3.4 Cultural Resources

This section provides contextual background information on cultural resources in the project area, including the area's prehistoric, ethnographic, and historical settings. This section also summarizes the results of preliminary cultural surveys of the project site, analyzes the proposed project's and non-clustered scenario's potential impacts on cultural resources, and identifies mitigation measures to address adverse impacts, where applicable. This section is based on the report *Saddle Crest Homes Phase I Cultural Resources Study*, prepared by ESA (see Appendix E of this Draft EIR).

3.4.1 Environmental Setting

Definition of Cultural and Paleontological Resources

Cultural resources are defined as prehistoric-era and historic-era sites, structures, and districts, or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious or any other reason. For the purposes of this analysis, cultural resources may be categorized into three groups: archaeological resources, built historic-era resources, and contemporary Native American resources.

Archaeological resources are places where human activity has measurably altered the earth or left deposits of physical remains. Archaeological resources may be either prehistoric-era (before the introduction of writing in a particular area) or historic-era (after the introduction of writing). The majority of such places in California are associated with either Native American or Euro-American occupation of the area. The most frequently encountered prehistoric or historic Native American archaeological sites are village settlements with residential areas and sometimes cemeteries; temporary camps where food and raw materials were collected; smaller, briefly occupied sites where tools were manufactured or repaired; and special-use areas like caves, rock shelters, and sites of rock art. Historic-era archeological sites may include foundations or features such as privies, corrals, and trash dumps.

Historic architectural resources are standing structures of historic or aesthetic significance that are generally 50 years of age or older (i.e., anything built in the year 1961 or before). In California, historic resources considered for protection tend to focus on architectural sites dating from the Spanish Period (1529-1822) through the early years of the Depression (1929-1930), although there has been recent attention paid to WWII and Cold War era facilities. Historic resources are often associated with archaeological deposits of the same age.

Contemporary Native American resources, also called ethnographic resources, can include archaeological resources, rock art, and the prominent topographical areas, features, habitats, plants, animals, and minerals that contemporary Native Americans value and consider essential for the preservation of their traditional values. These locations are sometimes hard to define and traditional culture often prohibits Native Americans from sharing these locations with the public.

Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on earth. Paleontological

resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Fossils are considered nonrenewable resources because the organisms they represent no longer exist. Once destroyed, a fossil can never be replaced.

Regulatory Framework

Numerous laws and regulations require federal, state, and local agencies to consider the effects a project may have on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the various agencies proposing the action, and prescribe the relationship among other involved agencies (e.g., State Historic Preservation Office and the Advisory Council on Historic Preservation). The National Register of Historic Places (National Register); CEQA; and the California Register of Historical Resources (California Register), PRC 5024, are the primary federal and state laws governing and affecting preservation of cultural resources of national, state, regional, and local significance.

Federal

National Register of Historic Places

The National Register was established by the National Historic Preservation Act (NHPA) of 1966, as “an authoritative guide to be used by federal, state, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (Code of Federal Regulations [CFR] 36 Section 60.2). The National Register recognizes both historical-period and prehistoric archaeological properties that are significant at the national, state, and local levels.

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Unless the property possesses exceptional significance, it must be at least 50 years old to be eligible for National Register listing (U.S. Department of the Interior, 1995).

In addition to meeting the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance” (U.S. Department of the Interior,

1995). The National Register recognizes seven qualities that, in various combinations, define integrity. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association. There are no known resources within the project area that are eligible for listing in the National Register.

State

The State implements the NHPA through its statewide comprehensive cultural resources surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdictions.

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (California PRC Section 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (California PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

To be eligible for the California Register, a prehistoric or historic-period property must be significant at the local, State, and/or federal level under one or more of the following four criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally Determined Eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

There are no known resources within the project area that are eligible for listing in the California Register.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at PRC Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The *CEQA Guidelines* (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from

determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (*CEQA Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is 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:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

Native American Heritage Commission

Section 5097.91 of the California PRC established the Native American Heritage Commission (NAHC), the duties of which include inventorying places of religious or social significance to Native Americans and identifying known graves and cemeteries of Native Americans on private lands. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

California Public Records Act

Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public related to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the NAHC, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency."

Health and Safety Code, Sections 7050 and 7052

Health and Safety Code, Section 7050.5, declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease and the county coroner must be notified.

Senate Bill 18

Senate Bill 18 (SB 18) (Statutes of 2004, Chapter 905), which went into effect January 1, 2005, requires local governments (city and county) to consult with Native American tribes before making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The intent is to "provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places" (Governor's Office of Planning and Research, 2005).

The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level, land use designations are made by a local government. The consultation requirements of SB 18 apply to general plan or specific plan processes proposed on or after March 1, 2005.

According to the *Tribal Consultation Guidelines: Supplement to General Plan Guidelines* (2005), the following are the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code §65352.3).
- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45-day comment period (Government Code §65352). Notice must be sent

regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.

- Local government must send a notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice (Government Code §65092).

Orange County General Plan

The Orange County General Plan Resources Element contains the following relevant goals, objectives and policies pertaining to cultural resources:

Goal 2: To encourage through a resource management effort the preservation of the county's cultural and historic heritage.

Objective 2.1 Promote the preservation and use of buildings, sites, structures, objects, and districts of importance in Orange County through the administration of planning, environmental, and resource management programs.

Objective 2.2 Take all reasonable and proper steps to achieve the preservation of archaeological and paleontological remains, or their recovery and analysis to preserve cultural, scientific, and educational values.

Objective 2.3 Take all reasonable and proper steps to achieve the preservation and use of significant historic resources including properties of historic, historic architectural, historic archaeological, and/or historic preservation value.

Objective 2.4 Provide assistance to County agencies in evaluating the cultural environmental impact of proposed projects and reviewing EIRs.

Objective 2.5 Provide incentives to encourage greater private sector participation in historic preservation.

Archaeological Resources Policies

1. To identify archaeological resources through literature and records research and surface surveys.
2. To evaluate archaeological resources through subsurface testing to determine significance and extent.
3. To observe and collect archaeological resources during the grading of a project.
4. To preserve archaeological resources by:
   a) Maintaining them in an undisturbed condition, or
   b) Excavating and salvaging materials and information in a scientific manner.

Paleontological Resources Policies

1. To identify paleontological resources through literature and records research and surface surveys.
2. To monitor and salvage paleontological resources during the grading of a project.

3. To preserve paleontological resources by maintaining them in an undisturbed condition.

Historic Resources Policies:

1. To identify historic resources through literature and records research and/or on-site surveys.
2. To evaluate historic resources through comparative analysis or through subsurface or materials testing.
3. To preserve significant historic resources by one or a combination of the following alternatives, as agreed upon by RDMD and the project sponsor:
   a) Adaptive reuse of historic resource.
   b) Maintaining the historic resource in an undisturbed condition.
   c) Moving the historic resource and arranging for its treatment.
   d) Salvage and conservation of significant elements of the historic resources.
   e) Documentation (i.e., research narrative, graphics, photography) of the historic resource prior to destruction.

The General Plan classifies the project site as sensitive for prehistoric archaeological resources (Resources Element, figure VI-10, pg VI-114) and for paleontological resources (Figure VI-9, pg VI-113).

Foothill/Trabuco Specific Plan

The F/TSP does not have any applicable goals or objectives regarding cultural resources.

Natural Setting

The project area is located in the foothills of the Santa Ana Mountains. The topography of the project site generally consists of moderately steep ridges and narrow valleys and canyons. Slopes exceed 35 percent over the majority of the project area. The highest point is at an elevation of about 1,800 feet on a ridge at the northeast corner of the site and the lowest point is at an elevation of about 1,200 feet at the southeastern tip of the parcel. Surface soils on site include undocumented artificial fill, colluviums alluvium, terrace deposits, and landslide debris. These relatively shallow deposits of soil overlie bedrock of the Sespe, Santiago, Silverado, Williams and Ladd Formations.

The southwestern portion of the project area is characterized by two northwest-southeast trending ridges, joined at their western (upper) ends by a saddle. A narrow canyon divides the ridges. A north-south trending, blue line stream, part of the Aliso Creek drainage, traverses the northeastern portion of the project area and drains south along the eastern edge of the southwestern portion of the project area. A steep canyon surrounds the stream. A spring likely exists within the central stream corridor (Brown and Ferraro, 1999).

Vegetation within the canyons primarily consists of oak woodland or grass and ruderal vegetation. Along the ridges, grass or ruderal vegetation is most common. Sagebrush scrub and chaparral are also found along slopes and ridges. Disturbance due to grazing is evident within the lower elevations of the southern portion of the project site. The majority of the Saddle Crest study area was burned in the October 2007 Santiago Fire.

Prehistoric Setting

The prehistory of the region has been summarized within four major horizons or cultural periods: Early, Millingstone, Intermediate, and Late Prehistoric (Wallace, 1955; Warren, 1968). The Early period covers the interval from the first presence of humans in southern California until post-glacial times. Occupation of the southern California mainland dates to approximately 10,000 years before present (BP).[1] The first inhabitants were likely maritime adapted groups, exploiting the marine resources of the region.

The Early period is followed by the Millingstone period, which dates to between approximately 8,000 to 3,000 BP. The transition from the Early period to the Millingstone period is marked by an increased emphasis on the processing of seeds and edible plants. The increased utilization of seeds is evident by the high frequencies of handstones (manos) and milling slabs (metates). Around 5,000 BP, mortar and pestles appear in the archaeological record. Mortars and pestles suggest the exploitation of acorns (Vellanoweth and Altschul, 2002).

Millingstone period sites in Orange County generally date to between 8,000 and 4,000 BP. Archaeological evidence suggests a low, stable population centered around semi-permanent residential bases. These sites are located along coastal marine terraces, near the shoreline, bays, and estuaries. Satellite camps were used to take advantage of seasonally available resources. Marine resources were supplemented by seeds and small terrestrial mammals. Later Millingstone period sites indicate a growing reliance on shellfish (Cleland et al., 2007).

The Intermediate period dates to between 3,000 to 1,500 BP. Archaeological sites indicate a broader economic base, with increased reliance on hunting and marine resources. An expanded inventory of milling equipment is found at sites dated to this period. Intermediate period sites are characterized by a sharp increase in the mortar and pestle and small projectile points (Cleland et al., 2007).

The number of Intermediate period sites in Orange County declined over time. Climate changes and drier conditions led to the congregation of populations near freshwater sources. Settlement patterns indicate greater sedentism, with reduced exploitation of seasonal resources and a lack of satellite camps. Coastal terrace sites were not reoccupied during this time period. These shifts in settlement and subsistence strategies led to growing population densities, resource intensification, higher reliance on labor-intensive technologies, such as the circular fishhook, and more abundant and diverse hunting equipment. Rises in disease and inter-personal violence, visible in the archaeological record, may be due to the increased population densities (Cleland et al., 2007).

[1] "Before Present" years is a time scale used in geology, archaeology, and other branches of science to indicate the number of years back to past events. Since the present time changes, this system of time measurement has been standardized to define the year 1950 as the "present."

The Late Prehistoric period began around 1,500 BP and lasted until Spanish contact in 1769. The Late Prehistoric period resulted in the concentration of larger populations in settlements and communities, greater utilization of available food resources, and the development of regional subcultures (Cleland et al., 2007). Artifacts from this period include milling implements, as well as bone and shell tools and ornaments.

Ethnographic Setting

The project site is located along the boundary between the Gabrielino and the Juaneño, both Takic-speaking groups. The boundary between the two groups appears to have been along Aliso Creek, with the Juaneño occupying the area south of Aliso Creek, and Gabrielino to the north and west (Brown and Ferraro, 1999).

Prior to European colonization, the Gabrielino occupied a diverse area that included the watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers; the Los Angeles basin; and the islands of San Clemente, San Nicolas, and Santa Catalina (Bean and Smith, 1978). The Gabrielino were hunter-gatherers and lived in permanent communities located near the presence of a stable food supply and some measure of protection from flooding. Community populations generally ranged from 50 to 100 inhabitants, although larger settlements may have existed.

The Gabrielino are estimated to have had a population numbering around 5,000 in the pre-contact period (Kroeber, 1925). Houses were made of tule mats on a framework of poles (Bean and Smith, 1978). Basketry and steatite vessels were used rather than ceramics; ceramics became common only toward the end of the mission period in the nineteenth century.

The nearest Gabrielino village to the Project area was *Kengaa* or *Genga*, which was possibly located on Upper Newport Bay (McCawley, 1996). However, other theories place the location of Kengaa near the Santa Ana River on the western Newport Mesa (Koerper and Hedges, 1996). The village may have been occupied as late as 1830, according to records from Mission San Juan Capistrano (McCawley, 1996).

The Juaneño people were so called because of their association with Mission San Juan Capistrano. Some contemporary Juaneño identify themselves by the indigenous term *Acjachemen*. The Juaneño were linguistically and culturally related to the neighboring Luiseño (with whom they are often grouped by ethnographers; see Bean and Shipek, 1978), Cahuilla, and Cupeño. Juaneño territory extended from just above Aliso Creek in the north to San Onofre Canyon in the south and inland to Santiago Peak and the ridges above Lake Elsinore (Bean and Shipek, 1978).

The Juaneño lived in sedentary autonomous villages located in diverse ecological zones. Each settlement claimed specific fishing and collecting regions. Typically villages were located in valley bottoms, along coastal strands and streams, and near mountain foothills. No ethnographic Juaneño villages are located near the project area; the nearest village was most likely *Alume* (or *Aluna*), located on Plano Trabuco at the foot of Santiago Peak (O'Neil and Evans, 1980).

Trails, hunting sites, temporary hunting camps, quarry sites and ceremonial and gaming locations were communally owned, while houses, gardens, tools, ritual equipment, and ornamentation were owned by individuals or families (Bean and Shipek, 1978). Houses were conical in form, partially subterranean, covered with thatch, reeds, brush, or bark. Sweathouses were round and earth covered. Each village was enclosed with a circular fence and had a communal ceremonial structure at the center.

Beginning with the Mission Period, Native Americans suffered severe depopulation and their traditional culture was radically altered. Nonetheless, Gabrielino and Juaneño descendants still reside in the greater Los Angeles and Orange County areas and maintain an active interest in their heritage resources.

Historic Setting

Spanish Era (1769–1821)

The first European exploration of Orange County began in 1769 when the Gaspar de Portolá expedition passed through on its way from San Diego to the San Francisco Bay area. A permanent Spanish presence was established with the founding of Mission San Juan Capistrano in 1776 (Hoover et al, 2002). The mission was founded to break the long journey from Mission San Diego to Mission San Gabriel (near Los Angeles). A large, ornate church was constructed at the mission between 1797 to 1806, but was destroyed only six years later in an earthquake. The church was not rebuilt.

In an effort to promote Spanish settlement of Alta California, Spain granted several large land concessions from 1784 to 1821. At that time, Spain retained title to the land; individual ownership of lands in Alta California was not granted.

Mexican Era (1821-1846)

In 1821, Mexico won its independence from Spain. Mexico continued to promote settlement of California with the issuance of land grants. In 1833, Mexico secularized the missions, reclaiming the majority of mission lands and redistributing them as land grants. Ranchos continued to be used for cattle grazing by settlers. Hides and tallow from cattle became a major export for *Californios* (Hispanic Californians), many of whom became wealthy and prominent members of society.

American Era (1846 to present)

Mexico ceded California to the United States as part of the Treaty of Guadalupe Hildalgo, which ended the Mexican-American War (1846-1848). The treaty also recognized right of Mexican citizens to retain ownership of land granted to them by Spanish or Mexican authorities. However, the claimant was required to prove their right to the land before a patent was given. The process was lengthy and costly, and generally resulted in the claimant losing at least a portion of their land to attorney’s fees and other costs associated with proving ownership (Starr, 2007).

The Gold Rush (1849-1855) saw the first big influx of American settlers to California. Most of these settlers were men hoping to strike it rich in the gold fields. The culmination of the Gold

Rush, followed by devastating floods in 1861 and 1862 and droughts in 1863 and 1864, led to the rapid decline of the cattle industry (Bancroft, 1890). Many Californios lost their lands during this period, and former ranchos were subsequently divided and sold for agriculture and residential settlement.

Following the admission of California into the United States in 1850, the region of modern day Orange County was originally part of Los Angeles County. Orange County was established in 1889, with the City of Santa Ana as County Seat (Armor, 1921).

History of the Project Area and Vicinity

The area south of the project area, in the vicinity of the current city of Lake Forest, was a part of the Rancho Cañada de Los Alisos, owned by José Serrano. Other nearby ranchos included Rancho Trabuco, Rancho Mission Viejo, and Rancho Los Potrero los Pinos (Gregory, 1999). When the rancho system collapsed after California became an American state, American entrepreneur Dwight Whiting purchased large portions of the former Rancho Cañada de Los Alisos (City of Lake Forest, 2006). The small town of El Toro grew up around Whiting's agricultural industry. In the 20th century, the nearby El Toro Marine Base brought more residents to the area.

The project area was never part of a Spanish or Mexican land grant, as the steep foothills of the Santa Ana Mountains made poor grazing terrain. However, such areas were often kept for common grazing by neighboring ranchos (Gregory, 1999). The first Euro-American resident of Live Oak Canyon (formerly known as Black Oak Canyon and the Harris Grade) was a beekeeper named Henry Pankey, who settled in the area in 1873. By 1879, a small community existed around what is now Trabuco Oaks, and the first permanent schoolhouse was established in 1888. A tin mine attracted settlers to the area in the 1870s, although ultimately the mine was not successful. Live Oak Canyon, Santiago Canyon, and Trabuco Canyon remained primarily rural and agricultural until the early 20th century.

Existing Cultural Resources within the Project Area

Research Methodology and Results

Archival Research

A records search for the project was conducted on August 24, 2011 at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. The records search included a review of all recorded archaeological sites within a ½-mile radius of the project area, as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register, the National Register, and the California State Historic Resources Inventory (HRI) listings were reviewed for properties within or adjacent to the project area.

The records search indicated that a total of 36 cultural resources studies have been conducted within a ½-mile radius of the project area. Approximately 75 percent of the ½-mile radius records search area has been included in a past study. Of these 36 studies, eight included portions of the

project area. The entire project area appears to have been included in past cultural resources studies. The following paragraphs summarize the major past studies of the project area.

Bissell (1982, 1983) surveyed a portion of the southwestern portion of the project area. He noted the presence of the Schoeppe and Serrano mines, but did not formally record them. He also noted an isolated flake and groundstone fragment, a third mining site, and a possible historic site, none of which were formally recorded or mapped.

Brown (1990) performed a survey of the same portion of the southwestern portion of the project area and noted the same three mining sites that Bissell had found in 1982, but again did not formally record them as they were considered "not significant." Brown also recorded site CA-ORA-1250 within the project area.

In 1999, Brown and Ferraro (1999) performed an archaeological survey of the entire Saddle Crest project area, along with the Saddle Creek project area. They noted that the northeastern portion of the project area and the northwestern third of the southwestern portion of the project area had recently burned in a wildfire, and thus the surveyors had good visibility in these areas. The survey resulted in the formal recording of the Schoeppe and Serrano clay mines (CA-ORA-1521 and CA-ORA-1523), along with a prehistoric lithic scatter (CA-ORA-1522), a possible prehistoric site consisting of a water-filled cave (CA-ORA-1516), and a historic-era site (P-30-176629; recorded in detail by Gregory [1999]). They also relocated site CA-ORA-1250, previously recorded by Brown (1990).

A total of 19 cultural resources have been previously recorded within ½ mile of the project area, including four historic-period architectural resources, one isolated artifact, and fourteen archaeological sites (**Table 3.4-1**). Ten of the archaeological sites are prehistoric in age and consist primarily of artifact scatters; three archaeological sites date to the historic period and consist of the remains of an adobe and two historic clay mines; and one resource is a potential archaeological site consisting of a water-filled cavern. Of these 19 resources, six (CA-ORA-1250, CA-ORA-1516, CA-ORA-1521, CA-ORA-1522, CA-ORA-1523, and P-30-176629) are located within the project area. These six resources are described in detail below.

TABLE 3.4-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1/2 MILE OF THE PROJECT AREA

Permanent Trinomial (CA-ORA-)	P-Number (P-30-)	Other Designation	Description	Recorded by	Date Recorded
438	000438	–	Deposit of prehistoric artifacts in road cut. Groundstone and lithic tools recorded. The site was excavated in 1980 and 1982 and interpreted as a Millingstone and Late Period habitation site.	Crabtree et al	1973
439	000439	–	Prehistoric artifact scatter on knoll and saddle, with groundstone and lithic tools recorded.	Crabtree et al	1973
440	000440	–	Prehistoric artifact scatter with groundstone and lithic tools.	Crabtree et al	1973

Permanent Trinomial (CA-ORA-)	P-Number (P-30-)	Other Designation	Description	Recorded by	Date Recorded
441	000441	–	Prehistoric midden with artifacts, including groundstone and lithic artifacts. Survey and testing in 2007 found only one flake and some shell.	Crabtree et al	1973; updated 2007
704	000704	–	Small prehistoric artifact scatter on knoll. Located about 100 feet north of project area.	Kearns and Malone	1977
1008	001008	–	Surface scatter of prehistoric artifacts, with groundstone, lithic tools and debitage recorded. The site was not relocated during a 1999 survey. Site is located about 200 ft north of project area.	Berry and Bissell	1982, updated 1982 and 1999
197	001097	Henry Serrano Adobe	Location of 1870s Henry Serrano Adobe. Historic refuse deposits and one wall of adobe, 1910 house, cabin, and prehistoric artifacts were recorded.	Brock	1995
1250	001250[a]	–	Small prehistoric artifact scatter on knoll, with lithic tools and fire-affected rock. One mano and a possible metate were also recorded.	Brown	1990, updated 1999
–	001490	–	Surface and shallow subsurface deposit of prehistoric artifacts including debitage, groundstone, and tools.	Sawyer	1998
–	001491	–	Buried prehistoric feature in stream bank, consisting of fire-affected rocks, dark soil, charcoal, and a mano within a pit.	Sawyer	1998
1516	001516[a]	–	Possible archaeological site – water-filled cavern.	Ferraro	1999
1521	001521[a]	Schoeppe Clay Mine	Historic clay mine – step mine, open pit, and access roads. Mid-20th century.	Ferraro	1999
1522	001522[a]	–	Sparse lithic scatter on knoll and adjacent saddle.	Ferraro	1999
1523	001523[a]	Serrano Clay Mine	Historic clay mine consisting of a trench and associated access road traces and historic artifacts. Mid -20th century.	Ferraro	1999
–	10044	–	Prehistoric isolate: Metate.	Unknown	n.d.
–	176484	–	1930s ranch/farm site with house, barn, sheds, and outhouse.	Sawyer	1998
–	176627	–	1937 ranch/farm site with house, barn, shed, barbeque and water tanks.	Gregory	1999
–	176629[a]	–	1940 residence and associated outbuildings, partially destroyed by fire.	Gregory	1999
–	176661	–	Mid-20th century structural remains.	Demcak	2002

[a] Within project area

SOURCE: SCCIC, 2011.

CA-ORA-1250

This site was first recorded in 1990 by Joan Brown as a sparse prehistoric artifact scatter located on a knoll (Brown, 1980). She recorded three choppers, a “hammerstone scraper.” a quartzite and felsites core(s), and fire-affected rock. The site was relocated in 1999 by David Ferraro, who recorded one mano, a quartzite milling stone, three flakes, and angular quartzite shatter (Ferraro, 1999a). Ferraro was unable to locate the lithic tools recorded by Brown. He noted that the site was located adjacent to a historic-period mining trench (site CA-ORA-1523) and at that time was also within a horse corral. He theorized that although the groundstone was prehistoric in origin, it was likely that the flakes and shatter might be the product of mechanical disturbance from historic-period mining activities, or even a product of the hoofs of shod horses striking the raw material. The site was not evaluated for significance at the time it was recorded.

CA-ORA-1516

This resource is a “water-filled solution cavern that could potentially be an archaeological site,” recorded by Ferraro in 1999 (Ferraro, 1999b). The cavern was about three meters wide and eight meters deep, and was filled with 80 centimeters of water at the time of recorded. No prehistoric or historic cultural material was observed, but Ferraro posited that the cavern may have been a reliable water source in the past. Brown and Ferraro (1999) did evaluate the site and did not recommend any further work beyond simple recordation at the time because the cavern was located in an area that would not be impacted by the project proposed at that time. The resource is now located in an area that would be left as open spaced under the proposed project; however, it would be impacted under the non-clustered scenario.

CA-ORA-1521

This historic-period site, recorded by Ferraro in 1999, is the historic Schoeppe clay quarry (Ferraro, 1999c). The site consists of a 300-foot long, 75- to 150-foot wide step cut into the side of a ridge, tailings, a 150-foot diameter open pit quarry, and associated access roads. Historic mining activities at this site and at the nearby CA-ORA-1523 focused on the exploitation of white conglomeritic sandstone with a clay matrix. The mines were in use between 1926 and 1974 (Bissell, 1982). The site was not evaluated for significance at the time it was recorded.

CA-ORA-1522

This prehistoric site, recorded by Ferraro in 1999, consists of a dispersed scatter of chert, quartzite, and metavolcanic lithic debitage and a single mano (Ferraro, 1999d). The site is situated on and around a flat open saddle between two ridges. Ferraro noted that due to soil deposition on the saddle, there was the potential for subsurface deposits. The site was not evaluated for significance at the time it was recorded.

CA-ORA-1523

This historic-period site is the Serrano Clay Mine, recorded in 1999 by Ferraro (Ferraro, 1999e). The site consists of a 50-65 foot wide, 400-foot trench and associated access road traces. A bottle base and leaf spring with attached axle were also recorded. The site is located about 800 feet northwest of historic mining site CA-ORA-1521. The site was not evaluated for significance at the time it was recorded.

P-30-176629

This historic-period resource consists of the remains of a mid-20th century rural residence (Gregory, 1999a). The site, recorded by Gregory in 1999, consists of:

- The remains of a single-family house and an intact garage;
- A treehouse;
- The foundations and pad of a second house and garage;
- A garden area with cobblestone walls;
- The remains of a stable or storage shed; and
- A possible privy.

Gregory noted that at the time of its recording in 1999, the house appeared to have been recently destroyed by fire. Records from the County Assessor indicated that the residence was constructed in 1940 and was part of the Watson Ranch property, which was sold to the Seventh Day Adventist Church in 1990. No historical information was found regarding the Watson family. Because of this, Gregory considered the resource not significant in local history. Resource P-30-176629 was evaluated and recommended not eligible for listing in the National Register, California Register or local historical register; it was noted that the resource no longer retained integrity (Gregory, 1999b).

A review of prior survey reports reveals that several additional resources had been noted during past surveys, but not formally recorded. Bissell (1982) describes two prehistoric isolates (a flake and a groundstone fragment), an additional historic-era mine, and a possible historic site. None of these resources was formally recorded. The mine ("unnamed mine") is located between the Schoeppe and Serrano mines and Bissell notes some lumber debris, historic glass and ceramic fragments, the remains of a water tank, and an engine shroud near the mine. The possible historic site was located in the southern portion of the southwestern parcel and was described as occupied by a mobile home, small outbuilding, and evergreen trees.

Historic Map and Aerial Review

Historic topographic maps (1942 and 1943 Santiago Peak 15-minute War Department maps and 1902 Corona 30-minute USGS topographic map) and aerial photographs (1946, 1952, 1981; historicaerials.com) were reviewed. The project area appears undeveloped on the topographic maps; a road following the current alignment of Santiago Canyon Road is depicted to the west of the project area and is labeled "Modjeska Grade Road" on the 1942 and 1943 maps. Historic aerial photographs show roads and trenches caused by historic clay-mining activities in the southwestern portion of the project area in 1946; structures are also present along the southern border of the northeastern portion of the project area in 1946, at the location of site P-30-176629.

Native American Contact

A Sacred Lands File search with NAHC was requested on August 19, 2011. Sacred Lands File search results prepared by the NAHC on August 23, 2011, indicated that no Native American resources were identified within 1/2-mile of the project area; however, the NAHC noted that Native American resources are "known to be in close proximity" to the project area.

Contact letters to all individuals and groups indicated by the NAHC as having affiliation with the Project area were prepared and mailed on August 29, 2011. The letters described the project and included a map indicating the location of the project area. Recipients were requested to reply with any information they are able to share about Native American resources that might be affected by the project. As of the publication of this document, two responses have been received, from Mr. Robert Dorame of the Gabrielino Tongva Indians of California Tribal Council and Mr. Alfred Cruz of the Juaneño Band of Mission Indians. Mr. Dorame responded via telephone on September 1, 2011, and inquired if a survey would be performed for the project, because he is familiar with the area and believes it to be very sensitive. Mr. Cruz replied via voicemail on September 23, 2011, and requested that more information on the project be sent to him by email. A detailed project description and a summary of the cultural resources records search and survey results were sent to him by email on September 26, 2011. Mr. Cruz replied again by telephone on October 5, 2011, to express his concern regarding impacts to cultural resources.

Field Reconnaissance

Survey Methodology

The project area was surveyed on September 22 and 23, 2011. Survey was conducted by a crew of three archaeologists. The survey included all accessible areas where the ground surface was visible and was conducted in 15-meter parallel transects, wherever possible. Slopes of greater than 30 percent were generally not systematically surveyed due to safety concerns. All accessible flat ridgetops, saddles, and visible bedrock exposures were closely examined for evidence of cultural resources.

Sites were defined as consisting of one or more cultural features or three or more artifacts (45 years old or older) within an approximate 25 square meter area. Fewer than three artifacts within 25 square meter area would be considered an isolate. Archaeological resources encountered during survey were documented and photographed, and their locations recorded on a sub-meter Trimble GeoXT GPS unit. GPS points were also taken of individual artifacts and features within recorded sites. Resources were recorded on appropriate Department of Parks and Recreation (DPR) 523 forms. An attempt was made to relocate previously recorded sites and additional data was gathered when necessary. No subsurface investigation was performed and no artifacts were collected during the survey.

Survey Results

Steep slopes comprise a majority of the northeastern portion of the project area and much of the southwestern portion of the project area, and natural topography and surface conditions (e.g., steep slopes, steep stream beds and dense vegetation) often prevented strict adherence to the 15-meter transect survey methodology.

One new resource, prehistoric isolate SC-ISO-1, and three previously recorded resources, CA-ORA-1521, CA-ORA-1523, and P-33-176629, were recorded within the project area. Previously recorded resources CA-ORA-1250, CA-ORA-1516, and CA-ORA-1522 were not relocated. None of the unrecorded features noted by Bissell in 1982 (two isolates, unnamed mine, and possible historic site) were relocated. However, it is possible that Bissell’s third “unnamed” mine may have later been recorded as a part of CA-ORA-1521 by Ferraro.

Description and Evaluation of Cultural Resources Identified Within Project Area

SC-ISO-1: This prehistoric isolate was recorded on September 22, 2011, and consisted of a single unshaped granitic mano measuring 11 by 9 by 6 centimeters. The mano exhibited one utilized surface measuring 6 by 5 centimeters. The artifact was recorded at the base of a gentle slope on the southern edge of the project area. A wide area surrounding the isolate was thoroughly and intensively surveyed; however, no additional artifacts were recorded.

Because it does not appear to have the potential to yield information important to an understanding of prehistory, nor does it meet any other criteria for the California Register, isolate SC-ISO-1 is not recommended eligible for listing in the California Register and does not otherwise meet CEQA's definitions for historical resources and unique archaeological resources.

CA-ORA-1250: This resource, originally recorded as a prehistoric lithic and groundstone scatter, was not relocated. Although the recorded location of the site was easily found, no artifacts were identified. A scatter of quartzite cobbles and shatter, similar to that recorded by Ferraro in 1999, was noted; however, none of these appeared to be cultural in origin. The site area consisted of an exposed area of white sandstone, and appeared to have been heavily impacted by weathering and erosion.

This site was first recorded in 1990 as a sparse prehistoric lithic artifact scatter located on a knoll. However, when the site was relocated in 1999, that surveyors were unable to locate the lithic tools that were originally recorded (Ferraro, 1999a). The 1999 surveyors recorded one mano, a quartzite milling stone, three flakes, and angular quartzite shatter. It was noted that the site was located adjacent to a historic-period mining trench and at that time was also within a horse corral, and it was theorized that it was likely that the flakes and shatter might be the product of mechanical disturbance from historic-period mining activities, or even a product of the hoofs of shod horses striking the raw material. It is likely that the lithic objects originally recorded in 1990 and 1999 are not cultural in origin. A mano and groundstone fragment were also recorded in 1999, but were not relocated in 2011.

Based on established criteria, site CA-ORA-1250 does not meet the criteria for listing in the California Register. Prehistoric archaeological sites are typically evaluated under Criterion 4 – potential to yield information important to an understanding of prehistory. The site as originally recorded contains a limited number and type of artifacts. Discounting the lithic material, which is likely not cultural in origin, only two artifacts, a mano and a milling stone fragment, have been recorded. Neither of these was relocated in 2011. Because of the limited number and types of artifacts recorded and because the site is unlikely to possess a subsurface component, site CA-ORA-1250 does not appear to have the potential to yield information important to an understanding of prehistory and is recommended not eligible for listing in the California Register and does not otherwise qualify as a historical resource or unique archaeological resource under CEQA.

CA-ORA-1516: This resource, a water-filled solution cavern originally recorded as a possible prehistoric archaeological site, was not relocated. The creek area surrounding the resource

consisted of a steeply walled streambed filled and surrounded by dense vegetation, within steep and heavily vegetated canyon walls, which prevented access to the site.

Because the resource was not relocated, insufficient information is available to assess its significance and it has not been evaluated for listing in the California Register. However, the resource is assumed to be eligible for the purposes of this document.

CA-ORA-1521: This resource, the historic-era Schoeppe clay mine, was relocated on September 22, 2011. The open face of the step trench and the open-pit mine were relocated; however, the access road was not relocated. The site area was thickly vegetated, and it is likely that the road cut, which is still visible in modern aerial photographs, was obscured from view by the vegetation.

Based on established criteria, mining feature CA-ORA-1521 does not meet the criteria for listing in the California Register or local register and does not otherwise qualify as a historical resource or unique archaeological resource under CEQA. The mining feature is not known to be directly associated with events or people that have had a broad-reaching impact on the community at the local, state, or national level (Criteria 1 and 2). The mine is not depicted on historic maps and no further information regarding the mine was found in a search of historic documentary sources. In addition, the feature does not embody the characteristics of a distinctive type, period, or method of construction, or represent the work of a master (Criterion 3). The types of mining features present are typical of mine operation in the 19th and 20th centuries, and similar mining features are abundant throughout Southern California.

Archaeological sites, including mining sites, are typically assessed under Criterion 4 for their potential to yield information important to history. For simple mining sites, the information potential of mining features can be exhausted in the process of recording them and providing basic documentary information. In addition, the existence of buried historic-period deposits related to the feature is unlikely. No important information can be obtained by studying the feature further. For these reasons, CA-ORA-1521 is not significant under Criterion 4 because it does not have the potential to yield information important to an understanding of the history of the local area, the state, or the nation.

CA-ORA-1522: This resource, originally recorded as a sparse lithic scatter with one mano, was not relocated. The saddle and knoll on which the site was recorded were surveyed at close interval (five meter transects); however, no artifacts were identified. The site area was vegetated with thick grasses, with some cleared areas; the knoll had fair visibility.

On October 17, 2011, the site was revisited and resurveyed after the clearance of vegetation. Tall grasses and other ruderal vegetation were cut with weed-whackers and cleared from the area where CA-ORA-1522 had previously been recorded. The cleared area was then closely inspected for cultural resources. The mano previously recorded in 1999 was relocated; however, no other artifacts were identified. Aside from this mano, no other site components could be relocated.

Based on established criteria, site CA-ORA-1522 does not meet the criteria for listing in the California Register. Prehistoric archaeological sites are typically evaluated under Criterion 4 –

potential to yield information important to an understating of prehistory. The site as originally recorded contains a limited number and type of artifacts (lithic debitage and one mano). The mano was relocated in 2011; however, none of the lithic material was relocated. Site CA-ORA-1522 does not appear to have the potential to yield information important to an understanding of prehistory and is recommended not eligible for listing in the California Register and does not otherwise qualify as a historical resource or unique archaeological resource under CEQA.

CA-ORA-1523: This resource, the historic-era Serrano clay mine, was relocated on September 22, 2011. The trench was relocated; however, the access roads were not clearly visible. One access road was mapped as running along the ridge to the east, and although the area was generally clear of vegetation and could potentially have functioned as a travel corridor, nothing clearly identifiable as a road trace was observed. The lower (western) road was not relocated, nor were the leaf spring and bottle base.

Based on established criteria, mining feature CA-ORA-1523 does not meet the criteria for listing in the California Register or local register and does not otherwise qualify as a historical resource or unique archaeological resource under CEQA. The mining feature is not known to be directly associated with events or people that have had a broad-reaching impact on the community at the local, state, or national level (Criteria 1 and 2). The mine is not depicted on historic maps and no further information regarding the mine was found in a search of historic documentary sources. In addition, the feature does not embody the characteristics of a distinctive type, period, or method of construction, or represent the work of a master (Criterion 3). The types of mining features present are typical of mine operation in the 19th and 20th centuries, and similar mining features are abundant throughout southern California.

Archaeological sites, including mining sites, are typically assessed under Criterion 4 for their potential to yield information important to history. For simple mining sites, the information potential of mining features can be exhausted in the process of recording them and providing basic documentary information. In addition, the existence of buried historic-period deposits related to the feature is unlikely. No important information can be obtained by studying the feature further. For these reasons, CA-ORA-1523 is not significant under Criterion 4 because it does not have the potential to yield information important to an understanding of the history of the local area, the state, or the nation.

P-30-176629: This resource, a historic-era residential complex, was relocated on September 23, 2011. The resource was found to be generally as recorded; however, thick brush had overgrown most of the garden retaining wall and the possible privy was not relocated. Because the original site record did not include a sketch map, the features were mapped with the Trimble GeoXT and a sketch map drawn.

Resource P-30-176629 was evaluated in 1999 for listing in the National Register and was recommended not eligible; it was noted that the resource no longer retained integrity (Gregory, 1999b). The resource's condition has changed little since this past evaluation and the resource is still evaluated as not eligible for listing in the National Register. It is additionally not eligible for

listing in the California Register or local register. The resource is not considered a historical resource or unique archaeological resource under CEQA.

Paleontological Records Search

A paleontological records search was performed by Dr. Sam McLeod of the Natural History Museum of Los Angeles County on September 13, 2011. The search consisted of a review of the Natural History Museum's paleontology collection records.

The project area is underlain by five geologic formations (County of Orange, 2000):

- Ladd Formation - Cretaceous age, 92 to 75 million years ago
- Williams Formation - Upper Cretaceous age, 75 to 70 million years ago
- Silverado Formation - Paleocene age, 60 to 55 million years ago
- Santiago Formation - Eocene age, 50 to 40 million years ago
- Sespe/Vaqueros Formation - Oligocene age, 40 to 32 million years ago

Each of these formations is considered by Dr. McLeod to have a high potential for the production of paleontological resources. These formations represent rock units from which vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered and are considered to have a high potential for containing significant non-renewable fossiliferous resources.

Although no fossil localities have been recorded within the project area, several localities have been recorded nearby from the same formations that underlie the project area. Two nearby vertebrate fossil localities have been recorded within the Ladd Formation. Locality LACM 1895 is located east of Santiago Canyon, and LACM 4221 is located in Silverado Canyon. Both localities produced fossil specimens of sharks.

One fossil locality (LACM [CIT] 592) was recorded within exposures of the Williams Formation adjacent to the project area, between the northeastern and southwestern portions of the project area, and is considered significant because it contains remains of a Hadrosaur, a rare dinosaur for southern California. No nearby localities exist from the Silverado or Santiago formations; however, numerous vertebrate fossil localities from the Santiago formation exist in San Diego County. One fossil locality from the Sespe/Vaqueros Formation has been recorded nearby: LACM (CIT) 449, located about 1.5 miles west-northwest of the project area, which produced fauna of both marine and terrestrial taxa.

3.4.2 Thresholds of Significance

According to Appendix G of the *CEQA Guidelines* and the County of Orange Environmental Analysis Checklist, a project would have a significant adverse effect on cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;

- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

The following is a discussion of the potential effects of the proposed project and the non-clustered scenario on cultural resources, according to the key issue areas identified in Appendix G of the *CEQA Guidelines*. As identified in the NOP/Initial Study (Appendix A.1), each of the checklist items has a potential to be significant and require full analysis in the EIR, as presented below.

3.4.3 Methodology

To evaluate the project's potential effects on significant cultural resources, ESA conducted a Phase I archaeological evaluation of the project site, which included archival research, Native American contact, field surveys, and a paleontological literature search for areas of potential permanent and temporary impacts where facilities would be installed (Bray, 2011).

Impacts on cultural resources could result from ground-disturbing activities and/or damage, destruction, or alteration of historic structures. Ground-disturbing activities include project-related excavation, grading, trenching, vegetation clearance, the operation of heavy equipment, or other surface and sub-surface disturbance that could damage or destroy surficial or buried archaeological resources including prehistoric and historic remains or human burials.

The impacts discussion assumes that project design features would be implemented as part of the project.

3.4.4 Project Design Features

The following project design features have been included for the proposed project. All of the project design features will be included in the Mitigation Monitoring and Reporting Program and will be monitored to ensure completion, in the same manner as the project's mitigation measures.

PDF-10 The project has been designed to avoid impacts to cultural resources.

3.4.5 Project Impacts

Impact 3.4.1: Adverse change in the significance of a historical or unique archaeological resource.

Significance Standard for Impact 3.4.1: Would the project cause a substantial adverse change in the significance of a historical resource or unique archaeological resource pursuant to §15064.5?

Proposed Project

Known Resources

Six cultural resources have been recorded within the project area (CA-ORA-1250, CA-ORA-1516, CA-ORA-1521, CA-ORA-1522, CA-ORA-1523, and P-30-176629). Of these, five resources (CA-ORA-1250, CA-ORA-1521, CA-ORA-1522, CA-ORA-1523, and P-30-176629) have been evaluated as not eligible for listing in the California Register and as not otherwise qualifying as an historical resource or unique archaeological resource pursuant to Section 15064.5 and will not be considered further.

Sufficient data was not able to be gathered to evaluate the significance of resource CA-ORA-1516. The location of CA-ORA-1516 was not accessible to surveyors due to topography and vegetation. However, under the proposed project, site CA-ORA-1516 would be located within an area that would be designated as permanently protected open space, and therefore would not be impacted by the proposed project.

Unknown Resources

The project area is located in an area that is highly sensitive for prehistoric archaeological resources. Recorded evidence of prehistoric occupation and the presence of nearby constant water sources such as Santiago Creek, Aliso Creek, and the spring located within the project area, attest to this sensitivity. Although much of the project area is characterized by steep slopes, areas such as ridge tops, valleys, saddles, and stream terraces should be considered likely locations for prehistoric archaeological resources that may have been buried or obscured by dense vegetation.

Since the nature of the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb subsurface archaeological resources that were not observable on the surface, which would result in a significant impact. Because of this, at a minimum, all areas within 100 feet of a known cultural resource and all areas that are characterized by less than 45 percent slope where ground-disturbing activity would occur should be monitored by a qualified archaeologist. With implementation of mitigation, impacts to historical or unique archaeological resources under proposed project would be less than significant.

Impact Determination: Construction of the proposed project has the potential to cause a substantial adverse change in the significance of a historical or archaeological resource, pursuant to Section15064.5, resulting in significant impacts. The proposed project has been designed to avoid disturbance of cultural resources (PDF-10). Implementation of Mitigation Measures MM 3.4-1 and MM 3.4-2, which requires monitoring of ground disturbing activities and reporting the discovery of cultural resources, would reduce impacts to less than significant.

Non-Clustered Scenario

Impacts from the non-clustered scenario would be similar to those described above, with the exception that this scenario would impact unevaluated archaeological site CA-ORA-1516. Extended archaeological survey should be conducted by a qualified archaeologist in the vicinity

of site CA-ORA-1516 after brush has been cleared from the site and site boundaries intensively surveyed and delineated. The site's significance should be evaluated based on the results of this extended survey. Upon implementation of mitigation (MM 3.4-1 and MM 3.4-2), impacts to unknown cultural resources would be less than significant.

Similar to the proposed project, it is possible that development of the non-clustered scenario could unearth, expose, or disturb subsurface archaeological resources that were not observable on the surface, which would result in a significant impact. However, because the non-clustered scenario would involve a larger geographic area of ground disturbance, impacts could be greater as compared to the proposed project. However, with implementation of mitigation, impacts to historical or unique archaeological resources under the non-clustered scenario would be less than significant.

Impact Determination: Construction of the non-clustered scenario has the potential to cause a substantial adverse change in the significance of a historical or archaeological resource, pursuant to Section15064.5, resulting in significant impacts. Implementation of Mitigation Measures MM 3.4-1 and MM 3.4-2, which requires monitoring of ground disturbing activities and reporting the discovery of archeological resources, would reduce impacts to less than significant.

Impact 3.4.2: Destroy a unique paleontological resource or geologic feature.

Significance Standard for Impact 3.4.2: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Proposed Project

The project area is underlain by five geologic formations: the Ladd Formation, Williams Formation, Silverado Formation, Santiago Formation, and Sespe/Vaqueros Formation. Each of these formations has been assigned a high potential for the production of paleontological resources. These formations represent rock units from which vertebrate or significant invertebrate fossils or significant suites of plant fossils have been recovered and are considered to have a high potential for containing significant non-renewable fossiliferous resources.

Although no fossil localities have been recorded within the project area, several localities have been recorded nearby from the same formations that underlie the project area, including a locality outside of but near the project area, between the northeastern and southwestern portions of the project area that produced a rare dinosaur specimen, Hadrosaur.

Fossils and their associated contextual data are nonrenewable scientific resources; the loss of these resources resulting from a project would be a significant impact. Because the project would impact five paleontologically sensitive geologic formations, and thus potentially impact significant fossils within these formations, the proposed project would have a significant impact on paleontological resources. All ground-disturbing activities in the Ladd Formation, Williams Formation, Silverado Formation, Santiago Formation, and Sespe/Vaqueros Formation should be

monitored by a qualified paleontologist. With implementation of mitigation, impacts to paleontological resources from implementation of the proposed project would be less than significant.

Impact Determination: Construction of the proposed project has the potential to directly or indirectly destroy previously unknown paleontological resources, resulting in significant impacts. Implementation of Mitigation Measure MM 3.4-3, which requires monitoring earthwork activities to ensure paleontological resources are protected, would reduce impacts to less than significant.

Non-Clustered Scenario

Impacts from the non-clustered scenario would be similar to that described above for the proposed project. However, due to the fact that the non-clustered scenario would involve a larger geographic area of ground disturbance, impacts would potentially be greater as compared to the proposed project. With implementation of mitigation, impacts to paleontological resources would be less than significant for the non-clustered scenario.

Impact Determination: Construction of the non-clustered scenario has the potential to directly or indirectly destroy previously unknown paleontological resources, resulting in significant impacts. Implementation of Mitigation Measure MM 3.4-3, which requires monitoring earthwork activities to ensure paleontological resources are protected, would reduce impacts to less than significant.

Impact 3.4.3: Disturb human remains.

Significance Standard for Impact 3.4.3: Would the project disturb any human remains, including those interred outside of formal cemeteries?

Proposed Project

The land use designations for the proposed project components do not include cemetery uses; no known human remains exist on the project site. However, since the nature of the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains interred outside of a formal cemetery. Implementation of mitigation would ensure that impacts to human remains would be less than significant for the proposed project.

Impact Determination: Construction of the proposed project has the potential to disturb human remains, resulting in significant impacts. The proposed project has been designed to avoid disturbance of cultural resources (PDF-10). Implementation of Mitigation Measure MM 3.4-4, which includes the notification and work stoppage if any human remains are discovered, would reduce impacts to less than significant.

Non-Clustered Scenario

Impacts from the non-clustered scenario would be similar to that described above for the proposed project. However, due to the fact that the non-clustered scenario would involve a larger amount of ground disturbance, impacts would be greater as compared to the proposed project. Implementation of mitigation which the notification and work stoppage is any human remains are discovered, would ensure that impacts to human remains would be less than significant for the non-clustered scenario.

Impact Determination: Construction of the non-clustered scenario has the potential to disturb human remains, resulting in significant impacts. Implementation of Mitigation Measure MM 3.4-4, which includes the notification and work stoppage if any human remains are discovered, would reduce impacts to less than significant.

3.4.6 Cumulative Impacts

The geographic scope for cumulative impacts to cultural resources includes a 0.5-mile radius from the project site. This geographic scope of analysis is appropriate because the archaeological, historical, and paleontological resources within this radius are expected to be similar to those in the project site because of their proximity; similar environments, landforms, and hydrology would result in similar land use and thus, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity.

The area in the vicinity of the project site contains a significant archaeological and historical record that, in many cases, has not been well documented or recorded. Thus, there is the potential for ongoing and future development projects in the vicinity to disturb landscapes that may contain known or unknown cultural resources.

The potential construction impacts of the proposed project or the non-clustered scenario, in combination with other projects in the area, could contribute to a cumulatively significant impact on cultural resources. However, this analysis includes several mitigation measures to reduce potential project impacts to cultural resources during construction of the proposed project or the non-clustered scenario. Future projects with potentially significant impacts to cultural resources would be required to comply with federal, state, and local regulations and ordinances protecting cultural resources through implementation of similar mitigation measures during construction. Therefore, with implementation of regulatory requirements and mitigation, neither the proposed project nor the non-clustered scenario would have a cumulatively considerable contribution to impacts to cultural resources.

Excavation activities associated with the proposed project or the non-clustered scenario in conjunction with other projects in the area could contribute to the progressive loss of fossil remains, as-yet unrecorded fossil sites, associated geological and geographic data, and fossil bearing strata. However, the proposed project and the non-clustered scenario would have a less

than significant impact to paleontological resources with the implementation of mitigation, and other projects in the area would be required to comply with existing regulations and undergo CEQA review to assure that any impacts are appropriately evaluated and, if necessary, mitigated. Therefore, with implementation of regulatory requirements and mitigation, neither the proposed project nor the non-clustered scenario would have a cumulatively considerable contribution to impacts to paleontological resources.

Impact Determination: The proposed project and non-clustered alternative could contribute to a significant cumulative impact to cultural or paleontological resources within the cumulative area. However, the proposed project has been designed to avoid disturbance of cultural resources (PDF-10). In addition, implementation of Mitigation Measures MM 3.4-1 through MM 3.4-4, which require monitoring of ground disturbing activities and reporting the discovery of cultural resources, would reduce cumulative impacts to less than significant.

3.4.7 Mitigation Measures

MM 3.4-1 Prior to the issuance of any grading permit, the applicant shall provide written evidence to the Manager, OC Planning, that applicant has retained a County-certified archaeologist to observe grading activities and salvage and catalogue archaeological resources as necessary. The archaeologist shall be present at the pre-grade conference, shall establish procedures for archaeological resource surveillance, and shall establish, in cooperation with the applicant, procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of the artifacts as appropriate.

The County-certified archaeologist shall monitor all ground-disturbing activities, including brush clearance and grubbing, in areas within 100 feet of a known cultural resource and in areas where slope does not exceed 45 percent. The duration and timing of monitoring shall be determined by the archaeologist in consultation with the County and based on the grading plans.

MM 3.4-2 If a cultural resource is encountered, the archaeologist shall be empowered halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated and appropriate treatment determined. If an archaeological monitor is not present, and if a cultural resource is encountered, construction activities shall be redirected away from the immediate vicinity of the find until it can be evaluated by a qualified archaeologist. If the resource is found by the archaeologist to be a unique archaeological resource as defined in PRC Section 21083.2(g), and if avoidance is not feasible, a detailed treatment plan shall be prepared and implemented by a qualified archaeologist in consultation with the County and appropriate Native American group(s) (if the find is a prehistoric or Native American resource).

At minimum, the treatment plan prepared shall include sample excavation, surface artifact collection, site documentation, and historical research, with the

aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall also include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Construction activities shall be redirected to other work areas until the treatment plan has been implemented or the qualified archaeologists determines work can resume in the vicinity of the find.

Prior to the release of the grading bond the applicant shall obtain approval of the archaeologist's follow-up report from the Manager, OC Planning. The report shall include the period of inspection, an analysis of any artifacts found and the present repository of the artifacts. The final report shall also be provided to the South Central Coastal Information Center. The applicant shall prepare excavated material to the point of identification. Applicant shall offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first refusal basis. If the County does not accept the finds, they shall be curated at an accredited curation facility that has been approved by the County. These actions, as well as final disposition of the resources, shall be subject to the approval of the Manager, OC Planning.

MM 3.4-3 Prior to the issuance of any grading permit, the applicant shall retain County-certified paleontologist. The paleontologist shall prepare and submit to the County for approval a Paleontological Mitigation and Monitoring Plan that provides for the treatment of paleontological resources in accordance with the mitigation guidelines for areas of high potential outlined by the Society for Vertebrate Paleontology. The mitigation and monitoring plan shall address pre-construction salvage and reporting; pre-construction contractor sensitivity training; procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report.

All earth moving activities in the Ladd Formation, Williams Formation, Silverado Formation, Santiago Formation, and Sespe/Vaqueros Formation shall be monitored full time, unless the paleontologist determines that sediments are previously disturbed or there is no reason to continue monitoring in a particular area due to other depositional factors, which would make fossil preservation unlikely or deemed scientifically insignificant. If it becomes apparent to the paleontologist that bedrock will not be impacted in an area, monitoring may be suspended temporarily until bedrock is impacted again. Spot-checking by the paleontologist will be allowed to determine if bedrock is being impacted. If impacts to bedrock resume, full-time monitoring will resume. In the event fossils

are exposed during earth moving, construction activities shall be redirected to other work areas until the procedures outlined in the Paleontological Mitigation and Monitoring Plan have been implemented or the paleontologist determines work can resume in the vicinity of the find.

Prior to the release of the grading bond the applicant shall submit the paleontologist's follow up report for approval by the Manager, OC Planning. The report shall include the period of inspection, a catalogue and analysis of the fossils found, and the present repository of the fossils. Applicant shall prepare excavated material to the point of identification. The applicant shall offer excavated finds for curatorial purposes to the County of Orange, or its designee, on a first refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to approval by Manager, OC Planning. The applicant shall pay curatorial fees if an applicable fee program has been adopted by the Board of Supervisors, and such fee program is in effect at the time of presentation of the materials to the County of Orange or its designee, all in a manner meeting the approval of the Manager, OC Planning.

MM 3.4-4 If human remains are encountered unexpectedly during construction excavation and grading activities, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC will then identify a Most Likely Descendent who will provide recommendations as to the future disposition of the remains. Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices and taking into account the possibility of multiple human remains, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the Most Likely Descendent, as prescribed in this section (PRC 5097.98).

3.4.8 Impact Determination

The proposed project and the non-clustered scenario would have similar impact determinations for cultural resources. Regarding Impact 3.4.1, construction of the proposed project and non-clustered scenario has the potential to cause a substantial adverse change in the significance of a historical or archaeological resource, resulting in significant impacts. The non-clustered scenario would impact a known, archaeological resource CA-ORA-1516. Implementation of Mitigation Measures MM 3.4-1 and MM 3.4-2, as well as Project Design Feature PDF-10, would reduce impacts associated with the proposed project to less than significant. Implementation of Mitigation Measures MM 3.4-1 and MM 3.4-2 would reduce impacts associated with the non-clustered scenario to less than significant.

Construction of the proposed project or the non-clustered scenario has the potential to directly or indirectly destroy previously unknown paleontological resources, resulting in significant impacts (Impact 3.4.2). Implementation of Mitigation Measure MM 3.4-3, as well as Project Design Feature PDF-10 (for the proposed project), would reduce impacts to less than significant.

Construction of the proposed project or the non-clustered scenario has the potential to disturb human remains, resulting in significant impacts (Impact 3.4.3). Implementation of Mitigation Measure MM 3.4-4, as well as Project Design Feature PDF-10 (for the proposed project), would reduce impacts to less than significant.