

Cultural Resources Inventory and Evaluation Report for Napa River Salt Marsh Restoration Project, Napa and Sonoma Counties, California

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April 2003



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INTRODUCTION

This inventory and evaluation report documents Jones & Stokes' efforts to identify historic properties in the proposed Napa River Salt Marsh Restoration Project, Napa and Sonoma Counties, California. This investigation was conducted to comply with Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA). The U.S. Army Corps of Engineers (Corps) is the lead federal agency for the Napa River Salt Marsh Restoration Project under Section 106 of NHPA. The lead agency under CEQA is the California State Coastal Conservancy (Conservancy). The tasks completed to accomplish the inventory and evaluation comprised prefield research, consultation with Native Americans and other interested parties, archival research, archaeological and architectural field surveys, supplementary research to evaluate identified cultural resources, and preparation of this report. Seven historic resource types were identified and evaluated for significance using the criteria established for the California Register of Historical Resources (CRHR) and the National Register of Historic Places (NRHP).

PROJECT LOCATION

Historically, the project area was marshland located between the Napa River and Sonoma Creek in the north San Pablo Bay region. This area is now called the Napa River Unit of the California Department of Fish and Game's (DFG's) Napa-Sonoma Marshes Wildlife Area (NSMWA) (Figures 1)). The Napa-Sonoma Marsh originally encompassed more than 38,000 acres, extending from San Pablo Bay north to the historic limits of the tidal baylands and east to west between the Napa River and Tolay Creek. Of the 38,000 original acres, 25,000 acres of the marshlands were in the Napa River watershed. Today, approximately 36% of this acreage remains classified as wetland habitat, and 25% consists of inactive solar salt production ponds, 12% residential areas, and 20% cropland and pasture; the remaining 7% has miscellaneous uses. The salt ponds, cropland, and pasture are diked to prevent tidal and fluvial inundation under normal conditions. A majority of the remaining wetland areas are public lands and are under the management of DFG as part of the NSMWA.

PROJECT DESCRIPTION

The Conservancy, together with the Corps and DFG, is proposing the salinity reduction and habitat restoration of DFG's 9,850-acre property within the Napa-Sonoma Marsh. The Napa Salt Marsh Restoration Project objective is to restore tidal salt marsh and ecologically related habitats to this property to support increased populations of endangered species, migratory waterfowl, shorebirds, and anadromous and native fish.

Implementation of the Napa River Salt Marsh Restoration Project consists of three components: salinity reduction, water delivery, and habitat restoration. Specifically, the project consists of the construction of new water-intake and -discharge structures, replacement and modification of on-site canals and pipelines, lowering of some levees to enhance wildlife habitat, and levee breaches to reduce pond salinities and to restore ponds to tidal action, thereby providing a large increase in slough habitat and tidal channels.

Salinity reduction will be achieved through the use of tidal Napa River water and tertiary treated wastewater (i.e., recycled water). Recycled water pipelines will be constructed from Sonoma Valley County Sanitation District (SVCWD), Napa Sanitation District (NSD), and City of American Canyon (CAC) Wastewater Treatment Plants (WWTP). Construction of the recycled water pipeline includes creating a trench that is approximately 6 feet wide and 8 to 10 feet deep. An 18- to 36-inch PVC pipe would be placed in the trench surrounded by a granular backfill, with the top 4 feet refilled and compacted with excavated soil. The proposed Sonoma, Napa, and CAC Pipelines would carry water from the to the Napa River Unit Project site, as illustrated in Figure 3. The pipelines would be constructed predominantly in disturbed areas including the road, road right-of-way (ROW), railroad ROW, or newly acquired ROW; newly acquired ROW will occur along the Napa Pipeline west of the Napa River for several thousand feet on a road through Stanly Ranch, and along the Sonoma Pipeline for several thousand feet adjacent to Skaggs Island Road. Water quality will be carefully monitored to ensure it does not exceed water quality standards permitted by the San Francisco Regional Water Quality Control Board.

Habitat restoration will be initiated once salinity is reduced. To begin this process, the existing levees on some of the ponds will be breached to produce a self-sustaining habitat that can adjust to naturally occurring changes in physical processes, with minimum ongoing intervention. Several ponds will continue to be managed and operated for their existing recreation and wildlife values.

The Area of Potential Effect (APE) was defined to include:

- the salinity reduction and habitat restoration area owned and managed by DFG that has the potential to result in effects on cultural resources as a result of construction and operational activities (Figure 2); and
- the new recycled water pipeline alignment ROW with easements by SVCWD, NSD, and CAC with the potential to result in effects on cultural resources as a result of construction activities (Figure 3).

The APE includes both the marsh restoration area and the pipeline alignments, but these areas are analyzed discretely because of the different types of settings of these areas.

REGULATORY SETTING

Section 106 of the National Historic Preservation Act

Because the proposed Napa River Salt Marsh Restoration is being constructed by the Corps, the proposed action is considered a federal undertaking. As such, the lead federal agency (the Corps) must comply with Section 106 of the NHPA. Section 106 of the NHPA requires that, before beginning any undertaking, a federal agency must take into account the effects of the undertaking on historic properties and afford the Advisory Council on Historic Preservation (ACHP) and other interested parties an opportunity to comment on these actions. Specific regulations regarding compliance with Section 106 state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed. The Section 106 review process involves a five-step procedure:

- Initiate the Section 106 process (assess the ability of the undertaking to affect historic properties, identify consulting parties, and plan to involve interested parties).
- Identify historic properties in the APE.
- Assess adverse effects.
- Resolve adverse effects.
- Implement the project according to the memorandum of agreement (MOA), or implement project without an MOA if no agreement is necessary.

Section 106 requires federal agencies, or those they fund or permit, to consider the effects of their actions on properties that may be eligible for listing or are listed in the NRHP. To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (including archaeological, historical, architectural, and traditional cultural properties) must be inventoried and evaluated for the NRHP. To be listed in the NRHP, a property must be 50 years old or older and evaluated as significant (or, if less than 50 years old, be of exceptional historic significance). To qualify for listing in the NRHP, a property must represent a significant theme or pattern in history, architecture, archaeology, engineering, or culture at the local, state, or national level. It must meet one or more of the four criteria listed below and have sufficient integrity to convey its historic significance. The criteria for evaluation of the eligibility of cultural resources for listing in the NRHP are defined in Title 36, Code of Federal Regulations (CFR), Section 60.4 as follows:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that

possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

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

B. that are associated with the lives of persons significant in our past; or

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

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

In addition to meeting the significance criteria, a significant property must possess integrity to be considered eligible for listing in the NRHP. Integrity refers to a property's ability to convey its historic significance (U.S. Department of Interior 1991). Integrity is a quality that applies to historic resources in seven specific ways: location, design, setting, materials, workmanship, feeling, and association. A resource must possess two, and usually more, of these kinds of integrity, depending on the context and the reasons that the property is significant.

The NHRP criteria also limit the consideration of moved properties because significance is embodied in locations and settings. Under NRHP Criteria B, a moved building destroys the integrity of location and setting. A moved property can be eligible if it is significant primarily for architectural value or if it is the surviving property most importantly associated with a historic person or event (U.S. Department of Interior 1991)

California Environmental Quality Act

CEQA requires that public or private projects financed or approved by public agencies assess the effects of the project on historical resources. Historical resources are defined as buildings, sites, structures, objects, or districts, each of which may have historical, architectural, archaeological, cultural, or scientific significance. CEQA requires that, if the project would result in an effect that may cause a substantial adverse change in the significance of a historic resource, alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed. Therefore, before the development of mitigation measures, the significance of cultural resources must be determined. The steps normally taken in a cultural resources investigation for CEQA compliance are:

1. Identify cultural resources.

2. Evaluate the significance of resources.
3. Evaluate the effects of the project on significant resources.
4. Develop and implement measures to mitigate the effects of the project on significant resources.

CEQA guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review:

1. if the resource is listed in or determined eligible for listing in the CRHR;
2. if the resource is included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code (PRC) or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or
3. the lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, Section 15064.5[a]).

Each of these ways of qualifying as a historical resource for the purpose of CEQA is related to the eligibility criteria for inclusion in the CRHR (PRC 5020.1(k), 5024.1, 5024.1(g)). A historical resource may be eligible for inclusion in the CRHR if it:

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

Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR and thus are significant historical resources for the purpose of CEQA (PRC Section 5024.1[d][1]).

REGIONAL CULTURAL CONTEXT

Prehistoric Setting

Because the Napa Valley is a large region of rich geographic and cultural diversity, the following prehistory is general in nature, drawing on specific materials for illustration where appropriate. The prehistoric setting for this region falls within one previously defined archaeological province: the San Francisco Bay Region (Fredrickson 1973, 1974, 1984; Moratto 1984; Theodoratus et al. 1981; Sundahl 1982). The present account draws on various cultural resource management reports and agency overviews (e.g. Hildebrandt and Hayes 1983; McCarthy, Hildebrandt, and Swenson 1982; Theodoratus et al. 1980; Theodoratus et al. 1981) but is based to a great extent on Fredrickson and Moratto's (1984) parallel synopsis of the San Francisco Bay Region. Although generally uncited, these sources should be considered the primary basis for this report, except as specifically indicated. Fredrickson's 1973 doctoral dissertation and its later elaborations and refinements (1974, 1984) represent a departure from previous attempts at organizing the regional database (Theodoratus et al. 1981). Fredrickson used the Central California Taxonomic System (CCTS) as a point of departure but moved beyond its culture-historical orientation into a more adaptational realm where more emphasis was placed on subsistence and settlement, regional interactions, and the development and interplay arising from the technological, economic, and ecological spheres (Theodoratus et al. 1981). Although often criticized for its lack of explicit definitions, this framework provides a more fruitful and holistic approach to regional research issues (Theodoratus et al. 1981).

San Francisco Bay Region Prehistory

The prehistory of this region is not as well known as other areas because of its history of intensive urban development. Many archaeological resources have suffered severe disturbance or destruction prior to any scientific inquiry. A majority of the archaeological excavations in this area have been last-minute salvage efforts, often without time or resources provided for adequate data recovery and reporting. However, over the past few years, perception of this region's prehistory has changed rapidly, partly as a result of intensive fieldwork performed to comply with environmental laws. Such mandated work has forced archaeologists to move away from the coastal and bayshore midden sites to investigate localities and types of sites that were previously unstudied. Recent investigations have led researchers to believe that this part of California was inhabited in the early Holocene times, emphasizing that older archaeological sites may exist on the submerged continental shelf or below the waters and sediments of the San Francisco Bay.

Between 5000 and 2000 BC, the Bay Area was likely occupied by a widespread but sparse population of hunter-gatherers. Settlements in the hills and on the bay and

ocean shores tend to have less shell than later midden sites. Large projectile points and milling stones indicate the importance of both animal and vegetal resources. Various shellmounds indicate an intensive adaptation to the littoral zones. The archaeological record suggests fishing, shellfish collecting, fowling, hunting estuarine and land mammals, and gathering vegetal products were among the important subsistence strategies. Although emphasis on specific resources varies throughout environmental zones in the project area, a mixed economy of hunting and gathering is apparent. Based on indications of semi-sedentism, a foraging subsistence strategy, and technological traits, this is considered an Archaic Stage pattern.

Between 2000 BC and AD 1, the populations of the Bay Area appear to have been undergoing significant change. A new and distinctive assemblage style develops that is referred to as the Berkeley Pattern, which is predominant in the Central Valley during this period. This development is thought to represent utilitarian cultural developments and geographic spread from the valley throughout the Bay Area. The Berkeley Pattern is characterized by minimally shaped cobble mortars and pestles, a paucity of manos and metates, darts, atlatls, and an increased emphasis on bone tools. The ratio of grinding implements and large shellmounds to projectile points indicates that gathering was emphasized and hunting played a lesser role in subsistence strategy. Burials are flexed and burial goods include abalone ornamentation; bone and antler tools such as fiber strippers, awls, wedges and serrated scapulae; and distinctive charmstones or hammerstones.

By AD 500, the Berkeley Pattern had developed into the Augustine Pattern. This development does not appear to represent a population replacement, but rather a diffusion of new traits into the Bay Area. The Augustine Pattern is identified by a series of new traits, including the use of the bow and arrow and harpoon, the presence of tubular tobacco pipes, and the practice of preinterment grave burning. Indicators of this pattern are *Haliotis* and clamshell disk beads, *Olivella* lipped and spiral lopped beads, tubular steatite pipes, bird bone whistles, and smaller numbers of mortars, pestles, and imperforate charmstones. Significant variation in grave wealth may signify status differentiation. The archaeological record continues to suggest reliance on the littoral and estuarine environment afforded by the Bay Area.

Previous Archaeological Studies

The earliest organized cultural resource surveys in the Bay Area were conducted in 1906 and 1908 by N. C. Nelson of the University of California, Berkeley. During these surveys, Nelson documented 425 “earth mounds and shell middens” along the coast from the Russian River in Sonoma County down to Half Moon Bay in San Mateo County (Nelson 1907, 1909a, 1909b as cited in Moratto 1984). Nelson’s primary concerns were the distribution, condition, number, and constituents of the shellmounds, which might imply the age and numbers of inhabitants who occupied the sites (Nelson 1909; Moratto 1974:63). Nelson also recognized the intensive use of shellfish throughout the coastal middens as evidence for a distinct economic base of the region (Moratto 1984:227).

Excavations of shell middens in Alameda and Contra Costa Counties began around the same time. By 1916, eleven of the sites identified by Nelson were excavated, and by the 1940s enough information had been gathered to permit the development of a tentative regional prehistory. In 1948, the Central California Taxonomic System developed for the Central Valley was expanded to correlate the Bay Area sequence with those of the Delta. However, as more work was conducted, it became obvious that this system and others lacked refinement. More recent techniques, such as obsidian hydration and radiocarbon dating, have been instrumental in establishing more accurate occupation dates for many Bay area sites.

Results of previous archaeological investigations in the surrounding region have shown that the Bay area was inhabited by mobile hunter-gatherers. Over time, their foraging strategies became more focused on the locally obtainable resources and their lives became increasingly sedentary. Early inhabitants of the project area relied heavily on the resources associated with San Pablo Bay and associated marshes and estuarine environments.

The vast majority of the present project area is composed of artificial salt ponds, which were marshland prior to the construction of the levees in the early part of the nineteenth century. For the past several thousand years, the property existed as tidal marshlands. Before that time period, when sea levels of San Francisco Bay were considerably lower than they are today (Bickel 1978), the project area could well have been a littoral zone where Native Americans lived and procured marine and bayshore resources.

The quantity and scale of research in the Bay Area has contributed to knowledge of the prehistoric record much more than the overall quality of research. It should be emphasized that the record is incomplete, with many gaps in the temporal and spatial ordering of the prehistoric archaeological sequence. Several problems inherent in the archaeological record of the region present researchers with methodological issues that influence interpretations of the evidence. Although some major university- and agency-sponsored projects have greatly contributed to our knowledge of specific areas of this region, significant gaps in areal coverage and some temporal periods remain. Until quite recently, archaeological excavation was focused entirely on large inland valley and coastal sites, leaving the interior unexplored. To date, sufficient interior sites, especially stratified deposits, have not been excavated, but some recent studies have resulted in a greater comprehension of settlement patterns in large portions of the study area.

A recurrent problem is the general lack of chronological control in this area, with few absolute dates from radiometric or obsidian hydration yet available. As more data accumulate, this situation may improve but in the past the problem has led to the uncritical use of cross dating. Too often artifact types that appear similar in gross form to dated materials from other regions have been considered to be equivalent in age and function. This has been especially true in the construction of projectile point typologies where locally recovered specimens were forced to fit typologies defined for more distant regions (Basgall and Hildebrandt 1989). In addition, the entire region suffers from poor

organic preservation, rendering large classes of materials such as faunal remains and bone tool assemblages enigmatic in some locations.

Ethnography

Both the Coast Miwok and the Patwin inhabited the lands of northern San Pablo Bay and vicinity.

Coast Miwok

A large portion of the uplands and tidelands of north San Pablo Bay was inhabited by the Coast Miwok Indians in the prehistoric past and at the time of European contact. The Coast Miwok language, a member of the Miwokan subfamily of the Utian family, is divided into two dialect groups: Western (Bodega) and Southern (Kelly 1978:414; Shipley 1978:84). The Coast Miwok territory extended from Duncan's Point on the Sonoma County Coast to the end of the Marin County Peninsula (Kroeber 1925). To the east, Coast Miwok territory extended east as far as midway between the Sonoma and Napa Rivers (Kelly 1978).

The main tribelet near the project area was the *..iik* group who inhabited the valley of Novato Creek on the northwest side of San Pablo Bay (Kelly 1978:415). Coast Miwok villages were usually located near major inland watercourses or, in some cases, along the coast (Kelly 1978:417).

Spanish explorers made contact with the Coast Miwok in the late 1700s. By 1776, the Franciscan fathers of the San Francisco mission began forced conversions of Native Americans to Christianity and brought Coast Miwok to mission lands, causing a partial abandonment of native settlements. Subsequent ranching and settlement by Mexicans and Americans further displaced Coast Miwok from their homes and subjected the group to intense depredations of homicide and epidemic diseases (Bean and Rawls 1993:17).

During the early years of U.S. dominance of California, some Coast Miwok took work in sawmills and as field hands (Kelly 1978:414). The Coast Miwok population declined from approximately 2,000 persons before European contact to five individuals by 1920 (Cook 1976:239). The National Park Service, the Miwok Archaeological Preserve, and individuals of at least partial Coast Miwok descent have recreated the village of Kule Loklo (Bear Valley) on the Point Reyes National Seashore. Dances and local festivals reflecting Coast Miwok traditions are now held at Kule Loklo (Eargle 1986:67, 84–85).

Patwin

Patwin territory included the lower portion of the west side of the Sacramento Valley west of the Sacramento River from about the location of the town of Princeton in the north to Benicia and the Napa River in the south (Johnson 1978:350). In this larger territory, the Patwin traditionally have been divided into River, Hill, and Southern cultural/geographic groups, although in actuality a more complex set of linguistic and cultural differences existed than is indicated by these three divisions (Johnson 1978:350). The Patwin language contains numerous dialects that belong to the Wintu family of the Penutian language stock (Shipley 1978:82–83). The Patwin were bounded to the north, northeast, and east by other Penutian-speaking peoples (the Nomlaki, Wintu, and Maidu, respectively) and to the west by the Pomo and other coastal groups. Near the project area, the Patwin are believed to have reached the Carquinez/Suisun area by approximately 1500 B.P. (Whistler 1979, McCarthy 1985).

The main tribelet in the vicinity of the project area was the Aguasto group, who inhabited the eastern portion of the Napa River on the northeast side of San Pablo Bay (Johnson 1978: 350) (outside of the project area).

Patwin villages contained four types of permanent structures, which were earth covered, semi-subterranean, and either elliptical or circular in shape. The structures are the family or dwelling house; the ceremonial dance house, which was built at the north or south end of the village; the sweathouse, positioned east or west of the sudatory; and the menstrual hut, which was placed at the village edge farthest from the dance house (Johnson 1978:357–358).

Patwin subsistence consisted of hunting and gathering from a village base. Acorns were a staple food that the Patwin gathered from two types of valley oak, hill oak, mountain oak, and (rarely) live oak. Acorns were pulverized with a long river cobble pestle (Merriam 1967) in wooden mortars (Johnson 1978:357). The acorns were then leached in a sand basin and made into a bread or soup. Acorn soups were heated in a basket by boiling with cooking stones. Acorn bread was baked in an earthen pit oven lined with leaves. The Patwin also gathered buckeye, pine nuts, juniper berries, manzanita berries, blackberries, wild grapes, Brodiaea bulbs, and tule roots. Bulbs were removed from the ground with wood digging sticks and then baked or boiled; berries were eaten raw, dried and pulverized, or boiled (Johnson 1978:355). Tobacco was gathered along watercourses but was not cultivated (Powers 1874, Kroeber 1932).

The Patwin probably first encountered Europeans during Spanish domination of California. At least by 1800, Spanish missionaries from Mission Dolores (San Francisco de Asís) recruited neophytes from the Patwin villages of Aguasto and Ululato, both within 12 miles of the project area (Bennyhoff 1977 [1961]). Neophytes were recruited for mission labor from other Patwin settlements as well, until the secularization of the missions by Mexican government in 1834 divided the mission lands into individual land grants (Johnson 1978:351).

Under Mexican rule in California, the Patwin suffered from numerous military incursions and attacks from Mexican and American settlers who occupied Patwin territory as a result the Mexican government's liberal land grant policy. Some settlers and military officers, such as George C. Yount and General Mariano G. Vallejo, enlisted Indian aid against other Indians "who stole or promoted violence" (Johnson 1978:351). The Patwin also suffered from epidemic diseases, such as malaria and smallpox, which led to a decline in the Patwin population. (Johnson 1978:351–352).

The U.S. conquest of California (1846–1848) was followed by a massive influx of American settlers into Patwin territory, increasing pressure on the indigenous population. To facilitate the development of ranching, agriculture, mining, and large settlements, American policy toward the Patwin was generally one of removal to reservations. Some Patwin adjusted to American dominance by working on ranches (Johnson 1978:351–352). Estimates of recent Patwin population are very low; the U.S. Bureau of Indian Affairs reported 11 Patwin in 1972 (Johnson 1978: Table 1). However, such estimates often include only Patwin with one-quarter or more descent (as in Kroeber and Heizer 1970), excluding those persons with less than one-quarter Patwin descent. Elements of Patwin culture may be preserved in contemporary Indian cultures by way of pan-Indian organizations and living descendants of the Patwin (Castillo 1978).

Historic Setting

Napa County

Although the Napa Valley was not well explored during the Spanish and Mexican periods in California, it was one of the first regions to be settled by Americans. In 1836, Governor Mariano Chico signed the first land grant in the valley, for Rancho Caymus, to the ownership of George Yount. Later that same year, Chico granted Rancho Entre Napa, west of the Napa River, to Nicolas Higuerra, one-time soldier at San Francisco and *alcalde auxiliar* at Sonoma. In 1848, Nathan Coombs bought the northeast corner of the rancho from Higuerra and surveyed and laid out the plans for the City of Napa. Following statehood in 1850, the legislature organized Napa County as one of California's original 27 counties (Coy 1973; Kyle 1990).

Solano County

Solano County is also one of California's original 27 counties and has retained its original boundaries over time. The first county seat was the City of Benicia, but in 1858 it moved to Fairfield. The City of Fairfield is located on lands originally part of the Tolenas and Suisun land grants. In 1839, Jose Francisco Armijo petitioned for three square leagues of land in the Suisun Valley in northern California. The following year, he received the grant to Rancho Tolenas from Governor Alvarado. Armijo acquired the title to the 13,315-acre rancho upon his father's death in 1850. In 1858, Captain R.H.

Waterman acquired land in the Armijo grant. Shortly after getting title to the land, Waterman offered Solano County 16 acres for use as a new county seat. At that time the seat of county government was located in Benicia at the far edge of the county, but many residents preferred that it be in a more centralized location. In 1858, Solano County voters accepted Waterman's offer, making the new town of Fairfield (named after Waterman's hometown in Connecticut) the new county seat, where it has remained to the present (Coy 1973, Hunt 1926; Kyle 1990; Wood Alley and Co 1879).

San Pablo Bay Tidelands

The tidelands of the northeast part of San Pablo Bay comprise about 94 square miles of marsh and extend into parts of Solano, Napa, and Sonoma Counties. A Spanish expedition in 1823, led by Francisco Castro accompanied by Jose Sanchez and Father Jose Altimira, was the first recorded nonnative exploration into the area. Following California statehood in 1850, these lands became part of holdings of the state. The San Pablo Bay Tidelands remained mostly undeveloped through the 1850s and 1860s. They were used primarily for hunting duck and other waterfowl for the markets in San Francisco (Hayes 1995).

In 1861, the California legislature passed a law allowing the formation of swampland reclamation districts. The law also created a state board of swampland commissioners to supervise private reclamation projects. By the end of 1862, the state contained 38 swampland districts covering over 485,000 acres of land. However, the 1866 legislature, under pressure from land speculators and wheat farmers, decommissioned the board and passed the responsibility of overseeing reclamation projects to the various counties. Two years later, the legislature dropped a 640-acre limit on the amount of "swampland" an individual could acquire. The 1868 law, sponsored and drafted by Will Green (father of the Sacramento Valley Irrigation project), initiated an immediate boom in land acquisitions by speculators across the state (Pisani 1984: 130).

By the early 1870s, the San Pablo Bay marshes began to be significantly transformed as a result of the Green Act. The new legislation sold the land at one dollar an acre and allowed individuals to purchase as many acres as they could afford, subject to the condition that title would not be granted until the land was reclaimed. Furthermore, the Green Act allowed the formation of local reclamation districts authorized to purchase state swampland and tidelands. Enacted during the 1860s wheat boom, the Green Act ignited a land rush as entrepreneurs risked huge sums of money to acquire large tracts of land. In 3 years, between 1868 and 1871, nearly all of the state's swampland holdings passed from public to private hands. Near the end of this land rush, lands in San Pablo Bay tidelands were claimed.

Initially, many of these reclaimed lands ended up under the control of influential groups of individuals and land companies. Shortly after incorporating in 1872, the Pacific Reclamation Company reclaimed some 12,000 acres of San Pablo Bay marsh

west of Sonoma Creek with a system of levees, dams, ditches, and sluice gates. The largest islands under control of Pacific Reclamation included Tubbs Island and Skaggs Island. By 1877, the San Pablo Land Company had reclaimed 5,000 acres in the area (Hayes 1995, Kelley 1989).

The State of California sold the islands east of Sonoma Creek and within the project area to private individuals through a series of “Swamp and Overflowed Land” sales beginning in 1869. The largest of these sales included “Survey No. 569” to Jacob Hinckley, which generally included the lands of (modern) Island No. 1 and Knight Island. The lands, surveyed in 1869, encompassed approximately 7,400 acres of land. The second largest parcel, known as “Survey No. 115,” encompassed approximately 4,149 acres (roughly covering modern Little Island, Island No. 2, and a portion of Russ Island). The state disposed of many smaller parcels located adjacent to these larger plots during the same period. A team of land speculators, including William S. Chapman, John W. Pearson, and George A. Nourse, acquired the vast landholding through a series of deals by 1872 (Chapman, William et al. 1872).

Chapman, a notorious land speculator originally from Minnesota, made a profitable career of purchasing undeveloped lands from state and federal offices and selling for a profit (Hart 1978: 77). His belief that unrealistic federal and state laws limited the ability of wheat farmers to amass the necessary sized parcels of land for effective large-scale wheat cultivation fueled his speculative enterprises. Often at his financial limits, Chapman invited other moneyed individuals to join him (Pisani 1984: 17).

Pearson and Nourse, both trained in the law profession, were ideal partners to Chapman and his speculative enterprises. Pearson, a native of Solano County and graduate of the University of the Pacific, traveled extensively, invested in numerous wood, mining, railroad, and land speculation businesses, and became a lawyer in 1864. By the early 1870s, Pearson owned and co-owned more than 150,000 acres of land within California as well as holdings in Oregon (San Francisco 1875). George A. Nourse moved to Carson City, Nevada, in 1863 to practice law during the Comstock Lode period of that state. Five years later, Nourse relocated to San Francisco to further his law career and ultimately earned a reputation as an expert litigator in regard to land titles (Lewis Publishing Company 1892).

The three men’s qualifications, business savvy, and legal expertise made for a powerful speculation team. Knowledge of land titles and land law proved financially beneficial during this period of California’s history when land titles were frequently challenged and federal and state lands were disseminated to members of the less-educated public. However, legal and business connections did not necessarily ensure long-term success. While Chapman’s focus in the San Joaquin Valley where he amassed over 1,000,000 acres of land initially seemed keen, he and many others lost a majority of land when the San Joaquin and Kings River Irrigation Company failed in 1875 (Pisani 1984: 18; Jelinek 1982: 29).

The three men continued business enterprises in different areas of the state and apparently sold off portions of the “Survey No, 569” and “Survey No, 115” lands. By 1876, J.W. Pearson & Co. controlled only 2,942 acres of the formerly vast properties. The reduced acreage generally included Little Island and a majority of Russ Island. G. Holland acquired 867 acres of Island No. 2, which conveyed again to the Newell family by 1895. Pearson & Co. sold its holdings to William Little by that same year and “Little Island” continues to bear the name (Haas 1876; Buckman 1895). Russ Island took its name from Russ & Sons, a company that held the island land by 1915 and likely was associated with William N. Russ, who acquired 1,822 acres of Little Island and Island No. 2 by that same year. Marie Hanbury and her associates took control of Island No. 2 and its 867 acres of land (Walkup 1915).

Ranches

Low prices for cattle and long-term droughts drove many smaller cattle operations out of business during the 1860s and 1870s. In their place, ranchers holding large properties, including William Chapman and Henry Lux, introduced greater numbers of meat and dairy cattle to the San Francisco Bay region and other areas. As a result, the number of dairy cattle in California exploded from 4,280 to 164,093 by 1870 (Jelinek 1982: 32). Initially, butter was the most important product, but beginning in 1860, milk, which became the dominant product, was in high demand (Hart 1978: 105)

By the late 1800s, most marshland in the project area was diked and drained and was being used for livestock grazing and the cultivation of oats and hay. In 1890, newspaper articles described the process by which thousands of acres of nearby land owned by John P. Jones (politician and founder of the Pacific Reclamation Company) were reclaimed and converted to hay fields and dairy cow ranges. Large mechanical dredges lifted soil from the river and creek beds to create miles of earthen levees, which in turn allowed the introduction of hay and other dairy cattle forage crops (Index-Tribune 1890).

Frank E. Knight, a former resident of Humboldt County, moved to Solano County in 1904. Knight acquired 7,000 acres of tidelands that many considered worthless near Vallejo (and likely included the island at the south end of the project area that now bears his name). The new landowner spent \$80,000 on a vast system of levees and dykes to successfully reclaim the land by 1926. Knight’s ranch was reported as one of the finest ranches in the southwest portion of Solano County (Hunt 1926).

Between 1900 and 1940, government-sponsored farmers constructed levees on Island No. 1 (described in the EIR/EIS as Cullinan Ranch), located along the southern edge of the project area (Valentine 1997). Despite reclamation efforts, Cullinan Ranch, and surrounding islands gradually began to sink because of consolidation and dewatering efforts. Tide gates became useless and pumps were installed (Valentine 1997).

Although most of the marshland was reclaimed, the soil along San Pablo Bay was unsuitable for most orchard-type agriculture. In general, the ranches adapted to the rich peat soil of the region and grew grain crops, mostly alfalfa hay for the dairy markets in the San Pablo and San Francisco Bay area (Hayes 1995). By the 1920s local ranchers shipped 5,000 tons of hay a month across the bay to San Francisco. When the automobile replaced the horse as the most common form of transportation in that city, the market for hay shipments dropped off. The subsequent conversion of many ranches to more intensive crops led the way for subdivision of some of the larger holdings (Liebman 1983).

Cullinan Ranch, located south of Dutchman Slough, was constructed in the mid-1920s and originally included a ranch house, bunkhouse, barn, well, and ancillary buildings. During the 1940s, the complex functioned as a dairy farm, but it ceased operating by the 1950s because of the lack of fresh water. During this period, the Kiser family purchased the property and undertook general land improvements, including the construction of additional storage facilities and ongoing levee maintenance. Eventually the Kiser family sold the ranch and its surrounding land to a developer who intended to construct a commercial and residential community. No improvements were made, however, and the land continued to be used for dry land grain farming until 1991, when the USFWS acquired it (Valentine 1997).

Duck Hunting

For centuries, parts of California, including the tidal marshes near the San Francisco Bay (including the Napa-Sonoma Marsh), have served as the main wintering quarters for migratory waterfowl in the Pacific Flyway. As early as the 1850s, duck hunters traveled to the area to shoot waterfowl commercially for the San Francisco markets

Duck hunters typically relied on a variety of duck blinds in their duck hunting endeavors. The blinds were either temporary or permanent structures, and their construction was often determined by their location. In deep, large marshes covering a vast area, duck blinds were elevated structures that varied in size and were supported by platforms resting on piles flush with the surface of the water. The small blind (typically 3 to 5 feet) were partially hidden by netting or tules and rushes and often included a rail to support the gun and the shooter. Shallow marshes generally featured sunken blinds. Marshes covering a vast area typically featured movable blinds that allowed the hunter to move with the ducks as their flight pattern varied in search of food. Another method favored by hunters involved converting boats into blinds by anchoring the vessels in the marsh and covering them with fish net, poultry fencing, and water grasses. Small boats typically accessed the blinds (Wilson 17-18). As these structures were abandoned or destroyed in response to the changing marshland (through silt deposits and flooding), new blinds were constructed to take their place.

Duck Clubs

An outgrowth of market hunting, duck clubs were first established in California as a result of unregulated game fowl hunting. By the 1870s, the number of waterfowl in California had drastically decreased because of over-hunting by sportsmen and market hunters (those who hunted either for subsistence or to sell their catch). Urban sport hunters, seeking to improve their hunting success, began purchasing tidelands that were generally considered unfit for agriculture and modifying the land to attract waterfowl. In general, the improvement included diking areas to create ponds and providing grain as feed. The first duck club in California was Hardland Club established in the Suisun Bay in 1879. Others soon followed in every region of the state. Duck clubs are one of the more successful and long-lived recreation institutions, and over a century later more than half of the modified natural wetland habitat in California was in private ownership and maintained for waterfowl hunters (Kozlik 1985, 8-9).

Over the years, the original founders or their direct descendants maintained many of the duck clubs. Since their inception, the clubs were expensive to own and operate. In addition to the dikes and levees to create the ponds, many duck clubs built blinds, plank walkways, and clubhouses and maintained several small boats. Because of the expense of upkeep, duck clubs were nearly exclusively the domains of the middle and upper classes. For example, in the 1930s, membership in Suisun Marsh's Teal Club included an initial \$1,000 fee and annual dues of \$300. Most of the duck clubs had strict rules that limited the number of "shoot days." Most clubs allowed hunting only 2 days a week, and generally that was restricted to the morning hours. This limit gave the duck population time to recuperate during the "non-shoot" days. Larger clubs often set aside large parts of their holding as permanent sanctuaries (Kozlik 1985, 10; Wilson 1933, 15–20).

By 1902, duck club facilities existed on Island No. 1 and Island No. 2 in the vicinity of the project area. In general, club facilities included buildings, sheds, footbridges, and systems of maintained ponds. By the 1940s, dozens of clubs were located in the marshlands. Many of these clubs no longer exist because of flooding by salt companies in the 1950s or by restoration projects in the 1990s (Hayes 1995).

One of the early twentieth-century duck clubs in the San Pablo Bay tidelands was the Fleishacker Club (located southwest of the project area). Field and Tule Land Company, one of the half dozen or so property owners on Island No.1, established this club. By the 1930s, the complex included a large clubhouse and other facilities. In the 1940s, the club became known as the Fleishacker Club, named after the owner who controlled the property for a brief period. In the 1950s, H. Louis Detjen purchased the property, and it became known as the Detjen Duck Club (Hayes 1995).

Fishing and Shrimping

Napa and Solano Counties became important shrimping and fishing regions in the mid to late nineteenth century. Following the gold rush, many Chinese came to the San

San Francisco Bay area to fish for a small distinctive variety of shrimp. Shrimping was an established trade in China, and the abundance of shrimp in San Pablo and San Francisco Bays encouraged the start of this fishing activity. The Chinese fishermen caught the shrimp and took them to dry at nearby fishing camps. The dried shrimp were then exported. By 1870, shrimp fishing evolved into a major industry along the shores of San Pablo and San Francisco Bays. Although the Chinese were successful in this endeavor, they felt increasing pressure from other fishing groups. Eventually legislation passed in the twentieth century forbade traditional Chinese fishing techniques and prohibited the export of dried shrimp. As a result, the Chinese fishing population in the area dwindled.

In addition to shrimp, the rivers throughout the Napa and Sonoma area had abundant steelhead and trout. Fish were plentiful in the region as waters from the interior valleys of California drained into the San Pablo Bay. During the Great Depression, many fishermen relied on fishing to supply their daily meals. Currently, striped bass, sturgeon, steelhead, and king salmon are fished in area waterways. (fishsniffer.com; Arnold 1875: 401–405).

Oystering

Oystering was once an integral part of the California fishing economy. Oysters, once a primary for many Native American coastal tribes, were first commercially produced and harvested during the gold rush. By 1869, the Transcontinental Railroad made it possible to ship oysters to the East Coast. From 1895 to 1904, oysters were the most valuable fishery product of the state. However, production declined, and by the 1930s, oystering in the San Francisco Bay ended because of pollution. Companies either closed or moved to other locations including west Marin, where they used rail lines to transport their harvest to the San Francisco Bay markets. The Outing Oyster Company operated in the project area in the vicinity of Coon Island during the early twentieth century (Hart 1978).

Roads

Until the twentieth century, the roads in the San Pablo Bay tidelands were few and ephemeral. By 1902, one of the first permanent and improved roads near the project area extended across Island No.1 from South Slough to Mare Island and Vallejo. In 1925, the Sears Point Toll Road Company incorporated to build a road extending from Sears Point to Vallejo. Financed by Golden Gate Ferries, Inc, the Sears Point Toll Road Company was a consortium of concerns representing Marin, Sonoma, and Solano Counties. Opened in 1928, the 10-mile-long road was built within a 160-foot right of way on a dredged fill bed. In 1939, the state added the Sears Point road to the state highway system as State Route (SR) 208. It was later redesignated SR 37, its current designation. In 1942, the original roadbed was raised and widened to accommodate a 22-foot paved concrete surface. During the late 1960s, California Department of

Transportation (Caltrans) realigned and widened the road and replaced the bridge over Sonoma Creek. (Hayes 1995.)

Salt Ponds

In the early 1950s, the Leslie Salt Company purchased more than 10,000 acres in San Pablo Bay in the vicinity of the Napa River and Sonoma Creek. A successor to salt companies that had operated in the South Bay since the nineteenth century, Leslie produced and refined “solar-salt.” This method produces salt through the natural evaporation of seawater or other naturally occurring brine. Salt water is captured in shallow ponds and allowed to evaporate by means of the sun and wind. During the process, a salt bed forms on the bottom of the pond. The salt is harvested, washed, screened, and packaged. The typical solar “crop” takes from 1 to 5 years to produce (Hayes 1995).

Salt production (the manufacture and processing of salt) as an industry in the San Francisco Bay Area began in the mid-1850s. Prior to that time, the salt was merely gathered from natural salt pans or “hot ponds” in the marshes at the bay edge. These hot ponds were areas that filled only during the high tides of June and July and emptied by evaporation when the lower tides of August and September could not reach the pools (Brown 1960, 119; Ver Planck 1958, 107). In 1854, John Johnson enclosed about 73 acres of marsh in Alameda County with levees to create the bay’s first artificial salt pond. His first crop of salt netted Johnson about \$50 a ton; however, within a few years competition drove the price below \$3.00 a ton (Brown 1960, 119; Elam and Rosenhouse 1959, 16–17; Sandoval 1988, 16; Ver Planck 1958, 107).

The discovery of the Comstock Lode in Virginia City, Nevada, in 1859 provided the single greatest stimulus to the California salt industry. The Washoe process used to treat the silver ore required salt as a key chemical. Until 1862, all the salt used in Virginia City was shipped from San Francisco and sold for as much as \$150 a ton. Discovery of desert salt deposits caused a decline in the demand for Bay Area salt, but by that time the industry was well established. In addition to metallurgy, salt was needed by the burgeoning local San Francisco food curing industries (Bean 1978, 166; Ver Planck 1958, 107). By the mid-1860s, many of the small salt manufacturers were attempting to improve the quality of San Francisco Bay salt. Within a decade, the tonnage of salt imported into the state began to decline as the quality of the local salt increased. By the 1880s, California was exporting crude salt overseas (Ver Planck 1958, 107).

Geographically, salt production in the San Francisco Bay Area during the late nineteenth century was centered in the South Bay marshes on the northern part of the Alameda County shore. In general, the evaporating ponds extended from San Leandro Creek to near Alvarado with much of the activity centered near Mt. Eden (Sandoval 1988, *passim*). By 1890, the majority of the more than 20 salt producers in the San Francisco Bay were family-owned enterprises operating on as few as 20 acres. The first three decades of the twentieth century, on the other hand, were a period of consolidation

as larger concerns took over the smaller businesses in an attempt to control Bay Area salt production. This consolidation was realized in large part in 1936, when Leslie Salt Company took control of the assets of all but a few small independent salt companies (Ver Planck 1958, 111; Sandoval 1988, 151-161).

By the early 1950s, all of the salt being produced in the San Francisco Bay area was from marshes in Alameda, San Mateo, and Santa Clara Counties. With the exception of a few small salt works that operated in Marin County in the late 1860s through the 1870s and again in 1902, no salt production took place in San Pablo Bay until 1953 (Ver Planck 1958, 112-113). That year the Leslie Salt Company purchased more than 10,000 acres in the vicinity of the Napa River and Sonoma Creek. To create the salt ponds, the company raised several of the existing levees, built cross levees, and created intake channels to flood much of the property. In 1978, the Minnesota-based Cargill Salt acquired Leslie Salt and took over the San Francisco Bay operations. In 1994, Cargill Salt sold or donated their San Pablo Bay holdings to the state of California (Hayes 1995, 5).

Within the context of salt production in the San Francisco Bay Area, the North Bay works in the Napa-Sonoma Marsh were a minor facility within a much larger network. As noted, the majority of salt production in the San Francisco took place in the South Bay in Alameda, Santa Clara, and San Mateo Counties. These South Bay works began as a series of small independent concerns that were gradually consolidated under Leslie Salt in the mid-1930s. Therefore the Sonoma Napa Marsh ponds, established in 1953, also represent well-financed, twentieth-century, corporate salt manufacturing rather than the earlier independent, pioneering salt industry.

METHODS

The effort to identify cultural resources in the proposed study corridor included a records search and a review of the archaeological, ethnographic, and historical literature; consultation with the Native American Heritage Commission (NAHC) and Native American representatives; examination of historic maps; historical research; and field surveys. Information gathered as a result of these activities permitted identification of cultural resources in the study area and shaped the field survey strategy. Each of these methods and their results are outlined below.

The APE for the marshland restoration area was delineated by the Corps archaeologist in October 2002 (Figure 1). The pipeline APE was identified in February 2003 (Figure 2). The pipeline portion of the APE is 30 feet wide and includes all access and staging areas.

Prefield Research

Records Search

A records search was conducted for the marsh restoration APE, including a ½-mile radius at the NWIC of the California Historical Resources Information System in April 2002. A records search for the pipeline APE was conducted by Jones & Stokes in February 2003, including a ½-mile study area on either side of the pipeline.. The state database of previous studies and previously recorded cultural resources sites was consulted. Additional sources consulted included the NRHP, the California Inventory of Historic Resources, California Historical Landmarks, and California Points of Historical Interest.

The records search for the marsh restoration APE indicated that no sites have been recorded in the APE and that no previous studies are on file with the NWIC. The records search identified both previously recorded sites and studies within the pipeline APE. Sonoma State University conducted several archaeological studies in 1975, 1981, 1984, 1985 for the construction of earlier pipelines that covered segments of the current pipeline alignment. Although the four studies identified the project area as sensitive, no archaeological sites were identified. Tom Origer & Associates conducted a cultural resources study for the Napa Carneros Pipeline project in 1994 and did not locate archaeological sites within the APE (Origer 1994).

The most recent survey conducted within the pipeline APE was for a fiber optic installation project (Jones & Stokes 2000). Jones & Stokes identified two historic railroad segments, a nineteenth-century ranch complex (Stanly Ranch), and a prehistoric shellmound site (CA-SON-223) near the current APE during the 2000 cultural resources inventory (Jones & Stokes 2000).

According to the maps on file at the NWIC, several prehistoric sites appear to be located in or immediately adjacent to the pipeline APE. Two prehistoric shellmound sites recorded by Nels Nelson in 1907 appear to be in or immediately adjacent to the pipeline APE.

[REDACTED]

[REDACTED] An unnumbered Nelson shellmound (C-164) was identified by Nels Nelson in 1907 who described the site as a campsite with “peculiar circular rises in the surface.” However, an isolated find (C-164) by Sonoma State University archaeologists in 1987 may indicate that the original location of the unnumbered shellmound was incorrectly plotted and that the isolated find (C-164) in an adjacent location verified the topographic features described by Nelson. NWIC staff considers C-164 to be the actual location of Nelson’s shellmound site. Both potential locations for the unnumbered shellmound appear to be within the pipeline APE. (Site forms for CA-NAP-230, CA-SON-224, and C-164 are provided in Appendix C.)

CA-SON-225 and CA-SON-226, two prehistoric shellmounds, were recorded by

Nelson in 1907 and are located [REDACTED].

Native American Consultation

The NAHC was contacted in April 2002 and asked to review its sacred lands file and provide a list of Native American representatives potentially interested in the project area. In May 2002, letters briefly describing the project, including a map of the project area, were sent to six Native American representatives. The letters requested that the representatives provide comments and express any concerns about the project. To date, no comments or concerns have been received. Follow-up telephone calls to the Native Americans were made in October 2002. A second round of letters was sent to Native American representatives on March 4, 2003, that briefly described the pipeline portion of the project, including a map of the project area and the results of the archaeological survey.

Historical Research

In an effort to identify important historic people, events, and architectural trends that may have been associated with the project area, a Jones & Stokes historian conducted archival research at the California State Library, Sacramento, the Sonoma State University library in Rohnert Park, the Sonoma Valley Historical Society, Depot Park Museum in Sonoma, and the Sonoma Ecology Center in Sonoma in an effort to identify important historic people and events. In addition, previous reports were consulted including the *Hamilton Wetland Restoration Plan and Final Environmental Impact Report/Environmental Impact Statement, Marin County, California* (Jones & Stokes 1998); the *Cultural Resources Inventory Report for Habitat Mitigation Planning Sites, San Francisco International Airport Proposed Runway Configuration Program* (Jones & Stokes 2000); and *Bel Marin Keys Environmental Impact Report* (Jones & Stokes 2002)

Field Survey

Marsh Restoration Area

On April 25, and October 15, 2002, Jones & Stokes conducted a survey of the marsh restoration APE. As part of the field process, buildings and structures in the project area were inspected and photographed and notes were taken. Access to the properties was accomplished by watercraft as much of the project area is submerged. During the site visit 24 historic resources (e.g., structures, ponds, levees, and water conveyance features) were observed that appear to be more than 50 years old.

The marshland portion of the project area is inaccessible for purposes of systematic archaeological survey. This area was inspected from watercraft and from the perspective of surrounding artificial levees. As most of the historic structures are located along the levees, these areas were examined in the field for evidence of historical archaeological remains.

Pipeline Study Area

Jones & Stokes archaeologists conducted an archaeological survey of the pipeline APE on February 26, 2003. Two archaeologists walked the proposed pipeline route in 5–10-meter-wide transects in the majority of the APE. In highly disturbed areas, one archaeologist conducted a cursory survey of the APE. Areas of high archaeological sensitivity, including areas adjacent to watercourses and in the vicinity of previously recorded sites, were intensively surveyed. Intensive survey included random shovel scrapes (approximately 50 cm by 50 cm) to expose native soil. The profile of all cut banks and drainages also was thoroughly examined for any evidence of archaeological remains.

FINDINGS

Archaeology

No archaeological remains were identified during the cultural resources inventory and no previously recorded sites were relocated. Every effort was made to relocate sites CA-SON-224, the unnumbered Nelson shellmound (C-164), and CA-NAP-230. No evidence of CA-SON-224 was identified on the surface of the project area, and the topographic features discussed by Nelson in 1907 are no longer visible on the landscape. The areas surrounding the location of CA-SON-224 has been highly disturbed by agricultural activities and more recent off road–vehicle use. Both possible locations of the unnumbered shellmound (C-164) were intensively surveyed for any sign of archaeological remains, however; none were visible on the surface. The observance of a prehistoric artifact by Sonoma State University archaeologists in 1987 provides evidence that a site may still be located in the vicinity of the shellmound recorded by Nelson in 1907, despite disturbances. Disturbances in the vicinity of the C-164 include the installation of a fiber optic line and a pipeline. Because Nelson never recorded the formal boundaries of the site, the actual level of disturbance to the predicted site area cannot be ascertained. [REDACTED]

[REDACTED] No sign of archaeological remains were identified in the APE.

Although three previously recorded archaeological sites appear to be located in the pipeline APE, the intensive archaeological survey conducted for this project did not

re-identify them. At least six other archaeological surveys of the project area were conducted between 1975 and 1994, and none identified any archaeological sites in the area. Because the APE in the vicinity of CA-SON-224 has been highly affected by agricultural activities, railroad construction, off road–vehicle use, and placement of both water and fiber optic lines throughout, it is highly unlikely that the site still exists. The vicinity of the unnumbered shellmound (C-164) also has been disturbed and previous archaeological surveys have failed to locate the site again. However, if one (or more) of the shellmound sites were encountered as a result of project activities, it would potentially be eligible for inclusion in the NRHP under Criterion D for its potential to yield important data on shellmounds in the North Bay area.

Built Environment

A total of 24 buildings, structures, and linear features more than 50 years old located within the APE have been identified and evaluated for historical significance. None of the resources evaluated appears to be historically or architecturally significant. A brief description and evaluation of NRHP and CRHR eligibility for each historic resource and linear feature are presented below. (See Appendix B: DPR Forms for a complete description of these resources).

Duck Blinds and Fishing Sheds

A total of three duck blinds and two fishing sheds are located in the project area. The structures are generally small (covering 40–80 feet) wood frame structures supported by post-and-pier or wood pilings. The blinds and sheds are typically clad with plywood, shingles, or corrugated metal, and roof forms are gabled, flat, or shed style. They include window and door openings and walkways with rails and often feature wood piers. One duck blind is a converted abandoned fishing boat that was permanently moored in the marsh. Most structures are somewhat deteriorated and are partially collapsed and/or missing siding. According to historic maps, the duck blinds and fishing sheds in the project area date from approximately the 1930s to the 1950s. The duck blinds and fishing sheds located in the project area lack integrity and therefore do not appear to meet the criteria for listing in the NRHP or the CRHR.

Farming and Ranch Building Remains

Farm and ranch building remnants are located at three sites in the project area. These remains comprise concrete foundations with heavily deteriorated wood structures. The remains were once part of a complex of buildings constructed in the mid-twentieth century for ranching and dairying purposes. The remains lack historical significance and therefore do not appear to meet the criteria for listing in the NRHP or the CRHR.

Wharf and Dock Remains

Wharf and dock remnants are located at two sites in the project area. The remnants originally accessed duck blinds and fishing sheds that no longer exist. The remains are in various stages of deterioration, are typically composed of vertical wood posts with plywood, and vary in length from approximately 2 to 14 feet. The remains lack historical significance and therefore do not appear to meet the criteria for listing in the NRHP or the CRHR.

Pump House

A pump house is located in the project area. The tower is a tall, gable-roofed building with wood siding. The building was constructed in the early 1950s and is still in use. The water tower lacks historical and architectural significance and therefore does not appear to meet the criteria for listing in the NRHP or the CRHR.

Levee and Slough System

The levee and slough system in the project area consists of several earthen levees, canals, and sloughs. According to historic maps, by 1915 most of the tidelands area was reclaimed for agricultural use. The levee and slough system lacks integrity, and for this reason, it does not appear to meet the criteria for listing in the NRHP or the CRHR.

Salt Ponds

Eleven large salt ponds are located throughout the project area. The salt ponds were created in the area in the mid-twentieth century and were used until the 1990s. The ponds lack historical significance, and for this reason, they do not appear to meet the criteria for listing in the NRHP or the CRHR.

Water Conveyance Structure

A water conveyance structure is located in the project area. The rectangular structure is composed of wood planks and is supported by a wood-frame foundation. A large discharge pipe extends from the structure. The water conveyance structure was constructed in the early 1950s. It lacks historical significance and therefore does not appear to meet the criteria for listing in the NRHP or the CRHR.

CONCLUSIONS AND RECOMMENDATIONS

Archaeological Resources

Marsh Restoration Area. No archaeological remains were identified or relocated within the APE as a result of this survey. Additionally, it does not appear that the project has the potential to affect any archaeological resources that may be located in the inaccessible, unsurveyed portions of the marshland.

Pipeline Study Area. No archaeological remains were identified or relocated within the APE as a result of this survey. While previous studies indicate that two or possibly three prehistoric sites (CA-SON-224, CA-NAP-230, and C-164) were identified in this area at one time, subsequent surveys (including the current study) failed to relocate any remaining surface evidence. Initial identification of these sites occurred more than 90 years ago (Nelson 1907) and without the benefit of accurate mapping methods. Topographic features referenced by Nelson to identify their locations have entirely disappeared as the area was developed for agricultural and industrial (salt mining) use. Additional disturbance throughout the pipeline area has occurred from road construction, off road-vehicle use, and underground utility installation.

While it is possible that the sites previously identified in the pipeline project area have been largely or entirely obliterated by development, it is also possible that portions of them remain buried and intact beneath the disturbed surface layers. Consequently, it appears that the pipeline project has the potential to adversely affect buried archaeological resources that may be eligible for inclusion in the NRHP (Criterion D).

It is recommended that a qualified archaeologist monitor all ground-disturbing project activities within the vicinity of the originally mapped locations of CA-SON-224, CA-NAP-230, and C-164 (Figure 4). If intact buried deposits are identified, construction in that area will cease and the Corps, in conjunction with the Conservancy, will develop and implement appropriate mitigation measures.

Additionally, project construction throughout the pipeline area has a moderate-to-high potential for encountering buried archaeological resources that were not identified by any previous studies or surveys.

If buried cultural resources such as chipped or ground stone, historic debris, building foundations, or non-human bone are inadvertently discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures.

If human remains are discovered or recognized during construction, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected

to overlie adjacent human remains until:

- the coroner of Napa or Sonoma County has been informed and has determined that no investigation of the cause of death is required; and
- if the remains are of Native American origin,
 - the descendants of the deceased Native Americans have made a recommendation to the land owner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or
 - the California Native American Heritage Commission (NAHC) was unable to identify a descendent or the descendent failed to make a recommendation within 24 hours after being notified by the commission.

According to the California Health and Safety Code, six or more human burials at one location constitute a cemetery (Section 8100), and disturbance of Native American cemeteries is a felony (Section 7052). Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC, and the project sponsors must comply with state and federal laws relating to the disposition of Native American burials.

Built Environment

None of the resources documented in this report appears to meet the criteria for listing in the NRHP or the CRHR. Based on the current project description, the proposed project would not result in adverse effects or significant impacts on the any of the historic resources located in the project area; therefore, no further investigation or treatment of these resources is recommended.

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