RECLAMATION
Managing Water in the West

Finding of No Significant Impact
and
Final 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

May 2012

Mission Statements

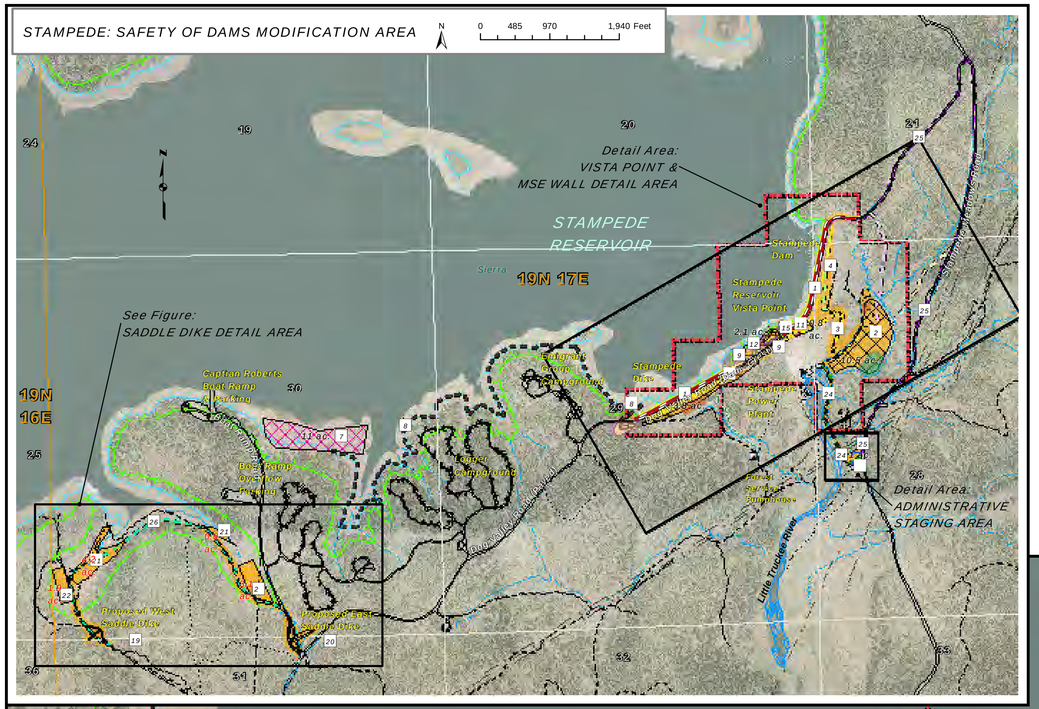
The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

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.

Errata Sheet

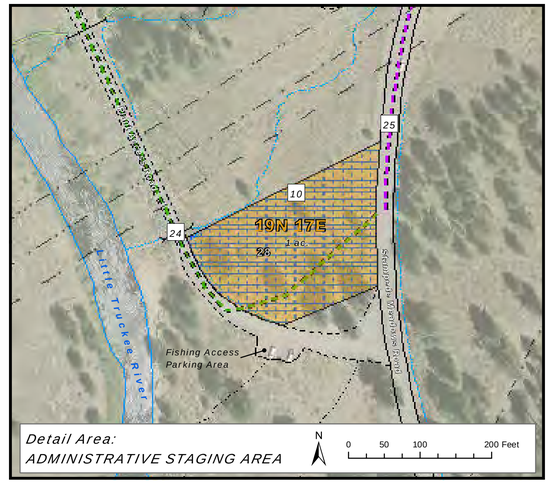
June 12, 2012

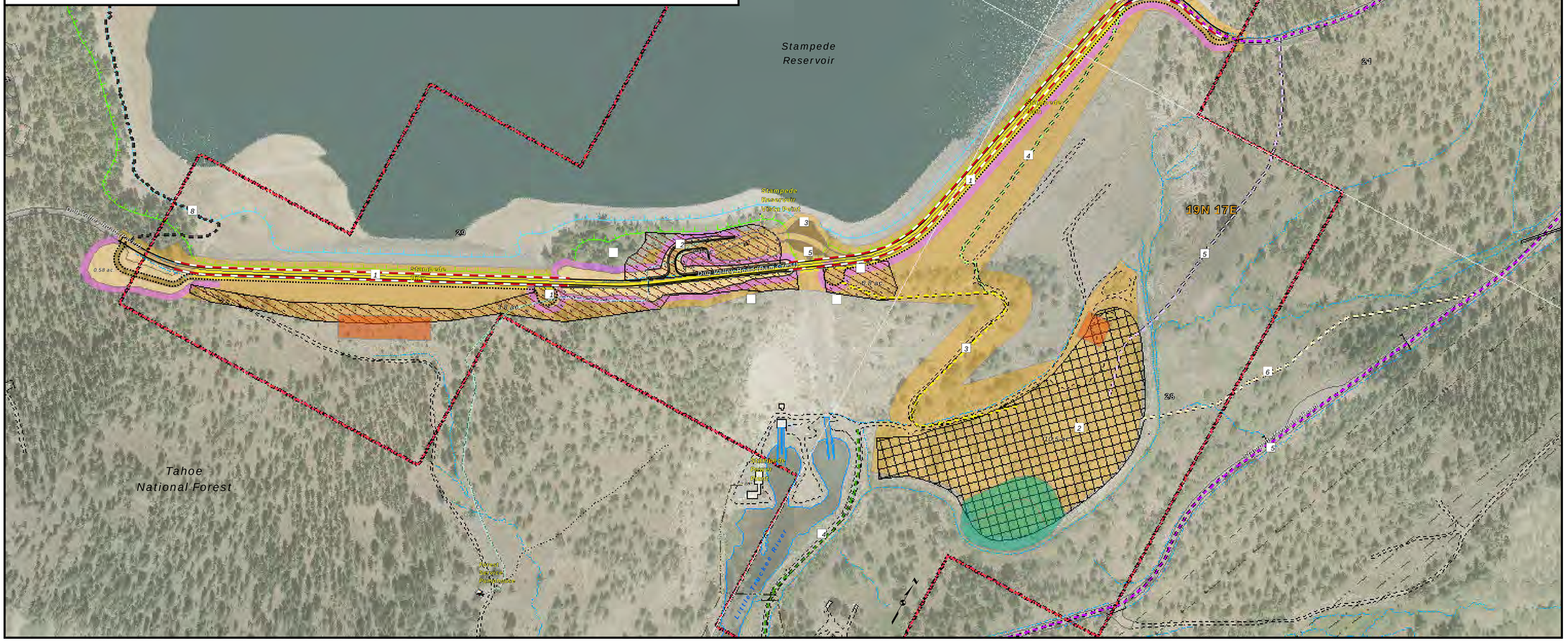
The Finding of No Significant Impact and Final Environmental Assessment for Stampede Dam – Safety of Dams Modification, Washoe Project, California and Nevada, Mid-Pacific Region, dated May 2012, has been revised. Please replace figure 2-2 (following page 2-4) with the attached figure.



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]	Not Used
[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	[26]	Saddle Dike Borrow Area Haul Route





STAMPEDE DAM

Safety of Dams Modification Area
April 2012
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
- Left Abutment Haul Route
- East Haul Route
- Right Abutment Haul Route
- Dam Face Haul Route
- Stampede Reservoir Secondary Haul Route
- Plant Access Haul Route
- Stampede Meadows Road Haul Route
- Saddle Dike Borrow Area 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)
- Limits of Disturbance (~66.5 acres)
- Log Landing
- Wetland Mitigation Area
- 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

G:\GIS\MOD\Maps\EA Maps\SOD Stampede EA.mxd | Printed On: 6/5/2012 | jamoore

Figure 2-2.-Stampede Dam SOD modification area.

Finding of No Significant Impact
and
Final 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

May 2012

Finding of No Significant Impact

Stampede Dam
Safety of Dams Modification

Washoe Project, California and Nevada
Mid-Pacific Region

May 2012

Finding of No Significant Impact
FONSI No. LO-12-01

Stampede Dam
Safety of Dams Modification

Washoe Project, California and Nevada

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region
Lahontan Basin Area Office
Carson City, Nevada

Recommended: _____ Date: May 11, 2012

Jane Schmidt
Mid-Pacific Region
Natural Resource Specialist

Concurrence: _____ Date: 5/11/2012

Anastasia Leigh
Mid-Pacific Region
Regional Environmental Officer

Approved: _____ Date: 5/10/12

Kenneth L. Parr
Lahontan Basin Area Officer
Area Manager

Introduction

The Bureau of Reclamation (Reclamation) prepared this Finding of No Significant Impact (FONSI) to comply with the Council on Environmental Quality's regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA). This document briefly describes the proposed action, the alternatives considered, Reclamation's consultation and public involvement activities, and findings. This FONSI is supported by Reclamation's *Environmental Assessment for the Stampede Dam Safety of Dams Modification*, which is hereby incorporated by reference.

Background

Reclamation has determined that dam safety deficiencies exist at Stampede Dam. Investigations conducted under Reclamation's Safety of Dams (SOD) Program determined that during an extreme flood event Stampede Dam would be overtopped by floodwater, likely 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 downstream fishery enhancement. These deficiencies result in Stampede Dam not meeting Reclamation's Dam Safety Public Protection Guidelines (Reclamation 2011).

Stampede Dam, completed in 1970, is an earthfill structure on the Little Truckee River located approximately 11 miles northeast of the Town of Truckee in Sierra County, California. Water stored in Stampede Reservoir is primarily used for fishery enhancement for the threatened Lahontan cutthroat trout (LCT) (*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, municipal and industrial water storage, and water for other fishery improvements on the main Truckee River, Little Truckee River, and Boca Reservoir.

The purpose of the proposed action is to correct safety deficiencies at Stampede Dam to prevent potential loss of life, property, water storage, and other project benefits due to failure of the dam. To meet Reclamation's Public Protection Guidelines (PPGs) the dam must be able to safely pass floodwaters ranging between a 77,600-year flood event and the Inflow Design Flood (IDF) without failing. 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.

Reclamation's Corrective Action Study considered numerous alternatives to reduce hydrologic risks to Stampede Dam. Details concerning these alternatives that were considered but not carried forward for evaluation are included in chapter 2 and attachment B of the EA. Two alternatives were considered in the EA: the No Action Alternative and a Mechanically Stabilized Earth (MSE) Dam Raise. The No Action alternative is included for comparative analysis purposes.

Alternative 1 – No Action

Under the No Action alternative, Reclamation would continue to operate Stampede Dam with no modifications to temporarily contain floodwaters generated by extreme flood events that could lead to dam failure. The elevated risk to the downstream population from dam failure during a significant hydrologic event would not meet Reclamation's current PPGs. Reclamation considers this action to be unacceptable for the long-term safety of Stampede Dam and the areas downstream. This action is included in the EA to evaluate effects of the Preferred Alternative to current conditions and as required under NEPA. Overtopping of the spillway walls and potential dam failure is not considered part of the no action alternative.

Alternative 2 – Mechanically Stabilized Earth (MSE) Raise

Under Alternative 2, Reclamation would undertake actions to correct safety deficiencies at Stampede Dam 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 Reclamation's Dam Safety Public Protection Guidelines for protection of life and property.

Reclamation would construct an 11.5-foot-high MSE crest structure on the dam and nearby dike to provide capacity for temporary containment of floodwaters generated by extreme flood events that would threaten dam integrity. Construction of the MSE Raise would provide approximately 31,867 acre-feet of additional emergency or surcharge storage above the existing dam crest elevation to protect up to a 250,000-year flood event. The emergency storage would not be used for any additional project benefits but solely for containing floodwaters until they can be safely passed through the spillway. In the absence of extreme flood conditions, there would be no changes from current reservoir operations or the capacity of the reservoir at full pool level.

The MSE crest structure would be constructed by placing compacted earth fill material between two rows of concrete panels. An estimated 68,000 cubic yards of borrow material for the MSE Raise would be processed from the primary borrow area, a previously disturbed construction site below the dam. The existing spillway would be modified to accommodate the new elevation of the dam and a

temporary cofferdam would be used to protect the contractor's work during construction. A new operations and maintenance gravel road would be built adjacent to the MSE Raise. Day-use recreational facilities at the Stampede Vista Area that are disturbed during construction would be relocated or modified post-construction. The Dog Valley Road across Stampede Dam would be closed during construction, but access to reservoir recreational facilities would be available from an alternative route via State Highway 89 and the western portion of the Dog Valley Road. Reclamation proposes to install an all-weather surface on 2 miles of unpaved road on the Dog Valley detour route to address access issues raised by recreationists, local residents, emergency responders, agencies and jurisdictions.

Two small earthen saddle dikes would be constructed on the Tahoe National Forest approximately 2 miles west of Stampede Dam 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. A 0.245-acre seasonal wetland is anticipated to be permanently lost due to construction of the east saddle dike. Reclamation proposes creation of a 1-acre wetland in the primary borrow area as compensatory mitigation for wetland loss.

Temporary construction sites could involve the use of up to 66.5 acres of land. An additional 16.5 acres are designated for contingency use only. The main activities proposed at temporary construction sites include tree removal and clearing of other vegetation, stripping and stockpiling topsoil for later reuse in revegetation efforts, staging and borrow areas, and haul roads. Reclamation's contractor would be required to restore all disturbed areas including site preparation for replanting trees and reseeding native plant communities.

The complete description of the MSE Raise Alternative is presented in chapter 2 of the EA. Anticipated Federal, State and local jurisdiction permit or approval requirements that must be obtained prior to project construction are listed in chapter 4 of the EA.

Summary of Impacts

An EA was prepared to disclose potential environmental impacts, which are summarized below. A number of protective measures have been incorporated into the proposed action that will minimize environmental impacts, avoid impacts, or further reduce impacts to the extent possible.

The No Action Alternative and the MSE Raise Alternative were evaluated in the EA with respect to their impacts on the following resources: geology and soils, water quality, fish, wildlife, vegetation, wetlands; threatened, endangered and

candidate species, transportation, recreation, visual resources, hazardous and toxic materials, cultural resources, Indian sacred sites, Indian Trust Assets (ITAs), noise, environmental justice, air quality, greenhouse gases (GHGs) and climate change and public safety.

Alternative 1 – No Action Alternative

Public Safety

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. Implementation of this alternative would not meet Reclamation's current PPGs. Reclamation considers this action to be unacceptable for the long-term safety of Stampede Dam and the areas downstream.

Other Resources

With the No Action alternative, on-going conditions and trends would continue for geology and soils, water quality, fish, wildlife, vegetation, wetlands; threatened, endangered and candidate species, transportation, recreation, visual resources, hazardous and toxic materials, cultural resources, Indian sacred sites, ITAs, noise, environmental justice, air quality and GHGs and climate change.

Alternative 2 – Mechanically Stabilized Earth (MSE) Raise

Geology and Soils

The MSE Raise Alternative would slightly increase impervious ground cover by adding an estimated 2.5 acres of new permanent project features, which is an insignificant effect on the entire landscape in the project area. Most proposed temporary surface disturbance during construction is located on gentle slopes with slight erosion hazards. Haul roads that may be chosen for use by the contractor in steep terrain with severe erosion potential would be engineered to mitigate site constraints and be approved by Reclamation prior to construction. The post-construction surface in the saddle dike borrow areas within Stampede Reservoir would expose erosion-resistant tuff breccia that is expected to produce fewer fines and less turbid runoff than the soil currently exposed to reservoir fluctuations in this area. Therefore, short and long term effects of the project on soils in the saddle dike borrow areas would be less than significant. Construction techniques would be used to excavate the wetland mitigation area that address the limitations of soil properties.

The exposure of soils during and after construction would increase the potential for soil erosion and sedimentation. The use of heavy equipment during construction would likely increase soil compaction, potentially increasing

surface water runoff and erosion. Construction Best Management Practices (BMPs) for sediment and erosion control that are included in the alternative description would reduce and avoid potential short-term construction impacts on soils. Tree removal operations would use equipment that limits compaction of soils to acceptable standards. Implementation of the specified measures would reduce the impacts of the MSE Raise Alternative on soils and geology to less than significant.

Hydrology and Water Quality

Under Alternative 2, the temporary water storage capacity of Stampede Reservoir would be increased by 31,867 acre-feet for temporary flood control to protect the dam from overtopping in the event of a catastrophic flood. There would be no change in Stampede Reservoir's reservoir water surface (RWS) elevation under normal operating conditions and for temporary flood water detention up to Stampede Dam's existing design capacity.

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. There would be no effect on discharges from the reservoir during construction of the project and no effect on minimum flows released to the Little Truckee River downstream of Stampede Dam during or after project construction.

Modifications proposed within the Little Truckee River 100-year flood plain within Stampede Reservoir would not reduce the flood flow attenuation capacity, the surface flow treatment capacity, or groundwater flow treatment capacity from existing conditions.

Under the MSE Raise Alternative, the exposure of soil to erosive forces during and after construction could result in short-term increases in turbidity and suspended solids concentrations in the water column. New impervious ground cover resulting from the alternative would be minimal. Most of the proposed project features are in upland locations which could generate indirect impacts to water quality in adjacent waterbodies. Numerous measures that are part of the alternative description would be included in project implementation to address pollution prevention, removal of water, storm water runoff and Stormwater Pollution Prevention Plan, spill prevention, waste handling, timber removal and post-construction BMPs to reduce the potential for impacts to water resources and water quality associated with the MSE Raise Alternative. Used cumulatively, these BMPs and other measures will eliminate or reduce sediment reaching receiving waters in the area.

Project activities located within the Little Truckee River 100-year flood plain within Stampede Reservoir would not be in direct contact with surface water during construction. Post-construction, areas excavated within Stampede Reservoir would consist of erosion-resistant tuff breccia that is expected to

produce fewer fines and less turbid runoff than the soil currently exposed to reservoir fluctuations in this area. Reclamation has requested an exemption from prohibitions concerning discharge within the 100-year flood plain and implementation of described measures would reduce effects of the MSE Raise Alternative on the flood plain to where they would be minor and short term.

Reclamation will require the contractor to implement all necessary BMPs to prevent the measureable discharge of sediment into the Little Truckee River below Stampede Dam. Impacts to water quality resulting from the MSE Raise Alternative are anticipated to be short-term and associated with minor sedimentation or turbidity issues in construction areas within the drawdown area of Stampede Reservoir. Impacts of the MSE Raise Alternative on water resources and water quality would be less than significant.

Fish

There would be no effect on Stampede Reservoir operations or on releases to the Little Truckee River during construction. There would be no effect on downstream fisheries in the Truckee River that are dependent on water releases from Stampede Reservoir.

Proposed project features located within the ordinary high water mark of the reservoir would be used when water levels are low enough to expose the borrow sites and other construction areas to dry conditions. These areas would be stabilized with construction BMPs or restored prior to the return of high water conditions. Less than 6 acres of the 3,452-acre reservoir area would be affected by these construction activities resulting in short-term increases in turbidity in a localized area. Implementation of specified measures to reduce impacts to water quality would reduce impacts that could affect fishery resources to less than significant levels. No short-term or long-term changes are expected to occur to the reservoir fish community. No losses would occur to fish habitat in these areas.

Wildlife

The proposed project area is located well beyond the buffer zone recommended by the National Bald Eagle Management Guidelines and project effects on bald eagles would be less than significant. Reclamation would implement a Bald Eagle Monitoring Plan as an added precaution to resolve any unforeseen conflicts with bald eagles during construction hauling activities.

Construction activities for the MSE Raise Alternative would occur in areas already heavily disturbed by recreational use of the reservoir and adjacent shoreline areas, as well as by vehicle traffic and maintenance activities associated with Stampede Dam operations. Wildlife species would be temporarily disturbed and likely be displaced from parts of the project area during the 3-year

construction period. Impacts to wildlife habitat disturbed during implementation of the alternative would be revegetated upon completion of construction. An earthen ramp would be constructed adjacent to the spillway bridge to reduce the potential for trapping mule deer on the MSE crest structure and to allow them to migrate around the structure. Impacts to wildlife in the project area would be less than significant as substantial similar habitat surrounding the project area will remain intact and available for wildlife use during construction and during the period of vegetation regrowth in disturbed areas. No increase in human activity would occur after construction is completed and vehicle traffic levels would return to preconstruction levels. Effects of the MSE Raise Alternative on wildlife would be less than significant.

Vegetation

Under the Preferred Alternative, an estimated 2.5 acres that are currently vegetated would be converted to permanent project features that would not be revegetated post-construction, which is an insignificant effect on the entire landscape within the project area.

An estimated 1,400 trees could be removed from the project area during site preparation activities for permanent or temporary construction features. This would result in long-term disturbance to areas dominated by eastside pine trees where mature trees would be removed. However, tree removal areas are scattered in small pockets throughout the project area and a combination of post-construction tree planting and natural recruitment from adjacent undisturbed sites would provide seed sources for recolonizing these disturbed areas.

Following construction and over time, all upland areas would be revegetated to the degree that site conditions allow. Post-construction monitoring, coordination with the U.S. Forest Service (USFS), and adaptive management would be used to identify changing needs and meet the desired future conditions of re-establishing native plant communities and to reduce the spread of noxious weeds. Therefore, this impact would be less than significant.

The wetland mitigation area that would be created within the primary borrow area would result in the conversion of one acre of mixed shrub plant community to wet meadow vegetation. The temporary construction areas located within the normal drawdown area of Stampede Reservoir would remove the sparse annual or biennial vegetation that is normally present. These areas would be graded and re-contoured at the completion of construction and reseeded with erosion control grass species. The MSE Raise Alternative would have no significant effect on vegetation within these areas.

The introduction or spread of invasive and noxious weeds during implementation of the MSE Raise Alternative could have a significant effect on vegetation within

the project area. Several measures would be implemented during the construction and post-construction periods to reduce the potential for impacts on vegetation from noxious and invasive weeds. These measures include the proper cleaning of equipment, the use of weed-free construction materials and seed sources, the avoidance of staging equipment in weed infested areas and treating small infestations by hand. All areas disturbed by construction activities would be regularly monitored for weeds and apply appropriate treatment as needed until contract completion. Post-construction monitoring and treatment of noxious or invasive weeds would be done in coordination with the USFS. Implementation of the specified measures would reduce the direct impacts to vegetation to less than significant.

No special status plant species were identified within the project area as a result of plant surveys and there would be no effect on these species.

Wetlands

The MSE Raise Alternative would result in the anticipated loss of 0.25 acre of seasonal wetland at the east saddle dike location. Reclamation would address compensatory mitigation for the loss of the seasonal wetland through construction of a 1-acre wet meadow in the primary borrow area, on Reclamation owned lands downstream of Stampede Dam where groundwater hydrology has been investigated and results indicate a high likelihood of success. The compensatory mitigation site is expected to provide aquatic functions of equal or greater measure than the impact site. Implementation of the Wetland Mitigation Plan would reduce the direct impacts to wetlands to less than significant for the MSE Raise Alternative. Other wetlands that have been identified within the project area would be avoided during construction.

Threatened, Endangered and Candidate Species

Recovery populations of threatened LCT are not present in the area affected by proposed construction activities. Mountain yellow-legged frog and fisher, listed as Federal candidate species under the Endangered Species Act, are not present in the area affected by proposed construction activities. Webber's ivesia, a plant listed as a Federal candidate species, was not located in the project area during surveys though suitable habitat may exist. No impacts are expected to occur to Webber's ivesia either from short term construction activities or from continued reservoir operations. Wolverine, a Federal candidate species, has not been documented in the project area and the risk of their extremely limited population using this area is slight. A Biological Evaluation/Biological Assessment was prepared and Reclamation determined that the MSE Raise Alternative would have no effect on federally listed threatened, endangered or candidate species.

Transportation

Under the MSE Raise Alternative, a traffic control plan would be implemented, including flaggers, signage, speed limits for construction traffic, and road closure devices. All roadway activities and roadway designs would be coordinated with appropriate State and local authorities. A temporary road at the junction of the Stampede Meadows and Powerplant Road would bypass construction traffic away from the public parking area that provides fishermen access to the Little Truckee River below Stampede Dam. New temporary construction related access roads would be restored to pre-construction conditions and revegetated.

Because of the rural location of the dam and the low vehicle count on the highway, congestion from the increase in construction traffic is expected to be minimal. 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.

The section of the Dog Valley Road crossing Stampede Dam is expected to be closed during the second and third years of the construction effort including the winter months between these two construction periods. Recreational traffic, emergency responders and other local traffic that normally crosses the dam would use a detour to access Stampede Reservoir facilities located west of the dam. Reclamation would notify emergency responders 30 days in advance of the actual road closure so their alternate arrangements to service the area can be implemented. Reclamation would install a chip-seal road surface on 2 miles of existing unpaved road to facilitate public access to the west side of Stampede Reservoir and its associated recreation opportunities. Reclamation purposefully designed the MSE Raise Alternative so its contractor would not be expected to use the detour route for primary use as a haul route to minimize potential conflicts with recreational traffic. Public notices would be provided about the construction project, temporary closures, open facilities, and alternate access routes before construction began with updates throughout construction process. Implementation of these measures would result in less than significant effects on transportation.

Recreation

Under the MSE Raise Alternative, the Stampede Reservoir Vista Point Area and the Dog Valley Road across Stampede Dam are expected to be closed during the second and third years of the construction effort including the winter months between these two construction periods. However, reservoir boat launch and recreation camping facilities would remain open and be accessible from the west detour route. As noted in Transportation above, providing an all-weather surface on the existing unpaved segment of the detour route would facilitate public access to Stampede Reservoir recreation opportunities. Reclamation's contractor is not expected to use the western roads through Russel Valley as a primary haul route thus minimizing potential conflicts between construction and recreation traffic.

If night work is required, some impacts from light pollution would be unavoidable. However, the contractor would be required to direct stationary floodlights to shine downward at an angle less than horizontal; shield floodlights so that floodlights would not be a nuisance to surrounding areas; direct lighting so that campground areas are not in direct beam of light; and correct lighting control problems when they occur. These measures would reduce potential impacts from lighting to less than significant.

If night work is required, noise levels measured at the campgrounds would be limited to 35 dBA at night, similar to typical noise levels in a quiet bedroom.

A safe turnout and parking area would be provided for Little Truckee River fishing access during construction. Thus, there would be no effect on recreation in this area. Alternate access to the Captain Robert's Boat Ramp road would be provided during construction of the east saddle dike.

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, the unpaved section of the road detour would be surfaced, and there are other recreation areas available nearby, effects to area reservoir related recreation are expected to be less than significant.

Visual Resources

Under the MSE Raise Alternative the 11.5-foot-high crest raise on Stampede Dam and Dike is expected to have a moderate impact on the visual character of the water control structures at Stampede Reservoir. The pattern of MSE wall panels would be selected to blend with the surrounding area to the extent possible. The MSE crest structure would be marginally visible to people viewing the dam from the reservoir, Stampede Meadows Road, or the Little Truckee River corridor. The upstream and downstream views from the Dog Valley Road which crosses the dam crest would not be affected. The modification is expected to conform with visual quality objectives for the area where management activities remain visually subordinate to the characteristic landscape. Therefore, effects of the project on visual resources would be less than significant.

Hazardous and Toxic Materials

Under the MSE Raise Alternative, measures would be included in project implementation to require Reclamation's contractor to prepare a Spill Prevention Control and Countermeasure Plan. This Plan would identify petroleum and other hazardous products used in construction and address secondary containment of the products, prevention of spills, spill containment and cleanup procedures, and materials on hand to accomplish the containment and cleanup. The identified procedures would minimize the risk of harm to animals or humans from

hazardous and toxic materials due to soil or water contamination at the construction site and impacts from the MSE Raise Alternative would be less than significant.

Cultural Resources

Under this alternative, 26 prehistoric and historic sites have the potential to be affected by the temporary filling of the reservoir above the existing maximum RWS due to a catastrophic flood event. The effects on historic properties cannot be fully determined prior to approval of the undertaking and assessments of effects may be phased. Therefore, Reclamation, USFS, and the U.S. Army Corps of Engineers (USACE), in consultation with the California State Historic Preservation Office and Indian Tribes intend to enter into a Programmatic Agreement (PA) to fulfill their National Historic Preservation Act (NHPA) Section 106 responsibilities, as allowed under 36 CFR § 800.14(b). The PA will address avoidance, minimization, and mitigation measures for historic properties to be implemented prior to implementation of this alternative, including any associated ground disturbing activities. Implementation of the PA will result in less than significant impacts to cultural resources under the MSE Raise Alternative.

Indian Sacred Sites

The MSE Raise Alternative would have no impacts to the physical integrity or access to Indian sacred sites as no such sites are present within the project area.

Indian Trust Assets

The proposed action would have no adverse impact on ITAs of the Pyramid Tribe or Pyramid Lake Indian Reservation, the Reno-Sparks Indian Colony, the Fallon Paiute-Shoshone Tribe, or the Washoe Tribe of Nevada and California. The project 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 ITAs by protecting stored water for downstream fishery enhancement releases.

Noise

Noise-sensitive receptors near the dam and reservoir include people using the National Forest and campgrounds for recreational purposes and employees at the USFS Stampede Work Center and the Stampede Powerplant. If night work is required, noise levels measured at the campgrounds would be limited to 35 dBA at night, similar to typical noise levels in a quiet bedroom. Vibration levels from all construction zone activities would have attenuated to acceptable levels at the

distance of the nearest campgrounds. 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.

Environmental Justice

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

Air Quality

Air quality impacts from the Alternative 2 – MSE Raise would be localized in nature and decrease with distance. The proposed dam raise would result in the temporary emissions of dust and vehicle combustion pollutants during construction activities, including earthmoving, material processing, engine emissions and fugitive dust. The pollutants of greatest concern within the Northern Sierra Air Quality Management District (NSAQMD) covering the project area are particulate matter (PM) 10 microns or less in size (PM_{10}) and ozone ($O_{3),}$ including ozone precursors such as reactive organic gases (ROG) and nitrogen oxides (NO_x). Project emissions are estimated to fall within the thresholds for ROG and PM_{10} during any given construction year. However, the project would be expected to exceed annual emissions for nitrogen oxides and environmental commitment measures will be implemented to reduce emissions to below NSAQMD's threshold levels. Reclamation will require the contractor to meet the Air Resources Board's diesel fleet emission standards for off-road and on-road vehicles, including using newer trucks and installing filters to reduce these emissions by 25 percent or more. All elements of a Dust Control Plan will be developed and implemented by Reclamation's contractor. Numerous measures would be included in project implementation to control dust from unpaved roads and material storage areas and to comply with portable equipment emission standards. Implementation of the specified measures is expected to minimize air emissions and result in less than significant impacts to air quality.

Greenhouse Gases and Climate Change

Carbon dioxide is the main GHG of concern since the MSE Raise Alternative would utilize on-road and off-road vehicles with combustible engines that produce these emissions. Construction of the MSE Raise would result in the generation of an estimated 4,500 tons/year of carbon dioxide, resulting in a potentially minimal regional increase in GHG emissions. Since these estimated emissions fall below the 25,000 metric tons/year threshold established by the U.S. Environmental Protection Agency's Mandatory Reporting of Greenhouse Gas Rule, the impacts of the MSE Raise Alternative would be less than significant on GHG emissions and climate change.

Public Safety

The MSE Raise Alternative 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 Reclamation's Dam Safety Public Protection Guidelines for protection of life and property.

Cumulative Effects

Reclamation assessed past, present, and reasonably foreseeable future projects in the Stampede Dam area for significant cumulative effects. No projects were identified to take place in the project area, presently or in the reasonably foreseeable future. Therefore, the SOD modifications at Stampede Dam would not result in a significant cumulative impact.

Environmental Commitments

The following environmental commitments would be implemented before, during, and after construction to prevent and reduce the impacts of the proposed action.

- Reclamation's contractor shall be responsible for complying with all environmental requirements identified in this environmental assessment (EA) and with all Federal, State, and local permits. Specific mitigation and monitoring plans and provisions address bald eagles and neotropical migratory birds. BMPs shall be implemented to limit impacts to water quality. The contractor shall 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 shall be revegetated by the contractor with a mixture of native and approved adapted plant species.

- Reclamation will require the contractor to implement all necessary BMPs to prevent the measureable discharge of sediment into the Little Truckee River below Stampede Dam.

- All necessary vegetation removal shall be completed before nesting season begins (April 1) or after nesting season is completed (August 31) to reduce nest losses.

- Environmentally sensitive areas will be protected from disturbance during construction. Reclamation will identify sensitive locations, mark their limits on the ground and the contractor shall install and maintain protective barriers at these locations. Environmentally sensitive locations include the large mature pines along the reservoir shoreline and at the Vista Area, cultural resources (identified for avoidance through the PA), and wetlands that will be avoided during construction.

- Reclamation will produce a Revegetation Plan in coordination with the U.S Department of Agriculture (USDA) Forest Service, Tahoe National Forest that will document the details and implementation schedule for revegetation activities during and post-construction. The Revegetation Plan will be completed prior to implementation of the preferred alternative should it be selected.

- Reclamation will require that all earth-moving equipment, gravel, road base, fill, or other materials need to be noxious weed-free.

- Monitoring for noxious weeds will continue during construction activities and if small infestations of noxious weeds are identified during project implementation, Reclamation will evaluate if the weeds should be hand treated or flagged and avoided according to the species present and project constraints.

- Reclamation will conduct post-construction monitoring and treatment of noxious or invasive weeds on National Forest System lands in coordination with the USFS. Reclamation will conduct post-construction monitoring and treatment of noxious or invasive weeds on Reclamation-owned lands or facilities in accordance with Reclamation's policy on integrated pest management.

- Reclamation will complete preliminary grading work on the wetland mitigation area during construction of the Stampede Dam SOD Modification project. Reclamation will complete the implementation of the Wetland Mitigation Plan as soon as practicable following completion of the SOD Modification.

- Reclamation will conduct monitoring and maintenance activities on the wetland post-construction. Monitoring will demonstrate that the wetland area has achieved success criteria defined in the EA and Wetland Mitigation Plan for three successive years without human intervention. These criteria must be met prior to acceptance of the wetland mitigation area by the USACE as compensation for the loss of seasonal wetland resulting from the Stampede Dam SOD Modification project.

- Reclamation will execute road easement agreements with the County of Nevada and Sierra County to provide details on the implementation of providing an all-weather surface to the 2 miles of unpaved Dog Valley Road between State Highway 89 and the junction of the Captain Roberts Boat Ramp Road. These easements will be executed prior to implementation of the preferred alternative should it be selected.

- Reclamation will continue to coordinate with the USDA Forest Service, Tahoe National Forest to develop the final plan for relocating or modifying recreational facilities at the Stampede Reservoir Vista Area. The plan for the Vista Area will be completed prior to implementation of the preferred alternative should it be selected.

- Reclamation will continue to consult under Section 106 of the NHPA through the negotiation and implementation of a PA. This PA will be executed and any applicable mitigation measures identified in the PA will be fulfilled prior to implementation of the preferred alternative should it be selected.

- Reclamation will require the contractor to use trucks that are 1998 or newer that meet the 4.0 grams per brake horsepower-hour (g/bhp-hr) nitrogen oxides (NO_x) certification standard.

- Reclamation will require the contractor to retrofit trucks with nitrogen oxide (NO_x) diesel particulate filter to achieve 85 percent or better PM control and 25 percent or better nitrogen oxides control.

- Reclamation will obtain State and Federal permits for proposed project activities including Clean Water Act Section 404, 401 and 402 permits.

- Reclamation's contractor shall obtain encroachment permits from Sierra County and the County of Nevada and shall develop a Fire Plan for approval by Reclamation and the USFS.

- Reclamation will provide the EA to Lahontan RWQCB, the designated California lead agency, to assist them in the preparation of California Environmental Quality Act compliance.

- Reclamation will provide the EA and other information to the USACE, Sacramento District to assist in their preparation of a NEPA analysis addressing the Section 404 permit application.

Consultation and Public Involvement

Reclamation prepared the EA in coordination with the USFS (Tahoe National Forest), Lahontan Regional Water Quality Control Board, County of Nevada and Sierra County, California, U.S. Fish and Wildlife Service, USACE and California Department of Fish and Game.

The USFS and USACE designated Reclamation the lead Federal agency for NHPA Section 106 compliance for this undertaking. The USFS manages lands around Stampede Reservoir and the USACE has permitting authority for this project, both requiring compliance with NHPA Section 106.

Two 30-day public scoping periods were provided in 2010 and 2011. The Draft EA was provided for a 30-day public review and comment period in November 2011. Press releases announcing all scoping and comment periods were sent to Reclamation's Mid-Pacific Region list of media contacts and letters were sent to an interested parties list. The Draft EA was posted on Reclamation's NEPA Web site. Reclamation received a total of 44 responses from scoping and 12 public responses on the Draft EA from interested parties. All written comments were considered in preparation of the final EA and FONSI. Copies of the comment documents and responses to the comments are provided in the EA.

Tribal Coordination and Consultation

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. Reclamation initiated Section 106 consultation on April 6, 2010, with the Greenville Rancheria, Washoe Tribe of Nevada and California, and Maidu Cultural and Development Group. Additional letters were sent to keep them informed of the project status.

Decision and Findings

Reclamation's decision is to implement Alternative 2 – Mechanically Stabilized Earth Dam Raise to address safety deficiencies at Stampede Dam. Reclamation finds that the Stampede Dam Safety of Dams Modification project is not a major federal action that will significantly affect the quality of the human environment or the natural resources in the area. This FONSI is based on the environmental analysis contained in the *Environmental Assessment for the Stampede Dam Safety of Dams Modification*, completed in accordance with NEPA. Reclamation, therefore, concludes that preparation of an Environmental Impact Statement is not required.

Final Environmental Assessment

Stampede Dam
Safety of Dams Modification

Washoe Project, California and Nevada
Mid-Pacific Region

May 2012

Acronyms and Abbreviations

ADT	average daily traffic
APE	area of potential effect
Basin Plan	Water Quality Control Plan for the Lahontan Region
BMPs	Best Management Practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CAS	Corrective Action Study
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DBH	diameter breast height
DPS	distinct population segment
DSPR	Dam Safety Priority Rating
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
ft^3/s	cubic feet per second
g/bhp-hr	grams per brake horsepower-hour
GHG	Greenhouse gas
IDF	Inflow Design Flood
ITAs	Indian Trust Assets
lbs	pounds
LCT	Lahontan cutthroat trout
mph	miles per hour
MSE	Mechanically Stabilized Earth
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act

NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NSAQMD	Northern Sierra Air Quality Management District
O&M	operation and maintenance
OCAP	Operating Criteria and Procedures
OHWM	ordinary high water mark
PA	Programmatic Agreement
P.L.	Public Law
PM	particulate matter
PMF	probable maximum flood
PPGs	Public Protection Guidelines
Reclamation	Bureau of Reclamation
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
RWS	reservoir water surface
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SOD	Safety of Dams
SPI	Sierra Pacific Industries
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VQOs	visual quality objectives
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 77,600-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 operation of the Pyramid Lake Fishway facilities.

This 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 following laws and orders were considered during the preparation of this EA, the evaluation of potential impacts described in chapter 3, and discussed in Section 4 – Consultation and Coordination: Clean Water Act, Clean Air Act (CAA), Bald and Golden Eagle Protection Act, Fish and Wildlife Coordination Act, Migratory Bird Treaty Act, National Historic Preservation Act (NHPA), Executive Order 11988 – Floodplain Management, Executive Order 11990 – Protection of Wetlands, Executive Order 13007: Indian Sacred Sites, Executive Order 12898: Environmental Justice, and Secretarial Order 3175: Department Responsibilities for Indian Trust Assets. This 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 77,600 -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 2011a). 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 eastern California, north of Lake Tahoe as shown in figure 1-1. The dam is located in Sierra County, 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 trout (LCT) (*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, municipal and industrial water storage, and water for other fishery improvements on the main Truckee River, Little Truckee River, and Boca Reservoir. Through an informal agreement with the California Department of Fish and Game (CDFG), a minimum release of 30 cubic feet per second (ft^3/s) from the reservoir is maintained for the benefit of fish and wildlife in the Little Truckee River.

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 1-1.—Washoe Project.

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.

[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 the spillway passes floodwater downstream and empties the reservoir to the spillway crest elevation.

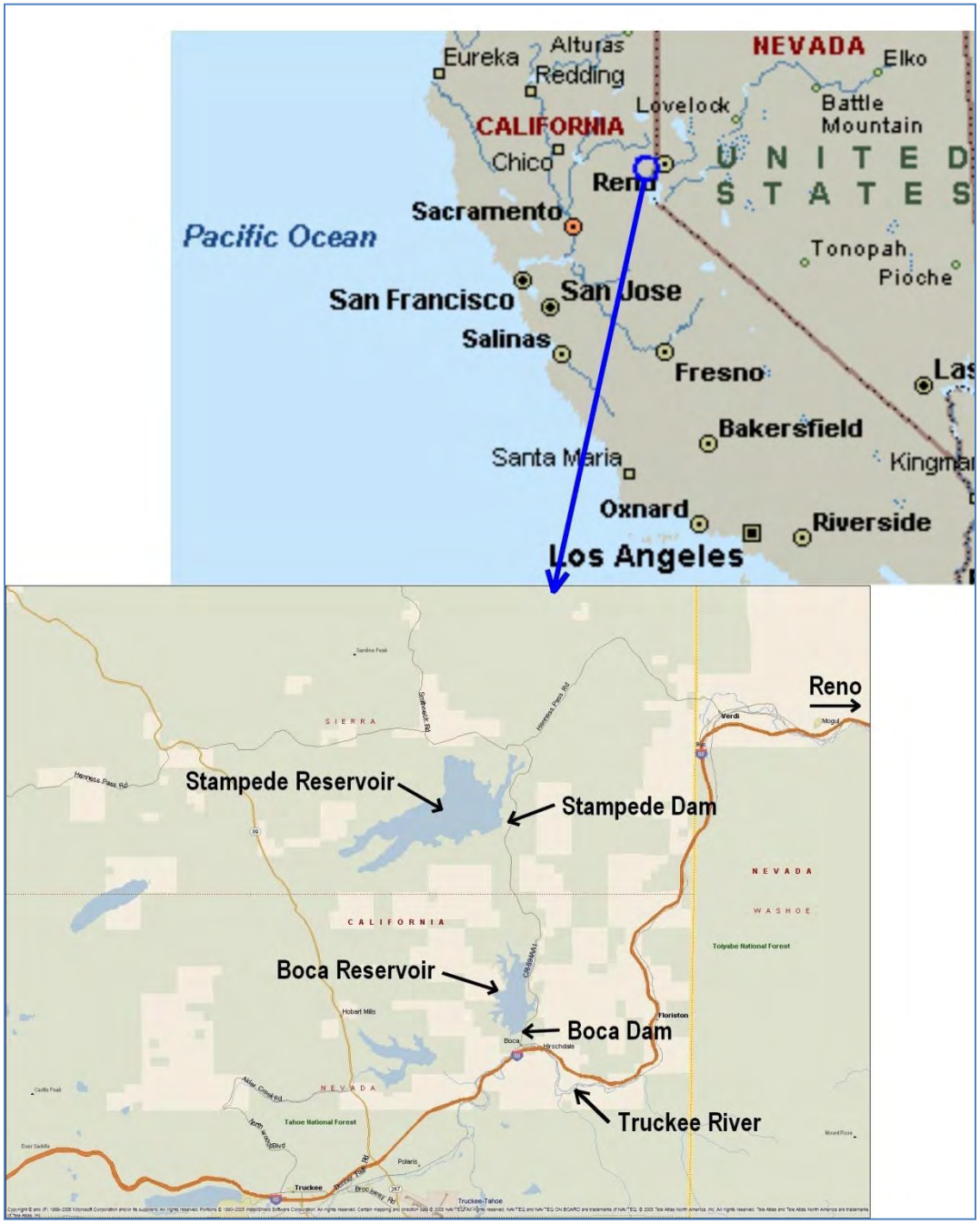


Figure 1-2.—Location map.

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.

Figure 1-3.—Stampede Dam features.

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

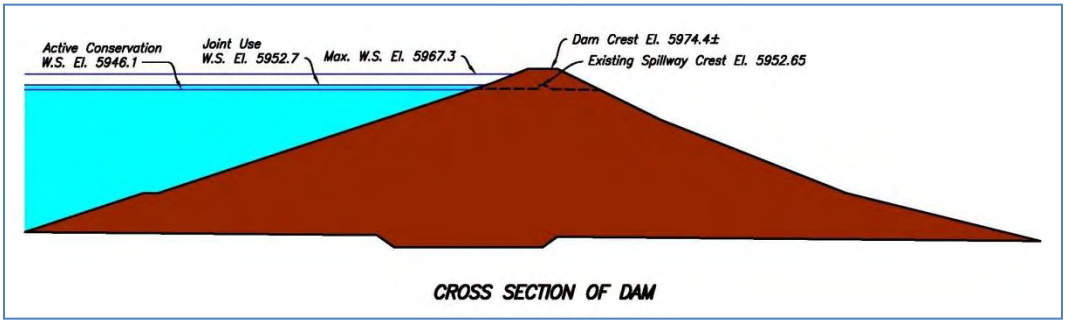


Figure 1-4.—Cross section of dam.

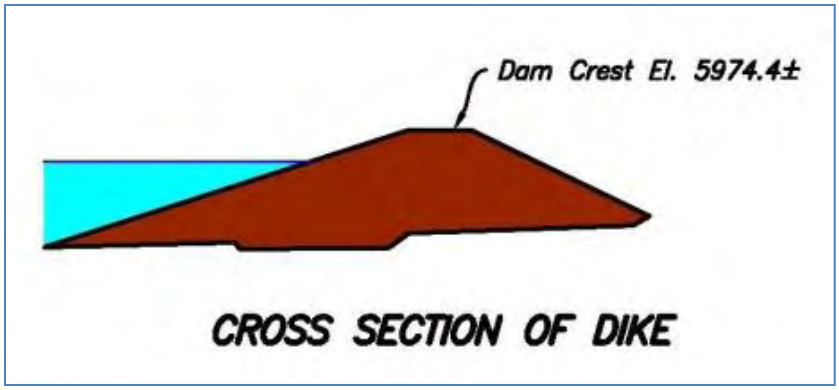


Figure 1-5.—Cross section of dike.

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

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 Reclamation, U.S. Department of the Interior and the U.S. Forest Service (USFS), U.S. Department of Agriculture (USDA).

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.

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

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 (PPGs) 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 for high and significant hazard dams. 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 P.L. 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 EA 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, Indian 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 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. Identified hydrologic risks result in Stampede Dam not meeting Reclamation's Dam Safety Public Protection Guidelines (Reclamation 2011a). This chapter presents the following alternatives considered for the SOD modification:

Alternative 1 – No Action
Alternative 2 – MSE Raise (Preferred Alternative)

In addition, alternatives eliminated from further study are described. As a result of additional analyses conducted during refinement of the SOD modification, Reclamation determined the downstream channel improvements initially considered as part of the proposed action are not necessary for implementing the SOD modification and are thus outside the scope of the SOD program.

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. 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. Overtopping of the spillway walls and potential dam failure is not considered part of the no action alternative.

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. The spillway would continue to discharge at elevation 5952.7 feet and the spillway would remain an uncontrolled structure, lacking gates or other devices that would be necessary for long-term storage of floodwaters. 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 MSE Raise Alternative are described below. The numbers in brackets indicate the associated features shown in figures 2-2 and 2-7.

2.3.1 Dam, Dike, and Intervening Area Raise

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

The dam crest would be raised from the existing elevation of 5974.0 feet to a modified elevation of 5985.5 feet. The 11.5-foot high dam and dike crest raise would be built using current MSE construction techniques. A typical MSE crest structure section is shown in figure 2-3. The crest raise section would be limited to a 30-foot width and extend a total length of 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. Soil reinforcement materials such as strips, grids, or mesh will be installed between the walls. Earthfill material would be placed between the panels and compacted to complete the dam raise.

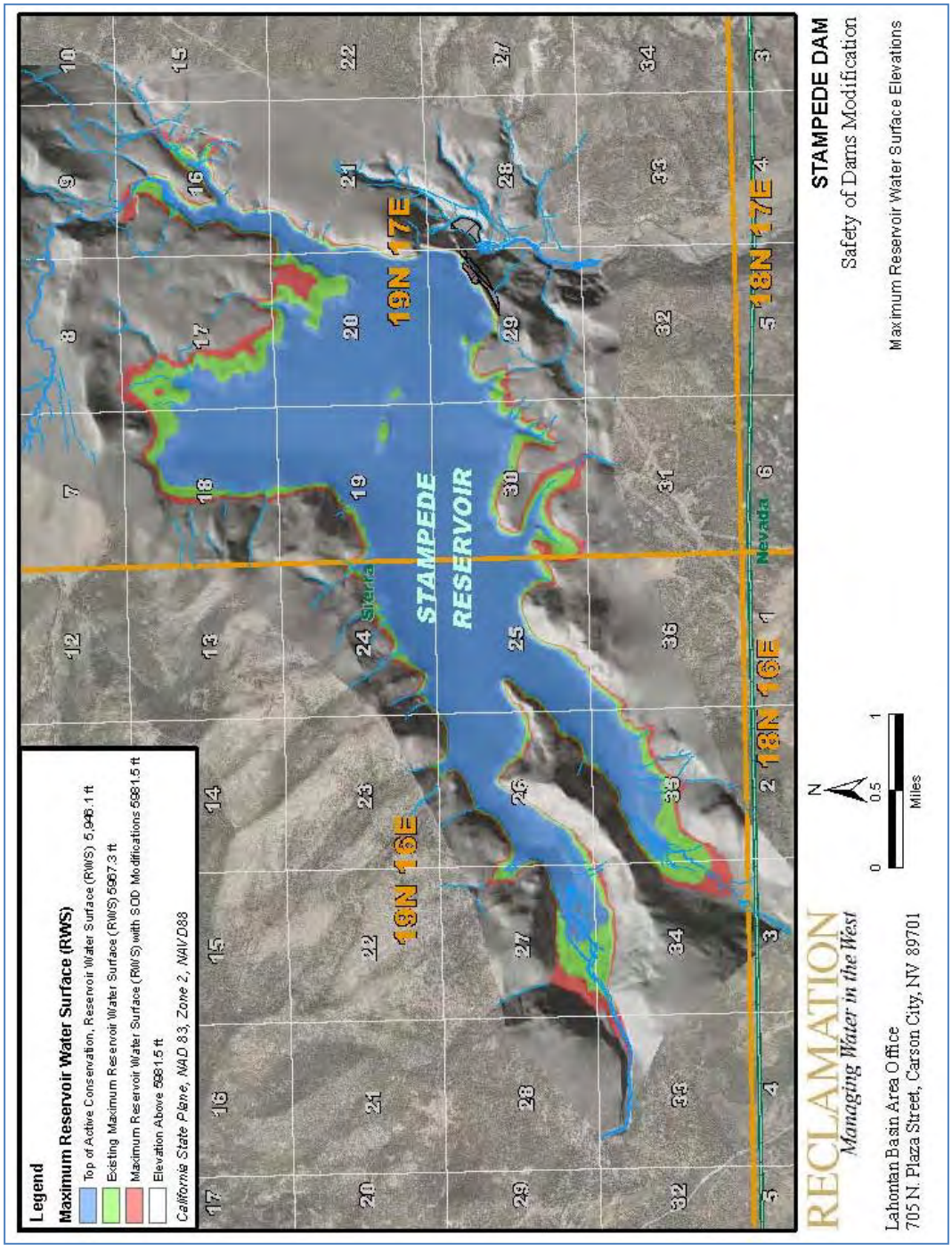


Figure 2-1.—Maximum RWS elevations.

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.

A seepage control/seepage collection system consisting of sand and gravel layers would be constructed within the limits of the MSE crest structure 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.

2.3.2 Road Modifications

An 18-foot wide gravel-surfaced operation and maintenance (O&M) road would be constructed downstream from the MSE crest structure at the base of the MSE 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 east of the spillway and at Stampede Dike. Trees and other vegetation would need to be removed to make room for the O&M road and vehicle turn-around areas.

A new asphalt-paved roadway section and new vehicle guardrail would be constructed across the top of the new crest raise to accommodate the Dog Valley Road. Storm water runoff on this segment of the Dog Valley Road would continue to be dispersed across the width of the road and drain into rock rip-rap areas upstream of the dam and dike and onto the downstream slopes of the existing embankment. On the raised embankment section of the Dog Valley Road storm water runoff would drain into fill slopes.

An earthen ramp would be constructed east of the spillway at the vehicle turn-around on the new O&M road to provide a route for deer to migrate around the spillway channel. This ramp would reduce the potential for deer entrapment on the new MSE crest structure.

A 225-foot long temporary road would be added to bypass construction traffic away from the existing fishing access parking lot [24].

The entrance road to the Stampede Reservoir Vista Point Area would be relocated in order to match the Dog Valley Road's new higher elevation and to facilitate using the Vista Point as a staging and stockpiling and vehicle turn-around 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 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

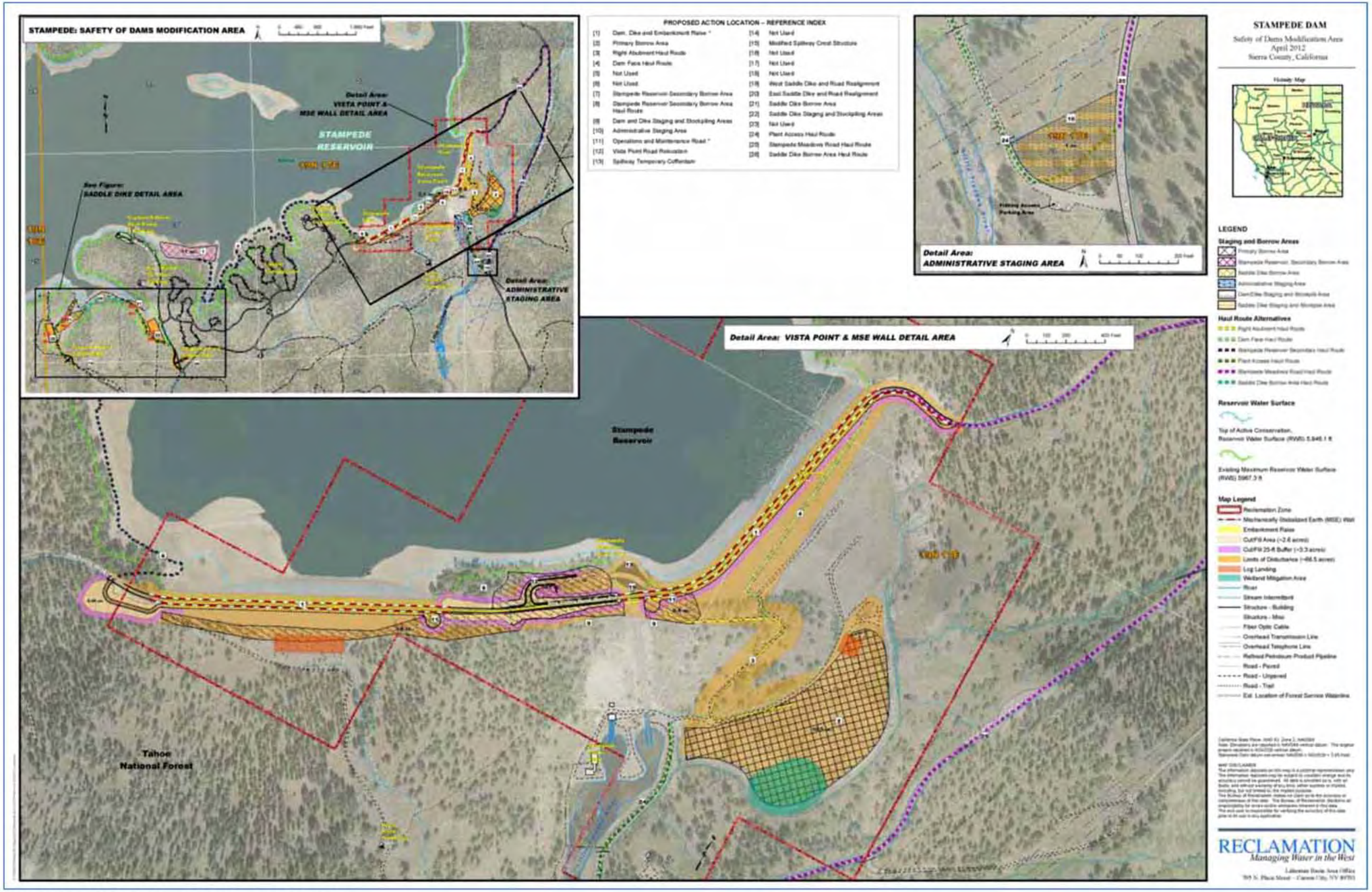


Figure 2-2.—Stampede Dam SOD modification area.

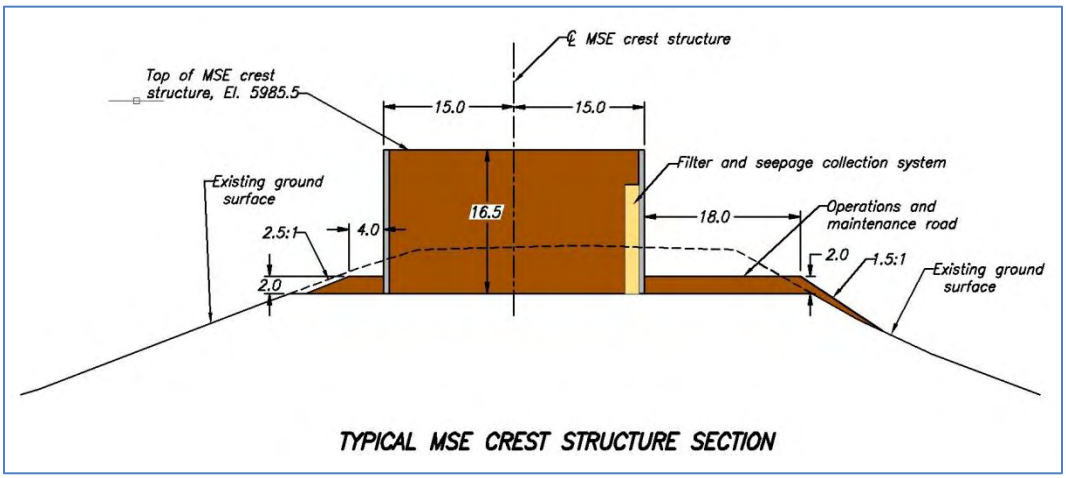


Figure 2-3.—Preferred Alternative, MSE wall – section view.

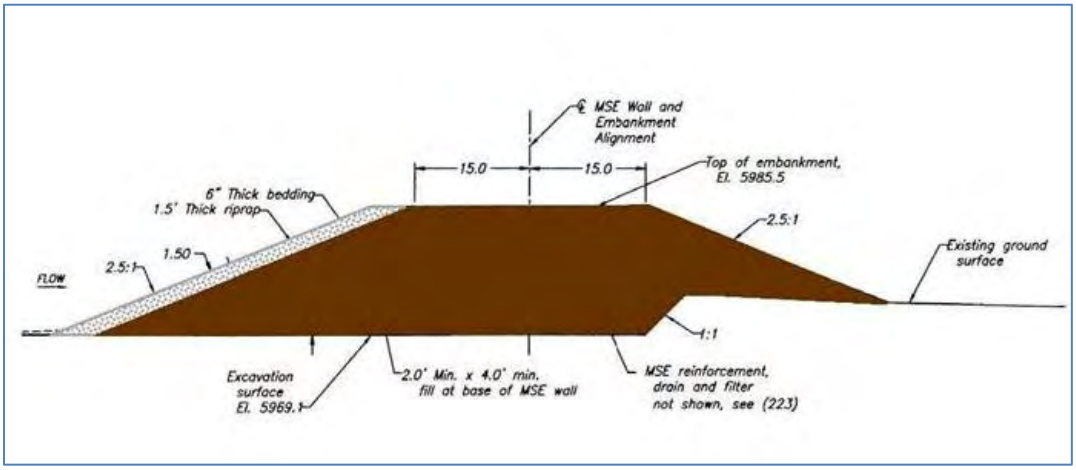


Figure 2-4.—Intervening area embankment raise – section view.

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

2.3.3 Dam, Dike, and Administrative Staging and Stockpiling Areas

Approximately up to 6.7 acres adjacent to Stampede Dam, the main dike, and the intervening area could be used during construction as temporary contractor staging and stockpiling areas, including the Vista Area [9, 12]. The primary borrow area may also be used as a temporary staging and stockpiling area. Trees and other vegetation 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 1.0 acre administrative staging area for contractor use during construction [10]. Trees and other vegetation would need to be removed in this area to provide workspace for construction operations.

2.3.4 Primary Borrow Area and Haul Routes

The primary borrow area is a 10.5-acre area located within the Reclamation Zone below the dam [2]. The area was previously used for disposal of overburden during 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 crest structure and embankment raise. An estimated 68,000 cubic yards of earthfill material from the primary borrow area would be excavated and processed for use in constructing the MSE and embankment crest raise. Some material would also be used in construction of the temporary cofferdam at the spillway. The area may also be used for staging and stockpiling during construction. Overburden material would be excavated for the wetland mitigation area described in 2.3.14.

Temporary haul roads may be used to connect the primary borrow area to the Dog Valley Road or Stampede Meadows Road [3, 4, 5, 6]. The Stampede Meadows Road and Dog Valley Road would also be used as haul roads [25]. The powerplant access road may be temporarily widened during construction to two lanes to accommodate large truck traffic [24]. The powerplant access road would be returned to its existing configuration following construction.

2.3.5 Stampede Reservoir Secondary Borrow Area and Haul Route

The Stampede Reservoir Secondary Borrow Area could be used to provide earthfill material on a contingency basis [7]. This site was the original borrow area used to construct Stampede Dam in 1970. Borrow material located between elevations 5930 feet and 5950 feet in Stampede Reservoir could be used for the construction of the dam raise provided that the water levels in the reservoir would not need to be lowered in order to access the material. The area is approximately 11 acres in size and located north of the Logger Campground complex.

Reclamation has thoroughly investigated the primary borrow area and determined it contains sufficient material in quantity and quality for the MSE raise. However, Reclamation must identify an alternate borrow area as a contingency, in the event the Primary Borrow Area material proved insufficient or unsatisfactory.

In the event that the secondary borrow area is used a temporary haul road that follows the path of the original haul road used during construction of Stampede Dam could be used to transport materials used in the MSE raise between the

Stampede Reservoir Secondary Borrow Area and Stampede Dike [8]. The road is estimated at 9,200 feet long and would follow the reservoir rim to keep haul traffic from impacting recreation traffic on the Boat Ramp and Dog Valley Roads.

2.3.6 Spillway Modifications

The spillway crest structure would be reconstructed to accommodate the MSE crest structure and to limit peak spillway discharges during the PMF to 3,000 ft^3/s consistent with the existing spillway capacity. Features of the modified 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 and the Saddle Dike Borrow Areas. 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 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 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.

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

- The existing floating barrier at the spillway would be removed and replaced with a new permanent debris boom. The floats of the boom would support a system of screens similar to chain-link fencing that would extend below the water surface to deflect debris away from the spillway during large flood events. Large structural anchors embedded in concrete would hold the boom in place.

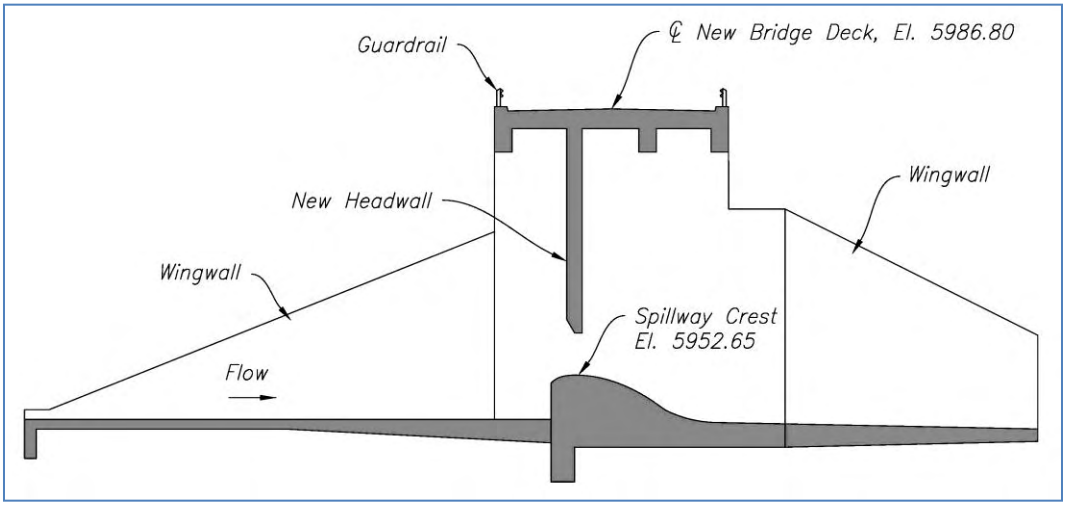


Figure 2-5.—Preferred Alternative, existing spillway crest structure modifications – profile.

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

2.3.7 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.

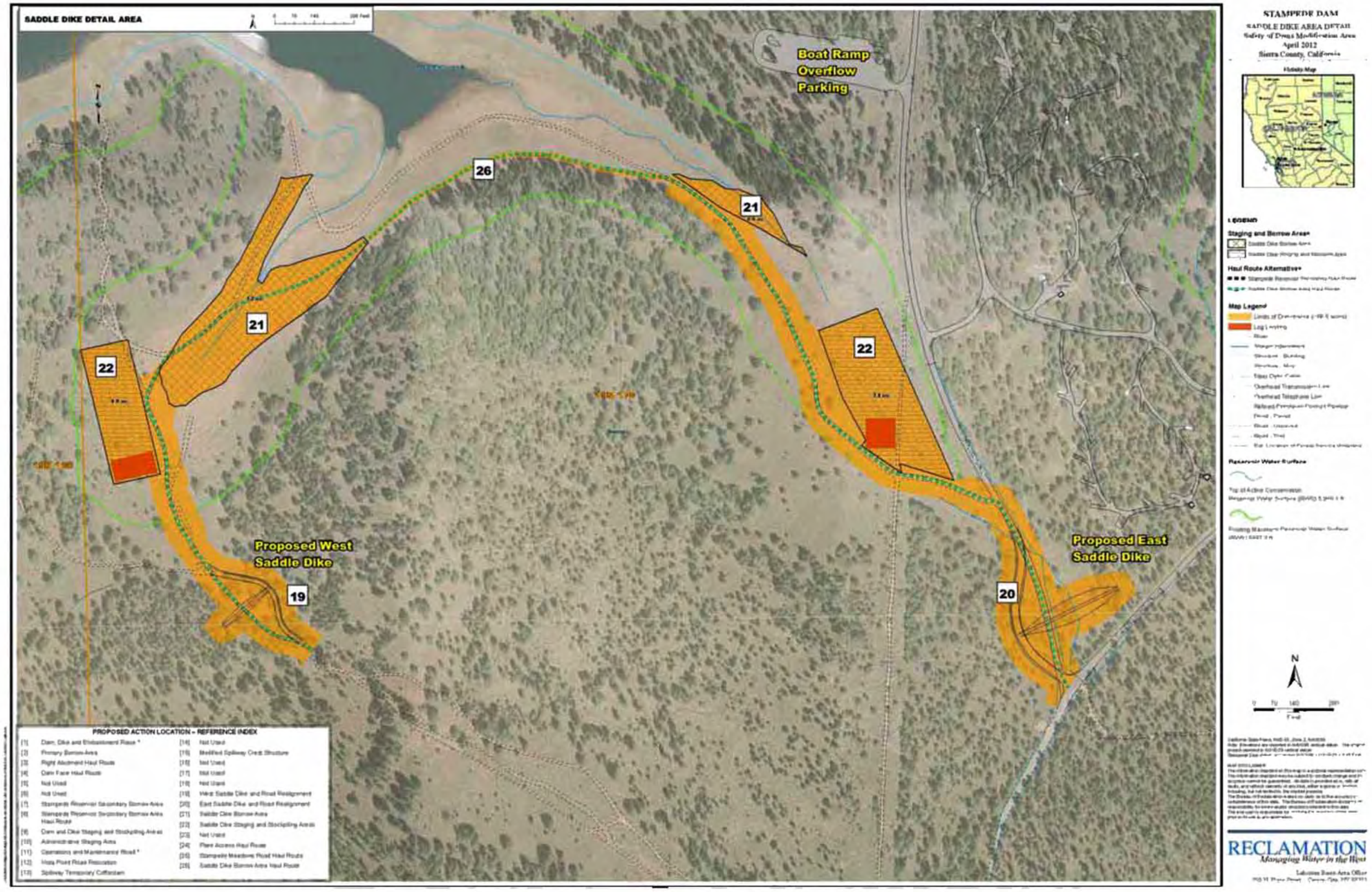


Figure 2-7 Saddle dike area detail for low areas on the south reservoir rim

The West Saddle Dike is approximately 220 feet long, 32 feet wide and 4 feet high [19]; the East Saddle Dike is approximately 480 feet long, 80 feet wide 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. The East Saddle Dike would cross a seasonal wetland.

Earthfill material for construction of the saddle dikes and some material for the temporary cofferdam and for the modified spillway would be obtained from the Saddle Dike Borrow Areas, a nearby within-reservoir source 4.8 acres in size within the normal drawdown area in Stampede Reservoir [21].

A temporary one-lane road would be constructed along the shoreline of Stampede Reservoir for 0.2 mile between elevations 5946.1 feet and 5950 feet between the two Saddle Dike Borrow Areas [26] to allow transportation of material for use in temporary or permanent project features.

Temporary Saddle Dike Staging and Stockpiling areas [22] totaling approximately 5.0 acres in size would be located between the Saddle Dike Borrow Areas and the saddle dikes. Existing roads may be improved to provide construction access between the Saddle Dike Borrow Areas and the dikes.

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

Constructing the West Saddle Dike would require realigning a segment of the National Forest Transportation System road open to vehicles with high clearance. Recreational traffic would be re-routed to the Boat Ramp Road during construction of the West Saddle Dike and road realignment.

2.3.8 Construction Schedule

Construction activities are expected to span three years to meet the requirements of the Migratory Bird Treaty Act and address anticipated winter shutdowns. 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.

Site preparation is anticipated to begin during the fall of year-1 construction activities. Construction in year-2 is likely to include the temporary cofferdam and spillway modifications, saddle dikes and associated road relocations, optional haul roads and staging areas, MSE crest structure on Stampede Dike and O&M road, and all-weather surfacing on the unpaved portion of the Dog Valley Road.

Construction activities in year-3 are expected to conclude with the MSE crest structure on Stampede Dam and O&M road, embankment raise, wetland mitigation area, debris boom installation, paving the Dog Valley Road across the dam and dike, and final site restoration procedures.

2.3.9 Temporary Road Closures

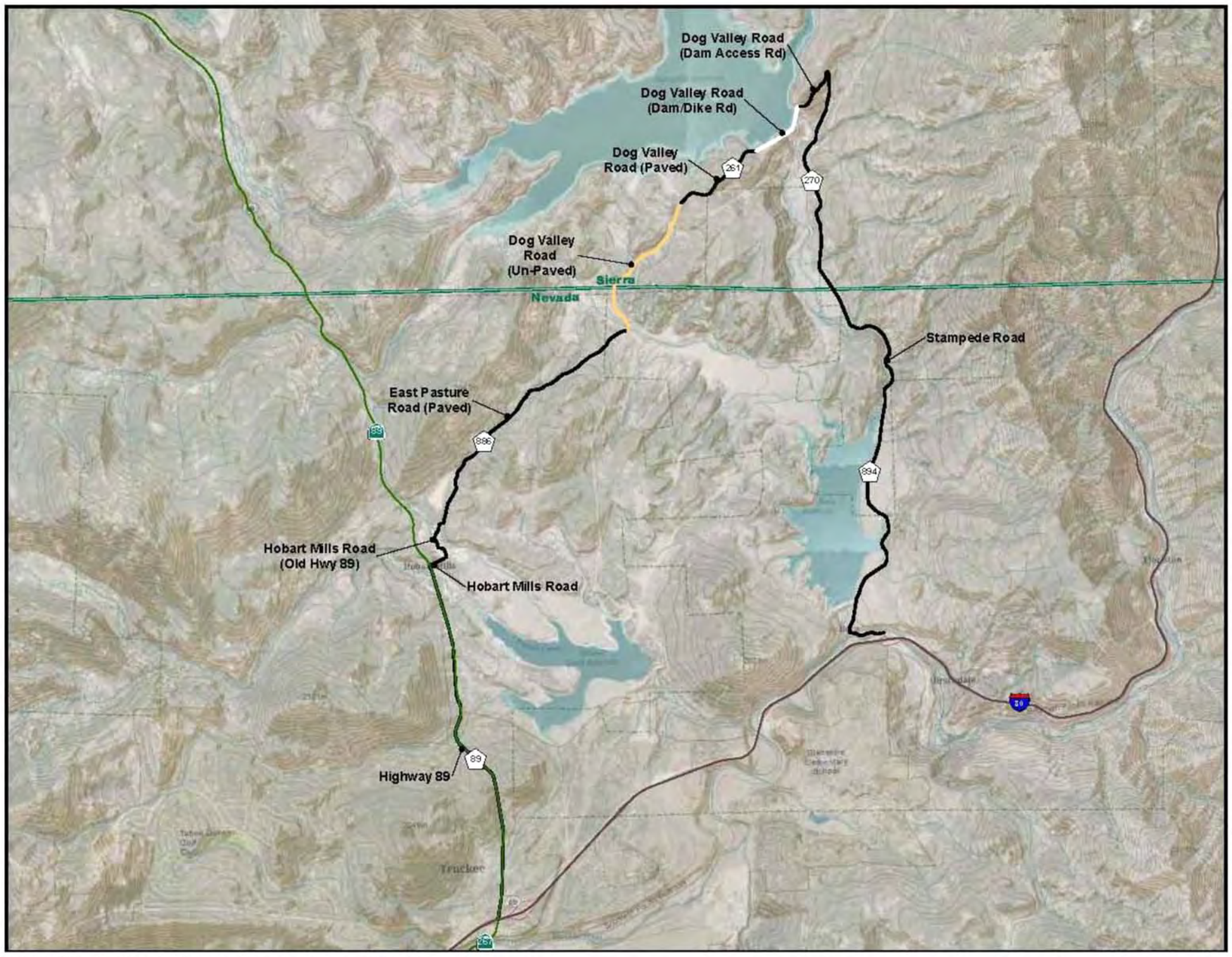
The road across the dam, main dike, and intervening area (Dog Valley Road) and the Stampede Reservoir Vista Point Area would be closed during an estimated 2-year timeframe while the MSE raise is under construction, including the winter months between year-2 and year-3 construction seasons. However, the Captain Roberts boat ramp and Stampede Reservoir campground recreation facilities would remain open and be accessible from the west via State Highway 89, by exiting at Hobart Mills and using the Dog Valley Road as shown in figure 2-8. Approximately 2 miles of the western detour route to Stampede Reservoir is unpaved, improved gravel road. This western access route could also be used to haul various construction materials to and from the work site; however after receiving public scoping comments concerning the contractor hauling materials through this area, the project has been designed to provide the contractor with access to all work areas from the east access (Stampede Meadows Road).

Reclamation would request the USFS to issue a temporary road closure order on three roads when construction would affect traffic in those areas. They are the paved Boat Ramp Road, the unpaved road at the West Saddle Dike, and the unpaved road south of Stampede Dike.

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

2.3.10 Dog Valley Road Detour – Road Paving

Recreational traffic using Stampede Reservoir recreational facilities would be detoured to State Highway 89 and the Dog Valley Road. The Dog Valley Road is a county road spanning the Sierra County – County of Nevada line. The currently unpaved segment of Dog Valley Road near Russel Valley shown in figure 2-8 would be chip-sealed to better facilitate public access to Stampede Reservoir and its associated recreation opportunities. The road would be maintained by Reclamation's contractor during construction only. The chip-sealed portion of Dog Valley Road would not be removed by Reclamation or its contractor at the end of construction thus it would revert over time to a gravel road. Long-term maintenance responsibilities would be addressed by the counties.



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.

2.3.11 Fishing Access Parking Area

There is a parking turnout area used by fishermen to access the Little Truckee River downstream from Stampede Dam. The turnout is located along the powerplant access road. Reclamation proposes to build a 225-foot long temporary road to bypass construction traffic away from the existing fishing access parking area. This temporary road would provide continued safe public access for fishing during construction [24]. As noted above, this 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.

2.3.12 Site Preparation

Site preparation would include the removal of trees and the clearing of other vegetation prior to the beginning of construction activities and outside of the migratory bird nesting period. Areas cleared for construction purposes would have stumps and brush removed and disposed of, either by burying on-site or by removal to approved landfill. Topsoil would be stripped and stockpiled for later use in revegetation efforts. Tree removal would be accomplished in coordination with the USFS who would provide a timber inventory, appraisal, and coordinator during removal operations. Tree removal would be conducted either by hand-cutting or by ground-based harvesting equipment that exerts a pressure of less than 7 pounds per square inch on the soil surface. Whole trees would be skidded to landings where they would be de-limbed and processed into mill preferred log lengths. Four (4) potential landing locations have been identified (figures 2-2 and 2-7). Slash is expected to be masticated and used as ground cover for erosion control. Merchantable logs would be sold to a mill by the USFS as soon as possible after the trees are cut.

The proposed project could result in site disturbance on an area up to 66.5 acres, with another 16.5 acres designated for contingency use only (figure 2-2).

An estimated 2.5 acres would be cleared to accommodate the construction footprint of new permanent project features including the new O&M road below Stampede Dam and Dike, two new saddle dikes, and new road realignments at the saddle dikes and Vista Area.

New cut and fill slopes resulting from the embankment raise between the dam and the dike, and from construction of the O&M road below the dam and dike would result in permanent tree removal from an estimated 6 acres.

An estimated 16 acres of temporary use areas including the primary borrow area, cofferdam at the spillway, and saddle dikes staging areas and haul road must be cleared of trees and other vegetation during construction. The contractor may elect to use an additional 37 acres within the limits of disturbance for other

staging and stockpiling areas and haul roads. All of these areas cleared as needed by the contractor for temporary construction use would be revegetated post-construction.

The saddle dike borrow areas are located within the normal drawdown area within Stampede Reservoir. These proposed temporary borrow sites occupy approximately 5 acres and support only annual vegetation or no vegetation at all during high water level periods in the Reservoir.

The contingency secondary borrow area and associated haul road would occupy 16.5 acres. Since the secondary borrow area was used during the original construction of Stampede Dam, there is no topsoil to remove in order to access the borrow material. These areas are not anticipated for use and no site preparation would occur unless they were determined to be required for construction.

2.3.13 Restoration of Disturbed Areas

The contractor would be required to restore all disturbed areas including temporary staging and stockpile areas, borrow areas, haul roads, and abandoned road segments resulting from road realignments. The contractor would be required to regrade and scarify disturbed areas used for construction purposes and not required for permanent new project features so that surfaces would blend with natural terrain and in a condition that would facilitate revegetation, provide proper drainage, and prevent erosion. Topsoil would be replaced on temporary work sites after construction to prepare these areas for revegetation. Upland plant communities disturbed during construction would be revegetated with a combination of tree planting including Jeffrey, ponderosa and sugar pine species and native shrub, forbs and erosion control grass species to re-establish native plant communities and to reduce the spread of noxious weeds. The seed mix would be determined in consultation with the USFS and would use the Seeding Guidelines for the Tahoe National Forest. Adapted erosion control grass species approved by the USFS would be used to quickly establish ground cover to reduce potential erosion.

New permanent road cut and fill slopes would be revegetated with erosion control grass species. Areas disturbed for excavation of material or for temporary haul roads within the normal drawdown area in Stampede Reservoir would be recontoured and planted with erosion control grass species.

2.3.14 Wetland Mitigation Area

Reclamation proposes to create a wetland mitigation area to address project impacts to 0.245 acres of seasonal wetland from construction of the East Saddle

Dike and realignment of roadside drainage structures at the junction of the Dog Valley and Boat Ramp Roads. Reclamation proposes the creation of a 1-acre wet meadow area within the primary borrow area (figure 2-2).

The initial excavation of an estimated 21,000 cubic yards of overburden material and rough grading to create the wetland would be accomplished during the construction period for the Stampede Dam SOD Modifications. The wetland mitigation site would be excavated down to the historic riverine alluvium deposits. Small equipment would be used on mats to accomplish the finer grading work to contour the wetland. The removal of water may be required to maintain a stable surface for equipment operation. Wetland plant species common to wet meadows in the area would be used to vegetate the area. Reclamation would conduct monitoring and maintenance activities on the wetland post-construction.

2.3.15 Removal of Water

The removal of water may be required during construction of the wetland mitigation area, but is not anticipated during other proposed construction activities. If groundwater is encountered during excavations from the primary borrow area, it could either be discharged to land in accordance with water quality permits or treated with a series of filtration Best Management Practices (BMPs) and directed into the toe drain channel. If groundwater is encountered during excavations from the saddle dikes borrow areas, spillway and temporary cofferdam area, and secondary borrow area (if used) it would be discharged to land in accordance with water quality permits. The discharge of removed water from these areas to Stampede Reservoir would not occur unless treatment tank systems were utilized. Using these systems, a large volume of silty water can be pumped through settling and filtration tanks efficiently. The construction can then be completed while the clean water is safely returned to surface waters.

2.3.16 Stampede Powerplant

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

2.3.17 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 and further described in Attachment B.

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. These alternatives are further described in Attachment B.

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 MSE Raise 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 Geology and Soils

3.2.1 Affected Environment

The dominant rock type underlying most of the project area is tuff breccia. Originating from tertiary rocks, tuff breccia is a fragmental volcanic rock consisting of about 30 percent angular, gravel, cobble- and boulder-size rock fragments in a silty sand matrix. Outcrops show tuff breccia to be a hard, massive, fragmental volcanic rock, acting like a natural concrete. Massive tuff breccia outcrops and road cut exposures that are present adjacent to Stampede Dam and along the Little Truckee River appear very erosion resistant (Reclamation 2011b).

Tuff, an uncommon rock type, was also encountered in the saddle dike area. An approximately 1-foot-thick layer of topsoil derived from in-place weathering of tuff breccia or tuff covers the ground surface throughout the saddle dike sites and saddle dike borrow area. Decomposed (soil-like), yellow brown tuff breccia extends from a depth of 1 foot to depths ranging from 3 to10 feet and is unweathered (fresh) below depths of 3 to 10 feet (Reclamation 2011b).

The east side of the primary borrow area is located where the now abandoned Little Truckee River channel once flowed, prior to construction of Stampede Dam. Pre-construction geologic mapping of the dam site and surrounding area noted this area was covered with terrace deposits overlying coarse and fine grained alluvial deposits, laid down in a point bar along the inside of the channel. The west side of the primary borrow area has slopewash materials over volcanic tuff bedrock; terrace deposits lie at the base of the slope and extend outward where they are in contact with alluvial deposits and fill material (Reclamation 2006).

The project area contains six soil map units (NRCS 2012). A brief description of these soil map units found within the site is presented below:

The saddle dikes area, including the saddle dikes staging and borrow areas and haul road are within soil map unit Kyburz-Aldi complex, 2 to 30 percent slopes (KME). The Kyburz component is found on mountain slopes. Depth to a root restrictive layer of bedrock is 34 to 48 inches and the soils are well drained. The Aldi component has properties similar to Kyburz. Areas with steep slopes have a high potential erosion hazard for roads and trails.

The area west of Stampede Dike where the new O&M road below the dike would terminate is within soil map unit Kyburz-Trojan complex, 9 to 30 percent slopes (FUE). They Kyburz component is described under the saddle dikes area, above. The Trojan component has a depth to root restrictive layer of greater than 60 inches. Soils are well drained. Soils in this map unit are well suited to hand-planting for trees.

Staging and stockpiling areas between Stampede Dike and Dam are within soil map unit Kyburz-Aldi variant-Jorge variant complex, 2 to 30 percent slopes (XCE). The Kyburz component is described under the saddle dikes area, above. Both the Aldi variant and Jorge variant are on alluvial plain remnants and terraces, derived from glaciolacustrine parent material. Soils in this map unit have moderate limitations for log landings and haul roads on steep slopes; they are well suited to hand-planting for trees.

The area between the spillway structure and the primary borrow area is within soil map unit Jorge variant-Kyburz complex, 30 to 50 percent slopes (XXF). Temporary haul roads may be used by the contractor in this area (3, 4 figure 2-2). The Jorge variant is on mountain slopes, derived of glaciolacustrine parent material. Both soils have a high potential erosion hazard for roads on steep slopes.

The primary borrow area and optional temporary haul roads (5, 6 figure 2-2) fall within soil map unit Aldi variant-Kyburz-Jorge variant complex, 2 to 30 percent slopes (CRE). Erosion hazard for roads is severe, increasing with steep slopes. The primary borrow area was used as a waste site during the original construction of Stampede Dam and contains waste/fill material ranging from 10 to 22 feet thick overlying the alluvial deposits and tuff breccia bedrock. The waste/fill materials are primarily composed of moderately to intensely weathered tuff breccia wasted from excavations for the stilling basins, spillway, outlet works and other structures. Groundwater is unconfined and perched on top of bedrock at the approximate elevation of 5735 feet. Reclamation investigations have identified a potential hazard for operating heavy equipment on soils that could liquefy under weight as material is excavated near the elevation of groundwater (Reclamation 2006).

The administrative staging area at the junction of Stampede Meadows Road and the powerplant road is within soil map unit Aldi variant-Martis variant-Aquolls complex, 2 to 5 percent slopes (CRB). These components are on alluvial plains

and outwash terraces and are derived from various parent material including lacustrine deposits, igneous rock and alluvium. Soils are generally well drained. Erosion hazard for roads and trails is slight to moderate, increasing with steep slopes. They are well suited to hand-planting for trees.

3.2.2 Environmental Consequences

3.2.2.1 Alternative 1 – No Action

Under the No Action alternative, no construction would occur at Stampede Dam. There would be no direct soil erosion or sedimentation effects resulting from project construction activities.

3.2.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

As part of the Preferred Alternative, an estimated 2.5 acres would be cleared to accommodate the construction footprint of new permanent project features that would not be revegetated post-construction. These areas include the east and west saddle dikes, extension of the road into the Stampede Reservoir Vista Area and the new O&M road located below Stampede Dam and Dike. New impervious surface resulting from the project would be minimal.

Proposed log landings, staging and stockpiling areas, borrow areas and most haul roads would be located in areas with gentle slopes where the erosion hazard would be slight. Construction BMPs would be used to minimize erosion while these roads were used during construction. Temporary haul roads connecting the primary borrow area to the Dog Valley or Stampede Meadows Road (3, 4, 5, 6 on figure 2-2) are located in steep terrain with a high to severe erosion hazard for roads. These roads would be engineered to address erosion potential during construction and appropriate BMPs implemented. All temporary use roads would be returned to their pre-construction condition and revegetated after construction is completed.

The saddle dike borrow areas and haul road are located within the normal drawdown area within Stampede Reservoir. Excavation would only occur if no water is present on-site and BMPs would be used during construction to reduce erosion and sedimentation. Restoration measures would include recontouring and grading, planting erosion control grass species for temporary revegetation, and installing waterbars across drainage areas originating from upland sites to minimize erosion and sedimentation. The post-construction surface would expose erosion-resistant tuff breccia that is expected to produce fewer fines and less turbid runoff than the soil currently exposed to reservoir fluctuations in this area (Reclamation 2012.) Effects of the project on the saddle dike borrow areas would be short term and minor.

The excavations within the primary borrow area to obtain material for the MSE raise would maintain a substantial distance from any groundwater sources, and the need to remove water is not anticipated.

Creation of the wetland mitigation area within the primary borrow area would involve the removal of overburden material to reach the elevation of groundwater at the original Little Truckee River channel. Large excavation equipment will provide the rough excavation of the wetland down to a few feet of the wetland bottom elevation. Small pieces of equipment such as Bobcat tractors will be brought in on mats to accomplish the finer grading work to contour the wetland. A pump system may be required to keep the area dewatered or timber mats may need to be utilized to provide a stable surface for equipment operation. BMPs would be used during construction to minimize erosion and sedimentation from entering the adjacent toe drain channel. Once the overburden is removed and the area has been revegetated, the remaining alluvial material with the support of groundwater would sustain wetland vegetation.

Construction activities in other areas could result in short-term increased erosion and sedimentation from exposure of soils on areas cleared for temporary work sites. Clearing activities would include tree removal, temporary log landings and log haul roads, clearing of mixed shrub vegetation and stripping and stockpiling topsoil. The use of heavy equipment for project activities would likely increase soil compaction and surface water runoff, increasing the potential for erosion. Implementation of the specified mitigation measures below would minimize the potential impacts of the MSE Raise Alternative on soil resources.

1. Bare soil will be kept to the minimum required by designs. The extent of areas to be cleared, graded and recontoured will be minimized.

2. Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation.

3. Storm water runoff originating on upslope areas will be diverted away from disturbed areas. Runoff on bare ground will be dispersed to reduce concentrated flows that might lead to erosion and sedimentation.

4. Log landings will be located to avoid erosion and sedimentation. Timber removal equipment will not be operated when ground conditions are such that excessive damage will occur.

5. Staging and stockpiling areas will be used as log landings to keep ground disturbing activity within the limits of disturbance for the project area.

6. Tree removal will be conducted either by hand-cutting or by ground-based harvesting equipment that exerts a pressure of less than 7 pounds per square inch on the soil surface to minimize effects from compaction.

7. Disturbed areas will be decompacted or ripped as part of scarification so that surfaces are permeable to limit surface water runoff, provide proper drainage and enhance revegetation.

8. All vehicular construction traffic will be confined to the designated access routes and staging areas.

9. All supervisory construction personnel will be informed of environmental concerns, permit conditions and final project specifications.

10. Reclamation will submit and implement a Storm Water Pollution Prevention Plan (SWPPP) as part of the application for a Construction General Permit. The SWPPP will address specific erosion and sedimentation prevention and control measures needed to protect soils during construction. More discussion of SWPPP and the Construction General Permit are presented in Section 3.3 Hydrology and Water Quality.

11. The contractor will be required to restore and revegetate all disturbed areas including temporary staging and stockpile areas, borrow areas, haul roads, and abandoned road segments resulting from road realignments

3.3 Hydrology and Water Quality

3.3.1 Affected Environment

3.3.1.1 Hydrology

Stampede Reservoir provides water storage which is primarily used for fishery enhancement, for the threatened LCT and for the spawning of endangered cui-ui 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, municipal and industrial water storage, and water for other fishery improvements on the main Truckee River, Little Truckee River, and Boca Reservoir. Through an informal agreement with CDFG, a minimum release of 30 ft^3/s from the reservoir is maintained for the benefit of fish and wildlife in the Little Truckee River.

3.3.1.2 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 (LCT 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).

3.3.1.3 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 is 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 percent of the total with 10 percent (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 percent load reduction and a best management practice efficiency of 50 percent. 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 (California RWQCB 2008).

3.3.1.4 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 (Lahontan RWQCB 2008).

3.3.1.5 Prohibition to Discharge Wastes within Little Truckee River 100-year Flood plain

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 flood plain 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. The exemption criteria specify that the project include:

1. Purpose and need meets certain categories.

2. There is no reasonable alternative to locating the project within the flood plain.

3. The project, by its nature, must be located within the flood plain.

4. The project incorporates measures which insure any erosion or surface runoff problems caused by the project are mitigated to levels of insignificance.

5. The project will not individually, or cumulatively with other projects, degrade water quality or beneficial uses.

6. The project will not reduce the flood flow attenuation capacity, the surface flow treatment capacity, or groundwater flow treatment capacity from existing conditions.

Several Stampede Dam SOD Modification project features are proposed within the ordinary high water mark (OHWM) and/or the 100-year flood plain of the Little Truckee River within Stampede Reservoir. For Stampede Reservoir the OHWM is elevation 5952.7 feet and the 100-year flood plain is elevation 5957.8 feet. The proposed project features located within the flood plain include a temporary cofferdam upstream of the spillway channel; concrete debris boom anchor; saddle dike borrow areas, haul road and staging area; and a secondary borrow area and haul road designated for contingency use.

3.3.1.6 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 Construction General Permit requires the development and implementation of a SWPPP. The SWPPP would 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 BMPs the discharger will use to protect receiving waters from storm water runoff and the placement of those BMPs.

The proposed project area has been identified as Risk Level 2 under the Construction General Permit, based on project sediment risk and receiving water limitations. The risk-based approach guides the implementation of increasingly stringent monitoring and reporting requirements based on site risk factors. The SWPPP must address Risk Level 2 requirements, including the proper handling and management of construction materials, management of non-storm water, erosion and sediment BMPs, visual monitoring program, rain-event action plan, testing of effluent for numeric action levels on pH and turbidity, 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). The 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 and maintenance of all BMPs.

3.3.2 Environmental Consequences

3.3.2.1 Hydrology

3.3.2.1.1 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.

3.3.2.1.2 Alternative 2 – MSE Raise (Preferred Alternative)

The Preferred Alternative would increase the temporary flood water storage capacity of Stampede Reservoir from the existing 305,313 acre-feet at existing crest elevation 5974.0 feet to 337,180 acre-feet at future crest elevation 5985.5 feet. This would result in an increase in capacity of 31,867 acre-feet for temporary flood control to protect the dam from overtopping in the event of a catastrophic flood. There would be no change in the water management of Stampede Reservoir under normal operating conditions. Reclamation would continue to operate Stampede Dam in accordance with current operating criteria. Based on these criteria, the reservoir would be managed 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 normal operating levels. After a PMF event, it is estimated the reservoir would return to its normal operating elevation of 5946.1 feet in approximately 15 days.

Minimum flows of 30 ft^3/s released to the Little Truckee River downstream from Stampede Dam would continue unchanged both during the construction phase as well as over the long-term after construction is completed.

Stampede Dam SOD Modifications proposed within the Little Truckee River 100-year flood plain within Stampede Reservoir would not reduce the flood flow attenuation capacity, the surface flow treatment capacity, or groundwater flow treatment capacity from existing conditions. The additional temporary increase in reservoir storage capacity resulting from the dam raise would only be used in the event of an estimated 77,600-year or greater flood event. The flood plain

capacity would be minimally enlarged by the permanent removal of between 12,800 to 15,700 cubic yards of excavated material from the saddle dike borrow areas.

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. Therefore, there would be no effect on discharges from the reservoir during construction of the project.

3.3.2.2 Water Quality

3.3.2.2.1 Alternative 1 – No Action

The No Action alternative would eliminate all construction activities associated with the Preferred Alternative. There would be no increases in storm water runoff and the potential for subsequent erosion.

3.3.2.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Construction activities for the Stampede Dam SOD Modification include clearing of vegetation including the removal of trees, stripping topsoil for reuse in revegetation, excavation from borrow areas, and the construction of temporary haul roads, temporary staging areas and permanent project features. Project construction could result in introducing various pollutants into stormwater runoff, in that it would require excavating and transporting material that could enter the stormwater system through wind erosion, water erosion, mechanical abrasion of earthen materials in exposed work areas, and spillage from mechanical equipment and haul trucks. New permanent project features would create an estimated 2.5 acres of new impervious ground cover. Other temporary use areas during construction would be revegetated and rehabilitated post-construction.

The removal of water may be necessary during construction of the wetland mitigation area. Any groundwater encountered during excavations from the primary borrow area would be discharged to land in accordance with water quality permits, treated with a series of filtration BMPs, or filtered through treatment tank systems and directed into the toe drain channel. Groundwater is not expected to be encountered in other project areas. However, any potential discharge of water removed from the saddle dikes borrow areas, spillway and temporary cofferdam, and secondary borrow area (if used) would be discharged to land in accordance with water quality permits. Discharging removed water from these areas to Stampede Reservoir would not occur unless treatment tank systems were utilized.

Most of the proposed project features are in upland locations or otherwise not in direct contact with Stampede Reservoir or other water sources. No construction activities are proposed in the Little Truckee River below Stampede Dam or its

tributaries. However, the exposure of soil to rainfall or flows could result in short-term increases in turbidity and suspended solids concentrations in the water column. These short-term increases in turbidity and suspended solids levels during and after construction could negatively affect water quality in Stampede Reservoir and in the Little Truckee River below Stampede Dam.

The use of construction erosion control and storm water treatment measures and provisions addressing the prevention of spills and waste disposal would prevent and minimize indirect impacts to waterbodies, such as impacts to uplands which may affect water quality. The following mitigation measures would be implemented throughout the affected project area to reduce the potential for impacts on water quality and beneficial uses associated with the Preferred Alternative. Implementation of the specified mitigation measures would result in the MSE Raise Alternative having minor indirect impacts to water quality in the project area.

1. Reclamation will use pollution prevention measures to avoid generating sediments that could enter Stampede Reservoir or the Little Truckee River below Stampede Dam. These measures include but are not limited to the following:

    a. Storm water runoff originating on upslope areas will be diverted away from disturbed areas. Runoff on bare ground will be dispersed to reduce concentrated flows that might deliver fine sediment to water sources.

    b. Reclamation will preserve existing vegetation where feasible; apply mulch or hydroseed areas until permanent stabilization is established; and use soil binders, geotextiles and mats, velocity dissipation devices, slope drains, or polyacrylamide (a soil conditioner) to protect soil from erosion. Preserved vegetation can intercept rainfall, filter stormwater, and prevent sediments and other pollutants from leaving the site (USPEA 2012a). Hydroseeding and revegetating on average is 90 percent effective in removing suspended solids in stormwater runoff (EPA 2012c).

    c. Reclamation will apply water or other dust palliatives to prevent dust nuisance and cover small stockpiles to prevent wind erosion. Haul trucks will be required to be covered. The construction site will be stabilized and roads swept to minimize sediment runoff from entering waterways.

d. Excavated or other construction materials will not be stockpiled or deposited near or on stream banks or reservoir shorelines where they can be washed away by high water or storm runoff, or can in any way encroach upon the watercourse. Receiving waters will be protected from stockpile areas using temporary erosion and sediment control measures.

e. Wastewater from general construction activities will be prevented from entering flowing or dry watercourses without the use of approved turbidity control methods.

f. Topsoil will be removed, stockpiled, and replaced as a medium for revegetation.

2. Reclamation will submit and implement a SWPPP to minimize impacts to water quality that describes all BMPs for the project, their location, and inspection, monitoring and maintenance requirements. Erosion control BMPs such as the use of mulches, installation of water bars or sandbags, seeding or hydroseeding to prevent detachment of soil will be described. Water bars are small diversion structures across a road or trail to remove or disperse surface runoff in a manner that adequately protects soil resources and limits sediment transportation. Sediment control measures may include silt fences, fiber rolls certified as weed-free, sediment traps, treatment tank systems, and other sediment filters as needed to protect waters, drainages and wetlands. Fiber rolls can provide bank protection for upwards of 3 to 5 years. Straw and rice wattles are approximately 58 percent effective at minimizing soil loss (EPA 2012d). Silt fencing, if used, will be trenched and keyed in to maximize effectiveness. Sediment filters such as treatment tank systems are 60 percent to 85 percent effective (EPA 2012e). Proper implementation of erosion and sediment controls will be adequate to minimize sediment discharge into drainage courses or waterbodies until vegetation regrowth occurs. Disturbed areas will either be regraded and revegetated prior to winter between construction seasons or BMPs will be installed and maintained during work shut-down periods, pending final restoration efforts. All Risk Level 2 requirements will be met, including the visual monitoring program, rain-event action plan, testing of effluent for numeric action levels on pH and turbidity, and a sediment monitoring plan if required.

3. Reclamation will require the contractor to implement all necessary BMPs to prevent the measureable discharge of sediment into the Little Truckee River below Stampede Dam.

4. Reclamation will implement a spill pollution control and countermeasure plan in accordance with Federal and State requirements. Hazardous materials will not be stored within 100 feet from receiving waters. Refueling and vehicle maintenance will be performed at least 100 feet from receiving waters.

5. Reclamation will implement a waste handling plan to certify that any hazardous or non-hazardous wastes are disposed of in accordance with Federal, State, and local regulations.

6. Timber harvest BMPs will be used to minimize erosion and sediment resulting from clearing trees for the construction of new project features or for temporary staging areas or haul roads (USDA 2000).

    a. The project map for timber removal will be used for designation of water quality protection needs. Operations will be adjusted during timber removal to prevent damage if erosion is likely or occurring.

    b. A USFS Sale Administrator will assist Reclamation during tree removal to ensure that BMPs will be properly implemented.

    c. Log landings will be located away from drainages (figures 2-2 and 2-7). Landings will be restored after use by ripping and revegetating to minimize effects from compaction and loss of ground cover.

    d. After timber has been removed, landings and staging areas will be sloped or otherwise treated to permit the drainage and dispersion of water. Waterbars may be constructed to divert water away from landings. Road drainage will be prevented from reaching disturbed sites. Erosion control on skid trails, landings and staging areas may include cross ditches, water spreading ditches, or backblading.

    e. Slash will be hand treated by lopping or masticated on site. Masticated slash material will be spread over logged sites to protect against erosion when those areas are not being used for construction. Masticated wood chips that are spread over disturbed areas are upwards of 90 percent effective at minimizing soil reduction/loss (EPA 2012b).

    f. Revegetation surveys after restoration work will identify any need to develop reforestation treatments. Topsoil from other project activities may be brought in to improve reforestation treatments as needed.

    g. All erosion control work must be in place within 20 calendar days from the completion of skidding operations to any given landing and after November 1 on a daily basis when rainfall is imminent.

h. Post-construction BMPs will be used as needed to detain, retain, or filter the release of pollutants to receiving waters after final stabilization is attained.

Used cumulatively, these BMPs will eliminate or reduce sediment reaching receiving waters in the area.

The project features proposed within the Little Truckee River 100-year flood plain within Stampede Reservoir would involve the direct discharge of earthen or other materials and requires an exemption from the prohibitions in the Lahontan Basin Plan. Erosion and sediment control measures in addition to those described above for indirect effects would be used to minimize impacts. Reclamation has requested an exemption from the Lahontan RWQCB for the 100-year flood plain prohibition based on the following water quality factors. Implementation of the following mitigation measures would reduce the direct impacts of the MSE Raise Alternative on water quality to where they would be minor and short-term.

1. The temporary cofferdam located just upstream of the spillway structure is anticipated to be used for one construction season and be removed by October 31. The cofferdam will be located above the normal RWS for Stampede Reservoir. The base will be constructed of impervious fill material and an anchored geomembrane fabric will be installed across the upstream face to protect the cofferdam from high flows. Geomembrane materials are impermeable and are often used for lining landfills, canals, and detention basins. This will prevent the erosion of fill materials into the reservoir if high water elevations are experienced during construction of the spillway crest structure during the summer. The spillway channel will be restored to pre-construction conditions after the cofferdam is removed. Erosion control grass species will be planted to stabilize disturbed areas following construction. Slope stabilization methods will be applied to steep slopes on either side of the channel.

2. The permanent concrete anchor for the new debris boom will be installed when water levels fall below the elevation of the anchor so no water would be on-site. BMPs will be installed to protect waters and drainages. Following installation of the anchor, the channel upstream of the spillway will be recontoured as necessary to pre-construction elevations. Erosion control grass species will be planted to stabilize disturbed areas.

3. The temporary saddle dike borrow areas are located within the normal zone of water fluctuation within Stampede Reservoir and support only annual vegetation or bare ground as they are innundated on a regular basis. High quality borrow material will be obtained for use in constructing key project features. Excavation will occur when reservoir water levels drop below the elevation of the borrow area. Restoration measures will include recontouring and grading, planting erosion control grass species for

temporary revegetation, and installing waterbars across drainage areas originating from upland sites to minimize erosion and sediment transport into the Reservoir. The post-construction surface will expose erosion-resistant tuff breccia that is expected to produce fewer fines and less turbid runoff than the soil currently exposed to reservoir fluctuations in this area (Reclamation 2012).

4. The temporary saddle dike haul road will be constructed and used only at times when reservoir elevations fall below elevation 5946.1 and no water will be present on-site. Restoration measures will include recontouring and grading, planting erosion control grass species for temporary revegetation, and installing waterbars across drainage areas originating from upland sites to minimize erosion and sediment transport into the Reservoir.

5. Approximately 0.6 acre within the temporary Saddle Dike Staging Areas is located within the 100-year flood plain. Construction staging areas will be designed to use BMPs to minimize erosion and sedimentation into receiving waters. Restoration measures will include replacing topsoil, recontouring and grading, planting native shrubs, grasses and forbs, and installing waterbars across drainage areas originating from upland sites to minimize erosion and sediment transport into the Reservoir.

6. Contingency Secondary Borrow Area and Haul Road: Material would be excavated and transported on the haul road only when reservoir water elevations fell below the elevation of the borrow site. Therefore, no water would be on-site during excavation. Topsoil was stripped from this area during the original construction, and similar to the Saddle Dike Borrow Areas, the exposed substrate is erosion-resistant tuff breccia that produces few fines that would contribute to turbid runoff in the Reservoir. Restoration measures would include recontouring, grading and planting erosion control grass species for temporary revegetation to reduce erosion. The same rehabilitation measures would be applied to the haul road, and waterbars would be installed across drainage areas originating from upland sites to minimize erosion and sediment transport into the Reservoir.

Impact Avoidance

Reclamation considered several alternatives to address modifications to Stampede Dam and eliminated those alternatives, in part or in whole, to avoid impacts to downstream waters of the U.S. or waters within the Little Truckee River 100-year flood plain (see Section 2.4 Alternatives Considered and Eliminated from Further Study). The Preferred Alternative provides the combination of temporary storage for flood events up to the PMF to protect Stampede Dam while maintaining a controlled discharge from the spillway to prevent substantially increased discharges into the Little Truckee River and overtopping downstream Boca Dam.

Comments received during the public scoping process indicated concern that recreational traffic would not have access to the Reservoir. In order to allow recreational access to Stampede Reservoir during construction while limiting conflict between recreational and construction traffic, the project was designed to allow contractor access from the east. In order to accomplish this, a temporary cofferdam around the spillway construction area had to be designed. Therefore, impacts from the temporary spillway cofferdam could not be avoided without significant impacts to recreation.

Borrow sites were identified near the project site in order to minimize the haul distances, energy used, and cost to import materials. If all material was imported and on-site borrow areas avoided, air quality impacts may have been significant.

Impact Minimization

The following measures have been taken to minimize impacts to water quality:

1. *Saddle Dike Borrow Areas* – The size of the borrow site has been reduced from 9.1 acres to 4.8 acres to minimize impacts. The area supports only sparse or no vegetation due to the regular inundation and drawdown of Stampede Reservoir. Reclamation would re-use any suitable material that is excavated during construction of project features to reduce the quantity of material excavated from the borrow areas. No reservoir restriction would be imposed which would limit the amount of water that could be stored in Stampede Reservoir during construction.

2. *Saddle Dike Staging Areas* – The size of the staging areas have been reduced from 8.3 acres to 5.0 acres in part to minimize impacts.

3. *Primary Borrow Area* – Reclamation will use a previously disturbed area near the bottom of Stampede Dam as the primary source of borrow material for the project. This minimizes impacts to other potentially more environmentally sensitive sources of fill material, and reduces truck hauling from sources located some distance from the project site.

Impacts of construction activities on water quality in Stampede Reservoir would be minor and short-term with the implementation of specified mitigation measures. There would be no measureable discharge of sediment to the Little Truckee River below Stampede Dam. Prior to construction 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 Construction General Permit and develop and implement a SWPPP, describing and locating the BMPs used and a monitoring program. BMPs used during construction activities would minimize temporary impacts to water quality in Stampede Reservoir and the Little Truckee River downstream from the dam.

3.4 Fish

3.4.1 Affected Environment

3.4.1.1 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 unable to support sufficient reproducing or self-sustaining trout populations for the sport fishery, especially near campgrounds, roadsides or other high access areas where angling demand is high. Stocking hatchery trout helps to satisfy intense recreational demand by anglers interested in keeping some fish (CDFG 2002). The CDFG also stocks kokanee in Stampede Reservoir. The kokanee spawn in Sagehen Creek and the Upper Little Truckee River upstream of the Reservoir. Smallmouth bass were illegally introduced over 10 years ago.

3.4.1.2 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 to redress spawning habitat loss in the region.

3.4.2 Environmental Consequences

3.4.2.1 Alternative 1 – No Action

Under the No Action alternative, there would be no dam safety modifications made to Stampede Dam. There would be no change in current conditions to fish habitat and populations in either the reservoir or in the Little Truckee River downstream from the dam.

3.4.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Stampede Reservoir operations are expected to continue uninterrupted throughout the Stampede Dam SOD Modification construction period. A minimum flow of 30 ft^3/s would be discharged into the Little Truckee River below Stampede Dam during construction. Several temporary construction features, including borrow areas, haul roads and the cofferdam at the spillway are located below the OHWM for Stampede Reservoir and would only be used provided that a reservoir restriction was not necessary to access the borrow materials or other areas. These areas would only be used when water levels are low enough to expose the borrow sites and other construction areas to dry conditions. Therefore, there would be no changes in discharges to the Little Truckee River and no short-term construction impacts to the fish community in the Little Truckee River below Stampede Dam. A restriction in Stampede Reservoir water storage would not be imposed to access temporary work areas within the reservoir, therefore there would be no effect on downstream fisheries that are dependent on water releases from Stampede Reservoir.

The proposed temporary project features located within the OHWM of the reservoir would be stabilized with BMPs or restored prior to the return of high water conditions. Less than 6 acres of the 3,452-acre reservoir area would be affected by these construction activities resulting in short-term increases in turbidity in a localized area. Construction BMPs would be used to reduce water quality impacts that could affect fishery resources to less than significant levels. The post-construction surface will expose erosion-resistant tuff breccia that is expected to produce fewer fines and less turbid runoff than the soil currently exposed to reservoir fluctuations in this area. No short-term or long-term changes are expected to occur to the reservoir fish community. No losses would occur to fish habitat in these areas.

3.5 Wildlife

3.5.1 Affected Environment

3.5.1.1 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. Concentrations of bald eagles can occur on the Little Truckee River during kokanee spawning which occurs around mid-October. Eagles are known to roost on large pine trees along the reservoir edge in and adjacent to the project area.

3.5.1.2 Migratory Songbirds

Riparian zones along the Little Truckee River downstream from Stampede Dam as well as the pine/sagebrush/bitterbrush stands provide habitat for 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*). Flycatchers that frequent the area include Hammond's (*Empidonax hammondii*), dusky (*E.oberholseri*) and willow (*E. traillii*) species.. 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*).

3.5.1.3 Resident Birds

The coniferous forest adjacent to the reservoir shoreline and the Little Truckee River downstream from the dam provide habitat for non-migratory species such as mountain chickadees (*Poecile gambeli*), red-breasted nuthatches (*Sitta canadensis*), 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.

3.5.1.4 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*).

3.5.1.5 Waterfowl

Stampede Reservoir provides a 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.

3.5.1.6 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 from 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. Mountain beaver (*Aplodontia rufa)* inhabit forested areas in the region. The North American beaver (Castor canadensis) is commonly found in streamside habitat in the project area.

Other small mammal species may also be found within the project area. 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.

3.5.1.7 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.

3.5.1.8 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*).

3.5.2 Environmental Consequences

3.5.2.1 Bald Eagle

3.5.2.1.1 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.

3.5.2.1.2 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 et al. 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 1,500 feet, and take flight when activities occur within 600 feet.

To address potential impacts to nesting eagles, Reclamation has prepared and will implement a Bald Eagle Monitoring Plan to monitor the nesting pair several 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, actions would then be implemented to reduce truck noise on the Dog Valley Road including requiring slow speeds and/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 have been identified, are located outside the limits of project disturbance, and will not be removed.

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 to provide access to 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 to the eagles from reservoir water elevations would occur since reservoir operations under normal conditions would continue unchanged.

The proposed project area is located well beyond the buffer zone recommended by the National Bald Eagle Management Guidelines and project effects on bald eagles would be less than significant. Reclamation would implement a bald eagle monitoring plan as an added precaution to resolve unforeseen conflicts with bald eagles during construction hauling activities.

3.5.2.2 Other Wildlife Species

3.5.2.2.1 Alternative 1 – No Action Alternative

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

3.5.2.2. 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 lost where pine trees and other vegetation are cleared to accommodate the construction footprint of new permanent project features that would not be revegetated post-construction. Trees and other vegetation would be permanently removed on 2.5 acres to accommodate the construction footprint of the two saddle dikes, road relocations, and the O&M road. Trees would be permanently removed on new road cut and fill slopes on 6 acres adjacent to the Dog Valley Road and for the new O&M road. These cut and fill slopes would be revegetated with grass species intended to provide ground cover for erosion control.

There would be a moderate to long-term loss of habitat where vegetation is removed to accommodate temporary construction activities, including the primary

borrow area, staging and stockpiling areas and haul roads. These areas would be replanted with native trees, shrubs, forbs and approved erosion control grass species post-construction. All necessary vegetation removal would be completed before nesting season begins (April 1) or after nesting season is completed (August 31) to reduce nest losses. Key areas such as large mature pines along the reservoir shoreline and Vista Point have been identified and would be 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 3 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 with wildlife. This risk would be reduced as much as possible by imposing a 30-mile-per-hour (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. Wildlife species that were displaced temporarily eventually would be able to utilize the restored habitats.

An earthen ramp would be constructed on the east side of the spillway bridge south of the Dog Valley Road to reduce the potential for trapping mule deer on the MSE wall and would allow them to cross the bridge, 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.

Impacts to wildlife habitat temporarily disturbed during construction would be revegetated upon completion of construction. Impacts to wildlife in the project area would be minor as substantial similar habitat surrounding the project area will remain intact and available for wildlife use during construction and during the period of vegetation regrowth in disturbed areas. No increase in human activity would occur after construction is completed and vehicle traffic levels would return to preconstruction levels.

3.6 Vegetation

3.6.1 Affected Environment

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

Table 3-1.—Plant species identified in each major part of the project area

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]
Jeffrey pine (*Pinus jeffreyi*)	X	X	X	X	X	
Ponderosa pine (*Pinus ponderosa*)	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 (*Artemesia 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		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[2]
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	

Source: O'Meara 2011.
[1] Center for Invasive Species and Ecosystem Health 2011
[2] Musk thistle previously identified at saddle dike borrow areas, but not observed in 2011 due to high water levels.

Vegetation within the project area consists of two primary habitats: eastside pine trees and mixed shrub plant communities. Riparian habitat is also present as a very small component of the landscape.

Eastside pine tree communities dominate the project area with mixed stands of Jeffrey pine and ponderosa pine (figure 3-1). Open areas within the forest canopy contain shrubs including sagebrush, bitterbrush, greenleaf manzanita and prostrate ceanothus. The herbaceous layer includes numerous forbs, California brome grass, squirreltail and cheatgrass. 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 (DBH). Merchantable timber averages 90 stems per acre. Heights of the dominant trees in the vicinity are approaching 80 feet tall.

Areas not dominated by tree cover support mixed sagebrush and bitterbrush shrub communities with forbs and grasses. This vegetative cover is dominant on the saddle dike staging areas and primary borrow area where pine trees are generally small (less than 10 inch DBH) and scattered (figure 3-1). The faces of Stampede Dam and Dike have also revegetated to a mixed sagebrush-bitterbrush-forb-grass community since construction of these features in 1970.

The drawdown zone of Stampede Reservoir, located between the top of active conservation at elevation 5946.1 feet and the top of joint use at elevation 5952.7 feet is frequently inundated and supports sparse annual or biennial vegetation, including extensive stands of mullein. The saddle dike staging areas are located within this drawdown zone. The contingency secondary borrow area is also located below the elevation of active conservation.

The two riparian wetlands lie along the Little Truckee River below Stampede Dam and an unnamed stream channel that flows along the east side of the powerplant road. Dominant vegetation includes Geyer's willow, sandbar willow, silver sagebrush, Wheeler's bluegrass, salt sedge, smallwing sedge and baltic rush. The seasonal wetland near the junction of the Dog Valley Road and Boat Ramp Road is a depressional feature that is saturated seasonally. The dominant vegetation in the seasonal wetland is annual hairgrass, wild hyacinth, and Sandberg bluegrass. Riparian and wetland areas are further discussed in Section 3.7 Wetlands.

3.6.1.1 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 areas. Musk thistle is a State of California A-rated noxious weed, a designation indicating limited distribution of the species that may allow for eradication or successful containment. However, plant surveys conducted in July 2011 did not

Stampede Safety of Dams

PLANT COMMUNITIES

Legend

Forest Service Re-vegetation Layer

Eastside Pine

Mixed Shrubs

Generalized Areas of Disturbance

Generalized Area of Disturbance

Generalized Area of Potential Disturbance

N

0 1,000 2,000

Feet

RECLAMATION

Managing Water in the West

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

Figure 3-1.—Plant communities.

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. 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 U.S. and Canada, but is most problematic in areas of the Western U.S. with lower precipitation levels (CISEH 2011).

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. 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.

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. Tall whitetop and Russian thistle are spreading rapidly in Sierra County but neither of these invasive species was observed during plant surveys conducted in July 2011.

3.6.1.2 Special Status Plant Species

For the purposes of this assessment, special status plant species are designated as sensitive by the USDA Forest Service Region 5 Forester's Sensitive Species (June 8, 1998; updated June 15, 2010).

Most of these species are also listed either by CDFG or the California Native Plant Society as special status plants (table 3-2).

A USFS sensitive species is any species of plant that has been recognized by the Regional Forester to need special management in order to prevent it from becoming threatened or endangered. As part of the NEPA process activities are reviewed to determine their potential effect on sensitive species and to avoid or minimize impacts to species whose viability has been identified as a concern. If impacts cannot be avoided, the significance of potential adverse effects will be analyzed on the population or its habitat within the area of concern and on the species as a whole.

Table 3-2.—Special status plant species evaluated

Species	USFWS status[1]	State ranking[2]	CNPS status[3]
Arabis rigidissima var. *demota*	None	S1.2	1B.2
Astragalus webberi	None	S1.2	1B.2
Botrychium ascendens	None	S1.3	2.3
Botrychium crenulatum	None	S2.2	2.2
Botrychium lunaria	None	S2.3	2.3
Botrychium minganense	None	S1.2	2.2
Botrychium montanum	None	S1.1	2.1
Bruchia bolanderi	None	S2.2	2.2
Calochortus clavatus var. *avius*	None	S3.2	1B.2
Clarkia biloba ssp. *Brandegeae*	SC	S3	1B.2
Cudonia monticola	None	S1	None
Cypripedium fasciculatum	None	S4.2	4.2
Cypripedium montanum	None	S3.2	4.2
Dendrocollybia racemosa	None	S1S12	None
Epilobium howellii	None	S4	4.3
Erigeron miser	None	S2.3	1B.3
Eriogonum umbellatum var. *torreyanum*	SC	S2.2	1B.2
Fissidens aphelotaxifolius	None	S1.2	2.2
Fritillaria eastwoodiae	SC	S3.2	3
Helodium blandowii	None	S1.3	2.3
Hydrothyria venosa	None	None	None
Ivesia aperta var. *aperta*	SC	S2.2	1B.2
Ivesia aperta var. canina	SC	S1.1	1B.1
Ivesia sericoleuca	SC	S2.2	1B.2
Ivesia webberi	Can	S2.1	1B.1
Lewisia cantelovii	SC	S2.2	1B.2
Lewisia serrata	SC	S2.2	1B.1
Lewisia kelloggii ssp. hutchisonii	None	S2S3*	3.3*
Lewisia kelloggii ssp. kelloggii	None	S3.3*	3.3*
Lewisia longipetala	SC	S2.2	1B.3
Lupinus dalesiae	SC	S3.2	4.2
Mahonia sonnei	Removed	None	Rejected
Meesia triquetra	SC	S3S4.2	4.2
Meesia uliginosa	SC	S2.3	2.2
Mielichhoferia elongata	None	S2.2	2.2
Monardella follettii	None	S2	1B.2
Penstemon personatus	SC	S2.2	1B.2
Phacelia stebbinsii	SC	S3.2	1B.2
Phaeocollybia olivacea	None	S2	None
Pyrrocoma lucida	None	S3.2	1B.2
Tauschia howellii	None	S1.3	1B.3

[1] USFWS Status:
SC = Species of Concern

[2] State Ranking:
S1 = Less than 6 element occurrences or less than 1,000 individuals or less than 2000 acres
S2 = 6-20 element occurrences (EO) or 1,000 - 3,000 individuals or 2,000 - 10,000 acres
S3 = 21-80 EO or 2,000 - 10,000 individuals or 10,000 - 50,000 acres
S4 = Apparently secure within California.
.1 = Very threatened
.2 = Threatened
.3 = No current threats known

[3] CNPS (California Native Plant Society) Status:
1B = Plants rare, threatened or endangered in California or elsewhere
2 = Plants rare, threatened or endangered in California, but more common elsewhere
3 = Review list, need more information
4 = Watch list
.1 = Seriously threatened in California
.2 = Fairly threatened in California
.3 = Not very threatened in California

3.6.2 Environmental Consequences

3.6.2.1 Alternative 1 – No Action Alternative

Under the No Action alternative, the Stampede Safety of Dams Modification Project would not be implemented and there would be no construction within the project area. There would be no impact to vegetation associated with this alternative.

3.6.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Under the Preferred Alternative, an estimated 2.5 acres that are currently vegetated would be converted to permanent project features that would not be revegetated post-construction. These areas include the saddle dikes, permanent road relocations and the new O&M road. Acreages of plant communities potentially affected by construction activities are summarized in table 3-3.

Table 3-3.—Acreages of plant communities potentially affected

Plant community	Acres potentially affected
Eastside pine tree	24
Mixed sagebrush - bitterbrush	37
Annual – biennial	5
Riparian –seasonal wetland	0.245

The Preferred Alternative would result in long-term disturbance to some eastside pine tree-dominated plant communities where mature trees would be removed either for permanent new project features, or for temporary staging and stockpiling areas and haul roads during construction. In total, an estimated 1,400 trees could be removed from all project areas during site preparation activities. Based on preliminary inventories conducted by Reclamation in October 2011, trees that could be removed include an estimated 516 with less than 10-inch DBH; 593 between 10- to 20-inch DBH; and 291 between 20- to 30-inch DBH. Tree removal would be conducted either by hand-cutting or by ground-based harvesting equipment. Whole trees would be skidded to landings where they would be de-limbed and processed into mill preferred log lengths. Logging slash would be masticated on-site and used as ground cover for erosion control.

While project activities would modify some existing mature eastside pine tree-dominated sites, these areas would be revegetated after construction with a combination of tree planting including Jeffrey, ponderosa and sugar pine species and native shrub, forbs and erosion control grass species. Topsoil would be replaced on temporary work sites post-construction to prepare these areas for

revegetation. Mixed shrub plant communities that are cleared during construction activities would be reseeded and replanted with native shrub, forb and grass species. The mix of native plants would be determined in consultation with the USFS and would use the Seeding Guidelines for the Tahoe National Forest. Adapted erosion control grass species as approved by the USFS would be used to quickly establish ground cover to reduce potential erosion. Adjacent undisturbed sites would also provide seed sources for recolonizing the disturbed areas and natural recruitment would supplement these revegetation efforts. Over time, these upland areas would be revegetated to the degree that site conditions allow.

Post-construction monitoring, coordination with the USFS, and adaptive management would be used to identify changing needs and meet the desired future conditions of re-establishing native plant communities and to reduce the spread of noxious weeds.

Reclamation will produce a Revegetation Plan in coordination with the USDA Forest Service, Tahoe National Forest that will document the details and implementation schedule for revegetation activities during and post-construction. The Revegetation Plan will be completed prior to implementation of the preferred alternative should it be selected.

The temporary saddle dike borrow areas and the contingency secondary borrow area and haul road are all located within the normal drawdown area, below the OHWM within Stampede Reservoir. 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 and reseeded with erosion control grass species. The Preferred Alternative would not affect vegetation within these areas.

The Preferred Alternative would result in the anticipated loss of 0.245 acre of seasonal wetland at the east saddle dike location. The project would have no effect on riparian wetlands adjacent to the powerplant road. Further analysis of the proposed project effects on riparian and wetland areas are presented in Section 3.7 Wetlands.

The wetland mitigation area that would be created within the primary borrow area would result in the conversion of one acre of mixed shrub –forb -grass community to wet meadow vegetation. Target plant species for establishment in the wetland area include annual hairgrass (*Deschampsia danthoides*), small-wing sedge (*Carex microptera*), water sedge (*Carex aquatilis*), and salt sedge (*Carex hassei*).

3.6.2.2.1 Noxious and Invasive Weeds

Reclamation is responsible for the identification and proper management of pest species, including noxious and invasive weeds on all Reclamation-owned lands and facilities in accordance with Federal law and applicable State and local laws and standards (Reclamation 1996).

Project implementation could result in the spread of invasive and noxious weeds during ground disturbing activities. 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 their associated haul roads. A few individual musk thistle plants were noted along the powerplant access road.

The most common, widespread invasive species in the project area is cheatgrass. 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. 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. 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. Quackgrass and bull thistle were found in only small areas within the project area.

The introduction or spread of invasive and noxious weeds during implementation of the Preferred Alternative could have a significant effect on vegetation within the project area. The following mitigation measures would be implemented during the construction and post-construction periods to reduce the potential for impacts to native vegetation from noxious and invasive weeds.

1. All off-road equipment and vehicles used for project implementation will be required to be weed-free. All equipment and vehicles will be cleaned of all attached mud, soil and vegetation. This will 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. Reclamation will require that all earth-moving equipment, gravel, road base, fill, or other materials to be noxious weed-free.

3. Certified weed-free seed sources will be used. All activities that require seeding or planting will use a mixture of native or adapted seeds and plants as described in the Seeding Guidelines for the Tahoe National Forest or as approved by the USFS.

4. Equipment, materials, or crews will not be staged in noxious weed infested areas where there is a risk of spread to uninfested areas. The exception is areas with cheatgrass since this species occurs throughout the limits of disturbance.

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

6. Monitoring for noxious weeds will continue during construction activities and if small infestations of noxious weeds are identified during project implementation, Reclamation will evaluate if the weeds should be hand treated or flagged and avoided according to the species present and project constraints

7. Reclamation will conduct post-construction monitoring and treatment of noxious or invasive weeds on National Forest System lands in coordination with the USFS. Reclamation will conduct post-construction monitoring and treatment of noxious or invasive weeds on Reclamation-owned lands or facilities in accordance with Reclamation's policy on integrated pest management.

3.6.2.3 Special Status Plant Species

Pre-construction botanical surveys were conducted within the project area by a Reclamation botanist on July 18th and 19th, 2011. Prior to the survey, a detailed investigation into identification of potential species of concern, their habitats, and known locations in proximity to the project area was conducted. No special status plant species were identified as a result of the surveys. Therefore, this impact would be less than significant.

Ivesia webberi (Webber's ivesia) is listed as a Federal candidate species under the Endangered Species Act (ESA) and is discussed in Section 3.8 Threatened, Endangered and Candidate Species.

3.7 Wetlands

3.7.1 Affected Environment

The U.S. Army Corps of Engineers (USACE) has jurisdiction over activities affecting waters of the United States including surface waters such as navigable waters and their tributaries, all interstate waters and their tributaries, wetlands, and impoundments of these waters. The USACE regulates the discharge of dredged or fill material into waters of the United States and within Stampede Reservoir these activities are regulated below the OHWM at elevation 5952.7 feet. Waters of the State of California include both the waters of the U.S. and also areas below the elevation of the 100-year flood plain at elevation 5957.8 feet within Stampede Reservoir. There are no proposed project activities located below the OHWM or within the 100-year flood plain for the Little Truckee River below Stampede Dam. The 100-year flood plain prohibitions and exemption criteria pertaining to proposed project activities within Stampede Reservoir are discussed in Section 3.3 Hydrology and Water Quality.

A wetland delineation was conducted in July 2011 (Reed & Siegle 2011). Wetlands mapped included riparian wetland and seasonal wetland (table 3-4). The delineation of these wetlands was verified for permitting purposes by the USACE on March 27, 2012. Table 3-5 lists the wetland species recorded during this delineation. Three wetlands were mapped in the project area: a 0.27-acre riparian wetland located along the east side of the powerplant access road immediately downstream from the dam (figure 3-2); a 0.245 acre seasonal wetland located at the site of the proposed east saddle dike (figure 3-3); and a 0.262-acre riparian wetland on the banks of the Little Truckee River below Stampede Dam (figure 3-4).

Table 3-4.—Summary of USACE jurisdictional waters

Feature type	Acres
Waters of the U.S.	
Reservoir	3,452 acres (total in reservoir)
Wetlands	
Riparian wetland	0.532 acre
Seasonal wetland	0.245 acre
Total wetlands	0.777 acre

3.7.1.1 Riparian Wetland

The two riparian wetlands consist of linear features along the Little Truckee River below Stampede Dam and an unnamed stream channel that flows along the east

Table 3-5.—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 ttridentata	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
Legend: OBL – obligate wetland species. FACW- facultative wetland species. FAC – facultative species. FACU – facultative upland species. UPL – obligate upland species.		

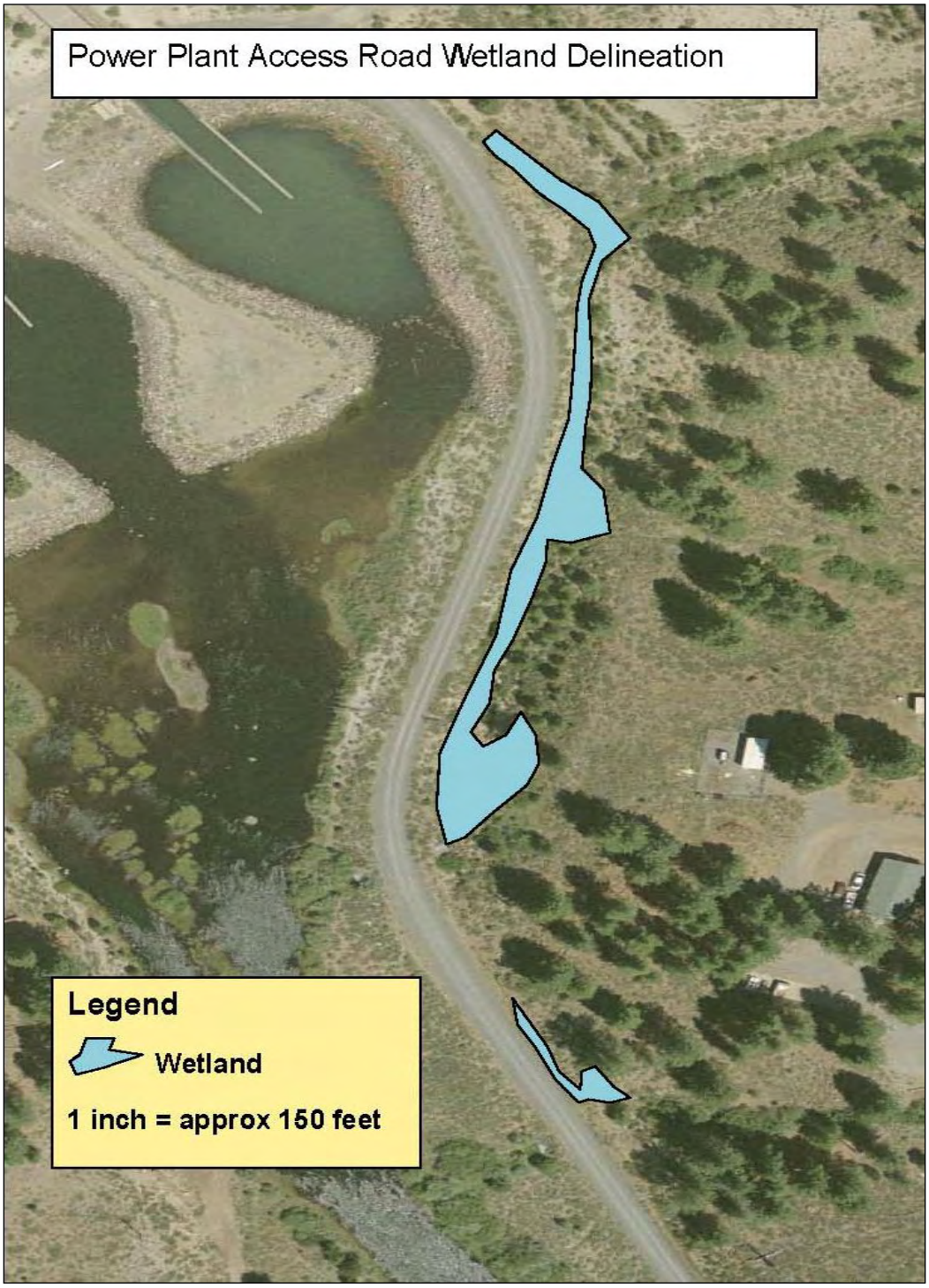


Figure 3-2.—A 0.27-acre wetland delineated along the powerplant road downstream from Stampede dam. This area would be avoided during construction.

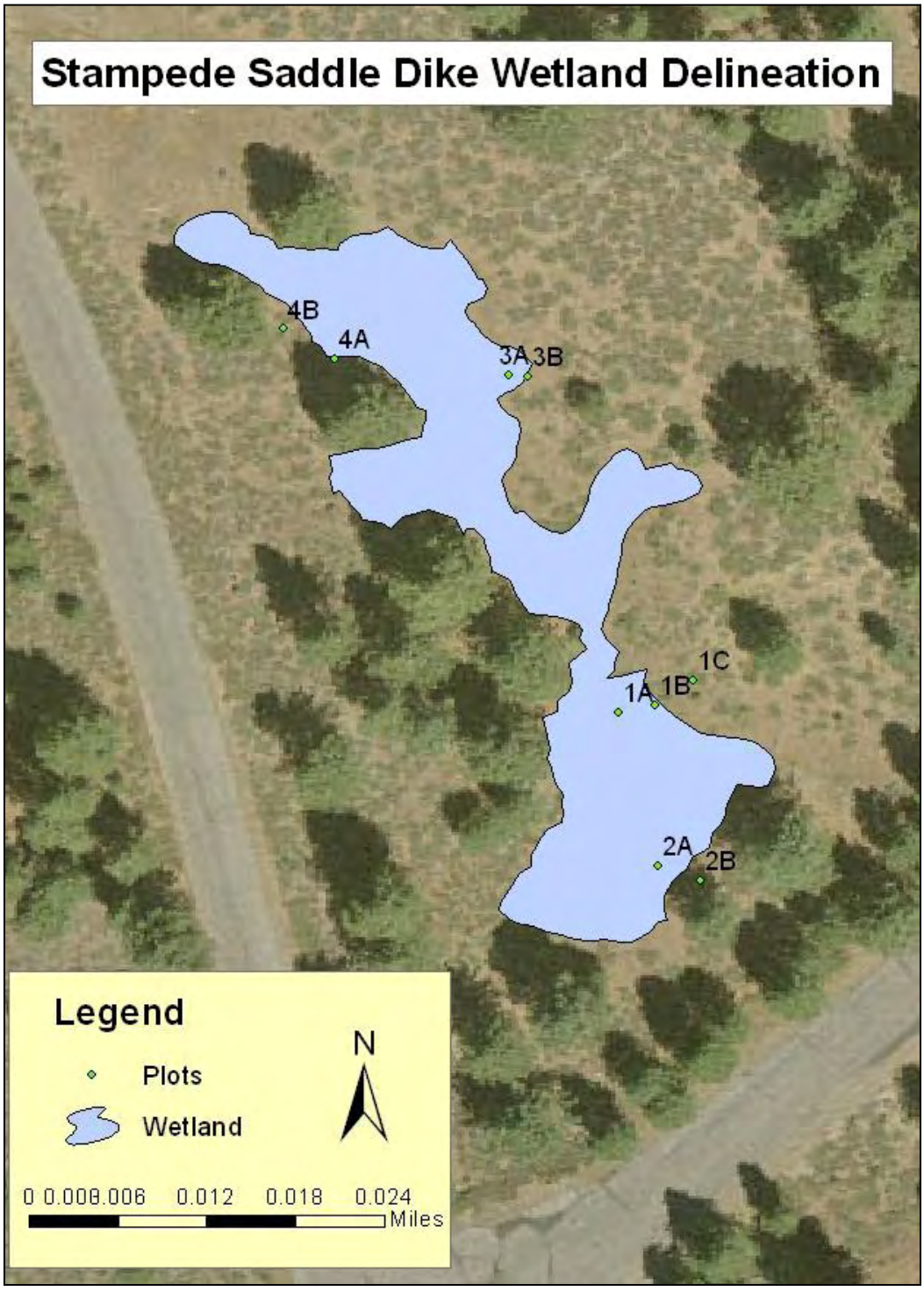


Figure 3-3.—A 0.245-acre wetland delineated in the footprint of the east saddle dike. This area is expected to be permanently impacted by construction of the saddle dike.

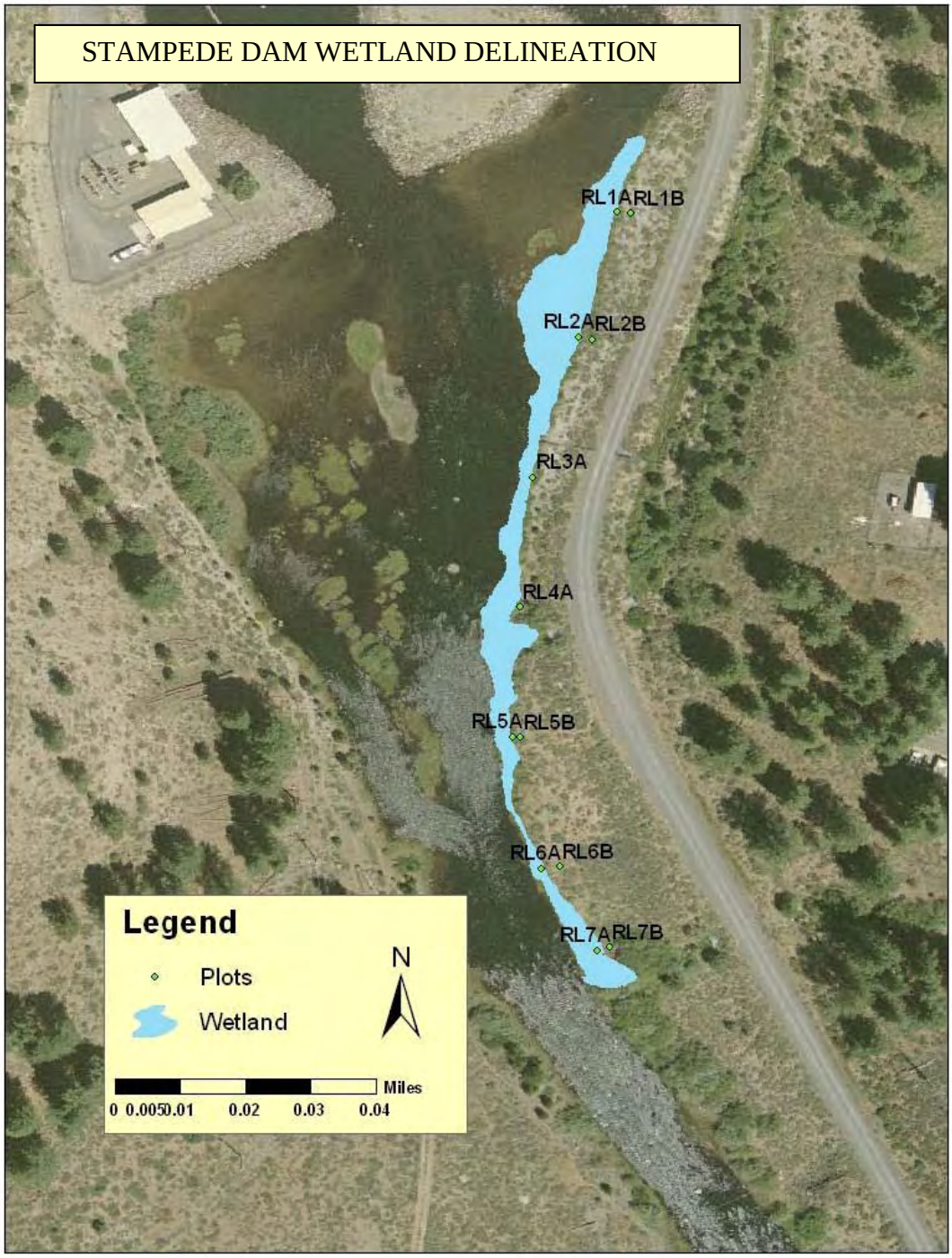


Figure 3-4.—A 0.262-acre wetland delineated along the bank of the Little Truckee River below Stampede Dam. This area would be avoided during construction.

side of the powerplant road. These features are dominated by hydrophytic vegetation that is influenced directly by stream flow. There is a clear demarcation where the vegetation changes from wetland to upland species in both areas.

Riparian wetlands are typically dominated by a complex of woody riparian species and open to dense emergent herbaceous species. Dominant vegetation includes Geyer's willow, sandbar willow, silver sagebrush, Wheeler's bluegrass, salt sedge, smallwing sedge and baltic rush.

3.7.1.2 Seasonal Wetland

The seasonal wetland near the junction of the Dog Valley Road and Boat Ramp Road is a depressional feature that is saturated seasonally. The area receives runoff from the adjacent road and valley slopes. The dominant hydrophytic vegetation in the seasonal wetland is annual hairgrass, wild hyacinth, and Sandberg bluegrass.

3.7.2 Environmental Consequences

3.7.2.1 Alternative 1 – No Action Alternative

Under the No Action alternative no direct impacts to jurisdictional wetlands would occur because the project would not be constructed.

3.7.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

3.7.2.2.1 Stampede Reservoir Operations

There would be no change to the OHWM or the 100-year flood plain within Stampede Reservoir resulting from reservoir operations after the Stampede Dam SOD Modifications were implemented. Under normal operating conditions reservoir levels would continue to operate at or below the existing OHWM at the existing spillway crest elevation of 5952.7 feet. The Little Truckee River 100-year flood plain within the reservoir would continue to be at elevation 5957.8 feet. Following any extreme flood event, Reclamation would manage Stampede Dam to safely reduce flood waters in Stampede Reservoir as quickly as possible until the water surface elevation returned to current operating levels.

3.7.2.2.2 Fill within Waters of the United States

Some proposed Stampede Dam SOD Modifications would involve the temporary or permanent discharge of fill material into waters of the United States and would fall under jurisdiction of the USACE Clean Water Act Section 404 permit process. Proposed project features that would require a temporary discharge of fill material below the OHWM within Stampede Reservoir include the temporary cofferdam at the spillway structure and the saddle dike haul road. The secondary

borrow area haul road is designated for contingency use only, but would also generate some temporary fill if utilized. Permanent fill within waters of the U.S. is proposed for installation of a debris boom anchor near the spillway and to construct the east saddle dike. No compensatory mitigation for impacts to other waters of the U.S. (Stampede Reservoir) is proposed because the nature of the activities and the minimization measures (BMPs) would result in short-term and minor impacts. Specific mitigation measures addressing the discharge of fill into waters of the U.S. are described in Section 3.3 Hydrology and Water Quality.

3.7.2.2.3 Avoidance of Wetlands

A proposal to widen the powerplant road has been modified by reducing the width of the road to avoid any impact to the 0.27-acre of wetland located east of the road (figure 3-2). No construction activity is proposed that would affect the wetland area along the banks of the Little Truckee River and the area would be avoided during construction (figure 3-4). Prior to construction, Reclamation will identify and mark these wetland features in the field and direct the contractor to avoid any impacts to these areas. Reclamation will inspect and maintain flagged areas on a regular basis throughout construction.

Haul roads 5 and 6 (figure 2-2) are optional routes the contractor may choose to construct to reduce hauling distances between the primary borrow area and Stampede Dam. If either road is utilized, any wetlands in the area would be delineated and verified by the USACE and the wetlands would be avoided. Haul roads would be designed to avoid wetlands with a 25 foot buffer. The placement of fill material including culverts, riprap, and gravel in any wetland would not be authorized without the contractor first obtaining permits from USACE and the Lahontan RWQCB.

3.7.2.2.4 East Saddle Dike Seasonal Wetland

Reclamation investigated an alternative location for the East Saddle Dike. A dike location just west of the Boat Ramp Road and perpendicular to the Dog Valley Road was considered. This location was determined to be unsuitable for the saddle dike due to significant road relocation issues, including potential public safety concerns. Raising the elevation of the Dog Valley Road and leaving the road pattern intact would not provide containment for elevated reservoir water levels during a PMF event. Therefore, the proposed East Saddle Dike location is Reclamation's preferred alternative and would result in the direct impact to 0.06 acres of wetland. However, road relocation and culvert realignment at the junction of the Dog Valley and Boat Ramp Roads would alter drainage patterns currently generated by road runoff which are estimated to provide most of the water sustaining the seasonal wetland. Therefore, construction of the East Saddle Dike is anticipated to result in the permanent loss of 0.245 acre of seasonal wetland in this area.

3.7.2.2.5 Wetland Mitigation Area

Reclamation has submitted a Conceptual Wetland Mitigation and Monitoring Plan to the USACE and Lahontan Water Board detailing a proposal to mitigate the permanent loss of 0.245 acre of seasonal wetland at the east saddle dike. Reclamation is proposing to construct a 1-acre wet meadow in the primary borrow area where groundwater hydrology has been investigated and results indicate a high likelihood of success (figure 2-2). The wetland mitigation site is expected to provide aquatic functions of equal or greater measure than the impact site.

The primary borrow area has been selected for the creation of wetlands to mitigate for the loss of seasonal wetlands at the east saddle dike for several reasons: (1) Mitigation will be completed on-site and within the impacted watershed. (2) The borrow area's historic status as wetland/riverine habitat indicates that wetland creation will have a high likelihood of success. Groundwater will provide sufficient water to maintain saturated conditions through the growing season. (3) There will be a cost savings in equipment mobilization because the area is planned for some excavation for the MSE raise.

The compensation ratio proposed was determined using guidance issued in a public notice by the Sacramento District Corps of Engineers Regulatory Division on February 10, 2012. To achieve a 2.7:1 replacement for impacts to 0.245 acres of seasonal wetlands with an adequate margin of error, a minimum of 1.0 acre of seasonal wetland/wet meadow will be constructed. To meet the compensation ratio, a minimum of 0.67 acre of constructed wetlands (67 percent of total constructed) must satisfy the following criteria for three successive years without human intervention:

a. The plant community within the constructed wetlands must be dominated by species with a wetland indicator status of Facultative, Facultative wetland, or Obligate.

b. The absolute plant cover within the constructed wetland must be at least 70 percent.

c. The wetlands must be inundated or saturated to the surface for approximately 14 days during the growing season in normal rainfall years.

The Final Wetland Mitigation Plan will be developed in coordination with USACE and the Lahontan RWQCB.

Reclamation will complete preliminary grading work on the wetland mitigation area during construction of the Stampede Dam SOD Modification project. Reclamation will complete the implementation of the Wetland Mitigation Plan as soon as practicable following completion of the SOD modification.

Reclamation will conduct monitoring and maintenance activities on the wetland post-construction. Monitoring will demonstrate that the wetland area has achieved success criteria defined in the EA and Wetland Mitigation Plan for three successive years without human intervention. These criteria must be met prior to acceptance of the wetland mitigation area by the USACE as compensation for the loss of seasonal wetland resulting from the Stampede Dam SOD Modification project.

By implementing the Wetland Mitigation Plan, impacts to wetlands from the Stampede SOD Modification would be minor.

3.8 Threatened, Endangered, and Candidate Species

3.8.1 Affected Environment

Under Section 7 of the Endangered Species Act of 1973, as amended, Federal agencies are prohibited 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. In coordination with the USFWS, Reclamation has determined that one federally listed threatened fish species and four Federal candidate species may occur in or near the project area. These species include threatened LCT and candidate species mountain yellow-legged frog, fisher, Webber's ivesia, and the wolverine.

3.8.1.1 Lahontan Cutthroat Trout (Onchorhynchus clarki henshawi)

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 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.

3.8.1.2 Mountain Yellow-legged Frog (Rana muscosa)

The mountain yellow-legged frog (*Rana muscosa*) is listed as a USFWS candidate species under the ESA, 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 from Stampede Dam or in the Stampede Reservoir area.

3.8.1.3 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.

3.8.1.4 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 a plant that 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.

3.8.1.5 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. The wolverine was subsequently placed on the candidate species list. The USFS sensitive species list includes the California Wolverine *Gulo gulo luteus*. This subspecies is not well defined, however. It appears that the wolverine, regardless of subspecies classification, has been extirpated from most of its range in the contiguous United States. There are,

however, signs of semi-recovery in selected Western States including Oregon, Washington, Montana and Wyoming, and most recently, sightings have been documented in California.

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 (SPI) 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 USFS'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.

3.8.2 Environmental Consequences

3.8.2.1 Lahontan Cutthroat Trout

Recovery populations of LCT are not present in the area affected by proposed construction activities.

3.8.2.2 Mountain Yellow-Legged Frog

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

3.8.2.3 Fisher

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

3.8.2.4 Webber's Ivesia

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

3.8.2.4.1 Alternative 1 – No Action Alternative

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

3.8.2.4.2 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.

3.8.2.5 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.

3.8.2.5.1 Alternative 1 – No Action Alternative

No impacts to the wolverine would occur.

3.8.2.5.2 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. The Preferred Alternative would have no effect on wolverine or their habitat.

3.9 Transportation

3.9.1 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 9 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, improved gravel road for approximately 2 miles. See figure 2-8. The travel time from either I-80 exit to Logger Campground is about the same, 22 minutes.

Stampede Meadows Road is used by recreational traffic to access Boca Reservoir, the Little Truckee River between Boca Reservoir and Stampede Dam, Stampede Reservoir, USFS campgrounds and boat ramp at Stampede Reservoir, and points beyond until its terminus at Henness Pass Road. Access to the campgrounds is

provided by the 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 fishing access parking area and the Forest Service Stampede Work Center 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 3-6. 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 the County of Nevada.

Table 3-6.—Traffic counts

Year	Road	Count location	24-hour volumes					Peak hour	
			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] County of Nevada.

3.9.2 Environmental Consequences

3.9.2.1 Alternative 1 – No Action

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

3.9.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Construction is expected to span three years due to migratory bird considerations and anticipated winter shut downs. As a result, the first construction period, lasting approximately 30 days following the day after Labor Day, would be used for site clearing to avoid conflict with migratory bird nesting. The other two periods, each extending from April through October, about 30 weeks, would be used to construct the proposed modification. The proposed MSE raise would likely be constructed during the second and third construction seasons. The roadway on top of the existing dam crest, Dog Valley Road, would be closed during construction of the MSE raise including the winter months between the second and third construction periods.

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 would assure emergency responders in the area were notified 30 days 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 creating impacts on use of recreational facilities, precluding moving sheep, increasing traffic on the roads on the west side, dust generation, and the potential for increased vehicle and vehicle pedestrian accidents.

In response to these concerns, the currently unpaved segment of Dog Valley Road shown in Figure 2-8 would be chip-sealed to facilitate public access to the west side of Stampede Reservoir and its associated recreation opportunities. In addition, to minimize potential effects Reclamation purposefully designed the proposed modification so it could be constructed without requiring access from the west side although its contractor will not be precluded from using this route. Reclamation will execute road easement agreements with the County of Nevada and Sierra County to provide details on the implementation of providing an all-weather surface to the 2 miles of unpaved Dog Valley Road between State Highway 89 and the junction of the Captain Roberts Boat Ramp Road. These easements will be executed prior to implementation of the preferred alternative should it be selected.

Reclamation would work with CALTRANS to assure adequate notice of the road closure and alternative routes were provided to the public. In addition to highway signage, other notification options including hotline and radio information would be considered. Reclamation would provide public notices about the construction project, temporary closures, open facilities, and alternate access routes before construction began with updates throughout construction process.

The contractor will be required to prepare a traffic control plan and temporary traffic signage plans for all work areas including signage to inform the public of alternate routes to Stampede Reservoir. As noted above, the contractor will be required to maintain access during construction to the fishing access parking area downstream of Stampede Dam and the boat ramp, campgrounds, and other recreational amenities associated with Stampede Reservoir except the Vista area.

The Contractor's traffic control plan must:

- Follow the Caltrans Standard Specifications.

- Follow the Federal Highway Administration Manual on Uniform Traffic Control Devices.

- Be approved by Sierra County and County of Nevada.
- Include plans:
    - For work areas and haul routes.
    - To provide flaggers and guards as required to prevent accidents and damage or injury to passing traffic. A flagger shall be provided at the intersection of Stampede Dam Road and the powerplant access road for the purpose of safe public access to the fishing access parking area.
    - To maintain traffic flow and conduct construction operations to minimize obstruction and inconvenience to public traffic.
    - To protect roads closed to traffic with effective barricades and warning signs and illuminate barricades and obstructions from sunset to sunrise.

The Contractor will be required to coordinate with Caltrans, Sierra County, and County of Nevada for temporary traffic signage plans. The Contractor's temporary traffic signage plans must:

- Be approved by Sierra County and County of Nevada.
- Include temporary traffic signage plans for Interstate Highway 80, State Highway 89, and county roads regarding public access and detours.
- Include but not be limited to:
    - Modification of existing signage on Interstate 80 indicating the detour route to Stampede Reservoir during construction.
    - Installation of signs on State Highway 89, county, and local roads indicating the detour route to Stampede Reservoir.
    - Road closure signs indicating the segment of Dog Valley Road to be closed during construction.
    - Detour signs indicating detour routes when working in the saddle dikes borrow areas, on the saddle dikes, and realigning existing roads as needed.

Temporary signage will be removed when no longer needed.

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 weekday traffic at the intersection of Stampede Dam Road and Dog Valley Road during the two 30-week/150-day construction periods are shown in table 3-7. The greatest increase in construction generated traffic could occur during the second year of construction.

Table 3-7.—Estimates of average construction related weekday traffic at the intersection of Stampede Dam Road and Dog Valley Road

	Year 2 Via Stampede Meadows/Stampede Dam Road	Year 3 Via Stampede Meadows/Stampede Dam Road
Estimated average round trips per day – materials	36	30
Estimated average one-way trips per day – Total	72	60
Average weekday traffic – Intersection Stampede Dam Road/Dog Valley Road	139	139
Estimated average weekday construction traffic – Intersection Stampede Dam Road/Dog Valley Road	211	199
Estimated percent increase average weekday traffic due to construction traffic – Intersection Stampede Dam Road/Dog Valley Road	52	43

Average weekend traffic at the intersection of Stampede Dam Road and Dog Valley Road is estimated to be 422. Should work be required on weekends, the percent of construction related traffic would be less than weekdays.

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.

3.10 Recreation

3.10.1 Affected Environment

3.10.1.1 Stampede Reservoir

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. The USFS 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 peak recreation season is Memorial Day through Labor Day. The USFS collects $22.00–43.00-per-night user fees for the campsites and $77.00-$164.00 for the group facilities through a campground concessionaire. A Transient Occupancy Tax, also known as ―Bed Tax," is a voter approved tax collected from tourists and other people visiting from out of the area when they rent a motel room, campsite or RV space in Sierra county for 30 days or less. The tax is 10 percent of the total bill for lodging and assists in paying for county services such as law enforcement, ambulances, parks and promotion of tourism. A total of $300,206 was collected from all Sierra County sources in 2008-09.

The Stampede Vista Point Area is a no fee, day use picnic area located on the south shore of Stampede Reservoir. The tree lined area overlooks the Reservoir and provides parking, picnic tables, BBQs, potable water, and two vault toilets. Within the area a boardwalk leads to a gazebo which provides unobstructed views of the Reservoir.

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 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.

3.10.1.2 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 ft^3/s 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.

3.10.2 Environmental Consequences

3.10.2.1 Alternative 1 – No Action

Under the No Action alternative, no construction would occur at Stampede Dam. There would be no impacts to recreation.

3.10.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

3.10.2.2.1 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 second and third years of the construction effort including the winter months between these two construction periods.

The entrance road to the Stampede Reservoir Vista Point Area would be relocated in order to match the Dog Valley Road's new higher elevation and to facilitate using the Vista Point as a staging and stockpiling and vehicle turn-around area during construction. The boardwalk and gazebo overlook will be avoided during construction. The picnic tables, one vault toilet, and the water line serving the site would be removed for construction; the facilities would be replaced in alternate locations at the Vista Point post-construction. Reclamation will continue to coordinate with the USDA Forest Service, Tahoe National Forest to develop the final plan for relocating or modifying recreational facilities at the Vista Point Area. The plan for the Vista Point Area will be completed prior to implementation of the preferred alternative should it be selected.

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. In addition , the currently unpaved segment of Dog Valley Road shown in figure 2-8 would be chip-sealed to facilitate public access to the west side of Stampede Reservoir and its associated recreation opportunities. To minimize potential conflicts between construction, local area, and recreation traffic, Reclamation purposefully designed the proposed modification so it could be constructed without requiring access from the west side although its contractor would not be precluded from using this route.

Construction of this alternative would be expected to occur 10 hours per day, five days per week. While no work is planned at night, if it were to occur, noise levels measured at the campgrounds would be limited to 35 dBA at night. Further discussion on noise is presented in Section 3.16.

Construction lighting effects were identified as a concern in the comments received on the draft EA. Light pollution is the illumination of the night sky by artificial light. Light scatters through the atmosphere and brightens the sky, diminishing the view of it. Not all light goes straight up. It can also reflect down and scatter in horizontal directions. From a distance, scattered light can look like a ~~l~~light blob" directly over the source. The International Dark-Sky Association recommends avoidance and minimization measures to limit the impacts of light pollution. These include not performing night-time work, shining lights down, and shielding lights. Since work may occur at night, Reclamation cannot avoid impacts from light pollution. However, the contractor will be required to direct stationary floodlights to shine downward at an angle less than horizontal; shield floodlights so that floodlights will not be a nuisance to surrounding areas; direct lighting so that campground areas are not in direct beam of light; and correct lighting control problems when they occur as approved by the Contracting Officer's Representative.

Reclamation would request the USFS to temporarily close selected roads during construction in consideration for public safety. Constructing the east saddle dike would require realigning a segment of the USFS paved road to the Captain Roberts Boat Ramp. Options to minimize impacts to recreational traffic to the Boat Ramp during construction include re-routing recreational traffic through the Logger Campground and scheduling saddle dike construction outside the peak recreation season. Constructing the west 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.

Reclamation would provide public notices about the construction project, temporary closures, open facilities, and alternate access routes. Given that the currently unpaved portion of Dog Valley Road would be chip-sealed providing better access to the reservoir and recreation facilities during construction effects to area reservoir related recreation would be expected to be minimal.

3.10.2.2.2 Little Truckee River between Stampede and Boca Reservoirs

A safe turnout and parking area for fishing access during construction would be provided as shown in figure 2-2. Thus, there would be no interruption to recreation in this area.

3.11 Visual Resources

3.11.1 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.

3.11.2 Environmental Consequences

3.11.2.1 Alternative 1 – No Action

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

3.11.2.2 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.

3.12 Hazardous and Toxic Materials

3.12.1 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. A site survey conducted during final design did not reveal any hazardous materials or substances in the borrow area that could be exposed or would need to be removed.

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.

3.12.2 Environmental Consequences

3.12.2.1 Alternative 1 – No Action

As noted above, a site survey conducted during final design did not reveal any hazardous materials or substances in the borrow area that could be exposed or would need to be removed.

3.12.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

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.

3.13 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 (National Register) are referred to as historic properties. The criteria for National Register 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.

Compliance with Section 106 of the 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 NHPA Section 106 process before the undertaking can be implemented. Section 106 of the NHPA requires consultation with the State Historic Preservation Officer (SHPO), Indian Tribes, and other interested parties throughout the process.

3.13.1 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 broad study area, totaling approximately 1,424-acres, which would

encompass the entire project area and any APE as defined by 36 CFR Part 800. The project area was subsequently refined to an APE of approximately 475 acres based on the technical specification drawings dated December 28, 2011 produced by the Denver Technical Service Center and is expected to include all activities in the final design. This area includes the land around Stampede Reservoir between elevation 5967.3 feet (existing maximum RWS) and elevation 5981.5 feet (new maximum reservoir water surface); a work area at Stampede Dam; a construction area for two dikes between the south shore of Stampede Reservoir and Dog Valley Road and their associated borrow area (approximately 14 acres); and two borrow areas: one at the toe of Stampede Dam where existing material was stockpiled for dam construction, and one within a portion of the existing Borrow Area F that was used for original dam construction. This section summarizes known cultural resources within the APE.

In an effort to identify historic properties, Reclamation reviewed its archaeological site index and project data, coordinated with USFS for information on cultural resources, initiated a records search by the Northeastern Information Center 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. In 2010, Reclamation archaeologists conducted a pedestrian survey of the entire study area, including the subsequently defined APE, and documented Stampede Dam.

3.13.1.1 Survey Results

Records searches, consultation, and archaeological pedestrian survey identified 26 sites within the APE. Those 26 sites include 20 previously recorded sites and 6 new sites recorded by Reclamation in 2010. Of these sites, 10 are prehistoric, 9 are historic, and 7 are multiple component. Stampede Dam was also recorded as a historic site. The prehistoric site types include both simple and complex scatters of chipped stone tools and debris from tool manufacturing, a bedrock mortar, and a habitation site. Resources such as these are indicative of a wide range of repetitive activities, seasonal foraging strategies, trade, and mobility of the Native Americans along the Truckee River.

The historic sites are generally a product of logging and ranching activities in the Truckee Basin, and later Reclamation water project development. A system of railroad grades built by the Sierra Nevada Wood and Lumber Company (later Hobart Mills) and Boca and Loyalton Railroad Company are still evident, along with some debris associated with the grades (telegraph wire, brick, stone masonry, cans, glass, etc.). Remnants of dairy ranch infrastructure associated with the Euer Dairy, Payen Dry Valley Ranch, and Perrazo Dairy are represented by building foundations and historic refuse deposits (cans, glass, wood, concrete, etc.). Segments of Overland Emigrant Trail and the Lincoln Highway are also located in Stampede Valley, and are indicative of the early transportation that supported

settlement and economic development in the Truckee Basin. The multi-component sites have characteristics that suggest over-lapping prehistoric and historic land use in the Truckee Basin as previously described (Barnes et al. 2012).

3.13.1.2 Determinations of Eligibility

Only four of the 26 sites located within the APE have previously been evaluated for National Register eligibility. One site, the Overland Emigrant Trail, is a National Historic Trail; however, the segments within the APE have not been evaluated. Additionally, another resource, the Sierra Nevada Wood and Lumber Company Railroad grade system, was evaluated by the USFS and determined not eligible for listing on the National Register; this determination is currently pending SHPO review and concurrence under separate submission by the USFS. Reclamation applied the National Register criteria of evaluation to two historic refuse scatters, Stampede Dam, and the Stampede Valley Lincoln Highway segment and determined that the dam and the two refuse scatters are not eligible for inclusion on the National Register. Reclamation determined that the northern segment of the Stampede Valley Lincoln Highway segment is eligible for inclusion on the National Register and that the southern segments are ineligible. This determination is currently pending SHPO review. Eighteen other identified cultural resources currently remain unevaluated.

3.13.1.3 Consultation

Reclamation has assumed the role of lead Federal agency for Section 106 compliance for this project. The USFS manages lands around the reservoir and is a consulting party, and the USACE was also identified as a Federal agency that will have a permitting role in the project. Reclamation, as the lead Federal agency, initiated consultation with the California SHPO on April 13, 2011. Consultation with Indian Tribes and other parties was initiated on April 6, 2010, and December 22, 2011, respectively, to invite their participation in the Section 106 process. Consultations are ongoing with development of a Programmatic Agreement (PA) to meet agency Section 106 compliance responsibilities.

3.13.2 Environmental Consequences

3.13.2.1 Alternative 1 – No Action

Under the No Action Alternative, there would be no impacts to cultural resources or historic properties from the proposed action. Reclamation would continue operating the dam and reservoir to meet water supply and delivery commitments. Current effects to historic properties from existing activities would likely continue within the APE.

3.13.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Under this alternative, the 26 identified sites have the potential to be affected by filling of the reservoir above the 5967.3 feet elevation (existing maximum RWS) due to a flood event. The effects on historic properties cannot be fully determined prior to approval of the undertaking and assessments of effects may be phased. Therefore, Reclamation, USFS, and the U.S. Army Corps of Engineers, in consultation with the California State Historic Preservation Office and Indian Tribes intend to enter into a Programmatic Agreement (PA) to fulfill their National Historic Preservation Act (NHPA) Section 106 responsibilities, as allowed under 36 CFR § 800.14(b). The PA will address avoidance, minimization, and mitigation measures for historic properties to be implemented prior to implementation of this alternative, including any associated ground disturbing activities.

3.13.2.2.1 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 on cultural resources discoveries defined in the PA. 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 NAGPRA. The project would not resume until all compliance requirements are met and the appropriate Federal agency provides a written notice to proceed.

3.14 Indian Sacred Sites

3.14.1 Affected Environment

No Indian sacred sites, as defined under Executive Order 13007, are known to exist within the project area and no such sites have been identified through consultations with Indian Tribes.

3.14.2 Environmental Consequences

3.14.2.1 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.

3.14.2.2 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.

3.15 Indian Trust Assets

Indian Trust Assets (ITAs) 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.

3.15.1 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.

3.15.1.1 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 ~~"~~all 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.

3.15.1.2 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 Operating Criteria and Procedures (OCAP) with 100 percent delivery guaranteed, down to a 55.6 percent 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.

3.15.1.3 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.

3.15.1.4 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).

3.15.2 Environmental Consequences

3.15.2.1 Alternative 1 – No Action

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

3.15.2.2 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 ITAs by protecting stored water for downstream fishery enhancement releases. No adverse impacts to ITAs have been identified.

3.16 Noise

3.16.1 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 Dam and dike at elevation 5974 feet are located approximately 4,000 to 1,000 feet respectively from the Emigrant Group Campground at

elevation 6025 feet. As described in Section 3.6 Vegetation, these features are located in a mature eastside pine forest with an average of 90, 80-foot tall trees per acre.

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

Ambient noise levels at Stampede Reservoir are reported in the Sierra County General Plan. Noise levels were measured on Thursday August 29, 1991 at three different time intervals and the day-night average calculated. The results are shown below (Sierra County 2012):

11:22 a.m.	61 dBA
4:13 p.m.	58 dBA
11:29 p.m.	36 dBA
Day-night average	41 dBA

August 29 is within the peak recreational season between Memorial Day and Labor Day. Ambient noise levels are expected to be higher on weekends during this time. During off-peak times of the year, ambient noise levels are likely to be lower.

Relevant noise limits have not been established by Sierra County; it has not adopted the County Plan Noise Element. Quiet hours at the USFS campgrounds are from 10:00 p.m. until 7 a.m.

Representative outdoor and indoor noise levels in units of dBA are shown in table 3-8

Sound waves refract in different ways depending on the air temperature. Sound waves tend to bend towards cooler temperatures. Late at night on calm lake surfaces, sound waves bend downward towards the ground and if the ground is

Table 3-8.—Representative outdoor and indoor noise levels (in units of dBA)

At a given distance from noise source	A-weighted sound level in decibels	Noise environments	Subjective impression effect
	— 140 —		
Civil defense siren (100')	— 130 —		
Jet takeoff (200')	— 120 —		Pain threshold
	— 110 —	Rock music concert	
Diesel pile driver (100')	— 100 —		Very loud Hearing damage after 15 minutes of exposure
	— 95 —		Repeated exposure risks permanent hearing loss
Heavy truck (50’)	— 90 —	Boiler room	Very annoying Hearing damage (8 hrs)
Freight cars (50')		Printing press plant	
Pneumatic drill (50')	— 80 —		Annoying, intrusive Interferes with conversation
Freeway (100')		In kitchen with garbage disposal running	
Vacuum cleaner (10')	— 70 —		Moderately loud Intrusive, interferes with telephone conversation Noise begins to harm hearing
		Data processing center	
Air conditioning unit (20’)	— 60 —		Intrusive
		Department store	
Light traffic (100')	— 50 —		
Large transformer (200')		Private business office	
	— 40 —		Quiet
		Quiet bedroom	
Soft whisper (5')	— 30 —		Very quiet
		Recording studio	
	— 20 —		
	— 10 —		Threshold of hearing
	— 0 —		

reflective, the sound bounces off the ground moving the sound wave much farther than may be expected. Since still water is highly reflective, even quiet conversations may be heard from opposite ends of a lake.

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 noise levels would continue.

3.16.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

The MSE Raise would take approximately 15 months and require the use of construction equipment such as trucks, cranes, generators, and loaders. Neither blasting nor pile driving would be used to implement the SOD modification.

Work is expected to occur 10 hours per day, five days per week. While no work is planned at night, if it were to occur, noise levels measured at the campgrounds would be limited to 35 dBA at night.

The engines and motors associated with the equipment would temporarily elevate noise levels in the construction zone. As shown in table 3-9, typical noise levels of individual pieces of construction equipment range from 80 to 107 dBA at a distance of 25 feet and, 62 to 89 dBA at a distance of 200 feet. Construction equipment used to raise the MSE crest structure and build the associated roads and other features including the east saddle dike would be more than 200 feet from the campsites, thus the noise levels would be less than shown in table 3-9. The east saddle dike would be constructed outside the peak recreation season. During construction of the east saddle dike only the furthest from construction campsites would be occupied due to the decreased demand outside the peak season.

Several pieces of equipment would be operating concurrently within the construction zone and vary day to day throughout the construction period. Although noise from multiple sources within the same location is louder than a single source, the decibel is measured on a logarithmic scale thus noise levels cannot be added by simple addition. Two noises of equal level (± 1dB) combine to raise the noise level by 3 dB. However if two noises differ by more than 10 dB, there is no combined increase in the noise level; the higher output covers any other noise. Thus, the noise levels outside the construction zone would be less than those shown in table 3-9 and continue to decrease with distance. With the night time noise level restricted at the campgrounds, expected noise impacts would be minimal.

Table 3-9.—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

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 3-10. As shown in table 3-10, at 100 feet away, the highest level of groundborne vibration would be 75 VdB generated by bulldozers working within the construction zone. Vibration levels from all construction zone activities would have attenuated to acceptable levels at the campgrounds.

Table 3-10.—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 minimal and temporary.

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

3.17 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.

3.17.1 Affected Environment

Stampede Dam and Reservoir are located in Sierra County California within the Tahoe National Forest. The Census blocks adjacent to the dam and reservoir showed no population. Since the dam and reservoir are primarily accessed via Nevada County California, Nevada and Sierra Counties California were selected as the local study area. Table 3-11 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 3-11.—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 and 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 3-12 provides income, poverty, unemployment, and housing information for each county and the State (U.S. Census Bureau 2000).

Table 3-12.—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.

3.17.2 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.

3.17.2.1 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.

3.17.2.2 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.

3.18 Air Quality

The Federal Clean Air Act Amendments of 1970 established National Ambient Air Quality Standards (NAAQS) for six ―criteria pollutants": photochemical ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), inhalable particulate matter (PM) up to 2.5 microns in diameter ($PM_{2.5}$) and from 2.5 to 10 microns in diameter (PM_{10}), and lead (Pb). The California CAA of 1977 created stricter California Ambient Air Quality Standards (CAAQS) for the six criteria pollutants pertaining to the State. The CAAQS also set standards for sulfates, hydrogen sulfide, and visibility. Table 3-13 depicts the standards for both the NAAQS and CAAQS, and represents minimum acceptable concentrations of a particular pollutant to ensure that the air we breathe is considered healthy. When an area exceeds these standards, it is designated as ―non-attainment" by the California Air Resources Board (CARB) for CAAQS and by the U.S. Environmental Protection Agency (EPA) for NAAQS.

Section 176 (C) of the Federal CAA (42 U.S.C. 7506 (C)) requires any entity of the Federal Government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity to demonstrate that the action conforms to the applicable State Implementation Plan[3] (SIP) required under Section 110(a) of the Federal CAA (42 U.S.C. 7401 (a)) before the action is otherwise approved. In this context, conformity means that such Federal actions must be consistent with the SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious

[3] The SIP is the State's plan to attain the NAAQS for nonattainment pollutants.

Table 3-13.—Ambient air quality standards and attainment status

Pollutant	Averaging time	California standards[1] concentration	National standards concentration	Attainment status for NSAQMD					
				Nevada County		Sierra County		Plumas County	
				State	Federal	State	Federal	State	Federal
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m^3)	–	N	U/A, N[2]	U	U/A	U	U/A
	8 hours	0.070 ppm (137 µg/m^3)	0.075 ppm (147 µg/m^3)						
Respirable particulate matter (PM_{10})	24 hours	50 µg/m^3	150 µg/m^3	N	U	N	U	N	U
	Annual average	20 µg/m^3	–						
Fine particulate matter ($PM_{2.5}$)	24 hours	–	35 µg/m^3	U	U/A	U	U/A	U, N[3]	U/A
	Annual average	12 µg/m^3	15 µg/m^3						
Carbon monoxide (CO)	1 hour	20 ppm (0.023 µg/m^3)	35 ppm (0.04 µg/m^3)	U	U/A	U	U/A	A	U/A
	8 hours	9.0 ppm (0.01 µg/m^3)	9.0 ppm (0.01 µg/m^3)						
Nitrogen dioxide (NO_2)	1 hour	0.18 ppm (339 µg/m^3)	0.10 ppm (188 µg/m^3)	A	U/A	A	U/A	A	U/A
	Annual average	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)						
Sulfur dioxide (SO_2)	1 hour	0.25 ppm (665 µg/m^3)	0.075 ppm (196 µg/m^3)	A	U	A	U	A	U
	3 hours	–	0.5 ppm (1300 µg/m^3)						
	24 hours	0.04 ppm (105 µg/m^3)	0.14 ppm						
	Annual average	–	0.030 ppm						
Lead (Pb)	30-day average	1.5 µg/m^3	–	A	U/A	A	U/A	A	U/A
	Calendar quarter	–	1.5 µg/m^3						
	Rolling 3-month average	–	0.15 µg/m^3						

A = attainment **N = non-attainment** **U = unclassified or unclassifiable**

Source: http://www.arb.ca.gov/desig/desig.htm

[1] The CAAQS for sulfates, hydrogen sulfide, and vinyl chloride, in addition to their attainment status can be found at the Web site above.
[2] Only western Nevada County is non-attainment for the Federal ozone standard.
[3] Only the Portola Valley area is non-attainment for the State $PM_{2.5}$ standard.

ppm = parts per million
µg/m^3 = micrograms per cubic meters

attainment of those standards. Each Federal agency must determine that any action that is proposed by the agency and that is subject to the regulations implementing the conformity requirements would, in fact conform to the applicable SIP before the action is taken.

On November 30, 1993, the U.S. EPA promulgated final general conformity regulations (40 CFR 93 Subpart B) for all Federal activities except those covered under transportation conformity. The general conformity regulations apply to a proposed Federal action in a non-attainment or maintenance area if the total of direct and indirect emissions of the relevant criteria pollutants and precursor pollutant caused by the Preferred Alternative equal or exceed certain *de minimis* amounts thus requiring the Federal agency to make a determination of general conformity. If the Federal agency determines that the general conformity regulations do not apply to the Preferred Alternative (meaning the project emissions do not exceed the *de minimis* thresholds and are not regionally significant[4]), then no further analysis or documentation is required.

In 2009, the Northern Air Quality Management District (NSAQMD) developed local thresholds for NO_x, reactive organic gases (ROG), and PM_{10} pursuant to Section 15382 and Appendix G of the California Environmental Quality Act (CEQA) guidelines. In addition to the thresholds, guidance on land use impacts on air quality within the district can be found within the NSAQMD's draft, *Guidelines for Assessing and Mitigating Air Quality Impacts of Land Use Projects* (NSAQMD 2009). Table 3-14 shows the NSAQMD's threshold levels, and if a project's emissions were to meet or exceed those levels then those emissions must be mitigated to the lowest reasonable level possible.

Table 3-14.—NSAQMD threshold levels

NSAQMD thresholds[1,2]			
Pollutant	**Level A**	**Level B**	**Level C**
NO_x	< 24 lbs/day	24 – 136 lbs/day	> 136 lbs/day (25 tons/year)
ROG	< 24 lbs/day	24 – 136 lbs/day	> 136 lbs/day (25 tons/year)
Respirable particulate matter (PM_{10})	< 79 lbs/day	79 – 136 lbs/day	> 136 lbs/day (25 tons/year)

[1] Source: The NSAQMD's Thresholds of Significance are currently in draft form, and were developed pursuant to Section 15382 and Appendix G of the CEQA Guidelines.

[2] If emissions for NO_x, ROG, and/or PM_{10} exceed 136 lbs/day (Level C), then those emissions must be mitigated to the lowest reasonable level (A or B) possible. As appropriate, off-site mitigation and a monitoring and reporting plan will be developed and approved between the action agency and the NSAQMD.

lbs = pounds

[4] Regardless of the Preferred Alternative's emissions relative to the *de minimis* amounts, if the action's total emissions of a given pollutant represents 10 percent or more of the area's total emissions of that pollutant, the action is considered regionally significant and the Federal agency must make a determination of general conformity.

3.18.1 Affected Environment

Stampede Dam Safety of Dams Modification Project is within Sierra County, California, which is within the boundaries of the Mountain Counties Air Basin as defined by the CARB. More specifically, the project location is within the jurisdiction of the NSAQMD, which oversees the counties of Nevada, Sierra, and Plumas.

Stampede Dam and Reservoir are nestled within the Tahoe National Forest. The lands surrounding the reservoir contain day-use and campground facilities. The surrounding area is predominantly rural with the nearest towns of Floristine and Verdi roughly nine miles away. There are no ~~"s~~ensitive receptors" nearby, such as schools and residential neighborhoods. The overall air quality within the NSAQMD is considered good as noted in the district's most recent Annual Air Monitoring Report (NSAQMD 2005). The district experiences overwhelming O_3 transport from upwind areas, primarily from the Broader Sacramento Area and to a lesser degree the San Francisco Bay Area (NSAQMD 2005).

As shown in table 3-7, the NSAQMD has reached Federal and State attainment and/or unclassified status for CO, NO_2, SO_2, and Pb. Federal and State attainment and/or unclassified status for $PM_{2.5}$ have been reached in most areas of the district except for the Portola Valley in Plumas County which exceeds the State standard. Federal unclassified status has been reached for PM_{10} but is in non-attainment status for State. State O_3 status is unclassified for Sierra and Plumas counties, but is in non-attainment for Nevada County. Federal O_3 status is attainment and/or unclassified in all three counties within the NSAQMD, except for the western portion of Nevada County which is non-attainment. The pollutants of greatest concern for the NSAQMD are PM_{10} and O_3 (including ozone precursors such as ROG and nitrogen oxides [NO_x]).

3.18.2 Environmental Consequences

3.18.2.1 Alternative 1 – No Action

There would be no effect on conditions and trend in air quality within the NSAQMD.

3.18.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

Construction emissions would vary from day to day and by activity, depending on the timing and intensity of construction, and wind speed and direction – with each activity having its own potential to release emissions. Generally, air quality impacts from the Preferred Alternative would be localized in nature and decrease with distance. The proposed dam raise would result in the temporary emissions of fugitive dust and vehicle combustion pollutants during the following construction and other activities:

- On-site earthwork (cut/fill, excavation, compacting, and stockpiling)
- On-site construction equipment and haul truck engine emissions
- Off-site haul truck engine emission
- On-site and off-site haul truck fugitive dust emissions for paved and unpaved road travel
- On-site materials processing (assumed to be primarily crushing and sorting operations)

Construction timeframes include (depending on weather and other limiting factors):

- Annual construction window from April 1 to October 31
- 15-month duration, starting in fall 2012 through 2014

Table 3-15 shows the construction equipment types required by year and the estimated hours of usage.

Calculated emissions from the Preferred Alternative include NO_x and ROG (as ozone precursors) and PM_{10}, and in general were estimated using various emissions models and spreadsheet calculations, depending on the source and data availability. Fugitive dust (PM_{10}) and ROG emissions from construction and ground disturbing activities were calculated using the 2007 URBEMIS software (version 9.2.4), O_3 precursors and PM emissions from off-road vehicles were calculated using the OFFROAD2007 Model, and O_3 precursors and PM_{10} emissions from on-road vehicles were calculated using the EMFAC2007 model. Total emissions are presented in table 3-16.

The Preferred Alternative has been estimated to approximately produce no more than 31 tons/year of NO_x and no more than 5.2 tons/year of ROG which is below the Federal *de minimis*; therefore, a general conformity analysis is not required.

The NSAQMD's local threshold levels, ROG and PM_{10} have been estimated to be below the 25 tons/year threshold during any given construction year. However, NO_x emissions in 2013 are estimated to be 30.9 tons/year, approximately 5.9 tons/year

Table 3-15.—Construction equipment list and usage by year

Equipment type	2012 Hours	2013 Hours	2014 Hours
Pump , 3 HP - gas	67	3445	2364
Truck (Tractor), 380 HP- diesel	46	2400	1646
Truck (Tractor), 450 HP – diesel	21	1104	757
Truck (Tractor), 217 HP- diesel	0	6	4
Truck (Dump), 450 HP – diesel	19	1000	686
Truck (Flatbed), 210 HP – diesel	19	976	670
Truck (Flatbed), 250 HP – diesel	2	84	57
Truck (Flatbed), 210 HP – diesel	0	9	6
Truck (Job Pickup), gas	179	9274	6362
Truck (Job Pickup), 160 HP - diesel	0	6	4
Truck (Water), 250 HP – diesel	42	2149	1474
Truck (Water), 210 HP – gas	1	43	29
Truck (Chassis), 295 HP – gas	2	114	78
Generator, diesel	41	2140	1468
Generator, 270 HP – diesel	5	276	189
Generator, 21 HP – gas	5	279	192
Loader, 75 HP – diesel	34	1756	1205
Loader, 160 HP – diesel	32	1634	1121
Loader, 158 HP – diesel	8	417	286
Loader, 246 HP – diesel	7	369	253
Loader, 72 HP – diesel	4	209	144
Dozer, 238 HP – diesel	30	1551	1064
Dozer, 90 HP – diesel	9	469	322
Dozer, 310 HP – diesel	4	192	132
Crane, diesel	24	1231	844
Crane, 165 HP – diesel	5	236	162
Crane, 85 HP – diesel	1	75	52
Lift, 25 HP – diesel	2	97	66
Compactor, 96 HP – diesel	18	928	637
Compactor, 11 HP – gas	6	334	229
Compactor, 18.9 HP – diesel	4	199	137
Compactor, 138 HP – diesel	2	99	68
Compactor, diesel	1	57	39
Compactor, 163 HP – diesel	1	44	30
Compactor, 80 HP – diesel	1	35	24
Compactor, 100 HP – diesel	0	12	8
Compressor, 90 HP – gas	1	53	36
Compressor, 275 HP – diesel	0	13	9
Excavator, 404 HP – diesel	15	793	544
Grader, 165 HP – diesel	4	200	138
Saw, gas	13	648	445
Saw, 65 HP – gas	1	41	28
Saw, 16 HP – gas	1	35	24
Wood Chipper, 250 HP – diesel	4	210	144
Drill/Boring Machine, diesel	1	66	45
Drill, 173 HP – diesel	0	13	9
Asphalt Paver, 240 HP – diesel	0	18	12
Mixer (Concrete), 11 HP – gas	0	6	4
Sprayer (Seeding), 115 HP – diesel	0	6	4

Table 3-16.—Estimated project emissions and Federal general conformity thresholds

Estimated project emissions (tons/year)[1,2,3]				Federal general conformity *De Minimis* threshold[a,b]
Pollutant	**2012**	**2013**	**2014**	**Tons/year**
ROG (As an ozone precursor)	0.8	5.2	3.5	50
NO_x (As an ozone precursor)	0.2	30.9	18.8	50
PM_{10}	1.01	21.5	14.32	–
Carbon dioxide (CO_2)	45.8	4,485.8	2,891.6	–

[1] Source: URBEMIS 2007 Version 9.2.4
[2] Source: EMFAC2007 Model
[3] OFFROAD2007 Model

[a] Source: 40 CFR 93.153
[b] Serious non-attainment areas

more than the NSAQMD threshold level. In order to reduce NO_x emissions, an environmental commitment to use the following Best Available Control Technologies to reduce PM and NO_x emissions[5] will be implemented:

- Use trucks that are 1998 or newer that meet the 4.0 g/bhp-h (grams per brake horsepower-hour) NO_x certification standard

- Retrofit trucks with NO_x/diesel particulate filter to achieve 85 percent or better PM control and 25 percent or better NO_x control.

Using newer trucks and installing NO_x filters would be expected to reduce NO_x emissions by 25 percent or better. As a result, with implementation of these environmental commitment measures, NO_x emissions in 2013 were recalculated to be 23.2 tons/year, which is below the NSAQMD's threshold level.

As a part of the Preferred Alternative, the following BMPs and emission control measures will be implemented to minimize impacts to air quality and further reduce PM from vehicle travel, ground disturbance, and combustion engine emissions.

[5] Products available and their effectiveness:
http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm
Getting things installed on equipment (who to contact, etc.):
http://www.arb.ca.gov/msprog/decsinstall/decsinstall.htm

In accordance with the NSAQMD's Regulation II, Rule 226: Dust Control, a Dust Control Plan will be developed and provided to the district for approval prior to any surface disturbance, including clearing of vegetation. The following conditions constitute an approvable plan under Rule 226:

- The applicant shall be responsible for ensuring that all adequate dust control measures are implemented in a timely manner during all phases of project development and construction.

- All material excavated, stockpiled, or graded shall be sufficiently watered, treated, or covered to prevent fugitive dust from leaving the property boundaries and causing a public nuisance or a violation of an ambient air standard. Watering should occur at least twice daily, with complete site coverage.

- All areas with vehicle traffic shall be watered or have dust palliative applied as necessary for regular stabilization of dust emissions.

- All on-site vehicle traffic shall be limited to a speed of 15 mph on unpaved roads.

- All land clearing, grading, earth moving, or excavation activities on a project shall be suspended as necessary to prevent excessive windblown dust when winds are expected to exceed 20 mph.

- All inactive portions of the development site shall be covered, seeded, or watered until a suitable cover is established. Alternatively, the applicant may apply County-approved non-toxic soil stabilizers (according to manufacturers specifications) to all inactive construction areas (previously graded areas which remain inactive for 96 hours) in accordance with the local grading ordinance.

- All material transported off-site shall be either sufficiently watered or securely covered to prevent public nuisance, and there must be a minimum of six (6) inches of freeboard in the bed of the transport vehicle.

- Paved streets adjacent to the project shall be swept or washed at the end of each day, or more frequently if necessary, to remove excessive or visibly raised accumulations of dirt and/or mud which may have resulted from activities at the project site.

- Prior to final occupancy, the applicant shall re-establish ground cover on the site through seeding and watering in accordance with the local grading ordinance.

In addition to the NSAQMD's Rule 226, the following specifications are a part of the Preferred Alternative and will be implemented to minimize project-related emissions:

- Register portable engines and portable engine-driven equipment units with the CARB portable equipment registration program.
- All diesel equipment must be in compliance with the CARB's diesel regulations[6].
- Use pressure spray or distributor bar to apply water evenly.
- Provide unobstructed, smooth, and dustless passageway for one lane of traffic through construction operations.
- Provide labor, equipment, and materials, and use efficient methods wherever and whenever required to prevent dust nuisance or damage to persons, property, or activities, including, but not limited to, crops, orchards, cultivated fields, wildlife habitats, dwellings and residences, agricultural activities, recreational activities, traffic, and similar conditions.
- Provide means for eliminating atmospheric discharges of dust during mixing, handling, and storing of cement, pozzolan, and concrete aggregate.
- Stabilize outdoor storage piles following the addition of materials to, or the removal of materials from, said piles to limit fugitive dust emissions using sufficient water.
- Use reasonably available methods and devices to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.
- Do not operate equipment and vehicles that show excessive exhaust gas emissions until corrective repairs or adjustments reduce such emissions to acceptable levels.
- Use temporary and permanent erosion control measures, such as seeding, mulching, and biodegradable erosion control blankets to minimize erosion.
- Avoid disturbance of steep slopes whenever feasible.

[6] CARB diesel regulations can be found at: http://www.arb.ca.gov/diesel/diesel.htm

3.19 Greenhouse Gas and Climate Change

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 (GHGs) 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 GHG in the atmosphere has an effect on the average temperature at the surface of the earth. If the atmospheric concentration of GHGs 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 GHG concentration in the atmosphere increases, however, less heat will escape to outer space and the average temperature at the earth's surface will increase.

Burning of fossil fuels is considered a major contributor to perceived global climate change. Carbon dioxide (CO_2), which is produced when fossil fuels are burned, is a GHG that effectively traps heat in the lower atmosphere. Some CO_2 is liberated naturally, but this may be augmented greatly through human activities. Increases in air temperature may lead to changes in precipitation patterns, runoff timing and volume, sea level rise, and changes in the amount of irrigation water needed due to modified evapotranspiration rates. These changes may lead to impacts to California's water resources and project operations. While there is general consensus in their trend, the magnitudes and onset-timing of impacts are uncertain and are scenario-dependent (Anderson et al. 2008).

3.19.1 Affected Environment

California adopted Assembly Bill 32 (AB 32), which refers to and incorporates specific versions of the U.S. EPA's Mandatory Reporting of Greenhouse Gas Rule (74 FR 56260). Both regulations require facilities that emit 25,000 metric tons or more per year of GHG to submit annual reports to the EPA and CARB, respectively.

CO_2 is the main GHG of concern since the proposed dam raise would utilize on-road and off-road vehicles with combustible engines that produce CO_2 as emissions.

3.19.2 Environmental Consequences

3.19.2.1 Alternative 1 – No Action

Under the No Action alternative there would be no construction activity; therefore, construction-related GHG emissions would not be generated.

3.19.2.2 Alternative 2 – MSE Raise (Preferred Alternative)

While any increase in GHG emissions would add to the global inventory of gases that would contribute to global climate change, constructing the Preferred Alternative would result in potentially minimal regional increases in GHG emissions. GHG generated during construction of the Preferred Alternative has been estimated to be no greater than 4,500 tons/year, as shown in table 3-16. Since the amount of CO_2 emitted from constructing the proposed dam raise is under the 25,000 metric ton/year threshold, no report is required to be submitted to the EPA and CARB.

3.20 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.

Reclamation is responsible for about 370 storage dams and dikes that form a significant part of the water resources infrastructure for the Western United States. As the owner of these facilities, Reclamation is committed to providing the public and the environment with adequate protection from the risks which are inherent to collecting and storing large volumes of water for later distribution and/or release. Reclamation has developed a set of PPGs that are intended to ensure adequate and consistent levels of public protection when evaluating and modifying existing dams and appurtenant structures and when designing new dams and/or structures.

The PPGs incorporate risk-based evaluations into Reclamation's dam safety decision-making process to help assess public risks and allocate resources. While there are many issues that may be evaluated in a risk context, the PPGs focus on the life loss and the public trust components of decision-making. To determine the risks associated with its structures, Reclamation has established procedures to analyze data and assess the condition of its structures. Prior to the failure of Teton Dam, consideration of dam safety issues was addressed though periodic examinations and project specific requests for Congressional funding to make necessary modifications to dams. The failure of Teton Dam demonstrated a need for a more comprehensive approach to evaluating and addressing dam safety issues.

In response to the Teton Dam failure, Reclamation a committee of Federal agency representatives assembled to cooperatively support the research and development of risk-based analysis methodologies as they related to the safety of dams. Since then, Reclamation has established a risk-based framework to meet the objectives of its program, the Dam Safety Act, and the Federal Guidelines. Risk-based procedures are used to assess the safety of Reclamation structures, to aid in making decisions to protect the public from the consequences of dam failure, to assist in prioritizing the allocation of resources, and to support justification for risk reduction actions where needed. Risk assessment for dam safety decision-making integrates the analytical methods of risk-based analysis along with the sound professional judgment of engineers, contractors and review boards in determining reasonable actions to minimize risk at Reclamation facilities.

Reclamation's risk analysis process involves the development of event trees that identify all of the known and potential events, states of nature (existing conditions, site characterization, etc), dam responses, exposure conditions, and consequences. The overall risk from the facility is defined as the accumulation of all risks associated with each of the possible paths through the event trees. The methods to analyze the risks associated with annual dam failure probability and life loss are briefly described in the following two sections.

If there is evidence of a developing failure mode, there is a clear need to take action to reduce risk. These situations should be brought to the immediate attention of the dam safety decision-makers to assure a timely response by the agency. Once the evidence is determined to be credible, efforts should focus on those risk reduction actions that can be taken to quickly reduce the potential for life loss or an unintended release of the reservoir regardless of any risk estimates.

To manage an effective Dam Safety Program on behalf of the Federal Government and to assure public confidence in the performance of public works, dam failures and associated large consequences need to be avoided. A high level of national safety and stewardship of public assets is expected of Reclamation as an agency specifically entrusted to manage a large inventory of dams. Unintended release of the reservoir can cause significant downstream damage and disruption to routine activities. Once an unintended reservoir release occurs, public trust is compromised and public expectations may impose severe and costly constraints on projects. The greater the inventory of dams and the time of exposure, the more difficult it becomes to ensure that the agency will not experience a dam failure.

To ensure a responsible performance level across the inventory of Reclamation Dams, it is recommended that decision-makers consider taking action to reduce risk if the estimate of annual failure probability exceeds 1 chance in 10,000.

To help prioritize and establish the urgency of risk management activities, a Dam Safety Priority Rating (DSPR) system has been adopted by Reclamation to assist

with these decisions. DSPR ratings apply to dams and not to the individual potential failure modes at a dam. The categorization of a dam is dynamic over time, changing as project characteristics are modified or more refined information becomes available, affecting the loading, annualized failure probability, or consequences of failure.

Because Reclamation has finite financial resources available to address dam safety issues, it is critical to not only identify future actions but also to identify the priority or the time frame associated with these actions. The priority for initiating actions to address risks depends in part on available resources and on the risks throughout Reclamation's dam inventory. The intent is to make the greatest reduction in risk throughout the inventory of Reclamation dams within the resource limitations of the program, while at the same time assuring that no dam presents an unreasonably high risk in the short term.

The DSPR system (and associated subcategories) forms the initial basis for prioritization after which priorities may be adjusted for other reasons. No specific numerical criteria are provided for what constitutes extremely high, very high, high, moderate, or low annualized life loss or failure probability, although they may be thought of as broad "order of magnitude" ranges within the continuum of risk with moderate to high risks occurring near the guideline values. The range in risk estimates, and how much and how far the range in risk estimates extend into the area of increasing justification to reduce or better understand risks, should also be considered when assigning a DSPR category.

Ultimately, the case must be made as to which DSPR category represents each dam as part of the risk analysis and risk assessment activities. Within each DSPR category, annualized failure probability and annualized life loss risks are assumed to have equal weight when prioritization is considered. Within each DSPR category and subcategory, everything else being equal, the actual numerical values may be used to set priorities. However, risk is not the sole piece of information used to set priorities, as other information and unique opportunities can affect the prioritization queue. Other factors may include (but are not limited to) the confidence in the risk estimates, the number of potential failure modes driving the risk, the type of loading condition(s) driving the risk, and the costs of additional actions to reduce or better define the risks.

Additional information about Reclamation's Dam Safety Program, Public Protection Guidelines, and DSPR is available at: http://www.usbr.gov/ssle/damsafety/.

3.20.1 Affected Environment

Recent investigations conducted under Reclamation's SOD Program revealed that during an estimated 77,600 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 Boca Dam, downstream property damage, and the loss of stored water for fishery enhancement along the Truckee River and Pyramid Lake Fishway facilities operation.

3.20.2 Environmental Consequences

3.20.2.1 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.

3.20.2.2 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.

3.21 Cumulative Effects

Reclamation has assessed past, present, and reasonably foreseeable future projects in the Stampede Dam area for significant cumulative effects. Discussions with the USFS 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 USFS 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 published 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 the 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.

The draft EA was provided for a 30-day public review and comment period on November 22, 2011, at www.usbr.gov/mp and in Reclamation offices. A news release was issued and notice of availability was sent to those on the mailing list. One printed copy of the Draft EA was requested and sent to Mr. Ray Butler.

Reclamation received written comments from 12 interested parties. All written comments were considered in preparation of the final EA and FONSI. Copies of the comment documents and responses to the comments are provided in Attachment C. No significant impacts were identified in the -Final EA or as a result of the public review and a FONSI was approved on May 11, 2012.

The FONSI and final EA will be available to the public at www.usbr.gov/mp and in Reclamation offices. In addition, printed and CD-ROM copies will be available upon request. A news release will be issued and notice of availability sent to those on the mailing list (attachment D).

News releases will be issued as necessary to keep the general public informed concerning the proposed dam safety modifications.

4.2 Tribal Coordination and Consultation

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 public comment periods under NEPA. Reclamation initiated Section 106 consultation on April 6, 2010 with the Greenville Rancheria, Washoe Tribe of Nevada and California, and Maidu Cultural and Development Group. Additional letters were sent to keep them informed of the project status.

4.3 Agency Coordination

Reclamation as the lead Federal agency for the NEPA compliance invited the USFS, Tahoe National Forest to participate as a Cooperating Agency. The USFS determined their agency had no jurisdictional role in approval of the EA for the project and declined the Cooperating Agency role.

The USFS and USACE designated Reclamation the lead Federal agency for NHPA Section 106 compliance for this undertaking. The USFS manages lands around the reservoir and the USACE has permitting authority for this project, both requiring compliance with NHPA Section 106.

Reclamation has coordinated with the USFS and other agencies including Lahontan RWQCB, County of Nevada and Sierra County, California, the CDFG, the USFWS, and the USACE 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.

Following the public comment period on the Draft EA, the Board of Supervisor's for both Sierra County and the County of Nevada passed resolutions requesting Reclamation re-examine the prioritization and need for the Stampede Dam SOD Modification. The resolutions also requested Congress to reassess prioritization of similar projects on a national scale to appropriately address local needs or identify projects to be defunded to reduce the Federal deficit. These resolutions cited the magnitude of the IDF, a 250,000-year PMF as the basis for questioning the purpose and need for the project. Reclamation has prepared a response to

these County resolutions and in March 2012, Reclamation met with representatives of both counties to review the purpose and need for the Stampede Dam SOD Modification project.

4.4 Agency Consultation

4.4.1 National Historic Preservation Act

Section 106 of the NHPA requires Federal agencies to consider the effects of Federal undertakings on historic properties (properties determined eligible for inclusion in the National Register). Compliance with Section 106 of the NHPA is a process done in consultation with the SHPO, Indian Tribes, and other interested parties. Section 106 compliance includes determining the APE, identifying historic properties within the APE, assessing effects on any identified historic properties, and resolving adverse effects on historic properties. The implementing regulations for Section 106 of the NHPA (36 CFR Part 800) allow for phased identification of historic properties, phased effects assessments, and the use of PAs to meet compliance requirements.

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 prepared a Biological Evaluation and Biological Assessment for the action and has concluded that the proposed action would have a No Effect

determination on federally listed species; therefore, no formal consultation with USFWS was initiated. 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 CWA approved in 1972 establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. The 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 USACE 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 flood plain of the Little Truckee River or any of its tributaries.

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

The CAA is a comprehensive Federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes the EPA to establish NAAQS 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 ―taking" 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 ―take" to include ―disturb" 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 flood plain 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 applies whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise

controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States (e.g., Federal agency), or any public agency or private agency under Federal permit or license, such department or agency first shall consult with the USFWS and with the head of the agency exercising administration over the wildlife resources of the particular State. Reclamation met with the USFWS Reno Office staff on May 3, 2010 and October 5, 2011, to discuss ways that construction would impact wildlife including federally listed threatened and endangered species, those protected under the Migratory Bird Treaty Act (e.g., neotropical birds), and the Bald and Golden Eagle Protection Act. Feedback from the USFWS were incorporated into the Biological Evaluation/Biological Assessment for the project that was the basis of the –no effect" determination for the project. The coordination meetings with the USFWS in 2010 and 2011, satisfy the requirement for coordination under the FWCA.

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 –sacred site" is a specific, discrete, and narrowly delineated location on Federal land. An Indian tribe or an Indian individual determined to be an appropriately authoritative representative of an Indian religion must identify a site as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion. 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

ITAs are legal interests in property held in trust by the United States (with the Secretary of the Interior acting as trustee) for Indian Tribes or Indian individuals. Examples of ITAs are lands, minerals, hunting and fishing rights, and water rights. In many cases, ITAs are on-reservation; however they may also be found off-reservation. The United States has an Indian trust responsibility to protect and maintain rights reserved by or granted to Indian Tribes or Indian individuals by treaties, statutes, and executive orders. These rights are sometimes further interpreted through court decisions and regulations. This trust responsibility requires that officials from Federal agencies, including Reclamation, take all actions reasonably necessary to protect ITAs when administering programs under their control.

4.6 Potential Permits

Potential permits which may be required to implement the proposed action are shown in table 4-1.

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

Resource category	Statute regulation	Administering agency	Agency action
Water resources	Clean Water Act Section 404	USACE	Letter of Permission or individual permit. Discharge of dredge and fill material into waters of the United States, including wetlands.
	Clean Water Act Section 401	LRWQCB	Water quality certification. Projects involving discharge of dredged and/or fill material to waters of the U.S. and/or waters of the State.
	Clean Water Act Section 402	CA SWRCB	National Pollutant Discharge Elimination System – General Construction Permit for discharges to surface waters of the United States for construction projects that would disturb one acre or more. Requires a Storm Water Pollution Prevention Plan. The SWPPP requires water quality monitoring procedures during construction.
	Lahontan Basin Plan Floodplain Prohibition	LRWQCB	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 flood plain, 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. Requirements for diesel-fueled engines.
	California SB 97	NSAQMD	GHG e missions. Air District approves analysis and plans to reduce GHG emissions through CEQA document.

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

Resource category	Statute regulation	Administering agency	Agency action
Roads	Encroachment	Sierra County County of Nevada	Permit for activities within the county road right-of-way. Traffic control plan must be submitted.
	Grading Permit	Sierra County County of Nevada	Permit for modification of county-owned roads.
	California Vehicle Code	Caltrans	Transportation permits for over- width or overweight 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.
Cultural resources	Section 106 National Historic Preservation Act	State Historic Preservation Office	Provides concurrence on Reclamation's determinations and findings.
Other	California Environmental Quality Act	LRWQCB Lead Agency	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
Anderson et al. 2008	Anderson, J., F. Chung, M. Anderson, L. Brekke, D. Easton, M. Ejetal, R. Peterson, and R. Snyder. 2008. Progress on Incorporating Climate Change into Management of California's Water Resources. Climatic Change (2008) 87 (Suppl 1):S91–S108 DOI 10.1007/s10584-007-9353-1.
Barnes et al. 2012	Barnes, Amy J., John Fogerty, Amy Dunay. 2012. 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.
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
California RWQCB 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.
Dietrich 1990	Detrich, P. 1990. The California bald eagle management plan—draft; unpublished report. Available at the Tahoe National Forest Supervisor's Office, Coyote Street, Nevada City, CA. 71p.
EPA 2012a	EPA Stormwater BMP Menu – Preserving Natural Vegetation. 2012. Online at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=34&minmeasure=4
EPA 2012b	EPA Stormwater BMP menu site. 2012. Online at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=41
EPA 2012c	EPA Stormwater BMP Menu. 2012. Online at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=42&minmeasure=4
EPA 2012d	EPA Stormwater BMP Menu. EPA Stormwater Menu of BMPs – fiber rolls. 2012. Online at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=121
EPA 2012e	EPA Stormwater BMP Menu. Sediment Filters and Sediment Chambers. 2012. Online at: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=58&minmeasure=4

Parenthetical reference	Bibliographic citation
Gaines et al. 2003	Gaines, William L., Peter H. Singleton, Roger C. Ross. 2003. Assessing the cumulative effects of linear recreation routes on wildlife habitats on the Okanogan and Wenatchee National Forests. Gen. Tech. Rep. PNW-GTR-586. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 79 p.
Grubb and King 1991	Grubb, T.G. and R.M. King. 1991. Assessing human disturbance of breeding bald eagles with classification tree models. Journal of Wildlife Management 55:500-511.
Grubb et al. 1992	Grubb, T.G., W.W. Bowerman, J.P. Giesy, and G. A. Dawson. 1992. Responses of breeding bald eagles, Haliaeetus leucocephalus, to human activities in northcentral Michigan. Canadian Field-Naturalist 106(4):443-453.
Hamann et al. 1999	Hamann, B., H. Johnston, P. McClelland [et al.]. 1999. Birds. In: Joslin, G., H. Youmans, coords. Effects of recreation on Rocky Mountain wildlife: a review for Montana. Committee on Effects of Recreation on Wildlife, Montana Chapter of The Wildlife Society: 3.1-3.34.
Lahontan RWQCB	Lahontan Regional Water Quality Control Board. Water Quality Control Plan Amendment. Total Maximum Daily Load for Sediment. Middle Truckee River Watershed. May 2008.
NRCS 2012	Natural Resources Conservation Service. Web Soil Survey, National Cooperative Soil Survey. Tahoe National Forest Area, California.
NSAQMD 2005	NSAQMD (Northern Sierra Air Quality Management District). 2005. Northern Sierra Air Quality Management District Annual Air Monitoring Report 2005. April 15, 2006.

Parenthetical reference	Bibliographic citation
NSAQMD 2009	NSAQMD (Northern Sierra Air Quality Management District). 2009. Draft Guidelines for Assessing and Mitigating Air Quality Impacts from Land Use Projects. August 18, 2009.
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 1996	Bureau of Reclamation. Reclamation Manual, ENV P02, Policy on Pest Management. December 1996.
Reclamation 2006	Bureau of Reclamation. Borrow Area Investigations for Stampede Dam Downstream Waste Area. February 2006.
Reclamation 2009	Dam Safety Risk Analysis, Best Practices Training Manual. Bureau of Reclamation, Denver, Colorado, Version 1.1 – May 2009.
Reclamation 2011a	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 2011b	Bureau of Reclamation. Geologic Investigations, Stampede Dam Saddle Dikes and Borrow Area. March 2011.
Reclamation 2012	Bureau of Reclamation. Erosion of Borrow Area within Stampede Reservoir for Safety of Dams Modification Stampede Dam, Washoe Project, CA. March 2012.

Parenthetical reference	Bibliographic citation
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.
Sierra County 2012	Sierra County General Plan 2012. Online at: http://www.sierracounty.ws/county_docs/planning/2012%20GP.pdf
U.S. Census Bureau 2000	U.S. Census Bureau. 2000. Web site: http://factfinder.census.gov/
USDA 2000	U.S. Department of Agriculture. Forest Service. Pacific Southwest Region. Water Quality Management for Forest System Lands in California. Best Management Practices. September 2000. http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5362512.pdf
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.
Washoe Tribe 2011	WA SHE SHU: —The Washoe People" Past and Present. 2009. Washoe Tribe of Nevada and California. Online at: http://www.washoetribe.us/documents/Washoe_Tribe_History_V2.pdf
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.

ATTACHMENTS

A Environmental Commitments

B Alternatives Considered and Eliminated from Further Study

C Comments and Responses

D Distribution List

ATTACHMENT A

Environmental Commitments

Environmental Commitments

The following environmental commitments would be implemented before, during, and after construction to prevent and reduce the impacts of the proposed action.

- Reclamation's contractor shall be responsible for complying with all environmental requirements identified in this environmental assessment (EA) and with all Federal, State, and local permits. Specific mitigation and monitoring plans and provisions address bald eagles and neotropical migratory birds. BMPs shall be implemented to limit impacts to water quality. The contractor shall 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 shall be revegetated by the contractor with a mixture of native and approved adapted plant species.

- Reclamation will require the contractor to implement all necessary BMPs to prevent the measureable discharge of sediment into the Little Truckee River below Stampede Dam.

- All necessary vegetation removal shall be completed before nesting season begins (April 1) or after nesting season is completed (August 31) to reduce nest losses.

- Environmentally sensitive areas will be protected from disturbance during construction. Reclamation will identify sensitive locations, mark their limits on the ground and the contractor shall install and maintain protective barriers at these locations. Environmentally sensitive locations include the large mature pines along the reservoir shoreline and at the Vista Area, cultural resources (identified for avoidance through the PA), and wetlands that will be avoided during construction.

- Reclamation will produce a Revegetation Plan in coordination with the U.S Department of Agriculture (USDA) Forest Service, Tahoe National Forest that will document the details and implementation schedule for revegetation activities during and post-construction. The Revegetation Plan will be completed prior to implementation of the preferred alternative should it be selected.

- Reclamation will require that all earth-moving equipment, gravel, road base, fill, or other materials need to be noxious weed-free.

- Monitoring for noxious weeds will continue during construction activities and if small infestations of noxious weeds are identified during project implementation, Reclamation will evaluate if the weeds should be hand treated or flagged and avoided according to the species present and project constraints.

- Reclamation will conduct post-construction monitoring and treatment of noxious or invasive weeds on National Forest System lands in coordination with the USFS. Reclamation will conduct post-construction monitoring and treatment of noxious or invasive weeds on Reclamation-owned lands or facilities in accordance with Reclamation's policy on integrated pest management.

- Reclamation will complete preliminary grading work on the wetland mitigation area during construction of the Stampede Dam SOD Modification project. Reclamation will complete the implementation of the Wetland Mitigation Plan as soon as practicable following completion of the SOD Modification.

- Reclamation will conduct monitoring and maintenance activities on the wetland post-construction. Monitoring will demonstrate that the wetland area has achieved success criteria defined in the EA and Wetland Mitigation Plan for three successive years without human intervention. These criteria must be met prior to acceptance of the wetland mitigation area by the USACE as compensation for the loss of seasonal wetland resulting from the Stampede Dam SOD Modification project.

- Reclamation will execute road easement agreements with the County of Nevada and Sierra County to provide details on the implementation of providing an all-weather surface to the 2 miles of unpaved Dog Valley Road between State Highway 89 and the junction of the Captain Roberts Boat Ramp Road. These easements will be executed prior to implementation of the preferred alternative should it be selected.

- Reclamation will continue to coordinate with the USDA Forest Service, Tahoe National Forest to develop the final plan for relocating or modifying recreational facilities at the Stampede Reservoir Vista Area. The plan for the Vista Area will be completed prior to implementation of the preferred alternative should it be selected.

- Reclamation will continue to consult under Section 106 of the NHPA through the negotiation and implementation of a PA. This PA will be executed and any applicable mitigation measures identified in the PA will be fulfilled prior to implementation of the preferred alternative should it be selected.

- Reclamation will require the contractor to use trucks that are 1998 or newer that meet the 4.0 grams per brake horsepower-hour (g/bhp-hr) nitrogen oxides (NO_x) certification standard.

- Reclamation will require the contractor to retrofit trucks with nitrogen oxide (NO_x) diesel particulate filter to achieve 85 percent or better PM control and 25 percent or better nitrogen oxides control.

- Reclamation will obtain State and Federal permits for proposed project activities including Clean Water Act Section 404, 401 and 402 permits.

- Reclamation's contractor shall obtain encroachment permits from Sierra County and the County of Nevada and shall develop a Fire Plan for approval by Reclamation and the USFS.

- Reclamation will provide the EA to Lahontan RWQCB, the designated California lead agency, to assist them in the preparation of California Environmental Quality Act compliance.

- Reclamation will provide the EA and other information to the USACE, Sacramento District to assist in their preparation of a NEPA analysis addressing the Section 404 permit application.

ATTACHMENT B

Alternatives Considered and Eliminated from Further Study

2006 Interim CAS Alternatives Eliminated from Further Study

The 2006 CAS structural and non-structural alternatives eliminated from further study are described below.

A. Structural Alternatives

This section provides a brief description of the structural appraisal-level alternatives developed as part of the 2006 Interim CAS.

1. Embankment Raise

This alternative would consist of a 9-foot-high embankment raise of the dam, the dike, and low areas in the intervening section between the dam and the dike. The top of the existing embankment would be removed and the elevation of the crest of the dam raised nine feet with a 1.75:1 (horizontal to vertical) slope on the upstream and downstream faces. The axis of the dam would shift downstream with the embankment raise.

A spillway modification based on limiting the spillway outflow to a peak discharge of 8,000 ft^3/s would also be required with this alternative consisting of removing the existing spillway bridge, raising the spillway walls, rebuilding a section of the chute immediately downstream from the spillway crest, moving and rebuilding the spillway crest downstream to coincide with the modified dam axis, and building a new spillway bridge. The spillway flow would be restricted by constructing a headwall above the ogee crest and creating orifice flow conditions at higher RWS elevations. The spillway chute walls would need to be raised to prevent overtopping.

This alternative would provide some ability to manage downstream flooding through regulation of releases from the gated Boca Dam spillway; however, if the spillway outflows at Boca were limited to the original spillway design capacity of 8,000 ft^3/s, Boca Dam would be overtopped by 0.5 feet. As a result, this alternative would likely require modifications to the Boca spillway to accommodate higher peak discharges during the IDF.

2. Concrete Parapet Wall

This alternative would involve raising the dam using a 9-foot concrete parapet wall. The concrete wall would be placed along the upstream side of the roadway on the dam, dike, and the intervening section between the dam and the dike without raising the existing road surface/embankment crest. Similar to the Embankment Raise alternative, spillway outflows would be restricted to a peak discharge of 8,000 ft^3/s by construction of a new concrete headwall above the

ogee crest in order to create limiting orifice flow conditions at higher RWS elevations. The spillway chute walls would need to be raised to prevent overtopping.

This alternative would provide some ability to manage downstream flooding through regulation of releases from the gated Boca Dam spillway; however, if the spillway outflows at Boca were limited to the original spillway design capacity of 8,000 ft^3/s, Boca Dam would be overtopped by 0.5 feet. As a result, this alternative would likely require modifications to the Boca spillway to accommodate higher peak discharges during the IDF.

3. Corrugated Metal Pipe (CMP) Auxiliary Spillway

This alternative would provide additional spillway capacity at Stampede Dam with construction of a new CMP auxiliary spillway located near the left abutment of the dike in conjunction with construction of a new concrete parapet wall along the upstream edge of the dam and dike crests. The auxiliary spillway would consist of approximately forty-one (41) 54-inch diameter corrugated metal pipes. These pipes would be buried under the roadway and located on the dike's left abutment between the dam and the dike with an invert elevation of 5967.3 consistent with the original design maximum RWS elevation. The new auxiliary spillway would have a peak design discharge capacity of 8,000 ft^3/s. The new concrete parapet wall would provide freeboard for the dam and dike under extreme flood conditions.

This alternative would provide some ability to manage downstream flooding through regulation of releases from the gated Boca Dam spillway; however, if the Stampede Dam CMPs are limited to a maximum discharge of 8,000 ft^3/s, the rated spillway capacity at Boca Dam would need to be increased to 17,200 ft^3/s to provide 2.6 feet of freeboard at Boca Dam. If the spillway outflows at Boca were limited to the original spillway design capacity of 8,000 ft^3/s, Boca Dam would be overtopped. As a result, this alternative would likely require significant modifications to the Boca spillway to accommodate higher peak discharges during the IDF.

4. Fuse Plug Auxiliary Spillway

This alternative would provide additional spillway capacity at Stampede Dam for lower frequency floods with construction of a new fuse plug. A fuse plug is designed as a dam, stable for all reservoir operation conditions except for a threshold flood condition that would cause it to breach. The washout of a fuse plug begins at a pre-selected location, called a pilot channel, creating a new opening for conveyance of spillway discharge flows once the fuse plug embankment washes out laterally at a constant, predictable rate without overtopping the dam.

For the 2006 interim CAS study, the pilot channel of the fuse plug auxiliary spillway was assumed to be at the maximum RWS elevation resulting from a 1000-year flood event. The configuration of the new auxiliary fuse plug spillway would consist of large (33 feet wide by 11 feet high) elliptical-shaped CMP culverts filled with the fuse plug embankment material. The new auxiliary spillway would be located on the left abutment of the dike, between the dam and the dike. The sizes of the CMP culverts were designed to limit outflow at Stampede Dam and prevent overtopping downstream Boca Dam. Restricting the outflow through the CMP culverts would require storing part of the flood, which would be accomplished by construction of a 5-foot parapet wall. The parapet wall would also provide freeboard.

This alternative would limit the ability to manage downstream flooding through regulation of releases from the gated Boca Dam spillway because the minimum size of the auxiliary spillway elliptical-shaped CMPs at Stampede Dam would be limited to a minimum size to allow for construction of the fuse plugs within the culverts. Further, if the Boca Dam spillway outflows were limited to 8000 ft^3/s, Boca Dam would be overtopped. The rated spillway capacity at Boca Dam would need to be increased to 20,000 ft^3/s to provide 0.4 foot of freeboard at Boca Dam during the IDF. As a result, this alternative would likely require significant modifications to the Boca spillway to accommodate higher peak discharges during the IDF.

5. Partial Mechanically Stabilized Earth (MSE) Dam Raise with a Concrete Parapet Wall

This alternative would consist of a partial embankment raise in conjunction with construction of a new concrete parapet wall. The embankment and dike would be raised 6 feet to elevation 5980 by either a Reinforced Earth® structure or other mechanically stabilized earth (MSE) retaining system. Examples of previous embankment dam raises using this construction method include Lake Sherburne Dam, Montana and Taylor Draw Dam, Colorado. The last 3 feet of the required raise at Stampede would be provided by construction of a new concrete parapet wall along the upstream edge of the MSE wall in order to provide freeboard during the IDF flood event. The amount the spillway releases would be controlled by a new spillway structure with an estimated length of 4,100 feet and a peak design capacity of 8,000 ft^3/s in order to limit outflows from the IDF flood event and prevent overtopping of Boca Dam.

This alternative would limit the ability to manage downstream flooding by regulation of releases from the gated Boca Dam spillway. Specifically, if the peak spillway outflows at Boca Dam were limited to 8,000 ft^3/s, Boca Dam would be overtopped by about 0.5 feet. As a result, this alternative would likely require modifications to the Boca spillway to accommodate higher peak discharges during the IDF

6. Fuse Gates in Spillway

Fuse gates were invented in 1989 as a simple, robust, and safe system to increase dam safety, increase reservoir storage, improve spillway discharge capacity without sacrificing existing storage, and improve flood control. A fuse gate is a free standing unit constructed of concrete or steel that retains water until a specified design water surface is exceeded. The fuse gate then operates by tipping over to provide a larger spillway opening and greater spillway discharge capacity.

This alternative would involve installation of three new fuse gates within the limits of the existing spillway crest structure. However, the existing spillway crest structure would need to be widened from 15 feet to 27 feet to accommodate the new fuse gates. The fuse gates would be 9 feet wide and 7.7 feet tall with a concrete sill at elevation 5945, a crest elevation of 5952.7 feet, and varying tipping threshold reservoir water surface elevations of 5954 feet, 5957 feet, and 5959 feet, respectively. Hydraulic analyses of the spillway chute walls indicated that overtopping of the chute walls would occur during low frequency flood events. The upper chute sections would be overtopped by approximately 6 feet of water and the stilling basin would experience up to 19.5-feet overtopping during the PMF. A risk analysis indicated this overtopping may be acceptable since the foundation is relatively erosion resistant; however, dam safety modifications would be held to a higher risk standard than those used for evaluation of existing dams and appurtenances. As a result, this alternative would likely require modifications to the existing chute walls and stilling basin walls.

This alternative would limit the ability to manage downstream flooding by regulation of releases from the gated Boca Dam spillway. Specifically, if the peak spillway outflows at Boca Dam were limited to 8,000 ft^3/s, Boca Dam would be overtopped. The rated spillway discharge capacity at Boca Dam would need to be increased to 17,000 ft^3/s to provide 2.7 feet of freeboard at Boca Dam during the IDF. As a result, this alternative would likely require significant modifications to the Boca spillway to accommodate higher peak discharges during the IDF.

7. Obermeyer Gate in Spillway

This alternative would involve installing a hydraulic bladder gate system to retain water in the reservoir during higher frequency flood events while providing increased spillway capacity during lower frequency flood events. When a specified RWS elevation was exceeded, the bladder would be deflated by the automatic control system to provide additional spillway capacity. For Stampede Dam, a 27-foot-wide gate with a sill elevation of 5945 feet would be installed in the existing spillway by widening and rebuilding the spillway crest structure to accommodate the Obermeyer gate system. This alternative would also require construction of a new concrete parapet wall located along the upstream edge of the existing road that would provide 3 feet of freeboard during the PMF. Similar to the Fuse Gates alternative, this alternative would result in overtopping of the upper chute wall sections by approximately 6-feet of water and the stilling basin

walls by up to 19.5-feet of overtopping. A risk analysis indicated this overtopping may be acceptable since the foundation is relatively erosion resistant; however, dam safety modifications would be held to a higher risk standard than those used for evaluation of existing dams and appurtenances. As a result, this alternative would likely require modifications to the existing chute walls and stilling basin walls.

This alternative would limit the ability to manage downstream flooding by regulation of releases from the gated Boca Dam spillway. Specifically, if the peak spillway outflows at Boca Dam were limited to 8,000 ft^3/s, Boca Dam would be overtopped. The rated spillway discharge capacity at Boca Dam would need to be increased to 17,000 ft^3/s to provide 2.7 feet of freeboard at Boca Dam during the IDF. As a result, this alternative would likely require significant modifications to the Boca spillway to accommodate higher peak discharges during the IDF.

B. Other Structural Alternatives Considered but Not Developed

1. Increase Width of Existing Spillway

This alternative would involve widening the existing Stampede Dam spillway by 106 feet to accommodate increased discharge flows of up to 38,600 ft^3/s at the routed maximum RWS elevation of 5971 feet. However, this alternative would result in sufficient volume and peak outflows from Stampede to cause overtopping and failure of Boca Dam during the IDF. As a result, the estimated construction costs for this alternative were not formally prepared; however, preliminary estimates indicated the construction costs would be greater than the other alternatives developed as part of the 2006 Interim CAS.

2. Auxiliary Spillway Cut into Existing Dike

This alternative would consist of incorporating a new auxiliary spillway control section into the existing dike road surface by excavating a depression in the road profile approximately 10 feet deep and 850 feet wide, excluding road vertical curve transition lengths at the end of the depression. No modifications to the existing spillway would be required. The total peak outflow downstream from Stampede Dam from all sources including the existing spillway, new auxiliary spillway, and outlet works would be 50,514 ft^3/s at maximum reservoir water surface elevation 5971.2. The new auxiliary spillway would potentially compromise the overall integrity of the dike structure due to its required overall length. Further, this alternative would result in Boca Dam being overtopped by 3.4 feet. As a result, this alternative was judged to not be a viable alternative during the 2006 Interim CAS evaluations.

3. Cut Ogee Crest and Parapet Raise

This alternative would involve excavating and lowering the existing ogee crest structure by 5.7 feet down to elevation 5947.0 and installing a concrete barrier wall along the upstream edge of the existing dam crest road for the length of the dam, dike and intervening area. The spillway width would remain at 15 feet. The total peak outflow from the spillway would be 10,500 ft^3/s at maximum reservoir water surface elevation 5977.9. In order to eliminate overtopping, raising the spillway chute and stilling basin walls would be required. As a result, this alternative was not carried forward due to the estimated construction costs to modify the existing spillway and due to the loss of approximately 15,700 acre-feet of joint use storage between elevation 5947 and elevation 5952.7.

C. Non-Structural Alternatives

In addition to the structural alternatives developed as part of the 2006 Interim CAS studies, five non-structural alternatives were evaluated:

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

All of these non-structural alternatives were determined to be unacceptable. Specifically, the loss of project benefits along with environmental impacts was judged to make the Dam Breach and Permanent Reservoir Restriction alternatives unacceptable. The Monitoring and Early Warning System alternative does not provide sufficient risk reduction. Finally, the Relocating People at Risk alternative was determined to be a non-viable option due to the expense and political ramifications associated with moving a significant number of people and many businesses in Sparks and Reno, Nevada.

All of these non-structural alternatives were re-evaluated as part of the 2009 CAS study.

D. Evaluation of Structural Alternatives

1. Construction Cost Estimates

The Partial MSE Dam Raise with Concrete Parapet Wall and the CMP Auxiliary Spillway were determined to be the most financially viable alternatives during the 2006 Interim CAS. However, selection of a preferred alternative involves more than just cost estimate comparisons.

2. Benefits and Impacts of Alternatives

As part of the 2006 Interim CAS studies, a Benefits and Impacts meeting was held at the TSC in October 2005 to evaluate the overall viability of each structural alternative. The following is a list of the structural alternatives deemed most viable by the participants in the October 2005 meeting:

1. Embankment Raise
2. Concrete Parapet Wall
3. Corrugated Metal Pipe Auxiliary Spillway
4. Fuse Plug Auxiliary Spillway
5. Partial MSE Dam Raise with a Concrete Parapet Wall

The purpose of the Benefits and Impacts meeting was to gain input on the environmental impacts, constructability issues, downstream impacts, project benefits, project impacts, and potential political issues associated with each of the alternatives for the purpose of determining the preferred alternative. The evaluation did not include the Obermeyer Gate in Spillway or the Fuse Gates in Spillway alternatives due to time limitations at the meeting. The appraisal-level construction cost estimates were completed and available for discussion at the meeting; however, the risk reduction potential of each alternative was not available for consideration at the meeting. The participants at the meeting were from Reclamation's Lahontan Basin Area Office, Mid-Pacific Construction Office, Mid-Pacific Regional Office, and Technical Service Center.

To complete the evaluations, consensus rating factors were developed for each of the structural alternatives based on the following project considerations:

- **Construction Duration.** The construction duration of all identified structural alternatives was estimated as two construction seasons and, as a result, a rating factor was not established for this project consideration.
- **Constructability.** This consideration establishes a relative perception regarding the difficulty in constructing the alternative.
- **Operations and Maintenance (O&M) Issues.**
- **Environmental Impacts.** Five primary issues were identified regarding environmental impacts
    - Required borrow quantities
    - Visual impacts
    - Impacts to overlook area
    - Impacts to recreation
    - Impacts to construction season and traffic
- **Cost.**

- **Risk Reduction.** All seven structural alternatives prevent overtopping and failure of the dam, and therefore were considered to provide the same amount of risk reduction. Although the amount of risk reduction was not quantified for the meeting, the relative risk reduction was judged to be the same for all the structural alternatives; therefore, a rating factor was not established for this project consideration.
- **Political.** This project consideration includes the long-term impact to the public.
- **Downstream Impacts.** This project consideration involves the amount of flooding that could occur between Stampede Dam and Boca Dam and impacts to the intervening areas.
- **Technical Feasibility.** This project consideration rates the anticipated relative overall performance of the modification over the design life of the modification.
- **Construction Risk.** This project consideration involves the risks that could occur during construction including potential increased loss of life risks to the downstream population and potential economic risks associated with existing project features and the contractor's equipment.

Table B-1 presents the results of the Benefits and Impacts meeting. A rating scale of 0-5 was established with a lower rating value assigned to less desirable or greater negative impacts and a higher rating value assigned to more desirable or less negative impacts.

Based on the results presented in Table B-1, the Partial MSE Dam Raise with Concrete Parapet Wall was judged to have the greatest benefits and least impacts relative to the other structural alternatives evaluated as part of the 2006 Interim CAS.

3. Risk Reduction

A formal risk reduction analysis was not completed as part of the 2006 Interim CAS studies.

Table B1.—2006 Interim CAS rating of alternatives for Stampede Dam

	Increase storage			Increase outflow	
Factor	Concrete Parapet Wall	Embankment Raise	Partial MSE Dam Raise with Parapet Wall	Fuse Plug Auxiliary Spillway	CMP Auxiliary Spillway
Construction Duration	0	0	0	0	0
Constructability	4	3.5	3	1.5	3
O&M Issues	2	4	3	2	4
Environmental Impacts	2	2	4	3	4
Cost	3	1	5	3	5
Risk Reduction	0	0	0	0	0
Political	1	2	3.5	3	3
Downstream Impacts	4	4	4	3	3
Technical Feasibility	4	3.5	4	3	3
Construction Risk	4	3.5	4	3	3
TOTAL	**24**	**23.5**	**30.5**	**21.5**	**28**

2009 CAS Alternatives Eliminated from Further Study

The 2009 CAS structural and non-structural alternatives eliminated from further study are described below.

A. Structural Alternatives

The following alternatives were developed to feasibility level during the 2009 CAS but are not being further studied by Reclamation or analyzed in this EA.

1. Embankment Raise

It is estimated construction would take approximately two full construction seasons. This alternative would include:

- Constructing an embankment raise from the existing dam crest elevation of 5974.0 feet to a modified dam crest elevation of 5985.4 feet. The 11.4-foot high dam crest raise would consist of stripping the downstream slope of the dam, removal of the downstream material from the dam crest to elevation 5890, followed by construction of the raised embankment section extending the upstream slope from the existing dam crest elevation at a 1.75:1 (Horizontal to Vertical) slope in the downstream direction. The crest of the modified embankment would be maintained at a 40 foot width and the downstream slope would be constructed at 2:1. The axis of the dam would be shifted downstream as a result of the embankment raise. Similar embankment raises would be constructed for the dike and areas between the dam and the dike. The crest of the dam would transition to a 30-foot width at the spillway to accommodate the width of the spillway bridge deck.

The downstream slope of the dam and dike would be excavated then the dam and dike and any area between them would be raised to elevation 5985.4 using conventional embankment construction techniques. This construction would shift the crest of the dam in a downstream direction as all the work would be performed on the crest or the downstream face. The upstream slope would be continuous up to the new crest of the dam. This alternative was eliminated from further consideration and study because it would have greater environmental impacts than the MSE raise option, since it requires more borrow material to construct and would necessitate using a second borrow in addition to the primary borrow area. In addition, this alternative would have higher construction costs.

2. Partial Embankment Raise with Concrete Parapet Wall

It is estimated construction would take approximately two full construction seasons. This alternative would include:

- Constructing an embankment raise from the existing dam crest elevation of 5974.0 feet to a modified dam crest elevation of 5980.0 feet. The 6-foot high dam crest raise would consist of stripping the downstream slope of the dam, removal of the downstream material from the dam crest to elevation 5890 followed by construction of the raised embankment section extending the upstream slope from the existing dam crest elevation at a 1.75:1 (Horizontal to Vertical) slope in the downstream direction. The crest of the modified embankment would be maintained at a 40 foot width and the downstream slope would be constructed at 2:1. The axis of the dam would be shifted downstream as a result of the embankment raise. Similar embankment raises would be constructed for the dike and low areas between the dam and the dike. The crest of the dam would transition to a 30-foot width at the spillway to accommodate the width of the spillway bridge deck.

- Constructing a new 5.4 foot-high structural concrete parapet wall along the entire length of the raised embankment, dike and the areas in the intervening section between the dam and the dike. The top of the new parapet wall would be elevation 5985.4. The wall would consist of a typical cantilever wall cross section. The concrete parapet wall would extend around the perimeter of the raised overlook and tie back into the crest parapet wall at each end of the overlook.

The downstream slope of the dam and dike would be excavated then the dam and dike and any area between them would be raised to elevation 5985.4 using conventional embankment construction techniques. This construction would shift the crest of the dam in a downstream direction as all the work would be performed on the crest or the downstream face. This alternative was eliminated from further consideration and study because it would have greater environmental impacts than the MSE raise option, since it requires more borrow material to construct and would necessitate using a second borrow in addition to the primary borrow area. In addition, this alternative would have higher construction costs.

3. Dam Breach

Breaching the dam would involve completely removing the dam or excavating a significant breach section through the dam to eliminate the current hydrologic risk posed by dam. This is the only alternative that eliminates all risk of a dam failure. Breaching the dam would require removing a significant portion, if not all, of the embankment, and possibly demolishing and removing the appurtenant structures for aesthetic reasons. A riprap-lined channel through the breach would be

required to resist flood flows if complete removal of the dam was not required. The reservoir area would require restoration to return the area to a natural appearance. This would include restoring the original streambed, removing and/or stabilizing the accumulated silt, and planting native flora in the exposed reservoir area.

For purposes of developing an appraisal level design for this alternative, the following breach parameters were conservatively assumed:

- Complete removal of the dam and dike embankments would be required.
- The removed embankment material would be spread across the dewatered reservoir area in depths not to exceed 4 feet.
- Complete reclamation of the reservoir area would be required using hydroseeding techniques.
- Demolition and removal of the appurtenant concrete features would be required.

The advantage of breaching the embankment would be the complete elimination of the potential for catastrophic release. It also would create the opportunity to restore the reservoir area and creek to a more natural condition.

A breach would eliminate all project benefits, necessitating replacement of flood storage and water supply for fishery enhancement. Power generation and recreational benefits would also be lost. Further, excavating the breach and restoring the reservoir area would also be expensive.

The environmental impacts of breaching would be significant. Wetlands and lake habitat would be lost. It is likely that any alternative considered to replace the lost water supply would also have considerable environmental impacts.

The permanent loss of all storage at Stampede Reservoir would severely limit Reclamation's ability to meet current and future water delivery obligations. Reclamation would be unable to meet the commitments of the Truckee River Operating Agreement (TROA) which was completed pursuant to Public Law 101-618 and required decades to negotiate. The very premise and basic assumptions of the TROA would be undermined by the loss of permanent storage in Stampede Reservoir. Since much of the TROA is based on the ability to store water upstream at Stampede to fulfill a variety of downstream water user needs, it would not likely be implemented in any form.

The loss of storage at Stampede Reservoir would essentially end current recovery plans for the two listed species of fish in the Truckee River. Current Lahontan

cutthroat trout and Cui-ui recovery plans rely on available water from the reservoir to create recovery flow regimes. It is likely that the Pyramid Lake Paiute Tribe would raise issues related to Indian Trust Assets because Truckee River flows and fisheries would be affected. The 1997 Revised OCAP for the Newlands Project, a Federal law governing diversion of Truckee River water to Reclamation's Newlands irrigation project, would be impacted because credit storage at Stampede would be affected.

Dam Breach impacts would require a highly complex analysis, requiring sophisticated modeling. The models used to analyze the TROA effects would likely be needed to conduct this analysis. Those models are currently being contested and are the subject of lawsuits.

As a result, the Dam Breach is not considered a viable option.

B. Non-Structural Alternatives

The following paragraphs provide descriptions of each non-structural alternative along with evaluations regarding the potential advantages and disadvantages of each.

1. No Action (Existing Condition)

This alternative would involve no action, no risk reduction, and assume continued operation of Stampede Dam with no changes. In the event of the PMF, Stampede Dam would be overtopped; dam failure would be anticipated. Overtopping outflows or breach outflows from Stampede Dam would cause overtopping and failure of downstream Boca Dam.

Analyses indicated that continued operation of the dam without structural modifications or operational restrictions place the downstream population at a level of risk that does not meet current Reclamation public protection guidelines and, as a result, the risk due to hydrologic loading is unacceptable. While implementation of this No Action alternative would result in the lowest cost and the absence of environmental or project operational impacts, there would be significant environmental and social impacts including complete loss of the water supply benefits should a dam (or dams) failure occur as a result of an extreme flood event. Previous studies, including evaluations completed as part of the 2009 CAS, suggest that additional risk reduction resulting from further engineering studies or re-evaluations is not likely and, as a result, the No Action alternative is not considered a viable alternative.

2. Relocating the People at Risk

In a study of the consequences resulting from dam failure due to hydrologic loading, it was determined that there were approximately 148,400 people living

downstream from the dam who would be impacted in the event of dam failure. This included a large portion of the city of Reno. Permanently relocating these people out of the dam failure inundation limits would require purchasing affected residences and businesses. Abandoned structures would likely require demolition and removal for reasons of aesthetics and liability.

In general, all project benefits, including available recreational usage of the reservoir, would be maintained with this alternative and there would be no interruption or change in operation of the reservoir. The dam safety risks would be significantly reduced by removing the population from within the dam failure inundation limits, thus serving the purpose of this CAS; however, the economic impacts and political ramifications cannot be overstated. Specifically, there would be very high economic costs associated with relocating a significant portion of the population at risk downstream from the dam along with a high degree of resistance from the people who would be moved. The idea of relocating approximately 150,000 people and many businesses from Sparks and Reno, Nevada, would unprecedented in the United States and, as a result, public perception across the country would be negative. Further, the environmental impacts resulting from demolition and removal of existing structures and essentially rebuilding portions of the city elsewhere would be significant. As a result, cost estimates were not developed for this alternative and it is not considered a viable alternative.

3. Permanent Reservoir Restrictions

This alternative would restrict the reservoir to prevent overtopping of the existing dam and dike during extreme flood events. No construction modifications would be required for this alternative. Flood routings indicate that restricting the reservoir to elevation 5924.4 would result in a maximum RWS of 5967.3 feet. The corresponding total peak IDF spillway discharge of 3,050 ft^3/s would be approximately the same as the original spillway design discharge capacity. As a result, this alternative would reduce the risk to the downstream population to acceptable levels in terms of Reclamation's dam safety public protection guidelines.

The current normal reservoir water surface elevation at the top of active conservation is elevation 5946.1. Restricting the reservoir to elevation 5924.4 for this alternative would require permanently lowering the normal RWS by approximately 21.7 feet resulting in a loss of approximately 63,200 acre-feet of permanent storage and 750 acres of reservoir water surface area. This equates to a loss of over 25% of the total storage capacity of the reservoir.

The major advantage of reducing hydrologic risks by restricting the reservoir is lower costs relative to the other non-structural alternatives and relative to the preferred structural alternative. Costs associated with this alternative would consist of the replacement value of the lost reservoir storage and costs associated with the restoration work in the unwatered reservoir areas resulting from the

restriction. Another advantage would be the increase in flood pool storage and the additional flexibility that would result in terms of reducing the potential for downstream flooding during higher frequency flood events.

The greatest disadvantage for this alternative is the loss of reservoir storage. The loss of storage would eliminate most of the drought reserve and would severely reduce the current level of flexibility in terms of meeting annual water delivery requirements. Regardless of how the reservoir would be managed, it is likely a new source of storage would have to be found on the Little Truckee River to mitigate the loss of storage in Stampede Reservoir.

A 25% or greater permanent loss of storage at Stampede Reservoir would seriously threaten Reclamation's ability to meet current and future water delivery obligations. Reclamation would be unable to meet the commitments of the Truckee River Operating Agreement (TROA), which was completed pursuant to Public Law 101-618 and required decades to negotiate. The very premise and basic assumptions of the TROA would be undermined by the loss of permanent storage in Stampede Reservoir. Much of the TROA is based on the ability to store water upstream at Stampede to fulfill a variety of downstream water user needs. Water storage contracts developed in anticipation of the TROA are based on the availability to store water in Stampede, and these contracts would need to be renegotiated. The assumptions made in the TROA related to Stampede would change. The restriction would affect all operating plans for water users planning to operate under the TROA, as these users would be largely unable to store water at Stampede.

A restriction of this magnitude would undermine the recovery plans for the two listed species of fish in the Truckee River. Lahontan cutthroat trout and Cui-ui recovery plans rely on the current amount of available water from the reservoir to create recovery flow regimes. It is likely that the Pyramid Lake Paiute Tribe would raise issues related to Indian Trust Assets because Truckee River flows and fisheries would be affected. The 1997 Revised Operating Criteria and Procedures (OCAP) for the Newlands Project, a Federal law governing diversion of Truckee River water to Reclamation’s Newlands irrigation project, would be impacted because credit storage at Stampede would be affected.

Reservoir restriction impacts would require a highly complex analysis, requiring sophisticated modeling. The models used to analyze the TROA effects would likely be needed to conduct this analysis. Those models are currently being contested and are the subject of lawsuits.

In addition, a permanent reservoir water surface restriction would also adversely impact the environment and recreation. The environmental impacts would include the unwatered area of the reservoir rim and potentially additional areas affected by construction that would be required to replace the lost water supply.

The affected unwatered reservoir area would require restoration and existing wetlands would be eliminated.

While this alternative does not involve any capital construction costs, the negative impacts and water agreement issues that would result from restricting the reservoir pool at Stampede Dam make this alternative non-viable.

4. Automated Early Warning System

An automated early warning system (EWS) would work in conjunction with the existing monitoring and warning protocols provided in the Emergency Action Plan (EAP). The EAP is reviewed and tested regularly, with the latest test occurring for Stampede dam in January 2004. The EAP provides the procedures to follow during unusual and emergency situations and a new automated EWS or automated alarm system would essentially enhance the existing system to warn the residents at risk in the flood plain and within the dam failure inundation limits. Such an automated system could consist of automated gauging stations both upstream and downstream from the dam along with a central monitoring station that collects and processes remotely transmitted data from the gauging stations.

While design details regarding a specific EWS for Stampede Dam were not developed as part of this study, it is reasonable to assume that the biggest advantages to installation of a new EWS would include the low cost and the ease of construction and implementation relative to construction of a structural alternative. This alternative is also advantageous because it would not require a reservoir restriction or any changes to existing reservoir operations.

The disadvantages to early warning systems primarily involve uncertainty. Specifically, the response of downstream residents to evacuation warnings is unpredictable. Historically, public responses to issued threats and warnings have had variable success and generally cannot be predicted accurately. There are many variables involved including the amount of warning time, the intensity of the warnings, and the understanding of the flood severity. For Stampede Dam, this alternative would only save lives if the warnings are heeded as soon as they are sounded.

Further, the effect that a new automated EWS would have on risk reduction for Stampede Dam would be minimal. Specifically, the current estimated loss of life values used for current hydrologic risk estimates already assumes that there would be significant warning time and evacuation of the downstream population. Incorporating a new automated EWS would potentially improve the evacuation percentage, but not to the extent necessary to reduce risk to within acceptable limits per Reclamation's public protection guidelines. As a result, this alternative, by itself, would not provide sufficient risk reduction to make it a viable alternative to address dam safety risks at Stampede Dam.

ATTACHMENT C

Comments and Responses

The following is a list of those who commented on the November 2011 Draft Environmental Assessment, the type of entity, the comment document number, the page number where the comment document begins, the page number where the response to the comment document begins, and the comment number.

Commenter	Entity	Comment Document #	Comment Page	Response Page	Comment Number #-#
Milton L. McConnell	Individual	001	C-3	C-51	001-001
Fred Cutler	Individual	002	C-4	C-51	002-001
William A. Sciaroni	Individual	003	C-5	C-51	003-001 – 003-002
County of Nevada	Local Agency	004	C-7	C-51	004-001
Truckee-Carson Irrigation District	Irrigation District	005	C-8	C-51	005-001 – 005-003
Truckee River Watershed Council	Organization	006	C-11	C-51	006-001 – 006-012
City of Reno Public Works Department	Local Agency	007	C-14	C-54	007-001
Truckee Trails Foundation	Organization	008	C-15	C-54	008-001 – 008-003
Bruce Ajari & Ray Butler	Individual	009	C-16	C-54	009-001 – 009-006
Trout Unlimited	Organization	010	C-19	C-55	010-001 – 010-018
Lahontan Region CRWQCB	State Agency	011	C-28	C-58	011-001 – 011-019
Forest Service	Federal Agency	012	C-45	C-60	012-001 – 012-017

From: mandd1@core.com [mailto:mandd1@core.com]
Sent: Sunday, November 27, 2011 1:19 PM
To: Schmidt, Jane C
Subject: Regarding the raising of Stampede Dam. Comments from Milton L. McConnell

Dear Jane Schmidt;
After reading the report from you, I feel that the government needs to go ahead with the project. 001
The water is needed downstream, the flood control is needed too and it would provide more recreation.
As for the dam failing, whoever said that doesn't understand the strength of an earthfill dam. It is not going anywhere. With the riprap on the upstream slope, the earth cannot wash away the dirt so what is there to worry about.
I hope others feel the same way. As I said before, it is needed.
Thank you for allowing me to speak.

Milton L. McConnell

Ms. Jane Schmidt
Bureau of Reclamation
Lahontan Basin Area Office
705 N. Plaza, Room 320
Carson City, Nevada 89701

Dec. 1, 2011

Subject: Stampede Dam safety modification project

Dear Ms. Schmidt,

Is this how we want to spend taxpayer dollars at this time? We should be better at setting priorities. This reeks of budget justification and disfunctional government. (one voters opinion) 001

Sincerely,

Fred Cutler

Fred Cutler

File Code	ENV-6.00
Project	320
Control No	11070272
Folder ID	1215

CODE	PERSON RESP	
100		
101		
110		
400		
600		
800		
900		
MP 940	31	

December 3, 2011

Ms. Jane Schmidt
Bureau of Reclamation
Lahontan Basin Area Office
705 N. Plaza, Room 320
Carson City, NV 89701

Dear Ms. Schmidt,

The following is an addendum to the inclosed, previous letter from September 26, 2011

The Reclamation's Safety of Dams Modification to Stampede Dam does not appear to concern the safety of Stampede Dam, considering the absurd estimated 75,000 and 250,000 year flood event figure.

The city of Reno and it's environs have a stake in the water capacity expansion of Stampede Dam for municipal, industrial and agricultural uses. Reno's population has grown fantastically in the past decade plus and this growth puts a strain on the available water particularly when one considers drought years. And, if there is a train or vehicle spill of toxins into the Truckee River the water released from Stampede and Boca will be contaminated as well.

Reno and the Washoe County water authority has a responsibility to assure enough potable water for its population. They have looked at other dam locations for that purpose in the past and at this point should pursue that avenue again when this country is back on it's feet fiscally.

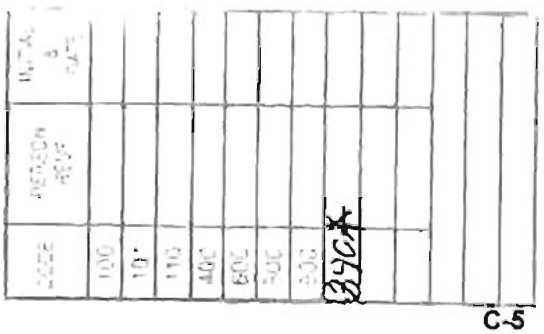
In addition, the Environmental Assessment (EA) must considers the upstream environmental effect (ramifications) of the Dam Modification. The Sagehen Meadow, a wetland meadow of extreme beauty, experiences innumerable groups of people, to appreciate the proliferation of rare and endangered plant species, including Camas Lilies. The California Native Plant Society and the USDA Forest Service consider this a protected area. The enjoyment derived from the hike to and the visual experience is priceless and should not be disturbed. | 001

This country learned years ago (or am I mistaken) that changing or eliminating wetlands (sediment filters) is detrimental to the surrounding environment. Lake Tahoe is a perfect example of what can happen when "projects" destroy natures filter system.

This country can't afford this project. I prudently choose the NO ACTION ALTERNATIVE, it is the judicious thing to do. | 002

Sincerely,

William A. Sciaroni



C-5

Ms. Jane schmidt
Bureau of Reclamation
Lahontan Basin Area Office
705 N. Plaza, Room 320
Carson City, Nevada 89701

File Code	ENV-6.00
Project	320
Control N	1101037 9
Folder ID	1296

Sept. 26, 2011

Dear Ms. Schmidt,

The Bureau of Reclamation (Reclamation) has, in the September 9, 2011 proposal to Modify Stampede Reservoir (Stampede) and raise the dam 11.5 feet, neglected to mention the **Truckee-Carson-Pyramid Lake Water Settlement**. This settlement, in Sec. 202 Proposes (b) Authorizes modifications to the purposes and operation of certain federal reclamation project facilities to provide benefits to fish and wildlife, municipal, industrial, and irrigation users, and recreation. The reclamation's proposal simply states Stampede Reservoir is reserved for fishery enhancement, flood control and recreation.

Neglecting to mention the additional uses leaves Reclamation's Modification proposal suspect. Also suspect is Reclamation's absurd and unrealistic 75,000 year flood event and the anticipation of a 250,000 year Probable Maximum Flood (PMF) event. In 75,000 years humanity may be extinct and geography will have changed. In playing this fear card Reclamation has erased it's credibility where this proposal is concerned.

The rains that saturated the snow in 1997 caused unprecedented flooding down the Truckee River drainage. Stampede, Boca and Prosser Reservoirs held the flood waters back and performed prescribed flood control as intended, very well. The problem for downstream communities (Reno, Sparks) was the logs and other debris moving down the Truckee River, not dam breach. Has the test drilling in recent years indicated a dam safety problem? I see no evidence.

The Presidents economic recovery plan does not include frivolous spending simply to justify government jobs. In this economic environment it makes no sense and is unnecessary to spend our tax dollars on such a project when so many people are out of work and so many other infrastructure projects in this country are more vital and will put many more people to work. This money would be better spent on more pressing safety issues, for instance, ensuring the Katrina catastrophe does not happen again or the many bridges that must be replaced.

I suggest this project be postponed until this country is more financially capable of frivolous, so called, safety projects. This Dam Safety project, at this time, is above and beyond necessity. I propose the NO ACTION ALTERNATIVE.

Sincerely,

William A. Sciaroni
cc Senator Dianne Feinstein, Mountain Area Preservation Foundation (MAPF)

RECEIVED
DEC 07 2011
BUREAU OF RECLAMATION
Lahontan Basin Area Office

COUNTY OF NEVADA
COMMUNITY DEVELOPMENT AGENCY
DEPARTMENT OF PUBLIC WORKS
950 MAIDU AVENUE, NEVADA CITY, CA 95959-8617
(530) 265-1411 FAX (530) 265-9849 http://www.mynevadacounty.com

Steven L. DeCamp
Community Development Agency Director

Doug Farrell
Director of Public Works

December 2, 2011

File: 160.01 001

Jane Schmidt
Bureau of Reclamation
705 N. Plaza, Room 320
Carson City, NV 89701

SUBJECT: Draft Environmental Assessment for the Stampede Dam Safety Modification

Dear Ms. Schmidt:

I am writing to confirm our past discussions regarding the proposed work on Stampede Dam and potential effects in Nevada County. My understanding is that the current primary access from Stampede Meadows Road to recreational sites at Stampede Reservoir will be closed during construction. As a result, recreation and construction traffic will access the reservoir via Highway 89, Hobart Mills Road, and Dog Valley Road in Nevada County.

The environmental document indicates the Bureau of Reclamation will discuss with local jurisdictions the need for improvements for off-site roads prior to construction. However, no specific timeline or improvements were included in the document. As we had discussed, Nevada County believes some sort of all weather surfacing will be needed on Dog Valley Road to mitigate impacts from dust and safety generated by detoured traffic. 001

If possible, we would like to see the environmental document discuss the potential improvement solution more specifically. This would provide to the public the assurance that there is a viable mitigation available.

I appreciate the opportunity to comment on this document and look forward to working with the Bureau on its delivery.

Sincerely,

DOUG FARRELL, DIRECTOR

Steve Castleberry
Principal Civil Engineer

SC:jm

File Code	ENV-6.00
Project	320
Control No	11090873
Folder ID	12 98

CODE	PERSON RESP	INITIAL & DATE
100		
107		
110		
400		
500		
800		
900		

H:\LUST\Correspondance\12021 schmidt re stampede.doc

Truckee-Carson Irrigation District

Newlands Project

COPY

December 9, 2011

Ms. Jane Schmidt
Bureau of Reclamation
Lahontan Basin Area Office
705 N. Plaza, Room 320
Carson City, Nevada 89701

Re: Provision of Written Comments to Draft Environmental Assessment for the Stampede Dam –Safety of Dams Modification, Washoe Project, California and Nevada (Action by December 21, 2011)

Dear Ms. Schmidt:

On November 28, 2011, we received a letter from Area Manager, Kenneth L. Parr, addressed to all interested parties in the above-captioned matter. Pursuant to the receipt of such letter, and upon review of the "Draft Environmental Assessment Stampede Dam –Safety of Dams Modification, Washoe Project, California and Nevada Mid-Pacific Region, on behalf of the Board of Directors for the Truckee-Carson Irrigation District, we here provide written comments to you for inclusion in the public record in the matter as follows:

PROCEDURAL AND FACTUAL HISTORY

The Bureau of Reclamation has released for public view a "Draft Environmental Assessment (EA) for the proposed Safety of Dams Modification (SOD) to Stampede Dam (Dam), located in Sierra County, California (hereinafter referred to as "Draft."). As we understand this proposed corrective action, made subject to the National Environmental Policy Act (NEPA), the National Historical Preservation Act (NHPA), and other environmental laws and regulations, correction is needed and will be made to the Dam to meet Dam Safety Public Protection Guidelines. Present safety deficiencies with the dam are hydrologic, related to the dam's inability to safely pass floodwaters associated with a 75,000 year flood event; that in the event of such an occurrence Stampede Dam would be overtopped by floodwater, resulting in dam failure. Action is needed to prevent probable loss of life, property, water storage, and other project benefits due to failure of the Dam.

2666 Harrigan Road, P.O. Box 1356, Fallon, Nevada 89407-1356
Phone: (775) 423-2141 FAX: (775) 423-5354

We further understand that at the present time Stampede Reservoir provides a total storage capacity of 280,200 acre-feet at the original design maximum reservoir water surface elevation 5967.3. As explained by the Draft, at the top of the "joint use pool", having an elevation of 5952.7 feet, the water storage capacity is 226,500 acre-feet. Currently, Reclamation's water storage permit is for 126,000 acre-feet for the benefit of threatened and endangered fish. (See Draft, p. 3-1).

The Draft further reveals that the "Preferred Alternative(2)" is a "Mechanically Stabilized Earth (MSE) Raise." (Draft at p. 2-1). This Alternative will result in raising the Dam a total of 11.5 feet, from the existing elevation of 5974.0 to a modified dam crest elevation of 5985.5. The Draft states as follows:

> *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 managed 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.*

(See Draft EA at pgs. 2-1 to 2-2) (Italics added).

We understand that the impact upon hydrology, by the Preferred Alternative, will continue unchanged (Draft p. 3-4); and, that the impacts upon water quality, through construction activities, "are anticipated to be less than significant." Id. In consideration of the interest of the Newlands Federal Reclamation Project specifically, and the interests of public safety and protection, generally, we here comment as follows:

COMMENTS:

1. We believe that the benefits of meeting Dam Safety Public Protection Guidelines are self-evident. Our desire is that our friends in all communities up-stream of the Lahontan Valley be protected against the kind of catastrophic flood event that this action is intended to eliminate. We have been witnesses to the damage caused by the flood of 1997; and, we wish never to see the same again. The interests of all water users will be served by correcting present deficiencies at Stampede Dam. 001

2. We support federal action intended to correct Stampede Dam to meet Dam Safety Public Protection Guidelines. 002

3. We believe that efforts must be made by Reclamation, not withstanding an intent not to change the RWS elevation and operate Stampede in accordance with existing SOP, to utilize an enhanced water storage for the benefit of the Newlands Federal Reclamation Project; that waters stored in Stampede be made available to the Project when necessary to satisfy the decreed rights of water users under both the Orr Ditch and Alpine Decrees under certain hydrological conditions including drought. 003

Thank you for your consideration of these comments.

Sincerely,

Rusty D. Jardine, Esq.
District Manager

RECEIVED
DEC 12 2011
BUREAU OF RECLAMATION
Lahontan Basin Area Office

cc: Board of Directors
Brad Goetsch Churchill County Manger

CODE	PERSON RESP	INITIAL & DATE
100	Copy	12-12
101		
110		
400	Copy	12-12
600		
800		
900	Copy	12-12

2666 Harrigan Road, P.O. Box 1356, Fallon, Nevada 89407-1356
Phone: (775) 423-2141 FAX: (775) 423-5354

530 550 8760
530 550 8761 fax
P.O. Box 8568
Truckee, CA 96162
truckeeriverwc.org

TruckeeRiverWatershedCouncil
Collaborative solutions to protect, enhance and restore the Truckee River Watershed

Ms. Jane Schmidt
U.S. Bureau of Reclamation
705 N. Plaza, Room 320
Carson City, NV 89701

December 16, 2011

Dear Ms. Schmidt,

Thank you for the opportunity to provide comment on the Draft Environmental Assessment (DEA) for the Stampede Dam Safety of Dams Modification.

The Truckee River Watershed Council (TRWC) brings the community *Together for the Truckee* to protect , enhance and restore the Truckee River watershed.

We would like to provide the following comments to the Bureau of Reclamation.

1. **Dam operations & native fishery.** The DEA states that the reservoir operations will not change "under normal conditions". However , the DEA does not state how the reservoir water surface elevation will change during extreme events below the 250,000 year event (PMF):
   - How will reservoir operations change to manage 50-, 100-, and 500-year events?
   - What impacts to wetlands, tributary streams, sensitive vegetation, fish and wildlife would occur during these magnitude storm events?
   - Would the increased pool height cause further upstream migration of non-native fish species, especially into Sagehen Creek which has been identified as a Lahontan cutthroat trout reintroduction stream?

   001

2. **Revegetation plan.** The DEA states that revegetation of disturbed areas will be completed with native or "adapted" plant species.
   - Only native plants should be used in revegetation to prevent the spread of weedy or nuisance species.

   002

3. **Downstream modifications.** All mention of downstream activities was removed from the DEA. Previously, modification of the stream channel through placement of rip rap was part of the project.
   - Has this element been determined to be an operations and maintenance issue?
   - Will it eventually become part of the project?
   - If so, will it be subject to environmental review?

   003

4. Use of 75,000 and 250,000 year probable maximum flood (PMF). The DEA does not contain adequate detail specifying how these flood events were determined. The process was described, but no data were provided.
   - Input data and modeling results should be made available. | 004

5. Seismic concerns. A seismic analysis should be included. There are significant faults in the Stampede area. (see for example: 1)Lewis E. Hunter et al, Sacramento District, USACE, Martis Creek Dam LiDAR Investigations and 2) LiDAR-Assisted Identification of an Active Fault near Truckee, California by L. E. Hunter, et al, Bulletin of the Seismological Society of America, Vol. 101, No. 3, pp. 1162–1181, June 2011). The DEA states that seismic failure is unlikely:
   - Information to substantiate that statement should be provided. | 005

6. Foundation strength. The DEA states that the dam's foundation materials are "stronger than previously thought".
   - Detail should be provided to demonstrate how that conclusion was reached. | 006

7. Lack of alternatives. The DEA only addresses two alternatives, dam raising and no project. Other alternatives are listed, but dismissed without thorough discussion as to why they were not further considered.
   - The final EA should include a more thorough discussion of alternatives. | 007

8. Evaluation of cumulative effects. Other dams in the area are currently being evaluated or are scheduled to be evaluated – specifically Martis Dam and Boca Dam.
   - These related projects should be fully addressed in the final EA as consideration for the overall flood control strategy for the Truckee River. | 008

TRWC suggests these mitigation measures be included in the project:

1. Wetland mitigation. Wetland mitigation will be required by the Army Corps of Engineers and the Lahontan Regional Water Quality Control Board. The following areas adjacent to Stampede Reservoir are in need of restoration and should be considered for mitigation: Davies Creek, Hoke Valley, lower Sagehen Creek, and Bickford Ranch Meadows (Little Truckee River). | 009

2. Headcut management plan. A management and avoidance plan should be included in the final EA that will reduce the potential for headcuts to develop in tributaries to Stampede Reservoir. Headcuts will be triggered by the sporadic | 010

raising and lowering of pool height. If headcuts do form, an operations plan should be in place to restore the stream channels. | 010

3. **Weed management.** The U.S. Forest Service has been working around Stampede Reservoir to eradicate musk thistle and star thistle. Expanding the potential reservoir pool will expand habitat for this species. The Bureau should consider supporting the weed management effort. | 011

4. **Road Improvements.** If paving or otherwise improving Dog Valley Road is necessary for project implementation, the improvements should be completed in such a way to improve drainage patterns and reduce erosion. | 012

Thank you for providing the opportunity to comment on the proposed Stampede Dam Safety of Dams project.

Sincerely,

Lisa Wallace, Executive Director

CC: Beth Christman, Director of Restoration Programs

From: Glen Daily [mailto:DailyG@reno.gov]
Sent: Monday, December 19, 2011 3:06 PM
To: Schmidt, Jane C
Subject: Draft E.A. for Stampede Dam Safety of Dams Modification

Hi Jane...Thank you for the opportunity to review the subject E.A. At this time we have no comments or concerns regarding this project. The City of Reno supports efforts by the Bureau of Reclamation to construct safety modifications to Stampede, Boca, and related structures within the Truckee River watershed which help provide flood protection for downstream communities to ensure they meet current dam safety standards. Please continue to include us on the list of interested parties to receive future updates and information regarding this important project.

001

Glen B. Daily, P.E.
Associate Civil Engineer
Sanitary Engineering
City of Reno Public Works Department
1 East First Street
P.O. Box 1900
Reno, NV 89505
phone (775) 334-2206
fax (775) 334-2490

Truckee Trails
FOUNDATION

December 20, 2011

Ms. Jane Schmidt
U.S. Bureau of Reclamation
705 N. Plaza, Room 320
Carson City, NV 89701

Dear Ms. Schmidt,

Thank you for the opportunity to provide comment on the Draft Environmental Assessment (DEA) for the Stampede Dam Safety of Dams Modification.

The Truckee Trails Foundation serves the Truckee area by building and advocating for a system of trails and bikeways for community, economic, and environmental well being. Accordingly, we wish to provide the following comments to the Bureau of Reclamation.

1. The DEA does not provide adequate information on the data used to establish the probably maximum flood (PMF). 001

2. The DEA states that the maximum inundation period at maximum pool elevation will be 15 days under the PMF, but does not detail the duration of inundation at lower-magnitude but more frequent events, such as the 100-, 50-, or 10-year events. Will flood control be improved at these flows? If so, how will this affect recreational activities, established trails and roads, and aesthetics at the shoreline? 002

The Truckee Trails Foundation suggests that mitigation measures be included in the project to account for potential impacts to recreational opportunities and trails near the shoreline, especially in meadows near the mouths of Sagehen Creek and the Little Truckee River. In particular, we suggest that trails along Sagehen Creek and the Upper Truckee River be designed, in consultation with the U.S. Forest Service, to maintain the ecological, recreational, and aesthetic integrity of the area. We also suggest the development of a new connector trail between Stampede and the Emigrant Trail as another mitigation measure that would greatly improve recreational opportunities for local trail users. 003

Sincerely yours,

Allison Pedley
Executive Director
Truckee Trails Foundation
allison@truckeetrails.org

Bruce Ajari
P. O. Box 630
Tahoe City, CA 96145
brajari@hotmail.com

Ray Butler
P. O. Box 2507
Truckee, CA 96160
Rwbutler338@att.net

December 21, 2011

Ms. Jane Schmidt
U.S. Bureau of Reclamation
Lahontan Basin Area Office
705 North Plaza, Room 320
Carson City, NV 89701
ATTN: jcschmidt@usbr.gov

SUBJECT: Comments on Draft Environmental Assessment, Stampede Dam, Safety of Dams Modification. November 2011

Dear Ms. Schmidt:

Thank you for the opportunity to comment on the DEA. Our comments are being transmitted to you via electronic mail. We have participated in the two scoping processes for the project and submitted comments to you on January 12, 2011 and October 10, 2011. These comments are incorporated by reference for the preparation of the final EA as many remain unaddressed by the Bureau in the second scoping and the DEA. As with our scoping comments our DEA comments are entirely our own and do not represent the position of Nevada County, California.

We have reviewed the DEA in detail. The environmental impacts to the biological resources of the project seem fairly described. Our initial concerns are somewhat alleviated because of clarifications made to the project between the first and second scoping solicitations and the DEA. Additionally, your statement in a phone conversation to Mr. Butler on December 9th to the effect that a reduced footprint of the project, with respect to haul roads and borrow areas, can be expected in the final EA largely satisfies concerns we originally had. The major caveat we have in agreeing that the DEA has non-significance on biological resources is that downstream work in the Little Truckee, as originally proposed, will not be resurrected at a future date. We would deem the Bureau revisiting downstream work as a violation of CFR 1508(b) (7) wherein "***significance cannot be avoided by terming an action temporary or by breaking it down into small component parts***".

001

We complement the Bureau's inclusion of a weed management plan as part of the DEA. We applaud the focus on prevention. The best management practices outlined are reasonable if enforced. The only suggestions we have for the plan is for the final EA to specify the long-term monitoring period, clearly designate the responsible parties, and outline an action plan if infestations occur. For instance, will the Bureau adapt an eradication plan that uses integrated pest management techniques or will restrictions apply? We ask this question because twenty-five years of experience has shown us that trying to eliminate musk thistle in the Boca/Stampede area is ineffective if only mechanical controls are used. 002

We believe the largest remaining issue for assessing biological resources is for the final EA to address aquatic invasive species spread and the possible nexus to the project. A recent study by the Truckee River Aquatic Invasive Species Prevention Program (a coalition overseen by the Lake Tahoe Resource Conservation District – an agency not appearing on your interested party consultation list) has quantified watercraft use and user patterns in the region. We are very concerned since the project blocks convenient access to Stampede for Nevada users and they will opt to visit Prosser, Donner, Frenchman or Davis lakes instead. Surveys have shown that a large percentage of these users also used Lake Lahontan - a water body that tests positive for aquatic invasive species. We would consider the final EA inadequate without a detailed analysis on this subject. 003

The maps and sectional drawings in the DEA are also an improvement over what was presented in the two scoping presentations.

While the DEA is close to meeting muster for biological resources we consider the document totally inadequate in addressing the human environment and risk, seriously inadequate with respect to certain provisions of the Reclamation Dam Safety Act of 1978 as amended, the National Environmental Policy Act and other policy directives from federal legislative and executive branches.

The Human Environment and Risk

We are extremely concerned that DEA has totally ignored the increased risk of dam failure from terrorism. We asked this be addressed in our scoping letter of October 10, 2011. Basically the destruction of a compacted, earth-fill dam with a 2.5:1 slope is problematic; while breaching a vertical, reinforced concrete panel wall of 8 feet thickness or less is feasible. Formulas and illustrations to breach works of this type are available from official U.S. government documents – and are readily downloadable off the internet. Since the preferred alternative calls for just such a structure, we must conclude that the project raises the risk to the human environment to significant levels. 004

The total lack response in the DEA to our comment has caused us to research the security issue in greater depth. We found a March 1, 2001 article from the Reno News and Review titled Dam Dangers. The risk from an act of terrorism is specifically mentioned. The article notes that a risk assessment of upstream dams at Boca, Prosser, Stampede and

Tahoe was conducted in the 1990s by the federal government and an emergency plan of action was mandated. The Bureau appears to have been a party to the assessment referred to. Considering this existing record of security concern we are appalled that our request for a new risk assessment for the Stampede project has been ignored. There is a clear responsibility for the EA decision maker to consider project significance and unacceptable impacts under criteria listed at CFR 40 1508-27(b)(5) stating *"The degree to which possible effects on the human environment are highly uncertain or involve unique or unknown risks"*. We believe that the preferred alternative increases the risk potential of a successful terrorist attack with catastrophic consequences for downstream infrastructure, property and human lives. Since the study of the 1990s there is can be no question that the potential for loss has increased tremendously because of population increase, continued development of commercial and residential property in the Truckee Meadows region, and the fact that Martis Creek Dam has been elevated to the highest possible risk level.

DEA Not in Compliance with Department of Interior Directives

Secretary Salazar announced a new policy regarding the use of best science in decision making on February 1, 2011. Provisions of the new policy are based on principles found in Secretarial Order 3305 and guided by the Office of Science and Technology Policy memo issued in December 2010. Many of these policies are clearly applicable to the DEA and the Stampede Project. Particularly we have not been provided with data and basis for calculating the 75,000 year Inflow Flood Design and 250,000 year Probable Maximum Flood criteria despite two requests. Other issues also exist including the omission of new earthquake faults in Lake Tahoe, numerous published reports on Sierra climate change and how they relate to the hydrological/meteorological models, and recent findings on Martis Creek Dam risk. We deem it reasonable that the Bureau would be in compliance or clearly state why they are exempt. 005

Summary Conclusions

We believe the DEA is an inadequate document. Since ALL the upstream dams in the Truckee River Basin in California are rated as "high hazard potential" (i.e., downstream loss of life will result from failure), we cannot understand why the Bureau is not collectively prioritizing their operated/managed dams. Why should the public, the Secretary and Congress review one dam at a time? We have no indication if safety deficiencies at Stampede are less, greater or equal when compared to any of the other impoundments in the basin. This simply doesn't make sense and effectively raises questions as to the legitimacy of the DEA's Purpose and Need for Action. We do not believe the Bureau's current direction is good public policy or contributes to the effective use of public resources. 006

Sincerely,

s/ Bruce Ajari s/ Ray Butler

David Lass
Northern California Field Director, Sportsmen's Conservation Project

December 20, 2011

Ms Jane Schmidt
Bureau of Reclamation
Lahontan Basin Area Office
705 N. Plaza, Room 320
Carson City, Nevada 89701-51

Re: Draft Environmental Assessment (DEA) for the Safety of Dams Modification to Stampede Dam, Washoe Project, California and Nevada

Dear Ms Schmidt,

On behalf of Trout Unlimited National (TU), TU members nationwide and the undersigned businesses and parties we submit the following comments, questions and concerns regarding the Bureau of Reclamation (Bureau) **Draft Environmental Assessment for the Safety of Dams Modification to Stampede Dam**. Trout Unlimited appreciates the opportunities given to work with the Bureau of Reclamation on these important issues, to construct a plan that protects critical and vital public resources, while meeting federal and state mandates for Dam safety, flood protection and water quality.

General Comments

Trout Unlimited is pleased after reading the Draft Environmental Assessment for the Safety of Dams Modification of Stampede Dam to see that four of our major concerns were addressed. These are as follows:

1. The project was modified to reduce the footprint, mainly by modifying haul roads and borrow areas.
2. The DEA removed all downstream works (channel armoring, rip-rap, and temporary channel dewatering) in the Little Truckee River for the project and has now considered that an issue of Dam Operations and Maintenance.
3. Normal operational schedule for water delivery from Stampede Dam will remain unchanged.

4. Dam height modification changed from 18 feet to 11.5 feet from initial proposal to DEA.

However, TU believes there are issues related to this project (as identified in this scoping letter), if not addressed by the Bureau, have the potential to significantly impact important recreation, tourism and sensitive aquatic and terrestrial resources within and adjacent to the project area. Our other primary concerns are include omission of any project cost, mitigating for restricting access to public facilities during the proposed two-year construction period and the lack of a range of alternatives considered, discussed and thoroughly explained.

Trout Unlimited outlines the following concerns, which should be addressed in detail by the Final Environmental Assessment (FEA):

NEPA Concerns

1) As required by the NEPA process, At 40 CFR 1508(b)(7) *"Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts."* TU first requests the Bureau consider all related projects in the area, including but not limited to:

1) The ***evaluation*** of Boca Dam for safety and flood control
2) The ***evaluation*** of Martis Dam for safety and flood control
3) The ***operation and storage*** of Prosser Dam for safety and flood control
4) The ***operation and storage*** of Independence Dam for drought protection

001

Beyond the cumulative flood risk consideration, the removal of the Little Truckee River instream modification should be further explained in the FEA. Though Trout Unlimited applauds the Bureau for removing these works from this project, we do not know if these deletions were made due to budget restraints, project scope or other reasons. We strongly believe that regardless of this, any future consideration or addition of these elements of the project post-FEA and record of decision could be considered a NEPA violation if pursued by the Bureau under a separate guise (Operations and Maintenance). This process is not separate and should be transparent and fully explained in the FEA by the Bureau.

002

Lastly, Trout Unlimited would require that the Bureau release any parallel plan and/or proposal, which the Bureau considers separate and beyond the Safety of Dams Modification Project, which TU considers part of the cumulative impact, which seeks to amend the Bureau's water contract with the State of California to ultimately store more water behind the newly modified structure. Trout Unlimited believes such a plan, if it exists, is part of the significant impacts of this Safety of Dams project and should be considered within this process, not separate. 003

Seismic Concerns

1) A seismic analysis should be completed for the project, or information in the FEA should substantiate the decision to omit such an analysis from the project. Currently, there is no seismic risk analysis, merely a brief summary that is quickly dismissed in the DEA without further explanation. Contrary to the statements in that document, there is a fairly large amount of published information (and also unpublished BOR reports) that describe in detail the potential for a seismic event on the fault that runs under Stampede Dam and Stampede Reservoir. Examples of literature describing these seismic risks include, but are not limited to: 1) Lewis E. Hunter et. al, Sacramento District, USACE, Martis Creek Dam LiDAR Investigations, and 2) LiDAR-Assisted Identifications of an Active Fault Near Truckee, CA by L.E. Hunter, et al, Bulletin of the Seismological Society of America, Vol. 101, No. 3, pp. 1162-1181, June 2011. 004

2) The Draft EA states that the dam structure has recently been found to be stronger than previously thought. The Bureau needs to explain this new finding in more detail and provide information to substantiate exactly how this assertion differs from their overall assertions about the dam's original weakness in the Notice of Intent document. What studies were done to reach this new conclusion? 005

Recreation/Access Concerns

1) The DEA states that fishing access to the Little Truckee River below the dam will not be affected, but does not describe this in any detail. The main artery to the primary borrow pit, located on the left dam abutment, proposes to go through the most heavily used fishing access on the Little Truckee River, where an average of ten vehicles park daily. The Bureau needs to demonstrate how this access will remain unaffected, how current infrastructure will remain unchanged, or provide additional options for access if this access changes during construction. Significant local and regional public outcry 006

will result from any closures of this site, and the Bureau should avoid impacts to access at this site.

2) The DEA doesn't show that any traffic study or analysis that has been completed to show the change in vehicle use – including public vehicles, Bureau haul vehicles and heavy equipment - through Russell Valley resulting from the project. How does this project affect the proposed project to pave Hobart Mills Rd. (Nevada County)? What are the considerations to allow access to emergency vehicles that need to access Stampede and surrounding area? The FEA should include a traffic study and road maintenance plan and help both Counties and the public understand how the existing road infrastructure will be impacted because of increased use. 007

Resource Concerns

1) The DEA states that the reservoir operations will not change "under normal conditions". However, the DEA does not state how the reservoir water surface elevation will change during extreme events below the 250,000 year event (PMF), and what the bath-tub impacts of flood control events outside the 75k year flood event are. Such an analysis will explain the impact to sensitive native vegetation, wetlands, meadow, recreation and fishery impacts while operating the reservoir to control 50, 100, and 500 year flood events. Does the Bureau propose that the current maximum pool height will be used for all flood events below the 250,000 PMF? This needs better explanation. For example, would the increased pool height cause further upstream migration of non-native fish species, especially into Sagehen Creek, which has been identified as a Lahontan cutthroat trout reintroduction stream? Does the area of inundation increase with 50, 100 and 500 year flood events or will the Bureau keep the existing maximum pool height during these events and open the spillway? The FEA should include an analysis of these impacts outside the 250,000 year PMF, and TU is concerned they are not fully explained in the current DEA. 008

2) The DEA current mention of a re-vegetation plan is inadequate. The DEA states that re-vegetation of disturbed areas will be completed with native or "adapted" plant species. TU believes strongly that only native plants should be used in any re-vegetation plan post-project to prevent the spread of non-native, invasive or nuisance plant species. 009

PMF Concerns

1) The use of 75,000 and 250,000-year design floods is not supported anywhere within the document and is not a standard for any Bureau Safety of Dams projects. The FEA will need a detailed discussion of how the 75,000-year Inflow Flood Design (IFD) and 250,000-year Probable Maximum Flood (PMF) were calculated, what climate models were used, and why. 010

Cost Concerns

1) The Reclamation Safety of Dams Act (P.L. 95-578) clearly requires among other things: 1) a detailed study with substantiating data why the project the project is necessary and 2) a cost estimate to complete the works as proposed. The DEA gives neither and Trout Unlimited requests that this information become available before the FEA. 011

Potential Project Mitigation

At this time, Bureau projects a permanent loss of 0.245 acre of wet meadow type wetland to result from the project implementation. That would mean 1.5 X 0.245 acres = 0.37 acre (16,117 sq. ft.) of mitigation required. The following projects outline potential mitigation measures:

1. The Bureau should consider construction of a non-native fish barrier in Sagehen Creek, just above the inundation zone, as part of mitigation for increased habitat for warm water non-native fish species resulting in raising pool height during certain water events. This is mitigating for the change in environment from the project, and a non-native fish barrier is part of a larger Lahontan cutthroat trout reintroduction project in Sagehen Creek. 012
2. Establish a headcut management plan to reduce impacts from headcuts in Stampede Reservoir tributaries – formed from sporadically raising and lowering the pool-height. These headcuts could impact past restoration work on Stampede Reservoir tributaries. 013
3. Mitigation to impacts of increased traffic – both Bureau and general public – to Russell Valley and Dog Valley Roads. The Bureau should consider improvements to these county roads to improve drainage and reduce erosion from impacts of increased use and traffic from the project. 014
4. The Bureau should consider managing the dust and noise levels and potentially amending the construction schedule during construction period to mitigate the 015

loss of recreation access and quality of experience at California Land Management facilities around Stampede Reservoir.

5. This project will expand the reservoir pool height during certain water events, which will lead to the spread of non-native plants, in particular musk thistle and star thistle. The Bureau should consider providing funding for the Truckee District of the Tahoe National Forest weed management program to combat noxious and invasive weeds around Stampede, Boca and Prosser Reservoirs. 016
6. Where aquatic habitats below Stampede Dam are degraded from mining source material, the Bureau should consider providing funding for the Little Truckee River Fish Habitat Improvement Project - an instream fish habitat improvement project directly below Stampede Dam – to mitigate for any water quality impacts or aquatic species that are lost during the project. 017
7. Wetland mitigation will be required by the Army Corps of Engineers and Lahontan Regional Water Quality Control Board. There are options near Stampede Reservoir where this mitigation can be achieved: Little Truckee River meadow restoration in Bickford Ranch, Lower Sagehen Creek (fixing railroad grade and completing trail re-alignment), Hoke Valley and Davies Creek (both meadow restoration projects). 018

To conclude, TU would like the Bureau to thoroughly examine other related projects in the area and consider them as part of this project, address our concerns and questions related to the inadequacy of detail of statements and proposals in the DEA, ensure that elements removed from this project are not planned to be completed under separate processes, and provide detailed information on cost estimates used for the Stampede Dam project.

On behalf of the fish and game values surrounding Bureau facilities and of the Tahoe National Forest, Trout Unlimited appreciates the opportunity to work with Bureau staff and to provide comments on the Draft Environmental Assessment for the Safety of Dams Modification to Stampede Dam. We request that our comments are considered and addressed by Bureau staff, as they are the collective opinions of a diverse group of local, regional and national interests.

TU knows the Bureau of Reclamation takes its management and stewardship responsibilities seriously, and will make a best effort to fulfill the mandate of this process and protect the public interest and trust. We look forward to working closely with you throughout this process to develop ecologically sustainable, manageable, and

enforceable plans for the future. Thank you for your consideration, and please don't hesitate to contact me.

Sincerely,

David Lass
Trout Unlimited
Northern California Field Director
10356 Donner Pass Rd. Suite B
Truckee, CA 96161

Stefan McLeod; President
Truckee River Chapter TU (Truckee)

Drew Irby; Council Chair
California Council of Trout Unlimited

Howard Kern; *Volunteer Coordinator*
California Council of Trout Unlimited

Tom Johns; Vice President
Tahoe Truckee Fly Fishers (Truckee)

Bodie Monroe; President
Sagebrush Chapter TU (Reno)

Cindy Noble; President
Feather River Chapter TU (Graeagle)

Kevin Mather; President
Sac-Sierra Chapter TU (Sacramento)

George Starn

North Bay Chapter TU (San Francisco)

Victor Babbitt; Owner
Tahoe Fly Fishing Outfitters (South Lake Tahoe, CA)

Dave Stanley; Owner
Reno Fly Shop, Truckee River Outfitters (Reno, NV)

Andy Burk; Owner
West River Fly Shop (Truckee, CA)

Brian Slusser; Owner
Four Seasons Fly Fishing Guide Service (Truckee, CA)

Frank Pisciotta;
Thy Rod and Staff Guide Service (Truckee, CA)

CC: Mark Rockwell; Conservation Chair
Northern California Council of the Federation of Fly Fishers

Ray Butler
Nevada County Fish and Game Commission

Ralph and Lisa Cutter; Owners
California School of Fly Fishing

Charlton H. Bonham; Director
California Department of Fish and Game

Roger Bloom; Director
Wild and Heritage Trout Program; California Department of Fish and Game

Chris Shutes; FERC Projects Director
California Sportsfishing Protection Alliance

Michael Cotter
United States Fish and Wildlife Service

Organizational Background

Trout Unlimited (TU) is the oldest and largest coldwater fish conservation organization in North America. TU's mission is to conserve, protect and restore native trout and salmon populations throughout their historic watersheds. TU accomplishes this mission through a combination of direct advocacy for changes in law and policy, organizing of sportsmen, public education and outreach, research and dissemination of new science, and on-the-ground conservation projects implemented by TU's 150,000 grassroots members and chapter leaders.

TU, based in Arlington, Virginia, operates field offices in states and regions with especially high values for coldwater fisheries and habitat. California is one such state, with its exceptional fishing and hunting opportunities, eleven native species of trout and salmon (the most of any state outside of Alaska), and thousands of miles of rivers. However, many of California's native fish are imperiled and face a multitude of threats, including human development, water use, and now climate change. Native trout that TU is working to protect and restore in California include the Lahontan cutthroat, the Paiute cutthroat, central and southern coastal steelhead, Goose Lake and Warner Lake redband, the California golden trout, and coho salmon.

We have offices in Truckee, Berkeley, Fort Bragg and Santa Cruz.

Matthew Rodriquez
Secretary for
Environmental Protection

California Regional Water Quality Control Board
Lahontan Region

2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
(530) 542-5400 • FAX (530) 544-2271
http://www.waterboards.ca.gov/lahontan

Edmund G. Brown Jr.
Governor

December 21, 2011

Jane Schmidt
Bureau of Reclamation
705 N. Plaza, Room 320
Carson City, NV 89701

via email to: jcschmidt@usbr.gov

COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED SAFETY MODIFICATION TO STAMPEDE DAM PROJECT, BUREAU OF RECLAMATION, SIERRA COUNTY

On November 23, 2011, the California Regional Water Quality Control Board, Lahontan Region (Water Board) received a copy of the Bureau of Reclamation's Draft Environmental Assessment (EA) for their Safety of Dams Modification Project (Project) proposed to correct hydrologic safety deficiencies. The Project is subject to the National Environmental Policy Act (NEPA) and other environmental laws and regulations. The comments provided herein follow our public scoping comments provided on January 13, 2010.

Project Description

The Stampede Reservoir is a surface water body with a dam that impounds waters of the Little Truckee River. The Little Truckee River is tributary to the Truckee River. The Draft EA proposes two alternatives, a No-Action Alternative, and a preferred alternative, to reduce excessive risk from purported safety deficiencies associated with Stampede Dam. The preferred alternative would involve constructing a Mechanically Stabilized Earth (MSE) wall on the crest of the existing dam and dike to safely accommodate the probable maximum flood (PMF) event at the Stampede reservoir, which was determined from recent investigations to be the 250,000-year flood event. The MSE wall would increase the dam height (crest) by 11.5 feet and water surface elevations by 14.2 feet above the current elevations during such a PMF event. This would be accomplished with an MSE wall consisting of two rows of concrete panels with compacted fill material between the panels. The primary borrow source for the earthen fill material would be from an area below Stampede Dam and would be transported by trucks via the power plant access road, which would be widened in order to accommodate the traffic. This roadway runs parallel and adjacent to a stream channel on one side and the Little Truckee River on the other. The road widening would require temporary fill of a stream channel that enters the Little Truckee River downstream. The temporary fill associated with this stream channel is identified as "0.22 acre of wetland" in the EA. Riprap was initially proposed to be placed along the bank of the Little Truckee River downstream of the spillway, but was eliminated for analysis under the EA and is proposed to be

evaluated instead under the Operations and Maintenance program for the dam. Other proposed impacts include the permanent loss of 0.245 acre of wetlands delineated in the area of the proposed east saddle dike.

Comments

Water quality control standards for the Little Truckee River Hydrologic Unit contained in the Water Quality Control Plan for the Lahontan Region (Basin Plan) are applicable to this Project. The final environmental document will be used by this agency together with other information as a basis to evaluate future project-specific permits and approvals. The standard of review is to identify and disclose all potential actions and environmental effects associated with the project, and provide mitigation where feasible to reduce or eliminate significant or potentially significant effects to water resource quality and the existing environment from changes due to the project. Upon reviewing the Draft EA. the Water Board has the following comments:

1. Public Scoping Comments

The comments the Water Board provided during the public scoping period (see our January 13, 2010 letter, enclosed) were not adequately addressed in the EA, particularly regarding mitigation. The comments in the January 13, 2010 letter are hereby incorporated into today's comments by reference. As noted on page 5 of our January 2010 comments, we requested that the Draft EA "disclose the specific impacts to waters and 100-year floodplain areas as part of the project, evaluate feasible mitigation measures, and impose specified, actual mitigation measures and mitigation monitoring requirements to reduce these impacts to insignificant levels, or make appropriate findings concerning impacts not mitigated to insignificant levels." Furthermore, we requested that the Draft EA "(a) characterize all project-specific, cumulative, direct, and indirect impacts of the proposed project on the quality of waters of the State and the U.S., (b) identify all alternatives that would avoid or minimize impacts, and (c) identify all mitigation measures to reduce and eliminate such impacts." None of these requests were fulfilled in the draft EA. 001 002

Prior to issuing any project discretionary project approval the Water Board must comply fully with the California Environmental Policy Act (CEQA, Public Resources Code 21000, et seq.) The federal NEPA review under the EA is being conducted independently of CEQA (rather than jointly) and does not fulfill CEQA requirements. A CEQA lead agency has not been identified for this Project at this time. Please be aware that because a "CEQA-equivalent document" (with adequate mitigation and monitoring) is not being circulated by a CEQA lead agency, that the CEQA review may be conducted as required at some later time. There are basically three potential outcomes in CEQA: the project will be found exempt from further CEQA review, a negative declaration will be prepared indicating that no significant or potentially significant unmitigated environmental effects will occur, or an environmental impact report will be required. Actions other than finding the project exempt (which is 003

unlikely) could delay permitting and/or alter implementation requirements for this Project significantly.

Water Board staff recommends that the final environmental document for this Project provide detailed information demonstrating how the Project will comply with all the applicable requirements. This will require discussing specific project elements, construction techniques, and facility operations and maintenance, and addressing fully the environmental concerns of persons commenting on the draft EA. 004

2. Lack of Alternatives in the EA

Several other alternatives (other than a "No-Action" Alternative and the preferred alternative) were listed in the EA, but no explanation or justification for elimination of any of these alternatives was provided. No substantial information is provided in the EA concerning the listed alternatives to inform a decision maker as to how the alternatives were, developed, considered or rejected. We request that additional information be provided concerning the alternatives analysis reportedly conducted. 005

3. Avoidance and Minimization

The 0.245-acre wetland proposed to be permanently impacted for the eastern dike area was discussed by participants at a site field visit in the Fall of 2011. During that visit, an alternative proposed to reduce the permanent wetland impact was to use the existing roadway as the needed dike, raising the roadbed if needed rather than filling the wetland just north of the roadway. This avoidance measure is not implemented or discussed anywhere in the EA. This would not only reduce costs, but would eliminate the need to fill the wetland by placing the proposed dike across it, and may reduce impacts at the borrow sites that may be used to obtain the fill. 006

With regard to the 0.22-acre of proposed temporary wetland impacts due to placing the creek along the power plant access road in a culvert, there must be justification and analysis for these impacts. If avoidance and minimization of impacts has been clearly demonstrated, then a restoration and monitoring plan must be described that includes a revegetation plan. 007

With respect to the 25 acres of pine trees that the contractor has proposed to be "temporarily" removed, an explanation is needed for how this activity can be accomplished in a "temporary" manner, the water quality protection measures to be employed until the stabilization of soils from erosion is permanent, and a plan for the area restoration. 008

Avoidance must include demonstration that adverse effects on wetlands and other waters of the State, including waters of the U.S., have been avoided to the maximum extent practicable. If it is not possible to avoid or minimize impacts to waters of the State, you must provide the reasoning and evidence for that conclusion The following represents the sequence in which proposals should be 009

approached: (1) Avoid – avoid impacts to waters; (2) Minimize – modify project to minimize impacts to waters; (3) Mitigate – Where impacts cannot be avoided, adequate mitigation for the loss of water body acreage and function must be provided. The draft EA is deficient in this regard and should be supplemented. 009

4. Mitigation for Impacts

Mitigation for the impacts to wetlands and other waters of the State, including waters of the U.S., should be identified in the environmental document. While it may be adequate under NEPA to state, as the EA does on p. 3-19, that "a mitigation plan to replace this loss would be developed and implemented in consultation with the Army Corps of Engineers," disclosure of the specific manner and location(s) in which mitigation involving changes to the environment will occur is recommended so that the public may be provided meaningful disclosure of all the potential environmental effects that may occur from the project. 010

5. CEQA Piecemealing Issue by Delaying Riprap Proposal

In the cover letter to the EA, the Bureau of Reclamation determined that the previously proposed downstream "channel improvements" (i.e., river bank protection with stone covering (riprap) proposed during site visit) foreseeably needed to prevent erosion of the channel banks downstream of the modified dam would not be proposed as part of the scope of the current EA and instead would be evaluated as part of the "Operations and Maintenance program." If this proposed activity along the bank of the Little Truckee River is a reasonable foreseeable outcome or necessity of the dam-raising project, then this activity must be included as part of the environmental analysis under CEQA to avoid piecemeal issues, as CEQA approval must address the whole environamental changes that may follow from any approval action. We therefore request that the Bureau include this analysis in the final EA for the dam-raise project, and not defer resolution of any associated issues. 011

6. Basin Plan Prohibition

a The Basin Plan prohibits the discharge and threatened discharge of wastes to surface waters and their associated 100-year flood plains in the Little Truckee River Hydrologic Unit. This prohibition and the listed exemption criteria can be viewed under Chapter 4.1 of the Basin Plan, available on our website at http://www.waterboards.ca.gov/lahontan/BPlan/BPlan_Index.htm. 012

To protect beneficial uses and achieve water quality objectives the Basin Plan specifies the following discharge prohibition 4(c):

The discharge or threatened discharge attributed to human activities, of solid or liquid waste materials including soil, silt, clay, sand, and other organic and earthen materials to lands within the 100-year floodplain of the Little Truckee River or any tributary to the Little Truckee River is prohibited.

b. The Project involves potential discharges in violation of the prohibition that are considered potentially significant effects, at a minimum, unless effects are fully mitigated. The Water Board may grant an exemption to prohibition 4(c) above for the following categories of new projects: 012

(1) Projects solely intended to reduce or mitigate existing sources of erosion or water pollution, or to restore the functional value to previously disturbed floodplain areas.
(2) Bridge abutments, approaches, or other essential transportation facilities identified in an approved county general plan.
(3) Projects necessary to protect public health or safety or to provide essential public services.
(4) Projects necessary for public recreation.
(5) Projects that will provide outdoor public recreation within portions of the 100-year floodplain that have been substantially altered by grading and/or filling activities which occurred prior to June 26, 1975.

c. The Project may be allowable under one or more of the provisions above, but these are poorly documented in the EA and should be described in detail in the EA. The EA should provide the extent of flood plain and hydrology changes and upstream and downstream effects of same, or potential adverse effects of all the Project elements. If the project is for flood protection to protect public health or safety, the EA does not show how that project category will be satisfied. 013 014 013

d. Additionally, to grant a discharge prohibition exception, the Water Board must be able to make all of the following findings, which have been historically applied by the Water Board to the analysis of each element of larger projects (e g., each impact locale, culvert crossing, fill site, borrow or disposal site) proposed to accomplish the authorized purposes above: 015

- There is no reasonable alternative to locating the project or portions of the project within the 100-year floodplain.
- The project, by its very nature, must be located within the 100-year floodplain. (This finding is not required for those portions of outdoor public recreation projects to be located in areas that were substantially altered by grading and/or filling activities before June 26, 1975.) The determination of whether a project, by its very nature, must be located in a 100-year floodplain shall be based on the kind of project proposed, not the particular site proposed. Exemptions for projects such as recreational facility parking lots and visitor centers, which by their very nature do not have to be located in a 100-year floodplain, will not be allowed in areas that were not substantially altered by grading and/or filling prior to June 26, 1975.
- The project incorporates measures which will insure that any erosion and surface runoff problems caused by the project are mitigated to levels of insignificance.
- The project will not, individually or cumulatively with other projects, directly or indirectly, degrade water quality or impair beneficial uses of water.

- The project will not reduce the flood flow attenuation capacity, the surface flow treatment capacity, or the ground water flow treatment capacity from existing conditions. This shall be ensured by restoration of previously disturbed areas within the 100-year floodplain within the project site, or by enlargement of the floodplain within or as close as practical to the project site. The restored, new or enlarged floodplain shall be of sufficient area, volume, and wetland value to more than offset the flood flow attenuation capacity, surface flow treatment capacity and ground water flow treatment capacity lost by construction of the project.

e. The project is being proposed to alter current flood flow attenuation capacity. Other than preventing dam overtopping and temporarily increasing the size of the reservoir pool during major floods, the effects on the floodplain of the river and the reservoir, shoreline vegetation and soils, are barely discussed in the draft EA. The EA should be supplemented to indicate how the proposed project will comply with Basin Plan prohibitions that do not allow project discharges that do not maintain current flood flow attenuation capacity, surface flow treatment capacity, or ground water flow treatment capacity, either by ensuring restoration of previously disturbed areas within the 100-year floodplain in the project site, or enlarging the floodplain within, or as close as practical to, the project site. Detailed information is required before such exemptions can be granted and details should be made clear in the EA. Any flood flow attenuation area or capacity lost in the proposed project should be described together with proposed mitigation. 016

f. If the proposed project's purpose is for flood control and the project is "necessary to protect public health and safety," the Bureau of Reclamation should make this case in the environmental document in order to demonstrate eligibility for a prohibition exemption as discussed above, and mitigate potentially significant hydrology and water quality impacts to less than significant levels. Flood control safety projects often have the effect of reducing flooding and floodplain area by restricting the flows in culverts, by levees, etc., and loss of floodplain function and values. 017

g. The EA also does not adequately provide a description of the Best Management Practices (BMPs) proposed to ensure that any erosion and surface runoff problems caused by the project will be mitigated to a level of insignificance. The EA must adequately address these impacts in order to mitigate these impacts to levels of insignificance. We would include the formerly-included river rip-rap project element in this regard, or a description of why this former project element isn't needed for the dam-raise project. To qualify for the Basin Plan prohibition exemptions during the processing of the application for the proposed project, these impacts must also be addressed and mitigated. 018

7. Hydrology and Water Quality

The EA states that a National Pollutant Discharge Elimination System General Construction Activity Stormwater permit, the Army Corps of Engineers Section 404 permit, 401 Water Quality Certification and a Storm Water Pollution Prevention Plan

Addendum (SWPPP) will be obtained by the Bureau. While that is valid information, the EA does not describe how the project will be conducted to ensure compliance with the cited requirements. Under CEQA considerations, it is inappropriate to rely on any agency's permitting requirement to mitigate potential water quality related impact(s), unless such permits already exist which prescribe the required mitigation. The cited Water Board permits and requirements generally do not prescribe the manner of compliance, so we don't know how or if this project will comply with Water Board requirements. The EA should evaluate impacts from construction and include, as mitigation measures, specific BMPs that will be implemented during storm events that could occur during project implementation, and that will be implemented to address project and road runoff during and following construction. 019

Thank you for the opportunity to provide comments on this project. If you have any questions or comments regarding this matter, please contact Tobi Tyler at (530) 542-5435 or me at (530) 542-5430.

Alan E. Miller, P.E.
Chief, North Basin Regulatory Unit

Enclosure: Letter of January 13, 2010

Cc w/o enc: Division of Water Rights
Will Ness, U.S. Army Corps of Engineers, Sacramento District
Lisa Wallace, Truckee River Watershed Council
Sierra County Planning Department

TT/adwT: Stampede EA comments 12-21-11 TT-AEM.doc
[File. Pending / Sierra County / Stampede Dam Heightening Project)

California Regional Water Quality Control Board
Lahontan Region

Linda S. Adams
Secretary for
Environmental Protection

2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
(530) 542-5400 • Fax (530) 544-2271
www.waterboards.ca.gov/lahontan

Arnold Schwarzenegger
Governor

January 13, 2010

Jane Schmidt
Bureau of Reclamation
705 N. Plaza, Room 320
Carson City, NV 89701

via e-mail to: jcschmidt@usbr.gov

PUBLIC SCOPING COMMENTS ON THE PROPOSED SAFETY MODIFICATION TO STAMPEDE DAM, WASHOE PROJECT, IN PREPARATION FOR AN ENVIRONMENTAL ASSESSMENT, BUREAU OF RECLAMATION, SIERRA COUNTY

On December 21, 2009, the California Regional Water Quality Control Board, Lahontan Region (Lahontan Water Board) received a copy of the Bureau of Reclamation's Public Scoping request in advance of preparing an Environmental Assessment (EA). The EA will address the Bureau's proposed Safety of Dams Modification to Stampede Dam, Washoe Project, which is subject to the National Environmental Policy Act (NEPA) and other environmental laws and regulations. Upon reviewing the public scoping request letter, the Water Board has the following concerns and suggestions to consider in preparing the environmental document and securing all applicable permits for this project.

Project Description

The Stampede Reservoir is a surface water body with a dam that impounds waters associated with Independence Creek, a tributary to the Little Truckee River. The Little Truckee River is tributary to the Truckee River. The project involves the construction of a Mechanically Stabilized Earth (MSE) wall on the crest of the existing dam and dike to safely accommodate the probable maximum flood (PMF) event at the Stampede reservoir, which was determined from recent investigations to be the 250,000-year flood event.

Alternative A is the No-Action Alternative and indicates Stampede Dam would fail during an extreme flood event such as a 250,000-year PMF. Otherwise, the scoping notice evaluates a single proposed action (Alternative B) needed to address existing unsafe conditions that may result in a dam failure during a 250,000-year PMF. No other action alternatives are identified or discussed.

Alternative B: To prevent dam failure by overtopping during such an event and provide additional emergency storage, the proposed project will increase the dam height (crest) by 11.4 feet and water surface elevations by 14.2 feet above the current elevations during such a PMF event. This will be accomplished with an MSE wall consisting of two

rows of concrete panels with compacted fill material between the panels. The primary borrow source for the earthen fill material would be located in a "previously disturbed area" managed by the Bureau below Stampede Dam. Modifications will also be made to the existing spillway and discharge channel that may involve placement of dredged or fill materials.

The scoping notice indicates that Stampede Reservoir operations will not change from normal, existing conditions except during times of extreme flooding, and that normal, existing reservoir operations will resume within days after the flooding has resided.

Environmental Review Documents

Our comments below are submitted in compliance with California Environmental Quality Act (CEQA) *Guidelines* §15096, which requires CEQA responsible agencies (California State agencies with discretionary approval authority for the project), including the Water Board, to specify the scope and content of the environmental information germane to their statutory responsibilities. This project may have a significant effect on the environment. The project effects, both short term and long term, must be analyzed in accordance with CEQA to be useful for State agencies. The Water Board must comply with CEQA before granting discretionary actions, such as a Clean Water Act section 401 water quality certification. The regulations that guide our compliance with CEQA direct us to work with federal agencies to streamline the environmental review process by preparing combined environmental (i.e., NEPA/CEQA) documents. A combined environmental document is recommended for this project. In short, your NEPA document would need to be supplemented to fully comply with CEQA, and be circulated to meet the public notice and involvement requirements of CEQA. We suggest identifying the State CEQA "lead" agency (California Department of Fish and Game, State Water Resources Control Board's Division of Water Rights, or California Department of Water Resources' Division of Dam Safety) before going ahead with the NEPA analysis. The Water Board, or other State CEQA lead agency, would then certify the environmental document at a public meeting before approving any discretionary action.

General Comments

The California State Water Resources Control Board (State Water Board) and the Lahontan Water Board have independent and overlapping authorities with regard to the type of action proposed. Whereas the State Water Board has sole State authority to regulate impoundments of waters of the state under water rights licenses and to issue general policies, water quality orders, and certifications, the Lahontan Water Board has no authority to regulate the impoundment of surface waters. We note (belatedly) that the State Water Board's Division of Water Rights was not on the mailing list provided with the scoping notice, and suggest it may be appropriate for the Bureau to contact the Division of Water Rights concerning any applicable requirements for diverting or impounding surface waters with respect to requirements, including the Truckee River Operating Agreement.

The Water Boards have been previously involved in activities at Stampede Reservoir related to the activities under scoping. On September 16, 2009, the Lahontan Water Board commented to the US Forest Service on geologic investigations to determine if suitable borrow material was available for Stampede Dam repairs (see Enclosure 1). On October 15, 2009, the Lahontan Water Board issued a letter to the Bureau and US Forest Service in response to notification that the geologic investigations would be conducted pursuant to a certification and conditions issued by the State Water Board (see Enclosure 2).

The *Water Quality Control Plan for the Lahontan Region* (Basin Plan) contains the adopted policies, standards and water quality objectives against which the project should be analyzed. The Basin Plan includes a prohibition against the discharge or threatened discharge of earthen wastes that would violate Basin Plan water quality objectives. A failure of the dam during a flood, as threatened, would be in violation of the prohibition and argues against the "no-action" alternative. We appreciate that the Bureau is proposing action to abate the threat that has now been identified. However, we question whether the sole action alternative examined, raising the height of the existing unsafe dam and flood elevations to store additional flood waters, is the safest and best approach to resolving the risk. Please consider and analyze other alternatives. For instance, a bigger bypass spillway (only), or a change in operations to reduce the volume of water stored at times of risk may serve equally well to resolve the threat, and perhaps with less risk of damage to the environment. Given the project purpose, "to correct safety deficiencies at Stampede Dam," we suggest that there may be other alternatives to the proposed action and that additional alternatives analysis may be needed to demonstrate that other alternatives to achieve the project purpose are not reasonable.

Raising the dam is the only recommended alternative analyzed for scoping purposes and could increase the uncontrolled discharge and resultant damage if the dam, as modified, were to fail. Any action proposed should not increase the threat or damage in the event of a dam failure. Please present engineering analyses to demonstrate that the threat of dam failure during and following floods will not increase due to forces such as overturning, overtopping/washout, or undermining by seepage from increased head loading. Describe the existing storage volumes and flood heights and how the modifications relate to these in a relative, not just absolute, way.

We would like to know more about the maximum probable flood, its magnitude, and why 250,000 years is selected as the return-cycle basis for safety design. We would like to know whether earthquake threats are also considered in the evaluations, as the original, pre-dam evaluations for earthquake safety may need to be revised associated with the proposed action, and in response to information not available previously. How will raising the dam height and water storage volume affect dam performance in a foreseeable earthquake? What is the maximum credible earthquake for risk planning purposes for the modified dam and how does it relate to the maximum probable flood?

The environmental document should focus on how the proposed modifications will change the existing environment, including pre- and post-project hydrologic simulations and analyses of same. It would be helpful to assess the changes in relation to existing conditions in both absolute and relative terms, like percentages. For instance, the dam crest will increase by 11.4 feet. We don't know current water depths and elevations and would like to know, for instance, if this will change the stored volume by a little (say, 0.2 percent) or a lot (say, 40 percent), and what those volumes are. What will be the maximum rates of discharge before and after the proposed project and how will changes affect downstream areas and conditions, including beyond the spillway areas? How will significant effects on habitat and bed form stability from additional erosion be prevented in downstream areas? Will aquatic resources be impacted by upstream inundation?

The Lahontan Water Board regulates discharges to protect the quality of waters of the State in accordance with the Basin Plan (website address http://www.waterboards.ca.gov/lahontan/BasinPlan/Index.htm). Chapter 4 includes Prohibitions, Wetland Protection Policies, and Reservoir Management Guidelines (excerpts attached). The Draft EA should evaluate project alternatives with regard to satisfying Basin Plan requirements and conditions in Water Board permits and 401 Water Quality Certification orders that may be required. If the proposed project has any of the following potential discharges, the Bureau may be required to obtain from the State and/or Lahontan Water Board one or more of the following:

Discharge Type	**Potential Regulatory Requirements**
• Discharge of dredge and fill materials to waters of the U.S. subject to Clean Water Act section 404 or waters of the State	- Clean Water Act (CWA) §401 water quality certification for federal waters; or Waste Discharge Requirements for non-federal waters.
• Discharge of any waste material and/or permanent or temporary disturbance within the 100-year floodplain of the Little Truckee River or any tributary to the Little Truckee River	- Floodplain Discharge Prohibition Exemption from Lahontan Water Board (project must meet all exemption criteria specified in the Basin Plan).
• Discharge of sediment or other wastes associated with construction activities	- CWA §402 National Pollutant Discharge Elimination System (NPDES) permit, e.g. Statewide General Construction Stormwater Permit.
• Increase in storage capacity of reservoir over current appropriated water right permit	- Revised or amended Water Right permit (from the State Water Resources Control Board's Division of Water Rights).

The Basin Plan (Chapter 4) prohibits discharge of wastes to surface waters or to lands within the 100-year floodplain of the Little Truckee River or any tributary to the Little Truckee River. Exemptions to these prohibitions may be granted for certain projects only if specific findings can be made. The Draft EA should evaluate the alternatives and demonstrate compliance with these requirements (see excerpts from the Basin Plan enclosed).

The NPDES requires Best Management Practices (BMPs) to prevent or mitigate short and long-term construction impacts. The project must maintain compliance with discharge limits and receiving water objectives. Though all construction details may not be finalized, the Draft EA should describe permanent or temporary BMPs that would be used to minimize or mitigate impacts that are significant or potentially significant, including compliance with discharge prohibitions.

We recommend consulting the U.S Army Corps of Engineers (Corps) concerning Clean Water Act (CWA) section 404 requirements. If a 404 permit is required from the Corps, then a CWA section 401 water quality certification (WQC) is required from the Water Board. For State waters that are not subject to Army Corps jurisdiction, similar requirements may be issued under State law. The Draft EA must disclose the specific impacts to waters and 100-year floodplain areas proposed as part of the project, evaluate feasible mitigation measures, and impose specified, actual mitigation measures and mitigation monitoring requirements to reduce these impacts to insignificant levels, or make appropriate findings concerning impacts not mitigated to insignificant levels.

The Draft EA should (a) characterize all project-specific, cumulative, direct, and indirect impacts of the proposed project on the quality of waters of the State and the U.S., (b) identify all alternatives that would avoid or minimize impacts, and (c) identify all mitigation measures to reduce and eliminate such impacts.

Analyses should include:

1. Avoidance and Minimization Analysis

   We strongly encourage avoidance as the primary strategy to address water quality concerns. An analysis of the project alternatives should be approached in the following sequence: (1) avoidance of all impacts to waters and 100-year floodplains in this watershed, (2) minimization of impacts to waters and floodplains, and (3) once impacts have been avoided and minimized, compensation for any remaining impacts. Compensatory mitigation must not be used to offset avoidable impacts. Also, obtaining permits from the Water Board is not an acceptable form of mitigation for impacts.

Please include in the Draft EA:

a. Measures to avoid or minimize each potential cause of water quality degradation.
b. An analysis of why any remaining impacts cannot be avoided or further minimized.

2. Identification of Affected Waters

A clear understanding of the location and nature of the waters potentially affected by the proposed project and other project alternatives is fundamental to fulfillment of our regulatory responsibilities. The EA should:

a. Provide regional-scale and 1:24,000-scale maps and a description of all waters potentially affected by the proposed project, preferably tabulated and organized by watershed (drainage basin) and waterbody type, e.g., wetlands (including type), 100-year floodplains, streams, other surface waters, and groundwater basins.
b. For each waterbody (drainage features, wetlands, and 100-year floodplain areas) expected to be directly affected, identify the acreage and number of linear feet of potential impacts, and sum the total affected area and linear feet by waterbody type. Compare all alternatives in one or more tables. If the proposed alternative has greater quantities of impacts, provide detailed justification for the proposed alternative.
c. Identify any "isolated" wetlands or other waters excluded from federal jurisdiction by court decisions [1].

3. Characterization of Impacts

As noted above, avoidance is often the best strategy for managing potential water quality impacts. For unavoidable impacts, understanding how pollution pathways will operate is essential to managing them. Please:

a. Specify the causes, nature and magnitude of all proposed impacts. Provide a level of analyses commensurate with the size and complexity of the project and its potential water quality impacts.
b. Quantify impacts as definitively as feasible, using appropriate modeling and adequate data. Modeling approaches should be documented, and data deficiencies or other factors affecting the reliability of the results should be identified and characterized.
c. Identify whether impacts will be temporary or permanent.

[1] E.g., U.S. Supreme Court, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 2001, and U.S. Supreme Court, *Rapanos v. United States and Carabell v. United States*, 2006.

d. Provide a meaningful analysis of potential cumulative impacts to watershed hydrology from existing and other planned development and restoration efforts in the watershed or planning area.

Specific Comments

1. Project Mapping

When preparing the NEPA analysis (and applying for project permitting), please provide Project area maps that detail:

a. The perimeter of the existing 100-year floodplain;
b. The perimeter of the proposed 100-year floodplain;
c. The perimeter of any existing wetlands and potential associated floodplain and the extent of impacts proposed;
d. Existing roads, trails, and stream crossings within the project area;
e. The location(s) of any other staging/stockpiling areas, borrow pit areas, access road, temporary fills, and other areas subject to disturbance; and
f. Areas not subject to disturbance associated with the project (exclusion areas).

Please also ensure these maps are topographic and are at an appropriate scale for reading with the unaided eye.

2. Assessment of Existing Conditions/Changes

In addition to mapping the above details, the Draft EA should evaluate the condition of the existing wetlands, floodplains and other waters associated with the reservoir and river downstream of the reservoir, and provide an assessment of changes associated with the project.

3. Effects of Project on Water Quality Standards – Water Quality Objectives and Beneficial Uses

a. Floodplain Prohibition

To protect beneficial uses and achieve water quality objectives the Basin Plan specifies the following discharge prohibition:

The discharge or threatened discharge attributed to human activities, of solid or liquid waste materials including soil, silt, clay, sand, and other organic and earthen materials to lands within the 100-year floodplain of the Little Truckee River or any tributary to the Little Truckee River is prohibited. Page 4.1-5, no. 4(c)

For the Water Board to grant an exemption to the above-cited Basin Plan prohibition, the project must involve repair and replacement that does not involve

the loss of floodplain area or volume, or must be necessary to protect public health or safety or to provide essential public services.

Additionally the Water Board must be able to make all of the following findings:

- There is no reasonable alternative to locating the project or portions of the project within the 100-year floodplain.
- The project, by its very nature, must be located within the 100-year floodplain. (This finding is not required for those portions of outdoor public recreation projects to be located in areas that were substantially altered by grading and/or filling activities before June 26, 1975.) The determination of whether a project, by its very nature, must be located in a 100-year floodplain shall be based on the kind of project proposed, not the particular site proposed. Exemptions for projects such as recreational facility parking lots and visitor centers, which by their very nature do not have to be located in a 100-year floodplain, will not be allowed in areas that were not substantially altered by grading and/or filling prior to June 26, 1975.
- The project incorporates measures which will insure that any erosion and surface runoff problems caused by the project are mitigated to levels of insignificance.
- The project will not, individually or cumulatively with other projects, directly or indirectly, degrade water quality or impair beneficial uses of water.

The Lahontan Water Board typically applies these criteria to each specific project element, to avoid and minimize disturbances requiring mitigation. Information to make all of the above findings should be included in the NEPA environmental documentation and detailed in project submittals to the Water Board.

b. Best Management Practices

The Draft EA should provide an adequate description of the BMPs proposed to ensure that any erosion and surface runoff problems caused by the project will be mitigated to a level of insignificance (i.e., best management practices for both temporary construction impacts and permanent storm water runoff controls) in order to qualify for the Basin Plan prohibition exemptions. The WQC application instructions similarly require that the applicant describe, in detail, the BMPs which will be used to avoid or minimize impacts to the waters of the State.

The Water Board is recommending that the EA include detailed information concerning erosion control and Best Management Practices (BMPs) during and following construction. The EA should address dredging isolation, dewatering of sumps, dewatering of dredged matter, and disposal of concrete wastes. An inspection program should be designed to both assure that the BMPs are functioning properly (i.e., with daily inspections, evaluations and maintenance/replacement) and assess the adequacy of any installed mitigation

measures/BMPs over time. Also, the success criteria for soil stabilization measures must be identified.

c. Potential Adverse Short-Term and Long-Term Effects of Project

All potential short-term and long-term effects of the two alternatives, the no-project alternative and the dam modification alternative, should be evaluated in the Draft EA. Examples of these effects are: construction activities, the impoundment of additional flood water, disruptions in downstream flow, recreational impacts, fish passage, reductions in existing wetlands, reduced water quality from increased inundation. Mitigation measures must be proposed for all identified potential impacts and the mechanism for monitoring implementation of these mitigation measures must be identified.

d. Evaluation of Impacts on Beneficial Uses

Stampede Reservoir and the Little Truckee River together have the following beneficial uses:

- Municipal and Domestic Supply
- Agricultural Supply
- Ground Water Recharge
- Freshwater Replenishment
- Navigation
- Hydropower Generation
- Water Contact Recreation
- Non-water Contact Recreation
- Commercial and Sportfishing
- Cold Freshwater Habitat
- Wildlife Habitat
- Rare, Threatened and Endangered Species
- Migration of Aquatic Organisms
- Spawning, Reproduction and Development

The Draft EA should evaluate the project-related effects on the above list of beneficial uses, as well as the effects on the trophic status of the reservoir, invasive species, and the hydro-geomorphologic changes, both upstream and downstream, that could result from implementing the proposed project.

Thank you for the opportunity to provide scoping comments on this project. If you have any questions or comments regarding this matter, please contact Tobi Tyler at (530) 542-5435 or me at (530) 542-5430.

Alan E. Miller, P.E.
Chief, North Basin Regulatory Unit

Enclosures:
1. Letter of Sept 16, 2009
2. Letter of Oct 15, 2009
3. Basin Plan excerpts from Chapter 4.9, Prohibition excerpts, pages 4.1-4 through 4.1-6.
4. Basin Plan excerpts from Chapter 4.9, Wetlands excerpts, pages 4.9-8 through 4.9-14.
5. Basin Plan excerpts from Chapter 4.9, Reservoirs excerpts, pages 4.9-3 through 4.9-7 and 4.9-26 through 4.9-28.

cc: Camilla Williams, Division of Water Rights
Erin Hess, U.S. Army Corps of Engineers, Sacramento District
Lisa Wallace, Truckee River Watershed Council

TT/clhT: Stampede NOP comments TT.doc
(File: Pending / Sierra County / Stampede Dam Heightening Project)

USDA United States Department of Agriculture | Forest Service | Truckee Ranger District
10811 Stockrest Springs Road
Truckee, CA 96161-2949
530-587-3558
530-587-6907 TDD
530-587-6914 FAX

File Code: 1950
Date: December 21, 2011

Jane Schmidt
Bureau of Reclamation
705 N. Plaza, Room 320
Carson City, NV 89701

Dear Ms. Schmidt:

The following are comments from the Tahoe National Forest, Truckee Ranger District in response to the Draft Environmental Assessment for the Stampede Dam Safety of Dams Modification project.

SOCIAL CONCERNS

Economic impacts. The Draft Environmental Assessment (EA) does not disclose site-specific economic impacts associated with the proposed action. The campground concessionaire is likely to lose revenue based on reduced occupancy as recreation users avoid the area due to the disturbance associated with the proposed construction activities. The concession fee returned to the Forest Service would decrease, and Sierra County would lose revenue with the loss of Transient Occupancy Tax and Sales Tax. Further, the reduced campground occupancy would likely have impacts on local businesses. In addition, Nevada County would lose revenue from solid waste fees from Tahoe Truckee Disposal. The local disposal company might elect not to haul trash on the alternate routes due to wear and tear on the trucks. This impact could be similar to that experienced when the Boca Reservoir dam gates are raised blocking access across the dam. The EA should address economic impacts to the campground concessionaire, local outfitting and guiding operations, local businesses, and Sierra County, including mitigation measures and project design features that would lessen these economic impacts. 001

Emergency response. The Draft EA (page 3-25) states: "Reclamation and its contractor would assure emergency responders in the area were notified in advance of the actual road closure so that alternate arrangements to service the area can be implemented." However, the EA does not provide site-specific details related to alternate emergency response arrangements nor does it disclose the potential adverse impacts associated with delayed emergency response times. The EA should address the following questions: By what method would the Bureau of Reclamation notify Forest Service emergency response personnel? Who would be responsible for ensuring the appropriate notification is provided to the Forest Service? How would this information be conveyed in a timely manner? What alternate arrangement is the Bureau of Reclamation proposing? Would alternative routes affect response times of emergency services? If so, to what degree? 002

Construction activities and road/trail closures. The description of the proposed action includes the statement that "Reclamation would provide public notices about the construction project, temporary closures, open facilities, and alternate access routes" (Draft EA, page 2-10). At what locations and during what time frame would the public notices be posted? What would be the content of the public notices? How would the Bureau of Reclamation address complaints about closures from the general public and other non-federal agencies or organizations? The EA (page 2-10) further states: "Reclamation would request the Forest Service to temporarily close several roads or trails during construction in consideration for public safety." What specific roads and trails is the Bureau of Reclamation referring to? If the Forest Service was responsible for these closures, it would require issuance of a Forest Order pursuant to 36 CFR Part 261 and completion of the requisite NEPA (36 CFR 220.6 (d)(1)). How does the Bureau of Reclamation plan to enforce the road and trail closures? What access do these temporarily closed routes provide? Would alternative access routes be needed? How does the Bureau of Reclamation plan to physically close the roads and trails? 003

Hours of operation. "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" (Draft EA, page 3-25). Are construction activities proposed after dark near campgrounds? If so, how does the Bureau of Reclamation propose to mitigate noise, lighting, and traffic impacts on campground visitors? 004

Noise. The Draft EA (page 3-38) states: "Noise levels from all construction zone activities would have attenuated to acceptable levels at the campgrounds and the reservoir." The EA analysis simply assumes that, if the noise level of each type of equipment at 200 feet distance is within the range of the levels set for motorized recreational vessels under the California Boating Law, noise effects would be at "acceptable" levels at the campgrounds and the reservoir. The analysis does not consider the indirect effects of multiple types and numbers of equipment operating at the same time. Further, the EA does not analyze the cumulative effects of adding the noise associated with this project to the noise impacts from other ongoing activities in the affected area. 005

Re-routing traffic to the Captain Roberts Boat Ramp. Under the description of the proposed action, the EA (page 2-9) states: "Options to accommodate recreational traffic to the Boat Ramp during construction (of the eastern and western saddle dikes) include re-routing traffic through Logger Campground and scheduling saddle dike construction outside the peak recreation season." What is the definition of "peak recreation season"? During the spring season, Kokanee salmon are planted in the reservoir, allowing for an increase in fishing on the reservoir. It is unclear whether the Bureau of Reclamation is coordinating with the California Department of Fish and Game (EA, page 4-2). In addition, it is unclear whether project vehicles would be using the route through the campground. (Campground roads were not constructed to take heavy and wide loads.) The EA should disclose the degree to which traffic would be increased through the campground and how the affected roads would be left after construction activities were completed. Would the reservoir be drawn down during construction? If so, when and to what elevation? Would the boat ramp be usable? 006

BORROW PITS and STAGING AREAS

Borrow pits. The Draft EA states: "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" (Attachment A, *Environmental Commitments*, page A-1). The Saddle Dike Borrow Area is currently utilized by the public as a recreation day use area, yet the EA recreation analysis does not disclose the impacts of the project on this area. After the project is complete, would this public day use area still have the desired features needed to accommodate recreation activities? During operation, what safety measures would be taken to ensure public safety? What are the proposed hours of operation for this specific site? 007

Staging and Stockpiling Areas. The EA description of the proposal states: "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" (EA, page 2-9). In what condition would these staging and stockpiling areas be left following completion of the project? While Attachment A indicates the contractor would be required to reclaim these areas, the EA provides no specific information about the post-project condition of these areas. In addition, after completion of the project, what measures would be taken to discourage overnight dispersed camping over the long term? 008

PARKING AREAS AND VISTA POINT

Fishing Access Parking Area. The Draft EA description of the proposal states: "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." However, the Draft EA does not provide site-specific information regarding *how* the road junction would be modified. The EA should address the following questions: Where does the Bureau of Reclamation plan on constructing the turnout and parking area for fishing access? How would safety be addressed for ingress and egress from the site to the Stampede Meadows Road? How large would these areas be after construction and what would be the capacity of the areas? Would the parking area be put back to its existing condition when the project is complete? If not, what alterations or improvements are proposed? (A possible location for a new parking area would be south of the existing parking lot. An access road would need to be constructed to allow for this proposed parking area.) 009

Vista Point. Under the proposed action, the Vista Point would be used as a staging and stockpiling area during the construction activities, necessitating the removal of several mature trees, a vault toilet, picnic tables, and the water line serving the site. The Draft EA goes on to state that the facilities would be upgraded or replaced in alternate locations at the Vista Point post-construction (Draft EA, page 2-5). The EA should include additional site-specific details about these proposed activities by addressing the following questions. What is the planned upgrade? Would the existing wood overlook/interpretative site be impacted? Where would the existing concrete toilet building be stored during construction and would it be used again or 010

replaced? What facilities would replace the existing facilities? How large is the proposed staging and stockpiling area at the Vista Point? In what condition would it be left once the project is complete? How many trees are proposed to be removed? Would large trees be planted in their place? Would irrigation be provided for?

RESOURCES

Vegetation. The EA discloses that up to 25 acres of ponderosa, Jeffrey, and lodgepole pine (as well as several brush species) could be removed. However, the EA provides no information regarding the numbers of trees that would be removed in different size classes. Would all the trees in these areas be removed, or specific selected trees? If only selected trees would be removed, what would be the criteria for their selection? Of particular concern are trees slated for removal in the medium to large size classes. In addition, the EA should provide details regarding *how* the trees would be removed, in other words the types of equipment used to fall and remove the trees and the mitigation measures applied, particularly Best Management Practices for Protecting Water Quality. 011

The EA should provide additional information regarding proposed re-vegetation activities. Which areas would be seeded versus planted? In areas to be planted, the EA vegetation effects analysis should be based on species and numbers of trees and shrubs to be planted. These re-vegetation activities could provide an opportunity to introduce biodiversity with different species, planting pattern, etc. 012

ROADS

Road Modifications. The proposal includes a temporary haul road 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 (Draft EA, page 2-6). The EA should address the following questions: How often would this route be utilized? What are the proposed hours of use? How does the Bureau of Reclamation plan to mitigate dust and noise? Would access be restricted to the public? If so, how would the Bureau of Reclamation enforce restricted access? If access was allowed, how would the public access the shoreline safely? 013

Use of existing Forest Service roads. The Draft EA states: "Existing roads would be used to provide access between the Saddle Dike Borrow Area and the dikes" (Draft EA, page 2-9). Further, "All construction equipment and truck traffic would have to comply with the weight limits, length restrictions, and pilot car requirements of each road utilized" (Draft EA, page 3-25). The EA should address the following questions: What types of vehicles would be utilizing the existing roads? (Typically, Forest Service roads are not designed or built to accommodate heavy construction vehicles or equipment.) Would the roads be reconstructed to accommodate the weight of construction vehicles? In what condition would the roads be left in when the project is completed? What specific measures would the Bureau of Reclamation take to ensure public safety on existing roads? (The Draft EA (page 3-46) discusses public safety in general, broad terms, but does not address site-specific safety concerns.) 014

Utilization of County Roads for alternative access. Has the Bureau of Reclamation coordinated with Nevada County and local landowners to address concerns regarding increased traffic? (The *Public Involvement* section of the Draft EA (page 4-1) does not specify whether the Bureau has worked with Nevada County and local landowners to address local traffic concerns. Similarly, the *Transportation* section of the Draft EA, Chapter 4 does not address this concern.) 015

Realigning Forest Service Roads. The Draft EA (page 3-29) states: "Constructing the eastern saddle dike would require realigning a segment of the Forest Service's paved road to the Captain Roberts Boat Ramp." The EA should provide more specific information regarding the proposed realignment, including answers to the following questions: How long would it take to realign the segment of road? During what time period would the reconstruction take place? When would construction be completed? Would vehicles with trailers and large boats still be able to utilize the launch ramp via the realigned road segment? The Draft EA further states: "Constructing the western saddle dike would require realigning a segment of the National Forest Transportation System road open to vehicles with high clearance"(Draft EA, page 2-10). Would Forest Service Best Management Practices be used to meet Forest Service engineering requirements? 016

TRAILS

What trails would be affected by this project, and how? How would trail closures affect recreation users? Would trailheads be affected by this project, and how? If the Overland Emigrant Commemorative Trail is affected, how will the Bureau of Reclamation mitigate a trail reroute for trail users? Would this project affect trail user safety? 017
Thank you for considering these comments for your analysis.

Sincerely,

/s/ Joanne B. Roubique
JOANNE B. ROUBIQUE
District Ranger

Responses to Comments

Comment Document #	Commenter	Comment Number #-#	Response
001	Milton L. McConnell	001-001	Comment noted.
002	Fred Cutler	002-001	Comment noted.
003	William A. Sciaroni	003-001	Under the Preferred Alternative, no changes in reservoir operations are anticipated until the additional temporary storage capacity would be needed at an estimated 77,600-year flood event. There would be no impact to wetlands and tributaries upstream of Stampede Reservoir under normal operating conditions; therefore, no mitigation is required.
003	William A. Sciaroni	003-002	Comment noted.
004	County of Nevada	004-001	Since the Draft EA was issued, Reclamation has coordinated and consulted with Nevada County and Sierra County on improving the existing unpaved portion of Dog Valley Road. Section 2.3 of the Final EA has been revised to state chip seal will be applied to the unpaved portion of Dog Valley Road by Reclamation's contractor.
005	Truckee-Carson Irrigation District	005-001	Comment noted.
005	Truckee-Carson Irrigation District	005-002	Comment noted.
005	Truckee-Carson Irrigation District	005-003	This project does not change operations for Stampede Reservoir except to safely manage extreme flood events. Any change in current or future operations beyond safely managing these extreme flood events is outside the scope of this project.
006	Truckee River Watershed Council	006-001	Under the Preferred Alternative, no changes in reservoir operations are anticipated until the additional temporary storage capacity would be needed at an estimated 77,600-year flood event. The project would not alter higher frequency flood outcomes in the basin, and there would be no change to wetland, vegetation, fish, or wildlife resources during these lesser flood events.
006	Truckee River Watershed Council	006-002	Revegetation will include a combination of native trees, shrubs, forbs, and grasses, as listed in the Seeding Guidelines for the Tahoe National Forest, and adapted erosion control grass species approved by the Forest Service.

Comment Document #	Commenter	Comment Number #-#	Response
006	Truckee River Watershed Council	006-003	As a result of additional analyses conducted during refinement of the SOD modification, Reclamation determined the downstream channel improvements initially considered as part of the proposed action are not necessary for implementing the SOD modification and are thus outside the scope of the SOD program. Reclamation has no plans to modify the downstream channel for any reason during the reasonably foreseeable future.
006	Truckee River Watershed Council	006-004	A detailed flood frequency analysis was completed by Reclamation's Flood Hydrology Group to estimate flood return periods at Stampede Dam. Specifically, Reclamation uses industry accepted procedures for completing hydrologic hazard analyses, incorporating historical precipitation records compiled by the National Oceanic and Atmospheric Administration (NOAA), depth-duration design guidelines published by the National Weather Service (NWS), and incorporating results from regional paleoflood studies. The results of these studies are used to estimate return periods for storm and corresponding runoff events for extreme hydrologic events up to and including the PMF. Many of the reports developed as part of these studies directly refer to the consequences of dam failure resulting from extreme hydrologic events and, as a result, detailed reports will not be made available to the public.
006	Truckee River Watershed Council	006-005	Seismic analysis is a significant focus of the design of project features in areas of high seismic potential such as Stampede. Similar to hydrologic studies, Reclamation's Seismotectonics Group uses industry accepted practices for establishing earthquake potential at the site, including evaluations of all known faults based on the most recent fault mapping of the region. Recent studies including LiDAR investigations and block modeling from GPS velocities were considered in developing the seismic hazard potential at Stampede Dam. However, many of the reports developed from seismic studies directly refer to the consequences of dam failure resulting from extreme seismic events and, as a result, detailed reports will not be made available to the public.

Comment Document #	Commenter	Comment Number #-#	Response
006	Truckee River Watershed Council	006-006	Reclamation's Geotechnical Engineering and Geology Groups completed field investigations in 2004 to evaluate the strength and consistency of the dam and dike foundations. This information has been used in development of the proposed modifications and in design of new project features.
006	Truckee River Watershed Council	006-007	Additional information about the alternatives considered but eliminated from further study has been added to the Final EA. See Section 2.4 Alternatives Considered and Eliminated from Further Study, and information on the screening process is in Attachment A.
006	Truckee River Watershed Council	006-008	Flood routings have included a series of studies with Boca Dam located downstream of Stampede Dam to ensure that construction of the modifications at Stampede result in no additional risks of failure at Boca Dam. Reclamation has coordinated with the U.S. Army Corps of Engineers (USACE). In fact, selection of the proposed modifications at Stampede were significantly influenced by the desire of decisionmakers from both Reclamation and the USACE to ensure that future flood discharge conditions for Stampede and Boca Dams will remain consistent with the original designs of both dams under all frequency flood scenarios up to and including the PMF.
006	Truckee River Watershed Council	006-009	See Section 2.3 Preferred Alternative Description and Section 3.7 Wetlands for Reclamation's proposed wetland mitigation area. Reclamation evaluated alternative sites suggested by agencies and organizations but determined that none of those areas could be fully developed into a Compensatory Mitigation Plan within project timeframes. Therefore, Reclamation proposes a 1-acre wetland mitigation area within the primary borrow area as shown on figure 2-2.
006	Truckee River Watershed Council	006-010	Under the Preferred Alternative, no changes in reservoir operations are anticipated until the additional temporary storage capacity would be needed at an estimated 77,600-year flood event. The project would not alter higher frequency flood outcomes in the basin, and there would be no change to headcut formation under normal operating conditions; therefore, no mitigation is required.

Comment Document #	Commenter	Comment Number #-#	Response
006	Truckee River Watershed Council	006-011	Under the Preferred Alternative, no changes in reservoir operations are anticipated until the additional temporary storage capacity would be needed at an estimated 77,600-year flood event. The project would not alter higher frequency flood outcomes in the basin, and there would be no expansion in the reservoir pool under normal operating conditions. Therefore, no mitigation is required to address spread of noxious weeds due to reservoir operations. The Forest Service (USFS) has not identified yellow star thistle as present in the project area, and Reclamation botany surveys did not locate the species. From 2006 through 2010, Reclamation provided funding to the USFS through an interagency agreement in the amount of $95,000 for noxious weed control efforts around Stampede and Boca Reservoirs. Reclamation provided the USFS an additional $20,000 to produce a noxious weed booklet to assist agency and public education efforts in identifying and treating these species. Reclamation will implement mitigation measures as described in Section 3.6 Vegetation to address noxious weed concerns during construction and will work cooperatively with the USFS on long-term monitoring and treatment.
006	Truckee River Watershed Council	006-012	See response to comment 004-001. Additional considerations are not within the scope of this action.
007	City of Reno Public Works Department	007-001	Comment noted.
008	Truckee Trails Foundation	008-001	See response to comments 006-004 and 010-010.
008	Truckee Trails Foundation	008-002	See response to comment 006-001.
008	Truckee Trails Foundation	008-003	Since trails near the shoreline would be inundated less than 15 days between No Action and the PMF, impacts would be minimal ,and no mitigation would be required.
009	Bruce Ajari Ray Butler	009-001	See response to 006-003.
009	Bruce Ajari Ray Butler	009-002	Reclamation will work cooperatively with the Forest Service on long-term monitoring and treatment of noxious weeds within the project area.

Comment Document #	Commenter	Comment Number #-#	Response
009	Bruce Ajari Ray Butler	009-003	The potential for aquatic invasive species would not change with implementation of the preferred alternative; thus, it is not discussed.
009	Bruce Ajari Ray Butler	009-004	Reclamation analyzes this risk along with others, including but not limited to geologic, seismic, and hydrologic risks. Since the reports developed as part of these analyses include the assumptions, calculations, and consequences of dam failure resulting from extreme events, the risk reports are not made available to the public.
009	Bruce Ajari Ray Butler	009-005	Reclamation employees are expected to be in compliance with Secretarial Order 3305 (Ensuring Scientific Integrity within the Department of the Interior) as reflected in the Department Manual at 305 DM 3 (Integrity of Scientific and Scholarly Activities) and Reclamation Manual at CMP P13 (Scientific Integrity Policy). In addition, as stated in Reclamation's Scientific Integrity Policy, employees who engage in scientific activities must comply with Federal laws and established agreements, as well as Reclamation Manual (RM) Policy and Directives and Standards (D&S) related to the use, security, and release of sensitive and proprietary data, particularly RM D&Ss, Identifying and Safeguarding For Official Use Only Information (SLE 02-01) and Information Management (RCD 05-01). Dam Safety information and security risk assessment are specifically addressed in SLE 02-01 Appendix A. See responses to comments 006-004, 006-005, 006-008, and 010-010, also.
009	Bruce Ajari Ray Butler	009-006	See response to comment 006-008.
010	Trout Unlimited	010-001	See response to comment 006-008.
010	Trout Unlimited	010-002	See response to 006-003.
010	Trout Unlimited	010-003	Under the Preferred Alternative, the Stampede Dam spillway would remain an uncontrolled spillway. Therefore, Reclamation could only temporarily retain floodwater within Stampede Reservoir for an estimated period of up to 15 days before the runoff from a PMF event would be discharged down to normal operating levels. The proposed action does not require an application to amend Reclamation’s water storage permit with the State of California.
010	Trout Unlimited	010-004	See response to comment 006-005.

Comment Document #	Commenter	Comment Number #-#	Response
010	Trout Unlimited	010-005	See response to 006-006.
010	Trout Unlimited	010-006	Fishing access will not be affected. A temporary haul road would be constructed through the Administrative Staging Area to assure construction traffic is separated from the road to the existing fishing access parking lot. Text and figure revised; see section 2.3.
010	Trout Unlimited	010-007	To minimize potential effects, Reclamation purposefully designed the project so it could be constructed without requiring access from the west side although its contractor will not be precluded from using this route. This SOD project would not affect the referenced proposed project to pave Hobart Mills Road. See Section 3.9 of the Final EA and responses to comments 004-001 and 012-002 also.
010	Trout Unlimited	010-008	See response to comment 006-001.
010	Trout Unlimited	010-009	See response to comment 006-002.
010	Trout Unlimited	010-010	Reclamation does use the PMF standard for other dams (for example, safety modifications are being made to Folsom Dam located outside the city of Sacramento to safely pass the PMF through a new emergency spillway). It is not unusual for a high-hazard dam, such as Stampede, to be designed for the PMF; however, this may not be true for all Reclamation dams in California. Reclamation performs risk analyses to determine the threshold flood event at which dam safety risks fall below limits established in Reclamation's Public Protection Guidelines. The risk analyses indicate that Reclamation should design safety modifications based on the PMF for Stampede Dam. The PMF is recognized as the practical upper limit for floods at a given site. The PMF is developed by first estimating the probable maximum precipitation for a drainage basin and then considering optimum runoff conditions within the basin. The results of these studies indicate that the estimated PMF at Stampede Dam is 250,000 years. The results of such studies are highly variable from basin to basin and are also subject to variability depending on methods used to extrapolate return periods for such extreme and rare flood events as the PMF. See response to comment 006-004 also.

Comment Document #	Commenter	Comment Number #-#	Response
010	Trout Unlimited	010-011	The referenced study and many of the reports developed for it directly refer to the consequences of dam failure resulting from extreme hydrologic events, and as a result, neither the study nor the associated detailed reports will be made available to the public. Generally accepted industry resources, costs from previously constructed projects, and engineering judgment have been used to develop planning cost estimates to construct the project. The planning cost estimates are used as a tool to realize project management objectives and assess budgetary requirements. Actual bid prices are affected by a number of factors such as supply and demand for the types of construction required at the time of bidding and in the project vicinity, changes in material supplier costs, changes in labor rates, and the competitiveness of contractors and suppliers. To maintain the competitive integrity of the bidding process, detailed information regarding the planning cost estimates will not be made available to the public.
010	Trout Unlimited	010-012	The extremely rare catastrophic flood events for which the proposed action is being designed will not result in the creation of increased habitat for warm water non-native fish. Any flood water stored during such a rare event would be released within 15 days. During all other times, the normal Stampede Reservoir operations will continue unchanged.
010	Trout Unlimited	010-013	See response to 006-010.
010	Trout Unlimited	010-014	See responses to comments 004-001 and 010-007.

Comment Document #	Commenter	Comment Number #-#	Response
010	Trout Unlimited	010-015	Dust abatement is addressed in section 3.18. Noise levels are addressed in section 3.16. Access to recreational opportunities at Stampede Reservoir would be maintained throughout the construction period. Only the Vista Point Area would be closed to the public during the entire construction period; all other recreation opportunities at Stampede Reservoir would remain available to the public except the saddle dikes area during construction of the saddle dikes. In consideration of the recreating public, Reclamation's modification of the construction schedule includes prohibiting construction of the east saddle dike and falling timber during the peak recreation season (Memorial Day through Labor Day).
010	Trout Unlimited	010-016	See response to comment 006-011.
010	Trout Unlimited	010-017	Under the Preferred Alternative, there would be no degradation of aquatic habitats from the removal of overburden material at the primary borrow area. All construction activities located downstream from Stampede Dam would be conducted in accordance with the General Construction permit to address water quality concerns. Reclamation has determined that no significant effects to aquatic species would occur from these activities and no mitigation is required.
010	Trout Unlimited	010-018	See response to 006-009.
011	Lahontan Region California Regional Water Quality Control Board	011-001	Section 3.3 Hydrology and Water Quality has been revised to address effects on the 100-year flood plain and includes mitigation measures.
011	Lahontan Region California Regional Water Quality Control Board	011-002	Section 3.3 Hydrology and Water Quality has been revised to address project effects on water quality, avoidance or minimization of impacts, and mitigation measures.
011	Lahontan Region California Regional Water Quality Control Board	011-003	As noted in 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. The Lahontan Regional Water Quality Control Board has been designated as the CEQA lead agency for the project.

Comment Document #	Commenter	Comment Number #-#	Response
011	Lahontan Region California Regional Water Quality Control Board	011-004	Section 3.3 Hydrology and Water Quality has been revised to address project effects on water quality, avoidance or minimization of impacts, and mitigation measures.
011	Lahontan Region California Regional Water Quality Control Board	011-005	See response to comment 006-007.
011	Lahontan Region California Regional Water Quality Control Board	011-006	See Section 3.7 Wetlands in the EA for alternates considered for the east saddle dike location and rationale for the Preferred Alternative.
011	Lahontan Region California Regional Water Quality Control Board	011-007	See Section 3.7 Wetlands in the EA. The proposal to widen the power plant road has been modified by reducing the width of the road to avoid any impact to the 0.27-acre of wetland located east of the road.
011	Lahontan Region California Regional Water Quality Control Board	011-008	The Vegetation and Water Quality sections of the EA have been revised. See Section 3.6 Vegetation and Section 3.3 Hydrology and Water Quality.
011	Lahontan Region California Regional Water Quality Control Board	011-009	See responses to 006-009 and 011-005.
011	Lahontan Region California Regional Water Quality Control Board	011-010	See response to 006-009.
011	Lahontan Region California Regional Water Quality Control Board	011-011	See response to 006-003.
011	Lahontan Region California Regional Water Quality Control Board	011-012	Section 3.3 Hydrology and Water Quality has been revised to address effects on the 100-year flood plain and hydrology.
011	Lahontan Region California Regional Water Quality Control Board	011-013	Section 1.2 Purpose and Need for Action states that action is needed to prevent probable loss of life, property, water storage, and other project benefits due to failure of Stampede Dam.
011	Lahontan Region California Regional Water Quality Control Board	011-014	Section 3.3 Hydrology and Water Quality has been revised to address effects on flood plain and hydrology.

Comment Document #	Commenter	Comment Number #-#	Response
011	Lahontan Region California Regional Water Quality Control Board	011-015	Section 3.3 Hydrology and Water Quality has been revised to address the Lahontan Basin Plan's prohibitions within the Little Truckee River 100-year flood plain.
011	Lahontan Region California Regional Water Quality Control Board	011-016	Section 3.3 Hydrology and Water Quality has been revised to address the Lahontan Basin Plan's prohibitions within the Little Truckee River 100-year flood plain.
011	Lahontan Region California Regional Water Quality Control Board	011-017	Section 3.3 Hydrology and Water Quality has been revised to address the Lahontan Basin Plan's prohibitions within the Little Truckee River 100-year flood plain.
011	Lahontan Region California Regional Water Quality Control Board	011-018	Section 3.3 Hydrology and Water Quality has been revised to address construction BMPs.
011	Lahontan Region California Regional Water Quality Control Board	011-019	Section 3.3 Hydrology and Water Quality has been revised to address construction BMPs.
012	US Forest Service	012-001	Mitigation and project design features, including maintaining access to Stampede Reservoir recreation facilities except the Vista Point during construction, scheduling work near the campgrounds outside the peak recreation season, limiting night time noise levels at the campground if night work were required, improving the unpaved portion of Dog Valley Road, designing the project so the contractor would not need to use the Dog Valley Road, and providing uninterrupted safe access to the fishing access parking area would lessen potential short-term, temporary negative economic impacts.
012	US Forest Service	012-002	Reclamation would notify the Forest Service and other area emergency responders about the road closure by fax and letter. Reclamation is not proposing alternate arrangements. Reclamation will notify emergency responders 30 days before the road closure to allow them to determine how to modify their travel routes accordingly.

Comment Document #	Commenter	Comment Number #-#	Response
012	U.S. Forest Service	012-003	Reclamation would request the Forest Service (USFS) issue a temporary road closure order on the paved Boat Ramp Road, the unpaved road at the western saddle dike, and the unpaved road south of Stampede Dike when construction would affect traffic in those areas. Reclamation will work cooperatively with the USFS to determine the most efficient methods of communicating details on temporary road closures to the public and on enforcement of those closures.
012	U.S. Forest Service	012-004	Mitigation for potential noise, lighting, and traffic impacts is addressed in revised Sections 3.16 Noise, 3.10 Recreation, and 3.9 Transportation.
012	U.S. Forest Service	012-005	The noise analysis has been revised in Section 3.16 Noise.
012	U.S. Forest Service	012-006	Peak recreation season has been defined as the period from Memorial Day through Labor Day. Reclamation has been in contact with the California Department of Fish and Game (CDFG). In addition, CDFG provided scoping comments and is on the mailing list for this project. Construction of the east saddle dike has been purposefully scheduled to occur outside the peak recreation season (Memorial Day through Labor Day) to minimize potential effects on recreation use of this area. During construction of the east saddle dike, recreational traffic to the Boat Ramp would be detoured through the Logger Campground. The roads would be restored to pre-construction condition when work in the area was completed. See response to comment 012-016 also. A reservoir restriction (drawdown of the reservoir) is not required for construction of the SOD modification.

Responses to Comments

Comment Document #	Commenter	Comment Number #-#	Response
012	U.S. Forest Service	012-007	Construction of the east saddle dike has been purposefully scheduled to occur outside the peak recreation season (Memorial Day through Labor Day) to minimize potential effects on recreation use of this area. When work in the Saddle Dikes Borrow Area was completed, the disturbed area would be contoured to facilitate safe public access to and use of the area. However, the Forest Service would determine appropriate recreation activities and safety measures for the area. After the SOD modification was completed, the borrow area would not be used by Reclamation nor become part of its operation of Stampede Dam and Reservoir. During construction, the traffic control plan would be implemented to ensure public safety, including protecting roads closed to traffic with effective barricades and warning signs and illumination of barricades and obstructions from sunset to sunrise. It is anticipated Reclamation's construction contractor would work 10 hours/day, 5 days/week.
012	U.S. Forest Service	012-008	See Section 2.3 MSE Raise Description, Restoration of Disturbed Areas. Reclamation will work directly with the Forest Service during construction to determine and install appropriate measures to discourage overnight dispersed camping in disturbed areas.
012	US Forest Service	012-009	See response to 010-006.

Responses to Comments

Comment Document #	Commenter	Comment Number #-#	Response
012	U.S. Forest Service	012-010	Proposed modifications to the Vista Area are described in Section 2.3.1.2 of the EA. The wood overlook structure would not be affected by construction activities. One existing concrete toilet building would be removed and disposed of, or reused by the Forest Service (USFS). The other toilet building would remain during construction and be replaced or upgraded after construction is completed. Replacement of facilities would be determined in consultation with the USFS. The proposed staging and stockpiling area is 2.1 acres in size. The condition of the Vista Area after construction would be determined in consultation with the USFS as described in Section 2.3.1. Restoration of Disturbed Areas. The number of trees to be removed has not been determined; eagle roosting trees are outside the limits of disturbance and would not be removed. Specific details regarding tree planting will be determined in coordination with the USFS. To assure survival for a 2-year period, trees would be watered as needed.
012	U.S. Forest Service	012-011	The EA has been revised to address tree removal. See Section 2.3 MSE Raise Description (Site Preparation), Section 3.6 Vegetation, and Section 3.3 Hydrology and Water Quality.
012	U.S. Forest Service	012-012	See Section 3.6 Vegetation of the EA. Areas identified as Eastside pine tree community types will be replanted with trees. All areas will be reseeded for temporary erosion control to promote long-term re-establishment of native plant communities and to reduce the threat of noxious weed invasion.

Comment Document #	Commenter	Comment Number #-#	Response
012	U.S. Forest Service	012-013	The Stampede Reservoir Secondary Borrow Area would only be used on a contingency basis and may not need to be used. The secondary borrow area would be made available to Reclamation's contractor only if material from the primary borrow area was determined to be unsuitable for construction. In addition, the contractor would be required to obtain written approval from the COR prior to using the secondary borrow area. If it were to be used, it would be subject to the same hours of use and all applicable BMPs. The area would be closed to the public while work was occurring. During construction, the traffic control plan would be implemented to ensure public safety, including protecting roads closed to traffic with effective barricades and warning signs and illumination of barricades and obstructions from sunset to sunrise.
012	U.S. Forest Service	012-014	Reclamation would request the Forest Service issue temporary road closure orders so the roads would be closed to the public while construction was occurring in the area. Dump trucks and other wheeled vehicles would be using the roads. The roads would be restored to pre-construction condition when work in the area was completed. The traffic control plan would ensure public safety on existing roads within the construction area.
012	U.S. Forest Service	012-015	Reclamation has coordinated and consulted with Sierra County and County of Nevada on alternate access to Stampede Reservoir via Hobart Mills and the Dog Valley Road. Private property owners that are on record with the County Assessor's Office and are located between Highway 89 and Stampede Reservoir were notified during the September 2011 scoping period and the November 2011 Draft EA comment period. Public comments submitted concerning roads and traffic were considered in the development of the final EA.
012	U.S. Forest Service	012-016	Work on the east saddle dike and road realignment would probably occur during the second year of construction. Work would start in September immediately after Labor Day and be completed by the end of the month. Vehicles with trailers and large boats would be able to utilize the launch ramp via the realigned road segment. Reclamation and its contractor will comply with all permit conditions including BMPs.
012	U.S. Forest Service	012-017	No trails would be affected; text revised.

ATTACHMENT D

Distribution List

Note: The following pages contain the distribution/notification list for the Final Environmental Assessment and Finding of No Significant Impact, and a * indicates hard copy distribution.

Mr Tim Nelson
CA Department of Water Resources

Mr Keith Wallace
CA Department of Water Resources

Mr David Gutierrez
CA Department of Water Resources

Mr Mike Chrisman
CA Department of Conservation

Mr Kent Smith
California Department of Fish and Game Region 2

Mr Tom Coburn
California Department of Forestry and Fire Protection

Mr Doug Rinella
California Department of Forestry and Fire Protection

Ms Jody Jones
California Department of Transportation

Ms Patricia Zwarts Kouyoumdjian
Lahontan Water Quality Control Board

Mr Alan Miller *
Lahontan Water Quality Control Board

Ms Tobi Tyler
Lahontan Water Quality Control Board

Ms Gail Cismowski
CA State Water Resources Control Board

Mr Sam Longmire *
Northern Sierra Air Quality Management District

The Honorable Tom McClintock
Congressman, District 4, California

Ms Kimberly Pruett *
Office of Congressman McClintock
California

Mr Rocky Deal
Office of Congressman McClintock
California

Senator Dean Heller
Nevada

Ms Mary Conelly
Office of Senator Harry Reid
Nevada

Mr Brandon Ida
Office of Senator Boxer
California

Ms Gina Banks
Office of Senator Dianne Feinstein
California

The Honorable Mark Amodei
US Congressman 2nd District, Nevada

Ms Allison Pedley *
Truckee Trails Foundation

Mr Bob Bell
Truckee Donner Railroad Society

Ms Laura Dabe
Truckee River Basin Watershed Group

Ms Kathleen Eagan
Truckee River Watershed Council

Ms Lisa Wallace *
Truckee River Watershed Council

Mr Garry Stone
Federal Water Master

Ms Athena Brown *
Bureau of Indian Affairs

Ms Cathy Wilson
Bureau of Indian Affairs

Ms Erin Hess
US Army Corps of Engineers

Ms Krystel Bell *
US Army Corps of Engineers

Ms Joanne Roubique *
USDA Forest Service Truckee Ranger District

Mr Jon George
USDA Forest Service Truckee Ranger District

Mr Tom Quinn
USDA Forest Service Tahoe National Forest

Mr Damien Higgins
US Fish and Wildlife Service

Ms Selena Werdon
US Fish and Wildlife Service

Mr John Sciacca
US Geological Survey

Ms Kristine Anderson
US Army Corps of Engineers

Mr Richard Anderson
California Fly Fisher Magazine

Mr Richard Sears
California Fly Fishers

Mr Ralph Cutter
California School of Fly Fishing

Mr Curtis Knight
California Trout

Ms Jenny Hatch
California Trout

Ms Cynthis Noble
Feather River Trout Unlimited

Mr Ed Fisk
Fish Tales Guide Service

Mr Brian Slusser
Four Seasons Fly Fishing

Mr Matt Koles
Gilligans Guide Service

Mr Gene Young
High Sierra Flycasters

Mr Dave Stanley
Reno Fly Shop

Mr Keith Kerrigan
Sierra Angler's Guide Service

Mr Victor Babbitt
Tahoe Fly Fishing LLC

Mr Paul Dillon
Tahoe Truckee Flyfishers

Mr Larry Svelund
Tahoe Truckee Flyfishers

Mr Frank Pisciotta
Thy Rod Staff

Mr Rick Kennedy
Tight Lines Guide Service

Mr David Lass *
Trout Unlimited

Mr Joe Cendagorta
Truckee River Fly Casters

Mayor Robert Cashell
City of Reno

Mr John Flansberg *
City of Reno Public Works

Mr Ted Owens *
Nevada County Board of Supervisors

Mr Vic Ferrera
Nevada County Office of Emergency Services

Mr Doug Farrell
Nevada County Dept of Public Works

Mr Steve Castleberry PE *
Nevada County Dept of Public Works

Mr Keith Royal
Nevada County Sheriff's Office

Mr Mike Williams
REMSA

Mr Richard Nourse
Sierra County Assessor

Mr Tim H. Beals *
Sierra Co. Department of Transportation

Mr Lee Brown
Sierra Co. Office of Emergency Services

Mr Bill Nunes
Sierra County Board of Supervisors

Mr Peter Huebner *
Sierra County Board of Supervisors

Mr Lee Adams III
Sierra County Board of Supervisors

Mr Brandon Pangman *
Sierra County

Mr John Evans
Sierra County Sheriff-Coroner

Dr Mark Brown Mayor *
Town of Truckee

Chief Bryce E. Keller
Truckee Fire Department

Mr Mike Terwilliger
Truckee Fire Protection District

Chief Nicholas Sensley
Truckee Police Department

Mr Tony Lashbrook, Manager
Town of Truckee

Mr Aaron Kenneston
Washoe County Emergency Manager

Ms Rosemary Menard
Department of Water Resources

Mr Robert Larkin
Washoe County Board of Commissioners

Mr Stephen Hollabaugh
Truckee Donner Public Utility District

Truckee Meadows Water Authority

Utah Associated Municipal Power Systems

Western Area Power Administration

Mr Jeff Ceccarelli
NV Energy

Ms Meggan Murdock
Boca Ski Club

Mr Red Wood
California Land Management

Mr Jay Vanderpool
California Land Management

Ms Mary Morrow
Boca Tournament Association

Ms Pam Gardner
Sierra Mountain Management

Mr Tom Downing
Sierra Pacific Industries

Mr Brian Wayland
Sierra Pacific Industries

Mr Bob Shillato
Tahoe Timber Trails Assoc

Mr Eric Stannard
Teichert Construction

Mr Rusty Jardine *
Truckee Carson Irrigation District

Mr Robert Quilici
Washoe County Water Conservation District

Mr Michael J VanZandt
Hanson Bridgett, LLP

Mr Kevin Ellerton
Barnard Construction Co

Ms Anne Eldred

Ms Evelyn Soltero

Mr Bruce Ajari *

Mr Ray Butler *

Mr John Minnis

United Trails General Store

Mr Kevin Romero

Mr Dave Barrett

Mr Sean Canty

Mr Terry Davison

Mr Tracy Sturges
Truckee CHP

Mr Ray Talbott

Mr Mark Christophel

Mr William A Sciaroni *

Mr Milton McConnell *

Mountain Area Preservation Foundation

Mr Steve Frisch
Sierra Business Council

Mr Craig Thomas
Sierra Forest Legacy

Mr Frederick J. Kearney, et al

Sent Via E-mail

Maxine Rix

Patti Espin

John Marcacci

Chris Mahannah

Trent Pridemore

Chris Worcester

Tribal Contacts

Mr Wayne Burke *
Pyramid Lake Paiute Tribe

Mr John Mosley
Pyramid Lake Paiute Tribe

Mr Ali Shahroody
Stetson Engineers Inc

Mr Daryl Cruz
Washoe Tribe of Nevada & California

Ms Marie Barry
Washoe Tribe of Nevada & California

Mr Don Springmeyer
Wolf Rifkin Shapiro Schulman & Rabkin LLP

Ms Wanda Batchelor *
Washoe Tribe of Nevada & California

Mr Arlan Melendez *
Reno-Sparks Indian Colony

Ms Lorena Gorbet
Maidu Cultural & Development Group

Mr Russell Brigham
Reno-Sparks Indian Colony

Mr Alvin Moyle *
Fallon Paiute-Shoshone Tribe

Ms Erica M Kellison *
Greenville Rancheria of Maidu Indians

Mr Richard Black
Fallon Paiute-Shoshone Tribe

Ms Rochanne Downs
Fallon Paiute-Shoshone Tribe

Nevada County Property Owners

APN# 48-020-06-000	APN# 48-020-07-000	APN# 48-020-71-000
APN# 48-020-47-000	APN# 48-020-70-000	APN# 48-020-69-000
APN# 48-020-72-000	APN# 48-020-90-000	APN# 48-020-92-000
APN# 48-020-89-000	APN# 48-020-88-000	APN# 48-020-29-000
APN# 48-020-38-000	APN# 48-020-28-000	APN# 48-020-31-000
APN# 48-020-32-000	APN# 48-020-30-000	APN# 48-020-64-000
APN# 48-020-65-000	APN# 48-020-66-000	APN# 48-020-67-000
APN# 48-020-17-000	APN# 48-020-20-000	APN# 48-020-21-000
APN# 48-020-41-000	APN# 48-020-48-000	APN# 48-020-49-000
APN# 48-020-50-000	APN# 48-020-51-000	APN# 48-020-15-000
APN# 48-020-14-000	APN# 48-020-39-000	APN# 48-020-40-000
APN# 48-020-44-000	APN# 48-020-43-000	APN# 48-020-42-000
APN# 48-020-74-000	APN# 48-020-34-000	APN# 48-020-35-000
APN# 48-020-36-000	APN# 48-020-37-000	APN# 48-020-58-000
APN# 48-020-59-000	APN# 48-020-60-000	APN# 48-020-62-000
APN# 48-020-26-000	APN# 48-020-55-000	APN# 48-020-52-000
APN# 48-020-79-000	APN# 48-020-81-000	APN# 48-020-83-000
APN# 48-020-22-000	APN# 48-020-27-000	APN# 48-020-93-000
APN# 48-020-94-000	APN# 16-540-04-000	APN# 16-540-08-000
APN# 16-540-09-000	APN# 16-100-07-000	APN# 16-100-36-000
APN# 16-100-37-000	APN# 16-100-38-000	APN# 16-080-23-000
APN# 16-080-21-000	APN# 16-080-09-000	APN# 48-020-02-000
APN# 48-020-03-000	APN# 48-020-04-000	APN# 48-020-05-000