

## 5.3 Cultural Resources

This section discusses the potential effects of the Huntington Beach Energy Project (HBEP) on cultural resources. Section 5.3.1 describes the project setting, affected environment and provides an overview of the cultural resources environment that might be affected by HBEP. Section 5.3.2 provides the research design for the cultural resources inventory and Section 5.3.3 presents the results of the cultural resources inventory. Section 5.3.4 presents an environmental analysis of the proposed project. Section 5.3.5 discusses cumulative effects and Section 5.3.6 presents mitigation measures that will be implemented to avoid project-related impacts. Section 5.3.7 discusses the laws, ordinances, regulations, and standards (LORS) applicable to the protection of cultural resources. Section 5.3.8 lists the agencies involved and agency contacts, and Section 5.3.9 discusses permits. Section 5.3.10 lists reference materials used in preparing this section.

This section is consistent with state regulatory requirements for cultural resources pursuant to the California Environmental Quality Act (CEQA). Cultural resources include prehistoric and historic archaeological sites;<sup>1</sup> districts and objects; standing historic structures, buildings, districts, and objects; locations of important historic events, and sites of traditional/cultural importance to various groups.<sup>2</sup> The study scope was developed according to the California Energy Commission's (CEC) cultural resources guidelines and complies with *Instructions to the California Energy Commission Staff for the Review of and Information Requirements for an Application for Certification* (CEC, 1992) and *Rules of Practice and Procedure & Power Plant Site Certification Regulations* (CEC, 2007). This study was conducted by Cultural Resource Specialists (CRS) Gloriella Cardenas, M.A., RPA; Natalie Lawson, M.A., RPA; and Clint Helton, M.A., RPA, who meet the qualifications for Principal Investigator stated in the Secretary of the Interior's standards and guidelines for archaeology and historic preservation (U.S. National Park Service [NPS], 1983). Lori Durio-Price, M.A., Secretary of Interior-qualified Architectural Historian, conducted all research related to historic architecture.

Per CEC Data Adequacy requirements, Appendix 5.3A provides copies of agency consultation letters. Appendix 5.3B provides the Cultural Resources Inventory Report, including California Department of Parks and Recreation (DPR) 523 forms for newly recorded resources. Appendix 5.3C provides archival research material, including copies of historic maps and aerial photographs of the project area and a complete copy of the California Historical Resources Information System (CHRIS) literature search results, which include copies of previous technical reports occurring within 0.25 mile of the project site and DPR 523 forms for previously recorded resources occurring within 1 mile of the project. HBEP does not include any offsite linear facilities, so the requirements for documenting and analyzing cultural resources with 0.5 mile of linear facilities is not required for this project. Appendix 5.3D provides names and qualifications of personnel who contributed to this study. Appendix 5.3E contains a map of all resources recorded during the cultural resources assessment. (Appendixes 5.3B, 5.3C, and 5.3E will be submitted separately to the CEC under a request for confidentiality.

<sup>1</sup> Site is defined as "The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure...where the location itself possesses historic, cultural, or archeological value." (NPS, 1998: 5).

<sup>2</sup> The federal definitions of cultural resource, historic property or historic resource, traditional use area, and sacred resources are reviewed below and are typically applied to non-federal projects.

- A cultural resource may be defined as a phenomenon associated with prehistory, historical events, or individuals or extant cultural systems. These include archaeological sites, districts, and objects; standing historic structures, districts, and objects; locations of important historic events; and places, objects, and living or non-living things that are important to the practice and continuity of traditional cultures. Cultural resources may involve historic properties, traditional use areas, and sacred resource areas.
- Historic property or historic resource means any prehistoric district, site building, structure, or object included in, or eligible for, inclusion in the National Register of Historic Places (NRHP). The definition also includes artifacts, records and remains that are related to such a district, site, building, structure or object.
- Traditional use area refers to an area or landscape identified by a cultural group to be necessary for the perpetuation of the traditional culture. The concept can include areas for the collection of food and non-food resources, occupation sites and ceremonial and/or sacred areas.
- Sacred resources applies to traditional sites, places or objects that Native American tribes or groups, or their members, perceive as having religious significance.

### 5.3.1 Setting

The HBEP site is located in an industrial area of Huntington Beach at 21730 Newland Street, just north of the intersection of the Pacific Coast Highway (Highway 1) and Newland Street. The project is located on the site of the existing Huntington Beach Generating Station. The HBEP site is bounded on the west by a manufactured home/recreational vehicle park, on the north by a tank farm, on the north and east by the Huntington Beach Channel and residential areas, on the southeast by the Huntington Beach Wetland Preserve / Magnolia Marsh wetlands, and to the south and southwest by the Huntington Beach State Park and the Pacific Ocean. The site is located on a gently sloping coastal plain.

HBEP is a 939-megawatt combined-cycle power plant, consisting of two power blocks. Each power block is composed of three combustion turbines with supplemental fired heat recovery steam generators, a steam turbine generator, an air-cooled condenser, and ancillary facilities. HBEP will be constructed entirely within the existing footprint of the existing Huntington Beach Generating Station, an operating power plant. HBEP will reuse existing onsite potable water, natural gas, stormwater, process wastewater, and sanitary pipelines and electrical transmission facilities. No offsite linear developments are proposed as part of the project.

The project will use potable water, provided by the City of Huntington Beach, for construction and operational process and sanitary uses. During operation, stormwater and process wastewater will be discharged to a retention basin and then ultimately to the Pacific Ocean via an existing outfall. Sanitary wastewater will be conveyed to the Orange County Sanitation District via the existing City of Huntington Beach sewer connection. Two 230-kilovolt (kV) transmission interconnections will connect HBEP Power Blocks 1 and 2 to the existing onsite Southern California Edison (SCE) 230-kV switchyard.

HBEP construction will require the removal of the existing Huntington Beach Generating Station Units 1, 2, and 5. Demolition of Unit 5, scheduled to occur between the fourth quarter of 2014 and the end of 2015, will provide the space for the construction of HBEP Block 1. Construction of Blocks 1 and 2 are each expected to take approximately 42 and 30 months, respectively, with Block 1 construction scheduled to occur from the first quarter of 2015 through the second quarter of 2018, and Block 2 construction scheduled to occur from the first quarter of 2018 through the second quarter of 2020. Removal/demolition of existing Huntington Beach Generating Station Units 1 and 2 is scheduled to occur from the fourth quarter of 2020 through the third quarter of 2022.

Existing Huntington Beach Generating Station Units 3 and 4 were licensed through the California Energy Commission (CEC) (00-AFC-13C) and demolition of these units is authorized under that license and will proceed irrespective of the HBEP. Therefore, demolition of existing Huntington Beach Generating Station Units 3 and 4 is not part of the HBEP project definition. However, to ensure a comprehensive review of potential project impacts, the demolition of existing Huntington Beach Generating Station Units 3 and 4 is included in the cumulative impact assessment. Removal/demolition of existing Huntington Beach Generating Station Units 3 and 4 will be in advance of the construction of HBEP Block 2.

HBEP construction will require both onsite and offsite laydown and construction parking areas. Approximately 22 acres of construction laydown will be required, with approximately 6 acres at the Huntington Beach Generating Station used for a combination of laydown and construction parking, and 16 acres at the AES Alamitos Generating Station (AGS) used for construction laydown (component storage only/no assembly of components at AGS). During HBEP construction, the large components will be hauled from the construction laydown area at the AGS site to the HBEP site as they are ready for installation.

Construction worker parking for HBEP and the demolition of the existing units at Huntington Beach Generating Stations will be provided by a combination of onsite and offsite parking. A maximum of 330 parking spaces will be required during construction and demolition activities. As shown on Figure 2.3-3 in Section 2.0, Project Description, construction/demolition worker parking will be provided at the following locations:

- Approximately 1.5 acres onsite at the Huntington Beach Generating Station (approximately 130 parking stalls)
- Approximately 3 acres of existing paved/graveled parking located adjacent to HBEP across Newland Street (approximately 300 parking stalls)

- Approximately 2.5 acres of existing paved parking located at the corner of Pacific Coast Highway and Beach Boulevard (approximately 215 parking stalls)
- 225 parking stalls at the City of Huntington Beach shore parking west of the project site.
- Approximately 1.9 acres at the Plains All American Tank Farm located on Magnolia Street (approximately 170 parking stalls)

### 5.3.1.1 Affected Environment

The HBEP study area referred to in this section includes the survey areas for both archaeological and architectural resources. The archaeological survey area includes the existing Huntington Beach Generating Station site on which the HBEP will be located, as well as a 200-foot buffer comprising an additional 31 acres, for a total of 83 acres. The total acreage of new ground disturbance as part of the HBEP is approximately 28.6 acres.

As noted previously, approximately 22 acres of construction laydown area will be required. These areas will be graveled and large equipment will be staged and stored at these locations. No ground disturbance is proposed. Approximately 6 acres at the existing Huntington Beach Generating Station will be used for a combination of laydown and construction parking and 16 acres at the AGS will be used as an offsite construction laydown area to support construction of HBEP. This offsite construction laydown area for HBEP is a previously graded site located at the AES Alamitos Generating Station in the city of Long Beach.

As noted, four offsite construction/demolition worker parking areas adjacent to the HBEP site are available for HBEP workers. The total acreage proposed for offsite construction/demolition worker parking is approximately 10 acres. These four offsite areas, including a 200-foot buffer around each area, total 83 acres. The total archaeological survey area for all of the above-described areas is 166 acres.

The architectural survey area includes the existing Huntington Beach Generation Station, which encompasses the HBEP site, consisting of at least one additional parcel deep on all sides, as per CEC requirements for a project in an urban setting.

### 5.3.1.2 Study Area

The development of a regional chronology marking the major stages of cultural evolution in the southern California area has been an important topic of archaeological research. In general, cultural developments in southern California have occurred gradually and have shown long-term stability; thus, developing chronologies and applying those to specific locales have often been problematic. The following chronology is based on Byrd and Raab's (2007) updated synthesis of the southern bight cultures, an area that encompasses the California coast from Point Conception in the north to the American/ Mexican border in the south.

### 5.3.1.3 Regional Setting

HBEP is located along the Pacific Coast, adjacent to Pacific Coast Highway, across from Huntington State Beach, in the city of Huntington Beach. The existing Huntington Beach Generating Station property, on which HBEP will be located, is in a relatively industrialized, developed setting where existing natural areas have been displaced by industrial and commercial developments.

Abundant evidence exists that humans were present in North America for at least the past 11,500 years. Also fragmentary, but growing, evidence exists that humans were present long before that date. Linguistic and genetic studies suggest that human colonization of North America may have occurred 20,000 to 40,000 years ago. Evidence of this earlier occupation is not yet conclusive but is beginning to be accepted by archaeologists. The Meadowcroft Rockshelter in Pennsylvania, Saltville and Cactus Hill in Virginia, and the Topper site in South Carolina for instance, are sites that have produced apparently reliable dates as early as 12,500 years before present (Goodyear, 2005).

Ancient sites are known in southern California. In January 1936, WPA workers digging a storm drain along the Los Angeles River (north of Baldwin Hills) recovered human bones from an ancient stream bed (Moratto 1984:52-53). In March 1936, imperial mammoth teeth were exposed at the same depth as the human remains (Moratto,

1984:53). The next oldest site in southern California where both human skeletal remains and artifacts occur is the La Brea Tar Pits (CA-LAN-159). The Arlington Spring site on Santa Rosa Island has provided occupation dates as early 13,000 years old; the discovery of Arlington Spring Man is the second find in North America that has dated to this period (NPS, n.d). Evidence for Paleo-Indian occupation in California exists, particularly along the coast of southern California, but remains scanty (Byrd and Raab 2007). Evidence for Paleo-Indian occupation in California exists, but particularly along the coast of southern California, remains scanty (Byrd and Raab, 2007). The following chronology is based on Byrd and Raab's updated synthesis of the southern big cultures (2007).

#### 5.3.1.4 Early Holocene (9,600 cal B.C. – 5,600 cal B.C.)

The first groups to inhabit California (for which there is significant evidence) are described as hunters and gatherers with specialized bifacial projectile points, well-made scrapers, knives, and many other tools designed for subsistence-related tasks (food processing). They adapted to a number of environments and developed a variety of secondary subsistence strategies that enabled them to live in a changing environment (Pleistocene to Holocene). As the (Wisconsin) Ice Age ended, previously stable water sources began to dry up in inland California, prompting migrations to the coast. California's islands were occupied as early as 9600 to 9000 cal B.C., as indicated by the oldest levels at Daisy Cave on San Miguel Island. Southern California dwellers exploited a wider range of plants and animals, and the archaeological record shows that a greater emphasis was placed on gathering wild grasses and seeds, rather than on hunting large mammals. Coastal groups, including those living on the islands off of California's coast, utilized marine resources such as shellfish, fish, sea lions, and dolphins. Shell midden sites of the early Holocene are characterized by cobble tools, basin metates, manos, discoidals, and flexed burials (Byrd and Raab, 2007).

#### 5.3.1.5 Middle Holocene (6,000 cal B.C. – cal A.D. 500)

At the start of the Middle Holocene, millingstone cultures appeared throughout central and southern California. The Millingstone Horizon represents an adaptive subsistence shift indicated by the first occurrence of millingstones (mano and metate) which were used to process hard seeds like *Salvia* sp. (sages) and *Eriogonum fasciculatum*. Sites from this period are characterized by the majority of artifacts being manos and metates suggesting the importance of vegetal resources. Most of these sites are located in grassland and sagebrush communities where these hard seeds could support small populations on a yearly basis. Late fall and winter were difficult seasons when vegetal foods were scarce and their diet had to be supplemented with deer and small mammal hunting and shellfish collecting (Byrd and Raab, 2007).

Middle Holocene cultures are quite diverse. Large Middle Holocene sites have been well documented along the coast as well as inland. Archaeological evidence of extensive trade networks between southern California and the Southwest has been found. Rare artifact types, including the marine purple olive shell, indicate trade networks that extend from Catalina Island through the Mojave Desert and into Oregon extant in the Middle Holocene (Byrd and Raab, 2007).

Temporary settlements for a few nuclear families (10 to 25 individuals) have been recorded. These sites were seasonal campsites for exploiting yucca and acorns from April throughout September. The seasonal pattern has been documented as regional variations in the Millingstone Horizon sites in southern California (King, 1967). These sites are characterized by plant processing tools (scraper planes, an absence of hunting implements, millingstones, and earth ovens – necessary to prepare yucca). Peoples intensively exploited their environment with reliance on no particular food resource. Characteristic features of this period include (Wallace, 1955:219-221): crude chopping tools, large projectile points, manos and metates, *Olivella* shell beads, quartz crystals and cog stones, few ornaments, earth roasting pits, extended posture burials, reburials (secondary interment), and rock cairns. The first evidence of cemeteries are recorded during this period and based on the relative absence of non-utilitarian artifacts, an egalitarian social system was likely to have been in operation. Recent evidence indicates that the first permanent villages may have been erected during the Middle Holocene on San Clemente Island (Byrd and Raab, 2007). The presence of daub at Middle Holocene coastal sites indicates that at least some of the villages along the coast may have had permanent structures (Strudwick, 2005).

### 5.3.1.6 Late Holocene (cal A.D. 500 – Historic Contact)

The Late Holocene is characterized by a larger number of more specialized and diversified sites. Population increased substantially and is reflected in a greater number of sites recorded during this time period. This period is characterized by (Wallace, 1955:223-226): large village sites, tightly flexed burials, bow and arrow, arrowshaft straighteners, ollas (jars) and comals (cooking flats), personal ornaments, pottery vessels, circular shell fishhooks, an extensive trade network, a wide variety of ritual objects, and large stone bowls. Elaborate mortuary artifacts are recovered from sites of this period.

Villages occur in the same general locations as they did in earlier time periods, but they increased in size and decreased in their frequency; base camps were often associated with villages. There was also an increase in the number of specialized and/or diversified sites. Trade was extensive during this period and long distances are reflected in artifacts recovered from the American Southwest (pottery) in California sites, while steatite objects and Pacific Coast seashells occur in American Southwest sites. During the Late Period, many more classes of artifacts are found in the archaeological record and they reveal a higher order of workmanship. Larger and more extensive settlement systems are evident, likely a byproduct of a more intensive subsistence base exploiting all of the available food resources. The bow and arrow was introduced along with other aspects of their culture being expanded (population growth, more complex social system and trade network).

New studies indicate that culture change in southern California may have been rapid, rather than gradual. Overexploitation of resources may have caused shifts to new resources that occurred in greater amounts (Byrd and Raab, 2007). On the coast, intensified fishing and small sea mammal hunting replaced hunting of large sea mammals and shellfish collection. Fish resources were concentrated on smaller near-shore species, rather than on deep sea resources. Vegetal resources focused on grasses rather than acorns and direct evidence for acorn use is minimal at Late Holocene sites. Changes in subsistence strategies in prehistoric California appear to be related to overexploitation of preferred resources, leading to a shortage of the desired resource, followed by shifts to more costly resources (Byrd and Raab, 2007).

### 5.3.1.7 Ethnographic Setting

The Native Americans living in what is now the Orange County area at the time the Spanish occupied the region were the Tongva, but in keeping with the Spanish custom of naming the locals after nearby missions, the Tongva became called the Gabrieleño, after the Mission San Gabriel Arcangel.

#### 5.3.1.7.1 Gabrieleño/Tongva

The Gabrieleño spoke a Uto-Aztecan language and occupied most of the Los Angeles basin in Los Angeles and Orange counties, and extending into Riverside County. The territory of the Gabrieleño, composed of inland valleys and coastal plains, spanned from Topanga Canyon in the north to El Toro in the south, and included Catalina, San Clemente and San Nicolas Islands in the Channel Islands, as well as San Gabriel and San Bernardino inland valleys in the east (McCawley, 1996).

Pre-European contact population numbers are difficult to assess due to discrepancies in the record. In 1852, Scottish-born Los Angeles resident Hugo Reid published letters about the Gabrieleño lifeways and at that time he believed there remained 68 villages, 28 of which he identified in Los Angeles County (McCawley, 1996:25). Each village was reported to have contained an average of 100 people and McCawley (1996) offers an estimate of over 5,000 Gabrieleños at the time of contact based on this record.

The pre-contact Gabrieleño practiced a patrilineal lineage system. Members of the lineage were given access to diverse resources held by the families within their lineage, allowing the Gabrieleño to exploit multiple ecologies. The heavily hierarchical Gabrieleño social system was composed of elites, commoners, middle-class, poor, and slaves. The elites were the only ones to possess access to religious items and the middle-class supported the elites.

Distribution of settlements did not fall into a consistent pattern throughout the Gabrieleño territory, due in large part to the diverse ecological zones within Gabrieleño territory. Their settlement patterns appear to have been centered upon a central village, with satellite villages used for resource acquisition. They built large, circular

houses large enough to house several families, with thatched, domed roofs. Ceremonial buildings were often found scattered throughout the village, each with specialized uses, such as sweat lodges, menstrual huts, or meeting rooms. The level of use of these satellite campsites was in direct response to population and village size as well as distance from the main village to the campsite (Earle and O'Neal, 1994).

The Gabrieleño's subsistence strategies incorporated seasonal procurement of resources, both terrestrial and marine. Throughout the year, individual Gabrieleño families would move to temporary encampments for hunting, harvesting, and collecting; depending on the season and resources that could be harvested, travel would occur through various ecological zones. In the interior, where primary habitation was thought to take place in the summers, hunting of deer and rabbit constituted a significant portion of the diet among the Gabrieleño, who were expert hunters (McCawley, 1996). In spring and summer temporary camps would be established in order to gather roots, seeds, and bulbs; in the fall, acorns and other wild seeds, including grass seeds, were gathered as staples in their diet. In coastal areas, such as on the Huntington Beach Mesa and the Bolsa Chica Mesa near the HBEP site, wintertime villages were occupied; satellite or temporary campsites would be erected near the shore to collect shellfish and other marine resources. In addition to their skills in terrestrial hunting, the Gabrieleño were also adept at maritime hunting and gathering, and built planked canoes that were sealed with pine pitch or asphalt. Sea otters and other marine mammals were hunted with harpoons, as evidenced in the archaeological record from sites such as CA-LAN-2616 (Langenwalter et al., 2001).

Historical ethnographies have not consistently documented or differentiated between the different indigenous groups of southern California. Often various tribes, such as the Chumash, the Gabrieleño, the Juaneño, and the Luiseño have been intertwined creating difficulties for researchers attempting to distinguish one group from another group in the written record (Ciolek-Torrel, 1998). Domestic structures for southern California groups were generally constructed of reeds, grass, and tule. Gabrieleño houses were semi-subterranean structures built by erecting a pole at the center of an approximately 2.5-foot-deep circular pit; postholes would have been dug around its circumference where willow reeds would be placed and leaned toward the center and secured, then covered in tule and grasses. Whale bones or other large mammal bones were known to have been used in place of wood supports on the islands within Gabrieleño territory. While neighboring groups covered their houses in daub (a mud mixture), it is not clear if the Gabrieleño employed this practice; however, their sweat lodges were covered in daub after construction (Bean, 1974; Ciolek-Torrel, 1998; McCawley, 1996; Strudwick, 2005).

Bean (1974:70) writes of the Gabrieleño as "The most powerful of the Shoshonean groups and were probably very influential in the diffusion of ideas to inland peoples. The powerful military competency of the Gabrieleño undoubtedly limited territorial expansion of the Cahuilla."

Neighbors of the Gabrieleño were the Chumash to the north, the Serrano to the east, the Cahuilla to the southeast, and the Luiseño and Juaneño to the south. Today there are approximately 300 remaining members of the Gabrieleño/Tongva tribe. Based on the types of archaeological sites located near the HBEP site, it is surmised that the immediate area was solely used for resources procurement (McCawley, 1996). Until dam control was incorporated in the 1940s, much of Huntington Beach was prone to flooding by the Santa Ana River and the area was a marshland that would not have supported permanent or long-term habitation without the aid of complex construction and flood control. Instead, large and complex prehistoric sites were found on the mesas that sat above the water table: Huntington Beach Mesa and Bolsa Chica Mesa.

Several extensive prehistoric habitation sites are known to have existed along the southern California coast. These sites indicate a complex society once proliferated along the Orange County shoreline. Sites within a 5-mile radius of the HBEP site include CA-ORA 88, the Bolsa Processing Facility; CA-ORA-365, the Borchard Site; and CA-ORA-82, the Edwards Hill Burial Site on Huntington Beach Mesa; and CA-ORA-85, the Eberhart Site, and CA-ORA-83, the Cogged Stone Site, both on the Bolsa Chica Mesa. Collectively, these five sites provide an uninterrupted 8,000-year sequence from approximately 9,000 years to about 1,000 years ago (Couch et al., 2009: 148). Additionally, approximately 20 more sites are located within a 1-mile radius of CA-ORA-83, which appear to range from resource processing sites to resource gathering areas.

A unique discovery in Orange County was made at one of the sites near the HBEP site. In 2006, the largest known cache of cogged stones was found at CA-ORA-83, later named "The Cogged Stone Site." The cogged stone is a

unique artifact, resembling a gear wheel with an unknown purpose or use that appears to originate in Orange County. Distribution extends as far north as Ventura County and south to San Diego County. Cogged stones are generally not found inland and appear to be found almost entirely within Gabrieleño territory; however, rare single specimen discoveries have occurred in Fossil Falls, Inyo County, and Chandler, Arizona (Koerper and Mason, 1998).

### 5.3.1.8 Historic Setting

Generally the historic period begins with the first documented entrance by a European into a specific region; however, due to known contact in other parts of California by Russians, Chinese, Spanish, and Portuguese some chronologies terminate the late prehistoric for all California in 1542, when the first documented European entered the territory now known as California. This period is termed the Protohistoric Period. In 1542 Juan Rodriguez Cabrillo explored the California coast by ship, entering San Diego Bay and claiming Alta California for Spain. Cabrillo landed near Point Mugu in the same year. Sixty years later, Sebastian Vizcaino sailed into San Diego Bay. Exploration of the land was slower to come. Don Gaspar de Portola searched Alta California for suitable mission sites in 1769.

In California, the historic era is generally divided into three periods: the Spanish or Mission Period (1769 to 1834), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

### 5.3.1.9 Spanish/Mission Period (1769–1834)

Gaspar de Portola was appointed as the first governor of California in 1767 and his first command by the Viceroy of Mexico was to expel the Jesuits from Baja California. This prompted the launch of military and Franciscan expeditions from Baja California into the region, and with it, the official start of the historic period in California. Following the expulsion of the Jesuits from Baja California, Spanish Colonial military outposts were established in Alta, the first of which was El Presidio Real de San Diego in 1769 with Pedro Fages as its commander. Military outposts continued to be built as expeditions travelled north. The Portola expedition of 1769 reached Orange County on July 22, was in the San Gabriel Valley by August 2, and was passing through what would become Ventura County by the end of that month (Beebe and Senkewicz, 2001).

The following is a summary of local missions from the California Mission Resource Center (n.d.) and the California Missions Foundation (2008). During this period, 21 missions would be built in California, lined up from south to north along the El Camino Real, the first of which was San Diego de Alcalá, founded by Junipero Serra. Mission San Gabriel Arcángel, established by Father Pedro Cambon and Father Angel Somera in the San Gabriel Valley on September 8, 1771, was the fourth mission in southern California. In 1776, Santa Ana River floods destroyed much of the mission and it was relocated from Montebello, California to what is now the city of San Gabriel, California. Along with rebuilding the mission, 27 outlying *estancias* (ranchos) were established to supply this mission with meat, hay, grain, vegetables, and fruits. The seventh mission, Mission San Juan Capistrano, was founded on November 1, 1776, by Father Junipero Serra.

This period also introduced the era of Missionization; a period of forced conversion of the Native Americans who occupied the region. The Franciscans viewed the local populations as child-like individuals who would benefit from their European instruction and Christianization (We Are California, 2008). Captured and removed from their villages, the indigenous peoples were brought to the missions and into servitude. Many perished due to ill treatment, and more due to the introduction of European diseases, ultimately decimating the Native American populations.

The Spanish government was awarding *ranchos* (land grants) to soldiers and other Spanish Californios by the 1790s; vast tracts of land were used for livestock and farming. In 1784, Governor Pedro Fages awarded his soldier, Jose Manuel Nieto, a 300,000-acre land grant for his services to the crown during the Portola expeditions. Nieto's rancho extended from modern-day Long Beach, south into Huntington Beach, and east into San Bernardino County. Shortly thereafter, the land grant was retracted. A new grant was given to Nieto which resulted in a reduction of Nieto's acreage by roughly half (City of Huntington Beach, 1996; Rancho Los Alamitos, 2012).

The last mission to be founded was San Francisco Solano in 1823. Further attempts to construct additional missions were thwarted by Spain itself due to the costly endeavor each new mission posed. Later, as Spain lost its

rule over New Spain and secularization was sought by the new government, the mission system was disbanded (Weber, 2006).

#### **5.3.1.10 Rancho Period (1821–1848)**

Mexico became independent of Spain in 1821 and the Decree of Secularization, passed in 1834, effectively ended the Mission Period in California. The following years were marked by the proliferation of cattle ranching throughout the region, as the Mexican governor, Pio Pico, granted vast tracts of land to Mexican (and some American) settlers. The former mission lands were then opened for grants by the Mexican government to citizens who would colonize the area and develop the land, generally for grazing cattle and sheep (Lech, 2004). During this time, Nieto's property was parceled out among his heirs. This rancho, referred to as Nietos Grant, was divided and the project area was on the portion named the Rancho Las Bolsas (County of Orange, n.d.). In 1834, 21 square miles of Rancho Las Bolsas were deeded to Catarina Ruiz, which in turn later became known as Huntington Beach, Garden Grove, Westminster, and Fountain Valley (City of Huntington Beach, 1996).

#### **5.3.1.11 American Period (1848–Present)**

Following the signing of the Treaty of Guadalupe Hidalgo in 1848, the United States took possession of California. The treaty bound the United States to honor the legitimate land claims of Mexican citizens residing in captured territories. The Land Act of 1851 established a board of Land Commissioners to review these records and adjudicate claims, and charged the Surveyor General with surveying confirmed land grants. In order to investigate and confirm titles of California, American officials acquired the provincial records of the Spanish and Mexican governments that were located in Monterey. Those records, most of which were transferred to the U.S. Surveyor General's Office in San Francisco, included land deeds and sketch maps (Gutierrez and Orsi, 1998).

From 1852 to 1856, a board of Land Commissioners determined the validity of grant claims. Land claims that were rejected caused the land to be reverted to the public domain, and the land then became fair game for squatters. Ranch titles represented little as collateral. Although the claims of some owners were eventually substantiated, many of the owners lost their lands through bankruptcy or the inability to meet the exorbitant interest on their legal debts (Robinson, 1979). Many of the original rancho owners eventually lost their land to the United States. Un-surveyed land boundaries created a loophole through which squatters could occupy plots on the fringes of land grants and eventually come to own those plots through squatters' rights (Gutierrez and Orsi, 1998).

The Rancho Las Bolsas and the Bolsa Chica came under the ownership of cattle rancher Abel Stearns in the 1850s; one of the biggest ranchers in California at the time, Stearns founded the Stearns Rancho Company (City of Huntington Beach, 1996).

By the 1880s, Stearns had sold off part of his land to Colonel Robert Northam, then manager of the Stearns Rancho Company and a barley farmer. The land purchased by Northam came to be called Shell Beach (Baily, 1981; City of Huntington Beach, 1996).

#### **5.3.1.12 Development of Orange County**

From the start of the American Period well into the twentieth century, the area continued to serve primarily as farmland. The land between the Santa Ana River and the Bolsa Chica, a saltwater swamp, was very fertile and agriculture quickly became important in the area known then as Shell Beach, particularly celery, asparagus, peppers, corn, and potatoes.

The first railroad in the region, the Smeltzer Branch of the Santa Ana Newport Railroad, was constructed in 1897. The line was planned from Newport along the coast and through present day Huntington Beach, before turning inland to Westminster. The ground in Westminster, however, was too soft for a rail line due to all the peat bogs, and the line stopped in Huntington Beach, near the project area.

During this time, the area in which the HBEP site is located was part of Los Angeles County, and the residents of southern Los Angeles County were feeling alienated and disconnected from the county proceedings and decision making. Although there were only three incorporated cities in southern Los Angeles County—Anaheim, Santa Ana, and Orange—there was a growing population with interests in the local economy who wanted their own

governmental body, away from Los Angeles County bureaucracy. In 1889, as a result of growing frustration with county government, the County of Orange was formed. Santa Ana became the seat of the newly founded Orange County (Orange County Register, 2010).

### 5.3.1.13 Henry Edwards Huntington

Henry Edwards Huntington is credited with laying the foundation that helped shaped the future of what is now the city of Huntington Beach; he was born in Oneonta, New York, in 1850 and was nephew to Collis P. Huntington, one of the founders of the Transcontinental Central Pacific Railroad and later, the Southern Pacific Railroad (Greenstein, 1999). Prior to coming to southern California, Henry, under Collis's tutelage, was inducted into the railroad business and oversaw construction of railways in Tennessee and Kentucky. In 1890, Collis became President of Southern Pacific, and Henry travelled to San Francisco to be his assistant (ERHA, n.d; Greenstein, 1999). Henry believed southern California afforded great opportunities for railroad development. He came to Los Angeles and formed a syndicate for railroad construction and improvements in 1898; the Los Angeles railway system was revamped and on July 4, 1902, the Pacific Electric Railway ran its first Big Red Car line from Los Angeles to Long Beach (Greenstein, 1999). Systematically, railway lines were added, resulting in 1,100 miles of track that linked much of southern California by way of over 900 Big Red Cars; this was the largest interurban railway in the entire county (ERHA, n.d.; Greenstein, 1999).

The Orange County Register's History of Orange County (2010) states that these Red Car Trolleys are credited with encouraging the growth of Orange County as they made travel into and out of the area accessible.

The first line to be built in Orange County came from a split in the Long Beach Line. It went along the coastline through Seal Beach, Huntington Beach, and terminating at Newport Beach (Balboa Peninsula). This line opened through Huntington Beach in 1904, and was finished to Newport Beach in 1906. The second line went from the split at the Watts Towers to Santa Ana, which was built around the same time as the Newport Beach line. The third and final line was built in North Orange County, through Fullerton and ending in Yorba Linda. In fact, the line ran through what was Richard Nixon's childhood backyard in the early part of this century (Orange County Register, 2010).

In addition to railroads, Huntington had interests in utilities; he had control of several companies that dealt with gas, water, and electricity, and he had interests in up to 23 companies, including Pacific Light and Power Company and Alhambra Water Company (The Huntington Library, 2008).

### 5.3.1.14 City of Huntington Beach

In 1901, the West Coast Land and Water Company was formed by a group of Los Angeles businessmen to sell lots and create a west coast resort called Pacific City, to rival New Jersey's Atlantic City. They purchased 40 acres along Shell Beach but failed to get financing to build their project. Henry Huntington and his partners formed a new company called the Huntington Beach Company and took over the Pacific City acreage in May 1903. They also purchased additional acreage from Colonel Northam. The Huntington Beach Company built 27 miles of streets, planted trees, and installed basic infrastructure systems. Huntington was instrumental in persuading the Pacific Electric Railway to build a rail line from downtown Los Angeles to Main and Ocean streets in Pacific City, with the Huntington Beach Company donating rights-of-way and real estate. The first train ran along the rail line from Los Angeles to Pacific City in July 1904. On August 5, 1904, the name of Pacific City was officially changed to Huntington Beach, in honor of Henry Huntington. With a population of less than 1,000, Huntington Beach was incorporated in 1909 as the sixth city in Orange County (Huntington Beach Company, 1978).

At the time of its incorporation, Huntington Beach encompassed 3.57 miles and had a population of 915; Huntington Beach's first mayor was Ed Manning (City of Huntington Beach, 1996; Orange County Historical Society, n.d.). Around this time, the sugar beet became a very important crop and in 1911, the Holly Sugar Company built a plant in Huntington Beach. In 1914, the original wooden pier built by the West Coast Land and Water Company was replaced by a long, solid concrete pier.

In 1919, Standard Oil leased land from the Huntington Beach Company and drilled for oil. In August 1920, the well began producing, and an oil boom changed the landscape of the town forever. Drilling for oil became a popular

industry and many companies leased land for this endeavor. This marked the start of increased growth and successful enterprise for the City of Huntington Beach; the oil discoveries in the area were, at the time, the largest oil deposits found in California; Huntington Beach's population went from 1,500 to 5,000 people in one month following the oil strike (City of Huntington Beach, n.d.).

In response to the volumes of people being brought in by rail and for commerce, Pacific Coast Highway was built in 1925. The City of Huntington Beach leased land on the beach from the Huntington Beach Company, and constructed a beach park and campground with bathrooms and picnic facilities (Sherwood, 1996).

The final oil strike took place in 1953 and shortly thereafter the city began cleanup efforts and removal of oil derricks. The city cleared out or concealed the oil derricks to accommodate a population explosion that began in the late 1950s and continued through the 1970s. Between 1957 and 1959, a series of annexations increased the area of the city by approximately 20 square miles. This growth was spurred in part by returning World War II veterans, and vast housing tracts were built for them. In 1953, the city's first surf shop opened, and the first U.S. Surfing Championships were held in Huntington Beach 6 years later. The city remains the primary home of surfing in the U.S. Huntington Harbor was constructed in 1963, the same year that McDonnell Douglas Aircraft Space Systems Center was established in Huntington Beach. It was during this boom that the Huntington Beach Generating Station was constructed (MacLeod and Milkovich, 1988). By the 1970s, Huntington Beach was the largest city in Orange County.

#### 5.3.1.15 Steam Generation Plants in California

The first commercial electrical central generating stations were the Pearl Street Station in New York and the Holborn Viaduct power station in London, both of which opened in 1882 (Parsons, 1940). Both of these stations used reciprocating steam engines, but the development of the steam turbine allowed larger and more efficient central generating stations to be built. Turbines offered higher speeds, more compact machinery, and stable speed regulation. British designer Sir Charles Parsons built the first multi-stage reaction steam turbine in 1884 and patented it in 1885 (Cambridge, 2000). Almost immediately, he and others began making improvements upon his original concept. By 1893, Parsons had a 300-kW turbine generator (Skrabec, 2006). George Westinghouse, Jr. bought the U.S. rights to the Parsons turbine in 1896 and improved the Parsons technology and increased its scale (Skrabec, 2006). In 1903, Aegidius Elling of Norway built the first successful experimental gas turbine that was able to produce more power than it needed to run its own components. It used both rotary compressors and turbines, and is recognized as the first applied method of injecting steam into the combustion chambers of a gas turbine engine (Encyclopedia Britannica, 1995). By the beginning of the twentieth century, power plants with steam turbines began to replace the original steam engine power plants, and turbines entirely replaced reciprocating engines in large central stations after about 1905 (Parsons, 1940). In less than 30 years, the technology of engines capable of supplying power and electricity had improved greatly.

In the early stages of steam turbine power plant development, the materials needed to withstand the high temperatures of modern turbines were not yet available. Technology and improvements for steam turbine engines continued to advance throughout the 1920s and 1930s, leading to a generation of more efficient turbine power plants in the 1950s.

In 1920, hydroelectric power accounted for 69 percent of all electrical power generated in California. By 1930, that figure had risen to 76 percent; by 1940 it was up to 89 percent (Williams, 1997; Herbert and Brookshear, 2006). But after 1941, new thermal or steam-electric generating units accounted for most of the new power capacity in the state. By 1950, hydroelectricity accounted for only 59 percent of the total, falling to 27 percent in 1960 (Williams, 1997; Herbert and Brookshear, 2006).

Pacific Gas and Electric Company (PG&E) and SCE, California's largest electrical utility providers, made efforts to build large-scale steam generation plants as early as the 1920s. James Williams, a historian of energy policies and practices in California, noted that the decision by PG&E and SCE to build steam plants in the 1920s may be attributed to three things. First, a persistent drought in California from 1924 through the mid-1930s caused the major utilities to question the viability of systems that relied heavily on hydroelectricity. Second, new steam generation power plants on the East Coast were achieving far greater efficiencies than had previously been

possible. Between 1900 and 1930, for example, the fuel efficiency of steam plants, measured in kilowatts per barrel of oil, increased more than nine-fold. Third, new natural gas lines were completed in the late 1920s that could bring new gas supplies to both northern and southern California from the San Joaquin Valley (Williams, 1997).

SCE began constructing its steam generation plant at Long Beach on Terminal Island in 1911. The Los Angeles Department of Water and Power (LADWP) constructed a steam station at Seal Beach consisting of two units installed in 1925 and 1928. PG&E built a steam plant in Oakland in 1928. In 1929, the Great Western Power Company (which was absorbed by PG&E in 1930) built a large steam plant on San Francisco Bay, near the Hunters Point shipyard (Herbert and Brookshear, 2006).

The years following World War II were a time of expansive growth in southern California. The population swelled in response to business and industrial development. Housing expanded into formerly agricultural areas, creating suburbs around Los Angeles and San Diego. The increased population and industry made greater power generation crucial and California's utility providers expanded their capacity to meet the demand. At this point, most of the more favorable hydroelectric sites in California had already been developed, and as previously noted, the viability of hydroelectricity had been called into question during the drought of the 1920s and 1930s. The technology of steam generation had progressed and abundant natural gas resources to help run them were now available. "Steam turbine power plants were cheaper and quicker to build than hydroelectric plants, so utilities companies moved away from hydroelectricity, establishing steam turbine power as the generator of choice" (Herbert and Brookshear, 2006). The "momentum for steam had been established by war, by drought, and by a positive history of increased thermal power plant development" (Williams, 1997).

Starting in the 1950s, dozens of new steam generation plants were built throughout California. In a detailed article in 1950 in *Civil Engineering*, I. C. Steele, chief engineer for PG&E, summarized the design criteria of four major steam plants the company had under construction at that time: Moss Landing, Contra Costa, Kern, and Hunters Point in San Francisco. The criteria were the same in all cases: build the facility close to load centers to reduce transmission costs, close to fuel supplies, near a water supply, and on a site where land was inexpensive and could support a good foundation (Steele, 1950; Herbert and Brookshear, 2006).

Between 1950 and 1970, steam generating capacity in California saw its greatest expansion. During this period, SCE built a series of similar steam plants in the Los Angeles basin and in San Bernardino County. In 1952, the company began work on Redondo No. 2, which was adjacent to an earlier plant at Redondo Beach. In 1953, the Etiwanda plant went online, followed in 1955 by El Segundo, Alamitos in 1956, and Huntington Beach and Mandalay in 1958. By 1960, all SCE plants either had multiple units or had additional units in the planning stages. In 1950, PG&E operated 15 steam electric plants in California. Between 1950 and 1960 they added several new plants and expanded older ones. Chief among these were Contra Costa (1951-53), Moss Landing (1950-52), Morro Bay (1955), Hunters Point (addition 1958), Humboldt Bay (1956-58), and Pittsburg (1959-60) (Herbert and Brookshear, 2006).

Although SCE and PG&E were the major players, smaller utility companies also grew their facilities. The LADWP system consisted of five steam electric power plants by 1962: Seal Beach Plant (1925-28), Harbor Plant on Los Angeles Harbor (1943), Valley Plant in the San Fernando Valley (1954), Scattergood (1958), and Haynes (1961). San Diego Gas & Electric Company had three steam electric power plants by 1960: Silver Gate (1943), Encina (1954), and South Bay (1960). By the late 1970s, there were more than 20 fossil fuel thermal plants in California, clustered around San Francisco Bay, Santa Monica Bay, and in San Diego County, along with a few interior plants in San Bernardino, Riverside, and Imperial counties, as well as a few plants on the Central Coast (Herbert and Brookshear, 2006).

### 5.3.1.16 Southern California Edison Company

The history of SCE dates to 1886, when a company called Holt and Knupps illuminated Visalia, California, with street lights. They became known as Visalia Electric Light & Gas Company, the earliest of several companies that became SCE (Edison International, 2012). In 1896, a group of investors, including Elmer Peck and George Baker, established the West Side Lighting Company to provide electricity to Los Angeles and bought the franchise to operate the city's power system (Edison International, 2012; Myers, 1983). But that same year the city passed an

ordinance prohibiting most overhead line construction because the city streets had become a maze of overhead lines (Lundsten and Flick, 2012). The ordinance established the “conduit district” in which new wiring had to be laid underground (Myers, 1983). West Side Lighting decided that the best technology available was the Edison three-wire conduit technology, and that they needed this technology to continue to grow their business. But Los Angeles Edison Electric, formed in 1894, owned the rights to the Edison name and patents (Lundsten and Flick, 2012). The two companies merged and formed Edison Electric Company of Los Angeles in 1897 (Slade et al., 2012). Edison Electric then purchased several smaller utility companies, including Visalia Electric Light & Gas Company, San Bernardino Electric Company, Santa Barbara Electric Light Company, and Ventura Land & Power. They also began to build new plants and transmission lines, and became the first company to install Edison-type DC-power underground conduits in the Southwest. The Los Angeles No. 2 substation opened in 1898, distributing power throughout the City of Los Angeles via the new conduit system (Myers, 1983). Continuing to expand, they purchased the Southern California Power Company that same year (Myers, 1983).

In 1899, their Santa Ana River No. 1 hydroelectric plant began operation, transmitting power to Los Angeles over the Santa Ana River Line, at the time the world’s longest power line at 83 miles long (Edison International, 2012). The power line was the first to use “transposition” technology, which has been used ever since for long-distance transmission lines (Myers, 1983). In 1907, the company surpassed this achievement when their Kern River-Los Angeles Transmission Line began operation. At 118 miles and 75 kV, it was the world’s longest, and highest voltage, power line and the first transmission line in the nation to be supported entirely by steel towers (Edison International, 2012). The company continued to expand and on July 6, 1909, changed its name from Edison Electric Company of Los Angeles to Southern California Edison to reflect its expanded service area (Edison International, 2012).

In 1917, SCE purchased the Pacific Light & Power Corporation, the Ventura County Power Company, and the Mount Whitney Power & Electric Company, making it the fifth-largest central-station power company in the United States (Slade et al., 2012). The acquisition of Pacific Light & Power gave SCE the Big Creek Project, at the time the world’s largest hydroelectric plant, energized in 1913 (Edison International, 2012). By 1929, the eight powerhouses at Big Creek generated a total of 360,000 kilowatts, half of SCE’s total power capacity (Slade et al., 2012).

In 1912, the City of Los Angeles decided to develop its own power distribution system, known as the Los Angeles Department of Water and Power. It was enshrined in the Charter of the City of Los Angeles in 1925, and by 1939 had become the sole general distributor of electric energy in Los Angeles (Lundsten and Flick, 2012). SCE had to sell its Los Angeles distribution system to the Los Angeles City Council in 1922 (Slade et al., 2012). But it continued to grow outside of the city limits, expanding its steam plants in Long Beach during the 1930s to include eleven new generators (Slade et al., 2012).

After World War II, SCE grew substantially and installed its one millionth meter in 1951 (Slade et al., 2012). By the early 1950s Edison was the fifth-largest investor-owned power company in the United States. Its service area covered 18,500 square miles and contained about 225 communities with a combined population of almost three million. SCE built 11 fossil-fuel powered stations between 1948 and 1973. They also expanded into nuclear power. In July 1957, at the Santa Susana Experimental Station, SCE became the first investor-owned utility to generate non-military nuclear power (Slade et al., 2012). They broke ground on the San Onofre Nuclear Generating Station in 1963, and it began operation in 1968 (Edison International, 2012). In January 1964 the California Electric Power Company, which served 450,000 people, merged with SCE (Slade et al., 2012).

In 1988, SCE formed a parent holding company, which became known as Edison International in 1996. SCE sold the Huntington Beach Generating Station to AES Corporation/AES Huntington Beach, LLC, in 1998.

Founded in 1981, the AES Corporation built its first power plant in 1985 in Texas. They now operate on five continents and in 27 countries. They engage in power generation and distribution, and also operate utility companies. AES California operates three power plants: AES Huntington Beach Generating Station, AES Redondo Beach Generating Station, and AES Alamitos Generating Station. The power generated is sold to SCE for distribution in California.

### 5.3.1.17 Huntington Beach Generating Station

As the region grew and the demands for energy increased, SCE built several new power stations, including the Huntington Beach Generating Station. As noted previously, SCE built 11 fossil-fuel powered stations between 1948 and 1973. The Huntington Beach Generating Station was one of several similar steam generating plants constructed during this time. Construction began in 1957, and Unit 1 began commercial operation on June 30, 1958; Unit 2 was operational by December 5, 1958; Unit 3 was operational by May 23, 1961; Unit 4 was operational by July 9, 1961; and Unit 5 was operational by April 1, 1969 (Unit History, n.d.). Units 3 and 4 were retired for lack of use in 1995, but were re-fired in 2002 and 2003, respectively. Unit 5 was retired in 2002 and is currently out of service.

The existing Huntington Beach Generating Station Units 1 through 4 were dual fueled (fuel oil and natural gas) electric utility steam boilers until the late 1980s, when the generating units ceased using fuel oil and began operating solely on natural gas. Unit 5 was a liquid fuel gas turbine that burned JOP-8 fuel. Although the existing Huntington Beach Generating Station had switched to using natural gas, the fuel oil tanks were required to be kept and used as an emergency backup fuel source. The California Independent Systems Operator decided in the mid-1990s that backup fuel sources were no longer required for the Huntington Beach Generating Station. The fuel tanks are currently empty (Daly, 2009).

## 5.3.2 Research Design for the Cultural Resources Inventory

### 5.3.2.1 Research Objective

This section provides the research design used by CH2M HILL to guide the records and archival search and subsequent fieldwork phase of the cultural resource inventory for the HBEP. Given identified themes for this project, property types and survey expectations were defined. The methods used both during the records and archival search and the fieldwork phase were planned to meet or exceed the CEC requirements according to the Rules of Practice and Procedure & Power Plant Site Certification Regulations (CEC, 2007), as well as California Archaeological Resource Management reporting and CEQA requirements for analyzing potential impacts to historical resources.

The initial goal was to identify any cultural resources located within the project site so that effects of the project could be assessed. To accomplish this goal, background information was examined and assessed, the study area was defined as well as the larger ethnographic study area, and a field survey was conducted to identify cultural remains. Reviews of the records search results, previous work in the project area and vicinity, and a historical map check indicated that cultural resources within the study area were likely to be mostly historic structures related to the 1950's-era Huntington Beach Generating Station.

The fundamental goals of an intensive pedestrian survey are to identify and document previously unrecorded cultural resources and analyze cultural materials, not only to better characterize potential project effects, but also to attempt to confirm or elaborate on our current understanding of the prehistory and history of the region. From a management perspective, the ability of specific resources to address research questions provides a basis to evaluate California Register of Historic Resources (CRHR) eligibility. Methods for conducting the field survey and inventory are described below.

### 5.3.2.2 Research Questions

The literature review and search results suggest that the project area has a low archaeological sensitivity. Additionally, HBEP is located in an area that was historically prone to extensive flooding and now much of the existing Huntington Beach Generating Station site, which is almost entirely paved, sits on fill. Although known prehistoric sites occur along the ocean near the project site, the HBEP area is completely developed. Additionally, although historic-period sites tend to be associated with historic linear features such as roads, railroads, transmission lines, all of which are or have been in the area, the area is highly developed. Pertinent research questions that are applicable to the project site are discussed below.

1. The HBEP is located in an area that was historically prone to flooding and fill was imported into the area to create a solid foundation on which to construct the existing Huntington Beach Generating Station in the 1950s. The location of the existing Huntington Beach Generating Station site, near the ocean and its various

resources, as well as the Santa Ana River and fresh water would indicate the general area is a good one for prehistoric resource procurement. The Huntington Beach and Bolsa Chica mesas evidence a series of habitation or village sites with several associated smaller resource procurement and resource processing sites. Although HBEP is located in an area that would likely have been marsh during the prehistoric era, it is sufficiently close to areas known to contain habitation sites. Elsewhere in Orange County, habitation sites are known to have been extant adjacent to marshes (Ciolek-Torrelo, 1998).

**Research Question:** Are there any remaining areas around the project site or within the 200-foot buffer that remain intact enough to contain archaeological remains? Is there evidence of resource procurement or processing? Could such sites be related to larger habitation sites near the present day existing Huntington Beach Generating Station?

- Historically, the Smeltzer Line of the Santa Ana Newport Railroad ran near the HBEP site and celery farms were found in the area. Historical maps identify the area as Celery. If any remains are identified in the study area, they would most likely be historic trash dumps or scatters related to railroad construction or agricultural activities.

**Research Question:** Is there any evidence of these historical activities in the study area? If so, do any of these remains offer evidence of any different ethnic groups who may have been involved in the construction of the rail line or in the farming activities of the Celery area?

- Starting in the 1950s, dozens of new steam generation plants were built throughout California. The existing Huntington Beach Generating Station is one among several of these plants constructed in the greater Los Angeles area during the years following World War II and the subsequent expansive growth in southern California.

**Research Question:** Does the existing Huntington Beach Generating Station have any unique features or employ any different technologies that other steam generation plants lack which were constructed at the same time in the greater Los Angeles area?

- After World War II, the population in southern California swelled in response to both business and industrial development. Housing expanded into formerly agricultural areas, creating suburbs around Los Angeles and San Diego. The increased population and industry made greater power generation crucial and California's utility providers expanded their capacity to meet the demand.

**Research Question:** Are there any extant buildings directly adjacent to the existing Huntington Beach Generating Station that appear to be directly related to the construction of the plant? If so, are these buildings commercial or residential? Do the commercial buildings directly relate to the existing Huntington Beach Generating Station?

### 5.3.2.3 Survey Expectations

Based on the level of disturbance at the existing Huntington Beach Generating Station, the built nature of the site, and the literature search which revealed that the entire area had been previously surveyed, expectations of finding archaeological resources within the study area during the field survey were low.

Prehistoric archaeological sites that may be found in undisturbed or open areas of the project vicinity, including the 200-foot buffer, could theoretically include shell middens, lithic scatters, or habitation sites. Historic-period sites could include trash dumps.

The existing Huntington Beach Generating Station was constructed in the 1950s and it was expected that at least some of the buildings on the site would date to the 1950s.

The archaeological sensitivity of the project study area, including the offsite construction laydown area and the offsite construction/demolition worker parking areas, is expected to be low; however, the likelihood of identifying historic buildings within the study area is expected to be high.

### 5.3.3 Resources Inventory

A cultural resources inventory, which included archival research, architectural reconnaissance, and a surface pedestrian survey, was conducted for HBEP. The study area was determined in accordance with the latest CEC *Rules of Practice and Procedure & Power Plant Site Certification Regulations* (CEC, 2007) for assessing potential impacts on archaeological and architectural resources. The results of the resource inventory are presented in the following sections. Figure 5.3-1 shows the HBEP site and the archaeological and the architectural survey areas. The archaeological survey area includes the existing Huntington Beach Generating Station site and the 200-foot buffer around the site. It also includes the offsite construction laydown area and the offsite construction/demolition working parking areas and a 200-foot buffer around each of these areas. The architectural survey area includes the existing Huntington Beach Generating Station site, the onsite and offsite construction laydown areas, and the offsite construction/demolition parking areas, and a buffer of at least one additional parcel deep on all sides of the existing Huntington Beach Generating Station site.

#### 5.3.3.1 Archival Research

CH2M HILL commissioned a literature search for the entire HBEP study area from CHRIS staff, South Central Coastal California Information Center, searching within a 1-mile buffer zone around the HBEP site. This search radius encompasses the entire research area required by the CEC for archaeological and architectural resources.

The CHRIS literature and records review included a review of all recorded archaeological sites and all known cultural resource survey and excavation reports. Other sources examined included the National Register of Historic Places (NHRP); the CRHR; California Historical Landmarks; and California Points of Historical Interest. Historical maps consulted included 1896 and 1901 Santa Ana, California 15-minute U.S. Geological Survey (USGS) topographic quadrangle maps and 1896, 1942, and 1943 Los Alamitos, Downey, California 15-minute USGS topographic quadrangle maps. State and local listings were consulted for the presence of historic buildings, structures, landmarks, points of historical interest, and other cultural resources.

Historical aerial photographs were obtained from the Huntington Digital Library. Aerials from the following years were reviewed: 1956, 1957, 1958, 1959, 1960, and 1962.

According to information available in the CHRIS files, four previous cultural resource studies, primarily cultural resource survey reports, have been prepared within the HBEP site and vicinity and an additional 12 studies have been prepared within 1 mile of the HBEP site (Table 5.3-1). The entire study area has been previously subject to cultural resources studies. The laydown area located at the AGS site has not previously been subject to cultural resources studies. A complete copy of the CHRIS records search is provided as Appendix 5.3C.

TABLE 5.3-1  
Cultural Resources Reports within 1 Mile of the HBEP Study Area

Report Authors and Date	CHRIS Catalogue NADB Numbers
<b>Surveys conducted within the HBEP boundary:</b>	
Ahlering 1973	OR1
Hoover 2000	OR2456
Brown and Maxon 2010	OR3842
Mason 1987	OR2033
<b>Surveys conducted outside the HBEP boundaries:</b>	
Romani 1982	OR644
Padon 1987	OR880
Dillon 1997	OR1629
Lapin 2000	OR2134
Duke 2000	OR2229

TABLE 5.3-1  
**Cultural Resources Reports within 1 Mile of the HBEP Study Area**

Report Authors and Date	CHRIS Catalogue NADB Numbers
Demcak 1999	OR2256
Barros et al. 2002	OR2585
Barros et al. 2005	OR3316
Barros et al. 2006	OR3317
Bonner 2007	OR3450
Losee 2009	OR3582
Mason 2003	OR3614

Source: CHRIS South Central Coastal Information Center. See Appendix 5.3C for full bibliographic references.

As a result of the previous 16 studies, a single previously recorded historic site has been noted within the entire HBEP study area. This site, P-30-176946, is located within the HBEP site. It was determined not eligible for the CRHR in 2009 and is described in additional detail below. One additional resource is located within the 1-mile radius of the HBEP study area. This was originally recorded as a prehistoric shell midden site, but was later reclassified as a Pleistocene fossil shell deposit (Duke, 1999; 2000). According to the results of the records and literature search, no historic districts, cultural landscapes, or NRHP- or CRHR-listed or eligible properties occur within the search radius.

The historic map review did not identify any other historic features within the HBEP study area. Within the 1-mile buffer area, the review showed that the Smeltzer Branch of the Santa Ana Newport Railroad ran just south of the existing Huntington Beach Generating Station. This spur line was constructed in 1897 and ran from Newport Beach Pier along the coast and into present day Huntington Beach. The area west of the present boundary of the HBEP is labeled Celery, a historical celery farming area. Three large tanks are noted within the buffer near the laydown area at AGS on the 1942 and 1943 Los Alamitos maps.

#### **5.3.3.1.1 Site P-30-176946**

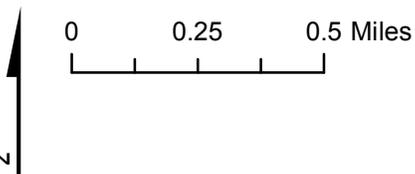
The existing Huntington Beach Generating Station includes four fuel oil tanks dating from 1961, formerly used by the existing Huntington Beach Generating Station; three of the four tanks were recorded in 2009 by Daly & Associates (Daly, 2009). The tanks are elements of the existing Huntington Beach Generating Station but recordation was limited to the three tanks for the scope of work for this 2009 study. Each fuel storage tank is 40 feet high, 205 feet in diameter, and lies within a 10- to 15-foot earthen berm. The tanks were found not eligible for the CRHR during the 2009 investigation.

#### **5.3.3.2 Archaeological Field Survey**

A cultural resources survey of the HBEP study area was conducted on September 28, 2011, and September 29, 2011, by Gloriella Cardenas, M.A., RPA, a CRS who meets the qualifications for Principal Investigator stated in the Secretary of the Interior's standards and guidelines for archaeology and historic preservation (NPS, 1983). This field survey included the HBEP site and proposed laydown and parking areas.



Township 6S, Range 11W, Section 13  
 Township 6S, Range 11W, Section 24  
 Quad Name: Newport Beach



**Legend**

- AES Huntington Beach Generating Station
- AES Huntington Beach Energy Project
- Offsite Construction Parking
- Onsite Construction Parking
- Offsite Construction Laydown Area at AGS
- Architectural Survey Area
- Archaeological Survey Area

**FIGURE 5.3-1**  
**Archaeological and Historic**  
**Architectural Survey Area**  
 AES Huntington Beach Energy Project  
 Huntington Beach, California

As per the latest CEC *Rules of Practice and Procedure & Power Plant Site Certification Regulations* (CEC, 2007), in addition to the HBEP site and the offsite construction laydown area and offsite construction parking area, a 200-foot minimum buffer was surveyed for cultural resources around this facility. A total of 166 acres were surveyed; no archeological resources were identified.

The cultural survey area is predominately located within the existing Huntington Beach Generating Station site boundaries, which includes facilities, structures, roads, and paved areas. Ground visibility throughout the existing Huntington Beach Generating Station site was generally zero, except where eroded asphalt or ungravelled patches had exposed soils. Within the 200-foot buffer, the survey area included streets, sidewalks, a concrete-lined canal, and a small open area in the southeastern corner. This open area was completely surveyed in 10-meter transects. Disturbances to the survey area have affected 100 percent of the horizontal. Given the scope of previous ground disturbance in the area and the importation of fill onto the existing Huntington Beach Generating Station site for construction, archaeological sensitivity of the surface soils within the existing Huntington Beach Generating Station study area is considered low. Although the original ground surface of the existing Huntington Beach Generating Station site was approximately level prior to plant construction with an 8-foot layer of clay situated over 200 feet of compact sand, the clay was not considered suitable for construction and compacted fill was used for bringing the site to a grade that was acceptable for use as an onsite paving sub-base. The clay layer was completely removed around the areas where the main building and the equipment areas were constructed. Thus, the sensitivity of the underlying soils is considered low, given that large portions of the clay layer were completely removed and the entire site is situated on fill. Additionally, although much of the surrounding area has been subject to previous surveys, there is a fairly low density of previous finds in the vicinity of the existing Huntington Beach Generating Station, likely due to the high amount of disturbance in the area.

Two of the offsite parking areas are completely paved lots (City Beach Parking at Beach Boulevard and Pacific Coast Highway, and a previous paved area at the corner of Pacific Coast Highway and Beach Boulevard). These paved areas will not be modified. The third offsite parking area is located within Plains All American Tank Farm site, which is adjacent to the HBEP site. This area is completely disturbed by the construction and installation of the tanks; no native soils are visible. The last offsite parking area is located adjacent to the HBEP. This graveled area appears to have been graded recently. Disturbances to the survey area have affected 100 percent of the horizontal. The offsite construction laydown area at the AGS consists of a graded area. The unpaved area appears to have been recently and continually graded and is devoid of any vegetation. The entire area is completely disturbed by previous grading of the site. No native soils are visible on the surface.

No cultural resources were encountered during the archaeological survey.

### 5.3.3.3 Architectural Survey

A survey of the built environment of the HBEP study area was conducted on September 28, 2011, and September 29, 2011, by Lori Price, a CRS who meets the qualifications for Architectural Historian, as stated in the Secretary of the Interior's standards and guidelines for archaeology and historic preservation (NPS, 1983).

To assess potential impacts on the historic built environment, the architectural survey examined the HBEP site, the offsite construction laydown area at the AGS, and the four offsite and one onsite construction/demolition workers parking areas.

With respect to the HBEP site, the inventory was conducted in accordance with CEC *Rules of Practice and Procedure & Power Plant Site Certification Regulations* (CEC, 2007) to include the project site, and extending no less than one parcel's distance from the site boundary of the existing Huntington Beach Generating Station.

This survey was conducted to determine whether potentially historic buildings and structures (more than 45 years old) are present and could be affected. This survey was guided in part by an analysis of the historical USGS topographic maps listed in Section 5.3.3.1. Small rectangles on these maps indicate the locations of homes, barns, and other structures that stood when the map was prepared. In addition to the USGS topographical maps, historical aerial images were consulted. Examination of the maps and aeriels showed that development in the project area was fairly sparse until the 1950s.

The present built environment is primarily a mix of commercial and industrial, with a manufactured home/RV park to the west of the existing Huntington Beach Generating Station. The Huntington Beach State Park and the Huntington Beach Wetlands Wildlife Conservation Center are to the south, and an Orange County Flood Control Channel and wetlands are to the east. The offsite construction laydown is located at the existing AGS site in Long Beach.

Construction dates were obtained from the Orange County Assessor's Office for all parcels situated adjacent to the HBEP site. Based on the assessor's information, review of historic aerial photographs, and the field survey, the HBEP site and two parcels located on Edison Avenue north of the HBEP site contained properties that met the criteria of potential historic building or structure.

Following the guidance provided in the California OHP *Instructions for Recording Historical Resources* (1995), existing Huntington Beach Generating Station, as a large and complex landscape, was recorded as a district due to its concentration of buildings and structures united historically and functionally by plan and physical development. DPR forms, including a Primary Record, Location Map, and District Record, were prepared to document the district as a whole. Each component of the district was documented separately on a Primary Record. California DPR forms (Primary Record and Building, Structure, Object form) were prepared for the two properties on Edison Avenue. All DPR forms prepared are included in Appendix 5.3B.

Three architectural resources were recorded within the HBEP survey area: the Huntington Beach Generating Station district and two individual buildings on Edison Avenue (Table 5.3-2). None of these properties appear to meet the CRHR criteria for listing.

TABLE 5.3-2

**Properties Documented during the Architectural Survey**

Street Number	Street Name	Type/Style	Year Built
21730	Newland Street	Huntington Beach Generating Station	1958
8551	Edison Avenue	Commercial/no style	Prior to 1973
8601	Edison Avenue	Commercial/no style	1940

## 5.3.3.3.1 21730 Newland Street – Existing Huntington Beach Generating Station

The existing Huntington Beach Generating Station was recorded as a district with multiple components. It began operation in 1958, and components have various dates from 1958 to 2003.

The existing Huntington Beach Generating Station was evaluated as a district. In addition, individual components were evaluated to determine if they could be individually eligible. The district is irregularly shaped and encompasses the HBEP site. The district boundaries are the parcel boundaries of the three contiguous parcels that make up the existing Huntington Beach Generating Station property (parcel numbers 114-150-82, 114-150-83, 114-150-95). It is roughly bounded by the Pacific Coast Highway and Huntington Beach Wetlands Wildlife Conservation Center on the south, Newland Street on the west, Edison Avenue and land now owned by the City of Huntington Beach on the north, and an Orange County Flood Control Channel and wetlands on the east. The boundaries include all of the relevant features of the existing Huntington Beach Generating Station, including the north tank which is now owned by the City of Huntington Beach but was originally part of the Huntington Beach Generating Station. The parcel along the Pacific Coast Highway was sold to and redeveloped by the Huntington Beach Wetlands Wildlife Conservation Center and is now a distinctly separate entity from the power plant, retaining no elements of the Huntington Beach Generating Station, so is not included in the district boundaries.

The existing Huntington Beach Generating Station is composed of five power generating units; an administration building; an office building that includes shops, offices, and warehouse space; four decommissioned fuel oil tanks; a switchyard; transmission line towers; and various support facilities such as water tanks, a water system building, and a gas control building.

The Huntington Beach Generating Station district does not meet the CRHR eligibility criteria and is therefore not a historical resource for the purposes of CEQA. The generating station does not appear to be significant in the context of the history of SCE, the history of steam generation of electricity, or the history of post-World War II steam generation plants (Criterion A and 1).

As discussed previously, the Huntington Beach Generating Station was one of several steam generating plants built by SCE in the mid-twentieth century. It was part of a trend for electric companies in California to build steam generation plants to keep up with growing demand from new development and higher customer usage. The short time-frame for construction of these plants, and their similar technologies and designs, suggests that they were all being planned and designed at about the same time. These plants and their steam generation technology were the result of the exhaustion of available hydroelectric sites coinciding with a growing need for electricity. Together, the plants affected the nature of power generation in southern California, overshadowing the importance of any single plant. As of 2008, 21 once-through cooling, steam generation units remained in southern California, including the Huntington Beach Generating Station, all dating from the same general time period, with an average age of 40 years. More than 1,200 steam-generating units use this cooling method in the United States (TetraTech, 2008). Placed in the context of the time and of other power plants, the existing Huntington Beach Generating Station does not appear to be unique.

The existing Huntington Beach Generating Station does not appear to be 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. The plant has had minor alterations, yet as a whole it retains integrity of location, design, setting, materials, workmanship, feeling, and association.

This property has been evaluated in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code, and does not appear to be a historical resource for the purposes of CEQA.

#### **5.3.3.3.2 8551 Edison Avenue – Beach Auto Wrecking**

This small commercial building is located on the north side of the Edison Avenue, which functions as the northern boundary of the HBEP site. The Orange County Assessor listed this building as dating from 1973, but field inspection indicated that it might be older. The building does not appear to meet the CRHR criteria.

This is a small one-story commercial building with a documented date of 1973. It currently serves as the office for an auto wrecking yard. This vernacular building is an unremarkable design of modest size. It is not associated with the early founding of Huntington Beach, with the population boom of the 1950s, or with the surfing culture. It does not have distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values. The property is not associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States, and it is not associated with any persons important to local, California, or national history. The building is not likely to yield information important to understanding prehistory or history. Although it appears to retain good integrity, the Beach Auto Wrecking building does not meet any of the CRHR criteria.

#### **5.3.3.3.3 8601 Edison Avenue – Beachside Recycling Center**

This commercial building is located at north side of Edison Avenue, which functions as the northern boundary of the HBEP site. The building is composed of two warehouses that date from 1940, with a front office addition of modern construction. The building does not appear to meet the CRHR criteria.

This one-story vernacular commercial building with attached warehouse from 1940 is an unremarkable design of modest size. It is not associated with the early founding of Huntington Beach, with the oil boom of the 1920s, with the population boom of the 1950s, or with the surfing culture. It does not have distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values. The property is not associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States, and it is

not associated with any persons important to local, California, or national history. The building is not likely to yield information important to understanding prehistory or history. The building has had at least one major addition to the front elevation, and all openings appear to be altered. The Beach Recycling Center building does not meet any of the CRHR criteria.

#### 5.3.3.4 Discussion of Survey Expectations and Research Questions

The purpose of this section is to relate the findings of the investigation to the research questions posed in Section 5.3.2.2. As shown in Table 5.3-2, all of the resources are built structures. No areas within the study area were left undisturbed by the construction of the existing Huntington Beach Generating Station or other modern construction. No archaeological sites of any type were found. Therefore, only the research questions pertaining to built environment (Research Questions 3 and 4) will be discussed.

**Research Question 3:** The existing Huntington Beach Generating Station is one among several of these plants constructed in the greater Los Angeles area during the years following World War II and the subsequent expansive growth in southern California. The Huntington Beach Generating Station was one of many plants which comprised a trend for all electric companies in California to construct steam generation plants to provide power for the rapid post World War II development in the state. These facilities were constructed at approximately the same time and were likely developed and designed at about the same time. The Huntington Beach Generating Station was only one of more than 1,000 similar power plants built in the United States and does not have any unique features or employ any unique technologies that were not used at any of these numerous other plants.

**Research Question 4:** Two structures were identified within the HBEP study area and are located adjacent to the existing Huntington Beach Generating Station. Neither of these structures appears to be related to the construction or operation of the plant. One building was constructed nearly two decades prior to the existing Huntington Beach Generating Station, while the other building was constructed after the Huntington Beach Generating Station. Thus, there do not remain any extant buildings, either commercial or residential, that appear to relate to the Huntington Beach Generating Station.

#### 5.3.3.5 Native American Consultation

CH2M HILL contacted the Native American Heritage Commission (NAHC) by letter on August 27, 2011, to request information about traditional cultural properties such as cemeteries and sacred places in the HBEP study area. The NAHC responded on August 31, 2011, with a list of Native Americans interested in consulting on development projects. Each of these individuals/groups was contacted by letter on September 2, 2011. Follow up phone calls were made on March 16, 2012. Anthony Morales, Chairmen for the Gabrieleño Band of Mission Indians, left a voice mail message on September 21, 2011 requesting additional information about the project's proposed actions. A follow up phone call was placed to Mr. Morales; however, he was occupied at that time and had no further comment. An email address was provided to Mr. Morales so that he could email his requests at his earliest convenience. No further response has been received to date. Alfred Cruz, with the Juaneño Band of Mission Indians, left a voicemail message on September 22, 2011 requesting additional information about the project's proposed actions, specifically requesting copies of the literature search results. This request was forwarded to the Applicant. Both an email and a return call were made on September 23, 2011; Mr. Cruz was unavailable and a voicemail was left with contact information. Mr. Sam Dunlap, Chairperson of the Gabrielino Tongva Nation, requested that the letter be resent to his email address; this was done on the same date. Mr. Andrew Salas, Chairperson for the Gabrielino Band of Mission Indians, requested that the letter to be resent to his email address; this was done on the same date. No additional response to the email was received. No other responses have been received to date.

Appendix 5.3A provides copies of the letters and a detailed summary table of the results of consultations with the individual Native American organizations on the NAHC contact list.

The NAHC record search of the Sacred Lands file did not indicate the presence of Native American cultural resources in the immediate HBEP study area. The record search conducted at the CHRIS South Central Coastal Information Center also did not indicate the presence of Native American traditional cultural properties.

### 5.3.3.6 Local Historical Societies

The City of Huntington Beach and Orange County Community Development were contacted on August 29, 2011, for a listing of resources and properties in their jurisdiction. The City of Huntington Beach has a partial online list available, but no historic properties or historic resources on their list are within the study area; the Orange County Community Development has no such listing. Long Beach Development Services was contacted by telephone on August 29, 2011, and maintains an online list of historic properties and resources. The Department of Regional Planning (County of Los Angeles) was contacted on August 30, 2011, but does not maintain any listings.

CH2M HILL contacted the following historical societies via letter on August 29, 2011: Huntington Beach Historical Society, Orange County Historical Society, Heritage Orange County, and Historical Society of Southern California. CH2M HILL contacted the Los Alamitos Museum Association, the Historical Society of Long Beach, the Long Beach Heritage Coalition, and the Historical Society of Southern California on August 26, 2011. No additional data has been provided by any of these groups to-date. A summary of these contacts is provided in Appendix 5.3A.

## 5.3.4 Environmental Analysis

This section describes the environmental impacts of HBEP construction, demolition and operation. CH2M HILL conducted a complete cultural survey of the HBEP study area.

### 5.3.4.1 Significance Criteria

Appendix G, Environmental Checklist Form of the CEQA guidelines, addresses significance criteria with respect to cultural resources (Public Resources Code Sections 21000 et seq.). Appendix G (V)(a, b, d) indicates that an impact would be significant if the project will have the following effects:

- Cause a substantial adverse change in the significance of a historical resource
- Cause a substantial adverse change in the significance of an archaeological resource
- Disturb any human remains, including those interred outside formal cemeteries

project investigations included archival research; review of all cultural resource investigation reports within the HBEP study area; contacts with all other interested agencies, Native American groups, and historic societies; and a complete field survey. These studies indicated no significant prehistoric or historic archaeological remains, or traditional cultural properties in the HBEP study area. Therefore, no impacts on cultural resources are expected.

### 5.3.4.2 Construction and Demolition Impacts

The literature search and pedestrian inventories did not locate any significant prehistoric or historic sites within the existing Huntington Beach Generating Station or within any of the offsite laydown or parking areas.

The literature search and pedestrian inventory have shown no significant prehistoric or historic sites located within the HBEP study area. Three resources were recorded during the survey of the built environment, including the Huntington Beach Generating Station Historic District, which is located within the HBEP study area. This district, however, is not considered eligible for the CRHR and is not a historical resource.

Given the lack of archaeological resources in the HBEP study area as well as the extensive disturbance to the study area, there is a low probability that the project could encounter buried intact cultural resources that have not previously been disturbed or destroyed in sediments near the ground surface. With the incorporation of mitigation measures described in Section 5.3.6, construction and demolition impacts, including the use of the offsite construction laydown area at the AGS and the use of the offsite construction/demolition worker parking areas, on cultural resources will be less than significant.

### 5.3.4.3 Operation Impacts

No ground disturbance would be required during HBEP operations; therefore, impacts on cultural resources are not anticipated during HBEP operations. Maintenance of HBEP facilities will not cause any effects outside the initial construction area of impact. No significant impacts on cultural resources will result from operations or maintenance.

### 5.3.5 Cumulative Effects

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Pub. Resources Code Section 21083; California Code of Regulations, Title 14, Sections 15064(h), 15065(c), 15130, and 15355). Cumulative projects are described in more detail in Section 5.6.1.8. Although environmental analyses for most of these cumulative projects have not been completed at the time this Application for Certification (AFC) was prepared, standard mitigation measures exist to reduce impacts on cultural resources to less-than-significant levels, and it is anticipated that impacts on cultural resources from the cumulative projects, if any, would be mitigated to less-than-significant levels. The HBEP is unlikely, therefore, to have impacts that would combine cumulatively with other closely related past, present, and reasonably foreseeable future projects. Furthermore, demolition of Huntington Beach Generating Station Units 3 and 4 will be conducted under the CEC's jurisdiction, which will require implementation of mitigation measures to reduce cultural resource impacts to below significant levels. Therefore, with the incorporation of mitigation described in Section 5.3.6, the project will not contribute to a cumulatively considerable impact on cultural resources.

### 5.3.6 Mitigation Measures

No significant archaeological and historical sites were found during the survey for the HBEP site and offsite construction laydown area and offsite construction/demolition worker parking areas. There is a low probability that subsurface construction at the HBEP site could encounter buried archaeological remains and no ground disturbance is proposed at the offsite construction laydown area or the offsite construction/demolition worker parking areas. However, while the probability is low that HBEP construction/demolition activities could encounter intact subsurface deposits, as a matter of best practices, HBEP will include measures to mitigate any potential adverse impacts that could occur if there were an inadvertent discovery of buried cultural resources. These measures include, but are not limited to: (1) designation of a CRS to investigate any cultural resource finds made during construction, (2) implementation of a construction worker training program, (3) limited monitoring during initial clearing and excavation of the HBEP site, (4) procedures for halting construction in the event that there is an inadvertent discovery of archaeological deposits or human remains, (5) procedures for evaluating an inadvertent archaeological discovery, and (6) procedures to mitigate adverse impacts on any inadvertent archaeological discovery determined significant.

Once the HBEP is operational, it is anticipated that no additional disturbance will occur at the HBEP site, or at any of the offsite construction laydown areas or offsite construction parking areas. Therefore, no mitigation measures are required for HBEP operations or maintenance.

#### 5.3.6.1 Designated Cultural Resources Specialist

The Applicant will retain a designated CRS who will be available during the earth-disturbing portion of the HBEP construction periods to inspect and evaluate any finds of buried archaeological resources that might occur during the construction phase. If there is a discovery of archaeological remains during construction, the CRS, in conjunction with the construction superintendent and environmental compliance manager, will make certain that construction activity stops in the immediate vicinity of the find until the find can be evaluated. The CRS will inspect the find and evaluate its potential significance in consultation with CEC staff and the CEC compliance project manager (CPM). The CRS will make a recommendation as to the significance of the find and any measures that would mitigate adverse impacts of construction on a significant find.

The CRS will meet the minimum qualifications for Principal Investigator on federal projects under the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. The CRS will be qualified, in addition to site detection, to evaluate the significance of the deposits, consult with regulatory agencies, and plan site evaluation and mitigation activities.

### 5.3.6.2 Construction Worker Training

The Applicant will prepare a construction worker sensitivity training program to ensure implementation of procedures to be followed if cultural resources are discovered during construction/demolition. This training will be provided to each construction worker as part of their environmental, health, and safety training. The training will include photographs of various types of historic and prehistoric artifacts and will describe the specific steps to be taken in the event of an unanticipated discovery of cultural material, including human remains. It will explain the importance of, and legal basis for, the protection of significant archaeological resources. The training also will be presented in the form of a written brochure.

### 5.3.6.3 Monitoring

The Applicant will retain a qualified archaeologist to conduct limited monitoring during the initial grading and excavations during the project's construction/demolition phase, including geotechnical testing activities prior to construction that have the potential to impact previously undisturbed soils that may be sensitive for cultural resources. If archaeological material is observed by the monitoring archaeologist, ground-disturbing activity will be halted in the vicinity of the find so that its significance (CRHR eligibility) can be determined. If evaluated as significant, mitigation measures (avoidance or data recovery) will be developed in consultation with the CEC.

### 5.3.6.4 Emergency Discovery

If the archaeological monitor, construction staff, or others identify archaeological resources during construction, they will immediately notify the CRS and the site superintendent, who will halt construction in the immediate vicinity of the find, if necessary. The archaeological monitor or CRS will use flagging tape, rope, or other means as necessary to delineate the area of the find within which construction will halt. This area will include the excavation trench from which the archaeological finds came and any piles of dirt or rock spoil from that area. Construction will not occur within the delineated find area until the CRS, in consultation with the CEC staff and CEC CPM, can inspect and evaluate the find.

### 5.3.6.5 Site Recording and Evaluation

The CRS will follow accepted professional standards in recording any find and will submit the standard Form DPR 523 and location information to the CHRIS South Central Coastal Information Center.

If the CRS determines that the find is not significant and the CEC CPM concurs, construction will proceed without further delay. If the CRS determines that further information is needed to determine whether the find is significant, the designated CRS will, in consultation with the CEC, prepare a plan and a timetable for evaluating the find.

### 5.3.6.6 Mitigation Planning

If the CRS and CPM determine that the find is significant, the CRS will prepare and conduct a mitigation plan in accordance with state guidelines. This plan will emphasize the avoidance, if possible, of significant archaeological resources. If avoidance is not possible, recovery of a sample of the deposit from which archaeologists can define scientific data to address archaeological research questions will be considered an effective mitigation measure for damage to or destruction of the deposit.

The mitigation program, if necessary, will be carried out as soon as possible to avoid construction delays. Construction will resume at the site as soon as the field data collection phase of any data recovery efforts is completed. The CRS will verify the completion of field data collection by letter to the project owner and the CPM so that they can authorize construction to resume.

### 5.3.6.7 Curation

The CRS will arrange for curation of archaeological materials collected during an archaeological data recovery mitigation program. Curation will be performed at a qualified curation facility meeting the standards of the California Office of Historic Preservation. The CRS will submit field notes, stratigraphic drawings, and other

materials developed as part of the data recovery/mitigation program to the curation facility along with the archaeological collection, in accordance with the mitigation plan.

### 5.3.6.8 Report of Findings

If a data recovery program is planned and implemented during construction as a mitigation measure, the CRS will prepare a detailed scientific report summarizing results of the excavations to recover data from an archaeological site. This report will describe the site soils and stratigraphy, describe and analyze artifacts and other materials recovered, and draw scientific conclusions regarding the results of the excavations. This report will be submitted to the curation facility with the collection.

### 5.3.6.9 Inadvertent Discovery of Human Burials

If human remains are found during construction, project officials are required by the California Health and Safety Code (Section 7050.5) to contact the Contra Costa County Coroner. If the coroner determines that the find is Native American, he or she must contact the NAHC. The NAHC, as required by the Public Resources Code (Section 5097.98), determines and notifies the Most Likely Descendant with a request to inspect the burial and make recommendations for treatment or disposal.

## 5.3.7 Laws, Ordinances, Regulations, and Standards

This sections discusses the federal, state, and locals LORS applicable to the HBEP. A summary of applicable LORS is provided in Table 5.3-3.

TABLE 5.3-3  
**Laws, Ordinances, Regulations, and Standards for Cultural Resources**

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
<b>Federal</b>			
Section 106, National Historic Preservation Act	Applies if the project would require a federal permit (such as a Prevention of Significant Deterioration [PSD] permit). The lead federal agency must take into account the effect of issuing the permit on significant cultural resources	California Office of Historic Preservation/ Environmental Protection Agency	Section 5.3.7.1
<b>State</b>			
CEQA Guidelines	project construction may encounter archaeological and/or historical resources	CEC	Section 5.3.7.2
Health and Safety Code Section 7050.5	Construction may encounter Native American graves; coroner calls the NAHC	State of California	Section 5.3.7.2
Public Resources Code Section 5097.98	Construction may encounter Native American graves; NAHC assigns Most Likely Descendant	State of California	Section 5.3.7.2
Public Resources Code Section 5097.5/5097.9	Would apply only if some project land were acquired by the state (currently no state land)	State of California	Section 5.3.7.2
<b>Local</b>			
City of Long Beach General Plan	Seeks to identify and protect areas, sites and structures having architectural, historical, cultural, or archaeological significance and to reaffirm their continuing value as resources contributing to the vitality and diversity of the present environment.	City of Long Beach	Section 5.3.7.3
City of Huntington Beach General Plan	Promotes the preservation and restoration of the sites, structures and districts which have architectural, historical, and/or archaeological significance to the City of Huntington Beach and highlight the City's unique cultural heritage and enhance its visual appeal	City of Huntington Beach	Section 5.3.7.3

### 5.3.7.1 Federal LORS

Federal protection for significant archaeological resources would apply to the HBEP if any construction or other related project impacts take place on federally managed lands, or if certain federal entitlements were required. A PSD permit under the federal Clean Air Act is required for the project; therefore, the construction of HBEP is considered a federal undertaking.

The National Historic Preservation Act requires federal agencies to take into consideration the effects of their undertakings on historic properties, defined as properties (buildings, districts, sites, structures, objects) that meet the criteria for listing in the NRHP (36 Code of Federal Regulations [CFR] Part 60). The agencies' responsibilities under the National Historic Preservation Act are described in Section 106 of the Act and in federal regulations at 36 CFR Part 800. Federal agencies are enjoined to (1) determine an undertaking's study area on historic properties, (2) inventory potential historic properties within the study area, (3) evaluate properties identified to determine their eligibility for listing in the NRHP, (4) assess the potential effects of the undertaking on properties determined to meet NRHP criteria, and (5) if the effects would be adverse, avoid or mitigate those effects. In this case, the U.S. Environmental Protection Agency (EPA) would likely be the federal agency with Section 106 compliance responsibilities. As the lead federal agency, it is the responsibility of the EPA to conduct the State Historic Preservation Officer consultation regarding the permit undertaking's effects on historic properties. The Applicant has submitted this AFC cultural resources assessment to the EPA with the PSD permit application to facilitate Section 106 compliance.

### 5.3.7.2 State LORS

CEQA requires review to determine whether a project will have a significant effect on archaeological sites or a property of historic or cultural significance to a community or ethnic group eligible for inclusion in the CRHR (CEQA Guidelines). CEQA equates a substantial adverse change in the significance of a historical resource with a significant effect on the environment (Section 21084.1 of the Public Resources Code) and defines substantial adverse change as demolition, destruction, relocation, or alteration that would impair historical significance (Section 5020.1). Section 21084.1 stipulates that any resource listed in, or eligible for listing in, the CRHR<sup>3</sup> is presumed to be historically or culturally significant.<sup>4</sup>

Resources listed in a local historic register or deemed significant in a historical resource survey (as provided under Section 5024.1g) are presumed historically or culturally significant unless the preponderance of evidence demonstrates they are not.

A resource that is not listed in or determined to be eligible for listing in the CRHR, is not included in a local register of historic resources, or is not deemed significant in a historical resource survey may nonetheless be historically significant (Section 21084.1; see Section 21098.1).

CEQA requires a lead agency to identify and examine environmental effects that may result in significant adverse effects. Where a project may adversely affect a unique archaeological resource,<sup>5</sup> Section 21083.2 requires the

<sup>3</sup> The CRHR is a listing of "...those properties which are to be protected from substantial adverse change." Any resource eligible for listing in the CRHR is also to be considered under CEQA.

<sup>4</sup> A historical resource may be listed in the CRHR if it meets one or more of the following criteria: "(1) is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; (2) is associated with the lives of persons important to local, California, or national history; (3) embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or (4) has yielded or has the potential to yield information important in prehistory or history (...of the local area, California, or the nation)" (Public Resources Code §5024.1, Title 14 CCR, Section 4852). Automatic CRHR listings include NRHP-listed and determined eligible historic properties (either by the Keeper of the NRHP or through a consensus determination on a project review), State Historical Landmarks from number 770 onward, and Points of Historical Interest nominated from January 1998 onward. Landmarks prior to 770 and Points of Historical Interest may be listed through an action of the State Historical Resources Commission.

<sup>5</sup> Public Resources Code 21083.2 (g) defines a unique archaeological resource to be: 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 any of the following criteria: (1) contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information; (2) has a special and particular quality such as being the oldest of its type or the best available example of its type; or (3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

lead agency to treat that effect as a significant environmental effect and prepare an environmental impact report. When an archaeological resource is listed in or is eligible to be listed in the CRHR, Section 21084.1 requires that any substantial adverse effect to that resource be considered a significant environmental effect. Sections 21083.2 and 21084.1 operate independently to ensure that potential effects on archaeological resources are considered as part of a project's environmental analysis. Either of these benchmarks may indicate that a project may have a potential adverse effect on archaeological resources.

Other state-level requirements for cultural resources management appear in the California Public Resources Code Chapter 1.7, Section 5097.5 (Archaeological, Paleontological, and Historical Sites), and Chapter 1.75, beginning at Section 5097.9 (Native American Historical, Cultural, and Sacred Sites) for lands owned by the state or a state agency.

The disposition of Native American burials is governed by Section 7050.5 of the California Health and Safety Code and Sections 5097.94 and 5097.98 of the Public Resources Code, and falls within the jurisdiction of the NAHC.

If human remains are discovered, the county coroner must be notified within 48 hours and there should be no further disturbance to the site where the remains were found. If the coroner determines the remains to be Native American, the coroner is responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to Section 5097.98, will immediately notify those persons it believes to be most likely descended from the deceased Native American so they can inspect the burial site and make recommendations for treatment or disposal. The project will comply with these requirements related to cultural resources through the implementation of the mitigation measures described previously in Section 5.3.6.

### 5.3.7.3 Local LORS

The offsite construction laydown area at the AGS is located in the City of Long Beach. The remainder of the HBEP study area is located in the City of Huntington Beach. Therefore, local LORS include the City of Long Beach and the City of Huntington Beach.

The City of Huntington Beach General Plan, Historic and Cultural Resources Element (1996b) includes the following goals regarding archaeological resources and historic resources: promote the preservation and restoration of the sites, structures and districts which have architectural, historical, and/or archaeological significance to the City of Huntington Beach and highlight the City's unique cultural heritage and enhance its visual appeal. Policies regarding these preservation goals include the identification of historically and archaeologically significant resources in Huntington Beach, including archaeological sites, public trees, structures, and areas deemed to be of historical, archaeological, or cultural significance, utilization of the Secretary of Interior Standards for Historic Rehabilitation and standards and guidelines as prescribed by the State Historic Preservation Officer to preserve structures in a manner consistent with the site's historic integrity, encouragement to owners of eligible historic income-producing properties to use the tax benefits provided by the 1981 Tax Revenue Act, and encouragement of the promotion of the City's historic resources in visitor and tourist oriented brochures.

The City of Long Beach General Plan, Historic Preservation Element (2010) seeks to identify and protect areas, sites, and structures having architectural, historical, cultural, or archaeological significance and to reaffirm their continuing value as a resource contributing to the vitality and diversity of the present environment. It includes the following goals regarding archaeological resources and historic resources: maintain and support a comprehensive, citywide historic preservation program to identify and protect Long Beach's historic, cultural, and archaeological resources; protect historic resources from demolition and inappropriate alterations through the use of the City's regulatory framework, technical assistance, and incentives; maintain and expand the inventory of historic resources in Long Beach; increase public awareness and appreciation of the City's history and historic, cultural, and archaeological resources; and integrate historic preservation policies into City's community development, economic development, and sustainable-city strategies. Policies regarding these preservation goals include compliance with federal, state, and local historic preservation regulations to ensure adequate protection of the City's cultural, historic, and archaeological resources, allocation of sufficient resources to implement the historic preservation program, solicitation of public input to help shape the historic preservation program, pursuance of grant funding available through the Certified Local Government program, the State Office of Historic Preservation,

and other funding sources to maintain and expand the historic preservation program in, provisions for training for Cultural Heritage Commissioners and City staff implementing the historic preservation program, discouragement of the demolition and inappropriate alteration and encouragement for adaptive reuse of historic buildings, and enforcement of historic preservation codes and regulations.

HBEP will comply with the Cultural Resources LORS for the City of Long Beach and the City of Huntington Beach.

### 5.3.8 Agencies and Agency Contacts

Table 5.3-4 lists the state agencies involved in cultural resources management for the project and a contact person at each agency. These agencies include the NAHC and, for federal undertakings, the California Office of Historic Preservation.

TABLE 5.3-4

**Agency Contacts for Cultural Resources**

Issue	Agency	Persons Contacted
Native American traditional cultural properties	Native American Heritage Commission	Dave Singleton Associate Governmental Program Analyst Native American Heritage Commission 915 Capitol Mall, Room 364 Sacramento, CA 95814 (916) 653-4082
Federal Agency National Historic Preservation Act Section 106 compliance	California Department of Parks and Recreation Office of Historic Preservation	Milford Wayne Donaldson State Historic Preservation Officer 1416 9th Street, Room 1442 Sacramento, CA 95814 (916) 653-6624

### 5.3.9 Permits and Permit Schedule

Other than certification by the CEC, no state, federal, or local permits are required by the project for the management of cultural resources. Consultation with the State Historic Preservation Officer would be required under Section 106 of the National Historic Preservation Act because the project will require a PSD permit.

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