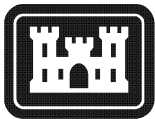


**Draft
Environmental Assessment**

**Upper Truckee River - Sunset Stables
Restoration Project**

El Dorado County, California

February 2011



**US Army Corps
of Engineers** ®
Sacramento District



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA, 95814-2922

Environmental Resources Branch

FINDING OF NO SIGNIFICANT IMPACT*
Upper Truckee River-Sunset Stables Restoration Project,
El Dorado County, California

I have reviewed and evaluated the information presented in this Environmental Assessment (EA) for the Section 108 Upper Truckee River-Sunset Stables Restoration Project (Sunset Stables), near the City of South Lake Tahoe, in El Dorado County, California. This project would construct approximately 4,900 linear feet of new sinuous river channel, restore the adjacent stream environment zone (SEZ), and create fish and wildlife habitat within the Upper Truckee River (UTR) watershed. The proposed Sunset Stables stream environment zone restoration would create natural wetland areas, meadowlands, and expand the floodplain adjacent to the Upper Truckee River.

Watershed functions within the Upper Truckee River have been compromised with respect to flood attenuation, overbank flooding, groundwater recharge, water quality improvement, sediment and nutrient retention, and wetland and wildlife habitats. The proposed project would restore approximately 4,900 linear feet of the Upper Truckee River through construction of a new sinuous river channel to support natural geomorphic processes. The project would enhance 57 acres of wetland habitat and create approximately 12 acres of willow/riparian habitat. The new channel has been designed to be sustainable under existing hydrologic and sediment regimes. Expected benefits of the project include reduced stream velocities and concomitant bank erosion, more frequent flooding of the adjacent meadow areas during high flows, improved riparian and meadow vegetation condition, improved aquatic habitat providing more productive fisheries, improved macro-invertebrate habitat, and a reduction in fine sediment transport during overbank flooding events. The Sunset Stables Project would improve water quality and reduce nutrient and fine sediment transport into Lake Tahoe while improving aquatic and terrestrial wildlife habitat quality.

During this review, the possible consequences of the work described in the EA have been studied with consideration given to environmental, economic, social, and engineering feasibility. In evaluating the effects of the proposed project, specific attention has been given to significant environmental conditions that could potentially be affected. I have also considered the views of other interested agencies, organizations, and individuals concerning the study. The effects and mitigation measures have been coordinated with the U.S. Fish and Wildlife Service and the Nevada State Historic Preservation Officer.

Based on my review of the EA and my knowledge of the project area, I am convinced that the proposed Upper Truckee River-Sunset Stables Project is a logical and desirable alternative. Furthermore, I have determined that the work would have no significant, long-term effects on the environment. All construction will be implemented in strict compliance with applicable Federal, State, and local laws and regulations. Based on the results of the environmental evaluation and completion of interagency coordination, I have determined that the EA and Finding of No Significant Impact provide adequate documentation and that no further environmental document is required.

Date

Andrew B. Kiger, P.E.
Lieutenant Colonel, U.S. Army
District Engineer

* To be signed by the District Engineer after the public review period, if appropriate

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1.0 PURPOSE AND NEED

1.1 Proposed Action

The U.S. Army Corps of Engineers (Corps) and the California Tahoe Conservancy (CTC) propose to implement the Sunset Stables Project to restore stream habitat and water quality functions to the stream environment zone (SEZ) of Reach 6/Sunset Stables of the Upper Truckee River, South Lake Tahoe, California (Plate 1). The proposed project would restore approximately 4,900 linear feet of the Upper Truckee River, through construction of a new sinuous river channel to support natural geomorphic processes. The new channel has been designed to be sustainable under existing hydrologic and sediment regimes. The project would also enhance approximately 57 acres of wetland habitat and create approximately 12 acres of willow/riparian habitat. Expected benefits of the project include reduced stream velocities and concomitant bank erosion, more frequent flooding of the adjacent meadow areas during high flows, improved riparian and meadow vegetation condition, improved aquatic habitat providing more productive fisheries, improved macro-invertebrate habitat, and a reduction in fine sediment transport during overbank flooding events. The Sunset Stables Project would improve water quality and reduce nutrient and fine sediment transport into Lake Tahoe while improving aquatic and terrestrial wildlife habitat quality.

1.2 Location of the Project Area

The Sunset Stables project is located in El Dorado County, California, just south of the City of South Lake Tahoe, California on Reach 6 of the Upper Truckee River. The project area includes approximately 4,900 linear feet of the Upper Truckee River and extends from approximately 500 feet north of the southeastern boundary of the South Lake Tahoe Municipal Airport to approximately 800 feet northeast of the Highway 50 Bridge at Elks Club Drive. It is bordered on the west by US Highway 50 and the Airport, to the east by residential development, to the north by the Airport and Reach 5, and to the south by private undeveloped property and Elks Club Drive. The river corridor and associated meadow within this reach are principally owned by the CTC. Plate 2 depicts the project area.

The Sunset Stables project is immediately upstream of another restoration project on the Upper Truckee River (Reach 5), being implemented by the USDA Forest Service, Lake Tahoe Basin Management Unit (LTBMU). The LTBMU project is expected to start construction in 2011. The design of the Sunset Stables project is being coordinated by CTC with the LTBMU project to ensure full hydraulic and geomorphic consistency and long-term stability of the two channel restoration projects.

1.3 Need for Proposed Action

The Upper Truckee River is Lake Tahoe's largest tributary and has been subjected to historic modifications from land use and resource extraction, since the 1860's. The lower watershed has been extensively modified by logging, grazing, roads, stream channelization, urban development, recreation, and the development and operation of an airport. As a result, watershed functions within the Upper Truckee River have been compromised and many stream

reaches are now deeply incised, wider and straighter than would be expected under natural conditions. Consequently, the floodplain is inundated less frequently, the water table has declined, banks are unstable, and wetlands, riparian and aquatic habitats are degraded.

Within the Sunset Stables project, Reach 6 exhibits signs of instability (i.e. active bank failures and channel widening) and degraded aquatic, riparian, and meadow habitat due to past anthropogenic land-use activities within the Upper Truckee River watershed. Currently, the river channel is over-sized and incised resulting in a lower groundwater table in the adjacent riparian zone. The lower groundwater table has resulted in a transition to upland vegetation from riparian wetland vegetative species as well as a disconnection between the roots of the bank vegetation and the water level in the channel, resulting in bank instability. Less frequent overbank flooding has also resulted in more sediment, nutrients, and pollutants being transported to downstream reaches and eventually Lake Tahoe. Restoring floodplain processes would allow for trapping of sediment and nutrients on adjacent floodplain meadows.

Channel alterations and the hydraulic impacts of incision have also resulted in a flat sandy streambed with little value for fisheries habitat (i.e. pools, coarse gravel riffles), spawning and primary aquatic production (i.e. food for fish). In addition, disturbed areas within the surrounding uplands such as former building sites, also contribute sediment to the river.

The Sunset Stables project is needed to improve overall watershed functions including wetlands and aquatic and riparian habitats. The restoration design includes increasing channel length and sinuosity, changing channel capacity to accommodate for sediment transport capacity, increasing channel variability and hydraulic diversity by constructing meanders to create riffle and pool complexes, increasing over bank flooding, and improving water quality through bank stabilization. Specifically, the Sunset Stables project would reduce flow velocities within the channel, provide increased frequency of flooding in the adjacent meadow, establish native riparian and meadow vegetation, improve aquatic habitat for fish and other aquatic organisms, improve macro-invertebrate and terrestrial wildlife habitat, and reduce fine sediment transport during over bank flooding events.

Lake Tahoe is considered one of the clearest lakes of its size in the world and is a national treasure. The water quality within the lake depends on a fragile equilibrium among soil, vegetation, and human activities. The focus of water quality for the project is to reduce fine sediment transport and eliminate or minimize addition pollutants from entering the lake.

1.4 Project Authorization

This project is authorized by Section 108 of the Energy and Water Resources Development Appropriations Act of 2005 (Public Law 108-447). This act authorizes the Corps to participate in a broad range of water-related environmental infrastructure and resource protection projects within the Lake Tahoe Basin.

1.5 Purpose of the Environmental Assessment

The purpose of this Environmental Assessment (EA) is to describe the construction methods for this project; discuss the environmental resources in the Sunset Stables project area; evaluate the effects the alternatives could have on the natural and human environment; and propose measures to avoid, minimize, or mitigate any adverse effects of the project to a less-than-significant level. The purpose of an EA is to provide sufficient information on potential environmental effects of the proposed action and, if appropriate, its alternatives, for determining whether to prepare an EIS or a FONSI (40 CFR 1508.9).

This Draft EA is in partial compliance with the National Environmental Policy Act (NEPA). If there are significant changes in, or additions to, the existing conditions or basic design of the Sunset Stables restoration project during future designs or construction, the required subsequent environmental documentation would be prepared and submitted to appropriate agencies to ensure compliance with Federal, State, and local laws and regulations. The Draft EA would be available for public review for a period of 30 days.

2.0 ALTERNATIVES

2.1 Alternatives Considered

Four project action alternatives were considered for Sunset Stables. These alternatives included:

Alternative 1 – No New Channel (Restore in Place): Under this approach, the existing river channel alignment would not change. This alternative proposes the use of vertical grade controls to encourage natural aggradation and/or placement of appropriate sized bed material at specific locations to raise the riverbed. It also includes breaching the river bank at selected locations to allow the 1.5 year flood event to inundate adjacent meadow areas and modification to the existing low water crossing areas to improve low flow fish passage and channel stability. Prior to full construction, pilot projects would be used to test the constructability and performance of the proposed techniques.

Alternative 2 – All New Channel, No Constraints: This alternative would construct a new channel with no constraints. The new channel would be sized to allow for the 1.5-year flood event to flow overbank, resulting in improvements to the adjacent meadows. In addition, the alternative would require the relocation of all utilities including sewer and water lines within the designated new channel. Rip-rap at the Elks Club property would be removed and the area would be regraded. Lateral and vertical grade controls would be installed to prevent erosion.

Alternative 3 – All New Channel, with Constraints: This alternative is similar to Alternative 2 and would allow the 1.5-year event to flow overbank resulting in improvements to aquatic, riparian and wetland meadow habitat. This alternative includes the construction of a new channel that would be appropriately sized to allow overbank flooding. However unlike Alternative 2, this alternative would work within the constraints of the existing gravity sewer and export lines.

Alternative 4 – Half New/Half Existing Project: this proposal has a dual goal: 1) Increase floodplain connectivity over time through in-channel grade control structures and improvements for the upstream half of the incised channel and 2) achieve the 1.5-year flow overbank potential and habitat improvements through construction of a new channel to replace the incised downstream channel. This alternative would avoid large-scale removal/loss of existing lodgepole pine forest habitat that currently exists along the upper channel segment.

The project alternatives were first evaluated by the Project Management Team (PMT) at a January 15, 2008, workshop to refine the criteria and rank and score the alternatives. The Technical Advisory Group (TAG) met on March 4, 2008, to review the PMT’s alternatives evaluation and recommendations. The results of this alternatives evaluation are included in Table 1 below. Prior to evaluation, Alternative 1 was eliminated by the TAG because it proved to be the alternative least likely to achieve the overall restoration goals of the project. Alternative 1 proposed to restore the channel in its existing alignment through the use of channel narrowing, breaching the river channel, grade control structures, and bioengineering techniques for channel stabilization. Because this alternative would rely on untested methods, specifically for achieving goals such as channel narrowing and breaching of the river channel, this action would likely require a pilot study before implementation. It was found by the TAG to be the least likely alternative to attain the desired objectives to restore ecosystem functions and aquatic and riparian habitats because this alternative would rely on using untested methods throughout the entire reach. This alternative could be risky and result in adverse effects to the existing aquatic and riparian habitats supporting various fish and wildlife populations. Therefore, Alternative 1 was eliminated from consideration early in the evaluation process.

Evaluation criteria were developed that compared and scored environmental benefits and implementation constraints for Alternatives 2, 3, and 4. Each criterion was scored on a scale of 1 to 5, where 5 represented exceptional improvement in relation to the existing conditions and 1 represented an adverse change in relation to existing conditions. Project implementation was also scored on a scale of 1 to 5 where 5 represented much better at compliance or avoiding impacts and 1 represented much worse at compliance or avoiding impacts relative to other alternatives. The estimated costs for Alternatives 2, 3, and 4 were \$15,116,620, \$12,884,860, and \$7,089,690 respectively. The cost estimate for Alternative 3 was later updated to \$15,960,260 (ENTRIX, 2008).

Table 1: Alternative Evaluation.

Alternative Evaluation Results			
Key Evaluation Criteria	Alt 2	Alt 3	Alt 4
1. Restore a more naturally functioning river and floodplain.			
1.1 Length of channel sized to bankfull during 1.5 year (~450 cfs) streamflow event.	5	5	3
1.2 Area of floodplain inundation during 2-year (~760 cfs) streamflow event	5	5	4
1.3 Area of floodplain inundation during 5-year (~1,600 cfs) streamflow event	3	3	2
1.4 Length of channel with higher water surface elevation at base flow.	4	4	4

Alternative Evaluation Results			
Key Evaluation Criteria	Alt 2	Alt 3	Alt 4
2. Improve water quality by restoring natural stream and floodplain processes.			
2.1 Length of channel sized to bankfull during 1.5 year (~450 cfs) streamflow event	5	5	3
2.2 Area of floodplain inundation during 2-year (~760 cfs) streamflow event	5	5	4
2.3 Area of floodplain inundation during 5-year (~1,600 cfs) streamflow event	3	3	2
2.4 Number of structures constructed in the active channel	2	1	2
3. Restore, enhance and protect aquatic and terrestrial habitat diversity and quality.			
3.1 Length of channel sized to bankfull during 1.5 year (~450 cfs) streamflow event	5	5	3
3.2 Area of floodplain inundation during 2-year (~760 cfs) streamflow event	5	5	4
3.3 Minimize construction disturbance within wildlife corridors	2	2	4
3.4 Area of protected habitat west of the river	4	3	3
3.5 Length of channel with increased depth during base flow (~15 cfs) conditions	3	3	2
3.6 Length of channel with decreased width/depth ratio.	5	5	3
3.7 Increase in aquatic habitat complexity (number and distribution of pools)	2	2	1
3.8 Minimize risk of impeding fish passage	3	3	2
Environmental Benefits Subtotal Score	61	59	46
Develop a cost-effective, timely and implementable design.			
4.1 Estimated construction costs	1	2	4
4.2 Avoidance of utility locations and potential conflicts with utilities	1	4	4
4.3 Compliance with FAA airport safety regulations	3	3	3
4.4 Duration of construction	2	3	4
4.5 Length of time before water quality and habitat benefits realized	1	4	3
Implementation Constraints Subtotal Score	8	16	18
Total Score	69	75	64

Source: Table 5.1 Final Alternatives Evaluation Memorandum (ENTRIX, 2008)

The overall scoring process revealed that Alternatives 2 did not demonstrate a cost-effective and timely design because it did not avoid utility conflicts and Alternative 4 scored lowest on the achievement of project goals and desired benefits (ENTRIX, 2008). Alternative 3 achieved the overall project goals in a timely and feasible manner. The TAG recommended Alternative 3 for implementation because it did not require shutting down and relocating the sewer lines, which are currently in use by the South Tahoe Public Utility District (STPUD). STPUD supported alternative 3 because there is no plan at this time to replace the sewer line and the potential for environmental effect as a result of the effects to the sewer line outweighed the benefit from additional restoration that could be completed under Alternative 2. Alternative 3 is

referred to herein as the Preferred Alternative. The Preferred Alternative and the No Action Alternative are analyzed for environmental effects within this Environmental Assessment (EA).

2.2 No Action

Under the No Action Alternative, there would be no construction within the Sunset Stables project area and the existing habitat and water quality would not be restored. The No Action Alternative would not significantly affect resource conditions within the Sunset Stables project area. Wetland and riparian areas would remain diminished throughout the project reach, the floodplain would continue to be inundated at the frequency of the 2- to 5- year event, and bank instability and the potential for bank failure resulting in habitat loss would continue under the No Action Alternative. The environmental goals and the threshold carrying capacities adopted by the Tahoe Regional Planning Authority (TRPA) Regional Plan and administered by the Environmental Improvement Program (EIP) would not be supported by the No Action Alternative. It is expected that there would be no added benefits to wildlife and fish habitat under the No Action Alternative. In the short term, wildlife and fish use of the area would be expected to remain at current levels under the No Action Alternative since the restoration of the aquatic, wetland, and riparian habitats would not be implemented. In the long term, aquatic, wetland, and riparian habitats could further degrade or be lost. The No Action Alternative establishes the baseline conditions that provide the basis for determining the action alternative's beneficial and adverse effects on environmental conditions.

2.3 Preferred Alternative

2.3.1 Pre-Construction Activities

Permits and Utilities. Prior to initiation of construction, the CTC would be required to obtain all permits necessary to perform work. Recommended best management practices (BMPs) must be reviewed and approved by the resource agencies prior to construction. Prior to excavation, the locations of existing South Tahoe Public Utility District (STPUD) facilities and pipelines would be determined and marked within the project area, and the CTC would conduct an Underground Service Alert. Pipelines would be delineated and protected by fencing in the excavation and construction areas as needed.

Dewatering. Prior to construction, diversion structures and appropriate BMPs would be installed to divert water away from areas where active construction would be occurring. In addition, an internal drainage system would be constructed and maintained within the project site during construction activities to contain runoff within the project boundary, and removed after construction has ended.

Localized pumping would be used to hydraulically contain turbid groundwater or standing water as a result of excavation of saturated soil. If turbid water occurs, it would either be treated through irrigation of upland areas or discharged to a treatment settling basin until turbidity levels are below the TRPA and Lahontan Regional Water Quality Control Board (LRWQCB) threshold standards. If treated in a settling basin, once the water has reached the

LRWQCB standards, the water would be released into the Upper Truckee River downstream of the project area.

2.3.2 Construction Details

The Sunset Stables project includes approximately 4,900 linear feet of new channel construction, bank stabilization treatments, installation of grade control structures, aquatic habitat enhancement, and riparian habitat enhancement through revegetation, and utilities (sewer line) protection (Appendix A). The CTC and their Construction Manager would monitor restoration activities during implementation and construction.

New Channel Construction. The upstream portion of the new river channel would begin approximately 1,000 feet downstream of the US Hwy Bridge and 600 feet north of the Elks Club parking lot. The new river channel within Reach 6 would be constructed from River Station (RS) 250+38 to approximately the upper end of Reach 5, 600 feet south of the north end of the airport runway. The new channel would be a sinuous, single thread channel with irregular meanders. The channel would be excavated according to the channel design specifications and final design. The top of the channel bank would be graded at a slope of 20:1 to provide a gradual topographic transition with the adjacent floodplain. The new channel is designed to provide more frequent overbank flooding (approximately every 1.5 years). This increased frequency of overbanking is intended to hydrologically reconnect the river to the historic floodplain throughout the entire project reach. Over time, sediment deposition and lateral channel movement promoted by the in-channel structures would produce bars and a new incipient floodplain within the incised meander belt.

Conifers in the path of the new channel would be cut down prior to channel construction. Protective measures such as sod blocks or rock protection would be installed where the new channel approaches and crosses the existing channel to prevent bank failure and erosion after construction and during the seasoning of the new channel. Excavated material would be stockpiled and BMPs would be implemented to reduce erosion during the storage period.

The new channel would cross over the existing channel alignment in three locations. To prevent erosion, lateral controls would be installed at each point where the new channel intersects the existing channel. In two locations, the outside bend of the new channel approaches a sanitary sewer line and would be approximately 75 feet from the sanitary sewer line at the nearest point. To protect the sanitary sewer line, lateral controls consisting of approximately 600 linear feet of buried rock would be installed adjacent to the sanitary sewer line. The buried rock would prevent lateral migration of the new channel.

Pools and riffles would be constructed within the new meandering channel. These features would add complexity to the channel topography. Channel width would vary along pool-riffle units. Placement of pools and riffles in these reaches would promote future changes in channel geometry. Alteration of hydraulics and sediment transport at these locations would create localized diversity in the channel geometry, including scour pools, coarse grained riffles, and depositional bars. Constructed riffles could include woody debris, anchored to embedded boulders to keep in place, to provide habitat complexity for fish.

Install Grade Controls: Grade control structures such as either boulder weirs or log grade controls would be installed within the last few hundred feet of the downstream end of the project to provide a stable hydraulic transition into Reach 5. For boulder grade control structures, large boulders would be set approximately 18 inches below grade and would be filled with cobbles to the approximate elevation of the proposed bed height (approximately 16 – 18 inches above the existing ground height). Large boulders would be keyed into the channel bank and backfilled to prevent scour. Log grade control structures would be set perpendicular to the flow line. These structures would be keyed in a minimum of four feet on each bank. Logs would be a minimum of 12 inches in diameter. Carriage bolts would be used to tie the log into the slope and maintain these structures in place. Sand and gravel would be used to fill around the log grade control structures.

Install Lateral Controls: Two lateral controls (one on each bank) would be installed at each location where the new channel intersects the existing channel to prevent the erosion and capture of the old backfilled channel. There are four proposed crossings (8 lateral and 1 vertical structures). A combination of engineered and bioengineering techniques would be used to provide lateral control. Stacked sod and/or willow mattresses would be placed on the outside of bends to prevent bank erosion until the banks have been stabilized by riparian plant growth. Other measures such as buried rock at the toe could be implemented to provide stability at selected areas. Buried rock would be used to protect the existing infrastructure including the sewer lines from channel movement. Except for those locations which could potentially threaten the sewer line, bioengineering techniques would be used to provide lateral control and bank stabilization.

Bank Stabilization: Bank stabilization treatments would be focused on newly constructed cut bank locations (i.e., the outside of meander bends) where substantial bank erosion would be expected to occur if left untreated. Bank erosion considered to be the result of natural fluvial processes would not be treated. More localized bank protection would be implemented at locations where existing hydraulic structures are removed or modified, where new hydraulic/habitat structures would be constructed, and at the transition between the existing and new channel. The new channel would be revegetated along both banks to provide both stabilization and habitat. Bank stabilization treatments could include but would not be limited to erosion control blankets, stacked sod, brush mattresses, root wads, large woody debris, or other treatments as appropriate.

Aquatic Habitat: The new channel would be narrower than the existing channel, which would provide greater depth, particularly during the summer months. As a result of the decrease in capacity and increase in depth, the new channel is expected to have lower water temperature fluctuations and lower maximum temperatures. Aquatic habitat would also be enhanced by increasing cover along the stream banks with vegetation or woody debris. Streambank cover would be increased and the banks would be protected/stabilized with treatments including, but not limited to, stacked sod, brush mattresses, root wads, large woody debris, engineered log jams, or other site-specific treatments as appropriate. Where appropriate, and in the event that woody debris would be used in the channel bottom, the anchored woody debris would face downstream at a 45-degree angle; and the remaining woody debris to be added would be

anchored in place to mimic as natural a condition as possible by facing them randomly in different directions in relation to the bank and the stream. The objective of the streambank cover/treatments is to complement riparian plantings of willows and other vegetation by providing bank cohesion and fostering the development of pools and undercut banks to enhance aquatic habitat. Streambank cover/treatments would be placed at a frequency appropriate to the channel design, taking into consideration topography, bank structure and meander bends. They would be most appropriate at outside bends or other locations on the main channel where pools are desired.

Backfill Existing Channel: Material excavated during construction of the new channel would be used to backfill the existing channel once the new channel is fully constructed and Upper Truckee River flows are diverted into the new channel. The new channel would have less capacity than the existing channel, so additional fill would be needed to fill the existing channel to meet the surrounding grade and contours. Potential sources of fill would be assessed and necessary steps taken to ensure that weeds or contaminants are not introduced into the restored SEZ area, either by treating the fill source (i.e. weed eradication prior to use) or selecting a different source. Once the existing channel has been filled, it would be revegetated with riparian species as appropriate for the hydrologic regime.

Revegetate Channel and Meadow: After excavation of the channel, riparian vegetation would be planted along both banks of the new channel for approximately 4,490 linear feet. Prior to construction, 90 percent designs would be provided to the Corps and USFWS for their review and comment. Areas disturbed during construction such as staging sites and access roads would be revegetated at the end of each construction season. Once the Upper Truckee River has been moved to the new alignment, the backfilled former channel (approximately 40 to 60 feet wide and 3,750 linear feet) would be revegetated. Clumped plantings of willows in the meadow would help increase floodplain roughness and enhance sediment deposition, as well as restore riparian scrub and meadow habitat.

Plants used in the habitat restoration would be developed from locally collected seed and plant materials. Willow species such as *Salix lemmonii* and *Salix geyeriana* occurring in areas of new channel construction would be pruned, carefully excavated, and stored to be transplanted along the new channel during construction. Willow cuttings, posts, poles and container plants would be utilized to establish willow riparian habitat. Measures would be included to protect these plant materials from beavers. Sod consisting of sedges (*Carex sp.*) and other herbaceous vegetation would be cut in blocks and either transplanted immediately if the site is prepared or stored wet until replanting. Harvested sod would consist of above ground and below ground plant materials including leaves and roots, and the soil bound by the root mass. At the top of the streambank, Wood's rose, cottonwood, dogwood, and alder would be planted. Seed mixes for vegetating open disturbed areas would be derived from similar wet meadow areas. Revegetation should also take into consideration Washoe ethno-botanical traditions, such as using culturally significant plant species and horticultural practices where feasible.

Two seed mixes are proposed for revegetation of areas disturbed during construction. Seed mix #1 is an upland seed mix and would be applied to upland areas including staging and storage/stockpile locations. Seed mix #2 is a meadow/wetland seed mix which would be applied

to portions of the new channel, the existing channel once the channel has been filled, and the newly constructed floodplain (Table 2). In addition to planting/seeding, areas disturbed during construction would be treated with soil inoculants, wood chips, mulch, and tackifier as needed.

Table 2: Revegetation Seed List.

Botanical Name	Common Name/Variety
Seed Mix #1	
<i>Achillea mille folium</i>	Yarrow
<i>Artemisia tridentata ssp. Vaseyana</i>	Mountain sagebrush
<i>Achnatherum occidentale</i>	Western needlegrass
<i>Bromus carinatus</i>	California Brome, 'Bromar'
<i>Chrysothamnus nauseosus</i>	Rabbitbrush
<i>Elymus elymoides</i>	Squirreltail
<i>Elymus glaucus</i>	Blue wildrye
<i>Elymus trachycaulus</i>	Slender wheatgrass,*
<i>Eriogonum umbellatum</i>	Sulfur buckwheat
<i>Linum lewisii</i>	Lewis flax. 'Apar'
<i>Lupinus argenteus</i>	Silver lupine
<i>Poa ampla</i>	Big bluegrass, 'Sherman'
<i>Purshia tridentata</i>	Antelope bitterbrush
Seed Mix #2	
<i>Bromus carinatus</i>	California brome, "Bromar"
<i>Carex praegracilis</i>	Slender sedge
<i>Deschampsia cespitosa</i>	Tufted hairgrass
<i>Elymus glaucus</i>	Blue wildrye
<i>Elymus trachycaulus</i>	Slender wheatgrass, "Revenue"
<i>Festuca rubra</i>	Red fescue
<i>Hordeum brachyantherum</i>	Meadow barley, from 6,000' and higher
<i>Juncus balticus</i>	Baltic rush
<i>Leymus triticoides</i>	Creeping wildrye
<i>Lupinus polyphyllus</i>	Tahoe lupine
<i>Mimulus guttatus</i>	Common monkeyflower
<i>Penstemon rhydbergii</i>	Meadow penstemon
<i>Poa pratensis</i>	Kentucky bluegrass
<i>Potentilla gracilis</i>	Cinquefoil

Conifers in the path of the new channel, or in locations, where conifer encroachment has been identified as a problem for riparian vegetation community composition would be removed prior to channel construction. The removed conifers would be mulched or salvaged for possible use as coarse woody debris in channel or on the floodplain, partial embedment of the wood is being considered. The mulch would be used to create an organic layer in disturbed soil areas, to control weeds, and to conserve soil moisture around installed plants and cuttings. Erosion control

blankets of coir fabric and possibly mulch (e.g. pine needles or wood chips) would be utilized to prevent erosion and gullyng while the riparian vegetation takes hold. As described earlier, coarse woody debris would be utilized where appropriate to help stabilize the restored channel and provide cover to aquatic wildlife species.

The willows and sod would be transplanted on the new banks and selected meadow areas near the channel to jumpstart revegetation. The ground would be scarified and soil amendments and/or mycorrhizal inoculants would be applied and incorporated into the soil. Willow cuttings would be driven into the soil a couple feet to reach moist soil. Some cuttings would be used as stakes to anchor willow mats along the new channel. In suitable locations, willows would be planted to create clumps and expand existing willow habitat. Depending on the survival and spread of these plantings, additional willow cuttings could be planted to boost vegetation density and area.

In areas disturbed by construction and access activities, native seed mixes would be broadcast after the construction season to provide ground cover. Hydrostraw and/or mulch would be applied to reduce erosion and protect young vegetation. Restored areas would be actively maintained for three years after construction. Irrigation would likely be installed to aid establishment of vegetation in the early years.

Create Seasonal Wetland Habitat for Wildlife: Shallow seasonal ponds for wildlife would be created from the former river channel. Once the new river channel is constructed and rewatered, the old channel would be backfilled, recontoured and revegetated. Some portions of the former channel would be recontoured to create shallow ephemeral ponds that would be attractive for amphibians and birds. Features of suitable habitat for native amphibian eggs and tadpoles include slow moving water and riffles that occur in the river, and ponds. Terrestrial life stages of amphibians use downed logs, deep duff/soil, and vegetative cover. Downed woody debris varying in different diameters would be included into the pond design to enhance conditions for amphibians, as well as increase floodplain roughness. New ponds or additional wetlands beyond what currently exists would not be constructed near the airport's southern approach for the runway and airport runway safety zone in order to comply with FAA regulations and not increase wildlife hazard risk, such as potential bird strikes to planes taking off or landing (Refer to Appendix A, Sheet C-1). Only a mix of riparian meadow and terrestrial grasses and some willows and alders would be planted in the new channel portion created in the airport runway safety zone. Meetings were held in January, March and November of 2010 with the City Airport Manager to discuss the project and compliance with FAA regulations.

Restore Former Sunset Stables Site: Following construction of the new channel and backfilling of the existing channel, the former Sunset Stables site would be restored. Restoration of the Sunset Stables site would improve water quality by reducing erosion from the uplands, as well as enhance upland habitat. The buildings of the former Sunset Stables operations (stable, barns, shop and ranch house) were once located in the bare areas visible near Highway 50 (Figure 3). During construction of the new river channel, this site would be used to stockpile soil excavated from the new channel, prior to backfilling the old channel. All potential sources of fill would be assessed and necessary steps taken to ensure that weeds or contaminants are not

introduced into the restored SEZ area, either by treating the fill source (i.e. weed eradication prior to use) or selecting a different source.

Once this site is no longer needed for stockpiling, the building pads and disturbed areas would be recontoured and prepared for planting. Soils would be tested for nutrients and treated with soil amendments as needed prior to planting. In addition, coarse woody debris would be placed as appropriate within the site to create additional structure, assist with erosion control, and aid in medium and long-term soil development. The site would be revegetated with native species typical of upland conditions, including basin sage, rabbitbrush, and Jeffrey pine. This revegetation would serve both to stabilize the soil and to restore native habitat. Plantings would include native trees, shrubs, grasses or herbaceous plants appropriate to the soils and hydrology. Stock for revegetation would be developed from locally collected seed and plant cuttings. Revegetation would also take into consideration Washoe ethnobotanical traditions, such as using culturally significant plant species and horticultural practices where feasible. Irrigation would likely be provided from the water supply pump house still functioning on the site.

Restore Gully Near Highway 50: On the west side of the Project Area near Highway 50, there is an eroded gully. The gully is steeply cut in decomposed granitic soils. The gully carries runoff from Highway 50 eastward. The gully does not discharge to the Upper Truckee River, and no direct transport of sediment to the Upper Truckee River exists at this time. Under the proposed management action, this gully would be backfilled with sand and decomposed granite soils to match existing grades and reduce the depth of flow, thereby reducing erosive forces (Exhibit A, Sheets C-1 and C-4). Salvaged log grade control structures or check dams would be placed to promote aggradation in the gully and to prevent further gully incision or headcut movement. Existing desirable vegetation in good condition would be protected and retained where possible. The area would be revegetated to enhance consolidation of the loose granitic soil. The area would be planted with native species adapted to xeric upland conditions, such as basin sage, rabbitbrush, and Jeffrey pine.

Repair Eroding Headcuts in Small Meadows: Headcuts have produced erosion in two small meadows that extend into the eastern uplands of the Project area. These areas would be restored by closing trails, scarifying to break up compacted soils, and revegetating with native meadow vegetation. The trail would be treated to prevent further erosion by installing water bars across the trail to prevent water from running back into the eroded areas. Foot traffic could also be temporarily diverted from the area to reduce erosion during restoration. The 90 percent designs would be provided to agencies involved in the project, including the Corps and USFWS, prior to construction for review.

2.3.3 Staging, Storage, Borrow, Disposal and Temporary Access

Staging and Storage. Four potential staging and storage areas have been identified for the project. Each of the staging and storage areas could also be used for dewatering as necessary. The four potential staging and storage areas are located in upland areas identified by the TRPA as high capability land. A 13.3 acre staging and storage area is located east of Highway 50 at the edge of the project boundary, northwest of the airport. A gravel construction entrance/exit would be constructed in this area to reduce tracking of dirt onto local area roads from construction. A

6.9 acre area at the location of the former Sunset Stables site could also be used for construction staging/storage. This location includes both disturbed, paved land as well as unpaved land that formerly housed buildings. Two potential staging and storage sites are located east of the river and are 3.3 acres and 5.7 acres, respectively. Staging areas would be stabilized with appropriate BMPs and would be enclosed by BMPs such as coir logs, construction limit fencing, and silt fencing secured in place to minimize erosion. After construction, the staging and storage areas would be returned to pre-project conditions through revegetation and regrading as needed.

Borrow and Disposal. Borrow material would include river cobble, riffle gravel, clean sand, and native fill materials. These materials would be delivered at the commencement of the project and stored for use in the staging area. Material would be provided from a commercial rock quarry and certified clean of dirt and silt. Material would also be weed free. Material excavated from the new channel that is not suitable as fill for the existing channel would be removed from the site and disposed of at an appropriate location in accordance with local, State, and Federal laws.

Temporary Access. Temporary access roads would be constructed to provide access from the staging and storage areas to the area of excavation/construction. A temporary railcar bridge would be used to cross the existing Upper Truckee River during construction. The temporary access roads within the SEZ areas would consist of a layer of reinforced geotextile fabric covered with a minimum of twelve inches of native material. All access roads would be contained with construction limit fencing, and in riparian areas, temporary filter fencing and sediment logs would be installed between the roads and the riparian areas. Following construction, all temporary haul roads would be restored to a natural condition and revegetated. Paved access routes would be cleaned with street sweepers and water trucks. In addition, as a part of the channel restoration, the existing low water crossing of the Upper Truckee River would be removed or modified. This action would enhance fish passage by eliminating a weir barrier and reducing higher than usual levels of fine sediment accretion and deposition, thus increasing and maintaining fish populations and distribution in the river and ecological connectivity with Lake Tahoe. Currently, fish passage is impeded under low flow conditions (less than 20 cfs), especially in late summer and fall.

2.3.4 Construction Schedule

The Sunset Stables project would be constructed within three years and is expected to begin in June of 2012 and to be concluded by October 15, 2014. The first year would involve excavation of the new channel, bank stabilization, and replanting with riparian native vegetation. The second year would allow the new channel to “season” and to allow the vegetation to establish. The third and final year of construction, would include construction of the tie-ins to the existing channel and connecting the new channel to river flow. This would be followed up with monitoring the bank performance, backfilling the old channel, re-contouring, and revegetation. Most of the excavation and grading activities are scheduled to occur during the summer when there is less potential for a storm event. New channel construction would be conducted after installation of water filled berms to isolate the existing Upper Truckee River flow from the new construction. Revegetation would be conducted following construction of the new channel and backfilling of the existing channel. Upon completion of all work activities, all

disturbed areas would be revegetated and irrigated. Construction activities would be conducted Monday through Friday from 8:00 a.m. to 6:30 p.m.

2.3.5 Monitoring

Post-construction monitoring of revegetated areas would be conducted for a minimum of two years after completion of construction activities and until vegetation success (70 percent of pre-disturbance plant cover) has been achieved. During the vegetation monitoring period, vegetation would be replaced as needed and invasive weeds removed. Should the vegetation criteria not be met in the 2014 construction season, additional planting and vegetation monitoring would continue in subsequent years until vegetative growth is deemed successful. In addition to vegetation monitoring, fish surveys would be conducted to monitor fish productivity within the Upper Truckee River. Monitoring would be conducted for both juvenile and adult fish populations. Benthic macro-invertebrate monitoring could also be conducted as an indicator of project success. It is also proposed that monitoring be conducted to document fish and wildlife distribution and use of the newly constructed habitat features after project completion. Prior to project construction a long-term monitoring plan would be developed. In addition, to the items discussed here, long-term monitoring should consider river dimensions, vegetation by habitat type, groundwater levels, and floodplain topography.

3.0 AFFECTED RESOURCES AND ENVIRONMENTAL EFFECTS

This section describes the resources in the Sunset Stables project area, as well as any effects of the alternatives on those resources. When necessary, mitigation measures have been incorporated into the project to reduce potential effects to a less-than-significant level. All avoidance, reduction, and minimization measures would conform to the requirements in TRPA's Handbook of Best Management Practices (TRPA, 1988), LRWQCB, Basin Plan, Chapter 5.3 Best Management Practices and other more recent best available technologies.

3.1 Resources Not Considered in Detail

Initial evaluation of the effects associated with the Sunset Stables project indicate that there would likely be no effect(s) or beneficial effects on the quality of the human environment and no unresolved conflicts concerning alternative uses of several resources. These resources are discussed below to add to the overall understanding of the Sunset Stables project area.

3.1.1 Climate

The climate in the Lake Tahoe Basin is characterized by cool, dry summers with maximum daily temperatures around 75 degrees Fahrenheit and cold winters with daily average temperatures around 30 degrees Fahrenheit (USACOE, 1999). The warmest month is July and the coldest is December. Annual precipitation occurs mostly in the form of winter snow or mixed rain and snow between November and March. Mean annual precipitation within the Sunset Stables project area as measured at the Airport is 15.30 inches over the period of record, with 3.7 inches during the spring (Western Regional Climate Center, 2007). Annual snowpack in the Upper Truckee River watershed averages over ten feet of accumulation in the upper

elevations of the watershed and approximately three feet within the Sunset Stables project area (Tahoe Resource Conservation District (TRCD), 2003). The only activities associated with the Sunset Stables project that would emit green house gasses (GHG) are construction vehicles associated with the construction of the project. Because the project is a river restoration project which would be constructed during summer months over a three year period with the majority of earthwork occurring during the first year, it would not result in long term GHG emissions. While there would be minimal GHG emissions during the period of active construction, this project would have no effect on climate locally, regionally, or globally.

3.1.2 Geology and Seismicity

The Lake Tahoe Basin spans the border between the Sierra Nevada Batholith to the west and the Basin and Range province to the east and shares the character of each province (USACOE, 2001). Much of the Sierra Nevada has been affected by glaciation during the past 1.5 million years. The rocks of the Sierra Nevada can be divided into granitic, metamorphic, and volcanic (Hyne, et al., 1972). Cretaceous granodiorite of the Sierra Nevada Batholith is the predominant basement bedrock of the Tahoe Basin.

The current geologic conditions found in and around the Sunset Stables project area were mainly formed over the last two million years by various geological and glacial processes. Tectonic uplift and periodic volcanic eruptions have resulted in steep mountainous terrain with areas of thick layers of ash and fine erodible soils (TRCD, 2003). The oldest of five major periods of glaciation identified in the Lake Tahoe Basin is the only one that directly relates to the Sunset Stables project area. The valley floor of the Upper Truckee River within the Sunset Stables project area is comprised of lake deposits from high stands of Lake Tahoe, up to 900 feet above present levels, during the Quaternary period and more recent Holocene period. In some areas, the Upper Truckee River has deposited alluvial materials over the top of the lake deposits. High rates of runoff and sediment loads from glaciers associated with the high lake stands resulted in the large deltaic deposits upon which South Lake Tahoe sits; these deltaic deposits of well sorted sands have become lithified (hardened into rock) and now form hard ledges under the river streambed and along banks.

The Lake Tahoe Basin is located in an area of low to moderate seismicity (Petersen et al. 1996). Active faults in the area include the North Tahoe and East Tahoe faults beneath Lake Tahoe and the Genoa-Carson Range Fault System in the east. This project is a restoration project which would have no effect on the underlying geology or seismicity.

3.1.3 Land Use

Land use within and surrounding the Sunset Stables project area is regulated by the TRPA and El Dorado County. All agencies use the TRPA Plan Area Statements (PASs) as guidelines for determining appropriate land use and zoning within the Tahoe Basin. The TRPA has divided the basin into approximately 175 Plan Areas and each of the Plan Areas includes a PAS that describes general policies, permissible land uses, remedial action programs, and developmental limits.

The Sunset Stables project area is located within Plan Area 119-Country Club Meadow (TRPA 2002). The 119-Country Club Plan Area follows the Upper Truckee River from a point near the airport to the bridge at US Highway 50 and Elks Club Drive. The boundaries of the Plan Area are depicted on TRPA map G-20 (TRPA 2005). The PSA notes that: *“Past land uses within this Plan Area have ranged from gravel mining to off road vehicle races and rodeo events at the Amaker Ranch. Developed facilities include several homes, an Elks Club, a golf course, a community recreation area and a facility offering snowmobiling and horse back riding. Fishing and rafting on the river are other important recreation activities.”* The permissible land uses within this area are residential, public service, recreation and resource management. The PAS recommends that *“this area should be managed primarily for outdoor recreation and natural resource values to include opportunities for SEZ restoration.”*

The Sunset Stables project area includes both land designated by TRPA as “non-sensitive” areas and “sensitive” SEZ areas based on land qualities such as steepness, type and amount of soil and vegetation, and erosion potential. The staging, parking and stockpiling areas are located in areas characterized as “non-sensitive.” The area along the river channel extending into the floodplain is characterized as a “sensitive” SEZ. The project’s goal is to improve riparian habitat and water quality, and is therefore in accordance with the environmental restoration goals of the TRPA for SEZ. Additionally, this project has considered existing nearby uses including the South Lake Tahoe Airport and the existing South Tahoe Public Utility District (STPUD) utility lines. The project has been coordinated with the Airport and would not construct new ponds or additional wetlands beyond what currently exists near the airport’s southern approach for the runway and airport runway safety zone in order to comply with FAA regulations and not increase wildlife hazard risk, such as potential bird strikes to planes taking off or landing. The selected project also protects the existing sewer lines in place and would not effect existing utilities. This project would conform to the existing land uses and would have no effect on land use.

3.1.4 Socioeconomics/Environmental Justice

According to the Census data 2009 estimate, 178,447 people reside in El Dorado County, California (US Census, 2009). Population centers within the county include Placerville (the county seat) with a population of 9,610 (US Census, 2000) and the City of South Lake Tahoe with a population of 22,003 (US Census, 2006-2008).

Tourism is El Dorado County’s largest industry, particularly in the winter months when ski resorts are open. During the rest of the year, El Dorado County has a largely agricultural economic base supported by apple orchards grown throughout the eastern parts of the county. Logging industries also operate within the Sierra Nevada Range. The county offers a number of recreational activities such as gaming, boating, fishing, hiking, biking, camping, golf, hunting, hang-gliding, and hot-air ballooning (El Dorado County CED, 2008).

Executive Order 12898 directs all Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. Minority population is defined as including all non-white racial groups and Hispanics of any racial group; low-income

population is defined based on Federal poverty thresholds. Temporary construction related effects as a result of the proposed project to adjacent residential properties including traffic, noise, or visual effects would not have a disproportionate affect on low income and/or minority populations. There are not large populations of low income or minority groups within or adjacent to the Sunset Stables project area. As a result, this project would not disproportionately affect minority or low income populations.

3.1.5 Esthetics

The Lake Tahoe area is well-known for its scenic beauty and esthetics. The Sunset Stables project area is within the Lake Tahoe Basin and is visible from Highway 50, the Airport and surrounding upland areas. The visual area for the Sunset Stables reach of the Upper Truckee River consists of portions of El Dorado County and the SEZ. Any effects to esthetics as a part of the project would be temporary, as no permanent structures would be constructed. Over the long-term, the Sunset Stables project could create a larger floodplain which could result in a larger riparian and meadow area, thus potentially improving the visual character of the area. The project would not have a significant effect on esthetics.

3.1.6 Topography and Soil Types

The United States Department of Agriculture, National Resources Conservation Service 2007 'Soil Survey Tahoe Basin Area, California and Nevada' identifies six soil types in the Sunset Stables project area which are defined and characterized as follows:

Tahoe Complex. The Tahoe Complex soils consist of very deep, very poorly drained soils that formed in alluvium derived from granitic and volcanic rock. These soils are found in floodplains and valley flats with slopes of 0 to 2 percent and are more than 80 inches in depth. A typical soil profile demonstrates a range of soil textures from the ground level down of decomposed plant materials to mucky silt loam to gravelly coarse sand to mucky silt loam to loam. Depth to the water table is 0 to 12 inches and the soils are subject to occasional flooding and ponding.

Celio loamy coarse sand. The Celio loamy coarse sand soils consist of deep, somewhat poorly drained soils that formed on outwash terraces from alluvium and/or glacial outwash. These soils are found on nearly level to gently sloping glacial outwash ranging from 0 to 5 percent. A typical soil profile consists of a soil texture that is stratified with layers of coarse sand or gravel. Depth to water table is 12 to 30 inches of the surface from January to June.

Gefo gravelly loamy coarse sand. These soils consist of very deep, somewhat excessively drained soils that formed in glacial outwash terraces and sandy alluvium derived from granitic rocks. These soils are found on outwash terraces, hillsolpes, and alluvial fans with slopes of 2 to 9 percent. Gefo gravelly loamy coarse sand soils demonstrate a range of soil textures from coarse sand, sand, loamy coarse sand to loamy sand throughout a typical soil profile. Depth to the water table is approximately 11 to 35 inches but dries out between June and October and the soils are not subject to flooding and/or ponding.

Jabu Coarse Sandy Loam. These soils consist of very deep, well drained soils that formed in outwash terraces and moraines derived from granitic sources. These soils are found on forested hill slopes on outwash terraces with slopes of 0 to 9 percent and vary in depth from approximately 39 to 79 inches below the ground surface. Jabu Coarse Sandy Loam soils are primarily coarse sandy loam in texture throughout a typical soil profile. Depth to the water table is approximately 39 to 79 inches and the soils are not subject to flooding and/or ponding.

Marla loamy coarse sand. These soils consist of very deep, poorly drained soils that formed in sandy alluvium. These soils are found on outwash fans with slopes of 0 to 5 percent. Marla loamy coarse sand soils are primarily loamy coarse sand or loamy sand in texture throughout a typical soil profile. The soil is saturated at depth from approximately 0 to 12 inches during the spring and early summer.

Ubaj Sandy Loam. The Ubaj Sandy Loam soils consist of very deep, moderately drained soils that formed in alluvium and/or outwash derived from grandiorite over lacustrine deposits. These soils are found in lake and outwash terraces with slopes of 0 to 9 percent and are more than 80 inches in depth. A typical soil profile demonstrates a range of soil textures from the ground level down of sandy loam to sandy clay loam to clay loam to clay. Depth to the water table is approximately 48 to 72 inches and the soils are not subject to flooding and/or ponding.

This restoration project would not change the underlying soil types nor the topography of the project area. This project would not affect either soils or topography.

3.1.7 Flood Conveyance

Reach 6 of the Upper Truckee River is predominantly a single-thread channel meandering through a grassy meadow and lodgepole pine complex. Channel incision and widening throughout this section have resulted in a less stable channel form with increased channel conveyance capacity, and less frequent floodplain inundation. Under existing conditions, moderate magnitude flooding, like a 10-year to 20-year event, on the Upper Truckee River results in overbanking (i.e., out-of-channel flow) and inundation of areas adjacent to the river. These types of flows occur during spring snowmelt events, large winter rainstorms or rain-on-snow events. Summer thunderstorms rarely produce overbanking in the reach because they tend to produce short duration precipitation events with little volume and flashy peaks (USACOE, 1999). The largest recorded flood event occurred on January 2, 1997 as the result of a rain-on-snow event (USGS, 2002). The US Geological Survey gauging station (Upper Truckee River at South Lake Tahoe) located downstream of the Sunset Stables project recorded a peak flow of 5,480 cfs during the 1997 flood event. Based on the USGS data using estimates and historical flow data, the 100-year peak flow estimate at the (Upper Truckee River at South Lake Tahoe) gauging station is 4,560 cfs. The 1997 flood event exceeded the 100-year event by 920 cfs.

Under existing conditions, an event producing anywhere from 700 cfs to 1,300 cfs (2- to 5-year event) would be required, in order for the channel to overbank onto the floodplain, depending on the depth of channel incising, which is between 0.75 ft and 2.5 to 3 ft. The new Upper Truckee River alignment within the Sunset Stables project area is being designed to

overtop its banks and inundate the new floodplain within the confines of the new floodplain at approximately 450 cfs (1.5-year event). The wider floodplain within the Sunset Stables project area would allow the river to convey large storm event flows at a lower velocity and allow for sediment deposition in the new floodplain and river channel. Due to the removal of fill within the existing floodplain, any potential reduction in river channel size resulting from this sediment deposition would be offset by the added capacity of the new floodplain area whenever flow in the river channel exceeds its banks. This added floodplain capacity would mitigate larger flood events and could potentially improve effective flood elevation for the Upper Truckee River in the Sunset Stables project area. Based on this information, there would be no significant effect to flood conveyance and no increase in flood elevation as a result of the proposed project. The areas located within the construction footprint or further downstream contain no houses or other infrastructure found in the 100-year floodplain that would be subject or prone to induced flooding following restoration activities due to no increase in flood elevation.

3.1.8 Hazardous, Toxic, and Radiological Waste

A Phase I Environmental Site Assessment (ESA) was completed for the project in July 2010 (USACE, 2010). The purpose of the ESA was to identify the presence or likely presence of any hazardous, toxic, or radiological waste (HTRW) that could affect the resource due to construction of the project. A comprehensive records review and site visit were conducted to compile information for the ESA. This assessment did not include sampling for analysis of soil or groundwater. The site reconnaissance revealed no evidence that HTRW contamination would affect the resources found in the project area.

Construction of the project would involve use of substances that could be considered hazardous, such as fuels, lubricants, and oils. However, construction of the project would follow the regulatory requirements of the State of California Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) permitting process. As a result, the project would have no effect on any existing HTRW, nor would it create any new HTRW.

3.2 Resources Considered in Detail

3.2.1 Vegetation and Wildlife

3.2.1.1 Existing Conditions

A majority of the Sunset Stables project area consists of montane coniferous forest habitat, with the remaining consisting of scrub-shrub, riparian willow (*Salix spp.*)/mountain alder (*Alnus incana ssp. tenuifolia*), wet meadow, and mesic meadow (Appendix B). The TRPA lists the composition of the forest as mixed Jeffrey pine (*Pinus jeffreyi*), lodgepole pine (*Pinus contorta*), willow (*Salix spp.*), greenleaf manzanita (*Arctostaphylos patula*), and mountain sagebrush (*Artemisia tridentata var. vaseyana*). The existing riparian corridor is dominated by native willows and mountain alder (*Alnus incana ssp. tenuifolia*) in the overstory. The herbaceous community includes a variety of native wetland vegetation and many non-native species, such as intermediate wheatgrass (*Elytrigia intermedia*).

ENTRIX, Inc. (2004) conducted a vegetation survey that included plant community mapping and focused field surveys within the Sunset Stables Management Planning Area (MPA). During the focused field surveys, all plants observed were identified and the occurrence of any special-status plants, invasive plant/noxious weed species, and Washoe cultural plants was recorded. No special-status species were found during the field surveys. Nine vegetation communities were identified in the MPA during this study. These community types are identified in Table 3.

Table 3: Vegetation Communities in Sunset Stables Area.

Community Type	Description
Montane Riparian Scrub	Dominated by several types of willow and contains several species of sedges (<i>Carex ssp.</i>) This plant community typically occurs adjacent to stream channels and sometimes on hill slopes where moisture is adequate.
Aspen Forest	Aspen stands are found typically along meadow edges and seeps. The herb layer includes such species as western columbine (<i>Aquilegia formosa</i>), Fendler's meadow rue (<i>Thalictrum fendleri</i>), California corn lily (<i>Veratrum californicum</i> var. <i>californicum</i>), sedges, Richard's geranium (<i>Geranium richardsonii</i>), and rein bog orchid (<i>Platanthera leucostachys</i>).
Wet Montane Meadow	The wet meadows area are dominated by sedges including Nebraska sedge (<i>Carex nebrascensis</i>) and slender-beak sedge (<i>Carex athrostachya</i>). Long-stalked clover (<i>Trifolium longipes</i>), dandelion (<i>Taraxacum officinale</i>), leafy arnica (<i>Arnica chamissonis</i>), water miners lettuce (<i>Montia chamissoi</i>), narrowleaf miners lettuce (<i>Montia linearis</i>), and cinquefoil (<i>Potentilla gracilis</i>) are also common in the wet meadows. Much of the wet montane meadow in the study area seems to be in transition toward dry montane meadow.
Dry Montane Meadow	Dry montane meadows are found between 3,000 and 9,000 feet in elevation in the Sierra Nevada. These meadows dry completely during some portion of the growing season. Dry meadows are vegetated by a dense growth of low perennial herbs and grasses such as common dandelion (<i>Taraxacum officinale</i>), bluegrasses (<i>Poa</i> spp.), yarrow (<i>Achillea millefolium</i>), and mat muhly (<i>Muhlenbergia richardsonis</i>).
Jeffery Pine Forest	Dominated by Jeffrey pine (<i>Pinus jeffreyi</i>), interspersed with white fir (<i>Abies concolor</i>) and incense cedar (<i>Calocedrus decurrens</i>). Lodgepole pine (<i>Pinus contorta</i> ssp. <i>murrayana</i>) was found in areas that collect more moisture. The understory is dominated by gooseberries and currants (<i>Ribes</i> spp.), service-berry (<i>Amelanchier alnifolia</i> var. <i>pumila</i>), and Sierra chinquapin (<i>Chrysolepis sempervirens</i>).
Lodgepole Pine Forest	Lodgepole pine forest is found on moist sites such as creek banks and meadow margins.
Big Sagebrush Scrub	Dominated by Mountain big sagebrush (<i>Artemisia tridentata</i> ssp. <i>vaseyana</i>). Rubber rabbitbrush (<i>Chrysothamnus nauseosus</i>) and bitterbrush (<i>Purshia tridentata</i>) are the common associates of this community.
Developed Ground	Developed ground includes locations with man-made structures and the vegetation associated with those structures. The developed ground includes houses and other buildings and roads.
Ruderal Vegetation	Ruderal vegetation occurs in areas where vegetation is subject to routine disturbance. Invasive plants are often found in these areas as well as pioneer native species.

Source: Entrix 2004.

Habitat for a variety of animal species is present within the project site. Species observed during field surveys conducted for the TRCD include a total of 44 birds, nine mammals, two reptiles, and one amphibian (TRCD, 2003). During the TRCD early morning bird field surveys,

coyotes (*Canis latrans*), were observed foraging in the meadows and their signs, such as tracks and scat, were present throughout the Sunset Stables project area. Although not directly observed, there was evidence of raccoons (*Procyon lotor*), feeding on the freshwater pearl mussel (*Margaritifera margaritifera*) found within the Sunset Stables project area. Numerous large beds of these clams are present in the sandy areas of the river downstream of the project site in Reach 5. Beavers and signs of beaver were not observed in the Sunset Stables project area. Various species of rodents were observed, including chipmunks (*Tamias spp.*), gophers (*Thomomys spp.*), voles (*Arvicolinae spp.*), and squirrels (*Sciurids spp.*). Although not detected via sign or direct observation, several species of shrews and weasels could occur in the Sunset Stables project area. Bats (*Chiroptera spp.*) were observed foraging during the two survey visits conducted at dusk, however, no roost sites are present in the Sunset Stables project area. The Sunset Stables project area provides habitat for a variety of resident and migratory bird species. Because of the Lake Tahoe Basin's high altitude, few reptiles are endemic to the area. Two species of reptile were observed in the Sunset Stables project area, the fence lizard (*Sceloporus occidentalis*) and an unidentified species of garter snake (*Thamnophis sp.*). Tree frogs (*Pseudacris regilla*) were noted in several locations in the Sunset Stables project area where standing water was present. Although not observed, western toads (*Bufo boreas*) and long-toed salamanders (*Ambystoma macrodactylum*) could potentially occupy the Sunset Stables project area (TRCD 2003).

3.2.1.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on vegetation and wildlife if it would result in the loss or degradation of unique native vegetation, or loss of resident or migratory wildlife species and/or their habitat.

No Action. This alternative would have no effects on existing vegetation and wildlife in the Sunset Stables project area. Plant communities and associated wildlife would be expected to remain the same. However, the quantity and quality of wildlife habitat in the area, especially along the river banks, could continue to degrade or be lost due to higher than usual rates of erosion causing the riparian habitat, providing higher wildlife value to fall into the stream and/or conifer encroachment into the riparian area .

Preferred Alternative. Construction of the project would temporarily disturb the montane coniferous forest, riparian, floodplain, and meadow areas. The conifers are not considered unique, since they are numerous both within the construction footprint of the project area and in the immediate adjacent areas outside the construction footprint of the restoration effort. Riparian areas downstream of the project site would also be affected, as well as some upland areas that are already disturbed. The proposed staging areas are located in upland areas that contain very little vegetation.

During construction, upland and a limited number of native riparian vegetation randomly scattered would be removed from the location of the new channel alignment, and healthy native riparian vegetation (willows and other shrub species) of good quality would be salvaged (as appropriate) and replanted once the new channel is constructed. Every effort would be made to remove as little native riparian trees and shrubs in the montane riparian vegetation and meadow

communities as possible. Existing noxious weeds would be removed during construction which would be a benefit to the establishment of native vegetation and SEZ vegetation in this area.

Conifers are randomly distributed throughout the project area and the ones located in the path of the new channel, or in other locations where conifer encroachment has been identified as a problem for restoring the riparian vegetation community composition, would be removed prior to channel construction. It is estimated that up to 200 select conifers found throughout the project area could be removed as a part of this project. Where feasible, the removed trees would be reused as part of the restoration effort for construction of stabilization measures and construction of in-channel habitat structures, such as rootwad revetment. The remaining trees would be transported to an area within the Sunset Stables property to be processed for mulch.

Resident or migrating wildlife could be temporarily disturbed and/or displaced due to noise and activity during construction. Displaced species would be expected to return to the enhanced river area once construction is complete. There would be no potential indirect effects to vegetation or wildlife as project effects would be contained within the project area. There would be insignificant effects to riparian or terrestrial vegetation as a result of the project through the removal of conifers and replacement with higher value riparian and riverine habitat. The majority of the willow and alders would remain, or if some individual or small groups are affected by removal, their cuttings would be transplanted along the banks of the new channel. The project would not result in the loss of unique vegetation or the reduction or use by resident or migratory wildlife species through the implementation of the mitigation measures described in section 3.2.1.3 below. As a result, there would be no significant effects to vegetation or wildlife. The goal of the project is to restore wildlife and its riparian habitat, and the project would benefit wildlife because increased wetland, riparian, and riverine habitat areas provide diversity and higher values upon project completion and increasing benefits would accrue as the planted vegetation matures to a climax riparian community. The construction of approximately 4,900 linear feet of new sinuous channel that maintains a natural floodplain dynamic would provide additional habitat benefits (breeding/rearing, food and cover) to some wildlife and a variety of aquatic species. The project would also enhance approximately 57 acres of wetland habitat and create approximately 12 acres of willow/riparian habitat.

3.2.1.3 Mitigation

With implementation of the mitigation measures included, the effects to vegetation and wildlife would be minimal and reduced to less than significant. During construction, removal of mature trees would be avoided where possible, and other trees in the work area would be protected with fencing approved by TRPA. Wherever feasible, native riparian vegetation would be preserved or salvaged for replanting within the new Upper Truckee River corridor. Large woody material from unsalvageable riparian vegetation would be used as aquatic habitat features or cuttings for stake plantings. Willow (*Salix lemonii* and *S. Guriyana*) clumps would be salvaged for stake planting and for live fascines for bank stabilization. In addition, BMPs required by TRPA would be implemented to minimize any effects of traffic or equipment on soil or vegetation. Upon the completion of construction, all disturbed and excavated areas, including temporary access roads, would be revegetated with native vegetation and/or stabilized where needed. Salvaged sod, willows and other riparian vegetation would be propagated and used

where possible. Additional seed or vegetation would be added where needed for stabilization measures and for wildlife habitat enhancement. Seed used in revegetation would be certified weed free.

In addition to planting/seeding, areas disturbed during construction would be treated with soil inoculants, wood chips, mulch, and tackifier, as needed. Post-construction monitoring of revegetated areas would be conducted for a minimum of three years and until vegetation success (70 percent of pre-disturbance native plant cover) has been achieved. A noxious weed abatement program would also be implemented post-construction to control for noxious weeds listed by the California Department of Food and Agriculture.

Where feasible, management activities that require the removal of trees and shrubs should be conducted outside the avian nesting season (April 1 through August 15). If vegetation removal during the avian nesting season is required, surveys would be conducted by a qualified biologist prior to vegetation removal. The project proponent should retain a qualified biologist to conduct a focused survey for active nest sites of migratory birds in accordance with the Migratory Bird Treaty Act (MBTA) within a 1/8 mile radius of the project area prior to (i.e. within fifteen days) the onset of construction activities initiated during the nesting season. If active nests are located during the preconstruction surveys, the biologist would consult with California Department of Fish and Game (CDFG) and U.S. Fish and Wildlife Service (USFWS) as required to determine the appropriate buffer around the nest. In addition, all trash created during construction would be properly contained in wildlife-proof containers and removed at the end of each day.

3.2.2 Fisheries

3.2.2.1 Existing Conditions

Aquatic environments that support fisheries in the Lake Tahoe Basin include lake and stream habitats. Both aquatic habitats provide fish with water, cover, and spawning and nursery/rearing habitat. Both environments are critical in sustaining fisheries in Lake Tahoe because some fish species use both lake and stream environments to fulfill their life cycles. The chemical, biological, temperature, and physical condition of the lake and stream environments influence the ability to sustain a healthy diversity and population of fish species in Lake Tahoe. Fish species known to occur in the Upper Truckee River and species observed during 2005 electrofishing surveys (CDM, 2008 and ENTRIX, 2007) are listed in Table 4.

Table 4: Fish Known to Occur in the Upper Truckee River Taxonomy.

Common Name	Scientific Name	Native or Introduced	Observed in 2005
Rainbow trout	<i>Oncorhynchus mykiss</i>	Introduced	Present
Brown trout	<i>Salmo trutta</i>	Introduced	Present
Brook trout	<i>Salvelinus fontinalis</i>	Introduced	No
Kokanee salmon	<i>Oncorhynchus nerka</i>	Introduced	No
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>	Native	No

Mountain Whitefish	<i>Prosopium williamsoni</i>	Native	No
Paiute sculpin	<i>Cottus beldingi</i>	Native	Present
Lahontan redbreast	<i>Richardsonius egregious</i>	Native	Present
Lahontan speckled dace	<i>Rhinichthys osculus robustus</i>	Native	Present
Lahontan tui chub	<i>Siphateles bicolor</i>	Native	No
Tahoe sucker	<i>Catostomus platyrhynchus</i>	Native	Present
Mountain sucker	<i>Catostomus platyrhynchus</i>	Native	Present
Brown bullhead	<i>Ameiurus nebulosus</i>	Introduced	No
Bluegill sunfish	<i>Lepomis macrochirus</i>	Introduced	Present

Source: CDM, 2008 and ENTRIX, 2007

California Department of Fish and Game (CDFG) regulates and manages fish habitat, diversity, and population in the State of California. The TRPA coordinates with CDFG for management of fish habitat, diversity, and population within the Lake Tahoe Basin. The TRPA Regional Plan was developed to manage fish resources in Lake Tahoe and includes environmental thresholds and goals and policies for fisheries in the Basin. The TRPA policies for fisheries are: “(1) consider and mitigate project effects to fish habitat in streams and lakes, (2) prohibit the development of blockages or other impediment to fish movement within streams, (3) develop an in-stream maintenance program to inventory and remove stream barriers, (4) establish boating standards to reduce associated disturbance in the shallow zone, (5) encourage habitat improvement projects in streams and lakes, (6) maintain and enhance in-stream flows, (7) ensure that existing points of water diversion from streams are transferred back to the lake whenever feasible, (8) support State and Federal efforts to reintroduce Lahontan cutthroat trout, and (9) control the level of Lake Tahoe to reflect season weather and runoff patterns” (TRPA, 2007).

The threshold standard adopted by TRPA to manage fisheries in Lake Tahoe are: “(1) achieve the equivalent of 5,948 acres of excellent fish habitat, (2) maintain 75 miles of excellent, 105 miles of good, and 38 miles of marginal stream habitat as indicated by the Stream Habitat Quality Overlay map, (3) ensure that a non-degradation standard applies to in-stream flows until in-stream flow standards are established in the Regional Plan, and (4) support State and Federal efforts to reintroduce Lahontan cutthroat trout” (TRPA, 1986).3.2.2.2 *Effects*

Basis of Significance. An alternative would have a significant effect on fisheries if it would result in the loss or degradation of their habitat, affecting their distribution and abundance in this lower portion of the project area.

No Action. This alternative would have no effects on existing fisheries in the Sunset Stables project area. However, in the absence of the project, there would also be no benefit to fisheries and aquatic resources. The existing degraded habitat condition would remain or worsen over time (Appendix B).

Preferred Alternative. The project could have temporary construction related effects on aquatic resources while working within the existing river channel. Work is proposed to occur over a three year period. The first year would involve excavation of the new channel, bank

stabilization, and replanting with riparian native vegetation. During construction of the new channel, the existing channel would be isolated from the work area. The second year would allow the new channel to “season” and the vegetation to establish. The third and final year of construction, would include construction of the tie-ins to the existing channel and connecting the new channel to river flow. This would be followed up with monitoring the bank performance designed to maintain reduced rates of bank erosion, backfilling the old channel, re-contouring, and revegetation. Potential effects to aquatic resources would include temporary loss of habitat and the temporary loss of access to upstream areas or to Lake Tahoe during the third year of construction when the tie-ins to the new channel are constructed. In addition, indirect effects to aquatic species could occur in the event of a sediment discharge from the project during construction or after construction is complete. Mitigation measures to reduce potential effects to fisheries to a less than significant level are identified in Section 3.2.2.3 below.

The new channel would be narrower than the existing channel, which would provide greater depth, particularly during the summer months. As a result of the decrease in capacity and increase in depth, the new channel is expected to have lower water temperature fluctuations and lower maximum temperatures. Aquatic habitat would also be enhanced by increasing cover along the stream banks with vegetation or woody debris. Streambank cover would be increased and the banks would be protected/stabilized with treatments including, but not limited to, stacked sod, brush mattresses, root wads, large woody debris, engineered log jams, or other site-specific treatments as appropriate. The objective of the streambank cover/treatments is to complement riparian plantings of willows and other vegetation by providing bank cohesion and fostering the development of pools and undercut banks to enhance aquatic habitat. Streambank cover/treatments would be placed at a frequency appropriate to the channel design, taking into consideration topography, bank structure and meander bends. They would be most appropriate at outside bends or other locations on the main channel where pools are desired.

There would be no long-term adverse effect to fisheries as a result of this project. There is a potential beneficial effect to fisheries and aquatic resources as a result of the project. Benefits to fisheries and aquatic resources include the addition of roughness elements within the new channel which increase the ability of the river flow to sort fine sediment from gravels, and the creation of proper pool-riffle-run complexes that increase fish habitat and cover, and reduced temperature during the summer months. Benefits also include improved fish passage, rearing, and spawning conditions for fish and increased habitat for macroinvertebrate populations.

3.2.2.3 Mitigation

Fish rescue would be performed prior to dewatering or partial diversion of water from the stream course or other aquatic habitats in the project area where fish could be present, in order to avoid stranding of fish during construction activities. Prior to construction, the CDFG, USFWS, and TRPA would be consulted to determine whether non-native fish species (with the exception of rainbow and brown trout) should be permanently removed from the Upper Truckee River. Qualified biologists would perform the removal and relocation of fish using techniques such as electrofishing and seining. Captured fish would be relocated to viable and comparable habitats in the immediate vicinity that remain undisturbed for the duration of construction activities. During construction activities, BMPs would be used to prevent sediment from entering the Upper

Truckee River and disturbing fish habitat. A water filled berm would be used to maintain flow within the existing channel. The main flow would be slightly confined, but would remain in the existing channel alignment.

3.2.3 Special Status Species

3.2.3.1 Existing Conditions

In order to assure proper protection of species which are designated with a heightened level of concern, efforts have been made to discover and evaluate the presence of special status species within the Sunset Stables area. Special status species are herein defined as those listed as threatened, endangered, or as candidates for listing by the US Fish and Wildlife Service (USFWS). The USFWS was consulted regarding special status species that could potentially occur in and/or near the Sunset Stables project area. The habitat requirements for the special status animal and plant species identified by the USFWS were reviewed.

In December 2010, the USFWS (Sacramento District) Endangered Species Listing resources were consulted to obtain a current listing of threatened, endangered, and candidate species within or near the Sunset Stables project area (USFWS, 2010). The list of endangered, threatened, and candidate species potentially affected by activities in or adjacent to the Sunset Stables project area (South Lake Tahoe and Emerald Bay quadrangles) include threatened species Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), and candidate species Yosemite toad (*Bufo canorus*), mountain yellow-legged frog (*Rana muscosa*), fisher (*Martes pennanti*), and Tahoe yellow-crest (*Rorippa subumbellata*). The USFWS letter and list are located in Appendix C.

3.2.3.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on special status species if it would result in the take of a Federally listed threatened or endangered species, adversely affect designated critical habitat, or substantially affect any other special status species, including degradation of its habitat to the degree of jeopardizing the continued existence of the species or critical habitat.

No Action. This alternative would have no adverse effects on Federally listed special status species or their existing habitat in the Sunset Stables project area. However, there would also be no improvement to habitat for potential special status species.

Preferred Alternative. The following details the potential project related effects for each special status species identified in the USFWS list.

Yosemite Toad. Suitable aquatic habitat for candidate status Yosemite toad (*Bufo canorus*) includes wet mountain meadows at elevations between 4,800 to 12,000 feet. This habitat is present within the project area. During field surveys, Yosemite toads were not identified within or near the project area. There are also no recorded sightings of the Yosemite

Toad in the project area or vicinity, and there is no designated critical habitat for the Yosemite Toad within the project area.

Mountain Yellow-Legged Frogs. Suitable aquatic habitat for candidate status Mountain yellow-legged frog (*Rana muscosa*) is present in the project area. One potential yellow-legged frog tadpole was observed during project surveys in 2006, but the tadpole could not be positively identified (ENTRIX, Inc., 2007). Additional amphibian surveys failed to detect the presence of the mountain yellow-legged frog within or near the proposed project area. The only known population of mountain yellow-legged frogs exists at Hell Hole, which is located more than 30 miles northeast of the project area in the southern portion of the Lake Tahoe Basin. They inhabit alpine lakes above the timberline, but are actually considered stream dwelling species. Rainbow and brown trout are known to prey on tadpole and therefore habitat suitability within the project site would be considered low.

Fisher. A small amount of potential habitat for the candidate status fisher (*Martes pennanti*) is present within portions of the project area. Preferred habitat is characterized by dense (60 to 100 percent canopy closure), multistory, multi-species mature coniferous forests with a complex physical structure near the ground (Buskirk and Ruggerio 1994). Although, fishers use a variety of other habitat types, they depend on a well-connected expanse of late-successional forest. Fishers' movements are governed by topography, cover, and the availability of food. Movements are mainly concentrated along drainages, ridgelines, and lake shores. High quality habitat includes close proximity to forested riparian corridors that are used as travel-ways and an interspersed of small (<1 acre) openings with good ground cover used for foraging (Spencer et al. 1983; Freel 1991; Raphael and Jones 1991). Riparian corridors or other means for dispersal are necessary to fishers to provide safe and frequent movements through poor habitat areas and between habitats.

No incidental sightings of fishers in or near the project area have been recorded by the LTBMU (USDA, 2007). Protocol surveys for fishers using sooted trackplates or remote cameras have not been conducted in the project area. Fishers have been documented more than 2.25 miles east of the project area at Heavenly Ski Resort (USDA, 2007). While it is considered unlikely that the fisher occupies the project area, additional wildlife field surveys would be conducted, as necessary, prior to project initiation. If disturbance to the fisher did occur, it would be limited to temporary auditory or visual perturbation during construction, and would occur on the individual animal scale. As the fisher is quite mobile, it would be able to avoid disturbance and temporarily adjust its foraging patterns to utilize the abundant nearby habitat.

Lahontan Cutthroat Trout. Lahontan cutthroat trout is listed as Federally threatened under the Endangered Species Act (ESA). Historically, Lahontan cutthroat trout occurred throughout the Truckee River watershed and the larger Lahontan Basin; they have since been extirpated from the majority of their range, including Lake Tahoe and the Upper Truckee River. Several attempts in the past to reintroduce Lahontan cutthroat trout to the Upper Truckee River have not been successful due to degraded habitat conditions and hybridization and competition with non-native fishes. Farther removed from the project area, recent introductions have been made further upstream. In the future, Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) could potentially migrate downstream into the project area (although no specimens were collected or observed during 2005 fish population surveys in the project area).

Tahoe Yellow-Cress. Habitat for Tahoe yellow-cress (*Rorippa subumbellata*), which grows within the shore zone of Lake Tahoe, is not present within the Sunset Stables project area. The candidate status plant or habitat for this plant was not identified during vegetation field surveys. The two areas in which Tahoe yellow-cress were identified in 2006 would not be disturbed during construction.

Summary of Effects Analysis. Species such as the Lahontan cutthroat trout, Yosemite toad, fisher, Tahoe yellow-cress, and mountain yellow-legged frog are not known to occur within the project site, do not have critical habitat within the project site, and thereby, would not be affected due to Sunset Stables restoration activities. For a species such as the fisher, suitable habitat could exist within portions of the project area away from development, although the fisher is not known to occupy the project area. If unforeseen circumstances such as a fire create existing conditions in surrounding areas to change where the fisher moves into the project area either prior to or during construction, potential effects to the fisher would be minimal and temporary, since the fisher's mobility would allow it to temporarily avoid construction effects and continue to utilize unaffected nearby suitable habitat in surrounding areas. No direct effects to Tahoe yellow-cress populations found in the shore zone of Lake Tahoe are expected, since the restoration effort is beneficial and designed to reduce the higher than usual levels of fine sediment flowing into the lake that could continuously cover and smother the plant if any plants were to become established in the upper portions of the floodplain at the river's terminus. In the future, the settling of windblown dust and fluctuating lake levels are expected that would continuously deposit dirt or suspended sediments to fall and create suitable habitat conditions for this plant. For a species such as Tahoe yellow-cress, reasonable measures such as implementation of erosion control BMPs would be taken to avoid potential indirect effects.

Overall, negative effects to special status species such as Lahontan cutthroat trout and fisher would occur if they were to move into the project area, either prior to, or during construction. If these species moved and occupation of the project area were to occur, the effects would be minimal and temporary, while the habitat restoration implemented under the Sunset Stables project would achieve long-term benefits to special status species such as the Lahontan cutthroat trout, Tahoe yellow cress, and fisher. While no direct or indirect effects to any of these special status species listed above are expected, there could be short-term disturbances during construction to foraging habitat for the fisher if they moved into the area. However, upon completion of the project, the quantity and quality of foraging habitat for fisher would improve. In the short and long term, improvements in wet meadow and riparian habitat are expected to increase habitat for small mammals and songbirds, both of which are potential prey for the fisher and raptors. Upon project completion, removing fish passage barriers, restoring the channel, adding aquatic habitat features, and planting riparian vegetation in the area are also expected to benefit Lahontan cutthroat trout and fishers from the increased quantity and quality of aquatic, wetland, and riparian habitat areas.

Based on field surveys conducted in 2001, 2002, 2006, and 2007, biological evaluations/biological assessments prepared for the USFS, and consultation with local agencies (TRPA and LTBMU) wildlife occurrence records and current management documents, special status species are not believed to occupy the Sunset Stables project area (USDA, 2007 and

USFWS, 2010). Species surveys would be completed prior to the start of construction as described in the mitigation measures, and if a species is found during preconstruction surveys, USFWS would be consulted regarding any effects to listed species.. Due to the temporal and geographic limits of construction activity, there would be no indirect effects to special status species as a result of the Sunset Stables project.

Based on the assessment and no documented observations during field surveys of special status species, it was not required by the Corps to initiate formal Section 7 consultation with the USFWS. Due to closer proximity of the recent introduction, the US Forest Service (USFS) is undergoing an information consultation with the USFWS and has requested their Biological Opinion regarding Federally listed Lahontan cutthroat trout for construction on both reaches 5 and 6 of the Upper Truckee River. If it is deemed appropriate, the results of this consultation would be incorporated into project planning and designs prior to construction. If deemed appropriate or existing conditions were to change where Lahontan cutthroat trout or fishers were to unexpectedly move into the project area, the Corps would initiate informal consultation and conduct Section 7 consultation for this project prior to construction, if necessary.

3.2.3.3 Mitigation

No effects to special status species would occur as a result of the proposed project, since threatened or endangered species have not been observed in the area during surveys.. Prior to project construction, additional wildlife and fish surveys for fisher and Lahontan cutthroat trout would be conducted to ensure they have not moved into the project area and be adversely affected by construction activities. Any sighting of listed species, sensitive species, or location of nest or dens of these species would be reported and a qualified biologist would survey and delineate a protective buffer, and consultation would be initiated with the USFWS pursuant to the ESA. If special status wildlife species with agency-mandated protected activity centers and limited operating periods (LOP) are found breeding in the project area, a protected activity center would be delineated by a qualified biologist and a LOP would be implemented.

3.2.4 Air Quality

3.2.4.1 Existing Conditions

Air Quality Management. Air Quality regulation and management are shared by Federal, State, regional, and local agencies. The US Environmental Protection Agency (EPA) establishes National Ambient Air Quality Standards (NAAQS), the California Air Resources Board (CARB) establishes State AAQS, and the El Dorado County Air Pollution Control District (APCD) regulates stationary pollution sources within the Sunset Stables project area, and the TRPA controls or mitigates air pollution through land use decisions and local ordinances. By multiagency cooperative agreement, the CARB conducts ambient air quality monitoring within the Lake Tahoe Basin and collects air quality and monitoring data, including real time pollutant values, ambient air quality, and vehicle emissions. Air quality conditions are monitored by the CARB at the permanent South Lake Tahoe monitoring station at the Airport (CARB, 2009). At this location, monitoring data for carbon monoxide (CO), ozone (one-hour and eight-hour), and particulate matter (PM₁₀ and PM_{2.5}) is collected. The Sunset Stables project area is designated as

a Federal and State attainment area for CO, ozone, PM₁₀ and PM_{2.5}. The primary sources of other pollutants in the Sunset Stables project area are vehicles, wood-burning stoves, and construction activities.

Sensitive Receptors. Sensitive receptors include sensitive land uses and those individuals and/or wildlife that could be affected by changes in air quality due to construction emissions. Sensitive receptors include residents, occasional visitors, and wildlife.

3.2.4.2 Effects

Methodology. Air quality effects were evaluated through identification of all potential air emission sources associated with the project, evaluation of potential emissions, evaluation of existing requirements for their control, and determination of onsite measures to reduce them to a less-than-significant level.

Basis of Significance. An alternative would be considered to have a significant effect on air quality if it would violate any ambient air quality standard, contribute on a long-term basis to existing or projected air quality violation, expose sensitive species or humans to substantial pollutant concentrations, or not conform to applicable, Federal, State, or local standards.

No Action. This alternative would have no effects on existing air quality in the Sunset Stables project area. Air quality would continue to be influenced by climatic conditions, wildfires, and local and regional emissions from vehicles, forest fires, and wood-burning stoves.

Preferred Alternative. Construction of the new river channel would have short-term effects on air quality. The operation of vehicles and heavy equipment including excavators, trucks, and loaders would produce emissions such as exhaust and PM₁₀. In addition, there would be short-term increases in PM₁₀ due to clearing and grading, soil excavation, and operation of vehicles and heavy equipment. However, due to the limited area of construction, duration of construction, spread out over three construction seasons, and number of equipment which would be used, these short-term emissions are not expected to exceed Federal, State, or regional air quality standards, and no sensitive receptors would be exposed to substantial pollutant concentrations. In addition, there would be no long-term effects on air quality in the region. As a result, there would be no significant direct or indirect effects on air quality.

3.2.4.3 Mitigation

El Dorado County is the Air Quality Management District for the project area. Prior to construction, a Fugitive Dust Control Permit would be obtained. Dust control measures included in the Fugitive Dust Control Plan would include at a minimum spraying water, applying soil stabilizer, covering stockpiles, haul materials, etc. BMPs within the fugitive dust control plan would be consistent with State and local permits and guidelines.

3.2.5 Noise

3.2.5.1 Existing Conditions

The primary sources of noise in the Sunset Stables project area include aircraft taking off and landing at the airport, motor vehicle traffic on US Highway 50, residential sounds such as music, and natural sounds such as wind and wildlife.

The Sunset Stables project falls under TRPA's noise standards for the Lake Tahoe region. TRPA has adopted environmental carrying capacities for noise for various land use categories. The Sunset Stables project area falls within the Recreation (Plan Area 119-Country Club Meadow) land use category. The numerical average noise level standard for Recreation areas is 55 decibels. However, the TRPA noise standards do not apply to noise from TRPA-approved construction and maintenance projects, provided that construction activities are limited to 8:00 a.m. to 6:30 p.m.

3.2.5.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on noise if it would substantially increase the ambient noise levels for adjoining areas. The significance of temporary noise effects is evaluated with reference to existing noise levels, the duration of the noise, and the number of sensitive receptors affected.

No Action Alternative. The no action alternative would have no effect on noise in the Sunset Stables area. Noise would continue to be produced primarily as a result of activity at the airport, vehicle traffic on highway 50, and wildlife or residential noises.

Preferred Alternative. Construction activities would temporarily increase noise levels within the Sunset Stables project area. Potential sources of noise from the proposed construction include both on-site construction noise sources from the use of heavy equipment (bulldozers, excavators, trucks, etc.) and transportation-related noise sources from construction workers, visitors, and deliveries. The anticipated construction noises produced by implementation of the Sunset Stables project would have insignificant, short-term noise effects, and no long-term direct or indirect noise effects. Due to the limited presence of individuals in the vicinity of the project and the limited operating hours, this project would not have a significant effect on noise.

3.2.5.3 Mitigation

With the implementation of the BMPs provided here, the project would not have a significant effect on noise. BMPs to reduce noise could include, but are not limited to equipping all construction equipment with operating mufflers and limiting construction hours to 8:00 a.m. to 6:30 p.m.

3.2.6 Vehicle Traffic

3.2.6.1 Existing Conditions

The roadways in and near the Sunset Stables project area include US Highway 50/State Route 89, Airport Road, Elks Club Drive, and paved and unpaved access and maintenance roads. North of the Airport, State Route 89 splits to the west, and Highway 50 continues to the East as Lake Tahoe Boulevard. Highway 50 runs along the east side of Lake Tahoe and connect the south lake area and Zephyr Cove to Highway 28, Incline Village, and the north lake area. Types of traffic on Highway 50 include cars, sport utility vehicles, trucks, and motorcycles.

The California Department of Transportation (Caltrans) records traffic counts on the roadways in El Dorado County. Table 5 shows the annual average daily traffic (AADT) counts on Highway 50 near the Sunset Stables project area (Caltrans, 2009). The months of July and August are the peak use months when the daily traffic counts are the highest on Highway 50.

Table 5: Traffic Volumes on Highway 50 Near the Sunset Stables Project Area.

Route	Milepost	Location	AADT ¹
SR 50	70.621	JCT. RTE. 89 South	13,000
SR 50	71.480	MEYERS, PIONEER TRAIL ROAD	13,100
SR 50	72.710	SAWMILL ROAD	12,900
SR 50	74.330	SOUTH LAKE TAHOE, H STREET	19,000
SR 50	75.448	SOUTH LAKE TAHOE, JCT. RTE. 89 NORTH	33,000

1. Annual average traffic volumes in 2009 from Caltrans online traffic counts

AADT = Annual average daily traffic

3.2.6.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on traffic if it would cause an increase in vehicle traffic that is substantial in relation to the existing load and capacity of a roadway, a disruption to air traffic in the area, an increase in aircraft or vehicle safety hazards, or a substantial deterioration of the physical condition of area roadways.

No Action Alternative. This alternative would have no effect on existing air or vehicle traffic in the region. The types and volume of traffic would be expected to remain the same.

Preferred Alternative. Heavy equipment would access the project site from two locations one from Highway 50 just south of the Airport and the second from Boca Raton Drive via Elks Club Road. These routes would be used at the initiation and completion of each construction season, and for occasional deliveries. There would be minimal off-hauling of material onto public roads, as excavated fill materials would be stockpiled on site and all suitable fill materials would be used to fill the existing Upper Truckee River channel. Construction workers and visitors would enter and exit the site throughout one of these construction entrances. An average of twenty worker vehicles would enter and exit the project site when construction begins and ends each day.

Construction of the project could cause short-term effects to traffic along Highway 50 and Elks Club Drive near the entrances to the project site. The effects could include increased traffic delays and possible congestion as private vehicles on Highway 50 and Elks Club Road slow down behind slow-moving construction equipment during the set-up and demobilization of the project. The mitigation measures specified below would minimize effects to traffic. There would be no significant direct or indirect effect to traffic as a result of this project.

3.2.6.3 Mitigation

Various BMPs would be used to reduce adverse effects to traffic during construction. Traffic control would be utilized on days when heavy equipment is entering and exiting the site to prevent congestion and safety hazards at the entrance to Highway 50 along the western portion of the site as well as the second entrance to the south of the project at Elks Club Road and Highway 50. The temporary construction entrances would be lined with gravel and maintained throughout the construction period to ensure prevention of tracking or flowing of sediment onto roadways. When necessary, vehicle wheels would be cleaned at a wheel washing station prior to transportation on public right-of-ways. Once construction is complete, traffic volumes and travel time would return to preconstruction conditions. The Sunset Stables project would have a less than significant effect on vehicle traffic and circulation.

3.2.7 Water Resources and Quality

3.2.7.1 Existing Conditions

Water Resources. The Upper Truckee River watershed covers 56.9 square miles and constitutes eighteen percent of the entire Lake Tahoe watershed (Rowe and Allander, 2000). Water resources consist of surface water and groundwater features. Major surface water features include the Upper Truckee River and associated tributaries such as Angora Creek, Echo Lake, and Grass Lake (upstream of the Sunset Stables project area) and numerous wetland complexes such as the Truckee Marsh downstream of the project. The Upper Truckee River discharges through the Truckee Marsh into Lake Tahoe. There are groundwater discharge areas as evidenced by seeps and springs. The watershed-scale groundwater flow paths generally follow topography in the higher elevation uplands toward Lake Tahoe, discharging through seepage to stream channels, springs, small lakes, or directly to Lake Tahoe (Thodal, 1997).

The Upper Truckee River is classified as a Waters of the United States (WOUS) with adjacent wetland complexes set within the FEMA 100-year floodplain. Historic watershed functions include flood attenuation, overbank flooding, groundwater recharge, water quality improvement, sediment and nutrient retention, and wetland and wildlife habitats. Watershed functions have been compromised and a goal of the Sunset Stables project is to restore these functions to the extent possible considering present land use activities. One objective of the Sunset Stables project is to restore hydrologic functions, improving water quality within the project area, and in addition, water quality discharging into Lake Tahoe.

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps identified five wetlands within the project area. One wetland identified as a 4.27 acre palustrine

emergent semi-permanently flooded/palustrine emergent persistent semi-permanently flooded wetland is located on the western side of the project area near Highway 50 and the airport. The second wetland is a 1.42 acre palustrine emergent wetland located in the approximate center of the site to the west and adjacent to the Upper Truckee River. The third wetland is located on the northern portion of the site to the east of the airport. It is a 42.55 acres palustrine emergent persistent temporary flooded wetland with the majority of the wetland located outside of the project area. The fourth wetland is 1.52 acre palustrine emergent persistent seasonally flooded wetland located along the southeastern edge of the property boundary. About half of the wetland is located within the project area. The fifth wetland is associated with the Upper Truckee River and is located on the southern boundary of the project area near the Highway 50 bridge. This wetland is a 9.23 acres palustrine scrub-shrub seasonally flooded wetland. The majority of this wetland is located offsite to the north of the project area.

Wetland hydrology and the associated hydroperiod have been altered resulting in drier conditions and a shift to more seasonal wetland conditions. Due to surrounding urban development, agricultural practices, and the construction and maintenance of the Airport, further degradation has occurred resulting in reduced habitat quality, frequency of surface flooding, and a general lowering of the water table. This has affected water quality in the nearby area as the wetland function of sediment retention is impaired and sediment and nutrient retention is affected resulting in sediment laden runoff. Water quality is discussed in more detail below.

Water Quality. It is well documented that water quality within Lake Tahoe is dependent on the water quality of the rivers and streams that flow into it. A primary focus of Basin wide restoration efforts is to control nutrients and fine sediment in runoff to improve the clarity of the Lake. Water quality objectives for the Sunset Stables project include reducing fine sediment loads and bio-available nutrients (soluble nitrogen and phosphorous). Other constituents of interest are pollutants from urban stormwater runoff (metals, oil and grease, including hydrocarbon). The city of South Lake Tahoe monitored water quality in the Upper Truckee River at four locations within the Sunset Stables project area during March, May, July, and November of 2004. Constituents sampling included total nitrogen (TN), nitrate as nitrogen (NO₃-N), nitrite as nitrogen (NO₂-N), total Kjeldahl nitrogen (TKN), ammonia as nitrogen (NH₄-N), organic phosphorous (OP), total phosphorous (TP), total dissolved phosphorus (TDP), total suspended solids (TSS), iron (Fe), and turbidity. Data indicate an increase in TSS attributed from erosion, urban roadway runoff, and urban development. Other data collected by TRCD indicate elevated levels of nitrogen during winter months.

3.2.7.2 Effects

Basis of Significance. An alternative would be considered to have an adverse significant effect on water quality if it would substantially degrade water quality, contaminate a public water supply, substantially degrade or deplete groundwater resources or interfere with groundwater recharge, or expose sensitive species or humans to substantial pollutant concentrations.

No Action. This alternative would have an effect on existing water quality in the Sunset Stables project area. The current and future condition of the river channel would potentially

degrade over time as the existing incised streambank conditions continue to erode if the restoration project is not implemented.

Preferred Alternative. The project has been designed to improve existing watershed functions and restore historic functions that were lost as a result of anthropogenic actions. The Sunset Stables design objectives are to protect the quality of the water discharging from the project, thereby improving existing water quality and restoring water quality functions within the project area and to waters discharging into Lake Tahoe. The Sunset Stables project has also been designed to protect from secondary effects to water quality resulting from upstream channelized urban storm runoff and resultant sedimentation, deposition from erosion, and nutrient loading. While there is the potential for temporary and indirect effects to downstream water quality due to a discharge of sediment during construction and during initial implementation of the new channel, appropriate BMPs and mitigation measures would be utilized as discussed below.

The new Upper Truckee River alignment within the project area has been designed to increase the frequency of over bank flooding, allowing for inundation of the new floodplain at a regular interval within the confines of the new floodplain. The wider floodplain would allow the river to convey large storm event flows at a lower velocity and allow for sediment deposition in the new floodplain and river channel. Over bank flooding is expected to occur with the 1.5 year flood event and flows that inundate the floodplain are expected to occur with the 2 year flow event. This increased frequency of floodplain inundation, lower flow velocities and much lower out-of-bank shear stress would minimize the potential for bank erosion during high flow events and increase the opportunity for sediment deposition during storm events and potentially improve water quality in the Upper Truckee River. The increase in over bank flooding and floodplain inundation regularity allows for shallow groundwater table percolation in the floodplain.

Grade control structures such as boulder weirs or log grade controls would be installed within the last few hundred feet of the downstream end of the project to provide a stable hydraulic transition into Reach 5. For boulder grade control structures, large boulders would be set approximately 18 inches below grade and would be filled with cobbles to the approximate elevation of the proposed bed height (approximately 16 – 18 inches above the existing ground height). Large boulders would be keyed into the channel bank and backfilled to prevent scour. Log grade control structures would be set perpendicular to the flow line. These structures would be keyed in a minimum of four feet on each bank. Logs would be a minimum of 12 inches in diameter. Carriage bolts would be used to tie the log into the slope and maintain these structures in place. Sand and gravel would be used to fill around the log grade control structures.

Two lateral controls (one on each bank) would be installed at each location where the new channel intersects the existing channel to prevent the erosion and capture of the old backfilled channel. There are three proposed crossings (6 structures). A combination of engineered and bioengineering techniques would be used to provide lateral control. Stacked sod and/or willow mattresses would be placed on the outside of bends to prevent bank erosion until the banks have been stabilized by riparian plant growth. Alders and willows would be planted on the up and downstream side of the woody structures. Other measures such as buried rock at the toe could be implemented to provide stability at selected areas.

Bank stabilization treatments would be focused on newly constructed cut bank locations (i.e., the outside of meander bends) where substantial bank erosion would be expected to occur if left untreated. Bank erosion considered to be the result of natural fluvial processes would not be treated. More localized bank protection would be implemented at locations where existing hydraulic structures are removed or modified, where new hydraulic/habitat structures would be constructed, and at the transition between the existing and new channel. The new channel would be revegetated along both banks to provide both stabilization and habitat. Bank stabilization treatments could include, but would not be limited to erosion control blankets, stacked sod, brush mattresses, root wads, large woody debris, or other treatments as appropriate.

On the west side of the Project Area near Highway 50 there is an eroded gully. The gully is steeply cut in decomposed granitic soils. The gully carries flow from Highway 50 eastward. The gully does not discharge to the Upper Truckee River and no direct transport of sediment to the Upper Truckee River exists at this time. Under the proposed management action, this gully would be backfilled with sand and decomposed granite soils to match existing grades and reduce the depth of flow, thereby reducing erosive forces. Salvaged log grade control structures or check dams would be placed to promote aggradation in the gully and to prevent further gully incision or headcut movement. Existing desirable vegetation in good condition would be protected and retained where possible. The area would be revegetated to enhance consolidation of the loose granitic soil. The area would be planted with native species adapted to xeric upland conditions, such as basin sage, rabbitbrush, and Jeffrey pine.

Headcuts have produced erosion in two small meadows that extend into the eastern uplands of the Project area. These areas would be restored by closing trails, scarifying to break up compacted soils, and revegetating with native meadow vegetation. The trail would be treated to prevent further erosion by installing water bars across the trail to prevent water from running back into the eroded areas. Foot traffic could also be temporarily diverted from the area to reduce erosion during restoration.

The Sunset Stables restoration project proposes to place fill in or excavate a portion of the large wetland system located at the southern end of the project site. The amount of fill material excavated during channel construction is anticipated to be reused, onsite, to fill the original river channel once the new channel is ready for implementation. The remaining excavated material would remain at the onsite stockpiling location for use in a future restoration project.

Upon completion of the project, wetland areas within the project area are expected to increase over time as flooding occurs more frequently and riparian vegetation is established. With the restoration of the river channel, the groundwater level would be closer to the ground surface in the project area, thus creating the potential for meadow areas to have saturated soils and to meet the Corps criteria for wetlands in the future. Overall, the project would have a beneficial effect on wetlands, water resources and water quality by ultimately improving the quality and function of wetland and riverine habitats and enhancing the natural functions of the Upper Truckee River. Through implementation of the mitigation measures described in Section 3.2.7.3, there would be no significant effect to water resources as a result of the project.

3.2.7.3 Mitigation

Section 404 of the Federal CWA requires authorization from the Secretary of the Army for the discharge of dredged or fill material into WOUS. The CTC is responsible for obtaining Corps authorization for the Sunset Stables project under Section 404 of the CWA. GP 16 has been authorized for activities with minimal individual or cumulative effects to WOUS in the Lake Tahoe Basin, including restoration of stream channels and wetlands, which is the purpose of the Upper Truckee River project. CTC would be responsible for compliance with the conditions of GP 16, including but not limited to, providing compliance documentation to the Corps upon completion of the project and obtaining 401 Water Quality Certification.

Work that involves the discharge of dredged or fill material would also require 401 Water Quality Certification and an exemption to the 100-year floodplain prohibition. Prior to construction, 401 Water Quality Certification or a waiver of discharge and an exemption to the SEZ and 100-year floodplain prohibition would be obtained from the LRWQCB. The LRWQCB and State Water Quality Control Board would also regulate waste discharge associated with construction activities under a National Pollutant Discharge Elimination System (NPDES) General Permit. Prior to construction, a Notice of Intent (NOI) would be submitted to the State of California Water Resources Control Board (SWRCB), with a copy to the LRWQCB and a Stormwater Pollution Prevention Plan (SWPPP) would be prepared in accordance with NPDES guidelines. The SWPPP would include a plan to implement BMPs to reduce stormwater pollution to a less than significant level and comply with stormwater sampling requirements. Some of the most significant construction BMPs are described below.

Water Filled Berms. During the first year of construction, temporary 10-foot wide by 4-foot high and approximately 1,200 linear feet water filled berms would be installed adjacent and within the existing Upper Truckee River channel to isolate the construction site and protect the river from spring runoff prior to implementation of the new channel. These water filled berms would be placed at key points including where the old and new channel meet and at the low water crossing. In this way, in-channel work sites would be isolated both upstream and downstream by water filled berms with the main flow of the river diverted around the work areas. The installation of sediment logs would further supplement the isolation effect created by the water filled berms for the project area. These sediment logs would be installed prior to placement of the water filled berms to prevent any construction disturbance related sediment discharge to the Upper Truckee River. The water filled berms and sediment logs would prevent river water from entering the new river alignment while it is being developed, and eliminate the potential for any discharge from the project area into the Upper Truckee River during the three year construction period.

Revegetation. Areas disturbed during construction such as staging sites and access roads would be revegetated at the end of each construction season. In addition, a restoration replanting plan would be implemented after excavation of the new channel. Riparian scrub meadow habitat would be planted along both banks of the new channel, as well as the backfilled former channel.

Spill Control. Construction vehicles and equipment would be limited to restricted areas and would only be serviced in specific areas with BMPs that would prevent accidental spills of fluids, oils and lubricants from entering surface water. Vehicle and equipment staging, storage and service areas would be located on existing paved parking areas. Any spills of hazardous materials that occur should be reported to the NDEP and the TRPA and response protocols for immediate cleanup, as outlined in the SWPPP, should be implemented. Construction equipment should be cleaned to remove any loose dirt or sediment prior to exiting the site. Equipment and vehicle washing would take place in an area stabilized with crushed stone, and drain to an approved sediment trap or basin. Street sweeping and vacuuming equipment would be available to remove sediment from streets, parking lots and roadways as required.

Winterizing Site. The project site would be winterized according to TRPA and LRWQCB requirements at the end of each construction season. The following winterization measures would also be adhered to: maintain all temporary erosion control including filter fencing and coir logs; stabilize all disturbed areas with heavy mulch; clean up and remove all construction site waste including trash, debris and spoil piles; and, cover all soil stockpiles with a natural fiber blanket and secure stockpile locations with filter fencing. Prior to diversion of Upper Truckee River flows into the new river alignment, the new river channel would be wetted in September of the second construction year, and potentially in the third construction year as well, to prepare the river channel. These wetting flows would either be allowed to infiltrate or would be pumped from the downstream end of the new river alignment and treated to ensure compliance with discharge standards prior to their diversion back into to the Upper Truckee River. During the third construction year, clean washed weed free gravel would be placed in the new river channel before the Upper Truckee River is diverted into the new alignment.

In addition, the following mitigation measures to reduce potential hydrologic and water quality effects to a less than significant level have been developed to work within the guidance of applicable regulatory requirements. Construction fencing would be placed around wetland areas that are located outside of proposed construction areas to avoid disturbance. An internal drainage system would be constructed and maintained within the project site during construction activities to contain runoff within the project boundary and prevent it from exiting the site. Localized pumping would be used to hydraulically contain turbid groundwater or standing water as a result of excavation of saturated soil. The turbid water would be treated at an upland area at the project site in a temporary settling basin to levels below TRPA and LRWQCB thresholds prior to discharge. Once water has been treated to an acceptable quality, clean water would be released into the Upper Truckee River. A dewatering plan would be implemented for each construction year. Spills should be reported to the LRWQCB and procedures and response protocols for immediate cleanup outlined in the SWPPP should be implemented. These procedures would include and are not limited to placement of sandbags, gravel, boards or other TRPA approved methods to prevent spilled material from entering a drainage facility or area.

3.2.8 Cultural Resources

3.2.8.1 Existing Conditions

Ethnographic Background. Native Americans have occupied the Lake Tahoe area for approximately 8,000 years. The Sunset Stables project area falls directly within the Washoe cultural area, which extended throughout the eastern Sierra Nevada drainages of the Truckee and Carson Rivers including the entire Lake Tahoe to a little below present Reno and Carson City and north to Honey Lake (Four Directions, 2002). The lake and its tributaries provided the Washoe with important fisheries and resources for native plants.

Washoe ethnography suggests a level of social complexity and technical specialization that is non-characteristic of other native groups in the Great Basin. According to Lindström, “Higher population densities, concepts of private property, and communal labor and ownership are reported and could have developed in conjunction with their residential and subsistence resource stability” (Lindström and Waechter, 1992).

The Washoe also differed from other Great Basin native groups in their non-Numic, Hokan language and their seasonal cycle of population movement from Pyramid Lake in the east to the lower American River in the west. These seasonal movements were in response to the availability of foods found at different elevations and locations throughout the year. These locations included fish runs, acorn and pine nut harvests, small game drives, and other communal and individual hunts. Small groups collected edible and medicinal roots, seeds, and wetland plants from the high mountain valleys during the mild season. In addition, men also hunted large game such as desert bighorn sheep and deer in the higher elevations. Lake Tahoe and its tributaries were important fisheries year-round, and the Washoe have a history of “making long treks across the Sierra passes for the purpose of hunting, trading, and gathering acorns” (Lindström and Waechter, 1992).

Historic Context. The explorers John Fremont and Charles Pruess were the first Euro-Americans to view Lake Tahoe in 1844. Prior to the 1849 Gold Rush in California, however, exploration of the Lake Tahoe Basin was limited. The development of the Comstock Lode in Virginia City, Nevada beginning in 1859 brought thousands of miners to Nevada. The demands of the mining on the Comstock affected development of transportation routes, logging, and water supply in the Lake Tahoe Basin (Northrup, 2004).

3.2.8.2 Literature Search and Previous Surveys

A literature review was conducted for previous archaeological studies. Following a literature search, an archaeological field survey of the Sunset Stables project area (Reach 5 and 6) was conducted in August of 2004 by ENTRIX, Inc. (ENTRIX, 2005). Previously recorded sites were revisited if encountered during the survey (Lindström 2002 and 2003) but not all sites were relocated. Newly discovered sites were mapped and noted in the field. This study resulted in a total of forty-nine sites identified within the Sunset Stables Management Planning Area. A subsequent study was conducted in 2008 to relocate and record 39 sites identified during the 2005 study. Of the 39 sites, six were not relocated in 2008 (Entrix, 2008).

Multiple heritage and cultural resource studies have been performed previously for the reach 5 and 6 area. Cultural and heritage resources encompass: Native American resources, water management resources, transportation resources, habitation resources, fence line resources, miscellaneous isolated historic features, and miscellaneous isolated historic artifacts. Of the 49 resources identified within reaches 5 and 6, only seven occur within the reach 6 Area of Potential Effect (APE). During the 2008 study, resources at both SS-20 and site 64 could not be relocated. The remaining five resources within the APE were recommended as ineligible for listing on the National Register of Historic Places (NRHP) and no further action was recommended (Entrix 2008)

Native American Consultation. The Washoe Tribe would be consulted as a part of the NEPA process and pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended.

3.2.8.3 Effects

Basis of Significance. An alternative would be considered to have a significant adverse effect on cultural resources or historic properties if it would diminish the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association on historic properties eligible for listing on the NRHP. Types of effects include physical destruction, damage, or alteration; isolation or alteration of the character of the setting; introduction of elements that are out of character; neglect; and transfer, lease or sale.

No Action. This alternative would have no effects on existing cultural resources or historic properties in the Sunset Stables project area. Any resources would continue to be at risk from natural processes such as erosion.

Preferred Alternative. Proposed grading activities resulting from construction of the Sunset Stables project could disturb heritage resources that exist in the project area. The map of the forty-nine heritage resources identified within reaches 5 and 6 of the Upper Truckee River was used to determine resources that had the potential to be disturbed by proposed grading activities resulting from the project. Out of the forty-nine heritage resources identified in 2005, seven resources were included on the list of heritage resources that would be disturbed by the proposed grading or construction activities. The heritage resources that would be disturbed by the proposed grading were further studied for their potential significance. In 2008, two of the seven resources could not be relocated and the remaining five resources were recommended as ineligible for listing on the NRHP. The other two resources that were not located are also ineligible for listing. The project would not result in a significant effect to cultural resources. This determination of significance would be determined through coordination with the California State Historic Preservation Officer (SHPO). There are no expected indirect effects to cultural resources as a result of restoration work.

3.2.8.4 Mitigation

There would be no effect to cultural resources as a result of this project. The findings of effect for this undertaking would be determined through consultation with the SHPO. An archeologist would be onsite during subsurface ground-disturbing restoration activities to ensure that if any buried cultural resources are found, they would be avoided or, if necessary, evaluated for their potential for listing in the National Register of Historic Places. If buried or previously identified resources are discovered during project activities, all work in the vicinity of the find would cease, and the California State Historic Preservation Officer (SHPO) would be contacted for additional consultation per 36 CFR 13(b), Discoveries Without Prior Planning.

3.2.9 Recreation

3.2.9.1 Existing Conditions

Recreation is one of the main reasons people visit the Lake Tahoe Basin. According to a survey by the Tahoe Center for a Sustainable Future (1997), 42 percent of visitors come to Lake Tahoe for recreation. The two peak tourist seasons in the Lake Tahoe Basin are during the summer between the 4th of July and Labor Day weekend, and during the winter ski season.

A wide variety of developed recreational facilities in the south shore area attract numerous tourists. Some of these facilities include large casinos, the Lake Tahoe Golf Course, Kiva Beach, Tahoe Keys Marina, Emerald Bay National Park, and Sunset Stables. Gaming and entertainment are available year round. Summer recreation activities include golf, boating, swimming, fishing, sightseeing, horseback riding, hiking, and biking. Winter sports include skiing, snowboarding, and snowshoeing.

Recreational facilities along the Sunset Stables Reach consist of well established trails emerging from the nearby residential neighborhoods and paralleling the river. Typical recreation activities include hiking, dog walking, and mountain biking. The Upper Truckee River is also used for boating, including kayaking, canoeing, rafting, and inner tubing during periods of high flow (during spring runoff and the early part of the summer).

3.2.9.2 Effects

Basis of Significance. An alternative would be considered to have a significant effect on recreation if it would cause a substantial loss of recreational area or access to a recreational area.

No Action. This alternative would have no effects on existing recreation in the area. The area available for recreation and access to recreational areas would be expected to remain the same.

Preferred Alternative. Boating on the river through the Sunset Stables project area would be restricted periodically during times of low flow when in-channel work is being performed. However, this is unlikely to affect recreation as boaters generally do not use the river during

times of low flow. In addition, during active trail work and work within adjacent upland areas, trails could be temporarily closed to public access within the project area.

After project implementation, Sunset Stables would benefit recreational wildlife viewing opportunities through riparian vegetation enhancement and enhancement of fish spawning habitat. Effects to recreation would be temporary during the period of active trail work and adjacent upland restoration which is proposed for 2013. After construction is completed, recreational access would return. There would be no long-term direct or indirect effects to recreation as a result of the Sunset Stables Project. The short-term effects to recreation as a result of the project would not result in a substantial loss of recreational area or access to a recreational area. As a result, the project would not have a significant effect on recreation.

3.2.9.3 Mitigation

BMPs would be used to reduce the effects to recreation during construction. The following BMPs would be used during construction. Prior to closing of trails within the project area, signs would be posted at common points of trail access notifying the public that the trail would be closed. The period of the trail closure would also be noticed on these signs. Alternative routes for pedestrian access that would avoid the area of construction would be noted and pedestrian traffic would be rerouted.

4.0 CUMULATIVE EFFECTS

4.1 Background

A review of cumulative effects begins with the TRPA's EIP established in 1997. The EIP is a cooperative program administered by the TRPA that relies on a partnership of private, local, State, and Federal entities to implement its goals of preserving, restoring, and enhancing the environment of the Lake Tahoe region. The focus of the EIP is to identify restoration and research needs and funding that would meet environmental goals and/or threshold carrying capacities adopted by the TRPA Regional Plan. A number of EIP projects are planned for the Upper Truckee River. This project is an EIP project for SEZ Restoration and Fisheries.

4.2 Projects

Cumulative effects are effects of a proposed project when considered with other past, present, and reasonably foreseeable future projects in or near the Sunset Stables project area. A past project that has affected Reaches 2, 3, 4, 5, and 6 of the Upper Truckee River is the development of the Airport. The Airport has historically affected the area through tree removal and placement of fill within the Upper Truckee River floodplain.

In addition, there are several projects in various stages from planning to implementation for the upper and lower reaches of the Upper Truckee River. Table 6 provides a list of related projects within the Upper Truckee River.

Table 6: List of Related Projects in the Upper Truckee River Watershed and the South Shore Area

Name	Description and Status
River and Stream Restoration Projects	
Upper Truckee River Restoration and Golf Course Reconfiguration Project	<p>Description: This State Parks and Reclamation project would occur in the Upper Truckee watershed at the Washoe Meadows State Park and Lake Valley State Recreation Area, which are located on the west side of U.S. 50 just south of Sawmill Road in Meyers. Project alternatives include combinations of floodplain and channel restoration, and golf course reconfiguration or modification.</p> <p>Status: An EIR/EIS/EIS is currently being prepared for the project and construction could begin in 2011, and would last for 2 years (with most channel work occurring during one season).</p>
Upper Truckee Middle Reaches 3 and 4 Restoration Project	<p>Description: This project proposed and being implemented by CSLT with funding from the Conservancy and Reclamation would be located along the Upper Truckee River from roughly 0.5 mile northeast of the northern runway limit of the Lake Tahoe Airport to approximately the midpoint of the runway. A new channel would be constructed and revegetated, and in the third year the river's flow would be diverted into the new channel, and the abandoned channel would be backfilled and revegetated.</p> <p>Status: An Environmental Assessment (EA)/Findings of Significant Impact (FONSI)/Initial Study (IS)/Mitigated Negative Declaration (MND) has been prepared for the project and construction is anticipated to begin in 2008 and would last for three years (with most in-channel work occurring in less than 1 season).</p>
Sunset Stables Restoration and Resource Management Plan Project	<p>Description: This project proposed by the Conservancy and USFS would be located in a 739-acre Management Planning Area in the vicinity of the South Lake Tahoe Airport, and adjacent to and directly south of the Upper Truckee Middle Reaches 3 and 4 Restoration Project. It would restore a portion of the 2.6 mile long reach of the Upper Truckee River that is in the Management Planning Area. This would entail excavating new channels, and after the new channels have been revegetated, diverting the river's flow into the new channel(s) and filling and revegetating the abandoned channel.</p> <p>Status: Most technical studies have been completed, and a draft Resource Restoration and Management Plan is in progress. Construction could begin in summer of 2009, and could last 2 to 4 years depending on the project alternative implemented.</p>
Upper Truckee River Middle Reaches 1 and 2 Stream Restoration Project	<p>Description: This project proposed by the Conservancy and the TRCD would be located from U.S. 50 upstream to the vicinity of the South Lake Tahoe Airport, and just downstream of the Upper Truckee Middle Reaches 3 and 4 Restoration Project. It would restore this reach by recontouring and revegetating channel banks and filling a gully channel.</p> <p>Status: Environmental review has begun for the project and a MND/IS, and EA/FONSI are anticipated. Construction could begin in 2010 and would last for 2 years, and in-channel work is anticipated to last for approximately 1 construction season.</p>
Upper Truckee River and Marsh Restoration Project	<p>Description: This project proposed by the Conservancy and Real Estate Services Division (RESA) would be located along the most downstream reach of the Upper Truckee River from U.S. 50 to where the river connects to Lake Tahoe. It would restore this reach by creating an inset floodplain, narrowing and aggrading the channel, or by creating a new channel, depending on the project alternative implemented. The project also includes recreation and access features.</p> <p>Status: Schematic plans and preparation of an EIR/EIS/EIS are in progress. Construction could begin in 2011 and would last for 3 years, and in-channel work could last for approximately 2.5 construction seasons.</p>
High Meadows Forest Plan Designation; Ecosystem Restoration; and Access Travel Management Project	<p>Description: This project by the USFS would be located in 1,790 acres in the upper Cold Creek watershed, which is part of the Trout Creek watershed. It could include creation of new channels and associated floodplain on the Mainstem, East Fork, and North Fork of Cold Creek; removal and fill of diversion ditches; removal of lodgepole pines; rerouting and decommissioning of roads and trails, and redesign of stream crossings by roads and trails to reduce effects on aquatic ecosystems.</p> <p>Status: The project has been undergoing environmental review. Construction activities could begin in 2008 and could continue through 2011.</p>

Name	Description and Status
Erosion Control and Water Quality Projects	
Sierra Tract Erosion Control Project	<p>Description: This project proposed by the CSLT with funding from the Conservancy and USFS is located in the Sierra Tract Subdivision in the Trout Creek watershed in the City of South Lake Tahoe. It entails construction of a stormwater conveyance and treatment system, and stabilization of roadsides with vegetation. This project has been structured into 5 phases.</p> <p>Status: Construction of Phase 1 began in 2007 and this phase is still being implemented. Phase 2 has already been constructed. Phase 3 is being planned and designed and could be constructed in 2009. Planning and design of Phases 4 and 5 have not yet begun, but construction is expected in 2010 and 2011, respectively.</p>
Al Tahoe Erosion Control Project	<p>Description: This project by the CSLT with funding from the Conservancy and USFS would be implemented in 320 acres of the Al Tahoe neighborhood in the Trout Creek watershed in the City of South Lake Tahoe, adjacent to the project site for the Upper Truckee River and marsh restoration project. Using a variety of measures, the project would treat runoff from 41–77% of the project area, depending on the project alternative implemented. Treatment measures differ among project alternatives and could include discouraging parking, local revegetation, placement of riprap, curb and gutter, protection of road shoulders with permeable pavement, and other measures.</p> <p>Status: Project alternatives are under development. Construction could begin in 2009, and continue until 2014 or 2015.</p>
El Dorado U.S. 50 Segment 2–Lake Tahoe Airport to U.S. 50-State Route (SR) 89 Junction Water Quality Improvement Project	<p>Description: This project by Caltrans would be located in the watershed of the Upper Truckee River on U.S. 50 from the Lake Tahoe Airport to the junction of U.S. 50 and SR 89 in the City of South Lake Tahoe. It would provide containment, or treatment, or both of stormwater runoff from this segment of U.S. 50.</p> <p>Status: An IS/Negative Declaration (ND) has been prepared and construction could begin in 2010, and continue until 2012.</p>
El Dorado SR 89, Segment 1–Luther Pass to Meyers Water Quality Improvement Project	<p>Description: This project by Caltrans would be located on SR 89 from Luther Pass to the intersection with U.S. 50 in Meyers. It would provide containment, or treatment, or both of stormwater runoff from this segment of SR 89.</p> <p>Status: An IS/ND has been prepared and construction could begin in 2009, and could continue until 2014.</p>
Montgomery Estates Phases 1, 2, and 3 Water Quality Project	<p>Description: This project proposed by El Dorado County with funding from the Conservancy and USFS would be located in the watershed of Trout Creek in the City of South Lake Tahoe. It would implement various slope stabilization, infiltration, sediment trapping, and channel or road source treatment Best Management Practices (BMPs) to reduce the amount of sediment discharging into Cold or Trout Creeks.</p> <p>Status: Project alternatives are being formulated and evaluated. Construction of Phase 1 could begin in 2010. At least two more years of construction would be required for Phases 2 and 3, but these phases are on hold and thus their construction could not immediately follow Phase 1.</p>
Cold Creek Fisheries Project	<p>Description: This project by El Dorado County and the Conservancy would be located at and upstream from the intersection of Pioneer Trail with Cold Creek, which is in the watershed of Trout Creek. Within this area, the project would remove or improve all man-made fish barriers, and evaluate and if necessary remove debris jams and beaver dams.</p> <p>Status: Project alternatives are being formulated and evaluated. Construction could begin in 2009 and is anticipated to be completed in 1 season.</p>

Name	Description and Status
Angora Fisheries and Water Quality Project	<p>Description: This project by the Conservancy, El Dorado County, and Reclamation would be located in the watershed of the Upper Truckee River at the Angora Creek crossing of Lake Tahoe Boulevard. It would modify Angora Creek in the vicinity of the culverts under Lake Tahoe Boulevard to improve fish passage. As part of these modifications, fill would be removed in the Stream Environment Zone (SEZ).</p> <p>Status: The project has been undergoing environmental review. Construction could begin in 2009 and is anticipated to be completed in 1 season.</p>
Christmas Valley Phase 2 Water Quality and Recreation Access	<p>Description: This project by the Conservancy, El Dorado County, TRPA, and USFS would be located in the watershed of the Upper Truckee River along SR 89 from the intersection with U.S. 50 to Portal Drive. It would provide a bike trail, and reduce both peak discharge of stormwater during large storm events and the quantity of fine and coarse sediment entering the Upper Truckee River from the project area.</p> <p>Status: Design and environmental review have begun for the project. Construction could begin in 2009 and could be completed in 2009 or continue through 2010.</p>
Sawmill 2 Bike Path and Erosion Control Project	<p>Description: This project by would be located in the watershed of the Upper Truckee River along Sawmill Road from Lake Tahoe Boulevard to U.S. 50. It would provide a bike trail through the project area, and it would install appropriate BMPs to reduce erosion and nutrient loading, and to increase treatment of stormwater runoff from existing impervious surfaces in the project area.</p> <p>Status: Project planning has begun and construction could begin in 2008 or 2009, and is anticipated to continue for 1–2 years.</p>
Other Projects	
Greenway Bike Trail Project	<p>Description: This project by the Conservancy would be located between the intersection of Pioneer Trail and U.S. 50 in Meyers, California and Van Sickle State Park at Stateline, Nevada. A portion of this project site is in the watershed of the Upper Truckee River and a portion is in the Trout Creek Watershed. Several alternative routes and two design alternatives have been developed.</p> <p>Status: A draft EIR/EIS/EIS is anticipated to be released in 2009. Construction could begin in 2009 or 2010, and could last for several years.</p>
Lake Tahoe Boulevard Enhancement Project	<p>Description: This project by the Conservancy, El Dorado County, and TRPA would be located in the watershed of the Upper Truckee River in a corridor along Lake Tahoe Boulevard from Tahoe Mountain Road to the City of South Lake Tahoe. It would reduce Lake Tahoe Boulevard from 4 to 2 lanes, and along the road it would construct a 2-mile long bike trail along the road, restore 4 acres of stream environment zone, and implement erosion control measures.</p> <p>Status: Environmental review has begun for the project and an environmental review document is anticipated to be released in 2008. Construction could begin in 2010 and could continue for 2 years.</p>
Lake Tahoe Airport Runway Restoration Project	<p>Description: This project by CSLT would be located at the South Lake Tahoe Airport adjacent to the Upper Truckee River. Along the existing runway, it would remove a 25-foot wide by 1,300-foot long area of impervious surface and replace a portion of this area with pervious concrete, and from the remainder of this area, it would remove fill from within the SEZ of the Upper Truckee River and revegetate the area.</p> <p>Status: Environmental review and permitting have begun for this project. Construction could begin in 2009 and could be completed in 1 season or extend into 2010.</p>
Sawmill 1B Bike Trail Project – Air Quality and Recreation Access	<p>Description: This project by the Conservancy, El Dorado County, and TRPA would be located along U.S. 50 from the entrance to the Lake Tahoe Golf Course to Sawmill Road. It would provide a bike trail across the project area.</p> <p>Status: An IS/MND was completed and approved by the El Dorado County Board of Supervisors in 2005. Construction began in 2007 and could continue into 2009.</p>

Name	Description and Status
Riparian Hardwoods Restoration and Enhancement	<p>Description: This project by State Parks is being implemented in selected areas of State Park properties including Washoe Meadows and Lake Valley State Recreation Areas. It involves the removal of lodgepole pines along the maintenance road adjacent to the Upper Truckee River upstream of the golf course in Meyers.</p> <p>Status: A mitigated negative declaration exists for the project. Construction could begin in 2008 and continue into 2009.</p>
Multi-Agency Fuel Reduction Plan	<p>Description: This plan is a multi-agency strategy for coordinating implementation of fuel reduction treatments in the Lake Tahoe Basin. The strategy identifies a substantial portion of the Upper Truckee River and Trout Creek watersheds as priority areas for treatment.</p> <p>Status: Fuel reduction treatments are on-going, and the plan identifies priority areas for treatment during the next 5 and 10 years (i.e., 2008–2012 and 2013–2018, respectively).</p>
Heavenly Mountain Resort Master Plan	<p>Description: This plan by Vail Resorts, Inc. guides improvement, expansion, and management of facilities and uses at Heavenly Mountain Resort, including areas within the Cold Creek watershed (which is within the Trout Creek watershed). Phase I projects include: replacing ski lifts and regrading ski trails; constructing a 1,000-seat restaurant, a bridge for skiers, and 152 acres of new ski trails; and other facilities.</p> <p>Status: The final EIR/EIS/EIS for the amended version of this plan was approved by TRPA in 2007, and construction of Phase I a project has begun and would continue for the next 2 to 4 years (through 2009–2011).</p>
Angora Fire Restoration and Redevelopment	<p>Description: Currently much of the Tahoe Mountain/North Upper Truckee neighborhood is being redeveloped after the Angora Fire in the summer of 2007 destroyed 254 structures. Current rules allow for property owners to pursue the replacement of previously existing development. Coverage that was preexisting, including coverage located within SEZs and on steep slopes would be allowed to be redeveloped. Various agencies including the Conservancy, El Dorado County and the USFS have implemented erosion control techniques and provided hazardous tree removal assistance in the area. These agencies are proposing additional restoration activities including channel reconstruction, meadow and wetland complex restoration in the burn area.</p> <p>Status: Angora Fire restoration and redevelopment is on-going. It is expected that additional restoration and redevelopment would continue for the next 5 to 10 years.</p>
Additional Urban Development	<p>Description: This urban development would consist of numerous small residential, commercial, industrial, and infrastructure projects in the project vicinity and elsewhere in the watershed of the Upper Truckee River and south shore of Lake Tahoe. These projects could include some construction activities in the channel of perennial or intermittent waterways (e.g., at road and utility crossings).</p> <p>Status: Additional urban development is on-going, and anticipated to be on-going throughout implementation of the Upper Truckee River and Marsh Project.</p>

Source: List developed by AECOM/Entrix, 2010

4.3 Effects

There would be cumulative effect associated with this project and other restoration projects, as a result of removal of Jeffrey pine from the Upper Truckee River corridor. However, the trees removed through this project and the other proposed restoration projects would be utilized in the restoration project as grade control, toe stabilization, and other necessary erosion control and habitat features. Further, the Jeffrey pine habitat would be replaced with higher value (quality and quantity) habitat for fish and wildlife through planting with native riparian and meadow plant species.

This project in combination with the other restoration projects being constructed and proposed for construction along the Upper Truckee River would reduce the cumulative effects of past anthropogenic activities including the Airport's encroachment on the natural floodplain and historic incision of the channel. The Upper Truckee River within the Sunset Stables reach currently exhibits overbank flooding during the 5-year or larger event. Under the current condition, the Upper Truckee River transports a large amount of sediment and other nutrients to Lake Tahoe that would naturally be filtered and deposited on the floodplain. The proposed project would reconnect the channel with the floodplain to encourage nutrient retention functions and groundwater recharge to increase wet meadow habitat. As a result of the proposed project and other similar restoration projects along the Upper Truckee River, the River would overbank at the 1.5 year or larger event. This increased frequency would improve water quality and increase riparian/wetland habitat along the Upper Truckee River.

The proposed Upper Truckee River channel construction that is a component of the Sunset Stables project would create a geomorphically stable channel that does not exhibit the incision or over-widening of the existing channel. This new channel would improve aquatic habitat by increasing cover for aquatic species and decreasing maximum temperatures in the summer months. The other projects in various stages of completion on the Upper Truckee River propose similar methods for channel reconstruction to improve aquatic habitat.

A cumulative effects analysis was also conducted during preparation of an Environmental Impact Statement for the Upper Truckee River and Marsh project. This cumulative effects analysis is incorporated here by reference. The cumulative effects analysis evaluated potential cumulative effects from the projects listed above to the following resources: air quality; vegetation and wildlife; fisheries; geology and soils; hydrology and flooding; water quality; land use; recreation; socio-economics; esthetics; and GHG emissions/climate (AECOM/ENTRIX, 2010). This analysis identified that the potential for a cumulative effect resulting from these multiple projects was less than significant and potentially beneficial for the resources analyzed. It also found that there are no potentially significant cumulative effects resulting from the implementation of the Sunset Stables project in coordination with the other projects planned or implemented in the vicinity of the Sunset Stables project and the Upper Truckee River watershed.

5.0 COMPLIANCE WITH ENVIRONMENTAL LAWS AND REGULATIONS

5.1 Federal

Clean Air Act (42 U.S.C. 1857 et seq.), as amended and recodified (42 U.S.C. 7401 et seq.). *Compliance.* The project is not expected to violate any Federal or State air quality standards, or hinder the attainment of air quality objectives in the local air basin. The project would have no significant adverse effects on the future air quality of the area and is in compliance with this act. Prior to construction the project sponsor would be responsible for submitting a dust control plan and obtaining a Dust Control Permit from El Dorado County.

Clean Water Act (33 U.S.C. 1251 et seq.). *Partial Compliance.* The project would include BMPs to avoid or minimize adverse effects to water resources plus any other conditions

necessary to ensure that adverse effects to the environment are minimal. The filling of the existing Upper Truckee River channel upon the completion of the new channel would require verification of Regional General Permit (GP) 16 from the USACOE and Section 401 Water Quality Certification or a waiver of waste discharge from LRWQCB. The CTC is responsible for obtaining both a 404 Permit and 401 Certification prior to project implementation.

The project would also require an NPDES permit due to construction disturbance of greater than one acre of land. Prior to construction, the CTC would prepare a SWPPP and then submit a Notice of Intent form to the State of California, Water Resources Control Board (SWRCB). The SWPPP would identify BMPs to be used to avoid or minimize adverse effects of construction on surface waters and outline a stormwater sampling program for project related effects with associated contingency measures. Once the work is completed, the project sponsor would submit a Notice of Termination in order to terminate coverage by the NPDES permit.

Endangered Species Act (16 U.S.C. 1531 et seq.). *Compliance.* In accordance with Section 7(c), the project proponents requested that the USFWS provide a list of Federally listed and proposed species likely to occur within or around the Sunset Stables project area. This list is included in Appendix C. Based on the determination that there is no suitable habitat to support Federally listed species and no known occurrences observed, , the Corps has found it is not necessary to request concurrence and has made a finding of no effect to listed species such as the Lahontan cutthroat trout, Tahoe yellow-cress, fisher, Yosemite toad, and mountain yellow-legged frog.

Executive Order 11988, Floodplain Management. *Compliance.* This order directs all Federal agencies approving or implementing a project to consider the effects that the project could have on flood plains and flood risks. The project has been designed to not increase the frequency or likelihood of flooding in nearby developed areas. Flood elevations would not increase as a result of the project.

Executive Order 11990, Wetlands Protection. *Compliance.* This order directs all Federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. The project would create additional wetland habitats and enhance existing wetland habitats within the floodplain adjacent to the proposed Upper Truckee River channel.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. *Compliance.* The order directs all Federal agencies to identify and address adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The proposed project would benefit all residents by preserving Lake Tahoe and Upper Truckee River water quality and functions.

Federal Emergency Management Agency (FEMA) Coordination. *Compliance.* The project would not effect base flood elevations or floodway boundaries.

Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.). *Partial Compliance.* The Corps has conducted coordination with the USFWS, Sacramento Office. A field visit was conducted with the Service on September 15, 2009. Project information was provided to the USFWS representative during the site visit. The USFWS, Sacramento Office has prepared a Planning Aide Letter for the project (Appendix D). Some of the Service's comments on the project have been incorporated where appropriate. In respect to the level of design presented in this EA, the Corps would continue to provide any additional information on the project and complete its coordination efforts with the USFWS once the 90 percent level of design has been developed and submitted for their review and comment.

Migratory Bird Treaty Act (15 U.S.C 701-18h). *Compliance.* Construction would be timed, as much as feasible, to avoid the bird nesting and rearing season. A pre-construction field survey would be conducted by a qualified biologist to detect any active nests. If active nests are located, a protective buffer would be delineated and the entire area avoided preventing disturbance of nests until they are no longer active.

National Environmental Policy Act (42 U.S.C. 4321 et seq.). *Partial Compliance.* This draft EA is in partial compliance with this act. The final EA and FONSI would include comments and responses resulting from public review.

National Historic Preservation Act of 1966, as amended (16 U.S.C. 470 et seq.). *Partial Compliance.* This project is not yet in compliance with the NHPA until consultation has been completed with the SHPO. The Corps is in the process of seeking concurrence from the State Historic Preservation Officer on its Finding of No Effect pursuant to Section 106 of the National Historic Preservation Act. The project would have no affect to cultural resources. The SHPO would be consulted in accordance with 36 CFR 800.13 if unknown cultural resources are found during construction. Coordination would be conducted with SHPO and Washoe Tribe.

5.2 State of California

California Environmental Quality Act (PRC Sections 21000 et seq., 14 CCR 3, Sections 25000 et seq.). *Partial Compliance.* A Draft Environmental Assessment is being prepared jointly for this project and for a project being funded by the US Forest Service within Reach 5 of the Upper Truckee River. This Draft EA is being coordinated by the CTC and would include the Sunset Stables project.

California Regional Water Quality Control Board – Lahontan Region. *Compliance.* Prior to construction, an exemption to the SEZ and 100-year floodplain prohibitions would be obtained from the LRWQCB by the CTC.

California Fish and Game. *Compliance.* Section 1600 of California Fish and Game Code requires that the Department of Fish and Game (DFG) is notified before beginning an activity that will substantially modify a river, stream, or lake. The CTC is responsible for coordinating with DFG and obtaining a Lake and/or Streambed Alteration Agreement.

5.3 Tahoe Regional Planning Agency

Tahoe Regional Planning Agency Compact, as amended (Public Law 96-551), December 19, 1980, and the Tahoe Regional Planning Agency Code of Ordinances.

Compliance. The project is in compliance with the TRPA Compact, as amended, and the TRPA Code of Ordinances. All avoidance, reduction, and minimization measures would conform to the requirements in TRPA's Handbook of Best Management Practices (TRPA, 1988) for construction in the Tahoe Basin. The Linear Public Service Application Process would be followed to comply with TRPA's various permitting requirements under one review process. Application for a TRPA Permit is being filed jointly for this project and for Reach 5 which is being funded by the USFS.

6.0 PUBLIC INVOLVEMENT

Public involvement for this project has been coordinated by the CTC and other Federal agencies. The public is encouraged to review the draft EA and provide comments during the public review period. The draft EA would be available for public review for a period of 30 days.

6.1 List of Agencies, Organizations and Persons Consulted

Agency consultation for the Sunset Stables project has been conducted by the CTC and USFS. TAG meeting were held with agencies and organizations with an interest in the project. The TAG selected the preferred project alternative. The agencies, organizations and individuals consulted by the CTC and USFS for the Project include:

California Department of Fish and Game
California State Parks
City of South Lake Tahoe
County of El Dorado
Lahontan Regional Water Quality Control Board
National Resource Conservation Service
South Lake Tahoe Airport
South Tahoe Public Utility District
Tahoe Regional Planning Agency
Tahoe Resource Conservation District
US Fish and Wildlife Service

7.0 COORDINATION AND REVIEW OF THE EA

The draft EA would be circulated for 30 days to agencies, organizations, and individuals known to have a special interest in the project. All comments received would be considered and incorporated into the final EA, as appropriate. The Sunset Stables Project is being coordinated with relevant government agencies including the CTC, USFS, USFWS, LRWQCB, TRPA, City of South Lake Tahoe, and El Dorado County.

If there are significant changes in, or additions to, the existing conditions or design of Sunset Stables or modification of the project during future design refinements or construction, any required environmental documentation would be prepared and submitted to appropriate agencies to ensure compliance with Federal, State, and local laws and regulations.

8.0 CONCLUSIONS

The Sunset Stables restoration project proposes to restore or enhance the natural functions and processes of the Upper Truckee River by constructing approximately 4,900 linear feet of new sinuous river channel, restore the adjacent SEZ, and create wildlife habitat within Reach 6 of the Upper Truckee River watershed. The project would enhance approximately 57 acres of wetland habitat and create approximately 12 acres of willow/riparian habitat. The proposed Sunset Stables stream environment zone restoration would enhance natural wetland areas, meadowlands, and riparian areas and expand the floodplain adjacent to the Upper Truckee River. Effects on Federally listed Lahontan cutthroat trout, candidate fisher, and historic properties are not expected based on habitat assessment, surveys, and literature search. In the future, the restoration effort would benefit Lahontan cutthroat trout or fishers if they begin to occupy the project area.

Based on this draft EA, the Sunset Stables restoration project would improve the existing degraded environmental conditions, and thereby would not have adverse effects on the quality of the human environment. Additionally, there are no unresolved conflicts concerning alternative uses of the available resources. Therefore, no mitigation is required beyond avoidance and best management practices as described herein. The project would meet the requirements for actions permitted following completion of a FONSI as described in 40 CFR 1508.13. Because these actions would not have a significant effect on the human environment, it is found that the preparation of an environmental impact statement is not required. After the 30-day public review comment period is closed and the comments can be adequately addressed with a conclusion of no significant effects, it is expected that the FONSI would be signed by the District Engineer and accompany the final EA.

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