

**FINAL APPLICATION FOR LICENSE  
OF MAJOR UNCONSTRUCTED PROJECT**

**EXHIBIT E  
ENVIRONMENTAL REPORT**

**Section 4 – Historical and Archaeological Resources**

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**LAKE ELSINORE  
ADVANCED PUMPED STORAGE PROJECT  
FEDERAL ENERGY REGULATORY COMMISSION  
PROJECT NUMBER 14227**

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Applicant:

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## Exhibit E – Section 4

### Section 4 – Historical and Archeological Resources

As required under 18 CFR 4.41(f)(4), the Applicant is to prepare a Report on historical and archaeological resources. The applicant must provide a report that discusses any historical and archaeological resources in the proposed project area, the impact of the proposed project on those resources and the avoidance, mitigation, and protection measures proposed by the applicant. The report must be prepared in consultation with the State Historic Preservation Officer (SHPO) and the National Park Service of the U.S. Department of Interior. The report must contain:

- (i) A description of any discovery measures, such as surveys, inventories, and limited subsurface testing work, recommended by the specified state and Federal agencies for the purpose of locating, identifying, and assessing the significance of historic and archaeological resources that would be affected by construction and operation of the proposed project, together with a statement of the applicant's position regarding the acceptability of the recommendations;
- (ii) The results of surveys, inventories, and subsurface testing work recommended by the state and Federal agencies listed above, together with an explanation by the applicant of any variations from the survey, inventory, or testing procedures recommended;
- (iii) An identification (without providing specific site or property locations) of any historic or archaeological site in the proposed project area, with particular emphasis on sites or properties either listed in, or recommended by the SHPO for inclusion in, the National Register of Historic Places that would be affected by the construction of the proposed project;
- (iv) A description of the likely direct and indirect impacts of proposed project construction or operation on sites or properties either listed in, or recommended as eligible for, the National Register of Historic Places;
- (v) A management plan for the avoidance of, or mitigation of, impacts on historic or archaeological sites and resources based upon the recommendations of the state and Federal agencies listed above and containing the applicant's explanation of variations from those recommendations;
- (vi) The following materials and information regarding the mitigation measures described under paragraph (f)(4)(v) of this section; and
  - (A) A schedule for implementing the mitigation proposals;
  - (B) An estimate of the cost of the measures; and
  - (C) A statement of the sources and extent of financing.

(vii) The applicant must provide five copies (rather than the eight copies required under §4.32(b)(1) of the Commission's regulations) of any survey, inventory, or subsurface testing reports containing specific site and property information, and including maps and photographs showing the location and any required alteration of historic and archaeological resources in relation to proposed project facilities.

#### 4.0. HISTORICAL AND ARCHEOLOGICAL RESOURCES

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires FERC to evaluate potential effects of its undertakings on properties listed or eligible for listing in the National Register of Historic Places (NRHP).<sup>1</sup> Federal listing generally requires that a building or structure be at least fifty years of age and possess “the quality of significance in American history, architecture, archaeology, engineering and culture present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, material, workmanship, feeling and association.”<sup>2</sup>

Section 106 of the NHPA requires FERC to take into account the effects of its undertakings on historic properties and to afford the Advisory Council on Historic Preservation (Council) a reasonable opportunity to comment. Section 106 is implemented through the Council’s regulations, “Protection of Historic Properties” (36 CFR Part 800). For hydropower licensing actions, FERC typically completes Section 106 by entering into a programmatic agreement (PA) or memorandum of agreement (MOA) with the license applicant, the Council, and the State and/or tribal historic preservation officer (SHPO/THPO). This agreement is then incorporated by reference into the hydropower license when issued.

##### 4.1. Historical and Archeological Resources Environmental Setting<sup>3</sup>

Archaeological evidence from continuous near-shore sediment deposits indicate that Lake Elsinore contained water nearly continuously over the past 8,400 years, permitting humans to thrive permanently within the area since at least the mid-Holocene.<sup>4</sup> Much of the following

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<sup>1</sup> / The federal criteria includes buildings and structures that: (1) are associated with events that have made a significant contribution to the broad patterns of our history; (2) are associated with the lives of persons significant in our past; (3) that embody the distinctive characteristics of a type, period, or method of construction that represents the work of a master or that possesses high artistic values or that represents a significant and distinguishable entity whose components may lack individual distinction; or (4) that have or are likely to yield information important in prehistory or history.

<sup>2</sup> / 36 CFR Part 800.

<sup>3</sup> / Information presented herein is derived, in part, from the: (1) “Lake Elsinore Advanced Pumped Storage Project (LEAPS) & Talega-Escondido/Valley-Serrano 500kV Interconnect Project – Historic Properties Management Plan, FERC No. 11858-002-California” (Chambers Group, Inc. February 2005); (2) “Cultural Resources Investigation for the Elsinore Advanced Pumped Storage Project, Lake Elsinore, Riverside County” (Archaeological Associates, 2003); and (3) Phase I Cultural Resource Study – Elsinore Valley Municipal Water District Pumped Storage Hydroelectric Project, Lake Elsinore, Riverside County” (Archaeological Associates, 1997). Since those documents contain sensitive cultural resource information, those studies are incorporated by reference herein but are subject to specific disclosure limitations designed to protect sensitive cultural resources.

<sup>4</sup> / Kirby, Matthew, E., et al., Late Holocene Lake Level Dynamics Inferred from Magnetic Susceptibility and Stable Oxygen Isotope Data: Lake Elsinore, Southern California, *Journal of Paleoclimatology*, Vol. 31, 2004, p. 278.

discussion has been taken from the Draft Historic Resource Management Plan (HRMP), which was prepared during the Project No. 11858 proceeding. The Prehistoric Section directly below has been culled from various reports. In consultation with the State Historic Preservation Office (SHPO), an “area of potential effect” (APE) has been used, in part, to define the Project’s APE.

#### **4.1.1. Prehistoric Setting**

This section provides a brief overview of the prehistory and history of the Project area. A more detailed description can be found in ethnographic studies, mission records, and major published sources including Kroeber (1925), Wallace (1955), Warren (1968), Heizer (1978), Moratto (1984), and Chartkoff and Chartkoff (1984). Fagan (2003), Moratto and Chartkoff and Chartkoff provide recent overviews of California archaeology in general and review the history of the desert regions in southern California. The most accepted regional chronology for the coastal and central interior southern California is derived from Wallace’s four-part Horizon format, which was later updated and revised by Warren.

Presently, regional archaeologists generally follow Wallace’s southern California format but the loosely established times for each period subunit are often challenged. The documented stages are as follows: Desert Culture (12000 to 10000 B.C.), Western Hunting Culture or Lake Mohave Period (~9000 to 5000 B.C.), Pinto Period (5000 to 2,500 B.C.), and Protohistoric (2500 B.C. to 1769 A.D.).

**Desert Culture Period.** Comparatively, little is known of Paleo-Indian peoples in the California archaeological record, although highly documented archaeological village sites in the Southwest have revealed associated bones of now extinct large mammals, as well as Clovis and Folsom tool traditions. This period is noted for an increase in drier weather, consequently most of the known California Late Paleo-Indian/Early Archaic sites are located near extinct desert valley lakes, rock shelters and on the Channel Islands off the coast. These consist of occupation sites, butchering stations, and burials. This period ends with a marked extinction of large game native to North America and a distinct change in prehistoric tool kits used to prepare plant foods. Small projectile points, choppers, flat scrapers, drills, and digging sticks are also common.

**Western Hunting Culture or Lake Mohave Period.** It is thought that as the hunting of large mammals became less available as a food resource due to drier weather conditions, the West and Southwest showed an increased reliance in using small game, such as squirrels and rabbits, and wild plants to sustain the small tribal bands. This period is also marked by the absence of food grinding stone implements. However, the period ends when stone grinding implements become increasingly more prevalent in the archaeological record.

**Pinto Period.** The Pinto Period highlights a combination of both Desert Culture and Western Hunting Cultures, where an increase in grinding tools appears in the archaeological record. Such tools suggest an increased level of reliance on wild plants and small animals. The Pinto spear-point tool tradition is the hallmark of this period. This tradition is characterized by small coarsely chipped points, which tend to be triangular and sometimes are found with parallel sides. A slight variation in tool type appears towards the end of this period, which is

represented by Gypsum points and Elko points. The Gypsum point is typified by its contracting stem, whereas Elko points are corner notched.

**Protohistoric.** In the southwestern Great Basin, this period is characterized as having cooler and wetter conditions than that previously experienced, an environment similar to that of today. Sites appear in previously unoccupied areas of California. The numbers of sites in some regions, especially near ephemeral lakes, seem to have risen dramatically. These changes reflect a phenomenon found throughout the western United States where an increase in population and changes in tool kits and living arrangements resulted in more specialized uses of materials and landscapes. Diagnostic artifacts associated with this period consist of Elko and Gypsum projectile points.

**Saratoga Springs Period.** The Saratoga Springs Period is environmentally similar to earlier periods. In the southwest Great Basin, this period is characterized by the introduction of the bow and arrow, exploitation of the pine nut and an increase in logistical complexity relative to landscape use. With these changes came a diversification of resource use and a more sedentary settlement pattern in the Owens Valley. The nature and number of sites attributed to this time period changed such that the “winter villages” became larger, numbers of such villages were reduced, and base camps in the upland areas became larger, more diversified and more numerous. The abandonment of village sites at the end of the Late Prehistoric Period is attributed to a change in climate and is an event mirrored in other parts of the American Southwest, California, and Mexico. Trade of Coso obsidian in southern California apparently ended during this period.

**Ethnographic Setting.** The Native American inhabitants occupying most of Los Angeles, Orange, and Riverside Counties at the time of the Spanish arrival had not always held these territories. Their earliest well-documented predecessors, who are known only archaeologically, are collectively referred to as the “Millingstone” peoples. Millingstone groups are thought to have been scattered over much of southern California from as early as 6000 B.C. The Millingstone people were principally seed and root gatherers who rarely seemed to have developed large settlements and who probably never occupied a single area on a year-round basis.

About 1500 B.C., stone mortars and pestles were utilized. This era has been called the “Intermediate” and is poorly understood. What appears certain is that the Intermediate peoples were replaced by Shoshoneans who moved in from the Great Basin. The exact time the Shoshonean “incursion” took place is uncertain but most authorities place it somewhere between 500 and 1000 A.D.. The indigenous Intermediate populations were either absorbed or decimated as the Shoshonean speakers settled the entire coast, from about the latitude of the southern edge of the Santa Monica Mountains south to the area of the San Luis Rey River. Their territory extended inland across Riverside County. By the time of the Spanish arrival, the Shoshoneans had become subdivided into three groups: (1) the Gabrielino who occupied Los Angeles and northern Orange Counties; (2) the Juaneño who resided around what became San Juan Capistrano; and (3) Luiseño who lived in western Riverside and northern San Diego Counties.



The Proposed Project area is located along the border of the territories known to have been occupied by the Juaneño and Luiseño Indians. It is likely that both groups passed through or exploited resources within the Proposed Project area at different times; therefore, both groups are discussed below. The northern and eastern portions of the Proposed Project's area were part of the territory occupied by the Juaneño or Acjachemem. The western portions of the Proposed Project area are located in the territory, known ethnographically, to have been occupied by the Luiseño.

**Juaneño.** The northern and western portions of the Proposed Project area were part of the territory occupied by the Juaneño or Acjachemem Native American group when the Spanish arrived in 1769 A.D. Ethnographic descriptions of the Juaneño are often given in terms of their neighbors to the south (Luiseño) but also point to a separate cultural identity. An important account of the Juaneño culture was written by Geronimo Boscana, friar at Mission San Juan Capistrano from 1812 to 1826.

Juaneño settlement and subsistence systems may extend back in time to the beginning of the Late Prehistoric Period, about A.D. 650. The Juaneño were semi-sedentary hunters and gatherers. One of the most important food resources for inland groups was acorns gathered from oak groves in canyons, drainages, and foothills. Acorns were ground into flour using mortars and pestles. Seeds from sage and grasses, goosefoot, and California buckwheat were collected and ground into meal using manos (grinding stones) and metates (grinding bowls or slabs, made of stone). Protein was supplied through the meat of deer, rabbits, and other animals, hunted with bow and arrow or trapped using snares, nets, and deadfalls. Coastal dwellers collected shellfish and used carved shell hooks for fishing in bay/estuary, nearshore, and kelp bed zones. Dried fish and shellfish were probably traded for inland products, such as acorns and deer meat.

The Juaneño lived in villages of up to 250 people located near permanent water and a variety of food sources. Each village was typically located at the center of an established territory from which resources for the group were gathered. Small groups left the village for short periods of time to hunt, fish, and gather plant foods. While away from the village, they established temporary camps and created locations where food and other materials were processed. Archaeologically, such locations are evidenced by manufacturing or maintenance of stone tools used in hunting or butchering. Overnight stays in field camps are evidenced by fire-affected rock used in hearths.

The San Juan basin was densely populated and villages were closely spaced because of the year-round availability of fresh water in San Juan Creek and its tributaries. The village of *Acjacheme* was located just east of the present location of Mission San Juan Capistrano. The village of *Putuidem* was located at the confluence of Oso and Trabuco Creeks. *Tobna* was located on the east bank of San Juan Creek, near its mouth. The village of *Sajavit* was located at the original mission site

Luiseño. The western portion of the Proposed Project area is located in the territory known ethnographically to have been occupied by the Luiseño, a Takic-speaking people. The term Luiseño was given by the Spanish to the native group who were living in the area under influence of Mission San Luis Rey. The Luiseño lived in sedentary and autonomous village

groups, each with specific subsistence territories encompassing hunting, collecting, and fishing areas. Villages were typically located in valley bottoms, along streams, or along coastal strands near mountain ranges where water was available and village defense was possible. Inland populations had access to fishing and gathering sites on the coast, which they used during the winter months.

Luiseño subsistence was centered around the gathering of acorns, seeds, greens, bulbs, roots, berries, and other vegetal foods. This was supplemented with hunting mammals, such as deer, antelope, rabbit, woodrat, ground squirrels, and mice, as well as quail, doves, ducks, and other birds. Bands along the coast also exploited marine resources, such as sea mammals, fish, crustaceans, and mollusks. Inland trout and other fish were taken from mountain streams.

Hunting was done both individually and by organized groups. Tool technology for food acquisition, storage, and preparation reflects the size and quantity of items procured. Small game was hunted with the use of curved throwing sticks, nets, slings, or traps. Bows and arrows were used for near-shore ocean fishing. Coiled and twined baskets were made for food gathering, preparation, storage, and serving. Other items used for food processing included large shallow trays for winnowing chaff from grain, ceramic and basketry storage containers, manos and metates for grinding seeds, and ceramic jars for cooking.

Villages had hereditary chiefs who controlled religious, economic, and territorial activities. An advisory council of ritual specialists and shamans was consulted for environmental and other knowledge. Large villages located along the coast or in inland valleys may have had more complex social and political structures than settlements controlling smaller territories. Most Luiseño villages contained a ceremonial structure enclosed by circular fencing located near the center of the village. Houses were semi-subterranean and thatched with locally available brush, bark, or reeds. Earth-covered semi-subterranean sweathouses were also common and were used for purification and curing rituals.

The first Europeans to explore the west coast were with Francisco de Ulloa, who accompanied Hernan Cortés in his first expedition to California. The account of this voyage marks the first recorded application of the name "California." The Luiseño first came into contact with Europeans in 1769, when the expedition led by Gaspar de Portolá arrived in their territory. That same year, the San Diego Mission was established just to the south, followed by the San Juan Capistrano Mission in 1776 and the San Luis Rey Mission in 1798. Poor living conditions at the missions and introduced European diseases led to a rapid decline of the Luiseño population. Following the Mission Period (1769-1834), Luiseño Indians scattered throughout southern California. Some became serfs on the Mexican ranchos, other moved to newly founded pueblos established for them, some sought refuge among inland groups, and a few managed to acquire land grants. Later, many moved to or were forced onto reservations. Although many of their cultural traditions have been suppressed during the Mission Period, the Luiseño were successful at retaining their language and certain rituals and ceremonies. Starting in the 1970's, there was a revival of interest in the Luiseño language and classes were organized. Since then, traditional games, songs, and dances have been performed, traditional foods have been gathered and prepared, and traditional medicines and curing procedures have been practiced.

#### 4.1.2. Creation Stories of Lake Elsinore and its Associated Hot Springs

Site CA-RIV-2798 is not only significant archaeologically, but ethnohistorically as well. The Lake Elsinore area has an extensive history of human habitation and the area has been described historically as follows: “In addition to a stable water supply and a variety of terrestrial floral and faunal species, the local area contains abundant high-quality lithic resources; hot springs that were significant to the Late Prehistoric peoples and probably earlier groups; and fish, waterfowl, and other aquatic resources that became increasingly scarce with climatic warming during the Holocene. As a result of this unique setting, people have found the site attractive since their initial entry into the region nearly 10,000 years ago, presumably moving throughout the area as resources became available in the different environmental zones.”<sup>5</sup>

Both Lake Elsinore and the hot springs to the north are ethnogeographically named in both the Juaneño and Luiseño languages. The Juaneño referred to Lake Elsinore as *Paayaxtic* and the Luiseño referred to it as *Paahashnan*. In Juaneño tradition, man was created out of the mud of the lake. The area around the hot springs was known to the Luiseño as *Atengvo*. “Luiseño territory extended from Agua Hediona Creek northwest to Aliso Creek along the coast, then east to Santiago Peak and south through the Lake Elsinore area to just south of Mount Palomar. Whereas other groups were familiar with Lake Elsinore, according to the relevant literature, the lake is clearly in Luiseño territory. . . Lake Elsinore itself plays a considerable role in the creation myth and religion of the Luiseño and Juaneño. In addition, the Elsinore Hot Springs near the outlet channel is significant to both the Luiseño and the Juaneño. It was at this location, known as *Itengvu Wumowmu*, that Wiyot, a religious leader who let the people out of the north died. When Wiyot grew ill and started to die, the people took him to a number of hot springs in the area in an effort to cure him. Elsinore was the last of these hot springs, and it was here that he died.”<sup>6</sup>

The lake was recorded in 1982 as a “traditional cultural property” and identified as eligible for inclusion in the NRHP.<sup>7</sup>

**Location of Ethnohistoric Villages.** Kroeber’s location of Paiahche near Lake Elsinore led one to believe that it corresponded to site CA-RIV-2798. Excavations at CA-RIV-2798, however, did not produce a major Late Prehistoric/Ethnohistoric component. It is not known whether this is because the village was in another location or whether settlement during this period consisted of small, seasonal, resource procurement camps, instead of a large habitation site.

Hall and Slater hypothesize that Tenaja Village (CA-RIV-217) may have been the ethnohistoric village of *Palasakeuana*, as referenced by Kroeber, and that the area (Tenaja Valley) may have been a refuge area for “neophytes” escaping from Spanish control at San Luis Rey Mission. Keller shows the location of Tenaja Valley on Kroeber’s (1925) map of *Palasakeuna* and they are

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<sup>5</sup> / Grenda, Donn R., *Continuity and Change: 8,500 Years of Lacustrine Adaptation on the Shores of Lake Elsinore*, Statistical Research, Inc., Technical Series 59, January 1997, p. 3.

<sup>6</sup> / *Ibid.*, p. 22.

<sup>7</sup> / Chambers Group, Inc., *Lake Elsinore Advanced Pumped Storage Project (LEAPS) & Talega-Escondido/Valley-Serrano 500kV Interconnect Project – Historic Properties Management Plan*, FERC No. 11858-002-California, February 2005, p. 2-11.

not in the same location. While no scale is provided on the Kroeber map, the two villages are separated by nearly an inch. Nonetheless, it is clear that CA-RIV-271 is a major village heavily occupied during the Late Prehistoric. Moreover, its relatively remote location would argue for relatively late occupation into the Historic Period. Obsidian Butte hydration readings as low as 1.1 microns from the site also suggest possible occupation into the ethnohistoric period. It is possible that Kroeber did not visit the remote Tenaja Valley or that the location of the village on Kroeber's map is inaccurate.

#### **4.2. Historic Setting**

The territory of the present State of California was "discovered" in 1542 by a Portuguese navigator in the Spanish service named J. R. Cabrillo. In 1578, Sir Francis Drake landed at Drake's Bay, opened communication with the natives, and took possession of the country in the name of England, calling it New Albion. It was explored by the Spaniard S. Viscayno in 1602 but no attempt was made at colonization until the Franciscan Fathers established a mission at San Diego in 1769. Within the next 50 years they founded 21 missions.<sup>8</sup>

In 1769, the Spanish mission expeditions led by Junipero Serra and Gaspar de Portolá established settlements from San Diego to Monterey. Portolá camped at an Indian village north of San Onofre on July 22, 1769, on his way north to Monterey Bay. That same year, the San Diego Mission was established just to the south, followed by the San Juan Capistrano Mission in 1776 and the San Luis Rey Mission in 1798. It was in 1797 that Fray Juan Santiago set out from the Mission San Juan Capistrano in search of a new mission site. He and his party were among the first groups of white men to travel over what was then regarded as the Sierra de Santiago and to descend into Lake Elsinore. Here, they likely camped along the shoreline before continuing their journey to Temecula. Ultimately, Fray Juan Santiago went on to identify the site of what was to become Mission San Luis Rey.

The town of Lake Elsinore first appears in the land records as part of the Rancho La Laguna, the original land grant of three square leagues, given to Julian Manriquez by the Mexican Governor of California in 1844. The grant was roughly oval in shape and included all of the lakebed and shoreline. In 1858, Abel Sterms sold the original La Laguna land grant to Augustine Machado. Augustin Machado and his wife (Ramona) and their twelve children lived on the land in an adobe located on the west and southwest side of the modern shoreline of Lake Elsinore. The Machado adobe was a regular stopping place for the Butterfield Overland Mail stage whose route ran from the Temecula Station up the valley, passing through Murrieta, Wildomar, along the westerly side of Lake Elsinore, and then toward Perris. Machado died in 1865 and, after receiving the patent for the land in 1872, his wife and children sold their shares to Charles Sumner in 1873. Sumner lost all the property in 1877 by defaulting on his mortgage loan and the land was purchased by a partnership of businessmen: Franklin Heald, Donald Graham, and William Collier. By 1885, the partnership had been able to pay off the mortgage with proceeds from the sale of plots of land.

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<sup>8</sup> / Swanton, John R., *The Indian Tribes of North America*, Smithsonian Institution Bureau of American Ethnology Bulletin 145, 1952, p. 478.

Referencing the State’s history resources inventory: “Lake Elsinore was known as Etengvo Wumoma to the Indians, Laguna Grande to the Mexicans, and became Lake Elsinore in 1884 when Margaret Collier Graham, wife of one of the town’s founders and sister of another named it Elsinore, ‘not from the small city so named in Denmark, but rather from the immortality given it by Shakespeare and Campbell; and because it had a pleasant sound.’”<sup>9</sup> As illustrated in Figure E.4–1 (1901 USGS Topographic Quadrangle), the name “Elsinore Mountains” appears on the 1901 USGS topographic quadrangle. Two of the pioneering families of the Elsinore Mountains were those of James H. Stewart and Bud Morrell. Around the turn of the century, James Stewart established a homestead in the Elsinore Mountains. The Morrell family homesteaded a ranch (Section 26, T6S). The Stewart and Morrell families were united when Stewart’s daughter (Charlotte) married Bud Morrell’s son (Arthur). Decker Canyon was named for another local pioneer.

The City of Lake Elsinore was incorporated in 1888. At that time, the town had a population of approximately two thousand people, with two banks, two hotels, two bathhouses, a water supply system, a schoolhouse, three churches, and a rail connection. In the 1910’s and 1920’s, the lake became a recreational center, attracting tourists and vacationers from Los Angeles. A lakeshore pavilion was erected in 1912 with the Lake Elsinore Boating and Bathing Resort opened in 1915. In 1924, excavation started for the Southern California Athletic and Country Club on the south shore of the lake, near the intersection of Grand Avenue and the future Ortega Highway. The entire lake and many acres of adjoining land were bought for the development of a golf course and clubhouse. By 1930, the Country Club had fallen into bankruptcy and was turned into a military school in 1933 (Lake Elsinore Naval Academy).

In August 1959, a wildfire ignited in the Elsinore Mountains (Decker Fire) and seven firefighters lost their lives. A monument commemorating these men was erected at the El Cariso Forest Service Fire Station. In their memory, seven small canyons on the north flack of the mountains were named on their behalf (Brooks, Johnson, Harlan, Stinson, Edwards, Guthrie, and Slater).

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<sup>9</sup> / California Department of Parks and Recreation, Historic Resources Inventory, 33-11009, July 26, 1982.



**Figure E. 4-1. 1901 USGS Topographic Quadrangle**

Source: United States Geological Survey

**Cleveland National Forest (CNF) – Trabuco Ranger District.** In the late 1860's, an influx of gold miners from northern California descended upon the Santa Ana Mountains. In addition to gold, zinc, lead, and silver were mined. Trees were cut for mine timbers and firewood and great expanses of brush were burned to make way for mineral exploration. Early reports from the 1870's and 1880's document uncontrolled fires that burned for weeks at a time. These events caused serious damage to irrigation works and threatened the water supplies of the surrounding rural areas and coastal towns. In response, the California Forestry Commission, established by Governor Stone in 1886, voiced the necessity for special protection of the watershed to prevent fires and subsequent erosion.

The Forest Reserve Act, signed by President Benjamin Harrison in 1891, was intended to curb illegal timber cutting, mining, and other wasteful practices. In 1908, President Theodore Roosevelt combined the Trabuco Canyon and San Jacinto Forests to form the CNF. These were some of the earliest forest reserves established. The CNF originally encompassed over 1.9 million acres.

Between the years of 1908 to 1925, several transfers of forest lands to private and public entities significantly reduced the size of the forest. The focus of attention on the forests was for the control of fire and overgrazing on the homestead ranches developed under the Forest Homestead Act of 1906. Today, the Trabuco Ranger District consists of a total of approximately 420,000 acres.

In 1909, Forest Supervisor Harold Marshall included in a status report a description of the growing mountain resort industry and the ability of easier forest access through the automobile

would likely make recreation an expanded use. In 1933, President Franklin D. Roosevelt signed the Emergency Conservation Work Act (ECW), which included the creation of the Civilian Conservation Corp (CCC) for unemployed men to expand and develop forest infrastructure. USDA Forest Service personnel supervised CCC crews in the construction of new administrative buildings, guard (fire watch) stations and lookouts, roads, trails and firebreaks, and camping and recreation facilities.

By late June 1933, eight CCC camps had been established in the CNF. Over the nine years of the program, CNF had seventeen recorded CCC camps, including Camp La Cienaga located in Elsinore. The Camp La Cienaga crews built the Tenaja Guard Station (fire warning station) and served as fire fighting crews throughout the southland of California. With the opening of the Ortega Highway in 1934, crews created public campgrounds along the highway, including camps in Trabuco Canyon and Tenaja Canyon. The CNF had seventeen recorded CCC camps over the nine years of the program. The permanent camps usually contained 180 to 200 enrollees. The La Cienaga Camp was an all-black crew located in Elsinore. Their primary projects included campground development, construction of truck trails and firebreaks, as well as reforestation. The crews established a temporary work camp in Tenaja Canyon while building the new Tenaja Guard Station in 1934-1936. By 1936, a residence, garage, 30-foot tall water tower, redwood water tank, and pump house were in place.

The opening of the new Ortega Highway in 1934 was spurred by the creation of public campgrounds in Trabuco and Tenaja Canyons. The campground was created next to the new guard station at Tenaja. The Tenaja Station remained open until 1987 when it was closed during a reallocation of manpower, and the Wildomar Fire Station took over responsibility for the area. The Tenaja Station was vacated and the site size was reduced from 106 to 13 acres. The campground has since been closed to public access. In 1984, 39,540 acres of land in the San Mateo Creek upper watershed were designated as the San Mateo Canyon Wilderness.

**Field Surveys.** Field surveys of the then-existing APE were conducted by Archaeological Associates in August 1996 and January 1997. Based on an expanded APE (as submitted to the Society of Professional Archeologists (SOPA)), additional archaeological surveys of lands and architectural field surveys of accessible buildings were conducted by the Chambers Group in January 2005. The Draft HRMP reveals the current names of each cultural resource and location information associated with sites in the APE. The locations of these cultural resource sites have not been presented herein for the protection of those resources, except to public agencies, Native American groups and organizations, and professional archaeologists.

The Draft HRMP notes that there are 31 previously-recorded resources located in or directly adjacent to the APE. Twenty-one of these resources have not been evaluated for NRHP eligibility. Five of these resources are potentially eligible for listing on the NRHP or appear to be eligible, while four resources are likely not eligible. One of the resources was determined to be “not a site.”



Camp Pendleton straddles the boundaries between the ethnohistoric Luiseño and Juaneño cultural groups.<sup>10</sup> There are over 500 recorded archaeological sites on Camp Pendleton. Only about one-quarter of those sites have been evaluated for NRHP eligibility. Of those, about 50 sites have been determined eligible for listing on the NRHP (prehistoric sites), one NRHP District (prehistoric village), two NRHP Mexican and American Period Ranchos.<sup>11</sup>

#### 4.2.1. Regional Paleontology

As mapped by Engel,<sup>12</sup> the area is underlain by undifferentiated granitic rock units of the Southern California Batholith, older fanglomerate, and undifferentiated fanglomerate and terrace deposits. The late Jurassic to early Cretaceous granitic rock units of the Southern California Batholith underlie much of the area and are composed of diorite, quartz diorite, granodiorite, and gabbro. Because of their igneous origin, the granitic rock units are unfossiliferous and are of no paleontologic importance.

The older fanglomerate consists of sandstone, siltstone, and tuff. The age of this rock unit is undetermined, although Engel (1959) considered the rock unit to be possibly Miocene in age. Although no fossil remains are recorded from this rock unit, its similarity to rock units that have yielded the fossilized remains of land mammals in other nearby areas suggests a potential for similar fossil remains occurring in areas underlain by this rock unit. The older fanglomerate is considered to be of unknown paleontological importance. The undifferentiated fanglomerate and terrace deposits consist of pebble and cobble conglomerate and arkosic sand. Pleistocene land mammal remains from three previously recorded fossil sites in the general vicinity could be from this rock unit. Some or all of these specimens could be from the alluvium, which, as mapped by Engel (1959), immediately overlies the undifferentiated fanglomerate and terrace deposits and underlies most of the valley floor.

Los Angeles County Museum (LACM) Fossil Site 6059 yielded camel remains near the airstrip at the northeastern corner of Lake Elsinore. Mammoth remains were recovered from California Institute of Technology (CIT) Fossil Site 571 south of Lake Elsinore, and at CIT Fossil Site 572 in the City of Lake Elsinore. These fossil occurrences suggest a potential for similar fossil remains occurring in areas underlain by the undifferentiated fanglomerate and terrace deposits.

#### 4.3. Historic Properties Management Plan

As part of its prior proceeding in Project No. 11858, Applicant prepared a historic properties management plan (HPMP). This HPMP has been resubmitted with this application.

The HPMP provides evidence of: (1) records search and field reconnaissance surveys; (2) letters verifying contacts with the Native American Heritage Commission (NAHC) to conduct a Sacred

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<sup>10</sup> / Reddy, Seetha and Brewster, Alice, Applying GIS to Archaeological Site Prediction on Camp Pendleton, Southern California, Pacific Coast Archaeological Society Quarterly, Vol. 35. No. 1, p. 8.

<sup>11</sup> / Berryman, Stan, Cultural Dimensions of Time: New Perspectives on the Archaeology of Camp Pendleton, Southern California, Pacific Coast Archaeological Society Quarterly, Vol. 35. No. 1, p. 3.

<sup>12</sup> / Engel, René, Geology of the Lake Elsinore Quadrangle, California, Geology and Mineral Resources of the Lake Elsinore Quadrangle, California, California Division of Mines and Geology, Bulletin 146, 1959.



Lands search for the Proposed Project area to identify Traditional Cultural Properties; (3) letter to individuals that needed to be contacted to provide additional cultural resource information for the Proposed Project area; and (4) historic evaluations of structures within the Proposed Project area. As indicated in correspondence from the NAHC, dated February 7, 2005, as included in the HPMP: “A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate Proposed Project vicinity.”

As a part of the prior proceeding for Project No. 11858, the Applicant executed a “Programmatic Agreement among the Federal Energy Regulatory Commission and the California Historic Preservation Officers for Managing Historic Properties that May be Affected by Issuing a License to the Elsinore Valley Municipal Water District and The Nevada Hydro Company for the Operation of the Lake Elsinore Advanced Pumped Storage Project in Riverside County, California (FERC No. 11858-002)” (PA), as issued by FERC on February 12, 2007. Listed signatories to the PA included: (1) Milford Wayn Donaldson, California State Historic Preservation Officer; (2) Tina Terrell, Forest Supervisor, USDA Forest Service; (3) Mike Pool, State Director, United States Bureau of Land Management, California State Office; (4) Col. John C. Coleman, Commanding Officer, United States Marine Corps, Marine Corps Base Camp Pendleton; (5) Clay J. Gregory, Regional Director, United States Bureau of Indian Affairs, Pacific Regional Office; (6) Robert Smith, Chairperson, Pala Band of Mission Indians; (7) John Currier, Chairperson, Rincon Band of Mission Indians; (8) Richard Estrada, Chairperson, San Luis Rey Band of Mission Indians; (9) Christobal C. Devers, Chairperson, Pauma/Yuima Band of Mission Indians; (10) Sonia Johnston, Tribal Chair, Juaneno Band of Mission Indians, Acjachemen Nation; (11) Richard Milanovich, Chairperson, Agua Caliente Band of Cahuilla Indians; (12) Tracy Lee Nelson, Chairperson, La Jolla Band of Mission Indians; (13) David Belardes, Juaneno Band of Mission Indians; (14) Anthony Rivera, Chairman, Juaneno Band of Mission Indians, Acjachemen Nation; and (15) Anthony Morales, Tribal Chairperson, Gabrieleno/Tongva Tribal Council of San Gabriel. The California State Historic Preservation Officer has neither executed that programmatic agreement nor expressed written concern with the nature or contents of that agreement.

Because the HPMP discloses the location of sensitive cultural resources located within and in proximity to Proposed Project facilities, the Applicant has not publicly disclose the contents of that document to anyone other than public agencies and accredited archaeologists. In accordance therewith, copies of the draft HPMP and the PA from Project No. 11858 have not been filed in the current proceeding and remain privileged.

#### **4.4. Cultural Resources Regulatory Setting<sup>13</sup>**

The following general discussion includes certain Federal, State, and local statutes and regulations that may be most applicable to an understanding of the Proposed Project’s regulatory setting with respect to cultural resources.

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<sup>13</sup> / Cultural resource information is confidential under the Archaeological Resource Protection Act of 1979 (16 U.S.C. 470hh) and Protection of Archaeological Resources: Uniform Regulations (36 CFR 296.18).

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On February 8, 2007, FERC executed a “Programmatic Agreement among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation and the California State Historic Preservation Officer for Managing Historic Properties that may be Affected by Issuing a License to the Elsinore Valley Municipal Water District and The Nevada Hydro Company for the Operation of the Lake Elsinore Advanced Pumped Storage Project in Riverside County, California (FERC No. 11858-02)” (Programmatic Agreement). As stipulated in the Programmatic Agreement, within one year of issuance of the hydropower license, the licensee will file for FERC’s approval a final historic properties management plan (Final HPMP) specifying how historic properties will be managed within the area of potential effect (APE), as defined in 36 CFR 800.16(d), during the term of the license.<sup>14</sup> After the hydropower license is issued, but before the Final HPMP has been approved by FERC, the licensee shall consult with the appropriate parties specified in the PA.

Through an approved HPMP, FERC can require consideration and appropriate management of effects on historic properties throughout the term of the license.<sup>15</sup> As stipulated in the Programmatic Agreement, the final HPMP shall be developed by or under the supervision of a person who meets the professional qualifications standards for architectural history and archeology in the “Archeology and Historic Preservation: Secretary of the Interior’s Standards and Guidelines”<sup>16</sup> (Secretary’s Standards).

Archaeological Resources Protection Act of 1979. The Federal Archeological Resources Protection Act (16 U.S.C. 470aa-470mm) (ARPA) expands the protections provided by the Preservation of American Antiquities Act of 1906 in protection archaeological resources and sites located on public and Indian lands. The ARPA regulates finds on Federal and Indian lands and seeks to prevent looting and destruction of archeological resources. ARPA defines “archaeological resources” as items of archeological interest over 100 years old and found in an archaeological context on Federal or Indian lands and requires finders to obtain a Federal permit before excavating these objects.

As specified: “Information concerning the nature and location of any archaeological resource for which the excavation or removal requires a permit or other permission under this act or under any other provision of Federal law may not be made available to the public under Subchapter II of Chapter 5 of Title 5 of the United States Code [5 U.S.C. 551 et seq.] or under any other provision of law unless the Federal land manager concerned determined that such disclosure would (1) further the purpose of this act or the act of June 27, 1660 [16 U.S.C. 469-469c], and (2) not create a risk of harm to such resources or to the site at which such resources are located” (16 U.S.C. 470hh).

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<sup>14</sup> / The “Draft Lake Elsinore Advanced Pumped Storage Project (LEAPS) & Talega-Escondido/Valley-Serrano 500kV Interconnect Project – Historic Properties Management Plan, FERC No. 11858-002-California” (Draft HRMP) was submitted to the Commission in February 2005.

<sup>15</sup> / Federal Energy Regulatory Commission, Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects, May 20, 2002, p. 1.

<sup>16</sup> / 48 FR 44716-44740, September 29, 1983.

Preservation of American Antiquities Act of 1906. The Preservation of American Antiquities Act of 1906 (16 U.S.C. 431-433) provides for the protection of historic or prehistoric remains on Federal lands, establishes criminal sanctions for unauthorized destruction or appropriation of antiquities, authorizes the President to declare by proclamation national monuments, and authorizes the scientific investigation of antiquities on Federal lands, subject to permit and regulations.

Federal agencies may withhold any information pertaining to the location of archaeological sites if the agency determines that disclosing such information would put the resource at risk. ARPA specifically excludes such information from a Freedom of Information Act of 1982 (5 U.S.C. 552) filing which includes all archaeological resources, not just those that are NRHP listed or eligible. In recognition of the sensitive nature of known prehistoric and historic resources within the general area, detailed information regarding those resources is not presented herein but has been disseminated to specific State and Federal agencies and tribal organizations.

Native American Graves Protection and Repatriation Act. The Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C. 3001-3013) (NAGPRA) provides a process for museums and Federal agencies to return certain Native American cultural items, such as human remains, funerary objects, sacred objects, or objects of cultural patrimony, to lineal descendants and culturally affiliated Indian tribes and Native Hawaiian organizations. NAGPRA includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American cultural items on Federal and tribal lands, and penalties for noncompliance and illegal trafficking.

Protection of Archaeological Resources Uniform Regulations. The Protection of Archaeological Resources Uniform Regulations (36 CFR Part 296) implements provisions of the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa–mm) by establishing uniform definitions, standards, and procedures to be followed by all Federal land managers in providing protection for archaeological resources located on public lands (including National Forest Service (NFS) lands) and Indian lands of the United States. These regulations enable federal land managers to protect archaeological resources, taking into consideration provisions of the American Indian Religious Freedom Act (42 U.S.C. 1996), through permits authorizing excavation and/or removal of archaeological resources, through civil penalties for unauthorized excavation, through provisions for the preservation of archaeological resource collections and data, and through provisions for ensuring confidentiality of information about archaeological resources when disclosure would threaten the archaeological resources (36 CFR 296.1[a]).

Reservoir Salvage Act of 1960. As stipulated under the Reservoir Salvage Act of 1960 (16 U.S.C. 469-469c-1), Federal policy provides for the

“preservation of historical and archaeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of (1) flooding, the building of access roads, the erection of workmen’s communities, the relocation of railroads and highways, and other alterations of the terrain caused by the construction of a dam by any agency of the United States, or by any private person or corporation holding a license issued by any such agency or (2) any alteration of the terrain caused as

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a result of any Federal construction project or federally licensed activity or program” (16 U.S.C. 469).

California Government Code (CGC) Sections 25373 and 37361 of the CGC authorizes county and city governments to enact zoning ordinances for the protection and regulation of buildings and structures of special historical value. Section 65860 of the CGC enlarges the scope of those zoning powers to allow those agencies to regulate the use of buildings, structures, and land between business, industry, residential, and open space.

With regard to California Native American traditional tribal cultural places,<sup>17</sup> Senate Bill 18 (SB18), as approved by the Governor on September 29, 2004, stipulates that, subject to the limitations outlined therein, certain tribal consultation and notice requirements shall apply to local governments when adopting or amending general and specific plans. As specified in SB18 and as outlined in the Governor’s Office of Planning and Research’s “Supplement to General Plan Guidelines – Tribal Consultation Guidelines”<sup>18</sup> (Tribal Consultation Guidelines), prior to adoption or amendment of a general or specific plan, the local government must: (1) notify the appropriate California Native American tribe<sup>19</sup> of the opportunity to conduct consultation for the purpose of preserving or mitigating impacts to cultural places; (2) refer the proposed action to those tribes that are on the NAHC contact list that have traditional lands within the agency’s jurisdiction; and (3) send notice of a public hearing, at least ten days prior to the hearing, to tribes that have filed a written request for such notice. Pursuant to Section 65352.3, only if a tribe is identified by the NAHC and the tribe requests consultation after being contacted by a local government, must the local government consult with the tribe on the plan proposal.

California Public Resources Code. Pursuant to Section 5020.1(k) of the Public Resources Code (PRC), a “historic resource” must be listed on a “local register of historical resources.” A “local register” is a “list of properties officially designated or recognized as historically significant by a local government pursuant to a local ordinance or resolution.” Resources that are listed in a local historic register or deemed significant in a historical resource survey as provided under Section 5024.1(g) of the PRC are to be presumed historically or culturally significant unless “the preponderance of evidence” demonstrates they are not. Section 5020.1 establishes the threshold of “substantial adverse change” as inclusive of demolition, destruction, relocation, or other alteration activities that would impair the significance of the historic resource. Section 5097.5 of the PRC makes it a misdemeanor for anyone to knowingly disturb any archaeological, paleontological, or historical features situated on public lands.

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<sup>17</sup> / As defined in Sections 4097.9 and 5097.995 of the PRC.

<sup>18</sup> / Governor’s Office of Planning and Research, Supplement to General Plan Guidelines – Tribal Consultation Guidelines, April 15, 2005.

<sup>19</sup> / SB18 defines the term “California Native American Tribe” as “a federally recognized California Native American Tribe or a non-federally recognized California Native American Tribe that is on the contact list maintained by the Native American Heritage Commission.” “Federal recognition” is a legal distinction that applies to a tribe’s rights to a government-to-government relationship with the federal government and eligibility for federal programs (Source: Governor’s Office of Planning and Research, Supplement to General Plan Guidelines – Tribal Consultation Guidelines, April 15, 2005, p. 6).

The California State Office of Historic Preservation (OHP) is mandated under Section 5024.6(n) of the PRC to maintain the state Historic Resources Inventory for planning and to maintain comprehensive records of historic resources pursuant to Federal and State laws. Section 6254.10 of the CGC establishes that the records of the State Historic Resources Inventory relating to archaeological resources are exempt from disclosure requirements of the California Public Records Act (Sections 6250-6270, CGC).

**California Code of Regulations.** As described in Section 21084.1 of CEQA and Section 15064.5(a)(4) in Title 14 of the California Code of Regulations (CCR), “[t]he fact that a resource is not listed in, or determined to be eligible for listing in, the California Register of Historical Resources [CRHP], not included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1 shall not preclude a lead agency from determining whether the resource may be a historical resource for purposes of this section.”<sup>20</sup> Section 15064.5 establishes general rules for the analysis of historical (including archaeological) resources in order to determine whether a proposed project may have a substantial adverse effect on the significance of that resource. Section 15064.5(a) defines a “historic resource” (relying on the holding in *League for Protection of Oakland’s Architectural and Historic Resources v. City of Oakland* to describe the relative significance of resources listed in the CRHR, listed in a local register or survey or eligible for listing, or that may be considered locally significant despite not being listed or eligible for listing).<sup>21,22</sup>

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<sup>20</sup> / A “historic resource” includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR; (2) a resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in a historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant (public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant); or (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency’s determination is supported by substantial evidence in light of the whole record.

<sup>21</sup> / A resource does not need to have been identified previously either through listing or survey to be considered significant under CEQA. In addition to assessing whether historic resources potentially impacted by a proposed project are listed or have been identified in a survey process, lead agencies have a responsibility to evaluate them against the CRHR criteria prior to making a finding as to a proposed project’s impacts to historic resources (Section 21084.1, PRC; Section 15064.5[a][3], CCR).

<sup>22</sup> / Section 15064.5(b) describes those actions that have or that may have substantial adverse effects and include the following: (1) physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired; (2) the significance of an historical resource is materially impaired when a project: (A) demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; (B) demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a “local register” of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or (C) demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources, as determined by a lead agency for purposes of CEQA.

**California Penal Code.** Under the provisions of the California Penal Code (CPC), it is a misdemeanor offense for any person, other than the owner, to willfully damage or destroy archaeological or historical features on public or privately owned land (14 CPC Part 1, Section 622.5).

**California Health and Safety Code.** Section 7050.5 of the H&SC stipulates that if human remains are discovered during construction, the project owner is required to contact the county coroner.

#### **4.5. Impacts on Cultural Resources**

Potential impacts on cultural resources attributable to the proposed generation facilities are discussed in Section 4.5.1. Potential impacts on cultural resources associated with the primary transmission lines are presented in Section 4.5.2. Potential cumulative impacts on cultural resources relating to the Proposed Project (inclusive of both the primary transmission lines and generation facilities) are presented in Section 4.5.4.

##### **4.5.1. Hydroelectric Facilities - Potential Impacts on Cultural Resources**

Cultural resource record searches were conducted within a 0.5-mile search radius of Proposed Project generation facilities. Surveys by SWCA's and AE's archaeologists, combined with adequate previous surveys, have resulted in intensive cultural resource surveys for 78.71 percent of the area where generation components are located, including 100 percent of the proposed Decker Canyon Reservoir site. Six cultural resources have been identified within the study area.

- ◇ Four of the resources are prehistoric in age, including bedrock milling sites. NRHP eligibility of these prehistoric cultural resources have not been determined.
- ◇ One of the resources is a historic Bungalow-style residence that has been evaluated as "significant locally" but has not been formally evaluated for NRHP eligibility.
- ◇ Lake Elsinore (P-33-11009) was recorded as a Traditional Cultural Property (TCP) in 1982. Lake Elsinore is important to the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians (Acjachemen Nation) as a part of their traditional homeland and its presence in Luiseño creation songs. The USDA Forest Service considers Lake Elsinore to be eligible for the NRHP.

There are six known cultural resources located within the Proposed Project area. Direct impacts have been identified for all six of these resources. There is also the potential to encounter additional, undiscovered cultural resources during construction. Of those, as a TCP, Lake Elsinore (P-33-11009) has been determined eligible for the NRHP by the USDA Forest Service. The NRHP eligibility of the remaining five known cultural resources have not been determined.

An additional four historic resources have been identified within 0.5 miles of the proposed LEAPS generation facilities. Two are historical residences, one is the Ortega Highway, and the last is a hillside rock alignment (the Elsinore "E" was first aligned and whitewashed in 1923). The rock alignment has been determined eligible for NRHP listing by the USDS Forest Service. Although the Elsinore "E" has been determined NRHP eligible, indirect visual impacts to that resource would not be significant (Class III). Similarly, indirect visual impacts to the portion of

Ortega Highway (P-33-7234) within a 0.5-mile radius of Proposed Project features would not be significant (Class III). Two of the structures are “locally significant” residences.

The Proposed Project’s Powerhouse/Hydroelectric facility, Decker Canyon Reservoir, and their associated construction staging areas are underlain by both Quaternary alluvial units and granitic rocks. Granitic rocks have no paleontological resources potential. Quaternary alluvium has a paleontological sensitivity ranging from low-to-high, depending on the age of the sediments. The paleontological sensitivity of the geologic units traversed by linear portions of the Proposed Project is shown in Table E.4–1 (Hydroelectric Facilities – Paleontological Sensitivity). Areas determined to have paleontological sensitivity are located from MPs 0.9 to MP 1.2.

**Table E. 4-1. Hydroelectric Facilities - Paleontological Sensitivity**

Mileposts	Rock Units	Sensitivity	Fossil Localities
0 – 0.9	Granitic rocks, undivided	None	-
0.9 – 1.2	Quaternary Older Fan/Alluvium	High	-

Source: California Public Utilities Commission

Table E.4–2 (Hydroelectric Facilities – Cultural Resource Impacts) summarizes the potential cultural and paleontological resource impacts of Proposed Project. Applicant’s proposed PMEs, all from the HPMP, would serve to mitigate potential cultural resource impacts attributable to the proposed generation facilities.

**Table E.4-2. Hydroelectric Facilities - Cultural Resource Impacts**

Impact	Description
CR-1	Construction of the project would cause an adverse change to known historic properties
CR-2	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains.
CR-3	Construction of the project would cause an adverse change to Traditional Cultural Properties.
CR-4	Operation and long-term presence of the project would cause an adverse change to known historic properties.
CR-5	Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources.
PAL-1	Construction of the transmission line would destroy or disturb significant paleontological resources.

Source: The Nevada Hydro Company, Inc.

Because known cultural resources potentially eligible for the NRHP have been identified in proximity to the Proposed Project, as well as the potential for encountering undiscovered cultural resources, the following impacts could occur during construction or operation.

***Impact CR-1: Construction of the project would cause an adverse change to known historic properties.***

Avoidance is recommended for all cultural resources. However, if impacts cannot be avoided, impacts to CA-RIV5877, CA-RIV-5878, CA-RIV-7659, and P-33-7221 could be potentially significant but would be mitigable to a less-than-significant level (Class II) through compliance with FERC/USDA Forest Service permit requirements, including the preparation of a final HPMP, and with the implementation of the PMEs described in the HPMP.

***Impact CR-2: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains.***

Types of subsurface features that could be encountered within the vicinity of LEAPS include prehistoric resources, such as buried living surfaces, artifact deposits, hearths, burials, and cremations. Historical resources that could be unearthed during construction include refuse pits, privies, and structural foundations.

**Table E. 4-3. FERC Environmental Measures - Cultural Resource Impacts**

Measure	Description
	Federal Energy Regulatory Commission / USDA Forest Service Final Environmental Impact Statement, Project No. 11858 (January 2007)
CR-1 (EM-16)	Revise the draft HPMP in consultation with the State Historic Preservation Officer (SHPO), Tribes, United States Bureau of Indian Affairs (BIA), the Lake Elsinore Historical Society, and the USFS and file a final HPMP for Commission approval within 1 year of any license issuance.
CR-2 (EM-17)	Ensure all transmission facilities conform to Avian Power Line Interaction Committee et al. (1996) guidelines, including power lines to reduce risks of bird strikes. The co-applicants should conform to the April 2005 avian protection plan guidelines.
	The Nevada Hydro Company - Protection, Mitigation, and Enhancement Measures Final Environmental Impact Statement, Project No. 11858 (Section 2.3.6)
CR-3 (PME-13)	Consult with the State Historic Preservation Officer (SHPO) at least 180 days prior to commencement of any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, including recreational development at the project. If activity is on National Forest System lands, also consult with the Forest Service at least 180 days prior to commencement of any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in the license, including recreational development at the project.
CR-4 (PME-14)	If previously unidentified archaeological or historic properties are discovered during the course of constructing or developing the project works or other facilities at the project, stop all land-clearing and land-disturbing activities in the vicinity of such properties and consult with the SHPO or take such alternative actions as may be authorized by the SHPO. Also consult with the Forest Service if a previously unidentified archeological site or historic property is identified on National Forest System lands.
CR-5 (PME-15)	Implement measures proposed in the draft "Historic Properties Management Plan" (HPMP) developed in consultation with the SHPO and the Forest Service and filed with the Commission, including provisions for the following: (1) completing pre-construction archaeological surveys in the area of potential affect (APE); (2) determining the need for intensive surveys; (3) monitoring archaeological sites and building during construction; (4) appointing a Tribal liaison; (5) studying the potential effects of ground acceleration on historic buildings; (6) developing a program to monitor archaeological sites for five years; and (7) developing a public interpretation program.



**EXHIBIT E – HISTORICAL AND ARCHEOLOGICAL RESOURCES**

FERC Project No. 14227

Measure	Description
CR-6 (PME-16)	Prepare any recovered fossil remains to the point of identification and prepare them for curation by the Los Angeles County Museum or San Bernardino County Museum.
CR-7 (PME-G)	The Applicant, before starting any land-clearing or land-disturbing activities within the project boundaries, other than those specifically authorized in this license, including recreation development at the project, shall consult with the SHPO. If the Applicant discovers previously unidentified archaeological or historic properties during the course of constructing or developing the project works or other facilities at the project, the Applicant shall stop all land-clearing and land-disturbing activities in the vicinity of the properties and consult with the SHPO. In either instance, the Applicant shall file for FERC approval a cultural resource management plan prepared by a qualified cultural resource specialist after having consulted with the SHPO. The plan shall include the following items: (1) a description of each discovered property indicating whether it is listed or eligible to be listed on the NRHP; (2) a description of the potential effect on each discovered property; (3) proposed measures for avoiding or mitigating effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for mitigating effects and conducting additional studies. FERC may require changes in the plan. The Applicant shall not begin land-clearing or land-disturbing activities, other than those specifically authorized in this license, or resume such activities in the vicinity of a property discovered during construction, until informed by the Commission that the requirements of this article have been fulfilled.
CR-8 (PME-H)	Paleontologic monitoring of earthmoving will be conducted on a half-time or, in the judgment of the vertebrate paleontological monitor, on a less frequently basis in areas underlain by older fanglomerate and undifferentiated fanglomerate and terrace deposits. Freshly exposed sediment/rock and debris will be inspected for larger fossil remains and sediment samples will be test screened periodically for smaller fossil remains. If fossil remains are found by the paleontologist, earthmoving will be temporarily diverted around the resource site until the remains and/or a sediment sample (not to exceed 6,000 pounds) from the fossil-bearing rock unit has been removed and earthmoving allowed to proceed through the site by the paleontologist.
CR-9 (PME-I)	Any recovered fossil remains will be prepared to the point of identification and identified to the lowest taxonomic level possible by a knowledgeable paleontologist. The remains will then be curated and catalogued by a laboratory technician. The remains, along with associated specimen and corresponding geologic and geographic site data, will then be accessioned into the Los Angeles County Museum or San Bernardino County Museum fossil collection where they will be stored, maintained, and made available for future study by qualified investigators, subject to the policies and procedures of those institutions.

Source: The Nevada Hydro Company, Inc.

Buried archaeological resources may be encountered during vegetation removal, grading, and excavation. Impacts to most unknown significant prehistoric and historic archaeological sites could be potentially significant but would be mitigable to a less-than-significant level. Construction effects, if any, relating to Native American human remains would not be significant because Applicant proposes to prepare a discovery plan to be implemented in the event of an unintended discovery. PMEs are as set forth in the HPMP.

***Impact CR-3: Construction of the project would cause an adverse change to Traditional Cultural Properties.***

Lake Elsinore serves at the lower reservoir for the Proposed Project. Lake Elsinore (P-33-11009) was recorded as a TCP in the State inventory in 1982. Lake Elsinore is viewed by the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians (Acjachemen Nation) as a part of their traditional homeland and it is present in Luiseño creation songs. The USDA Forest Service considers Lake Elsinore eligible for listing on the NRHP.

During the Project No. 11858 proceeded, FERC initiated government-to-government consultation under Section 106 of the NHPA with appropriate Native American groups and provided notification to other public groups regarding the potential effects on traditional cultural values. Ongoing consultation under the current proceeding will determine whether

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there are other TCPs that could be adversely affected. PMEs, if required, are as set forth in the HPMP.

***Impact CR-4: Operation and long-term presence of the project would cause an adverse change to known historic properties.***

There are two “locally significant” historical residences within a 0.5-miles radius of Proposed Project facilities and a third (Lake Elsinore) that may be NRHP eligible. Those residents and the lake are potentially subject to long-term and operational impacts caused by the proposed generation facilities.

Direct and indirect impacts could occur to historic properties within the vicinity of the proposed generation facilities during operation of the Project and throughout the facility’s operational life. Direct impacts to known resources or other newly identified resources could result from the facility’s operation, maintenance, or repair activities. Indirect impacts, such as erosion, could also adversely affect historic properties. These impacts could be potentially significant but would be mitigable to a less-than-significant level through the implementation of those site protection measures and monitoring procedures presented in the HPMP.

***Impact CR-5: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources.***

Three historic built-environment resources, located within a 0.5-mile radius of the Proposed Project, are potentially subject to long-term visual impacts. Each of these resources has been determined “locally significant” but have not been formally evaluated for NRHP eligibility. Any the HPMP impact to these locally significant resources would be mitigated through implementation of the HPMP.

***Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources.***

The potential for the discovery of paleontological resources during construction of the Proposed Project ranges from zero-to-high. The discovery, removal, damage, or alteration to paleontological resources could be potentially significant but would be mitigable to a less-than-significant level through the HPMP .

#### **4.5.2. Potential Impacts on Cultural Resources of Primary Transmission Lines**

Cultural resources record searches were conducted for the primary transmission lines and access roads within a 0.5-mile search radius. Previous surveys conducted on behalf of the Applicant, in combination with new surveys by SWCA Environmental Consultants’ (SWCA) and Applied Earth Works’ (AE) archaeologists, have resulted in intensive cultural resource surveys for the alignment of the primary transmission lines. Eleven cultural resources have been identified within the 300-foot-wide study area. Nine of the cultural resources were identified during previous surveys and two resources were recently recorded by SWCA and AE. Nine of the resources are prehistoric, including one rock art site, two lithic scatters, two temporary camps, and four bedrock milling sites (one with rock art).

The eligibility of the nine prehistoric cultural resources for listing on the NRHP has not been determined. Formal eligibility determinations would be made prior to construction of the primary transmission lines for any resources affected. One site (CA-RIV-271) is a multi-component site which contains both historic and prehistoric components. The historic component (Tenaja Ranger Station with associated residence, pump house and water tower) has been determined to be eligible for listing on the NRHP under Criteria A and Criteria C. The prehistoric Tenaja Village, which is eligible for listing on the NRHP under Criteria D, contains lithic/ceramic scatters, ground stone fragments, unidentified bone fragments, as well as shell fragments. One historic road, Ortega Highway (P-33-7234), would be spanned by the overhead transmission line and was, therefore, only considered from the perspective of how the overhead transmission line could visually impact that resource in the Aesthetic Resources (Section 8 of this application).

The paleontological sensitivity of the alignment of the primary transmission lines is provided by milepost in Table E.4–4 (Primary Transmission Lines – Paleontological Sensitivity). The following impact analysis is based on a review of published and unpublished literature and geologic maps. A detailed review of museum collections records was performed by the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County for the purposes of determining whether there are any known fossil localities within the area of potential effect (APE). No previously recorded localities were discovered within one-half mile radius of the primary connection’s centerline.

**Table E. 4-4: Primary Connection - Paleontological Sensitivity**

Mileposts	Rock Unit	Sensitivity	Mileposts	Rock Unit	Sensitivity
0 to 2.0	Estelle Mountain volcanic	None	9.2 to 9.3	Granitic rocks, undifferentiated	None
2.0 to 2.3	Younger Alluvium	Low	9.3 to 9.5	Landslide Deposits	Low
2.3 to 2.8	Older Alluvium	High	9.5 to 10.0	Bedford Canyon Formation	Moderate
2.8 to 3.3	Granite, undifferentiated	None	10.0 to 12.1	Granitic rocks, undifferentiated	None
3.3 to 3.4	Younger Alluvium	Low	12.1 to 12.3	Younger Alluvium	Low
3.4 to 3.6	Older Alluvium	High	12.3 to 14.8	Granitic rocks, undifferentiated	None
3.6 to 3.7	Older Alluvium	High	14.8 to 15.0	Older Alluvium	High
3.7 to 3.8	Bedford Canyon Formation	Moderate	15.0 to 19.5	Granitic rocks, undifferentiated	None
3.8 to 4.0	Granite, undifferentiated	None	19.5 to 19.8	Younger Alluvium	Low
4.0 to 5.1	Granitic rocks, undifferentiated	None	19.8 to 20.0	Metamorphic rocks	None
5.1 to 5.4	Older Alluvium	High	20.0 to 20.1	Granitic rocks, undifferentiated	None
5.4 to 6.4	Granitic rocks, undifferentiated	None	20.1 to 20.3	Metamorphic rocks, undifferentiated	None
6.4 to 6.7	Bedford Canyon Formation	Moderate	20.3 to 20.5	Younger Alluvium	Low
6.7 to 6.9	Landslide Deposits	Low	20.5 to 20.6	Granitic rocks, undifferentiated	None
6.9 to 7.1	Bedford Canyon Formation	Moderate	20.6 to 21.2	Metamorphic rocks, undifferentiated	None
7.1 to 7.2	Landslide Deposits	Low	21.2 to 24.5	Granitic rocks, undifferentiated	None
7.2 to 7.4	Younger Alluvium	Low	24.5 to 24.6	Metamorphic rocks, undifferentiated	None
7.4 to 8.7	Bedford Canyon Formation	Moderate	24.6 to 25.0	Santa Rosa Basalt	None
8.7 to 8.9	Granitic rocks, undifferentiated	None	25.0 to 29.1	Granitic rocks, undifferentiated	None
8.9 to 9.0	Bedford Canyon Formation	Moderate	29.1 to 29.4	Metasedimentary rocks	Marginal
9.0 to 9.1	Granitic rocks, undifferentiated	None	29.4 to 30.4	Granitic rocks, undifferentiated	None
9.1 to 9.2	Bedford Canyon Formation	Moderate	30.4 to 30.6	Santiago Peak Volcanics	Marginal

Source: California Public Utilities Commission

The primary transmission lines traverse numerous geologic units. Each unit's paleontological resource potential is discussed below.

- **Quaternary alluvium.** Quaternary alluvium consists of partly dissected, mostly unconsolidated, poorly sorted sand, silt, clay, and gravel located at the margins of canyons and within valley floors. "Younger" alluvium is Holocene (11,400 years ago to Recent) in age and "Older alluvium" is Pleistocene (1.8 million years ago [Ma] to 11,400 years ago) in age. Fossil localities in older alluvium deposits throughout southern California have yielded terrestrial vertebrates such as mammoths, mastodons, ground sloths, dire wolves, short-faced bears, saber-toothed cats, horses, camels, and bison. Younger alluvium is determined to have a low potential for paleontological resources but is often underlain by older alluvium, which is determined to have a high potential for paleontological resources.
- **Quaternary landslides.** The paleontological sensitivity of a landslide deposit is dependent on a number of factors, including the source rock material. For landslides in sedimentary rock, when the original stratigraphic position of the sediments is disturbed, there are varying degrees of information loss with the varying degree of displacement and the varying severity of mechanical impacts to the slide mass.

Landslides do not necessarily equate to sediments being non-sensitive for paleontological materials but the loss of associated sedimentological and positional data reduces the significance of any fossils found. Additionally, landslides in general are much less likely to contain well-preserved fossils than intact native sediments. Landslide deposits are determined to have a low paleontological sensitivity.

- **Santa Rosa Basalt.** Very fine-grained olivine basalt of Miocene age. These rocks are determined to have no paleontological resource potential due to their origin as molten rock.
- **Santiago Formation.** The Eocene (52 to 34 Ma) Santiago Formation comprises 820 meters of interbedded concretionary sandstone and siltstone with rare conglomerate. Tan and Edgington (1976) describe the general lithology of the Santiago Formation as consisting of marine and non-marine greenish-gray, yellowish-gray and moderate to pale yellowish-brown, medium- to coarse-grained sandstone with interbedded moderate reddish-brown and grayish-green, fine-grained clayey sandstone. Two informal members are recognized within the Santiago Formation (Sundberg, 1986). The lower unit reaches a maximum thickness of 68 meters, and is composed of shallow nearshore marine sandstone and conglomerate (Sundberg, 1986). The upper unit contains non-marine sandstone and siltstone (Sundberg, 1986). The Santiago Formation has produced an extensive collection of significant terrestrial vertebrates in southern California and thus has been assigned a high paleontologic resource sensitivity level (Lander, 1989; Copper and Eisentraut, 2000).
- **Williams Formation.** The Williams Formation consists of three members: the Starr, Schulz Ranch, and Pleasants Sandstone. The Schulz Ranch and Pleasants Sandstone members are traversed by the Proposed Project facilities. The Schulz Ranch member of the Williams Formation consists of medium to thick beds of fine to coarse-grained, granular to pebbly

sandstone, and seams and lenses of well-rounded pebble to cobble conglomerate that become less common up section. The Pleasants Sandstone member of the Williams Formation was deposited in a shallow-marine, coastal shelf environment during the late Cretaceous, from approximately 80 to 67 Ma. It consists of fine-to medium-grained, brownish to grayish, poorly bedded sandstone with interbeds of mudstone, siltstone and calcareous sandstone with pebble or cobble conglomerate. Abundant and diverse marine mollusk assemblages are known from the Williams Formation, including ammonoids, nautiloids, gastropods, and bivalves. Because of the abundant and diverse fossils recovered from this unit, the Williams Formation is assigned a high paleontological resource sensitivity (Eisentraut and Cooper, 2002).

- **Trabuco Formation.** The Late Cretaceous (95-85 Ma) Trabuco Formation represents ancient alluvial fan deposits, built out along the foot of the Santa Ana Mountains (Cooper and Eisentraut 2000). Gray (1961) describes unit lithology as consisting of poorly consolidated, massive, red, very poorly sorted, sandy boulder conglomerate. Cobble and boulder constituents include quartzite, graywacke, slate, limestone, and andesite as well as coarse-grained plutonic rocks (Gray, 1961). Unit thickness is difficult to determine; maximum thickness has been estimated at 620 feet (Gray, 1961). Very few fossils have been found in the Trabuco Formation because of its non-marine, alluvial fan environment. The Trabuco Formation has been assigned a low paleontologic sensitivity level due to the extremely coarse-grained nature of the Trabuco sediments (Eisentraut and Cooper, 2002).
- **Metasedimentary Rocks.** Metasedimentary rocks in the central part of San Diego County are referred to as Julian Schist, which is composed of quartz-mica schist and quartzite, with minor amounts of marble and amphibolite. These rocks have been intruded and deformed by plutonic rocks associated with the Peninsular Ranges Batholith. The age of these metasedimentary rocks is not well defined; however, microfossils indicate that they are much older than Triassic in age. No fossils have been discovered in this unit within San Diego County; however, correlative units in Riverside and Orange County have yielded marine mollusks. Metasedimentary rocks in San Diego County are determined to have a marginal potential for paleontological resources.
- **Bedford Canyon Formation.** This Jurassic age geologic unit consists of silty argillite and graywacke with minor amounts of pebble conglomerate and limestone (Morton, 2003). Rare occurrences of shallow-marine invertebrates have been documented within the limestone lenses of the Bedford Canyon Formation; therefore, it is determined to have a moderate paleontological sensitivity rating (Eisentraut and Cooper, 2002).
- **Santiago Peak Volcanics.** The Santiago Peak Volcanics include mildly metamorphosed volcanic, volcanoclastic, and sedimentary rocks aging from late Triassic to mid-Cretaceous in age. This rock unit occurs in the subsurface throughout much of the continental margin of southern California and crops out from the southeastern edge of the Los Angeles basin southward to Mexico. Metasedimentary units within this formation have proven to yield important remains of marine macroinvertebrates and are determined to have a high potential for paleontological resources. The volcanic and metavolcanics are determined to have a marginal potential for paleontological resources.

- **Granitic Rocks, undifferentiated.** Granitic rocks in the study area are mostly composed of quartz diorite (tonalite), granodiorite, and fine-to-coarse-grained massive granite and biotite monzogranite of Cretaceous age. Since granitic rocks are plutonic in origin, this geologic unit is determined to have no potential for paleontological resources.
- **Estelle Mountain Volcanics.** Estelle Mountain volcanics consist of a heterogeneous mixture of rhyolite flows, shallow intrusive rocks, and volcanoclastic rocks of Cretaceous age. These igneous and metamorphic rocks are determined to have no paleontological resource potential due to their origin as molten rock.

On February 18, 2005, in docket P–11858, a revised draft “Historic Properties Management Plan” (HPMP) was filed with FERC specifying a variety of measures for protection and management of historic properties both during construction and during subsequent operations and maintenance over the term of the federal hydropower license. Copies of the revised draft HPMP were sent to the Tribes, the USDA Forest Service, BLM, and DON/USMC (Camp Pendleton) for review and comment. Because the HPMP also addressed the associated transmission lines, information from that revised draft HPMP is included herein. As indicated therein, the Applicant proposed to;

- ◇ Consult with the USDA Forest Service in advance of any construction or cultural resources monitoring or survey on Forest Service land;
- ◇ Monitor construction and/or conduct pre-construction archaeological surveys to locate and identify resources in portions of the APE that have not been investigated due to lack of access and/or because locations of facilities and access routes have not yet been determined. This would include locations with potential to contain deeply buried archaeological deposits;
- ◇ Consult with the USDA Forest Service, the State Historic Preservation Officer (SHPO), and Tribes, as appropriate, concerning the need for intensive survey to evaluate NRHP eligibility of archaeological sites or traditional cultural properties (TCPs) that would be adversely affected by construction or operation and determine appropriate treatment for any adversely affected eligible resources. Retain a qualified archaeologist to advise construction/maintenance Field Superintendents and the Applicant’s Cultural Resources Coordinator regarding the need for monitoring during construction and for protecting known sites from inadvertent construction damage;
- ◇ Appoint a staff Tribal liaison to serve as the Applicant’s point of contact with the Tribes and consult with the Tribes regarding construction monitoring, archaeological survey, and resource protection measures;
- ◇ Arrange for a civil structural or geotechnical engineer to determine whether peak ground acceleration from construction exceeds a peak vertical particle velocity of 72.0 millimeter per second in the vicinity of any historic building and recommend treatment of any building for which this threshold is exceeded;

- ◇ Arrange for an architectural historian to monitor construction sites after trenching and blasting to ensure that vegetation and any other significant landscape features associated with historic buildings have been returned to their pre-construction state;
- ◇ Develop and implement an archaeological monitoring program, including notification to the USDA Forest Service of monitoring on NFS land, to identify site degradation or damage to archaeological resources. For the first five years, monitoring would be conducted annually during the mid-late autumn prior to the rainy winter season. Site conditions would be recorded with photographs and/or video documentation for comparison with previous years' conditions. The Applicant would send a report on the monitoring to the SHPO and the USDA Forest Service within two months of each annual monitoring effort. At the end of five years, sites that have experienced no significant effects would be dropped from the monitoring program;
- ◇ Develop a cultural resources public interpretive program in consultation with the Tribes and the USDA Forest Service within three years after construction; and
- ◇ The HPMP also specifies procedures the Applicant would follow in the event that currently unknown cultural resources are discovered during construction or operation. In the event of a discovery, work would immediately cease in the vicinity of the resource. The Applicant would develop a site-specific historic properties treatment plan, in consultation with the SHPO and the USDA Forest Service, containing procedures and methodologies "to be used in the eligibility evaluation process" for the specific site types that may occur in the area. No work would resume in the vicinity of the resource until the resource had been evaluated in accordance with the historic properties treatment plan and any adverse effects had been mitigated. Work would then resume in the presence of an archaeological monitor. The Applicant would submit a report describing the fieldwork and analysis to the SHPO and the USDA Forest Service.

Regarding paleontological resources, the Applicant proposes as PME's the following: (1) Conduct paleontological monitoring of earth-moving activities on a part-time basis in locations that are sensitive for paleontological resources; and (2) Prepare any recovered fossil remains to the point of identification and prepare them for curation by the Los Angeles County Museum or San Bernardino County Museum.

As currently proposed, the primary transmission line will directly impact four cultural resources, one of which, CA-RIV-271, has been recommended NRHP-eligible. The remaining three resources are potentially eligible for the NRHP. There is also the potential to encounter undiscovered cultural resources during additional surveys or construction, such as additional prehistoric sites with bedrock milling features. An additional 23 resources (including isolates) are likely to be encountered during additional surveys. A portion of the Ortega Highway within the vicinity of the primary transmission line and the Tenaja Ranger Station were considered by SWCA (2007) for indirect visual impacts. Visual impacts to the Ortega Highway would be adverse for certain portions of the resource. Visual impacts to the Tenaja Ranger Station would be adverse.

Table E. 4-5 Primary Transmission Lines – Cultural Resource Impacts summarizes the potential cultural and paleontological resource impacts of the primary transmission lines. The primary transmission lines are examined below.

**Table E. 4-5 Primary Transmission Lines – Cultural Resource Impacts**

Impact	Description
CR-1	Construction of the project would cause an adverse change to known historic properties.
CR-2	Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains.
CR-3	Construction of the project would cause an adverse change to Traditional Cultural Properties.
CR-4	Operation and long-term presence of the project would cause an adverse change to known historic properties.
CR-5	Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources.
PAL-1	Construction of the primary transmission line would destroy or disturb significant paleontological resources.

Source: The Nevada Hydro Company, Inc.

Because known cultural resources that are potentially eligible for the NRHP exist within the primary transmission lines corridors, as well as the potential for encountering undiscovered cultural resources, the following impacts could occur during construction or operation.

***Impact CR-1: Construction of the project would cause an adverse change to known historic properties.***

CA-RIV-271 has been recommended eligible for the NRHP and would be impacted by the [northern or southern] primary transmission line. Three other known cultural resources are potentially eligible for NRHP listing. An additional 24 resources (such as bedrock milling features with lithic and ceramic scatters) are likely to be encountered during surveys conducted prior to construction. Adverse construction impacts to those resources could be potentially significant but would be mitigated to a less-than-significant level with the implementation of Applicant’s proposed mitigation measures from the HPMP.

If, prior to or during ground-disturbing activities or as a result of the operation of the primary interconnection lines, items of potential cultural, historical, archaeological, or paleontological value are reported or discovered or a known deposit of such items is disturbed on NFS lands, the Applicant shall immediately cease work in the area affected. The Applicant shall then: (1) consult with the SHPO and the USDA Forest Service, if items are found on NFS lands, about the discovery; (2) prepare a site-specific plan, including a schedule, to evaluate the significance of the find and to avoid or mitigate any impacts to sites found eligible for inclusion in the NRHP; (3) base the site-specific plan on recommendations of the SHPO, the USDA Forest Service, and Secretary of the Interior’s “Standards and Guidelines for Archaeology and Historic Preservation”; (4) file the site-specific plan for FERC approval, together with the written comments of the SHPO and the USDA Forest Service; and (5) take the necessary steps to protect the sites from further impact until informed by FERC that the requirements have been fulfilled.



***Impact CR-2: Construction of the project would cause an adverse change to unknown significant buried prehistoric and historical archaeological sites or buried Native American human remains.***

Types of subsurface features that could be encountered include prehistoric resources, such as buried living surfaces, refuse deposits, hearths, burials, and cremations. Historical resources that could be unearthed during construction include refuse pits and privies. Buried archaeological resources may be encountered during vegetation removal at tower and pull site locations, grading of access roads, or excavation associated with tower, substation, and switchyard construction. The discovery, removal, damage, or alteration to known or unknown prehistoric or historic archaeological sites could be potentially significant but would be mitigable to a less-than-significant level with the implementation of the HPMP.

***Impact CR-3: Construction of the project would cause an adverse change to Traditional Cultural Properties.***

To date, one TCP has been identified within the vicinity of the primary transmission lines. Lake Elsinore is viewed by the Pechanga Band of Luiseño Mission Indians and the Juaneño Band of Mission Indians (Acjachemen Nation) as a part of their traditional homeland and its presence in Luiseño creation songs. Lake Elsinore (P-33-11009) was recorded in the State inventory in 1982 and the USDS Forest Service considers it eligible for listing on the NRHP.

During the Project No. 11858 proceeding, the Applicant, acting under FERC authorization and pursuant to the provisions of 36 CFR 800.2(c)(4), had initiated government-to-government consultation under Section 106 of the NHPA with appropriate Native American groups and provided notification to other public groups regarding potential effects on traditional cultural values. Applicant intends to reinitiate consultation with these groups to confirm the results of prior consultation and to determine whether there are other TCPs that could be adversely affected.

No portion of the primary transmission lines are located in close proximity to Lake Elsinore. Although transmission towers and other facilities, including the Santa Rosa Substation, may be visible from the lakeshore, the separation distances are such as to place the primary transmission lines in the background of any such viewshed. As a result, the primary transmission lines will not result in a significant impact on a TCP. As noted, the applicant intends to use the HPMP as the single PME for cultural and historic resources

***Impact CR-4: Operation and long-term presence of the project would cause an adverse change to known historic properties.***

Direct and indirect impacts could occur to historic properties within and in the vicinity of the primary transmission lines during operation and throughout the facility's operational life. There are two resources recommended eligible for the NRHP located within the [northern or southern?] primary transmission line area that are potentially subject to long-term and operational impacts: Ortega Highway and the Tenaja Ranger Station. Any of the known archaeological sites and other yet to be discovered archaeological sites that are determined HRHP-eligible would also potentially be subjected to long-term and operational impacts. Direct

impacts to these resources or other newly identified resources could result from maintenance or repair activities.

Indirect impacts, such as erosion, could also adversely affect historic properties. These impacts could be potentially significant but would be mitigable to a less-than-significant level through implementation provisions of the HPMP.

***Impact CR-5: Long-term presence of the project would cause an adverse change to known historic architectural (built environment) resources.***

One historic architectural or built-environment resource within the primary connection APE (Tenaja Ranger Station) was considered for indirect visual impacts. Visual impacts to the station, as well as the area surrounding KVP 7, would be adverse and could be potentially significant but would be mitigable to a less-than-significant level with the implementation of Applicant's PME. Similarly, visual impacts to Ortega Highway could also be potentially significant but would be mitigable to a less-than-significant level with the implementation of provisions of the HPMP

***Impact PAL-1: Construction of the project would destroy or disturb significant paleontological resources.***

Depending upon the area impacted, the potential for the discovery of paleontological resources during construction of the primary transmission lines ranges from zero-to-high. The discovery, removal, damage, or alteration to paleontological resource sites could be potentially significant but would be mitigable to a less-than-significant level through implementation of provisions of the HPMP.

#### **4.5.3. Project - Cultural Resources**

The cumulative cultural resource impacts resulting from the implementation of the Project (inclusive of both transmission and generation) would be similar to the combined effects presented in those preceding sections.