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PG&E Letter DCL-24-087

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

10 CFR 54

Diablo Canyon Units 1 and 2
Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Power Plant License Renewal – Historic and Cultural Resources Reference Documents

Dear Commissioners and Staff:

On November 7, 2023, Pacific Gas and Electric Company (PG&E) submitted a License Renewal Application to the U.S. Nuclear Regulatory Commission (NRC) to renew the operating licenses for Diablo Canyon Power Plant (DCPP) Units 1 and 2. Appendix E of the License Renewal Application is the Applicant's Environmental Report, which includes a description of the proposed license renewal action and analyses of potential effects of the action on various types of resources, including historic and cultural resources.

PG&E understands that the NRC would like to cite some of the historic and cultural resources reference documents included in the Applicant's Environmental Report in the Draft Supplemental Environmental Impact Statement for DCPP License Renewal. These reference documents include the following:

1. The Rancho Cañada de los Osos y Pecho y Islay Archaeological District National Register of Historic Places Nomination Form

2. Enright et al. 2021 report – *Diablo Canyon Decommissioning Cultural Resource Inventory and Study Plan*

3. Jennifer Whiteman 2013 report: Reflections of Japanese Farming Along the Pecho Coast of California

Enclosed are copies of these documents as Enclosures 1, 2, and 3, respectively. The documents are redacted to protect sensitive cultural information pursuant to the National Historic Preservation Act of 1966, as amended, and U.S. Code Title 16, Conservation Section 470hh.

Please contact Mike Taggart at (916) 261-6523 or by email at Mike.Taggart@pge.com if you have any questions or would like to discuss this letter further.

Sincerely,

P. Soenen

Philippe Soenen for

Thomas P. Jones,
Senior Director of Regulatory, Environmental & Repurposing

9/12/2024
Date

Enclosures

cc: Diablo Distribution
cc/enc:
Anthony Chu, California Department of Public Health
Kimberly Conway, NRC Environmental Project Manager
Mahdi O. Hayes, NRC Senior Resident Inspector
Delphine Hou, California Department of Water Resources
John D. Monninger, NRC Region IV Administrator

The Rancho Cañada de los Osos y Pecho y Islay Archaeological District National Register of Historic Places Nomination Form

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name: Rancho Cañada de los Osos y Pecho y Islay Archaeological District (Boundary Increase)
Other names/site number: NRHP 75000477; PG&E—Diablo Canyon Coastal Bluff Prehistoric Archaeological Site District
Name of related multiple property listing: N/A
(Enter "N/A" if property is not part of a multiple property listing)

2. Location

Street & number: PG&E Diablo Canyon Power Plant Property and Montaña de Oro State Park
City or town: Avila Beach State: California County: San Luis Obispo
Not For Publication: X Vicinity: X

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ___ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ___ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___national ___statewide ___local

Applicable National Register Criteria:

___A ___B ___C ___D

Signature of certifying official/Title: Date

State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official: Date

Title : State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) ______________________

____

Signature of the Keeper Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private:	X
Public – Local	
Public – State	X
Public – Federal	

Category of Property

(Check only **one** box.)

Building(s)	
District	X
Site	
Structure	
Object	

Number of Resources within Property
(Do not include previously listed resources in the count)

Contributing	Noncontributing	
		buildings
69	22	sites
		structures
		objects
69	22	Total

Number of contributing resources previously listed in the National Register 15

6. Function or Use

Historic Functions
DOMESTIC/Village Site
DOMESTIC/Camp
RELIGION/Ceremonial Site
INDUSTRY/PROCESSING/EXTRACTION/Extractive facility

Current Functions
AGRICULTURE/SUBSISTENCE/Agricultural field
INDUSTRY/PROCESSING/EXTRACTION/Energy facility
LANDSCAPE/Unoccupied land

7. Description

Architectural Classification
__N/A____________

Materials: (enter categories from instructions.)
Principal exterior materials of the property: _N/A____________

Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)
Confidential information found throughout the document in BOLD TEXT should be redacted under Section 304 of the National Historic Preservation Act.

Summary Paragraph

The Rancho Cañada de los Osos y Pecho y Islay Archaeological District (District) comprises 2,434 acres and includes 84 contributing archaeological sites (15 previously listed resources and 69 nominated resources). Situated along the coastal terrace within PG&E's Diablo Canyon Power Plant property and Montaña de Oro State Park, [redacted] San Luis Obispo County, California, the District lies on the relatively flat coastal terrace encompassing an approximately 11-mile-long section of the Pecho Coast, extending inland from the Pacific Ocean shoreline to the slopes of the Irish Hills. The terrace is dissected by numerous small canyons that contain seasonal and perennial streams originating in the adjacent hills and draining into the Pacific Ocean. The district is composed of Native American archaeological sites that represent both residential and limited activity loci and include 11 villages (one of which is also classified as an ideological site), 8 long-term residences (seasonal residential bases), 33 short-term residences (temporary camps), 1 stone-tool quarrying and manufacturing locale, and 31 locations that include 13 flaked stone and shell scatters, 10 flaked stone scatters, 7 shell scatters, and 1 shell scatter with bedrock mortars. The archaeological sites that collectively make up the District range in age from the Late Paleo-Indian Period (pre-10,000 cal B.P.) to the Historic Period (CE 1769). The contributing archaeological resources have yielded or have the potential to yield information important to scientific research domains centered on chronology, subsistence, technology, settlement systems and land-use strategies, sociopolitical organization, and paleoenvironmental change. The District retains integrity of setting (the area is largely undeveloped), location (sites are located in their original locations and maintain their relationship to the natural environment), design (sites retain their relationship to each other and functional areas remain intact), materials and workmanship (as seen in the artifacts), and feeling and association (inter- and intra-site relationships).

Narrative Description

15 resources were previously listed as contributors to NRHP #75000477: CA-SLO-2/3, -8, -50, -51, -52, -53, -54/63,-55, -58, -585, -682/689, -684, -686, -687, -688. Originally 17 resources were listed. CA-SLO-54 and -63 were later combined into CA-SLO-54/63; CA-SLO-682 and -689 were combined into CA-SLO-682/689.

7.1 Environmental Setting

The Rancho Cañada de los Osos y Pecho y Islay Archaeological District is located on the coastal terrace of the Pecho Coast within the San Luis Obispo region of the Coast Ranges geologic and geomorphic province. The Santa Lucia Range subsection of the Coast Range is characterized by a series of mountains and hills, including the Irish Hills, with rounded ridges, steep sides, and narrow canyons (Miles and Goudey 1997). The Irish Hills consist of uplifted bedrock overlain with successive layers of ancient marine deposits and more recent alluvial sediments (Greenwood 1972:1). The coastal terrace is dissected by several canyons with perennial and seasonal steams that originate in the Irish Hills and empty into the Pacific Ocean. [redacted] Natural seeps or springs occur near Tom's (or Trout) Pond, a dammed reservoir on the edge of the coastal terrace less than two miles north of Diablo Creek.

The Pecho Coast shoreline features narrow swathes of beaches that are interspersed with reaches of intertidal rocks and tide pools offering habitat for rocky foreshore invertebrate species including California mussel (*Mytilus californianus*), abalone (*Haliotis rufescens*, *Haliotis cracherodii*), turban snails (*Tegula funebralis*), rock crabs (*Cancer* spp.), sea urchins (*Stronglycentrotus* spp.), and various barnacles, limpets, and chitons (*Polyplacophora*). Offshore marine environments include rocky ocean bottoms that support kelp forests, which provide habitat for invertebrates; several fish species including rockfish (*Sebastes* spp.), kelpfish (*Clinidae*), yellowtail (*Seriola lalandi*), and Pacific sardine (*Sardinops sagax*); and sea mammals including sea otters (*Enhydra lutris*), elephant seal (*Mirounga angustirostris*), and sea lion (*Zalophus californianus*). Sea birds are abundant in the area, including gulls (*Larus* spp.), brown pelicans (*Pelecanus occidentalis)*, and cormorants (Family *Phalacrocoracidae*).

The coastal terrace that comprises the District extends from the shoreline approximately 150 to 750 meters (492 to 2460 feet) inland to meet the base of the Irish Hills. Elevations along the coastal terrace and lower slopes range from approximately 12 to 121 meters (40 to 400 feet) above mean sea level (amsl). Historically, this area was cultivated with grain crops and portions of the District are still used for ranching and agriculture. During prehistoric times, the Coastal Sagebrush vegetative community, consisting of California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), and California buckwheat (*Eriogonum fasciculatum*), would have been abundant (Munz 1974).

Prior to the Historic Period, this area would have supported a wide variety of terrestrial mammals, birds, reptiles, and amphibians. Large terrestrial mammals known from this general area include tule elk (*Cervus elaphus nannodes*), antelope (*Antilocapra americana*), black-tailed deer (*Odocoileus hemonius*), black bear (*Ursus americanus*), mountain lion (*Felis concolor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and the locally extirpated grizzly bear (*Ursus arctos*). Small mammals occurring in this area include striped skunk (*Mephitis mephitis*), spotted skunk (*Spilogale gracilis*), badger (*Taxidea taxus*), weasel (*Mustela frenata*), raccoon (*Procyon lotor*), ringtail (*Bassaricus astutus*), brush rabbit (*Sylvilagus bachmani*), cottontail (*Sylvilagus audoboni*), hare (*Lepus californicus*), Botta's pocket gopher (*Thomomys bottae*), and dusky-footed woodrat (*Neotoma fuscipes*) (Barter et al. 1994; Fitzgerald 1998:2-8).

7.2 Archaeological Chronology

Although aspects of the chronological sequence for the San Luis Obispo area are still debated among archaeologists, this nomination follows the coastal chronology for the Central Coast as defined by Jones et al. (2007), with later refinements by Jones (2013). This artifact-derived chronological sequence incorporates six different periods (**Figure 1**) and is anchored by a suite of more than 108 radiocarbon dates from 22 sites within the District (Price and Jones 2013); of these, 34 are derived from a single site, CA-SLO-2/3. Brief descriptions of each period, including sites within the District that are representative of each period, are provided below.

7.2.1 Paleo-Indian/Paleo-Coastal Period (pre-10,000 cal B.P.[1])

Archaeological evidence indicates that Native American use of the San Luis Obispo area began during the late Pleistocene, as early as 10,000 years ago. Moratto (1984) has proposed that early sites along this portion of the California coast display a distinctively maritime cultural adaptation, which has been termed the Paleo-coastal Tradition. Early coastal groups occupying the area practiced a diverse marine-oriented subsistence regime which relied on relatively simple technology to procure plant foods, shellfish, and a limited array of vertebrate species (Breschini and Haversat 1982; Greenwood 1972; Jones and Waugh 1993; Jones et al. 1994; King 1990). The paucity of sites and materials from this time suggests that population density was low and settlements were impermanent.

The Paleo-Coastal Period is represented by at least one archaeological site within the District: CA-SLO-2/3. Investigations by Greenwood (1972) at this multi-component site [redacted] produced two radiocarbon dates that fall within the terminal Pleistocene/early Holocene transition. Analysis of faunal remains from early deposits at CA-SLO-2/3 indicates that Paleo-Coastal inhabitants maintained a diverse subsistence base that included shellfish, marine birds, fish, and terrestrial fauna (Jones et al. 2008). Moratto (1984: 107-108) has also argued for a possible pre-Millingstone (Early Archaic Period) occupation in the lowermost strata excavated at CA-SLO-585, which presents a trans-Holocene sequence comparable to that found at CA-SLO-2/3 (Jones et al. 2009).

7.2.2 Early Archaic Period (10,000-5500 cal B.P.)/ Milling Stone Culture

Discussions of Central Coast regional chronology use the term Milling Stone interchangeably with the Early Archaic time period (Jones et al. 2005). Because Milling Stone refers to a specific set of cultural practices that were regionally variable but widely used across California starting in Early Archaic time but persisting in some areas for many thousands of years, the following discussion utilizes the more conventional Early Archaic, which allows for a better identification of the period based upon accepted regional temporal frameworks.

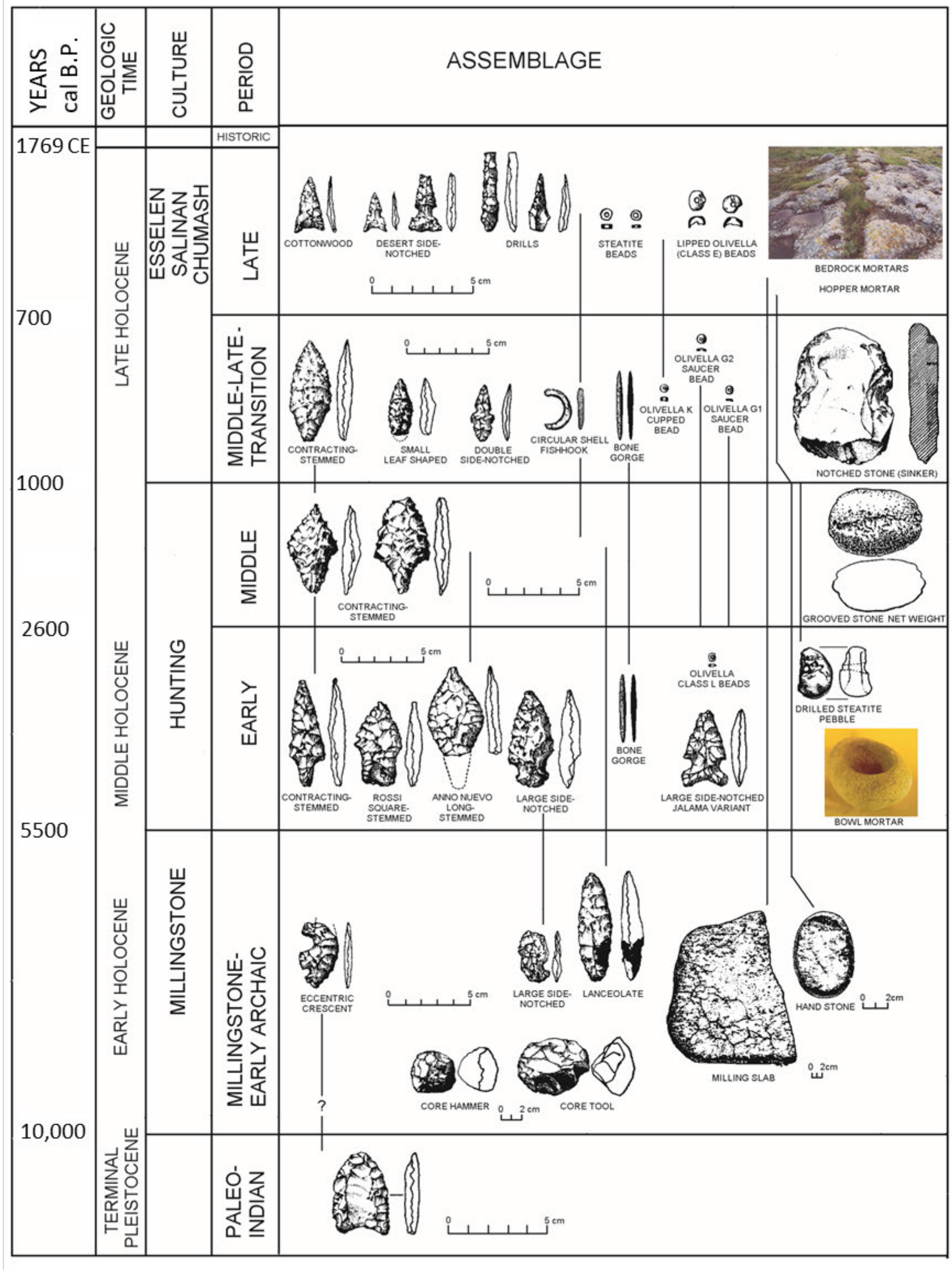
A growing number of Early Archaic, components have been identified, most located in coastal or pericoastal settings. Two such components, at CA-SLO-2 [redacted] and CA-SLO-1797 [redacted], are radiocarbon dated between 10,300 and 8500 cal B.P., providing the earliest evidence for the widespread California Milling Stone adaptive pattern (Greenwood 1972; Jones et al. 2008). Human occupations during this period are defined by the predominance of hand stones and milling slabs indicating a reliance on hard seeds and other plant foods, and flaked stone tools including leaf-shaped bifaces, oval bifacial knives, choppers, and scrapers. In addition, hammer stones, fishing equipment, including grooved net sinkers and bipointed gorges, and *Olivella* beads occur during this period. The appearance of well-developed shell middens, numerous milling implements, and fishing tools after

[1] Cal B.P. refers to *calibrated years before the present*. This dating convention assumes present to be A.D. 1950.

8500 cal B.P. suggest more intensive and settled human occupation of the area after that time. Although the currently accepted end date for the Early Archaic Period is 5500 cal B.P., some researchers have suggested that this date should be pushed back slightly to 5600 cal BP (Rosenthal and Fitzgerald 2012; Hildebrandt and McGuire 2010).

Faunal assemblages from Early Archaic components along the Pecho Coast suggest a heavy reliance on deer, marine birds, fish, and shellfish (Jones et al. 2008, 2009). The procurement of large terrestrial game by Pecho Coast populations is inconsistent with optimal foraging models developed for the Early Holocene (McGuire and Hildebrand 1994, 2005) that predict a subsistence regime focused on small, ubiquitous species such as rabbits. Jones et al. (2008) suggest that throughout this period, the inhabitants of the Pecho Coast had access to consistently reliable deer populations in the adjacent Irish Hills. This finding suggests regional variability in subsistence regimes during the Early Archaic Period that may relate to local environmental conditions.

Figure 1. Generalized cultural history for the Central California Coastal Region (courtesy of Terry Jones).



Four Early Archaic Period settlements are represented in the District: CA-SLO-2/3, -10, -585, and -1366/H. Radiocarbon dates from CA-SLO-2/3 indicate long-term intermittent use at this locale between 8950 and 7700 cal B.P. and 6950 and 4950 cal B.P. (Price and Jones 2013). The diverse array of ground and flaked stone artifacts as well as bone tools that were recovered from Early Archaic deposits suggest a range of domestic and subsistence activities (Greenwood 1972). [redacted] In addition, an Early Archaic occupation was documented at CA-SLO-585 (Jones et al. 2009) and CA-SLO-10 (Price and Jones 2013), with radiocarbon dates clustering between 8950 and 7790 cal B.P. and 7200 and 7020 cal B.P., respectively. Artifact evidence from CA-SLO-585 suggests use of the area as a residential base (Jones et al. 2009:22) with CA-SLO-10 functioning as a short-term residential settlement. Finally, a fragment of *Mytilus* sp. shell recovered from the surface of a midden at CA-SLO-1366/H produced a date range of 7170-6990 cal B.P. (Price and Jones 2013).

7.2.3 Early Period (5500-2600 cal B.P.)

Cultural changes after 5500 cal B.P. are thought to be a response to environmental shifts, rising sea levels, and an increase in population. In the District, it appears that this adaptive transition was rather abrupt, suggesting that drastic changes in social or environmental conditions necessitated a new adaptive response. In terms of material culture, the transition is marked by increases in projectile points, the initial appearance of the mortar and pestle, and increased frequency of obsidian reflecting more trade—shifts that many interpret as the beginning of a more labor-intensive adaptation (Jones 2013). Diagnostic artifacts of this period include large side-notched, square stem, and contracting stem spear and dart points, as well shell fishhooks and *Olivella* beads. Although milling slabs and hand stones continued as the primary plant processing tools, the appearance of bowl mortars and pestles suggest the systematic use of acorns (Glassow et al. 1988). In response to climatic changes, local residential sites appear more settled, but not permanent, with an increase in logistical organization of economic activities (Jones et al. 1994:62). The greater diversity of site types during this period reflects an increasing number of short-term occupations near labor-intensive resources. Trade and exchange also increased in importance as population mobility decreased, as evidenced by exotic shell beads and obsidian materials in midden deposits (Jones et al. 1994).

Although CA-SLO-2/3 and CA-SLO-585 appear to have experienced a hiatus in occupation between 5000 and 2500 cal B.P., chronometric data indicate that at least three archaeological sites within the District were inhabited during the Early Period (Jones et al. 2009; Price et al. 2012; Price and Jones 2013; Wendel and Enright 2017). These sites include CA-SLO-61, -1366/H, and -1370, all of which are located within the central and northern extent of the District. Data recovered during Greenwood's 1968 excavations and by Applied EarthWorks (Æ) in 2012 and 2016 indicate that CA-SLO-61 served as a residential location starting in the Early Period (Price et al. 2012; Wendel and Enright 2017). Overall, the combined assemblages from CA-SLO-61 suggest a residential occupation rather than short-term specialized or targeted uses. Indicators of seasonality show that resources were collected during spring, summer, and possibly year-round. The overall subsistence data also reflect a strong reliance on marine resources, especially shellfish, which dominate the faunal remains. Residents made use of locally available toolstone, and expedient flake tools were more prominent than finished bifaces. The tools and debitage reflect a simple core and flake technology rather than a curated biface technology.

Overall, data from the Pecho Coast suggest that the Early Period was a time of movement of human populations. During this period, the two large residential bases (CA-SLO-2 and CA-SLO-585) were abandoned and other smaller settlements such as CA-SLO-61 and -1366/H were occupied. Jones et al.

(1994:62) suggest that in response to climatic changes occurring during this period, local residential sites became semipermanent with an increase in logistical organization of economic activities. The CA-SLO-61 faunal data suggests a residential site primarily devoted to the collection of littoral resources such as shellfish and rockfish along with terrestrial game that was taken when available.

Population dispersal may have led to the prevalence of smaller single component sites during this period. This is a trend observed not only along the Pecho Coast but also to the north in Los Osos and Morro Bay where there is an increase in occupied sites during the Early Period (D. Jones et al. 2015). This trend suggests that the apparent fracturing of large sites such as CA-SLO-2 and CA-SLO-585 may reflect large population centers fissioning into smaller social groups or moving from the Pecho Coast due to environmental or cultural shifts (Wendel and Enright 2017).

7.2.4 Middle Period (2600-950 cal B.P.)

Prehistoric technology and economy became markedly more complex after 2600 cal B.P. Artifact assemblages from Middle Period sites contain shell fishhooks and other fishing gear, saucer-type *Olivella* beads, and contracting-stemmed projectile points. The use of hand stones and milling slabs continued during this period, but mortars and pestles occur in greater proportions (Jones and Waugh 1995:121). Archaeological data indicate that the *tomol*, or wood plank canoe, first came into use after 1450 cal B.P. in the Santa Barbara Channel region, but this technological innovation does not appear to be adopted by coastal populations further to the north in the San Luis Obispo area (Arnold 2007; King 1990). Subsistence practices along the Pecho Coast focused on marine resources and acorns, with a greater use of seasonal resources and the first attempts at food storage (Glassow et al. 1988; King 1990). Faunal data indicate that marine mammals, specifically sea otters, were procured at greater frequencies during this period (Jones et al. 2008). Continuation of trade relationships is evident in the increased number and diversity of obsidian items and beads associated with this period.

Settlement patterns during the Middle Period in the San Luis Obispo area are similar to those seen during the prior period. Sites were occupied on an extended basis but not as permanent settlements. These residential bases functioned in conjunction with short-term, smaller occupations at specialized resource processing areas. At least six archaeological sites within the District were occupied during the Middle Period: CA-SLO-2/3, -5, -7, -10, -497, and -1451/H. While the relatively dense midden deposits excavated by Greenwood (1972) indicate CA-SLO-2/3 may have served as a residential base during the Middle Period, extant data suggest that the other four sites functioned as short-term residential locales.

7.2.5 Middle-Late Transition Period (950-700 cal B.P.)

The period after 950 cal B.P. was a time of emergent political complexity, development of social ranking, and the rapid development of craft specialization along the Santa Barbara Channel; however, evidence of similar socioeconomic changes in the San Luis Obispo area is lacking. Artifact assemblages dating to the Middle-Late Transition along the Pecho Coast contain a mixture of earlier artifact types with the addition of arrow points, bone fishhooks, bowl mortars, and *Olivella* beads. The absence of imported obsidian after 950 cal B.P. suggests a change in trade relationships, likely associated with the shift in settlement patterns and the establishment of stronger territorial boundaries (Jones et al. 1994).

Settlement pattern data suggest that population in the San Luis Obispo area may have decreased during the Middle-Late Transition as coastal villages became temporary hunting camps and prehistoric inhabitants increasingly relied on terrestrial mammals for subsistence. Jones et al. (1994) posited that coastal areas were largely abandoned at this time in response to environmental perturbation associated with the Medieval Climatic Anomaly (MCA), which produced warmer temperatures and drought conditions; however, a recent analysis of the radiocarbon dates from Pecho Coast sites by Price and Jones (2013) calls this hypothesis into question. Specifically, their analysis indicates several sites along the Pecho Coast, including the District sites of CA-SLO-2/3, -7, and -9, continued to serve as residential bases during the Middle-Late Transition. While populations continued to use the area, Jones and Codding (2006:65) suggest a subsistence shift in the Middle-Late Transition with decreased terrestrial productivity resulting in heavier reliance on marine foods and small terrestrial game.

7.2.6 Late Period (700 cal B.P.-Historic Period)

The Late Period (700 cal B.P-Historic Period) is marked by a proliferation of single component sites; these sites occur more frequently in interior areas, suggesting reduced occupation of coastal areas (Jones et al. 2007). Both interior and coastal sites within the San Luis Obispo area display evidence of year-round occupation (Jones et al. 2008). Late Period assemblages are differentiated from earlier assemblages by the presence of small projectile points associated with bow and arrow technology (Jones et al. 2007). Subsistence studies suggest the overhunting of local artiodactyls along the Pecho Coast during this period (Codding et al. 2010). Archaeological data from sites in the Channel Islands suggest the subsistence regime became increasingly focused on marine resources during the Late Period, with fish dominating the diet (Rick 2007). This contrasts with Pecho Coast sites where fish remains appear to be less abundant in Late Period components compared to Middle Period components (Jones 2013:36).

The archaeological data indicate that several sites within the District were occupied during the Late Period. Results of limited test excavations at CA-SLO-7 and CA-SLO-8 suggest that both of these residential sites were occupied during this time (Breschini and Haversat 1988). Late Period occupations have also been documented at the village sites of CA-SLO-2/3, -51, and -585, with use of these locales extending into the Historic Period. Other residential settlements occupied during the Late Period include CA-SLO-1197/H, -1370/H, and -1466. Finally, radiocarbon dates from shell scatters at CA-SLO-1458 and CA-SLO-1461 also produced Late Period dates (Price and Jones 2013).

7.3 Cultural Identity

The San Luis Obispo area, including the Pecho Coast, lies within the traditional ethnographic territory of the Northern (or *Obispeño*) Chumash. The Northern Chumash occupied the area from the Pacific coast east to the Coast Range and from the Santa Maria River north to approximately Point Estero. The term *Obispeño* refers to the group's association with the Spanish mission of *San Luis Obispo de Tolosa*, founded in 1772 (Greenwood 1978:520); descendants of these people view that term as derogatory, preferring to use "*yak tityu tityu*."

The Chumash were a non-agrarian culture that relied on fishing, hunting, and gathering for their sustenance. Much of their subsistence was based on marine resources, especially fish and shellfish, including mussel and abalone from rocky shores and cockle and clams from sandy beaches. Acorns were also a food staple; they were ground into flour using stone mortars and pestles and then leached to remove tannic acid. In addition, a wide variety of seeds, including especially *chia* (*Salvia columbariae*) and red maids (*Calandrinia*, a member of the Purslane family) were utilized for dietary and ritual purposes (Timbrook 1986, 2008). Plants also were harvested for their roots, tubers, or greens (Hoover 1986:2). Chumash material culture, social organization, traditions and rituals, and cosmology have been described by many scholars, including Blackburn (1975), Greenwood (1978), Gibson (1993), Grant (1993), Hudson and Underhay (1978), Hudson et al. (1978), King (1990), and Johnson (1988).

The Chumash were among the most populous and socially complex groups in all of native California. During the Late Prehistoric Period, the Chumash were living in large villages along the Santa Barbara Channel coast, with less dense populations in the interior regions, on the Channel Islands, and in coastal areas north of Point Conception. Some villages may have had as many as 1,000 inhabitants, and population density was unusually high for a nonagricultural group. Occupational specialization went beyond craft activities such as bead production to include politics, religion, and technology. Complex social and religious systems tied many villages together and regulated regional trade, procurement and redistribution of food and other resources, conflict, and other aspects of society. Leadership was hereditary, and some chiefs had influence over several villages, indicating a simple chiefdom level of social organization (Arnold 1992; Johnson 1988).

The Northern Chumash apparently were never as populous as the Chumash in the Santa Barbara region, and do not appear to have attained the same levels of social and political development. Extant data indicate that groups along the Pecho Coast were less dependent on fishing compared to their southern counterparts (Jones 2013). Local populations may have led a less sedentary lifestyle with a dietary focus on inland rather than coastal or maritime resources and greater reliance on logistic mobility than their southern neighbors (Woodman et al. 1991).

The Northern Chumash participated in long-range prehistoric trade networks. For example, they supplied the Yokuts with asphaltum and the shells of abalone, clam, limpets, and periwinkle, receiving in exchange pottery and possibly obsidian (Sample 1950; Greenwood 1978:523). The Northern Chumash may also have been direct or intermediary suppliers of univalve *Columella* ornaments, wooden dishes, and steatite vessels to the Salinan group of Native Americans to the north, and of shell beads, dried fish, and sea otter furs to the interior, receiving in return deerskins, acorns, and grasshoppers (Greenwood 1978:523).

The protohistoric culture of the Chumash, defined as the time when intermittent trade and contact was experienced between Native Americans and Spanish trading vessels en route to the Orient, was disrupted by the arrival of the Spanish expedition led by Gaspar de Portolá in 1769. Historical accounts from the Portolá and Anza expeditions, as well as archaeological evidence, indicate that both expeditions passed through San Luis Obispo and stopped at principal Northern Chumash settlements along the way (Bolton 1926; Browning 1992; Priestley 1937).

Although Greenwood (1972:84) argued that there were no village place names along the Pecho Coast, more recent ethnohistoric studies have determined that one village mentioned in the San Luis Obispo mission records can be confidently assigned to the Pecho Coast: *tsquieu* or *tstyiwi*. Specifically, work by Jones suggests that the placename of *tsquieu* is associated with the archaeological site CA-SLO-51. This site produced historical glass beads along with numerous small triangular projectile points which are indicative of Late Period and early post-contact sites (Jones 2013:15; Jones et al. 2016).

The establishment of the Spanish missions of San Luis Obispo de Tolosa, San Miguel de Arcangel, and San Antonio de Padua further disrupted Chumash culture in the San Luis Obispo area. Archaeological evidence indicates that the native populations in the area were rapidly decimated by missionization (Greenwood 1978:523). Chartkoff and Chartkoff (1984:264) note that Spanish settlement barred many Native Americans from traditionally important resources including clamshell beads, abalone shells, Catalina steatite, shellfish, and asphaltum. Today, several groups are working to maintain and enhance contemporary Chumash culture in the San Luis Obispo area.

7.4 Physical Characteristics

The Rancho Cañada de los Osos y Pecho y Islay Archaeological District includes 15 listed and 69 nominated archaeological sites, for 84 total contributing resources representing Native American activities dating from 10,000 cal B.P. into the nineteenth century. In addition, 22 noncontributing resources are located within the District boundary. The contributing sites have been categorized into six major property types including village, ideological sites, long-term residences, short-term residences, locations, and lithic quarries (**Table 7-1**). These site types correspond with categories developed to define similar Native American property types at nearby Vandenberg Air Force Base in Santa Barbara County (Lebow and Moratto 2001:3-4–3-7). Based on information presented in site records, archaeological testing and excavation reports, and other documents, **Table 7-2** summarizes the attributes of both contributing and non-contributing archaeological sites within the District. Among the more common of these traits are middens, burials, fire-affected rock (FAR), shell and/lithic scatters, and bedrock mortars (BRM). A summary of each site type is first presented, followed by more detailed descriptions of representative sites in the District.

7.4.1 Site Types

Village. The defining criteria for villages generally include a site area greater than 90,000 square meters with midden deposits, or alternately, a midden with human remains encompassing an area larger than 45,000 square meters. However, the size criterion is not steadfast and in some cases visual examinations are necessary to make final determinations (Lebow and Moratto 2001:3-5). Of the 69 nominated contributing sites, six fit the criteria to be considered villages (**Tables 7-1 and 7-2**). CA-SLO-2/3 is already listed (NRHP 75000477 . Nominated contributing site CA-SLO-1 exhibits a site area larger than 90,000 square meters [redacted]. Listed sites CA-SLO-51, -54/63, and -682/689 all exceed 45,000 square meters [redacted] Listed site CA-SLO-585 also meets the same criteria; it also qualifies as an ideological site and is discussed in more detail under the Ideological heading.

Table 7-1 Summary of Distribution of Archaeological Site Types within District.

Site Type	Resources Already Listed	Nominated Contributing Resources	Noncontributing Resources	Resource Total
Village	8	2		10
Village, Ideological	1			1
Long-term Residence	1	7		8
Short-term Residence	4	29	3	36
Quarry		1		1
Location	1	30	5	36
Historic Period Site			14	14
Total	15	69	22	106

Three more listed sites, CA-SLO-52, -53/62, and -55, [redacted] but each falls short of the size criterion. Through a visual inspection o t ese sites it was etermine t at the "village" site type was the most a ro riate. Similarl , two additional sites, CA-SLO-58 (listed) and CA-SLO-1366/H (nominated), [redacted], are larger than 45,000 square meters, but less than the ascribed 90,000 square meters criterion. Base on visual observations, both of these sites appear to have functioned as villages.

[redacted]

Long-term Residence. Long-term residences are often described as seasonal villages or seasonal residential villages. Using the established defining criteria, a long-term residence re uires midden. or alternatel human remains, with a size of at least 15,000 s uare meters. [redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[2] NRHP Status Codes: *L = Already listed as part of the District*; C = Contributing resource; NC = Noncontributing resource

Eight sites in the Rancho Cañada de los Osos y Pecho y Islay Archaeological District fit the criteria as long-term residences, being over 15,000 square meters in size. The previously listed CA-SLO-687/916 [redacted] Nominated contributing site CA-SLO-1411 [redacted] Nominated contributing sites CA-SLO-7, -683, -687/916, -791/943, -1197/H, -1370/1467, and -1507 [redacted]

Short-term Residence. According to Lebow and Moratto (2001:3-6), short-term residences functioned as brief field camps associated with seasonal rounds. Short-term residences are similar to long-term residences but they encompass an area less than 15,000 square meters. [redacted]

Thirty-six sites in the District represent short-term residences including four sites previously listed, 29 sites nominated as new contributing resources, and three sites identified as noncontributing resources (**Tables 7-1 and 7-2**). [redacted] The three noncontributing resources lack integrity or have been destroyed by development (CA-SLO-584, -1163, and -1454/H).

Lithic Quarry. Quarry sites consist of flaked stone that coincides with a source of raw material (Lebow and Moratto 2001:3-7). Along the Central Coast of California, flaked stone quarries are generally chert from the Monterey, Pismo, or Franciscan formations. One quarry site, CA-SLO-681, containing an extensive scatter of chert shatter, has been identified [redacted]. No other quarry sites have been identified within the boundary of the District.

Location. The criteria used to define locations include artifact scatters of flaked stone, ground stone, and/or marine shell without a developed midden (Lebow and Moratto 2001:3-7). Locations represent one of the largest categories of site types in the District. Thirty-six sites are assigned to this type, of which one was previously listed, 30 are identified as contributing resources, and five are classified as noncontributing (**Tables 7-1 and 7-2**). Listed or contributing locations exhibiting both marine shell and flaked stone scatters represent 42 percent of this site type (13 sites), while 32 percent (10 sites) are lithic scatters and 23 percent (7 sites) of the locations are marine shell scatters; three percent (1 site) contain marine shell and ground stone constituents. The five noncontributing resources lack integrity, have been destroyed by development, or are of unknown age (CA-SLO-1452/H, -1454/H, -1456, -1502, and -1503).

7.4.2 Summary of Contributing and Noncontributing Resources

The 84 sites (15 previously listed and 69 nominated) identified as ***contributing resources*** form a coherent archaeological district. They share geographic proximity and the overall environment of the Pecho Coast marine terrace, as well as a common prehistory and cultural identity. Archaeological surveys and excavations to date have shown that the sites are remarkably similar in their major attributes (middens, lithic and/or shell scatters, burials, and bedrock mortars) as well as in the cultural assemblages that characterize each component. Archaeological and ethnohistoric data indicate that the Pecho Coast was inhabited during the Late Prehistoric and early post-contact periods by the Northern Chumash. Such cultural consistency seems to have occurred in earlier prehistoric times as well, judging from the temporal consistency of archaeological remains in the District. This archaeological coherence makes the District an ideal venue for diachronic studies of subsistence, technology, settlement systems and land-use strategies, sociopolitical organization, and paleoenvironmental change. Sites classified as contributing resources are those that have yielded and/or may be likely to yield information important for the understanding of prehistoric Native American cultural developments within the District.

Twenty-two of the 106 archaeological sites in the District are ***noncontributing resources***. These include seven sites that lack integrity or have been destroyed by development (CA-SLO-584, -1163, -1454/H, -1456, -1460, -1502, and -1503); 14 sites that appear to date exclusively to the Historic Period (**Table 7-2**) (CA-SLO-941H, -942H, -943H, -944H, -946H, -956H, -957H, -958H, -959H, -962H, -963H, -964H, -1196H, and -1198H); and one site of undetermined age, CA-SLO-1452/H.

7.4.3 Descriptions of Representative Sites within the District

Basic descriptive data (cultural attributes, surface area, and periods of use) for contributing and noncontributing archaeological resources within the District are presented in Table 7-2. The following paragraphs describe in more detail nine representative sites in the District, all of which have had some degree of archaeological investigation. These sites include four previously listed resources (CA-SLO-2/3, -7, -8, and CA-SLO-585) and five nominated resources (CA-SLO-5, -9, -61, -1366/H, and -1370/1467/H). Information presented in this section draws heavily from site descriptions presented by Codding and Jones (2006), Codding et al. (2013), Jones (2013), and Jones et al. (2012, 2015).

CA-SLO-2/3 (listed). [redacted] CA-SLO-2 and CA-SLO-3 were first recorded in 1947 by Arnold Pilling, [redacted] Two decades later, Francis Riddell (1968) revisited CA-SLO-2 during a survey for the proposed Diablo Canyon Power Plant and assigned the site a temporary number of "Riddell Site 1." Later work in the area by Roberta Greenwood (1978) revealed that CA-SLO-3 was actually within the continuous [redacted] of CA-SLO-2. As such, she combined the two sites under one site designation: CA-SLO-2/3.

In 1968, a small area in the southeastern portion of CA-SLO-2 was excavated by Greenwood (1972) prior to the construction of PG&E's Diablo Canyon Power Plant. Greenwood employed a mixed recovery strategy that was designed to sample artifacts, micro-, and macro-faunal remains effectively. In the area of her investigations, the site extended to a depth of 3.4 meters with a total recovery volume of 109 cubic meters (Greenwood 1972:5). [redacted]

Greenwood recovered an assemblage that contained 2,885 stone, bone, wood, and shell artifacts. [redacted] Flaked stone tools included projectile points, blades, knives, choppers, scrapers, boring or drilling implements, and cores. Ground stone items included bowls, manos, milling stones, pestles, pitted stones, and charmstones. Large numbers of mammal and bird remains were recovered including a diversity of worked bone artifacts (e.g., whistle, tubes/beads, awls, pins, chisels, flakers, and daggers). A few sherds of pottery similar to Owens Valley Brownware were also collected. The diversity of artifacts indicates that a wide range of domestic and subsistence activities took place at CA-SLO-2/3 and suggests that the site functioned as a residential base throughout much of its occupation.

The materials recovered from CA-SLO-2/3 cover a time span of more than 10,000 years, beginning in the Paleo-Indian Period. Greenwood (1972:85-88) obtained two radiocarbon dates that fall within the terminal Pleistocene/early Holocene transition: an abalone shell (GAK-02044) with a calibrated date (one sigma) of 11,130-9490 cal B.P. [redacted] with a calibrated date of 11,190-10,280 cal B.P. (Price and Jones 2013:Table 1). [redacted] nonetheless, the Paleo-Indian affiliation of the earliest occupation at CA-SLO-2 has not been doubted.

Occupation continued into the Early Archaic and Early periods. The site experienced a 1400-year hiatus of occupation between 5000 and 2600 cal B.P.; this period marks an important and widely recognized adaptive transition along the Central Coast of California, when Milling Stone components (Early Archaic) are replaced by assemblages dominated by projectile points, mortars and pestles, pitted stones, scrapers, and other bone and stone tools (Price et al. 2012; Price and Jones 2013). Site use during the late Holocene is marked primarily by a Middle Period component dating between 2600 and 950 cal B.P., with a very minor occupation during the Late Period between 700 cal B.P. and contact. [redacted]

Jones et al. (2008) reanalyzed the unmodified faunal remains recovered by Greenwood. Their study found evidence for a broad-spectrum Early-Middle Holocene coastline adaptation incorporating nearshore marine and terrestrial resources. Deer were an important part of the initial adaptation represented at CA-SLO-2 and remained a dietary staple through the site's occupation. The site also revealed modest evidence for resource intensification in the form of an increased exploitation of sea otters, fish, and abalone concomitant with a decline in the remains of the flightless duck (*Chendytes lawi*), which was hunted into extinction.

CA-SLO-5. Originally recorded by Pilling in 1947, CA-SLO-5 consists of [redacted] with associated bedrock mortars. The site covers 72 x 49 meters at the edge of the coastal terrace overlooking the Pacific Ocean [redacted] The site has been excavated by California Polytechnic State University, San Luis Obispo (Jones et al. 2015).

Excavations indicate that midden deposits extend to a maximum depth of 90 centimeters; no subsurface features were identified. Radiocarbon samples obtained from CA-SLO-5 suggest that the settlement reflects a single component dating to the Middle Period (2600-950 cal B.P.); it appears to have been used as a short-term residential base. The occupants of CA-SLO-5 exploited various marine and terrestrial resources including rabbit, deer, sea otters, rockfish, cabezon (*Scorpaenichthys marmoratus*), and mussels (Jones et al. 2015:54-56).

CA-SLO-7 (listed). On the north side of a small, unnamed creek [redacted] CA-SLO-7 [redacted] Breschini and Haversat (1988) conducted limited test excavations (recovery volume of 5.6 cubic meters) at the site in 1987 and recovered shell dietary debris plus an array of artifacts including stone disks, bone awls, indeterminate bone tools, bifaces, projectile points, battered stones, pitted stones, and a tarring pebble, the latter of which was used to apply and spread asphaltum. The vertebrate faunal assemblage was dominated by fish, most notably rockfish, sardines, and surfperch (Langenwalter et al. 1988), with terrestrial taxa (rabbits and deer) also present; mussels and turban snails were the most common shellfish.

The upper portion of [redacted] CA-SLO-7 [redacted] produced dates indicating a Late Period occupation between approximately 700 cal B.P to contact; the lower levels indicate a range of ca. 2600 to 2250 cal B.P., which is consistent with a Middle Period occupation. [redacted]

CA-SLO-8 (listed). This short-term residence is situated on the southern side of the unnamed drainage adjacent to CA-SLO-7. The site covers an area of approximately 8,000 square meters [redacted] Limited testing was conducted at CA-SLO-8 by Breschini and Haversat (1988). Three 1 x 1 meter units were excavated to a maximum depth of 50 centimeters with a total recovery volume of 1.3 cubic meters. [redacted]
Two radiocarbon dates were obtained from the site, which indicate Late Period occupation between 700 and 300 cal. B.P.

CA-SLO-9. Also known as the Coon Creek Site, CA-SLO-9 [redacted] of Montaña de Oro State Park. The site covers an area of roughly 4,000 square meters and is located on the edge of the coastal bluff. CA-SLO-9 was first recorded by Pilling in 1947. A small augering program was completed at the site in 1987 though the archaeological materials recovered from these investigations have not been analyzed (Jones and Codding 2006:1).

In 2004 and 2005, the California Polytechnic State University, San Luis Obispo archaeological field school conducted subsurface investigations at CA-SLO-9 (Jones and Codding 2006). Concentrated along the western edge of the site, these excavations [redacted] ranging in depth from 70 to 120 centimeters below modern ground surface (total recovery volume of 23.7 cubic meters) (Jones and Codding 2006:6). These deposits were dominated by rocky intertidal invertebrates, primarily mussel and abalone. The deposit also yielded [redacted] flaked stone debitage, cores, various bifacial and unifacial flaked stone implements, obsidian debitage, [redacted] bird, mammal, fish, and reptile remains. Seven radiocarbon dates were obtained from CA-SLO-9, all of which date between 1030 and 660 cal B.P. These findings indicate that the site was occupied during the Middle-Late Transition (Jones and Codding 2006:14).

CA-SLO-61. This short-term residential site covers a 1,643 square meter area and is situated along the bluff [redacted] near CA-SLO-2/3. Greenwood (1972) conducted test excavations (recovery volume of 15 cubic meters) at the site and recovered 40 artifacts including a bowl mortar, pitted stones, a cobble pestle, a drill, and 21 scrapers.

In 2011 and 2016, Applied Earthworks, Inc. (Æ) sampled [redacted] the site (total recovery volume of 1.84 cubic meters) during the installation of a fiber-optic communication cable and new fencing at the Diablo Canyon Power Plant (Price et al. 2012; Wendel and Enright 2017)). Æ recovered flaked stone, bone, and shell remains from the sampled areas. When looking at the combined data from the 2011 and 2016 fieldwork along with reanalysis of Greenwood's materials, CA-SLO-61 appears to be an Early Period residential location. Subsistence activities were centered on procurement of marine shellfish, with terrestrial mammals and fish making up the rest of the faunal diet. Lithic production was focused on locally available toolstone; technology featured simple core-and-flake manufacture rather that than curation of bifaces or use of exotic materials. Twelve radiocarbon dates from the site indicate occupation between 4600 and 3000 cal B.P. (Price et al. 2012; Wendel and Enright 2017).

CA-SLO-585 (listed). Situated approximately 220 meters inland from the coast, this large village [redacted] site (400 x 360 meters) is located between the branches of an unnamed creek [redacted] Greenwood (1972) found that the cultural deposit at CA-SLO-585 extended to a maximum depth of 2.5 meters and exhibited some stratification. Similar to CA-SLO-2/3, Greenwood employed an excavation strategy at CA-SLO-585 that was designed to sample artifacts, and micro-, and macro-faunal remains effectively. In addition to manual excavations (total volume of 39.4 cubic meters), Greenwood employed a backhoe to excavate the site mechanically in order to recover more formal artifacts (particularly milling slabs and handstones, which were abundant in the site's lower depths). An additional 30.0 cubic meters of deposit was excavated mechanically for a total recovery volume of 69.4 cubic meters.

[redacted]

The diverse assemblage includes flaked and ground stone, bone, and shell artifacts. Flaked stone tools consisted of projectile points, blades, knives, choppers, hammerstones, chisels, drills, picks, scraper planes, small scraping tools, and used cores. The ground, pecked, and polished stone tools included numerous milling stones, manos, bowls, mortars, pestles, pitted stones, reamers, whetstones, [redacted] Several grooved and notched stones were also identified, many of which were of unknown function. Bone artifacts included awls, bipointed objects, [redacted] and an abalone shell that was used to hold asphaltum. Tarring pebbles, crystals, and a small quantity of historical artifacts were also recovered, the latter of which was associated with a nearby hunting lodge.

Radiocarbon dates from CA-SLO-585 tentatively place the earliest occupation of the site from 8980 to 5580 cal B.P. (Greenwood (1972:4). Moratto (1984:107-108) has suggested that the lowermost deposits may represent the remnants of a Paleo-Coastal occupation; however, based on the vertical distribution of diagnostic artifacts, Greenwood (1972) assigned the earliest occupation at the site to the Milling Stone culture (Early Archaic Period). Jones et al. (2009) obtained additional radiocarbon samples from CA-SLO-585 as part of the reanalysis of the site's faunal collection. Their data show a roughly 2000 year gap in occupation between 5500 and 3500 cal B.P., plus other intervals where use of the site was limited. As previously mentioned, the date of 5500 cal B.P. is important culturally as it marks a widely recognized adaptive transition along the Central Coast of California, when Milling Stone (Early Archaic) components are replaced with assemblages showing increased frequencies of bifaces and projectile points (Fitzgerald and Jones 1999; Greenwood 1972:4, 90; Jones 1993; Jones et al. 2002, 2007; Price et al. 2012). At CA-SLO-585, the timing of the abandonment is consistent with patterns observed at nearby CA-SLO-2/3 where there is also a dearth of evidence for occupation between 5500 and 3000 cal B.P. (Jones et al. 2008:296). Chronometric data indicate intermittent occupation at the site in the Late Period between 450 and 300 cal B.P.

Jones et al. (2009) reanalyzed faunal remains from Greenwood's investigation and found that the Milling Stone (Early Archaic) component of CA-SLO-585 is dominated by blacktailed deer, cottontail rabbits, and sea otters, with numerous bones from the extinct flightless duck. Fish remains show a reliance on rockfish and cabezon, and shell remains are dominated by mussels. The Late Period component at shows the continued importance of deer, an increase in sea otters, and the disappearance of the flightless duck.

Fish remains, and fishing artifacts are more abundant in the Late Holocene levels, providing some evidence of marine intensification. These temporal trends are similar to those observed in the faunal material from CA-SLO-2/3 (Jones et al. 2008).

CA-SLO-1366/H. This large multi-component site (420 x 230 meters) is situated [redacted] The prehistoric component of CA-SLO-1366/H consists of [redacted] shallow bedrock mortars; historical remains consist of a debris scatter consisting of glass, ceramic, and metal artifacts.

Price et al. (2006) collected three radiocarbon dating samples from exposed profiles at CA-SLO-1366/H. In 2011, savage excavations were also undertaken by the California Polytechnic State University, San Luis Obispo archaeological field school to obtain samples (excavation of 10.2 cubic meters) [redacted] (Codding et al. 2013). Radiocarbon dates indicate that the site contains a possible Early Archaic component with more intensive use during the Early Period; ephemeral Late Period occupation is also suggested.

Artifacts recovered by the Cal Poly field school indicate that the CA-SLO-1366/H was used as a residential base during both the Early and Late Period occupations (Codding et al. 2013). The Early Period component is dominated by contracting stemmed projectile points and pitted stones, suggesting a focus on terrestrial hunting and plant processing. Other ground stone implements from Early Period deposits suggest limited exploitation of acorns. As noted by Codding et al. (2013:58), these findings fit within broad prehistoric trends observed at other archaeological sites along the Pecho Coast.

CA-SLO-1370/1467/H. [redacted]. [redacted] covers 50,000 square meters and contains flaked and ground stone tools [redacted] The historical component of the site consists of refuse deposits dating between CE 1914 and 1945.

Subsurface excavations were conducted at the western extent of the site by California Polytechnic State University, San Luis Obispo in 2009 (Hadick et al. 2012). This investigation involved a recovery volume of 11.0 cubic meters. Radiocarbon dates indicate primarily an Early Period occupation, with the upper levels consisting of a mix of Late Period and historic materials. The Early Period assemblage was limited to three projectile point fragments, two core tools, two pitted stones, a biface, a battered stone, [redacted] Faunal remains include rockfish and plainfin midshipmen (*Porichthys notatus*) with smaller quantities of rabbit and cormorant. Shellfish was dominated by remains of mussels and red abalone shells. The limited number and array of formal tools lead Hadick et al. (2012:47) to conclude that the western part of CA-SLO-1370/-1467/H likely represents a seasonal camp rather than a full-time, year-round residential base.

7.5 Reconstructed Appearance of the District

Although a detailed reconstruction of the past appearance of the District is limited by a lack of paleoenvironmental information from the Pecho Coast, some general inferences may be drawn from studies conducted further to the south in the Santa Barbara Channel area. Erlandson (1994:30-35) argues that the terrestrial habitats of coastal areas have changed little over the course of the last 10,000 years. Specifically, pollen data from sediment samples collected from the Arroyo San Augustin just east of Point Conception indicate that throughout much of the Holocene, coastal sage scrub and chaparral habitats dominated this area with oak more abundant than pine (West 1987:4). Sedimentary core studies from the Santa Ynez River tributary approximately 20 miles north of Point Conception found similar results with chaparral, oak, and grassland taxa among the most common pollen types represented (Woodman et al. 1991:81).

If similar environs characterized the Pecho Coast prehistorically, then much of the coastal terrace within the District likely consisted of medium height, soft-woody shrubs (*Artemisia* sp. and Asteraceae) with herbaceous plants occurring between shrubs. Chaparral communities would have been found at higher elevations in the adjacent Irish Hill; these habitats would have been dominated by schlerophyllous (hard-leaved) shrubs with scattered trees and herbaceous plants in gaps in the shrub and tree canopy. Oak woodland communities would have been concentrated in riparian areas along creeks and drainages.

Erlandson (1994:30-35) suggests that during the early Holocene, rising sea levels along the California coast resulted in the development of estuaries in the lower reaches of several coastal canyons between 13,500 and 11,000 years ago. This phenomenon resulted in increased productivity of intertidal zones through the creation of shallow, protected habitats that supported both vertebrate and invertebrate subsistence resources. Major estuaries in the vicinity of the Pecho Coast included Morro Bay to the north and the now extinct Halcyon Bay estuary to the south (Dills 1981; D. Jones et al. 2002; Mikkelson et al. 2000). Shallow rocky reefs and kelp forests also developed at this time along the coastal platform, which would have provided another resource-rich environment that may have outranked terrestrial resources for early Holocene populations (Masters and Aiello 2007:40). It is assumed that much of the Pecho Coast at this time was characterized by open coast consisting of rocky shores and headlands.

Beginning around 6,000 years ago, sediment flux increased markedly with estuary shoaling resulting in a decline of productive estuarine habitats (Erlandson 1994:35). Increased sedimentation also led to decreased productivity in littoral resources as sand accumulation on the inner shelf impacted productive rocky intertidal and shallow reef habitats. During the Late Holocene, large estuaries were replaced by shallow wetlands and lagoons with kelp forests limited to portions of the coastal platform off rocky headlands. Erosional processes also likely resulted in sea cliff retreat during portions of the Prehistoric era that would have led to a narrowing of coastal terrace areas (Erlandson 1994:35).

7.6 Past and Current Impacts

All of the archaeological sites within the District have been affected to some degree by natural and cultural processes. Despite these impacts, most sites possess very good to excellent integrity. This is in large part because the land on which the District is located has remained undeveloped and protected through strict access limitations since the late 1960s. In this section, past and current impacts are described and the integrity of the District as a whole is discussed. Site-specific impacts are presented in tabular form in Table 7-2.

The most substantial past and current impacts to the archaeological sites within the District result from natural processes associated with coastal erosion and sea-cliff retreat. Daily tidal surges, periodic storms, and catastrophic mass-wasting events have led to the erosion, slumping, and destruction of archaeological deposits situated along the edge of the coastal terrace. Although coastal erosion is considered a natural process, it is often exacerbated by human activities, such as overgrazing and sea-level rise induced by global warming (Rick et al. 2006).

Other natural impacts to archaeological sites include bioturbation and fluvial processes. Bioturbation—the mixing of soils by plants and animals—has impacted many of the archaeological sites in the District. Burrowing mammals such as gophers and badgers are the primary sources of this disturbance. Several sites within the District exhibit a low to moderate level of bioturbation suggesting some mixing of cultural deposits by burrowing animals. Fluvial processes have also impacted archaeological sites in close proximity to streams and creeks. In some cases, high stream flows and sheetwash events have resulted in gully erosion that has impacted subsurface archaeological deposits.

Cultural processes also appear to have impacted archaeological sites within the District. In historical times, crops were cultivated along the coastal terrace. These areas were plowed regularly, which would have disturbed the upper few feet of native sediments (plow zone) and resulted in the displacement and intermixing of surface archaeological deposits. Cattle have also grazed along the coastal terrace and in the adjacent hills for more than a century. The primary impacts of livestock grazing involve the removal of vegetation, resulting in increased erosion and the trampling of surface archaeological remains.

Although the area is largely undeveloped, construction of PG&E's Diablo Canyon Power Plant and associated facilities in the late 1960s impacted some archaeological sites in the Diablo Creek area. At least one site (CA-SLO-584) was destroyed during the power plant construction. In addition, the construction and maintenance of access roads within the PG&E property have affected several archaeological sites within the District (CA-SLO-1452/H, -1454/H, -1460, -1502, and -1503). Due to restricted public access, sites within the District have largely been protected from unauthorized excavation or defacement since the 1960s. Prior to that time the area was privately owned ranching/agricultural land, and it is likely that some surface collecting by private landowners or tenants occurred.

In spite of the past and current impacts, the overall integrity of the District remains very good to excellent. Only about eight percent of identified prehistoric resources (7 of 92) have lost their integrity and are therefore deemed noncontributing resources in the District (**Table 7-2**). Fifteen sites: CA-SLO-2/3; -8; -50; -51; -52; -53; -54/63; -55; -58; -585; -682/689; -684; -686; -687; -688 are already listed in the NRHP as district contributors (NRHP listing #75000477). The 69 archaeological resources nominated as additional contributing resources in the District exhibit similar attributes to the NRHP-listed sites: [redacted] shell and/or lithic scatters, and bedrock mortars. All of the 69 sites retain integrity of location, and most—excepting those in the immediate vicinity of the power plant facilities—can claim integrity of setting that is only minimally to moderately impaired. Typically, even if partly disturbed, the sites contain areas where midden deposits and/or artifacts scatters are *in situ* and likely to yield important information about prehistory. Intersite spatial relationships, as well as associations between sites and environmental variables have been preserved, so that the potential for land-use and settlement study is very good. Taken together, the extant data suggest that as a whole, the District retains more than sufficient integrity to qualify for listing on the NRHP.

7.7 Previous Investigations

Numerous previous studies have been conducted within the boundary of the Rancho Cañada de los Osos y Pecho y Islay Archaeological District. John P. Harrington investigated the area in 1914-1915 with Mrs. Rosario Cooper, reported to be one of the last Obispeño-speaking Chumash. Between 1947 and 1952, Pilling completed the first formal archaeological survey of the area on behalf of the University of California, Berkeley; he recorded numerous sites along the Pacific coast from Morro Bay to Avila (Pilling 1948, 1951). In 1966 Francis Riddell conducted an archaeological reconnaissance of an access road from Avila Beach to the site of the Diablo Canyon Power Plant and documented five sites in the area [redacted] Riddell 1968).

In 1968, Roberta Greenwood conducted subsurface archaeological investigations within the construction areas of the Diablo Canyon Power Plant facilities and a proposed access road. These excavations focused on six sites, which included CA-SLO-2 (later re-designated as CA-SLO-2/3), -51, -52, and -585 (listed), and nominated sites CA-SLO-61, and -584 (Greenwood 1972). Her excavations were largely restricted to the areas of direct impact. Greenwood's work provided evidence of human occupation at these sites for nearly 9,000 years; SLO-2 proved to be an extensive, long-term occupation area over much of that time (Greenwood 1972). In 1973, Robert Hoover conducted a cultural resources survey south of Diablo Canyon as part of an environmental study for a proposed development at Marre Ranch. In the following year, he nominated 15 of the documented sites (CA-SLO-50, -51, -52, -53, -54, -55, -58, -63, -585, -682, -684, -686, -687, -688, and -689) to the NRHP as the *Rancho Cañada de los Osos y Pecho y Islay Archaeological District* (Hoover 1974); the Keeper accepted his nomination in 1975. Later archaeological investigations in the area resulted in CA-SLO-63 and CA-SLO-54 being combined into CA-SLO-54/63 and CA-SLO-682 and CA-SLO-689 being combined into CA-SLO-682/689 (see discussion in Far Western Anthropological Research Group, Inc. and Pacific Gas & Electric Company 2010:36-37).

Throughout the late 1970s, Greenwood returned to the District several times to assist PG&E with the management of cultural resources (Greenwood 1978a, 1978b, 1978c, 1978d, 1980). In 1978, she conducted a survey of 90 acres in the vicinity of CA-SLO-2 and was able to characterize several nearby sites originally recorded by Pilling (Greenwood 1978). As a result of this survey work, she determined that CA-SLO-3 was likely part of CA-SLO-2, prompting her to combine the two sites under a single designation: CA-SLO-2/3. In 1982, after portions of the CA-SLO-2/3 were impacted by power plant activities, Greenwood submitted a NRHP nomination for CA-SLO-2/3 and CA-SLO-8 to be added as contributing resources to the existing Rancho Cañada de los Osos y Pecho y Islay Archaeological District (Greenwood 1982). This nomination form was submitted under the name *Rancho Cañada de los Osos y Pecho y Islay Diablo Canyon Archaeological District*. The addition of CA-SLO-2/3 and CA-SLO-8 are not described as an amendment to the 1975 district boundary. Greenwood's addition is assumed to be a discontiguous addition to the 15 sites previously submitted by Hoover.

PG&E sponsored additional cultural studies within the District through the 1980s and 1990s; as a result, dozens more sites were recorded along the coastal terrace [redacted]. In 1988, Wilcoxon undertook intensive background research and a pedestrian survey of the ranch access road slated for improvements [redacted]; he documented five sites, including CA-SLO-7, -8, -1196, -1197, and -1198 (Wilcoxon 1988). Later that year, test excavations were performed at CA-SLO-7 and CA-SLO-8, and both sites were determined to be significant cultural resources (Breschini & Haversat 1988). A survey of the northern portion of the District was completed in 1991, resulting in the identification of 36 cultural resources within the 370 acre project area (Davis-King 1991); this survey work was followed by more detailed documentation of four of the newly identified sites (CA-SLO-5, -6, -9, and 1197/H) (Davis-King and Williams 1992). In 1992, an intensive archaeological survey of 420 acres in the southern portion of the District resulted in the documentation of 41 cultural resources, including 16 new archaeological sites (Wickstrom and Tremaine 1993:10).

In 2005, Æ revisited and updated the maps and records of 22 prehistoric and historical sites [redacted] as part of the Diablo Canyon North Ranch Access Plan (Price et al. 2006). The purpose of this work was to document the baseline conditions of each site in the plan area and identify feasible management measures to protect resources that might be affected by pedestrian access. Marine shell samples were collected from many of the sites to obtain radiocarbon dates; these results are summarized by Price and Jones (2013) (see below). Site condition data obtained from this work were used during a subsequent site monitoring program from 2007-2012 to assess the impacts of increased public use on sensitive archaeological resources in the area (Price 2013). Garcia and Associates (GandA) also revisited a number of prehistoric archaeological sites located on the PG&E property in 2005 and 2006 in preparation of a new NRHP nomination package for the Rancho Cañada de los Osos y Pecho y Islay Archaeological District (Denardo and Texier 2006). During these visits, GandA assessed the condition of each site to determine the extent to which bluff erosion, development, or other factors had impacted or destroyed the archaeological resources.

Over the past decade, archaeological excavations have also been conducted at several sites within the District. Much of this work has been completed by the California Polytechnic State University Archaeological Field Methods class under the direction of Dr. Terry Jones. The field class completed subsurface investigations at CA-SLO-9 in 2004-2005 (Codding and Jones 2006), CA-SLO-1370/H in 2009 (Hadick et al. 2012), CA-SLO-1366/H in 2011 (Codding et al. 2013), CA-SLO-5 in 2013 (Jones et al. 2015), and CA-SLO-51/H in 2015 (Jones et al. 2016). In 2011, Æ also excavated column samples [redacted] at CA-SLO-61 [redacted] (Price et al. 2012). In 2016 Æ returned to CA-SLO-61 to complete mitigative excavations for installation of new fencing for the Diablo Power Plant (Wendel and Enright 2017). Although the excavations at these four sites were relatively limited in scope, the resultant data have contributed to the growing understanding of the nature and timing of prehistoric occupation within the District.

In response to a request from CAL FIRE, PG&E is planning improvement of approximately 4.25 miles of Pecho Valley Road between Diablo Canyon Power Plant and Montaña de Oro State Park. In support of this effort, Æ conducted field surveys and testing of selected sites in 2015 to identify archaeological and historical resources that could be affected by the proposed improvements (Wendel and Enright 2016). Six previously recorded sites (CA-SLO-2, -7, -8, -1196H, -1197/H, and -1198H) were resurveyed. Testing occurred at CA-SLO-7, -8, -1196H, -1197/H, and -1198H to define the horizontal boundaries, better understand site contents, and provide the information needed to evaluate their data potentials and associations. CA-SLO-2 and -8 are listed on the National Register of Historic Places, while CA-SLO-7 and -1197/H are considered contributing elements of the Rancho Cañada de los Osos y Pecho y Islay Archaeological District. This study found that CA-SLO-1196H is significant and eligible for listing on the National Register while CA-SLO-1198H does not meet significance standards and is judged ineligible for listing (Wendel and Enright 2016).

Researchers have also undertaken more synthetic studies in an attempt to explore broader patterns of prehistoric settlement and use along the Pecho Coast. Jones et al. (2008, 2009) assessed diachronic changes in the faunal data to evaluate long-term coastal resource use by prehistoric groups. This study, which involved the re-examination of approximately 15,000 animal bones and 7,000 fish bones recovered from Greenwood's 1968 excavations at CA-SLO-2/3 and CA-SLO-585, also investigated the effects of early human exploitation on coastal resources. Results of this study indicate that the prehistoric occupants of Diablo Canyon practiced a broad-spectrum foraging strategy that relied on both terrestrial and marine resources (Jones et al. 2008, 2009). Similarly, Price and Jones (2013) examined long-term temporal trends in settlement along the Pecho Coast through the analysis of 106 radiocarbon samples from 22 archaeological sites. Their study found evidence of relatively continuous occupation of the coastal terrace [redacted] over the past 6,000 years. This finding calls into question long-held views that coastal sites were abandoned, or that residential settlements were moved to inland settings during times of environmental perturbation such as the MCA around 1000 years ago.

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [ ] A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B. Property is associated with the lives of persons significant in our past.
- [ ] C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [X] D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark “x” in all the boxes that apply.)

- [ ] A. Owned by a religious institution or used for religious purposes
- [ ] B. Removed from its original location
- [ ] C. A birthplace or grave
- [ ] D. A cemetery
- [ ] E. A reconstructed building, object, or structure
- [ ] F. A commemorative property
- [ ] G. Less than 50 years old or achieving significance within the past 50 years

Areas of Significance
Archaeology—Prehistoric

Period of Significance
10,000 BCE to CE 1769

Significant Dates
Pre-10,000 cal B.P. (Palo-Indian Period): First scientific archeological evidence of occupation at CA-SLO-2/3 and CA-SLO-585
10,000-5500 cal B.P. (Early Archaic Period)
5500-2600 cal B.P. (Early Period)
2600-950 cal B.P. (Middle Period)
950-700 cal BP (Middle-Late Transition)
CE 1595 First documented contact of Northern Chumash and Spanish when Juan Rodriguez Cermeño sailed into San Luis Bay
700 cal BP-Historic Period (Late Period)
CE 1769 Gaspar de Portolá's expedition traveled through the San Luis Obispo area

Significant Person
(Complete only if Criterion B is marked above.)
N/A

Cultural Affiliation
Paleo-Indian
Archaic
Northern Chumash

Architect/Builder
N/A

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

Rancho Cañada de los Osos y Pecho y Islay Archaeological District (Boundary Increase) is eligible for the National Register of Historic Places at the local level of significance under Criterion D in the area of Prehistoric Archaeology. Its component sites have yielded, and have the potential to further yield, important information about prehistoric Native American lifeways over the full range of documented human habitation along the California coast. Chronometric data obtained from sites in the District confirm relatively continuous human occupation along the Pecho Coast from at least 10,720 cal B.P. to the Mission era, with each identified period of prehistory (Paleo-Indian, Early Archaic, Early, Middle, Middle-Late Transition, and Late) represented by multiple archaeological sites, establishing a period of significance from 10,720 cal B.P. to CE 1830. The District's information potential can expand knowledge of cultural chronology, subsistence, technology, settlement systems and land-use strategies, sociopolitical organization, and paleoenvironmental change along the Pecho Coast throughout the Prehistoric Period. Even though many of the prehistoric archaeological sites within the District have been impacted by coastal erosion, bioturbation, fluvial processes, agriculture, cattle grazing, road construction and maintenance, and the construction of the Diablo Canyon Power Plant, the contributing resources retain sufficient integrity to contribute information useful for the solution of important local and regional prehistoric research problems. At the District level, the integrity is good. Contributing sites are in their original locations and their spatial associations with one another and the surrounding terrain are largely preserved. As such, the District as a whole has yielded and is likely to yield a substantial amount of important information about long-term human occupation and use over the past ten millennia along the Pecho Coast.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

Data have been generated from the contributing sites that clearly demonstrate the potential of the District to address a wide range of important research questions. Previous investigations have confirmed that sites in the District contain: (1) organic materials (shell, bone, and charcoal) that can be radiocarbon-dated to resolve issues of stratigraphic integrity and to provide absolute dates for assemblages and components; (2) time-sensitive artifacts (projectile points, [redacted] other items) that may be used to cross-date identified occupations or activity loci; (3) lithic debitage and formed tools that can inform researchers about the economics of toolstone procurement, lithic technology, tool maintenance and discard practices, tool functions and use wear, and even the relative mobility or sedentism of different populations; (4) bedrock mortars, portable milling stones, hunting and fishing tool kits, and faunal and paleoethnobotanical remains that provide a basis for investigating aspects of prehistoric subsistence, food-processing, and diet.

8.1 Research Domains

Archaeologists working along the Central Coast over the past several decades have posed and sought to answer many questions about the region's prehistory. The questions have become more refined over time, with related questions grouped into a smaller number of broad research domains. Each domain is a field of inquiry within which archaeological data are employed not only to address explicit research problems or questions but also to help test and refine hypotheses and thereby contribute to the advancement of archaeological theory. Some of the more established and prominent research domains pertinent to the prehistory of the Pecho Coast include: cultural chronology; subsistence; technology; settlement systems and land-use strategies; sociopolitical organization; and paleoenvironmental change.

The 84 total listed and nominated contributing resources that comprise the District constitute a valid area of study within a cohesive environment that as a whole, have the potential to contribute significantly to our understanding of each of the domains identified above, as well as other research themes. Issues of cultural chronology can be resolved through analyses of many kinds of data known to exist at sites in the District including organic materials (shell, bone, and charcoal) that can be radiocarbon-dated and time-sensitive artifacts (projectile points, [redacted] etc.) that can be cross-dated. These data can be used to understand the trajectory and rate of cultural change and to establish temporal relationships among sites at both a local and regional level. Analyses of the types and relative frequencies of flaked and ground stone artifacts can be used to explore changes in and continuity of lithic technologies; similarly, studies of shell and bone tools (e.g., shell fishhooks and bone barbs) have the potential to inform on the nature and timing of specialized maritime technological innovations. Prehistoric subsistence and diet can be elucidated by studies of faunal and archaeobotanical remains, milling implements, hunting and fishing gear, blood residues on flaked stone artifacts, and food residues on milling and cooking implements. Chronological, technological, and subsistence data obtained from sites in the District can also be used to explore diachronic changes in land-use strategies and settlement systems related to site function, degree of sedentism, and seasonality of site use. These same datasets hold potential to elucidate the nature of sociopolitical organization and to evaluate the degree to which the prehistoric Northern Chumash conform to their sociopolitically complex southern neighbors in the Santa Barbara Channel. Finally, the collection and analysis of archaeobotanical, faunal, and geoarchaeological data from sites within the District may provide baseline paleoenvironmental information with which to investigate the linkages between environmental perturbations and cultural changes along the Pecho Coast throughout the Prehistoric Period.

In the following section, specific research issues and questions are presented that may be addressed using data obtained from sites within the District. The issues summarized below draw heavily from the research design that was developed by Jones (2013) for the Diablo Canyon Power Plant property. Chronological issues are first discussed as the investigation of this topic provides the necessary organizational framework with which to explore more specific elements of cultural adaptation. Although the research questions posed below are not meant to be exhaustive, they demonstrate the range of important topics that could be investigated at individual site or within the District as a whole.

8.1.1 Cultural Chronology

Dating archaeological remains has long been a principal research concern as this information provides the basis for developing and refining regional chronological sequences and monitoring the rate and trajectory of cultural change. Moreover, precise and accurate dates from archaeological sites are critical for addressing many other research issues. The current cultural chronology for the Central Coast (Jones et al. 2007) represents a modification of Greenwood's (1972) sequence that incorporates elements from King (1990) and Jones (1993). Although this chronological sequence has been refined over the years as additional chronometric data become available, Jones (2013: 38) notes that there remain ample reasons to continue to investigate chronological issues and the larger cultural units that constitute the sequence along the Pecho Coast. For example, chronological data obtained from prehistoric sites in the District may be used to better understand the nature and timing of the initial colonization of the Pecho Coast, as well as later population movements in the area. Determinations of the age and occupational span of archaeological sites may also be used to assess temporal relationships among prehistoric resources at both local and regional levels and to reconstruct land use and settlement patterns. Important chronometric questions that could be investigated at the site or district level include:

- What was the timing of the initial peopling of the Pecho Coast and what was the nature of Paleo-Coastal land use and economic practices?
- How does the timing of the initial colonization of the Pecho Coast compare to other localities (both coastal and interior areas) in the Central Coast region?
- Were Paleo-Coastal groups replaced by the Milling Stone culture or is this transition attributable to *in situ* cultural development?
- Is there evidence that the Early Archaic Period along the Pecho Coast ended earlier than 5500 cal B.P.?
- Do most sites in the District consist of single or multiple components? Is there chronological evidence to suggest intermittent or extended use of these locales?
- What can be learned about the timing and origins of major technical and economic innovations (e.g., acorn processing, the bow and arrow, fishing technology, etc.) in the Pecho Coast area? What were the effects of each innovation on local cultural developments?
- Are the chronological data from sites in the District consistent with those observed for the Central Coast region, or are distinctive local patterns of change present along the Pecho Coast?
- How do the chronological data from District sites contribute to understanding of the relationships between different periods within the established cultural sequences, or between archaeological sites in the Pecho Coast and the larger Central Coast region?

8.1.2 Subsistence

Studies of prehistoric subsistence are integral to understanding human relationships with the natural environment. It is through exploitation of floral, faunal, and water resources that humans are able to procure the basic means for survival. How prehistoric people interacted with these resources can lead to an understanding of dietary needs, land-use strategies, and settlement systems. Extant data suggest that throughout much of prehistory the inhabitants of the Pecho Coast were heavily reliant on gathered plant resources, while terrestrial large and small game, marine birds, shellfish, and fish comprised varying but lesser proportions of the diet. Faunal assemblages from Early Archaic Period sites along the Pecho Coast exhibit a preponderance of deer, which runs counter to the view that early Holocene hunting in California was dominated by exploitation of rabbits (Hildebrandt et al. 2010; McGuire and Hildebrandt 1994, 2005). Long-term studies of subsistence practices suggest a gradual diet broadening throughout the Holocene with slight intensification of marine resource during the Middle Period (Jones et al. 2008, 2009). These analyses also found evidence for the overexploitation of specific faunal resources over time. Although subsistence-related data are available from a limited number sites within the District, additional research is needed to more fully characterize the spatial and temporal variability of prehistoric dietary regimes along the Pecho Coast. Both direct (floral and faunal materials) and indirect (artifacts such as milling stones, projectile points, fishhooks, and net sinkers) data may be used to answer questions about prehistoric subsistence practices. Subsistence-related questions specific to sites in the District and the District as a whole include:

- What was the full range of terrestrial and marine resources that were used for subsistence purposes by prehistoric populations along the Pecho Coast? How did these resources vary through time? Did resource use change in response to variations in population or the environment?

- Do Early Archaic Period sites along the Pecho Coast truly reflect a strong focus on large game hunting, or is this apparent emphasis simply a reflection of the biases of a very small sample?

- Preliminary data indicate that the size of red abalone (*Haliotis rufescens*), and possibly California mussel (*Mytilus californianus)*, shells may have decreased over time in response to resource overexploitation. Do the shell size data from representative site assemblages indicate a pattern of overexploitation, or are the shells within the normal range of their respective populations?

- Based on evidence from CA-SLO-2/3 and CA-SLO-585, Jones et al. (2008, 2009) suggest that the extinction of a flightless sea duck (*Chendytes lawi)* along the Pecho Coast ca. 3000 cal B.P. was largely the result of overhunting by local populations. Is this pattern of resource overexploitation seen at other sites in the District?

- Do what extent did Pecho Coast groups intensify their exploitation of marine resources during the Middle Period? How do these patterns compare with the economic and resource intensification observed in the Santa Barbara Channel?

8.1.3 Technology

The domain of technology is a key to understanding human prehistory. Technology is one of the primary ways human populations interface with their environment and conditions such as climate and availability of biotic and abiotic resources. Changes in and continuity of technology also may reflect cultural associations among and between populations that result in the exchange of materials and ideas. Lithic artifacts in particular, due to the durability of stone compared to wood, bone, and shell, offer an excellent class of artifacts to examine human adaptation to their environment and the exchange of materials and ideas. Possible technological-related questions include:

- Were flaked stone tools made on site? If so, what stage of production is represented for each class of tools? How were they made and how did material type influence the production of flaked stone tools? What technique did knappers utilize to reduce the material into desired forms? What strategies were undertaken during reduction to correct errors or change reduction trajectory?
- What is the relationship between lithic technology and toolstone availability on the Pecho Coast? Do sites in portions of the District without nearby toolstone sources exhibit economizing behavior in comparison to sites where toolstone is more accessible?

- One quarry site, CA-SLO-681, has been identified within the District. How does the study of artifacts from this site inform on prehistoric toolstone acquisition and the organization of lithic production activities? Can flaked stone artifacts recovered from other sites in the District be sourced to this quarry locale?

- What are the dominant projectile point styles and how does the frequency of these styles compare to other sites in the District or within the larger Central Coast region?

- Is there any evidence to suggest changes in flaked stone tool technologies over time?
- Were flaked stone tools rejuvenated and how? How many times were the tools rejuvenated before disposal? Were tools curated for future use or recycled after discard? Why were certain artifacts discarded?
- What are the forms of ground stone implements on the site?
- Were ground stone implements made on site, if so, how? What stage(s) of production are represented?
- What materials are ground stone implements made from? Where did the raw material come from? What are physical characteristics of each type of stone and how does this influence production, function, and form?
- Is there any evidence to suggest patterned changes in ground stone technologies over time or space? How do these patterns compare to other areas along the Central Coast?
- What evidence of use wear is present on ground stone artifacts? How can the use wear data information on the function of these tools?
- If changes are recognized in the morphology of individual ground stone implement classes, the proportion of various classes, or the spatial distribution of implements within the site, can these be tied to changes in subsistence strategies, disposal or ceremonial/ritual activities? If variability is apparent over time, can it be attributed to human adaptation to environmental change of the region?
- What were the effects of the adoption of major technical innovations (e.g., the bow and arrow and fishing technology) on local cultural developments? How did the adoption of these new technologies impact subsistence, settlement and land-use practices, and sociopolitical complexity?

8.1.4 Settlement systems and land-use strategies

Settlement and land-use patterning, defined as the distribution of a society's activities on the landscape during a brief span of time, is closely linked to the study of chronology, subsistence patterns, and population movements. The ultimate goals in settlement and land-use pattern analysis are to explore the degree of sedentism and seasonality of site use, describe and date the distribution of coeval archaeological components, ascertain the determinants of settlement, and explain the observed patterns and their relationships to economic and social factors.

Current interpretations of prehistoric human settlement along the Central Coast suggest a shift from a classic forager subsistence-settlement system to a more collector-oriented strategy sometime during the Early (Jones 2003) or Middle (Lebow et al. 2005) Period. This latter type of collecting strategy features centralized site complexes established in locations favorable to stage logistical forays into surrounding resources patches (Binford 1980). Such a shift in land-use practice is expected to result in the establishment of distinct functional site types. Surface characteristics indicate that prehistoric sites in the District area may represent at least six different functional types including villages, long-term residences, short-term residences, ideological sites, lithic quarries, and locations (see Section 7.4.1). As noted by Jones (2013:39), additional excavations are needed to refine the site typology and to determine if identified site types display distinct empirical signatures. Moreover, a better understanding is needed of how settlement patterns changed over time. Analyses relying on multiple classes of artifacts or features may prove most useful in investigating aspects of prehistoric settlement and land-use practices.

- Is there archaeological evidence of a shift from classic forager subsistence-settlement system to a more collector-oriented strategy among sites along the Pecho Coast? If so, during what period did this shift occur, and what was its impetus?

- Do sites in the District display distinct patterns in terms of their distributions of artifacts and features that indicate the presence of different functional site types? Do these types conform to the six functional site types defined for the Pecho Coast?

- What evidence is there to suggest that sites within the District were utilized differently during different periods?

- When were sites occupied during the year and what was the length of stay? Does the evidence support extended stays at residential bases or were these settlements abandoned during portions of the year? How do settlement patterns related seasonality change over time?

- Are diachronic changes in prehistoric settlement and land use evident in the District?

- What were the determinants of site location during the period(s) of occupation? What role did such factors as biotic resources, lithic raw material, water, temperature, wind patterns, topography, and access to trails and trade routes have on the location and scheduling of land use?

- Were diachronic changes in settlement patterns influenced by other environmental changes that may have affected the nature and distribution of plant, animal, and water resources within the District and neighboring localities?

- What was the nature of the biotic catchment exploited by Pecho Coast residents seasonally and through time? Did depletion of specific biotic resources influence settlement patterning in the study area?

- What other environmental variables may have played an important role in the use and settlement of specific sites? Were particular site locations selected to maximize the yield of specific resources or maximize the diversity of available resources?

8.1.5 Sociopolitical organization

The emergence of socially and politically complex Chumash society after 950 cal B.P. has been well documented in the Santa Barbara Channel area. The hallmarks of complexity include sophisticated maritime technology (*tomol*) used in intensive island-mainland trade and to support subsistence exploitation of pelagic fisheries, hierarchical political authority, and heavy production of *Olivella* shell beads. Although the organization of sociopolitical systems along the Pecho Coast has received little attention, preliminary data suggest that the Northern Chumash may have been less complex than their neighbors to the south. In contrast to the Santa Barbara Channel area, faunal remains from Late Period assemblages along the Pecho Coast suggest a de-emphasis on fishing after 700 cal B.P. Ethnohistoric accounts also indicate that the *tomol*, which can be considered the technological center piece of the maritime economy for the Chumash in the Santa Barbara Channel area, was not adopted by populations north of Point Conception (Jones 2013:37). The lack of use of the *tomol* by the northern Chumash may relate to the specific environmental conditions of the Pecho Coast, which is characterized by stretches of exposed open ocean with offshore resource areas (e.g., kelp forests) that are less productive than those found in the Santa Barbara Channel. No substantive evidence has been found for the large-scale production and exchange of shell beads (e.g., finished shell bead, bead-making drills, and *Olivella* bead-making debris) at sites along Pecho Coast; this finding contrasts with the economic intensification in shell bead production and exchange observed among the southern Chumash. While the extant data suggest key differences existed in sociopolitical complexity among Chumash groups during the Late Period, a thorough evaluation is needed to explore spatial and temporal patterns in sociopolitical organization and its material correlates along the Pecho Coast. Specific questions related to sociopolitical complexity include:

- What evidence of sociopolitical complexity is present at Pecho Coast sites? When does such evidence first appear in the archaeological record?

- Social organization along the Pecho Coast is presumed to be less complex than social complexity in the Santa Barbara Channel area. Is this truly the case or does it more directly reflect the lack of systematic study of the markers of sociopolitical complexity?

- Are the prehistoric patterns of sociopolitical organization consistent with ethnohistoric accounts? Is there data to suggest there was a major shift in sociopolitical organization along the Pecho Coast between the Late Prehistoric and Historic periods?

8.1.6 Paleoenvironmental Change

Since the early 1990s, researchers have attempted to explore the relationships among climate, environment, and culture along the Central Coast using paleoenvironmental data. Much of this research has focused on the potential causal role of climate and environment in culture change. In the Santa Barbara Channel area, Arnold (1992) originally argued that that the development of Chumash sociopolitical complexity between 800 and 650 cal B.P. was caused by a catastrophic warming of sea surface temperatures and a decline in marine productivity during the later MCA. Subsequent refinements in sea temperature reconstructions suggest that the period between 600 and 450 cal B.P. was marked by cold sea surface temperatures, high marine productivity, and general aridity. These findings led Kennett and Kennett (2000) to suggest that cultural changes along the Central Coast during the Middle-Late Period Transition (950-700 cal B.P.) were likely influenced by prolonged droughts. More recently, Codding and Jones (2007) and Codding et al. (2010) have posited that the high frequency of rabbits that was observed in the mammalian faunal remains recovered from Middle-Late Period Transition deposits at CA-SLO-9, [redacted] may reflect decreased access to large game as a result of anomalous climate. However, as noted by Jones (2013:37), the volumetric density of fish remains from Middle-Late Period Transition deposits at the site are not as high as might be expected for a drought-influenced, marine subsistence focus. These findings leave some room for doubt about the effects of the MCA on Pecho Coast populations and highlight the need for additional research on this topic. Specific questions related to paleoenvironmental change include:

- How has the local environment changed over time along the Pecho Coast?

- Is there evidence to suggest that major cultural changes along the Pecho Coast are linked to environmental change? How do these changes fit with the paleoenvironmental models developed for other coastal California areas?

- Do other sites along the Pecho Coast show the same pattern of changing prey populations as observed at CA-SLO-9? Can decreasing deer remains during the Middle-Late Period Transition be correlated to drier conditions during the MCA?

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Previous documentation on file (NPS):

____ preliminary determination of individual listing (36 CFR 67) has been requested
_X_ previously listed in the National Register
____ previously determined eligible by the National Register
____ designated a National Historic Landmark
____ recorded by Historic American Buildings Survey #____________
____ recorded by Historic American Engineering Record # __________
____ recorded by Historic American Landscape Survey # ___________

Primary location of additional data:

_X_ State Historic Preservation Office
_X_ Other State agency
____ Federal agency
____ Local government
____ University
_X_ Other

Name of repository: San Luis Obispo County Archaeological Society and Central Coast Information Center

Historic Resources Survey Number (if assigned): ________________

10. Geographical Data

Acreage of Property 2,434 acres

UTM References
Datum (indicated on USGS map):

☐ NAD 1927 or ☒ NAD 1983

[redacted]

Verbal Boundary Description (Describe the boundaries of the property.)
The district boundary line is indicated on the accompanying USGS maps (**Maps 1a-f**).

Boundary Justification (Explain why the boundaries were selected.)

The original boundary of the Rancho Cañada de los Osos y Pecho y Islay Archaeological District, as defined by Hoover (1974), encompassed an approximately 3.2-mile-long stretch of the Pecho Coast [redacted] (**Map 1a**). In 1982, Greenwood submitted a NRHP nomination to expand the District to include two additional sites (CA-SLO-2/3 and CA-SLO-8), both of which are located within the Diablo Canyon area. The inclusion of these latter archaeological resources resulted in the creation of a discontinuous

District composed of two definable significant areas separated by a non-significant area (**Map 1a**). The proposed Boundary Increase would connect these two discontinuous areas and extend the northern and southern boundaries of the District (**Maps 1b-f**).

Prehistoric cultural geography, modern political geography, and topography, as well as archaeological research and resource management, were all considered in the delineation of the expanded boundary of the District. The expanded District encompasses a series of archaeological sites located on the coastal terrace between Montana de Oro State Park on the north and Point San Luis on the south. [redacted] Archaeological evidence suggests that the coastal terrace was the primary focus of prehistoric settlement along the Pecho Coast.

The northern boundary of the District is located at the northern edge of the Montana de Oro State Park (**Map 1b**). [redacted]. The southern end of the District is marked by Point San Luis (**Map 1f**), which acts as a natural physical boundary between the Pecho Coast on the west and San Luis Obispo Bay on the east. The Pacific Ocean serves as a natural boundary to demarcate the western edge of the District. The District's eastern edge is bounded by the western slope of the Irish Hills, where the elevation rises dramatically. Throughout most of the District, the eastern boundary falls at an elevation between 300 and 400 feet (91 to 121 meters) above mean sea level. However, around major drainages and canyons, the boundary departs slightly from this contour interval. The District boundary extends above the 400-foot contour in two areas to encompass portions or entire archaeological sites (CA-SLO-688 and CA-SLO-793, the former of which was previously listed in the District by Hoover [1974]). Extant archaeological evidence suggests that while upland locales in the Irish Hills may have been used by native peoples for resource procurement, these areas were less intensively occupied compared to the coastal terrace. Thus, although use of the change in slope to mark the eastern boundary may appear arbitrary, it corresponds to relevant aboriginal land use and settlement practices.

11. Form Prepared By

name/title:	Barry A. Price, Principal, and Tiffany C. Clark, Senior Archaeologist
organization:	Applied EarthWorks, Inc.
street & number:	811 El Capitan Way, Suite 100
city or town:	San Luis Obispo state: California zip code: 93401
e-mail:	bprice@appliedearthworks.com
telephone:	(805) 594-1590
date:	31 December 2015; Revised April 2016; Revised December 2018

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** or equivalent (7.5 or 15 minute series) indicating the property's location.

- Map 1a: Morro Bay South OE W, CA 7.5' USGS topographic quadrangle;
- Map 1b: Port San Luis South OE W, CA, 7.5' USGS topographic quadrangle; and
- Map 1c: Port San Luis, CA, 7.5' USGS topographic quadrangle.

- **Sketch Map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
  - Map 2 in 12 sheets: Aerial map showing locations of listed, and nominated contributing and noncontributing cultural resources within the Rancho Cañada de los Osos y Pecho y Islay Archaeological District (Boundary Increase).

- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs
Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log

Name of Property:	Rancho Cañada de los Osos y Pecho y Islay Archaeological District (Boundary Increase)
City or Vicinity:	Avila Beach
County:	San Luis Obispo
State:	California
Photographer:	Michael Taggart, PG&E
Date Photographed:	2018, month and day as indicated

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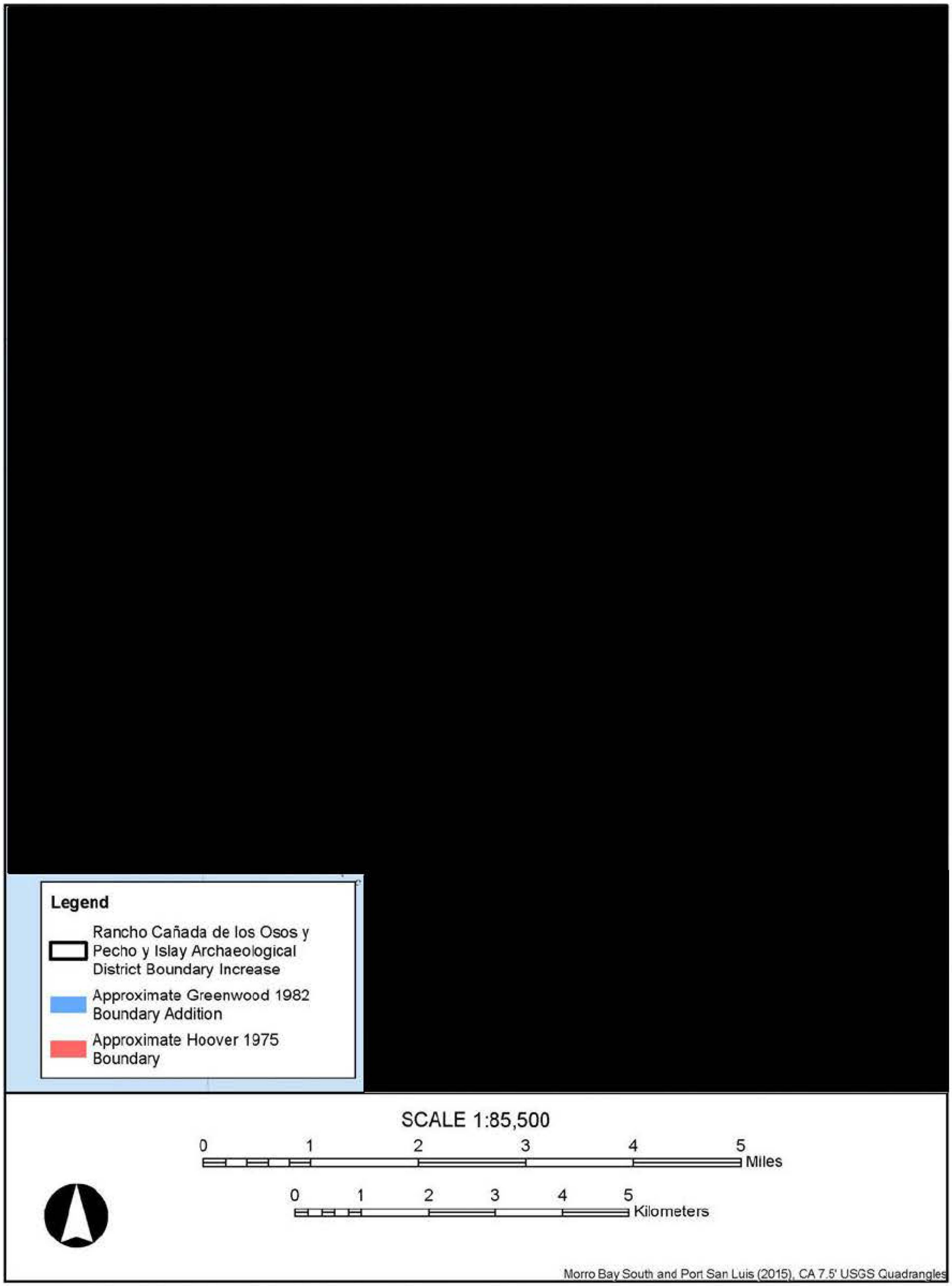

Map 1a: Boundary modifications of the Rancho Cañada de los Osos y Pecho y Islay Archaeological District.

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Map 2, Sheet 1 of 12

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Map 2, Sheet 2 of 12

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Map 2, Sheet 3 of 12

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Map 2, Sheet 4 of 12

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Map 2, Sheet 5 of 12

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Map 2, Sheet 6 of 12

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Map 2, Sheet 11 of 12

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Map 2, Sheet 12 of 12

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Enright et al. 2021 report – Diablo Canyon Decommissioning Cultural Resource Inventory and Study Plan

Diablo Canyon Decommissioning

Cultural Resource Inventory and Study Plan

Prepared for PG&E
By
Applied EarthWorks, Inc. and ERM
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List of Acronyms and Abbreviations

Name	Description
AB 52	Assembly Bill 52
Æ	Applied EarthWorks, Inc.
APE	Area of Potential Effects
cal B.P.	Calendar years before the present
Cal Poly	California Polytechnic State University
CA-SLO	California San Luis Obispo
CCC	California Coastal Commission
CCIC	Central Coastal Information Center
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
County	County of San Luis Obispo
CRHR	California Register of Historical Resources
CRISP	Cultural Resource Inventory and Study Plan
D&D	Decontamination and Dismantlement
DCDEP	Diablo Canyon Decommissioning Engagement Panel
DPR	Department of Parks and Recreation forms
DCPP	Diablo Canyon Power Plant
GTCC	Greater than Class C
ISFSI	Independent Spent Fuel Storage Installation
kV	kilovolt
LCP	Local Coastal Plan
LTP	License Termination Plan
MCA	Medieval Climatic Anomaly
MLD	Most Likely Descendant
MOA	Memorandum of Agreement

NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NRHP	National Register of Historic Places
NRC	U.S. Nuclear Regulatory Commission
PA	Programmatic Agreement
PG&E	Pacific Gas and Electric Company
Pismo Yard	Pismo Beach Rail Yard
PRC	Public Resources Code
Proposed Project	The DCPP Decommissioning Project
RPA	Registered Professional Archaeologist
SST	Sea Surface Temperatures
SHPO	State Historic Preservation Officer
SSC	Structures, systems, and component
TCR	Tribal Cultural Resources
USGS	U.S. Geological Survey
YTT	*yak titʸu titʸu yak tilhini*

1. Executive Summary

Pacific Gas and Electric Company (PG&E) owns and operates the Diablo Canyon Power Plant (DCPP), located between Morro Bay and Pismo Beach, and the Pismo Beach Rail Yard (Pismo Yard) in the County of San Luis Obispo, California (County). The DCPP is composed of a 750-acre high-security zone where the reactors and other primary operational facilities are sited. The DCPP high-security zone is nested within a larger 12,000-acre Diablo property, which lies mainly on the coastal plain at the base of the Irish Hills approximately 7 miles northwest of Avila Beach, 12 miles west-southwest of the city of San Luis Obispo, and directly southeast of Montaña de Oro State Park. The coastal plain of the full Diablo property is defined by rocky bluffs with gently to moderately sloping terraces ranging from 70 to 100 feet above sea level. The Pismo Yard facility is within the city of Pismo Beach and covers a 25.5-acre property adjacent to Pismo Creek and Price Canyon Road.

In 2016, PG&E announced plans for the closure of DCPP at the expiration of its U.S. Nuclear Regulatory Commission (NRC) operating licenses in 2024–2025. This decision was confirmed by California Public Utilities Commission approval of a Joint Proposal Agreement in early 2018. Upon final shutdown of the two operating units, PG&E intends to transition immediately from an operating status into a decommissioning status. The DCPP Decommissioning Project (Proposed Project) will be accomplished in three phases. The first phase includes Decontamination and Dismantlement (D&D) of structures, systems, and components (SSC), as well as modifications to the site that will be necessary to support decommissioning and initial site restoration. The second and third phase activities include, but are not limited to, final site restoration, transfer of spent fuel to the Department of Energy, and removal and restoration of the Independent Spent Fuel Storage Installation (ISFSI) and Greater than Class C (GTCC) Storage Area.

In support of decommissioning, Applied EarthWorks, Inc. (Æ) has prepared this Cultural Resource Inventory and Study Plan (CRISP) to guide management of significant archaeological and historical sites and places of cultural importance that could be affected by the Project. Æ's effort has focused on two Project areas; the DCPP Project area that includes only the high-security DCPP area; and the second, Pismo Yard Project area that covers the limits of the Pismo Yard location. For these two Project areas, this document summarizes the Project, outlines relevant federal, state, and local regulations regarding cultural resources, describes the natural and cultural setting of the Project areas, and contains background information regarding prior cultural resource studies and documented archaeological and historical sites on the DCPP property (focusing on resources within the Project areas) and Pismo Yard Project area. It also includes results of the pedestrian survey and site updates for seven resources on the DCPP property, a preliminary assessment of Proposed Project effects/impacts on significant cultural resources, offers recommendations for additional studies, if appropriate, and presents a stakeholder outreach plan to guide outreach efforts.

The goal of this CRISP is to provide all the necessary background and contextual information regarding the cultural resources that may be impacted by the Project. This information will be used to inform future consultations, assessment of effects and any necessary agreement documents, mitigation measures, or treatment plans needed to resolve significant impacts or adverse effects on historical properties under Section 106 of the National Historic Preservation Act of 1966 (NHPA) or historical resources under California Environmental Quality Act (CEQA). Development of appropriate treatment/mitigation plans targeted to resolve/mitigate effects will be developed in consultation with cultural resource stakeholders prior to decommissioning activities. It is anticipated that such mitigation would be facilitated through an agreement document that will be developed later.

Within the DCPP Project area, 11 cultural resources (the Rancho Cañada de los Osos y Pecho y Islay Archaeological District (District) and archaeological sites California San Luis Obispo (CA-SLO)-2 -61, -584, -1159, -1160, -1161, -1162, -1163, -2865, and -2866) are present. Eight of the 10 sites, CA-SLO-2, -61, -1159, -1160, -1161, -1162, -2865, and -2866, are contributing elements of the National Register of Historic Places (NRHP)-listed District, and CA-SLO-2 and -61 eligible for the NRHP and the California Register of Historical Resources (CRHR) in their own right. CA-SLO-584 and -1163 are not considered contributing elements as both resources have been destroyed by previous plant construction activities. As part of the current study, Æ revisited 8 of the 10 archaeological sites to update California Department of Parks and Recreation (DPR) site forms and assessed current conditions to provide pre-decommissioning baseline data. CA-SLO-61 and -584 were not revisited due to access restrictions.

Analysis of proposed impacts to these resources found that only CA-SLO-2 and -61 are likely to be impacted/affected by decommissioning activities. The District itself as well as the other eight archaeological sites will not be impacted by decommissioning activities. Of note, construction of the DCPP was completed in 1973; therefore, the plant and its facilities will be 50 years old in 2023, one year prior to the expiration of its NRC operating licenses. Given its age, the plant and related infrastructure should be formally recorded and evaluated to determine if the plant is a NRHP or CRHR-eligible property. However, this is beyond the current scope of this CRISP and not addressed in this document.

The Pismo Yard Project area lies within a portion of Pismo Beach that has a high sensitivity for prehistoric cultural resources. The Pismo Yard may be used to support transportation of materials out of the area; however, it is yet to be determined if the yard will undergo modifications to support this use. Within the Pismo Yard, CA-SLO-81 and -832 are recorded as separate resources; however, it is likely that CA-SLO-81 is an extension of CA-SLO-832, which is the well-known [redacted] classified as [redacted] prehistoric occupation episodes dating between 9800 and 1000 calendar years before the present (cal B.P.). CA-SLO-832 has provided important information about regional prehistory and has potential to provide additional information; therefore, CA-SLO-832 has been determined eligible for listing on the NRHP under Criterion D with State Historic Preservation Officer (SHPO) concurrence, and for listing on the CRHR under Criterion 4. No subsurface testing has occurred on the Pismo Yard property to assess if intact and significant deposits associated with CA-SLO-832 are present. If modifications to the Pismo Yard are planned then an effects testing effort should be completed to assess if NRHP/CRHR-eligible deposits are present and if they will be impacted/affected by any proposed modifications.

Finally, this CRISP provides a comprehensive stakeholder outreach plan to help guide PG&E through outreach with interested stakeholders. The stakeholder plan provides information regarding the roles of the various agencies involved in the Project; how to provide outreach to stakeholder communities; how to identify additional stakeholders; and the details of the outreach process including meetings, field visits, and continued outreach for the life of the Project.

2. Introduction

PG&E owns and operates the DCPP and the Pismo Yard, both located between Morro Bay and Pismo Beach in the County of San Luis Obispo, California (Figure 2-1). DCPP is a two-unit nuclear powered electrical generating station that began commercial operation in 1985. The reactor systems were supplied by the Westinghouse Electric Corporation. Units 1 and 2 each have a license rating of 3,411 megawatts thermal, with corresponding gross electrical outputs of 1,190 megawatts electric.

The reactors are licensed by the NRC to operate until November 2, 2024 (Unit 1) and August 26, 2025 (Unit 2). The NRC formulates policies and regulations governing nuclear reactor and materials safety, issues orders to licensees, and adjudicates legal matters brought before it. The NRC's regulatory process includes licensing or certifying applicants, such as PG&E, to operate nuclear facilities and decommissioning that permits license termination.

The DCPP high-security zone is enveloped by an approximately 12,000-acre property, which lies mainly on the coastal plain at the base of the Irish Hills approximately 7 miles northwest of Avila Beach, 12 miles west-southwest of the city of San Luis Obispo, and directly southeast of Montaña de Oro State Park. The DCPP high-security zone is composed of a 750-acre NRC-licensed area where the reactors and other primary operational facilities are sited. The coastal plain of the full Diablo property is defined by rocky bluffs with gently to moderately sloping terraces ranging from 70 to 100 feet above sea level. The DCPP industrial area is within the Cañada de los Osos y Pecho y Islay Land Grant on unsectioned portions of Township 31 South and Ranges 10 and 11 East as depicted on the Port San Luis 7.5-minute U.S. Geological Survey (USGS) topographical quadrangle (Figure 2-2). The Pismo Yard facility is within the city of Pismo Beach, covers a 25.5-acre property adjacent to Pismo Creek and Price Canyon Road, and is part of the Pismo Land Grant near unsectioned Township 32 South and Range 12 East as depicted on the Pismo Beach, California 7.5-minute USGS topographical quadrangle (Figure 2-3).

Figure 2-1 – Project Vicinity in San Luis Obispo County, California

[redacted]

Figure 2-2 – DCPP Project area on the Port San Luis 7.5-minute USGS Quadrangle

[redacted]

Figure 2-3 – Pismo Yard Project area on the Pismo Beach 7.5-minute USGS Quadrangle

[redacted]

2.1. Diablo Canyon Power Plant Decommissioning Project

In 2016, PG&E announced plans for the closure of DCPP at the expiration of its NRC operating licenses in 2024–2025. This decision was confirmed by California Public Utilities Commission approval of a Joint Proposal Agreement in early 2018. Upon final shutdown of the two operating units, PG&E intends to transition immediately from an operating status into a decommissioning status. The Proposed Project will be accomplished in three phases. The first phase includes D&D of SSC, as well as modifications to the site that will be necessary to support decommissioning and initial site restoration. The second and third phase activities include, but are not limited to, final site restoration, transfer of spent fuel to the Department of Energy, and removal and restoration of the ISFSI and GTCC Storage Area. A full Project description has been developed by PG&E (2020) and the Proposed Project activities described at project-level by phase are as follows:

Phase 1—Pre-Planning and Decommissioning Project Activities (2025–2035)

- Cold and Dark Modifications—Provision of long-term power for site facilities
- Site Security Modifications—Changes to security infrastructure to support decommissioning
- Site Infrastructure Modifications—Changes to site facilities, civil features, utilities, and equipment
- Pismo Yard—Possible modifications for use as a waste storage and handling facility
- System and Area Closure—Removal of selected SSC from structures
- Spent Fuel Pool Island—Installation of a spent fuel pool cooling system to replace once-through cooling
- Site Characterization Study—Identification of hazardous materials in structures and the environment
- Decontamination—Removal, remediation, and/or abatement of hazardous materials in structures
- Building Demolition—Removal of on-site structures
- Stormwater Management—Compliance measures for stormwater control during project activities
- Waste Transportation—Offsite transport of radiological and non-radiological waste materials
- Reactor Pressure Vessel Internals Removal and Disposal—Removal of reactor pressure vessel components
- Large Component Removal—Large components to be removed prior to building demolition
- Utilities, Remaining Structures, Roads, and Parking Area Demolition—Removal of facilities not needed during decommissioning
- Removal of 230 kilovolt (kV) and 500 kV Infrastructure—Removal of 230 kV and 500 kV lines, poles, and towers from the power block to the switchyards
- Intake and Discharge Structure Removal and Restoration—Removal of intake and discharge concrete structures and restoration to natural conditions
- Construction of Waste Storage Facilities—

    - Construction of a GTCC Storage Facility for the storage of radioactive materials regulated by Part 72
    - Construction of a Class ABC Waste Storage Facility for the storage of radioactive materials regulated by Part 50
    - Construction of a Non-Radioactive Waste Storage Facility for the storage of general demolition debris including hazardous, non-hazardous, and universal wastes
- Spent Fuel and GTCC Waste Transfer to ISFSI—After a cooling period, spent fuel and GTCC Waste will be moved to the ISFSI and GTCC Waste Storage Facility for storage
- Water Management—Production of fresh water and cooling water, and wastewater management during decommissioning activities
- Soil Remediation—Remediation of radiological and non-radiological-impacted soils
- Final Status Surveys—Surveys to be completed to ensure all radiological materials have been removed
- Reuse of On-site Structures—Repurposing of on-site structures and facilities for use by third parties

Phase 2—Final Site Restoration and ISFSI Only Operations (2035–2068)

- Soil Remediation—Remediation of radiological and non-radiological-impacted soils
- Final Status Surveys—Surveys completed to ensure all radiological materials have been removed
- Part 50 License Termination—Submittal of a license termination plan (LTP) to the NRC and termination of DCPP's 10 Code of Federal Regulations (CFR) 50 (Part 50) operational licenses
- Utilities, Remaining Structures, Roads, and Parking Area Demolition—Removal of facilities not needed during decommissioning
- Final Site Restoration—Grading and landscaping to restore excavated and disturbed features at DCPP to natural conditions
- Long-Term Stormwater Management—Installation of post-construction stormwater controls
- Reuse of On-site Structures—Repurposing of on-site structures and facilities for use by third parties

Phase 3—ISFSI Decommissioning and Restoration (2068–2072)

- ISFSI & GTCC Waste Storage Facility Decommissioning—Removal of all ISFSI and GTCC Waste Storage Facility related structures and support facilities
- ISFSI & GTCC Waste Storage Facility Restoration—Restoration of the ISFSI and GTCC Waste Storage Facility site to natural conditions after decommissioning activities have been completed
- Soil Remediation—Remediation of radiological and non-radiological-impacted soils
- Final Status Surveys—Surveys completed to ensure all radiological materials have been removed after ISFSI decommissioning activities have been completed

- Demolition and Restoration of the Firing Range—Remediation of shallow soils and removal of existing structures
- Part 72 License Termination—Submittal of a LTP to the NRC and termination of DCPP's 10 CFR 72 (Part 72) storage license
- Reuse of On-site Structures—Repurposing of on-site structures and facilities for use by third parties
- Long-Term Stormwater Management—Installation of post-construction stormwater controls

Most of these activities will occur within the 750-acre high-security zone surrounding the DCPP operational facilities. The Proposed Project will also include work at the Pismo Yard at 800 Price Canyon Road within the city of Pismo Beach. The Pismo Yard is a 25.5-acre site approximately 0.5 miles north of U.S. Highway 101 within Price Canyon and adjacent to Pismo Creek.

2.2. Regulatory Framework

Federal and state environmental and historic preservation laws provide the regulatory framework within which the Proposed Project will be permitted and carried out, and guide actions to be taken regarding the identification, evaluation, and treatment of cultural resources.

2.2.1. Federal Laws and Regulations

Decommissioning nuclear reactor facilities is considered a federal undertaking regulated by the NRC, and thus is subject to compliance with the National Environmental Policy Act (NEPA). Initial studies conducted during decommissioning planning help determine the level of environmental review that will be required for a proposed project, in compliance with NEPA. To help expedite the NEPA process, in 2002, the NRC published a Generic Environmental Impact Statement (NRC 2002) to guide nuclear reactor decommissioning activities, including initial planning for decommissioning. NUREG-0586, Supplement 1 outlines the processes that should be followed by facilities planning to decommission a nuclear reactor. This document clearly delineates how initial studies can be used to determine measures of significance and severity of potential impacts of decommissioning on biophysical, social, and cultural resources. The results of the initial studies in turn determine whether the Generic Environmental Impact Statement will suffice for decommissioning, or if a project specific Environmental Impact Statement is required.

NHPA, as amended 16 USC 470 et seq., is the primary federal authority regulating the treatment of cultural resources. Section 106 of the NHPA requires federal agencies to consider the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion on the NRHP. Under Section 106, federal agencies with jurisdiction over a project must consider the effects of the undertaking on historic properties within the Area of Potential Effects (APE) and must consult with the SHPO and other interested parties. Section 106 also consultation to resolve adverse effects of an undertaking and establishes mechanisms to obtain and incorporate comments from consulting parties (see Section 8: Stakeholder Engagement Plan). If a facility is over 50 years old, or has elements of unique architectural design, Section 106 of the NHPA requires the evaluation of the facility itself to determine if it constitutes a historic property eligible for listing on the NRHP. If the facility is eligible, the lead agencywill determine whether decommissioning activities would adversely affect the property, as well as identify measures to mitigate theeffect.

Decommissioning activities that must be considered include direct effects associated with stabilization, decontamination, dismantlement, large component removal and indirect effects associated such as erosion and siltation (NRC 2002, 4–67). NUREG-0586 stipulates that:

> *Federal agencies are directed by 36 CFR Part 800 to comply with the stipulations of NHPA as well as pertinent cultural, historical, and archaeological protection provisions of NEPA, the Historic Sites Act of 1935, and the Antiquities Act of 1906 and their implementing regulations. The Historic Sites Act of 1935 (16 USC 461–467) declared a national policy of preserving' for the public historic sites, buildings, and objects of national significance. It also led to the establishment of the Historic Sites Survey, the Historic American Buildings Survey, and the Historic American Engineering Record within the National Park Service [NRC 2002, 4-66].*

Under NEPA, federal agencies are required to assess the environmental effects of proposed actions prior to the approval of the action. NEPA ensures that agencies consider the environmental effects and inform the public. The NRC will be responsible for evaluating cultural resources through consultation with the SHPO, affiliated Native American tribes and other stakeholders, to characterize the extent/severity of effects and develop mitigation if necessary. Disagreements between parties may be resolved by the Advisory Council on Historic Preservation.

2.2.2. State Laws and Regulations

The CEQA (Public Resources Code [PRC] §21000 et seq.) is the overarching statute that mandates government agencies in the State of California consider the effects of their actions on important archaeological, tribal, and historical resources. Guidelines for implementing the cultural resource requirements of CEQA are found in 14 California Code of Regulations (CCR) §15000 et. seq. Under CEQA, the lead agency is required to consider the impacts of the project on the cultural environment and properly handle human remains if recovered during the project. It is anticipated the County will serve as the lead state agency for the Project because the entirety of the DCPP site is within an unincorporated portion of the County.

Under CEQA, a substantial adverse change in the significance of a historical resource is generally treated as a significant effect on the environment (PRC §21084.1). Historical resources include archaeological sites and historical buildings and structures listed in or eligible for listing in the CRHR, California Historical Landmarks, Points of Historical Interest, and local registers. Any resource listed in, or eligible for listing in, the CRHR is presumed to be historically or culturally significant. A substantial adverse change is demolition, destruction, relocation, or alteration that would impair historical significance (14 CCR §15064.5[b][1]). CEQA also identifies “unique archaeological resources” (PRC §21083.2) and enumerates measures that may reduce potentially significant impacts to these resources.

Along with assessing impacts on historical properties and archaeological sites, Assembly Bill 52 (AB 52) applies to CEQA projects under PRC §§21080.3.1 and 21080.3.2. Under AB 52, the lead agency must consult with Native American tribes for all CEQA projects for which a Notice of Preparation, Notice of Mitigated Negative Declaration, or Notice of Negative Declaration is filed or issued after July 1, 2015 (Stats. 2114, ch. 532, §11[c]). AB 52 provides for Native American tribes to be consulted as part of the CEQA process and it affords protection of tribal cultural resources (TCR) in their own right. For the Project the lead state agency will be responsible for consultation with Native American tribes under AB 52 once the CEQA process is initiated.

In addition, the California Coastal Act of 1976 (PRC §30000 et seq.) sets forth provisions regarding the development and use of the state's Coastal Zone. The Act stipulates the implementation of mitigation measures in instances where development would adversely impact archaeological resources (PRC §30244).

2.2.3. County Laws and Regulations

The California Coastal Commission (CCC) has ultimate regulatory jurisdiction in the Coastal Zone, as established by the California Coastal Act of 1976. The CCC delegates its authority to the County of San Luis Obispo because it has a certified Local Coastal Program (LCP). However, it retains original jurisdiction from the mean high tide line to 3 miles out to sea (state/federal waters line). The San Luis Obispo County LCP contains provisions regarding the treatment of cultural resources and coordination with local Chumash Native American groups. The 2009 San Luis Bay Area (Coastal) Plan covers the DCPP property. The County LCP includes specific requirements that are applicable to the Proposed Project. The County is also working with community stakeholders and PG&E to consider options that would reduce the economic and other impacts to the area resulting from the closure of the DCPP.

The County Coastal Zone Land Use Ordinance (Title 23 of the San Luis Obispo County Code) applies to all land use and development activities within the unincorporated areas of the County that are within the Coastal Zone. Both historic and archaeological sensitive areas are addressed under the County's Coastal Zone Land Use Ordinance. Section 23.07.104 defines archaeological sensitive areas and procedures for identification of resources, appropriate mitigation options, and handling of discovery of archaeological resources during construction. Unincorporated areas outside of the Coastal Zone are regulated by Title 22 of the County Land Use Ordinance; however, the same procedures for sensitive cultural resources apply.

Additionally, the Conservation and Open Space Element of San Luis Obispo County's General Plan establishes goals and policies "to identify and protect areas, sites, and buildings having architectural, historical, Native American, or cultural significance." Among other things, these require consideration of archaeological, historical, and paleontological resources, and avoidance of impacts to significant resources whenever feasible. Native American tribal representatives are to be consulted in all phases of cultural resource investigations and should be present during archaeological excavation and construction in areas likely to contain archaeological sites.

2.2.4. Treatment of Human Remains

The disposition of human remains is governed by the California Health and Safety Code §7050.5, PRC §§5097.94 and 5097.98, and falls within the jurisdiction of the Native American Heritage Commission (NAHC). If human remains are discovered, the County Coroner must be notified within 24 hours and there should be no further disturbance to the site where the remains were found and reasonably suspected to exist. If the remains are determined by the Coroner to be Native American, the Coroner is responsible for contacting the NAHC within 24 hours. The NAHC, pursuant to PRC §5097.98, will immediately notify those persons it believes to be most likely descended (MLD) from the deceased Native Americans. The NAHC designates an MLD so they can work with the landowner to inspect the burial site and make recommendations for the disposition of the remains.

2.3. Area of Potential Effects and Project Areas

The Section 106 implementing regulations define APEs as “the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character of use of historic properties, if any such properties exist” (36 CFR §800.16[d]). Similarly, under CEQA, the Project area is the area in which the proposed activity may cause either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment. For both Section 106 and CEQA, the APE and Project Area include all locations where cultural resource could be impacted, either directly or indirectly, by the Proposed Project. In general, the APE and Project Area thus prescribe the locations within which NRHP/CRHR-eligible properties must be identified and managed by the local, state, and/or federal agencies legally responsible for compliance with CEQA or Section 106 of the NHPA. In pragmatic terms, the APE and Project Area define the area(s) requiring historical and archaeological survey, inventory and evaluation of cultural resources, and treatment of the identified significant properties in accordance with federal, state, and county policies.

At present, the APE and Project Areas have not been defined formally by the lead federal agency, in consultation with the SHPO (pursuant to 36 CFR 800.4[a][1]) and other stakeholders, or the CEQA lead agency. For the purposes of this CRISP, the Project areas include those portions on the DCPP property that are subject to decommissioning activities (essentially, all land within the 750-acre high-security zone plus the Quail Flat borrow pit; Figure 2.3-1) and the Pismo Yard a 25.5-acre property within the city of Pismo Beach (Figure 2.3-2). These two locations encompass all known activities associated with decommissioning including roads, borrow pits, laydown areas, building demolition, grading, vegetation management areas, and other infrastructure improvements needed to support the Project. For this document, the DCPP Project area refers to the 750-acre high-security zone plus the Quail Flat borrow pit; and Diablo property will be used to discuss the full 12,000-acre DCPP property.

Figure 2.3-1 – DCPP Decommissioning Area and Proposed Borrow Pits

[redacted]

Figure 2.3-2 – Pismo Yard Project Area

[redacted]

2.4. Cultural Resource Inventory and Study Plan

Æ has prepared this CRISP to inventory and guide management of significant archaeological and historical sites and places of cultural importance that could be affected by the Proposed Project. This document summarizes the Proposed Project, outlines relevant federal, state, and local regulations regarding cultural resources, describes the natural and cultural setting of the study area, and provides a comprehensive inventory of all available information regarding prior cultural resource studies and documented archaeological and historical sites on the DCPP property (focusing on resources within the Project areas).

It also includes a preliminary assessment of Proposed Project effects/impacts on significant cultural resources, outlines the sequential procedural steps for regulatory compliance, offers recommendations for focused supplemental studies, and presents a stakeholder outreach plan to guide engagement efforts.

This CRISP provides all the necessary background and contextual information regarding the cultural resources that may be impacted by the Proposed Project. This information will be used to inform future compliance requirements, including formally establishing the APE, consulting on the historic property identification efforts, assessment of effects and any necessary agreement documents, mitigation measures, or treatment plans needed to resolve significant impacts or adverse effects on historic properties under Section 106 or historical resources and TCRs under CEQA.

2.5. Personnel Qualifications

Æ's effort was a collaboration between several key staff. Æ Principal Archaeologist Erin Enright (M.A., Registered Professional Archaeologist [RPA] 16575) served as project manager and lead author, coordinating the various sections of the CRISP and their compilation. Æ Senior Archaeologist Jasmine Kidwell (M.A., RPA 17325) completed the background sections, reviewed the previous documentation, and provided mapping support. Æ Senior Archaeologist Dennis McDougal completed the cultural context update using Æ's previous DCPP-specific documents and incorporating the relevant findings from Jones and Codding's (2019) *Foragers on America's Western Edge: The Archaeology of California's Pecho Coast*. Finally, Æ Senior Compliance Specialist Richard C. Hanes (Ph.D., RPA 28576538) and Æ Principal Archaeologist Diane Douglas (Ph.D RPA 12554) drafted the stakeholder outreach plan and summarized the regulatory framework. All staff involved in this effort meet the U.S. Secretary of the Interior's Professional Qualifications Standards for Archaeology and collectively have dozens of years of experience in cultural resource management throughout California, the Great Basin, and Southwest. Additionally, Æ has provided PG&E cultural resource management support on the DCPP property for close to 20 years. Æ also prepared the NRHP nomination package for the District (Price and Clark 2019).

2.6. Report Organization

This document consists of nine sections. Following this introduction, Section 3 describes the natural and cultural setting of the Project area. Section 4 presents research themes targeting resources that fall within San Luis Obispo County coastal regions. Section 5 provides previous studies in the DCPP and Pismo Yard, while Section 6 identifies cultural resources. Impacts and recommendations are provided in Section 7. Section 8 provides a stakeholder outreach plan and references are provided in Section 9. Appendix 1 provides the archaeological site records for resources identified within the Project areas. Appendix 2 includes historic photos of DCPP, and Appendix 3 contains previous survey maps for both DCPP and Pismo Yard Project areas.

3. Natural and Cultural Context

3.1. Environmental Setting

The Project includes the DCPP Project area as well as the Pismo Yard Project area. Both locations are within coastal San Luis Obispo County and have similar topography, hydrology systems, soils, and geology, as well as flora and fauna. Due to the range in topography and easy access to freshwater and marine environments, habitat "stacking" creates a range of microenvironments, resulting in a dense array of plant and animal taxa along the Pecho Coast and Pismo Beach (Lantis et al. 1973). Both areas host a variety of habitats, including nonnative grassland, oak woodland, coastal scrub, maritime chaparral, riparian, and wetlands. Nonnative grasslands are most common along the coastal terrace, with coastal scrub and oak woodland in the neighboring uplands. PG&E has worked collaboratively with the *yak titʸu yak tilhini* (YTT) Northern Chumash Tribe and California Polytechnic State University (Cal Poly) to re-establish a native-dominant coastal prairie and native riparian habitats on formerly cultivated land along the lower reach of Pecho Creek. The following sections provided the environmental setting for both Project areas.

3.1.1. Diablo Canyon/Pecho Coast

The full Diablo property is within a region often referred to as the Pecho Coast, Pecho Hills, and/or Irish Hills. This area is at the southern end of the Santa Lucia Range, part of the southern Coast Ranges that extend south from San Francisco Bay to the Santa Ynez River. The Santa Lucia Range subsection of the Coast Range is characterized by a series of mountains and hills, including the Irish Hills, with rounded ridges, steep sides, and narrow canyons (Miles and Goudey 1997). The Irish Hills consist of uplifted bedrock overlain with successive layers of ancient marine deposits and more recent alluvial sediments (Greenwood 1972:1). The coastal terrace is dissected by several canyons with perennial and seasonal steams that originate in the Irish Hills and empty into the Pacific Ocean. The three largest drainages are Islay Creek and Coon Creek, in the northern extent of the DCPP property, and Diablo Creek near the central portion of the property. Natural seeps or springs occur near Tom's (or Trout) Pond, a dammed reservoir on the edge of the coastal terrace less than 2 miles north of Diablo Creek.

The climate is generally mild, with cool summer temperatures averaging 70 degrees Fahrenheit and winters ranging from 40 to 50 degrees Fahrenheit (Jones and Waugh 1995:5). Most rainfall occurs between December and March. The Pecho Coast is often blanketed by fog, particularly in the summer months when the warm inland air rises over the cool ocean winds.

The Pecho Coast shoreline features narrow swathes of beaches that are interspersed with reaches of intertidal rocks and tide pools offering habitat for rocky foreshore invertebrate species including California mussel (*Mytilus californianus*), abalone (*Haliotis rufescens, Haliotis cracherodii*), black turban snails (*Tegula funebralis*), rock crabs (*Cancer* spp.), sea urchins (*Stronglycentrotus* spp.), and various barnacles, limpets, and chitons (*Polyplacophora*). Offshore marine environments include rocky ocean bottoms that support kelp forests, which provide habitat for invertebrates; several fish species including rockfish (*Sebastes* spp.), kelpfish (*Clinidae*), yellowtail (*Seriola lalandi*), and Pacific sardine (*Sardinops sagax*); and sea mammals including sea otters (*Enhydra lutris*), elephant seal (*Mirounga angustirostris*), and sea lion (*Zalophus californianus*). Sea birds are abundant in the area, including gulls (*Larus* spp.), brown pelicans (*Pelecanus occidentalis*), and cormorants (*Phalacrocoracidae*).

The coastal terrace that comprises the Pecho Coast extends from the shoreline approximately 150 to 750 meters (492 to 2,460 feet) inland to meet the base of the Irish Hills. Elevations along the coastal terrace and lower slopes range from approximately 12 to 121 meters (40 to 400 feet above mean sea level). Historically, this area was cultivated with grain crops and portions of Diablo property are still used for ranching and agriculture. During prehistoric times, the coastal sagebrush vegetative community, consisting of California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), and California buckwheat (*Eriogonum fasciculatum*), would have been abundant (Munz 1974).

Prior to the Historic Period, this area would have supported a wide variety of terrestrial mammals, birds, reptiles, and amphibians. Large terrestrial mammals known from this general area include tule elk (*Cervus elaphus nannodes*), antelope (*Antilocapra americana*), black-tailed deer (*Odocoileus hemonius*), black bear (*Ursus americanus*), mountain lion (*Felis concolor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and the locally extirpated grizzly bear (*Ursus arctos*). Small mammals occurring in this area include striped skunk (Mephitis mephitis), spotted skunk (*Spilogale gracilis*), badger (*Taxidea taxus*), weasel (*Mustela frenata*), raccoon (*Procyon lotor*), ringtail (*Bassaricus astutus*), brush rabbit (*Sylvilagus bachmani*), cottontail (*Sylvilagus audoboni*), hare (*Lepus californicus*), Botta's pocket gopher (*Thomomys bottae*), and dusky-footed woodrat (*Neotoma fuscipes*) (Barter et al. 1994; Fitzgerald 1998:2–8).

As described above, the local climate, topography, and littoral areas provided a unique combination of ecological zones along the Pecho Coast. It is important to note that floral and faunal communities along the Central Coast have been significantly altered by Spanish colonialism, Mexican land tenure and American expansion. The introduction of various annual grasses and other species changed the composition of plant communities and affected their interactions with local fauna. Introduction of sheep, cattle, pigs, and horses resulted in direct and indirect changes in local biota. European hunting and harvesting activities were directly responsible for population declines or decimations in species such as the grizzly bear, Steller's sea lion, and many others.

3.1.2. Pismo Beach

Pismo Beach is within a unique geologic zone with the steep San Luis Range hills to the northeast, the Shell Beach marine terrace to the southwest, and Price Canyon to the northeast. Natural hydrology of the area is marked by small transversely incised channels that drain from the San Luis Range across the marine terrace and empty into the Pacific Ocean. Pismo Creek is the largest drainage, which flows from Edna Valley through Price Canyon and empties into the Pacific Ocean at Pismo Beach. The sharp change in elevation from the crest of the San Luis Range (980 feet above sea level) to the marine terrace combined with sandy beach and rocky coastal access, to the floodplains along Pismo Creek, creates a unique and complex ecological zone.

These vegetation communities contain a range of plant species: salt-tolerant plants such as sand verbena (*Abronia* sp.) and saltbush (*Atriplex* sp.) species are common along the beach; bush lupine (*Lupinus* sp.) and deerweed (*Acmispon glaber*) are common in the coastal sage scrub zone on the coastal terraces. Common species found in chaparral are greasewood (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos* sp.), scrub oak (*Quercus berberidifolia*), and poison oak (*Toxicodendron diversilobum*) (Ornduff et al. 2003). Grasslands near the Pismo Yard currently contain nonnative grasses, primarily ripgut brome (*Bromus diandrus*); however, prehistorically the grasslands likely contained bunch grasses such as Nevada bluegrass (*Poa secunda*) and other native plants such as white sage and redmaids (*Calandrinia* sp.) (Munz 1968; Ornduff et al. 2003). Along the riparian corridors, vegetation can be dense with arroyo willow (*Salix lasiolepis*), Fremont's cottonwood (*Populus fremontii*), and pepper trees (*Schinus* sp.) with an understory containing poison oak, stinging nettle (*Urtica dioica*), California mugwort (*Artemisia douglasiana*), and California poppies (*Eschscholzia californica*). Other plant species noted in the area include coastal sagebrush, and California mustard (*Guillenia lasiophylla*).

Dozens of plant species were used by the Chumash for a range of purposes (Erlandson 1993, 1994; Landberg 1965; Martin and Popper 2001; Timbrook 1984, 2007; Timbrook et al. 1982). The list of important Chumash plant foods includes seeds of sage (*Salvia* sp.), redmaids, and amaranth (*Amaranthus* sp.); nuts of oak (*Quercus* spp.), walnut (*Juglans californica*), and piñon pine (*Pinus monophylla*); berries from toyon (*Photinia arbutifolia*), islay (*Prunus ilicifolia*), blackberry (*Rubus* sp.), and elderberry (*Sambucus* sp.); corms, bulbs, and roots from yucca (*Yucca whipplei*), blue dicks (*Brodiaea* sp.), cattails (*Typha* spp.), and tules (*Scirpus* spp.); and fruiting bodies of prickly pear (*Opuntia* sp.). Ceremonial and medicinal contexts sometimes involved the use of jimsonweed or toloache (*Datura meteloides*), wild cucumber (*Marah* sp.), and tobaccos (*Nicotiana* spp.). Plants yielding fibers for textiles and other utilitarian uses include seagrass (*Phyllospadix* sp.) and milkweed (*Asclepias* sp.) among many others.

Native terrestrial wildlife common to local vegetation communities include mule deer (*Odocoileus hemionus*), black bear, mountain lion, coyote, badger, and bobcat as well as smaller mammal species, including California ground squirrel (*Otospermophilus beecheyi*), cottontail rabbit, jackrabbit, and various local and migrant bird species and reptiles (Kavanagh 2005; Schoenherr 1992). Other species that may have been important to the Native American population but are no longer found in the region include tule elk (*Cervus canadensis nannodes*), pronghorn, and brown (grizzly) bear (Landberg 1965). Local creeks likely supported seasonal runs of king (Chinook) salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*) (Kavanagh 2005; Schoenherr 1992). Today, local riparian habitats are home to crayfish (*Astacidae*) and western pond turtle (*Actinemys mamorata*) along with frogs and toads (Schoenherr 1992).

The nearby littoral zone of San Luis Obispo Bay, which extends from Shell Beach south to the Guadalupe Dunes, contains both sandy beach and rocky shoreline environments. Nonburrowing shellfish taxa found on the open rocky coastline include mussel, barnacle (*Cirripedia*), black turban snail, and gumboot chiton (*Cryptochiton stelleri*), among others. Additionally, rocky coast tide pools are home to sea stars (*Pisaster* sp.), purple sea urchins (*Strongylocentrotus purpuratus*), purple shore crabs (*Hemigrapsus nudus*), and rock crabs (*Cancer* sp.). Burrowing shellfish species found along the sandy strand beach or sandy intertidal zone include Pismo clam (*Tivela stultorum*) and littleneck clam (*Protothaca staminea*), (Kavangh 2005; Schoenherr 1992). Marine mammals known to inhabit the nearshore environment along the Central Coast include a variety of pinniped species as well as sea otters.

Offshore habitats include both sandy and rocky bottom subtidal and pelagic zones as well as estuarine environments. Many local fish favor estuaries for spawning, nursery areas, and generalized feeding. Species commonly found along the open rocky coast include rockfish, cabezon (*Scorpaenichthys marmoratus*), sculpin (*Cottoidea*), and lingcod (*Ophiodon elongates*). Pelagic fish, including sharks (*Chondrichthyes*), barracuda (*Sphyraena argentea)*, and yellowtail, can be found in nearshore environments (Eschmeyer et al. 1983). Local schooling fish include topsmelt (*Atherinops affinis*), herring (*Clupea pallasii*), and sardines that generally spawn in estuaries and can be found in nearshore environments (Eschmeyer et al. 1983).

3.1.3. Paleoenvironment

The following discussions regarding the paleoenvironmental conditions (i.e., sea surface temperatures (SSTs) and marine productivity, terrestrial climate, marine/terrestrial correlations, and sea level rise) of the Central Coast in general, and the Pecho Coast in particular, are summarized from data presented by Jones and Codding (2019:10-16):

> *The degree to which past environments were divergent from current ones is a critical consideration in that a varied marine environment (particularly sea surface temperatures) and/or terrestrial climate could influence the nature of the resource base available to resident hunter-gatherers, and change through time in such ambient conditions could potentially cause changes in foraging practices. For our purposes, and given the available data, records of paleo sea surface temperature and variation in pollen are particularly relevant to marine and terrestrial reconstructions, respectively [Jones and Codding 2019:10].*

Jones and Codding (2019:10) base their reconstructions of the Pecho Coast paleoenvironment from archaeological sites outside of the Central Coast proper that have some applicability to the Pecho coastline (e.g., offshore varved sediments from the Santa Barbara Channel [Heusser 1978, 1995, 1998; Kennett and Ingram 1995; Kennett and Kennett 2000], the San Joaquin Valley [Davis 1999], and the Sierra Nevada [Anderson and Stillick 2013; Davis and Moratto 1988; Graumlich 1993; Stine 1994]), as well as more relevant local studies that include a recent pollen study by Anderson et al. (2015), an attenuated pollen core (Mensing 1998), and a preliminary assessment of SSTs for the last 2,000 years based on oxygen isotope findings from mussel shells found in archaeological contexts (Jones and Kennett 1999).

3.1.3.1. Sea Surface Temperatures and Marine Productivity

Global variation in SSTs derived from data obtained from the Greenland Ice Sheet Project (Dansgaard et al. 1993) show a trend of warming seas following the Last Glacial Maximum circa 18,000 B.P., followed by SSTs dropping to near glacial levels and then rebounding during Younger-Dryas event circa 13,000 years ago, but very little variation from about 10,000 cal B.P. onward (Jones and Codding 2019:10). However, evidence from an offshore core taken near Santa Cruz shows little impact on SSTs during the Younger-Dryas event and evidence for slightly warmer SSTs than present during the early Holocene. This is consistent with the data from a Northern California core (Barron and Bukry 2007) that shows reduced upwelling along the south-flowing California Current (which influences SSTs along the northern and central California coastlines south to Point Conception) between 12,000 and 9000 cal B.P., which in turn resulted in warmer SSTs and lower marine productivity (Jones and Codding 2019:11).

The Barron and Bukry's (2007) study indicates intensification of the California Current between 9,000 and 8,000 years ago resulting in increased upwelling and an accompanying increase in marine productivity as far south as Point Conception, but that the current slackened between 4800 and 3600 cal B.P. when upwelling (and marine productivity) was reduced, after which time modern conditions prevailed along the northern and central coastlines (Jones and Codding 2019:11). However, oxygen isotope analyses of mussel shells found in archaeological contexts along the Central Coast (Jones and Kennett 1999) infer SSTs were about 1-degree Centigrade cooler and stable between 2000 to 700 B.P., seasonal variation was greater than present between 700 and 500 years ago with extremes above and below historic levels, and that SSTs were 2–3 degrees Centigrade cooler 500 to 300 years ago than today.

3.1.3.2. Terrestrial Climate

Studies within the last few decades have produced a framework of global climatic history (Marcott et al. 2013) that indicates warmer than present temperatures during the early Holocene followed by more ameliorated conditions through the middle to late Holocene. These cooler conditions were interrupted by a minor return to warm temperatures during the Medieval Climatic Anomaly (MCA) between circa 1,000 and 700 years ago, followed by the coolest temperatures of the Holocene during the Little Ice Age circa 600 to 150 years ago. However, studies of North American pollen core data (Viau et al. 2006) infer that the interval of highest mid-summer temperatures in North America occurred between 6000 and 3000 cal B.P. Since the late 1940s (Antevs 1948, 1953, 1955) it has been recognized that western North America was warmer and/or drier during the middle

Holocene "but the exact chronology and magnitude of this variation are characterized differently from region to region" (Jones and Codding 2019:13).

With regards to the local climatic conditions that effected hunter-gatherers along the central California coast, the early Holocene prior to circa 7800 B.P. was marked by a continuation of the warming and drying conditions that characterized the Pleistocene–Holocene transition, but the climate was still cooler and wetter than present with pine pollen counts highest during this period. After circa 7800 B.P., pollen studies indicate a warming trend while oaks and sagebrush became more dominant. High frequencies of sunflower pollen indicate this warming trend peaked in the middle Holocene circa 5600–4200 B.P. After peak warming circa 4200 B.P., cooler and wetter conditions prevailed with essentially modern conditions present after circa 3200 B.P., with oaks continuing to dominate over pines and the establishment of the coastal scrub and chaparral communities present historically. Evidence suggests that the MCA and Little Ice Age had little effect on the weather patterns along the Central Coast (Jones and Codding 2019:13–14).

3.1.3.3. Relationship between Climate Elements

Along the California coast, the cool, dry climate of the Younger-Dryas event circa 13,000 B.P. is marked by rapid decreases in oak and alder pollen and a period of decreased upwelling and warmer SST. Pollen signatures suggest peak warm and dry conditions in south-central California between 9,000 and 4,000 years ago (Heusser and Sirocko 1997), which contrasts with SSTs that appear to decline after circa 9,000 years ago (Heusser 1998).

Along the Santa Barbara Channel, Kennett (2005) and Kennett and Kennett (2000) argue that cold SSTs between 3800 and 2300 cal B.P. correlate with reduced marine productivity and, based on Bristlecone pine records from the eastern Sierra Nevada, lower precipitation. Greater precipitation, warm seas, and a decline in marine productivity characterize the period between 2300 and 1500 years ago; however, from approximately 1500 to 500 years ago seas were cooler and more productive, and rainfall was low. Warming seas and increased precipitation after circa 500 B.P. likely resulted in a decline of marine productivity; however, this last generalization is probably only applicable to the last 200 years since oxygen isotope analyses of mussel shells found in archaeological contexts along the Central Coast (Jones and Kennett 1999) infer that SSTs 500 to 300 years ago were 2–3 degrees Centigrade cooler than today. Recent findings from Morro Bay (Jones, Codding et al. 2017) indicate that seas were "exceptionally productive in the general area between 950 and 700 cal B.P. which supports Kennett's (2005) sequence" (Jones and Codding 2019:15).

3.1.3.4. Sea Level Change

Compared to much of the California coast where the continental shelf is fairly narrow and steep, the continental shelf off the Pecho Coast is relatively flat and slopes gradually westward. Using established rates of postglacial sea level rise (see Masters and Aiello 2007) and bathymetric contours the locations of now-submerged paleo-Pecho coastlines dating to the Late Pleistocene and early to middle Holocene can be estimated with a reasonable degree of accuracy.

At the peak of the Last Glacial Maximum circa 20,000 to 18,000 years ago, sea level was approximately 120 meters below its current elevation and the Pecho coastline was at most 5 kilometers farther west from its current location. By 12,000 years ago when sea levels were approximately 55 meters below present, the Pecho coastline was 1–2 kilometers west of its current location, and by 5,000 years ago the shoreline was essentially equivalent to its current location (Jones and Codding 2019:15). Therefore, between approximately 12,000 and 5,000 years ago a reasonably flat shoreline terrace that has since been submerged by rising sea levels would have been accessible to prehistoric coastal groups. However, given the destructive nature of nearshore processes and wave action through time the likelihood that extant shoreline sites with some degree of stratigraphic integrity still exist on this terrace is unlikely. Further, Holocene sediments transported offshore could in some cases obscure potential living surfaces (Jones and Codding 2019:15–16).

3.2. Prehistoric Setting

Archaeological investigations along the Central Coast of California and on Diablo property lands provide key insights to understanding the prehistory and regional cultural chronology in San Luis Obispo County. The earliest documented archaeological studies were conducted by Arnold Pilling (1951), who recorded several prehistoric occupation sites on DCPP property in 1947. Later, Roberta Greenwood (1972) excavated six sites, CA-SLO-2, -51, -52, -61, -584, and -585, along the Pecho coastline[redacted] The data generated by Greenwood have been integral to defining prehistoric cultural chronology for the Central Coast.

Prior to construction of the DCPP, Frances (Fitz) Riddell (1966) completed a survey of Diablo lands, documenting multiple sites that would ultimately lead to the consequential excavations by Greenwood in 1968. Since Greenwood's excavations, several additional studies have occurred on Diablo land and its immediate environs (Breschini and Haversat 1988; Codding et al. 2013; Hadick et al. 2012; D. Jones et al. 2015; Jones, Codding, et al. 2017; Jones et al. 2009; T. Jones et al. 2015; Jones, Porcasi, Erlandson, et al. 2008; Price et al. 2012; Riddell 1966). Most notably, from 2009–2019 Cal Poly conducted a biennial archaeological field school on the Diablo lands. Jones and Codding (2019) synthesized the data collected by Cal Poly and others from 2004 to 2017 to define a prehistoric cultural chronology of the Pecho Coast.

Jones and Codding (2019) propose six distinct prehistoric periods based on natural and cultural stratigraphy, radiocarbon age determinations, time-sensitive artifact cross dating and, to a lesser extent, obsidian hydration studies. Additionally, Jones and Codding (2019) end their chronological sequence with evidence of Native American occupation of the Pecho Coast during the Postcontact Period (180–130 cal B.P.) (Table 3.2-1).

Table 3.2-1 – Regional Chronology of the Central Coast

Period	Years B.C./A.D.	Years cal B.P.
Paleo-Indian	pre-8000 B.C.	pre-10,300
Milling Stone/Lower Archaic	8000–3500 B.C.	10,300–5700
Early	3500–600 B.C.	5700–2250
Middle	600 B.C.–A.D. 1000	2550–950
Middle-Late Transitional	A.D. 1000–1250	950–700
Late	A.D. 1250–1769	700–180
Post Contact	A.D. 1769–1820	180–130

Descriptions of each period are provided below that combine the Pecho Coast information with general patterns of prehistoric occupation observed throughout the Central Coast. Of note, while this discussion is focused on the Pecho Coast, these patterns and observations apply to the Pismo Beach area and are appropriate for discussions regarding the cultural resources associated with the Pismo Yard.

3.2.1. Paleo-Indian/Paleo-Coastal Period (pre-10,300 cal B.P.)

The Paleo-Indian Period represents the earliest human occupations in the region, which began prior to 10,000 years ago. Paleo-Indian sites throughout North America are known by the representative fluted projectile points, crescents, large bifaces used as tools, as well as flake and blade cores and a distinctive assemblage of small flake tools. Only three fluted points have been reported from Santa Barbara and San Luis Obispo counties, and all are isolated occurrences unassociated with larger assemblages of tools or debris (Erlandson et al. 1987; Gibson 1996; Mills et al. 2005). However, additional evidence of Paleo-Indian occupation of the mainland coast is slowly being discovered. Recent work on Vandenberg Air Force Base, approximately 75 kilometers south of the Pecho Coast, uncovered a late Paleo-Indian site (the Sudden Flats Site [CA-SBA-1547]) with a robust artifact assemblage (Lebow et al. 2015). Data recovery documented a single-component shell midden dating to approximately 10,725 cal B.P. Data from CA-SBA-1547 point to an early culture that utilized a unique tool assemblage similar to those found at Paleo-Indian sites in northern Alaska/Beringia (Lebow et al. 2015).

Interestingly, Paleo-Indian sites on San Miguel and Santa Rosa islands in the Santa Barbara Channel have yielded numerous radiocarbon dates older than the Sudden Flats Site. These sites do not contain fluted points or other notable artifacts typically associated with Paleo-Indian adaptations (Agenbroad et al. 2005; Erlandson et al. 1996) but do contain crescents and stemmed Amol points similar to the Western Stemmed Tradition in the Great Basin as well as points found at Monte Verde II in southern Chile and at other sites around the Pacific Rim dating to the terminal Pleistocene (Erlandson 2013; Erlandson et al. 2007). This has prompted proponents of the "Kelp Highway Hypothesis" to suggest that maritime-adapted Paleo-Coastal people migrated into the Americas from northeast Asia sometime around 16,000 years ago following the shorelines of the Pacific Rim, reaching as far south as southern Chile (i.e., Monte Verde) and penetrating deep into the interior of the Far West following major rivers and waterways (Erlandson 2013:127–132; Erlandson et al. 2007).

3.2.2. Milling Stone/Lower Archaic (10,300–5700 cal B.P.)

The first well documented occupations on the Pecho Coast identified by Jones and Codding (2019) date to the Milling Stone/Lower Archaic Period. Like other early "Millingstone Horizon" (Wallace 1954) or "Encinitas Tradition" (Sutton and Gardner 2010; Warren 1968) sites identified throughout the coastal and cismontane regions of Southern California, sites of this period contain numerous handstones and milling slabs, choppers, core hammers, and scraper planes used to process terrestrial plant foods; stone projectile points are rare and include large side-notched and contracting-stemmed dart-sized points.

Radiocarbon age determination indicate that at least four sites along the Pecho Coast contain components dating between 10,300 to 5700 cal B.P.: CA-SLO-2, -10, -585, and -1366/H. Of these four, the cultural assemblage from CA-SLO-2 is the most adequate to exemplify this period of prehistory. The assemblages from CA-SLO-10 and -585 are extremely limited during this time, and no artifacts whatsoever are associated with the single radiocarbon date obtained from CA-SLO-1366/H (Jones and Codding 2019:181).

The diverse assemblage from CA-SLO-2 indicates a range of activities reflecting the pursuit and processing of both large and small game, and processing of vegetal resources. Although fish were certainly caught, no obvious fishing gear (e.g., hooks, gorges, notched stones [i.e., sinkers, net weights]) was recovered. However, pitted stones are numerous and are believed to have been used to process shellfish (Cook 2016; Cook et al. 2017). Jones and Codding (2019:181) interpret the Milling Stone/Lower Archaic component at CA-SLO-2 to represent "a relatively short-term, nonspecialized residential base (camp)" similar to those found on the coast at Morro Bay and at Pismo Beach. The assemblages from these components contrast with [redacted] (CA-SLO-1797), a Milling Stone/Lower Archaic site of similar age 12 kilometers inland from the Pecho Coast. [redacted] produced a classic "Milling Stone" tool assemblage dominated by handstones, milling slabs, and core tools (Fitzgerald 2000; Jones et al. 2002):

> *Together, the inland and shoreline sites suggest a Millingstone/Lower Archaic settlement strategy that involved short-term shoreline camps and more specialized inland residential sites with a focus on vegetal resource collection, processing, and consumption, but with other tasks undertaken as well [Jones and Codding 2019:181–183].*

Based on the data available, these earliest inhabitants of the coastal region exploited both terrestrial fauna and an array of coastal resources (fish, shellfish, marine mammals, and sea birds), but were not necessarily coastal specialists. "Shoreline occupation was limited to seasonal camps, with longer-term residential sites situated slightly inland where subsistence was focused on terrestrial plant foods" (Jones and Codding 2019:4). The remains of terrestrial mammals account for approximately 60 percent of the faunal remains from this period (Jones and Codding

2019:Table 7.4), dominated by mule deer and cottontail rabbit, both of which could be found a short distance inland from the coast in the oak woodland habitat of the Irish Hills. Not counting marine shellfish, faunal remains derived from the coastline account for approximately 30 percent and are dominated by marine birds, especially those of the flightless duck (*Chendytes lawi*), followed by puffin (*Puffinus* sp.) and double-breasted cormorant (*Phalacrocorax auratus*). Interestingly, the remains of marine mammals such as sea otters, California sea lion, and northern fur seal (*Callorhinus ursinus*) are only minimally represented (approximately 6.5 percent), as are various species of local rockfish. Shellfish remains are dominated by California sea mussel and to a much lesser extent red abalone (Jones and Codding 2019:Tables 7.10 and 7.11).

Unfortunately, botanical remains from Pecho sites dating to the Milling Stone/Lower Archaic are lacking. However, the presence of handstones and milling slabs in these assemblages indicate a focus on hard seeds. Scraper planes and other core-cobble tools are also present. Scraper planes have long been associated with processing yucca/agave for food or to produce fiber for cordage (Kowta 1969). However, recent studies indicate that these were multipurpose tools used for a variety of functions on various materials, both hard and soft, and should be viewed as more generalized processing implements and not specific to processing yucca/agave. They could have been used to process any number of roots, tubers, or other vegetal resources that required pulping, shredding, or mashing. Evidence also indicates that scraper planes were used for shaving and shaping implements of wood or bone (McDougall and Eddy 2019:255).

3.2.3. Early Period (5700–2250 cal B.P.)

An important adaptive transition occurred along the Central Coast around 5700 cal B.P. (Jones et al. 2007; Price et al. 2012; Wendel and Enright 2017). Technological changes marking the transition into the Early Period include an abundance of contracting-stemmed, Rossi square-stemmed, large side-notched, and other large dart-sized projectile points (Jones et al. 2007:138). Mortars and pestles were introduced and gradually replaced manos and milling slabs as the primary plant processing tools, indicating expansion of the subsistence base to include acorns (Glassow and Wilcoxon 1988). Shell beads and obsidian materials indicate that trade between regions expanded (Jones et al. 1994).

Along the Central Coast, the Early Period is associated with an increase in the number of sites and inferred human population growth (Bertrando 2006; Jones et al. 2007; Mikkelsen et al. 2000, among others). Along the Pecho Coast, these increases are reflected by an increase in the number of radiocarbon age determinations dating to this period (Jones and Codding 2019:Figure 7.4). In response to climatic changes, local residential sites appear more settled, but not permanent, and suggest an increase in logistical organization of economic activities (Jones et al. 1994:62). The greater diversity of site types during this period reflects an increasing number of short-term occupations near resources that required a more intensive labor investment.

Trade and exchange also increased in importance as population mobility decreased, as evidenced by exotic shell beads and obsidian materials in midden deposits (Jones et al. 1994). Farquhar et al.

(2011:14) argue that cultural changes during this period are the result of population circumscription and economic intensification. Echoing Rogers (1929), Price et al. (2012:36–37) suggest such constraints might have been prompted by the arrival of new ancestral populations or adoption of new social norms in the region.

Jones and Codding (2019) recognize that the Pecho Coast cultural assemblages dating to the first 700 years of the Early Period, or between 5700–5000 cal B.P., differ in some respects than those dating to the remaining years of the Early Period and refer to this 700-year span as the "Initial Phase" of the Early Period. As defined by Jones and Codding (2019:148–149), the Initial Phase is marked by the same changes that define the Early Period in general (i.e., increased numbers of projectile points and bifaces, the initial appearance of mortars and pestles), but that large side-notched projectile points, holdovers from the Milling Stone/Lower Archaic and the dominate type during the first 700 years of the Early Period, disappear after circa 5000 cal B.P. It is the co-occurrence of large side-notched points with mortars and pestles between 5700–5000 cal B.P. that defines the Initial Phase of the Early Period (Jones and Codding 2019:149).

Pecho Coast components that best exemplify the Early Period have been identified at CA-SLO-2, -61, -497, 1366/H, and 1370/H (Jones and Codding 2019:183; Wendel and Enright 2017). CA-SLO-2 exhibits a tool assemblage that is slightly more diverse but generally similar to the previous period, with both flaked and ground stone implements present. CA-SLO-1366/H exhibits a nearly identical diversity of stone tools as the previous period, but CA-SLO-1370/H yielded a much less diverse assemblage of tools with no milling equipment and a very low volumetric density of projectile points. Generally speaking, the Early Period components on the Pecho Coast exhibit the characteristic increase in projectile points as seen elsewhere along the Central Coast during this period, but there is clear variation with high densities of stone projectile tips at CA-SLO-2 and -1366/H, and lower densities at CA-SLO-497 and -1370/H. Jones and Codding (2019) propose:

The variation between these sites in diversity and relative abundance of projectile points and ground stone speaks to the likelihood of two functionally different types of settlements: SLO-2 and -1366/H representing longer-term residential bases, and SLO-497 and -1370/H representing short-term settlements (camps), although sample size from SLO-497 makes conclusions about that site less definitive. Importantly, mortars or pestles were present only at SLO-2 and not SLO-1370/H. The Initial Early Period seems to be associated with the appearance of this two-pronged approach to settlement (long-term and short-term residential bases), which it distinguishes from the preceding Millingstone/Lower Archaic, and suggests some increased interest in coastal resources. Further, this system seems to characterize settlement approaches from this point onward.

Faunal remains from Early Period sites along the Pecho Coast show general continuity from Milling Stone/Lower Archaic components but with greater emphasis on coastal/marine resources as evidenced by a slight decrease in the remains of terrestrial mammals (approximately 47 percent), an increase in marine birds (roughly 53 percent), a slight increase in the remains of marine mammals (8 percent), and new species of fish added to the list. Once again, the remains of mule deer and cottontails are equally represented and form the bulk of the terrestrial mammal species.

The remains of double-crested cormorants (*Phalacrocorax* sp.) now dominate the various species of marine birds exploited during the Early Period followed by much lesser quantities of flightless duck, pelican (*Pelecanus* sp.), puffin, and common murre (*Uria aalge*). Importantly, the flightless duck is hunted into extinction near the end of the Early Period by about 2800 cal B.P. (Jones, Porcasi, Erlandson et al. 2008).

In order of frequency, the remains of marine mammals now include harbor seal (*Phoca vitulina*), sea otter, California sea lion, and northern fur seal (Jones and Codding 2019:Table 7.4). Fishing gear is also minimally represented for the first time (Jones and Codding 2019:185). Early Period fish remains are still dominated by various species of rockfish, but now also include cabezon (*Scorpaenichthys marmoratus*), surfperches (Embiotocidae), pricklebacks (Stichaeidae), and Shovelnose guitarfish (*Rhinobatus productus*), among others (Jones and Codding 2019:Tables 7.5 and 7.7). California sea mussels still form the bulk of marine shellfish remains along with much lesser quantities of both red and black abalone (*H. cracherodii*) (Jones and Codding 2019:Tables 7.10 and 7.11).

Botanical remains collected on the Pecho Coast come from Early Period site CA-SLO-61 (Wendel and Enright 2017). The macrobotanical collection includes a narrow range of plants used for food godetia (*Clarkia* sp.), goosefoots (*Chenopodium* sp.), as well as ritual sage (*Salvia* sp.) and other purposes (Timbrook 2007). The macrobotanical collection from CA-SLO-61 indicates a prehistoric diet focused on small seeds, but given the age, level of disturbance, and fragmentary nature of the assemblage, larger species may have been utilized but are not represented in the sample. As noted above, mortars and pestles were introduced and gradually replaced manos and milling slabs as the primary plant processing tools during the Early Period, suggesting a lesser reliance of hard seeds and a burgeoning focus on acorns (*Quercus* sp.) that could be gathered and processed in the fall and stored for winter months.

Wendel and Enright (2017) looked at a combined assemblage recovered from CA-SLO-61 that included data from Greenwood's 1968 excavations along with excavations by Æ in 2012 and 2016. [redacted] Excavated deposits at CA-SLO-61 evince an Early Period occupation dating between 5300 cal B.P. and 3000 cal B.P. The combined artifact assemblages [redacted] Residential debris includes lithic debitage, shell, and the bones of fish as well as terrestrial and marine mammals.

Generally, the Early Period is thought to represent a time of increased human presence on the Central Coast following environmental shifts that occurred around 5500 cal B.P. (D. Jones et al. 2015; Jones et al. 1994). Along the Pecho Coast, CA-SLO-2 and -585 appear to have experienced a hiatus in occupation between 5000 and 2500 cal B.P. Archaeological evidence suggests that populations did not disappear; rather, new locations such as CA-SLO-61, -1366/H, and -1370 were inhabited (Jones et al. 2009; Price and Jones 2013). This same trend is observed to the north in Los

Osos and Morro Bay, where there is an increase in sites occupied during the Early Period and abandonment of earlier Milling Stone/Lower Archaic villages (D. Jones et al. 2015).

3.2.4. Middle Period (2550–950 cal B.P.)

Prehistoric technology and economy became markedly more complex after 2550 cal B.P. The Middle Period is defined by continued specialization in resource exploitation and increased technological complexity. Artifact assemblages from Middle Period sites contain shell fishhooks and other fishing gear and saucer-type *Olivell*a beads. Along the Pecho Coast, contracting-stemmed projectile points continue to be the dominant type, but concave-base dart-sized projectile points also enter the record during this period. The use of handstones and milling slabs continued, but mortars and pestles become considerably more abundant (Jones and Codding 2019:149; Jones and Waugh 1995:121). Although archaeological data indicate that the *tomol*, or wood plank canoe, first came into use after 1500 cal B.P. in the Santa Barbara Channel region, this technological innovation does not appear to have been adopted by Middle Period coastal populations north of Point Conception (Arnold 2007; King 1990). Continuation of trade relationships is evident by increased frequencies of obsidian from eastern Sierra Nevada sources (Coso and Casa Diablo). Shell beads in the form of G2/6 *Olivella* saucers probably arriving from production centers on the Northern Channel Islands also become more abundant at this time (Jones and Codding 2019:196).

Settlement patterns during the Middle Period in the San Luis Obispo area are similar to those seen during the prior period. Pecho Coast settlement patterns during the Middle Period are a continuation of the two-pronged approach (long- and short-term residential bases) first established during the Early Period. Sites were occupied on an extensive basis but not as permanent settlements. These residential bases functioned in conjunction with smaller short-term occupations at specialized resource procurement/processing areas. After being abandoned since the Initial Early Period, CA-SLO-2 was once again re-occupied during the Middle Period. Other Middle Period components along the Pecho Coast include CA-SLO-5 (a single-component site), the upper levels overlying the Milling Stone/Lower Archaic component at CA-SLO-10, and possibly CA-SLO-9.

Subsistence data show multiple indications of intensification related to overexploitation and extinction of some species (i.e., the flightless duck) and a growing human population along the Pecho Coast. There is an increase in the procurement of terrestrial mammals, which form 70 percent of Middle Period faunal remains (excluding fish and shellfish) and are once again dominated by mule deer (41 percent) and cottontail rabbits (23 percent). An expansion of diet breadth is suggested by canid (*Canis* sp.) remains within the faunal assemblages at CA-SLO-2, -5, and -10, which form approximately 5 percent of terrestrial mammal remains (Jones and Codding 2019:Table 7.4).

Middle Period faunal remains also indicate a dramatic decline in the exploitation of marine birds, led by the extinction of the flightless duck. Whereas the remains of marine birds account for approximately 53 percent of all faunal remains (excluding fish and shellfish) during the Early Period, they form only 2 percent during the Middle Period (Jones and Codding 2019:Table 7.4).

Jones and Codding (2019:196) propose that the decline of marine bird remains during this period is "almost most certainly because accessible mainland and nearshore breeding colonies had been over-exploited and were less abundant." To offset the decline of marine bird species is an intensification of the hunting of sea mammals, which form only 8 percent of Early Period faunal remains but increase to 26 percent during the Middle Period. Sea otters, in particular, were procured at greater frequencies during this period (Jones and Codding 2019:Table 7.4).

Circular shell fishhooks and bone gorges initially appear during the Middle Period, which also witnesses a general increase in grooved stones that could have been used as in-line sinkers in tandem with shell fishhooks, or as net weights. Reflective of these new technologies and increase in the use of fishing gear in general, is a concomitant increase in the numbers and species of fish taken. This is best represented by the combined sample of fish remains recovered from CA-SLO-5 and -10. Rockfish are still dominant in the combined sample (34.5 percent), but CA-SLO-5 also shows a dominance (27.5 percent) of herrings (Clupeidae). Pacific sardines, also a member of the herring family, New World silversides (Atherinopsidae), and Señoritas (*Oxyjulis californica*) appear for the first time in these assemblages. Other species present in higher numbers are sharks, skates, and rays (Elasmobranchiomorphi) and surfperches, the latter forming 11 percent of the combined sample. Cabezon and pricklebacks are also important, forming approximately 18 percent of the combined sample (Jones and Codding 2019:170).

Several of these fish species (e.g., rockfish, cabezon, surfperch) could be taken by hook-and-line fishing from dry land. However, herrings (including sardines) typically form in large schools offshore, and although no evidence of watercraft has been identified along the Pecho Coast the large number of herrings is certainly suggestive that these species were taken via watercraft from offshore contexts by net fishing (Jones and Codding 2019:170,172).

Like the other Pecho components, Middle Period shellfish remains are dominated by California sea mussel. Red and black abalone along with turban snails, chiton, and limpets (*Lottia* sp.) occur in lesser frequencies. Red abalones are especially abundant after circa 1200 cal B.P. However, the mean size of red abalones shells in the assemblages decreases from the preceding period indicating sustained harvesting pressure resulting in size diminution resulting from overexploitation. Notably, the rate of decline in the size of abalones seems to correspond with the period of population growth associated with the onset of the Early Period that continues during the Middle Period (Jones and Codding 2019:172–175).

Like the preceding periods, no botanical remains were collected from Middle Period components and the types of floral resources being exploited can only be inferred from the types of ground stone artifacts represented. However, the replacement of manos and milling slabs with mortars and pestles as the primary plant processing tools that began in the Early Period comes to fruition during the Middle Period, indicating an almost total reliance on acorns during this time. Indeed, of the 42 utilitarian ground stone implements assigned to Middle Period components, 52 percent (n = 22) consist of portable mortars and 33 percent (n = 14) are pestles. No milling slabs and only two handstones are assigned to Middle Period components. It is also of interest that bedrock mortars first appear in the record during this time (Jones and Codding 2019:Table 7.3).

3.2.5. Middle-Late Transition (950–700 cal B.P.)

Along the Santa Barbara Channel the period after circa 950 cal B.P. was a time of emergent political complexity, development of social ranking, and the rapid development of craft specialization. The Middle-Late Transition represents a rapid change in artifact assemblages as large numbers of arrow points appeared and most stemmed points disappeared (Jones et al. 2007:139). Hopper mortars also made their first entry in the archaeological record (Farquhar et al. 2011:16). At the same time, some evidence points to population decline and interregional trade collapse. Obsidian is not found in sites dating to this period along the Santa Barbara coast (Jones et al. 1994). Marine resources appear to have been largely absent from the diet and instead people relied more on terrestrial resources such as small mammals and acorns (Farquhar et al. 2011:16). These changes may have been caused by an environmental shift that increased sea and air temperatures, resulting in decreased precipitation and overexploitation of resources (Arnold 1992; Graumlich 1993; Kennett et al. 1997; Pisias 1978; Stine 1990).

Settlement pattern data suggest that populations in the San Luis Obispo area may have decreased during the Middle-Late Transition as coastal villages became temporary hunting camps and prehistoric inhabitants increasingly relied on terrestrial mammals for subsistence. Jones et al. (1994) hypothesized that coastal areas were abandoned at this time in response to environmental perturbation resulting in warmer temperatures and changes in available resources; however, an analysis of the radiocarbon dates from Pecho Coast sites by Price and Jones (2013) calls this suggestion into question. Specifically, their analysis indicates several sites along the Pecho Coast, including CA-SLO-2 and -7, may have been occupied during the Middle-Late Transition.

Jones and Codding (2019) confidently assign only one site, CA-SLO-9, along the Pecho Coast as dating to the Middle-Late Transition. Radiocarbon dates also indicate that CA-SLO-2 and 10 were occupied during the Middle-Late Transition, but “no discrete components could be isolated at those sites” (Jones and Codding 2019:185). They interpret CA-SLO-9 as a short-term residential site used in conjunction with longer-term occupation at CA-SLO-10, and suggest that the low number of sites dating to this period along the Pecho Coast may be due to warmer and drier conditions associated with the MCA (Jones and Codding 2019:185).

The functional artifact assemblage from CA-SLO-9 is dominated by tools used for hunting and fishing. Milling equipment is almost absent and limited to a single pestle; no handstones, milling slabs, or mortars were found. On the other hand, projectile points and other bifaces, cores, and core tools are common. Contracting-stemmed points continue, and small leaf-shaped arrow points indicating the arrival of bow and arrow technology first appear. Fishing equipment includes circular shell fishhooks, one fishhook blank, a bone gorge, and an abundance of notched stones (Jones and Codding 2019:Table 7.14). There is also a dramatic increase in the numbers of *Olivella*

G2/G6 shell beads at this time, suggesting increased interaction with groups along the Santa Barbara coast and/or the Northern Channel Islands (Jones and Codding 2019:Table 7.2).

The frequency of terrestrial mammal remains decreased from the preceding period, dropping to about 58 percent of all faunal remains (excluding fish and shellfish) during the Middle-Late Transition. Notably, cottontails form the bulk (33 percent) of the terrestrial mammal remains for the first time, followed equally by canid and woodrat (*Neotoma* sp.) remains (roughly 8 percent each); bones of mule deer only account for roughly 4 percent of the faunal remains. The remains of marine mammals also decline from the Middle Period, dropping to approximately 15 percent of all faunal remains. Once again, the remains of sea otters form the bulk (87 percent) of marine mammal bones. However, unlike the Middle Period where the remains of marine birds accounted for only 2 percent of all faunal remains (excluding fish and shellfish), marine birds form almost 27 percent of all faunal remains during the Middle-Late Transition and are represented almost exclusively by cormorants.

Although the volumetric density of fish remains decreased from the high values associated with the Middle Period, fishing nevertheless remained an important economic activity during the Middle-Late Transition. Again, fish remains are dominated by species of rockfish followed by cabezon and Señorita. Also important are silversides, surfperches, and herrings (including sardines). Remains of sharks, skates, and rays are absent. The high frequency of rockfish and cabezon combined with a relative abundance of notched stones and shell hooks from CA-SLO-9 indicates that hook-and-line fishing was the dominant method of capture, but the presence of herrings, sardines, and silversides suggests that some net fishing in offshore contexts did occur (Jones and Codding 2019:170–171).

Middle-Late Transition shellfish remains are again dominated by California sea mussel, followed by red and black abalone and others in much lesser frequencies. Similar to the Middle Period, red abalones are especially abundant during the Middle-Late Transition, but the mean size of red abalones shells continues to decrease indicating sustained harvesting pressure resulting in size diminution resulting from overexploitation (Jones and Codding 2019:172–175).

As noted above, milling tools are almost completely absent in the CA-SLO-9 assemblage. While this could suggest that floral resources were not as important during the Middle-Late Transition as the preceding period, the abundance of milling equipment (i.e., mortars and pestles) in the periods preceding and following the Middle-Late Transition indicates that this is an unlikely scenario (Jones and Codding 2019:Table 7.14). The CA-SLO-9 assemblage indicates that activities were focused on the procurement of small mammals and coastal/marine resources. Therefore, the lack of milling equipment at CA-SLO-9 is likely a reflection of site function and re-enforces Jones and Codding's (2019:185) interpretation that the site functioned as a short-term residential camp used in conjunction with longer-term residential site where milling activities (acorn processing) occurred.

Evidence indicates an interregional collapse in the trade and importation of obsidian from eastern Sierra sources to the Santa Barbara area during the Middle-Late Transition (Jones et al. 1994). However, this interruption in the conveyance of eastern Sierra Nevada glass to the Santa Barbara region does not appear to have affected those groups living farther north along the Pecho Coast.

Indeed, excavations at CA-SLO-9 yielded 56 obsidian artifacts, 53 of which were geochemically sourced. Sources include Casa Diablo (n = 27) and Coso (n = 23); single artifacts were also sourced to Mono Glass Mountain, Queen, and the Napa region. CA-SLO-9 also yielded the second highest density of obsidian artifacts (1.6 items per cubic meter of sediments excavated) of any Pecho site investigated by Jones and Codding (2019:Table 7.16).

3.2.6. Late Period (700–180 cal B.P.)

Populations on the Central Coast expanded in the Late Period (Farquhar et al. 2011:17; Glassow 1996) and more sites were occupied during this period than ever before (Jones et al. 2007:143). It appears that inhabitants of the Central Coast used a range of subsistence strategies depending on the available local ecology. Some studies found that Late Period residents did not increase maritime subsistence activities but instead focused on terrestrial resources with occasional forays to the Coastal Zone (Farquhar et al. 2011:17; Jones et al. 2007:140; Price 2005; Price et al. 1997:4.13–4.14), while other studies found evidence of intensification of marine resource use and overall expansion of the subsistence base (Codding et al. 2013; Enright 2010; Joslin 2010; Moratto et al. 2009).

Analysis of the assemblages from two Late Period sites (CA-SLO-71 and -115) on the San Simeon Reef (Joslin 2010) and excavations at [redacted] (CA-SLO-1366/H) on the Pecho Coast (Codding et al. 2013) demonstrate that some human populations responded to climate shifts and associated impacts to terrestrial faunal communities with increased use of marine resources. This same trend is visible to the south along the Vandenberg Air Force Base coast where analysis of faunal assemblages from CA-SBA-694 and -695 found that Late Period inhabitants used coastal sites as camps for exploitation of marine resources, especially shellfish and fish (Enright 2010; Moratto et al. 2009).

Artifact assemblages from the Late Period within San Luis Obispo County contain an abundance of arrow points, small bead drills, bedrock and hopper mortars, and a variety of bead types (Price 2005). More shell and stone beads appeared in the Late Period and became a standardized and common medium of exchange (Jones et al. 2007:140, 145). The use of handstones and milling slabs continued to some degree during this period, but pestles and mortars occurred in greater proportions (Jones and Waugh 1995:121).

Modest evidence of Late Period occupation along the Pecho Coast has been identified at CA-SLO-2, -8, -1366/H, and -1370/H. The Late Period components at these sites are interpreted as short-term camps. A fifth site, CA-SLO-51/H (also the location of the ethnographic village of *Tstyiwi)*, produced the only substantial evidence of Late Period occupation and is assumed to represent the primary long-term residential base during this time (Jones and Codding 2019:186).

Stone projectile points are mostly small, arrow-sized weapons tips during this period, and small leaf-shaped points were supplemented with Desert Side-notched and Coastal (or Canaliño) Cottonwood arrow points. The replacement of manos and milling slabs with mortars and pestles as the primary plant processing tools continues during the Late Period. Indeed, of the 34 utilitarian ground stone implements assigned to Late Period components, 56 percent (n = 19) consist of portable mortars and 38 percent (n = 13) are pestles. Only one handstone and one milling slab were recovered from Late Period components (Jones and Codding 2019:Table 7.3). Other hallmark Late Period artifacts include Class E lipped and Class K cupped *Olivella* shell beads, and steatite disk beads (Jones and Codding 2019:150). Interestingly, a distinct type of end-notched stone net weight found only in the Late Period component at CA-SLO-51/H was identified (Jones and Codding 2019:171). Shell fishhooks are also common in Late Period assemblages (Jones and Codding 2019:Table 7.14)

Subsistence remains (excluding fish and shellfish) recovered from Late Period components along the Pecho Coast are dominated by terrestrial mammals (65 percent) followed by marine mammals (24 percent) and marine birds (10 percent). The remains of mule deer increase dramatically from the previous period, accounting for 47 percent of the faunal remains. In fact, subsistence studies suggest the overhunting of local artiodactyls along the Pecho Coast at this time (Codding et al. 2010). Other species include sea otters (20 percent), cottontails (13 percent), cormorants (9 percent), harbor seals (4 percent), canids (3 percent), and American badgers (2 percent) (Jones and Codding 2019:Table 7.4).

Fish remains were recovered from the Late Period components at CA-SLO-8, -51/H, 1366/H, and -1370/H. The remains of rockfish (58 percent) and cabezon (11 percent) are most prevalent. Other species of importance include Pacific hake (*Merluccius productus*), plainfin midshipmen (*Porichthys notatus*), and pricklebacks, with each accounting for approximately 6 percent of Late Period fish remains. The remains of herrings (including sardines), surfperches, and silversides occur in lower frequencies than the two preceding periods, and the volumetric density of Late Period fish remains overall is generally lower than the two previous periods, suggesting a reduction in fishing intensity. Nevertheless, fishing gear (i.e., shell hooks, notched and grooved sinkers and net weights) was recovered from all Late Period components complementing the faunal evidence for both hook-and-line and net fishing (Jones and Codding 2019:171).

Late Period shellfish remains are again dominated by California sea mussel. The general trend in the overall reduction of abalone shell sizes resulting from sustained harvest and overexploitation continues during the Late Period (Jones and Codding 2019:172–175).

3.2.7. Postcontact Period (180–130 cal B.P.)

Spanish occupation of California began in 1769 and brought native culture to the brink of extinction. The establishment of the Spanish missions of San Luis Obispo de Tolosa and San Miguel de Arcángel in the San Luis Obispo area significantly disrupted native social, economic, and political organization. Archaeological evidence indicates that the native populations in the area were rapidly decimated by missionization (Greenwood 1978a:523). The growing Spanish presence also resulted in the concomitant circumscription of traditional native territories and foraging areas. Chartkoff and Chartkoff (1984:264) note that Spanish settlement barred many Native Americans from traditionally important resources including clamshell beads, abalone shells, Catalina steatite, shellfish, and asphaltum. Introduction of domestic plants and animals, as well as European wild grasses caused irreversible changes in the local environment. In addition, sadly, Native Californians had limited resistance to European diseases, which caused a significant reduction in their population.

Evidence of Native American occupation of the Pecho Coast during the Postcontact Period is represented only by the cultural assemblage recovered from two excavation units (Units 5 and 6) at CA-SLO-51/H, a site identified as the Chumash village of *Tstyiwi* (Jones, Codding, et al. 2017). Despite the small excavation sample these two units yielded significant quantities of cultural materials. The presence of glass trade beads, [redacted] within Units 5 and 6 distinguishes the Postcontact Period assemblage from the prehistoric components (Jones, Codding, et al. 2017; Jones and Codding 2019:150,198).

The tools and subsistence residues associated with the Postcontact component at CA-SLO-51/H seem to reflect a small, fully sedentary population that occupied the site year-round. Evidence also suggests that the village inhabitants were constrained in their movements and operated within a more limited foraging radius to avoid contact with the Spanish who used Avila Beach, [redacted], as one of their primary ports-of-entry. In turn, the subsistence resources available within the limited foraging radius adjacent to the village were exploited more intensively than before (Jones and Codding 2019:198, 206).

Considering the small excavation sample, it is of interest that the Postcontact component at CA-SLO-51/H yielded the highest tool-diversity score of any of the Pecho sites investigated. The Postcontact component is also characterized by the highest densities of projectile points (Desert Side-notched and Coastal Cottonwood arrow points), fishing equipment (shell fishhooks), milling tools (pestles), [redacted] (Jones and Codding 2019:Table7.15). Other artifacts of interest include [redacted], as well as fishhook blanks (Jones and Codding 2019:Table 7.14, 199, 206). No obsidian is associated with the Postcontact component, indicating that the long-distance trade (or conveyance) of this material, already weakened during the Late Period, was curtailed altogether by this time (Jones and Codding 2019:Table 7.16).

The Postcontact component exhibits the lowest overall percentage (44 percent) of terrestrial mammal remains than any of the preceding periods. Over half of these (52 percent) are the remains of cottontails, which likely reflects the restricted foraging radius during this period. In order of occurrence, other terrestrial mammals include mule deer, canids, and cattle (*Bos taurus*), among others. The Postcontact component does show a noticeable increase in marine mammal exploitation (39 percent) from the preceding period (24 percent), dominated by the remains of sea otters (69 percent of marine mammal remains) followed by harbor seals (31 percent of marine mammal remains). The overall percentage of marine birds during the Postcontact Period is identical to the Late Period (10 percent) and is again dominated by the remains of cormorants. The Postcontact component is also the only site (or component) that exhibits any exploitation of terrestrial birds, which account for approximately 4 percent of the overall percentage of terrestrial or marine species (excluding fish and shellfish) and include the remains of California quail (*Callipepla califorica*), thrush (*Catharus* sp.), and American robin (*Turdus migratorius*).

It is apparent that fishing became extremely important for the inhabitants of *Tstyiwi* during the Postcontact Period. This is reflected by the density of fish remains recovered from the Postcontact component, which is not only greater than any other site/component on the Pecho Coast, but any site within San Luis Obispo County (Jones and Codding 2019:171, 198, 206). Again, rockfish are the dominant species, accounting for approximately two-thirds of the fish remains. Other species of importance include pricklebacks, herrings, and cabezon. However, silversides and surfperches are nearly absent (Jones and Codding 2019:171). Assuming that foraging ranges and activities were restricted due to the growing Spanish presence in the area, the absence of these latter two species suggests that people responded to these constraints by focusing more intensively on shoreline species available in the marine environments nearby the village and used watercraft less frequently to “maintain a lower profile in the face of the unprecedented historic changes that were taking place nearby” (Jones and Codding 2019:172).

Shellfish were also exploited intensively. Similar to all other periods, California sea mussels form the bulk of the shellfish remains within the Postcontact component. Both red and black abalone were also taken. The shells of these latter species exhibit an all-time low in mean size diameter during the Postcontact Period, indicating continuing intensive local exploitation of abalone (Jones and Codding 2019:172–173).

A hearth-like feature (Feature 1) found in the Postcontact component at CA-SLO-51/H within Unit 6 yielded the only macrobotantical remains found at the Pecho sites. Three sediment flotation samples collected from Feature 1 produced a total of 1,373 identifiable specimens. Acorn nutshell and wild cherry (or islay) pits were the most common remains found in the flotation samples. Seeds of brome grass (*Bromus* sp.), fescue grass (*Vulpia* sp.), red maids, goosefoot (*Chenopodium* sp.), and clover (*Trifolium* sp.) were also identified, as well as nightshade (*Solanum* sp.) berries (Jones and Codding 2019:175). Most of these species are associated with prehistoric Native American subsistence practices, and are locally available within the vicinity of CA-SLO-51/H (Jones and Codding 2019:Table B.2). Gray-pine (*Pinus sabiniana*) nutshell was found in lower frequencies in all three flotation samples. Gray-pine does not grow locally in the vicinity of CA-SLO-51/H and its presence likely reflects subsistence-gathering activities some 15–17 kilometers distant. Some Eurasian cultigens were also identified in the flotation samples, possibly reflecting seeds acquired from the Spanish in the late eighteenth century or representing contaminants from more recent historic or modern farming activities in the area (Jones and Codding 2019:175–176).

3.3. Ethnographic Setting

The San Luis Obispo area, including the Pecho Coast, lies within the traditional ethnographic territory of the Northern (or Obispeño) Chumash. The Northern Chumash occupied the area from the Pacific coast east to the Coast Range and from the Santa Maria River north to approximately Point Estero. The term Obispeño refers to the group’s association with the Spanish mission of San

Luis Obispo de Tolosa, founded in 1772 (Greenwood 1978a:520); today's descendants of these people view that term as derogatory, preferring to use "*yak tityu*."

The Chumash were a non-agrarian culture that relied on fishing, hunting, and gathering for their sustenance. Much of their subsistence was based on marine resources, especially fish and shellfish, including mussel and abalone from rocky shores and cockle and clams from sandy beaches. Acorns were also a food staple; they were ground into flour using stone mortars and pestles and then leached to remove tannic acid. In addition, a wide variety of seeds, including especially chia (*Salvia columbariae*) and red maids (a member of the Purslane family) were utilized for dietary and ritual purposes (Timbrook 1984, 2007). Plants also were harvested for their roots, tubers, or greens. Chumash material culture, social organization, traditions and rituals, and cosmology have been described by many scholars, including Blackburn (1975), Greenwood (1978a), Gibson (1990), Grant (1993), Hudson and Underhay (1978), Hudson et al. (1978), King (1990), and Johnson (1988).

The Chumash were among the most populous and socially complex groups in all of native California. During the Late Prehistoric Period, the Chumash were living in large villages along the Santa Barbara Channel coast, with less dense populations in the interior regions, on the Channel Islands, and in coastal areas north of Point Conception. Some villages may have had as many as 1,000 inhabitants, and population density was unusually high for a nonagricultural group. Occupational specialization went beyond craft activities such as bead production to include politics, religion, and technology. Complex social and religious systems tied many villages together and regulated regional trade, procurement and redistribution of food and other resources, conflict, and other aspects of society. Leadership was hereditary, and some chiefs had influence over several villages, indicating a simple chiefdom level of social organization (Arnold 1992; Johnson 1988).

The Northern Chumash apparently were never as populous as their relatives in the Santa Barbara region, and do not appear to have attained the same levels of social and political development. Extant data indicate that groups along the Pecho Coast were less dependent on fishing compared to their southern counterparts (Jones 2013). Local populations may have led a less sedentary lifestyle with a dietary focus on inland rather than coastal or maritime resources and greater reliance on logistic mobility than their southern neighbors (Woodman et al. 1991).

The Northern Chumash participated in long-range prehistoric trade networks. For example, they supplied the Yokuts with asphaltum and the shells of abalone, clam, limpets, and periwinkle, receiving in exchange pottery and possibly obsidian (Greenwood 1978a:523; Sample 1950). The Northern Chumash may also have been direct or intermediary suppliers of univalve Columella ornaments, wooden dishes, and steatite vessels to the Salinans to the north, and of shell beads, dried fish, and sea otter furs to the interior, receiving in return deerskins, acorns, and grasshoppers (Greenwood 1978a:523).

Recent research by Johnson (2020) studied the ethnohistory and genealogy of the descendants of native rancherías, or villages, on present-day Diablo lands. This ethnohistorical study of the Northern Chumash identified ancestral rancherías in the San Luis Obispo region, including five villages: Tsquieu (*tsɨkyɨw*), Sepjato (*tsɨpxatu*), Chano (*čanu*), Petpatsu (*petpatsu*), and Guejetmimu (*wexetmimuʼ*). Of these five, only Tsquieu is confidently placed within the bounds of Diablo lands (Johnson 2020:12).

Johnson's research sought to trace lineal descent from Diablo lands using mission records such as registers of baptisms, confirmations, marriages, and burials, as well as oral histories documented from interviews of living and recently past descendants. Baptism records documented 55 individuals from Tsquieu, 92 individuals from Sepjato, 56 individuals from Chano, 18 individuals from Petpatsu, and 7 individuals from Guejetmimu. Descendants across multiple generations were traced, and Johnson notes at the close of the Mission Period, "eight families who descended from Diablo lands rancherías were still were part of the native community that existed at San Luis Obispo. Two sisters among these descendants, María Agustina Olivera and Rosario Cooper, each had children who themselves produced large families" (Johnson 2020:50). Cooper's son Francisco Felix Olivas sired a large family. Nearly all of his children were raised in the Lopez Canyon vicinity. Today Cooper's descendants form a major component of YTT Northern Chumash Tribe. Leaders of this tribe can trace their ancestry back to these the former rancherías on and around Diablo lands and its members have maintained continuity in the area from colonial times down to the present day (Johnson 2020).

Additionally, Olivera's son, Tadeo Olivera (1857–1925), moved to the San Joaquin Valley by the early twentieth century. Descendants of Tadeo Olivera form the major block within an organization named the Chumash Council of Bakersfield. This council is composed almost entirely of people who live today in the San Joaquin Valley (Johnson 2020).

3.4. Historic Context

The protohistoric culture of the Chumash, defined as the time when intermittent trade and contact was experienced between Native Americans and Spanish trading vessels en route to the Orient, was disrupted by the arrival of the Spanish expedition led by Gaspar de Portolá in 1769. Historical accounts from the Portolá and Anza expeditions, as well as archaeological evidence, indicate that both expeditions passed through San Luis Obispo and stopped at principal Northern Chumash settlements along the way (Costansó 1992; Crespí 1984; Fages 1937).

Euro-American settlement in San Luis Obispo County began with the founding of Mission San Luis Obispo de Tolosa in 1772. This settlement was part of a series of missions established along the California coast by the Franciscan Order of the Catholic Church under the patronage of the Spanish Crown. Initially, Spanish ships supplied the region with basic foodstuffs, tools, and other goods, but by the late 1770s the missions were producing enough wheat and corn to meet their own needs (save for the occasional climatic calamity). The friars also cultivated beans and barley. Livestock, herded from Baja California and Sonora in 1769, increased exponentially over the next 35 years (Hackel 1998:116). In 1773, the holdings of five missions totaled 204 head of cattle, and in only 2 years that figure more than doubled to 427. By 1805, the 19 missions held a staggering quarter-million head of livestock, including 130,000 sheep, 95,000 cattle, 21,000 horses, 1,000 mules, 800 pigs, and 120 goats.

The ensuing Mexican Period (1821–1846) served as not only a temporal transition between the Spanish and Anglo-American periods in California history but an economic one as well. Prior to Mexican independence, the Spanish Crown had prohibited trade with foreign markets, and the governor regulated the price of important commodities like corn (Hackel 1998). However, the Colonization Act of 1824 and the Supplemental Regulations of 1828 afforded private individuals, both Mexican nationals and immigrants, the right to obtain title to land, although mission lands were still not available (Hackel 1998:132). Such immigrant-friendly laws directly contributed to the migration and eventual permanent presence of Euro-Americans in California.

Following secularization of the missions in 1834, the Alta California government granted former mission lands to Mexican citizens as ranchos. The political and economic unrest in California during the early and mid-1840s is evident in the Mexican government's conveyance of the Cañada de los Osos y Pecho y Islay, a 32,431-acre land grant that included Diablo lands north of Pecho Creek. Rancho San Miguelito, designated in 1842, was one of the three large Mexican land grants of the Pecho Coast (Green 2016:15). This 15,000-acre rancho extended from Pecho Creek in the northwest, south to Pismo Beach.

In 1842, Governor Alvarado granted the Cañada de los Osos to Victor Linares. One year later, Alvarado's successor as governor, Manuel Micheltorena, awarded the Pecho y Islay to Francisco Padillo (Robinson 1957:51). In 1845, Micheltorena was ousted from power and replaced by Pio Pico (Angel 1883:72–73). Pico consolidated the two grants and issued them to Diego (James) Scott and Juan (John) Wilson (Robinson 1957:51). By 1850 Wilson had bought out Scott and became the sole proprietor of the Cañada de los Osos y Pecho y Islay.

3.4.1. Ranchos on Diablo Lands

Like John Sutter, Charles Weber, and fellow San Luis Obispo resident William Dana, John Wilson was a sea captain whose travels brought him to California where he eventually settled and amassed considerable land wealth. In 1836, Wilson married Ramona Carrillo Pacheco, widow of Don Romualdo Pacheco, a colonel in the Mexican Army who was killed in an insurrection 5 years earlier (Angel 1883:55). Wilson's stepson, Romualdo Pacheco, grew up on the Wilson estate and went on to become the State of California's only governor of Hispanic decent (Krieger 1988:71). Wilson was among the county's leading citizens; he held positions in the county's nascent government, owned more real estate and personal property than anyone in the county in the early 1850s, and built his two-story home just southwest of the mission (Angel 1883:131, 167–168, 355). Tax records from the 1850s note that Wilson's "horned cattle numbered 6,300"; in addition, he was also a licensed merchant in the county (Angel 1883:169, 173). Along with the Cañada de los Osos y Pecho y Islay properties, Wilson's holdings included the Piedra Blanca, La Laguna, and Suey ranchos. Wilson even purchased part of Mission San Luis Obispo de Tolosa from the Mexican government in 1845, although the U.S. government restored these lands to the church in 1856 (*La Vista* 1969:8–9). Wilson died in 1860 (Angel 1883:55), leaving his estate to his wife Ramona Carrillo Wilson.

The Pecho y Islay Rancho (or Pecho Ranch), was likely used as pastureland. Although the eastern boundary of the ranch lay only 10–12 miles from the town of San Luis Obispo, the property was largely isolated and undeveloped. Until recently, Pecho Road, which winds northward from the ranch over the Pecho Hills then eastward through the Los Osos Valley and on toward San Luis Obispo, was the only land route between the ranch and outside world. The rawness of the Pecho Ranch was reflected in its market worth or, more specifically, its tax basis. To standardize the appraisal of property for taxation, in 1855 the county board of supervisors established four classes of property based on "the quality of the soil and accessibility of their location." Perhaps due to its remote locale, the Pecho Ranch was separately assessed at 28 cents per acre, almost one-half the 50 cents per acre rate of the lowest property class (Angel 1883:173). Rancho San Miguelito lies on the east bank of Pecho Creek, extending to modern Shell Beach and points east.

[redacted]

As with any region, commercial and urban growth in San Luis Obispo County was intimately intertwined with the development of its transportation network. In 1870, the first county road connected San Luis Obispo and San Simeon, and a road over Cuesta Grade was constructed by 1877. Both roads were built using Chinese labor crews provided by San Luis Obispo businessman Ah Louis (Krieger 1988:75–76). [redacted]).

Figure 3.4.1-1 – Portion of an 1874 San Luis Obispo County Surveyor's Map

Source: Harris 1874

3.4.2. Spooner Ranch

The northern portion of Rancho Pecho is associated with another prominent stockman in San Luis Obispo County, Alden Bradford Spooner Jr. (Morrison and Haydon 1917:287–289). A. B. Spooner was one of seven children born to Reverend A. B. Spooner, long-time resident of the Morro Bay area. Like John Wilson, the elder Spooner had considerable nautical experience but met his untimely death in 1877 while piloting a ship into Morro Bay (Angel 1883:282). In 1892, the younger Spooner leased a 6,500-acre swath extending from just north of Islay Creek to Diablo Creek. That same year he built his ranch house, which today serves as the visitors' center for Montaña de Oro State Park. Near his residence, Spooner erected a dairy barn and milk house as well as a water wheel. In 1902, he purchased the ranch from Henry Cowell, who had previously acquired the property from John Wilson's granddaughter, Ramona Hillard (Morrison and Haydon 1917:288).

As the nineteenth century ended, transportation continued to be an important issue for the county. It was apparent to Spooner and his fellow agrarians that the full potential of the land could not be realized until the region was linked with the rest of the state. The most reliable shipping link for the Spooner Ranch was via steamboat. By October 1892, Spooner had built a landing near the mouth of

Islay Creek on the southern cliffs of the well-protected cove that would eventually bear his name (*San Luis Obispo Tribune* 1892). The structure consisted of a tunnel dug through the cliff that led to a slide supported by timbers fastened to the rocks below (Miossi 1973:24–25). Attached to the slide was a 20-foot swing ramp that lowered to reach a docked vessel.

Throughout its history, much of the ranch's development and activity centered on Spooner's Cove. The remainder of the property was used primarily for crops and pastureland.

Spooner was first and foremost a dairyman, being a founding member of the San Luis Obispo and Santa Barbara Dairy Union (Tognazzini 1994:68), but his endeavors were by no means limited to his livestock and dairying operations. In 1897, he was part of a local committee to examine the possibility of constructing a sugar beet factory in the community (Tognazzini 1997:103). The committee's efforts apparently went for naught, and the factory was eventually built in Betteravia (near Santa Maria), where it attracted hundreds of Japanese field workers to tend the several thousand acres of beets grown around the plant (Hallock 2001).

Along with livestock, agriculture was part of the Spooner Ranch's economy from the beginning. Crops were grown primarily on the coastal terrace, while livestock grazed in the hills farther inland. In its first year of production, the ranch loaded 2,500 sacks of beans and barley onto a steamer docked at Spooner's Cove (*San Luis Obispo Tribune* 1892).

In 1920 Spooner died, leaving the business to his three sons, Quincy, Carleton, and Alden III. As remembered by Ed Petersen (personal communication 2005), each brother was responsible for a different aspect of the operations of the ranch: Quincy oversaw the farming activities, Carleton managed the cattle, and Alden "milked the cows."

World War I created a tremendous demand for agricultural products, and the ranch profited from the high price of beans, which were sold to canneries and shipped overseas. By the early 1920s, however, overproduction combined with reduced demand drove the market prices of these commodities below production costs. While most of the country enjoyed the prosperity of the decade, farmers generally struggled through a protracted slump in the agricultural markets. Perhaps as a reflection of the hard times that had beset agriculture, the Spooners' smuggled Canadian liquor through their secluded cove during Prohibition (Miossi 1973:25–26). The family nevertheless continued their tradition of dairying into the 1930s, entering their prize Holsteins in the county fair each year (McKeen 1988:37).

3.4.3. Japanese Farming along Pecho Coast

In early twentieth century California, Japanese labor had a substantial impact in the agricultural industry. Although Japanese immigrants had been migrating to the west coast since the mid-1800s, their populations increased dramatically following the Chinese Exclusion Act of 1882. The Japanese population in California, as recorded in census data, rose from 86 in 1880 to over 12,000 in 1901 (Whiteman 2013).

The early generations of Japanese farmers served as migrant farm laborers, following work from one field to the next. The immense number of Japanese farmworkers, as well as their skills and work ethic, led them to organize and fight for increased wages. At the same time, however, the Japanese immigrants and citizens of the region began to establish their own farming communities called "nihon machi" (Japantowns), which included farms, small businesses, and schools (Whiteman 2013). These communities were formed in the face of ever-increasing racial tension and pressure from the government, culminating in the Alien Land Act of 1913, which prohibited Japanese immigrants from owning land. The nihonmachi, or Japanese community, played an essential role in both the assimilation of the Japanese to American life and to maintain their unique cultural identity. The Japanese farmsteads along the Pecho Coast are part of this broader pattern in California history as well as important to local San Luis Obispo history.

During the 1920s and 1930s, the Spooner family leased much of the coastal terrace to Japanese farmers (Price et al. 2006). Six family groups resided on the coast in the early 1900s: the Teraokas [redacted]), Yoshidas [redacted], Fujitas, Kuranagas, Nakamuras, and Hondas (Whiteman 2013). These large extended families included distant relatives and as many as 10 children. They grew numerous crops, including peas, brussels sprouts, artichokes, lettuce, and tomatoes.

A small Japanese community began to grow around these families and farms. Many children of these large families attended a small Japanese school along Coon Creek. The schoolhouse was a one-room structure and included a small cottage added on to house grades 1–3. The school taught English curriculum in the morning and Japanese culture and language in the afternoon. During harvest season, enrollment grew as the children of migrant vegetable pickers attended the school (Price et al. 2006).

The Japanese families continued to farm the land throughout the Great Depression. To some extent, the Japanese farmers were insulated from the depressed prices of the country's traditional staples, since they grew then-exotic crops like bush peas, brussels sprouts, and artichokes. The impact of Asian farmers on the county's agricultural economy was considerable; by 1938, the market value of vegetable crops, including peas, lettuce, and tomatoes, totaled just over $2.8 million, surpassing the $2.2 million combined figure for wheat, barley, and beans (General Directories 1938:37). The Japanese continued to farm the land until 1942, when they were involuntarily relocated to internment camps established during World War II under Executive Order 9066.

3.4.4. Modern Use of the Pecho Coast

Following the sale of the Spooner Ranch to Oliver Field in 1942, the property was used for ranching and agricultural pursuits. Sometime in the 1940s Field constructed a small dam-and-pump house [redacted], from which irrigation water was piped to agricultural fields downstream (Petersen, personal communication 2005). During the early 1950s, Field made improvements to the ranch, including construction of a ranch house and an agricultural complex [redacted]. In

1954, Field sold the north half of the ranch to Irene McAlister, and in 1965, the northern portion of the property became Montaña de Oro State Park (Miossi 1973).

Eventually, Field gave up farming due to difficulties in tapping enough water to irrigate his crops (Petersen, personal communication 2005). Following Field's sale, the property would change hands numerous times in the modern era. In the 1960s, Joe LaFleur took over ownership. Following LaFleur, the property was occupied by Larry and Suzy Wills, with Virginia Bruno (Field's daughter) renting a room in the main house between 1975 and 1983. Additional modern improvements to the ranch and agricultural complex have occurred within the last 40 years and include the addition of a stock pond, exterior stairs to the basement on the house, and internal remodeling during the 1970s.

PG&E purchased the property in 1986 and incorporated it into the grounds of the DCPP, which began commercial operation in 1985. During this time, the northern portion of the property [redacted] was occupied by Ed and Kathy Peterson between 1983 and 2014 (Sally Krenn, personal communication, 2016). Currently the property is under the care of Sally Krenn and Jim Blecha.

3.4.5. Pismo Beach

Pismo Beach lies within the historic boundaries of Rancho Pismo, an 8,838-acre Mexican rancho granted to José Ortega in 1840 (Gudde 1998:292). In 1846, Ortega sold Rancho Pismo to Isaac J. Sparks, owner of the nearby Rancho Huasna. During the 1840s, Sparks employed English immigrant John Michael Price as mayordomo of Rancho Huasna. Following the purchase of Rancho Pismo, Sparks placed the new land under Price's care (McDermott 2013:19). With the Bear Flag Rebellion in 1846, Sparks was responsible for proving that Ortega had obtained the Rancho Pismo grant lawfully. Sparks did not receive the patent for Rancho Pismo until 1866 (Jespersen 1939:48).

Sparks moved to Santa Barbara in 1848. He sold 7,000 acres of the Pismo Rancho to Price in the years between 1848 and 1853. Price lived and worked on the property until his death in 1902, maintaining sizeable herds of cattle and horses with the enhancement of bulls and horses he imported from his native England. Price held several public offices during his ownership of the rancho, including *alcalde* (town mayor) for the Mexican government in 1848, county judge in 1850, and member of the County Board of Supervisors in 1869 (Jespersen 1939:62–63). In 1880, the rancho was subdivided into 17 parcels, some of which were gifted to the Price children. Price eventually sold present-day Grover Beach to D. W. Grover and a portion of present-day Arroyo Grande to Francisco Branch, leaving himself with Shell Beach, the Pismo Beach area, and a large section extending eastward into Price Canyon (Angel 1883:351).

The town of Pismo developed along the coast following the construction of a wharf by Dennis Meherin in 1882. Meherin also constructed a warehouse on land leased from Price to store goods shipped by his steamship company. The wharf enabled business owners to deal directly with steamships, allowing business in the young town to grow rapidly. This growth was enhanced by a prosperous tourist industry that benefitted from El Camino Real and the arrival of the Southern Pacific Railroad in 1895.

In 1912, State Route 1 was routed through Pismo, bringing automobiles loaded with tourists and potential land speculators to the town. During the years following World War I and into the 1920s, "Pismo Beach," as it came to be called, blossomed into a full-fledged beach town and vacation destination with small cottages and auto camps scattered about the town (Figure 3.4.5-1). By 1931, every block in town possessed some form of development—either residential or commercial—and water lines were present on every street (Sanborn Map Company 1931).

Figure 3.4.5-1 –1906 Aerial Photograph Illustrates the Growing Development of Pismo Beach

Source: Taken for Promotional Use (courtesy, History Center San Luis Obispo County)

By the mid-1930s, the Coastal Highway ran through Pismo Beach along Price Street, and State Route 1 followed Grand Avenue and Dolliver Street before merging with the highway at the northern edge of town. A 1942 USGS map (surveyed in 1939) depicts Pismo Beach as a populated beach town. Development was slowly creeping beyond the original townsite toward the areas to the northwest and northeast. Beginning in 1946, a substantial development boom associated with the post-World War II era greatly affected San Luis Obispo County and the Five Cities area (encompassing Pismo Beach, Shell Beach, Oceano, Arroyo Grande, and Grover Beach), much like other parts of California and the rest of the nation. By the early 1950s, Grover Beach, south of Pismo, had experienced exponential growth; Oceano and Arroyo Grande were not far behind. During this period, Pismo Beach experienced rapid infill growth as residential and commercial development sprang up all over town in areas that were formerly vacant. This growth stimulated a dramatic transition from a small beachfront community to a densely urbanized town.

The natural beauty of the area continued to draw many visitors and new residents to Pismo Beach through the twentieth century. New parks, campgrounds, and recreation opportunities expanded in tandem with the town's growth. Created in the 1934, Pismo Beach State Park stretched from the far north end of Pismo to the southern end of the Oceano Dunes. Dune buggies grew in popularity during the 1950s, although people had been driving vehicles on the beach for more than 20 years. As interest in off-road recreational vehicles grew, so did the commercial services supporting the growing market. Between 1963 and 1973, several campgrounds were established along State Route 1 between the southern end of Pismo Beach and Oceano. In 1974, the California State Park and Recreation Commission separated the non-vehicular area of Pismo State Beach from the newly designated Oceano Dunes State Vehicular Recreation Area (State of California 1975:17–18). The Monarch Grove Preserve, Pismo State Beach Golf Course, and Pismo Nature Center provide additional entertainment options for vacationers.

Pismo Beach remains a popular tourist destination today, and many residents are employed in the hospitality industry and businesses catering to visitors. The city has continued to expand its boundaries over the years, annexing sections of the Shell Beach community between 1960 and 1966, the Sunset Palisades area in 1970, and the Ontario Ridge area in 1989.

3.4.6. Pismo Beach Rail Yard

Review of aerial imagery shows that the rail line running through the Pismo Yard was in place as early as 1949. Other portions of Pismo Yard appear to have been used for crop production or possibly grazing during this time. Aerial photos from 1956 show the Pismo Yard with extensive grass, again possibly used for grazing or agricultural needs. Photo documentation from 1962 illustrates the beginning of development of the property and by 1971, most of the infrastructure seen today, such as paved space, access roads, and buildings, are in place.

4. Archaeological Research Themes

Roberta Greenwood's trailblazing studies on Diablo land established the baseline prehistoric cultural chronology and occupation sequences for coastal San Luis Obispo County (Greenwood 1972, 1978a, 1978b). The Pecho Coast, along with Avila Beach, Pismo Beach to the south, and Los Osos and Morro Bay to the north are all part of the fascinating prehistory of this stretch of beautiful coastline. The people that have lived in this vibrant coastal region utilized both marine and terrestrial resources over the last 10,000 years. The archaeological data recovered and studied since Greenwood's work has added to our knowledge of the indigenous populations that have called the Central Coast their home.

The research themes discussed in this section are mostly comprised of those developed by Price and Clark (2019) which are heavily reliant on Jones (2013). While the data provided here are based on work centered on the Pecho Coast, for this effort, these themes are kept general so that questions and themes can be applied to the Pecho Coast but also relevant to Pismo Beach and the other coastal communities that have robust evidence of human occupation for at least 10,000 years.

Some of the more established and prominent research themes pertinent to the prehistory of the Central Coast include cultural chronology; subsistence; technology; settlement systems and land-use strategies; sociopolitical organization; and paleoenvironmental change.

4.1. Cultural Chronology

A key factor necessary for effective interpretation of archaeological data is the capacity for chronological control of the cultural assemblage. Temporally diagnostic artifact forms, datable carbon, source-identified obsidian specimens, and preserved stratigraphy are among the major sources of chronological data. For prehistoric resources, projectile points, shell beads, and certain milling tools are sensitive to temporal variation. Identification of cultural components may depend on chronometric analyses that establish absolute ages or from stratified deposits that indicate relative antiquity. These data are always interpreted within locally and regionally defined chronologies respective of the research questions.

For the Central Coast, the prehistoric chronology is an ever-evolving work in progress (Erlandson and Colten 1991; Jones and Ferneau 2002; Jones et al. 2007; King 1990; Olson 1930; Rogers 1929). The most widely cited chronological framework for the Central Coast defines "six distinct periods, with locally defined phases, and regional cultures" (Jones et al. 2007:134–137; Jones and Codding 2019). For consistency, the interpretation of both relative and absolute chronometric data will use the chronological framework presented by Jones et al. (2007) and Jones and Codding (2019) (Table 3.2-1), with refinement where and if it is possible.

Intact stratigraphy and vertical superpositioning of components are rare in Central Coast sites—there are few sites with deep history and most of those are vertically mixed (Jones et al. 2007:130). Many sites on the Central Coast were not continuously occupied for long periods and represent single components or horizontally stratified sites (with significant temporal gaps between components).

Therefore, questions tied to the theme of chronology for the Pecho Coast, Pismo Beach, and throughout the Central Coast are critical for interpretation of archaeological deposits. Important chronometric questions that could be investigated at the site—or district or regional—level include:

- What was the timing of the initial peopling of the Central Coast and what was the nature of Paleo-Coastal land use and economic practices?
- Is there differences in the timing between the other localities (both coastal and interior areas) in the Central Coast region?
- Were periods of site abandonment and reuse evidence of new populations moving into the region or in situ cultural change?
- Is there chronological evidence to suggest intermittent or extended use of these specific sites over time?
- What can be learned about the timing and origins of major technical and economic innovations (e.g., acorn processing, the bow and arrow, fishing technology, etc.) in the

Central Coast area? What were the effects of each innovation on local cultural developments?
- Are there distinctive local patterns of change present along the Central Coast? Is there a difference between the communities to the north and south?

4.2. Subsistence

Remains of animals and plants typically provide the most direct evidence of prehistoric subsistence, site function, seasonality, and economic trends over time. Taxonomic identifications, documentation of bone modification, and analyses of assemblage characteristics, such as body part representation and fracturing patterns, can provide information on resource selection, procurement, and processing. Recovery and analysis of macrobotanical remains assist in evaluating the role and relative importance of vegetal resources in subsistence. Changes in the composition of floral and faunal assemblages can indicate shifts in environmental conditions through time.

There are marked differences in subsistence activities throughout prehistory that should be detectable across the sites. Generally, prehistoric people of the Milling Stone/Lower Archaic adaptive pattern practiced a broad-spectrum diet evident in the marked variability in the percentages of floral and faunal remains. At coastal sites, this pattern changed by the Middle Period when there is a perceptible increase in reliance on fish, as well as a noted decline in shellfish use relative to that of terrestrial vertebrates (Jones et al. 2007:140). By the Late Period, sites are defined by small, homogenized assemblages related to a marine-to-inland subsistence shift.

Both direct (floral and faunal materials) and indirect (artifacts such as milling stones, projectile points, fishhooks, and net sinkers) data may be used to answer questions about prehistoric subsistence practices. General question used to help address indigenous subsistence practices and how these practices change as part of adaptive responses to environmental change (either natural or man-made) including the following:

- What was the full range of terrestrial and marine resources that were used for subsistence purposes by prehistoric populations along the Central Coast? How did these resources vary through time?
- Did resource use change in response to variations in population or the environment? What are the variations between the different coastal regions along the Central Coast?
- Preliminary data indicate that the size of red abalone, and possibly California mussel, shells may have decreased over time in response to resource overexploitation. Do the shell size data from representative site assemblages indicate a pattern of overexploitation, or are the shells within the normal range of their respective populations?
- Based on evidence from CA-SLO-2 and -585, Jones, Porcasi, Erlandson, et al. (2008), Jones at al. (2009) and Jones and Codding (2019) suggest that the extinction of a flightless sea duck along the Pecho Coast circa 950 cal. B.P. was largely the result of overhunting by local populations. Is this pattern of resource overexploitation seen at other sites along the Central Coast or just the Pecho Coast?

4.3. Technology

Lithic artifacts are often the most abundant type of cultural residue left by prehistoric site occupants. Technology is one of the primary ways human populations interface with their environment and conditions such as climate and availability of biotic and abiotic resources. Changes in and continuity of technology may reflect cultural associations among and between populations that result in the exchange of materials and ideas. The analysis of lithic materials can address local site behavior, larger landscape migration through the presence of nonlocal lithic materials, and behavioral correlates between sites in stylistic attributes of the flaked stone. Microscopic edge-wear analysis of flaked stone tools can reveal tool function and the types of activities that occurred at a site.

Diversity in the lithic tool assemblage can reflect the intensity and duration of site occupation. When considered together, the types of artifacts, their functions, and diversity in the lithic assemblage contributes to an understanding of overall site use and the role of the site in settlement systems. Analyses of lithic artifacts provide valuable data on lithic technology and how that technology changed over time in response to changing land-use strategies.

Possible technological-related questions include:

- How were flaked stone tools made and how did material type influence their production? What technique did knappers utilize to reduce the material into desired forms? What strategies were undertaken during reduction to correct errors or change reduction trajectory?
- What is the relationship between lithic technology and tool stone availability on along the different coastal areas of the Central Coast? Do sites without nearby tool stone sources exhibit economizing behavior in comparison to sites where tool stone is more accessible?
- What are the dominant projectile point styles and how does the frequency of these styles compare to other sites in the Project areas or within the larger Central Coast region?
- Were flaked stone tools rejuvenated and how? How many times were the tools rejuvenated before disposal? Were tools curated for future use or recycled after discard? Why were certain artifacts discarded?
- What are the forms of ground stone implements on the site? Were ground stone implements made on site, if so, how? What stage(s) of production are represented?
- Is there any evidence to suggest patterned changes in ground stone technologies over time or space? How do these patterns compare to other areas along the Central Coast?
- What were the effects of the adoption of major technical innovations (e.g., the bow and arrow and fishing technology) on local cultural developments? How did the adoption of these new technologies impact subsistence, settlement and land-use practices, and sociopolitical complexity?

4.4. Settlement Systems and Land-Use Strategies

Settlement and land-use patterning, defined as the distribution of a society's activities on the landscape during a brief span of time, is closely linked to the study of chronology, subsistence patterns, and population movements. Reconstructing land-use activities over time—such as prehistoric settlement systems—is essential to gain an understanding of how people interacted with their environment and how their activities have shaped or altered the physical features of the landscape.

Variations in topography, availability of transportation, the availability of natural resources (especially water), and economic factors influence the ways people utilize their environment. The goal of the study of prehistoric mobility and settlement patterns is to determine where a particular site falls within local and regional settlement systems. Certain attributes can indicate whether a site represents a seasonal camp, a raw material procurement area, or a single-use location. The patterns are even more robust when approached in a diachronic fashion—that is, examining how use of a particular site changed over time and in relation to other sites in a region. The issue of differential use in the context of both intra-site and inter-site land-use patterns is a primary concern of this data recovery effort.

Current interpretations of prehistoric human settlement along the Central Coast suggest a shift from a classic forager subsistence-settlement system to a more collector-oriented foraging strategy sometime during the Early (Jones 2003) or Middle (Lebow et al. 2005) periods. This latter type of foraging strategy is characterized by the establishment of centralized site complexes in favorable locations to stage logistical forays into surrounding resources patches (Binford 1980). Such a shift in land-use practice is expected to result in the establishment of distinct functional site types. Analyses relying on multiple classes of artifacts or features may prove most useful in investigating aspects of prehistoric settlement, defining functional site types and land-use practices.

- Is there archaeological evidence of a shift from classic forager subsistence-settlement system to a more collector-oriented foraging among sites along the Central Coast? If so, during what period did this shift occur? Is there a difference in the timing of this shift between the different Central Coast regions?
- Do sites in along the Central Coast display distinct patterns in terms of their distributions of artifacts and features that indicate the presence of different functional site types?
- What evidence is there to suggest that sites were utilized differently during different time periods of use?
- When were sites occupied during the year and what was the length of stay? Does the evidence support extended stays at residential bases or were these settlements abandoned during the portions of the year? How do settlement patterns related seasonality change over time?
- Are diachronic changes in prehistoric settlement and land use evident in along the Central Coast?
- What were the determinants of site location during the period(s) of occupation? What role did such factors as biotic resources, lithic raw material, water, temperature, wind patterns, topography, and access to trails and trade routes have on the location and scheduling of land use?

- What other environmental variables may have played an important role in the use and settlement of specific sites? Were site locations selected to maximize the yield of specific resources or maximize the diversity of available resources?

4.5. Sociopolitical Organization

A sequence of emergent sociopolitical complexity has been well documented after 1000 cal B.P. in the Santa Barbara Channel area. The hallmarks associated with these socio-politically complex systems include marine (fishing) based subsistence, sophisticated maritime technology (*tomol*), hierarchical political authority, heavy production of *Olivella* shell beads, and intensive island-mainland trade. Although the organization of sociopolitical systems along San Luis Obispo's coast has not been as thoroughly examined, preliminary data suggest that the Northern Chumash may have been less complex than their neighbors to the south.

Ethnohistoric accounts also indicate that the *tomol*, which can be considered the technological center piece of the maritime economy for the Chumash in the Santa Barbara Channel area, was not adopted by populations north of Point Conception (Jones 2013:37). The lack of use of the *tomol* by the Northern Chumash may relate to the specific environmental conditions of the Central Coast, which is characterized by stretches of exposed open ocean with offshore resource areas (e.g., kelp forests) that are less productive than those found in the Santa Barbara Channel.

More and evidence is being found at sites along the Central Coast that indicates local production of shell beads may have been occurring in additional to imports from the Santa Barbara and San Francisco Bay Area manufacturing areas. More data and analysis of shell bead detritus and the presence of unmodified *Olivella* in archaeological deposit may help inform on the nature of local bead production processes. Given these topics, specific questions related to sociopolitical complexity include:

- What evidence of sociopolitical complexity is present at Central Coast sites? When does evidence of sociopolitical complexity first appear in the archaeological record along the Central Coast? Are there differences between the Central Coast regions?
- Social organization along the Pecho Coast is presumed to be less complex than social complexity in the Santa Barbara Channel area? Is this truly the case or does it more directly reflect the lack of systematic study of the markers of sociopolitical complexity? Or is it a lack of archaeological data?
- Are the prehistoric patterns of sociopolitical organization consistent with ethnohistoric accounts? Is there data to suggest there was a major shift in sociopolitical organization along the Central Coast between the Late Prehistoric and Historic periods?
- Can new evidence of localized shell bead manufacturing inform on the social complexity of the Central Coast sites and regions? Was local shell bead manufacturing at the same level of quality and production rates as seen in other areas of the state?

4.6. Paleoenvironmental Change

In recent decades, researchers have attempted to explore the relationships among climate, environment, and culture along the Central Coast using paleoenvironmental data. Much of this research has focused on the potential causal role of climate and environment in culture change. In the Santa Barbara Channel area, Arnold (1992) originally argued that that the development of Chumash sociopolitical complexity between 800 and 650 cal B.P. was caused by a catastrophic warming of SSTs and a decline in marine productivity during the later MCA. Subsequent refinements in sea temperature reconstructions suggest that the period between 1500 and 600 cal B.P. was marked by cold SSTs, high marine productivity, and general aridity. These findings suggest that cultural changes along the Central Coast during the Middle-Late Period Transition (950–700 cal B.P.) were likely influenced by prolonged droughts (Kennett and Kennett 2002; Jones and Codding 2019). These findings leave some room for doubt about the effects of the MCA on Central Coast populations and highlight the need for additional research on this topic.

Specific questions related to paleoenvironmental change include:

- How has the local environment changed over time along the Central Coast? Are changes observable in site-specific deposit, or are changes only seen at a regional level?
- Is there evidence to suggest that major cultural changes along the Central Coast are linked to environmental change? Can finer-grained climatic chronologies detect possible causes of cultural change? How do these changes fit with the paleoenvironmental models developed for other coastal California areas?
- Do other sites along the Central Coast show the same pattern of changing prey populations as observed at CA-SLO-9? Can change in faunal species provide information on regional and location specific environmental changes?

5. Cultural Resource Inventory

A summary of previous archaeological studies on Diablo land and the Pismo Yard is presented below. Findings from these investigations are reviewed along with the methods and results of recent surveys in support of the decommissioning process. Additionally, an inventory of the known cultural resources within the DCPP and Pismo Yard Project areas is provided. The previous studies and cultural resources discussed cover the archaeological sites within both Project areas. The DCPP itself, was completed in 1973 and will hit the 50-year threshold in 2023. As such, PG&E is currently scoping a study to record and evaluate the plant and its associated structures for eligibility for listing on the NRHP and CRHR.

5.1. DCPP Project Area

The extent of previous studies of the DCPP area has been established through records searches at the Central Coastal Information Center (CCIC) of the California Historical Resources Information System, housed at the University of California, Santa Barbara. Bibliographic references, previous survey reports, and archaeological site records obtained through these searches are compiled in this CRISP. Other sources consulted while conducting various background research projects include the following:

- Æ's in-house geographic information system geodatabase with site locations and previous study areas;
- Æ's in-house documentation and previous studies that cover DCPP Project area;
- PG&E's cultural resource library and geospatial database for the Diablo property, which includes a comprehensive records search from the CCIC, covering DCPP;
- California Office of Historic Preservation: California Historical Landmarks—San Luis Obispo County;
- California Office of Historic Preservation, California Historical Resources—San Luis Obispo County; and
- NRHP.

Review of these sources along with PG&E's cultural Global Information System layers indicates that most of the DCPP Project areas have been previously surveyed (Appendix 3). On DCPP Project area, only the proposed Quail Flat burrow pit had not undergone systemic archaeological coverage.

5.1.1. Previous Studies

Numerous previous studies have been conducted within the Diablo lands along the Pecho Coast. Table 5.1.1-1 lists 49 previous studies that have occurred on the Diablo lands.

Table 5.1.1-1 – Previous Studies on Diablo Lands

Author	Date	Report Title
N/A	1929	Unreported excavation of CA-SLO-50 [redacted] by Los Angeles County Museum under the direction of Alex Keleman. Cited by King (1972)
Pilling, A.	1951	Surface Archaeology of the Pecho Coast, San Luis Obispo County, California
Riddell, F.	1966	An Archaeological Reconnaissance of the Diablo Creek Vicinity, San Luis Obispo County, California (E-123)
Riddell, F.	1968	An Archaeological Reconnaissance of the Access Road to the Diablo Canyon Power Generating Plant, San Luis Obispo County, California (E-172)
Greenwood, R.S.	1972	9000 Years of Prehistory at Diablo Canyon, San Luis Obispo County, California
Hoover, R.L.	1974	National Register of Historic Places Inventory- Nomination Form: Marre Ranch, Coastal Section/ Rancho Cañada de los Osos y Pecho y Islay, San Luis Obispo County, California
Hoover, R.L.	1975	Notes on Northern Chumash Ecology and Settlement Patterns (E-265)
Greenwood, R.S.	1978b	Surface Survey and Evaluation, SLO-2 at Diablo Canyon

Author	Date	Report Title
Greenwood, R.S.	1982	National Register of Historic Places—Nomination Form for (Historic) Rancho Cañada de los Osos y Pecho y Islay (Common) Diablo Canyon Archaeological District
Greenwood, R.S.	1980	Cultural Resource Investigation Proposed Telephone Cable into Diablo Canyon Plant Site
PG&E	1980	Archaeological Resources Management Plan - Diablo Canyon Site
Holson, J.	1986	Archaeological Resources Located on Parcel P, Diablo Canyon, San Luis Obispo County, California (E-714)
Gibson, R.O.	1987	Results of Archaeological Surface Survey for the Port San Luis Trail Project, San Luis Obispo County, California
Breschini, G.S., and T. Haversat	1988	Archaeological excavations at CA-SLO-7 and CA-SLO-8, Diablo Canyon, San Luis Obispo, California
Wilcoxon	1988	Results of a Cultural Resource Evaluation for the North Property Access Road, Diablo Canyon Power Plant, San Luis Obispo County, California
Davis-King, S., and S. Williams	1991	Archaeological Survey on Portions of the North Property Coastal Shelf, Diablo Canyon Power Plant, San Luis Obispo, California
Jackson, R.J., and A.G. Caruso	1991	Working Draft; Action Plan: Development of a Cultural Resources Management Plan in Support of the Diablo Canyon Natural Resource Management and Land Stewardship Program, San Luis Obispo County, California
Davis-King, S., and S. Williams	1992	Archaeological Survey on Portions of Diablo Canyon Nuclear Power Plant South Property, San Luis Obispo, California
Wickstrom, B., and K. Tremaine	1993	A Cultural Resources Survey of Portions of Diablo Canyon Nuclear Power Plant South Property, San Luis Obispo County, California
Denardo, C., and Texier, B.	2006	Rancho Cañada de los Osos y Pecho y Islay Prehistoric Archaeological District Nomination, San Luis Obispo County, California
Price, B.A. et al.	2006	Cultural Resources of Pacific Gas and Electric Company's Diablo Canyon North Ranch Property, San Luis Obispo County, California
Trumbly, M.	2008	Archaeological Survey Report for the North Ranch Vegetation Management Project San Luis Obispo County, California
Price, B.A.	2008	Archaeological Site Monitoring and Condition Assessment Diablo Canyon Power Plant North Ranch Study Area
Price, B.A., and M. Trumbly	2009	Cultural Resources Overview for the Diablo Relicensing Feasibility Study, San Luis Obispo, Monterey, Fresno, Kings, and Kern Counties, California
Price, B.A.	2009	Archaeological Site Monitoring and Condition Assessment: 2009 Diablo Canyon Power Plant North Ranch Study Area
PG&E	2010	Monitoring Report - North Ranch Managed Access Monitoring Report, Pt. Buchon Trail
Haydu, D.M., and B.A. Price	2010	Archaeological Monitoring and Auger Testing at CA-SLO-2 for the North Gate Security Enhancement Project, Diablo Canyon Power Plant, San Luis Obispo County, California
Greenberg, G.	2011	Archaeological Observations for Monitoring Well Drilling in Proximity to CA-SLO-61
Haydu, D.	2011	Summary of Cultural Resources Management Procedures PG&E Onshore Central Coastal California Seismic Imaging Project
Price, B.	2011	Archaeological Monitoring for [redacted] Replacement in Proximity to CA-SLO-1161, -1162 and DC-92-11

Author	Date	Report Title
Price, B.A. et al.	2012	A Slice of Time at Diablo Canyon: Archaeological Sampling at CA-SLO-61 San Luis Obispo County, California
Hewes, S. et al.	2012	Cultural Resource Inventory for the Central California Coastal Seismic Imaging Project
Haydu, D.M.	2012	Technical Memorandum: PG&E Onshore Seismic Project, 2012 Season Summary of Cultural Resource Monitoring and Impacts from Geoseismic Operations
Hadick, K. et al.	2012	Final Report on the Cal Poly 2009 Archaeological Field Class Investigation at CA-SLO-1370/H, [redacted] San Luis Obispo County, California
Codding, B.F. et al.	2013	Archaeological Investigations at [redacted] (CA-SLO-1366/H), Diablo Canyon Lands, San Luis Obispo County, California: Final Report of the 2011 Cal Poly Field School and Mitigation Program
Jones, T.L.	2013	Revisiting the Pecho Coast: A Preliminary Blueprint for Future Archaeological Investigations on the Diablo Canyon Nuclear Power Plant Property, San Luis Obispo County, California
Whiteman, J.	2013	Reflections of Japanese Farming Along the Pecho Coast of California
Taggart, M., and S. Velasquez	2014	Archaeological Survey Report for the San Luis Hill Vegetation Management Project San Luis Obispo County, California
Lloyd, J., and E. Enright	2015	Archaeological Condition Assessments on the Diablo Canyon South Ranch Lands - National Register Nomination Update
Jones, T.L., et al. 2015	2015	Archaeological Investigations at CA-SLO-5, Diablo Canyon Lands, San Luis Obispo County, California: Final Report of the 2013 Cal Poly Field School and Mitigation Program
Jones, T.L. et al.	2017	Archaeological Investigations at the Chumash Village of *Tstyiwi*-Final Report of the 2015 Cal Poly Field School at CA-SLO-51/H Diablo Canyon Lands, San Luis Obispo County, California
Patterson, J.	2016	Letter Report for the Pecho Berm Project, Diablo Canyon Power Plant, San Luis Obispo County, California
Wendel, R.E., and E. Enright	2016	Cultural Resource Study for the Pacific Gas and Electric Company Diablo Canyon North Access Road Improvements, San Luis Obispo County, California
Wendel, R.E	2017	Cultural Resource Study for the Diablo Canyon Power Plan Telecommunications Project, San Luis Obispo County, California
Wendel, R.E., and E. Enright	2017	Filling in the Early Period Gap Along the Pecho Coast: Archaeological Investigations at CA-SLO-61
Price, B.A., and T.C. Clark	2019	District Assessment Nomination for the Rancho Cañada de los Osos y Pecho y Islay Archaeological District (Boundary Increase), National Register of Historic Places Registration Form

John P. Harrington investigated the area in 1914–1915 with Rosario Cooper, reported to be one of the last speakers of the Northern Chumash language. Between 1947 and 1952, Arnold Pilling completed the first formal archaeological survey of the area on behalf of the University of California, Berkeley. He recorded numerous sites along the Pacific coast from Morro Bay to Avila Beach (Pilling 1948, 1951). In 1966 Francis Riddell conducted an archaeological reconnaissance of an access road from Avila Beach to the site of the DCPP and documented five sites in the area including CA-SLO-2 [redacted] -61 [redacted] -1159 [redacted] -584 [redacted] and -1160 [redacted] (Riddell 1966).

In 1968, Roberta Greenwood conducted subsurface archaeological investigations within the construction zone of the DCPP facilities and a proposed access road. These excavations focused on six sites, which included CA-SLO-2 (later re-designated as CA-SLO-2/3), -51, -52, -61, -584, and -585 (Greenwood 1972). Her excavations were largely restricted to the areas of direct impact. Greenwood's work provided evidence of human occupation at these sites for nearly 9,000 years; CA-SLO-2 proved to be an extensive, long-term occupation area [redacted] used over much of that time (Greenwood 1972).

In 1973, Robert Hoover conducted a cultural resources survey south of Diablo Canyon as part of an environmental study for a proposed development at Marre Ranch. In the following year, he nominated 15 of the documented sites (CA-SLO-50, -51, -52, -53, -54, -55, -58, -63, -585, -682, -684, -686, -687, -688, and -689) for listing on the NRHP as the Rancho Cañada de los Osos y Pecho y Islay Archaeological District (the District; Hoover 1974); the Keeper of the National Register accepted his nomination in 1975. Later archaeological investigations in the area resulted in CA-SLO-54 and -63 and being combined into CA-SLO-54/63 and CA-SLO-682 and -689 being combined into CA-SLO-682/689 (see discussion in Far Western Anthropological Research Group, Inc. 2010:36–37).

Throughout the late 1970s, Greenwood returned to the District several times to assist PG&E with the management of cultural resources (Greenwood 1978b, 1980). In 1978, she conducted a survey of 90 acres in the vicinity of CA-SLO-2 and was able to characterize several nearby sites originally recorded by Pilling (Greenwood 1978b). As a result of this survey work, she determined that CA-SLO-3 was likely part of CA-SLO-2, prompting her to combine the two sites under a single designation—CA-SLO-2/3. For the purpose of management of CA-SLO-2/3, PG&E has moved to referring to the combined site as solely CA-SLO-2. In 1982, after portions of CA-SLO-2 were impacted by power plant activities, Greenwood submitted a NRHP nomination for CA-SLO-2 and -8 to be placed within the existing District (Greenwood 1982).

PG&E sponsored additional cultural studies within the District through the 1980s and 1990s; as a result, dozens of sites were recorded along the coastal terrace [redacted]. In 1986 Holson completed systematic surface survey of the DCPP Project area, which was followed in 1988 by Wilcoxon who undertook intensive background research and a pedestrian survey [redacted] He documented five sites, including CA-SLO-7, -8, -1196, -1197, and -1198 (Wilcoxon 1988). Later that year, test excavations were performed at CA-SLO-7 and -8, and both sites were determined to be significant cultural resources (Breschini and Haversat 1988). A survey of the [redacted] was completed in 1991, resulting in the identification of 36 cultural resources within the 370-acre project area (Davis-King 1991); this survey work was followed by more detailed documentation of four of the newly identified sites, CA-SLO-5, -6, -9, and -1197/H (Davis-King and Williams 1992). In 1992, an intensive archaeological survey of 420 acres in the [redacted] resulted in the documentation of 41 cultural resources, including 16 previously unidentified archaeological sites (Wickstrom and Tremaine 1993:10).

In 2005, Æ revisited and updated the maps and records of 22 prehistoric and historical sites between [redacted] as part of the Diablo Canyon North Ranch Access Plan (Price et al. 2006). The purpose of this work was to document the baseline conditions of each site in the plan area and identify feasible management measures to protect resources that might be affected by pedestrian access. Marine shell samples were collected from many of the sites to obtain radiocarbon dates; these results are summarized by Price and Jones (2013). Site condition data obtained from this work were used during a subsequent site monitoring program from 2007–2012 to assess the impacts of increased public use on sensitive archaeological resources in the area (Price 2013). Garcia and Associates (Ganda) also revisited several prehistoric archaeological sites on the PG&E property in 2005 and 2006 in preparation of a new NRHP nomination package for the District (Denardo and Texier 2006). During these visits, Ganda assessed the condition of each site to determine the extent to which bluff erosion, development, or other factors had impacted or destroyed the archaeological resources.

Over the past decade, archaeological excavations have also been conducted at several sites within the District. Much of this work has been completed by the Cal Poly Archaeological Field Methods class under the direction of Terry Jones. The field class completed subsurface investigations at CA-SLO-9 in 2004–2005 (Codding and Jones 2006), CA-SLO-1370/H in 2009 (Hadick et al. 2012), CA-SLO-1366/H in 2011 (Codding et al. 2013), CA-SLO-5 in 2013 (T. Jones et al. 2015), and CA-SLO-51/H (Jones, Codding, et al. 2017).

In 2010 and 2016, Æ also excavated samples from [redacted] at CA-SLO-61 that had been exposed during the installation of a fiber-optic communication cable and during a fence upgrade at the DCPP facility (Price et al. 2012; Wendel and Enright 2017). Although excavations at these sites were relatively limited in scope, excavation provided evidence that intact cultural deposits associated with CA-SLO-61 still remain and the resultant data have contributed to our growing understanding of the nature and timing of prehistoric occupation within the District.

More recent work included archaeological research and documentation for several unrelated projects. Currently, students from Cal Poly are sorting and cataloging materials from CA-SLO-585 collected during the 2019 field class. Additionally, Cal Poly students are processing unsorted cultural residues from CA-SLO-1370 to formally catalog, analyze, and curate these materials. Unrelated to the Cal Poly efforts, small scale Extended Phase I testing occurred within a portion of CA-SLO-2 in support of proposed transmission line maintenance. Most recently, data recovery excavations at CA-SLO-7, -8 and -1197/H were completed by SWCA Environmental Consultants with laboratory processing and reporting in progress (communication from Mike Taggart, PG&E Senior Consulting Scientist).

Researchers have also undertaken more synthetic studies to explore broader patterns of prehistoric settlement and use along the Pecho Coast. Jones, Porcasi, Erlandson et al. (2008) and Jones et al. (2009) assessed diachronic changes in the faunal data to evaluate long-term coastal resource use by prehistoric groups. This study, which involved the re-examination of approximately 15,000 animal bones and 7,000 fish bones recovered from Greenwood's 1968 excavations at CA-SLO-2 and -585, also investigated the effects of early human exploitation on coastal resources. Results of this study indicate that the prehistoric occupants of Diablo Canyon practiced a broad-spectrum foraging strategy that included reliance on both terrestrial and marine resources (Jones et al. 2009; Jones, Porcasi, Erlandson, et al. 2008). Similarly, Price and Jones (2013) examined long-term temporal trends in settlement along the Pecho Coast through the analysis of a chronometric database containing 106 radiocarbon samples from 22 archaeological sites. Their study found evidence of relatively continuous occupation of the coastal terrace north of Avila Beach over the past 6,000 years. Jones and Codding (2019) compile, describe, and integrate the findings of all these prior studies in their book-length treatment of Pecho Coast archaeology.

5.1.2. East Quail Flat Borrow Pit and Northeast Pecho Road Borrow Pit Survey

The proposed East Quail Flat Borrow Pit and Northeast Pecho Road Borrow Pit areas had not undergone recent systematic surface survey (Figure 5.1.2-1; Appendix 3). Due to the overall sensitivity for cultural resources on the Diablo property, a surface survey of the borrow pits was undertaken as part of this CRISP. Pedestrian survey of the borrow pits was completed on November 17 and 18, 2020 by Æ Associate Archaeologist Jasmine Kidwell (M.A., RPA 17325) and Staff Archaeologist Marc Linder. Survey transects were 15 meters apart throughout both survey areas. Although ground visibility was poor with up to 95 percent ground cover or greater, exposed sediments were investigated when encountered.

The proposed East Quail Flat Borrow Pit lies on a saddle overlooking DCPP and Diablo Creek (Figure 5.1.2-1). This area is currently used for cattle grazing. Modern structures include barbed wire, electric fencing, and a water trough. Vegetation consisted of nonnative grasses, mustard, and thistle, all of which greatly obscured the surface. No cultural materials were observed within the proposed East Quail Flat Borrow Pit area.

The proposed [redacted] is within the northeast portion of CA-SLO-2 and extends north outside of the site's northeastern boundaries. Cultural materials comprised of sparse to dense shell midden are present on the surface within the well-established site boundaries of the site and southern extent of the survey area. Cultural materials were not observed outside of the site's boundaries within the remaining portion of the survey area. Visibility varied from 0 to 10 percent visibility within vegetated areas, to 0 percent ground visibility within paved or gravel capped areas such as roads and the former training space. Other ground disturbances include old ranch access roads, a concrete-lined culvert, and the installation of an air monitoring station (see Chapter 6 for more detailed description).

Figure 5.1.2-1 - Overview of East Quail Flat Burrow Pit survey area, view north

[redacted]

Source: Applied Earthworks site visit photo

5.1.3. Site Visits and Site Record Updates

Several of the archaeological sites within the DCPP Project area were in need of updated records. Additionally, PG&E wanted to establish baseline conditions of the resources within the DCPP Project area. Therefore, Æ completed site visits at CA-SLO-2, -1159, -1160, -1161, -1162, -1163, -2865 and -2866 to document current site conditions and update the existing DPR forms. No visit to CA-SLO-61 and -584 was completed as access to these resources is difficult as both lie under existing plant features. Sites were revisited on November 16–19, 2020. Landforms were surveyed for cultural materials. Geospatial data for artifacts, site boundaries, and landscape features were collected using an Arrow Gold RTK GNSS receiver with submeter accuracy and ESRI Collector application. All coordinates were collected in Universal Transverse Mercator NAD83 Zone 10 north. Sites and artifacts were photographed and described. Full site updates are provided on modern California DPR forms. Site location and sketch maps were updated as well. These updates provide current baseline data on these resources prior to decommissioning activities. The results of these updates are presented in Section 6. Updated DPR forms are provided in Appendix 1.

5.2. Pismo Yard Project Area

The Pismo Yard [redacted] Numerous cultural resource studies have been conducted in the immediate area in response to various housing and other modern developments. In 2019, on behalf of PG&E and in support of the Project, Æ completed a cultural resource study of the Pismo Yard that included a records search and pedestrian survey (Kidwell and Enright 2019). The records search was performed at the CCIC on January 10, 2019. The records search identified all previously recorded resources and reports of investigations within a 0.25-mile radius of the Project area. Primary reference materials included USGS 7.5-minute base maps, site records, report files, and the Directory of Properties in the Historical Properties Data Files.

5.2.1. Previous Studies and Recorded Sites

Record search results identified 108 previous studies within the 0.25-mile radius of the Pismo Yard; 7 recorded archaeological sites; and 2 historical built-environment resources. Due to the large number of reports, Table 5.2.1-1 lists only the 23 previous studies that have occurred within or near the Pismo Yard, as well as numerous studies of [redacted] which overlaps the Project area.

[redacted] In 2015, SWCA Environmental Consultants completed Extended Phase 1 testing south of the Pismo Yard in support of the Bello Street Bridge project (Laurie and Dietler 2015). Testing found a variety of prehistoric cultural materials associated with [redacted] but within previously disturbed contexts. SWCA Environmental Consultants also completed data recovery excavation in support of a water main replacement project along [redacted] Elzinga 2015). This data recovery effort found a dense midden deposit that contained over 2,500 artifacts along with [redacted] (Elzinga 2015).

Table 5.2.1-1 – Previous Studies within or near the Pismo Yard Project Area

Author	Date	Report Title
Macko, M.	1979	Results of a Supplementary Field Reconnaissance of the Proposed Solar Heights Tract and Associated Developments in Pismo Beach, California
Funk, D. J.	1979	Report on Solar Heights
Hopa, N.K.	1979	Report of Interviews/Discussions with Native Americans and Their Associates Concerned with the Solar Heights Tract and Related Developments
Zahniser, J.L.	1979	Mitigation of Archaeological Site CA-SLO-81-832
Zahniser, J.L.	1980	A Preliminary Evaluation of a Portion of CA-SLO-832 in the city of Pismo Beach
Dills, C.	1980	Archaeological Potential of triangular parcel on Bello Avenue, Pismo Beach, California

Author	Date	Report Title
Breschini, G.	1979	Results of an Archaeological Examination of the Solar Heights Development, Pismo Beach, San Luis Obispo County, California
Sawyer, W.B.	1978	Archaeological Element of the Pismo Beach Proposed Ocean Disposal Facilities Plan (Pismo Beach Wastewater Effluent Disposal Project C-06-1327)
King, T.	1970	Avila Beach: Descriptive Data and Hypotheses from the Excavation of 1929
Gibson, R.	1982	Results of Archaeological Subsurface Testing on SLO-832 at the Judkins School, Pismo Beach, California
Dills, C.	1990	Archaeological potential of Bautista Project, on Price Canyon Road, Pismo Beach (0694)
Singer, C.	1991	Cultural resources survey and impact assessment for the Pismo Crest Project, San Luis Obispo Co, California
Dills, C	1991	Mike Peachy, parcel 05-025-05
Bertrando, E.	2000	Cultural Resource Inventory of the Hayashi Parcel 521, 531, 541, and 551 Hanford APN: 005-026-014, 015,016, and 017, Pismo Beach, California
Parker. J.	2002	Pryce Canyon Road Cultural Resource Investigation APN 005-291-014
Getchell, B., and J.E. Atwood	2005	Phase I Cultural Resources Survey of Assessor's Parcel Numbers 079-241-004 and 079-251-014, A 250 +/- Acre Area Located in Price Canyon, San Luis Obispo County, California
Sikes, N. et al	2006	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California
Parker, J.	2007	Cultural Resource Monitoring at APN: 005-311-004 Dell Court, Pismo Beach
Bertrando, E., and B. Bertrando	2007	Cultural Resource Inventory for Tracts 2563 & 2564 The Former Skeen Property 756 Price Canyon Road Pismo Beach, California, APN 005-291-019
Jones, D.A., and P. Mikkelsen	2009	Archaeological Test Excavations at CA-SLO-832 for the Judkins Middle School Surplus Property Project in Pismo Beach, San Luis Obispo County, California
Haydu, D., and B.A. Price	2013	Supplemental Cultural Resource Surveys for the PG&E Atascadero-San Luis Obispo 70 kV Power Line Reconductoring Project, San Luis Obispo County, California
Elzinga, A	2015	Water Main Replacement Project, Price Canyon Road, Pismo Beach, California
Lauire, L. and J. Dietler	2015	Bello Road at Pismo Creek Bridge Project Archaeological Survey Report. SWCA Environmental Consultants. Prepared for California Department of Transportation, District 5, San Luis Obispo

5.2.2. 2019 Decommissioning Survey

Æ conducted a cultural resource study of the Pismo Yard in 2019 in support of the Project (Kidwell and Enright 2019). Most of the east portion of the area is developed and covered with pavement, buildings, railway, access roads, a detention basin, and berm. Paved areas were not surveyed for cultural resources, as cultural materials, if present, are now buried from view. In the western part of the yard, the landscape is terraced and overlooks the Pismo Creek flood plain to the east. The roadway along Price Canyon Road may have been built up with fill or cut during construction of this road or Pismo Yard's access road. The terrace below and east of the access road may be an intact landform.

During the pedestrian survey, three areas were found to contain cultural materials (Loci A, B, and C; Figure 5.2.2-1). Locus A, a [redacted] may be part of CA-SLO-81. Disturbance of CA-SLO-81 from heavy machinery was noted. Grading episodes and vehicle tracks may have impacted the site, disturbed and displaced cultural materials, and will continue to damage the site.

Additionally, cultural materials associated with CA-SLO-832 were observed within Locus B, a [redacted]. According to the records search, the [redacted] is within CA-SLO-832. Previously unrecorded cultural materials, here referred to as Locus C, were observed within a [redacted]. This locus contains [redacted] These materials may have been brought in with the fill and redeposited, or they may be a surface expression of intact subsurface deposits related to CA-SLO-81 or -832.

Overall, Æ's study found two previously recorded archaeological sites within the Pismo Yard (Kidwell and Enright 2019). Records suggests that CA-SLO-81 and -832 are likely part of the same archaeological deposit; however, the CCIC maps and associated site records have not been updated to reflect the combined resource. CA-SLO-832 contains significant cultural deposits that are eligible for listing on the NRHP and CRHR. While it is likely that CA-SLO-81 is part of the larger prehistoric complex recorded as CA-SLO-832, no formal testing or site record update has occurred to document this connection.

Figure 5.2.2-1 – Pismo Yard Project Area and known Cultural Resources

[redacted]

6. Identified Cultural Resources

6.1. DCPP Project Area

The prehistoric cultural resources along the Pecho Coast are part of the NRHP-nominated District which encompasses 2,434 acres and includes 106 geographically associated archaeological sites (Figure 6.1-1; Price and Clark 2019). The District itself along with 10 individual recorded archaeological sites (CA-SLO-2, -61, -584, -1159, -1160, -1161, -1162, -1163, -2865, and -2866) fall within the 750-acre high-security zone that comprises the DCPP Project area (Figure 6.1-2). Eight of the 10 resources are considered contributing elements of the District, CA-SLO-584 and -1163 have been destroyed and do not contribute to the significance of the District (Table 6.1-1).

Table 6.1-1 – Cultural Resources within the DCPP Project Area and Rancho Cañada de los Osos y Pecho y Islay Archaeological District

Site	Site Type	Contributing/Noncontributing to NRHP-eligible District
CA-SLO-2	Prehistoric	Contributing
CA-SLO-61	Prehistoric	Contributing
CA-SLO-584	Prehistoric—destroyed	Noncontributing
CA-SLO-1159	Prehistoric	Contributing
CA-SLO-1160	Prehistoric	Contributing
CA-SLO-1161	Prehistoric	Contributing
CA-SLO-1162	Prehistoric	Contributing
CA-SLO-1163	Prehistoric—destroyed	Noncontributing
CA-SLO-2865	Prehistoric	Contributing
CA-SLO-2866	Prehistoric	Contributing

Along with the recorded archaeological sites and associated District, it is important to note that construction of DCPP was completed in 1973; therefore, the plant and its facilities will be 50 years old in 2023, one year prior to the expiration of its NRC operating licenses. Given its age, PG&E recognizes that the historic built environment at DCPP should be formally documented and evaluated to determine if the power plant is an NRHP and/or CRHR-eligible property. This effort is currently being scoped by PG&E.

Figure 6.1-1 - Cultural Resources within the Rancho Cañada de los Osos y Pecho y Islay Archaeological District

[redacted]

Figure 6.1-2 – DCPP Project Area, Proposed Borrow Pit Locations, and known Cultural Resources

[redacted]

6.1.1. Rancho Cañada de los Osos y Pecho y Islay Archaeological District

Robert Hoover first nominated the District to the NRHP in 1974. His initial nomination included 15 prehistoric archaeological sites on the coastal terrace south of the DCPP. Subsequently, Roberta Greenwood (1982) added CA-SLO-2 and -8, both north of DCPP, to the District. In 2015, PG&E updated the District nomination to expand its geographic reach and include more contributing resources on Diablo lands as well as the neighboring the Montaña de Oro State Park. The latest iteration of the nomination documentation was completed in 2019 (Price and Clark 2019) but has not yet gained approval by the State Historical Resources Commission and submission to Keeper of the National Register. Most of the following discussion comes from the updated District nomination form completed by Price and Clark (2019).

As now conceived, the District comprises 2,434 acres and includes 84 prehistoric archaeological sites within PG&E's Diablo lands and Montaña de Oro State Park (Figure 6.1-1). Encompassing an approximately 11-mile-long section of the Pecho Coast, the District covers the coastal terrace extending inland from the Pacific Ocean shoreline to the slopes of the Irish Hills. The terrace is dissected by numerous small canyons that contain seasonal and perennial streams originating in the adjacent hills and draining into the Pacific Ocean. The District is composed of Native American sites that represent both residential and limited activity loci; including 11 villages (one of which is also classified as an ideological site), 8 long-term residences (seasonal residential bases), 33 short-term residences (temporary camps), 1 stone-tool quarrying and manufacturing locale, and 31 locations including 13 flaked stone and shell scatters, 10 flaked stone scatters, 7 shell scatters, and 1 shell scatter with bedrock mortars. Chronometric data indicate that the archaeological sites that collectively make up the District range in age from the Late Paleo-Indian Period (pre-10,000 cal B.P.) to the Historic Period (180 cal B.P).

6.1.1.1. Contributing and Noncontributing Resources

The 84 sites identified as contributing elements of the NRHP-eligible District share not only geographic proximity and the overall environment of the Pecho Coast marine terrace, but also a common prehistory and cultural identity. Archaeological surveys and excavations to date have shown that the sites are remarkably similar in their major attributes [redacted] as well as in their cultural assemblages and components representing each defined period. These contributing archaeological resources have yielded, or have the potential to yield, information important to scientific research domains centered on chronology, subsistence, technology, settlement systems and land-use strategies, sociopolitical organization, and paleoenvironmental change.

Twenty-two of the 106 archaeological sites in the District are noncontributing. These include 7 resources (CA-SLO-584, -1163, -1454/H, -1456, -1460, -1502, and -1503) that lack integrity or have been destroyed by development; 14 sites (CA-SLO-941H, -942H, -943H, -944H, -946H, 956H, -957H, -958H, -959H, -962H, -963H, -964H, -1196H, and -1198H) which appear to date exclusively to the Historic Period; and 1 site, CA-SLO-1452/H, of undetermined age. Historic Period sites may be significant individually, even if they are not contributing elements of the archaeological district. Not all contributing sites have been evaluated for inclusion on the NRHP on an individual basis.

Overall, archaeological and ethnohistoric data indicate that the Pecho Coast was inhabited during the Late Prehistoric Period by the Northern Chumash. Such cultural consistency seems to have occurred in earlier prehistoric times as well, judging from the temporal consistency of archaeological remains in the District. This archaeological coherence makes the District an ideal venue for diachronic studies of subsistence, technology, settlement systems and land-use strategies, sociopolitical organization, and paleoenvironmental change. Sites classified as contributing elements are those that have yielded and/or may be likely to yield information important for the understanding of prehistoric Native American cultural developments within the District (Price and Clark 2019).

6.1.1.2. Significance of the District

The District is significant because its contributing sites have yielded, and have the potential to further yield, important information about prehistoric Native American lifeways over the full range of documented human habitation along the California coast (NRHP, Criterion D). Chronometric data obtained from sites in the District confirm relatively continuous human occupation along the Pecho Coast from at least 10,000 cal B.P. to contact (180 cal B.P.), with each identified period of the District's significance (Paleo-Indian, Milling Stone/Lower Archaic, Early, Middle, Middle-Late Transition, and Late) represented by multiple archaeological sites. Of the 106 cultural resources identified within the District 84 sites contribute to the eligibility of the District, while 22 resources are deemed noncontributing (Price and Clark 2019).

6.1.1.3. Research Potential

[redacted]

[redacted]

6.1.1.4. Integrity

[redacted]

6.1.2. CA-SLO-2

[redacted] covering [redacted] square meters. CA-SLO-2 and -3 were first recorded by Arnold Pilling in 1974, who described the former site [redacted]. Two decades later, Frances Riddell (1966) revisited CA-SLO-2 during a survey for [redacted] [redacted] Later work in the area by Roberta Greenwood (1978b) [redacted] [redacted] CA-SLO-2. As such, she combined the two sites under one site designation—CA-SLO-2/3. As CA-SLO-3 is now known to be part of CA-SLO-2, the combined resource is referred to as CA-SLO-2 and the CA-SLO-2/3 designation will no longer be used.

In 1968, a small area in the southeastern portion of CA-SLO-2 was excavated by Greenwood (1972) [redacted] Greenwood excavated 109 cubic meters using a mixed recovery strategy that was designed to sample artifacts as well as micro- and macro-faunal remains. In the area of her investigations, the site extended to a depth of 3.4 meters (Greenwood 1972:5). [redacted]

[redacted]

[redacted] a wide range of domestic and subsistence activities took place at CA-SLO-2 and suggests that the site functioned as a residential base throughout much of its occupation (Greenwood 1972).

[redacted]

[redacted]

[redacted]

To determine current conditions of CA-SLO-2 for the Project, the site was revisited by Æ Archaeologists Jasmine Kidwell and Marc Linder, and PG&E Senior Cultural Resource Specialist Archaeologist Mike Taggart on November 17, 2020. Based on information provided by Taggart and historical aerial photos, the following disturbances have occurred within the bounds of CA-SLO-2 since the initial development of DCPP: road construction, former wastewater pond/current soil stockpile, former plant construction laydown area, former sand blast area, former substation, existing 230-kV transmission tower, roads, air monitoring station, soldier wall, and redeposited cultural materials. [redacted]

[redacted]

6.1.2.1. Former Wastewater Pond/Current Soil Stockpile

This [redacted] artificial terrace along [redacted] margin of CA-SLO-2 formerly served as a [redacted] and later supported a building complex that DCPP security and firefighters used for training exercises. Currently, this terrace [redacted]. The surface is graded and capped with fill.

6.1.2.2. Former Laydown Area

The [redacted] laydown area, as depicted from aerial photographs, appears to have been graded to some extent, or at the very least, subjected to vegetation removal. This area served as an equipment staging area during the construction of the DCPP in the 1970s.

6.1.2.3. Former Sand Blast Area

The [redacted] sand blast area is nested within the former laydown area. The area was roughly delineated using the current visible surface extent of sand blast grit and granite gravel. Nonnative pampas grass is visible throughout this disturbance, as well as encroaching coastal sage scrub vegetation. This sand blast grit was likely deposited during the construction of the DCPP in the 1970s.

6.1.2.4. Former Substation

The [redacted] former substation is comprised of a gravel capped road and fill area at the [redacted] of the site. The substation was removed by 1979 as indicated by aerial photography. The [redacted] of the former substation.

6.1.2.5. 230-kV Transmission Line and Tower

Areas of disturbance include the 230-kV transmission line tower supplying backup power to the DCPP, where the ground surface has been mechanically graded with some areas cut and others filled (Linder 2010). [redacted] existing access road was capped with fill, which has also been used to armor the ground surface around the tower to facilitate maintenance (Haydu and Price 2011). The tubular steel pole for the transmission tower was replaced in 2020 while reusing the existing foundation and guy wire anchors to avoid ground disturbance. Vegetation was removed near the two guy wire anchors and to provide crane access. Prior to replacement, in 2019, SWCA conducted archaeological excavation adjacent to the tower when a new tower foundation was part of the engineering scope. [redacted]

[redacted]

6.1.2.6. Roads

[redacted]

6.1.2.7. Air Monitoring Station

An air monitoring station [redacted]. During the site revisit, one shell fragment was observed within the fill surrounding the air monitoring station.

6.1.2.8. Soldier Wall

In early 2018, dark soil sloughed from the face of the steep road cut onto Pecho Valley Road, along the eastern portion of the site. While no artifacts or other cultural materials were observed in the slough, the material was treated as a cultural matrix. The material was collected from the road surface and redeposited on an abandoned ranch road on the margin of the site. To stabilize the hillside and prevent further erosion during heavy rain events, a 540-foot-long by 2-foot-tall soldier wall was installed along the north portion of this road to stabilize and reinforce the hillside (Laurie 2020). The low retaining wall was constructed well below the cultural stratum and did not impact the site.

6.1.2.9. Redeposited Cultural Materials

[redacted]

6.1.3. CA-SLO-61

[redacted] Pilling originally recorded the site in 1948, describing the site as a “gathering site on the coast” that was approximately 45 by 14 meters. Pilling later expanded the boundary to 73 by 16 meters (Pilling 1951). Greenwood

(1972) excavated approximately 6 cubic meters of soil, producing 41 cataloged artifacts. Following this work, the site was [redacted].

Æ excavated a small portion of the site exposed during [redacted] in 2011 (Price et al. 2012). Additionally, in support of [redacted], Æ conducted excavations at CA-SLO-61 prior to excavation of [redacted] footings (Wendel and Enright 2017). Æ's work expanded the site area to approximately 94 meters north-south by 35 meters east-west, covering 2,215 square meters along the coastal terrace near the [redacted]. [redacted]

CA-SLO-61 seems to reflect short-term residential activity during the Early and Middle periods, between 5295 and 2035 B.P. The site has been previously evaluated as a contributing element of the District (Price and Clark 2019). Although within the DCPP Project area, this site was not revisited or updated during the site update effort as this resource was recently tested and which included an updated site record (Wendel and Enright 2017). Due to the site's proximity [redacted] effects of decommissioning activities will need to be considered for CA-SLO-61.

6.1.4. CA-SLO-584

Originally recorded by Riddell in 1966, CA-SLO-584 is a 1,860-square-meter, short-term residence [redacted] (Riddell 1966). The site was excavated by Greenwood (1972) prior to construction of the DCPP. Construction destroyed the site, which is now covered by [redacted] Due to the destruction of CA-SLO-584, it is considered a noncontributing element of the District (Denardo and Texier 2006; Price and Clark 2019). Since the site is covered by [redacted] this resource was not revisited, and an updated record was not completed.

6.1.5. CA-SLO-1159

Recorded as [redacted] in 1966, CA-SLO-1159 is a 363-square-meter, short-term residence [redacted] (Caruso and Montizambert 1986a). [redacted] The site was minimally examined by Greenwood (1972:3) and no further excavations or subsurface testing has occurred. [redacted]

Æ revisited CA-SLO-1159 on November 19, 2020. [redacted] Although the 1986 digitized site boundary is slightly mis-plotted, the site remains as previously described. Æ updated and mapped the site's boundary to reflect current standards. Ground visibility was poor except for a narrow foot trail running longitudinally through the site. Vegetation is comprised of small shrubs of the coastal sage scrub plant community. Outside of the bare cleared footpath, ground visibility was completely obscured with small pockets of less than five percent visibility throughout the site. [redacted] No flaked, ground stone, or diagnostic artifacts were noted during the revisit. A total of six shell fragments were observed including mussel, black turban snail, abalone, and gumboot chiton.

6.1.6. CA-SLO-1160

[redacted] CA-SLO-1160 was first recorded in 1966 and is a 935 square-meter short-term residence [redacted] (Caruso and Montizambert 1986b). [redacted]

Æ revisited CA-SLO-1160 on November 19, 2020. Although the 1986 digitized site boundary is slightly mis-plotted, the site location remains as previously described. Æ updated and mapped the site's boundary to reflect current standards. [redacted] Ground visibility was poor except for a trail running through the site along exposed sandstone outcrops. Vegetation is comprised of small shrubs of the coastal sage scrub plant community. Outside of the trail, ground visibility is completely obscured with small pockets of less than 5 percent visibility throughout the site. Typical dark, organic rich midden soils were not observed. Due to safety constraints, portions of the site closest to the cliff margins were not visited or inspected for cultural materials. [redacted]

6.1.7. CA-SLO-1161

Formally recorded in 1986 by Caruso et al. (1986a), CA-SLO-1161 is a 5,593-square-meter, short-term residence [redacted]

[redacted] The site record notes two chert flakes and an edge modified basalt flake (Caruso et al. 1986a). [redacted] no subsurface testing has occurred at this location. It is a contributing element of the District (Price and Clark 2019).

Æ revisited CA-SLO-1161 on November 18, 2020. [redacted] Although the 1986 digitized site boundary is slightly mis-plotted, the site location remains as previously described; however, the site now extends [redacted] Æ updated and mapped the site's boundary to reflect current standards. Ground visibility was moderate to poor. Vegetation is comprised of thistle, mustard, and nonnative grasses along the terrace and small shrubs of the coastal sage scrub plant community along the reaches of the [redacted]. Visibility is best along [redacted] Outside of the [redacted], ground visibility [redacted] is obscured with small pockets of less than 5 percent visibility. Pockets of dark, organic rich midden soils were observed throughout the site. [redacted] There is a small, modern shed topped with solar panels. Two plastic conduits, likely carrying cables transmitting energy, run from the shed southwest to the peninsula where they split and join two separate antenna stations. Exposed sandstone outcrops are present along the northeastern portion of the site.

[redacted] The site's boundaries may extend to this area, or even join CA-SLO-2866; however, dense, chest-high vegetation obscured the ground surface and the site boundary could not be determined. Subsurface testing is recommended for defining this site's boundary and relation to nearby resources in the event the Project would encroach upon it. No flaked, ground stone, or diagnostic artifacts were present. [redacted]

6.1.8. CA-SLO-1162

CA-SLO-1162 is a 10,731-square-meter, short-term residence [redacted] Recorded in 1986, the site sits on a west-facing slope next to a small drainage (Caruso et al. 1986b) and is observable [redacted] extending approximately 130 meters upslope. [redacted] Two loci of lithic debitage were observed in the eastern and central area of the site (Caruso et al. 1986b). [redacted] No subsurface testing has occurred at this location. It is a contributing element to the District (Price and Clark 2019).

Æ revisited CA-SLO-1162 on November 16 and 18, 2020. Æ updated and mapped the site's boundary to reflect current standards and extent of the site's deposits. As noted by Caruso et al.

(1986b), this site extends southwest to CA-SLO-2866. These locales likely represent one habitation area but will be maintained as two separate resources for management purposes (Michael Taggart, personal communication 2020). [redacted]

Ground visibility was moderate with pockets of dense vegetation. Vegetation is comprised of thistle, mustard, and nonnative grasses and chapparal within the spring-fed drainage north of the site. [redacted]

[redacted]

6.1.9. CA-SLO-1163

CA-SLO-1163, recorded in 1986, is a 254-square-meter, short-term residence [redacted] (Caruso et al. 1986c). [redacted] No subsurface testing or a full accounting of surface materials has occurred. [redacted] It is unclear whether construction of the intake facility impacted this site; [redacted] CA-SLO-1163 is a noncontributing element to the District (Price and Clark 2019). Due to safety concerns and this site's challenging location near the breakwater, this resource was not revisited, and an updated record was not completed. Mike Taggart (personal communication 2020) [redacted] The site is considered destroyed.

6.1.10. CA-SLO-2865

Recorded in 1992 during a survey of the South Ranch, CA-SLO-2865 is a 221-square-meter, [redacted] (Tremaine et al. 1992). Disturbances appear to be minimal from cattle grazing, rodent bioturbation, and active erosion along the drainage and cliff edge. CA-SLO-2865 is a contributing element of the District (Price and Clark 2019).

Æ revisited CA-SLO-2865 on November 16, 2020. Æ updated and mapped the site's boundary to reflect current standards. Ground visibility was excellent, likely due to recent cattle grazing. Vegetation is comprised of nonnative grasses along the terrace and small shrubs of the coastal sage scrub plant community and poison oak within a drainage running along the site's southern and eastern boundary. CA-SLO-2865 remains a sparse scatter of cultural material including three abalone shell fragments and one piece of chipped stone debitage. No other artifacts were observed on the site's surface.

6.1.11. CA-SLO-2866

Recorded in 1992 during a survey of the South Ranch, CA-SLO-2866 is a 2,840-square-meter site [redacted] (Tremaine et al. 1992). Disturbance appears to be minimal from ranching and agricultural activities. [redacted] CA-SLO-2866 is a contributing element of the District (Price and Clark 2019).

Æ revisited CA-SLO-2866 on November 16, 2020. [redacted] Æ updated and mapped the site's boundary to reflect current standards and extent of the site's deposits. [redacted] As mentioned above, these locales likely represent one habitation area but will be maintained as two separate resources for management purposes (Michael Taggart, personal communication 2020).

[redacted]

[redacted] The site's boundaries may extend to this area, or even join CA-SLO-1161; however, dense, chest-high vegetation obscured the ground surface and the site boundary could not be determined. Subsurface testing is imperative for defining this site's boundary and relation to nearby resources. No formal flaked, ground stone, or diagnostic artifacts were present. [redacted]

6.2. Pismo Yard Project Area

Of the seven archaeological sites and two historical built-environment resources within a 0.25-mile radius of the Pismo Yard (Kidwell and Enright 2019), two archaeological sites, CA-SLO-81 and -832, are within the Pismo Yard Project area (Figure 6.2-1). Although CA-SLO-81 and -832 are likely part of the large prehistoric complex now recorded as CA-SLO-832 (Bertrando 2000; Jones et al. 2001), no formal testing has been completed within the Pismo Yard to confirm this connection. Records from the CCIC address these resources as separate sites approximately 45 meters apart. For the purposes of this effort, Æ will continue to keep them separated until subsurface testing is completed to determine if they represent the same cultural deposit.

Figure 6.2-1 – Pismo Yard Project Area and known Cultural Resources

[redacted]

6.2.1. CA-SLO-81

CA-SLO-81 was originally recorded by Osborne and Pilling in 1949 during their surveys for the University of California (Jones et al. 2001; Osborne and Pilling 1949). [redacted] It is likely that CA-SLO-81 is part of the extensive prehistoric cultural complex that is now documented as CA-SLO-832. CA-SLO-81 has not been formally tested or evaluated; however, given that it is likely an extension of CA-SLO-832, significant archaeological deposits may be present in the area currently recorded as CA-SLO-81.

6.2.2. CA-SLO-832

CA-SLO-832, [redacted] was first formally recorded by Sawyer (1976) during a survey for the proposed Pismo Beach City Hall expansion. He documented CA-SLO-832 [redacted]

[redacted]

Over the last several decades, multiple studies have covered various parts of CA-SLO-832 (Bethard et al. 2000; Breschini 1979; Gibson 1980, 1982; Jones et al. 2001; Jones and Mikkelsen 2009; Parker 2002; Singer 2003). These studies include testing and evaluation by the California Department of Transportation for improvements to U.S. 101, residential development, [redacted]

While many areas of CA-SLO-832 have been impacted by modern construction and development, many studies have identified intact deposits throughout the recorded boundaries of the site. Because the site has provided important information about regional prehistory, and has potential to provide additional information, CA-SLO-832 has been determined eligible for the NRHP under Criterion D with SHPO concurrence, and for listing on the CRHR under Criterion 4 (i.e., Kiaha and Levulett 2004). Æ's cultural resource survey found evidence that CA-SLO-832 extends into the Pismo Yard (Kidwell and Enright 2019). To further define the surface and subsurface extent of archaeological deposits in the Pismo Yard, an archaeological testing program is warranted to determine if significant deposits associated with CA-SLO-832 are present.

7. Impact Assessment

This CRISP has provided an updated cultural context and Central Coast specific research design; summarized previous studies at DCPP and Pismo Yard; and provided a summary of cultural resources within the two areas of the Project. This section provides an initial assessment of the potential impacts of the Project to NRHP/CRHR-eligible properties or contributing elements of the District within the DCPP Project area.

For the Pismo Yard, as it is unknown if significant deposits extend into the Project area. If modifications to the Pismo Yard are required as part of the Project, PG&E will initiate a testing program to determine if cultural materials are present and assess if these materials contribute to the significance of CA-SLO-832. This testing effort would be reported in a supplement document where results of testing will be provided along with an assessment of impacts. Therefore, this section provides an impact assessment for only the historic properties within the DCPP Project area.

7.1. Regulatory Setting

The bulk of the decommissioning activities, including D&D of SSC and site restoration, will occur primarily within the 750-acre high-security zone surrounding the DCPP. Assessment of Project impacts or effects on historic properties is based on thresholds defined in Section 106 (36 CFR 800.5) and CEQA statue and guidelines.

Under CEQA 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 State 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 a historical resource would be materially impaired) in the significance of a historical resource, first the lead agency must seek alternatives to avoid or minimize impacts. If alternatives are not feasible then the lead agency is required to identify measures to mitigate these effects (14 CCR 15064.5[b][1], 15064.5[b][4]).

For projects under CEQA, mitigation of impacts must lessen or eliminate the impact that a project would have on the historical resource. This is often accomplished through documentation of the resource, development of interpretive materials, selective feature preservation, etc., prior to the impact. If documentation is used for mitigation it should be proportionate with the level of significance of the resource. For archaeological sites, "documentation" generally comes in the form of data recovery excavation, associated laboratory and technical analysis with findings documented in a report. Frequently public outreach is also used to mitigate impacts.

For Section 106, impacts are discussed as adverse effects. The lead agency, in consultation with SHPO and stakeholders, is required to apply the criteria of adverse effect on any historic property within the project APE (36 CFR 800.5 [a]). An adverse effect is any action that would diminish, either directly or indirectly, the characteristic(s) of the historic property that qualify if for inclusion on the NRHP. Specifically, effects that adversely change the integrity of the property's location, design, setting, materials, workmanship, feeling or association (36 CFR 800.5 [a][1]) are considered adverse.

Through the Section 106 process, adverse effects are resolved following 36 CFR 800.6 where the lead agency continues consultation with the SHPO and stakeholders to develop alternatives that would avoid, minimize, or mitigate impacts. Once measures are agreed upon, an agreement document (generally a Memorandum of Agreement; MOA) is developed that provides stipulations to resolve the adverse effects (36 CFR 800.6 [c]). If the full scope of the undertaking cannot be known in advance, a Programmatic Agreement (PA) may be appropriate. Typically, the agreement document defines the need for specific avoidance measures, treatment of adverse of effects through data recovery or other documentation and the role for ongoing consultation or involvement of the stakeholders through the life of the undertaking.

It is important to note that determination of impacts/ effects is the responsibly of the lead state and federal agencies. Determinations should be made in consultation with stakeholders and the SHPO (See Section 8 for the Stakeholder Participation Plan). The assessments provided below are recommendations for the lead agencies to take into consideration during the impacts/ effects determinations.

7.2. DCPP Project Area Impacts

Figure 7.2-1 shows the proposed demolitions and disturbances planned for the Project. Ground disturbance includes demolition of buildings, features, roads, utilities, and miscellaneous elements such as parking lots. Additionally, two borrow pits have been proposed to provide fill material. As shown in Table 7.2-1, it appears that only CA-SLO-2 and -61 may be impacted by the Project.

Table 7.2-1 – Impacts to DCPP Project Area Sites

Site	Project Element	Potential Impact	Comments
CA-SLO-2	[redacted] removal; [redacted] to be eliminated	Ground disturbance for [redacted] and potential [redacted] within intact archaeological deposits	A substantial adverse change to CA-SLO-2 is likely based on current Project scope. Sources of impact include a borrow pit that would intrude into the eastern portion of CA-SLO-2, covering over 3 acres of the resource; and potential ground disturbance within intact portions of the site for removal of infrastructure and possible remediation.
CA-SLO-61	[redacted] be demolished	Ground disturbance within intact archaeological deposits	A substantial adverse change to CA-SLO-61 is expected. Previous excavations at CA-SLO-61 have demonstrated that intact portions of the site still exist under the current [redacted]
CA-SLO-584	[redacted]	None	No demolition is planned at the [redacted] site is presumed destroyed, lying under 60+ feet of fill.

Site	Project Element	Potential Impact	Comments
CA-SLO-1159	None	None	Site is on [redacted] beyond developed DCPP area. No proposed ground disturbance in this area. Standard resource protection measures are sufficient to avoid impacts.
CA-SLO-1160	None	None	Site is on [redacted] beyond developed DCPP area. No proposed ground disturbance in this area. Standard resource protection measures are sufficient to avoid impacts.
CA-SLO-1161	None	None	Site is on [redacted] beyond developed DCPP area. No proposed ground disturbance in this area. Standard resource protection measures are sufficient to avoid impacts.
CA-SLO-1162	[redacted] o be preserved	None	No impacts expected, no proposed ground disturbance in this area. However, if road work is needed beyond existing prism and drainage features, impacts may be possible.
CA-SLO-1163	Demolition of [redacted]	None	It is not anticipated that these activities will impact CA-SLO-1163. Site is [redacted] that is at a higher elevation than the Project features.
CA-SLO-2865	None	None	Site is on [redacted] beyond developed DCPP area. No proposed ground disturbance in this area. Standard resource protection measures are sufficient to avoid impacts.
CA-SLO-2866	None	None	Site is on [redacted] beyond developed DCPP area. No proposed ground disturbance in this area. Standard resource protection measures are sufficient to avoid impacts.
Rancho Cañada de los Osos y Pecho y Islay Archaeological District	All	None	The significance of the District lies in the importance of the prehistoric archaeological resources. Removal of the DCPP and infrastructure would not impact the District as a whole.

Site disturbances at CA-SLO-2 are likely to result in a substantial adverse change through destruction or alteration that would impair its historical significance (14 CCR §15064.5[b][1]) [redacted] The extent and severity of impacts at the archaeological site requires further characterization, but in any case, warrants consultation with stakeholders, consideration of alternative scope elements, and mitigation to reduce the severity of impacts. Standard resource protection measures, such as personnel training, establishing work restriction/exclusion zones, temporary boundary marking, and occasional archaeological and tribal monitoring should be employed for work within CA-SLO-2 but will not be sufficient to avoid a significant impact.

Similarly, CA-SLO-61 is likely to experience a substantial adverse change due to its location at several critical decommissioning features. While the site was damaged during construction of DCPP, [redacted] It is unlikely that this area can be avoided during the Project. Expected impacts warrant consultation with stakeholders and mitigation to reduce the severity of impacts.

The remaining sites at the DCPP Project area (CA-SLO-584, -1159, -1160, -1161, -1162, -1163, -2865, and -2866) lie beyond areas proposed for ground disturbance as part of the Project activities. Standard resource protection measures, such as personnel training, establishing work restriction/exclusion zones, temporary boundary marking, and occasional archaeological or tribal monitoring are sufficient to avoid significant impacts at these sites.

When considering impacts/adverse effects to the NRHP-eligible District, the character or type of contributing elements of a district comes into play. The District's significance lies in the importance, quantity, and integrity of the prehistoric resources on Diablo lands. The DCPP plant itself is not part of the District, so the decommissioning of the plant and associated infrastructure are not part of the consideration. Only two NRHP-eligible resources within the District, CA-SLO-2 and -61 may be impacted by the Project; however, impacts to these resources will not affect the significance of the District as a whole. Additionally, it can be argued, that removal of the DCPP will aid in returning some of the elements of integrity such as setting to the Diablo property. Therefore, the Project would not adversely impact the District as a whole.

As previously mentioned, DCPP itself, will reach 50 years of age in 2023. Therefore, once the facility and its associated buildings and infrastructure are recorded and evaluated for significance under CRHR and NRHP, and if the property is deemed a historic property then impacts from the Project will have to be assessed.

Figure 7.2-1 – DCPP Project Area, Areas of Direct Impact, and known Cultural Resources

[redacted]

7.3. Recommendations

Section 106 and CEQA provide guidance on how reduce or mitigate potential impacts/adverse effects by the Project on the historic properties. If possible, avoidance measures should be built into the project to avoid direct or indirect impacts. Standard resource protection measures, such as personnel training, establishing work restriction/exclusion zones, temporary boundary marking, and occasional archaeological and tribal monitoring should be employed for work in areas that contain or may contain cultural materials. If avoidance is not feasible then documentation through data recovery or other means should be completed to record the elements or contents of the historic property that will be impacted. Under CEQA these measures would be defined through mitigation measures placed on the project as conditions of approval. Mitigation measures typically include development of a Data Recovery Plan and/or Construction Monitoring Plan, construction monitoring, inadvertent discoveries protocol, proper handling and reburial of human remains, and options for public outreach. For Section 106, the lead federal agency will develop and implement an agreement document (MOA or PA) to resolve adverse effects that may contain stipulations for treatment that would likely include data recovery, processes for construction monitoring, handling of discoveries during construction, proper handling of human remains and reburial, public outreach, etc.

7.4. Human Remains Protocol and Reburial Area

It is possible that human remains and associated materials will be unearthed during construction within the DCPP Project area. If human remains are encountered during construction, all excavation or disturbance of the site or any nearby area reasonably suspected to overlie human remains will stop, and state laws and requirements governing the treatment of such remains will be followed.

These laws require that the County Coroner be notified to determine whether an investigation into the cause of death is warranted. If the remains are likely to be of Native American origin, the Coroner will contact the NAHC, who will designate a MLD. The MLD may recommend the appropriate deposition of the human remains and any associated grave goods to the landowner, as provided in the Health and Safety Code Section 7052 and 7050.5 and PRC Section 5097.98.

Once PG&E and the MLD have agreed upon a preferred treatment, landowner, the lead agencies, the MLD, will discuss how to implement the burial treatment and continue construction activities. Avoidance is always the preferred method of treatment; however, if avoidance cannot be achieved, reburial and/or data recovery may be alternative options.

8. Stakeholder Participation Plan

PG&E recognizes that the Proposed Project may affect many groups or interested parties and understands the importance of working with the local communities and regulatory agencies to provide opportunities for engagement with possible stakeholders. As part of this involvement, groups and individuals with historical and cultural ties to the area, scientific research interests, and similar kinds of information and interests are invited to participate in identification and management of cultural resources through the decommissioning process. Stakeholders can include potentially affected landowners; nearby residents; concerned citizens; elected representatives; federal, state, and local government officials; non-governmental organizations (local or national advocacy groups and chambers of commerce, etc.); Native American tribes; community leaders; and the media.

For cultural resources, NEPA and Section 106 of the NHPA, require the lead federal agency to consult with stakeholders with historic and cultural ties to the APE, as well as those with an interest in cultural resources that might be affected by the Project. For decommissioning a nuclear facility, the Federal Energy Regulatory Commission recommends commencing stakeholder outreach early in the planning process. Additionally, the lead state agency under AB 52 is required to provide tribes an opportunity to identify TCR and consult. Consultation by the federal and state agencies will help establish the APE/Project area, identify significant properties, potential effects and impacts, and provide recommendations to resolve adverse effects and significant impacts. Consultation under Section 106 includes government-to-government consultation with federally recognized tribes and coordination with other Native Americans having an interest in the area.

While the lead state and federal agencies are required to conduct outreach and government-to-government consultation with tribal groups, this Stakeholder Participation Plan outlines the responsibilities of the lead state and federal agencies and provides PG&E a process to follow for their own stakeholder outreach to supplement consultation conducted by the lead agencies. PG&E has already initiated outreach to the local community through development of the Diablo Canyon Decommissioning Engagement Panel (DCDEP). The goal of the DCDEP is to provide the community, stakeholders, and regulatory agencies information about the decommissioning process and, in turn, provide recommendations that reflect the community's wishes for what may occur before, during, and after decommissioning. This Stakeholder Participation Plan will complement the outreach and community engagement already initiated by PG&E.

8.1. Roles and Responsibilities

8.1.1. Nuclear Regulatory Commission

The NRC is anticipated to serve as the lead federal agency for decommissioning of DCPP and will be responsible for identifying historic properties that will potentially be adversely affected by the Project, for consulting with the SHPO on these impacts, and for identifying measures to minimize impacts. The NRC will also be responsible for ensuring interested tribes, other stakeholders, and members of the public with interests in cultural resources are informed about potential Project impacts on those resources. Stakeholders must be provided an opportunity to comment on Project impacts to cultural resources, as well as contribute ideas to the mitigation of those impacts. It is anticipated that the NRC will work with PG&E to ensure confidential information about archaeological and historical sites and traditional cultural properties or resources are not disclosed to the public, but that sufficient information is provided to garner insights to public perspectives regarding the mitigation of or long-term management of these resources. The NRC will be responsible for government-to-government consultation with federally recognized tribes. Section

106 and NRC consultation is not expected to begin until current operations of DCPP are terminated in 2025.

8.1.2. California Coastal Commission/San Luis Obispo County

The CCC has ultimate regulatory jurisdiction in the Coastal Zone but delegates its authority to local governments that have certified LCP. The San Luis Obispo County LCP, which includes the DCPP, is the San Luis Bay Area (Coastal) Plan (County of San Luis Obispo 2009). It encompasses several area- and use-specific plans and ordinances that contain provisions regarding the treatment of cultural resources and coordination with local Chumash tribal groups. Because the entirety of DCPP lands are within an unincorporated area of San Luis Obispo County, it is anticipated the County will serve as the lead local agency for the Project. As described in Section 2.2.2., the lead local agency is responsible for government-to-government consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of a Proposed Project.

Prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report for a project, the lead agency shall initiate consultation California Native American tribes with traditional and cultural ties to the geographic region. The NAHC can provide the lead agency with a list of California Native American tribes with traditional and cultural ties to the area. AB 52 provides these tribes with an opportunity to identify TCR in the Project area that are important to them, and to request consultation regarding Project alternatives, identification of potential significant effects on these resources, and to discuss recommended mitigation measures.

8.1.3. PG&E

PG&E plans to implement a process to support the lead agency requirements that pertain to the identification, assessment, and treatment of cultural resources. This includes facilitating and implementing outreach with federally and non-federally recognized tribes and coordination with appropriate governmental agencies, other individuals having interest in the area including ranchers and descendants of Japanese farmers and subsequent ranchers, and public and non-governmental organizations having ties to the area such as the DCDEP. This may include outreach to the NAHC and initiating and documenting contact with known stakeholders. PG&E is also responsible for compiling technical studies that document, inventory, evaluate, and assess possible impacts to the cultural resources within the Proposed Project area. These technical documents will be used to inform stakeholders on cultural resources within the Project area.

8.2. Regulatory Setting

The Section 106 implementing regulations (36 CFR 800) and CEQA Guidelines provide for the involvement of both federally recognized Native American tribes (Section 106) and tribes recognized by the State of California, as well as other parties that hold a historic connection to the area. These authorities call for consultation to establish the APE/Project area, identify significant properties, potential effects and impact, and resolve adverse effects and significant impacts.

Consultation under Section 106 includes government-to-government consultation with federally recognized tribes and coordination with other Native Americans having an interest in the area.

The lead agency's government-to-government obligations are not limited to Section 106, but instead apply to the various legal requirements, including NEPA, associated with the evaluation of a proposed action. NEPA can provide flexibility in assessing and resolving tribal and other stakeholder issues, which may not easily fit within, or may be beyond the scope of, the Section 106 framework. As part of the NEPA process, the lead agency may identify tribal concerns pertinent to the Proposed Project through government-to-government consultation, scoping, interviews, documentary research, or other means. It is important to remember that Section 106 and NEPA both require government-to-government consultation and may provide complementary approaches to addressing tribal concerns. Tribes under any circumstances may have concerns regarding resources that require analysis under Section 106 for some issues, but NEPA for others.

NEPA, Section 106, and CEQA compliance documents will provide a summary of tribal consultation and contacts, highlight tribal and stakeholder concerns, and fully disclose considerations pertinent to the decision; this will help to demonstrate that PG&E has made a good faith effort to hear and consider tribal issues. Confidential information should not be disclosed, but it may be useful to identify the general subject(s) of such confidential reports in public NEPA documents.

8.3. Identification of Stakeholders

To begin presenting the Proposed Project to stakeholders having a cultural and historical interest, a thorough search will be conducted to identify all parties with historical ties or interests who may be affected by or may be interested in the Project. Acquiring accurate data and maintaining the stakeholder list is important to guard against stakeholder claims that they were not notified. Development of a stakeholder list should begin as soon as feasible. The stakeholder list may include affected landowners, federally recognized and non-recognized tribes, county and municipal elected officials, federal, state, and local agencies, local community leaders, local special interest groups, and non-governmental organizations.

The levels of interest that these parties may have in a Project can range from minor to major, and the level of coordination and engagement should be commensurate with the party's level of interest and connection the affected resources. For example, Native American tribes with ancestral ties to the land and to archaeological sites on the land would likely have a major interest in how the Project could affect the land and archaeological sites within the Project area. In contrast, volunteers at the local historical museum may have a minor interest in potential Project impacts on historic-era properties in the Project area. Based on known cultural resources within the Project area, stakeholder outreach will seek to involve the DCDEP, Native American, Japanese American, and potentially other communities with ties to the Diablo lands.

8.3.1. Diablo Canyon Decommissioning Engagement Panel

In 2018, PG&E convened the DCDEP, comprised of volunteers who broadly reflect the diverse community stakeholder interests. Since 2018, this panel has participated in several public meetings and workshops pertaining to decommissioning activities and shared the outcomes of these workshops/meetings with PG&E—this information has contributed to PG&E's decommissioning plans. It is anticipated that PG&E will work with closely the DCDEP to identify groups and individuals with historical ties to lands in the DCPP planning area, as well as those with an interest in cultural resources in the Project area.

At the start of the stakeholder outreach process, PG&E will contact the DCDEP to identify stakeholders they have been meeting with since 2018 and determine whether any of these have expressed an interest in the history, prehistory, or archaeology of the Project area. The DCDEP already has an established relationship with stakeholders, including nearby landowners, local businesses, community leaders, special interest groups, and non-governmental organizations. The DCDEP is already a known entity among stakeholders and has systems in place for making public notifications about decommissioning, sharing information on their website, and soliciting comments from the public. Further engagement with DCDEP may elicit information on the historical ties groups or individuals have to the area, as well as interests in cultural resources in the Project area, including scientific interests in the archaeological, ethnographic, and historical record.

8.3.2. Affiliated Native Americans

As noted in Section 2.2.2, the lead federal and local agencies are responsible for formal consultation with Native American tribes. Outreach to tribes by the applicant at the outset of decommissioning planning is recommended to better ensure their interests and concerns are adequately considered, which in turn can facilitate consultation undertaken pursuant to Section 106 and AB 52.

San Luis Obispo County lies within the traditional territory of the Northern Chumash. The YTT and the Northern Chumash Tribal Council are the two principal tribal groups who have been engaged in work on DCPP lands in the past, though other groups and individuals are also likely to be consulted. Engagement with tribal communities should be respectful of demonstrated family affiliation within the APE/Project area, standing in the decommissioning proceedings, and precedent established by the NAHC through past designations of MLD status.

Outreach will consist of a letter of inquiry to the NAHC to obtain an updated list of local tribal representatives. Following receipt of the NAHC's response, letters will be mailed to local tribal representatives introducing the Proposed Project and soliciting input or participation. Letters will be followed by phone calls and other communication, tribal outreach meetings, and field tours of the Project areas. The ultimate goals of tribal outreach will be to identify properties of traditional cultural value that could be affected and provide a forum for affiliated Northern Chumash people to provide input on the assessment of impacts, alternatives considered, and mitigation that may be warranted. PG&E initiated this process on January 19, 2021 and requested a current list of Native American contacts from the NAHC.

8.3.3. Japanese American Farmer Descendants

Japanese and Japanese American families began agricultural enterprises in California in the 1860s, and by the first decade of the twentieth century, they comprised a substantial percentage of the farm labor force in the state. The Yoshida, Teraoka, and other Japanese families settled on the Pecho Coast shortly thereafter, leasing land from the Spooner family to grow bush peas, artichokes, and other crops. These families farmed the Pecho coastal terrace until they were involuntarily forced off the land and into internment camps in 1942. Japanese American families with ties to the area are still present. Over the years, several researchers have documented the history of Japanese farming on DCPP lands, and PG&E has developed a relationship with the Yoshida and Teraoka families. Most recently, an ethnohistoric study by Jennifer Whiteman (2013) included interviews with family members and a visit with family members [redacted] For the current Project, PG&E should continue to build on the existing relationships previously forged with the descendants of these Japanese families.

8.3.4. Other Members of the Public

As noted above, DCDEP has a long working relationship with stakeholders with an interest in the Project and Project area. It would be beneficial to use their existing networks and notification systems to identify groups and individuals with historical ties or with an interest in cultural resources in the Project area. Groups and individuals the DCDEP have been engaged with since 2018 should be reviewed by PG&E to determine whether other groups should be invited to participate as stakeholders (e.g., Cal Poly and Cuesta Collage anthropology departments, local historical groups and societies, etc.). Information on the time, place, and agenda of public meetings dedicated to cultural issues should be sent to DCDEP's general stakeholder groups, as well as these newly identified groups.

8.4. Outreach Process

PG&E looks to proactive engagement as key to the success of the Proposed Project. This relies on PG&E working in a collaborative manner with stakeholders to ensure the successful implementation of this plan. The goal is to establish forums for stakeholders to pose questions and discuss concerns regarding the Proposed Project that can be taken into consideration.

8.4.1. Notification

Once stakeholders and interested parties are identified, PG&E will notify these individuals or groups by providing written notification either in the form of an email or through mail. The notification will include information regarding the Project and cultural resources that may be impacted, to the extent appropriate. Notification will also include a time frame for response from the stakeholders to indicate that they would like to continue engagement in the stakeholder outreach process. As this notification is separate from formal government consultation initiated by the lead agencies, PG&E can set the response window as they deem appropriate. Typically, stakeholders are given 30 to 60 days to respond regarding their interest in the stakeholder outreach process. Additionally, if appropriate, PG&E will follow up the notification with phone calls to ensure that all interested parties received the notification letter. PG&E will keep records/lists of when letters are sent out or phone calls and any received responses.

8.4.2. DCDEP Website

PG&E will ensure current Project information is available on the DCDEP website (https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/engagement-panel.page). The website will provide an overview of the proposed decommissioning process with updates that may focus on the following topics:

- General project information such as project overview, site information and maps, facility and deconstruction overviews, and regulatory process details;
- Decommissioning informational materials including fact sheets, frequently asked questions, and project newsletters (as applicable);
- Regulatory information including local lead agency information, related federal and state environmental documents, and a link to a related e-library;
- Public participation opportunities such as dates and locations for open houses and scoping meeting; locations of public repositories in the Project area where Project-related NEPA and CEQA documents will be available for public viewing, if appropriate; and
- Project contact information for email, phone number, mailing address, and a single point of contact.

8.4.3. Outreach Meetings

Meetings will be scheduled with stakeholders and interested parties identified by PG&E. Meetings will generally be announced at least 10 calendar days before the meeting date. If a meeting must be scheduled but cannot be announced 10 calendar days in advance, PG&E will provide as much advance notice as possible. Meeting announcements may include the date, time, and location of the meeting, as well as its purpose, the PG&E offices and outside participants who plan to attend, and the name and telephone number of the PG&E contact for the meeting.

The purpose of the cultural stakeholder meetings is to:

- Define the PG&E's role and responsibilities to support compliance with Section 106, CEQA, and other cultural resource authorities;
- Provide appropriate information regarding known cultural resources, particularly significant landscape-scale resources in the Project planning area;
- Solicit input or participation in studies needed to complete the Project and requirements for acceptable performance;
- Provide a Project timeline for completion of any supplemental data collection, and assessments;
- Address other cultural resource requirements pertinent to the proposal; and

- Establish a schedule of future cultural stakeholder meetings.

The cultural stakeholder meetings should include an invitation for the SHPO and potentially interested tribes and other public stakeholders. It is likely that PG&E will conduct focused meetings with specific tribal groups as requested. PG&E should notify all parties about the proposed decommissioning to help determine the nature of potential concerns and whether they intend to attend the decommissioning meetings.

8.4.4. Field Visits

Site visits provide an opportunity for PG&E and stakeholders to see the Project area firsthand, and for PG&E staff to hear about specific issues and concerns. The purpose of these visits is to provide an opportunity for PG&E to speak with the attending stakeholders to explain construction procedures in the field, describe how the Project will be conducted, and discuss unique situations and/or environmental concerns with agencies and stakeholders. PG&E will provide construction diagrams and any site-specific mapping available during the site visits. The frequency of field meetings will be dictated by stakeholder interest provided during notification and meetings. Notes from these meetings will be reported on within cultural compliance documents generated for the Project.

8.4.5. Continued Outreach

Stakeholder outreach will continue through the life of the Proposed Project using informational materials such as fact sheets, frequently asked questions, and maps developed for the Project. Given that decommissioning will occur over a period of nearly 50 years (2025–2072), members of the public, interest groups, and tribal representatives will change over time. PG&E will conduct public outreach meetings regularly during this 47-year period that are held in addition to formal stakeholder engagement, as prescribed by NEPA, NHPA Section 106, and CEQA. Alternatively, working groups may be established that evolve over time and these groups would receive regular updates on decommissioning. Additional materials, such as display boards, key message boards, newsletters, and additional outreach can be developed as the Project progresses.

8.5. Documentation

PG&E will maintain thorough documentation of the components and results of the outreach process. Documentation will include descriptions of public hearings, meetings, and those points where stakeholders are involved. Results of the stakeholder outreach efforts can meaningfully inform a resulting project MOA between the NRC, SHPO, potentially the Advisory Council on Historic Preservation with PG&E and affiliated tribes as invited signatories, which constitutes an appropriate instrument to demonstrate compliance with the Section 106 process when historic properties are identified and adverse effects are determined ahead of time to the satisfaction of the stakeholders. If adverse effects cannot be fully determined prior to project approval, a PA would be the appropriate instrument for stakeholder inclusion in the protective processes. The MOA/PA outlines how the Project will avoid, minimize, and/or mitigate adverse effects and specifies roles certain stakeholders may assume.

Following a determination of effects and agreement for resolution (i.e., MOA/PA) among PG&E and cultural resource stakeholders, an Historic Properties Treatment Plan would likely be prepared to prescribe measures to mitigate Project-related effects, curatorial practices, thresholds for ongoing consultation, a screening procedure for decommissioning activities, and definition of exempt activities, and reporting requirements. Archaeological and tribal monitoring protocols and reporting requirements would be addressed in the agreement document as well as the Historic Properties Treatment Plan.

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Appendix 1 – Department of Parks and Recreation 523 Site Record Updates

Appendix 2 – DCPP Historic Photos

Appendix 3 – Previous Survey Maps

ATTACHMENT 1

Department of Parks and Recreation (DPR) 523 Site Record Updates

*Archaeological site locations are exempt from the California Public Records Act, as specified in Government Code 6254.10, and from the Freedom of Information Act (Exemption 3), under the legal authority of both the NHPA (PL 89-665, as amended, Section 304[a]) and the Archaeological Resources Protection Act (PL 96-95, Section 9[a]).

[redacted]

[redacted]

ATTACHMENT 2

DCPP Historic Photos (courtesy of PG&E Photo Archives)

[redacted]

[redacted] [redacted]

Figure 2 Aerial photo illustrating landscape south of Diablo Creek where present day Diablo Canyon Power Plant infrastructure currently resides. Here, pre-construction trenching is taking place, date unknown. Photo courtesy of PG&E Photo Archives.

Figure 3 **Construction of Diablo Canyon Power Plant, date unknown. Photo courtesy of PG&E Photo Archives.**

[redacted]

[redacted] [redacted].

[redacted]

[redacted]

[redacted] [redacted]

[redacted]

ATTACHMENT 3

Previous Survey Maps

Jennifer Whiteman 2013 Report: Reflections of Japanese Farming Along the Pecho Coast of California

REFLECTIONS OF JAPANESE FARMING ALONG THE PECHO COAST OF CALIFORNIA

[redacted]

Prepared for:

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Prepared by:

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October 2013

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Many thanks to PG&E, particularly Mike Taggart and Sally Krenn, for supporting this research and hosting an amazing reunion at Pecho. Sharon Waechter of Far Western Anthropological Group provided the background research for this project that provides the setting for truly understanding the struggles faced by Japanese farmers in California. Barry Price and the team from Applied Earthworks provided a basis for the background work and recorded the Yoshida home site near Lion Rock. I am grateful for the brilliant team that I was privileged to work with on this project.

Cover photo: Charles Yoshida pointing to picture of himself as a child on the new interpretive signs along the Point Buchon Trail.

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1.0 INTRODUCTION

Pacific Gas and Electric Company (PG&E) owns and operates the Diablo Canyon Power Plant (DCPP) in San Luis Obispo County, California. The developed power plant is located within the PG&E owner-controlled area, which consists of approximately 760 acres of land located adjacent to the Pacific Ocean, south of Diablo Creek. Outside of the developed power plant, PG&E owns an additional ~11,000 acres stretching from Coon Creek on the north to Pt. San Luis on the south, a distance of roughly 14 miles. PG&E's property extends east into the Irish Hills for a distance of approximately 1.75 miles. [redacted]

The study area (Figure 1) contains a rich archaeological record spanning several millennia, and has a complex history of Native American, Mexican, Euro-American, and Asian-American occupation. In order to maintain the integrity of the cultural resources located on the property, PG&E is working with Far Western Anthropological Research Group, Inc. to develop and implement an Historic Properties Management Plan (HPMP; Far Western 2013). The HPMP will guide PG&E in implementing specific management practices and measures designed to address effects to historic properties that may result from DCPP's continued operation and maintenance.

The current ethnographic study provides context for understanding the Asian-American settlement along the Pecho Coast and lays the ground work for evaluation, interpretation, and treatment of effects. Oral testimonies from those who worked and lived on the Pecho Coast have proven to be the most helpful when documenting the lives of the Japanese before World War II.

Documentation of the Japanese farmers on the Pecho Coast has been done through the use of interviews with individuals who either live or used to live in or near Diablo Canyon. Shelly Davis-King conducted interviews in 1991 as part of a cultural resource inventory in the project area, primarily with Masaji Teraoka, who lived on the Spooner Ranch in the 1920s and 1930s. Price et al. (2006) conducted telephone interviews with Masaji Teraoka and Ed Peterson, the latter a descendent of Alden Spooner and long-time resident of the Pecho Ranch on Diablo Canyon property. Sally Krenn, PG&E Senior Biologist, arranged for the Teraoka family to visit the property in 2006, and in 2009, Ms. Krenn revisited the Spooner Ranch with members of the Yoshida family. The Yoshidas documented the visit with a short video.

In 2012 and 2013, members of the Yoshida and Teraoka families were contacted to participate in the current study. Phone calls with Masaji Teraoka in 2013 augmented the information he had previously shared. Phone calls, e-mails, a meeting, and a family reunion at the Pecho Ranch with the Yoshida family in 2013 have provided a more complex history of the area and the hardships Japanese families faced. The following report is a summary of the information gathered during the previous and current studies.

Figure 1. Map Showing Pecho Coast.

2.0 JAPANESE IN CALIFORNIA AGRICULTURE (by Sharon Waechter)

The history of Japanese and Japanese-Americans in California agriculture begins as early as 1869. In that year, a small group of immigrants fleeing economic and political upheaval in Japan arrived in El Dorado County and established the Wakamatsu Tea and Silk Farm Colony (now California State Historical Landmark No. 815). Although that colony did not survive, it marked the beginning of a long and productive enterprise that continues to this day.

The year 1869 saw another milestone, as well – completion of the transcontinental railway that linked the east and west coasts of America. Many of the laborers who built the western end of the railroad were Chinese immigrants. Once the railroad was completed, these immigrants became wood cutters, store owners, agricultural field hands, and various other workers. As is often the case with new immigrants, these laborers were willing to do the most menial jobs for the lowest wages. Consequently, they soon made up a large part of the unskilled labor force.

Racist and anti-Chinese attitudes among Anglo-Americans grew stronger as the Chinese work force grew larger. These attitudes made life difficult and sometimes dangerous for these laborers, and culminated in the Chinese Exclusion Act of 1882. This act established a 10-year moratorium on the immigration of "skilled and unskilled laborers and Chinese employed in mining" and placed new requirements on immigrants already in the country (Public Law 71; 22 Stat. 58). Congress also made it impossible for Chinese resident aliens to become US citizens.

These actions led to a serious shortage of cheap manual labor, particularly in California agriculture. Perhaps not coincidentally, the Japanese government in 1884-1885 began to allow its citizens to immigrate to Hawaii, where many of them worked as contract labor on sugar and pineapple plantations, and to the fruit and produce farms of California (Street 2004). The stories these workers told of plentiful work and relatively high wages inspired a rush of new immigrants, who soon began to fill the labor shortage created by the Chinese Exclusion Act. Between the 1880 and 1890 censuses, the Japanese population in California increased from 86 to 1,114. By 1901 there were more than 12,000.

These first-generation immigrants, or *Issei*, were almost exclusively young men and mostly from rural, farming backgrounds (Tsu 2009). Farming as an occupation "had always been looked on with respect in Japan," and these new immigrants were well suited to it (Iwata 1962:27). By all accounts they worked hard and saved most of their wages. According to some sources, the primary goal was to "save money and buy land back home … and one day return in triumph to their home villages," a plan that was encouraged by the Japanese government (Sakamoto 2007; Street 2004:411). Street goes on to say that "only about eight of one hundred who became field hands ever intended to remain abroad permanently" (2004:411). Nevertheless, Japanese farm workers "became quick and eager students of American culture, with many purchasing and wearing American clothing, studying and learning English, even celebrating the Fourth of July each year" (Street 2004:514). Before 1906, when federal law excluded them from doing so, more than 400 Japanese living on the west coast became US citizens.

At first, Anglo-Americans praised the Japanese farm hands for working hard and never protesting. As one Fresno farmwife noted, the workers would "come bright and early, and work like Trojans, running from vine to vine, scarcely taking a breath" (Street 2004:408). Speedy and hard-working Japanese field hands, aided by technological innovations at the turn of the twentieth century, greatly increased production in California vineyards, orchards, and produce farms (Figure 2). By 1909 they were "at least half of the farm labor force in eleven prime agricultural counties," including San Luis Obispo and Santa Cruz counties (Street 2004:409).

Figure 2. Photo of Japanese orchard workers circa 1910.

FARM LABOR RELATIONS

One key factor in the growth of immigrant Japanese farm labor was the advent of labor contractors or *keiyaku-nin*. In Japan, "bands of field hands led by similar headmen had been roaming the countryside for decades, selling their labor to the highest bidder" (Street 2004:413). In California these *keiyaku-nin* began to organize large pools of field hands, offering them to local growers at less than the usual rates. Some of these organizers established clubs and provided housing as well as jobs for their workers. They recruited, transported, supervised, and fed the crews. A visitor to one of the crew camps reported that "the bosses received orders from the local farmers for so many men, and distributed them accordingly" (Y. Ichihashi, cited in Street 2004:422). In any given season, a field hand might travel hundreds of miles to work on a dozen farms. One of these men later recalled "In my early life, I remember moving, moving, moving" (Street 2004:423).

As more and more agricultural laborers joined these organizations, the *keiyaku-nin* realized that they controlled a large part of the labor force and could set wage rates. They also could provide a large work force on short notice, which saved many growers from losing their crops during years when frosts came late or fruit ripened early. For a long time this arrangement benefitted everyone. Eventually, however, some of the *keiyaku-nin* began to manipulate the system in their favor. They provided substandard food and housing, and it was not uncommon for one of them to abscond with the crew's wages and disappear. The *keiyaku-nin* throughout the state met in 1900 to develop a plan for taking over as much work as possible and then raising wages, boycotting any growers who refused to pay the set rate. The following year they "launched a wave of job actions that raised wages throughout the early fruit districts" (Street 2004:433). In some instances the *keiyaku-nin* sent workers to a job for a specified wage rate, then pulled them off the job after only a day or two and demanded twice the normal pay. Often the growers had no choice but to pay the increased rate or lose an entire season's crop as their quickly-ripening fruit began to spoil. Sometimes the *keiyaku-nin* simply broke their contract and moved their workers to another company for slightly better pay.

In 1903 the situation came to a head. Sugar beet growers around Oxnard in Ventura County, set on breaking the power of the *keiyaku-nin*, established the Western Agricultural Contracting Company (WACC). They began signing up workers from as far away as San Francisco and Fresno, establishing a string of 38 labor camps and taking over more than 90% of Oxnard's sugar beet contracting business. Any field hand, Japanese or otherwise, who wanted to work in Oxnard had to contract with the WACC. When the WACC lowered their wages and forced them to pay a fee to the organization, the workers walked off the fields. Soon after, some 500 Japanese and 200 Mexican laborers joined together to create the Japanese-Mexican Labor Association (JMLA), refusing to work any longer under contract to the WACC. This was the first labor strike in the history of California agriculture, and the walk-out brought the sugar beet harvest to a standstill at a critical phase. Angry farmers responded with violence, reportedly firing into a crowd of strikers and killing a Mexican laborer named Luis Vasquez (Street 2004:446-458). The strikers gained statewide support and sympathy. As the rainy season ended and the fields began to dry out, growers capitulated and the laborers returned to the fields. They had broken the WACC's monopoly. According to Street (2004:465), the Japanese and Mexican contractors had "ended the era of placid farm labor relations, established a basis for interracial action, and inaugurated a struggle that would grow over the next century."

RISING ANTI-JAPANESE SENTIMENTS

During this same period, Japanese farm workers throughout California were beginning to make the shift from field hands to farmers (Street 2004:Chapter 20). In the decade 1900-1910, more and more Japanese immigrants were buying, leasing, or sharecropping property and establishing farms, orchards, and vineyards. One goal was, of course, to better their financial situation. Another was to "become accepted into American society" (Street 2004:521). Relatively few Japanese immigrants could afford to buy land outright, however, and in 1913 the Alien Land Act made it much harder by declaring it illegal for "aliens ineligible for citizenship" to own land or lease it for more than three years. Many Japanese farmers were able to circumvent the Act by transferring titles or leases to American-born children or "to some one hundred quickly formed corporations whose stock was controlled by American-born Japanese" (Street 2004:521).

The 1913 law, which was aimed primarily at Japanese immigrants, was the result of growing resentment toward the Japanese farmers' success. As they had with Chinese workers only 30 years before, Anglo-Americans began to turn against the Japanese: "[The Japanese farmers'] success angered racists and fed old fears, inspiring among the anti-Japanese movement a new complaint—that by moving into farming the Japanese were rising too quickly" (Street pg. 520). In 1905, the *Sacramento Bee* newspaper (cited in Street 2004:515) wrote about "…dozens of little brown men crowding out white laborers and getting hold of ranches."

Despite the growing resentment, Japanese farmers continued to have an important role in California agriculture, bringing with them special skills and introducing many new varieties of fruits and vegetables. In many places they took up marginal land and, using their skills in soil preparation, intensive cultivation, and irrigation, made it productive. They introduced sophisticated irrigation methods and pioneered the rice industry in California, producing "the first commercial crop of rice on hard pan and goose lands 'that were not worth paying taxes on'" (Iwata 1962:31). "They take a place, and leave it in better condition than they found it" (*Fresno Republican* newspaper, cited in Street 2004:518 [no date given].

Many of the laborers eventually saved enough to buy or lease their own small parcels of land, where they "created the most productive, efficient, and tidy farming operations in California" (Street 2004:518). In the decade 1900-1910, Japanese farmers established farms, orchards, and vineyards throughout central California, and communities sprang up that were occupied exclusively by Japanese (NPS 2012). These "Japantowns" (*Nihon-machi*) were established in many areas, with small businesses catering to the needs of the immigrants.

JAPANESE FARMERS ON CALIFORNIA'S CENTRAL COAST

In San Luis Obispo County, Japanese immigrants began settling in the Arroyo Grande and Oceano areas around the turn of the twentieth century (Price et al. 2006:18). A few miles to the south, just over the border with Santa Barbara County, was the small settlement of Guadalupe, near Santa Maria. By the 1920s, the Japantowns of Arroyo Grande, Santa Maria, and Guadalupe had become social and commercial hubs for the local Japanese communities. In fact, within a decade the Japanese farmers in Guadalupe would be "providing a majority of the lettuce grown in California" (www.californiajapantowns.org/guadalupe). According to that same source, "Guadalupe became the town to visit for Japanese migrant workers who followed the crops from north to south."

Much of the coastal terrace in San Luis Obispo County was leased to Japanese farmers, who grew a variety of crops—including the "then-exotic crops like bush peas, Brussels sprouts, and artichokes" (Price et al. 2006:14). Bush peas, especially well-suited to the coastal environment, were planted on the coastal hills between Arroyo Grande and Avila Beach. In 1922 the local farmers formed the Pismo Pea Growers Association; shortly thereafter the Arroyo Grande pea growers formed their own association. In 1928 the two merged into a grower-owned cooperative that still exists today: the Pismo Oceano Vegetable Exchange or POVE. Today the cooperative prides itself on "Bringing Classic Asian Vegetables to the Modern American Table" (http://usbusinessexecutive.com/content/pismo-oceano-vegetable-exchange-bringing-classic-asian-vegetables-modern-american-table).

The 1930s were a difficult time, as America suffered through the Great Depression and the Dust Bowl. Both of these events brought thousands of migrant workers to California. In San Luis Obispo County, however, Japanese and other farmers were still producing bumper crops, and in 1938 "the market value of vegetable crops—led by peas, lettuce, and tomatoes—totaled just over $2.8 million, surpassing the $2.2 million combined figure for wheat, barley, and beans (General Directories 1938:37)" (Price et al. 2006:14). In nearby Guadalupe and Santa Maria, there were more than 50 independent farmers tilling over eight thousand acres of land" (www.californiajapantowns.org/guadalupe).

FAMILY LIFE AMONG THE JAPANESE FARMING COMMUNITY

Family life was an important aspect of the Japanese immigrant experience. Sakamoto (2007:99) states that "the Issei were motivated by a profound commitment to the family; *kazoku no tame ni* – 'for the sake of the family' – which became a moral responsibility." She also notes that it was the Issei women who were mostly responsible for maintaining traditional family values and who spoke Japanese in the home. According to Lukes et al., "without doubt, the foremost factor in the development of permanent communities was the immigration of Japanese women" (http://www.questia.com/read/7681023/japanese-legacy-farming-and-community-life-in-california-s).

Many immigrant men equated success in their community with being successful farmers and having wives and children in the US (Tsu 2009:176). In fact, says Street (2004:515), Japanese male immigrants were attracted to farming in large numbers in part because the government (presumably US, but not clear in the text) allowed farmers and businessmen to summon their wives from Japan. Those who did not have wives often sent away for "picture brides," so-called because the prospective bride and groom "met" each other before marriage only by exchanging pictures. In the early decades of Japanese immigration, women were so scarce that "Japanese wives were highly valued and respected by their husbands and the rest of the immigrant community" (Tsu 2009:177). For many women, life in the US provided much more freedom than they had experienced in traditional Japanese society.

EDUCATION

Some Nisei children in America were sent by their families to attend secondary school in Japan, where they could study their ancestral language and culture. One such student wrote in 1939 that their mission was to "strive to promote U.S.-Japanese friendship … adapt the merits of the Japanese spirit to our

Americanism … [and serve] as a cultural bridge between Japan and the United States" (Kimura 1939, cited in Azuma 2003:39). As so often is the case with immigrant communities, the second generation would also provide a bridge between their parents and the American society in which they lived. These Nisei gradually became more and more acculturated, leaving behind many of their Japanese customs as they adapted to American culture (Sakamoto 2007).

3.0 FARMING ON THE PECHO COAST

Before rancher-farmer Alden Spooner settled here in 1892, the Pecho Coast was remote, sparsely populated, and grazed by free-range sheep and cattle. Rancho El Pecho y Islay extended from Islay Creek (Spooner Ranch House) to Pecho Creek. The Spooner property was bounded on the south by Diablo Creek and spread north to include the current Montana de Oro State Park (Figure 3). The Spooner's farmhouse has recently been renovated by the State Park and is used as an interpretive center. The once natural vegetation of coastal chaparral was replaced by the Spooners to grow beans, barley, wheat, and oats and as grasslands for grazing dairy cattle.

A generation later, WWI brought the San Luis Obispo area to the state's agricultural forefront, as local farmers were able to help supply the country with high protein dried beans. In the following years, first-generation Japanese immigrants, unable by law to own land, instead sharecropped land to farm. On the Pecho Coast, it was the next generation of Spooners, Alden Spooner's sons, who leased some of their coastal land to Japanese families. These families farmed peas, beans, zucchini, artichokes, and Brussels sprouts.

WWII brought an abrupt end to this way of life for the Japanese families. In 1942, the Spooner sons sold the northern Pecho Ranch to Oliver Fields. Fields eventually gave up farming altogether due to difficulties locating enough water to irrigate crops. In 1966, Robert Marre provided an easement in the southern portion of the Pecho Coast to PG&E for the construction of Diablo Canyon Power Plant, which began construction in 1968. The Fields Ranch was leased by PG&E for many years until it was purchased by the company in 1986. Further historical information concerning the Pecho Coast and the Spooner family is provided in Price et al. (2006) and the Draft HPMP (Far Western 2013).

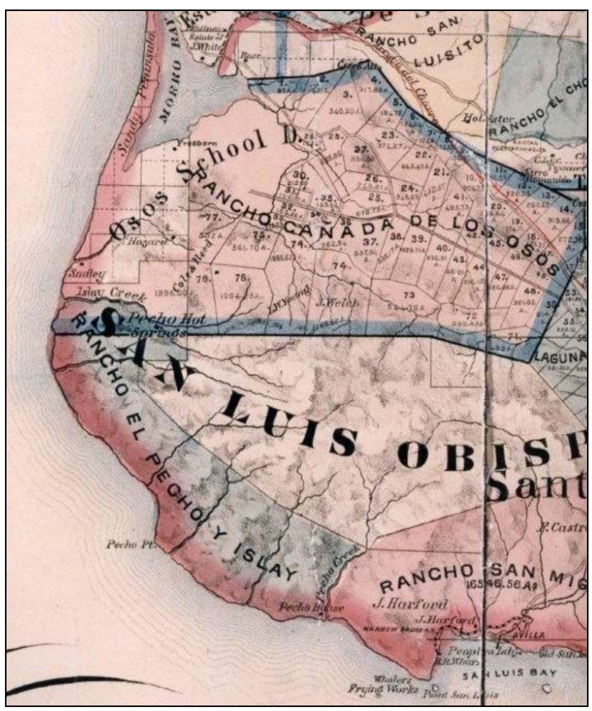

Figure 3. Pecho y Islay Land Grant Map, R.R. Harris, Map of the County of SLO, CA, Sept 1874.

RECOLLECTIONS OF LIFE ON THE PECHO COAST

At least seven Japanese families leased land along the Pecho Coast from the Spooners, including the Teraoka, Yoshida, Fujita, Fujiwada, Kuranaga, Nakamura, and Honda families. These were large extended families, often with three generations living together and more than ten children. Masaji Teraoka and Charles Yoshida both recalled that each farm was approximately 100-200 acres in size.

TERAOKA FAMILY

The Teraoka family had emigrated from Japan before the 1920s. Masayoshi Teraoka left Japan to settle in California in 1915, at the urging of his father, who had arrived in the United States around the turn of the century. After working for the railroad, Masayoshi took up farming on the Spooner Ranch in the southern part of the ranch (Price et al 2006:19). He married Toyomo through an arranged marriage and together the couple had seven children, among them Toki (eldest daughter), Masaji (son), Henry (son), and Masai (younger daughter).

Masayoshi planted bush peas and other crops that could be cultivated without irrigation water near the home site, as well as lettuce, artichokes, and tomatoes near [redacted] where irrigation was possible. Irrigation water was supplied by a dam on the creek farther upstream and channeled down to the coastal terrace via a surface pipe and later a wood-lined ditch (Price et al. 2006). When the fields were fallow, the Spooners brought their cattle to drink at the springs.

Toki, the eldest of the seven children who grew up at Pecho Ranch, remembers doing homework at the kitchen table by the light of a kerosene lamp and bathing in a little bath house heated by a wood fire beneath the building. Their meals consisted of sugar peas, rice, fish, and abalone that her parents harvested along the Diablo Canyon coastline.

The children attended elementary school at Sunnyside School in Baywood Park (Los Osos) and then went to study Japanese in an old school house located at Coon Creek [redacted] When she was old enough to go to middle school, Toki went to live with a Caucasian family in San Luis Obispo, returning to the farm only for summers and holidays.

The Teraokas and other Japanese families resided on the Spooner property well beyond the three-year limit imposed by the alien land laws, suggesting that either a U.S. citizen served as a middleman between the Spooners and the foreign-born farmers or, alternatively, that the Spooners simply ignored the contractual restrictions imposed by these statutes and leased the land directly to the Japanese (Price et al 2006:20).

Finding raising crops and seven children incompatible on the windswept coast, the Teraokas left the Pecho Ranch in 1939 and settled in Arroyo Grande. Two years later, the family was forced to enter a War Relocation Camp in Jerome, Arkansas. When the Teraoka family was released from the camps at the end of the war, they returned to California and settled in the San Joaquin Valley town of Fresno.

YOSHIDA FAMILY

The Yoshida family leased and farmed land on the Spooner Ranch from 1928 until the beginning of World War II. Yaemon Yoshida, as a young man in the early 1890s, emigrated from Japan to the Kingdom of Hawaii to start a new life. As a laborer, he worked at the sugar cane plantations. Fortunately, his former apprenticeship as a carpenter in Japan served him well in his new life; he often got out of the fields to help construct additional buildings. Later his carpentry skills would help him and his future family.

In 1898, Yaemon and his common-law wife had a son, Tomoichi Yoshida. When Tomoichi was about age two, his mother died. Unable to care for Tomoichi, Yaemon had a friend, who was returning to Japan, take his son back to Japan to live with Yaemon's brother. Tomoichi grew up in Japan, reared by his uncle and aunt.

Meanwhile, in Hawaii, a fire destroyed the sugar cane plantation where Yaemon worked. So in 1906, he joined other Japanese men to emigrate to California to work on the railroads (it is unknown if Yaemon ever worked on the railroads). At age 16, Tomoichi departed Japan to join his father in America. In January 1915, Tomoichi arrived at the Port of San Francisco on the S.S. Korea. In California, Tomoichi quit school after a couple of years and worked with his father for a Japanese truck farmer in Guadalupe.

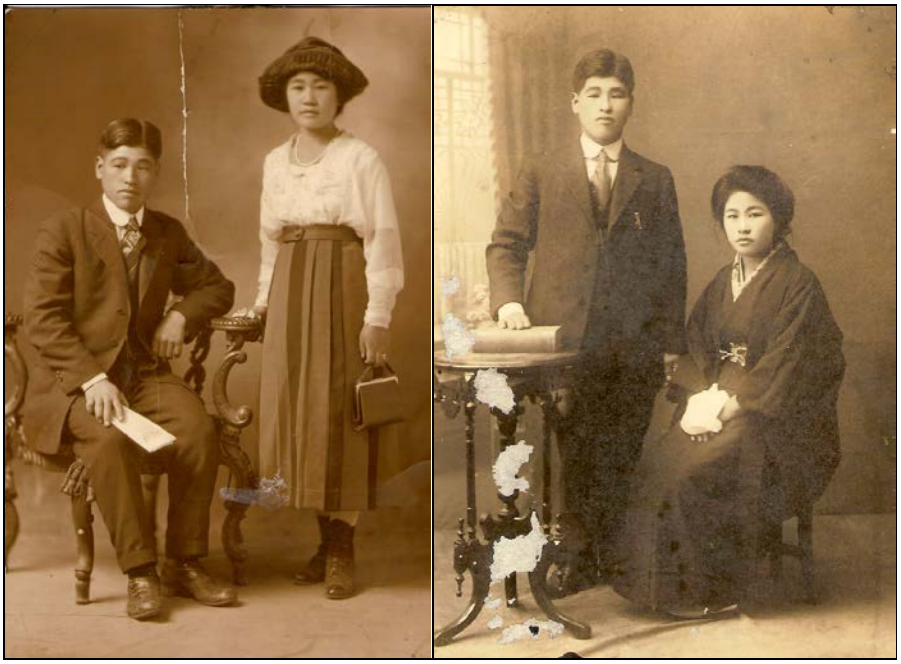

Figure 4. Tomoichi and Kikuno Yoshida in 1921 marriage photos, courtesy of Grace Yoshida.

After an arranged marriage in Japan in 1921 (Figure 4), Tomoichi brought his bride Kikuno to California, and the couple lived in Guadalupe where Yaemon was sharecropping sugar beets. Tomoichi and Kikuno had gone to the same school in Japan but had not really known each other until their wedding. Charles Yoshida's wife Rose (Nabeta) Yoshida recalls that Kikuno told her she had been courted by another man before the arranged marriage to Tomoichi.

Figure 5. Charles, Thomas, Rose, Masao, Edward, and Inez Yoshida with cousin Kenji Iwasaki circa 1930, courtesy of Grace Yoshida.

In 1928, the family (now with four children: sons Masao, Charles, and Thomas, and daughter Inez) settled the Pecho Coast, sharecropping land from Alden Spooner (Figure 5). Over the next 14 years, six more children were born on the Pecho Ranch: sons Edward, Byron, and Paul, and daughters Rose, Margaret, and Sandra. The house overlooking Lion Rock was already standing when the Yoshida family moved there in 1928. Charles reflects:

> I vaguely remember opening a locked gate to enter the farming area. Papa [Tomoichi] always liked to take someone when he went shopping so he didn't have to get off and on to open the gate. . .It was 20 miles from San Luis Obispo town. The road was paved to Baywood Park and after that it was a country road, gravel packed up and down, curvy and through a eucalyptus grove. It finally came out in the open and you could see the ocean and the gate. From there to where we lived, it was like a wagon trail road. There were six Japanese farmers living on one stretch of road about 1 to 1½ miles apart and the road came to a dead end. But if you kept walking, it will take you to Avila, which is about eight miles away.
>
> We lived ¼ mile up from the main road. On a rainy day the car couldn't make it up because it was so slippery, so we had to walk up to the house. Gi-an [grandfather Yaemon] usually watched us come home, and if it was raining, he would bring raincoats [Fiske 2005:5].

The family did not have telephones or electricity; they used kerosene lanterns for light and had wood-burning stoves. Charles noted that neighbor "Nakamura was the only one with a telephone." Mother Kikuno did most of the cooking and baking with a wood stove and kerosene hot plate. The wood stove kept the house warm, but often it got so smoky inside that the kitchen and dining room were a dark color. Without electricity, there was no refrigerator, but they had a cooler to keep food for a short time. There was a commercial freezer in Los Osos where the family could rent space when they slaughtered a cow or pig, which was rare. A neighbor's son Harry Kuranaga, about three years older than Charles, built a wind generator to keep a battery charged to listen to the radio.

When the family moved to Pecho, there was no bath or shower, so Yaemon built a Japanese-style bathtub or *ofuro*. The *ofuro* was constructed of two-inch-thick redwood boards with a steel bottom, covered by a wood platform. Yaemon usually quit work early to get a fire started underneath the *ofuro* to heat the water. Oak wood was plentiful and a nightly bath was routine. Charles and sister Rose recalled that they would wash off before getting into the bath, as the family all bathed in the same water; the bath was really for warming up in the evening. If the water got cold, they would holler "water is getting cold" in Japanese and more wood was put in the fire. Growing up with an outhouse was the norm. Charles recalled the first time he used a toilet in a store in town when he was five or six years old. He was surprised by the flush of water and he never forgot that incident.

Drinking water came from a 2,000-gallon water tank about 1/8 mile up the hill from the house. Charles and his father wanted to learn where the water came from that fed the tank, so they followed a galvanized pipe up the hill where a natural spring pooled. A 1-inch-diameter pipe ran from the pond to a galvanized water tank on the hillside; Charles said they used to be able to see the tank from the house. They planted watercress under the tank because the water would regularly spill over the top of the tank. Kikuno would make boiled watercress. Another 1-inch pipe, with valves at both ends, ran from the tank to the home site so they could have fresh water handy.

The farm [redacted]. Charles said boats visited [redacted] Charles remembered that there had once been steps leading down from the terrace to the bottom of the cliff. There along the rocky shore, the family harvested abalone, urchins, seaweeds and sea snails for their food consumption. They did not sell the seafood but occasionally shared them with other families. Yaemon saved the large abalone shells, and in his spare time polished them to use as special bowls. Charles also recalled that during Prohibition, those steps were in the area where bootleggers docked and gave Tomoichi alcohol for helping them hide their liquor.

Farming was the primary activity and livelihood for the Yoshida family and other families in the area. They raised peas, green beans, zucchinis, artichokes, Brussels sprouts, and lettuce for the farm cooperatives that sold the produce to the markets (Figure 6). They also grew barley to feed the horses the local farmers used for plowing fields until the 1930s, when tractors replaced the horses. The land was rocky, and the farmers had to plow up the rocks and pile them outside the planting beds. Some of the farmers used irrigation water collected from nearby springs and creeks, while others relied mainly on rainfall.

In 1936, the Yoshida family moved to a flatter piece of Spooner Ranch land (about 60 acres) at the [redacted] to be closer to a water source and to town. The housing was built by Charles' father Tomoichi and grandfather Yaemon on a rock foundation and 4 x 4 posts. Charles described the house as "long, long barracks." The family house was divided into four sections: a bedroom for Tomoichi, Kikuno and the five younger children, a bedroom for Inez and two brothers, a living/dining room, and a kitchen. There was not enough room in the family sleeping sections for Yaemon and Masao, so the family rented a barracks-type structure from a neighbor across the road. It was divided into two sections: Yaemon and Masao slept in one section, the laborers in the other. Rose said that the structures were lined with the waxed paper from the vegetable boxes to help keep out the cold. Behind the barracks were two outhouses.

One of Charles' worst fears was fire; there was no fire station to call for help. The fear was realized when the rented structure that housed the workers later burned down. They couldn't do anything about the fire, and the laborers lost everything.

Charles and his sister Rose remembered doing chores around the farm. Near the [redacted] site, there was a beach that had clams and rockfish. They recalled going down after school and digging, cracking, and eating raw clams on the beach.

Figure 6. Field of Brussels sprouts near Coon Creek, circa 1930s, courtesy of Grace Yoshida.

Drinking water at this site was diverted from nearby springs and creeks and stored in water tanks on the hills above the coastal terrace. Tomoichi was able to dam [redacted] to provide irrigation for Brussels sprouts, artichokes, and peas. There was no electricity for a pump, so Tomoichi used a tractor with a pulley and a long leather/rubber belt to pump the water from the creek uphill to the irrigation ditches for artichokes and Brussels sprouts. The dammed creek collected a lot of trout, and that is where Charles learned to fish.

They once had a cow for home use [redacted] The family did not consume many dairy products and the cow was too much work, so they slaughtered it. They raised pigs for meat once, but preferred to raise rabbits and chickens. One of Rose's chores was to tend to the chickens (Figure 7); she recalled that "Mom would cook a chicken on birthdays and holidays" both American and Japanese, like the Fourth of July and New Year's Day.

The family had a garden at the house and Yaemon always had a garden for fresh vegetables and herbs. The family's diet consisted mainly of seafood, fresh vegetables, rice, *onigiri* (rice balls), and *okazue* (a dish made of meat and vegetables). Charles and Rose fondly remembered that Kikuno made good stew.

Figure 7. Kikuno and children tending chickens, courtesy of Grace Yoshida.

Charles and Rose recall that the family always managed to “get by,” and were never hungry. Their parents worked hard to “make do” to purchase necessities. The funds to purchase farm equipment, hire workers, etc., were primarily through loans from the farm cooperative where they sold their produce. Such arrangement assured the farm cooperative that the farmer would continue to grow and sell their produce through them. The family had a workhorse and later purchased a Fordson tractor, followed by a John Deere in the 1930s. Charles recalled that his family had one of the larger farms, most other farms were smaller. Yaemon and Tomoichi grew a lot of different crops; some of the other farmers grew just peas or beans. Harvested crops were sold to the Los Angeles market and shipped via the Sakata Trucking firm, with a local office on Los Osos Road (General Directories 1938:95).

PRODUCE

The Pismo Pea Grower’s Association was founded and managed by George Fukunaga in 1922. It was not long before the Arroyo Grande pea growers formed their own association, which ultimately merged with the Pismo group to create the Pismo Oceano Vegetable Exchange (POVE). George’s younger brother Bob, who was Hawaiian-born and fluent in both English and Japanese, managed the newly formed group. Since Bob was a U.S. citizen, the California State Alien Land Law of 1913 (which would be declared unconstitutional in 1952) could not prohibit him from owning or leasing land. Fukunaga used his citizenship to help foreign-born Japanese by buying and leasing lands for their families to farm (POVE n.d.). The Japanese contribution to agriculture in the San Luis Obispo area was significant, and their cooperative is still an active participant in the county’s local food economy (Kellawan in Far Western 2013:16).

According to Charles Yoshida, produce was sold by the crate for around $0.25. All the produce was collected by the Grower’s Association. Each family knew the number of crates sold and would get the money from the association. The association gave the families numbers, they didn’t use their names on the crates. The association sold the goods, paid the families, and then the families paid the Spooners. The families rented the land, including houses, for a percent of the produce. Some families also had snack/fruit stands to make additional money.

WORKERS

Tomoichi Yoshida and other Japanese farmers along the Pecho Coast hired migrant laborers, mostly Filipino men, who helped with hoeing, dusting, and harvesting. The Filipino laborers, usually without their families, lived in the barracks next to the family's house. Charles recalled that workers were paid $0.20/hour. Kikuno cooked lunch and other meals for the workers when there were four or five of them. During harvest or planting there could be up to 20 workers and then Yaemon would hire a cook, often one of the workers' wives. Families from Oklahoma ("Okies," Caucasian families) and Mexican families came out for the harvest. Those families had their own places in San Luis Obispo and formed a little community.

EDUCATION

The following text includes information from Price et al. (2006), Waechter (in Far Western 2013), and interviews with the Teraoka and Yoshida families.

An amendment to the State Political Code in 1921 allowed establishment of separate schools for children of Indian, Chinese, Japanese, or Mongolian parentage. These children were not to be integrated into other public schools once separate schools were established. The amendment was finally repealed in 1947 when the Los Angeles County Superior Court ruled that it violated the Fourteenth Amendment. By then, an entire generation of Nisei children in California had attended segregated schools.

Several schools sprang up along the Pecho Coast and vicinity as the local population of Nisei children grew, including those at Pismo Beach, Arroyo Grande, and Los Osos. The children went to school on weekdays. Charles Yoshida remembered walking five miles to Spooner's Ranch from the [redacted] house to catch the school bus to Sunnyside School (Figure 8). Rose (Yoshida) Hisatomi recalled walking past the gum trees (eucalyptus trees) to get to the bus, about ½ mile from the Coon Creek house, and then the 18-mile bus ride. The Sunnyside School (in Los Osos) was a grammar school up to 6th grade. Masaji Teraoka remembered that the schoolhouse was a one-room structure and that a small cottage was later added on to house grades 1–3. After 6th grade, the children went to San Luis Obispo to attend junior high. Toki Teraoka Inouye lived with a Caucasian family in San Luis Obispo to attend middle school, only returning to the farm for holidays and summers. At grammar school the children learned reading, writing, "regular lessons." Charles and Rose remembered one day when all the children were given toothbrushes and taught how to brush their teeth. School was from 9 am to 3 pm, and then the children went to the Japanese School, at Coon Creek. Masaji Teraoka recalled that during harvest season, enrollment grew as the children of vegetable pickers attended the school. Masaji also remembered that for one year (probably 1938) he attended the school along Coon Creek after the bus that shuttled children between Los Osos and the Spooner Ranch discontinued its service (Price et al. 2006: 20).

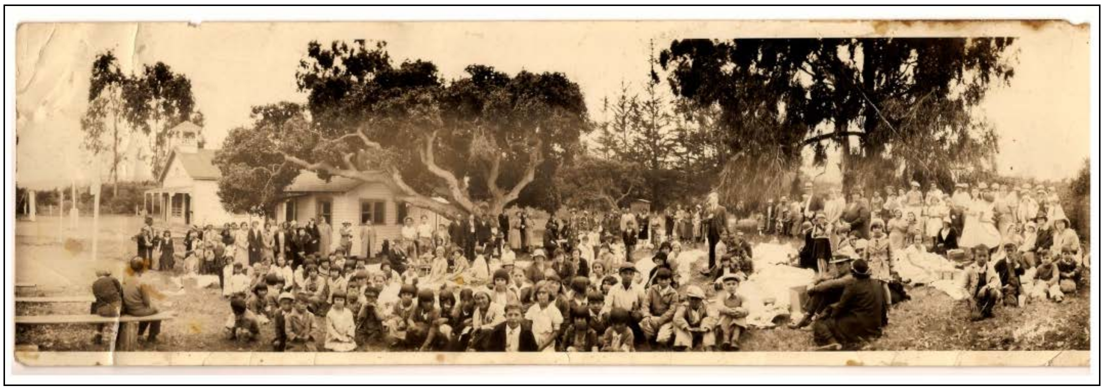

Figure 8. Sunnyside School picnic, Los Osos circa 1940, courtesy of Grace Yoshida.

Issei parents wanted their children to learn English and other subjects, but they also wanted them to know the Japanese language and culture. The kids learned Japanese language and writing (*katakana*, *hirangana*, and *kanji*) and culture at a Japanese school at Coon Creek. The Pecho Japanese parents built one barrack, partitioned for living quarters for the teacher and a classroom (for children up to age 16). The teacher helped farmers until the children arrived in the afternoon.

The Yoshida family spoke Japanese at home, particularly Yaemon, Tomoichi, and Kikuno. Of the three, Tomoichi had the best command of the English language but still spoke "broken English" in communicating with non-Japanese workers and other non-Japanese people. Kikuno never had the opportunity to study English and was never fluent in speaking or writing it ; however, she understood more English conversation than she could verbalize. The children spoke English at regular school and to each other at home, but conversation with the elders at home was in Japanese or Japanese interspersed with simple English words ("broken Japanese"). The teacher at the Coon Creek School encouraged students to use and practice speaking Japanese at home.

Charles said his parents sent him and brother Edward with other boys from the area to a week's *kendo* (Japanese martial arts fencing) camp in Alvarado, California (now included in Union City). Charles remembered that he preferred to learn *judo,* which he thought would be better for self-defense, but he had already been committed to attend the *kendo* camp. Thinking back, the Yoshida siblings wondered how their parents were able to afford this luxury for the boys.

The Yoshida family was a member of the Buddhist Church in San Luis Obispo (Figure 9). The older siblings recall that the family piled into the back of the farm truck, picked up neighbors who needed a ride, and made the long drive to church.

Figure 9. Congregation of the San Luis Obispo Buddhist Church near Madonna Road (formerly French Road), May 13, 1928, courtesy of the Yoshida Family.

4.0 WWII AND JAPANESE INTERNMENT

Life for all people of Japanese ancestry on the West Coast changed forever after December 7, 1941, following the Imperial Japanese military's bombing of Pearl Harbor, Hawaii. Then, in February 1942, President Franklin Roosevelt signed Executive Order 9066 authorizing the Attorney General to conduct a round-up of suspected "enemy aliens." These "aliens" were primarily people of Japanese ancestry. Charles Yoshida remembered one morning in December, 1941:

> . . . when I was in bed and heard this great 'boom.' I didn't know what it was. The next day I read in the San Luis Tribune paper that the oil tanker Monte Bello was hit off the coast of Morro Bay. It was later that morning that President Roosevelt declared war on Japan. At school it was normal, like any other day.
>
> A few days later, nine U.S. soldiers came and took over our Japanese school [at Coon Creek], and used it as their headquarters to patrol the coastal area. . .They never harassed us or the other farmers in the area. They stayed about 10 days and they were ordered to leave [Fiske 2005:7].

On the day the Yoshida family heard the news of Japan's bombing of Pearl Harbor, Kikuno had cooked a large meal, but no one was able to eat. It was very difficult time for the family and all people of Japanese ancestry. Tomoichi would return from town with upsetting news or rumors. One rumor was that the American-born (*Nisei*) children would be separated from their Japanese-born (*Issei*) parents. As the days went by, people of Japanese ancestry on the Pecho Coast were confined to a five-mile area, shopping was restricted, and a curfew was enforced. Kikuno said "*kuso mi-tai-ni nata*" (it was like we had become 'shit'). Tomoichi and Kikuno were worried that the older boys would be drafted into the army (Fiske 2005).

As the war expanded into the Pacific, US Army soldiers began patrolling the coastline, including the Pecho area. Within a couple of weeks of Japan attacking Pearl Harbor, the sheriff came and went house–to-house confiscating guns, cameras, and shortwave radios. Before the sheriff got to their house, the Yoshidas [redacted]

When the families were ordered to evacuate their homes, they could only take essentials. Rose remembers being very sad as she watched the family burn everything, including photographs, in the fire pit of the *ofuro* (the few photos the Yoshida family shared for this report are very rare). Yaemon carefully wrapped [redacted]. He hoped to return for them one day, and that hope to recover the shells has lasted through three generations (Fiske 2005).

It was rumored that the Japanese families in the Central Valley would not be placed in the relocation camps. At the urging of neighbor Mrs. Fujita, the Yoshida family went from the Pecho Ranch to Caruthers to stay in a vacant house offered by a relative of her parents, the Yamasakis. Just before leaving Pecho in 1942, the last crops Tomoichi harvested were artichokes and Brussels sprouts. On February 9, 1942, the Yoshidas packed and loaded the truck with all their kitchen goods and bedding. Charles drove one car, Masao drove the overloaded 1931 Dodge truck, and Tomoichi drove the 1941 Plymouth. They left behind all the farm equipment, horses, and unharvested winter crops (into which the family had invested nearly all of their money). They stayed with the Yamasakis until all of the Japanese families in the Central Valley were ordered to evacuate and then entered the Fresno Assembly Center in April 1942 (Figure 10).

Masao Yoshida volunteered to work at the Fresno Assembly Center, so he preceded the rest of the family. Tomoichi, Charles (now 18), and the older boys worked daily at various farm and orchard jobs. Charles and Inez helped prepare the family for evacuation, as Kikuno was pregnant with her eleventh child. This was a very hard time for the entire family, but especially hard for Tomoichi. He had always run the farm and hired the workers, now he had nothing and was working on other farms to support the growing family.

Families were only allowed to take what they could carry. The Yoshidas packed a few pieces of cookware and utensils, and basic clothing and underwear. A few items, such as Kikuno's sewing machine, a few photographs, and large platters used for *oshogatsu* (New Year's Day) were stored in a shed at the Yamasaki's property in Fresno. A trusted *hakujin* (Caucasian) friend of the Yamasakis assured the family that everything would be safe (Fiske 2005). Charles was responsible for selling the car, which he had to sell for a bargain price of $300.

While the rest of the family entered the Fresno Assembly Center, Kikuno was admitted to the hospital to give birth. She did not speak or understand English and was terrified to be alone in the hospital (Fiske 2005). About three days later, an ambulance returned Kikuno to the family at the assembly center with the new baby, Marjorie Matsuko (from *matsu*, "to wait"). The arrival of the new baby added challenges to the already difficult time for the family (Fiske 2005:7). Charles describes the Fresno Assembly center this way:

> This place was only a temporary place. We went by the horse stalls and there were lots of evacuees there already. They had the worst place to stay. Our place was built of new lumbers, very rustic, and the outside wall was covered with black tar paper. Our barrack had five rooms and we occupied three rooms. The boys had one room, girls had one, and Mama and Papa and the small kids had one room. We were unloaded at Block H with the baggage. Soon after the volunteer people brought steel cots, blankets and mattress covers which we had to go fill with straw. . .There were 20 barracks in a so-called block with mess hall, two buildings for shower and toilet for men and women, one laundry building. The bathroom facility was bad; there was no privacy [Fiske 2005:10].

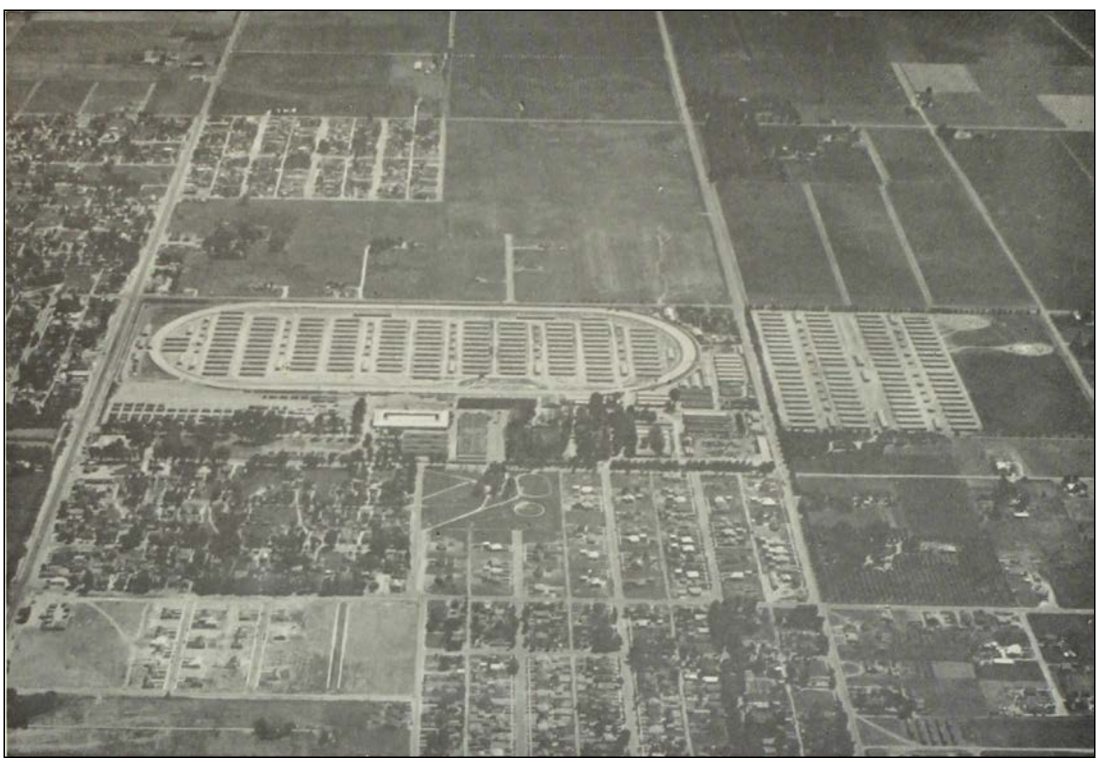

Figure 10. Aerial view of Fresno Assembly Center, California, circa 1942, Courtesy of Densho.

INTERNMENT CAMPS

After being confined at the Fresno Assembly Center from April to June 1942, the Yoshida family was sent to Jerome, Arkansas by train. The trip took about five days. Evacuee passengers travelled and slept in coach cars but were instructed to keep the window curtains closed. Young children and the elderly (including Kikuno with baby Marjorie and Yaemon) traveled in Pullman cars. The cooks from the Fresno Assembly Center mess hall prepared the meals in a converted cattle car and served meals in the next cattle car (Fiske 2005:10). Charles and Rose remembered a lot of soot and that the cattle cars were very dirty.

The Teraoka family, who had been living in Arroyo Grande, were also forced to relocate to the Fresno Assembly Center and then to Jerome, Arkansas and later to the Gila River camp in Arizona.

The Yoshida family was interned in Jerome, Arkansas for about 1.5 years in one barrack with three rooms. The school-age children went to school in camp taught by American teachers. Tomoichi, Charles, Masao, and Inez worked in the mess hall. Charles and Rose recalled frequent meals of mutton stew or mutton curry. Curry was used to cover up the mutton odor. Charles said that they never ate mutton or lamb again after camp!

In Arkansas, families were asked a long list of questions as part of the US Government's loyalty questionnaire. Two of the questions were:

- No. 27. Are you willing to serve in the armed forces of the United States on combat duty, wherever ordered?
- No. 28. Will you swear unqualified allegiance to the United States of America and faithfully defend the United States from any or all attack by foreign or domestic forces, and forswear any form of allegiance or obedience to the Japanese emperor, to any other foreign government, power or organization?

The Yoshida family was among a large group of internees who wrote "refuse to answer." Those who answered "No" to both questions were considered troublemakers (Fiske 2005:10). The Relocation authorities transferred the "refuse to answer" families with the "No-No" families to the internment camp at Tule Lake. At Tule Lake Camp, Charles remembered, other Japanese families would pick fights with the Yoshidas and tell them that they had to make up their minds, that they could not "refuse to answer."

The family was given three rooms to live in at the Tule Lake camp. Younger children went to Japanese school at camp, not American school, to prepare for returning to Japan after the war. Older children (age 12-13) had jobs. Skilled laborers such as cooks and teachers got $12/month, the master chef and doctors got $16/month, and farm workers who harvested sugar beets got $8/month. Charles worked at the mess hall and got paid $8/month. Yaemon earned $12/month for cooking. Everyone got $3.50/month for clothing and other supplies.

There was a general store/canteen that Charles called the "Tin can" (canteen flipped around). Luxury items were sold at the store like candy and ice cream, as well as fabric and clothes, but no liquor; everything else was supplied. Charles remembered that he always had to stand in line at the store.

Rose remembers saying prayers every morning, facing east for the Japanese emperor. One day there was a riot and the army came in with patrollers and guns. After the riot, there were no more group prayers and groups of more than three people were not allowed.

One day Charles got chased because he walked out of the canteen with an ice cream cone and two friends just as another group of three men came by. Charles was perceived as the fourth person of the group. He was chased by the military police (MP) in a jeep with rifles drawn, yelling "break it up!" One MP pointed his rifle at Charles and said, "Hey, You Jap, what are you laughing at?" Charles dropped his ice cream and started running, with the MPs chasing him in the jeep. Charles "ran like hell" to the firebreak and then among the buildings where the jeep could not go. "It was pretty scary" (Fiske 2005:12).

Rose recalled that she liked camp. She was young and didn't have to work, it was fun (Charles agreed, despite the ice cream incident!). There were dances at the mess hall and sometimes movies, too. There were churches, Buddhist and Christian, and holidays were celebrated in the mess hall. The family would go to the mess hall for meals and eat in shifts. The mess hall could hold about 250 people per shift, and there were about 600 people to feed in their section. Therefore, there were three shifts for each meal, with about 30-45 minutes to eat, then paid internees would have to wash the dishes before the next shift could eat. The younger children would eat with their parents, while the older children preferred eating with friends. The cooks were Japanese and they upheld traditions (celebrating holidays, both American and Japanese, with traditional foods). One New Year's Day, one of the cooks had secretly stashed enough rice to make sake.

Inez worked really hard and hated camp, although she happily met and married her husband while interned. Rose and Charles believed their parents also didn't like camp but didn't express it. Tomoichi, Kikuno, and Yaemon worked hard to make sure the younger children did not see them suffering during the war. When the war was over, the Yoshidas were among the first families out of camp. From the Tule Lake Camp, only about 10 families went back to Japan, out of more than 18,000 internees. Rose's late husband, Setsuo Hisatomi, was also at Tule Lake Camp, but they didn't meet until later (Rose was only 11-13 years old at camp) and they were married in 1950. The Hisatomi family had to buy back their citizenship because they were "No-No's" and had given up their US citizenship. Rose's late husband retained a lawyer after they were married to navigate the legal process to reinstate his US citizenship. It cost around $300 plus attorney fees to regain his citizenship. This is only one situation; it was not the way all families dealt with regaining citizenship after they had renounced it in camp.

AFTER THE WAR

The Yoshidas were at Tule Lake camp from 1943 to 1945. After they got out, the realization of the loss set in. The family had to start over. They had been successful farmers, working a large farm complex. During the war, they had lost everything. Yaemon and Tomoichi felt the repercussions, but they tried to make sure the younger children did not feel as affected by it.

Before the Yoshidas and other Japanese sharecroppers left the area, Carl Spooner had told them to come back after the war, that everything would still be there. According to Charles, they never had any intention of going back: "we got spoiled with electricity!" In any case, the Spooners had sold the property during the war.

As internees departed camp, the War Relocation Authority (WRA) disbursed $25 to each internee for travel expenses. The Yoshida family pooled their money to buy necessities for their resettlement. The WRA arranged for the family to be bused to a hostel in Penryn, California. Luckily, the Yoshidas had a future home site in Auburn, Califorina, thanks to George Yamasaki (different from the Fresno Yamasakis), who had befriended the Yoshidas at the Tule Lake Camp. Fortunately, George Yamasaki had a trusted Caucasian friend who had taken care of his property in Auburn. While the Yoshida family lived in the Penryn hostel, Yaemon, Tomoichi, and the older boys commuted to Auburn and converted George Yamasaki's barn into living quarters for the family. The Yoshidas retrieved the few belongings stored in the Fresno Yamasaki's shed to set up housekeeping in the converted barn. Tomoichi and the older boys (Masao, Charles, and Edward) worked in orchards and truck farms to sustain the family. Kikuno used the sewing machine that had been stored in the Fresno shed to sew items for the house and clothes for the children. Tomoichi and Kikuno's twelfth child, Betsy, was born in Auburn.

The Yoshida family lived in Auburn for about three years and then moved to Lodi to work on the Kishida ranch. They later moved to Woodbridge on the outskirts of Lodi as sharecroppers for a vineyard. Tomoichi had several other young Nisei men working for him at the vineyard. Kikuno did all the cooking to feed the workers and the family. After about a year in Lodi, Kikuno read in the Japanese-language newspaper that many families coming out of internment camps were becoming strawberry sharecroppers in Watsonville. The family moved to Watsonville with all their belongings and began sharecropping at Johnson's Ranch. By this time, Yaemon was elderly and ill and Tomoichi was diagnosed with cancer. Masao, Charles, and Edward were responsible for the family's welfare and worked hard to leave sharecropping and venture out on their own as "Yoshida Brothers Farm" on Berry Road in Watsonville. Before Tomoichi died in 1953, the family took him to see the newly purchased Yoshida house and they believe he was very happy that the family finally had a home to call their own (Fiske 2005:14).

All 12 Yoshida children graduated from high school, eventually married, and established their own families.

5.0 RETURN TO PECHO

Members of the Japanese families that grew up farming along the Pecho Coast have returned to visit on several occasions. Inez Yoshida Hashimoto and her husband Jack took Kikuno Yoshida to southern California in the late 1970s, to visit pre-War friends who had returned to the San Luis Obispo area after internment (Fiske 2005). They drove to the area of the house at Coon Creek, but the area was part of PG&E operations and not open to the public. Inez said that "when they looked through the weeds for the old house, Mama wondered out loud what had happened to Yaemon's polished abalone bowls" (Fiske 2005:5).

Toki (Teraoka) Inouye and her younger brother Masaji, who had moved to Fresno after the war, often visited Montana de Oro State Park, looking through the fence at the area their family had lived. During a hiking trip in 2005, Toki told park docents that she wished she "could go across that fence because that's where we used to live" (PG&E 2006:4). PG&E Senior Biologist Sally Krenn arranged for the Teraoka family to visit the property (Figure 11). Toki shared many of her childhood memories and wished "that she could tell her parents how much she and her siblings appreciate the hardship they endured raising them in such a remote area" (PG&E 2006:4).

Figure 11. Toki (Teraoka) Inouye with her brothers, Masaji and Henry, and sister Masai, on the land where their father farmed (PG&E 2006:4).

In October 2009, Ms. Krenn revisited the Spooner Ranch with members of the Yoshida family and the visit was documented with a short family video. Charles Yoshida remarked on the beauty of the area and said "I hope they keep this place like it is."

Figure 12. The Yoshida Family at the Pecho Ranch on April 20, 2013 from left to right Bob Ting, Rose (Nabeta) Yoshida, Charles Yoshida, Linda Takahashi, Kenway Wong, Rose (Yoshida) Hisatomi, Grace Yoshida, Marjorie (Yoshida) Fiske, Gordon Koo, Pam (Yoshida) Koo, Susan (Yoshida) Wong, Darrel Fiske, Irene Yoshida, and Randy (Hisatomi) Morin (photo courtesy of Shanda Grunkemayer-Gibbs).

In April 2013, PG&E and Northwest Cultural Resource Consultants invited members of the Yoshida and Teraoka families to visit the Pecho Coast and the sites of their family farms. The Teraoka family was unable to attend; however, 14 members of the Yoshida family, spanning two generations, were able to visit the coastal terrace that their family had farmed (Figure 12). Many members of the Yoshida family expressed their gratitude to PG&E for bringing them out to see where their family lived and helping them understand an important part of their history. Rose had tears in her eyes and said that she just had so much appreciation for her mother when she saw how hard life was back then. Charles said that this would be his last visit out to Pecho and that it was by far the best.

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APPENDIX A
Confidential Site Records*

*Appendix consists of confidential information and is intentionally withheld.