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7.3 CULTURAL RESOURCES

In accordance with California Energy Commission (CEC) regulations (1992, 1997, and 2006), this section describes the environmental effects of the construction and operation of the project on cultural resources. Impacts are assessed for the site of the proposed Willow Pass Generating Station (WPGS), the construction laydown area, the potential corridors for the water pipeline alignment, and the route of the transmission line. Archaeological resources are discussed in further detail in the technical report, which is attached in Appendix L. Built environment resources are discussed by JRP Historical Consulting, LLC (JRP), in further detail in the technical report (JRP, 2008), which is attached in Appendix L.

Cultural resources are defined as buildings, sites, structures, objects, or traditional cultural properties, each of which might have historical, architectural, archaeological, cultural, or scientific importance.

This section documents the efforts undertaken to determine whether cultural resources could be adversely affected by the implementation of the project. Section 7.3.1 presents the environment that could be affected, Section 7.3.2 identifies the environmental consequences, and Section 7.3.3 discusses the cumulative effects associated with the project. Section 7.3.4 identifies the mitigation measures to be implemented to avoid identified impacts. The remaining sections present the regulatory context. Specifically, Section 7.3.5 identifies the cultural resources laws, ordinances, regulations, and standards (LORS) applicable to the project; Section 7.3.6 lists the involved agencies and agency contacts; and Section 7.3.7 discusses permits and scheduling.

7.3.1 Affected Environment

The cultural resources analysis for the project included a literature review and record search, archival research, review of collected data, pedestrian surveys, and consultations with the Native American Heritage Commission (NAHC). The literature review and record search included ethnographic and historic literature and maps; federal, state, and local inventories of historic properties; archaeological base maps and site records; and survey reports on file at the Northwest Information Center at Sonoma State University. Archival research was conducted at a variety of libraries and repositories, including the Contra Costa County Historical Society; California State Library, Sacramento; and Shields Library, University of California, Davis; and data collected from the Water Resources Center Archives and Earth Sciences Map Library at the University of California, Berkeley was reviewed. Pedestrian surveys were performed for both archaeological and historic architectural resources of each cultural resource subdiscipline's Area of Potential Effects (APE). Consultation was carried out with the State of California's NAHC, with subsequent contact with Native American groups and individuals identified by the NAHC. No significant cultural resources were identified within the project's cultural resources study areas.

Study areas for cultural resources comprise (1) the archaeological resources APE, which consists of the portion of the project property (the location of the WPGS site) and the offsite areas where there will be new ground-disturbing activities (see Figure 7.3-1), and (2) the historic architectural (built environment) resources APE (see Figure 7.3-2). The historic architectural resources APE encompasses a larger area to address potential indirect effects.

7.3.1.1 Natural Environment

The project area is located south of Suisun Bay in the Sacramento-San Joaquin River Delta, a region primarily characterized today by agricultural development situated on reclaimed tracts separated by meandering sloughs and channels. The vicinity immediately surrounding the existing Pittsburg Power Plant (PPP) plant is characterized by a mix of urban and industrial development. Prior to the reclamation and flood control projects of the nineteenth and twentieth centuries and subsequent development,

however, the region was characterized by extensive marshlands fed by the seasonal flooding of the Sacramento and San Joaquin rivers (Herbold and Moyle, 1989; Nichols et al., 1986).

A detailed description of the natural environment within which the WPGS site is located is provided in Section 7.2, Biological Resources, and Section 7.14, Water Resources.

7.3.1.2 Prehistoric Background

Beginning in the last decade of the nineteenth century, avocational archaeologists have recovered thousands of artifacts from numerous sites in the southern Sacramento Valley and adjoining Delta. A general synthesis of these early works is found within Schenk and Dawson (1929). Many of the sites located within the general vicinity of the project were first described by Schenk and Dawson.

The next series of excavations in the general region were conducted by student crews from Sacramento Junior College. Beginning in 1931, various sites adjacent to the Cosumnes River and Deer Creek confluence were excavated. Joined a few years later by crews from the University of California, the Sacramento Junior College archaeologists continued their excavations within the region. These efforts culminated in the milestone works of Lillard and Purves (1936) and Lillard, Heizer, and Fenenga (1939), both of which identified a sequence of cultural change within the Sacramento Valley and adjoining Delta.

The cultural sequence identified by Lillard and his colleagues (1936, 1939) contained three cultural periods (Early, Intermediate/Transitional, and Late) that were based on changes observed within the mortuary patterns and grave furniture recovered from their sample of sites. Lillard, Heizer, and Fenenga (1939) believed that the sequence represented a single cultural progression, with the Early Period evolving into the Transitional Period and the Transitional Period evolving into the Late Period.

As more archeological work was conducted within central California during the 1940s and 1950s (primarily by the University of California Archaeological Survey), the cultural sequence developed by Lillard and his colleagues (1936, 1939) was refined and expanded to accommodate the additional data. The most significant of these revisions was Beardsley's (1954) Temporal and Areal Relationships in Central California Archaeology, in which the Central California Taxonomic System (CCTS) was formally developed.

As archaeologists in central California began incorporating their data into the CCTS, the limitations of Beardsley's system became apparent. Alterations to the CCTS began appearing in the literature of the discipline, with the doctoral dissertation of Fredrickson (1973) being of the most consequence.

After much debate and numerous revisions, the currently accepted cultural sequence for the central California region first defined by Lillard and his colleagues (1936, 1939), stands as follows:

Windmiller Pattern (ca. 3000 B.C. – 500 B.C.)

The artifact assemblage characteristic of this cultural manifestation includes a variety of flaked stone, ground stone, baked clay, and shell items that reflect exploitation of diverse subsistence resources and acquisition of materials from distant geographic areas through trade. The burial pattern of Windmiller cemeteries and grave plots is unique in that virtually all of the interments are ventrally extended, with the head oriented to the west. The primary exception to this burial pattern is that aged females were buried in a flexed position. Social stratification can be inferred from the burial practices of Windmiller peoples. Males appear to generally have higher status than females, as evidenced in their deeper and artifactually richer graves. Social status may have been at least partially inherited, for some female, child, and infant burials contained elaborate grave furniture, while others lacked such wealth (Moratto, 1984:201-207).

Berkeley Pattern (ca. 500 B.C. – A.D. 500)

The Berkeley Pattern represents a gradual shift in adaptation and material culture that appears to have originated within the San Francisco Bay region. The subsistence practices of Berkeley peoples differs from that of the Windmiller peoples in that the use of acorns for food seems to have increased dramatically. The reliance on acorns is evidenced in the increase in mortars and pestles recovered from Berkeley Pattern sites. Other differences in material culture include the occurrence of an extensive bone tool kit, unique knapping techniques, and certain types of shell beads and pendants within Berkeley Pattern sites. Burial practices of Berkeley peoples also differed from those of Windmiller Pattern sites. Corpses were no longer placed into graves extended towards the west. Instead, Berkeley Pattern burials are flexed with variable orientation (Moratto, 1984:207-211).

Augustine Pattern (ca. A.D. 500 – A.D. 1880)

The Augustine Pattern reflects local innovation in technology, as well as the incorporation of new developments with traits of the Berkeley Pattern. The artifact assemblages of Augustine Pattern sites indicate an increased reliance on hunting, gathering, and fishing. Acorns appear to have become particularly important. Many burials continued to be flexed; however, cremation became the mortuary practice for high-status burials. Extensive trade networks developed to accommodate the resource and social needs of the burgeoning populations (Moratto, 1984:211-214).

7.3.1.3 Ethnographic Background

The project area is situated within the territory ascribed to the ethnographic Bay Miwok (Bennyhoff, 1977; Kroeber, 1925; Levy, 1978; Schenk, 1926). The Bay Miwok were one of the five Miwok groups (Coast, Lake, Bay, Plains, and Sierra) who spoke the Miwokan language. Miwokan, together with Costanoan, comprise the Utian Family of languages. Utian, in turn, is one of California's four Penutian languages, the others being Wintuan, Maiduan, and Yokutsan. Ethnographic groups speaking non-Utian Penutian languages within California include the Wintu, Nomlaki, and Patwin (Wintuan), Nisenan and Maidu (Maiduan), and the Yokuts (Yokutsan) (Shipley, 1978:82-85).

Unfortunately, ethnographic data on the Bay Miwok are generally scarce. This is in part due to the early removal of these peoples from their homeland by the Spanish missions. The primary reference for the Bay Miwok is found within Kroeber's overview of California Indians (1925). A general synthesis of Eastern Miwok ethnography (i.e., Bay and Plains together) was written by Levy (1978), and an early account of general Miwok life is found within Powers' study of California Indians (1877).

The Bay Miwok specifically inhabited the area surrounding Mount Diablo northward to Suisun Bay and eastward to the surrounding the confluence of the Sacramento and San Joaquin rivers (see Figure 7.3-3). This region is characterized by a myriad of waterways and marshes beside which the Bay Miwok placed their villages. Bennyhoff (1977), using explorers' accounts, mission records, historical maps, land grant claims, ethnographic sources, and archaeological data, reconstructed the ethnogeography of the Miwok inhabiting central California. According to Bennyhoff (1977; Figure 2), the tribelet center of *Chupcan* was located within the general vicinity of the County of Antioch.

A typical settlement within Bay Miwok territory would be situated on a natural rise along a major river or stream and could include brush shelters, sweat house(s), acorn granaries, a dance house, and earth-covered living houses (Kroeber, 1925:447-449; Levy, 1978:408-409).

The principal subsistence activities of the Bay Miwok were hunting, fishing, and the gathering of wild plants. Subsistence practices relied on a large variety of food sources rather than on a limited number of staples. Typical of California groups, acorns from various species of oak were eaten, as were nuts, wild fruits and berries, various seeds, roots, and bulbs. The Bay Miwok ate most mammal, bird, fish, and

molluscan species except for the various canines, grizzly bears, black bear, skunk, eagle, amphibians, and reptiles (Levy, 1978:403; Powers, 1877:351).

The Bay Miwok were organized similarly to many California Indians in that a certain territory was identified as belonging to a group, and that group recognized themselves as a unit (i.e., tribelet). Several affiliated villages might have occurred within the tribelet territory. Each village, and often a group of allied villages, had a headman, whose duty was to advise the members of the community. No larger levels of political organization occurred beyond these village affiliations (Bennyhoff, 1977; Gifford, 1926; Kroeber, 1925; Levy, 1978).

7.3.1.4 Historical Background

Hispanic Period

As a result of the Cabrillo expedition of 1542–1543, the southbound passage of the Manila Galleon along the coast after 1565, and subsequent voyages of exploration by Cermmenho in 1597 and Vizcaino in 1602, the California coastline was familiar to navigators by the end of the sixteenth century (Donley et al., 1979). Conversely, the interior remained unknown until the eighteenth century. European exploration of the project vicinity was initiated in 1769 and lasted until 1820. During this period, a number of Spanish expeditions penetrated the Delta area. Between 1769 and 1776, forays led by Portola, Ortega, Fages, Fages and Cresp, Anza (two expeditions), Rivera, and Moraga were carried out. Favorable reports of these parties led to the founding of the Mission Santa Clara and Pueblo de San Jose de Guadalupe in 1777 and the Mission San Jose in 1797.

Spanish annexation and colonization of Alta California, as manifested in the religious-military mission system, produced profound changes in the cultures of the indigenous population. The missions resettled and concentrated the aboriginal hunter-gatherer population into agricultural communities. The Mission tribes were Christianized and converted to a form of peasantry that was in rapid decline in Europe. As a consequence of the concentration of population, coupled with the indigenous population's lack of immunity to European diseases, the Mission tribes were decimated by common diseases that were generally not fatal to Europeans.

The Bay Miwok were greatly affected by the Spanish incursions into Northern California's interior. Following the depletion of the local coastal aboriginal groups, the missionaries turned to Northern California’s interior for neophytes. Among the groups “recruited” during this second wave of proselytization were the Bay Miwok. Most of the neophytes were taken to Mission San Jose, where they were baptized and induced to work. Miwok individuals appear upon Mission San Jose’s baptismal records as early as 1811. Through time, many Bay Miwok individuals fled the Missions, becoming fugitives within their own homeland. The Missions sent out punitive military expeditions into the Delta region. In response, several Eastern Miwok tribelets retaliated. In general, the Eastern Miwok reprisals involved raiding the Missions and outlying ranchos and stealing their horses (Bennyhoff, 1977; Cook, 1960, 1962; Kroeber, 1925; Levy, 1978).

Jurisdiction over Alta California was established by the Mexican Empire in April 1822. Control over this remote area by the central and local Mexican authorities was never strong. This period was one of a slow disintegration of control by the Mexican government. In 1833, the Mission lands were secularized and expropriated (Donley et al., 1979). The former Mission lands were given out as private ranches during the next decade in the form of land grants (Gudde, 1969; Hoover et al., 1990).

Secularization of the missions by the Mexican authorities produced additional cataclysmic change within the aboriginal cultures. The majority of the Native Americans gradually left the Missions to work as manual laborers on the ranches that were established in the surrounding areas. Among some there was a partial return to aboriginal religious practices and some return to aboriginal subsistence practices. In

many areas, multi-ethnic Native American communities appeared, often composed of remnants of Chochenyo, Eastern Miwok, Northern Valley Yokuts, Patwin, Coast Miwok, and other groups (Levy, 1978:486-487).

The American Period

A major factor leading to the disintegration of Mexican control of California was pressure from the United States. Initial contacts were made by private citizens, such as the November 1826 visit by Jedediah Smith to the San Gabriel Mission. Settlement by United States citizens greatly increased after discovery of gold in 1848. California became part of the United States as a consequence of the Mexican War of 1846–1847. The territory was formally ceded in the treaty of Guadelupe Hidalgo in 1848 and was admitted as a state in 1850 (Bethel, 1969).

The Bay Miwok were also greatly affected by the early American intrusions into the Delta region. In 1827, Jedediah Smith led a party of trappers through the Delta before embarking on his famous journey across the Sierra Nevada (Beck and Haase, 1974). Smith was quickly followed by others, including a group of trappers from the Hudson Bay Company who entered the Delta in 1832. Infected by malaria, these trappers spread the disease among the aboriginal communities of the region. It is reported that this disease often killed the inhabitants of entire villages (Cook, 1955).

Those Bay Miwok who survived the epidemic were then subjected to the mass incursion of Euro-Americans into the region following the discovery of gold at Sutter's Mill in 1848. Native peoples were no longer viewed as a source of labor as during the Mission Period, but instead as obstacles to progress. During this period, the wholesale removal of the Eastern Miwok from their lands began (Bennyhoff, 1977; Levy, 1978).

In 1839, when California was under the governance of Mexico, Rancho Los Medanos, in eastern Contra Costa County, was granted to brothers Jose and Antonio Mesa. The tract encompassed 8,859 acres of land, including the cultural resources study area for the project, south of the San Joaquin River (Beck and Haase, 1974). The brothers held the property until 1849, when it was purchased by Colonel J.D. Stevenson and Dr. W.C. Parker. That year, Stevenson and Parker laid out a town, naming it "New York of the Pacific" in the hopes that it would become one of the great port cities of the West Coast. The bayside location sparked the settlement's first major commercial activity as it became a stopover for miners traveling to Sacramento and beyond to the Sierra gold fields. Although the influx of Gold Rush miners soon diminished, the discovery of coal in the vicinity in 1855 revitalized the town's economy. By 1860, several coal mines operated in the area, with three railroad lines extending from the mines near Mount Diablo to river wharves, one in "New York," where the coal was shipped to distant markets. In recognition of the role that coal then played in the community's development, the town changed its name to Black Diamond (Purcell, 1940:189, 190, 353, 698; Emanuels, n.d.:225-227; CDMG, 1951:223-225, 349–357). The discovery of higher quality coal in Oregon and Washington resulted in a decline in mining in the hills to the south of the town through the 1880s, and eventually ceased in the early twentieth century (Purcell, 1940:369-369).

The community of Black Diamond received another economic boost in the early 1900s. The German Loan and Savings Bank foreclosed on then rancho owner L.L. Robinson. C.A. Hooper purchased the lands and replatted the town (Purcell, 1940:676). Hooper's industrial enterprises led to additional growth. In 1903, Hooper established the Redwood Manufacturing Association (later Redwood Manufacturers Company), which produced shingles, lumber, millwork, and, before prohibition, wine tanks. Hooper also partnered with Charles M. Gunn and W.E. Creed to begin producing steel for the West Coast in 1906, establishing Columbia Steel in Black Diamond. The steel plant would become the backbone of the local economy in the early twentieth century. The town's industrial base continued to expand, and during this time wood-processing and rubber manufacturing companies established facilities in Black Diamond. The

appearance of heavy industry in the area led the city to change its name to Pittsburg in 1911, and its industrial tradition continued throughout the twentieth century. Several chemical plants in particular located there, as well as the Lanteri Shipyards (Purcell, 194:182-83, 189-190; Emanuels, n.d.:225-228; City of Pittsburg, 2008).

In addition to being on a navigable waterway, Pittsburg has also benefited from being located along the lines of three major California railroads: the Southern Pacific (SPRR, now the Union Pacific); the Atchison, Topeka, and Santa Fe (AT&SF, now the Burlington Northern and Santa Fe, or BNSF); and the Sacramento Northern (USGS, 1953b). The right-of-way for the Sacramento Northern line forms the southern boundary of the PPP, and the proposed water supply and discharge pipeline follow the former SPRR tracks.

Rail transportation played a role in the community's development as early as the 1860s, when short rail lines extended from the coal mines near Mount Diablo to the city's wharves. Between 1866 and 1878, at least three coal mining operations on Mount Diablo laid short lines (defined as less than 7 miles each) from the rugged mine sites northward to various landings on the south shore of Suisun Bay. Trains brought the coal to landings, where it was taken by ship to San Francisco for local and industrial use. The Pittsburg Railroad, also known as the Pittsburg and Black Diamond Railroad, ran from the mining camp of Somersville to New York Landing, east of Pittsburg Point. Mine production declined in the later nineteenth century; the railroad closed in the early 1900s, and with the tracks being removed at some point between 1916 and 1931. The former alignment for the Pittsburg Railroad crosses the water pipeline alignment east of Loveridge Road (USGS, 1905, 1908, and 1953a; CDMG, 1951:223-225, 349-357).

A major rail line connecting present-day Pittsburg with the rest of the state was not constructed until 1878. In that year, the Northern Railway Company, a construction subsidiary of the Southern Pacific, completed what is today the SPRR's main line from West Oakland, along the east shore of San Francisco and San Pablo Bays, and the south shore of the Carquinez Strait, through Martinez to what is now the City of Pittsburg. After leaving Pittsburg, the route took a southeasterly turn through Tracy to join with the main San Joaquin Valley line at Lathrop Junction. SPRR operated this line, which parallels the water pipeline alignment, as a major segment of its freight service until the Union Pacific Railroad (UPRR) gained control of the line by acquiring SPRR in 1996 (Heath, 1945).

Pittsburg's second major rail line originated in the efforts of a group of San Francisco businessmen, led by sugar tycoon Claus Spreckles, to break the SPRR monopoly of rail transportation in the San Joaquin Valley. Construction began on this second line, known as the San Francisco and San Joaquin Valley Railway (SF&SJV), in 1895. By 1898, the SF&SJV had 278 miles of track running from Sacramento to Bakersfield. Later that year the Atchison, Topeka, and Santa Fe Railroad (AT&SF) purchased the SF&SJV, connecting the new line to the AT&SF main cross-country line in Mojave, California. Only one vital link was missing in this effort to break SPRR's dominance: a line from Stockton to San Francisco. The SF&SJV had previously surveyed a 77-mile route between these two cities early in 1898, which would pass through the cities of Antioch and present-day Pittsburg, and terminate in the East Bay at Point Richmond, where the company planned to link with ferry service to the harbor in San Francisco. SF&SJV chief engineer William Benson Storey and James Dun, the chief engineer for the AT&SF, undertook the work in 1898, completing the line to Point Richmond in 1900 (Bryant, 1974:173-181; L.L. Waters, 1950:133-140; Rice et al., 1988:217-236). The former AT&SF railway intersects the linear route south of Willow Pass Road, but is otherwise outside the study area.

The Sacramento Northern Railway right-of-way crosses the study area in an east-west direction just south of the PPP. The line was first built by the Oakland, Antioch, and Eastern Railway (OA&E), an interurban electric railway that ran from Pittsburg to Walnut Creek by the early 1900s. The OA&E and its franchised railways eventually provided interurban electric railway service between Pittsburg and Sacramento, including stops in Antioch. The railway established a ferry just west of the PPP site in 1912

to link its Oakland-to-Pittsburg track with the Suisun-to-Sacramento track. The ferry operated from Mallard Slough to Chipps Island. In 1928, the OA&E merged with the Sacramento Northern Electric Railway into a system that covered 182 miles from San Francisco Bay to Chico (Heath, 1945:10-11, passim). The line of the Sacramento Northern runs parallel to the south side of the WPGS site.

World War II and its associated economic boom greatly increased industrial activities in the Pittsburg and Antioch area, and steel production became the dominant industry. The Columbia-Geneva Steel Company, by this time a division of U.S. Steel and one of the dominant industries in the Pittsburg area, had steadily expanded operations since the company first opened early in the twentieth century and supplied steel casings for machinery used in dredges, ships, and the lumber industry. Although U.S. Steel dominated the local economy, Pittsburg had a diverse industrial sector. To the west of the city, a number of industries developed. By 1953, the area was home to the Continental Can Company; the Stanley Works; and Gladding, McBean & Company, which operated one of the largest refractory brick plants in the West. The buildings that housed these companies are outside of the study area to the south and southwest (Barkley, 1954; CDMG, 1951:248; Mosier, 2005; USGS, 1953b).

7.3.1.5 Site-Specific Background

Units 1 through 4 of the PPP were constructed from 1951 through 1954 as a part of the rapid expansion of electrical generation after World War II. Pacific Gas and Electric Company (PG&E) purchased the PPP land in 1951. The PPP site is located less than 10 miles from the Contra Costa Power Plant, which had just been completed. The site met the requirements for a suitable power plant site: near a growing demand for power, convenient access to water and fuel, and cost effective. PG&E hired Bechtel Corporation to engineer and construct the $80 million plant. The PPP had several similarities with other plants PG&E was constructing as a part of its $1 billion expansion, including the construction of four generating units and offshore docks for the delivery of fuel oil similar to the plans for Contra Costa and Moss Landing (Southwest Builder and Contractor, 1951:18; Coleman, 1952:334). PPP continued the trend of increasing generating capacities, using four 125,000-kilowatt (kW) General Electric generators to produce over 100,000 kW more than the Contra Costa plant's four generators. The generators were powered by steam turbines supplied by boilers that burned oil, with backup natural-gas capability (Williams, 1997:323; PG&E, no date [a]:1-5; Dickey, 1956:255).

The semi-outdoor plan was new to PG&E, but had previously been used in Southern California by Southern California Edison at its Etiwanda Steam Station, which was constructed between 1951 and 1953. The semi-outdoor plan eliminated the housing around the turbines and generators, reducing costs. For the PPP and Contra Costa Plant, PG&E engineers applied the use of several engineering techniques previously used on other industrial building types and recorded these in an article in the American Society of Civil Engineers (ASCE) publication, *Transactions*. Designers improved seismic performance of the walls of the warehouse and shop by using brick or tile facing with reinforced grout between the two faces. The 18-foot-diameter and 211-foot-high stacks were tested extensively to prevent wind damage. The PPP also used a different construction method for the fuel oil storage tanks. The tanks were constructed with concrete slabs, and wrapped in pretensioned wire before being coated in protective gunite. The plant was designed to support both local and systemwide load. Local transmission of power generated by Units 1 and 2 was handled by a 115-kilovolt (kV) switchyard and system transmission of power generated by Units 3 and 4 by a 230-kV switchyard. The switchyards had their own control building at the northern edge of the yard (Southern California Edison Company, 1954:2-3, 5, and 14; Dickey, 1956:255, 263, 266, 271; PG&E, no date [a]; Historic Aerials, 2008). In addition to the four generating units, waterside crane, six oil tanks, and oil-loading dock, the plant had a brick administration building and retention basin. During planning and construction, the administration building was reconfigured to its current T shape from the original plan for a rectangular building at right angles to the plant itself.

The continued growth of electrical demand resulted in the addition of Units 5 and 6 in 1960 and 1961. The units added 629 megawatts (MW) of power and nearly doubled the plant's capacity (Mirant Delta LLC, 2006:2-12). The new units, while larger than the previous units, used the same architecture and were aligned with the previous units. Babcock and Wilcox manufactured the boilers with PG&E engineers designing the rest of the units. The boilers were larger, with a height of 189 feet, compared to 153 feet for Units 1 through 4. The larger boilers were able to provide sufficient steam that the turbines could power two generators each. Unit 5 used a Westinghouse turbine and two Westinghouse generators. Unit 6 used General Electric equipment with similar output. Units 5 and 6 were designed to share equipment with Units 1 through 4. The generator deck was placed at the same height so all six generators could use the same 60-ton gantry crane. Additional pumps were added to the water intake so the units could share the existing water supply system. One bay was added to the western 230-kV switchyard, and four bays were added to the 115-kV switchyard. The major difference between Units 5 and 6 and the preexisting Units 1 through 4 is that Units 5 and 6 were designed to use natural gas as their primary fuel and oil as a backup supply (PG&E, no date [b]).

PG&E brought Unit 7 online in 1972. The new unit was much larger than the previous six and was not aligned with the others. Unit 7 can produce 682 MW of electricity. The unit was designed separately from Units 1 through 6 and shares few facilities with them. However, the layout allowed for a potential future Unit 8 adjoining Unit 7. The manufacturers provided the designs for the major components, the boiler and turbine-generator structure. Combustion Engineering Inc. designed and constructed the onsite boiler and support. Westinghouse designed the turbine and generator and provided specifications for the turbine pad and generator deck surrounding them. Like Units 5 and 6, Unit 7 was designed to use natural gas as its primary fuel with the option to use oil if necessary. Tank 7, west of the six existing tanks, was provided by Pittsburg-Des Moines Steel Company and is constructed of steel, unlike other units, which are constructed of steel and concrete slab. The switchyard was expanded with two additional 230-kV lines to Sobrante supplied by Unit 7 (PG&E, 1971:1-1, 1-2, 1-7, 2-4, 10-1, 16-2, 21-2).

During 1968 to 1979, several other structures and buildings were added to the PPP. Additional tanks were added south of the plant. PG&E also constructed the warehouse, rail car shed, load center, storage shed, and insulating and coatings shop. The first building of the center complex and the first hazardous materials section were laid out (comparison of aerial photographs 1968 and 1979 from Historic Aerials, 2008). Although all units were completed and operating by 1972, the plant expansion continued. Between 1979 and 1987, covered parking was added to the plant between the administrative building and the storage tanks. A small retaining pond was added, and the western hazardous materials building was constructed. East of Units 5 and 6, PG&E added a small storage building and circulator pump buildings. The hazardous materials buildings were complete in 1993, when a second building was added. The auditorium and training facilities along with the oblong storage facility necessitated the relocation of several areas of covered parking to the west of Tank 7. The warehouse was also expanded during this period. PG&E sold PPP to Mirant in 1998 as a part of the restructuring of power regulation, and Mirant has continued to add features to the plant (PG&E, 1998). Between 2002 and 2005, Mirant added the electrical equipment building and rebuilt the load center in its current configuration, replacing a similar structure at that location. Units 1 through 4 were removed from service in 2003 (comparison of aerial photographs 2003 and 2005 from Historic Aerials, 2008; PG&E, 1998).

7.3.1.6 Resources Inventory

The methods used to inventory the study area for cultural resources consisted of archival research, Native American consultation, and both archaeological and architectural pedestrian surveys of each cultural resource subdiscipline's respective APEs.

Archival Research

At the request of URS Corporation, a California Historical Resources Information System (CHRIS) record search was conducted by the staff of the Northwest Information Center (NWIC) at the Sonoma State University on April 29, 2008 (NWIC File #07-1526) .The purpose of this records search was to identify all previously conducted cultural resource surveys and studies, as well as all previously recorded archaeological (including both prehistoric and historic) sites and historic architectural resources within the cultural resources study area. The results of the records search are attached in Appendix L. In addition to the historical resources files, the following publications, manuscripts, or correspondence were also consulted:

- National Register of Historic Places (NRHP);
- Office of Historic Preservation (OHP) Archaeological Determinations of Eligibility – Records entered into the OHP computer file, received quarterly (2006); and
- OHP Directory of Historic Properties – Records entered into the OHP computer file of historic resources, received quarterly (2006).

The records search revealed that the PPP had not been previously inventoried for cultural resources. Portions of the water pipeline alignment had, however, been subjected to cultural resource inventory efforts. The complete record search is attached as a confidential appendix (Appendix L).

Based on the information obtained in this records search, there are 38 previous studies within 1 mile of the WPGS site and within one-quarter mile of the pipeline (see Table 7.3-1).

A review of the studies presented in Table 7.3-1 resulted in the identification of three cultural resources within the WPGS APE for historic architectural resources: the Southern Pacific Railroad (P-07-813), Southern Pacific: Northern Contra Costa Route (P-07-505), and the Los Medanos Wasteway and Culvert (P-07-2775). In addition, the review of these studies resulted in the identification of 14 cultural resources within a mile of the WPGS, and another 28 within a quarter-mile of the water pipeline alignment (see Table 7.3-2). With one exception (C-1149, a prehistoric ground stone artifact collected and returned by a local citizen), all of the identified resources are from the historic period. Furthermore, only one of these, P-07-864, includes archaeological materials.

Maps indicating the location of previous studies and Department of Parks and Recreation (DPR) 523 forms for the inventoried resources are in Appendix L.

The City of Pittsburg maintains a list of historic resources in accordance with a city ordinance (Municipal Code 15.84). The 33 historic resources are listed in the Pittsburg General Plan. Twenty-seven of the resources are associated with the New York Landing Historical District concentrated between 3rd Street and 6th Street, Cumberland Street, and Black Diamond Street. The district lies east of the WPGS within a mile of the WPGS site. The only other historic resources within a mile of the WPGS site and a quarter-mile of the water pipeline alignment route are the Pittsburg Mine Railroad (originally crossed the Pittsburg-Antioch Highway east of Loveridge Road) and the Camp Stoneman Gates (Railroad Avenue south of Route 4). The full list and district map are provided in Appendix L.

JRP examined the aforementioned record search, including standard sources of information that list and identify known and potential historical resources, to determine whether any buildings, structures, objects, districts, or sites had been previously recorded or evaluated in or near the cultural resources study area. JRP reviewed the NRHP (2007), California Register of Historical Resources (CRHR), California Historical Landmarks (1996), and California Points of Historical Interest (1992).

During review of U.S. Geological Survey (USGS) topographic quadrangles, it was discovered that a shipwreck has been plotted by the USGS just offshore of the PPP. Although no offshore components are proposed for the project, these waters fall within the record search area. As such, the shipwreck database maintained by the California State Lands Commission (CSLC) was consulted as a means to find information about this potential resource. Unfortunately, no data for this location were found on the CSLC database.

Native American Consultation

Prior to the beginning of field work for the project, the California Native American Heritage Commission (NAHC) was contacted on April 24, 2008, to request a records search of the Sacred Lands File and a list of local Native American contacts (individuals and/or organizations) that might have knowledge of cultural resources within the study area. According to the NAHC, the search was negative for the presence of Native American cultural resources in the archaeological resources APE.

The NAHC provided a list of three individuals/organizations that might have knowledge of cultural resources in the project APEs and surrounding vicinity. Contact letters describing the project and a map depicting both the proposed WPGS site and the water pipeline alignment were sent to these parties by certified mail on April 29, 2008. The letter inquired whether the individuals/organizations had any concerns regarding the project or wished to provide input regarding cultural resources in the project APEs. No comments or questions have been received at the time this document was prepared.

Copies of the NAHC request letter, NAHC response letter, mailing list, and consultation letter, are appended to the Cultural Resources Technical Report, which is provided in a confidential appendix to this report.

Any future responses received after the date of this report will be directly forwarded to the CEC.

Archaeological Field Reconnaissance

The pedestrian survey of the archaeological resources APE, including the components within the PPP property as well as the route of the water pipeline alignment, was conducted by URS Senior Project Archaeologist Mark Hale and URS Staff Archaeologist Leroy Laurie on May 7, 2008.

The entire archaeological resources APE, including the route of the water pipeline alignment, was inspected by walking 15- to 20-meter parallel transects across the project APE. All areas of exposed soil were inspected for the presence of archaeological resources. Surface visibility was generally poor (less than 80 percent) throughout the portion of the archaeological resources APE located within the confines of the PPP site, due to existing power plant development.

Along the course of the water pipeline alignment, surface visibility was generally good, as this linear component would be placed primarily along an existing gas corridor within a railroad right-of-way. A section of water pipeline alignment would diverge from the railroad right-of-way, instead following the Pittsburg-Antioch Highway, where surface visibility was poor given that the roadway is paved. As required by the revised CEC regulations, an examination of a 50-foot-wide buffer radius around this linear component was completed. In general, however, the buffer areas outside of the railroad right-of-way were more developed, consisting primarily of the backyards of private residences (to which access had not been secured) and paved roadways. The buffer area to the north of the Pittsburg-Antioch Highway exhibited good visibility; however, most of this area falls within a man-made channel. Figure 7.3-1 illustrates the project components and the areas surveyed for archaeological resources.

No archaeological resources were identified within the archaeological resources APE during the course of the current investigation.

Built Environment Field Reconnaissance

JRP conducted fieldwork on November 29, 2007, and May 14, 2008, and inventoried and evaluated properties within a larger study area that included the historic architectural resources APE on the attached DPR 523 forms (Appendix L). JRP also conducted the reconnaissance survey of the linear features of the project during the May 2008 field visit. No further historic architectural investigation was required for historic architectural resources that were less than 45 years old. Based on the results of the background investigation and the field survey, JRP conducted research at a variety of libraries and repositories, including Contra Costa County Historical Society; California State Library, Sacramento; and Shields Library, University of California, Davis; and reviewed data collected from the Water Resources Center Archives and Earth Sciences Map Library at the University of California, Berkeley.

JRP used the research data collected to prepare a historic context to address the property types and pertinent themes of industrial development in the study area, including steam-generated power technology and general land use history. The historic themes are discussed in Section 3 of the appended technical report (Appendix L). JRP evaluated the resources within the study area in accordance with Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code, and also under NRHP and CRHR criteria listed on the DPR 523 forms included in Appendix L.

As mentioned previously, the record search revealed that three cultural resources were previously identified within the historic architectural resources APE for historic architectural resources: the Southern Pacific Railroad (P-07-813), Southern Pacific: Northern Contra Costa Route (P-07-505), and the Los Medanos Wasteway and Culvert (P-07-2775). These resources are in or near the proposed pipeline route and were subject to reconnaissance survey according to CEC guidelines and policy for urban areas; as such, these resources did not require reevaluation for the current project. All three of these resources were found ineligible for inclusion in the NRHP by the previous studies. This finding was confirmed by reconnaissance survey.

Only one cultural resource identified within the historic architectural resources APE (the existing plant) required recordation and evaluation for the project.

7.3.1.7 Pittsburg Power Plant

The PPP consists of seven generating units and miscellaneous auxiliary buildings and structures. Figure 7.3-4 shows a historic view of the PPP after 1972. All of the buildings are industrial and utilitarian in nature and are constructed of concrete, metal, and synthetic materials. The generating units (Units 1 through 7), four of which have not operated since 2003, are the predominant structures at the plant. Each unit consists of a boiler, stack, generator, and turbine. Units 1 through 4 are identical. Units 5 and 6 are located immediately adjacent to Units 1 through 4 and are similar in configuration, but larger. Unit 7 is the largest and separated from the other units. The stacks are the tallest portions of the units, with a range of 211 to 450 feet in height. The stacks for Units 5 through 7 are concrete and taper from a wide base. The stacks for Units 1 through 4 are uniform in width. Each of the boilers is surrounded with metal structures located between the stack and turbine-generator deck.

The area surrounding the generating units contains numerous auxiliary buildings. The most common of the building forms is modular and temporary; examples include the temporary complex, auditorium, and training facility. These buildings are made up of single or multiple units and have a faux vertical wood siding and skirt wall. The second most common form is that of the “Butler building,” or prefabricated metal structures. These buildings have grooved metal siding and gabled roofs as seen in the warehouse, insulation and coatings building, and the storage shed. These buildings are used for storage as well as shop operations. Newer prefabricated buildings are present in the hazardous materials area. These side-gabled buildings have large overhead doors. Several buildings used for the protection of equipment are

located at the plant; these buildings do not have a standard form. Two buildings that protect electrical equipment are concrete tilt-up buildings with flat roofs, including the load center and the electric equipment building. Others are prefabricated with a synthetic siding and low gabled roofs like the circulator pump building.

In addition to buildings, the plant includes several operational support structures. The largest of these support structures are the fuel tanks, six of which are aligned in a row along the eastern property line. A seventh tank lies west of the property line. These tanks have corrugated siding and are surrounded by concrete containment walls. Insulated pipes connect these tanks with the boilers in the generating units. The plant also has four retaining basins, which are rectangular concrete depressions. The walls of the basins rise 1 to 2 feet above ground level. The basins are about 3 feet deep and lined with a black rubberized plastic. A T-shaped dock extends into Suisun Bay. The wooden dock is currently in care-taker status. Intake pumps are located along the shoreline north of Units 1 through 4, partly below grade. A gantry crane runs above the pumps for equipment maintenance. Gantry cranes are also located on the turbine-generator decks of the generating units. Units 1 through 6 share a single crane, and Unit 7 has a separate crane.

7.3.2 Environmental Consequences

7.3.2.1 Federal Regulations

Four evaluation criteria to determine a resource's eligibility to the NRHP, in accordance with the regulations outlined in 36 CFR 800, are identified at 36 CFR 60.4. To determine site significance through application of NRHP criteria, several levels of potential significance that reflect different (although not necessarily mutually exclusive) values must be considered. As provided in 36 CFR 60.4:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> 1. That are associated with events that have made a significant contribution to the broad patterns of our history,
>
> 2. That are associated with the lives of persons significant in our past,
>
> 3. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
>
> 4. That have yielded, or may be likely to yield, information important in prehistory or history.

These evaluation criteria are used to help determine what properties should be considered for protection from destruction or impairment resulting from project-related activities (36 CFR 60.2).

7.3.2.2 State Regulations

In considering impact significance under CEQA, the significance of the resource itself must first be determined. At the state level, consideration of significance as an "important archaeological resource" is measured by cultural resource provisions considered under CEQA Sections 15064.5 and 15126.4, and the draft criteria regarding resource eligibility to the CRHR.

Generally under CEQA, a historical resource (these include built-environment historic and prehistoric archaeological resources) is considered significant if it meets the criteria for listing on the CRHR. These criteria are set forth in CEQA Section 15064.5 and defined as any resource that:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage,

2. Is associated with lives of persons important in our past,

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values, or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

Section 15064.5 of CEQA also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under Public Resources Code (PRC) Section 5097.98.

Impacts to "unique archaeological resources" are also considered under CEQA, as described under PRC 21083.2. A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that—without merely adding to the current body of knowledge—there is a high probability that it meets one of the following criteria:

1. The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information;

2. The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or

3. The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

A nonunique archaeological resource indicates an archaeological artifact, object, or site that does not meet the above criteria. Impacts to nonunique archaeological resources and resources that do not qualify for listing on the CRHR receive no further consideration under CEQA.

Under CEQA Section 15064.5, a project potentially would have significant impacts if it would cause substantial adverse change in the significance of one of the following:

1. A historical resource (i.e., a cultural resource eligible for the CRHR);

2. An archaeological resource (defined as a unique archaeological resource that does not meet CRHR criteria);

3. A unique paleontological resource or unique geologic feature (i.e., where the project would directly or indirectly destroy a site or resources); or

4. Human remains (i.e., where the project would disturb or destroy burials).

A nonunique archaeological resource is given no further consideration, other than the simple recording of its existence, by the lead agency.

7.3.2.3 Conformity of Federal and State Evaluation Criteria

The criteria for eligibility for the CRHR are very similar to those that qualify a property for the NRHP, which is the significance assessment tool used under the NHPA. The criteria of the NRHP apply when a project has federal involvement.

A property that is eligible for the NRHP is also eligible for the CRHR. All potential impacts to significant resources under a federal agency must be assessed and addressed under the procedures of Section 106 of the NHPA, set forth in 36 CFR 800. All resources encountered during the project, with the exception of isolated artifacts and isolated features that appear to lack integrity or data potential, would be evaluated for significance in relation to Section 106.

7.3.2.4 Archaeological Resources Evaluation

No archaeological resources were identified within the archaeological resources APE. As discussed previously, much of the APE has been subjected to previous development, including PG&E's construction activities associated with the development of the existing plant, and as well as disturbance associated with the construction of the railroad, roadway, gas line, and other underground utilities located along the water pipeline alignment. Nonetheless, it is possible, though unlikely given the highly disturbed nature of the archaeological resources APE, that archaeological deposits could be inadvertently exposed during project-related construction activities. Should this occur, appropriate mitigation measures are described in Section 7.3.4 to ensure any associated impacts would be less than significant.

7.3.2.5 Built Environment Resources Evaluation

Other than the PPP facility, all of the other buildings or structures within the cultural resources study area were field-checked to confirm that they were less than 45 years old, and that none required evaluation as exceptionally significant. The existing plant, which is more than 45 years old, was surveyed and evaluated in accordance with Section 15064.5(a) (2)-(3) of the CEQA guidelines, using the criteria outlined in NRHP criteria, as summarized below, and is not considered a historical resource for the purposes of CEQA.

Units 1 through 6 and associated buildings within the PPP are not significant within the context of the development of electrical generation or steam power plants (Criterion A or 1). PPP was one of several power plants built to supply the growing post-World War II demand for electricity. Companies throughout California, including PG&E, Southern California Edison, and San Diego Gas and Electric, built plants to meet the need during that period. These electrical companies built steam power plants at that time because of the lack of economical hydroelectric sites and the increased availability of oil and natural gas. The plants were built within a short period of time and with standardized plans. PPP is neither the first nor the last of the plants built by PG&E, whose other facilities include Kern (1948), Hunter's Point (1948), Moss Landing (1951), Contra Costa (1951), Morro Bay (1955), and Humboldt Bay (1956) (CEC, 2007). Together, these plants and associated substations supplied the power needed by PG&E and its customers, and no one plant can be singled out as individually significant within the company's system. Each plant was important to the community it served and provided power for the increasing demands of new technology and development. In the context of the time and other community services, the design and operational history of PPP do not suggest any unique significance.

The PPP buildings are also not significant for their design or construction (Criterion C or 3). As mentioned above, PPP was constructed during a period of rapid growth of steam power plants. Although the construction of PPP was reported in engineering journals, along with Contra Costa power plant to the east, the articles discussed the application of previous engineering developments to these plants, and do not indicate any innovative or distinct design elements employed for the PPP. The plant was the first of the PG&E plants to use the "semi-outdoor" mode, with both exposed turbine-generator bays and boilers,

which was developed for other plants in the post-World War II era. The semi-outdoor plan was new to PG&E, but Southern California Edison had previously used it at its Etiwanda Steam Station, which was constructed between 1951 and 1953. The lack of cladding allowed the plants to be built faster and more economically, but did not affect their operations (Southern California Edison Company, 1954:2-3, 5, and 14). Large companies that produced major equipment for plants across the U.S. provided the boiler, turbines, and generators. The switchyard is also constructed of standard equipment and in a typical plan. No new equipment was introduced to the design at the PPP.

PPP is not associated with the life of a historically significant person (Criterion B and 2), nor is it significant under Criterion D and 4 as a potential source of data on human history. This property is well documented through company records and construction documents and does not appear to be a principal source of important information. A full evaluation of this property is provided on the DPR 523 form located in Appendix L.

As mentioned previously, the record search revealed that three cultural resources have been previously identified within the historic architectural resources APE. These resources are in or near the water pipeline alignment and were subject to reconnaissance surveys according to CEC guidelines and policy for urban areas; as such, these resources did not require reevaluation for the current project. All three of these resources were found ineligible for inclusion in the NRHP by the previous studies and was confirmed by reconnaissance survey.

7.3.3 Cumulative Impacts

Given that project implementation would not result in effects to known important cultural resources, it is unlikely that the project could have significant cumulative effects to cultural resources. As noted above, however, it is possible that previously undiscovered archaeological resources could be exposed during construction activities. Unless properly evaluated and managed, this could result in a cumulative effect to such inadvertently exposed resources.

7.3.4 Mitigation Measures

This section discusses mitigation measures proposed by the applicant that will be implemented in accordance with applicable laws and regulations to reduce project-related impacts to cultural resources. These mitigation measures and procedures described will apply to any cultural resources in the APEs defined for the project, or cultural resources recommended as not significant, and such recommendations are concurred with by the CEC and SHPO, regardless of the facility component. With implementation of the measures listed below, no significant unavoidable impacts to known cultural resources are expected to occur.

CUL-1 Avoidance

Although no archaeological sites have been identified within the archaeological resources APE, if a potentially significant cultural resource is discovered during project construction, the construction plans will be modified (if possible) to avoid that resource. If there are no feasible means to avoid the resource, then the cultural resource will be tested. If the cultural resource is found to be significant, the measures for mitigation described below will be implemented in consultation with the CEC.

CUL-2 Physical Demarcation and Protection

Although no archaeological sites have been identified within the archaeological resources APE, if a potentially significant cultural resource is discovered during construction and it can be avoided by modification of project plans, the cultural resource will be temporarily fenced or otherwise

demarcated on the ground, and the area will be designated environmentally sensitive. Construction equipment will be directed away from the cultural resource, and construction personnel will be directed to avoid entering the area. Where cultural resource boundaries are unknown, the protected area will include a buffer zone with a 100-foot radius. In some cases, additional archaeological work could be required to demarcate the boundaries of the cultural resource to ascertain and ensure avoidance.

CUL-3 Crew Education

Prior to the beginning of construction, the construction crew will be informed of the regulatory protections afforded cultural resources. The crew will also be informed of procedures relating to the inadvertent exposure of archaeological resources. The crew will be cautioned not to collect artifacts and asked to inform a construction supervisor if cultural remains are uncovered.

CUL-4 Formal Compliance with CEQA Section 15064.5 and 15126.4 and Section 106 of the NHPA

If that a resource cannot be avoided during the placement of any project facility, further archaeological work will be undertaken as appropriate to assess the importance/significance of the resource prior to the project implementation.

CUL-5 Mitigation for Resource

If unanticipated resources are discovered during construction, they will be addressed under the procedures set forth in CEQA Section 15064.5. If possible, the resource will be avoided first through design modification, or second through protective measures as described above. If the resource cannot be avoided, the project archaeologist will consult with the CEC and SHPO with regard to resource significance. If it is determined that the resource is significant, then measures to mitigate impacts will be devised in consultation with the CEC and SHPO, and will be carried out by the applicant.

7.3.5 Laws, Ordinances, Regulations, and Standards

The proposed project will be constructed and operated in accordance with all laws, ordinances, regulations, and standards (LORS) applicable to cultural resources. Federal, state, and local LORS applicable to cultural resources are discussed below and summarized in Table 7.3-3.

7.3.5.1 Federal

Federal laws, procedures, and policies affecting the treatment of cultural resources include the Antiquities Act of 1906, Public Law 59-209, Executive Order 11593, Section 106 of the NHPA of 1966 (Public Law 89-665), as amended, Public Law 93-291, the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190), the Federal Land Policy Management Act (Public Law 94-94-579), and regulations 36 CFR 60 and 36 CFR 800.

For land management purposes, a cultural resource must be recommended as either eligible or not eligible for the NRHP to determine effect and the need for mitigation of effect. If the property (cultural resource) is determined eligible, then a determination of effect, in accordance with 36 CFR 800, must be provided. If the property is identified as not eligible, then no determination of effect or mitigation measures is necessary. Recommendations are reviewed and approved by the SHPO and the Advisory Council on Historic Preservation (ACHP).

The NHPA requires all federal agencies to assess the effects of any agency-sponsored undertaking on cultural resources. The federal agency is responsible for project compliance with Section 106 of the NHPA and its implementing regulations, set forth by the ACHP at 36 CFR 800.

Four evaluation criteria to determine a resource's eligibility to the NRHP, in accordance with the regulations outlined in 36 CFR 800, are identified at 36 CFR 60.4. To determine site significance through application of NRHP criteria, several levels of potential significance that reflect different (although not necessarily mutually exclusive) values must be considered. As provided in 36 CFR 60.4:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> 1. That are associated with events that have made a significant contribution to the broad patterns of our history,
>
> 2. That are associated with the lives of persons significant in our past,
>
> 3. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
>
> 4. That have yielded, or may be likely to yield, information important in prehistory or history.

These evaluation criteria are used to help determine what properties should be considered for protection from destruction or impairment resulting from project-related activities (36 CFR 60.2).

7.3.5.2 State

The basic goal of CEQA is to develop and maintain a high-quality environment now and in the future. The CEQA Guidelines provide a framework for the analysis of impacts to archaeological resources.

In considering impact significance under CEQA, the significance of the resource itself must first be determined. At the state level, consideration of significance as an "important archaeological resource" is measured by cultural resource provisions considered under CEQA Sections 15064.5 and 15126.4, and the draft criteria regarding resource eligibility to the CRHR.

Generally under CEQA, a historical resource (these include built-environment historic and prehistoric archaeological resources) is considered significant if it meets the criteria for listing on the CRHR. These criteria are set forth in CEQA Section 15064.5 and defined as any resource that:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage,

2. Is associated with lives of persons important in our past,

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values, or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

Section 15064.5 of CEQA also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under Public Resources Code (PRC) Section 5097.98.

Impacts to "unique archaeological resources" are also considered under CEQA, as described under PRC 21083.2. A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that — without merely adding to the current body of knowledge — there is a high probability that it meets one of the following criteria:

1. The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information,

2. The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type, or

3. The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person

A nonunique archaeological resource indicates an archaeological artifact, object, or site that does not meet the above criteria. Impacts to nonunique archaeological resources and resources that do not qualify for listing on the CRHR receive no further consideration under CEQA.

Under CEQA Appendix G, a project would potentially have significant impacts if it would cause substantial adverse change in the significance of one of the following:

1. A historical resource (i.e., a cultural resource eligible for the CRHR),

2. An archaeological resource (defined as a unique archaeological resource that does not meet CRHR criteria),

3. A unique paleontological resource or unique geologic feature (i.e., where the project would directly or indirectly destroy a site), or

4. Human remains (i.e., where the project would disturb or destroy burials).

A nonunique archaeological or paleontological resource is given no further consideration other than the simple recording of its existence by the CEQA lead agency.

Potential impacts to identified cultural resources need only be considered if the resource is an "important" or "unique archaeological resource" under the provisions of CEQA Sections 15064.5 and 15126.4 and the eligibility criteria. If a resource cannot be avoided, then the resource must be examined vis-à-vis the provisions of CEQA Sections 15064.5 and 15126.4 and of the eligibility criteria as an "important" or "unique archaeological resource." In many cases, determination of a resource's eligibility can only be made through extensive research and archaeological testing. No mitigation measures are required unless previously undiscovered cultural resources are detected. Mitigation under CEQA must address impacts to the values for which a cultural resource is considered important. To mitigate adequately, it must therefore be determined what elements make a site eligible for the CRHR. The first line of mitigation is complete avoidance, when feasible, of all cultural resources.

7.3.5.3 Local

On the local level, compliance with the Contra Costa County General Plan (Contra Costa County, 2005) is also necessary. According to the General Plan, a goal of the County is to identify and preserve important archaeological and historic resources (within the county). To achieve this goal, a number of policies, measures, and programs targeting the management of cultural resources have been adopted by the County. In general, compliance with CEQA satisfies the County's concerns for cultural resources.

According to the City of Pittsburg's General Plan (2004), the City's objective is to "encourage municipal and community awareness, appreciation, and support for Pittsburg's historic, cultural, and archeological resources." To meet this objective, a several policies targeting the management of cultural resources have been adopted by the City. Investigation and analysis as required under CEQA satisfies the City's requirements for compliance.

7.3.6 Involved Agencies and Agency Contacts

Both the City of Pittsburg and Contra Costa County were contacted regarding information about their General Plans. Unless consultation with SHPO becomes necessary, the NAHC is the only agency involved with the management of cultural resources for the project. Appendix L contains the correspondence with the NAHC concerning this project.

Specific contacts for the NAHC, the City of Pittsburg, and Contra Costa County are listed in Table 7.3-4.

7.3.7 Permits Required and Permit Schedule

Other than certification from the CEC, no state, federal, or local permits are required by the project for the management of cultural resources.

As described previously, consultation with SHPO and ACHP would be required under Section 106 if federal involvement is to occur and significant cultural resources were to be affected by the proposed project.

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Table 7.3-1
Previous Surveys
(1 of 8)

S-Number	Title	Author(s)	Year	County(s)	# of Sites	Associated Resources/ Notes
S-005208	Sacramento-San Joaquin Delta Investigations: Cultural Resources Reconnaissance	Gregory Greenway William E. Soule	1977	Contra Costa, Yolo, Alameda, Solano	248	P-07-000021, 22, 23, 25, 36, 37, 39, 44, 69, 70, 72, 76, 78, 80-92, 179, 711; P-48-000009-13, 41, 42; P-57-000021, 29, 30, 32-34, 45, 47, 56, 63, 65, 66, 92, 107, 146, 150
S-007647	Cultural Resource Investigation of the Proposed Pittsburg Marina Expansion Project	Woodward-Clyde Consultants	1985	Contra Costa	0	
S-009095	Historic Resources Testing Program at the Proposed Pittsburg Marina Expansion Project	Woodward-Clyde Consultants	1985	Contra Costa	0	
S-009214	An Archaeological Reconnaissance of the Baker Property (170) Acres, Between Pittsburg and Antioch, Contra Costa County, CA	Richard D. Ambro	1987	Contra Costa	0	
S-009583	Ecology of the Pre-Spanish San Francisco Bay Area	David W. Mayfield	1978	Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara	0	
S-010268	Cultural Resources Evaluations for the Pittsburgh-Antioch Alternatives Analysis, Contra Costa County, California	David Chavez, Sally B. Woodbridge	1988	Contra Costa	0	

Table 7.3-1
Previous Surveys
(2 of 8)

S-Number	Title	Author(s)	Year	County(s)	# of Sites	Associated Resources/ Notes
S-013256	Archaeological Resources Inventory for Los Vaqueros Water Conveyance Alignments, Contra Costa County, CA	A.G. Bramlette, K.M. Dowdall, M. and A. Praetzellis, D.A. Fredericks on, P. Brunmeier	1991	Alameda, Contra Costa	21	P-01-000218; P-07-000090,227,314, 315, 317, 385-397
S-013831	Archaeological Archival Research and Field Inspection of the City of Pittsburg Waterfront Truck Route Assessment District Project, Pittsburg, Contra Costa County, California	Holman & Associates	1991	Contra Costa	1	
S-017893	Archaeological Resources Investigation for the Pittsburg Conveyance System Improvements Project (87.9191), Contra Costa County, California	David Chavez,	1995	Contra Costa	0	
S-017993	Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	Brian Hatoff, Barb Voss, Sharon Waechter, Stephen Wee, Vance Bente	1995	Alameda, Contra Costa, Santa Clara	190	P-01-00231, 1773-1786,2190,10620, 10629; P-07-000402,438,487-505, 2402; P-38-000007; P-41-000009,165,169, 172,281,310,311, 410-425,456; P-43-000623,649,650, 899-907; P-48-000179,180, 207-209

Table 7.3-1
Previous Surveys
(3 of 8)

S- Number	Title	Author(s)	Year	County(s)	# of Sites	Associated Resources/ Notes
S-018352	East/Central Contra Costa County Wastewater Plan, California: Cultural Resource Survey	Colin I. Busby	1976	Contra Costa	2	P-000080 and P-07-000813
S-018440	Class II Archaeological Survey of the Contra Costa Canal, Contra Costa County, California	G. James West, Patrick Welch	1996	Contra Costa	1	P-07-002695
S-020405	Historic Architectural Survey Report, Route 4 East Project, Contra Costa County, California (04-CC-4, PM R14.6-24.0, KP 23.5-38.6 EA 228260)	Laurence H. Shoup and Ward Hill	1996	Contra Costa	5	unrecorded historic resources
S-022464	Cultural Resource Inventory Report for the Williams Communications, Inc., Fiber Optic Cable System Installation Project, Pittsburg to Sacramento, CA	Jones & Stokes Associates, Inc.	1999	Contra Costa, Solano, Yolo, Sacramento	4	P-07-00813,2568; P-48-000549, 565: P-57-000400
S-022812	Contra Costa County Water Multipurpose Pipeline Project, Environmental Documentation Study, Cultural Resources Review (letter report)	Colin I. Busby	1997	Contra Costa	4	CA-CCO-386, 638H, 733H, and 639H

Table 7.3-1
Previous Surveys
(4 of 8)

S- Number	Title	Author(s)	Year	County(s)	# of Sites	Associated Resources/ Notes
S-022929	Positive Archaeological Survey & Historic Resources Evaluation Report for the State Route 4/Loveridge Road Flood Relief Project- Kirker Creek, City of Pittsburg, Contra Costa County	Sara Atchley	2000	Contra Costa	2	CA-CCO-732/H and CA-CCO-733H
S-022930	Historic Architectural Survey Report for the State Route 4/ Loveridge Road Flood Relief Project- Kirker Creek, City of Pittsburg, Contra Costa County	Janice Calpo	2000	Contra Costa	23	P-07-000814-000836
S-023155	Archaeological and Historic Properties Survey Report, Route 4 East Project, Contra Costa County, California	Sally S. Morgan, and Lara J. Melton	1996	Contra Costa	563	563 Historic Properties,
S-023202	Addendum Historic Property Survey Report and Finding of Historic Property Affected, State Route 4 Widening/Railroad Avenue Interchange, Pittsburg, Contra Costa County, 04-CC-04/KP 35.7/38.5 (PM 22.29/23.1) EA 04-209-228770	Janice Calpo	2000	Contra Costa	15	P-07-001922,1936, 002498-002510

Table 7.3-1
Previous Surveys
(5 of 8)

S- Number	Title	Author(s)	Year	County(s)	# of Sites	Associated Resources/ Notes
S-024322	Pittsburg District Energy Facility, Cultural Resources Technical Report (Appendix K)	Sally Morgan, Bruce Bachand	1998	Contra Costa	1	CA-CCO-715H
S-024323	Pittsburg District Energy Facility, Cultural Resources Technical Report (Supplement to Appendix K)	Sally Morgan, Bruce Bachand	1998	Contra Costa	1	CA-CCO-715H
S-024753	Recommendations to the Office of Historic Preservation regarding telecommunications facilities (letter report)	Lorna Billat	2002	Contra Costa	1	not listed
S-024986	Cultural Resources Assessment, PG&E Proposed Tri-Valley 2002 Electric Power Capacity Increase Project	Basin Research Associates, Inc.	2000	Alameda, Contra Costa	4	CA-ALA-475H, CA-CCO-500, CA-CCO-502H; C-1283
S-027445	A Cultural Resources Reconnaissance Survey of Proposed Removal of Tracy-Contra Costa-Ygnacio 69-kV Transmission Line, Contra Costa and Alameda Counties, California	Joseph Biliberti	2002	Alameda, Contra Costa	1	CA-CCO-653

Table 7.3-1
Previous Surveys
(6 of 8)

S- Number	Title	Author(s)	Year	County(s)	# of Sites	Associated Resources/ Notes
S-029583	Archaeological Survey and Cultural Resource Assessment of the Proposed Alternative 3A Route for the City of Pittsburg Recycled Water Project, Pittsburg, Contra Costa County, California (letter report)	William Self	2004	Contra Costa	0	
S-030387	Historical Resources Compliance Report, Burlington Northern Santa Fe Railway Double Track Project (Segment 2), Oakley (MP 1146.1) to Port Chicago (MP 1164.4), In and Near the Cities of Oakley, Antioch, and Pittsburg, and the Port Chicago Naval Weapons Station, Contra Costa County, California	Bai Tang, Michael Hogan, Josh Smallwood, Terri Jacquemain	2005	Alameda	1	CA-CCO-732/H
S-030579	Cultural Resources Report, Delta Energy Site (DEC) and Associated Linears, Cities of Pittsburg and Antioch, Contra Costa County, California, California Energy Commission (CEC) Project 98-AFC-3C	Colin I. Busby	2004	Contra Costa	1	P-07-002563

Table 7.3-1
Previous Surveys
(7 of 8)

S- Number	Title	Author(s)	Year	County(s)	# of Sites	Associated Resources/ Notes
S-031375	State Route 4 (East) Widening Project: Loveridge Road to State Route 160, 04-CC-4-KP 37.8/R47.6 (PM 23.5/R29.6), EA 04275-228500, Contra Costa County	M. Kate Lewis, Kelly R. Heidecker, Meta Bunse, D. Craig Young, Jeffrey S. Rosenthal	2004	Contra Costa	185	P-07-002499, P-07-002762-002851, 2853, 2876, 2882, 2883
S-031405	Archaeological Survey and Cultural Resource Assessment for the City of Antioch Recycled Water Pipeline Project (letter report)	James M. Allan	2006	Contra Costa	0	
S-032182	Historical Evaluation of the El Pueblo Housing Complex, Pittsburg, Contra Costa County California	Vicki R. Beard	2006	Contra Costa	1	P-07-002743
S-032572	Archaeological Inventory Survey, Pittsburg Elementary School Project, C. 5-Acres Adjacent to Black Diamond Street, Pittsburg, Contra Costa County, California	Sean Michael Jensen	2006	Contra Costa	0	
S-034093	Cultural Resource Assessment, Delta Diablo Sanitation District and the City of Pittsburg, Recycled Water Pipeline Extension Project, Pittsburg, Contra Costa County, California	Kyle Kearney, David Buckley, Allen Estes, James Allan, William Self	2006	Contra Costa	0	

Table 7.3-1
Previous Surveys
(8 of 8)

S- Number	Title	Author(s)	Year	County(s)	# of Sites	Associated Resources/ Notes
S-034161	Cultural Resources Study of the 8th Street Flood Improvement Project, Pittsburg, Contra Costa County, California (letter report)	Miley Paul Holman	2007	Contra Costa	0	
S-034182	A Report of Findings of Archaeological Backhoe Testing of the 420 East Third Street at Harbor Street Project, Pittsburg, Contra Costa County, California	Miley Paul Holman	2006	Contra Costa	0	

Table 7.3-2
Recorded Cultural Resources
(1 of 2)

Resource #	Name	Location	Eligibility
P-07-813	Southern Pacific Railroad	West Pittsburg to Antioch	Not Eligible
P-07-2775	Los Medanos Wasteway and Culvert	Contra Costa Canal to Suisun Bay	Not Eligible
P-07-505	Southern Pacific: Northern Contra Costa Route	Tracy to Oakland via Carquinez Straight	Not Eligible
P-07-864	Redwood Manufacturers Company including historic archaeological remains		Not Evaluated
P-07-869	Warehouses/Industrial Buildings	East 3rd Street and Harbor Street	Not Eligible
P-07-1936	Carlo's Pizzeria	2099 Railroad Ave	Not Eligible
P-07-1922	Camp Stoneman Warehouses	105, 107, 541-553 Bliss Avenue	Not Eligible
P-07-2501	Residence	920 Power Avenue	Not Eligible
P-07-2502	Residence	395 Andrew Avenue	Not Eligible
P-07-2503	Residence	820 Power Avenue	Not Eligible
P-07-2504	Residence	776 Power Avenue	Not Eligible
P-07-2505	Residence	408 Power Avenue	Not Eligible
P-07-2506	Residence	367 Power Avenue	Not Eligible
P-07-2507	Residence	338 Power Avenue	Not Eligible
P-07-2508	Residence	296 Power Avenue	Not Eligible
P-07-2509	Residence	292 Power Avenue	Not Eligible
P-07-2510	National Guard Armory	99 Power Avenue	Not Eligible
P-07-814 through 817, P-07-818 through 824	Residences	967, 959, 953, 947, 941, 929, 935, 923, 919, 913, 907 Carpino Way	Not Eligible
P-07-826	MLK Elementary School	950 El Pueblo Avenue	Not Eligible
P-07-825	Residences	875 El Pueblo Avenue	Not Eligible
P-07-827	Contra Costa Industrial Park	1501 Loveridge Road	Not Eligible
P-07-828	National Energy Contractors plant	1600 Loveridge Road	Not Eligible
P-07-829	Church of Christ	283 Diane Avenue	Not Eligible

Table 7.3-2
Recorded Cultural Resources
(2 of 2)

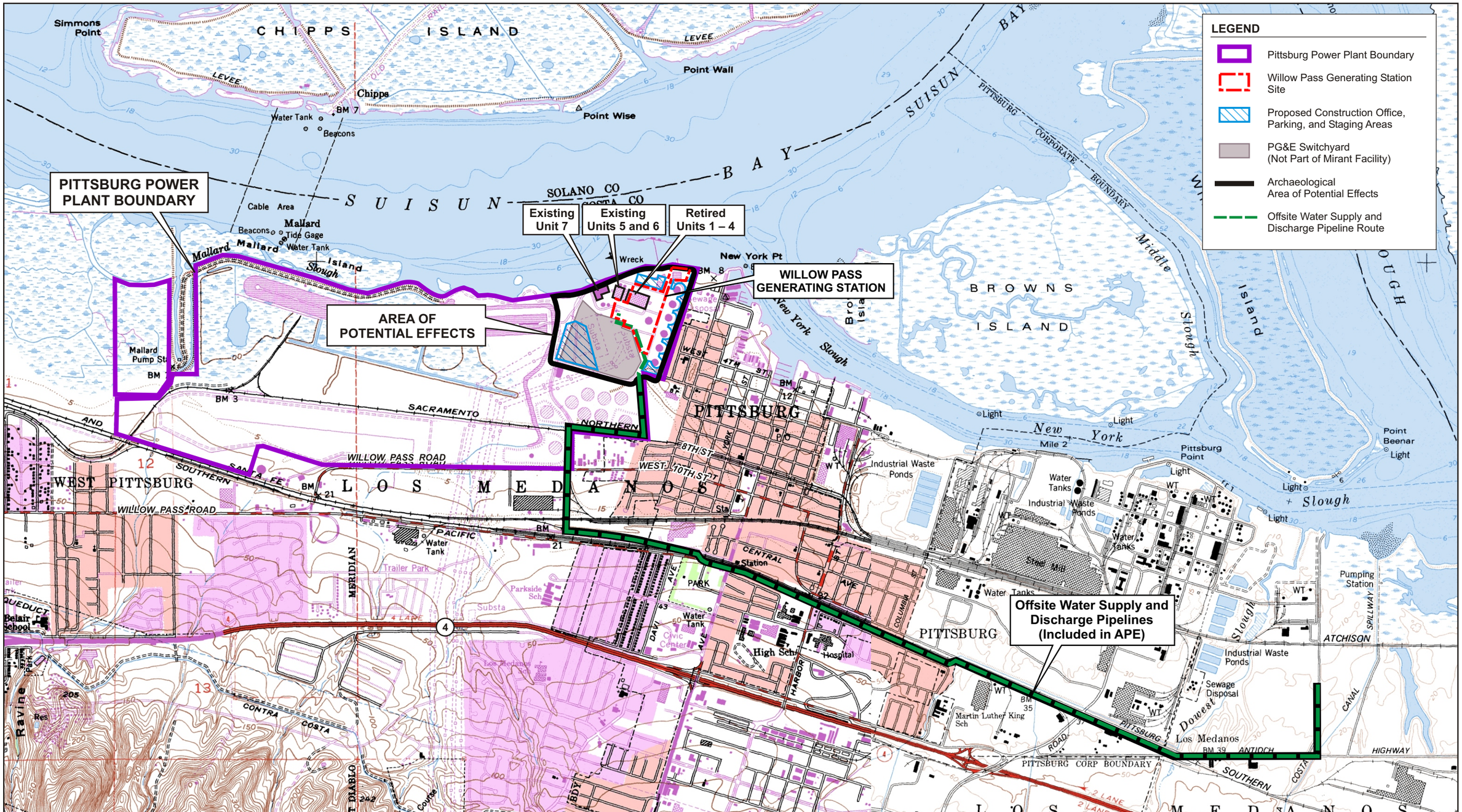
Resource #	Name	Location	Eligibility
P-07-830	Biltmore Market	263 Diane Avenue	Not Eligible
P-07-831 through 836	Residences	255, 243, 231, 223, 213, 201 Diane Avenue	Not Eligible
P-07-2323	Pittsburg X-ray Facility	WPNSTASB DET Concord Loveridge Road	Not Eligible
P-07-2769	Southern Pacific Railroad Camp Stoneman Spur	Travels southwest from Pittsburg-Antioch Highway	Not Eligible
P-07-2743	El Pueblo Housing Complex	Roughly bounded by Carpino Avenue, Treatro Ave, Carpino Way and El Pueblo Avenue	Not Eligible
P-07-487	Southern Pacific: northern Contra Costa Route Spur Line	Sommerville Road and Pittsburg-Antioch Highway	Not Eligible
P-07-2772	PG&E South Tower – Contra Costa Transmission Line	N. Side Route 4 between Harbor Way and Century Boulevard.	Not Eligible
C-1149	Isolated ground stone artifact recovered by citizen	Highland School between Harbor Street and Somer Street	Not Evaluated, artifact reportedly returned

Table 7.3-3
Applicable Laws, Ordinances, Regulations, and Standards

LORS	Applicability	Administering Agency	AFC Section
Federal			
Section 106 of the National Historic Preservation Act	Federal regulation affecting the treatment of cultural resources.	State Historic Preservation Office	7.3.5.1
State			
California Environ-mental Quality Act	Requires evaluation of impacts of project on cultural resources.	California Energy Commission	7.3.5.2
Local			
City of Pittsburg General Plan	The general plan's objective is to "encourage municipal and community awareness, appreciation, and support for Piitsburg's historic, cultural, and archeological resources."	City of Pittsburg	7.3.5.3
Contra Costa County, Planning Department	According to the Contra Costa County General Plan, a goal of the county is to identify and preserve important archaeological and historic resources within the county.	Contra Costa County	7.3.5.3

Table 7.3-4
Involved Agencies and Agency Contacts

Issue	Agency/Address	Contact/Title	Telephone
Native American traditional cultural properties	Native American Heritage Commission 915 Capitol Mall, Room 364 Sacramento, CA 95814	Ms. Debbie Pilas-Treadway Associate Government Program Analyst	(916) 653-4038
Preservation of cultural resources	City of Pittsburg, Planning Department 65 Civic Avenue Pittsburg, CA 94565	Kristin Vahl, Associate Planner	(925) 252-6941 kvahl@ci.pittsburg.ca.us
Preservation of cultural resources	Contra Costa County, Planning Department, 651 Pine Street, 4th Floor - North Wing, Martinez, CA 94553	Patrick Roch, Division Manager, Advanced Planning	(925) 335-1242 proch@cd.cccounty.us



Source:
USGS Topographic Maps, 7.5 Minute Series:
Honker Bay, CA (Rev. 1980) and
Antioch North, CA (1978)

ARCHAEOLOGICAL AREA OF POTENTIAL EFFECTS

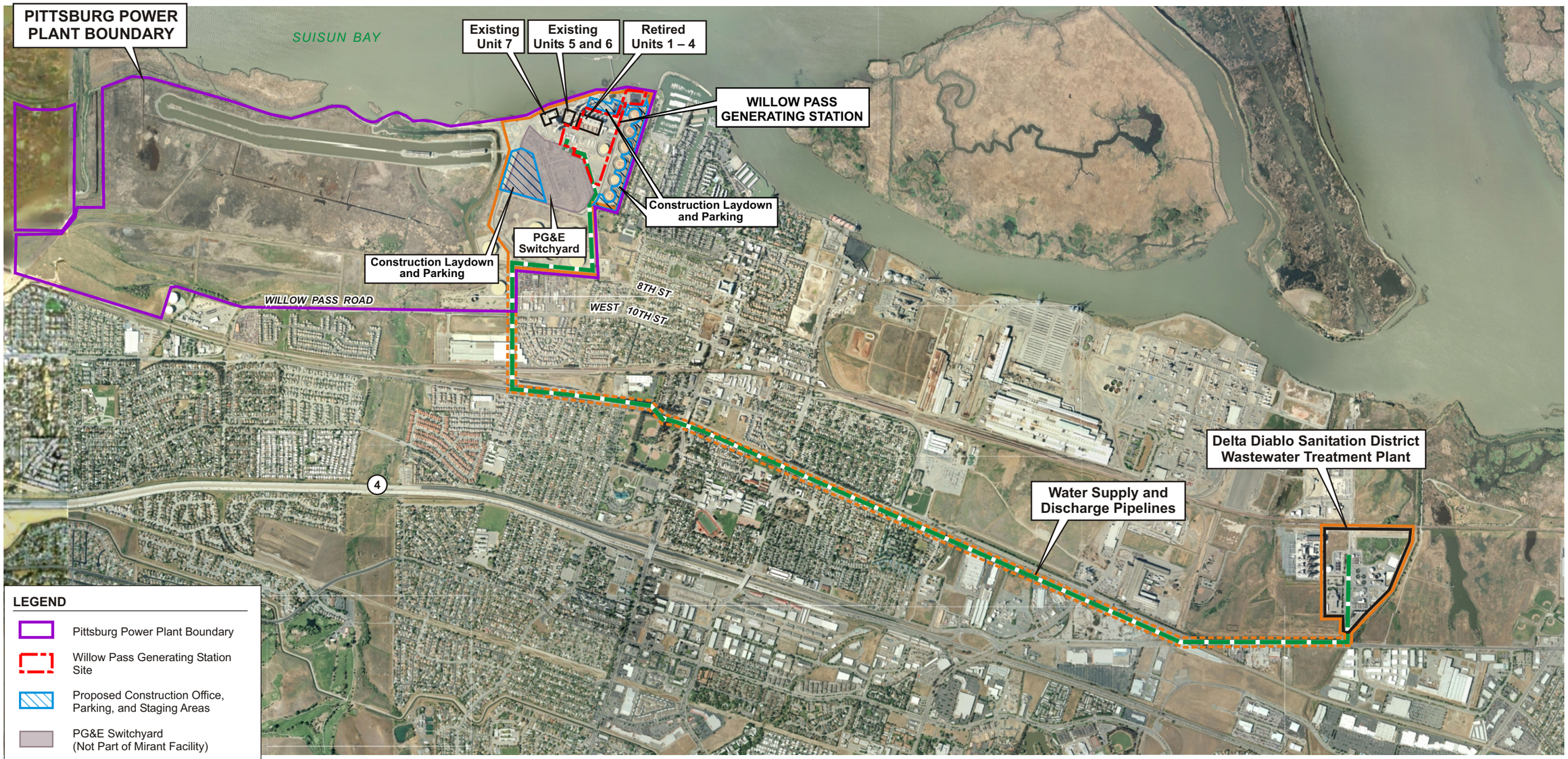
Willow Pass Generating Station
Mirant Willow Pass, LLC
Pittsburg, California

June 2008
28067343

URS

FIGURE 7.3-1

6/23/08 vsa ..T:\Mirant Pittsburg-Willow Pass\Graphics\7.03 Cultural\7.3-1_archaeo APE.cdr



LEGEND

- Pittsburg Power Plant Boundary
- Willow Pass Generating Station Site
- Proposed Construction Office, Parking, and Staging Areas
- PG&E Switchyard (Not Part of Mirant Facility)
- Delta Diablo Sanitation District Wastewater Treatment Plant
- Offsite Water Supply and Discharge Pipeline Route

Proposed Historic APE:

- Full Evaluation
- Reconnaissance Survey

Photo Source:
DigitalGlobe; Airphoto USA 2007

N

0 2000 4000 Feet

0 0.5 1 Miles

Scale 1:24,000

HISTORIC ARCHITECTURAL AREA OF POTENTIAL EFFECTS

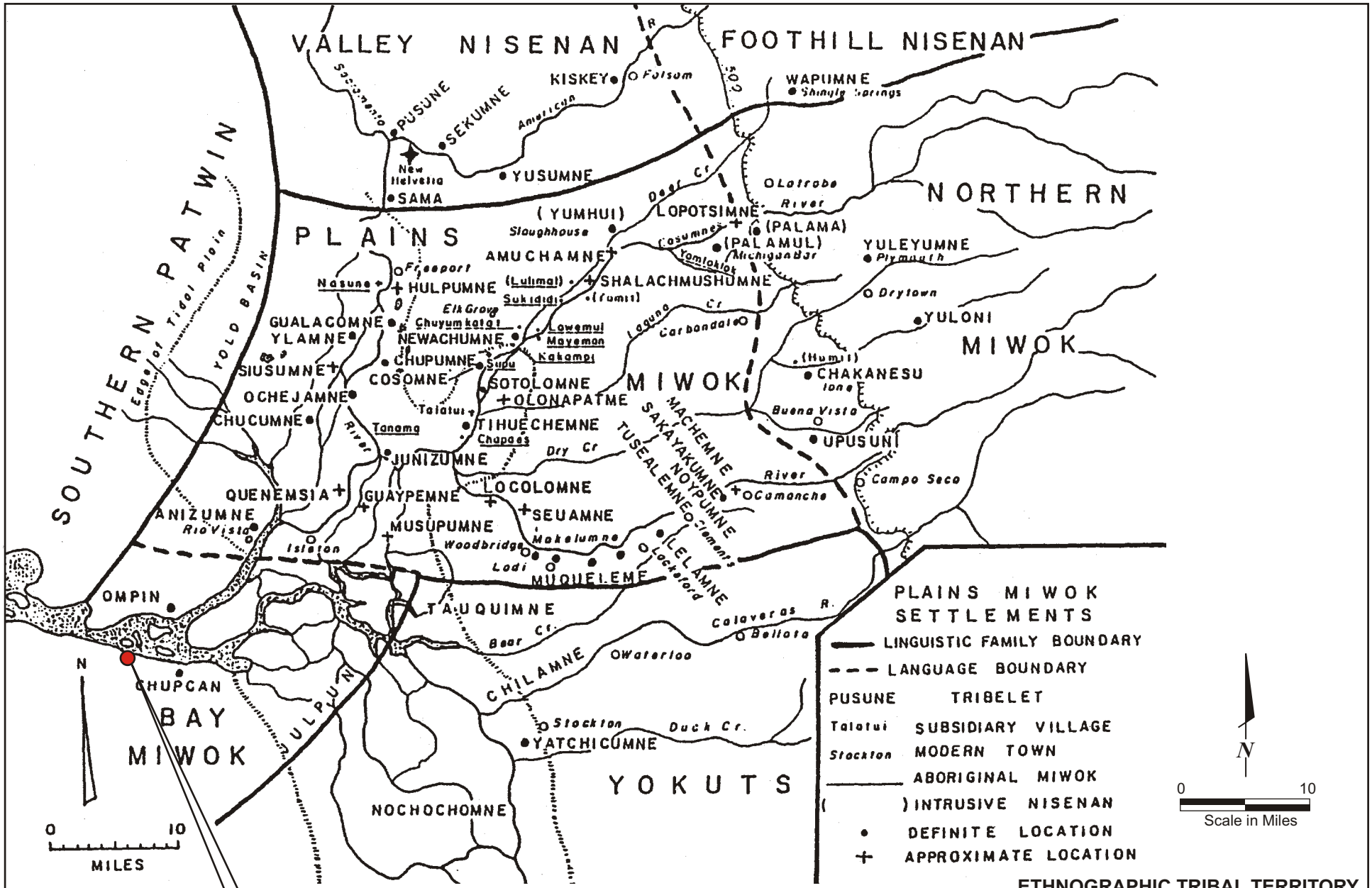
June 2008
28067343

Willow Pass Generating Station
Mirant Willow Pass, LLC
Pittsburg, California

URS

FIGURE 7.3-2

6/19/08 vsa ..T:\Mirant Pittsburg-Willow Pass\Graphics\7.03 Cultural\7.3-2_Hist APE.cdr



Source: Bennyhoff, 1977

ETHNOGRAPHIC TRIBAL TERRITORY OF THE BAY MIWOK

Willow Pass Generating Station
Mirant Willow Pass, LLC
Pittsburg, California

June 2008
28067343

URS

FIGURE 7.3-3

6/12/08 vsa ..T:\MirantPittsburg-Willow Pass\Graphics\7.03 Cultural\7.3-3_ethno territory.cdr

OBLIQUE IMAGE OF PITTSBURG POWER PLANT AFTER 1972

Willow Pass Generating Station
Mirant Willow Pass, LLC
Pittsburg, California

June 2008
28067343

URS

FIGURE 7.3-4

6/19/08 vsa ..T:\MirantPittsburg-Willow Pass\Graphics\7.03 Cultural\7.3-4_oblique image ppp.cdr