TABLE OF CONTENTS

APPENDIX 1E

CULTURAL RESOURCES

This section describes the cultural settings of the study area. Attention is paid to those areas within the program area where there could be effects on cultural resources, while areas with limited potential for impacts are described more cursorily.

1E.1 Cultural Setting

This section describes the prehistory, ethnography, and history of the study area. These contexts are divided into sections for the French Meadows Reservoir area and the Sacramento Valley and Delta as appropriate, because of the spatial separation of the study areas.

Prehistory

L. L. Anderson Dam. Based on a 1952 survey of the Lake Tahoe area, the initial chronological sequence of the Sierra Nevada was established by Heizer and Elsasser (1953). The Sierra sequence, developed from investigations at sites on both sides of the Sierra crest in the Lake Tahoe Region, is generally divided into two broad patterns, Middle Archaic/Martis Phase and Late Archaic/Kings Beach Phase (Elsasser 1978; Kowta 1988, Moratto 1984). Additionally, these two complexes are preceded by what Elston et al. (1977) termed the Pre-Archaic/Tahoe Reach Phase (pre-8000 B.P.) and the Early Archaic/Spooner Phase (8000-4000 B.P.) (Waetcher et al. 1995).

Pre-Archaic/Tahoe Reach Phase (pre-8000 B.P.). Evidence for early human occupation in the high Sierra Nevada area is quite scanty. However, based on radiocarbon dates on charcoal from a mottled silt stratum, a date of 8,130 +\- 130 years was obtained. This stratum also contained a backed knife and a biface (Waetcher et al. 1995). According to Waetcher et al. (1995), the prehistoric populations of the time may have employed a pre-Archaic foraging economy which included high residential mobility, large game hunting, and some plant processing and storage.

Early Archaic/Spooner Phase (8000-4000 B.P.). The type-site for the Spooner Phase is Spooner Lake, which is an artificial body of water east of Lake Tahoe (Waechter et al. 1995). Pinto and Humboldt series projectile points found at this site are believed to date back as far as 5,000 years ago. Evidence based on project point series types and obsidian hydration indicates that the western slope of the Sierra may have been in use by this time. It is believed that the prehistoric economy of this time was based primarily on hunting although the use of vegetal products was highly probable based on the appearance of plant processing tools (Waechter et al. 1995).

Middle Archaic/Martis Phase (4000-1500 B.P.). By 4,000 years ago, there is substantial evidence for routine use of the northern Sierra. The Martis Phase was identified by Heizer and Elsasser based on evidence obtained from sites in the Tahoe vicinity (1953). The type-site (CA-PLA-5) is located in the Martis Valley, east of Truckee. Heizer and Elsasser believed that this complex characterized a seasonal occupation of the higher elevations during spring and summer (Waetcher et al. 1995). It was later thought to be a developmental series of phases, possibly Great Basin in origin, with a distribution from the western Great Basin to the Sacramento Valley (Moratto 1984). The Martis pattern is further segregated into an early and late aspect. Heavy reliance is placed on projectile point types and flaked stone raw material categories (e.g., basalt as opposed to cryptocrystalline and obsidian) in segregating these patterns (Elsasser 1978; Kowta 1988, Moratto 1984).

The Early Martis (4000-3000 B.P.) artifact assemblage includes Martis and Elko series contracting stem points, Sierra stemmed triangular points, large bifaces, other core tools, millingstones, bifacial handstones, unshaped pestles, and the atlatl. Indications are that subsistence was based on hunting and hard-seed gathering, with a seasonal camp settlement pattern. (Elsasser 1978; Kowta 1988, Moratto 1984.)

The Late Martis (3000-1500 B. P.) artifact assemblage includes Martis series barbed and triangular, corner-notched points, Elko eared and corner-notched points, Sierra triangular stemmed points, large side-notched points, large bifaces, millingstones and handstones, and the introduction and increased use of mortar and pestle (Elsasser 1978; Kowta 1988, Moratto 1984). Point styles and mortar pestle use suggests influences from the Central Valley, Middle Horizon (Kowta 1988).

Late Archaic/Kings Beach Phase (1500 B.P. to Contact). The Kings Beach (1500 B.P. to contact) artifact assemblage includes Rose Spring and Eastgate points (earlier); Gunther barbed, desert side-notched, and Cottonwood projectile points (later); bow and arrow; scrapers; millingslabs; handstones; bedrock mortars; and pestles (Elsasser 1978, Kowta 1988, Moratto 1984). Subsistence was based on some hunting, particularly lagomorphs (rabbits and their relatives), and fishing, as well as piñon nut and acorn gathering (Kowta 1988; Moratto 1984; Waechter et al. 1995). There was an increase in the use of obsidian and fine-grained cryptocrystallines for tool manufacture. In its later manifestations, the Kings Beach pattern is identified with the protohistoric Washoe, Maidu, and Nisenan (Kowta 1988).

<u>Sacramento Valley and Delta Prehistory.</u> The study area lies within the Central Valley and the foothills of the Sierra Nevada Mountains. No definitive cultural sequence has been established for the foothills, though various local sequences have been developed. Generally, evidence from sites excavated in the lower elevations of the Sierra Nevada reflect the archeology of the Central Valley with some influence of the High Sierra.

The history of human occupation and use of the Central Valley is characterized by a number of related trends taking place over the last 10,000 years. Archeologically visible patterns can be attributed as responses to gradual changes in climate, resource availability, and human population growth. The cultural responses to these changes include specialization, intensification, sedentism, and the development of regional economic networks.

This section provides a brief overview of the changing adaptive strategies used by the inhabitants of the Central Valley and the archeological manifestations of these changes. Although this area of the Central Valley was known to have reached high levels of population density, the distribution of people over the landscape was variable and closely tied to food and water availability. Except for the major east-west rivers and their stream networks, much of the study area was relatively void of large population aggregates. This is particularly true within the last several thousand years when population levels in the Central Valley peaked. This does not mean that many locations in the study area were not utilized but simply that the activities that took place in these areas are not readily visible in the archeological record.

The archeological record of the Central Valley has been approached in two fundamentally different ways. The first is chronological. Developed initially from relative sequences in stratified occupation and burial sites, a three-stage chronology was developed in the late 1930's. Simply called the Early, Middle, and Late Periods, these were defined by shifting patterns in site assemblages and mortuary morphology. Although interpretations varied, explanations for change were usually linked to the movements of people. This chronological framework was later refined and eventually became the Central California Taxonomic System (CCTS) which, to be consistent with the Midwest Taxonomic System, substituted the term "horizon" for "period."

The second approach grew out of the archeological patterns developed from the CCTS. As absolute dates became available for sites with early, middle, and late assemblages, it was discovered that sites with different assemblages actually were contemporaneous. This was particularly true with sites from the Early and Middle Horizons. This discovery, along with a change in archeological paradigms to a more economic and functional orientation in the 1960's let to a reorganization of the CCTS. This new scheme used the same archeological manifestations to differentiate sites as did the CCTS, but ordered sites into functional groups rather than temporal ones.

This second, more functional approach was advanced by Fredrickson (1973) who used the term pattern to describe and "adaptive mode extending across one or more regions, characterized by particular technological skills and devices, and particular economic modes." Three patterns were introduced: Windmiller, Berkeley, and Augustine. Patterns, while generally corresponding to the Early, Middle, and Late horizons within the Central Valley, were conceptually different and free of spatial and temporal constraints. By changing the paradigm from a cultural historical orientation to a more processual-adaptive one and introducing the concept of pattern, Fredrickson addressed problems with the chronological and regional sequences that had been nagging archeologists for several decades.

One problem with both approaches is that they have been based on an archeological record derived primarily from village sites. This poses less of a problem under a chronological framework, but presents a more substantial problem when an economic perspective is taken. Our current understanding of the prehistoric valley settlement and subsistence systems is heavily biased toward large habitation sites adjacent to permanent water sources. These sites, by their very nature, can provide only limited information on the total economic system. Much more archeological work is needed at ephemeral and peripheral sites located away from the larger habitation sites.

This brief summary of the archeology of the Central Valley follows a temporal outline using the Early, Middle, and Late horizons, but does so within a processual perspective incorporating the Windmiller, Berkeley, and Augustine patterns. The Central Valley sequence is seen as a continuous and gradual cultural response to both ecological and social constraints.

Pleistocene/Holocene Transition: 12,000 to 6,000 B.C. Archeological evidence for human use of the Central Valley during the late Pleistocene and early Holocene is scarce. At the end of the Pleistocene, circa 10,000 to 8,000 B.C., parts of the Sierra Nevada adjacent to the Central Valley were covered with large glaciers and the valley provided a major transportation route for animals and people. This transportation corridor, perhaps rivaled only by maritime coastal travel, was undoubtedly used heavily by early Californians.

Although rare, the archeological remains of these activities have been identified in the Central Valley (Johnson 1967, Peak & Associates 1981, Treganza and Heizer 1953). Johnson (1967:283-4) presents evidence for some use of the Mokelumne river area, under what is now Camanche Reservoir, during the late Pleistocene. A number of lithic cores (14) and a flake were found at three different locations. All lithic specimens were associated with Pleistocene gravels. These archeological remains have been grouped into what has been called the Farmington Complex, characterized by core tools and large, reworked percussion flakes (Treganza and Heizer 1953:28). Farther north, at Rancho Murieta, lithic artifacts spanning the reduction sequence, as well as unworked raw material, were recovered from gravel deposits attributed to the late Pleistocene (Peak & Associates 1981).

So, although rare, some archeological evidence form human use of the Central Valley during the Pleistocene does exist. The lack of evidence from this time period is likely a product of the archeological record itself rather than the lack of use of this area. Most Pleistocene-Holocene era sites are deeply buried in the gravels and silts that have accumulated in the Central Valley from erosion and river flooding over the last 5,000 years, or have eroded away.

The economy of the Central Valley residents during this late Pleistocene is thought to be based on the hunting of large Pleistocene mammals. Although no direct evidence of this exists in the Central Valley, the similarity of the artifact assemblages with those of other locations is western North America where the association can be demonstrated supports this argument. Much of the Pleistocene megafauna became extinct at the Pleistocene-Holocene transition. These extinctions were caused by warming temperatures, rising sea levels, and changing precipitation patterns. The Central Valley gradually became both warmer and dryer. Pine forests were replaced with vegetation similar to that found today. The rising sea level filled San Francisco Bay and created the Sacramento/San Joaquin River delta marshes. To survive without large game, people had to change their food procurement strategies to make use of a more diverse range of smaller plants and animals.

Early Horizon: 6,000 to 2,000 B.C. Using a wider range of smaller resources meant that people had to have access to larger areas of land to hunt and to collect the food and other resources they needed. Small groups of people probably moved through the valley, the foothills, and Sierra Nevada to take advantage of seasonally available resources and resources limited to particular ecozones. The ability to move from resource to resource was key to survival using this foraging strategy.

A reliance on a diverse number of smaller plants and animals had several consequences. First, people had to move around from one area to another to take advantage of the seasonal availability of particular resources. Second, large areas of land were needed to ensure that enough resources were available during all times of the year. Third, more specialized tools were necessary to procure and process the wider range of plants and animals that were being used.

A generalized subsistence strategy worked well for the inhabitants of the Central Valley for many millennium. During the Early Horizon, beginning at approximately 4,000 B.C., change in the subsistence strategy begins to take place. This change is the of a more specialized subsistence strategy and can be at least partially explained by the increasing numbers of people living in the Central Valley. As the population slowly increased, it became more and more difficult for people to obtain seasonally available resources across large area of land. This stress is indicated by increasing populations as indicated by a much more abundant archeological record and by dietary stress as indicated by dental pathologies (Morrato 1978:203). When people's ability was constrained, they were forced to find ways of increasing the amount of food that could be produced from smaller portions of land.

The beginnings of this intensification can be seen in what Fredrickson (1973) has identified as the Windmiller Pattern and is based on the assemblage at the Windmiller site (CA-SAC-107) (Fredrickson 1973). Artifacts and faunal remains at Windmiller sites indicate that a diverse range of resources were exploited including seeds, a variety of small game, and fish. The material culture assemblage includes large spear and projectile points; trident fish spears; at least two types of fishhooks; quartz crystals and numerous charm stone styles; and a baked clay assemblage that included net sinkers, pecan-shaped fish line sinkers, and cooking balls. Ground stone times included manos and metates, as well as mortars and pestles. The bone tool industry appears minimal but includes awls, needles, and flakers. People with a Windmiller adaptation buried their dead in formal cemeteries, both within and separate from their villages, in a ritual context that included the use of red ochre, often rich grave offerings, and ventral extension with a predominantly western orientation (although other burial positions, such as dorsal extension with and flexed, and cremations area also known) (Moratto 1984). While the Windmiller pattern is identified with the Sacramento/San Joaquin River delta, work at Camanche Reservoir has identified sites with Windmiller assemblages (Johnson 1967) indicating that other valley settings were also utilized by people exhibiting these adaptations.

Middle Horizon: 2,000 B.C. to A.D. 500. It is during the Middle Horizon that resource specialization is readily visible in the archeological record. At least one factor that necessitated the need for specialization was the gradual increase in population in the valley that was mentioned in the prior section. The Central Valley inhabitants responded to this population pressure by focusing on two things. First, they used the marshlands of the delta area where the Sacramento and San Joaquin rivers meet. The delta at his time was much more extensive than it is today and was rich in food resources. Second, they increased the use of the acorn as a food source. The acorn had been used prior to this time, but it became a much more predominant resource with specialized procurement and processing technologies. People in this period were more sedentary than they had been in the past, and village sites are found throughout the valley along rivers and near other areas with permanent sources of water. An economic shift from a foraging to a collecting strategy probably occurred during this time.

The adaptive pattern that is found most frequently during this period is called the Berkeley Pattern and is based on the assemblage of CA-ALA-307 (Fredrickson 1973). Sites displaying Windmiller Pattern assemblages, however, are also found in the Middle Horizon. The Windmiller Patterns sites in this period seem to occur with more frequency in near the delta, while Berkeley Patterns sites tend to be more prevalent farther north. The Berkeley Pattern differs primarily in its greater emphasis on the exploitation of the acorn as a staple. This distinction is reflected in the more numerous and varied mortars and pestles. This complex is also noted for its especially well developed bone industry and such technological innovations as ribbon flaking of chipped stone artifacts. During this era, flexed burials replaced extended burials, and the use of grave goods generally declined (Moratto 1984).

A restricted land base, coupled with a more specialized resource base, meant that people had to develop economic relationships with other groups of people with different specialized resources living in other areas. Although resources and commodities were being exchanged throughout the region prior to this period, it is in this period that more extensive and more frequently used economic networks developed. Transported resources likely included foods (trans-Sierra acorn movement is known from later periods (D'Azevedo 1986)), and also include commodities more visible in the archeological record such as shell and lithic materials.

Late Horizon: A.D. 500 to A.D. 1769. The trends toward specialization, exchange, and spatial circumscription that characterized prior periods continued in the Late Horizon. Population continued to increase and group territories continued to become smaller and more defined. The delta region of the Central Valley reached population density figures higher than almost any other area of North America (Chartkoff and Chartkoff 1984). Patterns in the activities, social relationships, belief systems, and material cultural continued to develop during this period and took forms similar to those described by the first Europeans that entered the area (see following section on Ethnography).

The predominant generalized subsistence pattern during this period is called the Augustine Pattern (Fredrickson 1973). Archeological sites representing the Augustine Pattern show a high degree of technological specialization. Artifacts in this period include artifacts of composite materials, developed reductive technologies such as stone and shell work and highly specialized adaptive technologies including basketwork and ceramic production. Other notable elements of the material culture assemblage include flanged tubular smoking pipes; harpoons; ceramic figurines and vessels (Cosumnes Brownware); clam shell disk beads; and small projectile point types such as the Gunther Barber series. These small projectile points may indicate the use of the bow and arrow. Complex social and economic institutions are also represented by different access to wealth, the implementation of a shell money system, and the maintenance of extensive exchange networks.

Ethnography. The study area was inhabited ethnographically by the Nisenan, or Southern Maidu and the Patwin. The boundary between Patwin and Nisenan territories is approximately the Sacramento River.

Nisenan. Nisenan territory comprised the drainages of the Yuba, Bear, and American Rivers, and the lower drainages of the Feather River. The Nisenan, together with the Maidu and Konkow, their northern neighbors, form a the Maiduan language family of the Penutian linguistic stock (Shipley 1978). Kroeber (1925) noted three dialects; Northern Hill Nisenan, Southern Hill Nisenan, and Valley Nisenan. Others made finer distinctions (Shipley 1978).

The smallest social and political unit was the family. Each extended family was represented by a leader. These family leaders were called to council by a headman. The headman served as an advisor to a village. The headman of the dominant village in a cluster of villages (tribelet) had the authority to call upon the surrounding villages in social and political situations. The duties of the headman were to advise his people, call and direct special festivities, arbitrate disputes, act as an official host, and call the family leaders to council. The position of headman was usually hereditary, but the position could be chosen. A woman could serve in this position, if a suitable male relative was not available. (Wilson and Towne 1978.)

Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Village size ranged from 3 houses to up to 40 or 50. Houses were domed structures covered with earth and tule or grass and measured 10 to 15 feet in diameter. Brush shelters were used in the summer and at temporary camps during food gathering rounds. Larger villages often had semi-subterranean dance houses, which were covered in earth and tule or brush and had a central smokehole at the top and an entrance, which faced east. Another common village structure was a granary, which was used for storing acorns. (Wilson and Towne 1978.)

The Nisenan occupied permanent settlements from which specific task groups set out to harvest the seasonal bounty of flora and fauna that the rich valley environment provided. The Valley Nisenan economy involved riverine resources, in contrast to the Hill Nisenan, whose resource base consisted primarily of acorn and game procurement. The only domestic plant was native tobacco (*Nicotiana* spp.), but many wild species were closely husbanded. The acorn crop from the blue (*Quercus douglasii*) and black oaks (*Q. kelloggii*) was so carefully managed that it served as the equivalent of agriculture and could be stored against winter shortfalls in resource abundance. Deer, rabbit, and salmon were the chief sources of animal protein in the aboriginal diet, but many other insect and animal species were taken when available.

Religion played an important role in Nisenan life. All natural objects were thought to be endowed with supernatural powers. Two kinds of shamans existed, curing shamans and religious shamans. Curing shamans had limited contact with the spirit world and diagnosed illness by feeling. Then they would suck at the location of pain and "remove" the offending object. Religious shamans gained control over the spirits through dreams and esoteric experiences. (Wilson and Towne 1978.)

Patwin. Patwin territory included the lower portion of the west side of the Sacramento Valley west of the Sacramento River from about the location of the town of Princeton in the north to Benicia in the south (Kroeber 1925). The Patwin were bounded to the north, northeast, and east by other Penutian-speaking peoples (the Nomlaki, Wintu, and Maidu, respectively), and to the west by the Pomo and other coastal groups. Within this large territory, the Patwin have traditionally been divided into River, Hill and Southern Patwin groups, although in actuality a more complex set of linguistic and cultural differences existed than is indicated by these three geographic divisions. Near the study area, the Patwin are believed to have reached the Carquinez/Suisun area by about 1,500 B.P. (McCarthy 1985; Whistler 1977).

As with most of the hunting-gathering groups of California, the "tribelet" represented the basic social and political unit. Typically, a tribelet chief would reside in a major village where ceremonial events were also typically held. The status of such individuals was inherited patrilineally among the Patwin, although village elders had considerable power in determining who actually succeeded to particular positions. The chief's main responsibilities involved administration of ceremonial and economic activities. Such individuals often decided when and where various fishing, hunting or gathering expeditions would occur, and similarly made the critical decisions concerning the more elaborate ceremonial activities. He also played a central role in resolving conflicts within the community or during wars, which occasionally broke out with neighboring groups. Apparently, a Patwin chief had more authority than his counterparts among many of the other central California groups (McKern 1922; Kroeber 1925).

The onslaught of Euro-American culture brought the end of Patwin culture. By 1871-72, when Stephen Powers surveyed the State gathering ethnographic information, the Patwin culture appeared to him to be virtually extinct.

History

Sacramento Valley and Delta

Exploration and Early Settlement. Perhaps the first European to see the Central Valley was Pedro Fages, who led an expedition from Monterey in 1772. Significant Spanish exploration of the interior of Central California did not begin until 1806, in an effort to locate a new mission site (Hoover et al. 1990). A party led by Gabriel Moraga traveled north from Mission San Juan Bautista through the San Joaquin Valley, along the Kings and Kern rivers, to the Sierra Nevada foothills. Moraga led another expedition from San Jose in 1808 which eventually reached the American River just below Auburn (Chapman 1923). One of the first Euroamericans to travel through the Sacramento Valley, Jedediah Strong Smith is believed to have reached the American River in 1827. The river was not named until 1837, when Spanish governor, Juan Bautista Alvarado called it the Rio de los Americanos. During the 1820s, 1830s, and 1840s, trappers from the Hudson's Bay Company trapped along the courses of the Central Valley's rivers.

John Sutter, a native of Switzerland escaping debtor's prison, arrived in California in 1839. He received his Mexican citizenship and the title to a land grant at the confluence of the Sacramento and American Rivers in 1841. He called the land grant New Helvetia, and by 1844 had completed the construction of a fort on the site. Sutter's Fort became a trading post and center for Euroamerican activities in the vicinity.

Sutter was not the first person to obtain a land grant in the area. J. B. R. Cooper was granted a parcel on the American River east of what would be Sacramento in 1833. Cooper did not develop the property and renounced the grant in 1835. John Sinclair, a Scotsman, settled on the property immediately east of New Helvetia in 1841. That land, Rancho del Paso, was granted to Eliab Grimes in 1844. Rancho de los Americanos covered 35,500 acres on the south side of the American River, east of New Helvetia. It was granted to William A. Leidesdorff in 1844. Leidesdorff died four years later, and Captain Joseph L. Folsom purchased the rancho. (Beck and Haase 1974; Hoover et al. 1990.)

The Rancho de San Juan was located north of the American River, across from Rancho de los Americanos. It was originally granted to Joel P. Dedmond, an American carpenter in 1844. Dedmond failed to improve the property and transferred the grant to John Sinclair in august, 1845. In 1849, Sinclair deeded the property to Hiram Grimes (nephew of Eliab), and the rancho laid empty, repeatedly being sold for overdue taxes. In 1873, the real estate firm of Cox and Clarke took over the property, and later subdivided it. (Citrus Heights webpage.)

Discovery of Gold. In 1847, John Sutter opened a sawmill in the foothills. The mill was to be operated by John Marshall. During the construction of the mill's tailrace in 1848, Marshall discovered gold. Despite efforts to keep the find quiet, word spread and the Gold Rush was on. The resulting influx of miners caused the nonnative population of California to grow exponentially. In 1848, 14,000 nonnatives inhabited California; by the end of 1849 the population was close to 100,000. By late 1852, that number had more than doubled to 220,000 (Paul 1965). The town of Coloma was established on the site of Marshall's discovery (Hoover et al. 1990).

A second gold strike occurred several miles downstream. A group of Mormon's returning from the mill in the spring of 1848 discovered gold (Hoover et al. 1990). The gold rush community of Mormon Island, which sprang up at this location, continued to be a major settlement into the mid-1850s. Other gold rush communities were founded along the American River. These included Negro Hill, Goose Flat, Alabama Bar, Sailor's Bar, Salmon Falls, McDowell Hill, Beal's Bar, Bean's Bar, Condemned Bar, Doton's Bar, Long Bar, Horseshoe Bar, and Rattlesnake Bar (Hoover et al. 1990; Waechter and Mikesell 1994).

Mining. As the initially rich placer deposits of bars along the American River were depleted, many of the miners moved on to new areas in the Mother Lode. The Chinese immigrants remained behind, eking out a living by reworking abandoned claims and tailings piles, working as laborers for Euro-American miners, and constructing the ditches and dams required by the Natoma Company (Barrows 1966, Castaneda 1984, Thompson and West 1960).

Some miners turned from the low effort methods of placer mining that could easily be accomplished by a single miner or a small cooperative to more intensive gold recovery techniques, such as drift and hydraulic mining. These methods accessed the gold deposits in prehistoric riverbeds and in the gold-bearing quartz of the Sierra Nevada Mountain Range. Both these techniques required significant capital to begin a venture, and skilled engineers to carry it out. These kinds of efforts were better suited to companies than to individuals. The pioneer/adventurer-type of miner left for richer gold and silver strikes and was replaced with corporations, mining engineers, clerks, and the like.

Folsom Area. Numerous bars in the Folsom area along the American River were mined, and mining camps sprang up at nearly all of them. Alabama Bar was located on the north bank of the river. Slate Bar was located opposite Folsom State Prison and was the site of several stores. Bean's Bar was about ½ mile below Alabama Bar on the south bank. Texas Hill was just south of the present town of Folsom on the east side of the river, and Negro Bar was located where the town of Folsom was established. The town of Negro Hill, located across from Mormon Island and now under the reservoir, had a population of more than 1000 in 1853 (Gudde 1975).

Mormon Island, the first gold camp in the area, was the result of the second important gold strike in the area. In 1848, two Mormons returning from Coloma camped there and discovered a small amount of gold. Later, a group of seven Mormons mined the area with good results. By 1853, Mormon Island was populated by approximately 2500 people and boasted three dry goods stores, 5 general stores, 2 blacksmiths, a bakery, saloons, hotels, schools, a post office, and express offices for both Wells Fargo & Company and Adams & Company. By the late 1850s, with nearby gold deposits exhausted, Mormon Island was in decline. An 1856 fire destroyed part of the town, which was never rebuilt. By the 1880s, the population was down to 20 residents. In 1890, the post office closed. When the waters of Folsom Reservoir covered the settlement site in 1956, all that remained were a few rock cellars. (Gudde 1975; Hoover et al. 1990.)

Negro Bar was first mined in 1849 by African-Americans, although few remained just a few years later (Hoover et al. 1990). Rich gold deposits were present at Negro Bar, and in 1855, Theodore Judah noted that over two million dollars in gold had been recovered from Negro Bar since 1849 (Gudde 1975). An 1850 census lists the names of 336 inhabitants of the bar; by 1851, the number was nearly 700 (Gudde 1975; Hoover et al. 1990). Originally a store and a hotel were located on the bar itself. These were destroyed in a flood in 1852. The community relocated to the bluff above the bar, and renamed the town Granite City.

Though there were fewer mining locations along the Lower American River due to swifter currents and steeper walls, there were exceptions. Sacramento Bar, Farmer's Diggings (now Ancil Hoffman Park), Ford's Bar (now Goethe Park), and Rossmoor Bar all yielded gold in the early days of the Gold Rush.

When the placer deposits began to dwindle in the Folsom area, other methods became more lucrative, including hard rock mining, hydraulic mining, and dredge mining. By the end of the 1850s, working river bars was largely left to Chinese miners, and many companies were diverting the river to expose and exploit the riverbed. Hydraulic mining employed high-pressure water to wash away banks and access prehistoric riverbeds. A relatively efficient method of obtaining gold, this method was discontinued in 1884 because the debris was causing siltation problems down river.

Dredge mining became commonplace in the late 19th century. Gold dredges, resembling barges, would sit on settling ponds on river bars and bring up rock, gravel, and sediment in bucket line dredges. The material was processed and sifted for gold, and then the tailings were deposited in piles by tailings stackers. The evidence of these operations can be seen throughout the Folsom area today.

Dredging on the American River continued until relatively recently, and peaked during World War I. In 1908, Natomas Consolidated (Natoma Company) had 11 dredges in operation on the American River and 2 under construction. Other companies working in the area included the Ashburton Mining Company (working at Sailors Bar), and the El Dorado Dredging Company. Between 1927 and 1952 several other operators were working on the American River in addition to Natomas Consolidated. These enterprises included Capitol Dredge (which stopped operations in 1952), the Gold Hill Dredging Company (which operated from 1933 to 1937), the General Hill Dredging Company (which operated from 1938-1951), and the La Plancha Gold Dredging Company (which operated from 1940 to 1942). Dredging was suspended in 1942 due to the war, but resumed in 1943. The last dredge, operated by Natomas Consolidated, terminated operation in 1962. Some 70 square miles in the Folsom area had been dredged by Natomas Consolidated alone, resulting in the processing of 1 billion square yards of gravel yielding approximately 125 million dollars in gold. (Dames & Moore 1995.)

Water Development. Mining operations needed water to recover gold. Systems of ditches, canals, and flumes were necessary to transport water from rivers and streams to mining locations. Construction and maintenance of these systems was complicated and costly. Companies formed to address this need. The Natoma Water Company, founded by A. J. Catlin in December 1851 to bring water from the South Fork of the American River to placer mining locations in the Folsom area, was one such company.

In 1851, the Natoma Water Company began construction on a 20-mile canal from a point on the South Fork of the American River 2 miles above Salmon Falls, to the Folsom area, including a branch to Mormon Island. The canal was completed in 1854 at a cost of 175,000 dollars. By 1854 the company's name had changed to the Natoma Water and Mining company. As placer mining declined in the 1860's the company went into the fruit growing business, concentrating on vineyards and became the Natoma Vineyards Company. The company got back into mining 1894, with a dredger operating on the American River in the vicinity of Nimbus and in 1906, the company was renamed Natomas Land and Mining Company. In November 1908, Wendell P. Hammon, known as the dredge king, representing a group of investors, joined with at least one other gold dredging company and the Natomas Land and Mining Company to create a new company, Natomas Consolidated. The newly formed corporation had four main activities: gold dredging, rock crushing, irrigation, and reclamation. In 1953, much of the Natomas Consolidated holdings on the South Fork of the American River were sold the U.S. government for the Folsom Reservoir Project.

Other companies also supplied water to mining ventures. The American River Ditch Company was organized in 1854, and constructed the North Fork Ditch. The North Fork Ditch, completed in 1857, brought water from Tamaroo Bar to Big Gulch. This system consisted of a main ditch, reservoirs, and more than 60 miles of lesser ditches and flumes. The American Canyon Water Company bought the ditch in 1909, and in 1954, ownership of the North Fork Ditch was passed on to the San Juan Suburban Water District.

Transportation. The wagon roads and railroads built in the second half of the nineteenth century opened up the west to immigration and industrialization. Towns and communities located along these transportation routes thrived economically. New industries such as logging and mining were revitalized by a series of stables transportation networks into and over the Sierra Nevada mountains. These transportation routes were able to effectively transport goods, people, and raw materials into and out of once remote areas.

Jedediah Strong Smith made his first overland journey to California in 1826. In 1827, he opened the Sacramento Trail. The first trail into the Folsom area was the Coloma Road, laid out by John Sutter in 1847 and 1848 from Sutter's Fort to Coloma. In time the Coloma Road branched to Mormon Island and Negro Hill. In 1849, the Coloma Road became the route of California's first stage line, established by James E. Birch. During its short existence in the area (April to July 1860), the Pony Express paralleled the Coloma Road. After 1860, mail was delivered as far as Folsom by railroad. (Hoover et al. 1990.)

Ferries were established for river crossings, and to improve access to the northern mines. Sinclair's Ferry (also known as the Upper Ferry) at Brighton, and the Lower Ferry two miles downstream were established in 1849. Ferries at Condemned Bar, Beal's Bar, Rattlesnake Bar, Whiskey Bar, Oregon Bar, and Salmon Falls were established that same year (Thompson and West 1960; Tryner 1976). Turner's Ferry (at the Lower Ferry location), the Norris Ferry (at what is now 29th Street), and Muldrow's Ferry (0.5 miles downstream from Sinclair's Ferry) were added in 1850. (Dames & Moore 1995.)

The Sacramento and American rivers provided convenient arteries to move goods and people around Central California. Transportation on the Sacramento River as far as the mouth of the American was reliable until siltation problems related to mining debris caused problems into the Delta region. However, transportation along the American River was seasonal. In winter, steamers could reach as far as 12 miles upstream from the mouth of the river, depending on rainfall totals. During the dry summers, ships could only navigate to Brighton. Increases in debris from hydraulic mining made navigation progressively less feasible and in 1860 the American River was no longer considered a navigable waterway (Dillinger 1991). Sacramento became the supply center for mining and settlers in the foothills because it was the furthest point upstream that was accessible to ocean-going vessels.

Bridges. A number of bridges crossed the American and Sacramento Rivers. In the Folsom area two bridges existed, however neither remain today. A bridge spanning the American River to Mormon Island was built in 1851. In 1854, a wire suspension bridge replaced the original wooden bridge, but it washed out in 1862. A wire suspension bridge across the American River at Condemned Bar was constructed by W. C. Lyon in 1856. This bridge was dismantled and moved just below the junction of the North and Middle Forks of the American River in 1865.

Three historic railroad bridges cross the Lower American River. The Western Pacific bridge was constructed in 1917, the Southern Pacific bridge in 1910, and the Northern Electric bridge in 1916. The Northern Electric bridge was abandoned for railroad purposes in 1953 and the tracks were removed. In 1954, a sewer line was added. At a later date, a concrete deck and chain link fence were placed over the sewer line.

Railroads. Transporting and distributing supplies in the mid-19th century western territories was a laborious undertaking, and after gold was discovered in California, demand skyrocketed with no corresponding improvement in transportation systems. The Sacramento Valley and adjacent foothills suffered from too much rain, which made wagon roads impassable, or too little rain, which lowered rivers and impeded navigation.

The Sacramento Valley Railroad (SVRR), completed in 1856, provided reliable transportation between Sacramento and the Gold Country. Later the line was extended to Placerville. The SVRR was incorporated in October 1853 by Colonel Charles Lincoln Wilson and financed by Captain Joseph L. Folsom, Commodore C. K. Garrison, and William T. Sherman. Construction began on February 12, 1855, on the levee at Front and L Streets in Sacramento. The rail line was an immediate success, with two trains a day between Sacramento and Folsom. However, high interest rates on its debts and competition with the emerging Central Pacific Railroad (CPRR) led to the SVRR's downfall. The line was purchased by the CPRR in August 1865. In 1877, the SVRR was reorganized by the CPRR, and consolidated with the Folsom and Placerville railroads (Dunscomb 1963). The CPRR changed the tracks to standard gauge and extended the line to Marysville. This right-of-way was very costly and necessitated the construction of bridges and trestles. The bridge over the American River was very high, and the only one to survive the flood of 1862. By the time the bridge collapsed into the river in 1862, the line had fallen into disuse. (Briggs 1955; Kneiss 1941.)

The Western Pacific Railroad was the last of the transcontinental lines. It began in Oakland in January 1906 and reached Keddie, on a tributary of the North Fork of the Feather River, in 1909. The Western Pacific Railroad crossed the American River at 12th Street.

The Northern Electric railroad was a third rail electrical interurban line that ran from Chico to Sacramento, via Oroville Junction, with a branch line to Woodland. It was constructed by the Northern Electric Company, incorporated in 1905. The line was deeded to the Northern Electric Railway Company in 1907. It was sold to the Sacramento Northern Railroad on June 28, 1918. (Fickewirth 1992.)

The Central Pacific Railroad. The Sacramento based CPRR was incorporated in 1861 for the purpose of building a rail line across the Sierra Nevada and joining Union Pacific Railroad tracks at Promontory Point, Utah to complete the first transcontinental rail line. The western half of the railroad began in Sacramento and extended eastward over the Sierra Nevada mountains. The U.S. Congress awarded this 690-mile undertaking to the CPRR.

Railroad engineer Theodore D. Judah found a suitable route for the rail line over the Sierra Nevada. The best passage over the summit was determined to be the same route used by the emigrant trail. The emigrant trail followed a gradual sloping, continuous ridge between the

Bear River and the North Fork of the American River, extending from the Sacramento Valley up toward Emigrant Gap and Donner Pass (Gilberg 1986). The citizens of Dutch Flat, a hydraulic mining town located on the ridge, and residents of other communities along the proposed route came up with more than one-third of the money needed to form a corporation (Howard 1962:113). A group of Sacramento merchants known as the "Big Four", which included Mark Hopkins, Collis P. Huntington, Leland Stanford, and Charles Crocker, provided the remainder of the funds. The CPRR was officially incorporated in June 1861. With the passage of the 1862 Pacific Railroad Act, the CPRR began construction on the new railroad on January 8, 1863 (Southern Pacific Company 1955:5). Judah's vision to build a grand railroad over the Sierra Nevada came closer to reality when he completed the original profile and alignment for the CPRR in 1861.

The first section of CPRR construction involved an 18-mile stretch from Sacramento to Roseville (Deverell 1994). From Roseville, the tracks began a gradual ascent over the Sierra Nevada, passing through the town of Rocklin and then into the nearby mining town of Newcastle, 31 miles east of Sacramento (Southern Pacific Company 1955:9).

Construction progress stalled after the tracks reached Newcastle on June 10, 1864, because of a labor shortage. Large numbers of the laborers used their railroad construction jobs as a free ride to the Nevada Comstock mines (Rawls and Bean 1998:169). Charles Crocker solved the labor shortage by employing Chinese workers. The CPRR came to rely heavily on Chinese laborers because of their endurance and willingness to work for a fraction of what other laborers were paid. The quality of the Chinese laborers was proved in the Spring of 1866 when the CPRR crossed the Sierra Nevada (Steiner 1979:135). The Chinese devised a solution to tunnel through the difficult mountain passes by creating a system of ropes and pulleys to chisel and plant dynamite blasts along the granite rock faces to complete the grading and tunnel projects. Crocker eventually employed over 12,000 Chinese to complete the line to Promontory Point, Utah. The excellent results produced by the Chinese railroad men of the CPRR proved to the rest of the railroad industry that the Chinese were the answer to labor difficulties and construction limitations.

Once the labor shortage was solved, construction continued. Workers succeeded in tunneling through the summit on August 30, 1867. By the time the line reached the summit, the Chinese laborers had largely replaced the white laborers. The force at work on the road probably averaged from six to ten thousand, nine-tenths of them being Chinese (Kraus 1969:151).

The nation's first transcontinental railroad was completed when the CPRR and UPRR joined at Promontory Point, Utah. The network of rail lines that sprang up in California after the transcontinental connection was established was astounding. The railroads revolutionized trade, commerce, and manufacturing in the west. The rail lines also led to the founding of new towns and the growth of communities along the route, while boosting emigration and tourism in the west.

Central Pacific Railyards. The Central Pacific Railyards, located south of the confluence of the American and Sacramento rivers, adjacent to downtown, grew through the 1860s. The railyards originally surrounded a body of water known as Sutter Lake or China Slough. An island within the lake was an early focus of Chinese settlement. The city and CPRR reached an agreement to fill the slough as a solution to flooding problems. Work began in 1869, but the slough was not completely filled until 1910. The Southern Pacific Railyards now occupy the location, though they are being dismantled. (Dames & Moore 1995.)

The Southern Pacific Railroad. The Southern Pacific Railroad Company (SPRR) was established in 1865 to build a railroad between San Francisco and San Diego. In 1868, the Big Four acquired controlling interest in the SPRR. Construction began on the new line following completion of the transcontinental railroad and was finished in 1877. Prior to the absorption by the CPRR, the SPRR had been authorized by Congress to build the southern transcontinental railroad. By gaining control of the SPRR, the Big Four had also gained control of the southern California route and eliminated the possible competition from another transcontinental route.

By 1899, the SPRR had purchased substantial shares of the CPRR stock, thus guaranteeing control over both railroads by the Big Four. The Big Four were unsuccessful at their attempt to maintain the fiction that they were two separate companies. A public outcry arose over the SPRR's monopoly over California transportation. By 1880, this monopoly had extended to river traffic through its California Steam and Navigation Company ocean commerce with its Occidental and Oriental line, and through rate agreements with the Pacific Mail steamship. The SPRR was also condemned for freight rates, which were set according to the highest charge the traffic could bear, and for the special rates it gave to large shipping interests such as Standard Oil. The railroads influence even extended into the State government, where its operatives controlled the appointments of key officials, who in turn set transportation regulations to favor the SPRR (Hart 1978:418).

The SPRR's power in California ended when Hiram Johnson was elected governor in 1910. Johnson was committed to progressive reforms and made good on his campaign promise to "kick the SPRR out of politics" by removing railroad supporters from State offices (Rawls & Bean 1998:268). A government suit was filed in 1914 to force the SPRR to sell all of its stock in the CPRR because it was in violation of the Sherman Anti-trust Act (Southern Pacific Company 1955: 42). After the original finding that the company was not in violation, years of appeals ensued. In 1920, Congress empowered the Interstate Commerce Commission (ICC) to authorize any carrier to acquire control of another carrier (Southern Pacific Company 1955:42). The SPRR applied to the ICC for control of the CPRR in 1922 and was approved in 1923 (Southern Pacific Company 1955: 42)

World War I created a transportation boom in the United States. The industrial activity stimulated by the war in 1916 and 1917 and the diversion of ships from the Panama route to transatlantic service created a large increase in railroad revenues (Hofsommer 1986:72). Confusion and disorganization erupted between railroad companies attempting to rapidly transport war-related materials east. To increase transportation organization during the war, the U.S. government assumed control of the nation's railroads on December 28, 1917. Railroad lines and facilities were consolidated to aid freight transportation. The railroads were returned to private operation 11 months after the end of the war. (Southern Pacific Company 1955:43).

The SPRR continued to expand during the 20th century by acquiring lines outside of California and diversifying into other types of transportation. In 1988, the Denver & Rio Grande Western Railroad Company merged with the SPRR, though the new company retained the SPRR name. The UPRR purchased the SPRR in 1996, forming the largest railroad company in the United States (Robertson 1998:241).

Settlement. Most of the earliest settlement in the Sacramento and Folsom area was associated with the Gold Rush. The presence of the miners, however, necessitated supplies and services catering to this population. Additionally, as time passed and gold was less easy to come by, many miners turned to other, more stable means of making a living. Settlements along the Sacramento and American Rivers revolved around mining, ranching, farming, as well as politics and industry.

Folsom. In 1855, John L. Folsom hired Theodore D. Judah, of railroad fame, to survey and lay out a township of Rancho de los Americanos, which he had purchased in 1849. Folsom named the town "Granite City". The township was near Negro Bar, first mined by African Americans in 1849, and located along the future line of the SVRR. Lots went up for sale in July 1855 and sold out the first day. In 1856, the SVRR was completed to Folsom (as it was renamed) and the town became an important center for stage and freight lines heading for the Northern Mines and Virginia City, Nevada. (Gudde 1975; Hoover et al. 1990.)

Folsom State Prison. The construction of Folsom State Prison was a long time coming. The site at Folsom was selected because of the abundance of native stone for construction and the because of the proximity of the American River, which could act as a natural barrier and water supply. After the site was selected, San Francisco interests began to express displeasure about the potential to lose profits from the operation of San Quentin. Construction began in 1874 and the first two contractors were forced into bankruptcy. Construction of two structures was completed in 1880. One structure contained 50 cells and another the headquarters for the prison officers and guards. Folsom State Prison was the second prison constructed in California, and one of the first maximum-security facilities in the nation. The first forty-four prisoners arrived at Folsom State Prison from San Quentin on July 26, 1880. In an effort to minimize escapes, a granite wall was erected around the prison in the 1920s. (City of Folsom 2000b.)

Sacramento. As miners flooded into the Central Valley, Sutter's Fort became a major trading post, and Sutter began to lose control of and interest in his empire. Unable to adapt to the changing atmosphere, and to avoid creditors, Sutter transferred title of his land to his son, and retired to Hock Farm.

Some time before, the elder Sutter had laid out a road that led from the fort to a point on the Sacramento River below the mouth of the American River. It was here that ships had brought supplies. Sutter intended to use that area, the Embarcadero, as a port, and no more. As miners continued to flood the area, businesses catered to their needs by establishing stores and trading posts near the Embarcadero, the first point of arrival for many Argonauts. (Severson 1973.)

In 1848, John A. Sutter, Jr. hired Captain William H. Warner and Lieutenant William Tecumseh Sherman (later General Sherman of Civil War fame) to survey the Embarcadero and Sutter's other lands for a site for the City of Sacramento. By January 1849, two log cabins had been constructed. Frame buildings were constructed shortly thereafter, and by April 1849, thirty buildings stood in the settlement at the Embarcadero. By June, there were over 100 buildings. Most of the development was localized in an area bounded by Front, Third, H, and N Streets. This area remained the business center of Sacramento for decades.

The city was named after the river on which it was located, and became a hub for mining activities throughout the Gold Country. Sacramento was incorporated as a city in 1850, and it became California's capitol city in 1854.

Flooding. The new city was tested by a severe flood the first winter. On January 8, 1850, a violent storm, in addition to the cresting of the Sacramento and American Rivers led to a sudden and violent flood. Merchandise was swept away and lives were lost. By January 18 the rains had ceased and most of the city had been dug out from the debris. This event prompted Sacramento resident, Hardin Bigelow to spearhead flood protection efforts, including the construction of minimal levees. When the waters rose again in March, Bigelow's efforts saved the city from the same fate it had suffered earlier in the year. Bigelow was elected Sacramento's first Mayor. (Severson 1973.)

Subsequent floods elicited further action. A flood in 1852 led to the raising of streets and buildings. Another flood in December 1861 and January 1862, the worst flood ever recorded, prompted the raising of the streets and buildings again.

Agriculture and Ranching. During the early years of the Gold Rush, agricultural pursuits in California took a back seat to mining. However, the miners needed to be supplied with agricultural products, and when the supplies of river gold began to dwindle, farmers who had sought to mine their fortunes returned to the land. By the 1860s, many areas that were not under cultivation were occupied by grazing cattle and sheep. With the completion of the Transcontinental Railroad in 1876, many people were enticed to come to California by cheap railroad fares and by the promise of rich agricultural land. The Transcontinental Railroad also enabled agricultural ventures that provided staples for nearby communities to expand their market to the eastern United States.

Demands of miners dictated the markets. Between 1850 and 1860 the rate of consumption of alcohol made grape growing the most profitable form of cultivation in California (Jelinek 1982). By the 1860s, Sacramento Valley farmers were producing wheat, barley, and other grains. The majority of grain crops went to feed dairy cows and other stock, but some crops were sold commercially. With the arrival of the railroads, agricultural products could be rapidly transported to large distribution centers, and the agricultural industry in the Central Valley was born.

Raising sheep and cattle were profitable ventures. The raising of sheep was introduced to central California after the secularization of the missions in the 1830s and continued to flourish throughout the Gold Rush. By the 1860s, the cattle population in California had reached one million head, 40 percent of which were located in the Sacramento Valley. During the summer, these herds were generally moved to the cooler, high elevations of the Sierra Nevada.

Land Reclamation and Flood Control. Historically, much of the Sacramento Valley was marsh and swampland, and there was seasonal flooding and periodic inundation of usually dry areas. Flood control and land reclamation projects were undertaken to make the area habitable for larger populations and to expand acreage for agriculture.

Land Reclamation. In 1850, the Arkansas Swamp Land Act was passed, in which Congress ceded swamp and overflow land to certain states on the condition that the proceeds from the sale of the land go toward reclamation of the land. In 1855, the State legislature passed an act to provide for the sale of swampland in California. Among the provisions of this act was a limit of 320 acres per person sold at $1 per acre. Swamp and overflow land could be bought on credit, but the purchaser was obligated to reclaim half the land purchased within five years. The attempts of individual landholders to build levees and reclaim swamp and overflow land in the 1850s proved futile in most cases. Individual shoestring levees were not strong enough; a system or network of levees and drainages was required. A large amount of capital and labor was necessary to build strong levees, drain large plots of land, and maintain the system.

In 1861, the legislature created the State Board of Reclamation Commissioners and authorized it to form reclamation districts (McGowan 1961). In an attempt to enclose large areas bounded by natural levees, 32 districts were formed (Thompson 1958). Swampland Districts 1, 2, and 18 were organized to protect the Sacramento and Yolo Basins, and lower Sacramento County from flooding, and to allow for reclamation of agricultural lands (Bouey with Herbert 1990). The American River Basin was Swampland District 1. Construction on improvements began in 1863 and by 1865, 26 miles of levees and 20 miles of drainage canals had been constructed. Work was not completed due to the onset of the Civil War, and the modification of the Assembly Bill that established the Board. (Dames & Moore 1995.)

The board was dissolved in 1866, and control of swamp and overflow land fell to the counties (Thompson 1958). Acreage limitations were removed by the Green Act of 1868 and incentive programs were instituted. When a landholder certified that $2 per acre had been spent on reclamation, the purchase price of the land was refunded and the owner given the deed. Speculators took advantage of this offer and a period of opportunistic, and often irrational, levee building followed (McGowan 1961, Thompson 1958).

In 1911, the State Reclamation Board was established. This board had jurisdiction over reclamation districts and levee plans. New Reclamation Districts were established, superseding those established under the Green Act. Among these was Reclamation District 1000. In 1913, the State Reclamation Board was given the ability to approve private construction of levees, requiring that they meet the standards of the Sacramento Valley Flood Control Plan. (Dames & Moore 1995.)

RD 900 and RD 1000. RD 900, in Yolo County, and RD 1000, in Sacramento County, were both established by the State legislature in 1911. Construction began on the reclamation districts in 1912, largely through the efforts of Natomas Consolidated. In RD 1000, levees were constructed along the Sacramento River from the mouth of the American River into Sutter County, near Vernon. The Cross Canal was also constructed during this time.

RD 1000 consisted of three levees that surrounded the district (The East Levee, the River Levee, and the Cross Canal Levee), three exterior drainage canals (the Natomas East Main Drainage Canal, the Pleasant Grove Canal, and the Cross Canal), two pumping plants (a third was constructed in 1939), and numerous interior canals. While the levees were under construction, a flood in January 1914 damaged the new structures, which were completed in December of that year. Construction on the main drainage canals began in March 1913, and was completed in January 1917. The pumping plants went into operation in December 1914, and January 1916. (Bradley and Corbett 1996.)

Flood Control. Unregulated land reclamation after the dissolution of the State Board of Reclamation Commissioners, in addition to the problems with debris from hydraulic mining, intensified flood damage. This prompted the formation of the Anti-Debris Association in 1878. A group of farmers, they lobbied to stop hydraulic mining. In January 1884, hydraulic mining was stopped by the courts, and in 1892, the Caminetti Bill established the California Debris Commission, a Federal commission to address the problem of washing debris into rivers, which affected navigation. (Dames & Moore 1995.)

Over the years, concerns about solving the flooding problem continued and studies were commissioned. An 1880 report by William Hammond Hall, the State Engineer, verified the relationship of mining debris to navigation problems and flooding. In 1894, a report to the State Commissioner of Public Works, authored by Marsden Manson and C. E. Grunsky, included with their analysis, a plan for flood control. Their plan proposed a flood control system that incorporated weirs to allow water into river bypasses, enlarging the mouth of the Sacramento River, and raising levees to a uniform height. (Dames & Moore 1995.)

A study by Thomas H. Jackson of the Corps produced for the California Debris Commission in 1910, stated the connection between mining debris, flood control, and navigation and called for spending 933 million dollars on a plan of the type suggested by Manson and Grunsky. This report was the basis for the Sacramento River Flood Control Plan, which was adopted by the State of California in 1911. Congress approved funding for the plan in 1917, though in actuality, substantial support did not come until the 1930s. (Dames & Moore 1995.)

Central Valley Project. The Central Valley Project was first advanced by Robert Bradford Marshall of the United State Geological Survey in 1920. It was developed in response to a number of problems including, salt water intrusion into the Sacramento-San Joaquin Delta, navigation problems on the Sacramento River, and the need for agricultural irrigation in the San Joaquin Valley and points south. The plan called for modernizing existing canals and building new ones, and incorporating river control facilities. The California Legislature adopted the CVP in 1931, but was unable to fund it. The project later obtained Federal funding under the New Deal administration. (Peak & Associates 2000.)

Specifically, the CVP called for the construction of a dam and associated features at Kennett on the Sacramento River above Redding, the Delta cross-channel and Contra Costa

County Conduit. Additional components included dams on tributaries to the Sacramento. Implementation of this project would solve the pressing problems facing California and provide hydroelectric power as well. (Peak & Associates 2000.)

The first component of the CVP constructed was Friant Dam. The dam was constructed in 1935 at a cost of 14 million dollars, funded by relief funds from the Bureau of Reclamation. The dam began operation in 1944. (Peak & Associates 2000.)

In 1937, the CVPA was reauthorized as a reclamation project in the Rivers and Harbors Act. This had the sum effect of making it a Federal undertaking. The act stated that dams and reservoirs constructed as a result of this project should be used first for river regulation, the improvement of navigation and flood control, second for irrigation and domestic use, and lastly for the production of power. (Peak & Associates 2000.)

The primary feature of the CVP was Shasta Dam, constructed between 1938 and 1944. Other reservoirs included Pine Flat and Folsom which were authorized in the 1940s. Eventually, dams were added on the Trinity, American, and Stanislaus Rivers. 20 reservoirs, 11 powerplants, three fish hatcheries comprise the CVP. The Bureau of Reclamation administers all the facilities are administered. (Peak & Associates 2000.)

Construction of Folsom Dam began in October 1948 and was completed in May 1956. Nimbus Dam was completed in 1955.

L. L. Anderson Dam

Mining and Settlement. The town of Foresthill, located approximately 12 miles west of the study area, originated as a mining camp. News of rich diggings uncovered in the region lured a rush of miners in the 1850s. The heyday of the town began in 1853 when the large chunks of gold were found in Jenny Lind Canyon after the winter storms. The Jenny Lind Mine had yielded approximately $1,100,000 by 1880. Miners from Coloma and Greenwood Valley converged on the region and as a result, the camp soon developed into a town. Foresthill had a metropolitan presence by the late 1850s with newspaper, fireproof hotels and stores, banks and elegant saloons, and neat homes surrounded by gardens and orchards. In 1868 J. Ross Browne reported that the Foresthill region was "the most productive cement tunnel-mining district in the state" (Hoover et. al. 1990: 265). Rich mines in the region included the Dardanelles, New Jersey, Independence, Deidesheimer, Fast and Nortwood, Rough and Ready, Gore, and Alabama. The Duncan Peak Gold District was located in the French Meadows area.

The area was heavily mined through the rest of the nineteenth century. Mining ditches were constructed to facilitate the constant supply of water necessary to process large quantities of placer gravels. By the 1870s, water companies were conveying water to mining operations through extensive networks of canals and ditches. Advancements in underground mining technology in the 1890s increased production in the gold mining industry, but this mining boom was short-lived because of national and world declines in the price of gold. Mining activity increased briefly during the Great Depression, but never reached the levels it had attained in the nineteenth century.

During the Gold Rush, unsuccessful miners turned to other pursuits to supply and service the large mining population. As the gold industry declined, more and more residents turned their attention to transportation, ranching, and logging. Timber and agriculture became important industries in Placer County based on the needs of the mining industry. The network of mining ditches and canals were reused to provide water for irrigation agriculture.

Transportation. The Dutch Flat and Donner Lake Wagon was built by the Central Pacific Company to transport supplies for the construction of the Transcontinental Railroad and to connect Sacramento to the booming silver mines in Washoe County, Nevada. By 1860, the rapid development of mines in Nevada resulted in the great need for road construction through the Sierra Nevada Mountains, and the residents of Placer County very much wanted the profitable road directed their way.

Logging. California developed a successful lumber trade in the second half of the 19th century, when California came under the control of the United States. The discovery of gold in 1848 transformed the lumber trade into a major industry. The miners who flocked to the Sierra Nevada to strike it rich were quickly followed by entrepreneurs who built hotels, stores, bars, and boardinghouses in mining towns and in the emerging larger cities. Vast areas of untouched forest existed California. Sawmills were constructed throughout the Sierra Nevada, and lumber production thrived as a result of an increased demand for timber associated with the increase in population during the mid-19th century (Cox 1974:16). As the population of California continued to grow, so did the demand for timber.

The value of vast, pristine acres of forest in the Sierra Nevada Mountains was not recognized until 1859 when silver was discovered at the Comstock Mine, when the demand for timber rose dramatically. The world was very slow in accepting the tall tree tales of the Sierra back country being circulated by the miners (Johnston 1966: 17). A second boom-stimulated principally by the Central Pacific Railroad and its need for construction material and fuel- occurred in the region between 1868 and 1890.

Thousands of acres of virgin pine forest surrounded the town of Foresthill during the mid nineteenth century. The first sawmill in the foothills was built in 1860, just outside Coloma and by the early 1860s the majority of Sierra sawmills were located on the Foresthill and Dutch Flat divides (Hutchinson n.d., and Lardner and Brock 1924: 180). These were primarily steam mills for manufacturing shingles, lath, and lumber. By 1869 there were fifteen sawmills in Placer County producing approximately 17 million board feet a year. The difficulty in transporting timber out of the mountains was solved by constructing flumes to ship the cut logs down the river to sawmills. Wagon roads and the later railroads opened up the virgin forests to the vast markets of both the west and the east coasts. The end of the 19^{th} century saw the advancement of logging technology such as V-flumes, steam donkey engines, and railroad locomotives that made large scale mountain logging profitable (Johnston 1984: 9).

Forest Service. In 1891, Congress passed the Forest Reserve Act, authorizing the president to set aside public forest reserves. Consequently, in 1899, President McKinley signed a proclamation establishing the Lake Tahoe National Forest, a 136,335-acre forest west of Lake

Tahoe. In 1906, President Theodore Roosevelt expanded the reserve and established the Tahoe National Forest (TNF)(Jackson 1982: 008-130).

As part of its management responsibilities, the U.S. Forest Service instituted a policy of preventing, detecting, and fighting fires within the TNF. Fire lookouts and guard stations became an important aspect of the U.S. Forest's approach to managing the resources under its control. During the first decade of the 20th century, the detection of forest fires centered on the efforts of forest guards, who patrolled the forest on horseback or by foot in search of fires. These patrolmen were often headquartered in remote areas, accessible only by trails. It was common practice for forest guards to use preexisting ranches or homesteads–many of them equipped with local ground circuit telephones–as guard stations.

During the 1930s, the California Conservation Corps (CCC) built a number of permanent guard stations throughout the TNF. Some of these guard stations included barracks for fire crews, a garage, and a shop for storing fire-fighting equipment. Guard stations were constructed in areas where guards and fire crews could reach fires in the areas as quickly as possible. This concept of rapid ground attack persisted until the early 1960s, when the use of helicopters allowed the U.S. Forest Service to transport fire crews quicker and more efficiently by air. Today the need for guard stations has declined since most fires are detected by satellite surveillance and crews transported by way of aircraft (Morford n.d.: 1-44).

Hydroelectric Power. The development of hydroelectric power in the central Sierra Nevada is in many ways linked to the proliferation of hydraulic mining ditches, canals, and flumes built during the 1850s through the mid 1880s. This vast network of man-made waterways was constructed to provide a constant supply of controlled water for processing large quantities of placer gravels. Water companies profited handsomely from their right to sell water to mining operations located along their routes. After 1884, water companies used their ditches and canals increasingly for agricultural purposes, extending their waterworks downward to irrigate crops in the foothills and Central Valley.

The restricting water conveyance systems for crop irrigation, however, were far less lucrative than the business of supplying water to the hydraulic mining industry. Consequently, water companies such as the Central California Electric Company sought to augment their income in the mid-1890s by expanding their operations to include the construction of powerplants for the generation of hydroelectric power.

In January 1905, the California Gas and Electric Corporation purchased the water properties of the South Yuba Water Company for $2,000,000 (Coleman 1952: 100-101). The following month, the California Gas and Electric Corporation proposed a merger with the San Francisco Gas and Electric Company. The merger was finalized in October 10, 1905. The new company was incorporated as the PG&E (Coleman 1952: 229). By 1913, PG&E had expanded the capacity of its reservoir at Lake Spaulding by building a new concrete dam a half of a mile down stream from the original rock-fill dam. PG&E also began work on the Drum Powerhouse, the company's first major hydroelectric project. The new generating station was built just below the Spaulding Dam on the south bank of the Bear River. The powerhouse was in full operation by 1916, providing power to communities as distant as the San Francisco Bay area. Since then, PG&E has constructed dozens of powerhouses and thousands of transmission lines in northern California (Coleman 1952: 257-58, 334). The French Meadows Dam, located within the study area was constructed in 1963 and filling for the reservoir began in 1966.

1E.2 Known Cultural Resources

L. L. Anderson Dam. There are no known cultural resources within the project area at L. L. Anderson Dam. However, the Red Star Mining Ditch is located in the area and may be located within unsurveyed portions of the project area.

Folsom Dam. There are more than 160 recorded sites within the Folsom Reservoir area (Table 1E-1). 31 sites are reported as located between the elevations of 460 feet and 500 feet (Table 1E-2). This range encompasses the project and a buffer zone of approximately 15 feet in either direction, and the borrow site locations. Many of these sites were recorded prior to the advent of GPS systems, and some have not been field checked in many years. Therefore, this estimate is likely to be incorrect. These sites include prehistoric milling and habitation sites, historic structures and foundations, historic refuse deposits, mining debris, and the Folsom Powerhouse. No sites within this project area have been evaluated for eligibility for listing on the NRHP.

Lower American River. There are a total of 21 historic properties and 43 archeological sites recorded in the project area (Tables 1E-3 and 1E-4). These include historic levees, bridges, roads, railroads, structures, mining debris, and settlement sites. Prehistoric sites include lithic deposits, habitation sites, and milling sites. Three prehistoric mound sites (CA-SAC-26, CA-SAC-39, and CA-SAC-99/333), RD 1000 (including the Natomas East Main Drainage Canal Levee), the Jibboom Street Bridge and the Old Fair Oaks Bridge are listed on the NRHP. Two sites have been recommended eligible for NRHP listing, CA-SAC-155 and CA-SAC-157. One prehistoric site has been determined ineligible (CA-SAC-32) and another 12 sites, both prehistoric and historic, have been recommended ineligible as a result of previous studies.

Yolo and Sacramento Bypasses. Known cultural resources in the Yolo and Sacramento Bypasses are limited to historic properties (Table 1E-5). No prehistoric archeological sites have been recorded within the project area. Historic properties are primarily related to water control and railroad transportation. Only one of these sites is listed on the NRHP, the Sacramento Weir. The Yolo Bypass has been recommended eligible for listing, and the remaining resources have not been evaluated.

Ecosystem Restoration Sites. There are thirteen cultural resources sites known to exist within the four ecosystem restoration sites (Table 1E-6). These sites include historic levees, railroads, roads, bridges, and homesites, as well as prehistoric occupation sites. Two of these sites have been determined eligible for listing in the NRHP, CA-SAC-39 and CA-SAC-463H. Two have been recommended eligible as a result of previous studies (CA-SAC-306/H and CA-SAC-478H) and the remaining resources have not been evaluated.

TABLE 1E-1. Known Cultural Resource Sites in Folsom Reservoir Vicinity

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
CA-ELD-1	Prehistoric midden, possible ethnographic village	345	1947	Not evaluated
CA-ELD-31	Prehistoric village site	400	1955	Not evaluated
CA-ELD-32	**Prehistoric lithic scatter and shell beads**	**400-550**	**1955, excavated 1977**	**Not evaluated**
CA-ELD-35	**Prehistoric village site**	**500**	**1955, excavated 1977**	**Not evaluated**
CA-ELD-76	**Prehistoric midden and lithic scatter**	**440-480**	**1961**	**Not evaluated**
CA-ELD-77/H	Flaked and ground stone scatter; historic debris	425	1960, 1977, 1992	Not evaluated
CA-ELD-100	**Prehistoric milling site**	**480**	**1966**	**Not evaluated**
CA-ELD-139H	**Historic town of Goose Flat**	**500**	**JSA 1994**	**Not evaluated**
CA-ELD-201	Possible prehistoric village site	400-440	1976, excavated 1977	Not evaluated
CA-ELD-213	Prehistoric midden and lithic scatter	360	1977	Not evaluated
CA-ELD-214	Prehistoric midden and lithic scatter	390	1977	Not evaluated
CA-ELD-215	Prehistoric midden, flaked and ground stone, shell beads	390	1977	Not evaluated
CA-ELD-216H	Historic debris and foundations	420	JSA 1994	Not evaluated
CA-ELD-217	Prehistoric midden, ground and flaked stone scatter	370	1977	Not evaluated
CA-ELD-218	Prehistoric midden, ground and flaked stone scatter	365	1977	Not evaluated
CA-ELD-219H	Historic debris and foundations	370	JSA 1994	Not evaluated
CA-ELD-220	Prehistoirc midden, lithic scatter	390	1977	Not evaluated
CA-ELD-221	Prehistoric midden, ground and flaked stone scatter	440	1977	Not evaluated
CA-ELD-222H	Historic structure and dump	370	JSA 1994/Barrett 1989	Not evaluated
CA-ELD-223H	Historic foundations and dump	380	JSA 1994	Not evaluated

TABLE 1E-1. Continued.

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
CA-ELD-224H	Mining tunnels and historic debris	370	JSA 1994	Not evaluated
CA-ELD-225	Prehistoric ground and flaked stone scatter	380	1977	Not evaluated
CA-ELD-226	Prehistoric flaked and ground stone scatter	360-380	1977	Not evaluated
CA-ELD-227	Prehistoric midden, ground and flaked stone scatter	410	1977	Not evaluated
CA-ELD-228	Prehistoric midden, ground and flaked stone scatter	382	1977	Not evaluated
CA-ELD-229H	Rock wall alignments and historic debris	435	JSA 1994	Not evaluated
CA-ELD-230	Prehistoric midden, ground and flaked stone scatter	430	1977, 1992	Not evaluated
CA-ELD-231	Prehistoric midden, ground and flaked stone scatter	420	1977, 1992	Not evaluated
CA-ELD-232	**Prehistoric midden and ground stone scatter**	**470**	**1977**	**Not evaluated**
CA-ELD-233/H	Prehistoric ground and flaked stone scatter; historic refuse, rock wall, and tailings	420	1977	Not evaluated
CA-ELD-234	Prehistoric midden, ground and flaked stone scatter	440	1977	Not evaluated
CA-ELD-235	Prehistoric ground and flaked stone scatter	400	1977	Not evaluated
CA-ELD-236	Prehistoric midden, ground and flaked stone scatter	380	1977	Not evaluated
CA-ELD-237/H	**Prehistoric ground and flaked stone scatter; historic foundation, tailings, and historic refuse**	**440-480 Historic component at 445**	**1977, 1992**	**Not evaluated**
CA-ELD-248H	Historic stone bridge (possible aqueduct bridge associated with Negro Hill ditch)	360	JSA 1994	Not evaluated
CA-ELD-249	Historic milling site	400	1977	Not evaluated
CA-ELD-250H	Historic structures and debris	400	JSA 1994	Not evaluated

TABLE 1E-1. Continued.

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
CA-ELD-251H	Historic stone bridge (possible aqueduct bridge associated with Negro Hill ditch)	440	JSA 1994	Not evaluated
CA-ELD-252	Prehistoric ground and flaked stone scatter	450	1977	Not evaluated
CA-ELD-256H	**Historic foundation and dump**	**470**	**JSA 1994**	**Not evaluated**
CA-ELD-257	Prehistoric midden and milling site	455	1978 (formerly Sac-362)	Not evaluated
CA-ELD-258	Prehistoric ground and flaked stone scatter	440	1977 (formerly Sac-363)	Not evaluated
CA-ELD-259H	Pipe associated with historic flume	356	JSA 1994	Not evaluated
CA-ELD-260	Prehistoric midden, ground and flaked stone scatter	450	1977 (formerly Sac-367)	Not evaluated
CA-ELD-261	Prehistoric midden, ground and flaked stone scatter	430-435	1977	Not evaluated
CA-ELD-262	Prehistoric midden, ground and flaked stone scatter	450	1977	Not evaluated
CA-ELD-673H	Unknown, no site record	400	JSA 1994	Not evaluated
CA-ELD-677H	Unknown, no site record	390	JSA 1994	Not evaluated
CA-ELD-791/H	**Historic debris, ground stone and flake scatter**	**460**	**FW 1992 (FD-30H)**	**Not evaluated**
CA-ELD-792	Prehistoric ground and flaked stone scatter	440	1992 (FD-31)	Not evaluated
CA-ELD-793	Prehistoric midden, ground and flaked stone scatter	440	1992 (FD-32)	Not evaluated
CA-ELD-794	Prehistoric flaked stone scatter	400	1992 (FD-34)	Not evaluated
CA-ELD-795	Prehistoric flaked stone scatter	440	1992 (FD-36)	Not evaluated
CA-ELD-796H	**Historic mining debris**	**440-460**	**FW 1992 (FD-38H)**	**Not evaluated**
CA-PLA-30	Prehistoric flaked stone scatter with clamshell beads	400	1955, 1992 (not found)	Not evaluated
CA-PLA-131	Nisenan village of Batak Pai	400	1965, 1992 (not found)	Not evaluated

TABLE 1E-1. Continued.

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
CA-PLA-158/255	**Prehistoric midden, ground and flaked stone scatter**	**435-460**	**1975, 1992 (sites combined)**	**Not evaluated**
CA-PLA-204	**Prehistoric ground and flaked stone scatter**	**480**	**1992**	**Not evaluated**
CA-PLA-242	Prehistoric midden site with ground stone	370	1977, 1992 (not found)	Not evaluated
CA-PLA-243	Prehistoric midden, ground and flaked stone site	424	1977	Not evaluated
CA-PLA-244	Prehistoric ground and site	426	1977	Not evaluated
CA-PLA-245H	Remains of historic ranch/historic debris	390	J&S 1994/ FW 1993	Not evaluated
CA-PLA-246	Prehistoric midden, ground and flaked stone scatter	390	1977	Not evaluated
CA-PLA-247H	Historic structure and debris	390	J&S 1994/ ACF	Not evaluated
CA-PLA-248	Prehistoric midden, ground and flaked stone scatter	420	1977, 1992 (location moved east)	Not evaluated
CA-PLA-249	Prehistoric midden, ground and flaked stone scatter	415	1977	Not evaluated
CA-PLA-250H	Historic concrete structure near flume	400	J&S 1994	Not evaluated
CA-PLA-251H	Historic dump	400	J&S 1994	Not evaluated
CA-PLA-252H	Historic dump	380	J&S 1994	Not evaluated
CA-PLA-253H	Historic structure	380	J&S 1994	Not evaluated
CA-PLA-254	Prehistoric midden, ground and flaked stone scatter	380	1977, 1992 (enlarged)	Not evaluated
CA-PLA-256H	Historic debris	440	J&S 1994	Not evaluated
CA-PLA-257H	Historic cement and stone foundations and debris	445	J&S 1994	Not evaluated
CA-PLA-258	Prehistoric midden, ground and flaked stone scatter	380	1977	Not evaluated
CA-PLA-259	Prehistoric ground and flaked stone site	455	1977	Not evaluated

TABLE 1E-1. Continued.

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
CA-PLA-260	Prehistoric ground and flaked stone site	440	1977, 1992 (not found)	Not evaluated
CA-PLA-261	Prehistoric midden, ground and flaked stone scatter	350	1977, 1992 (not found)	Not evaluated
CA-PLA-262	Prehistoric ground and flaked stone site	360-400	1977, 1992	Not evaluated
CA-PLA-263	Prehistoric midden site with ground stone	455	1977, 1992 (replotted north)	Not evaluated
CA-PLA-264	Prehistoric milling site	365	1977	Not evaluated
CA-PLA-265	Prehistoric midden, ground and flaked stone scatter	420	1977	Not evaluated
CA-PLA-263/H	Historic rock alignments	440	FW 1992	Not evaluated
CA-PLA-266H	Historic dump	350	J&S 1994	Not evaluated
CA-PLA267H	**Historic flume caretaker's home**	**480**	**J&S 1994/ACF**	**Not evaluated**
CA-PLA-268	Prehistoric midden, ground and flaked stone scatter	450	1977	Not evaluated
CA-PLA-269H	**Historic structures and dump**	**500**	**J&S 1994/ACF**	**Not evaluated**
CA-PLA-270H	**Historic foundations**	**500**	**J&S 1994/ ACF**	**Not evaluated**
CA-PLA-435	Prehistoric midden site with lithic debitage	400-410	1987	Not evaluated
CA-PLA-519H	Historic ditch at Mormon Ravine (North Fork Ditch)	577-660 (may extend into reservoir)	ACF	Not evaluated
CA-PLA-520H	**Large earthen ditch (North Fork Ditch)**	**460**	**ACF/ FW 1992**	**Not evaluated**
CA-PLA-746	Prehistoric lithic scatter	410	1992 (FD-1)	Not evaluated
CA-PLA-747	Prehistoric ground and flaked stone scatter	410	1992 (FD-2)	Not evaluated
CA-PLA-748	Prehistoric lithic scatter	400	1992 (FD-3)	Not evaluated
CA-PLA-749/H	Prehistoric lithic scatter, historic debris	420	1992 (FD-4/H)	Not evaluated

TABLE 1E-1. Continued.

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
CA-PLA-750H	Historic debris	410	FW 1992 (FD-5H)	Not evaluated
CA-PLA-751	Prehistoric lithic scatter	425	1992 (FD-6)	Not evaluated
CA-PLA-752	Prehistoric lithic scatter	420	1992 (FD-7)	Not evaluated
CA-PLA-753	Prehistoric lithic scatter	415	1992 (FD-8)	Not evaluated
CA-PLA-754	Prehistoric ground and flaked stone scatter	405	1992 (FD-9)	Not evaluated
CA-PLA-755	Prehistoric lithic scatter	418	1992 (FD-10)	Not evaluated
CA-PLA-756	Prehistoric lithic scatter	420	1992 (FD-11)	Not evaluated
CA-PLA-757	Prehistoric midden site with lithic scatter	405	1992 (FD-13)	Not evaluated
CA-PLA-758	Prehistoric midden, ground and flaked stone scatter	410	1992 (FD-14)	Not evaluated
CA-PLA-759	**Prehistoric midden, ground and flaked stone scatter**	**440+ (probably extends above high water line)**	**1992 (FD-16)**	**Not evaluated**
CA-PLA-760	Prehistoric midden site with lithic scatter	405	1992 (FD-17)	Not evaluated
CA-PLA-761	Prehistoric ground and flaked stone site	395	1992 (FD-18)	Not evaluated
CA-PLA-762	Prehistoric ground and flaked stone site	425	1992 (FD-19)	Not evaluated
CA-PLA-763	Prehistoric lithic scatter	440	1992 (FD-22)	Not evaluated
CA-PLA-764	Prehistoric ground and flaked stone site	430	1992 (FD-24)	Not evaluated
CA-PLA-765	Prehistoric ground and flaked stone site	425	1992 (FD-25)	Not evaluated
CA-PLA-766H	Historic foundation/ well/ debris	450	FW 1992 (FD-26H)	Not evaluated
CA-PLA-767	Prehistoric ground and flaked stone site	440	1992 (FD-27)	Not evaluated
CA-PLA-768	Prehistoric ground and flaked stone site	405	1992 (FD-28)	Not evaluated

TABLE 1E-1. Continued.

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
CA-PLA-769/H	**Prehistoric lithic scatter, historic debris**	**480**	**1992 (FD-29/H)**	**Not evaluated**
CA-SAC-189H	Historic town of Mormon Island	250	J&S 1994	Not evaluated
CA-SAC-353/354	Prehistoric midden, ground and flaked stone site	370	1977, 1992 (sites combined)	Not evaluated
CA-SAC-357	Prehistoric midden, ground and flaked stone site	360	1977	Not evaluated
CA-SAC-358H	Historic cement holding pond	390	J&S 1994	Not evaluated
CA-SAC-359/H	Prehistoric midden, ground and flaked stone site; historic dump, wall	360	1977	Not evaluated
CA-SAC-360H	Historic Mormon Island cemetery	370	J&S 1994	Not evaluated
CA-SAC-361H	**Historic structure and dump**	**470**	**Barrett 1989**	**Not evaluated**
CA-SAC-364H	Historic pipe	356	Barrett 1989	Not evaluated
CA-SAC-365	Prehistoric midden, ground and flaked stone site	440	1977	Not evaluated
CA-SAC-366	Prehistoric midden, ground and flaked stone site	380	1977	Not evaluated
CA-SAC-368	Prehistoric midden, ground and flaked stone site	450	1977	Not evaluated
CA-SAC-434H	Historic Natoma Ditch system	extent unknown	J&S 1994	Segments downstream have been determined eligible for NRHP listing
FD-15H	Historic debris	400-445	FW 1992	Not evaluated
FD-23/90-1	Prehistoric ground and flaked stone site	440	1991 (90-1, Bureau), 1992 (FD-23)	Not evaluated
FD-37	Prehistoric midden, ground and flaked stone site	440	1993	Not evaluated
FD-40/H	Prehistoric midden site with ground stone; historic debris, concrete pads	383	1993	Not evaluated

TABLE 1E-1. Continued.

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
FD-41	Prehistoric ground and flaked stone site	383	1993	Not evaluated
FD-42/H	Prehistoric midden, ground and flaked stone site; historic debris	381	1993	Not evaluated
FD-43	Prehistoric ground and flaked stone site	375	1993	Not evaluated
FD-44	Prehistoric midden, ground and flaked stone site	370	1993	Not evaluated
FD-45	Prehistoric midden, ground and flaked stone site	384	1993	Not evaluated
FD-46	Prehistoric midden site with flaked stone	390	1993	Not evaluated
FD-47	Prehistoric midden, ground and flaked stone site	422	1993	Not evaluated
FD-48	Prehistoric midden, ground and flaked stone site	429	1993	Not evaluated
FD-49	Prehistoric ground and flaked stone site	420	1993	Not evaluated
FD-50/H	Prehistoric midden, ground and flaked stone site; historic debris	405	1993	Not evaluated
FD-51/H	Prehistoric midden site with flaked stone; historic debris	395	1993	Not evaluated
FD-52	Prehistoric midden site with flaked stone	410	1993	Not evaluated
FD-53	Prehistoric midden, ground and flaked stone site	380	1993	Not evaluated
FD-54	Prehistoric midden, ground and flaked stone site	370	1993	Not evaluated
FD-55	Prehistoric midden, ground and flaked stone site	370	1993	Not evaluated
FD-56/H	Prehistoric midden site with flaked stone; historic debris	390	1993	Not evaluated
FD-57	Prehistoric midden, ground and flaked stone site	410	1993	Not evaluated
FD-58	Prehistoric lithic scatter	412	1993	Not evaluated

TABLE 1E-1. Continued.

Trinomial	Description	Elevation	Date Recorded	National Register Historic Places Comments
FD-59	Prehistoric midden, ground and flaked stone site	410	1993	Not evaluated
FD-60	Prehistoric midden site with flaked stone	400	1993	Not evaluated
FD-61	Prehistoric midden site with flaked stone	385	1993	Not evaluated
FD-62	Prehistoric midden, ground and flaked stone site	390	1993	Not evaluated
FD-63	Prehistoric midden, ground and flaked stone site	370	1993	Not evaluated
FD-64	Prehistoric midden site with flaked stone	370	1993	Not evaluated
FD-65	Prehistoric midden, ground and flaked stone site	330	1993	Not evaluated
FD-66	Prehistoric midden, ground and flaked stone site	420	1993	Not evaluated
FD-67/71	Prehistoric midden, ground and flaked stone site	410	1993	Not evaluated
FD-68	Prehistoric midden, ground and flaked stone site	400	1993	Not evaluated
FD-69	Prehistoric midden site with ground stone	440	1993	Not evaluated
FD-70/H	Prehistoric midden, ground and flaked stone site; historic debris	400	1993	Not evaluated
FD-72	Prehistoric midden, ground and flaked stone site	360	1993	Not evaluated

Note:

Text in bold used to indicate elevations of 460 & 500 feet.

Source: Waechter and Mikesell 1994

TABLE 1E-2. Known Cultural Resource Sites in Folsom Reservoir Project Area

Trinomial/ Site Number	Description	Elevation	Source
CA-ELD-32	Prehistoric lithic scatter and shell beads	400-550	Waechter and Mikesell 1994
CA-ELD-35	Prehistoric village site	500	U.S. Bureau of Reclamation database; Waechter and Mikesell 1994
CA-ELD-76	Prehistoric midden and lithic scatter	440-480	U.S. Bureau of Reclamation database; Waechter and Mikesell 1994
CA-ELD-100	Prehistoric milling site	480	Waechter and Mikesell 1994
CA-ELD-139H	Historic town of Goose Flat	500	Waechter and Mikesell 1994
CA-ELD-232	Prehistoric midden and ground stone scatter	470	U.S. Bureau of Reclamation database; Waechter and Mikesell 1994
CA-ELD-237/H	Prehistoric ground and flaked stone scatter; Historic foundation, tailings, and historic refuse	440-480 Historic component at 445	Waechter and Mikesell 1994
CA-ELD-256H	Historic foundation and dump	470	Waechter and Mikesell 1994
CA-ELD-257	Prehistoric midden and milling site	455 (according to Waechter and Mikesell 1994)	U.S. Bureau of Reclamation database
CA-ELD-262	Prehistoric midden, ground and flaked stone scatter	450 (according to Waechter and Mikesell 1994)	U.S. Bureau of Reclamation database
CA-ELD-791/H	Historic debris, ground stone and flake scatter	460	Waechter and Mikesell 1994 (FD-30H)
CA-ELD-796H	Historic mining debris	440-460	Waechter and Mikesell 1994 (FD-38H)
CA-ELD-930	No applicable site record		U.S. Bureau of Reclamation database
CA-ELD-932	No applicable site record		U.S. Bureau of Reclamation database
CA-ELD-937	No applicable site record		U.S. Bureau of Reclamation database
CA-PLA-158/255	Prehistoirc midden, ground and flaked stone scatter	435-460	U.S. Bureau of Reclamation database; Waechter and Mikesell 1994
CA-PLA-204	Prehistoric ground and flaked stone scatter	480	U.S. Bureau of Reclamation database; Waechter and Mikesell 1994

TABLE 1E-2. Continued

Trinomial/ Site Number	Description	Elevation	Source
CA-PLA267H	Historic flume caretaker's home	480	Waechter and Mikesell 1994
CA-PLA-268	Prehistoric midden, ground and flaked stone scatter	450 (according to Waechter and Mikesell 1994)	U.S. Bureau of Reclamation database
CA-PLA-269H	Historic structures and dump	500	Waechter and Mikesell 1994
CA-PLA-270H	Historic foundations	500	Waechter and Mikesell 1994
CA-PLA-520H	Large earthen ditch	460	Waechter and Mikesell 1994
CA-PLA-759	Prehistoric midden, ground and flaked stone scatter	440+ (probably extends above high water line)	Waechter and Mikesell 1994 (FD-16)
CA-PLA-769/H	Prehistoric lithic scatter, Historic debris	480	Waechter and Mikesell 1994 (FD-29/H)
CA-PLA-929	No applicable site record		U.S. Bureau of Reclamation database
CA-SAC-172	Prehistoric village site – no longer extant	(Mississippi Bar)	U.S. Bureau of Reclamation database
CA-SAC-173	Prehistoric village site – no longer extant	(Mississippi Bar)	U.S. Bureau of Reclamation database
CA-SAC-308H	Historic mining tailings	(Mississippi Bar)	North Central Information Center
CA-SAC-361H	Historic structure and dump	470	U.S. Bureau of Reclamation database; Waechter and Mikesell 1994
CA-SAC-943	Trinomial not assigned		U.S. Bureau of Reclamation database
Folsom Powerhouse	Powerhouse immediately downstream from Reservoir	(immediately downstream from Folsom Dam)	North Central Information Center

Source: U.S. Bureau of Reclamation database, Waechter and Mikesell 1994

TABLE 1E-3. Known Archeological Sites, Lower American River Project Area

Site Number	Description	Date Recorded	Status	Comments
CA-SAC-26	Joe Mound, Pushune Village Site	Heizer 1934	NRHP listed (1971); California History Plan (1973); California Inventory of Historic Places (1976)	
CA-SAC-31	Prehistoric habitation mound	Heizer 1934	Not evaluated, but likely eligible	
CA-SAC-32	Prehistoric habitation mound	Heizer 1934	Ineligible, no integrity	
CA-SAC-39	Woodlake site, Scout Lodge Site, prehistoric habitation mound	Heizer 1934, Hale 1994	NRHP listed (1971); California History Plan (1973); California Inventory of Historic Places (1976)	
CA-SAC-40	Prehistoric habitation mound - not relocated	Heizer 1934	No recommendations	Not relocated
CA-SAC-99/333	Prehistoric midden site (333 = upper terrace component)	Fenenga 1936, Lassig and Mink 1964	NRHP listed (1973); California Points of Historical Interest (CA-SAC-003)	
CA-SAC-155/156	Large habitation area	Pilling 1949	155 – recommended eligible (Neuenschwander and Peak 1978); 156 - not evaluated	
CA-SAC-157	Wamser Mound #1, prehistoric habitation mound	Pilling 1949	Recommended eligible (informal)	
CA-SAC-158	Wamser Mound #2, prehistoric habitation mound (no access)	Pilling 1949	Not evaluated	No access (1995)
CA-SAC-159	Wasmer Mound #3, extensively disturbed prehistoric midden mound	Pilling 1949	Not evaluated	Integrity is poor
CA-SAC-192	Horst #2, Blind Tom Site, Ethnographic Kadema Village site and historic cemetery - now beneath housing subdivision	Olsen 1954, Dyson 1955	Recommended ineligible	Mostly destroyed
CA-SAC-193	Camp site	Curtice 1955	Recommended ineligible	Not relocated - two possible locations both covered by houses
CA-SAC-196	Second number assigned to 192	Curtice 1961	N/A	Second number assigned to 192
CA-SAC-199	Prehistoric habitation mound	Curtice 1955; Vallier 1958, 1959	Recommended ineligible (Dougherty 1984)	Severely eroded

TABLE 1E-3. Continued

Site Number	Description	Date Recorded	Status	Comments
CA-SAC-205	Prehistoric habitation mound	Curtice 1955	May be eligible, not evaluated	
CA-SAC-206	Midden site, human remains uncovered during construction in 1950s.	Curtice 1955	May be eligible, not evaluated	
CA-SAC-220	Prehistoric habitation mound	Heizer 1956	Recommended ineligible	Destroyed by private development
CA-SAC-306/H	Small prehistoric midden mound and historic structure site	Peak 1973: Derr, Brewer, and McIvers 1993	Historic component not evaluated	No prehistoric component located
CA-SAC-308/H	Folsom Mining District, tailings piles, mining tunnel	First recorded 1969, numerous additions	Not evaluated	Portions of the Folsom Mining District have been found eligible
CA-SAC-316	Prehistoric midden mound	Peak 1973; Derr, Brewer, and McIvers 1993	No site	No artifacts or midden noted; phosphate tests negative; if there is a site here, very sparse and difficult to locate
CA-SAC-317	Extensive, open prehistoric village	Peak 1973	Not evaluated	Historic component (possibly representing San Juan Meadows Farm, 1906) located as well
CA-SAC-318	Prehistoric midden	Peak 1973	Recommended ineligible	Virtually destroyed by subdivision development
CA-SAC-319	Large, open prehistoric village site	Peak 1973	Recommended eligible (Peak & Associates 1983)	Ag disturbance
CA-SAC-320	Prehistoric village site, Chinese occupation site	Peak 1973	Not evaluated	
CA-SAC-322	Lithic scatter	Peak 1973	Not evaluated	No access
CA-SAC-463H (LAR-16)	Natomas East Main Drainage Canal Levee	Nilsson et al. 1995, Bradley and Corbett 1996	NRHP listed, as a contributing element to RD 1000	
CA-SAC-464H (LAR-12)	Historic Western Pacific Railroad - 0.9-mile segment	Nilsson et al. 1995	Not evaluated	
CA-SAC-467H (LAR-1)	Historic debris and concrete features	Nilsson et al. 1995	Not evaluated	
CA-SAC-468H (LAR-2)	Historic concrete structure (pumphouse)	Nilsson et al. 1995	Recommended ineligible (Nilsson et al. 1995)	Estimated date of 1938

TABLE 1E-3. Continued

Site Number	Description	Date Recorded	Status	Comments
CA-SAC-469 (LAR-3)	Prehistoric midden site	Nilsson et al. 1995	Not evaluated	American River Bike Trail passes through site
CA-SAC-470 (LAR-4)	Prehistoric midden Site	Nilsson et al. 1995	Not evaluated	American River Bike Trail passes through site
CA-SAC-471 (LAR-5)	Sandstone bedrock milling complex - 100+ mortar pits	Nilsson et al. 1995	Recommended ineligible (Nilsson et al. 1995)	
CA-SAC-472H (LAR-6)	Concrete slab in tailings	Nilsson et al. 1995	Recommended ineligible (Nilsson et al. 1995)	
CA-SAC-473H (LAR-7)	Historic road, house flat, and ditch - San Juan Meadows Farm	Nilsson et al. 1995	Not evaluated	Much modern disturbance including golf course, and modern BBQ
CA-SAC-474/H (LAR-8)	Prehistoric lithic scatter; historic refuse deposit, concrete foundation	Nilsson et al. 1995	Recommended ineligible (Nilsson et al. 1995)	
CA-SAC-475H (LAR-9)	Historic concrete foundation	Nilsson et al. 1995	Recommended ineligible (Nilsson et al. 1995)	
CA-SAC-476/H (LAR-10)	Prehistoric habitation site; historic refuse	Nilsson et al. 1995	Recommended ineligible (Nilsson et al. 1995)	
CA-SAC-477H (LAR-11)	Historic refuse deposit	Nilsson et al. 1995	Not evaluated	
CA-SAC-478H (LAR-13)	Transcontinental Railroad, 0.7-mile segment	Nilsson et al. 1995	Not evaluated	
CA-SAC-479 (LAR-14)	Prehistoric habitation site	Nilsson et al. 1995	Not evaluated	
CA-SAC-480H (LAR-15)	Southern Pacific Railroad – 3,500 foot-abandoned segment	Nilsson et al. 1995	Not evaluated	
CA-SAC-481H (LAR-17)	American River levee, north side	Nilsson et al. 1995	May be eligible under Criterion A (Dames & Moore 1995), but not evaluated	
CA-SAC-482H (LAR-18)	American River levee south side	Nilsson et al. 1995	May be eligible under Criterion A (Dames & Moore 1995), but not evaluated	

TABLE 1E-4. Historic Resources in the Lower American River Area of Potential Effect

Resource	NRHP Status	Comments
RD 1000 Rural Historic Landscape District	NRHP listed, Criterion A	Components in APE include East Levee, Natomas East Main Drainage Canal, Garden Highway, and Levee Road
American River Parkway	Not evaluated	Construction began 1961, possibly eligible under Criterion Consideration G
Northbank federal levee	Not evaluated, potentially eligible	Pre-1944 element of the Sacramento River Flood Control Plan
Southbank federal levee	Not evaluated, potentially eligible	Pre-1944 element of the Sacramento River Flood Control Plan
Southbank nonfederal levees	Not NRHP eligible	
Jibboom Street Bridge	NRHP eligible, Criterion A and C (December 1985)	Constructed 1931
Urrutia property	Not evaluated	
Powerlines	Not evaluated	
Water tank	Not evaluated, likely to be not eligible	Constructed 1951, poor condition
American River Bridge	Not NRHP eligible	Lost integrity
Northern Electric Bridge	Not evaluated, potentially eligible	
Western Pacific Bridge	Not evaluated, potentially eligible	
Harbor Sand and Gravel Structures	Not evaluated	Access not obtained during 1995 study
Southern Pacific Bridge	Not evaluated, potentially eligible	
H Street Bridge	Not NRHP eligible	To be reevaluated, possibly eligible under Criterion C
Jim's Bridge	Not evaluated	Constructed between 1951 and 1967
Old Fair Oaks Bridge	NRHP eligible. Criterion A and C	December 1985
Sailor Bar Structures	Not evaluated	
Folsom (American River) Mining District (CA-SAC-308H)	Not evaluated, potentially eligible	
Nimbus Salmon and Steelhead Hatchery (Central Valley Project component)	Not evaluated	Constructed in 1955 with additions in the 1960s, may be eligible under Criterion Consideration G
Nimbus Dam (Central Valley Project component)	Not evaluated	Constructed in 1955, may be eligible under Criterion Consideration G

Source: Dames & Moore 1995

TABLE 1E-5. Known Cultural Resources in Yolo and Sacramento Bypasses Project Area

Resources	NRHP Status	Comments
Sacramento Bypass	Not evaluated	Pre-1944 Sacramento river flood control project
Yolo Bypass	Recommended eligible	Pre-1944 Sacramento river flood control project
Sacramento Weir	NHRP eligible (1976)	Pre-1944 Sacramento river flood control project
Historic homestead	Not evaluated	
Sacramento Northern Railroad	Not evaluated	
Southern Pacific Railroad trestle	Not evaluated	
Sacramento Northern Railroad trestle	Not evaluated	
Meyers' river mansion	Not evaluated	Not formally recorded

TABLE 1E-6. Known Cultural Resource Sites, Ecosystem Restoration Project Areas

Restoration Location	Site Number	Description	Comments	NRHP/CRHR status
Urrutia	CA-SAC-31	Prehistoric village mound	Excavated 1971, auger-probed 1975; large portion of the site has been destroyed	Not evaluated
Urrutia	CA-SAC-32	Prehistoric village mound	Site destroyed	
Woodlake	CA-SAC-39	Prehistoric occupation mound		Determined eligible
Urrutia	CA-SAC-306/H	Prehistoric mound with pre-1900 structure	Structure has been removed	Recommended ineligible
Urrutia	CA-SAC 316	Prehistoric village mound	Recorded in 1973, subsequent examination has failed to yield cultural material, site may have been destroyed	Not evaluated
Urrutia	CA-SAC-463H	Levee segment	Top of levee is used for Garden Highway	Eligible as a contributing element of RD 1000
Woodlake	CA-SAC-464H	Historic Western Pacific railroad segment	Active railroad, segment includes trestle over American River	Not evaluated
Woodlake	CA-SAC-478H	Historic Southern Pacific railroad segment	Active railroad, segment includes trestle over American River	Recommended eligible
Urrutia, Woodlake, Bushy Lake, Arden Bar	CA-SAC-481H	Two levee segments	Constructed by Corps in 1955	Not evaluated
Urrutia	CRU-93-SAC-24H	Historic road segment	Recorded 1993	Not evaluated
Urrutia	CRU-93-SAC-25H	Historic road segment	Marysville Road in 19th century	Not evaluated
Urrutia	C-Sacrament East-B-4	Bridge	Evaluated by Caltrans bridge survey (1989)	Recommended ineligible
Urrutia	Urrutia Property	1928 farm complex, 599 Garden Highway	Noted in Historic Property Report (Dames & Moore 1995)	Not evaluated