway modifications [13]. Material to construct the cofferdam would be obtained from the Primary Borrow Area or the Saddle Dike Barrow Area. The cofferdam would also be used as a temporary road to provide access around the spillway during construction.

- Saw cutting, demolishing, and removing the existing spillway crest structure including the existing spillway bridge.

- Constructing a new structural concrete control headwall designed to limit spillway discharge flows at the new maximum RWS elevation of 5981.5 feet associated with the PMF event to 3,000 ft^3/s consistent with the original design capacity. The new headwall creates an orifice opening in the spillway crest structure that is approximately 5.5-feet tall and 15-feet wide [15]. See figures 2-5 and 2-6 also.

- Constructing new structural concrete sidewalls, slab, and ogee crest to accommodate the raised dam crest configuration and designed to carry additional hydrostatic loads from the new headwall [15].

- Constructing a new bridge deck across the new spillway crest structure to accommodate the Dog Valley Road.

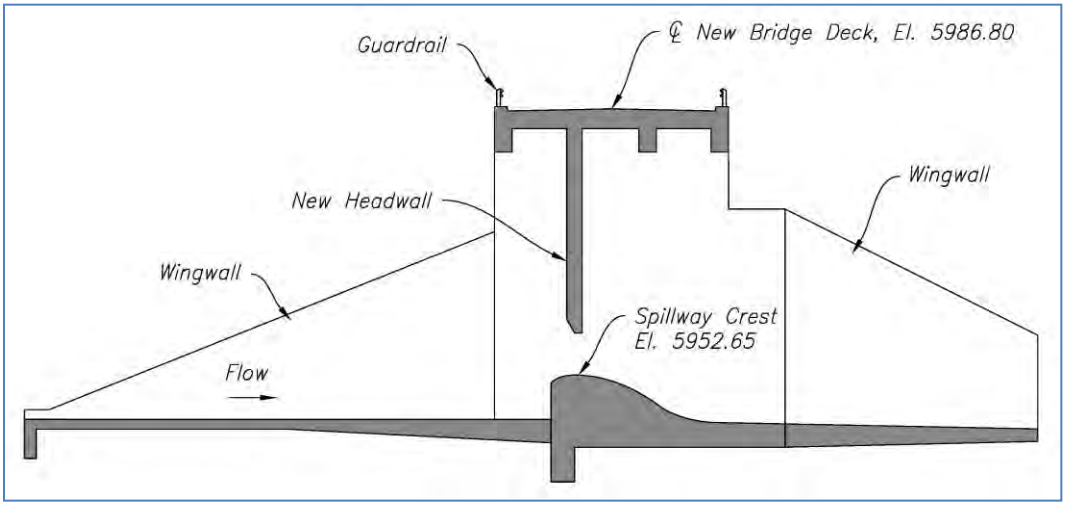


Figure 2-5.—Preferred Alternative, existing spillway crest structure modifications – profile.

Figure 2-6.—Example of spillway headwall control structure to limit outflow from reservoir.

2.3.1.7 Saddle Dikes

Two earthen saddle dikes would be constructed as shown in figure 2-7 where topographic low spots on the south rim of the reservoir have been identified to protect nearby land from flooding and prevent potential side channel breaching of the reservoir in these areas. Trees and other vegetation would be permanently removed to construct these dikes and realign existing roads and trails affected by the placement of the dikes.

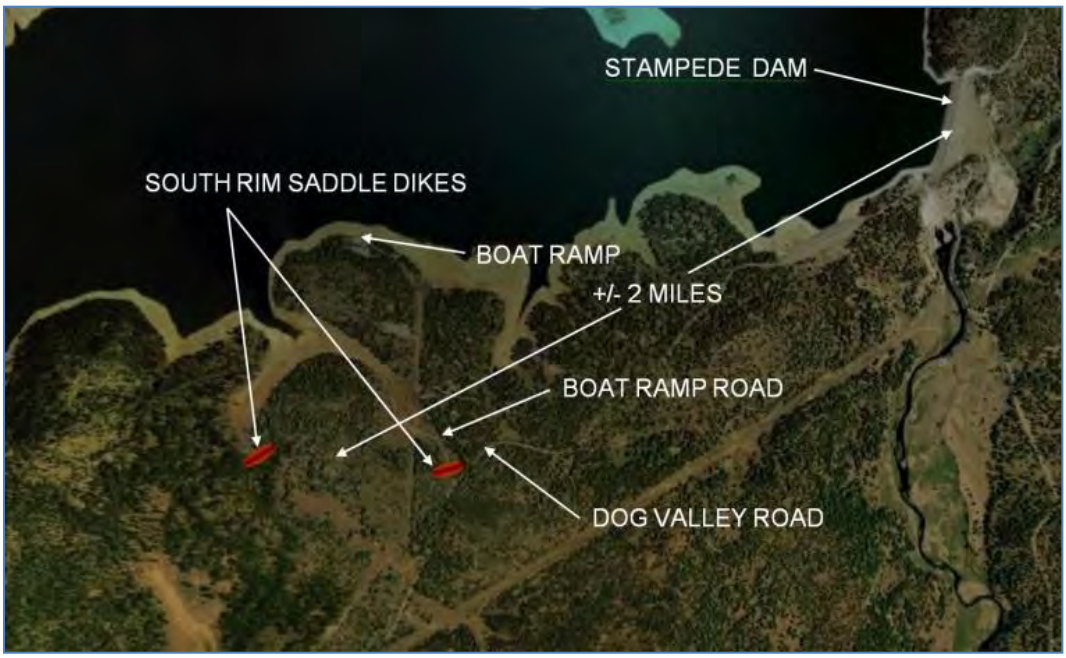


Figure 2-7.—Plan view of new saddle dikes for low areas on the south reservoir rim.

- The western saddle dike is estimated to be 220 feet long and 4 feet high [19]; the eastern saddle dike is estimated to be 480 feet long and 11.5 feet high [20]. Riprap slope protection would be provided on the upstream slope of the dikes to protect the embankments from wave action during extreme flood events.

- Borrow material for the saddle dikes would be obtained from the Saddle Dike Borrow Area, a nearby within-reservoir source estimated at 9.1 acres in size located below elevation 5952.7 feet at the edge of Stampede Reservoir provided that a reservoir restriction is not required to access these materials [21].

- Staging and stockpiling areas for the saddle dikes totaling approximately 8.3 acres in size would be located adjacent to the Saddle Dike Borrow Area [22]. Existing roads would be used to provide access between the Saddle Dike Borrow Area and the dikes.

- Constructing the eastern saddle dike would require realigning a segment of the Forest Service's paved road to the Captain Roberts Boat Ramp. Options to accommodate recreational traffic to the Boat Ramp during construction include re-routing traffic through the Logger Campground and scheduling saddle dike construction outside the peak recreation season.

- Constructing the western saddle dike would require realigning a segment of the National Forest Transportation System road open to vehicles with high clearance. Options to accommodate recreational traffic using this road include re-routing traffic to the Boat Ramp Road and scheduling saddle dike construction outside the peak recreation season.

2.3.1.8 Construction Schedule, Road Closures and Fishing Access Parking Area

Construction activities are expected to span two years due to anticipated winter shut downs. The region experiences significant snowfall and cold temperatures during the winter months that would make winter construction problematic. As a result, the construction season for the proposed modification would likely extend from April through October.

2.3.1.9 Road Closures

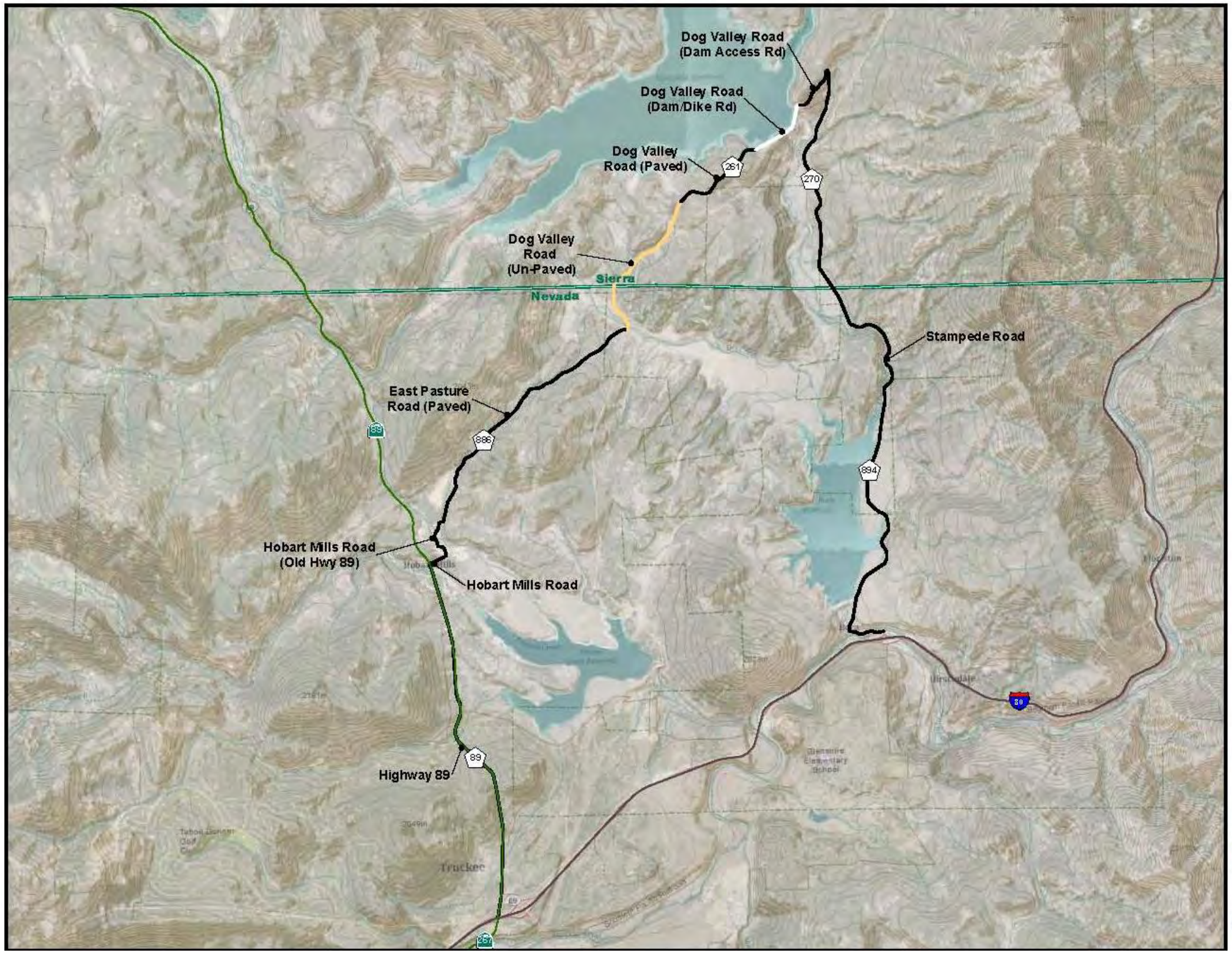
- The road across the dam, main dike, and intervening area (Dog Valley Road) and the Stampede Reservoir Vista Point Area would be closed during the entire construction effort including the winter months between construction seasons. However, the reservoir and recreation facilities would remain open and be accessible from the west via State Highway 89, the Hobart Mills Road, East Pasture Road, and Dog Valley Road as shown in figure 2-8. Approximately 2 miles of this western route is unpaved, improved gravel road. This western access route may also be used to haul various construction materials to and from the work site.

- Reclamation would request the Forest Service to temporarily close several roads or trails during construction in consideration for public safety.

- Reclamation would provide public notices about the construction project, temporary closures, open facilities, and alternate access routes.

2.3.1.10 Fishing Access Parking Area

- The parking area for fishing access to the Little Truckee River downstream of Stampede Dam is located on the powerplant access road used by Reclamation to access project features downstream of Stampede Dam. Reclamation proposes to temporarily modify the road junction with the Stampede Meadows Road to address public safety issues and to provide a safe turnout and parking area for fishing access during construction [24]. As noted above, the area north of the intersection of the powerplant road and Stampede Meadows Road is proposed as an administrative staging area for contractor use during construction.



STAMPEDE RESERVOIR

Stampede Dam
Access Routes

N

0 0.5 1 2

Miles

RECLAMATION
Managing Water in the West

Lahontan Basin Area Office
705 N. Plaza Street
Carson City, NV 89701

Figure 2-8.—Stampede Dam and Reservoir access routes.

2.3.1.11 Restoration of Disturbed Areas

- The contractor would be required to reclaim all disturbed areas including staging and stockpile areas, borrow areas, saddle dikes, temporary haul roads, and abandoned road segments resulting from road realignment. After completion of work, the contractor would be required to regrade and scarify Government land used for construction purposes and not required for completed installation so that surfaces would blend with natural terrain and in a condition that would facilitate revegetation, provide proper drainage, and prevent erosion. Disturbed areas outside of Stampede Reservoir would be revegetated by the contractor with a mixture of native and approved adapted plant species.

2.3.1.12 Stampede Powerplant

- Operation of the Stampede Powerplant would not be affected by construction activities.

Environmental Commitments

Attachment A outlines environmental commitments that would be implemented before, during, and after construction to prevent and reduce the impacts of the proposed action.

2.4 Alternatives Considered and Eliminated from Further Study

The 2006 Interim CAS included development of seven appraisal-level structural alternatives to reduce hydrologic risks, as well as three other structural alternatives considered but not developed, and identification of five non-structural alternatives. These alternatives are listed below.

Structural Alternatives:

1. Embankment Raise
2. Concrete Parapet Wall
3. Corrugated Metal Pipe Auxiliary Spillway
4. Fuse Plug Auxiliary Spillway
5. Partial Mechanically Stabilized Earth Dam Raise with a Concrete Parapet Wall
6. Fuse Gates in Spillway
7. Obermeyer Gate in Spillway

Other Structural Alternatives Considered but Not Developed:

1. Increase Width of Existing Spillway
2. Auxiliary Spillway Cut into Existing Dike
3. Cut Ogee Crest and Parapet Raise

The non-structural alternatives were identified as:

1. Dam Breach
2. Permanent Reservoir Restriction
3. Monitoring and Early Warning System
4. Relocating People at Risk
5. No Action (Existing Condition)

Three structural alternatives were developed to feasibility level and four non-structural alternatives were further considered during the 2009 CAS. However, the 2009 CAS structural and non-structural alternatives listed below were eliminated from further study by Reclamation and thus are not analyzed in this EA.

Structural Alternatives:

1. Embankment Raise
2. Partial Embankment Raise with Concrete Parapet Wall
3. Dam Breach

Non-Structural Alternatives:

1. No Action (existing condition)
2. Relocating the People at Risk
3. Permanent Reservoir Restriction
4. Automated Early Warning System

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction

This chapter describes the affected environment and evaluates the environmental consequences of the proposed action and implementation of the Preferred Alternative (Alternative 2). The No Action alternative (Alternative 1) describes the conditions most likely to occur if the proposed action were not implemented and provides the basis to compare the action alternative.

3.2 Hydrology and Water Quality

3.2.1 Affected Environment

3.2.1.1 Hydrology

Currently, Reclamation's water storage permit is for 126,000 acre-feet of water to be stored in Stampede Reservoir specifically for threatened and endangered fish. This water is set aside for release downstream to enhance conditions for the threatened Lahontan cutthroat throat and endangered cui-ui fisheries in the Truckee River basin and to enhance instream flows and recreational opportunities in the Truckee River basin. A minimum of 30 ft^3/s is released from Stampede Reservoir to maintain fish in the Little Truckee River.

3.2.1.2 Water Quality

Water quality of Stampede Reservoir and the Little Truckee River is regulated by the State of California under the provisions of the Clean Water Act (CWA). California has established water quality standards for various physical and chemical parameters to provide suitable conditions to support designated and potential uses. The Lahontan Regional Water Quality Control Board (RWQCB) has established the following designated and potential beneficial uses for water quality standards including agricultural supply; municipal and domestic supply; groundwater recharge; water contact and noncontact water recreation; sport fishing; cold freshwater habitat (aquatic habitats, vegetation fish and wildlife); wildlife habitat; and rare, threatened or endangered species (Lahontan cutthroat trout and cui-ui) habitat. Additionally, beneficial uses for the Little Truckee River includes migration habitat for aquatic organisms; and beneficial uses for Stampede Reservoir also include spawning and breeding habitat for fish and wildlife (CEPA 2010). The water quality conditions in Stampede Reservoir and the Little Truckee River currently meet all state water quality standards.

Section 303(d) of the CWA requires states and tribes to identify water bodies that do not meet water quality standards and to publish a list of these impaired waters every 2 years. For lakes, rivers and streams identified on this list, states must develop water quality improvement plans referred to 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. The Truckee River was placed on the 303(d) list for suspended sediments in 2007. The Little Truckee River is a stream that flows into a river that is on the 303(d) list (Middle Truckee River).

3.2.1.3 Middle Truckee River Watershed TMDL

In September 2008, the California Regional Water Control Board approved a TMDL for Sediment for the Middle Truckee River Watershed. This TMDL appears as an amendment to the Water Quality Control Plan for the Lahontan Region (Basin Plan). Sources of suspended sediment in the Truckee River subwatershed are calculated (source assessment) for 9 creeks as well as the Little Truckee River. The Little Truckee River contributes 1,026 tons/year to the Total Watershed Loading of 10,345 tons/year.

Other sources of suspended in the Truckee River include intervening zones/unmeasured inputs; load measured at Farad and event-based loading. This last component, event-based loading, is relevant to the Stampede Dam SOD project. Continuous turbidity monitoring in the river shows that sediment loading "pulses" attributed to thunderstorms, snowmelt periods and dam releases may account for up to half the loading. These flow events produce turbidity spikes that exceed the water quality objective. Such event based loading contributes 24,064 tons of sediment to the Truckee River, which along with intervening zones/unmeasured inputs (15,973 tons/year) and the load measured at Farad (26,318 tons/year) adds up to a grand total of 50,382 tons/yr total watershed loading. This is 90% of the total with 10% (5,066 tons/year) attributed to urban areas.

The TMDL established a waste load allocation for the Little Truckee River of 800 tons/year of sediment. Waste load allocations for the Middle Truckee River are based on a 50% load reduction and a best management practice efficiency of 50%. The Water Board has regulatory authority to require implementation of this TMDL under both the CWA and the Water Code, including, but not limited to, adopting waste discharge requirements (WDRs), waivers of WDRs, and issuing storm water and construction permits to control sediment discharges (CRWQCB 2008).

3.2.1.4 Implementation and Monitoring Plan

Implementation of the TMDL is based on continuation and improvement of existing erosion control and monitoring programs, National Pollutant Discharge Elimination System (NPDES) storm water permits, and cooperative agreements

with other state and federal agencies. Existing WDRs, including NPDES storm water permits, contain requirements to control sediment discharges from construction projects such as the Stampede Dam SOD modification proposal, highway operations and maintenance, and facilities with long-term operations such as ski resorts or industrial areas. NPDES municipal permits for the Town of Truckee's and Placer County's jurisdictions in the watershed contain similar requirements. Water quality improvement projects undertaken by entities such as the USFS-Tahoe National Forest, the Tahoe Donner Land Trust, and the Truckee River Watershed Council will complement the Water Board's regulatory activities to meet the TMDL.

3.2.1.5 Prohibition to Discharge Wastes Within Little Truckee River 100-year Floodplain

The Lahontan RWQCB adopted a Basin Plan for the Lahontan Region in 1995. The Lahontan Basin Plan includes a prohibition for discharging or threatening to discharge any waste materials to lands or waters within the 100-year floodplain of the Little Truckee River or any of its tributaries. Exemptions to these prohibitions may be granted for certain projects if specific findings can be made.

3.2.1.6 National Pollutant Discharge Elimination System Permitting

The Statewide General NPDES Permit for Large Construction Projects would apply to construction activities associated with Preferred Alternative. This NPDES permit applies to projects that disturb one or more acres of soil, or projects that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. The Large Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP should contain site maps which show the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography before and after construction, and drainage patterns across the project. The SWPPP must list Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs.

Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for ~~"n~~non-visible" pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment (i.e., Truckee River, Squaw Creek, and Gray and Bronco Creeks). The Large Construction General Permit requires all dischargers to:

- Develop and implement a SWPPP that specifies BMPs that would prevent all construction pollutants from contacting storm water, with the intent of keeping all products of erosion from moving off-site into receiving waters.

- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation. Perform inspections of all BMPs.

3.2.2 Environmental Consequences

3.2.2.1 Hydrology

3.2.2.1.1 Alternative 1 – No Action

Under the No Action alternative, no construction would occur at Stampede Dam. Reclamation would continue operating the dam with the current maintenance and water delivery commitments. Hydrology would continue unchanged.

3.2.2.1.2 Alternative 2 – MSE Raise (Preferred Alternative)

Minimum flows of 30 cfs released to the Little Truckee River downstream of Stampede Dam would continue unchanged both during the construction phase as well as over the long-term after construction is completed.

Within reservoir borrow areas would only be used provided that no reservoir restriction is necessary at Stampede Reservoir in order to access the borrow materials. If water levels in the reservoir were high during the years of construction and the borrow areas were under water, other borrow material would need to be located and used.

3.2.2.2 Water Quality

3.2.2.2.1 Alternative 1 – No Action

No changes would occur to water quality**.**

3.2.2.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Impacts of construction activities are anticipated to be less than significant. Reclamation would obtain and implement the Section 404 permit from the Army Corps of Engineers and the Section 401 Water Quality Certification from the Lahontan RWQCB. Reclamation would obtain a NPDES permit and develop and implement a SWPPP, listing the BMPs used, as well as a visual and chemical monitoring program. BMPs used during construction activities would minimize temporary impacts to water quality in Stampede Reservoir and the Little Truckee River downstream of the dam. There would be no long-term impacts on water quality in the reservoir or in the Little Truckee River as there would be no change in reservoir operations.

3.3 Fish

3.3.1 Affected Environment

3.3.1.1 Stampede Reservoir

Stampede Reservoir provides a popular and productive fishery for kokanee (*Oncorhynchus nerka*), lake trout or mackinaw (*Salvelinus namaycush*), rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*) and smallmouth bass (*Micropterus dolomieui*). It is considered one of the foremost kokanee lakes in California for both numbers and size. The management designation for Stampede Reservoir is hatchery production waters. These waters are stocked with catchable-sized hatchery trout because they are either unable to support sufficient reproducing or self-sustaining trout populations to support a satisfactory sport fishery, or waters near campgrounds, roadsides or other high access areas where angling demand is high. Stocking trout helps to satisfy intense recreational demand and anglers interested in keeping some fish (CDFG 2002). The California Department of Fish and Game (CDFG) also stocks kokanee in Stampede Reservoir which also spawn in Sagehen Creek and the Upper Little Truckee River upstream of the Reservoir. Smallmouth bass were illegally introduced over 10 years ago.

3.3.1.2 Little Truckee River

The reach of the Little Truckee River between Stampede Dam downstream to Boca Reservoir has become one of the most popular fisheries in northern California. The Little Truckee River is a CDFG designated wild trout and catch and release water for rainbow trout and brown trout. CDFG instituted special regulations for this reach with a requirement for artificial lures with barbless hooks. A bag limit of 2 fish is allowed from the last Saturday in April through November. The remainder of the year is catch and release only (CDFG 2009).

Both native and non-native fish species occur in the Little Truckee River and its tributaries. Common native fish include Paiute sculpin (*Cottus beldingii*), Lahontan redside shiner (*Richardsonius egregius*), Tahoe sucker (*Catostomus tahoensis*), speckled dace (*Rhinichthys osculus*), and mountain sucker (*Catostomus platyrhynchus*). Recent information shows that mountain whitefish (*Prosopium williamsoni*) is also common; however, population levels can vary dramatically over time depending on river conditions. Rainbow and brown trout are the most common non-native fish species. Boca Reservoir also has naturally reproducing kokanee which spawn in the Little Truckee River between Boca and Stampede reservoirs.

Spawning, incubation, and rearing habitat for native mountain whitefish and non-native brown and rainbow trout in the Little Truckee River is relatively degraded and reduced in extent compared to historic conditions (CDFG, 1996). Several habitat restoration projects have either been recently implemented or are slated for implementation.

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1 – No Action

Under the No Action alternative, there would be no dam safety modifications made to Stampede Dam. There would be no adverse impacts to fish communities in either the reservoir or in the Little Truckee River downstream of the dam.

3.3.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Any ground disturbance near a stream has the potential to affect downstream fishery resources. Widening the plant access road to two lanes would require piping the roadside ditch and water conveyed through the toe drain, then covering the pipe to widen the road. Both the roadside ditch and toe drain currently discharge into the Little Truckee River through 3 culverts under the existing road. During construction, flows would be diverted around work areas and BMPs would be used to protect the river from increased sedimentation due to construction activities. Flows in the Little Truckee River would be uninterrupted; therefore no short-term construction impacts would occur to the fish community in the river.

Stampede Reservoir operations would remain unchanged both during the construction and after. Borrow areas, staging areas, haul routes and the cofferdam at the spillway are all located within Stampede Reservoir and would only be used provided that a reservoir restriction was not necessary to access the borrow materials or other areas. All proposed actions within the ordinary high water mark and 100-year floodplain within the reservoir would only be implemented if water levels are low enough to expose the borrow sites and other areas to dry conditions. Therefore there would be no effect to downstream fisheries that are dependent on releases from Stampede Reservoir.

The saddle dike borrow area, secondary borrow area, haul route and cofferdam at the spillway are located in the drawdown zone within the rim of the reservoir. The soil and rocks that compose the existing surface material would remain the same following construction. No short-term or long-term changes would occur to the reservoir fish community. No losses would occur to fish habitat in these areas.

3.4 Wildlife

3.4.1 Affected Environment

3.4.1.1 Bald Eagle (Haliaeetus leucocephalus)

The bald eagle was listed by the U.S. Fish and Wildlife Service (USFWS) as a federally endangered species in 1978. On July 12, 1995, this species was reclassified to threatened status in the lower 48 states. On August 9, 2007, the bald eagle was removed from the federal list of threatened and endangered species. Even though they are de-listed, bald eagles are still protected by the

Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. These Acts require measures to continue to prevent bald eagle ~~"t~~ake" resulting from human activities.

Two bald eagle territories with recent nesting activity are located near Stampede Reservoir. One is located near the dam adjacent to the project area and the other is located at the Sagehen Arm of the reservoir outside the project area. In addition fall concentrations of eagles can occur on the Little Truckee River during kokanee spawning which occurs around mid-October; and eagles are known to roost on large pine trees along the reservoir edge in and adjacent to the project area.

3.4.1.2 Migratory Songbirds

Riparian zones along the Little Truckee River downstream of Stampede Dam as well as the pine/sagebrush/bitterbrush stands provide habitat of a wide variety of neotropical migratory song birds such as western tanagers (*Piranga ludoviciana*), olive-sided flycatchers (*Contopus cooperi*) and western wood peewees *(C. sordidulus*), and Hammond's (*Empidonax hammondii*), dusky (*E.oberholseri*) and willow (*E. traillii*) flycatchers. Several warbler species also regularly occur in these areas, including the yellow warbler (*Dendroica petechia*), MacGillivray's warbler (*Oporornis tolmiei*), Nashville warbler, (*Vermivora ruficapilla*), orange-crowned warbler (*Vermivora celata*), and Wilson's warbler (*Wilsonia pusilla*).

3.4.1.3 Resident Birds

The coniferous forest adjacent to the reservoir shoreline and the Little Truckee River downstream of the dam provide habitat for non-migratory species such as mountain chickadees (*Poecile gambeli*), red-breasted nuthatches (*Sitta canadensis*), and whitebreasted nuthatches (*S. carolinensis*), Pygmy nuthatches (*S. pygmaea*) which are rare in the area except during winter, brown creepers (*Certhia americana*) and golden-crowned kinglets (*Regulus satrapa*). Common ravens (*Corvus corax*), Steller's jays (*Cyanocitta stelleri*), Cassin's finches (*Carpodacus cassinii*) and evening grosbeaks (*Coccothraustes vespertinus)* are also present. American dippers (*Cinclus mexicanus*) are found along the Little Truckee River.

3.4.1.4 Raptors

Raptors found in the project area include osprey *(Pandion haliaetus*), northern goshawk (*Accipiter gentilis*), sharp-shinned hawk (*A. striatus*), Cooper's hawk (*A. cooperi*), American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and northern sawwhet owl (*Aegolius acadicus*).

3.4.1.5 Waterfowl

Stampede Reservoir provides a fairly large quantity of stable, high quality habitat that supports shallow foraging habitat less than 18 inches deep along the shoreline

near major tributary inlets such as Sagehen Creek and the Little Truckee River for large populations of waterfowl, primarily during fall migration and to a lesser extent for breeding waterfowl. These shallow areas are outside the project area. Reservoir shorelines in the project area generally tend to be steep with little emergent vegetation.

Stampede Reservoir has two islands that support nesting habitat primarily for Canada goose (*Branta canadensis*). Nesting occurs March through May. The islands in Stampede Reservoir are accessible to mainland predators at elevations lower than 5880 feet. They become inundated above elevation 5940 feet, thereby eliminating waterfowl nesting on the islands.

3.4.1.6 Small Mammals

Wet meadows at the inlets of Sagehen Creek and the Little Truckee River into Stampede Reservoir (outside the project area) and riparian areas along the Little Truckee River downstream of Stampede Dam support a variety of small mammals including vagrant shrews (*Sorex vagrans*), broad-footed moles (*Scapanus latimanus*), montane voles (*Microtus montanus*), long-tailed voles (*M. longicaudus*), and long-tailed weasels (*Mustela frenata*). Porcupines (*Erethizon dorsatum*) prefer riparian areas and young pine stands. Coyotes (*Canis latrans*) regularly use meadows.

Trowbridge's shrews (*Sorex trowbridgii*) are usually found in drier meadows or on the forest floor. Snowshoe hares (*Lepus americanus*) are usually found in riparian zones and areas of dense shrubs. Yellow-pine chipmunks (*Tamias amoenus*) are the most common chipmunks in brush-covered, disturbed areas, while lodgepole chipmunks (*T.speciosus*) prefer the red fir zone. Yellow-bellied marmots (*Marmota flaviventris*) are generally found in rocky alpine areas. Golden-mantled ground squirrels (*Spermophilus lateralis*) and Douglas' squirrels (*Tamiasciurus douglasii*) are seen throughout much of the basin, while northern flying squirrels (*Glaucomys sabrinus*) are found in dense stands of large conifers. Mountain pocket gophers (*Thomomys monticola*) prefer meadows and grassy stages of coniferous forests. The most common mice are deer mice (*Peromyscus maniculatus*); Great Basin pocket mice (*Perognathus parvus*) are found in smaller numbers.

3.4.1.7 Large Mammals

Black bears (*Ursus americanus*) are present but rarely seen, as they prefer more densely forested sites. Mule deer (*Odocoileus hemionus*) are regular summer residents and use the Little Truckee River in the project area as a migratory corridor. Deer also cross the spillway bridge on the Dog Valley Road in order to travel around the spillway channel structure.

3.4.1.8 Reptiles

Common garter snake (*Thamnophis elegans*) and the western fence lizard (*Sceloporus occidentalis*) are the most common reptiles in the project area along with the less common rubber boas (*Charina bottae*).

3.4.2 Environmental Consequences

3.4.2.1 Bald Eagle

3.4.2.1.1 Alternative 1 – No Action

No impacts to the bald eagles nesting either near the dam or in the Sagehen Arm of the reservoir would occur.

3.4.2.1.2 Alternative 2 – MSE Raise (Preferred Alternative)

The bald eagle nest immediately adjacent to the project area is not visible from any existing project features and would not be visible from any of the proposed actions contained in the preferred alternative.

The National Bald Eagle Management Guidelines (USFWS 2007) provide guidance for large construction projects. For projects with nests not visible from the project area, a buffer of at least 330 feet between the project activities and the nest (both active and alternate) must be maintained.

The closest proposed project feature to the nest is the Dog Valley Road which would serve as a temporary haul road and it is 850 ft from the road to the nest. This is far beyond the minimum of 330 feet prescribed by the Bald Eagle Management Guidelines. The second closest project feature is the left abutment (east side) of Stampede Dam at 1,080 feet.

It is possible that the nesting eagles may respond to truck hauling on the Dog Valley Road especially if jake brakes are used to descend the steep hill to the dam. While the nest is not visible from the road, there is no acoustic barrier to loud noises except thick foliage. The topography itself serves as an acoustic barrier to any activities that would occur on the dam. The concern expressed by the USFWS (Kathleen Erwin, personal communication, 2010) is the possibility of disturbing the nesting pair during the critical courtship, egg laying and incubation periods. Nest building and court activities range from early January to early April and egg laying/incubation activities range from early February through late May (USFWS 2007).

Bald eagle response to human activities is variable. Individual birds show different thresholds of tolerance for disturbance. The distance at which a disturbance causes bald eagles to modify their behavior also is affected by the sight distance of the activity. Forested habitat can reduce the noise generated by activity. In addition, if the noise-generating activity is hidden from the nest site,

disturbance thresholds may be reduced. Some studies report that bald eagles seem to be more sensitive to humans afoot than to vehicular traffic (Grubb and King 1991, Hamann 1999). Other studies indicate bald eagles can tolerate a certain amount of human disturbance (Harmata and Oakleaf 1992 in Gaines et al. 2003). Disturbance is most critical during nest building, courtship, egg laying and incubation (Dietrich 1990). Grubb et al. (1992) found that eagles are disturbed by most activities that occur within 1500 feet, and take flight when activities occur within 600 feet.

A monitoring plan would be developed and implemented that would monitor the nesting pair a few days prior to construction activity to determine the pair's normal activities and routine. Then the pair would be monitored as construction begins, especially hauling activities, to determine if any adverse effects occur to the eagles. Such effects could include agitated calling, flying out of the nest, altering foraging areas and frequency of foraging. If such changes are noted during hauling or construction activities a variety of actions would then be considered ranging from altering the hauling route, requiring slow speeds, or reducing or eliminating jake brake use through the critical area closest to the nest.

At present, it is believed that the Dog Valley Road closest to the nest currently experiences heavy recreational traffic and ski boats regularly use the lake near the nest so that the eagles are likely to be tolerant of loud traffic or construction-related noises. However, implementing a modest monitoring program would insure that no adverse effects would be allowed to occur.

Eagles routinely use mature Jeffrey and ponderosa pines and snags along the shoreline of Stampede Reservoir for roosting. Eagles are regularly seen perching in the large pine trees in and near the Stampede Reservoir Vista Point. A portion of the Vista Point would be converted to a staging and stockpiling area, necessitating the removal of some trees. The large mature pines in this vicinity would be identified and marked and would not be cut.

In the event that the Stampede Reservoir secondary borrow area is needed to furnish fill materials on a contingency basis, a haul road would be located along the edge of the reservoir at elevation 5946.1 feet to provide access between the secondary borrow area and the dam and dike. No trees would be removed to accommodate this haul route. Hauling activities along this area could temporarily displace roosting eagles to other areas of the reservoir.

No adverse impacts would occur to the fish and waterfowl populations present in Stampede Reservoir and the Little Truckee River, so the forage base for bald eagles would not be affected.

No long-term impacts would occur to the eagles either at the dam or in the Sagehen Creek Arm since reservoir operations would continue unchanged.

3.4.2.2 Other Wildlife Species

3.4.2.2.1 Alternative 1 – No Action Alternative

No dam safety modification would occur, and therefore no impacts to wildlife would occur.

3.4.2.2. Alternative 2 – MSE Raise (Preferred Alternative)

Construction activities for the preferred alternative would occur in areas already heavily disturbed by recreational use of the reservoir and adjacent shoreline areas and the Little Truckee River, as well as vehicle traffic and maintenance activities associated with Stampede Dam operations. There are several campgrounds in the project area and a heavily used boat ramp. There are, however areas of intact habitat within the project area. Additionally there are extensive areas of intact habitat surrounding the project area and wildlife constantly move through the project area to access these surrounding areas.

Potential and existing habitat for migratory birds, resident birds and raptors would be permanently lost through certain construction activities that remove pines, shrubs and forb species. Trees and other vegetation would be permanently removed along both edges of the Dog Valley Road on 5.9 acres through the intervening area between the dam and dike and for the new O&M road where embankment fill material would directly impact trees. Trees and other vegetation would be permanently removed on 1.7 acres to accommodate the construction footprint of the 2 saddle dikes and associated road and trail relocations around these dikes.

Temporary loss of habitat would occur where vegetation is removed during construction activities, only. These areas would be replanted with native or adapted seeds and plants post-construction. Construction areas associated with a temporary loss of habitat include up to 31 acres of staging and stockpiling areas, plus several optional haul routes that may be chosen by the contractor for implementation. All necessary vegetation removal would be completed before nesting season begins or after nesting season is completed to reduce nest losses. Key areas such as large mature pines along the reservoir shoreline and Vista Point would be identified, marked and protected from disturbance.

Both small and large mammals would be temporarily disturbed and would likely be displaced from parts of the project area during the 2 year construction period. Mule deer may have difficulty moving around the spillway structure at the dam crest during construction. Increased vehicle traffic in the area may increase the risk of mortality and injury from vehicle collisions during the 2 year construction period. This risk would be reduced as much as possible by imposing a 30 mph limit on all haul road traffic. All disturbed areas in the staging and stockpile areas

and temporary haul roads would be replanted with native or adapted species. Species that were displaced temporarily would be able to utilize the restored habitats.

An earthen ramp would be constructed on the east side of the spillway bridge on the Dog Valley Road to allow mule deer crossing the bridge to exit the top of the new dam crest and access the hillside below the dam.

Long-term operations of the reservoir would remain unchanged from current operations, thus no impacts would occur to nesting and foraging waterfowl.

Reptiles would also be temporarily disturbed and displaced during construction activities.

No long-term impacts would occur to wildlife in the project area. Impacts to areas temporarily disturbed during construction would be replanted upon completion of construction. No increase in human activity would occur after construction is completed and vehicle traffic levels would return to preconstruction levels.

3.5 Vegetation

3.5.1 Affected Environment

Plant surveys were conducted during July 2011 in the project area (O'Meara 2011). Plant species observed in each major area of the project are summarized in table 3-1.

Ponderosa pine occurs in association with Jeffrey pine and the occasional western juniper throughout the project area. A small stand of lodgepole pine is located at the western boundary of the primary borrow area. The project area was railroad logged between the 1870s and the 1930s. The residual stand of trees now occupying the area carries well over 100 trees per acre with stem diameters ranging from six to thirty inches diameter breast height. Heights of the dominant trees in the vicinity are approaching eighty feet tall. The primary borrow area and portions of the proposed staging sites near the dam were disturbed during the original dam construction and consequent maintenance activities. Conifer vegetation at the primary borrow site is sparse and less than 40 years old, but does not typify vegetation conditions at proposed construction locations such as saddle dikes and some proposed haul road and staging sites. Bitterbrush and sagebrush are the ubiquitous brush species in the project area. The primary borrow area and the dam and dike staging and stockpile areas have the highest diversity of plant species, and were the largest of the project areas surveyed.

Table 3-1.—Plant species identified in each major part of the project area (O'Meara 2011)

Plant species	Primary borrow area	Dam/dike staging , stockpile area	Saddle dike borrow, staging, stockpile areas	Saddle dikes	Tempo-rary haul roads	Invasive species?[1]
Ponderosa pine (*Pinus ponderosa*)	X	X	X	X	X	
Jeffrey pine (*Pinus jeffreyi*)	X	X	X	X	X	
western juniper (Juniperus occidentallis)					X	
Lodgepole pine *(Pinus contorta*)	X					
Bitterbrush (*Purshia tridentata*)	X	X	X	X	X	
Common sagebrush (*Atemesia tridentata*)	X	X	X	X	X	
Greenleaf Manzanita (*Arctostaphylos patula*)		X	X			
Woolly mule-ears (*Wyethia mollis*)		X	X	X	X	
Common mullein (*Verbascum thapsus*)	X					Yes
Prostrate ceanothus (*Ceanothus prostrates*)		X				
Common wooly sunflower (*Eriophyllum lanatum*)						
Royal penstemon (*Penstemon speciosus*)	X				X	
Sierra lupine (*Lupinus grayi*)	X					
Tapertip hawksbeard (*Crepis acuminata*)	X					
Pinewoods cryptantha (*Cryptantha simulans*)	X	X				
Oneseed pussypaws (*Cistanthe monosperma*)	X					
Tall annual willowherb (*Epilobium brachycarpum*)	X	X		X	X	
Spreading groundsmoke (*Gayophytum diffusum*)	X					
Mountain navarretia (*Navarretia divaricata*)	X					
California brome (*Bromus carinatus*)	X	X		X	X	
Cheatgrass (*Bromus tectorum*)	X	X	X	X	X	Yes
Quackgrass (*Elytrigia repens*)	X			X	X	Yes
Lewis flax (*Linum lewisii*)		X				
Wavyleaf Indian paintbrush (*Castilleja applegatei*)		X				
Mountain monardella (*Monardella odoratissima*)		X				
Spreading fleabane (*Erigeron divergens*)		X				
Brewer's lupine (*Lupinus breweri*)		X				
Musk thistle (*Carduus nutans*)					X	Yes
Bull thistle (*Cirsium vulgare*)		X			X	Yes
Varileaf phacelia (*Phacelia heterophylla*)		X				
Hartford's oniongrass (*Melica harfordii*)		X				
Squirreltail (*Elmus elmoides*)		X				Yes
Bolander's yampah (*Perideridia bolanderi*)			X			
Ballhead sandwort (*Arenaria congesta*)			X			
Waxy checkerbloom (*Sidalcea glaucescens*)					X	

[1] Center for Invasive Species and Ecosystem Health 2011.

3.5.1.1 Noxious and Invasive Weeds

The Tahoe National Forest has identified musk thistle infestations in the reservoir drawdown areas between Stampede Dam and the proposed saddle dike borrow area. Musk thistle is a State of California A-rated noxious weed. However, plant surveys conducted in July 2011 did not locate these populations of musk thistle, due to elevated reservoir water levels throughout the growing season. A few individual musk thistle plants were later located along the powerplant access road.

The most common invasive species is cheatgrass, occurring at moderate to light density levels throughout the project area. Quackgrass is the second most abundant invasive species, but only small, isolated populations were observed. A few individual bull thistle plants were present in several of the project areas. Common mullein was documented in the primary borrow area and is commonly found just inland of the drawdown area of the reservoir when water levels recede.

3.5.1.2 Wetlands and Waters of the United States

A wetland delineation was conducted during July 2011 (Reed & Siegle 2011). Table 3-2 lists the wetland species recorded during this delineation. There are two wetlands in the project area: a 0.22-acre wetland located along the powerplant access road immediately downstream of the dam (figure 3-1); and a 0.245 acre wetland located at the site of the proposed east saddle dike (figure 3-2).

3.5.2 Environmental Consequences

3.5.2.1 Alternative 1 – No Action Alternative

Under the No Action alternative, dam and reservoir operations would remain unchanged. There would be no impact to vegetation associated with this alternative.

3.5.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

An estimated 5.9 acres of trees and other vegetation would be permanently removed to accommodate the MSE wall and embankment raise at the dam and dike area. Approximately another 1.7 acres of trees and other vegetation would be permanently removed for the east and west saddle dike footprints and associated road and trail relocations.

The contractor may choose to temporarily remove up to 25 acres of ponderosa, Jeffrey and lodgepole pine, big sagebrush, bitterbrush and other species located in the primary borrow area, the dam and dike staging and stockpile areas, and the administrative staging area during construction activities. Large ponderosa pines in the Vista Point that serve as bald eagle roosting trees would be identified and flagged for protection.

Table 3-2.—Species detected in sample plots and wetland indicator status

Scientific name	Common name	Indicator status
Trees/shrubs		
Artemisia cana	Silver sagebrush	FACW
Artemisia tridentata	Big sagebrush	FACU
Chrysothamnus nauseosus	Rubber rabbitbrush	FACU
Pinus ponderosa	Ponderosa pine	FACU
Purshia tridentata	Bitterbrush	UPL
Salix exigua	Sandbar willow	OBL
Salix geyeriana	Geyer's willow	OBL
Graminoids		
Bromus techtorum	Cheatgrass	UPL
Carex aquatilis	Water sedge	OBL
Carex hassei	Salt sedge	FACW
Carex microptera	Smallwing sedge	FAC
Deschampsia danthoniodes	Annual hairgrass	FACW
Elymus trachycaulus	Slender wheatgrass	UPL
Juncus balticus	Baltic rush	OBL
Poa secunda	Sandberg bluegrass	FAC
Poa wheeleri	Wheeler's bluegrass	FAC
Typha latifolia	Broadleaf cattail	OBL
Forbs		
Achillea millifolium	Yarrow	FACU
Cryptantha simulans	Pine cryptantha	UPL
Epilobium foliosum	California willowherb	UPL
Equisetum arvense	Field horsetail	FACW
Equisetum laevigatum	Smooth horsetail	FACW
Orthocarpus hispidus	Hairy owl's clover	FAC
Penstemon deustus	Rock penstemon	UPL
Sisyrinchium bellum	Blue-eyed grass	FAC
Triteleia hyacinthina	Wild hyacinth	FACW

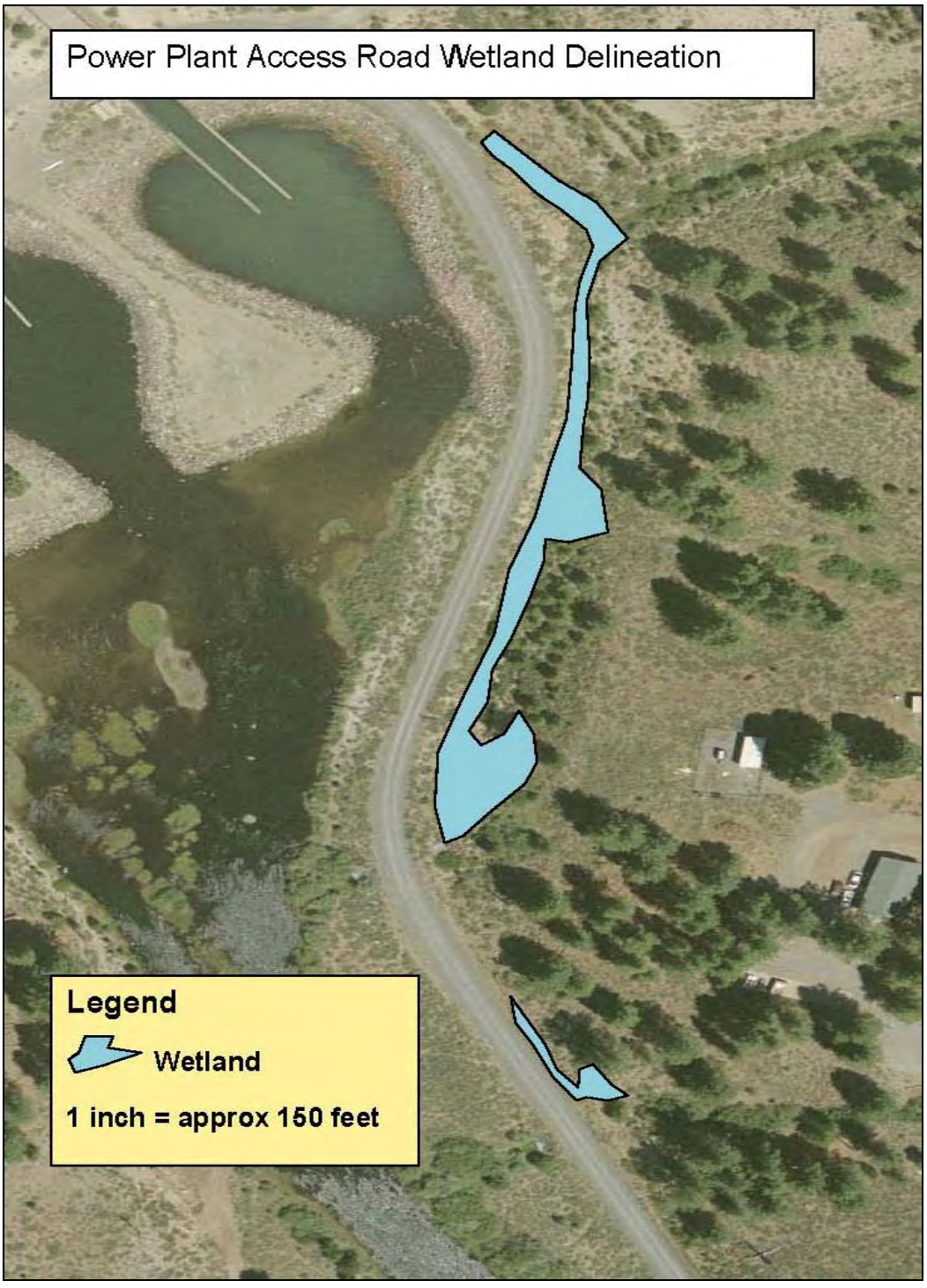


Figure 3-1.—A 0.22-acre wetland delineated along the powerplant access road immediately downstream of the dam. This area would be temporarily affected by widening the powerplant access road to two lanes for hauling materials. A portion of the toe drain and the roadside ditch would be placed in a pipe and then filled to widen the road.

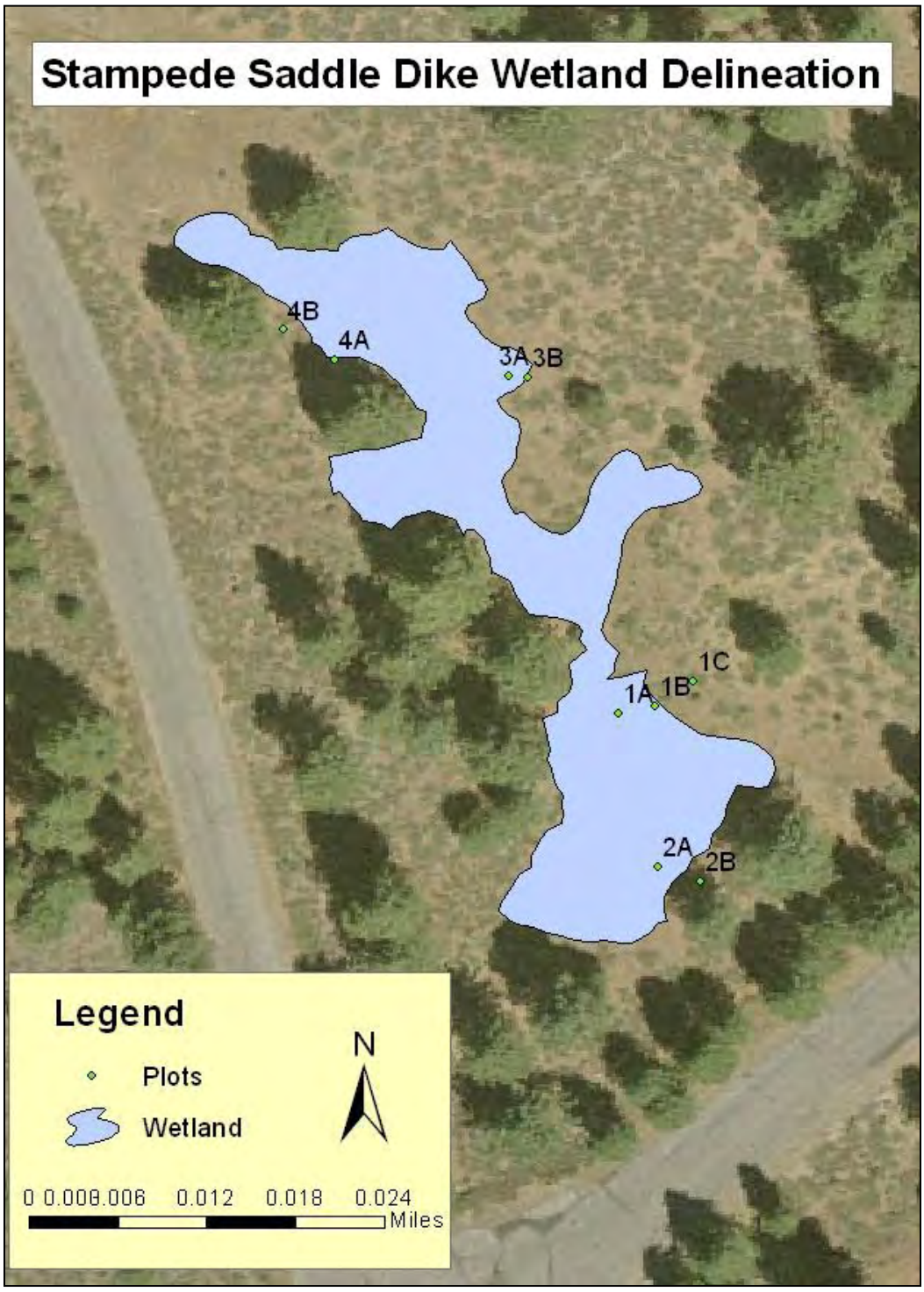


Figure 3-2.—A 0.245-acre wetland delineated in the footprint of the east saddle dike. This area would be permanently impacted by construction of the saddle dike.

Approximately 6 acres of shrubs and some trees within the saddle dike staging areas may also be temporarily removed during construction. The remaining 2.3 acres within the saddle dike staging areas are within the normal drawdown area within the reservoir boundary which usually supports only sparse vegetation.

Widening the powerplant access road would temporarily affect an estimated 1 acre of trees, riparian and wetland vegetation. Adding a haul route near the left abutment of the dam (east end of dam) would also temporarily affect an estimated 1 acre of trees and shrubs.

When construction is completed, areas of temporary disturbance would be replanted with a native or adapted plant seed mix. The mix of native or adapted plants would be determined in consultation with the Forest Service. Adjacent undisturbed sites would also provide seed sources for recolonizing the disturbed areas.

No long term impacts are anticipated to occur to the ponderosa/jeffrey pine/big sagebrush/bitterbrush vegetative communities in the project area. Overall the impacts would occur only to a relatively small area and reseeding and planting would be undertaken as soon as construction activities are completed.

The secondary and saddle dike borrow areas, potential haul route between the secondary borrow area and dike, and 2.3 acres of the saddle dike staging areas are all located in the reservoir drawdown zone. Construction activities within these areas would remove the sparse annual or biennial vegetation that is normally present, including the extensive stands of common mullein in this area. These areas would be graded and re-contoured at the completion of construction.

3.5.2.2.1 Noxious and Invasive Weeds

The spread of invasive and noxious weeds is a significant issue in construction projects that involve land disturbance. Measures that must be taken to prevent the spread of noxious and invasive weeds during proposed construction activities are contained in attachment B. Earth moving activities and the use of contaminated construction fill, seed, or erosion-control products contribute to the spread of weeds. Prevention is the least expensive and most effective way to halt the spread of noxious and invasive weeds.

While musk thistle was not observed in the reservoir drawdown areas in 2011 due to high water levels, the Tahoe National Forest has previously identified musk thistle invasion in areas proposed for the secondary and saddle dike borrow areas and the potential haul route between the secondary borrow area and dike. A few individual musk thistle plants were noted along the powerplant access road. Practices outlined in the Weed Control Plan in attachment B should prevent this species from spreading to adjacent habitats.

The most common, widespread invasive species in the project area is cheatgrass. Cheatgrass invades rangelands, pastures, prairies and other open areas and has the potential to completely alter the ecosystems it invades. It can completely replace native vegetation and change fire regimes. It occurs throughout the US and Canada, but is most problematic in areas of the western US with lower precipitation levels (CISEH 2011). While it is widespread throughout the project area, it does not occur at high densities and a wide variety of other plants are able to thrive. The preventative measures outlined in the Weed Control Plan in attachment B; as well as immediate reseeding and replanting of disturbed areas should minimize the potential for excessive infestations of cheatgrass.

Common mullein occurs just outside the drawdown zone of Stampede Reservoir. It was also detected in the primary borrow area. Some entities do not consider mullein an invasive or noxious weed and it is not listed as a regulated weed species in California. It can be a difficult plant to control. The most effective method of controlling this species is to cut plants with a weed hoe, cutting through the root crown below the lowest leaves. The main area of infestation is in the disturbed areas above the drawdown zone. Little else can grow in this zone and thus far it has not appeared to be invading surrounding areas in any significant numbers. Practices outlined in the Weed Control Plan in attachment B should prevent this species from spreading to adjacent habitats.

Quackgrass and bull thistle were found in only small areas within the project area. Implementation of the Weed Control Plan should prevent the spread of this species.

Tall whitetop and Russian thistle are spreading rapidly in Sierra County. None of these invasive species were observed during plant surveys conducted in July 2011. Control measures have been actively implemented in the Stampede Reservoir area; however the potential for the spread or reinvasion of these weed species remains high. Implementation of the Weed Control Plan should prevent the spread of these species as a result of construction related activities in the project area.

3.5.2.2.2 Wetlands and Waters of the United States

Widening the powerplant access road would temporarily affect up to a 0.22-acre of wetland by removing the vegetation and placing the flows in a pipe during construction. Post construction, this area would be contoured and seeded to re-establish conditions resulting in no permanent loss of wetland features at this location.

A total of 0.245 acre of wetland vegetation at the east saddle dike would be permanently eliminated. A mitigation plan to replace this loss would be developed and implemented in consultation with the Army Corps of Engineers.

3.6 Threatened, Endangered and Candidate Species

3.6.1 Affected Environment

3.6.1.1 Lahontan Cutthroat Trout (Onchorhynchus clarki henshawi)

Lahontan cutthroat trout (LCT) was federally listed as an endangered species in 1970 (35 FR 13520). In 1975, this designation was changed to threatened to facilitate management (40 FR 29864). In 1995, the USFWS released its recovery plan for LCT, encompassing six river basins within the historic range of LCT, including the Truckee River basin. The LCT Truckee River Recovery Implementation Team has finalized a *Short-Term Action Plan* (USFWS 2003) for the species in the Truckee River basin identifying priority areas with current or potential opportunities to support LCT or important habitats that would sustain various life history stages. Recovery populations of the LCT occur only Independence Creek, upstream of Independence Lake; Pole Creek; Hunter Creek; Donner Creek; Perazzo Creek; Prosser Creek; and the Truckee River from its confluence with Donner Creek to the State line; Upper Truckee River; Truckee River from Tahoe Dam to Donner Creek; and, Independence Creek downstream from Independence Lake to the Little Truckee River. LCT have been introduced into the Truckee River for recreational sport fishing and are not subject to protection under the Endangered Species Act (ESA). A research population was released into Sagehen Creek, but is not protected under ESA.

Any Lahontan cutthroat that may occur either in the Little Truckee River below Stampede Dam or in Stampede Reservoir are from non-ESA protected releases.

3.6.1.2 Mountain Yellow-legged Frog (Rana muscosa)

The mountain yellow-legged frog (*Rana muscosa*) is listed as a FWS candidate species under the Endangered Species Act, being part of the Sierra Nevada Distinct Population Segment (DPS).

There is only one known small population of the mountain yellow-legged frog known to be present in the Tahoe National Forest in a small meadow/stream complex (USDA 2008). It does not occur in the Little Truckee River downstream of Stampede Dam or in the Stampede Reservoir area.

3.6.1.3 Fisher (Martes pennanti)

Under the ESA, the West Coast DPS of the fisher was added to the USFWS candidate species list on April 8, 2004.

The fisher does not occur in the Tahoe National Forest; however suitable habitat exists.

3.6.1.4 Webber's ivesia (Ivesia webberi)

Webber's ivesia *(Ivesia webberi)* is listed as a Federal candidate species under the ESA and thus has no critical habitat designated.

Webber's ivesia is restricted to sites with sparse vegetation and shallow, rocky soils composed of volcanic ash or derived from andesitic rock. Occupied sites generally occur on mid-elevation flats, benches, or terraces on mountain slopes above large valleys and are devoid of colluvial (loose deposit of rock debris) accumulation from upslope. The species generally occurs between 4,480 and 5,950 feet. This vernally moist, but otherwise dry and rocky habitat is typically dominated by a wide variety of cushion-like perennial herbs with low sagebrush *(Artemisia arbuscula)* and squirrel-tail grass (*Elymus elymoides*) (Witham 1991, 2000). The unique soils and hydrology of the Webber ivesia sites may exclude competition from other species. The shrink-swell of the clayey subsoils favors tap-rooted perennials and shallow rooted, early annuals. The clayey soils and early spring saturation tend to exclude typical Great Basin species (Witham 2000).

Based on the information gathered for the status report (Witham 2000), the total known global population of *Ivesia webberi* is estimated to be 4,855,200 individuals, and to occupy 186 acres of habitat divided among 15 populations in seven scattered locations in Sierra, Dog, and Honey Lake Valleys in Lassen, Plumas, and Sierra Counties, California; Upper Long Valley along the California-Nevada Border, both north and southwest of Reno, Washoe County, Nevada, and the western slope of the Pine Nut Mountains, Douglas County, Nevada. Extant populations occur between 4480 and 5950 feet elevation. The total Nevada population of Ivesia webberi is estimated to be 4,740.000 individuals, and to occupy 29.2 acres between 5320 and 5950 feet elevation. Observations on existing populations indicate that additional surveys are unlikely to produce significant new populations in Nevada. The western edge of Upper Long Valley in California remains the only highly suitable habitat which has not been surveyed. However, since this is primarily private property, it is not likely to be surveyed in the near future and potential populations are vulnerable to private development activities.

The major threats to this species are its proximity to rapidly growing urban areas in the Sierra foothills and in the western Great Basin near Reno, Nevada. Threats include urban development, authorized and unauthorized roads, off-road vehicle activities and other dispersed recreation, livestock grazing and trampling, fire and fire suppression activities including fuels reduction and prescribed fires, and displacement by noxious weeds.

There is potentially suitable habitat for this species in the forest area adjacent to Stampede Reservoir. A recent plant survey (O'Meara 2011) conducted for the project area in July 2011 did not find this species present. Additionally, field surveys as described in the 2000 status report and in other areas not documented

in that report, such as western Sierra Valley, Plumas and Sierra Counties, California (Witham 1990), indicate that only a very small proportion of potentially suitable habitat is actually occupied. Usually, a site that looks suitable from a distance ends up being too xeric or lacks the shallow, clayey soils with a rocky surface pavement associated with this species.

3.6.1.5 Wolverine (Gulo gulo luteus)

The wolverine was petitioned for listing as threatened or endangered under the ESA, but upon status review in 2008 the USFWS determined it was not warranted listing (USFWS 2008). That finding was reversed on December 14, 2010, when the USFWS announced a 12-month finding on a petition to list the North American wolverine (*Gulo gulo luscus*) as an endangered or threatened species under the ESA (USFWS 2010).

After reviewing available information, the USFWS found that wolverine occurring in the contiguous United States is a DPS and that addition of this DPS to the *Lists of Endangered and Threatened Wildlife and Plants* was warranted.

In February 2008 researchers at Oregon State University photographed a possible wolverine on the Sagehen Road in the Sagehen Creek area at the Sagehen Creek Field Station. This sighting is 7.7 miles southwest of the project area at the Vista Point. Additional wolverine sightings were documented by Sierra Pacific Industries biologists on SPI lands in Sierra County, near Truckee, CA in 2009 and again on January 22, 2010 in the same general area of the 2008 Sagehen Road sighting. DNA extracted from hair samples collected at photo stations by Dr. Michael Schwartz at the Forest Service's Rocky Mountain Research Station concluded the wolverine DNA more closely resembles genetic types found throughout the Northern Rocky Mountains and not the Southern Sierra population. The 2008 detection is well below the expected elevational range of breeding or denning wolverine habitat (above 8,000 feet in this area), but consistent with potential winter foraging habitat. The subsequent wolverine sightings have covered a large area between Highway 49 (Yuba Pass) to the north and Interstate 80 (Donner Pass) to the south, an indication of considerable movement by this individual through a variety of habitats and apparent tolerance of high levels of disturbance from winter and summer recreation over the past three years.

3.6.2 Environmental Consequences

3.6.2.1 Lahontan Cutthroat Trout

Recovery populations of Lahontan cutthroat trout are not present in the area affected by proposed construction activities.

3.6.2.2 Mountain Yellow-Legged Frog

This species is not present in the area affected by proposed construction activities.

3.6.2.3 Fisher

This species is not present in the area affected by proposed construction activities.

3.6.2.4 Webber's Ivesia

This species has not been documented to be in the project area though suitable habitat may exist.

3.6.2.4.1 Alternative 1 – No Action Alternative

No effects would occur to this species or potential suitable habitat.

3.6.2.4.2 Alternative 2 – MSE Raise (Preferred Alternative)

This species is not known to occur in the area. No impacts are expected to occur to this species either from short term construction activities or from continued reservoir operations.

3.6.2.5 Wolverine

While a confirmed wolverine sighting has not been documented for the Stampede Dam area, recent sightings documented as close as 7.7 miles away in relatively disturbed areas with high human activity levels, it is possible that individuals may move through the project area.

3.6.2.5.1 Alternative 1 – No Action Alternative

No impacts to the wolverine would occur.

3.6.2.5.2 Alternative 2 – MSE Raise (Preferred Alternative)

It is unlikely that wolverine denning habitat would be disturbed, even for individuals with a high tolerance for human activities. However individuals that are on the move may encounter haul road traffic and be at slightly higher risk for vehicle collisions. Given that there is thought to be only one individual in the area, this risk is very small. Additionally, haul road traffic would be restricted to 30 mph which should further reduce the risk.

3.7 Transportation

3.7.1 Affected Environment

Stampede Dam is located on the Little Truckee River approximately 11 miles northeast of Truckee, California. Stampede Meadows Road, also known as Stampede Dam Road, provides the primary improved road access to the dam from I-80. The paved two-lane road runs from the I-80 Hirschdale Road Exit 194 north along the east side of Boca Reservoir and the Little Truckee River for approximately 10 miles to Stampede Reservoir in Sierra County. Alternate access is available from I-80 Truckee Exit 188 via State Highway 89 to Hobart Mills Road to Dog Valley Road to Stampede Reservoir. This 11 mile route is unpaved for approximately two miles. See figure 2-8. The travel time from either I-80 exit to Logger Campground is about the same, 22 minutes.

The Stampede Meadows Road route is used by recreational traffic to access Boca Reservoir, the Little Truckee River between Boca Reservoir and Stampede Dam, Stampede Reservoir, Forest Service campgrounds and boat ramp at Stampede Reservoir, and points beyond until its terminus at Henness Pass Road. Access to the campgrounds is provided by Dog Valley Road across Stampede Dam. One band of about 1,000 sheep crosses Stampede Dam once each year in July. In addition, Stampede Meadows Road provides ingress and egress to the Forest Service fire station located near its intersection with Dog Valley Road.

No traffic count information is available for the Hobart Mills Route. Limited traffic count information is available for the Stampede Dam route. The most recent available information is shown in table 3-3. The 2006 to 2008 decrease in average daily traffic (ADT) north of the intersection of Stampede Dam Road and Boca Lake Road reflects a county-wide decrease in Nevada County.

Table 3-3.—Traffic counts

			24-hour volumes					Peak hour	
Year	Road	Count location	7-day ADT	Week day	Week end	Peak	Peak date	Volume	Time
1989 [1]	Stampede Dam	S/Dog Valley Rd.	220	139	422	431	10-01-89 (Sunday)	54	14:00 - 15:00
2006 [2]	Stampede Dam	N/Boca Lake Rd	539						
2008 [2]	Stampede Dam	N/Boca Lake Rd	422						

[1] Sierra County.
[2] Nevada County.

3.7.2 Environmental Consequences

3.7.2.1 Alternative 1 – No Action

Under the No Action alternative, no construction would occur at Stampede Dam. Current traffic volumes and patterns would continue.

3.7.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Construction is expected to require two construction seasons due to anticipated winter shut downs. As a result, the construction season for the proposed modification would likely extend from April through October, about 30 weeks. The proposed spillway modifications would likely be constructed during the first construction season followed by completion of the embankment raise during the second season. The roadway on top of the existing crest, Dog Valley Road, would be closed during the entire construction effort including the winter months between the first and second construction seasons.

The closure of Dog Valley Road across the dam generated concerns during scoping about emergency response times to potential fires, the campgrounds, and other areas and structures on the west side of the dam. Reclamation and its contractor would assure emergency responders in the area were notified in advance of the actual road closure so their alternate arrangements to service the area can be implemented.

During scoping concern was also raised about the closure of Dog Valley Road across the dam precluding moving sheep, increasing traffic on the roads on the west side, dust generation, and the potential for increased vehicle and vehicle pedestrian accidents.

Primary access to construction site would be via public roads and existing access roads. Reclamation would work with local jurisdictions to determine improvements to roads outside the Reclamation Zone used for construction access, if any.

The hours of on-site construction activities would likely vary throughout the construction season and could occur from 7:00 am – 10:00 pm 5 days per week, to 7:00 am – 10:00 pm 7 days per week, to 24 hours a day, 7 days per week depending on the nature of each day's work activities and weather. The on-site workforces would likely commute from the Reno, Nevada and Truckee, California areas.

The on-site construction workforce and routine deliveries of construction related materials and equipment would use existing roadways. All construction equipment and truck traffic would have to comply with the weight limits, length restrictions, and pilot car requirements of each road utilized. The materials and equipment would be brought to the construction site and stockpiled and staged at onsite locations. From the stockpile and staging locations, travel to and from

work areas would be limited to onsite roads except hauling of material from the primary borrow source to the top of the dam which could use a segment of Stampede Dam Road and Dog Valley Road. The contractor would be required to provide flaggers at these points per the required traffic plan. New construction related access roads would be restored and revegetated.

Estimates of average construction related week day traffic at the intersection of Stampede Dam Road and Dog Valley Road during the 30-week/150-day construction period are shown in table 3-4. The greatest increase in construction generated traffic could occur during the second year of construction.

Table 3-4.—Estimates of average construction related week day traffic at the intersection of Stampede Dam Road and Dog Valley Road

	Year 1 via Stampede Meadows / Stampede Dam Road	Year 2 via Stampede Meadows / Stampede Dam Road
Estimated Average Round Trips per day - materials	8	13
Estimated Average One Way Trips per day - Total	16	26
Average Week Day Traffic - Intersection Stampede Dam Road / Dog Valley Road	139	139
Estimated Average Week Day Construction Traffic - Intersection Stampede Dam Road / Dog Valley Road	155	165
Estimated Percent Increase Average Week Day Traffic Due To Construction Traffic - Intersection Stampede Dam Road / Dog Valley Road	12	19

Average week end traffic at the intersection of Stampede Dam Road and Dog Valley Road is estimated to be 422. Should work be required on week-ends, the percent of construction related traffic would be less than week days.

Given the rural location of the dam and the low vehicle count on the highway, congestion from the increase in construction traffic would be minimal, if any. Compliance with all Federal and State requirements for transportation of oversize loads would be required and would reduce or eliminate the potential for any adverse impacts. All roadway activities and roadway designs would be coordinated with appropriate state and local authorities. All roadway users must obey all applicable traffic laws and signage would be posted to notify roadway

users of construction activities. There would be no long-term impacts to traffic associated with the MSE Raise alternative. Current traffic volumes and patterns would resume following completion of the MSE Raise.

3.8 Recreation

3.8.1 Affected Environment

3.8.1.1 Stampede Reservoir

The Forest Service manages recreation facilities at the reservoir. The reservoir area has 10,740 acres of land, 3,452 surface acres of water when full, and 29 miles of shoreline.

Recreation facilities include one picnic area with four tables, one boat launch ramp with three lanes, 20 toilets, and 1 campground with a total of 252 campsites; and 4 group camp facilities that accommodate 150 people. The Forest Service collects $19.00-60.00-per-night user fees for the campsites through a campground concessionaire.

The most popular recreation activities during the summer are fishing, camping, and motor boating. During the fall, hunting for mule deer, geese, and ducks is popular. CDFG stocks kokanee and lake, rainbow, and brown trout. Stampede Reservoir is the largest reservoir in the Truckee River basin. It is about a 20-minute drive beyond Boca Reservoir, which makes it slightly less accessible to visitors traveling the main roads in the area.

Stampede Reservoir boat launch ramps provide unimpeded access to the water when the elevation is 5881 feet (1,475 surface acres) or greater. When the elevation is lower than 5881 feet and the boat ramps are less usable, the following changes in recreation occur:

- Number of boats launched decreases.
- There is a substantial walk from the water to parking facilities and toilet facilities.
- The campground is somewhat removed from the reservoir shoreline. Anglers tend to drive to and use different areas of the reservoir to avoid crossing the foreshore mudflats. Toilet facilities in the day use area are not close to the water, and visitors must walk up to one-half mile to them.
- Aesthetic qualities around the reservoir diminish. Odors from decaying vegetation, mudflats in the foreshore area, and turbidity in the water all occur. Turbidity reduces the quality of the fishing experience.

- The growth rate of kokanee is reduced, which reduces the quality of the fishing experience.

3.8.1.2 Little Truckee River between Stampede and Boca Reservoirs

The reach of the Little Truckee River between Stampede and Boca Reservoirs is heavily used by anglers of all types during the early spring (May and June) and after the spring runoff has subsided to 500 cfs or less. Fly and bank anglers congregate where the Little Truckee River enters Boca Reservoir because of easy access and quality fishing. Prolific insect populations and quality habitat support a highly productive fish population.

Following are the recreation characteristics of this section of the river:

- It has open meadows and valleys popular with fly and spin/lure/bait anglers.
- Only artificial lures with barbless hooks can be used, and the maximum size allowed to be kept is 14 inches, with a bag limit of two from the last Saturday in April through November 15 only; no fish may be kept outside this period.
- It has a large population of fish.
- It has ample parking and access.
- There is no rafting or kayaking.

3.8.2 Environmental Consequences

3.8.2.1 Alternative 1 – No Action

Under the No Action alternative, no construction would occur at Stampede Dam. There would be no effect to either the reservoir or the downstream fishery and therefore, no impacts to recreation.

3.8.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

3.8.2.2.1 Stampede Reservoir

The road across the dam, dike and intervening area (Dog Valley Road) and the Stampede Reservoir Vista Point Area would be closed during the entire construction effort including the winter months between construction seasons. However, the reservoir and recreation facilities would remain open and be accessible from the west via State Highway 89, the Hobart Mills Road, East Pasture Road, and Dog Valley Road.

Recreational users may encounter some disturbance from construction related activities during normal work hours but this would be limited and would only be temporary. Reclamation would request the Forest Service to temporarily close selected roads or trails during construction in consideration for public safety. Constructing the eastern saddle dike would require realigning a segment of the Forest Service's paved road to the Captain Roberts Boat Ramp. Options to accommodate recreational traffic to the Boat Ramp during construction include re-routing traffic through the Logger Campground and scheduling saddle dike construction outside the peak recreation season. Constructing the western saddle dike would require realigning a segment of the National Forest Transportation System road open to vehicles with high clearance. Options to accommodate recreational traffic using this road include re-routing traffic to the Boat Ramp Road and scheduling saddle dike construction outside the peak recreation season.

Reclamation would provide public notices about the construction project, temporary closures, open facilities, and alternate access routes. Given that the reservoir and recreation facilities would remain open during construction and there are other recreation areas available nearby effects to area reservoir related recreation would be expected to be minimal.

3.8.2.2.2 Little Truckee River between Stampede and Boca Reservoirs

A safe turnout and parking area for fishing access during construction would be provided. Thus, there would be no effect on recreation in this area.

3.9 Visual Resources

3.9.1 Affected Environment

The 1990 Land and Resource Management Plan for the Tahoe National Forest, the most current Plan, prescribes management of the Forest for the next 10 to 15 years and displays short- and long-term management intent, goals, and objectives for the Tahoe National Forest. Visual quality objectives (VQOs) for protecting and managing visual resources, the scenic values, are identified. Visual resource direction is specified for each management area. Stampede Dam and Reservoir are located in Management Area 032 Stampede-Boca. The VQO for the management area is partial retention wherein management activities remain visually subordinate to the characteristic landscape.

The dam is marginally visible from the reservoir, in places along Stampede Dam Road near the dam, and from limited areas of the Little Truckee River corridor immediately below the dam. The road across the top of the dam and dike, Dog Valley Road, provides upstream and downstream views of the surrounding area. Near the spillway on the reservoir side of the road a pull out area known as Stampede Vista provides a scenic overview of the reservoir and surrounding areas.

3.9.2 Environmental Consequences

3.9.2.1 Alternative 1 – No Action

No construction would occur with this alternative. There would be no change to the viewshed above or below the dam.

3.9.2.2. Alternative 2 – MSE Raise (Preferred Alternative)

Reclamation would construct an 11.5-foot-high crest raise on top of the existing dam, dike, and intervening area, having a moderate impact on the visual character of the water control structures at Stampede Reservoir. This modification would fall within the VQO for the management area. To minimize the effect of the project on the visual character of the area, the pattern of MSE wall panels would be selected to blend with the surrounding area to the extent possible. The MSE wall and intervening embankment would be marginally visible to people who are viewing the dam from the reservoir, Stampede Dam Road, or the river corridor. Dog Valley Road would be relocated to the top of the crest raise. The upstream and downstream views from the road would not be affected. Access to Stampede Vista would be provided. The scenic overview of the reservoir and surrounding areas would not be affected. Public access to the portion of Dog Valley Road across the dam and the Stampede Vista would again be open to public access upon completion of the crest raise.

3.10 Hazardous and Toxic Materials

3.10.1 Affected Environment

The Primary Borrow Area proposed for the Stampede Dam SOD modification is located downstream from the dam toe. This area was used as a disposal area for excavated waste materials from the dam, spillway, outlet works tunnel, powerplant and also as a disposal area for discarded construction materials and other debris during original construction. Thus the primary borrow area has inherent risks of containing solid wastes or hazardous and toxic materials. Building materials older than 20 years have the potential of containing high levels of toxic materials such as lead, asbestos, PCBs, and mercury. These materials are known to be hazardous to human health and the environment. Other contaminants from treated wood products such as railroad ties also contain high levels of creosote a known carcinogen. All of these materials when used for the intended purpose are considered safe if they are not disturbed. If the borrow area contains these substances, a determination of the material fate must be made.

Use, storage, and disposal of hazardous materials and solid waste associated with construction have the potential to adversely affect the environment if these materials are improperly managed. In general, most potential impacts are associated with the release of these materials to the environment. Direct impacts of such releases would include contamination of soil, water, and vegetation, which could result in indirect impacts to wildlife, aquatic life, and humans.

3.10.2 Environmental Consequences

3.10.2.1 Alternative 1 – No Action

This alternative would not increase the potential exposure to hazardous and toxic materials nor would it cause an unauthorized release of a hazardous or toxic material into the environment. However, proactive measures would not be implemented to remove potentially hazardous materials within the borrow area.

3.10.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

An Environmental Site Survey would be conducted during final design. Any materials or hazardous substances in the borrow area that could be exposed would be removed or other appropriate remedial action taken prior to start of construction.

Construction would require the short-term use of fuels, lubricants, and other fluids that create a potential contamination hazard. These and other hazardous substances would be stored and handled in accordance with Federal and state regulations. Any spills or leaks of hazardous material would require immediate corrective action and cleanup to minimize the impact on sensitive resources.

Prior to any construction activity Reclamation's contractor is required to prepare a project specific Spill Prevention Control and Countermeasure Plan for approval for petroleum and other hazardous products that would be brought on site before moving any of these products on site. The plan covers secondary containment of the product(s), prevention of spills, spill containment and cleanup procedures, and materials on hand to accomplish the containment and cleanup.

If on-site storage occurs, lubricants and fuels would be placed in temporary, clearly marked, above-ground containers and provided with secondary containment. Construction equipment would be maintained and inspected regularly. Any soil contaminated by fuel or oil would be removed and disposed of by a contractor to an approved disposal site.

Any hazardous materials and other hazardous substances that are used in construction would be disposed of in accordance with applicable laws and regulations. Excess or unused quantities of hazardous materials would be removed upon project completion. Although hazardous waste generation is not anticipated, any such wastes produced during construction would be properly containerized, labeled, and transported to an approved hazardous waste disposal facility. All nonhazardous waste materials including construction refuse, garbage, and sanitary waste, would be disposed of by removal from the work area to an approved disposal facility.

3.11 Cultural Resources

A cultural resource is a broad term that includes prehistoric, historic, architectural, and traditional cultural properties. Those cultural resources that are listed on, or are eligible for inclusion in, the National Register of Historic Places (NRHP) are referred to as historic properties. The criteria for NRHP eligibility are outlined at 36 CFR Part 60. Other applicable federal cultural resources laws and regulations that could apply include, but are not limited to, the Native American Graves Protection and Repatriation Act (NAGPRA), and the Archaeological Resources Protection Act (ARPA).

Compliance with Section 106 of the National Historic Preservation Act (NHPA) (36 CFR Part 800) follows a series of steps that are designed to identify and consult with interested parties, determine the area of potential effect (APE), determine if historic properties are present within the APE, assess the effects the undertaking would have on historic properties, and to resolve adverse effects to historic properties. According to 36 CFR § 800.5(a)(1):

> –An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."

If the undertaking would result in adverse effects to historic properties, these adverse effects must be resolved through the Section 106 process before the undertaking can be implemented. Section 106 requires consultation with the State Historic Preservation Officer (SHPO), Indian tribes, and other interested parties throughout the process.

3.11.1 Affected Environment

At the time of the cultural resources investigation, the details for the dam modification project were not completely defined. Therefore, Reclamation developed a study area, totaling approximately 1,424-acres, which encompassed the project area and any APE as defined by 36 CFR Part 800. This section summarizes known cultural resources within the broader study area. The project area was subsequently refined to an APE of approximately 752-acre area that includes the land around Stampede Reservoir between elevation 5967.3 feet (existing maximum RWS) and elevation 5981.5 feet (new design maximum RWS); a work area at Stampede Dam; a work area to construct two dikes between the south shore of Stampede Reservoir and Dog Valley Road and their associated borrow area; and two borrow areas: one at the toe of Stampede Dam, and a portion of the existing secondary borrow area that was used for original dam construction. Section 106 NHPA consultations are being conducted for this project APE.

In an effort to identify historic properties in the study area, Reclamation reviewed its archaeological site index and project data, initiated a records search by the Northeastern Information Center (NEIC) in Chico, California on January 26, 2010, and requested a search of the cultural resources files located at the Truckee Ranger District office in Truckee on April 29, 2010. Reclamation archaeologists conducted a pedestrian survey of the APE on September 27 through October 1 and October 18 through October 21, 2010. Stampede Dam was inspected and documented by Reclamation Archaeologist Amy Barnes and Architectural Historian BranDee Bruce on October 26, 2010.

3.11.1.1 Survey Results

Twenty-seven previously recorded sites were documented within the study area, twelve of which were relocated during these surveys. One segment of the Sierra Wood and Lumber Company/Hobart Estate (SNWLC) railroad grade was located within the APE. The three prehistoric sites indicate Native American use along the Truckee River. The four historic sites are indicative of logging and ranching activities in the Truckee Basin. The five multi-component sites suggest over-lapping prehistoric and historic land use in the Truckee Basin (Barnes et al. 2011).

A total of twelve new sites were identified and recorded during the 2011 survey. The newly recorded sites include 4 prehistoric, 4 historic, and 4 multi-component sites. These sites exhibit characteristics that tie them to the same themes of land use as those sites previously recorded. Stampede Dam was also recorded as a historic site (Barnes et al. 2011).

3.11.1.2 Determinations of Eligibility

Only five of the 42 previously recorded sites located within and adjacent to the study area have been determined eligible or ineligible for inclusion on the NRHP. Two prehistoric sites and the Boca and Loyalton Railroad grade system were evaluated and determined not eligible for inclusion in the NRHP through a consensus determination with the SHPO. Portions of the SNWLC railroad grade segments outside the study area have been determined not eligible for listing on the NRHP. Eligibility of the portions within the study area has not yet been resolved. The Stampede Site was evaluated and listed on the NRHP in 1970. Only a small portion of the Stampede Site is located within the study area. The Sardine Valley Archaeological District was also listed on the NRHP in 1970. Two prehistoric sites as well as the Stampede Site are located within the Sardine Valley Archaeological District and may be part of this District.

There are 37 sites in the study area that remain unevaluated. The Overland Emigrant Trail (CA-SIE-0816, 05175700010) is a National Historic Trail; however, segments within the Tahoe National Forest have not been evaluated.

The only cultural resource located within the APE is Stampede Dam. Reclamation applied the NRHP criteria of evaluation to Stampede Dam and determined that the dam is not eligible for inclusion on the NRHP. Stampede Dam is less than 50 years old and does not meet the general age criteria for consideration as a historic property pursuant to 36 CFR Part 60.4. Additionally, the dam does not meet the criteria considerations as it does not possess exceptional significance in its association to events or people that are important in the history of flood control and water conservation in the Truckee River drainage system, nor does it possess exceptional significance for its design and construction as a zoned earth fill structure.

3.11.2 Environmental Consequences

3.11.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no impacts to cultural resources or historic properties from the proposed action. Conditions related to cultural resources would remain the same as existing conditions.

3.11.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Through surveys and consultations, no historic properties were identified within the direct APE. Reclamation finds no historic properties affected, pursuant to 36 CFR § 800.4(d)(1), and is continuing consultations on this finding. The project would not be implemented until the Section 106 compliance process has been completed. The Preferred Alternative would have no impacts on historic properties.

3.11.2.2.1 Post-Review Discoveries

If any cultural or human remains are encountered during project implementation, all work within 50 feet of the find would halt and Reclamation's Authorized Official and the Regional Archeologist would be immediately notified. Reclamation would consult, as appropriate, under Section 106 of the NHPA on cultural resources discoveries. If human remains are discovered on federal land, or a cultural resource is determined to be a Native American cultural item, those remains and/or items would be treated according to the provisions set forth by the NAGPRA. The project would not resume until Reclamation meets all compliance requirements and provides a written notice to proceed.

3.12 Indian Sacred Sites

3.12.1 Affected Environment

No Indian sacred sites are known to exist within the project area and no such sites have been identified through consultations with Indian tribes.

3.12.2 Environmental Consequences

3.12.2.1 Alternative 1 – No Action

Reclamation would continue operating the dam and reservoir to meet water supply and delivery commitments. No impacts to Indian Sacred Sites would be expected.

3.12.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

The proposed action would have no impacts to the physical integrity or access to Indian Sacred Sites as no such sites are present.

3.13 Indian Trust Assets

Indian trust assets (ITA) are legal interests in property held in trust by the United States for Indian Tribes or individuals. Examples of trust assets are lands, minerals, hunting and fishing rights, and water rights. The United States has a trust responsibility to protect and maintain rights reserved by or granted to Indian Tribes or Indian individuals by treaties, statutes, and Executive orders, which sometimes are further interpreted through court decisions and regulations. This trust responsibility requires Reclamation to take all actions reasonably necessary to protect trust assets.

3.13.1 Affected Environment

The following tribes have interests in the Truckee River: Pyramid Lake Paiute Tribe—Pyramid Lake Indian Reservation (which includes Pyramid Lake) in Nevada; Reno-Sparks Indian Colony—Reno and Hungry Valley, in Nevada; Fallon Paiute-Shoshone Tribes—Fallon Paiute-Shoshone Reservation and Fallon Colony in Nevada; and Washoe Tribe of Nevada and California. Trust resources of these Tribes include land, water rights, and fish and wildlife; incomes are derived from these resources.

3.13.1.1 Pyramid Tribe/Pyramid Lake Indian Reservation

The reservation of the Pyramid Lake Paiutes, located in Washoe County north of Reno and including Pyramid Lake, presently covers 475,085 acres. P.L. 101-618 affirmed that ~~"a~~ll existing property rights or interests, all of the trust land within the exterior boundaries of the Pyramid Lake Indian Reservation shall be permanently held by the United States for the sole use and benefit of the Pyramid Tribe (Section 210[b][1])."

The Federal actions that set aside Pyramid Lake Indian Reservation explicitly reserved Pyramid Lake for the Tribe's benefit. The Pyramid Tribe is allocated for

irrigation an amount not to exceed 4.71 acre-feet per acre for 3,130 acres of bottomland farm (14,742 acre-feet) (Claim No. 1) and another 5.59 acre-feet per acre for 2,745 acres of benchlands (15,345 acre-feet) (Claim No. 2).

The Pyramid Lake fishery remains one of the cultural mainstays of the Pyramid Tribe. The Tribal fishery program operates hatcheries at Sutcliffe and Numana. Tribal hatcheries raise both the threatened LCT and endangered cui-ui. Along with conserving fish, the Pyramid Tribe controls fishing and hunting rights and manages these rights on the reservation.

P.L. 101-618 established the $25-million Pyramid Lake Paiute Fisheries Fund and the $40-million Pyramid Lake Paiute Economic Development Fund. The Pyramid Tribe has complete discretion to invest and manage the Pyramid Lake Paiute Economic Development Fund; funds are available to the Tribe when the Truckee River Operating Agreement is implemented.

3.13.1.2 Fallon Paiute-Shoshone Tribes/ Fallon Indian Reservation and Colony

The Fallon Paiute-Shoshone Indian Reservation is located in Churchill County in west-central Nevada, approximately 10 mile northeast of Fallon and 65 miles east of Reno and Carson City. The Reservation includes members of the Paiute and Shoshone Tribes. The Fallon Indian Colony is located on 60 acres and Colony land is used for residential and commercial purposes.

Water rights on and appurtenant to the reservation are served by Newlands Project facilities and are part of the Carson Division. An estimated 5,513 of the 8,156 acres of the reservation are water righted. Approximately 1,800-3,175 acres have been irrigated. The water supply for irrigation is protected by the Newlands Project OCAP with 100% delivery guaranteed, down to a 55.6% water supply year.

The Fallon Tribes entered into a settlement agreement that was ratified by Congress as Title I of P.L. 101-618, or the Fallon Paiute-Shoshone Indian Tribes Water Rights Settlement Act of 1990. Section 103 of P.L. 101-618 limits annual water use on the reservation to 10,587.5 acre-feet (equivalent to 3,025 acres). It also, however, permits the Tribes to acquire up to 2,415.3 acres of land and up to 8,453.55 acre-feet of water rights. These water rights may be used for irrigation, fish and wildlife, municipal and industrial, recreation, or water quality purposes, or for any other beneficial use subject to applicable laws of the State of Nevada.

The Tribe has dedicated reservation acreage to be used for wetland habitat for wildlife. The Bureau of Indian Affairs entered into an agreement with the USFWS in 1995 to acquire water rights for reservation wetlands; under that agreement, 1,613.4 acre-feet of water rights have been acquired.

P.L. 101-618 established the $43-million Fallon Paiute-Shoshone Tribal Settlement Fund; interest on the Settlement Fund may be spent according to the Fallon Tribes' investment and management plan for this fund.

3.13.1.3 Reno-Sparks Indian Colony

The Reno-Sparks Indian Colony was created in 1916, when 20 acres were set aside in Reno for use by members of the Northern Paiute, Washoe, and Western Shoshone people. An additional 8 acres were added later. Recently, the colony acquired 1,920 acres in Hungry Valley north of Reno. The land is used primarily for residential purposes.

3.13.1.4 Washoe Tribe of Nevada and California

The Washoe Tribe is a federally recognized Indian tribe organized pursuant to the Indian Reorganization Act of June 18, 1934, as amended. The Tribal office is located in Gardnerville, Nevada. The Washoe Tribe has four communities, three in Nevada (Stewart, Carson, and Dresslerville), and one in California (Woodfords). There is also a Washoe community located within the Reno-Sparks Indian Colony. The Washoe Tribe has jurisdiction over trust allotments in both Nevada and California, with additional Tribal Trust parcels located in Alpine, Placer, Sierra, Douglas, Carson, and Washoe Counties. The Washoe Tribe has cultural interests at and near Lake Tahoe but does not exercise any water rights in the Lake Tahoe or Truckee River basins. Tribal history extends an estimated 9,000 years in the Lake Tahoe basin and adjacent east and west slopes and valleys of the Sierra Nevada. The present day Washoe Tribe has deep roots in the past, radiating from Lake Tahoe, a spiritual and cultural center, and encompassing an area that stretches from Honey Lake to Mono Lake. (Washoe Tribe 2011).

3.13.2 Environmental Consequences

3.13.2.1 Alternative 1 – No Action

Reclamation would continue operating the dam and reservoir to meet water supply and delivery commitments. No impacts to ITA would be expected.

3.13.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

The proposed action does not involve the acquisition of water rights or the diversion of water from the Truckee River. Reclamation would continue to operate the dam and reservoir to meet water supply and delivery requirements during and after construction of the MSE Raise. The MSE Raise would be beneficial to ITA by protecting stored water for downstream fishery enhancement releases. No adverse impacts to ITA have been identified.

3.14 Noise

3.14.1 Affected Environment

The Tahoe National Forest surrounds Stampede Dam and Reservoir. The project area is generally quiet due to its rural location within the National Forest. Noise-sensitive receptors near the dam and reservoir include people using the National Forest and campgrounds for recreational purposes and employees at the Forest Service Stampede Work Center and the Stampede Powerplant.

Stampede Meadows Road and Dog Valley Road are rural roads and not a significant source of noise for the project area. Boat engines on boats using the reservoir are the sources of the loudest noises in the area. California Boating Law allows the following noise levels measured at a distance of 50 feet from the motorized recreational vessel:

- For engines manufactured on or after January 1, 1974, and before January 1, 1976, a noise level of 86 dbA
- For engines manufactured on or after January 1, 1976, and before January 1, 1978, a noise level of 84 dbA
- For engines manufactured on or after January 1, 1978, a noise level of 82 dbA

3.14.2 Environmental Consequences

3.14.2.1 Alternative 1 – No Action

Under the No Action alternative, no construction would occur at Stampede Dam. Current noise levels would continue.

3.14.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

The MSE Raise would take approximately 16 months and require the use of construction equipment such as trucks, cranes, generators, and pumps. The engines and motors associated with the equipment would temporarily elevate noise levels in the construction zone. As shown in table 3-5, typical noise levels of individual pieces of construction equipment range from of 80 to 107 dBA at a distance of 25 feet, 62 to 89 dBA at a distance of 200 feet. Noise levels from all construction zone activities would have attenuated to acceptable levels at the campgrounds and the reservoir.

Equipment used for the MSE Raise would also create temporary groundborne vibration. Typical groundborne vibration levels from various pieces of construction equipment are shown in table 3-6. As shown in the table, at 100 feet away, the highest level of groundborne vibration would be 75 VdB generated

Table 3-5.—Estimated construction equipment noise levels (Dba) and distances

		Equipment	25 feet	50 feet	100 feet	200 feet
Equipment powered by internal combustion engines	Earthmoving	Compactors (Rollers)	80	74	68	62
		Front loaders	85	79	73	67
		Backhoes	91	85	79	73
		Tractors	91	85	79	73
		Graders	91	85	79	73
		Scrapers	94	88	82	76
		Pavers	95	89	83	77
		Trucks	97	91	85	79
	Materials handling	Concrete pumps	82	76	70	64
		Cranes (Derrick)	82	76	70	64
		Cranes (Movable)	89	83	77	71
		Concrete mixers	91	85	79	73
	Stationary	Pumps	82	76	70	64
		Generators	82	76	70	64
		Compressors	87	81	75	69
Impact equipment		Pneumatic wrenches	91	85	79	73
		Jack hammers and rock drills	94	88	82	76
		Pile drivers (Peaks)	107	101	95	89
Other		Vibrator	82	76	70	64
		Saws	84	78	72	66

by bulldozers working within the construction zone. Vibration levels from all construction zone activities would have attenuated to acceptable levels at the campgrounds.

Table 3-6.—Vibration source levels for construction equipment

Construction equipment	Approximate VdB				
	25 feet	50 feet	60 feet	75 feet	100 feet
Large bulldozer	87	81	79	77	75
Loaded trucks	86	80	78	76	74
Jackhammer	79	73	71	69	67
Small bulldozer	58	52	50	48	46

Homes or occupied buildings less than 100 feet from any uneven, rough, or unpaved roads could be adversely affected by the vibration levels caused by large loaded trucks making multiple daily trips to and from the construction zones. Vibration levels for such trucks range from 86 VdB at 25 feet to 74 VdB at 100 feet. Many people find vibration at the 75 VdB level unacceptable. The threshold for infrequent activity (fewer than 70 events per day) is 80 VdB at residences and buildings where people normally sleep. The threshold for frequent activity (more than 70 events per day) is 72 VdB at residences and buildings where people normally sleep. The extent or likelihood of this potential impact is unknown since Reclamation does not designate material delivery routes. As part of the normal contracting process, the contractor would be required to take appropriate actions to assure this potential adverse impact is avoided.

Those entering the construction zone would be required to use hearing protection appropriately rated for the expected noise levels of the area.

Noise impacts associated with construction of this alternative would be temporary and less than significant.

Upon completion of the MSE Raise, area noise levels would be the same as the current condition.

3.15 Environmental Justice

Executive Order 12898, ―Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," dated February 11, 1994, requires agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks. Environmental Justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the environment. Fair treatment implies that no group should bear a disproportionate share of negative impacts.

3.15.1 Affected Environment

Nevada and Sierra Counties California were selected as the local study area. Stampede Dam and Reservoir located in Sierra County, are primarily accessed via Nevada County. Table 3-7 provides the numbers and percentages of population for seven racial categories (White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races) and the Hispanic or Latino population, a minority ethnic group, for each county, and the State of California (U.S. Census Bureau). The percentages of racial and ethnic populations are less than 10 percent for each of the two counties and are less than the State.

Table 3-7.—Race and ethnicity

	Nevada County		Sierra County		California	
	Number	Percent	Number	Percent	Number	Percent
Total population	92,033	100.0	3,555	100.0	33,871,648	100.0
One race	89,599	97.4	3,468	97.6	32,264,002	95.3
White	85,948	93.4	3,348	94.2	20,170,059	59.5
Black or African American	259	0.3	7	0.2	2,263,882	6.7
American Indian and Alaska Native	814	0.9	67	1.9	333,346	1.0
Asian	715	0.8	6	0.2	3,697,513	10.9
Native Hawaiian & other Pacific Islander	81	0.1	3	0.1	116,961	0.3
Some other race	1,782	1.9	37	1.0	5,682,241	16.8
Two or more races	2,434	2.6	87	2.4	1,607,646	4.7
Hispanic or Latino (of any race)	5,201	5.7	213	6.0	10,966,556	32.4

Low-income populations are identified by several socioeconomic characteristics. As categorized by the 2000 Census, specific characteristics include income (median family and per capita), percentage of the population below poverty (families and individuals), unemployment rates, and substandard housing. Table 3-8 provides income, poverty, unemployment, and housing information for each county and the State (U.S. Census Bureau 2000).

Table 3-8.—Income, poverty, unemployment, and housing

	Study area		
	Nevada County	Sierra County	State of California
Income			
Median family income	$52,697	$42,756	$53,025
Per capita income	$24,007	$18,815	$22,711
Percent below poverty level			
Families	5.5	9.0	10.6
Individuals	8.1	11.3	14.2
Percent unemployed	11.9	18.7	12.8
Percent of housing			
1.01 or more occupants per room	2.5	6.0	6.1
Lacking complete plumbing facilities	0.8	2.0	0.7

Median family income for each of the two counties is less than the State. Per capita income for Nevada County is greater than for the State. Compared to the State of California, the study area has lower percentages of families and individuals below the poverty level.

Other measures of low-income, such as unemployment and substandard housing also characterize demographic data in relation to environmental justice. In February 2010, the unemployment rate of 18.7 percent in Sierra County was greater than the State's 12.8 percent. The rate of unemployment in Nevada County was less at 11.9 percent.

Substandard housing units are overcrowded and lack complete plumbing facilities. The percentage of occupied housing units with 1.01 or more occupants per room in the study area counties was less than the 6.1 percent for the State. The percentage of housing units lacking complete plumbing facilities in the study area was greater than the State percentage.

3.15.2 Environmental Consequences

Environmental justice analysis evaluates the effects of potential adverse environmental impacts on natural resources (and associated human health impacts) and socioeconomic impacts to identify and describe disproportionate adverse effects to minority and/or low-income populations.

3.15.2.1 Alternative 1 – No Action

No adverse natural resource or socioeconomic impacts adversely affecting minority and low-income populations have been identified, therefore there are no environmental justice impacts.

3.15.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

No adverse natural resource or socioeconomic impacts adversely affecting minority and low-income populations have been identified, therefore there are no environmental justice impacts.

3.16 Air Quality

3.16.1 Affected Environment

Both the federal and state governments have enacted laws mandating the identification of areas not meeting the ambient air quality standards and development of regional air quality plans to eventually attain the standards. Sierra and Nevada Counties are within the Northern Sierra Air Quality Management District (NSAQMD). NSAQMD county attainment designations are shown in table 3-9. Under the federal Clean Air Act, eastern Nevada County and Sierra County are considered –Unclassified" or –Attainment" for all pollutants. For the state standards, eastern Nevada County is –Non-Attainment" for PM_{10} and the state ozone standards, and –Attainment" or –Unclassified" for other pollutants. Sierra County is considered –non-attainment" for PM_{10} and –Attainment" or –Unclassified" for other pollutants.

3.16.2 Environmental Consequences

3.16.2.1 Alternative 1 – No Action

Under the No Action alternative, no construction would occur at Stampede Dam. Current air quality trends for the area would continue.

3.16.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Construction of the MSE Raise would take approximately 16 months and require the use of construction equipment such as trucks, cranes, generators, and pumps. Adverse air quality impacts would originate from combustible pollutants and fugitive dust (PM_{10}) associated with construction of the MSE Raise. Construction

Table 3-9.—NSAQMD County attainment designations

	National			State		
	Nevada	**Sierra**	**Plumas**	**Nevada**	**Sierra**	**Plumas**
Ozone (1 hour)	A	A	A	N	U	U
Ozone (8 hour)	N[1]	A	A	N	U	U
Carbon monoxide	A	A	A	U	U	A
Nitrogen dioxide	A	A	A	A	A	A
Sulfur dioxide	A	A	A	A	A	A
PM_{10}	U	U	U	N	N	N
$PM_{2.5}$	U	U	U	U	U	N[2]
A - Attainment	N - Non-attainment					
U - Unclassified	n/a – Not applicable					

[1] Only western Nevada County is non-attainment for the 8 Hour standard.
[2] Only the Portola Valley area is non-attainment for the State PM2.5 Annual standard.

emissions would vary from day to day and activity to activity depending on the timing and intensity of construction with each activity having its own potential to release emissions.

Construction activities that can produce dust (PM_{10}) emissions include excavation, earthwork, vehicle and truck travel over unpaved roads, wind blowing over disturbed land areas, and tail-pipe exhaust being emitted from vehicles and equipment. The contractor would be required to prepare a dust control plan. This plan would include measures for minimizing fugitive dust such as applying dust suppressants and water sprays, minimizing the extent of disturbed surface areas, and restricting activities during periods of high wind.

Compliance with all applicable emission standards and BMPs would reduce potential impacts to less than significant levels. Air quality impacts associated with construction of this alternative would be temporary and less than significant. These impacts are localized in nature and decrease substantially with distance. No other construction projects are currently located or expected in the immediate vicinity of Stampede Dam. Therefore, the construction of the MSE Raise would not contribute to cumulative construction air quality impacts.

3.17 Greenhouse Gases and Climate Change

3.17.1 Affected Environment

Climate change implies a significant change having important economic, environmental, and social effects in a climatic condition such as temperature or precipitation. Climate change is generally attributed directly or indirectly to human activity that alters the composition of the global atmosphere, additive to natural climate variability observed over comparable time periods.

Greenhouse gases in the atmosphere allow short wavelength solar radiation to pass through the atmosphere to reach the earth's surface, but absorb the longer wavelength heat that is radiated back into the atmosphere from the earth. The concentration of greenhouse gases in the atmosphere has an effect on the average temperature at the surface of the earth. If the atmospheric concentration of greenhouse gases decreases over time, then more heat will escape through the atmosphere, and the average temperature at the earth's surface will go down. If the greenhouse gas concentration in the atmosphere increases, however, less heat will escape to outer space and the average temperature at the earth's surface will increase.

The greenhouse gas of interest in the proposed action is carbon dioxide (CO_2) because it is a combustion product of vehicle and equipment fuel burning.

3.17.2 Environmental Consequences

3.17.2.1 Alternative 1 – No Action

Under the no action alternative there would be no change construction activity, therefore construction-related greenhouse gas emissions would not be generated.

3.17.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

While data are not available to calculate the amount of fuel expected to be used during construction, equipment emissions would be expected to be minimal relative to current background levels.

3.18 Public Safety

The Dam Safety Program is one of Reclamation's highest priorities. The program is intended to ensure the safety and reliability of Reclamation dams to protect the downstream public. Reclamation will undertake corrective actions expeditiously when unreasonable public risk is identified.

3.18.1 Affected Environment

Recent investigations conducted under Reclamation's SOD Program revealed that during an estimated 75,000 year flood event Stampede Dam would be overtopped by floodwater, resulting in dam failure. Failure of Stampede Dam would result in probable loss of life, failure of downstream dams, downstream property damage, and the loss of stored water for fishery enhancement along the Truckee River and Pyramid Lake Fishway facilities operation.

3.18.2 Environmental Consequences

3.18.2.1 Alternative 1 – No Action

Under the No Action alternative, no SOD modifications would be constructed at Stampede Dam. The downstream population would continue to live with elevated risk of dam failure during a significant hydrologic event. Reclamation considers this action to be unacceptable for the long-term safety of Stampede Dam and the areas downstream.

3.18.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Reclamation would construct an 11.5 foot dam raise to allow Stampede Dam to safely pass all anticipated floodwaters up to and including the IDF (the 250,000-year PMF) without failing. This alternative meets the SOD criteria for protection of life and property.

During construction, temporary fencing would be required to secure construction and staging areas and contractor's materials and equipment from the public. The contractor would be responsible for posting the appropriate signage in all construction areas, on all roadways affected by the project, and in and around the construction site notifying the public of safety issues, restricted access, and roadway limitations.

3.19 Cumulative Effects

Reclamation has assessed past, present, and reasonably foreseeable future projects in the Stampede Dam area for significant cumulative effects. Discussions with the Forest Service indicated SOD modifications of Stampede Dam would not affect nor be affected by the Tahoe National Forest Off Highway Vehicle Route Designation/Motorized Travel Management Project. Neither Reclamation nor the Forest Service have any projects scheduled to take place in the Stampede Dam area, presently or in the reasonably foreseeable future. Thus the SOD modifications at Stampede Dam would not result in a significant cumulative impact.

CHAPTER 4 – CONSULTATION AND COORDINATION

4.1 Public Involvement

A public scoping period was held for the EA from December 16, 2009 to January 13, 2010. A statement was released to the media notifying the public and interested parties of the intent to prepare the EA. A scoping letter was sent to Federal and State agencies, Tribal Governments, and local county officials soliciting comments, concerns, and issues related to the proposed action. The letter included the information on the proposed action, the scoping period duration, and comment submittal instructions. Reclamation received 28 written comment documents including letters, e-mails, and 5 identical form letters during the scoping period.

A second scoping period was provided from September 9, 2011 – October 10, 2011, when refinements to the preferred alternative resulted in a change in the construction footprint identified previously. Reclamation issued a news release and paid for a public notice in the Sierra Sun, a local area newspaper located in Truckee, CA. Letters announcing the second scoping period, providing details of the refinements, requesting identification of new issues to be considered in preparation of the EA were sent to 187 interested parties and Tribes including those providing comments during the first scoping period. Reclamation received comments from 11 interested parties.

The scoping comments were considered in the development of this Draft EA. Comments included questions and concerns about construction and operation impacts to potentially affected resources including especially fish, public safety, recreation, transportation, and water quantity and quality.

This draft EA will be distributed for public review and comment. Copies will be provided to those requesting the draft EA, and a news release will be issued. The draft EA will be available for public review at www.usbr.gov/mp and in Reclamation offices. In addition, printed and CD-ROM copies will be available upon request.

Following the close of the public review and comment period, Reclamation will consider all written comments and prepare the final EA. If no significant adverse impacts are identified, a Finding of No Significant Impact would be appropriate.

4.2 Tribal Coordination and Consultation

Reclamation identified the Maidu Greenville Rancheria and the Washoe Tribe of Nevada and California as tribes who might attach religious and cultural significance to historic properties within the project area. Reclamation also identified the Maidu Cultural and Development Group, a non-federally recognized Native American organization, who may have knowledge of historic properties within the project area. Reclamation sent letters to the Maidu Greenville Rancheria, Washoe Tribe, and Maidu Cultural and Development Group on April 6, 2010 to seek their assistance in identifying sites of religious and cultural significance and comments regarding any concerns with the proposed project. Additional letters were sent to the same groups on August 25, 2010, and on June 11, 2011, identifying proposed changes to the project. Consultations with these parties will continue under Section 106 of the NHPA.

In addition, the Pyramid Lake Paiute Tribe, Washoe Tribe of Nevada and California, Fallon Paiute-Shoshone Tribe, Maidu Greenville Rancheria, and Reno-Sparks Indian Colony were included in the scoping process under NEPA.

4.3 Agency Coordination

Reclamation as the lead federal agency for the NEPA compliance has invited the Forest Service, Tahoe National Forest to participate as a Cooperating Agency.

Reclamation has coordinated with the Forest Service and other agencies including Lahontan Regional Water Quality Control Board, Nevada and Sierra Counties, California, the USFWS, and the U.S. Army Corps of Engineers throughout the development of the proposed action. Coordination activities have included information sharing, formal and informal meetings, project site visits, telephone calls, and e-mails.

4.4 Agency Consultation

4.4.1 National Historic Preservation Act

Reclamation is the lead agency and is working cooperatively with the Forest Service, Tahoe National Forest and the Army Corps of Engineers, Sacramento District on consultation with the California SHPO to address Section 106 compliance with the NHPA. Reclamation, as the lead federal agency, initiated consultations under Section 106 of the NHPA on April 13, 2011, with the California SHPO and with Indian tribes and other Native American organizations on April 6, 2011. Reclamation met with SHPO staff on April 19, 2011, to discuss the project and the APE. On May 16, 2011, SHPO responded to Reclamation with agreement on the delineation of the APE. Reclamation is continuing consultations under Section 106 of the NHPA to meet all requirements of that act.

4.4.2 Endangered Species Act (1973) Section 7 Consultation

Section 7 of the ESA of 1973, as amended, prohibits Federal agencies from authorizing, funding, or carrying out activities that are likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat. By coordinating with the USFWS before initiating projects, agencies review their actions to determine if these could adversely affect listed species or their habitat. If a May Affect determination is made, then either informal or formal consultation is initiated with the USFWS. Through consultation, the USFWS works with other Federal agencies to help design their programs and projects to conserve listed and proposed species. However, if a No Effect determination is made, no consultation with the USFWS is required.

The USFWS Sacramento Office provided a species list on October 22, 2009. On May 26, 2011 an updated species list was requested from the USFWS Reno Office and on June 23, 2011 the USFWS provided a revised list. On May 3, 2010, and October 5, 2011, Reclamation staff met with USFWS Reno Office biologists at the proposed project site to discuss minimizing construction related impacts to neotropical migratory birds and nesting bald eagles.

Reclamation has concluded that the proposed action would have a No Effect determination on federally listed species; therefore, no consultation with USFWS was initiated. Early coordination with USFWS Reno Office was essential in making this determination.

4.5 Other Laws, Executive Orders, and Secretarial Orders

Various laws, Executive Orders, and Secretarial Orders addressed in this Draft EA are summarized below followed by a table of potential permits which may be required for the proposed action. Some Federal permitting requirements have been delegated to State authorities for enforcement and implementation. The legal and regulatory environment within which the Federal activity would be conducted depends on the alternative selected for implementation.

4.5.1 National Environmental Policy Act

The NEPA requires that the action agency use a public disclosure process to determine whether or not there are any environmental impacts associated with proposed Federal actions. Reclamation is the federal lead agency for the NEPA analysis. If there are no significant environmental impacts, a Finding of No Significant Impacts (FONSI) can be signed to complete the NEPA compliance.

4.5.2 Clean Water Act (33 USC §1251 et seq.)

The Clean Water Act (CWA) approved in 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. The U.S. Environmental Protection Agency (EPA) has delegated authority to the State of California to implement water pollution control programs.

Water quality of waters of the United States subjected to a discharge of dredged or fill material is regulated under Section 401 of the CWA. In California, the local RWQCB administers Section 401 and issues water quality certifications when the proposed discharge or fill material complies with applicable State and Federal laws. Policies and regulations governing the protection of the beneficial uses of the State's water resources must also be followed.

Section 404 of the CWA also requires that a permit be obtained from the Army Corps of Engineers when discharge of dredged or fill material into wetlands and waters of the United States occurs.

Section 402 of the CWA requires projects involving construction activities (e.g., clearing, grading, or excavation) with land disturbance greater than 1 acre to obtain a NPDES permit. The NPDES permit establishes conditions to minimize sediment and pollutant loadings and requires a SWPPP prior to construction. The SWPPP is intended to identify the sources of sediment and other pollutants, and to establish BMPs for storm water and non-storm water source control and pollutant control.

The Lahontan RWQCB adopted a Basin Plan for the Lahontan Region in 1995 as required by the California Water Code and supported by the Federal CWA. Basin Plans designate beneficial uses for specific water bodies to be protected and water quality objectives, waste discharge prohibitions, and other implementation measures to protect those uses. The Lahontan Basin Plan includes a prohibition for discharging or threatening to discharge any waste materials to lands or waters within the 100 year floodplain of the Little Truckee River or any of its tributaries.

4.5.3 Clean Air Act (42 USC §7401 et seq.)

The Clean Air Act is a comprehensive Federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes the Environmental Protection Agency to establish National Ambient Air Quality Standards to protect public health and public welfare and to regulate emissions of hazardous air pollutants.

4.5.4 Bald and Golden Eagle Protection Act (16 USC §668-668c)

The Eagle Act of 1940 prohibits anyone, without a permit issued by the Secretary of the Interior, from ~~"t~~aking" bald eagles, including their parts, nests or eggs. The

Act provides criminal and civil penalties for violation of the Act. The Act includes a definition of ~~"t~~ake" to include ~~"d~~isturb" which means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause injury, a decrease in productivity by substantially interfering with normal breeding, feeding or sheltering behavior, or nest abandonment.

4.5.5 Executive Order 11988 – Floodplain Management and Executive Order 11990 – Protection of Wetlands

Executive Order 11988 requires Federal agencies to prepare floodplain assessments for actions located within or affecting flood plains. Executive Order 11990 minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities, including providing Federally undertaken, financed, or assisted construction and improvements.

4.5.6. Fish and Wildlife Coordination Act (16 USC §661 et seq.)

The Fish and Wildlife Coordination Act requires that Federal agencies consult with fish and wildlife agencies (Federal and State) whenever a body of water is proposed to be impounded, diverted, controlled, or otherwise modified, either by the Federal agency, or by a public or private agency under a Federal permit or license. This is not a water development project; therefore, the Fish and Wildlife Coordination Act does not apply.

4.5.7 Migratory Bird Treaty Act (16 USC §703 et seq.)

The Migratory Bird Treaty Act implements various treaties and conventions between the U.S. and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Unless permitted by regulations, the Act provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Subject to limitations in the Act, the Secretary of the Interior may adopt regulations determining the extent to which, if at all, hunting, taking, capturing, killing, possessing, selling, purchasing, shipping, transporting or exporting of any migratory bird, part, nest or egg will be allowed, having regard for temperature zones, distribution, abundance, economic value, breeding habits and migratory flight patterns.

4.5.8 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 ~~"s~~acred 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. However, this is provided that the tribe or authoritative representative has informed the agency of the existence of such a site.

4.5.9 Executive Order 12898: Environmental Justice

Executive Order 12898, dated February 11, 1994, instructs Federal agencies, to the greatest extent practicable and permitted by law, 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.

4.5.10 Secretarial Order 3175: Department Responsibilities for Indian Trust Assets

Indian Trust Assets (ITA) 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 ITA are lands, minerals, hunting and fishing rights, and water rights. In many cases, ITA 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 ITA when administering programs under their control.

4.6 Potential Permits

Potential permits which may be required to implement the proposed action are shown in table 4.1.

Table 4-1.—Federal, State, and local permit or approval requirements

Resource category	Statute regulation	Administering agency	Agency action
Water Resources	Clean Water Act Section 404	USACE	Applies to excavation and grading below the Ordinary High Water mark within Stampede Reservoir. Also to loss of wetlands from project activities.
	Clean Water Act Section 401	LRWQCB	Water quality certification. Lahontan RWQCB to issue a Section 401 permit.
	Clean Water Act Section 402	CA SWRCB	NPDES permit for discharges to surface waters of the United States for construction projects that would disturb one acre or more. Requires a SWPPP. The SWPPP may require water quality monitoring procedures during construction.
	Lahontan Basin Plan Floodplain Prohibition	LWQCB	Prohibition exemption required. The Lahontan Basin Plan prohibits discharge or threatened discharge of solid or liquid waste materials to surface waters of the Little Truckee River Hydrologic Unit; or to lands within the 100-year floodplain, or to any of its tributaries.
Air Quality	Clean Air Act	NSAQMD	Approval of air quality mitigation measures; consistency with Attainment Plans. Emission reductions mandated for Sierra and Nevada Counties for PM-10. Thresholds established for ozone and PM-2.5.
	NSAQMD District Rule 226	NSAQMD	Dust control plan for construction activities is approved by the Air District through the CEQA document, and measures are documented in the General Notes or project grading plan.
	California Air Resources Board	CARB/ NSAQMD	Portable Equipment Registration Program. Permit through Air District or registration through CARB. Applies to all portable engines or equipment such as generators, air compressors, aggregate screening.
	California Air Resources Board	CARB	Portable Engine Airborne Toxic Control Measures (ACTM). Requirements for diesel-fueled engines.
	California SB 97	NSAQMD	Greenhouse Gas Emissions. Air District approves analysis and plans to reduce greenhouse gas emissions through CEQA document.

Table 4-1.—Federal, State, and local permit or approval requirements

Resource category	Statute regulation	Administering agency	Agency action
Roads	Encroachment	Sierra County Nevada County	Permit for activities within the County road right-of-way. Traffic control plan must be submitted.
	California Vehicle Code	Caltrans	Transportation permits for over- width or over-weight loads may be needed.
	Inspections	California Highway Patrol	Commercial Vehicle Enforcement Facilities – truck scales on I-80 east of Truckee for trucks using Hwy. 89 access route.
Other	California Environmental Quality Act	Lead Agency	Undetermined lead agency for CEQA. Any discretionary action by a public agency in California related to a federal project requires CEQA compliance.

Abbreviations:

Caltrans	California Department of Transportation
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CA SWRCB	California State Water Resources Control Board
LRWQCB	Lahontan Regional Water Quality Control Board
NSAQMD	Northern Sierra Air Quality Management District
PM	particulate matter
SB	Senate Bill
USACE	U.S. Army Corps of Engineers

CHAPTER 5 – LITERATURE CITED

Parenthetical reference	Bibliographic citation
Barnes et al. 2011	Barnes, Amy J., John Fogerty, Amy Dunay. 2011. Draft Cultural Resources Investigation for the Stampede Dam Safety of Dams Modification Project, Sierra County, California. Report #09-LBAO-151 on file at the Bureau of Reclamation, Mid-Pacific Regional Office, Sacramento, California.
CDFG 1996	California Department of Fish and Game, 1996. Instream Flow Requirements Truckee River Basin, 75 pp. (page 1 of 2).
CDFG 2002	California Department of Fish and Game, 2002. Fishing California's Sacramento Valley – Central Sierra Region.
CDFG 2009	California Department of Fish and Game, 2009. 09-10 Freshwater Sport Fishing Regulations. 75 pp.
CEPA 2010	California Environmental Protection Agency. 2010. Water Quality Control Plan for the Lahontan Region. Online at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml.
CRWQCB 2008	California Regional Water Quality Control Board Lahontan Region. Water Quality Control Plan Amendment, Total Maximum Daily Load for Sediment, Middle Truckee River Watershed. South Lake Tahoe, CA.
CISEH 2011	Center for Invasive Species and Ecosystem Health, 2011. Invasive and Exotic Species of North America. Online at: www.invasive.org.

Parenthetical reference	Bibliographic citation
O'Meara 2011	O'Meara, Scott. Biological Evaluation for Sensitive Plants and Fungi Stampede Dam Safety of Dams Modification Truckee Ranger District Tahoe National Forest. U.S. Department of the Interior, Bureau of Reclamation, Technical Service Center, Environmental Applications and Research, Denver, CO. September 2011.
Reclamation 2011	Bureau of Reclamation. 2011. Dam Safety Public Protection Guidelines. U.S. Department of the Interior. Bureau of Reclamation. Dam Safety Office, Denver, CO. August 2011.
Reclamation 2009	Dam Safety Risk Analysis, Best Practices Training Manual. Bureau of Reclamation, Denver, Colorado, Version 1.1 – May 2009.
Reed & Siegle 2011	Reed, Gregory and Rebecca Siegle. Draft Stampede Dam Wetland Delineation. U.S. Department of the Interior, Bureau of Reclamation, Technical Service Center, Fisheries and Wildlife Resources Group, Denver, Colorado. September 2011.
USDA 2008	USDA. 2008. Motorized Travel Management Draft Environmental Impact Statement, Vol. III Chapter 3. Tahoe National Forest R5-MB-170c.
USFWS 2003	U.S. Fish and Wildlife Service. 2003. Short-term action plan for Lahontan cutthroat trout (Oncorhynchus clarki henshawi) in the Truckee River Basin. Reno: Developed by the Truckee River Basin Recovery Implementation Team for the U.S. Fish and Wildlife Service.
USFWS 2007	U.S. Fish and Wildlife Service. 2007. Bald Eagle Management Guidelines. Online at: http://www.fws.gov/midwest/eagle/guidelines/disturbnestingbaea1.html.
USFWS 2008	U.S. Fish and Wildlife Service. 2008. 12-Month Finding on a Petition to List the North American Wolverine as Endangered or Threatened; Proposed Rule. Federal Register 73: 12929 12941.

Parenthetical reference	Bibliographic citation
USFWS 2010	U.S. Fish and Wildlife Service. 2010. 12-Month Finding on a Petition to List the North American Wolverine as Endangered or Threatened; Proposed Rule. Federal Register 75: 78030-78061.
Witham 1990	Witham, C.W. 1990. Focused field survey for Ivesia webberi in Sierra Valley. Sacramento: California Natural Diversity Database, unpublished report.
Witham 1991	Witham, C.W. 1991. Final report, focused field survey, Ivesia webberi, Webber's ivesia, Toiyabe National Forest, Sierra County, California and Washoe County, Nevada, June 3-27, 1991. Sparks: Toiyabe National Forest, unpublished.
Witham 2000	Witham, Carol W. 2000. Current knowledge and conservation status of Ivesia webberi Gray (Rosaceae), the Webber ivesia, in Nevada. Status report prepared for Nevada Natural Resources and U.S. Fish and Wildlife Service, Nevada State Office.
U.S. Census Bureau 2000	U.S. Census Bureau. 2000. Web site: http://factfinder.census.gov/

ATTACHMENT A

Environmental Commitments

Environmental Commitments

- Reclamation would provide the Environmental Assessment to the designated California lead agency to assist them in the preparation of California Environmental Quality Act (CEQA) compliance.

- Based on the need to apply for an individual Section 404 permit, Reclamation would provide the Environmental Assessment and other information to the Army Corps of Engineers, Sacramento District to assist in their preparation of a NEPA analysis addressing the permit application.

- In the event that mitigation would be a requirement of the Clean Water Act Section 404 and / or Section 401 permits, Reclamation would coordinate with other agencies and watershed groups to identify potential mitigation sites and measures.

- Reclamation would obtain State and Federal permits for proposed project activities including Clean Water Act Section 404, 401 and 402 permits. Reclamation would provide a grading plan to the Northern Sierra Air Quality Management District for proposed provisions addressing the requirements of the Clean Air Act.

- Reclamation's contractor would obtain encroachment permits from Sierra and Nevada Counties and would develop a Fire Plan for approval by Reclamation and the Forest Service.

- The contractor would be responsible for complying with all environmental requirements identified in this Environmental Assessment and with all federal, state, and local permits. Specific mitigation and monitoring plans and provisions would address bald eagles and neotropical migratory birds. Best Management Practices would be implemented to limit impacts to water quality. The contractor would be required to reclaim all disturbed areas including all staging and stockpile areas, borrow areas, saddle dikes, temporary haul roads, and abandoned road segments resulting from road realignment. Disturbed areas would be revegetated by the contractor with a mixture of native and approved adapted plant species.

- All necessary vegetation removal would be completed before nesting season begins or after nesting season is completed to reduce nest losses.

- Key areas such as large mature pines along the reservoir shoreline and Vista Point would be identified, marked and protected from disturbance.

- Measures that must be taken to prevent the spread of noxious and invasive weeds during proposed construction activities are contained in attachment B.

- Reclamation's contractor will be required to regularly monitor all areas disturbed by construction activities for weeds and apply appropriate treatment as needed until contract completion. Reclamation will monitor and treat weeds on the saddle dikes as part of future O&M activities following construction.

ATTACHMENT B

Weed and Noxious Weed Prevention Plan

Weed and Noxious Weed Prevention Plan

1. Prevention/Cleaning: Require all off-road equipment and vehicles used for project implementation to be weed-free. Clean all equipment and vehicles of all attached mud, dirt and plant parts. This would be done at a vehicle washing station or steam cleaning facility before the equipment and vehicles enter the project area. Cleaning is not required for vehicles that stay on the roadway. Also, all off-road equipment must be cleaned prior to leaving areas infested with noxious weeds.

2. Prevention/Road Construction, Reconstruction, and Maintenance: All earth-moving equipment, gravel, fill, or other materials need to be weed free. Use onsite sand, gravel, rock or organic matter where possible.

3. Prevention/Revegetation: Use weed-free equipment, mulches, and seed sources. Avoid seeding in areas where revegetation would occur naturally, unless noxious weeds are a concern. Save topsoil from disturbance and put it back to use in onsite revegetation, unless contaminated with noxious weeds. All activities that require seeding or planting would need to use a mixture of native or adapted seeds and plants. Persistent non-natives such as timothy, cheatgrass, and ryegrass would be avoided. Local noxious and invasive to avoid include musk thistle, bull thistle, quackgrass, English plantain, orchard grass, dandelion and false salsify.

4. Prevention/Staging Areas: Do not stage equipment, materials, or crews in noxious weed infested areas where there is a risk of spread to areas of lower infestation. The exception is areas with cheatgrass since this species is ubiquitous.

5. Small infestations identified during project implementation would be evaluated and hand treated or flagged and avoided according to the species present and project constraints. If larger infestations are identified after implementation, they should be isolated and avoided with equipment (and equipment washed as in # 1 above).

Where mulch is needed for ground cover and slash or wood chips are not available, certified weed-free straw or rice straw would be used.

Utilize road surface gravel from weed-free sources. Pre-inspect gravel sources for the presence/absence of noxious weeds prior to utilization of gravel from those sources.

Reclamation's contractor would be required to regularly monitor all areas disturbed by construction activities for weeds and apply appropriate treatment as needed until contract completion. Reclamation would monitor and treat weeds on the saddle dikes as part of future O&M activities following construction.